The Price of Spice: Archaeological Investigations of Colonial Era Nutmeg Plantations on the Banda Islands, Maluku Province, Indonesia

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Abstract

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The Banda Islands were the world's sole source of nutmeg in the 16th century. Control over the spice trade was a major goal for European powers during the Age of Expansion. Consequently, the Banda Islands were a location of early disputes and colonial experimentation. After eradicating most of the indigenous population, the Dutch East India Company established a plantation system in 1621 on the islands. The Banda Island plantation system was an early experiment in mercantile colonialism with imported enslaved workers, company-provided subsistence rations, and a VOC monopoly on the spice trade inhibiting the accumulation of capital. Peoples from a variety of European, Asian, and African backgrounds were forced to co-exist on these remote islands and create a functional society. The plantation system fundamentally altered the lifeways of all inhabitants of the Banda Islands, many of whom were non-indigenous, but there is little evidence regarding how the alterations and adaptations occurred or why. In the research outlined here, I argue that these alterations and adaptations can be investigated through the analysis of food remains, which can be accessed through both historical records and archaeological materials. Previous research on the role of food in plantation societies have focused on three main models: Energetic efficiency from optimal foraging theory, power/ resistance, and creolization. I test hypotheses created using these models based on the material culture associated with foodways that is expected to be found in colonial Banda contexts. Given a set of faunal resources, imported starches, and imported and domestic ceramics, different patterns of distribution are predicted by each model.

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CHAPTER 1
INTRODUCTION

In 1667, the Dutch government ceded the island of Manhattan to the English crown in exchange for a tiny, remote island called Run located in what is now Indonesia (Milton 2000). This event is, at best, a footnote to history. But it demonstrates the early interconnectedness of the remote Banda Islands and a broader world history. The reason for the Banda Islands' importance in world history is its production of a prized commodity: spice, specifically nutmeg. The Banda Islands were the world's sole source of nutmeg in the 16th century (Keay 2006). Control over the spice trade was a major goal for European powers during the Age of Expansion. Consequently, the Banda Islands were a location of early disputes and colonial experimentation.

The European desire for cheaper spices was a major contributing factor to the European settlement of what is now the United States of America. As an American, I've been learning about the history of the United States since my earliest grade school years. I was fascinated by the idea of Europeans giving up everything they knew to travel across dangerous seas to settle in this terra incognita. I was similarly horrified by how these European migrants treated the indigenous inhabitants of the New World and the enslaved workers they imported from Africa. An early childhood interest in historical fiction certainly helped fuel my interest in the discipline of archaeology. But, as an American who was steeped in a colonial history in a multi-cultural society, I have long been interested in how disparate people in a conqueror/ conquered relationship adapt to each other and create a functioning society. As a resident of a colonial-based society, the differences in indigenous and migrant experiences has also been of interest to me. As someone who does not have a storied pedigree, I have found the stories of "Great Men" and their associates to be of less interest than the stories of the average person and their daily lives. From early on in my archaeological career, I have, whenever possible, gravitated to researching the so-called "people without history" (Wolf 1997) in situations of culture change due to culture contact.

This dissertation is an outgrowth of my interest of exploring culture contact and culture change specifically in situations of colonialism, and the archaeology of under-represented people. For a variety of reasons, I ended up working somewhat backwards in the development of my project. Instead of starting with research questions, I started with a research place and time period- the Banda Islands in the colonial period- and worked from there to develop research questions.

I had wanted to investigate how different groups of people interacted in a situation of culture change due to culture contact which meant that I had to identify these different groups of people and the culture change. Without getting bogged down in a discussion of different definitions of ethnicity, I decided to follow Barth (1969) and attempt to identify differences in material culture as a proxy for identifying the

different groups of people. Foodways, defined as the "production and procurement, processing, cooking, presentation, and eating" (or consumption) of food (Atalay and Hastorf 2006: 283), are often associated with ethnic groups (e.g., Jolley 1983, Mintz 1996, Voss 2008). Therefore, I decided to use foodways as a proxy for cultural traditions and the groups that practiced them.

Research Questions

Based on the use of foodways and cultural traditions, my main research question can be succinctly summarized as "Were people at colonial period nutmeg plantations using food to signal social identity plantations?" There were many assumptions that were built into this question, but the two major assumptions were that people were using foodways to signal social identity and that I would be able to identify this behavior using archaeological data. I also anticipated that I would be able to discern changes in the material culture as inhabitants reacted to major social changes such as transfer of political control of the islands to various European powers, the abolition of slavery and importation of wage workers, or adaption to natural disasters including tsunamis, volcanic eruptions, and earthquakes. The determination of how people were using food to signal social identity would be based on how well the archaeological data recovered fit the predictions based on each model.

There are many different actions and activities that encompass "foodways" and not all are recoverable in the archaeological record. From Lape's (2000b) previous work, I knew that earthenware ceramics and tradeware were plentiful in the archaeological record of the Banda Islands. Bone (some dating to the Neolithic) had been recovered by Lape (2000b) so I anticipated recovery of this organic material. In addition to the faunal remains, I also wanted to incorporate some form of botanical analysis into the foodways analysis as plant foods can provide a significant source of calories (Lee and Devore 1968:4) and are also often culturally favored by certain groups (Toussaint-Samat 2009). Logistical issues regarding importing foreign material and permission for destructive analysis, time for analysis, and cost of analysis all impacted my decision making process for the choice of botanical analysis. I chose to conduct a starch grain analysis on ceramics because it would not require destruction of artifacts, the extraction process is relatively cheap and easy, the analysis didn't require specialized equipment beyond what was already available to me at the University of Washington, it could be conducted on earthenware which I had already planned on collecting, and the preference for certain starchy staples is often culturally specific. As an added bonus, a small starch grain study had been previously conducted on earthenware from the Banda Islands which demonstrated that starch grains were present and recoverable on earthenware (Field 2008). Thus, I decided to use a combination of ceramics, faunal remains, and starch grain analysis to identify the foodways of the Banda Islands plantations. The ceramics would also be useful as chronological markers and potential evidence of trading partners, in addition to their use as cooking and storage pots as part of the foodways.

Once I had the time, place, and artifact classes selected, I then needed something to do with these ingredients. There were a myriad different social or economic institutions that have been used to

investigate culture change archaeologically; for instance frontier interaction (e.g., Ewen 1986, Green and Perlman 1985, Scott 2007, Wells 2005), missions (e.g., Lightfoot 2005, Voss 2008), trade routes and their associated goods (e.g., Bauer and Agbe-Davis 2010, Hauser 2011), and plantations (e.g., Orser 1988, Otto 1984, Singleton 1985). The Banda Islands plantation system was established in 1621 and is broadly contemporaneous with the establishment of plantation systems in the southeastern United States and the Caribbean, which has a copious body of archaeological literature. This literature could help me identify the culture contact and culture change aspect of my research by providing models to identify different ethnic groups and interpret culture change in the archaeological record. I wanted to use the data to test multiple models so as to avoid "the pressing of the theory to make it fit the facts, and a pressing of the facts to make them fit the theory" (Chamberlin 1965:755). In reviewing the literature on the history of the Banda Islands, there seemed to be a discrepancy between authors regarding whether the colonizing population of the Dutch mixed with the indigenous and imported/ migrant worker populations (both biologically and culturally) (e.g., Hanna 1978, Reid 1983a, Winn 2010). I decided to use models based on cultural mixing (Creolization) and cultural separation (Power/ Resistance) in addition to the "null hypothesis" of Energetic Efficiency (See Chapter 2 for more details). Using these models, I developed predictions for expected artifact distribution within the plantation sites.

Chapter Summary

This dissertation is organized with the background information presented first, followed by fieldwork and artifact analysis, and finishing with the discussion and conclusions. Chapter 2 presents the theoretical background of this study, including discussions of the evolution historical archaeology, plantation archaeology and the archaeology of ethnogenesis and the applicability to this study; the use of food ways as a social proxy, and a discussion of the models used and their predicted archaeological correlates. Chapter 3 presents the Banda Islands in their regional archaeological and historical context. Chapter 4 discusses the field work methodology and preliminary results. Chapter 5 discusses the results of the earthenware ceramics analysis. Chapter 6 is the tradeware analysis, followed by the faunal analysis in Chapter 7 and the starch grain analysis in Chapter 8. Chapter 9, the final chapter, presents the discussions and conclusions.

Chapter 2
THEORETICAL BACKGROUND

Introduction

The modern world is, in part, a product of European expansion and the sudden, often forced, contact between disparate people. A better understanding of the different ways individuals and groups adapted to their changed geography and circumstances is important for comprehending both past and current events. Due to its focus on material culture, archaeology has the potential to contribute to our understanding of how "people without history" (Wolf 1997) negotiated imposed culture contact and disparate power relations in colonial contexts (Deetz 1997). Historic records and documents are often colored by social prejudices and implicit or explicit biases; the material culture that archaeologists study is independent of the biases that exist in the historical record. That is, while the interpretation of material culture (and the historical record) is biased by the researcher's cultural milieu (e.g., Hodder 1991), the objects themselves are not dependent on the historic records (or the researcher) for their existence (Wylie 2002).

Archaeology has been defined as the study of the human past by means of the material remains left behind (Renfrew and Bahn 2012). Orser (2005:xvi) notes that historical archaeology can be defined in two ways, either "the archaeological investigation of any past culture that has developed a literate tradition; or…the study of the modern world, the historical and cultural traditions that have shaped our world since about AD 1500." Orser (2005:xvi) further notes that the second definition is favored by "archaeologists who live and work in those parts of the world that were colonized by Europeans [and]…are generally trained in anthropology." As an archaeologist who lives and works in those parts of the world that were colonized by Europeans and who was trained in anthropology, I tend to favor the second definition of historical archaeology in contrast to the first. One of the more popular definitions of historical archaeology, at least in North America, is that of Deetz (1991:1): "the archaeology of the spread of European societies worldwide and their subsequent development and impact on native peoples in all parts of the world" (Deetz 1991:1). The post-1500 spread of Europeans in a colonial expansion is not the only instance of a colonizing spread of people nor is there anything extraordinary about the trajectory of European expansion post-1500, compared to other colonizing efforts. It is, however, part of the story of the creation of our current modern world and this connection makes it a worthwhile investigation for many people, both academic and lay.

The expansion of European societies around AD 1500 joined all parts of the globe for the first time into an interconnected economic sphere. Due to the global connections, Deetz (1991:2) notes that "It

is proper, then, that we look at everything we do in a comparative, international perspective." Unfortunately, historical archaeology, as practiced in the United States, has been rather Anglo-Americentric in its focus (but see Croucher 2007, Delle 1998, Flexner 2014, Fournier-Garcia and Miranda-Flores 1992, Funari 1999, Gosden 2004, Harrison 2010, Lyndon and Ash 2010, Orser 1996, Parker-Pearson et al. 1999, Shire 2014, Thomas 2002 for alternatives), largely due to post-1970s US laws protecting cultural heritage (Honerkamp 2009). Historical archaeology studies outside the Western Hemisphere are growing in popularity, but few archaeological studies of colonialism in Asia have yet been conducted, despite repeated calls from historical archaeologists to expand their research areas to encompass truly global networks (Deagan 1996, Deetz 1991). This study aims to provide a locus of comparison for historical archaeology in Southeast Asia.

For a variety of historically contingent reasons, the path of European colonialism in Asia is radically different from that in Western Hemisphere and Africa. European colonists and their descendants eventually dominated North and South America both politically and numerically. For example, in what was to become the Spanish Empire in the Western Hemisphere, large swaths of land in established empires were conquered; those societies radically changed due to this conquest. In North America, there were no extant empires to conquer and replace. Instead, the incorporation into the French and English trading networks, in addition to a severe loss in population due to imported diseases, radically changed cultures. Due to the sparse population in the Western Hemisphere after conquest, enslaved peoples were imported from Africa to provide labor in a variety of industries, including agricultural plantations. European and African populations soon outnumbered Native American populations (in territory under European control) and Native American populations were forced to adapt or perish, culturally. In contrast, during the initial phase of exploration and expansion in the 16th century in Asia, Europeans were generally unable to establish direct political control over regions in Asia and the Europeans were forced to adapt to local conditions and traditions. When Europeans did establish direct political control over regions in Asia, it was often quite late (i.e., 18th or 19th century) and Europeans were most successful when they inserted themselves at the top of a functioning system instead of attempting to alter or replace the system that existed.

It is difficult to compare the early 16th century situations in the Western Hemisphere and Asia as they are not directly analogous; the Asian empires largely stood strong against European conquest and Asian populations always outnumbered Europeans, unlike in the Western Hemisphere. Europeans had difficulty maintaining populations in Asia due to their susceptibility to tropical Asian pathogens, which is the opposite situation in the Western Hemisphere where indigenous populations were susceptible to European pathogens (McNeil 1976). Most Asian populations retained the use of their languages, unlike the situation in North and South America where language loss was profound. However, the Banda Islands are an excellent case study to compare the effects of European colonization on Asian populations. Direct political control was established in the Banda Islands by means of the eradication of the majority of the indigenous Bandanese population and establishment of cash-crop plantations in 1621.

The history of conquest, population decimation, importing enslaved workers, and the establishment of cash-crop plantations in the Banda Islands and parts of the Western hemisphere does make them directly comparable. These islands, then, are unique in the colonial history of South East Asia and can be a useful comparison to the colonial situation in the Western Hemisphere.

As noted in Chapter 1, the main goal of this study is to determine how or if people were using food signal social identity on colonial period nutmeg plantation on the Banda Islands using models developed in US-based historical archaeology. The main goal assumes that the models developed in US contexts can be used on other contexts, so a secondary goal is to test if these models can be used to explain archaeological material at plantations outside the New World; that is, if these models are broadly applicable to all plantation locations or limited in their explanatory usefulness. Below, I review the development of historical archaeology as a discipline and discuss the theoretical underpinnings that inform this study.

Historical Archaeology

Historical archaeology has been variously defined by different people. It can be considered the archaeology of any culture that has writing; in this case, the archaeology of Ancient Egypt, Greece, Rome or Mesopotamia can be considered historical archaeology (Funari et al. 1999). This is not currently the operating definition in the United States, however. I use Deetz's (1991:1) and Orser's (2005:xvi) definitions, above, to focus on the post-1500 modern era. Others (e.g., Leone 1984, Little 2007) also emphasize the capitalist and consumer nature of the post-1500 era that is related to the spread of European culture, ideas, and ideals. The attribution of historical archaeology to civilizations that have writing, or to the spread of Europeans, or the focus on a capitalist mode of production presumes that there is something inherently different about these events in human history that creates a categorical difference to previous cultural situations; this assumption is inherently problematic, according to Funari et al. (1999). Despite fear of being accused of Eurocentrism, I chose the Deetz and Orser definitions primarily because I find it most salient for my interests and for the archaeological traditions in which I was raised academically-speaking, and secondarily because I find the exploration of the post-1500 spread of Europeans and their impact on native peoples to be an interesting research activity. While the post-1500 European expansion is not the only situation of colonialism in world history and while capitalism has deep roots that pre-date 1500, the fact of the matter is that our modern world has its roots in these events (in addition to other events) and a better understanding of the variety of indigenous cultural reactions to European expansion and the imposition of a capitalist mode of production in various areas is a useful delineation. Using the term "historical archaeology" to identify the archaeology of this period in human history merely allows effective communication and is in no way meant to imply that this period is categorically different than previous or subsequent eras.

The historical archaeology as defined by Deetz saw its birth in the mid-20th century desire in the United States to preserve its cultural heritage, usually the heritage associated with big events and big

men in its history, and to preserve unique or important examples of architecture (King 2004). Academic archaeology as practiced in the United States at that time generally focused on the pre-contact period Native Americans (Trigger 1989). With the development of federal laws requiring the identification (if not protection) of culturally significant structures and places, it soon became clear that the above ground structure and below ground archaeological data could be equally informative (Honerkamp 2009). In addition, there were many social movements in the post- WWII era demanding equal rights for various populations in the United States suffering from discrimination. In the case of African-Americans descended from enslaved populations, this led to an interest in seeing their history presented in many of the public places associated with great men and great events in the American past, such as Thomas Jefferson's Monticello, as the story of enslaved people could not be separated from the story of the plantations (e.g., Agbe-Davis 2007, Ferguson 1982, Honerkamp 2009, Singleton 1995).

Beyond the East Coast fascination with the early English Colonial period and the burgeoning Thirteen Colonies, historical archaeology further west focused on the rather different trajectory of colonization and development of the American West. Historical archaeological investigations of homesteads, mining towns and mining claims, military or trading forts, rancherias and missions in ex-Spanish territory, in addition to contact period Native American settlements (e.g., Fosha and Leatherman 2008, Lightfoot 2005, Meyer et al. 2005, Spude 2005, Stewart-Abernathy and Ruff 1989, Voss 2008) provided fascinating accounts of wide swaths of American history and demonstrated a more inclusive history than the Anglo-American focus in the original Thirteen Colonies.

The United States does not exist in a vacuum, nor did it historically. European colonizers integrated the Western Hemisphere into a global trade network. This trade network meant that European, Asian, and African goods were being imported into the colonies as soon as they were established. It was impossible, then, to truly understand the material culture found in American sites without understanding where it was coming from and why. As soon as historical archaeologists in the US moved beyond the classificatory-historical period (Willey and Sabloff 1980) of the discipline, where the focus was on identifying what was being found, and into attempting to explain what it meant in terms of human behavior, it became clear that contemporaneous sites in other parts of the world should also be investigated. Deetz and his colleagues, for instance, looked at sites in South Africa (Schrire et al. 1990). Investigating archaeological sites outside the United States provided a comparison to cultural adaptations to colonization. A historical archaeology of European colonialism and its impact on indigenous populations is now being practiced in Australia (e.g., Allison 2003, Harrison 2010, Lister and Wallis 2011, Lydon and Ash 2010), Africa (e.g., Schire 2014, Croucher 2007, Parker Pearson et al. 1999), and many Caribbean nations (e.g., Armstrong 2009, Delle 1998, Lange and Carlson 2009), in addition to the United States.

There are many sub-sub-disciplines in historical archaeology, but the two I will focus on are plantation archaeology, specifically the archaeology of enslaved peoples living on plantations, and the archaeology of ethnogenesis, or the process of culture change in colonial contexts. The focus is largely

for comparative purposes. As Reid (1983b) noted the similarity between the Bandanese slave system based on an agricultural cash-crop and the system used in the Western Hemisphere on plantations, it seemed most useful to focus on the plantation system. Plantations, discussed below, are somewhat unnatural systems, both agriculturally and culturally. The wealth of literature on plantation systems in multiple disciplines including archaeology, history, and anthropology, made it a useful line of inquiry. Furthermore, because the situation of conquest, eradication, and replacement was unusual in Asia but common in the Western Hemisphere, it seemed fruitful to explore the avenue of colonialism and culture change from an ethnogenetic perspective for comparative purposes.

Plantations and Colonialism

Plantations are useful subjects of study in studies of colonialism and culture change because they "were virtual laboratories for technical and social experimentation. They were also microcosms of the colonial…effort… in which racial, class, ethnic, and gender hierarchies were manipulated, contested, and transformed" (Stoler 1985:2). In addition, "A plantation system embraces all the connecting and supporting institutions associated with plantation settlement" (Singleton 1985:2). As a microcosm of society embracing all institutions, plantations can be representative samples of the broader society as a whole. So, then, what exactly is a plantation? Like historical archaeology, there are many definitions of "plantation." Craton (1984:190) describes the plantation as

> a system of large-scale agriculture for export, generally involving the production of tropical crops in a colonial situation. Plantations tend toward monoculture, with produce exported in a raw or, at most, semi-processed condition. Plantations require large areas of suitable available land, fertile and well-watered, but with either a low-density original population or an indigenous people easily converted into a resident work-force. For plantations are labor- intensive…and they require a large, locationally rooted and constrained, if not actually servile, work-force. In the absence of an adequate indigenous population, plantations require the means to import suitable labourers who, if available easily and cheaply enough, and sufficiently constrained, will be worked virtually to death, with little or no concern with self-propagation.

The plantation is different from other agricultural endeavors based on its large size, cash-crop monoculture, and dependence on enslaved or indentured workers. Plantations are generally associated with European colonialism in the New World, but they, in fact, started in the Mediterranean, spread to Iberian colonies in the Atlantic, and thence to the American continents (Craton 1984). Large, private estates staffed by enslaved workers were common in the Roman Empire, but these were not true plantations due to their mixed economies, their location within the heart of the Empire as opposed to overseas colonies, and were not growing non-essential crops for export but mundane crops (e.g., wheat, olives, grapes) for quotidian consumption (Craton 1984:192-193). Instead of crops association with the production of one's daily bread, the development of the plantation mode of production is intimately tied to the production of sugar (Craton 1984, Mintz 1985).

Sugar cane is a high maintenance crop needing large plots of arable land, water, and labor to produce and process it. Sugar production was introduced into the Mediterranean and the Iberian

Peninsula during the Islamic expansion of the late 1st millennium AD; sugar production in the Mediterranean Basin exploited enslaved labor from the very beginning (Mintz 1985:23-32). During the period of the Crusades, when territory was switching from Muslim to Christian control (and back again), Europeans learned the production techniques of sugar. As a luxury good, sugar was profitable; its production traveled with the Europeans in their early forays expanding their territory beyond the bounds of Europe. The early Portuguese and Spanish Atlantic colonies off the coast of Africa were well suited to growing sugar and had easy access to cheap labor pools (Mintz 1985). Enslaved labor was needed for the production of sugar to increase profits:

> it was the catastrophic depopulation caused by the Black Death 1347-1355)- which on the European mainland and in England gave so much relative power to surviving feudal serfs that they advanced toward peasant status- that accelerated the process of plantation building. The death of between a third and a half of native populations provided ample chances for planters to consolidate landholdings, while at the same time creating an incentive to increase the trade in slaves- a process of capitalist intensification [Craton 1984:202].

The sugar plantation model (and its enslaved African workers) was imported wholesale by the Spanish and Portuguese into their American territories soon after discovery.

Sugar spurred the creation of a plantation system, but other cash crops such as tobacco, indigo, coffee, tea, rubber, and cotton were also commonly grown in this system in the Western Hemisphere, and later in parts of Asia and Africa (Stoler 1983, Cooper 1977, Mintz 1985). Generally, the crop of the plantation is a luxury, at least at first, with promise of great profit This promise of profit, and the early capitalist system in which it evolved, often lead to exploitation of workers not seen in the crops with lower profit margins and mundane consumption patterns such as wheat or corn. This focus on cash crops and increasing profit has shaped much of modern world history due to the adoption of a capitalist economy throughout most of the world. As Wolf (1997:x) notes, “The history of European expansion interdigitates with the history of peoples it encompassed, and their histories in turn articulate with the history of Europe. Since much of this history is a history of capitalism, the term “Europe” can also be read as shorthand for the growth of that mode of production.” The Banda Islands interdigitates with the history of capitalism because their history is intertwined with that of the Dutch East India Company (*Vereenigde Oost-Indische Compagnie* or VOC).The capitalist nature of the VOC is emphasized because it was the first company to issue stock (Masselman 1963:146).

The plantations in the Western Hemisphere supported an early, mercantilist form of capitalism. Colonies on the periphery provided raw material or goods to the core where the goods were sold at profit and that capital was reinvested in the economy of the core, not back in the colony. It was an exploitative system that favored the already-rich in the core at the expense of the residents of the periphery, which often led to social disquiet and revolt in the periphery. Because historical archaeology focuses on the spread of Europeans after AD 1500 and this coincides with the spread of capitalism throughout the world, historical archaeologists often borrow theories critical of capitalism from other disciplines in which this theory has been evolving for over 150 years.

Like the discipline of archaeology in general, historical archaeological theory has been leaning more toward the humanities and textual analysis (hermeneutics *à la* Hodder 1991) and away from a purely positivist interpretation of data since the 1990s (Honerkamp 2009). Because historic documents are available in many cases that can demonstrate the social meaning of artifacts (at least for certain economic classes of people), this allows for an interpretation of the social meaning of material culture not always possible in so-called prehistoric archaeology. Accessing the social meaning of artifacts or material culture is not always possible in historic archaeology, of course, as historical texts and primary documents rarely provide the specific information required by modern researchers due to changing fashions regarding what is interesting or informative. However, archaeology can provide an independent check on biased historical documents; Fairbanks (1984), South (1977) and Deetz (1977) "saw archaeology as a necessary corrective for responding to egregious historical errors, biases, and omissions- not to mention outright lies- in the documentary record" (Honerkamp 2009:2).

One of the post-colonial critiques of Western History (and other disciplines) is its focus on a single, dominant narrative; colonial situations were multi-cultural; any study of colonial situations should acknowledge the multi-vocal, multi-positional nature of the colonial world (Spivak 1999). Many historical archaeologists try to uncover the lived life stories of the people in colonial society that often go unnoticed in the dominant narrative of history, including the stories of women, children, servants and enslaved people, or ethnic minorities (e.g., Battle-Baptiste 2011, Diehl et al. 1998, Greenfield 2000, Hamilton et al. 2007, Meyer et al. 2005, Reitz 1994, Scott 1994, Spude 2005). One major class of people that are often investigated in historical archaeology is the enslaved workers on plantations (e.g., Singleton 1985, Honerkamp 2009). Archaeology's focus on material culture as opposed to historical documents means that it can provide a more nuanced interpretation of the lived lives of enslaved workers than that presented in the historical narrative written by the slave-owning class or their cultural descendants. As Singleton (1996:142) notes, "archaeology recovers a primary source of information that may provide numerous reinterpretations of certain aspects of slave life….From the studies of excavated remains come suggestions for understanding the context of everyday plantation life, the African-American response to enslavement, and processes of exchange between masters and slaves."

In this dissertations, I focus on the analysis and interpretation of material culture not the historic documents for a variety of reasons. Primarily, I was trained the analysis of artifacts, not historic documents. Excavating archives and interpreting documents are skills that do require training and I am but a novice. While I use some primary documents for information on plantations in the Banda Islands, I rely heavily on secondary sources

Plantation Archaeology and the Archaeology of Enslaved Peoples

Plantation archaeology is simply the archaeological investigation of plantation sites (Singleton 1985:1). However, not all plantation archaeologists have the same research methods or goals. This can easily be attributed to the fact that plantations are heterogeneous; they occur in many places, at different times, and for different reasons. In an attempt to bring together the disparate studies, Singleton (1985:3)

described the research goal of plantation archaeology as “to understand behavioral patterns within and between the three different groups of plantation residents (owners, managers, and laborers) that are derived from artifacts, food remains, and human skeletal remains.” This research can take the form of an archaeological excavation, landscape survey, historical document review, oral history, among other research techniques, or a combination of many of the aforementioned techniques. Plantation archaeology has been primarily conducted in the Southeastern United States (Honerkamp 2009), but also the Caribbean, and Latin America (e.g., Armstrong 2009, Delle 1998, Fournier-Garcia and Miranda-Flores 1992, Lange and Carlson 2009). While cash-crop plantations using wage laborers exist (and still exist) in parts of Africa and Asia, they have not yet been subject to the same kinds of archaeological investigations as seen in the Western Hemisphere.

Plantation archaeology and the archaeology of enslaved peoples in North America has investigated the use of landscape as a form of control (Hauser 2015, Singleton 2015), resistance to the dominant hegemony (Garman 1998), retention of African cultural traits (Meyers 1991), socioeconomic status (Scott 2001, Drucker 1981), and bioarchaeological markers of lived life on the plantations (Harrod and Martin 2015). The wealth of information on the life of enslaved peoples in plantation contexts provides useful information for comparative purposes. Foodways have long been of interest to historical archaeologists investigating plantation life; as Honerkamp (2009:4) notes, “housing (including landscape studies) and foodways remain the most commonly studied areas. The initial interest in plantation foodways has likewise remained strong…The notion that food is a social construct (McKee 1999) has directed the analysis of slave diets toward additional questions relating to identity, dominance, and resistance as expressed through foodways (Scott 2001).”

As noted above, one of the major goals of plantation archaeology is to investigate the lived lives of enslaved peoples who lived and labored on the plantation. In the historical archaeology practiced in the Western Hemisphere, “enslaved peoples” generally refers to those individuals forcibly transported from Africa and their descendants. In a global perspective, Africa was not the only continent providing unfree workers. “Slavery” is a somewhat difficult concept to parse. The modern conception of slavery in the United States is based upon the institution on slavery that existed on large plantations, usually cotton, in the Southeastern United States. The popular culture presentations of slavery seen in “Gone with the Wind” and the like (Jackson 2011) do not represent the full gamut of slavery that existed in the antebellum United States or in the Western Hemisphere, in general. Because a review of the social construction of slavery throughout human society is too big a subject to detail here, a brief comparison of European and Southeast Asian conceptions of slavery will be presented below. These are the two general populations that form the base of Bandanese society in the colonial period, so their conceptions of slavery are most relevant.

Slavery has a long history in Western society and the social concept of slavery has changed over the millennia. As Wolf (1997:195) notes,

> Trade in people was not a new phenomenon, nor was it confined to the Americas. The European peninsula had long supplied slaves, first to Byzantium and later to the Islamic world; in the Mediterranean, in Cyprus and Sicily, slave labor was employed to grow sugar cane and to work in the mines as early as the twelfth century. At that time, slavery was clearly color blind. The Europeans also made use of slaves in Asia. In the seventeenth century the Dutch, for instance, drew slaves from as far away as Madagascar and Mindanao to work in the settlements of the Cape of Good Hope in Africa and in the nutmeg groves of the Banda Islands….As the slave trade unfolded during the fifteenth century, however, slaves were increasingly drawn from Africa, and as time wore on they were destined in ever larger numbers for transportation to the Americas.

Because of historical contingencies, residents of the American continents generally conceptualize slaves as being dark-skinned people of African descent. However, the etymology of the word "slave" shares the same root as "Slav," a population of people in Eastern Europe, not Africa. The Roman Empire was built on the labor of enslaved, usually conquered, peoples. But these slaves could earn their freedom, marry into their owner's family, and there was little stigma attached to being an ex-slave (Westermann 1955). Many cultures in Europe engaged in slave raiding, slave trading, and the use of enslaved labor (Turner 2000). There was no racial component to the slavery of pre-modern Europe. People of African descent in Roman territories had the same rights as any other Roman citizen, including the ability to serve as emperor as Septimius Severus did, and northern Europeans could be captured and enslaved as easily as any other population (e.g., St. Patrick's kidnapping and forced servitude in Ireland). Attitudes toward slavery changed somewhat in Europe after the widespread adoption of Christianity, as Christians were not supposed to own other Christians as slaves and there were few options left after the widespread conversion (Craton 1984). The idea of slavery never disappeared in Europe, it just wasn't practiced on as wide-spread basis as it had been in the Roman Empire and or other European territories.

The slavery that existed in the Western Hemisphere was a product of its own historical trajectory and had regional variants (Wood 1997). The inhabitants of the Iberian Peninsula were more familiar with plantation economy, specifically sugar, due to the Moorish influence in their societies and they quickly established an economy based on enslaved workers using both imported African and indigenous populations (Craton 1984). However, the slavery of the antebellum United States and the Caribbean Islands is generally what forms the basis of the conception of slavery in US culture (Wood 1997) and in historical archaeology. This slavery is an English form of slavery, initially based on indentured servitude with a promise of absolute freedom and incorporation into society after serving one's term and without the accompanying notion of chattel slavery (Wood 1997). However, because of racist beliefs in the superiority of the English over other cultural groups and specifically over the dark-skinned African, chattel slavery quickly became the norm and indentured servitude became less economically profitable (Wood 1997). The prevalence of slavery was not uniform throughout the original Thirteen Colonies or later territories and states of the United States. But, in general, the vast majority of people did not own slaves and those that did rarely owned many (Wood 1997). The majority of enslaved workers were engaged in unskilled agricultural labor although there were also skilled tradesmen and artisans (Wood 1997). Unlike the slavery practiced in other parts of the world, slavery in the New World after European conquest was

racial, based on a concept of chattel ownership, and did not allow for complete acceptance into society after a period of servitude.

Slavery in Southeast Asia was also a completely different concept as that presented in US popular understanding. The system of slavery in Southeast Asia as an "open" system (per Watson's [1980] distinction) or one "which is acquiring labor through the capture or purchase of slaves, and gradually assimilated them into the dominant group" (Reid 1983b:156). Rome, as mentioned above, would have been considered to have an "open" system of slavery. The "closed" system, in contrast, was one "oriented primarily towards retaining the labour of slaves by reinforcing their distinctiveness from the dominant population" (Reid 1983b:156). The antebellum United States would be considered a "closed" system. Due to the low population in much of Island Southeast Asia and lack of financial institutions, neither control of land nor control of capital was a useful power base for Southeast Asian rulers (Junker 1999). Instead, "control of men was both the key and the index of power. The lack of legal and financial institutions made a powerful patron the most useful security for the poor, and bondsmen the most valuable asset for the rich…[as] bondsmen were the measure of wealth and power" (Reid 1983b:157). Slave status in Southeast Asia could be inherited, could be imposed due to capture in war or due to a legal transgression, or a person could voluntarily enter into servitude (or he could sell his children into servitude) due to an inability to pay off debts (Reid 2000). Somewhat ironically, Wolf (1997:207) describes three similar mechanisms for a free man to transition to enslavement in Africa, too: debt-bondage, warfare, and separation from lineage due to legal transgression. The system of slavery in pre-colonial Africa, according to Wolf (1997:207) also appears to be an open system: "once in the possession of his owner's lineage, a pawn or slave could become a functioning member of the domestic group, even if denied linage with the owner's lineage. Pawnship and slavery could thus have relatively benign consequences, without any of the attributes of chattel slavery, which became characteristic of the Western Hemisphere."

Similar to what the Europeans experienced when Christianity became the dominant religion, the system of enslavement in Southeast Asia was somewhat troubled when Islam became the dominant religion as both religions forbade the enslavement of a co-religionist. However, debt-bondsmen- at least according to Islam, if not local custom- were not considered to be slaves are were not required to be freed, providing a convenient loophole (Reid 183b:169). In order to maintain the status associated with owning slaves or acquiring debt-bondsman, in the 17th century new slaves had to come from primarily non-Muslim areas of Southeast Asia and there were areas that were happy to comply (e.g., Warren 2003). When Europeans became the dominant slave buying class in the region, the formally open slave system began to close as the Europeans brought with them a racial prejudice that local patrons did not have. Additionally, much of the indigenous wealth of precolonial times was being diverted to Europeans, *orang kaya* (lit. "rich man") could no longer afford their retinue of bondsmen; many who could diverted the labor to profitable agricultural holdings and debt bondage was replaced by the expectation of corvée labor (Reid 1983b:177).

Colonialization, with its imposed new ruling class and the importation of labor causes social upheaval. The colonizers, imported laborers, and indigenous populations need to adapt to new people, new ideas, and new social structures, among others. These adaptations can take various forms, discussed below.

Ethnogenesis

The process of culture change in colonial contexts, or other contexts with unequal power dynamics, has been referred to as "ethnogenesis." Voss (2005:465) describes ethnogenesis as "the creation of a new ethnicity forged through the experiences of colonialization and culture contact." There are many operating definitions of ethnogenesis in the literature, however (e.g. Hill 1996, Weik 2014) but they tend to focus on situations of culture change in colonial contexts. The investigation of culture change has been a subject of archaeological investigation since the inception of the discipline (Trigger 1989). Ethnogenesis is a relatively new topic in Americanist archaeology, although it was a popular subject for Soviet archaeologists (Weik 2014). The focus on culture change due to colonization puts ethnogenesis into the realm of this author's definition of historical archaeology with its focus on European colonization, but ethnogenesis has also been applied to pre-1500 cultures and populations not subject to European colonization (e.g., Härke 2011, Weik 2014). Ethnogenesis is useful for the study of cultures affected by European expansion as, "Capitalist expansion may or may not render particular cultures inoperative, but its all-too-real spread does raise questions about just how the successive cohorts of people drawn into the capitalist orbit align and realign their understandings to respond to the opportunities and exigencies of their new conditions" (Wolf 1997: xii). Ethnogenesis in North America has been used to explain the transition of Mexican emigrants to Californios (Voss 2008), Métis in Michigan (Peterson 1978), the development of a Seminole culture in Florida (Weik 2009), and the development of a "white" identity in the Chesapeake (Bell 2005), among others. Ethnogenesis is not relegated to indigenous cultures, although archaeological studies do often focus on these populations, but can be seen in multiple levels of a colonial situation: "Acts of colonization can cause ruptures in the cultures of both colonizer and colonized. Though indigenous populations displaced by or entangled with colonial institutions are the most severely affected, the colonists themselves are also irrevocably transformed by their own displacement and by their encounters with local indigenous people" (Voss 2008:3). Importing enslaved workers was part of the colonization process in European colonies and previous research on ethnogenesis has been conducted on colonial-era plantations in the Americas (e.g., Franklin 2001, Hilliard 1988, Otto 1984, Reitz et al.1985, Singleton 1998).

Ethnicity is a problematic concept in both archaeology and anthropology, largely due to the fact that it is often undefined in the literature and because of difficulties in aligning material culture to ethnic groups as defined by anthropological culture traits or language (Barth 1969, Emberling 1997). Much ink has been spilt debating the how to identify cultures or ethnicity using mute archaeological data (Jones 1997). In the first half of the 20th century small forests were destroyed so archaeologists could debate on how to identify meaningful criteria, what constitutes a functional type or stylistic type, whether or not types

actually exist, etc. (see Trigger 1989 for overview). Types, if indeed they do exist (and for ease of discussion, I will assume they do), are generally identified by means of stylistic attributes also known as artifact variability (McGuire 1981:13). Different archaeological perspectives define style in various ways. For instance, in the evolutionary archaeology perspective, style is selectively neutral (Dunnell 1987:199, Lipo et al.1997:304, Shennan and Wilkinson 2001:578), that is, stylistic variations do not result in differential fitness. Wobst (1977:321), on the other hand, defines style as that "part of the formal variability in material culture that can be related to the participation of artifacts in processes of information exchange." Style for Wobst, then, is the way that members of a group communicate their status as members of said group. For those who believe culture is normative, style can be related to tradition or the way the majority of the society do whatever is done. By this definition, as Gosselain (1998:82) notes, "'style' could reside in every stage of the manufacturing process and thus in every technical feature of a manufactured object." Thus the style of making a pot is reflective of one's cultural identity, or the cultural identity from whom one learned how to make a pot. Gosselain (1998:94) notes that in Cameroon, "populations that are linguistically affiliated and share a common history tend to fashion their vessels in much the same way, or tend to use similar techniques that differ significantly from those of their nearest neighbor." Hodder (1977) also notes neighboring groups have widely variant styles. Assuming neighboring groups maximize stylistics variation may be an empirical generalization, it does warrant note that, if past human cultures also attempted to distance themselves stylistically from their neighbors, different style in this sense would not be a good indicator of cultural similarities.

Beyond that critique, however is the larger critique of how to identify style in the archaeological record. The use of statistical modeling to identify groupings can also be problematic. Two of the more famous studies attempting to use style as a means of identifying social organization and change, Longacre (1964) and Deetz (1965) have major statistical and interpretative faults that undermine the conclusions. The identification of social organization in both Longacre (1964) and Deetz (1965) can be attributed to other causes, such as temporal differences in assemblages for Longacre's study and massive decimation of the population in Deetz's study (Dumond 1977). In addition to the identification of the appropriate unit of analysis, there is a problem with accepting Gosselain's (1998) ethnographic data as a proxy for the explanation of variation in the archaeological record. There are problems inherent in using ethnographic data gathered in short time periods as analogies for the *longue durée* of archaeological record. Unless the chronological aspect of the collection is tightly controlled, the analyst could confuse temporal patterning for spatial. So while it may be true that people tend to do things the same way that other people who share their same linguistic, ethnic, or social background do things *at any one time*, it is difficult to isolate that one time and identify what it is that is being done by what remains in the archaeological record.

Other authors believe that stylistic variation in artifacts can be used by individuals "to broadcast, or bring about, their social affiliations or their groups" (Wobst 1999:121). While Wobst (1999) does admit

that invisible aspects of the production sequence, for example, may also convey information, it is often the most visible of artifacts that convey information. It is important to note that,

> Regardless of content, stylistic messages gain in utility relative to other modes, if the potential receivers have little opportunity to receive the message otherwise, but nevertheless are likely to encounter it and are able to decode it. This circumscribes the potential target of receivers intermediate in social distance to the emitter of the message: not too close since the message usually would be known already or generally could be transmitted in other communication modes, and not too distant since decoding or encountering the message would not be assured (Wobst 1977:323-324).

If style is information exchange, we could not hypothesize any relationship regarding the similarity of style, as the ability to decode a symbol does not imply similarity. Hodder (1997) and Gosselain (1998) both note that neighboring groups have widely different styles. Wobst would attribute this to the need for these groups to communicate their independence. Regardless of the purpose of the style, that is, what information it is supposed to be communicating, the intent to communicate is also difficult to identify in the archaeological record.

For evolutionary archaeologists, style is an afunctional trait that can vary randomly and in an undirected manner. Because style is a selectively neutral trait, it is affected only by transmission processes, e.g., drift or innovation (Lipo et al. 1997:204). Stylistic traits, using the selectively neutral definition, will "form unimodal curves of the kind seen in frequency seriation" (Lipo et al. 1997:306). Thus, there is one way that we can identify style in the archaeological record: by the behavior of traits in a frequency seriation. Due to the nature of seriation and the nature of the distribution of style-as-selectively-neutral across time or space, "seriation can be used just as easily to delineate lineages from which assemblages are drawn as it has been to arrange those assemblages in chronological order. …when viewed as relative frequencies, transmitted attributes form unimodal curves of the kind seen in frequency seriation" (Lipo et al. 1997:308). Neiman (1995) developed a series of equations to model interaction based on style similarity. Neiman's model basically states that the population size and amount of innovation directly affect the degree of similarity between stylistic populations. Neiman (1995) used Middle Woodland ceramics from Illinois to test the model and determined that the styles in the assemblage did vary according to drift. Shennan and Wilkinson (2001) used the same model on a Neolithic ceramic assemblage from Germany and determined that, in their case, drift was not the cause of artifact variation. It appears, then, that the use of the same equation on two different assemblages yielding two different results calls into question the utility of the equation. However, it is just as likely that there were other forces acting on the Neolithic assemblage that created an environment where the styles were selected for other purposes and were, then, not selectively neutral. The fact that the use of the equation yielded differential results shows, instead, the validity of using selectively neutral traits to test hypotheses regarding social organization or interaction. As Lipo and colleagues (1997:310) note "the *failure* of a set of assemblages to seriate…might be exploited to test hypotheses about the history of interaction in a region." However, just because traits that are thought be stylistic do not seriate, does not

automatically mean there was social interaction and alternative hypotheses should be investigated, if possible.

The various definitions of style can be useful tools in a variety of different archaeological analyses. Style as information exchange can be used to discuss social identity, individual agency, *habitus*, and many other topics. However, the Banda Islands and the broader Maluku region do not have a well-defined culture history with associated types of artifacts defined by stylistic variation which make the use of stylistic variation in artifacts rather difficult. Instead of attempting to identify cultures by trait lists of material culture or behaviors as in the normative tradition, Barth (1969:15) suggested that it was the "ethnic boundary that defines the group, not the cultural stuff that it encloses." Jones (1995:xiii) also emphasizes the boundaries by defining an ethnic group as "any group of people who set themselves apart and/ or are set apart by others with whom that interact or co-exist on the basis of their perceptions of cultural differentiation and/ or common descent." The focus on the differences between groups is amenable to the study of colonial culture contact as "the persistence of ethnic groups in contact implies not only criteria and signals for identification, but also structuring of interaction which allows the persistence of cultural differences" (Barth 1969:16). Because ethnicity is such a problematic concept, it has been abandoned by many researchers of ethnogenesis (e.g., Voss 2008, Stojanowski 2010) in favor of identity. However, identity, too, is a problematic concept (Hu 2013). Identity is fluid and relative, plural and personal. But even by moving the focus to identity instead of ethnicity, ethnic identity is still difficult to avoid in studies of ethnogenesis: "Ethnic identity is considered by some the dominant identity of an individual, superseding sentiments based on class, age, or gender…and ethnic groups are defined on the basis of sharing a perceived or real common origin, being self-referential, and being distinct from similar groups of equivalent function" (Stojanowski 2010:48). Defining ethnicity and ethnic identity does not alleviate the difficulty of demonstrating said identity via mute material culture. In historic archaeology, however, we do have the benefit of historic records that describe the material culture and foodways of different groups in society; these records can be used to identify ethnicity in the archaeological record if the recovered material culture matches that described in historic records. One major reason to focus on the boundaries between groups as opposed to identity is the inability to identify individuals within the archaeological record. Prior to excavation, I assumed that the attribution of individual artifacts to individual people would be nigh on impossible, subsequent to excavation, this assumption provided true.

In a study of culture change in a colonial situation, it is the identification of differences between assemblages that is the main focus as opposed to the identification of an ethnic group to which the material culture belongs. South (1977) and Otto (1984) pioneered the use of patterning in historic sites to identify ethnic, class, or occupational identity. To identify the class associated with artifact patterns, the archaeologist must first "recogniz[e the] pattern in the archaeological record, then construct… hypotheses to explain the pattern in terms of the past cultural system" (South 1977:5). Ethnogenesis is not the only explanation for changing artifact patterns and the hypothesis should be tested, in true processual fashion.

The inhabitants of the Banda Islands today consider themselves to be Bandanese but they do not consider themselves to be *orang asli*, that is, descendants of the original inhabitants of the islands (Winn 2001). An ethnogenesis has occurred for the current inhabitants to consider themselves to be a different population than the pre-colonial population. The question remains as to whether or not the creation of a new Bandanese culture can be identified in the archaeological record of the plantations in the Banda Islands. As microcosms of the colonial effort, plantations should have a record of material culture that reflects the changing of lifeways associated with the colonization of the islands. The need to create a new society in the Banda Islands after Dutch conquest has been stressed by many authors (e.g., Hanna 1973, Reid 1983b, Winn 2010), so the historical interpretation suggests that an ethnogenesis occurred immediately or soon after conquest. However, Winn (2010) notes that the current population considers themselves more descendants of the Javanese and other coolie workers that came to the islands after the abolition of slavery. This could be attributed to modern populations wanting to distance themselves from an association with enslaved populations (see Marshall 2015 for a discussion of slavery-related amnesia), however, census records do show that 17 years after Dutch conquest, slightly less than half of the population of the Banda Islands were categorized as free/ non-enslaved (Hanna 1973) (Table 2.1). The ethnogenesis, then, could have been happening outside the plantations in areas where free Malukans and other residents had greater influence in society.

Foodways as social proxy

As Scott (2001:671) notes, "Food plays many roles within human society, from the symbolic, to the social, to the biological." The study of human dietary choices has a long history in archaeology. Bones preserve quite well in most environmental contexts and plant remains can also preserve quite well under many circumstances. In addition, ceramics preserve in almost all contexts and can provide information on cooking and storage techniques (Rice 1987). The long history of study of dietary choices in archaeology means that there is a wealth of literature available for both methodological and theoretical investigations. For the purposes of this study, however, I am more interested in potential social signals behind the dietary choices rather than environmental or other investigations.

Food is not just important as basic sustenance, it can be integral to one's sense of self. It is extremely difficult to disentangle a taste for certain kinds of foods and flavors from one's ethnic background or identity (Chen 2014). As Jolley (1983:71) notes, "Differences in dietary patterning may reflect ethnicity…[and] Differences in social and ideological systems are reflected in dietary practices." Voss (2008: 233) also writes, "Food and ethnicity are closely intertwined and often mutually categorized…Food is not only a medium through which ethnic authenticity is enacted and debated but also a venue in which social boundaries are installed in bodily responses." In addition Mintz (1996:7) describes the social meanings associated with food,

> eating is never a 'purely biological' activity (whatever 'purely biological' means). The foods eaten have histories associated with the pasts of those who eat them; the techniques employed to find, process, prepare, serve, and consume the foods are all

> culturally variable, with histories of their own. Nor is the food ever simply eaten; its consumption is always conditioned by meaning. These meanings are symbolic and communicated symbolically; they also have histories.

Food's association with ethnic identity makes the choice of foodstuffs and their preparation techniques excellent lines of evidence with which to investigate ethnogenesis (e.g., deFrance 1996, Diehl et al. 1998, Janowtiz 1993) as "Foodways are important components of culture that both express and have important roles in maintaining social and cultural relations" (Cheek 1998:153). "Foodways" is a concept that often goes undefined in the literature, but can be considered the *chaîne opératoire* of consumption: from the identification and gathering of raw material, storage, processing, cooking, and serving to the disposal of food remains, including all the material culture associated with the many processes (Twiss 2012:358, Honerkamp 2009:4).

Foodways are useful to investigate because, as noted above, there is often preserved evidence that can be accessed directly. Archaeologically, foodways are primarily investigated by means of the physical remains of eaten meals, for example animal bones or macroscopic plant remains (e.g., Diehl et. al. 1998), in addition to chemical and molecular studies that can identify the residues of meals in a ceramic matrix or in bones of humans and their commensals (e.g., Barnard and Eerkens 2007, Reitz 1994, Stewart-Abernathy and Ruff 1989). However, the analysis of ceramic forms can also provide information on cooking and serving methods (e.g., Pierce 2005). Generally, authors tend to focus on one line of evidence for brevity's sake, but studies using multiple lines of evidence are not uncommon (e.g., Ferguson 1992, Groover and Hogue 2014, Voss 2008). As the *chaîne opératoire* of consumption, innumerable different behaviors and their material correlates can encompass the archaeological study of foodways. I chose to focus on faunal and starch dietary choices and the ceramics associated with storage, cooking, and serving.

One difficulty in attempting to interpret food choice as a function of ethnicity in the archaeological record is that ethnicity and economic status can overlap. In other words, the presence of certain food in lower economic levels may reflect the ability to afford the food, not necessarily a preference for it (Huelsbeck 1991). Using multiple artifact classes and models, I hoped that I would be able to mitigate the issues surrounding the conflation of ethnicity and economic class.

How the archaeological study of colonialization, plantations, and foodways relates to the study area is discussed in the next section.

Why Study the Banda Islands?

The Banda Islands were the world's sole source of nutmeg (and the related spice mace) in the 16th century. Control over the spice trade was a major goal for European powers during the Age of Expansion. Consequently, the Banda Islands were a location of early disputes and colonial experimentation. After eradicating most of the indigenous population, the Dutch East India Company established a plantation system on the islands in 1621. The Banda Island plantation system was an early experiment in mercantile colonialism with imported enslaved workers, company-provided subsistence

rations, and a VOC monopoly on the spice trade inhibiting the accumulation of capital. Peoples from a variety of European, Asian, and African backgrounds were forced to co-exist on these remote islands and create a functional society. The plantation system survived in various forms until WWII. Some attempts have been made to renew cooperative nutmeg operations on the Banda Islands in the post-Suharto era.

According to European documents written before and after Dutch conquest, slavery existed in the Banda Islands prior to Dutch conquest (Reid 1983b) (Figure 2.1). It seemed the "open" type, with *orang kaya* acquiring large retinues of people to follow them and assist as needed. After the eradication of most *orang kaya* by Coen in 1621, it is hard to imagine the continuation of this open slave system in the European-based plantation system, and indeed, the Banda Islands are Reid's example of a European slave system in Southeast Asia. However, while the indigenous population of Bandanese were decimated by Coen's conquest, extra-local resident traders were not mentioned as being subject to the same eradication (Hanna 1978, Loth 1995b) and these traders likely continued to operate in their traditional open system. In addition, if imported enslaved workers were coming from regional islands with an "open" system, they may have had expectations regarding their incorporation into society. Europeans were always out-numbered in the Banda Islands and the numerically superior populations may have influenced social attitudes toward slavery, despite their social inferiority. In the 1638 census, 57% of the 3,842 population was enslaved (Table 2.1). Only 12% of the 1638 population was European, so they may have had little cultural influence despite their military dominance. In fact, Winn (2010) argues that the inability of the Europeans to keep their enslaved workers isolated from the wider society and the open system of slavery made it impossible to enact a truly closed system. When slavery was abolished in 1860, there were only 1,122 enslaved workers remaining on the islands (Hanna 1973:105), a significant decrease from the 2,190 in 1638. To put the later population into perspective, according to the 1854 census, the population of the Banda Islands was 6,333 with a total of 1,890 enslaved workers (both house and *perken* slaves); 487 European/ mestizos, 1,638 Natives, 243 people from other islands in the region, 145 Chinese, 942 free Native workers, 980 exiles, and 8 lepers (Hanna 1973:111). Despite the decrease in proportion of enslaved workers in the population from 57% to 33%, they still made up the highest recorded class of people in the census. What aspect the slavery system took on and how the different cultural groups adapted to and created this new society in the Banda Islands, an ethnogenesis, is a topic of some interest.

The plantation system fundamentally altered the lifeways of all inhabitants of the Banda Islands, many of whom were non-indigenous, but there is little evidence regarding how the alterations and adaptations occurred or why. Archaeology should be able to shed light onto these adaptations. The study of material culture from archaeological investigations can provide information not accessible from historical documents. Furthermore, despite Reid's belief that the form of slavery that existed in the Banda Islands was more akin to that of other European models in the Western Hemisphere as opposed to the Asian models, not all agree with his supposition. Winn (2010) suggests that the slavery system as practiced on the Banda Islands was closer to the pre-colonial Asian model than Reid suggests. Material

culture may shed light on whether the slave system in the Banda Islands was more aligned to that of Asia or Europe. In addition to elucidating the processes of culture change and adaptation to changing conditions in the Banda Islands, this study will be useful for comparing colonial processes in various parts of the world, as called for by Deagan (1996).

In the research outlined below, I discuss the explanatory models developed in historical archaeology that were used in this project. . The history of the Banda Islands and the roles played by different populations in the historic period will be explored in greater depth in Chapter 3.



Figure 2.1 Different classes in the Banda Islands, figures on extreme right and left are identified as male and female slaves (Reid 1983b).

Table 2.1 Population of Banda Islands, 1638 (Hanna 1973).

Category	Male		Female		Children		Total
	Free	Slave	Free	Slave	Free	Slave	
VOC employee (Civil and Military)	351						351
Vrijburghers (European, non-VOC)	91		20		77		188
Native Bandanese	50	53	133	158	97	69	560
Other	186	782	319	723	328	405	2743
Total	678	835	472	881	182	474	3842

Explanatory Models in Plantation Archaeology

Three models are commonly used to explain the material culture of foodways in historical archaeology: energetic efficiency, power/ resistance, and creolization. These models are discussed below. On a side note, Singleton's definition of plantation archaeology (above) defines three populations of interest: owners, plantation managers, and enslaved workers. However, for the Banda Islands only the *perkeniers-cum*-owners (since the VOC owned the land, the *perkeniers* were not technically the plantation owners but they were more than managers/ overseers) and enslaved workers have much of an historical record. *Perkenier* is based on the Dutch word for the nutmeg plantation, *perk*, and is used to refer to the European or European-descendants who operated the plantations. Historic records from early pre-conquest Europeans until the early 20th Century (e.g., Jacobs 1971, Hanna 1978, Loth 1995a) discuss the presence of Javanese, Chinese, Arabic and other traders in the Banda Islands, specifically in the port town of Banda Neira, what role they may have played at the plantations, if any, is unknown. Europeans, unsurprisingly, tend to be the focus of the European records and the European records of the colonial period are the records that have been preserved (as far as I could discover). For ease of discussion, I separate expected populations into "elite" and "non-elite" or "*perkenier*" and "worker." It is currently unknown at this time which class the overseer can be expected to fall based on historical records. Also, due to the fact that the both free laborers and enslaved workers were working on the plantations during the colonial period and wage laborers were working on the plantations after the abolition of slavery, it was impossible for me to determine if the recovered material remains were specifically related to enslaved workers or wage laborers. Therefore, I refer to both enslaved and wage laborers as "workers." This is not meant to minimize the experience of enslaved workers or to erase the history of enslavement of people in the region, only to acknowledge that both groups were workers and that I was unable to differentiate between the two groups.

Energetic Efficiency

Optimal foraging theory, specifically energetic efficiency, has been used to explain faunal assemblages in historic contexts (e.g., Birmingham 2000, Reitz et al. 1985). The basic tenant of optimal foraging theory and associated models is that optimal use maximizes energetic returns from a given range of resources or strategies and increases (reproductive) fitness (Winterhalder and Smith 2008). Several different models for explaining behaviors are encompassed in optimal foraging theory with different goals and currencies. For instance, sexual selection and natural selection are often at odds, resulting in a range of options that may be optimal in mating contests but detrimental for food acquisition behaviors. Smith (1979:58), however, notes that "efficient solutions will be of overriding adaptive importance only in energy limited situations." This is the situation in of the plantation contexts in general, where the workers are expected to be limited in their access to time for food gathering, processing, or production due to forced labor demands. In a time-limited context, Smith (1979:62) predicts that "fitness can be increased by holding [net energy acquired] constant and reducing [acquisition time]." Thus, workers are expected to exploit faunal, starch, and ceramic resources that have low search and handling

times. However, *perkeniers* are not limited with regard to acquisition time and in this situation, "there is no reason to expect selection for energetic efficiency and in fact some reason to expect counter-selection in favor of competing goals" (Smith 1979: 58). For this study, energetic efficiency is the null hypothesis and predicts that dietary choices for time- constrained workers are a result of decision making based on achieving maximum caloric intake for minimal energetic investment and thus, dietary choices are not related to social, ethnic, or religious identification. Deviation from the expectation that individuals maximize their energetic efficiency needs to be explained by another causal mechanism, discussed below. In previous studies not using an energetic efficiency model (e.g., Franklin 2001, Scott 2001), faunal choices were assumed, but not necessarily demonstrated, to be the result of social signaling of identity, be it ethnic, economic, or religious. By establishing an expected norm based on historical records, deviations from energetic efficiency may be explained by means of alternative models. I assume that deviation from energetic efficiency is used to signal social identity.

Not all material culture is used to signal social identity and many categories, such as clothing and body modification, may be unavailable archaeologically. Some categories of material culture may not have a social meaning associated with identity and these categories may reflect energetic efficiency while others may not. Additionally, categories of material culture that do reflect energetic efficiency may come to represent social identity after time. For instance, the use of foraged foods from the bayous came to identify the Cajun culture of Louisiana in opposition to the more urban Creoles (Gutierrez 1992). It is necessary, then, to compare the energetic efficiency model against other models to determine if low energetic investment can be used to explain the distribution of food stuffs.

Domination/ Resistance

Power in human societies is often associated with the intertwined concepts of domination and resistance (Paynter and McGuire 1991). Weber (1964:152) defines power as "the probability that one actor within a social relationship will be in a position to carry out his own will despite resistance"; whereas domination is "the exercise of power through control of resources" (Paynter and McGuire 1991:10). However, Wolf (1990:586-87) further defines structural power as

> power that not only operates within settings or domains but that also organizes and orchestrates the settings themselves, and that specifies the distribution and direction of energy flows…I want to use it as power that structures the political economy. I will refer to this kind of power as structural power. This tern rephrases the older notion of 'the social relations of production,' and is intended to emphasize power to deploy and allocate social labor….Structural power shapes the field of action so as to render some kinds of behavior possible, while making less possible or impossible.

This situation in the Banda Islands during the colonial period was one where structural power operated on keeping both the enslaved workers and the *perkeniers* themselves under the power of the VOC and later Netherlands East Indies government. In a slave based economy, power and domination are at the forefront of any interaction. The ruling hegemony cannot exist without an antithetical class that is ruled. Tensions between the hegemony and underclass lead to constant re-negotiation of what it means to be

part of the hegemony and part of the underclass and these tensions and negotiations can be reflected in material culture (Scott 1985). Both power and domination are heterogeneous as is resistance (Paynter and McGuire 1991:10-13). It is expected that people will put up some form of resistance to being dominated or coerced to produce labor without adequate compensation.

Scott (1985) distinguishes between quotidian, passive resistance and open defiance. Open defiance, such as peasant revolts, is often recorded in histories but everyday resistance is less obvious. Everyday resistance can be recorded as laziness in workers, petty theft, feigned incomprehension of commands, or the use of a linguistic code that is different from the elite code. Paynter and McGuire (1991:13-16) note that archaeology can access the quotidian remains of both the elite with their attempts at coercion and domination and the coerced with their attempts at resistance or acceptance and that domestic sites often yield data on daily resistance or open defiance.

In plantation-based historical archaeology, the focus is more often on the material culture of resistance of the enslaved workers. Leone (1984) and others (e.g., Delle 1998, Mrozowski 1991) do describe how architecture and landscape are used to advertise power and social control. However, this use of architecture or other material culture as an advertisement of power has been critiqued because, in part, "non-elites often do not share the dominant ideology of the elites, and in fact have ideologies of resistance" (Paynter and McGuire 1991:10) Examples of how architecture can be a locus of resistance includes the use of sub-floor pits by enslaved workers to hide food and other objects from overseers and the retention of African building techniques for vernacular architecture (Ferguson 1992). The use of architecture as a locus of resistance influenced the introduction of a new form of architecture for housing enslaved workers to a house lacking the potential for this area of resistance (Singleton 2015). With the introduction in 1791 of the concept of panopticon, or constant surveillance of prisoners or workers, some plantation owners attempted to incorporate more potential for observation into the landscape or architecture of the plantations (Singleton 2015). However, this concept and the associated architecture were introduced long after the creation of the plantations on the Banda Islands. Surveillance does not appear to be a factor in the architecture of the plantation compound in the Banda Islands (Carlson and Jordan 2013).

Ceramics, specifically low-fired, locally made earthenware and imported high-fired stoneware or porcelain, is an oft-studied category of material culture associated with enslaved workers, largely due to its ability to survive in archaeological deposits coupled with a large corpus of historical data regarding its use and cost. Colonoware is a New World ceramic type that is assumed to have been made by enslaved Africans, at least in many, if not all, contexts (Ferguson 1992). While there was debate regarding whether Colonoware was made by enslaved Africans or Native Americans experiencing social upheaval (e.g., Noel Hume 1962), the existence of decorative techniques that can be traced to Africa seems to have shifted the tide to supporting an enslaved African creative population (Ferguson 1992). Ceramics, then, can be a useful category of investigation, given enough background information of the populations contributing to their creation.

Foodways have also been used to describe resistance in plantation contexts (e.g., Ferguson 1991, Reitz et al. 1985). Mintz (1996:29) describes how the social inequality can affect foodways: "structural power…aligns the institutional frameworks that set the terms by which people get food, maintain or change their eating habits, and either perpetuate their eating arrangements and the associated meanings, or build new systems, with new meanings, into those arrangements." In the American Southeast, enslaved workers could supplement their diet of rations via tending vegetable gardens or hunting and trapping wild game (Turner 1995). This behavior is interpreted as resisting the power of the slaveowner to dictate the enslaved worker's diet. Reitz et al. (1985) note that often the hunting of game was accomplished by means of trapping which would be a strategy with a low energetic cost as one could set the trap and leave it for hours or days and check it intermittently, allowing for the acquisition of additional protein without arousing the suspicion of the overseer for missing work. Fishing, often by younger children, is another low cost way to acquire protein without arousing suspicion. Larger wild game, such as deer, was rare due to an inability of many enslaved workers to access firearms for personal use.

It should be noted that, in the Banda Islands, not only would the enslaved, and later contract, workers be resisting the power of the *perkeniers,* but the *perkeniers* were actively resisting the power of the VOC and Netherlands East Indies government. The *perkeniers* were not well pleased with the prices they received for the nutmeg and mace and were constantly complaining about the paucity of rations provided. *Perkeniers* had been known to sell the rice rations provided for a larger amount of cheaper sago (Hanna 1973, Loth 1998). This may have been due to the fact that sago was preferred regionally, that it provided more calories for a lower cost than rice, or for pure unadulterated desire for profit. The entrepôt trade did not disappear from Banda with the Dutch conquest and the potential for personal profit by cheating the Company was too great for most *perkeniers* to resist.

Creolization

Dawdy (2000:1) notes that the notions of a creole culture and creolization of culture have been popular in the social sciences since the 1990s. The model of creolization of culture comes from the linguistic concept of a Creole language: a mix of grammar and vocabulary from two or more languages, often with a disparate power relationship in a colonial context (Khan 2007). Creole studies have been focused on New World contexts, specifically Caribbean locales (Stewart 2007), or African contexts, such as Mauritius (Eriksen 2007). But creolization has also been used to explain culture change in Roman provinces (Webster 2001), Mesopotamia (Stein 2005a), and elsewhere (see Stein 2005b). Regardless of location, creolization involves contact between two or more cultures and the mixing of certain elements from the various cultures. Historical archaeologists have variously defined creolization as "cultural interaction, culture contact, acculturation, transculturation, ethnogenesis, identity negotiation, the result of intermarriage, or the blending and transplantation of different traditions in material culture" (Dowdy 2000:1). Deetz (1977) was one of the first historical archaeologists to use the concept of creolization to understand patterns in material culture, specifically, the hybrid culture that he saw in enslaved African-

American in an Anglo-American dominated culture. Ferguson (1992) and Deagan (1983, 1996) were also influential in the development of creole studies in historical archaeology. “Creolization” has been used to explain hybridity of language, culture, and biology; for this project, I will only be investigating cultural creolization as no data is expected in the study area for the other subjects.

Material culture is used as a means of communication between the disparate groups and to negotiate new social meanings. Therefore, the material culture used to negotiate these meanings is expected to be found in association with all groups involved in social negotiations. Historically, while there is a mixing of material culture, a social hierarchy is still maintained (Scott 2001). Therefore, individual items may not have the same meaning in all levels of society, but will have a meaning that crosses social boundaries. Creolization has been used to explain change in material culture in a variety of archaeological studies (e.g. Burley 2000, Delle 2000, Ewen 2000, Loren 2000).

Creolization is often used in conjunction with ethnogenesis (Dowdy 2000:1). As Delle (2000:56) notes, “Creolization is a special form of ethnogenesis that in plantation contexts was a process through which social and material worlds were defined…creolization is considered to be a theoretical concept used to explain the processes by which European and African populations adjusted or adapted to conditions in the New World, particularly where plantation agriculture dominated the political economy.” While creolization is a kind of ethnogenesis, not all ethnogeneses are a result of creolization.

Predictions

Ingredients

As noted above, a study of foodways which focuses on faunal remains may yield equivocal results, so I will investigate faunal remains, ceramic forms, and starch remains in an attempt to avoid this problem. The Banda Islands are not a productive environment for most agricultural products and the majority of basic carbohydrates were imported by the indigenous population long before the establishment of plantations by Europeans (Ellen 2003). In the Maluku region today, the pith of the sago palm tree is favored, but rice, cassava and taro are also important dietary starches (Stark and Latinis 1992). Prior to Dutch colonization, sago was also preferred to rice (Ellen 1979, Stark and Latinis 1992, Loth 1998). Subsequent to Dutch colonization, rice was imported by the VOC and appears to have been favored by the European descendant population and non-Malukan Southeast Asian Islander populations (Hanna 1978, Loth 1998). Rice was subsidized by the VOC and provided to *perkeniers* for distribution to workers, either below market cost or free (Hanna 1978). Rice would likely be the lowest-cost starch resource but VOC shipments were not always on time and the rice ration had to be supplemented at times (Hanna 1978). Workers were allowed and encouraged to cultivate small gardens, usually consisting of local foods, to supplement their diet. Some workers were able to sell garden surplus at the market in Banda Neira (Hanna 1978), similar to the arrangement seen in the New World. Domesticated pigs and chickens were imported to the Banda Islands beginning in the Neolithic period (Lape 2000). Goats are reported in some literature (e.g., Hanna 1978), but the date of their arrival is unknown. Cows were

imported for dairy production during the colonial period (Hanna 1978), but are rare on the islands today. Loth (1998:84) notes the VOC attempted to introduce rabbits, deer, and turkey for subsistence, but these wild or semi-domesticated animals were incapable of foraging for themselves in the Banda. Rabbits and turkeys are absent on the islands today and deer had to be re-introduced after their populations were lost, possibly as a result of food insecurity associated with WWII. Sea birds, snakes, rats, and iguanas were also available (Loth 1998) but may not have been favored as a food source. Marine resources were abundant and Loth (1998:82) claims marine resources provided the majority of protein available to the populations on Banda both before and after Dutch conquest. Ceramics, both food service and food storage vessels, available to workers for cooking and storage were manufactured in Banda and other regional islands or imported from China and other trade ports (Ellen 2003). VOC employees and *perkeniers* also imported European ceramics (Hanna 1978).

The *perken* compounds in the Banda Islands all have a similar plan. The compound itself is surrounded by 4 exterior walls with at least two entrances, one of these entrances often has an ornate archway. Within the compound, there are generally four buildings: a main house/ elite residence (identified by analogy to extant colonial-era residences in Banda Neira), a nutmeg drying building, and long buildings with individual rooms along the remaining two walls used for workers' habitation of storage (Bickmore 1867-1868). The ornate arched entrance is usually next to the elite residence. No archaeological investigations on *perken* compounds had been conducted prior to this project and it was assumed that the residence in the *perken* compound would be associated with elite *perkenie*r middens and the long buildings with individual rooms would be associated with the workers.

Detailed descriptions of expected artifact classes are provided in Chapters 5-8. See Table 2.2 for a summary of expected artifact distribution.

Energetic Efficiency

Due to different time constraints, the elites are not expected to rank resources in the same way as the workers (Table 2.3). Workers are expected to be constrained by time available for finding non-ration foods and will thus avoid resources with high search and handling costs, regardless of caloric value. *Perkeniers* have no time constraints, have control over the distribution of rations, and have access to governmental power for punishment. *Perkeniers* are predicted to have a decreased need for energetic efficiency in foraging and will not be constrained by search and handling time. Plantation workers are expected to have limited access to imported goods, but their dietary remains should reflect a higher percentage of wild gathered food, possibly small game or fish reflecting snare use (Loth 1998). Large domesticated mammals, such as cow and pig, should dominate in *perkenier* contexts, but should not be present in workers' contexts. Tolerated theft (e.g., Bliege Bird and Bird 1997) is not expected as capital punishment was practiced for minor infractions in Banda (Hanna 1978). It is assumed that under the energetic efficiency model, the risk of capital punishment was too great; for other models, such as domination/ resistance, capital punishment may not have been as strong a deterrent. Individual *perken*

Table 2.2. Expected distribution of resources.

Resources	Energetic Efficiency		Power/ Resistance		Creolization	
	Workers	*Perkeniers*	Workers	*Perkeniers*	Workers	*Perkeniers*
Faunal Resources						
Cow	-	+	-	+	≈	≈
Pig	-	+	≠	+	≈	≈
Chicken	+	-	+	-	≈	≈
Local Shellfish	+	-	+	-	≈	≈
Local Wild game- small	+	-	+	≠	≈	≈
Local Wild game- large	≠	+	-	+	≈	≈
Ceramics						
Indigenous	+	≠	+	≠	≈	≈
Imported Asian	-	+	-	+	≈	≈
Imported European	-	+	≠	+	≈	≈
Individual settings	≠	+	≠	+	≈	≈
Starches						
Rice	≈	≈	-	+	≈	≈
Sago/ Cassava	+	-	+	≠	≈	≈
Maize/ Wheat	≠	+	≠	+	≈	≈

≠: not present
+: higher % than other economic class
-: lower % than other economic class
≈: little to no difference in distribution.

Table 2.3 Rank of food resources on the Banda Islands, after Lape (2000b:45).

Food Resource (nutritional values per 100 g)	Calories	Rank	Protein (g)	Rank	Fat (g)	Rank	Cal+ prot+ fat	Rank
Artocarpus altilis								=
Flesh	55-110	20	0.8-4.3	16	0.3-1.5	17	53	20
Seeds	150	13	6.0	13	0.5	19	45	16
Canarium spp.	644	2	14.2	9	68.5	1	12	2
Pandanus spp.	683	1	11.9	11	66.0	2	14	3
Colocasia esculenta	100-165	11	1.4-2.0	21	0.2-0.5	20	52	19
Coco nucifera								
Mature meat	351-500	4	4.0-4.7	14	33.0-53.4	4	22	6
Immature flesh	30-180	10	0.7-4.0	18	1.0-15.0	7	35	11
Mature nut	311-346	7	2.5-4.3	17	34.0-35.0	6	30	9
Dioscorea spp.	95-161	12	1.0-2.5	20	0.05-0.2	23	55	22
Musa spp.	85-142	14	1.0-1.3	22	0.1-0.5	18	54	21
Metroxylon sagu	285-362	6	0.1-0.5	23	0.0-0.3	21	50	18
Bat (rabbit)	134	17	20.0	2	6.0	11	30	10
Bird (general fowl)	139	15	19.0	4	7.0	9	28	8
Cuscus (rabbit)	134	16	20.0	1	6.0	10	27	7
Fish	132	19	18.8	7	5.7	12	38	14
Prawns	94	21	18.0	8	1.5	16	45	15
Reptile/ Snake (fish)	132	18	18.8	6	5.7	13	37	13
Shellfish (unspecified)	70	23	10.0	12	2.0	15	50	17
Deer	202	9	9	3	14.0	8	20	5
Pork	453	5	5	10	45.0	5	20	4

were allowed one or two cows for personal dairy consumption, but herds were segregated on an uninhabited island, Gunung Api (Hanna 1973). This segregation makes search and handling times and risk of capture too costly for workers in an energetic efficiency model. Fairbanks (1984) notes that in the southeast US, half the meat protein from enslaved workers diet came from wild caught animals, which he interpreted as workers supplementing their caloric intake to achieve sufficiency to do required work. Fairbanks (1984) also notes that pigs were more prevalent in workers' contexts, possibly due to the fact that pigs are more efficient at converting food into meat than cows and are therefore easier to raise and produce more net calories for expended calories. However, in the Banda Islands, pigs would have an additional social signal. At the time of conquest, many inhabitants of the Banda Islands were Muslim (e.g., Hanna 1978, Winn 2010) and Islam has a prescription against eating pork. The identification of pig remains in workers' contexts would signify a non-Islamic population, possibly that workers had converted to Christianity or had not been converted to Islam prior to Dutch conquest, and were attempting to ally themselves with the dominant power or that they were exhibiting a lack of resistance to the dominant power.

For starches, imported rice, with a low search and handling time, is expected to dominate both worker and *perkenier* contexts. Rice was distributed by *perkeniers* and workers had little choice in how much ration they received. However, after the rice subsidization stopped in 1824 (Hanna 1978), rice is expected to be more costly and decrease in workers' contexts. Sago is expected to have supplemented workers' rations in times of a rice ration shortage and after the subsidy ceased. Due to high handling time and poor growing conditions on the Banda Islands (Stark and Latinis 1992), sago is expected to have been primarily imported. There is no mention of alternative, possibly starvation-level, starches being utilized in Banda, but this may be a result of incomplete historic records. Unidentified starches may be the result of starvation-level gathering habits.

Indigenous ceramics are expected to have little time invested in decoration. Imported ceramics in workers' contexts are expected to be plainware and reflect cooking foods with a low time investment in preparation and tending, such as soup and stews. A larger diversity of ceramics types and sources is expected in the *perkenier* context due to greater access to imported goods. Imported fine tradeware, such as porcelain or high-fired stoneware, is expected in the elite contexts as they were not limited by energetic constraints. Individual ceramic place settings are not expected in workers' contexts; instead, communal serving dishes are expected, based on historic and ethnographic descriptions of foodways (e.g., Jacobs 1971). In enslaved workers' contexts in North America, dishes that did not require intensive processing or watching while cooking were favored (Singleton 1996). It is expected, then, that stews in large pots would be a favored cooking technique. Individual serving dishes are expected to be organic based on ethnographic and modern behavior.

Power/ Resistance

For the power/ resistance model, there should be a clear separation of groups with obvious boundaries reflected in the material culture. This separation between groups may be reflected in along

both ethnic and economic lines, with workers self-segregating into groups reflecting a similar geographic or religious background. If the domination/ resistance social model can explain food choice, then cultural continuity of food ways and material culture is expected, specifically reflecting foodways that are not necessarily energetically efficient. The plantation workers would resist incorporation into hegemonic world, reject introduced foodways including imported foreign foods, and attempt to maintain separate foodways. European foods and goods would be expected only in European/ *perkenier* contexts and little to no imported foods or goods would be expected in the worker's areas. If European goods or foods are found, it is expected to be a result of theft, or quotidian resistance. Theft should be limited to easily transported and hidden items. For instance, the remains of an entire cow would not be expected as the large animal would be too obvious, but individual cuts of meat may be easily transported and surreptitiously consumed. Due to the high cost associated with the theft of elite food, this is not expected under an energetic efficiency model.

With the exception of rice rations, starch residues are expected to be mutually exclusive, with Europeans and their descendants eating imported wheat, corn, and rice and workers subsisting on sago, cassava or other endemic vegetal resources. It is also expected that pig remains will be segregated to elite contexts, with workers adopting or maintaining Muslim foodways in order to distance themselves from the Christian *perkeniers*. Imported/ enslaved workers were not necessarily Muslim, and there is some evidence that the Dutch preferred non-Muslim workers and conversions may have been socially motivated (Ricklefs 2001).

Ceramic types should also be mutually exclusive, Europeans should use imported pottery from England, the Netherlands, or other European country, in addition to high quality Chinese porcelains. Workers, on the other hand, should use locally produced pottery or cheap regional imports. The ceramic types should also reflect a preference in cooking techniques.

Due to the same broad resource categories, many of the predictions for the power/ resistance model in terms of faunal resources are similar to the optimal foraging predictions. The elites have the power to distribute rations and limit time available to workers for foraging. For instance, local fish in elite contexts are expected to be larger, on average, than those in workers contexts due to the elites appropriating the catch (Loth 1998).Workers could be stealing large mammals from the elites, but the remains are unlikely to be found in workers' midden due to their proximity to the elite house and increased chance of discovery. The power/ resistance model is expected to be more pronounced in the material culture associated with food preparation and consumption, such as ceramic types and wares, than the raw materials. Imported European food stuffs (e.g., salted fish, wine, etc.) are expected in elite contexts. Cooking techniques (e.g., stew, roast, etc) should show distinct separation between *perkeniers* and workers. *Perkeniers* would accept the extra cost and investment of importing or training a worker in European style cooking and its associated ceramic styles. There should be little overlap in distribution of species and elements of faunal remains (excepting chicken and local fish). High status Chinese porcelain and European ceramics are expected in *perkenier* contexts. Indigenous and imported trade ceramics are

expected in workers' contexts. These ceramics may exhibit decorative elements that distance them from European or high status Asian ceramics. European forms, especially place settings, are expected only in elite contexts. There are examples of enslaved people adopting signals of European power, such as matching tea sets or porcelain dining sets as seen in the Elizabeth Hemmings site at Monticello (Neiman et al. 2000) where the acquisition of both the porcelain tea set and the tea would be expensive. However, the adoption of symbols of elite power should be seen as creolization, not resistance. That is, adopting the symbol of power of the dominant hegemony is accepting that system, not resisting it.

Creolization

For the creolization model, mixing of foodways and material culture is expected. However, in creolization studies, there appears to be syntax to the borrowing of material culture in addition to the language. Chaudenson (2001:195) notes that "the greater the role of language in a cultural system, the more the system is influenced by the dominant social group whose language is imposed on all." In a creolization context, then, it would be expected that the group whose language was most prevalent would also have the dominant material culture. In Indonesia, the Dutch preferred the use of the Malay-based *lingua franca* and did not impose the use of Dutch on the colonized populations (Loth 1995a). Therefore, it is expected that European foodways would be less influential than traditional Southeast Asian foodways when foodways deviate from expected energetic efficiency. In addition, the climate of Island Southeast Asia was not as conducive to European food crops as to its own endemic crops. The adoption of European food stuffs, preparation techniques, or serving vessels would signal a familiarity with the elites and may be adopted. European-descendants may also adopt Asian foodways because of familiarity with family employees or because of mixed parentage.

For the creolization model, indigenous ingredients are expected to be incorporated into European recipes and vice versa (e.g., Hardy 2011). In modern Indo-Dutch cuisine, this creolization can be seen in the *rijsttafel*, which consists of serving Indonesian-style dishes in a Dutch manner; the *perkedel*, a fried patty made of potatoes (a food imported by the Dutch) sometimes with canned beef; or *pandan*-flavored cakes based on European recipes using local ingredients. Protschky (2008:349) notes that a familiarity with indigenous foods was common amongst the colonial Dutch and a degree of creolization was expected:

> In the late colonial period there was an abiding tension in Dutch colonial society between maintaining the culture and dignity of the "real" Dutch; showing that one was a capable colonist, which required familiarity with Indies culture and connections with local people; and distinguishing oneself from the natives. At the colonial table, this difficulty might manifest itself in a tension between preserving natal foodways (*biefstuk*, vegetables and potatoes); demonstrating an understanding of Indies society (knowing not to expect pork from a Muslim-Javanese butcher, for example); and behaving as befitted a colonial ruling class (putting on a grand *rijsttafel* perhaps).

In general, there should be overlap in distribution of faunal resources, starches, and ceramics. Ceramics associated with a specific cooking style or food production may be allocated to a new role, which may be

identified by starch analysis. There may be a hierarchy of mixing with more European and fewer indigenous goods in elite contexts and more indigenous and less European goods in workers' contexts.

Conclusions

Historic archaeology, as the discipline that investigates the archaeology of the spread of Europeans post-1500 and their effect on indigenous populations worldwide, has the potential to enrich our understanding of the multiple ways that peoples, both colonizer and colonized, adapted to their incorporation into a global world system. The study of plantations to access the lived lives of enslaved workers is a popular line of inquiry in historical archaeology as practiced in the Western Hemisphere, but has not received the same amount of attention in other locales with plantations. As noted above, the Banda Islands are an excellent location for comparing models used in historical archaeology for comparative purposes. Now that the theoretical foundations and explanatory models have been discussed, the next chapter will present the current state of archaeological knowledge of the Banda Islands in regional context.

Chapter 3
The Banda Islands in Regional and Historical Context

The Banda Islands are tiny, remote, and located within a larger, environmentally, linguistically, and culturally complex island-and-seascape. The archaeology of Island Southeast Asia encompasses over a million years, spanning from *Homo erectus* to the development of complex, state-level societies. Despite their isolated location, the Banda Islands were connected to the wider world. Thus, a review of local and regional natural and cultural environments will contextualize the Banda Islands. Despite over 100 years of archaeological investigations in Island Southeast Asia, the general culture history of the region is not well-known to most US-based archaeologists. As I assume this population will be a large proportion of my reading audience, I think it necessary to provide both a general and specific outline of the regional culture history before providing information about the Banda Islands specifically. Below I shall summarize the archaeological research in Island Southeast Asia region in general, followed by the Maluku region, and finally provide a more in depth prehistory and history of the Banda Islands, specifically.

The Archaeology and History of Island Southeast Asia

First, the archaeological region of "Island Southeast Asia" should be defined which is not an unproblematic activity. Island Southeast Asia (Figure 3.1) can be defined as the modern island nations of Taiwan, the Philippines, and Indonesia (e.g., Bellwood 1979:203). As a nod to modern geopolitical borders, Singapore, Brunei, and East Timor could also be added. Culturally, an argument could be made to include the Malay Peninsula, although it is not technically an island. If the argument is made to add Malaysia, an argument could also be made to remove Taiwan as the modern Taiwanese culture is more aligned with the Chinese mainland than the Southeast Islands. Archaeologically, however, Taiwan is important to the discussion of the expansion of agriculture into Islands Southeast Asia so it, and the Malay Peninsula, shall be incorporated into the below discussion where appropriate.

Environment

Island Southeast Asia is a complex environment made up of tens of thousands of islands. Over 18,000 islands make up the modern nation of Indonesia (Berkmoes et al. 2010), in addition to those of the Philippines and Taiwan. These islands span from approximately 25° N to 10° S latitude and from 95° E to 135° E longitude. This large area coupled with variable island size and vast swaths of ocean and its

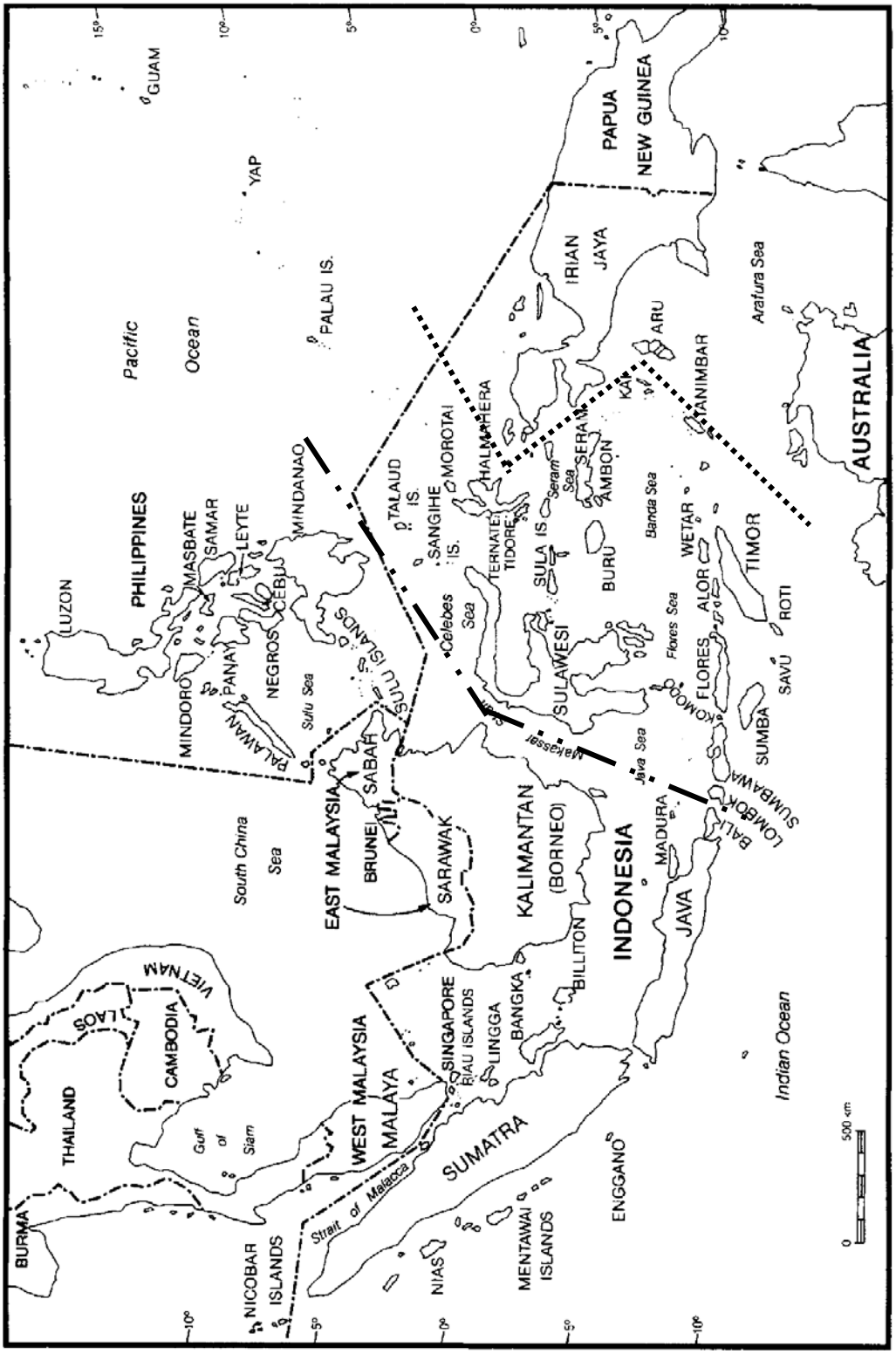


Figure 3.1 Island Southeast Asia, after Bellwood (2006). Wallace's Line is dashed and Lydekker's Line is dotted; Wallacea is located between the two lines.

related currents means that there is an enormous amount of environmental diversity within Island Southeast Asia. All the islands of Southeast Asia can be identified to three major groups and one minor one: 1) the remnants of the Sunda continental shelf, including the Malay Peninsula, Borneo, Sumatra, Java and their smaller associated islands; 2) the volcanic islands of the Sunda-Banda arc, including the Moluccan islands, Sumba, Timor, Tanimbar and associated islands; 3) the Sulawesi-Philippines-Halmahera volcanic arc (Bellwood 2007:3) and finally 4) the remnants of the Sahul continental shelf, including the Aru Islands in Eastern Indonesia (Spriggs et al. 2006). The distribution of these groupings can be attributed to the multiple tectonic plates that meet in the vicinity of Island Southeast Asia; the confluence of these plates and their subduction zones makes for an extremely tectonically active region with earthquakes, volcanic eruptions, and tsunamis being common occurrences in addition to extreme uplifting and downfaulting of coral (Hall and Blundell 1996). The tectonic activity and the post-Pleistocene change in sea level has impacted the distribution of plant and animal species. This differential distribution across the islands was noted by Alfred Russell Wallace (1869) and influenced his independently derived theory of natural selection. Wallace noticed that terrestrial fauna west of the Lombok Strait (a 250 m deep trench separating Bali and Lombak) more closely matched Asian fauna whereas that east of Lombok was a mixture of Asian and Australian fauna; this dividing line was named the Wallace line (Figure 3.1). The biogeographical distinctions relate to fauna only, as flora follows a different distribution. Wallacea, the grouping of Southeast Asian islands between the Mainland Southeast Asia and Australia that had not been connected to continental plates during the Pleistocene, is also named after the co- discoverer of natural selection. Most of the modern Maluku province and all of the Banda Islands are located within Wallacea and will be discussed in greater detail below.

The climate of Island Southeast Asia is generally tropical and temperatures vary little, but rainfall can vary tremendously (Monk et al. 1997:74-79). The islands lying within 5°□ of the equator have frequent year-round rain with little seasonal variation but beyond this, islands are significantly impacted by monsoonal rainfall patterns. These trade winds allowed the development of long distance trade throughout the regions as ships followed the winds from home to entrepôt and back. The climatic instability is also assumed to have affected the development of trade networks as a means of risk aversion (e.g., Thomas 2009). The heavy rain and fertile soils on some islands, such as Java, has allowed for wet rice agriculture and the development of high population densities. However, rice agriculture, wet or dry, is uncommon on most islands and lower population densities are more common. In areas where rice agriculture is unsuitable to growing conditions, domesticated roots, tubers, and tree crops are cultivated or managed (e.g., Denham 2011, Specht et al. 2014).

Due to the tropical nature of the region, the soils are generally acidic and low in nutrients; although they are capable of maintaining lush tropical forests, non-tropical plants (like many introduced domesticated plants) do not grow well in the soils (Monk et al. 1997:107-109). However, in areas with active volcanos, the addition of volcanic material can significantly increase the fertility of the soils (see MacArthur and Wilson 1967) and allow for productive agriculture, as seen in Java, Bali, and Lombok

(SarDesai 2012). Dipterocarp forest is the dominant floral community in the Island Southeast Asia region, although significant variation does exist including deciduous hardwoods in Java, Sulawesi, and the Lesser Sundas (Bellwood 2007:13-14). As noted above, there are biogeographical delineations of Asian and Australian fauna in Island Southeast Asia, with a mixture of both occurring in Wallacea. Generally, however, the smaller the island, the lower biodiversity in terrestrial vertebrate fauna, especially mammals (MacArthur and Wilson 1967). Thus, while large islands like Java and Sumatra can sustain populations of large-bodied Asian fauna such as rhinoceros or tigers, many of the smaller, remote islands of Wallacea had only bats and possibly rats prior to the colonization of humans and their domesticated compatriots (Spriggs 2000:52). Bird species are numerous and varied in Island Southeast Asia, and their distributions tend to follow Wallace's Line (Monk et al. 1997:344-366). Due to the island environment, fish are plentiful but species too innumerable to list here. Suffice it to say that rich fisheries are still present today and are a major economic base for Island Southeast Asian nations.

Culture History of Island Southeast Asia

A place as large and as environmentally complex as Island Southeast Asia has a similarly complex culture history. I will summarize the broad regional context before narrowing the focus to Maluku and the Banda Islands. It is important to contextualize the Banda Islands within the broader regional culture history, in part, because archaeological studies in Maluku and the Banda Islands are sparse but also because the Banda Islands were influenced by the greater Island Southeast Asian world throughout its occupation.

The Paleolithic (1.8 million- 5500 years ago)

Hominin occupation of Island Southeast Asia begins with *Homo erectus* around 1.8 +/- .04 million years ago (Swisher et al. 1994). Some authors do claim the possibility of earlier hominins (e.g., Dennel and Roebroeks 2005) but there has yet to be any concrete evidence found to support this supposition. Due to the lower sea levels 1.8 million years ago during Pleistocene glaciation, *Homo erectus* populations could have walked to what is now the island of Java, requiring no explanation of island colonization by pre-human hominids. The identification of a lithic assemblage dating to c. 800,000 years ago at Mata Menge (Morwood et al. 1997) and a later small-bodied hominin (Morwood et al. 2004) on the island of Flores (east of the deep Lombok Strait, requiring two open sea crossings [Morwood et al. 1997]) does, however, require an explanation of island colonization by pre-human hominins. As fascinating as the topic is, it has little bearing on nutmeg plantations after AD 1600 in the Banda Islands and will have to be abandoned without further investigation. Suffice it to say, the islands of Southeast Asia have a very long history of occupation by sea-faring bipedal apes.

In world archaeology, the Paleolithic is generally defined by the use of flaked or chipped stone tools (Renfrew and Bahn 2012); indirect evidence for organic tools exist, but generally only the stone tools survive in the archaeological record (Panger et al. 2002). Flake and core technology, instead of formalized tools, dominates the Asian Paleolithic record (Lycett and Bae 2010). A lack of formalized stone

tools, such as the Achulean hand ax, in East Asia has led some researchers to postulate East Asian Paleolithic populations were more heavily dependent on organic tools, hypothetically bamboo tools, than European and African populations (Pope 1989). This hypothesis is not universally accepted (Lycett and Bae 2010), but is interesting. A bone projectile point fragment found in Timor and dated to 35,000 years ago indicates that organic tools were part of the toolkit during the Paleolithic in Island Southeast Asia (O'Connor et al. 2014).

In addition to the use of chipped stone, the Paleolithic is generally defined by low density populations of mobile hunter-gatherer-fishers. Subsistence in the Paleolithic is based on a broad spectrum hunting economy exploiting freshwater, marine, and terrestrial resources (e.g., Barker 2005, Barker and Richards 2010).

The Neolithic (c. 5500-2300 years ago)

The Neolithic, globally speaking, sees the development of ground stone tools (the "new" stone tool type) and agriculture (Renfrew and Bahn 2012). However, ground stone has been found in Paleolithic, non-agricultural contexts (e.g., Smith 1986) so ground stone cannot be held up as the only signifier of Neolithic any more. Instead, the invention or adoption of pottery, the adoption or development of domesticated plant and animal species, and ground stone used to process these new domesticates is seen as the hallmarks of the Neolithic in most of the world (Renfrew and Bahn 2012).

Research and literature on the Neolithic in Island Southeast Asia has been dominated by Bellwood's (1978) Austronesian Hypothesis and its supporters and detractors. While the Austronesian Hypothesis is not directly related to historic colonial plantations in the Banda Islands, it is a major topic of research in the area and informs almost all archaeology in the region and is discussed below to familiarize the novice reader with the topic. In addition to general information, as is discussed in Chapter 5, the Neolithic does have bearing on the ceramics that were identified at the plantations.

As noted above, thanks to Bellwood (1978), the Neolithic in Island Southeast Asia is synonymous with the expansion of speakers of the Austronesian language family (e.g., Barker 2013, Donohue and Denham 2010, Specht et al. 2014, Spriggs 2010). A connection between Austronesian languages and a migration of people into these islands is assumed because inhabitants speak the same ethnolinguistic group of languages and possess the same 'Mongoloid' physical stock (Bellwood 2007:1). The assumption is that the Neolithic in Island Southeast Asia sees practitioners of agriculture who were also possessors of pottery and speakers of languages within the Austronesian family expanding out from a homeland in mainland Southeast Asia or Taiwan and populating Pacific islands including Micronesia and near Oceania. These agriculture-dependent Austronesian speakers then either replaced or absorbed the non-agricultural populations that existed on any islands that were previously inhabited. The suite of domesticated plants, animals (chickens, dogs, and pigs), specific shell artifacts, and pottery is the so-called "Neolithic package" (see Denham 2004 for a critique of the term) that accompanied early explorers.

Due to preservation effects, the presence of pottery has generally been used to identify the Neolithic period in Island Southeast Asia, as opposed to faunal and macrobotanical remains as is

common in other parts of the world (Spriggs 2007:105). The assumption has been that Austronesian language speakers possessed domesticated plants and animals in their homeland and spread with the entire package to new islands. However, Papua New Guinea is also a location of early domestication and the spread of people from Taiwan could have occurred in one direction while the domesticates spread from another (e.g., Denhem 2004, Spriggs 2007, Szabo and O'Connor 2004). Additionally, western Indonesian islands show a different, Mainland Southeast Asia-influenced Neolithic (Spriggs 2007:113). Parts of the islands of Java, Sumatra, and Borneo had material culture more reminiscent of the Austro-Asiatic speakers of the Malay Peninsula whereas the material culture of Halmahera and Sulawesi was more aligned with Taiwan (Spriggs 2010). Western expansion of domesticated plants from New Guinea, not Taiwan, into Island Southeast Asia is supported by linguistics and genetic evidence (e.g., Lebot 1999, Denham et al. 2003, Denhem and Donohue 2009).

Since the articulation of the Austronesian Hypothesis, researchers have been trying to find evidence to either support or disprove the hypothesis. An enormous body of data has been produced since the late 1970s when the hypothesis was initially expressed encompassing not just the field of archaeology but those of linguistics and genetics (human, plants, and animals). While some die-hard supporters of the Austronesian hypothesis find fault with individual studies or sites, as Specht et al. (2014:92) note, "evidence for the orthodox view of the introduction of a foreign cultural package is weak." They go further to state "There is no archaeological signature for the arrival of a package of introduced elements from ISEA that was adopted in its entirety immediately or universally throughout the Archipelago" (Specht et al. 2014:118). Donohue and Denham (2010) review human genetic data, domesticated plant and animal dispersal based on genetic and archaeological data, linguistic data, and the archaeological record. They find that there is no genetic signature from Taiwan in Island Southeast Asia populations that suggests a mass migration of people, the linguistic data does not support a linear migration from Taiwan through the islands and into Micronesia/ Polynesia, the domesticated plants and animals came from either Mainland Southeast Asia or Papua New Guinea and not Taiwan or the Philippines, and finally many of the artifacts purported by Bellwood (1978) to be of Taiwanese or Philippine origin have a deep time signature in Island Southeast Asia or an analogous path from Mainland Southeast Asia. Similar to Specht and colleagues, Donohue and Denham (2010:237) also decide that, "there was not a single homeland, a single migratory route, a single cultural package, or a single mode of language transmission that spread through ISEA."

Suffice it to say, that it is likely that there were multiple "Neolithics" in Island Southeast Asia, one coming from the Malay Peninsula into Sumatra and Java, the other from the Philippines into Sulawesi, Halmahera, and the Maluku region with additional influence from New Guinea in the form of domesticated plants (Spriggs 2010). Plants, animals, people, and pottery could have come from different places and at different times (Donohue and Denham 2010). Different growing conditions on the islands required inhabitants to adjust the suite of domesticates used, creating a heterogeneous distribution of domesticates (e.g., Paz 2002).

In addition to the spread of domesticates, discussions of the Neolithic in Island Southeast Asia seem to be dominated by research questions associated with finding the homeland of Lapita pottery. Lapita pottery is red-slipped and dentate stamped and has been found over a large area from the Admiralty Islands and the Vitiaz Straits to Tonga and Samoa (Spriggs 2008: 119). This pottery is the marker of a material culture that is assumed to be the precursor of later Polynesian culture. Spriggs (2010:517) notes that over 120 open air Lapita sites in Near Oceania document the spread of Lapita material culture over 200 years between 3100 and 2900 BP; but few Neolithic sites in Island Southeast Asia, the assumed homeland of the pre-Lapita material culture, have been dated and these range over 2000 years, between 4000 and 2300/2100 BP. The date range makes it difficult to identify the earliest dates of pottery in Island Southeast Asia and may give more significance to early Lapita-like sherds found in island Southeast Asia (Spriggs 2010:521), including those on the Banda Islands at PA1 (Lape 2000a:226, 2000b:141). Tracing the roots of the Lapita pottery style, it is assumed, will help archaeologists identify the roots of Polynesian culture and possibly identity the routes of the (assumed) Austronesia Expansion. However, pots and languages do not often form a simple correlation in archaeology and interpreting patterns in material culture and extrapolating to migration patterns is difficult. Lapita shows up west of the islands of interest here and after colonization of the Banda Islands, and while the correlation of Lapita pottery and the Austronesian expansion- and the role that the Banda Islands may have played in the Austronesian expansion- may be an interesting archaeological question, it is one that must be abandoned as unrelated to this project.

Once food production (or cultivation) and pottery use was established in Island Southeast Asia- howsoever it was and by whom- similar to the Paleolithic, people during the Neolithic continue to demonstrate an understanding of sea-faring technology and engage in long-distance trade between islands. For instance, Bellwood (2007:224) notes the presence of obsidian from the Talasea source in New Britain at the site of Bukit Tengkorak on Borneo, a distance of some 6500 km at c. 3000 years ago. Long distance trade was one way to practice risk avoidance, as Andaya (1991:71) notes, “it was precisely because these groups lived on small islands or in forested larger islands with limited arable land that trade with neighbors was an economic necessity.” In addition to trade in necessities, luxury items are often included as incentive, as seen in the famous, albeit slightly outside the study area, Kula Ring trade (Malinowski 1961). This trade in luxury items is the focus of the next period.

The Metal Age (2300- 500 years ago)

The “Metal Age” is not the most useful term to describe this period in the history of Island Southeast Asia as it is comes from expectations of cultural evolution based on European assemblages, but none better has been widely accepted in the broader region. Island Southeast Asia did not follow the Three Age system of Stone-Bronze-Iron that was developed in Europe, so the latter periods are lumped together as the “Metal Age,” instead of developing a more area-specific term. This period sees the development of state-level societies on Java and Sumatra and an incorporation into the wider world trade network, generally through Indian or Chinese intermediaries. Bellwood (1979:222) dates the Metal Age

(at least in Western Indonesia) to 1000 BC- AD 500 (3000 -1500 BP); the first appearance of metal objects in the islands is associated with trade relations with the Dong Son culture of Vietnam. The Dong Son are famous for their large bronze drums; these prestigious trade items have been found in Java, Sumatra, Irian Jaya and the Kei islands in addition to various places in Mainland Southeast Asia (Solheim 1990). It is assumed that the Dong Son drums were associated with an exchange system and these elite items passed through down the line trade instead of direct trade (Calo 2009); this suggests that the far reaches of Island Southeast Asia were connected via trade to the Mainland and that this trade was associated with elite goods from the development of early socially stratified societies on the Southeast Asian mainland.

The appearance of metal artifacts from Mainland Southeast Asia in Island Southeast Asia around 2000 years ago coincides with Island Southeast Asia products, such as cloves, appearing in Mainland Southeast Asia records suggesting the incorporation of Island Southeast Asian trade networks into the larger Eurasian economic sphere (Spriggs 2000:68). By 2000 years ago, multiple complex states had risen and fallen on the Asia mainland and Indian subcontinent. The Indus Valley civilization had engaged in trade with the Mesopotamia 4000 years ago; Rome sent trade missions to China at the beginning of the Christian era (Thorley 1971). Long distance trade relationships between Europe, Africa, and Asia were commonplace. It was not difficult to absorb new products and create new relationships with Island Southeast Asia. What this early trade relationship looked like 2000 years ago is unknown, but likely included forest products from Island Southeast Asia exchanged for cloth, metal, and other luxury objects from the mainland (Ray 2006:307-309). Despite their connection to complex societies on Mainland Southeast Asia, the development of state level societies in Island Southeast Asia did not occur until around the 3rd-5th centuries AD (Wisseman Christie1990:41).

It should be noted, however, that the development of states and complex societies in Island Southeast Asia cannot be decoupled from states on Mainland Southeast Asia. Both Mainland and Island Southeast Asia developed early states that had a substantial influence from Indian religions. These states have often been called “Indianized” states and they were assumed to have been created by Indian populations moving to these regions and bringing their religious beliefs and culture; these were readily adopted by Southeast Asian populations (Bellina and Glover 2004:68). This view is no longer accepted by most contemporary scholars. Instead, a more active role in state development is given to Southeast Asian populations (Wisseman Christie 1990). Certainly, based on Hindu and Buddhist iconography and the use of Indian script, there was a substantial Indian influence on the early state of Southeast Asia. However, there is also substantial evidence of indigenous development of scripts (such as Old Javanese) and art styles. As Miksik (2004:236) notes, the “adoption of South Asian cultural elements was a conscious intellectual exercise initiated by Indonesian elites, rather than the result of frequent contact between Indonesians and Indians at the middle level of society.”

The early states of Island Southeast Asian shared many of the same characteristics: they were coastal, but also had a major river system linking the coast to the interior; the economy was based on

trade at multiple geographic levels; and rulers had to maintain loyalty through allegiance building and cooperation as interior populations were too mobile to control (Wisseman Christie 1990:44-46). Srivijaya is generally accepted as the first state in Island Southeast Asia. Srivijaya was first identified by Coedes based on textual inscriptions (Wolters 1967:16). Monopoly on trade at the port of Palembang was the basis of Srivijaya's control and power over the region (SarDesai 1989). The earliest inscriptions from Srivijaya were found at Palembang and Sumatra and date to AD 682-686 (Wolters 1967:16). These Old Malays texts are quasi-contemporaneous with the first Islamic-Arab traders to the region; Muslim traders are attested to in the Chinese court around in AD 644, with the assumption that they had to have traveled through Island Southeast Asia to reach China (Ricklefs 2001:4). Most of the information on Srivijaya comes from Chinese or other records, so there are still many unknowns. Wolters (1967) summarizes what is generally accepted about Srivijaya as that the rulers probably followed Mahayana Buddhism, the existence of an Eastern and Western empire suggests territory was probably conquered, Srivijaya had its own ships and was an active participant in trade and conducted military excursions, and there was a connection between one of the ruling families of Srivijaya and the later Sailendra state in Java.

What little is known of the Sailendra rulers, like Srivijaya, comes from textual evidence (Jordaan 2006:3). There is great debate on the nature of Sailendra rule, whether it was a dynasty of Srivijaya or a separate kingdom, whether it was a Javanese dynasty in Sumatra or Sumatran dynasty in Java, among many others. The textual evidence is limited and equivocal. The earliest Hindu temples at Gendong Songo in Central Java date to AD 750-775 (Miksic 2004:242); while they are not associated with Sailendra, they provide evidence for social complexity in Central Java contemporaneous with the Srivijaya kingdom on Sumatra suggesting an independent development of state level society on Java is certainly possible. Sailendra rulers built Buddhist temples, including the famous Borobudur, and erected inscriptions to themselves in central Java although some authors (e.g., Jordaan 2006) do not accept a Javanese origin for the kingdom. The Sailendras were at the height of their power between AD 778 and 832. There are inscriptions dating to between AD 767 and AD 824 on the Southeast Asian Mainland in Vietnam, Cambodia, and Thailand describing invading forces from Java which can be attributed to both the Sailendra and Srivijaya kingdoms suggesting this was a short-lived era of military aggression (Miksic 2004:243). Shortly thereafter, in AD 856 the construction of the Hindu temple Loro Jonggrang at Prambanan in Central Java begun. This is a shift from the Buddhism of the Srivijaya and Sailendra kingdoms. The cause of the disappearance of Sailendra inscriptions and building after Loro Jonggrang is unknown, but some hypothesize a volcanic eruption based on later inscriptions mentioning an unspecified disaster and the very active volcanos in the area (Miksic 2004: 245). The switch from Buddhism to Hinduism is also unexplained based on textual evidence, but is not necessarily unusual in Southeast Asia, as is evidenced by Angkor Wat.

Despite the lack of monumental architecture like Borobudur and Loro Jonggrang, small kingdoms continued to exist in Java and Sumatra maintaining trade relations to the Southeast Asian Mainland. At this time, Melaka (Malacca) was growing in power as a trading center. Melaka's convenient location on

the straits separating Island Southeast Asia and the eastern coast of China from the Arab and Indian worlds enabled it to control shipping through the Straits of Malacca and prosper greatly, until the Portuguese conquered it in AD 1511 (SarDesai 1989).

After whatever befell the late 9th Century kingdoms in Java and Sumatra, a similar subsequent power was not seen in the area until the 13th Century and the rise of the Majapahit empire (Miksic 2004:250). The Majapahit empire was at its height in the 14th Century AD and its influence spread from Java to Papua New Guinea, although direct political control was limited to East Java and Bali, with its capital in Trowulan in East Java (Miksic 2004:251). Excavations at Trowulan have uncovered an area of gold working and one of bronze-working. Associated artifacts include crucibles, anvils, and gold or bronze ornaments (Miksic 2004:252). Pottery manufacturing areas have also been identified. The separate areas for specific manufacture of items suggest specialized craftsmen and enough political stratification to support them. Majapahit is probably most associated with Gajah Mada, the prime minister who united much of the archipelago; this is seen as a precursor to the modern Indonesian state (Ricklefs 2001). Islam began to make serious inroads into Java during the 14th Century AD and the competition between Islam and previously established religions amongst the elite and trading classes weakened the Majapahit empire, although it survived in a weakened form until European contact (Miksic 2004:254).

As noted above, the arrival of Islam impacted the established cultures of Island Southeast Asia in a variety of ways. This subject is rather too broad to address in this study. However, a short review of the history of Islam in Island Southeast Asia should be addressed for those unfamiliar with the region. The first direct evidence of Islam in what is now Indonesia is a gravestone in Sumatra, dated to AD 1211; the earliest Islamic gravestones use a mix of Arabic, Indian, and Old Javanese scripts (Ricklefs 2001:4). The mix of scripts does suggest the owners of the gravestones were indigenous converts as opposed to more recent Arab migrants to the islands. Ricklefs (2001:15) notes, “Islam was introduced in many areas by Indonesians themselves, especially Malay and Javanese Muslims traveling in East Indonesia and by Muslim rulers who conquered non-Islamised areas.” By the time of European contact in Maluku, Muslim traders from Java and Malaysia were well ensconced in the spice trade (Hanna 1973). However, not all islands received the same attention from Islamic traders and conversion to Islam was sporadic across the whole of the archipelago. Lape’s (2005) study suggests that the adoption of Islam in the Banda Islands was not complete by the time of European contact and pre-Islamic dietary practices (specifically, the presence of pig remains) continued to exist in some villages while others demonstrated a lack of pig remains.

Today, Indonesia has the highest percent of the world’s Islamic population at over 200 million, or 12%; the Islamic population constitutes 88% of the Indonesian population (Pew Research Center 2011). Despite its obvious importance, early formers of the nation of Indonesia specifically did not make Islam a national religion and allowed for the practice of certain already-established sects of Christianity, Buddhism, and Hinduism and later Confucianism. The dominance of Islam within the population corresponds, in most areas, to a social domination of the religion’s practitioners in positions of political

power and positions of power that are less official. The Islam of Indonesia, however, is often a syncretic version of Islam, mixed with local pre-Islamic ideas of spiritualism (Ricklefs 2001).

Colonial Period (c. AD 1500-1945)

Island Southeast Asia was not entirely unknown to Europeans prior to the 16th Century. The *Periplus of the Erythraean Sea* was a nautical guide to the Red Sea and Indian Coast written around AD 50 (Keay 2004:56). While Island Southeast Asian ports are not mentioned in the *Periplus*, its spices are, and the islands are hinted at (Keay 2004:69). A thousand years later, the islands are connected to maritime and terrestrial trade routes beginning in Melaka and reaching to London. By the late medieval period, Europeans were used to getting their spices through Islamic intermediaries in the Middle East. Be it due to religious animosity or just monetary meanness, European traders wished to cut out the middle men and sought their own routes to the fabled spices.

The Portuguese were the first Europeans to attempt to insert themselves into the Asian trade networks at the source. Prince Henry the Navigator sponsored exploratory voyages which resulted in the Portuguese circumnavigating Africa and reaching India by 1497. Europeans goods were not valued in the Indian markets, so the Portuguese resorted to force to establish themselves in the trading networks, with Alfonso de Albuquerque conquering Goa in 1510 and the strategically located port of Melaka (Malacca) in 1511. After taking Malacca, Albuquerque sent Francisco Serrão to locate the fabled 'Spice Islands.' The Portuguese established factories or fortresses on most of the major spice-producing islands including Ambon, Ternate, Tidore, and Banda. (Ricklefs 2001:25-29, Keay 2004)

By 1595, the Dutch began showing interest in establishing themselves in the Asian trade and sent their first expedition under Cornelius Houtman, which proved disastrous for the majority of sailors and many locals in Java but the little spice that reached the Netherlands proved profitable to the early entrepreneurs. Multiple successful voyages to the Spice Islands between 1598 and 1602 lowered spice prices in the Netherlands market and decreased profit for the sponsors of the voyages. Thus, the *Vereenigde Oost-Indische Compagnie*, the VOC or Dutch East Indies Company, was formed to manage trade and increase profits. The VOC was given quasi-sovereign powers by the government of the United Provinces and could create treaties, wage war, and build fortresses throughout its territory. This quasi-sovereign power eventually led to the creation of the Netherlands East Indies empire. The VOC was run by the *Heeren XVII*, or the 17 Gentlemen, in Amsterdam. However, communication between Amsterdam and the archipelago took almost two years to arrive, so a Governor-General position, located first in Ambon and then in Batavia (modern-day Jakarta), was created to run the majority of operations from the East Indies. The VOC was the first joint stock company and was an important step in the development of a capitalist economy in Europe (Ricklefs 2001:29-35)

After the conquest of Batavia in 1619, the VOC strategy was one of using military might to establish control over trade and to keep other European powers, such as the English, from establishing a foothold in the archipelago. The military might was expensive to maintain and cut into the profits of the VOC. Due to Byzantine bookkeeping traditions, it is difficult to tell if the VOC was ever technically

profitable, despite paying out handsome dividends to its stockholders. The large number of forts and manpower in the East Indies, in addition to the number of ships that were needed for both inter-island trade and the international trade was costly and capital tended to not be re-invested into the company as often as was needed. Thus, the VOC declared bankruptcy in 1799 and control of its economic empire was handed over to the United Provinces. This established the Netherlands East Indies (NEI) period. The United Provinces insisted that the archipelago pay for its own administration, and also some of the Netherlands' debt, and set up the *cultuurstelsel*, or 'cultivation system.' Each village was required to set aside a portion of its land for growing cash crops- for instance, sugar, coffee, or indigo- for export instead of growing rice or other crops for subsistence. This system proved to be exceptionally exploitative of the local populations, but profitable for the Dutch government. By the mid-19th century, backlash against the exploitative *cultuurstelsel* was beginning in the East Indies and spreading to the liberal Netherlands middle class. The *cultuurstelsel* was eventually abolished in favor of the creation of private estate agriculture, in theory with paid labor. But this, too, turned out to be extremely exploitative of workers, who often ended up owing more to job brokers and the company store than they could ever hope to pay back, effectively re-creating an enslaved class of workers. (Ricklefs 2001:155-286)

These periods of exploitation of the workers while native and foreign elite profited helped stimulate the Independence movement. The early 20th century did see attempts at reform and improvement in the lives of the peasantry, but the global Great Depression and WWI ensured that little progress was made on this front. However, it was the Japanese conquest of the NEI during WWII that ushered in the beginning of the end for the Netherlands' empire in the East Indies. The Dutch abandoned the archipelago to the Japanese with little fight. Some of the population embraced the Japanese as liberators, but it was soon realized that the archipelago exchanged one colonial power for another and it was not an improvement. After liberation, the Netherlands attempted to re-establish their colonial control, but newly formed independent Indonesia violently rejected that attempt. In 1949, the Netherlands ceded to the revolutionaries and gave up their sovereignty of the archipelago (Ricklefs 2001: 155- 286). The young country saw its fair share of problems, including a 31-yr brutal dictatorship, but it perseveres.

The Archaeology and History of Maluku

Maluku is modern geopolitical province in which the Banda Islands are located. Today, the geopolitical province includes the major islands of Buru, Ambon, Seram, and their associated smaller islands, the archipelagos of Banda, Aru, Kei, and Nusa Tenggara (including Wetar, Leti, Babar, Tanimbar and associated islands). Prior to 1999, Halmahera, Sula, Obi, and Misool were included in Maluku, but they have been split off into Maluku Utara (North Maluku). Initially, the term "Moluccas" referred only to the spice-producing islands of Ternate, Tidore, and Banda, and possibly Ambon (Donkin 2003:88). The collection of the Moluccan islands (Figure 3.2) into a political region is somewhat the product of European map-makers who joined the islands around the Banda Sea into one identifiable region (Monk et al. 1997:2), but there are cultural and linguistic similarities joining the islands together despite a lack of long-

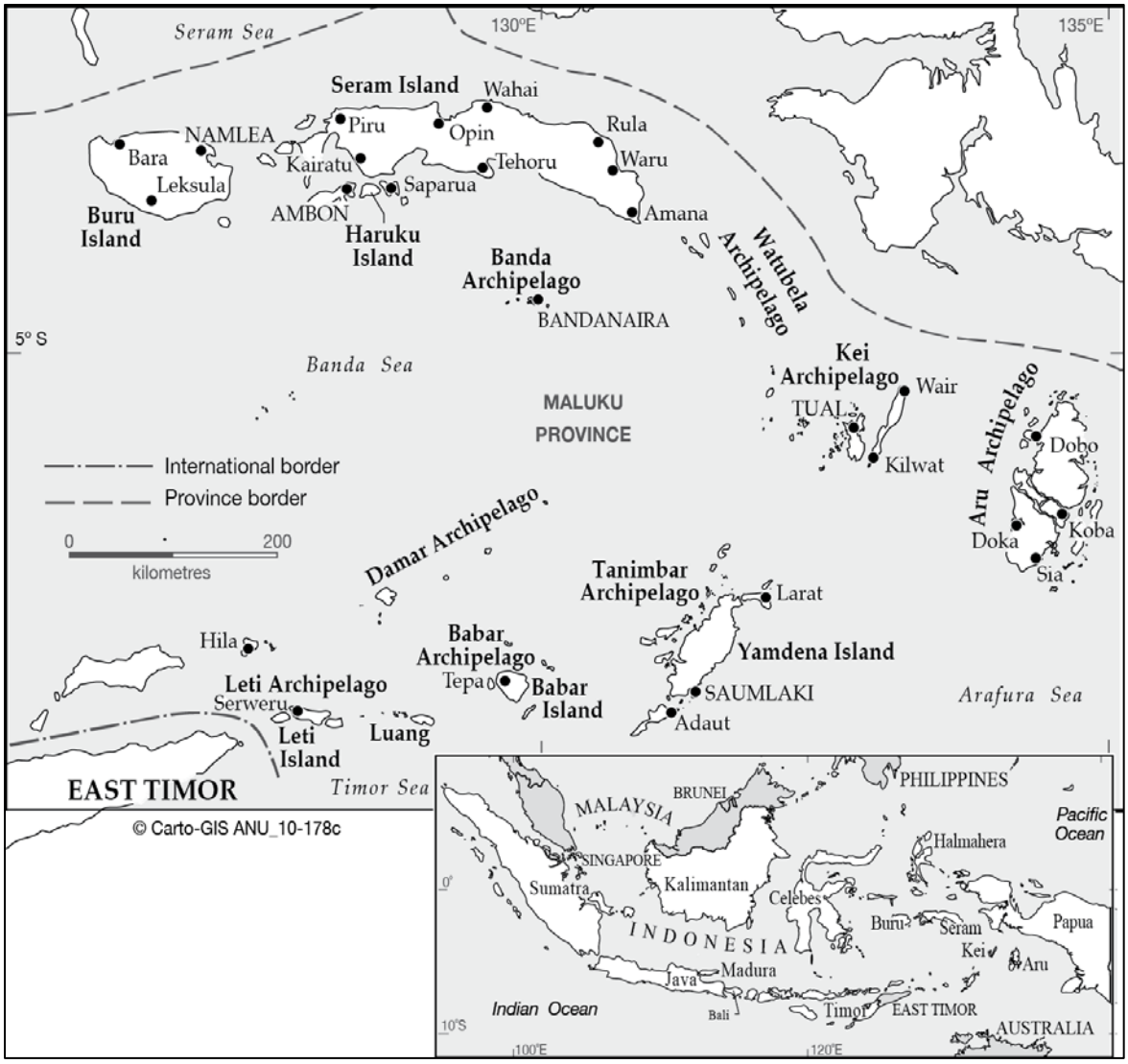


Figure 3.2 Map of the Maluku region.

standing political cohesion (Andaya 1993:47). The islands stretch about 10º across the equator from approximately 2º 31' North to 8 º 20' South and lie between the Philippines to the north, Papua New Guinea to the east, Sulawesi to the west, Australia to the south, and the Nusa Tenggara archipelago to the southwest. Multiple separate and often remote archipelagos make up the Moluccan islands, which creates a diverse region with microclimates and unique ecosystems, thus Maluku cannot be easily generalized. However, the islands of Maluku are generally small (in comparison to the large islands of Java, Sumatra, etc.), tectonically active, and have limited natural resources due to their small size (Monk et al. 1997:1-4).

Four geologic plates meet in the vicinity of Maluku and as a result, the islands are volcanic surrounded by a deep sea or coral and the islands of Maluku are relatively young, between 1 and 15 million years old (Monk et al. 1997:9). Due to the tectonic nature, many of the islands have a complex

history of emergence and subsidence beneath the ocean over their existence; this history has affected plant and animal colonization of islands, but it has not necessarily occurred within the range of human occupation. Limestone islands and karst landscapes are common on the outer-arc islands (Monk et al. 1997:52).

The small size of the islands coupled with limited resources and tectonic activity makes this region particularly susceptible to natural disasters. It is hypothesized that trade networks are created in unpredictable environments as a risk avoidance strategy (Andaya 1991) and these islands do have a long history of inter-connectedness (Ellen 2003).

The Environment of Maluku

Like the rest of Island Southeast Asia, the equatorial location provides a hot and moist climate. Rainfall is frequent but follows a monsoonal pattern (Monk et al. 1997:69). However, as Monk et al. (1997:71-74) note, the monsoonal pattern of Central Maluku does not match the general monsoon pattern due to major topographic features of individual islands. The wind patterns associated with the monsoons provide useful trade winds, which have helped connect the islands to the wider Southeast Asia Island and later Mainland spheres of influence.

Tropical forest, specifically monsoon forest, is the dominant ecosystem in Maluku. Indigenous plants available for human consumption in Maluku include: coconuts (*Cocos nicifera)*, bananas (*Musa acuminate* and *Musa spp*.), kenari (*Canarium indicum*), breadfruit (*Artocarpus altilis),* sago (*Metroxylon sagu),* panadanus (*Pandanus spp)*; introduced edibles include cassava (*Manihot esculenta)* and taro (*Colocasia esculenta)*. A variety of different species of bamboo, palms, and hardwoods are also found in the tropical monsoon forests and, while not necessarily edible, prove useful as building materials (Monk et al. 1997:187-202).Like most oceanic volcanic islands (MacArthur and Wilson 1967), Maluku has a paucity of mammals. As Bellwood and colleagues (1998:236) note,

> Excluding obviously introduced mammals such as pigs and deer, the northern Moluccas have a rather impoverished 'native' fauna which comprises mainly species of Muridae (rats) and bats….Most islands have a species of cuscus…a recently extirpated species of ground dwelling marsupials also once existed in the northern Moluccas.

Birds are less limited in their ability to disperse to new land masses and are prolific in Maluku; the number of species are too numerous to list here, but general include migratory and resident waterbirds (Monk et al. 1997:180-183). The study of amphibians and lizards is incomplete, but a variety of species are known to be in the region (Monk et al. 1997:183-184). Fish and shellfish and other seafood are prolific in the oceans surrounding the Moluccan islands. Dried fish is likely an early trade item in the region (Ellen 2003) *Trepang*, or sea cucumber, was a favored trade item for unknown antiquity, but some time before the period of European contact (Ellen 2003). Sea turtles exist in the region and were a favored food for many populations; protection under law does not deter the continued collection of eggs and hunting of adults for both meat and shell (Monk et al. 1997:583-587).

History of Archaeological Research in Maluku

While Maluku sits at an important position for understanding human colonization of the Pacific as it is located between the Philippines and New Guinea, "Maluku is in danger of being seen only as an appendage or footnote to the archaeologies of the better-known areas to either side" (Spriggs 1998:51). Few archaeological investigations have been conducted in the region. The first archaeological survey in Maluku was conducted in 1975 and the first excavation in 1990-1991 (Spriggs 1998:51). Even though Bellwood et al. (1998:233-234) note, "The northern Moluccas could have played important roles in…the period of initial human migration through eastern Indonesia… …Any discussion of the human colonization of the Pacific must take some account of the prehistory of this region" relatively little interest in the prehistory of the region has been forthcoming. This significantly hampers archaeological interpretation of the material culture as only broad regional chronologies are available, no ceramic typology is available, and comparatively few absolute dates for sites are available.

The Archaeology and History of Maluku

The Paleolithic in Maluku (c. 33,000 BP-3500 BP)

The current earliest evidence of human occupation on islands in the Maluku province has been dated to 33,000 BP (Bellwood et al. 1998:236). As few excavations have been conducted in Maluku and even fewer date to the Paleolithic period, data is limited. The Paleolithic lifeways have been described by Bellwood et al. (1998:262) as a "preceramic economy which laid heavy emphasis on the exploitation of tree foods- sago starch, nuts and fruits- [that] could have sustained locally quite dense populations without any actual agriculture of tubers…preceramic populations were well-distributed and perhaps quite large." The earliest levels of the Golo Cave deposits, for instance, yield volcanic and coral cooking stones, burnt shellfish, and flaked stone; later preceramic levels yield *Tridacna* (giant clam) shell adzes, marsupial bones, and flaked stone. Fish remains are rare in the cave sites, but this might be due to location as opposed to exploitation, as shell adzes and shellfish are not uncommon suggesting some form of marine resource use. Veth et al. (2005a) also see the use of a wide variety of plant and animal resources at East Timor and Aru cave sites in the Paleolithic period. Like later periods, the Paleolithic period sees a reliance on a wide variety of tree products and marine resources.

The Neolithic in Maluku (c. 3500 BP-2000 BP)

Like the Paleolithic, there is a paucity of Neolithic archaeological investigations in Maluku and a corresponding lack of clear defined archaeological periods and corresponding material culture. O'Connor et al.'s (2006) work in the Aru Islands, for instance, was focused on potential Pleistocene human movement through the islands. While Late Prehistoric and Historic sites on Aru are discussed (Veth et al 2006a, Veth et al. 2006b), the Neolithic evidence is sparse (O'Connor et al. 2006:331: "The arrival of the Southeast Asian Neolithic as signalized by the introduction of pottery and/or domestic animals is barely

registered in the archaeological record of Aru to date." Generally, the Neolithic is associated with the appearance of pottery in Maluku and 3500 BP is a good estimate for the Neolithic in Maluku (Spriggs 2007: 116). However, the regional picture of Neolithic colonization is incomplete and imperfect. For instance, due to the assumption that the homeland of the maritime-adapted stamped-pottery producing Lapita peoples is located in Taiwan or that Taiwan and the Philippines were stepping stones to western expansion, archaeological investigations tend to focus on the potential path of Lapita movement. As the earliest pottery in Maluku is not Lapita, the cultural association is somewhat vague. Latinis and Stark (2003:109) note that the early Island Southeast Asian pottery could be related to the Su Huynh Kalanay tradition on the Southeast Asia mainland and the Philippines, thus it is possible that the pottery tradition followed either the northern route from the Philippines or southern route from the Malay Peninsula through Sumatra and Java into Maluku. But Spriggs et al. (2011), do call Neolithic earthenware from the Pulau Ay site on the Banda Islands "Lapita-like," suggesting a potential connection to later wares. The Neolithic ceramics that appear in Maluku are red-slipped and mostly undecorated, but incised when decorated (Latinis and Stark 1998). Recent petrographic analysis of the earthenware in various Malukan sites suggest that the majority of earthenwares at the investigated sites were manufactured locally, but some small amounts had traveled significant distances (Spriggs and Dickenson 2010). However, Spriggs and Dickenson (2010) do not provide dates for the sherds or sites; some of the sherds may be from Metal Age contexts when long distance trade networks are known to have existed. The extent of Malukan trade networks in the Neolithic is as yet unknown.

In 1974, Ellen and Glover (1974) thought pottery manufacture was introduced into Maluku around AD 1100 with the increase in trade from states in western Indonesia. This supposition has long been rejected, but it demonstrates how the paucity of research affects the interpretation of the archaeological record. While the Neolithic is associated with the development of domesticates and agriculture, there is little evidence of agriculture in the Malukan Neolithic, or indeed the historic or ethnographic periods. Most of the Malukan floral resources described in early European records do not require intensive tending or domestication (e.g., Ellen 1979, 2003). Faunal resources include domesticated chicken, pigs, and dogs but wild caught fish were probably the dominant protein source (Ellen 2003). Without more direct, archaeological evidence of diet or other lifeways, our understanding of the Malukan Neolithic is limited. Earthenware pottery certainly existed in the Malukan Neolithic, sea trade existed and was extensive based on obsidian sourcing (Reepmeyer et al. 2011), but the extent of the importation or development of domesticated plants and animals or local dependence on them is currently unknown. What role the Maluku islands played in the larger Austronesian expansion or spread of Lapita pottery is also currently unknown.

The Metal Age in Maluku (c. 2000- 500 BP)

Like the rest of Island Southeast Asia, the Metal Age in Maluku is signaled by Dong Son drums and related artifacts and the mention of spices in Chinese texts around 2000 years ago (Spriggs 1998:59). Spriggs and Dickenson (2010:275) note that "Across the Maluku region and beyond there is a

major change in pottery styles and other aspects of material culture with the start of the Metal Age at 2,300-2,100 BP." Spriggs (1998:59) notes the introduction of "general Indonesian Metal age style" pottery in Northern Maluku at this time. Most of the undated "prehistoric" or "pre-colonial" Maluku sites appear to be situated in the Metal Age based on relative dating with associated Chinese porcelains or Mainland Southeast Asian tradeware.

Ethnographic and historic data are generally used as evidence for lifeways in the Metal Age. The little archaeology that has been conducted does not contradict the ethnographic evidence, so that will be presented here. Unlike the rice-based economies of Mainland Southeast Asia and the larger Indonesian islands, it is unlikely that agriculture of any intensive or extensive sort was practiced in Maluku. The sago palm (*Metroxylon sagu)* was a reliable and common source of carbohydrates and exploitation of the sago palm would have still allowed sufficient time to hunt, fish, tend gardens, and gather other wild plants (Dwyer 1985:68). Sago was also traded for "fish, shell, stone, and other forest products" (Stark and Latinis 1992:71) in areas not suited to sago growth long before any sort of extra-regional organized trade (Ellen 2003:53). Sago produces a high amount of calories with minimal processing or tending, leading Ellen (1979) to hypothesize the "Elementary Moluccan Subsistence Unit" based on sago extraction supplemented by hunting and gathering with little use of domesticated resources leading to relatively self-sufficient communities with minimal production of goods for exchange until the development of the spice trade. Other tree resources such as kenari or breadfruit, coconut, banana, and pandanus would also have been available (Andaya 1991). Pigs, dogs, and chickens would have comprised the domesticated fauna, but these animals require little tending and can forage successfully in the Malukan environment. Pigs today are often penned, but this is more likely to protect garden plants from pigs than for any benefit to the pig.

In general, population density is low in comparison to the rice-based islands of Java and Sumatra. Village-based society was probably the norm in Metal Age Maluku, as it is today. Andaya (1993:87) describes villages of between 100 and 500 people. Unlike Western Indonesia, no extensive state level societies had developed in Maluku prior to the colonial period. According to one folk etymology of the name, "Moluccas" comes from the Arabic *malik* (pl. *muluk)* for king and translates to "land of many kings" (Andaya 1993:47), suggesting a series of local chiefdoms, but not a politically unified region (the true etymology of the word is unknown). Due to their importance in the clove trade, the twin islands of Ternate and Tidore developed political influence over many other regional islands and these relationships were recorded by Portuguese and Dutch administrators (Andaya 1993). While the sultans of these islands could demand tribute (usually in the form of cloves) from many villages on both local and far-flung islands, direct political control did not extend far beyond a few villages under the sultan's personal control. Andaya (1993:71) describes the kingship of Tidore thusly, "The sultan was basically the head of a clan whose influence did not extend far beyond the boundaries of the royal settlement. The other villages on the island were linked in a loose alliance to the center, but the sultan had little real power to enforce his will on these villages or on other territories which formed part of Tidore's realm." Ternate and Tidore were the

only islands for which sultanates are recorded in Maluku. It can be assumed that lower levels of political complexity existed on the other islands with decentralized, mostly self-sufficient village-based economies joined to a larger world via trade with the more politically complex regional centers.

Andaya (1993) discusses the dualism that was pervasive in Malukan society, at a variety of levels, by using the example of the twin islands of Ternate and Tidore. This dualism can be seen in what has been called the "Siwa-Lima" system (Valeri 1989). "*Siwa*" is five; "*Lima*" is nine. However, Valeri (1989:128) notes that the concept should more properly be understood as *Siwa*/ five equals four parts plus one center part representing a complete whole and *Lima/* nine as a reduplication of four and a center part, that is, (four plus four) plus one. Villages (and the people within them) are generally affiliated with either the *Siwa* or *Lima* group. Additional dualities are associated with the groups, for instance, male/ female; seaward/ landward; inside/ outside; domestic/ wild; autochthonous/ immigrant. While not all dualities are consistent throughout the different archipelagos, the *Siwa* groups are generally inland and considered autochthonous and the *Lima* groups are coastal and are considered immigrant populations (Valeri 1989:118). The *Lima* coastal groups had also converted to Islam prior to the coming of Europeans whilst the inland *Siwa* groups had not; subsequent to the coming of Europeans, many of the inland *Siwa* groups converted to Christianity, seen as the dualistic opposite of Islam (Valeri 1989:118). The groups were endogamous and considered themselves to be "eternal enemies" (Valeri 1989:123). In fact, "Siwa groups of different archipelagos could combine their forces against an analogous combination of Lima groups. But…Local solidarity and the difficulty of developing and maintaining inter-insular alliances without a centralized system of power seem to have checked" the accumulation of power (Valeri 1989:120). Despite the status as eternal enemies, and even during on-going active war between islands, trade between the two groups always continued (Andaya 1993, Valeri 1989). Valeri (1989:135-136) notes, "in the Moluccas, each moiety gives itself the superior, prescriptive role and gives the other the inferior, transgressive role." This conception of the individual's group as the better group and the opposite group the lesser one probably contributes to the "eternal enemies" status.

In his 1544 voyage to Maluku, Galvão (Jacobs 1970:141) noted that residents "make little use of pots; for they cook meat, fish, and all the other necessaries in vessels of cane" (probably bamboo). Earthenware vessels, on the other hand, were used to store valuables "hidden in the mountains, and buried underground" (Jacobs 1970:141). Food was generally served on leaves (palm, banana, or sago) and drink in cups made of the same leaves (Jacobs 1970:143). However, earthenware is ubiquitous in Metal Age Malukan sites (Latinis and Stark 2003). The amount of earthenware in Malukan archaeological sites suggests that vessels were used for more than just storage of valuables, hidden in the mountains, but what exactly those uses were is not well documented in historic or ethnographic descriptions. Only a few villages were still making pottery in the 1970s; it seems as though pottery making was not a common craft for most villages and was somewhat limited in distribution in the past (Ellen and Glover 1974). The modern villages did specialize in specific form (e.g., globular jars vs. sago molds) and this practice may have extended into antiquity. Despite the large amount of earthenware found in archaeological sites, "In

all the sources examined…there is no mention whatsoever of any trade in earthenware, as opposed to porcelain" (Ellen and Glover 1974:367), although their case may be somewhat overstated. The ubiquity of earthenware in archaeological sites and the paucity of information regarding use is certainly frustrating for a researcher.

The Colonial Period in Maluku (c. 1500-1949)

As noted above with Island Southeast Asia in general, the Portuguese were the first European power to contact Maluku. In 1511, after the conquest of Malacca, Albuquerque sent Antonio d'Abreu to find the fabled "spice islands" or Moluccas (Donkin 2003:26-27). After making landfall at Seram, Ambon, and the Banda Islands, and collecting sufficient spices d'Abreu set off for Malacca. However, during a storm one ship commanded by Francisco Serrão was separated from d'Abreu's other ships and was wrecked near Ambon. After stealing a boat from locals, Serrão and what remained of his crew eventually encountered emissaries from the clove islands of Ternate and Tidore. Serrão allied himself with Ternate over rival Tidore and convinced the Sultan to establish trade with Portugal. Serrão stayed on Ternate as advisor to the Ternate until his mysterious death in 1521 (Donkin 2003). The Portuguese established fortifications on Ternate to protect their interests; but after the death of Serrão, few of the subsequent Portuguese commanders were willing to engage in polite relations with the Ternateans, largely due to European racial- and religious-based animosity toward the inhabitants.

In 1579, England entered the spice game when Sir Francis Drake's *Golden Hind* laid anchor in Ternate's port on his circumnavigation of the globe-cum-privateering adventure (Lessa 1986). His holds already full of plundered booty, Drake stayed only a few days and accepted a polite 6 tons of cloves from Sultan Baab so as not to seem rude to reject the Sultan's gifts; Sultan Baab, on the other hand, appreciated the short visit and seeming lack of interest in colonization of his island on the part of the English (Lessa 1986). The English, while interested in overseas territory, were distracted by the West Indies and were a bit slower to create their colonial empire in the East Indies than the Portuguese and didn't pursue the region for another twenty years after Drake's visit. By the time Captain James Lancaster landed at Aceh in Sumatra, the Portuguese had been monopolizing the spice trade via Malacca for almost 100 years and the residents of Island Southeast Asia were not well disposed to them for various reasons. The English, and the Dutch, were welcomed as new- and possibly better- trading partners.

The Dutch first arrived in Maluku in 1599, establishing trade relations with Sultan Said of Ternate, which annoyed the still resident Portuguese. In 1605, when the Dutch discovered the Portuguese fort at Ambon, with its strategic importance and fine harbor, was undermanned, they attacked and easily overpowered the Portuguese force (Loth 1995). Ambon soon became, and still remains, the political and economic center of Maluku. After the Ambon Massacre in 1623 when the VOC-employed Dutch tortured and executed the East Indies Company-employed English, the Dutch reigned supreme and the English posed no permanent threat to the monopoly of the spice trade in the region.

It should be noted that while the European powers fought amongst themselves for control of the spice trade, they were not the only actors in the theatre of trade in Maluku. As Andaya (1991:71-72) notes,

> In addition to the Malukans, there were two foreign groups who were essential to the successful integration of the local trade networks: the Bugis and the Chinese….The Bugis and the Chinese visited and actively traded in the isolated ports scattered throughout Maluku. They successfully established themselves both as intermediaries serving the more localized exchange networks, as well as direct traders with the producers or collectors in certain areas normally shunned by other groups.

This subversive trade outside the control of the VOC continued throughout the region during the years of VOC monopoly. The company policy of eradication, or the destruction of wild clove trees, was partially due to this extra-legal trade; however, cutting down swaths of trees is hard work, sailors were not amenable to the work and it is likely that the reports of eradication were greatly exaggerated (Hanna 1973).

While the Portuguese were ousted by the Dutch after about 100 years, one of their lasting legacies was the introduction of Christianity. The Dutch were never especially zealous about converting the population of their colonies, but the Catholics were quite successful in Maluku, in large part due to the presence of Saint Francis Xavier (Andaya 1993:18). Saint Francis Xavier traveled to Ambon, Ternate, and Morotai and set up multiple missions,

> by the 1560s there were perhaps as many as 10,000 Catholics in the area, mostly on Ambon, and by the 1590s there were 50,000 to 60,000…There continued to be Christian communities in Eastern Indonesia through succeeding centuries, and this contributed to a sense of shared interests with Europeans, particularly among the Ambonese, which no other Indonesian people experienced to the same degree. [Ricklefs 2001:28-29]

The early presence of the Portuguese and their missionary work in Maluku had the consequence of the Maluku province being especially loyal to the Europeans and engaging in an anti-Independence movement until around the 1950s. The Maluku province still has among the highest numbers of Christians in Indonesia, at around 50% (Ricklefs 2001). The large Christian population, in comparison to the rest of Indonesia has been the root of some social conflict. In 1999, the religious differences, coupled with an economic depression, led to a state of quasi-civil war in the region which lasted until 2002 and left up to 10,000 people dead and 700,000 people internally displaced (Spyer 2002).

The Archaeology and History of the Banda Islands

The Banda Islands were among the most sought-after real estate in the 17th Century, their small size in opposition to their importance. Below, I discuss the environmental and archaeological context of the Banda Islands, relevant to this study.

Geology

The Banda Islands (Figure 3.3) are group of 10 isolated volcanic and limestone islands in the Banda Sea, about 2000 km east of Java and 320 km southwest of New Guinea. Today, the main

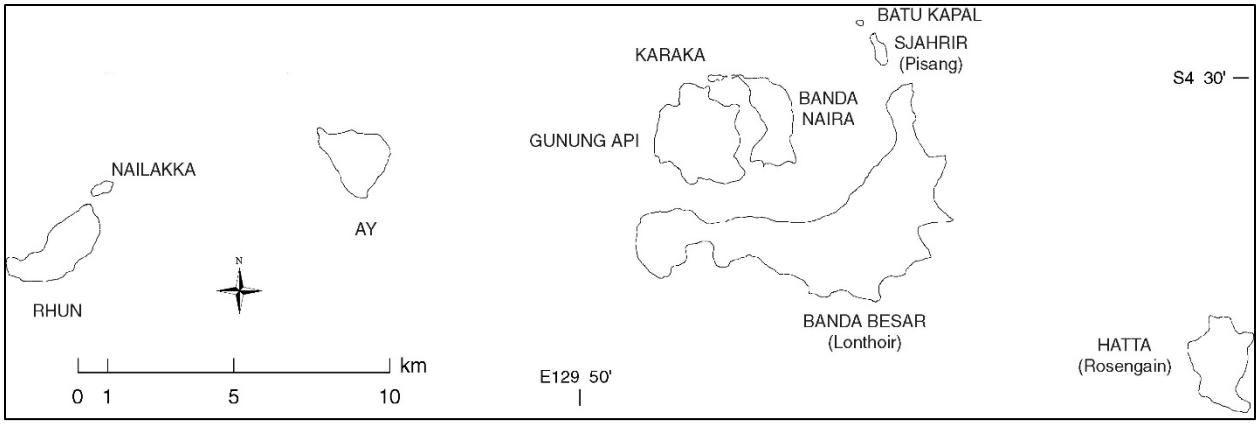


Figure 3.3 Banda Islands, after Lape (2000b).

inhabited islands are Banda Neira, Banda Besar, Pulau Ay, and Pulau Run. Small populations also reside on Pulau Hatta (or Pulau Rosengain) and Pulau Pisang (or Pulau Syahrir). Gunung Api, which literally translates to “fire mountain” and is a common name for local volcanos in Indonesia, was uninhabited during the colonial period but has some occupation today. Residences were destroyed by the 1988 eruption, but the island has been reoccupied despite the threat of destruction. Today, local Bandanese do not reside on Gunung Api but recently migrated fishing populations from other Indonesian islands have established villages. The remaining islands are uninhabited.

The three central islands, Banda Neira, Banda Besar (also known as Banda Lonthor or Banda Lonthoir after the major population center), and Gunung Api are the remains of what was once a single, large active volcano which experienced a cataclysmic eruption: “The active Mt. Api [Gunung Api] and the surrounding islands comprising the Banda Islands are the ruins of one larger volcano, whose destructive final explosion must have rivaled that of Tambora and Krakatau (Krakatoa)” (Monk et al. 1997:25)., As part of an old caldera, Banda Besar has a steep, interior ridge and the population hugs the shoreline. Banda Neira also has a rather steep incline on the northern portion of the island. Geologically, the volcano consists of andesite and basalt with varying amounts of pyroxene, plagioclase, augite, biotite, olivine, picotine, magnetite and apatite (Kuenen 1935, Verbeek 1908). The population center is the town of Banda Neira with the main port. The outer islands (Ay, Rhun, Nailakka, and Hatta) are uplifted limestone (Vulkanologi 1988). The porous limestone does not allow for a water table and these islands are dependent on rainfall for their water supply. However, the combination of limestone bedrock overlaid by volcanic ash has created a fertile soil on Pulau Ay, especially conducive to growing nutmeg (Lape 2012, personal communication. Increased soil fertility thanks to volcanic ash deposits is not uncommon in island contexts (MacArthur and Wilson 1967).

The major geologic features of the Banda Islands are their remoteness and their small land mass. Both these features conspire to create a situation of low biodiversity (see MacArthur and Wilson 1967), theoretically impacting humans’ ability to survive on the islands. It is possible some of the outer islands

experienced periodic abandonment during periods of prolonged drought or climatic instability (Peterson 2015).

Environment and Climate

The environment and climate for the Banda Islands are similar to that of Maluku in general. The climate is tropical and monsoonal. The soils on the islands are generally of volcanic or limestone origin and well-drained. Some of the islands (e.g., Pulau Ay) do not have ground water and inhabitants must subsist on collected rainwater or maintain relationships with villages on Banda Neira for water rights (Lape 2000). It is interesting to note that the currently earliest dated occupation of the Banda Islands is found on Pulau Ay (see below), one of the islands without ground water, suggesting that the lack of this basic resource was not an impediment to colonization.

Flora and Fauna

The most notable floral species of the Banda Islands is, of course, *Myristica fragrans*, the tree which produces both nutmeg and mace. While much ink has been spilled describing the Banda Islands as the only source of nutmeg, it should be clarified that the Banda Islands were the source of *Myristica fragrans*- the higher quality round nutmeg- but there are 16 species of *Myristica* that produce nutmeg in the Moluccas and New Guinea; it is possible that the trees were imported into the Banda Islands after it had already become established as an entrepôt (Ellen 2003:64). Long nutmegs, from other *Myristica* species, are still commonly found in markets in Indonesia (and internationally) today and historic documents suggest they were used to adulterate shipments of round nutmegs from Banda to the VOC to increase local profit (Hanna 1973). The non-*fragrans* nutmeg trade should not be wholly discounted or ignored by researchers.

The nutmeg trees need the ~100 m tall kenari tree (C*anarium ssp.)* to provide shade (Figure 3.4). Kenari nuts (Figure 3.5) provide some economic benefit to people, mainly women, who gather them and sell kenari nut products for the tourist trade (Winn 2002a). Kenari nut pounders are common in Malukan archaeological sites, suggesting a history of intensive exploitation dating back to the Paleolithic (Stark and Latinis 1996) in contrast to their somewhat peripheral use today. Few other tropical plants have been noted in historical descriptions of the islands (see Wallace 1962, Valentijn 2002). However, the economically and dietarily useful coconut, banana, and bamboo were all noted by this researcher as growing both wild and tended. Cassava (*Manihot esculenta)* gardens (Figure 3.6) are common on the islands today, but are likely a result of Japanese occupiers encouraging cassava cultivation during WWII according to Winn (2001). Boomgaard (2003), on the other hand, notes that cassava was a significant crop making up ~30% of the agriculture in Java in the late 19th Century and notes that it was growing Seram, Buru, and other Malukan islands by the 1860s. Other imported foods such as cucumber (*Cucumis sativus*) and chili peppers (*Capsicum spp.*) are also commonly seen in the markets and gardens today (Figure 3.7). Sago does not grow well in the Banda soils and was likely never an economic crop (e.g., Villers 1981:740). Tubers could have been imported with the original Neolithic settlers as Field (2008)

notes the presence of tuber starch on early ceramics from Pulay Ay. Breadfruit (*Artocarpus* spp.) is also currently grown in Banda and has been noted by Rumphius in the late 17th Century (Monk et al. 1997:233); breadfruit is common in Southeast Asia but was likely imported by humans (Lape 2000b:43).

Wallace (1962) noted the presence of few endemic mammals, except bats, but the presence of deer (probably *Rusa timorensis*) and cuscus (*Phalanger spp.)*. Wallace also described the large nutmeg pigeon (aka, Elegant Imperial Pigeon, *Ducula concinna*) as, "The most remarkable is a fine and very handsome fruit pigeon, Carpophaga concinna, which feeds upon the nutmegs, or rather the mace, and whose large booming note is to be continually heard." Chickens (*Gallus gallus)* are ubiquitous on the islands today and likely first arrived in Banda in Neolithic times. Chickens today are mainly kept for eggs and frozen chicken is imported for consumption. I also noted a free-range flock of geese (*Anser spp.*) and ducks (*Anas spp.*) kept in Banda Neira (Figure 3.8) but was unable to acquire information regarding their antiquity or use. In addition to bats, humans have imported the cuscus*,* and domesticated dogs, cats, pigs, cows (Figure 3.9), deer (Figure 3.10), and goats (Figure 3.11). Rat teeth were found in Neolithic layers on a site on Pulau Ay (Lape 2000b, Peterson 2015); these animals could easily have hitched a ride with the original inhabitants as is common in Pacific Island settlement (e.g., Wilmshurst et al. 2008). Reptiles are known, for instance lizards and sea turtles (Monk et al. 1997:342-343). Snakes have been reported by local informants, but, due to the remote location, snakes must have been imported- probably unintentionally- by humans. Giant African land snails (*Achatina achatina)* (Figure 3.12) are also present on the islands today, likely due to invasion around the turn of the century (Mead 1961). Fish are abundant in the reefs surrounding the islands and the deep sea. Mollusks are also common. Giant clams (*Tridacna gigas*) exist in the reefs surrounding the islands and pearl fishing has been a lucrative industry since at least the turn of the 19th century (Hanna 1973).

Table 3.1 describes the nutritional value and rank of some of the common food resources in the Banda Islands. Researchers (e.g., Ellen 2003, Hanna 1978) emphasize the lack of carbohydrates on the Banda Islands and the need to import them as being a major impetus to the development of the nutmeg and mace trade and Banda's development as an entrepôt. Unfortunately, the carbohydrate measure for the foods in Table 3.1 is not currently available. Many authors (e.g., Ellen 2003, Hanna 1978) emphasize the need for the VOC or Netherlands East Indies government to import food to support the *perkeniers* and their workers and Tome Pires notes that Banda has "hardly any foodstuffs" (Pires and Rodrigues 1944:208). While food is present and not particularly costly to aquire, the amount of foodstuffs was likely inadequate for the population in the pre-colonial times as it is today.



Figure 3.4 Nutmeg and kenari forest overview on Pulau Ay.



Figure 3.5. Kenari nut processing at Kelli *perk* on Banda Besar.



Figure 3.6. Cassava garden growing in Fort Revenge on Pulau Ay.



Figure 3.7. Fresh fruit and vegetables available at Banda Neira market.



Figure.8 Free-range geese on Banda Neira.



Figure 3.9. Cow on Banda Besar.



Figure 3.10. Deer in front of Istana Mini on Banda Neira.



Figure 3.11. Goat on Banda Besar.



Figure 3.12. African land snail at Ordatang site on Banda Besar.

Table 3.1 Rank of food resources on the Banda Islands, after Lape (2000b:45).

Food Resource (nutritional values per 100 g)	Calories	Rank	Protein (g)	Rank	Fat (g)	Rank	Cal+ prot+ fat	Rank
Artocarpus altilis (breadfruit) Flesh Seeds	55-110 150	20 13	0.8-4.3 6.0	16 13	0.3-1.5 0.5	17 19	53 45	= 20 16
Canarium spp. Kenari nuts	644	2	14.2	9	68.5	1	12	2
Pandanus spp. Pandan	683	1	11.9	11	66.0	2	14	3
Colocasia esculenta taro	100-165	11	1.4-2.0	21	0.2-0.5	20	52	19
Coco nucifera coconut Mature meat Immature flesh Mature nut	351-500 30-180 311-346	4 10 7	4.0-4.7 0.7-4.0 2.5-4.3	14 18 17	33.0-53.4 1.0-15.0 34.0-35.0	4 7 6	22 35 30	6 11 9
Dioscorea spp. yam	95-161	12	1.0-2.5	20	0.05-0.2	23	55	22
Musa spp. banana	85-142	14	1.0-1.3	22	0.1-0.5	18	54	21
Metroxylon sagu sago	285-362	6	0.1-0.5	23	0.0-0.3	21	50	18
Bat (rabbit)	134	17	20.0	2	6.0	11	30	10
Bird (general fowl)	139	15	19.0	4	7.0	9	28	8
Cuscus (rabbit)	134	16	20.0	1	6.0	10	27	7
Fish	132	19	18.8	7	5.7	12	38	14
Prawns	94	21	18.0	8	1.5	16	45	15
Reptile/ Snake (fish)	132	18	18.8	6	5.7	13	37	13
Shellfish (unspecified)	70	23	10.0	12	2.0	15	50	17
Deer	202	9	9	3	14.0	8	20	5
Pork	453	5	5	10	45.0	5	20	4

The Archaeology and History of the Banda Islands

The Paleolithic (? 7160-3550 BP)

There are, as yet, no unproblematic dates for a Paleolithic occupation of the Banda Islands. Recent radiocarbon dates on marine shell in occupation layers on Pulau Ay have yielded a date of 7160 +/- 50 BP (Lape 2013). Marine shell can yield problematic dates due to the marine reservoir effect, which can produce erroneously old dates (Walker 2005:30-31). Until more early Holocene dates for the occupation of the Banda Islands are produced, the 7000 year old date is tantalizing but suspect. There's no reason why people could not have reached the islands at this early date, of course, but more work needs to be done both locally and regionally to identify a Paleolithic occupational sequence.

The Neolithic and Metal Age (3550-500 BP)

Currently, the earliest non-problematic occupation date for the Banda Islands is 3635-3452 cal BP (95% CI; D-AMS-006795: 3647±28 rcybp) (Peterson 2015). If the 7160 BP date turns out to be erroneous for some reason and the c. 3550 BP date is the earliest occupation, this places initial occupation quasi-contemporaneous with what many authors, following Bellwood (1979), claim as the Austronesian expansion. While the northern Malukan islands, like Halmahera, Morotai, and Batan, are strategically located between the early –colonized Sulawesi, the Philippines, and Papua New Guinea (Bellwood 1997), the Banda Islands are not located in close proximity to major land masses on easily sailed routes; however, the recent early date suggests the potential for an Early Holocene, non-Austronesian occupation cannot be discounted at this time. The initial colonization of the Banda Islands is not, however, the focus of this dissertation. People were living on the Banda Islands at least 3550 years ago, from whence they originally came is of little import to adaptations to colonization by a European power 500 years ago, so I will leave the determination of age and origins to someone else.

At the time of European contact in 1512, the Banda Islands were a node in a trading network that linked Papua New Guinea to London, a trading network that was soon to be truly global (Ellen 2003). The development of this trading network, sadly, has not yet been the subject of much archaeological research, despite Bellwood's (1993) exhortations to do so. The inclusion of the Banda Islands into the global trade can be tentatively dated to ~ AD 1000 based on excavated Chinese porcelains (Lape 2000a); this date is not in disagreement with Chinese historical records (Shiung 2012). Long distance trade networks linking the Indian subcontinent or China to the Euro-Mediterranean world had existed 5000 years ago (Thorley 1971) and networks linking the Asian continent with Island Southeast Asia existed since Dong Son times (Bellwood 1979). It is not unexpected that the distant peripheries would eventually become linked. Many different places acted as nodes in the regional Malukan trading network and the Banda Islands were one of these (Ellen 2003).

The archaeology of the Neolithic and the Metal Age in the Banda Islands is sparse, but it exists. Lape (2000b) was the first to conduct archaeological fieldwork in the Banda Islands. While Lape focused on the Islamic, pre-Colonial period, he did identify Neolithic deposits on Pulau Ay. No fine, dentate

stamped ceramics have been found on the Banda Islands, but a "Lapita-like" sherd was identified in Neolithic deposits in Pulau Ay (Spriggs et al. 2010). It is possible, then, that the original inhabitants of the Banda Islands were somehow associated with the regional Lapita cultural complex. Domesticated pig bones and fish bones are also evident in the earliest Neolithic levels (Lape 2000), suggesting a mixed economy, using both wild and domesticated, terrestrial and marine resources. Subsequent work by Shiung (2012) based on Lape's original assemblages provided additional information on the Neolithic occupation. Shiung (2012) noted that similarities existed between the Banda Islands assemblages and Northern Malukan assemblages from the Neolithic until the colonial period, and likely after. Shiung (2012) speculates that the Banda Islands were focused on regional trade within Maluku until after the 11th Century AD when the trade routes expanded to China and the Islamic World. Peterson (2015) utilized both ceramic and faunal assemblages from Lape's original excavations on Pulau Ay and Banda Neira and addition assemblages excavated in 2007 and 2009. Peterson (2015) used inductively coupled plasma mass spectrometry (ICP-MS) and isotope analysis to identify the source groups of the earthenware ceramics and pig remains, respectively. Additional radiocarbon dates associated with these second excavations pushed the potential initial occupation of the Banda Islands to 7000 BP and therefore a Paleolithic, aceramic occupation. Peterson (2015) shows that ceramics and pigs came from both local and extra-local sources from the beginning of their presence at the sites and multiple sources were maintained throughout occupation. In addition, Peterson (2015) noted that the earthenware from different sources were macroscopically similar in form and the trade likely served a social function beyond economics as Bandanese potters could make the same function pots that they were importing. That is, trade was a dominant social institution from the Neolithic period. Lape (2000b), Shiung (2012), and Peterson (2015) all emphasize the role of trade in the Banda Islands from the Neolithic period. Lape's (2000b) study of the pre-colonial, Islamic period of the Banda Islands suggested that settlement patterns changed from easily defended hilltop sites in the Neolithic to lower sites with good harbors in the Metal Age, likely due to an increase in trade activity. Lape (2000b) also suggests that Islam arrived earlier in the islands than historic records state, probably in the 12th Century AD instead of the 15th Century, and that island-wide conversion was incomplete by the time of European contact.

The History of the Banda Islands

The Pre-colonial Period (c.AD 1500-1621)

As noted earlier, the Banda Islands were the only known location of the high quality round nutmeg in the 16th century. The European desire for this spice resulted in a decent historical record of contact and colonialism. The focus on the historical period of nutmeg trade means that the previous periods of initial colonization and occupation have received little attention. The Banda Islands first enter the historical record unambiguously in AD 1304 with mention in a Chinese text; even at this early date, the islands were associated with nutmeg (Ptak 1992). Nutmeg, however, enters into historical records long before the Banda Islands do.

Nutmeg and clove are often linked in any discussion of the spice trade because they both come from the Maluku, also known as the "Spice Islands." Cloves are mentioned in Chinese court documents in the Han dynasty, c. 300 BC (Andaya 1993:1), but nutmeg isn't attested to for another 900 years. Chinese texts from the Tang Dynasty in the 7th century AD describe the medicinal qualities of nutmeg, especially for digestive ailments (Shiung 2012:100). Shiung (2012:100-107) does note that there appears to be some difficulty distinguishing nutmeg and cardamom in the early Chinese records, which suggests a low demand for these products in Chinese markets. These Chinese records describe the nutmeg as coming from the Thai-Malay peninsula and it is clear that the Chinese were not traveling to Maluku, or Banda, directly to procure the spice (Shiung 2012:106). Arabic texts from the 10th century AD describe nutmeg and cloves coming from what is assumed to be Java, but they, too, do not appear to be traveling to Maluku directly at this time (Donklin 2003). The Banda Islands, as opposed to just nutmeg, are described in AD 1349 by Wang Da-Yuan who describes the people as having chiefs, eating sago and coconut and trading nutmeg, mace, clove-bark, and slaves for cloth, porcelain, and musical instruments (Shiung 2012:120-121).

As noted above, states whose economic power was based on control over trade had developed in Island Southeast Asia by the 7th Century AD and shortly thereafter, exotic spices from the far corners of the trading sphere begin to appear in China and, later, in locales in an expanded trade network. Despite the remote location, the Banda Islands and Maluku were incorporated into the "world system" (*sensu* Wallerstein 1974) of Asian trade from early in its development.

Hanna (1973) provides a valuable, if not entirely unproblematic (see Loth 1995), review of the European historical period in the Banda Islands, which is summarized below, unless otherwise noted. The Banda Islands first entered into European consciousness in 1512 with the arrival of Antonio de Abreu (Hanna 1973:6). After Albuquerque conquered Goa in 1511, then Malacca, in order to control the flow of spice to Europe, he sent Abreu to find the fabled Spice Islands. Tome Pires describes his journey on this voyage in the *Suma Oriental*. He notes that Banda was an entrepôt with goods such as feathers from birds of paradise, decorative shell, cloth, gold, ivory, and, of course, the spices nutmeg, mace, and clove. Pires also notes the lack of carbohydrate staples, as many do, in the Banda Islands and describes rice as imported from Bima and sago from Seram. Both Pires and Galvão describe a sort of oligarchic rule in Banda, with *orang kaya* (lit. rich man) ruling over villages, but there was no unifying government of the islands. Pires also describes a multi-ethnic society with Javanese, Chinese, and Muslim traders all living in the main port of Banda Neira. Pires noted that some of the Bandanese had converted to Islam, but not all. Lape's (2000b) excavations show a discontinuous distribution in pig bone in the pre-colonial villages on Banda, suggesting not all residents had converted to the new religion. Other authors (e.g. Valeri 1989) believe the entirety of the islands had converted to Islam prior to Dutch conquest. Regardless, similar to the rest of Maluku, Islamic communities tended to be coastal whereas interior groups generally had not converted. Historic reports of the islands note that the economy of the islands was dependent on nutmeg, for example,

> The ordinary people, almost all of whom lived in the coastal villages, earned their livelihood by gathering the ripe fruit and processing it into commercial nutmeg…and mace…for sale to resident of visiting traders. They did so in accordance with a well-understood system of family and village rights to the half million or so trees which might or might not have been deliberately set out as seedling but still required occasional care. This consisted of the clearing of undergrowth, the removal of dead or broken branches, and the protection of the groves through the planting of shade trees, or kanari, which grew to enormous size and provided an edible nut, supplies of firewood, and massive trunks which might eventually serve as hulls of dug-outs. (Hanna 1973:23)

The Portuguese stayed mostly in Ternate and Tidore and didn't attempt to establish political control over the Banda Islands. As Hanna (1973:8) notes, "the Portuguese concentrated their commercial and military operations primarily upon the clove islands, which gave them all the trouble they could handle." Portuguese merchants resident in Banda and other local traders provided nutmeg and mace to Ternate and Tidore and the Portuguese shipped these spices out with cloves. Generally, trade in Banda was little disturbed by the arrival of the Portuguese into the Malukan Islands.

The Dutch arrived in the islands on March 16, 1599 with 200 merchants, soldiers, and sailors under Vice Admiral Jacob van Heemskerk in the ships *Gelderland* and *Zeeland* (Hanna 1973:11). Heemskerk et al. were part of the Jacob van Neck expedition. Chinese, Javanese, Buginese, Portuguese, and Arab traders are described as being resident in Banda Neira (Hanna 1973:13). Heemskerk and crew stayed in Banda for 3 ½ months, trying to purchase enough nutmeg, mace, and clove to fill the holds of their ships (Hanna 1973:14). A few men were left behind in Banda to continue trading and they were joined by a second expedition in 1600. Palisaded factories were built in Banda, but the Dutch focused their energy on Ambon where they fought the Portuguese for control of the island and its trade. In 1601, the English arrived and settled a factory on Pulau Run, a small island 16 km west of the main port at Banda Neira where most other traders (European or no) were stationed, this location allowed for less competition from the others. Pulau Ay, the most fertile of the islands, was then claimed for English profit, not Dutch.

In 1599, there was a series of battles between an alliance of the villages of Neira and Lonthor (on their eponymous islands), Pulau Ay, and Pulau Run against an alliance of the villages of Labatecca (on Banda Neira), Comber and Wayer (on Banda Besar/ Lonthor), ostensibly over cutting down some trees (Lape 2000b:66-69). These skirmishes, observed by the Dutch, could have been part of a long-standing *Siwa-Lima* conflict, if in fact, the *Siwa-Lima* cultural tradition existed in the Banda Islands in the period prior to European record keeping and their control over the Spice Trade in the region. The development of the *Siwa-Lima* tradition outside the Ambon-Lease region may have been a result of increased tensions due to European influence in traditional trading networks. The village of Neira and its allies appear victorious during 1599 and Neira certainly maintains political and economic power throughout the remainder of the colonial period. This power can, at least in part, be attributed to the preference of the Europeans for Neira town residences and large European ships' need for Neira's favorable port, but not

all traders needed the depth of water at Neira. Lonthor and Pulau Ay both have ports that were adequate for smaller *prahus* and local trade.

It is difficult to determine, based on historic records, to which *Siwa-Lima* moiety the different villages belonged. Lape (2000b:69) notes that Neira, Lonthor, Pulau Ay and Pulau Run are allied together against Labatecca, Komber, and Wayer. But a problem with assuming a coastal vs interior *Siwa*/ *Lima* duality to the above mentioned names is that in these small islands, all the settlements are coastal. Valeri (1989:121) notes that Labatecca switched from *Lima* to *Siwa* sometime after European contact which could indicate this village switched alliances to have an excuse to wage war against Neira in hopes of keeping the rising port from controlling trade in the islands. But Valentijn (1724-26:290-291) describes the "kings" of Banda at first contact to be *Lima* and one "king" was from Wayer, which could indicate that Wayer and therefore Labatecca were *Lima* whereas Neira and associates were *Siwa.* Labatecca could have switched to *Siwa* after European contact as a way to re-align itself with the more successful Neira. It is possible, then, that the *Lima* moiety (associated with the coast and considered 'recent' migrants) had a higher degree of control over trade prior to European contact but that this was interrupted by the addition of European powers within the islands. Valeri (1989) notes that the Dutch allied themselves with *Siwa* (the interior and longer-established, but less involved in trade) populations in Seram, Ternate, and Tidore. Valeri (1989) suggests that the Dutch took advantage of the "eternal enemies" by encouraging antagonistic relationships between the two groups in order to take advantage of trading opportunities. Also, Lape (2000b:77-79) notes that there was a continuation of local villages alliances during the period wherein the British and Dutch were fighting for control of the spice trade in the islands, with certain islands allying with the British and other with the Dutch. There were also social differences between the foreign traders and local village residents that may have been a *Siwa-Lima* relationship that affected internal political, social, and religious interactions on the Banda Islands (Lape 2000b).

The Europeans, then, could have unwittingly and unknowingly been drawn into a traditional warring/ trading partnership. Considering the long history of trade, competition, and the occasional war between the Dutch and English, they would have fit nicely into the "eternal enemies" but also necessary partners of the *Siwa-Lima* tradition. Lape (2000b) also suggests that the dominance of Banda Neira as a port at the expense of Labatecca may have been a result of Banda Neira's association with the new trade with Java and the Malay peninsula whereas Labatecca was more aligned with local trade with Seram and the longer established trade with China.

The Dutch Admiral Hermanszoon trading in Banda in 1602 wanted to establish a trade monopoly, so demanded the Bandanese sign on contract to that effect. A few *orang kaya* did sign the contract, but they did not represent the entirety of the islands and there was no indigenous understanding of Dutch contract law, so there is no evidence that they fully understood the ramifications of what they had signed. The Bandanese had long had trade relations with multiple groups of people, both local and regionally, and the Dutch did not provide the myriad of options, including sago and other foodstuffs, upon which the Bandanese were dependent. There was no way the Bandanese could abide by the Dutch terms of the

treaty, economically or socially. Hermanszoon left 11 men on Banda to staff the factories, but these men disappeared shortly thereafter and there was no Dutch presence in Banda until 1605.

In 1605, Admiral van der Hagen was tasked with ejecting both the English and Portuguese competitors from the entire Maluku region, and placing the region under firm Dutch control by establishing forts and factories wherever needed. Van der Hagen made short work of the Portuguese in Ambon, the tales of which traveled faster than the Dutch fleet, so the Bandanese were in a negotiating mood when they did arrive. Many of the *orang kaya* signed a similar document as the previous Hermanszoon contract of 1602, although, again, they may not have fully understood what they were being asked to do. In addition, an English ship under Captain Colthurst was allowed by the Dutch to trade for a cargo of species, despite the contract the Bandanese were just asked to sign, a situation that could have been somewhat confusing to the locals. Also, Hanna (1973:24) notes,

> The Bandanese preferred the Javanese, the Buginese, and the Chinese, and the Arabs as regular trading partners. These Asian entrepreneurs sent in numerous junks, several of which were always to be found in port, and offered exactly the consumer goods which met with local favor. What was more, they were willing to bargain at leisure over each transaction, a practice which elevated commerce to the level of enjoyable intercourse…The Dutch, with their infrequent visits, their unnegotiable prices, their ignorance of local customs, their inappropriate trade goods, and their admonitions not to do business with anyone else (especially the English), made themselves tediously unpopular.

In 1608, Admiral Verhoeven again attempted to negotiate a trade deal with the *orang kaya* of Banda Besar (Lonthor). Negotiations were not progressing, so Verhoeven started building a fort on Banda Neira (it appears that the *orang kaya* of Neira were not consulted about the fort building and the *orang kaya* of Lonthor did not have the ability to allow building on Neira, a nicety Verhoeven seemed ignorant of). In 1609, after the building of the fort had progressed, the *orang kaya* on Neira agreed to meet with Verhoeven to negotiate a new trade agreement. Instead of negotiation, Verhoeven was ambushed and many of his men slaughtered (one of the surviving members of Verhoeven's crew was Jan Pietrszoon Coen who was later in such a position to enact bloody revenge for this betrayal). Intermittent fighting between the Dutch and Bandanese occurred for a few months until August 1609 when another trade agreement giving the Dutch a monopoly on the spice trade, among other things, was signed by a few *orang kaya.* The acting-Admiral Hoen left Banda, believing that he had secured the trade monopoly Verhoeven had been tasked with achieving.

After the departure of Hoen and the fleet, it became apparent that nothing had changed, except, perhaps, for increasing hostility toward the Dutch that remained manning the almost-finished Fort Nassau. The English remained and continued trading out of Pulau Run and Pulau Ay. In 1611, Pieter Both arrived, again with the goal of establishing a trade monopoly over all the Banda Islands and removing the English. Both began building Fort Belgica, in a better defensive position than the hastily-built Fort Nassau and again attempted to enter into trade negotiation. Again, he was rebuffed by the Bandanese who requested that all forts be dismantled prior to any negotiation. Both was followed in 1615 by General Gerald Reijnst, who received the same instructions as Verhoeven and Both. Reijnst had

around 1000 men, including Japanese mercenaries. He decided to attack Pulay Ay, long a stronghold of English trade, with ~900 men. Hanna (1973) gives the estimated population of Pulau Ay at this time at 1800 people, with possible 500 armed adult males. However, the English had worked with the residents to create strongholds built into the natural topography and had supplied guns and trained residents in their use. The Dutch were able to take all but the last stronghold during the first day of fighting, but the Bandanese attacked at night and drove the Dutch back to their ships. In all, the Dutch had 36 dead and 187 wounded.

The VOC tried again in 1616 when they sent Admiral Jan Dirksen ‘t Lam, 12 ships, and over 1000 men. In a strange twist of fate, the English Captain Castleton’s life had once been saved by ‘t Lam and Castleton refused to fight his savior. Castleton removed himself and his men from Pulau Ay on the condition the English were to be allowed free trade on Pulau Ay once it was conquered, leaving the Bandanese to their fate. The Bandanese fought valiantly for three days and kept the Dutch at bay with the English guns. When ammunition ran out and the Dutch hadn’t been routed, the many of the inhabitants of Pulau Ay attempted to flee to Pulau Run in the middle of the night. Too many people on the boats made them unseaworthy and many drowned when their overloaded boats capsized. The Dutch attempted to slaughter the remaining inhabitants on Pulau Ay, any survivors also attempted to flee to Pulau Run. The Dutch took over the major stronghold, rebuilt it, named it “Fort Revenge” and installed a garrison of 154 under a governor for the island. Prior to their arrival at Banda, the Dutch had acquired a force of around 800 enslaved and conquered people, prisoners, convicts, freed slaves and soldiers and these were used to harvest the nutmeg crop on Pulau Ay. Lacking the knowledge of how to identify ripe nutmeg and the desire to harvest the nutmeg, this work force was ineffectual. Many people who had been enslaved and transported from other Malukan islands soon disappeared, likely rescued by their compatriots. ‘t Lam took *orang kaya* from Banda Lonthor and Banda Neira hostage and forced them to sign, once again, a treaty granting the Dutch a trade monopoly on nutmeg at low fixed prices. Once again, the Admiral left, believing Banda had been well and truly conquered, this time. Once again, as soon as the mass of the Dutch fleet had left, the Bandanese continued to trade with their long-standing, traditional trade partners who provided better prices and needed goods for the nutmeg and mace.

After 1617, the English began to worry and vex the Dutch by establishing more factories in spice producing or trading areas. In Banda, the English re-established trading posts on Pulau Ay and Pulau Run, and built fortifications on the small Pulau Nailakka to the north of Run. Pulau Ay, Run, and Nailakka are unfortunately bereft of sources of freshwater, so while the fortifications were nigh-impregnable, the populations on the islands were severely vulnerable to a long siege. Through a series of unfortunate events, the English Captain Courthope lost both his ships to the Dutch and many of his men were captured. The Dutch offered to restore his men and ships if the English would leave and never return, confident of the imminent arrival of backup, Courthope defiantly refused the generous offer. The relief ships were intercepted by the Dutch and the defiant Captain Courthope gained an ignominious end when he drowned after attempting to swim to safety during a Dutch attack on his *prahu*. Despite Courthope’s

demise, the English continued to maintain factories on Pulau Ay. Dutch control was secure only on Banda Neira, which produced little nutmeg.

Things were about to change, however, in both Banda and the region that was to become Indonesia with the appointment of Jan Pietrszoon Coen as Governor-General of East Indies in 1618. Coen was a survivor of the attack on Admiral Verhoeven in 1609 and was by all accounts an unforgiving man. For example, a friend left his underage daughter in Coen's care when said friend had to return to the Netherlands. When the girl was found in a compromising position with a young man, Coen had both killed so he would not suffer a blow to his reputation by allowing such behavior under his roof. It is not mentioned how the friend reacted to the murder of his daughter by her supposed guardian upon his return. The headquarters of the VOC in the East Indies had been at Bantem, a reasonable port. But Bantem was unfavorable due to the large number of competitors and Coen moved to Jakarta. The locals did not take too kindly to the building of fortifications and laid siege. Eventually, the Dutch won and renamed their new territory "Batavia" after a little-known tribe in Holland. This was the name it was to be known until Independence. Coen believed a trade monopoly over the entire region from India to Japan was the only way to maximize profit and had made plans to achieve this goal. The first step was to final and complete subjugation of the Banda Islands to create an effective monopoly on the nutmeg and mace trade for the VOC. In 1620, news of an Anglo-Dutch treaty arrived in Batavia. The English and Dutch agreed to stop fighting in the East Indies and instead mutually support each other against the Spanish and Portuguese. The English East India Company would supply one-third the men, money, and ships to support and protect the forts and factories from Iberian incursion and the VOC the remaining two-thirds for the same proportion of spices. Already planning his attack on Banda, Coen asked the English to provide the one-third support mandated by the treaty, the English begged poverty and claimed they could not provide the required men and ships at that time. Coen, unperturbed by their lack of support, continued without them arriving in Banda February 27, 1621 with 52 ships of various sizes and 1,655 European men, 286 Javanese convicts, around 100 Japanese mercenaries, and sundry other Ambonese warriors, freed, slaves, and Dutch townspeople. Coen invited the English resident in Pulau Ay and Pulau Run to join him per the treaty, they declined but started fortifying their positions and arming their local allies.

On March 4, 1621, Coen sent his yacht the *Hert* to circumnavigate Banda Besar. The ship took heavy cannon and gun fire. Upon the return to Banda Neira, the crew reported the locations of fortifications and cannons. On March 11, 1609, Coen sent his men to concurrently attack multiple spots on Banda Besar in order to create maximum confusion. If battle was not in their favor, the Dutch offered bribes to Bandanese to betray their compatriots which many accepted. The majority of Banda Besar was taken on March 11, with a few remaining hold outs taken the next day. The *orang kaya* of Lonthor sued for peace, Coen drew up a new treaty similar to previous ones demanding the Bandanese sell their nutmeg only to the Dutch, at fixed prices, among other things. The *orang kaya* agreed. Coen assumed they would repudiate this treaty like they had all previous and was waiting for any violation to escalate the situation. In the meantime, Coen began building Fort Hollandia in the interior highlands of Banda Besar.

Instead of fulfilling the part of the treaty that required a nutmeg "tithe," the inhabitants of Lonthor hid in the interior of the island and harried the Dutch. The Dutch retaliated and captured residents to sell into slavery in Batavia or chased them off the cliffs of Lonthor to their deaths. Many residents attempted to flee to neighboring islands such as Seram, Kei, and Aru. In the meantime, Coen set up Martijn 't Sionck as Governor of Banda at Selamme. 't Sionck set up his soldiers in the mosque or appropriated residents' homes. He burned houses and boats for any slight, real or imagined. He also had his own men killed for minor infractions which did not demonstrate the purported mercy if Bandanese in the hills returned and submitted to Dutch rule. Coen captured the most prominent of the remaining *orang kaya* and subjected them to trial for conspiracy. Evidence of the conspiracy was gathered via torture. Forty-four of the *orang kaya* survived this experience and were sentenced to death, via beheading and quartering. After this incident, many Bandanese tried to escape to neighboring islands, those that remained were starved or enslaved, "of the original population of perhaps fifteen thousand persons, no more than about a thousand seemed to have survived within the archipelago, mainly on Pulau Run and Pulau Ai…Another 530 homesick, indigent, and troublesome Bandanese were eventually shipped back from Batavia" (Hanna 1973:55). Coen also took the remaining English factors prisoner, dismantled the factories, and took possession of the spices therein. The Dutch also attempted to cut down all the nutmeg trees on Run so that the island would not be worth an attempt by the English to reclaim. The English did attempt occasionally to reclaim the island until the 1667 Treaty of Breda when the English claim to Run was exchanged for the Dutch claim to the Isle of Manhattan. Despite being rewarded handsomely by the VOC for his achievements in Banda, Coen was not looked upon favorably by his countrymen at the time nor by history for his deeds.

The Colonial Period (AD 1621-1945)

Coen's plan, after absolute conquest, was to divide the islands into productive plantations (sing. *perk*, pl. *perken*) and repopulate the islands with sturdy Dutch burgers who would manage the plantations (the so-called *perkeniers*) at a healthy profit for the VOC. He did not get the rosy-checked, farm boys fresh from the Zeeland fields that he had anticipated. Instead, he received ex-employees of the VOC who had served their term but who had decided to stay in Asia, for whatever reason, but most reasons somewhat unsavory. While the *perkeniers* would not own the land, per se, they were allowed to plant coconuts and fish in neighboring waters so they would have access to earning some capital, but all nutmeg and mace would be sold to the VOC at fixed rates. The VOC, in return, would provide slaves enough to work the land and provisions, including rice, at cost. The nutmeg bearing land across all the islands was divided into 68 total *perken*; 34 on Lonthor, 31 on Ay, and 3 on Neira (Figure 3.13). Each *perk* was to be staffed by 25 slaves overseen by the Dutch *perkenier*. The *perkeniers* did not outright own the land they worked, the VOC did, and were therefore unable to sell it off for capital but were similarly unable to be evicted by the VOC. In the early days, slaves were imported from Papua New Guinea, Seram, Buru, Timor, Borneo and other regional islands. The fixed price at which the *perkeniers* were to

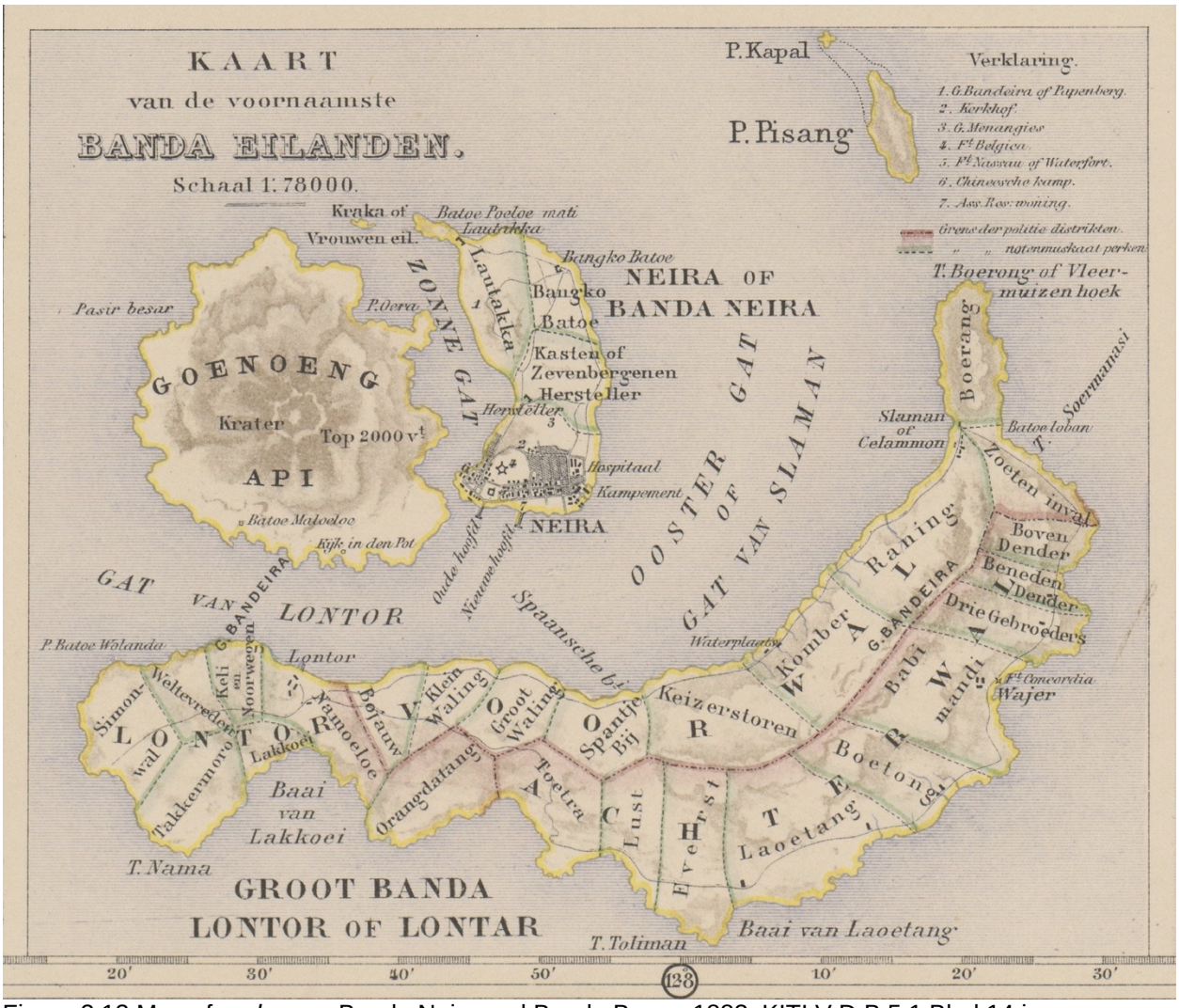


Figure 3.13 Map of *perken* on Banda Neira and Banda Besar, 1883. KITLV D B 5,1 Blad 14 i.

sell the nutmeg to the VOC worked out to be 1/122 of the price it fetched in Amsterdam in 1621. The bookkeeping strategies of the VOC were byzantine and 17th century currency is not easily converted to modern terms, so it is difficult to say how much the *perken* were worth or what profit the VOC received from them. Due to the monopoly, *perkeniers* were unable to glean their own capital, legally, from the sale of nutmeg and so often came begging to the VOC for advances to repair buildings damaged in earthquakes or to provide more food. The VOC did not hold up their end of the bargain by providing food, cloth, slaves, and protection to the *perkeniers* and the *perkeniers* did not appreciate the low prices they were forced to accept, knowing the high prices the VOC demanded in Europe. The relationship, then, was not exactly mutually beneficial and created room for exploitation. Hanna (1973:61) describes them as "prickly and embittered." Both sides attempted to defraud the other at every opportunity.

Creating a New Society

The Bandanese society prior to the Dutch conquest was already multicultural and the burgeoning trade empire of the Dutch merely extended the potential source of willing and unwilling migrants to the

Banda Islands. The Dutch were importing enslaved workers from all the sources along the African and Indian ports to which they had access from the initial conquest periods (Vink 2003). As Loth (1995:24) notes, “After the final subjugation of Banda in 1621, slaves were imported from Gujerat, Malabar, Coromandel, the Malay peninsula, Java, Borneo, coastal China, Bouton, several parts of Maluku,Kai, and Aru. Spanish, Javanese, and Makassarese prisoners were added.” There were also the Dutch, any residual Portuguese, and additional Europeans who joined up with the VOC from various countries. The *perkeniers* and VOC employees were forbidden to fornicate with the locals and few European women were available. Generally, then, the European men would baptize enslaved women for the sole purpose of a marriage acceptable to the governor, whom they had to ask permission to wed, so that, “The new *perkenier* households thus took on a composite racial aspect, as ex-slaves mothered Dutch children.” It is a common perception in European-based histories of the Banda Islands that the population on Banda at this time consisted of the *perkeniers*, the VOC soldiers and merchants, and the enslaved workers on the *perken*, however Hanna (1973:66) does note that in a 1638 census, half of the 560 recorded Bandanese were free. Of the 3,842 people on the island, 462 were European plus another 77 children of European or mixed ancestry. In the remaining 2,743 people, 833 were free. The total enslaved population was 2190 or 57% of the population (280, or 13%, of the enslaved populations were indigenous Bandanese). This early period was also rather violent in the maintenance of order. According to Johann Wurffbain, a German employee of the VOC and early journaler, the 5-year period between 1663-1668 saw 25 executions and 90 other forms of punishment, including 52 mutilations,17 whippings, two beatings, 6 chainings, 5 expulsions from office, 3 banishments, and 5 chastisements (Hanna 1978:67).

The use of enslaved labor is a problematic concept, at both a moral and sematic level. Slavery has a long history in most of the world’s cultures, but it is most associated in the Western World with the use of imported African workers in extremely harsh and dehumanizing conditions in plantations in North and South America. This conception of slavery is not universal. As noted in the last chapter, in pre-colonial Asia and Africa, slavery did not exist in the European capitalist model with which North Americans are most familiar, but enslaved workers were generally “gradually assimilated…into the dominant group” (Reid 1983b:156). As Winn (2010:365) notes, “long-term slave based systems of production were absent from agriculture in Southeast Asia.” Instead of “slavery,” “bondage” may be a more appropriate word for the system of labor in Southeast Asia. Because of the relatively low population density and fragmented political systems, “control of men, nor land or capital, was both the key and the index to power” (Reid 1983b:157). However, “The only definite exception to this point [that a slave mode of production did not exist] is the Dutch *perkenier* system for producing nutmeg in Banda with hundreds of slave laborers on large estates” (Reid 1983a:23). Knapp (1995) also supports Reid’s interpretation that the Bandanese *perken* slave system was more akin to that of the New World plantation slave systems than indigenous Asian systems. Winn (2010) disagrees with this assessment of the enslaved workers on Bandanese plantations being more akin to the European mode of slavery seen in the New World than indigenous bondage systems. Winn (2010:370-371) states,

> The Dutch administration in the Bandas seems to have been unable to isolate slavery within the *perkeniersstelsel* from the wider related socio-cultural practices that were long established in the region. *Perken* boundaries quickly became porous economically, demographically and culturally, as Company-purchased slaves intended for estates (the *perkenslaven*) blurred with the privately owned slaves of *perkenier* households. I suggest that it ultimately becomes difficult to separate the use of slave labour in support of spice production from that which served household economies.

It is ambiguous, then, which model- the Asian or European- should be used to understand slavery in the Banda Islands. Certainly, the role of enslaved workers could have changed over time.

Between the 1621 conquest and the 1799 bankruptcy of the VOC, the *perkeniers* resisted the VOC imposed monopoly and the slaves resisted their plight. Valentijn (2002) describes as many as 20-30 slaves escaping per night. As each *perk* was originally allotted 25 slaves, the number quoted by Valentijn could theoretically represent the escape of the entire enslaves population of a *perk*. However, not all slaves necessarily escaped, there were other options. As Hanna (1973:79-80) notes,

> The slaves seemed to consort on friendly terms with their masters only when both were engaged in contraband traffic in spices or other commodities, an enterprise which afforded slaves the opportunity to become both affluent and mobile. With or without VOC consent- generally without- the *perkeniers* branched out into regional trade…They diverted the best of their slaves from plantation labor to man their trading boats, and a slave- sailor-trader soon earned his freedom or freed himself. In confederation or in competition with the regional traders, who still frequented Banda waters, the *perkeniers* and their slaves smuggled out nutmeg and mace, smuggled in rice and textiles, and dealt in exotic regional products such as pearls, sandalwood, tortoise shell, *trepang* (sea cucumbers), sharks' fins, birds' nests, ebony, and birds' feathers. They also dealt in long nutmeg, the product of a score of other islands…Long nutmegs were in demand in Asian if not in European markets and were useful even in Banda. Such long nutmegs could be adroitly substituted for round nutmegs by *perkeniers* seeking to deliver that expected quantity of produce to the V.O.C. while reserving the superior quality for private trade.

The pre-colonial trade system continued to operate, it seems, to the benefit of all but the VOC. François Valentijn (2002)- who served as a VOC minister in Maluku in the late 17th and early 18th Centuries- describes an ostentatious lifestyle of the *perkeniers* and VOC officers, where they lack no fine food or drink. This lifestyle was maintained via the contraband trade, but also by going into debt to the Chinese and Arab traders who never left Banda, despite the purported Dutch control. Generally, the VOC were required to pay the *perkeniers*' debts in order to continue their regular supply of spice. In addition to acquiring debts, the *perkeniers* were little interested in maintaining and running the *perken* but more interested in maintaining their lavish lifestyle; "the *perkeniers,* profiting from round and long nutmegs… readily developed a taste for ostentation and a propensity for falling into debt…The *perkeniers* found it more agreeable and not much less profitable to leave the *perken* to the management of paid overseers while they lived in Neira Town" (Hanna 1973:79 81). There were around 70-80 fine homes in Banda Neira belonging to the *perkeniers* and VOC upper management. These homes were built using local materials including coral rock for the structure walls, roofs thatched with local palm fronds and other materials, and packed coral floors, although some of the wealthier inhabitants could afford tile roofs and marble floors (Hanna 1973:74) (Figure 3.14). These homes were especially difficult to maintain due to

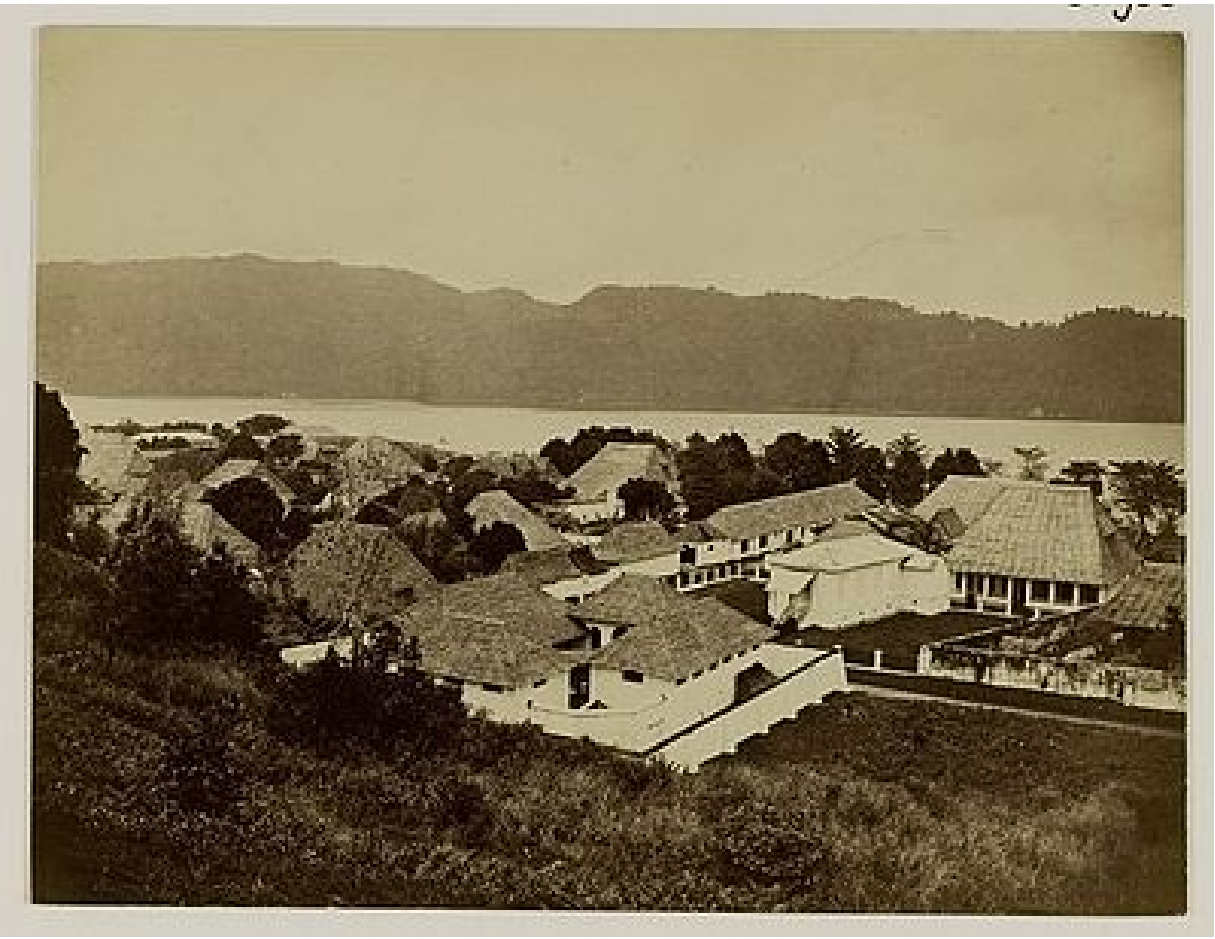


Figure 3.14 Colonial houses in Banda Neira, 1868. KITLV image 105889.

the frequent earthquakes and volcanic eruptions Banda was experiencing in the 17th and 18th centuries (e.g., Liu and Harris 2014, Wichmann 1918). The volcanic ash could easily burn the thatched roofs and bamboo traditional structures. Earthquakes accompanying eruptions not only caused damage to homes, but could uproot the nutmeg and kenari trees causing a loss in, harvest. Tsunamis could also occur due to tectonic movement and these would destroy coastal villages and their boats. After a destructive event, epidemics often ravaged settlements.

While tectonic activity somewhat lessened in the 18th century, "During one awful hour in midmorning on April 2, 1778, there occurred simultaneously, an especially destructive volcanic eruption, an earthquake, a tidal wave and a hurricane" (Hanna 1973:89). This event caused the VOC to seriously rethink the placement of all of their nutmeg eggs in Banda's basket. Half of the nutmeg trees were damaged and the harvest was less than 4% of the previous year's harvest. The natural disasters also caused an accompanying loss of life (mainly laborers) due to the events themselves and subsequent loss to illnesses that followed (infections due to injuries, contaminated water, etc.). As usual, the *perkeniers* were too indebted to repair their groves and structures. The VOC forgave all previous debts, provided free rice for slaves and heavily subsidized for others for 10 years, this subsidy was later extended for

another 5 years. After 1792, the VOC had lost patience and refused to provide victuals at cost and demanded full payment. In 1795, the VOC repossessed the *perken* and the *perkeniers*, if they chose to remain, would be paid overseers. However, this situation wasn't long to last as the English took control of the islands in 1796-1803 and 1810-1817 as part of the Napoleonic Wars, and the VOC went bankrupt in 1799.

The English didn't care to invest too much energy in administering the *perken* or the *perkeniers* and allowed them a great degree of freedom in trading in the region. While life didn't change drastically for the people of Banda during the English occupation, it did have a long lasting effect. The English were able to transport nutmeg seedlings out of Banda and experiment with planting in English territories. The monopoly on round nutmeg that Banda had held for hundreds of years was broken. With the loss of the monopoly came the loss of the *perkeniers* main bargaining chip in the negotiations with the Netherlands government, who took over the administration of VOC territories after the bankruptcy. The second English occupation also saw the settlement of Chinese and Arab traders from Surabaya, Batavia, Bombaym Calcutta, Bencoolen, and Pinang. These traders soon took over the local and inter-island trade and many of their descendants, in spirit if not in blood, are operating successfully in the islands today.

When control of the islands permanently revered to the Dutch, attitudes toward the Dutch East Indies had changed back in Europe. Instead of seeing the colonies as a cash cow for the homeland, liberal Dutch elite did not enjoy hearing stories of exploitation of the residents in its colony. The burgeoning awareness of the abuses of colonial policy led to calls for the end of slavery and the worst abuses in Holland. In addition to changing attitudes in the United Provinces, the economy had changed. The Banda Islands no longer had a monopoly on the production of nutmeg and mace. Increasing competition from other sources and changing tastes in Europe meant that little profit was forthcoming. The *perkeniers* continued to accrue debts and continued to demand the government, instead of the VOC, repay these debts.

Due to changing attitudes in Holland, slavery was abolished in 1860. Few of the *perken* slaves wanted to stay so labor was imported from other islands in the Dutch East Indies, mainly Java. Winn (2010) notes that the modern Bandenese oral history of plantation work involves this period of "coolie" labor and the modern Bandanese (to whom Winn spoke) trace their ancestry to this group of workers. The use of paid labor, as opposed to enslaved, actually ended up being more profitable to the *perkeniers* (Hanna 1973:106). However, nutmeg prices were plummeting in the mid-19th century, in part because of increased competition, in part because of changing tastes. In the late 19th century, many of the *perken* had been purchased by a subsidiary of the Netherlands government, with the original owners kept on as paid overseers, or by the Chinese Kok family due to an inability of the *perkeniers* to pay off their multitude of debts.

Descriptions of the work done by enslaved workers or imported coolie labor at the nutmeg plantations are few and far between. No known description written (or told) by the workers at the *perken* themselves have been identified (although see Stoler 1985 for discussions of primary sources of 20th

century rubber plantation wage laborers on Java).European authors were much more interested in describing the lives of the Europeans in the archipelago than the workers. A few glimpses of what was expected can be gleaned from historical records written by Europeans, oral history, and early photographs. Nutmeg harvest was relatively easy, workers plucked the ripe fruit from the tree by means of a basket on a very long stick and carried the harvest in a reed basket (Figure 3.15). The fruit had to be separated from the nutmeg and mace and the spices dried. This probably occurred at the *perk* in the past (Figure 3.16), but today often occurs in any sunny place (Figure 3.17). The nutmeg and mace were packed for shipment (Figure 3.18, Figure 3.19), taken to the port (Figure 3.20), and loaded onto ships (Figure 3.21). In comparison to other plantation crops like rice, sugar, or cotton, the work was relatively light. Since nutmeg was a tree crop, it didn't need to be re-planted every year. Unlike other fruits, it was unnecessary to climb trees for harvesting and there was no worry about damaging the fruit as it was not the target of harvest. Unlike rice or cotton, there was little need to bend over to harvest or tend. Unlike sugar, the post-harvest processing was limited. Walking or climbing to the harvest area, maneuvering the harvest stick, carrying the harvest, moving the dried spice to the packaging area, and moving the packaged spice to the port and waiting boats was the major expenditure of energy. Lans (1872) (Table 3.2) notes how many workers were associated with each *perk*. Table 3.4 also demonstrates that many people owned part share in multiple *perken*, *perken* could be owned and managed by different people, women could own shares in *perken* on their own, individuals could manage multiple *perken*, and in 1872 the *perken* were still owned primarily by Europeans or people with Europeans names.

Bickmore (1867-1868:328) describes the residences of the *perkeniers* on Lonthor as "a rectangular area of about a quarter of an acre, enclosed by a high wall. The side next to the sea is formed by the proprietor's house, and on the other three sides of the great open yard are rows of storehouses, and the houses of the natives who work on that plantation." Although the extent to which workers resided on the plantations is somewhat vague. In one of the few photographs of workers at the *perken* (Figure 3.22), bags of nutmeg and other objects can be seen stacked up under the awning and on the porch of a long building, suggesting these buildings were used for storage. Other historic photographs (Figure 3.23, Figure 3.24, Figure 3.25) show open courtyards with some decorative vegetation, trees, and fencing but no personal items. In *Mirah of Banda* (Rambe 2011), a fictional and highly romanticized account of a female Javanese contract worker from the pre-WWII to late 20th Century in the Banda Islands, workers only live on the *perk* part-time during the harvest season. While this novel cannot be considered a direct historical account, it does indicate that the modern conception of a worker's existence during the colonial period was one of part time inhabitation of the *perk* compound and not full time residence within its walls.

Table 3.2 Lans (1872) list of *perk*s, matched against 1883 map (above), excavated *perken* in bold.

Name of *perk*	Owners/ tenants	Administrator	# trees	# workers		
				Free	Gov't	Exile/ other
Banda Neira *Perken*						
Zevenbergen en Hersteller	H.M.C. Lans, W.C. Lans, G.F. Lans	G.F. Lans	11885	-	32	5
Banco-Batoe	H.P. de Vries, J. Leunisen	H.P. de Vries	14773	13	28	14
Lautaka	Mevr de Wed. Versteegh	J. Scharp de Visser	8603	-	27	9
Banda Besar (Lonthor) *Perken*						
Simonwal	L. Empting, R.F.F. von Buggenhagen, J.G. Mulder, Wed. H.D. Versteegh	L. Empting	20865	56	16	-
Takkermoro	J.G. Mulder	J.G. Mulder	11871	-	33	22
Weltevreden	J.A. Delmaar	F.J. Henner	21000	56	15	-
Kelie en Noorwegen	L.F. Versteegh, I.V. Spelti	L.F. Versteegh	2200	2	12	13
Namoeloe	E.C. Lantzius	E.C. Lantzius	10770	38	17	-
Boyauw	W. van der Sluijs	W. v. d. Sluijs	14660	83	22	-
Orangdatang	Wed. H.D. Versteegh, Wed. Pietrsz, W. van der Sluys	W. v. d. Sluijs	8424	2	16	29
Klein Walling	J.P. van den Broeke	J.P. v. d. Broeke	9101	15	13	-
Groot Walling	Wed. J.F.G. van den Broeke	J.M.C. v. d. Broeke	8215	-	19	14
Spantjebeij	J.P. v. d. Broeke, Wed. E. Herrebrugh, Wed. C. Dekkers, Mevr. Hahn geb Versteegh	H.A. Geldorp	8852	-	10	25
Lust	Mejufvr. A. Baks, A.M.L. Hartog,	A.M.L. Hartog	7941	-	31	14
Toetra	R.F.F. von Buggenhagen, wife of Leunissea	W. Benque	9450	64	9	-
Keizerstoren	M.T. Jansz, Wed. P.C. Meijer	P.C. Schoenmaker	8354	2	21	17
Laoetang	P.C. Lans, M.S.S.M.F van Vliet (born John and J.M.M.John), P.C. Lans	P.C. Lans	148	5	42	-
Comber	P.C.L. Hartog	P.C.L. Hartog	9113	53	34	-
Raning	M.H. Brandes	F.V. Brandes	15000	67	9	-
Boerang	J.W. Hoeke	J.W. Hoeke	8481	26	13	-
Benedendender	R.F. Versteegh, F.B.P. Struby, A.A. Meijer, L.D. Claassen, Mevr. W.J.F. Bernard, F.A. Meijer	R.F. Versteegh,	8000	-	44	4
Zoeteninval	M. Lantzius, J.W. Hoeke	M. Lantzius,	104900	18	13	-
Bovendender	Wed. G.T. Versteegh geb Tobiaz, A.M.L. Hartog	A.M.L. Hartog,	11765	-	34	21
DrieGebroders	P.C.L. Hartog, J.W. Hartog, Wed. Brocurius van Nidck, L.T. Hartog, W.E. de Jong,	P.C.L. Hartog	15275	-	25	38

	E.R.A van Ellinckhuyzen, S.L.R. Hartog					
Babiemandie	J.C. de Walsche, Wed. J. Latomalea	de Walsche	7403	5	11	22
Boetong	W.S. Versteegh, wife of J.A. Brantsz, A.J. Beck, M.E. van Wieringgen, C.M. van Wiereingen,	J.A. Brantsz	11953	-	20	36
Everts	Mevr. Geldorp geb Pinege, W.E. Pinege, Mevr. De Jong geb Hartog, Mevr. Ellinckhuyzen geb Hartog, S.L.R. Hartog, A.M.L. Hartog	A.M.L. Hartog	10595	-	28	27
Lackoel	J.G. Mulder	J.G. Mulder	3440	11	9	-
Pulay Ay *Perken*						
Welvaren	C.J. Fedder	F.B.P. Struby	14500	87	13	-
Westklip	Underage daughter of G.L.A. de Maeght	J.W. Weusamn	11500	63	14	-
Weltvreden	R.T. Versteegh, J.A. Delmaar	A.G.H. Hartog	13081	1	12	22
Mataleneo	Wed. E. Herrebrugh geb Vermeet, Mevr Hahn geb Versteegh, Wed. Heer Herrebrugh	A.M. Herrebrugh	9344	-27	22	9
Kleinzand	J.A. Delmaar, A. Leunissen, J.C. Neunissen, C. Sapolettie, wife of W.F. Leunissen, C.F. Leunissen, E.M. Ranch, R.E. Ranck	J.A. Delmaar	7097	-	16	14
Verwachting	A.H. Goreneveld, A.J. Makely, Wed. J.W. Fedder geb Brantsz, J.C. Brantsz, wife of W.A.F. Goldman, J.A. Brantsz, C.L. Leunissen, geb Brantsz	A.H. Goreneveld	7898	-	34	8

Wd.= Widow; Mevr.= Mrs; geb.= nee; Mejufv= Miss



Figure 3.15 Nutmeg harvest, c. 1868. KITLV photo 3347.



Figure 3.16 Nutmeg processing, c. 1940. KITLV # 52A10.



Figure 3.17 Nutmeg and mace drying in the sun, Pulau Ay.



Figure 3.18 Women sorting nutmeg and mace for packaging, c. 1920-1930. KITLV 68230

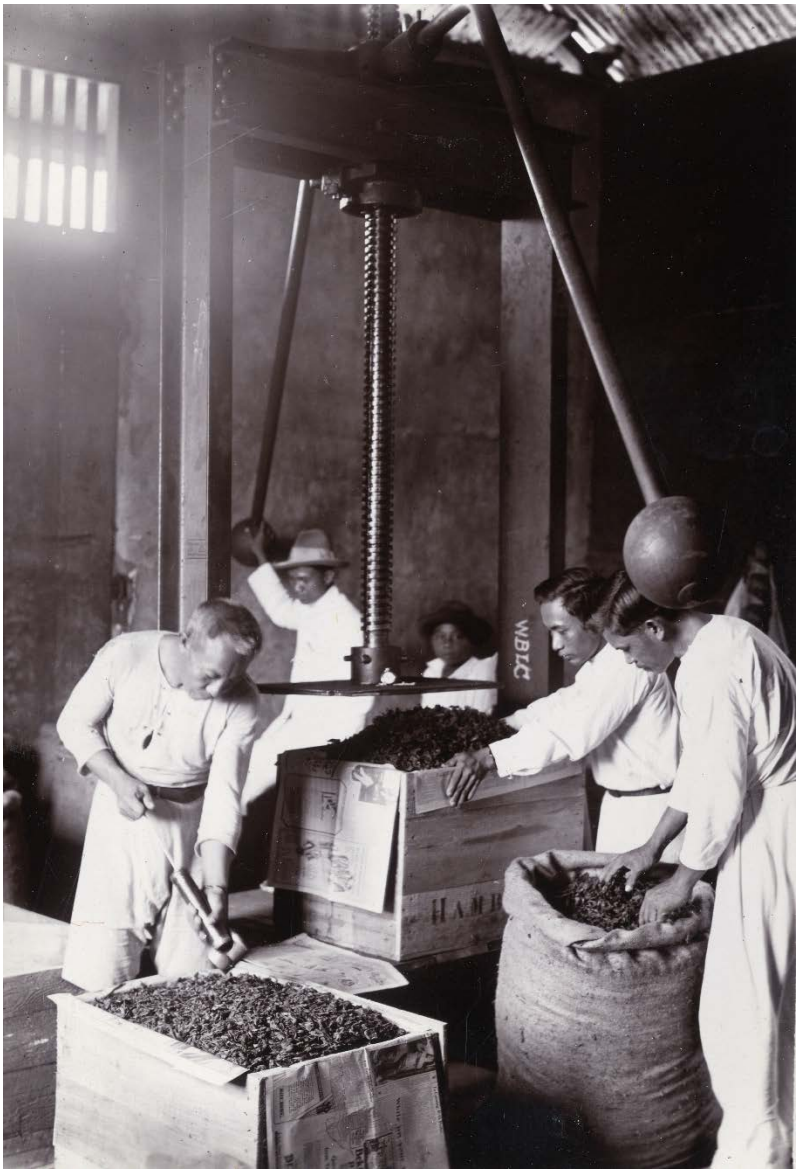


Figure 3.19 Workers packing nutmeg and mace, c. 1920-1930. KITLV 68234.



Figure 3.20 Workers loading nutmeg for transport, c. 1920-1930. KITLV 68237.


Figure 3.21 Workers loading nutmeg onto boats for shipment, c. 1920-30. KITLV 68238.



Figure 3.22 Nutmeg harvesters in front of *perk* building, c. 1895. (In KITLV descripition, the *perk* is identified as Babi Mandi on Pulau Neira but Babi Mandi is on Banda Besar.) (KITLV 2950).



Figure 3.23 Home on nutmeg *perk* Kleinzand on Pulau Ay, c. 1920. KITLV 88749.



Figure 3.24 Doorway of the *perk* Boyaw on Banda Besar, c. 1920. KITLV 88757.



Figure 3.25 Doorway of the *perk* Klein Waling on Banda Besar, c. 1920. Sign over doorway lists date of erection at 1769. KITLV 88758.

The relatively low maintenance needs of the nutmeg tree, coupled with the historical understanding, suggests that workers on the nutmeg plantations had significantly more free time than would be afforded workers on other kinds of plantations. Hanna (1973) does note that workers were expected and encouraged to supplement the foodstuffs supplied by the *perkeniers* (when they were supplied) by personal gardens. The encouragement to supplement the plantation-provided rations is seen at plantations in the Caribbean and the Southeastern United States among other places (e.g., Mintz 1955). Obviously, this saves the plantation owners the cost of food but it also affords workers a sense of independence and allows for surplus product to be sold in markets and accumulation of capital by the

workers. In the New World, enslaved workers often bought their freedom via selling surplus produce at markets (Turner 1994), but there is no indication that this occurred in Banda.

By the early 20th century, the Banda Islands were a sleepy colonial outpost, visited by few and concerning even fewer. It was considered remote and isolated enough to safely house the political prisoners Hatta and Syahrir, malcontents who were to serve as the first vice-president and prime minister of the newly created Indonesia state after Independence. Hatta and Syahrir had been held Ende on the island of Flores and complained about their treatment in this prison. The transfer to Banda Neira, not a prison by any sense but geographic, must have been arranged by a bureaucrat friendly to their cause. Hatta and Syahrir were friendly with the local children and Hatta set up an informal school to educate some of the children. When they had to be evacuated because of the Japanese invasion of Indonesia, some of the children accompanied them. One of these children, Des Alwi, prospered in the independent Indonesia. Des Alwi was fond of his childhood home and wanted to restore some of its grandeur in the eyes of the world. Des Alwi attempted to develop the islands for tourism throughout his adult life. Educated in England by Syahrir, he gained many powerful friends there and due to his association with Syahrir and Hatta. Alwi is credited with building or extending the landing strip on Banda Neira, convincing the Ciremai ferry to stop on a regular basis, building the first hotel (and associated tennis courts), developing the scuba tourist industry, building a museum in his old family home, restoring Fort Belgica on Neira, and shamelessly promoting his childhood home by any means available (Kenji and Siegel 1990). Other hotels and competing scuba outfits have opened since Des Alwi jump-started the tourism industry. According to one local hotel owner, Alwi did not appreciate the competition and used his status as a modern *orang kaya* to discourage or punish the upstarts. However, the increasing tourist traffic to the islands was too much for one hotel to handle and many were unwilling to pay for Alwi's higher end hotel, accustomed as they were to low coast travel in Southeast Asia. Scuba aficionados, Dutch history tourists, and the random tourists in search of off-the-beaten-track adventures are the currently primary population of tourists (based on the author's informal survey whilst resident in the islands). Des Alwi passed away in 2011, just prior my field work. It is unknown what direction the tourism industry in Banda will head with the death of its original sponsor.

Conclusion

The archaeology of Island Southeast Asia is still in its infancy, leading to more questions than answers and making broad generalizations difficult. While evidence of pre-human hominins date to the Pleistocene, the dates of their arrival and demise are difficult to determine. The question of the origins of agriculture and the manner in which Austronesian speakers arrived at their current distribution is also not well understood. Our understanding of the development of complex states in the larger islands is based mainly on a few inscriptions and descriptions by other cultures. Very few archaeological projects have

been conducted in Maluku, which makes it difficult currently to place the Banda Islands within a regional context. The history of the region and the Banda Islands, specifically, is heavily dependent on the records of other literate cultures, such as China, or colonial powers like the English and the Dutch. Ethnography, either modern scientific or colonial avocational, tends to focus on islands, like Ambon, that are not directly comparable to the Banda Islands due to their size and lack of colonial spice plantations. Conducting a fieldwork project it this quasi-*terra incognito*, then, is somewhat daunting. The following chapter describes the field work portion of this project.

Chapter 4
Fieldwork

Introduction

This section describes the methodology and results of the fieldwork undertaken in 2011. Fieldwork was funded by a Henry Luce/ American Council of Learned Societies (ACLS) East and Southeast Asian Archaeology and Early History Grant. Like many projects, I was limited in regards to time, money, and manpower. As I was traveling to conduct the research by myself and not part of a larger team or larger project, I was limited to bringing equipment that I could personally carry. In addition, I knew access to regular electricity while in the Banda Islands could be problematic and I should avoid equipment that depended on electricity. Nor would I be able to hire a large excavation crew or fund interested Indonesian students to assist the project, as had previously been practiced by Lape and Peterson in the 2007 and 2009 field seasons. Based on these limitations, I decided to only use basic survey and excavation techniques and did not perform any chemical or other analyses in the field. I also limited myself to testing a small number of sites on one island instead of a larger number of sites on multiple islands. While more information is always useful, I felt that focusing on three sites on the one island would provide an adequate sample size for analysis.

Methodology

Site Selection

I conducted a pilot research project in 2010 to identify potential *perk* sites for excavation. This survey was partially funded by a University of Washington Department of Anthropology Pilot Research Grant. Initial survey consisted of asking local guides to identify known *perken* on Banda Besar. I decided to focus on *perken* on Banda Besar and not investigate other islands to ensure that environmental differences were not affecting the artifact assemblage. For instance, Banda Neira is the main port and may have had greater access to goods whereas Pulau Ay requires a somewhat treacherous sea crossing during monsoon season and may not have had access to all goods. By focusing on one island, I could better control for assemblage differences due to environmental or locational differences. Banda Besar also had the highest number of *perken*, making it statistically more likely to find *perken* available for excavation. Not every *perk* that was historically recorded on Banda Besar was visited at this time; I was limited to *perken* that my

guides were willing or able to show me. I was limited by time during the pilot study and did not insist that every historically recorded *perk* on Banda Besar was visited. I believed my local informants provided me the best information that they could and if a historically recorded *perk* site was avoided, it could be attributed to issues of gaining permission to excavate or other troublesome issues. Both my local informants had participated in previous archaeological excavations and were likely familiar with which areas would be most productive and which residents would be most amenable to participation in an archaeological excavation. As no archaeological excavations of *perken* had been conducted, there was little contextual information available with which to evaluate potential archaeological deposits. Table 4.1 describes the *perken* I visited and their excavation potential, shows the locations on a modern map, and Figure 4.2 shows the *perken* on a 19th Century Dutch map. Based on the 2010 pilot research, I selected the three *perken* with the combination of best preservation and least potential for disturbing current inhabitants for excavation in 2011. The re-purposing of the majority of the *perken* by modern populations limited the potential for intact deposits and increased the potential for either damage to excavations or injury to the inhabitants due to open excavation units. The three *perken* selected for excavation were Ordatang, Groot Waling, and Komber and are described below. Figure 4.3 shows the locations selected for excavation on an antique map created by shortly after Dutch conquest (Valentiijn 2002).

Table 4.1 *Perken* visited and their excavation potential.

Perk	Date Visited	Comments	Excavation potential
1. Ordatang	3.8.10	Uninhabited, buildings in fair condition, walls standing but overgrown.	Good
2. Groot Waling	3.8.10	Currently inhabited (but only one family), buildings in fair condition, walls standing but overgrown.	Good
3. Keli	3.8.10	Currently inhabited, not a good candidate	Poor
4. Lautung	3.14.10	Currently inhabited, not a good candidate	Poor
5. Waer	3.14.10	Currently inhabited, many buildings in ruins, not a good candidate	Poor
6. Dender	3.14.10	Currently inhabited, not a good candidate	Poor
7. Komber (Kombir)	3.14.10	School has been built within *perk* walls, better candidate	Fair
8. Turtra	3.15.10	Currently inhabited (but only one family), buildings mostly in ruins, not a good candidate (but back up if necessary)	Poor
9. Uring	3.15.10	Not currently inhabited, but buildings mostly ruined, a mosque is being built within ruins, not a good candidate	Poor
10. Spanciby	3.15.10	Not currently inhabited, but undergoing remodeling for tourism, not a good candidate	Poor

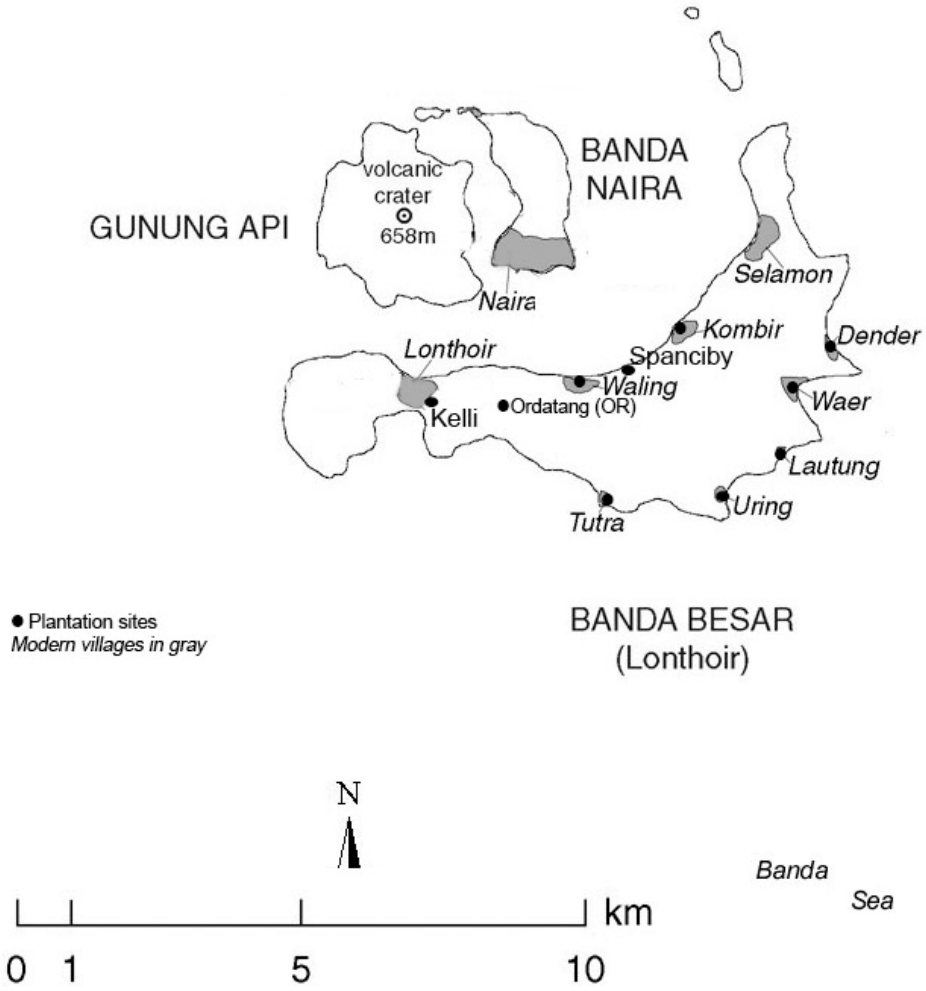


Figure 4.1 Location of *perken* visited, after Lape (2000b).

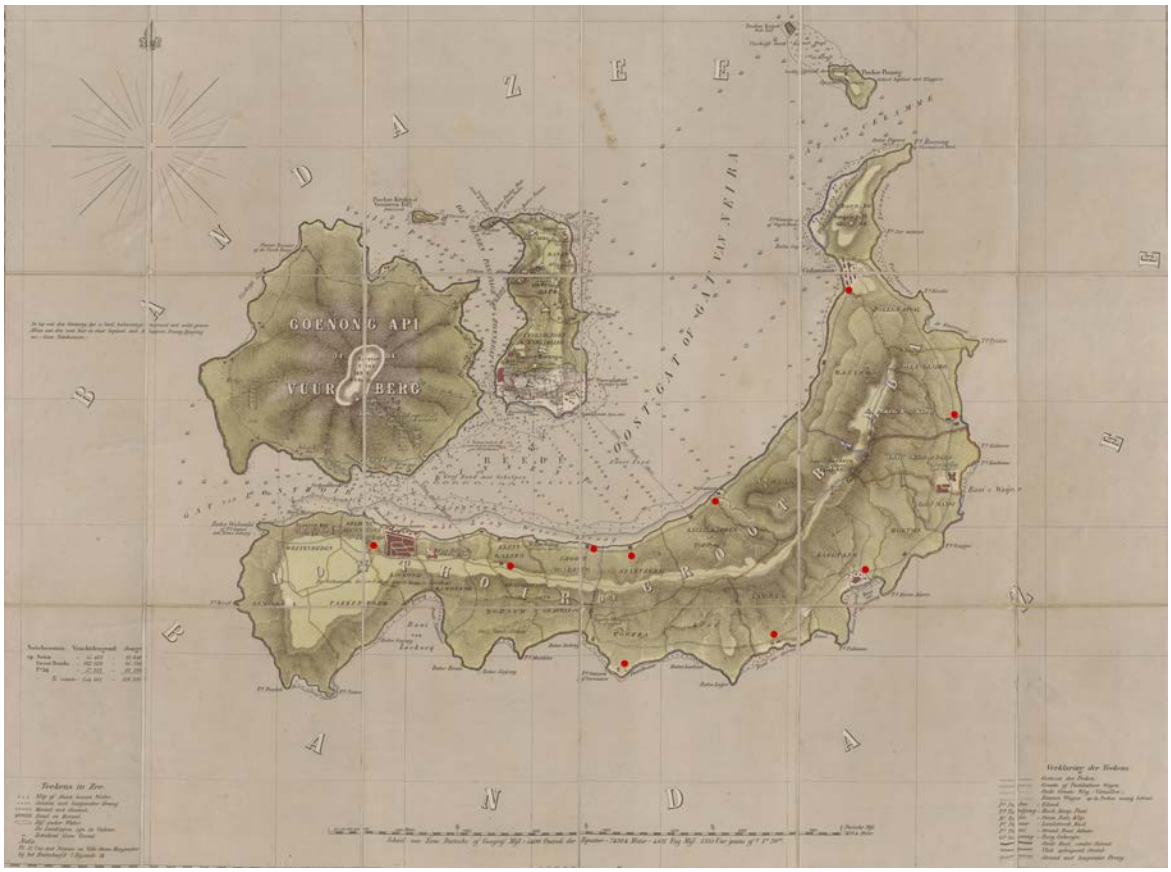


Figure 4.2 Banda Islands map (1871) with locations visited as red dots. KITLV D C 14,11.

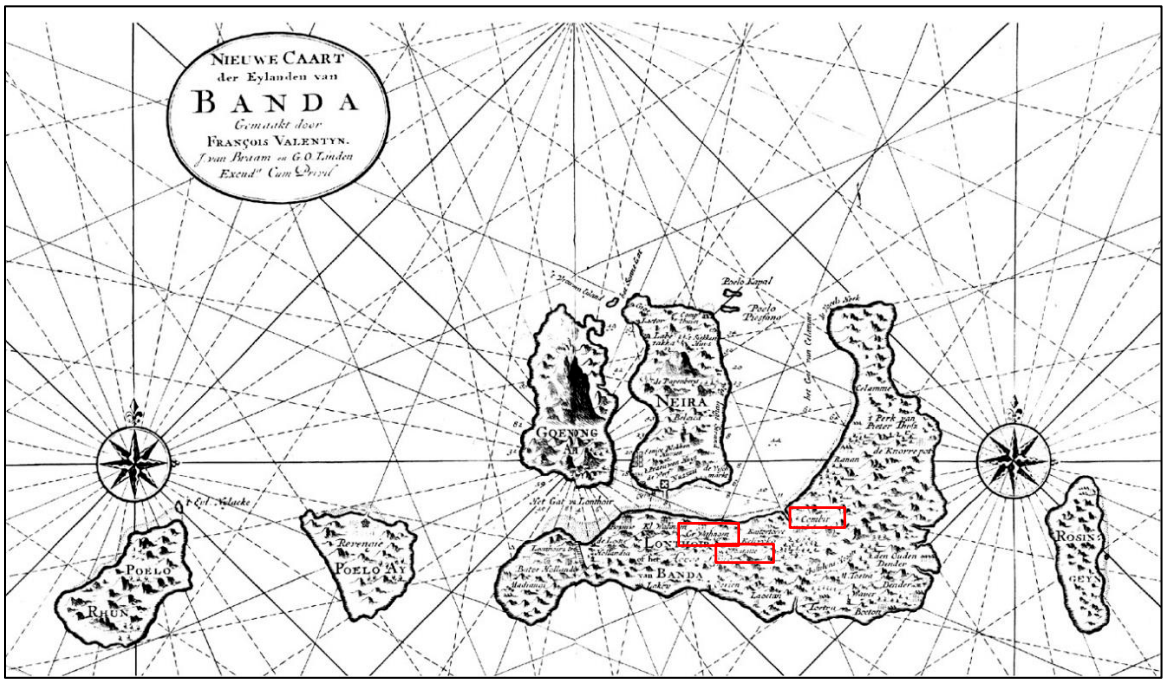


Figure 4.3 Location of *perken* on Valentijn's 1687-88 map, boxes outlining perk locations selected for excavation.

Mapping

Each site was mapped using metric measuring tape to create a sketch map and GPS points were collected using a Garmin eTrex Vista HCx, with precision of +/- 15 meters. Previous digital mapping experience suggested that the normally higher resolution Trimble GPS was problematic and unreliable in the Banda Islands (Peter Lape, personal communication). Since the Trimble also requires regular access to electricity which isn't always available in the Banda Islands and has more associated equipment, I decided to use the Garmin. Due to the extant structure walls, I did not feel that it would be difficult to relocate the sites, despite the low resolution mapping techniques. All extant exterior and interior walls were measured and mapped. Any additional structures (e.g., wells) were also measured and mapped. Site maps were created using a combination of the Garmin data and field sketch maps. The locations of the auger probes and excavation units were also recorded with the Garmin eTrex.

Excavation

After deciding on which sites to excavate during the pilot work of 2010, excavations of the plantation sites began in late March 2011.Permission for excavation was granted by RISTEK (Indonesian State Ministry of Research and Technology), permit number HK.501/1055/DIR.IV/SP/VI/20111, under a memorandum of understanding between the University of Washington and Universitas Gadjah Mada in Yogyakarta, Indonesia. Assistance was also rendered by Balai Arkeologi Ambon. I registered with police in both Ambon, the provincial capital, and Banda Neira in addition to receiving unofficial permission to excavate from the village heads of Lonthor and Komber. All sites were subject to the same basic excavation methodology, described below.

Auger Probes

I conducted an auger probe survey to determine areas of artifact concentration at each site. A 10-cm bucket auger with a handle 1 m in length was used. Auger holes were placed 5 m apart and between 3-5 m from the interior or exterior wall or 10 m apart within the courtyard of the *perk*. If a wall was not extant, the location was estimated based on existing walls. A historic postcard (see Figure 3.16) shows nutmeg drying and other activities taking place within the courtyard and I assumed midden deposits were unlikely to be located in these courtyard activity areas. The auger probe was terminated when an obstacle (e.g., rock, root, etc.) or the extent of the handle was reached. Material was screened through 1/8" mesh. The number of artifacts in each probe was recorded (see below). This information was used to identify areas of artifact concentration for unit excavations.

Generally, the auger probes produced some quantity of artifacts, only 25 (9%) of the 291 total auger probes were sterile. This suggests a sheet refuse (see Deetz 1995:135) disposal

pattern as opposed to discrete midden disposal. There was variable distribution of artifacts within the auger probes, but no obvious patterns of disposal in different areas. The lack of patterning made later interpretation of artifacts rather difficult as artifact patterning associated with worker versus elite use of the site was one of the primary assumptions underlying this project. It is possible that trash and other habitation debris was disposed of further away from the *perk* than the auger probes were placed or were deposited in the ocean for transport. Modern populations burn trash within purpose dug holes, but this may be recent behavior associated with the large amount of non-biodegradable material associated with modern life. Evidence of burning was not generally observed in the auger probes.

Excavation Units

I decided to excavate three units per *perk* location, based on the assumption that three units could be excavated in the time allotted at each *perk*. After the auger probe was completed, areas of artifact concentration were identified based on the number of artifacts found in the probes. A 1 m x 1 m excavation unit was placed in the identified locations. In order to ensure the removal of the auger probe material did not bias the excavation unit, the unit was offset from the auger probe. Units were excavated in 10 cm arbitrary levels using a shovel or trowel. Because there had been no previous excavations at these locations, it was unknown if intact stratigraphy existed or what the stratigraphy may have looked like, therefore arbitrary levels were used. The use of 10 cm arbitrary levels is fairly common and should facilitate any later comparison across different sites. Units were excavated to 1 m or bedrock (except Groot Waling Unit 1, see below for discussion). While previous excavations in the Banda Islands had colonial-era deposits that continued past the 1 m depth (Lape 2000b), declining artifact numbers, especially the colonial era artifacts, suggested little utility in continuing beyond this depth. All material was dry-screened through 1/8” mesh. No water screening was conducted. While water would have been available for water-screening at the beach locations of Groot Waling and Komber, it was not available at Ordatang and would have affected comparison between the three sites if not used at all sites. The use of 1/8” mesh ensured the recovery of relatively small objects, such as fish bone which were expected to be represented in the deposits.

Preliminary field processing of artifacts consisted of separating artifacts into material types and counting the excavated materials. Material that was obviously modern (e.g., plastic, aluminum cans, etc.) was not curated. Due to weight limits and US import laws, I decided to import only ceramics and bone. Glass and metal fragments were determined to be non-diagnostic with little potential interpretive value; these objects remain curated in the Balai Arkeologi facility in Ambon. While shells can be extraordinarily useful in the reconstruction of diet or environment, much of the shell appeared to be recent invasive land snails or naturally occurring sea shells in beach deposits and were also of little potential interpretive value. This material was also curated

in Ambon. Due to the tropical soils, charcoal does not preserve well and was not encountered in sufficient amounts to be collected. No sediment samples were collected due to aforementioned US import laws and weight limits in addition to no planned specific analysis.

Ordatang

Environmental Setting

Ordatang (4° 32.957 S, 129° 53.619 E, 110 meters above sea level [masl]) is located in the interior of the island; this location is heavily forested and overgrown. However, historic sylviculture can be discerned by the regular spacing and rows of nutmeg trees surrounding the *perk*. Ordatang is located on the "spine" of the island, a ridge that is the remains of an old caldera. Volcanic bedrock is of variable height throughout the upland area and soft enough to be easily eroded by rainwater. Due to the tropical forest around the site, a humus layer exists under areas with tree cover. However, as this is the spine of the island, there are few other depositional processes and it is more of an erosional environment.

There is a natural terrace surrounding the exterior *perk* walls on the southern portion of the site; a terrace likely existed to the northwest but has eroded down the cliff face. An old colonial road (Figure 4.4) cuts through the terrace at the entrance to the southwestern wall and a small path cuts through along the southeastern wall. It is likely that the northeastern portion of the *perk* foundation was built up to the level of the terrace to provide an even building surface for the *perk*. The ground surface of the terrace on the northwestern side of the *perk* is about 1.5 m (5 ft) lower than the base of the *perk* walls. The edges of the terrace are shored up by a rock wall along the northeastern wall, but the terrace itself tapers off away from the *perk*.

No obvious remains of a well were noted in the interior of the *perk* and my local guides were unaware of well locations in the vicinity. The altitude of this *perk* suggests a well would have to be quite deep to access ground water. A historic well (the *Sumber Tua*, lit. "old well") is located

around an hour's walk from Ordatang and my local guides hypothesized that residents of Ordatang could have gotten water from there. However, this seems rather inconvenient as water is quite heavy and multiple trips would have been needed to provide water for drinking, cooking, and hygiene for multiple people at the perk, assuming not every person was willing or able to trek for 1-2 hours carrying water for personal use. During the colonial period when horses and carts were available, it's likely that water could have been transported to the *perk* using horse, not human, power. However, the lack of fresh water and relatively remote location may have deterred permanent residence at this *perk,* at least at times during the colonial occupation. Local inhabitants have created garden plots in the vicinity of Ordatang but they use metal water storage drums to collect rainwater (Figure 4.5). Certainly metal or ceramic containers could have been used during the colonial period however, no one currently lives year-round at the location and only occasionally stay overnight during harvest season. Generally, people return to the village at



Figure 4.4 Colonial road outside Ordatang, natural terrace can be seen on either side of road.



Figure 4.5 *Rumah kebun* outside Ordatang, note rain water storage drum.

the end of the day, after working their plot or stay for short periods in the *rumah kebun*. Ordatang, therefore, may not have had a permanent occupation during the colonial period, only seasonal.

Hanna (1973:54) claims that Bandanese who escaped into the forested interior of Banda Besar to escape the Dutch during the 1621 conquest "died by the hundreds and thousands by exposure, starvation, and disease." Ordatang location in the uplands may have made it an unattractive permanent residence for a variety of reasons. The small size of Banda Besar (~6 miles by 3 miles) suggests that it would be relatively easy for workers to return to their villages after the work day and permanent residence of a *perkenier* or overseer and workers wasn't necessary for maintenance of the groves. Ordatang may have only seen occupation during harvest times, which usually occurred around three times a year (Hanna 1978).

Nutmeg and kenari trees are the most notable vegetation in the area surrounding the *perk*. As noted above, many of the nutmeg trees are planted in regular rows and the area beneath is relatively clear of undergrowth. These stands are still being harvested by the inhabitants of Banda Besar and are likely regularly maintained to some degree (see Winn 2010). In addition to the nutmeg and kenari, local inhabitants have also cleared some of the surrounding forest for garden plots (*kebun*) and small structures (*rumah kebun*, lit. garden house) are associated with these plots (Figure 4.5, above). Within the *perk* itself, stands of banana and coconut palm, which are likely historic plantings, are growing and being still utilized by locals. Tropical ferns, vines, and plants are growing within the *perk* and over its remaining walls. Unlike the nutmeg forest, the *perk* itself is overrun with undergrowth (Figure 4.6). There is a straight line of *gadihu* plants (possibly *Acalypha wilkesiana)* growing in front of the back/ northern building. This may be the remains of a colonial delineation of space, as a similar line of plants can be seen in an historic photograph of Groot Waling (see Figure 3.12).Small lizards, invasive African snails, bats, and a stray dog were the only fauna seen at Ordatang. Many locals, however, warned me about the high number of snakes at Ordatang. No snakes or evidence of snakes were seen. A bat colony had taken up residence within the old nutmeg drying building.

History

A variant of the name Ordatang can be seen on Van Neck's 1599 map, one of the first European maps of the Banda Islands (Lape 2000, Figure 4.7). Variants of the name seen on maps and in texts include: *Orontatte, Ortattan, Orlatten, Ortatta, Ortetan*, and *Orangdatang* (Lape 2000:84-117). My local guides referred to it as "Ordatang," so I followed suit, but other variants of the name were in use during my visit. It should be noted that the pre-colonial village location on the antique maps and the location of the colonial *perk* do not correspond. All maps and historic records place the pre-colonial village of *Ortattan* on the shore and the *perk* location cannot be considered beach front property by any stretch of the imagination or cartographer's parallax. An interior location for Ordatang can be found on Valentijn's map of the Banda Islands



Figure 4.6 Overview of Ordatang, showing overgrowth. Wall of east building can be seen in left of photo, noted with arrow.

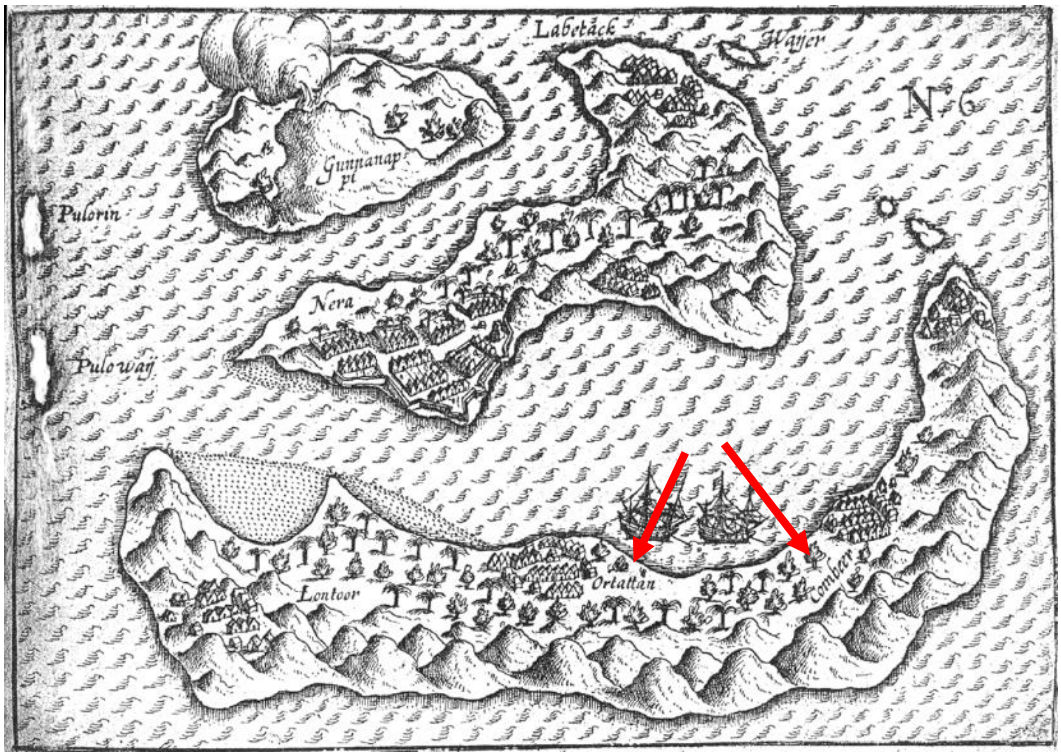


Figure 4.7 Van Neck's 1599 map showing villages of "Ortattan" and "Comber," both villages later gave their names to *perken*.

(above, Figure 4.3). Valentijn served in the Banda Islands in 1687-88 (Valentijn 2002); giving a *terminus ante quem* for the *perk* Ordatang (*Orontatte)* of 1687. Thus, Ordatang was built, at most, 65 years after Coen laid out the *perken*, but likely much earlier. While the *perk* itself was not detailed, the location was described by Albert Bickmore (1867-1868:328) who visited the islands in 1865:

> As we leisurely passed along the crest of Lonthor, with a thick foliage over our heads that effectively shut out the direct rays of the sun, we occasionally caught distant glimpses of the blue sea breaking into white, sparkling surf on the black rocks, far, far below us.
>
> Soon we came to the "Look-out," known here, however, by the Malay name Orang Datang, 'the People Come;"…From this point most of the Bandas can be distinctly seen in a single glance.

Despite the somewhat unattractive location in terms of access to water and possibly food, the location may have been selected for its commanding vistas, as Bickmore notes. Banda Neira, including Neira town and both forts can easily be seen from Ordatang, as can Lonthor and most of the northern coast of Banda Besar. The southern side of the island is easily accessible from Ordatang and would have been even more accessible when the colonial road system (see Figure 4.2 for colonial road system) was being maintained. Lape (2000:99) also describes an informant's explanation that "*orang datang*" (lit. "people arrive," possibly "newcomer") was the *perk* that trained newly arriving slaves or laborers during the colonial period. This may be a folk etymology developed after the pre-colonial village was forgotten. The exact relationship between the *perk* in the interior and the village on the beach cannot be determined with the data at hand, but the *perk* was likely associated with the pre-colonial village in some manner.

Local informants give the date of abandonment as sometime around 1950-1970, which fits with the general abandonment of *perken* after WWII and the exodus of the loyalist Dutch populations. However, the nutmeg drying building still had a roof and was occupied by a large colony of bats during the 2010 field visit. In 2011, a mature kenari tree had fallen through part of the roof and bat colony was quite a bit smaller. It is possible that the corrugated iron roof of the nutmeg drying building was being maintained after abandonment. It is unlikely that the roof would have lasted 30-60 years in this environment without maintenance; this maintenance may have ceased in recent years as is evidenced by the destroyed roof and resident bat colony. The bat guano is damaging what is left of the interior structure of the nutmeg drying building and the combination of the bat colony and forest encroachment is destroying the remaining structural integrity. The remains of a wide colonial-era road leading to the west entrance and around the south of the *perk* is still visible. Portions of this road are still obvious as part of the path on the way up to the *perk*, while other portions can be seen from the modern path, but have been overgrown or abandoned to tree fall. It is interesting that the inhabitants would chose to neglect the road, but perhaps there is no reason to maintain it as horse and carts are no longer in use

and only pedestrians travel to the *perk* and its surroundings today. There is no longer a need to transport large amounts of product to and from the *perk* so the road is maintained only as a foot path.

Excavation

Auger Probes

A total of 103 auger probes (Table 4.2, Figure 4.8) were excavated at Ordatang, ranging in depth from 20-140 cm. Earthenware dominated the auger probe artifact assemblage with 769 sherds. The shell in these auger probes was generally from the Giant African Land Snail (*Achatina fulica*), which was introduced to the islands sometime in the early twentieth century (Mead 1961:9-10). European goods were few in number with only one pipe stem and two Netherlands East Indies coins (1859 and 1920). Fish vertebrae were common in the faunal assemblage. Of the 103 auger probes, 14 contained no cultural material; half of these negative probes were among the 16 probes surrounding the elite residence (probes #50-65). This structure was assumed to be the elite residence based on similarity in architecture to extant colonial architecture in Banda Neira and historical descriptions of the *perken* layout (e.g., Bickmore 1867-1868). The probes containing cultural material surrounding the elite residence yielded 5 or fewer earthenware sherds. The lack of artifacts surrounding the elite residence suggests that this area was kept particularly clear of debris or was not used as much as the surrounding areas. Three of the four auger probes located at the northeast corner of the exterior wall also did not contain any cultural material, but generally speaking the negative auger probes were rare throughout the site. For the most part, more earthenware sherds were found in auger probes in front of the non-elite structures than the probes surrounding the elite residence. The elite residence was identified by local informants and architectural style which matched that of other colonial-era residences still extant in Banda Neira

Unit l

Ordatang Unit 1 was located near auger probe #78, which yielded 24 sherds of earthenware. This unit was in front of the Northeast structure, which may have been a workers' habitation area and/or storage building. Auger probes in front of the northeast structure did yield many earthenware sherds, in general. Unit 1 was initially started as a 2 m x 2 m unit, however, this proved problematic both in terms of time investment and artifact productivity. Hundreds of earthenware sherds were coming from each level and I was concerned about how to transfer all of my excavated material if all units proved to be this productive. Thus, Ordatang Unit 1 was reduced to a 1 m x 1 m unit at 50 cm. To maintain consistency, only the NE quarter was excavated to 100 cm and only these artifacts were transported to the US for analysis.

Table 4.2 Ordatang auger probe results (EW= Earthenware sherds, TW= Tradeware sherds, remaining categories is number of fragments).

Probe #	max depth (cm)	# EW	# TW	# Shell	# Bone	# Glass	# Metal	Total	Notes
1	40	3			1	2		6	Both pieces of glass modern, fish vertebrae, 1 roof tile may show signs of burning, piece aluminum foil (modern)
2	35	2	1	1	3			7	Undecorated porcelain, probably modern. Dark green glass, probably base.
3	20	1				2		3	Ceramic sherd is half of a flat disc with two incised lines; 2 pieces of glass, one green and patinated, the other clear and recent.
4	90	4					1	5	Metal is one nail, machine cut.
5	30	2		4				6	
6	70	6	1	16	2	3	16	44	One large snail shell, mostly whole; 1 piece aqua glass (pre-WWII), 1 piece brown body glass, 1 piece clear glass with patination; bones are not fish, one mammal metacarpal/ tarsal.
7	25	3			2	1		6	Not fish bone, possibly chicken? Modern glass.
8	110	17	2	32	7			58	3 fish vertebrae.
9	75	6		1	1		2	10	Fish bone, rib.
10	100	8	2	11	4	3		28	
11	40	17		46	17	3		83	Fish bone and metatarsal/ carpal; some shell is bivalve.
12	40	3		1		1		5	Glass fragment is rim sherd, possibly

Probe #	max depth (cm)	# EW	# TW	# Shell	# Bone	# Glass	# Metal	Total	Notes
									from a glass.
13	60	6						6	
14	40	2		1	1		1	5	1 piece slag, fish mandible.
15	35	11		28	1	1	1	42	2 pieces majolica, glass is patinated.
16	40	21	1					22	
17	30	1					1	2	1 square head nail.
18	25	8	1					9	
19	20	2	1			1		4	
20	30	5				5		10	3 pieces brown glass, 1 piece green glass very patinated.
21	75	23	2	55	28	6		114	
22	80	7		6				13	
23	70	29	4	11	7	8		59	5 pieces of mortar.
24	30	13		34	8			55	
25	100	3			1			4	
26	80	4		1	1			6	
27	140	9		54		3	1	67	3 pieces modern trash; 2 pieces of mortar.
28	60							0	
29	90	10						10	
30	90	1		2				3	
31	60			1	1			2	
32	70			3	12	2		17	
33	40	5	5	11	7	4	2	34	
34	80			2	1			3	
35	90	1		3				4	
36	70	2	1	7		1		11	
37	70	7	44	24	1	4	15	95	Tradeware possibly a whole vessel?
38	50							0	
39	80		1					1	
40	65	1	1	5	100	3		110	Unit 3 placed in this location due to high number of faunal remains.
41	30							0	

Probe #	max depth (cm)	# EW	# TW	# Shell	# Bone	# Glass	# Metal	Total	Notes
42	30							0	
43	40	3	1	14	2	4		24	
44	60		1					1	
45	30		1	1				2	
46	50	2		1				3	
47	60	2		1		1		4	
48	55			17	3			20	
49	70	6		4	2			12	
50	60	2		1					
51	70	4		1				5	
52	40							0	
53	40							0	
54	60							0	
55	30							0	
56	120	1		3				4	
57	25	5		2				7	
58	65	1						1	
59	30							0	
60	30	1						1	
61	45							0	1 floor tile.
62	60							0	1 floor tile, modern trash.
63	50			2				2	
64	100	5						5	1 piece of mortar.
65	70	4		1				5	
66	70	2	1	1	4			8	
67	40	6	3	15		2	2	28	1859 NEI coin, metal hinge.
68	90	1						1	
69	80	1		1				2	
70	45	6		2	2			10	2 pieces of mortar.
71	50							0	
72	105	1		6	1			8	
73	45	3	2	13	1	1	3	23	1 floor tile.
74	55			1				1	1 floor tile.
75	50							0	
76	70			7				7	
77	60	19		1				20	
78	70	24	1					25	Unit 1 placed here

Probe #	max depth (cm)	# EW	# TW	# Shell	# Bone	# Glass	# Metal	Total	Notes
									due to high number of earthenware sherds in this area. 1 floor tile.
79	75	25	1	4				30	
80	70	52		3				55	
81	25	15		2		3		20	
82	60	6	1	5				12	
83	42	29	1	24	1			55	2 pieces of mortar.
84	60	34	4	20	2	1		61	2 pieces of mortar.
85	50	10		4				14	1 piece of mortar.
86	120	11		3			1	15	1920 NEI coin.
87	125	35	5	7		2		49	2 pieces of floor tile.
88	95	6	1	3	1			11	
89	90	11	1	2				14	
90	95	17	1	7				25	
91	65	62	2					64	
92	45	10	2					12	Modern trash, 1 piece of floor tile.
93	90							0	
94	60	15		5	3			23	
95	65	3	1	7		1		12	2 pieces of floor tile.
96	30	9		12	3			24	
97	85	6			1			7	1 piece of floor tile.
98	45	3	1	1				5	Kaolin pipe stem.
99	40	5					1	6	Metal pipe fragment.
100	70	4	1	1				6	
101	55	33	2	2	4	7		48	Unit 2 placed here due to high number of earthenware.
102	55	12		2	1			15	
103	30	14	2	1		1		18	Glass very thin and flat.
Total		769	103	570	237	76	46		

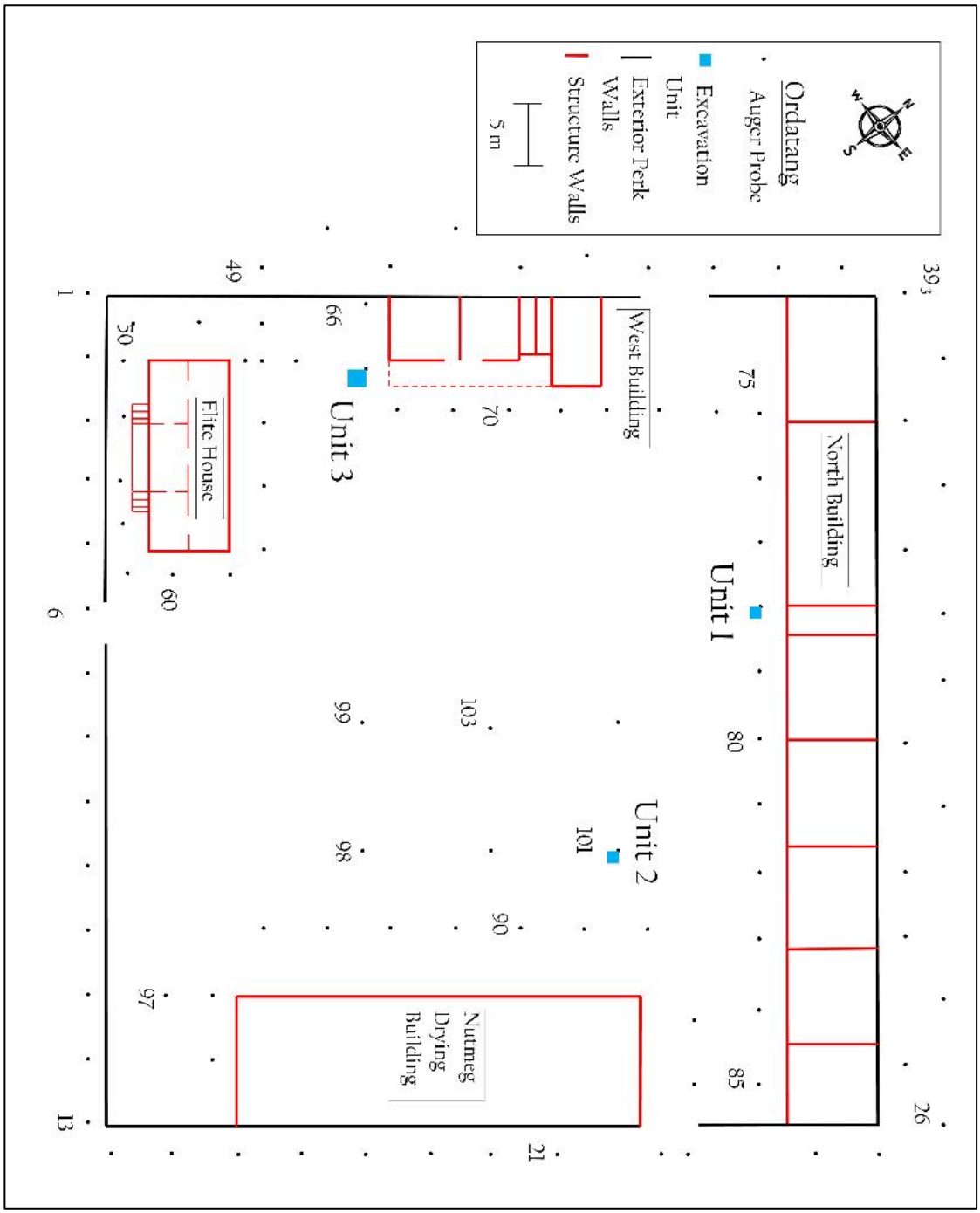


Figure 4.8 Ordatang site map.

The remaining artifacts are curated in Balai Arkeologi Ambon. Unit 1 produced copious amounts of earthenware (Table 4.3,Figure 4.9) and may have some wall collapse or construction debris at 20-50 cm; there is also a soil change from dark brown silty sand to reddish brown silty sand around 50 cm (Table 4.4). At the Groot Waling *perk*, there is an obvious porch built in front of the analogous building. No porch remains in front of this structure were noted in the field, but it is possible that the soil change and cobbles at 20-50 cm are the remains of the porch foundations. The debris may also be a result of a repair episode. No porcelain or tradeware is found below 50 cm although earthenware is still present. Earthenware below 50 cm likely represents pre-colonial debris. However, as discussed in Chapter 5, thermoluminesce dates on the earthenware sherds recovered from this unit at 0-10 cm and 90-100 cm both date to the Neolithic period, suggesting a mixed deposit. The natural terrace steeply slopes away beyond the Northeast wall and the prolific amount of earthenware is may be fill used in the construction of the *perk* to create a level surface.

Table 4.3 Ordatang Unit 1 Artifact Summary

Level	Earthenware	Tradeware	Bone	Glass	Metal
Surface	6	1			
0-10 cm	154	8	10	6	4
10-20 cm	372	9	3	6	2
20-30 cm	613	1			2
30-40 cm	219	1	1		
40-50 cm	413		1		
50-60 cm	180				
60-70 cm	380				
70-80 cm	139				
80-90 cm	57				
90-100 cm	49				

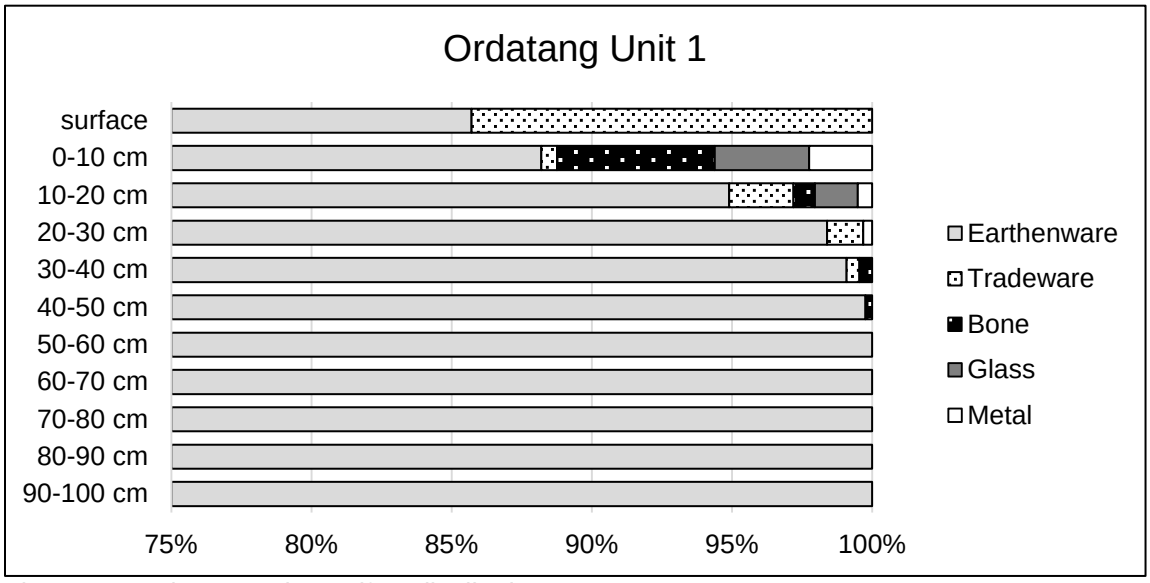


Figure 4.9 Ordatang Unit 1 artifact distribution.

Table 4.4 Ordatang Unit 1 stratigraphic summary.

Level	Sediment	Comments
0-10 cm	Dark brown silty sand 10YR 2/1	Lots of roots, some small cobbles, ants nest in SE corner.
10-20 cm	Dark brown silty sand 10YR 2/1	Many cobbles, may be wall fall.
20-30 cm	Dark brown silty sand 10YR 2/1	More small cobbles, 8 gallon-sized bags of earthenware.
30-40 cm	Dark brown silty sand 10YR 2/1	Small yellow mottles in sediments- earthworms, increase in gravels, cobbles still present
40-50 cm	Gravels mixed with dark brown silty sand 5YR 2/1	Lots of earthenware, some cobbles, yellow mottling, dark staining in north wall but not charcoal
50-60 cm	Dark reddish brown silty sand 7.5YR 3/4	Lots of earthenware, little else, yellow mottling, dark staining in north wall but no charcoal.
60-70 cm	Dark reddish brown silty sand 7.5YR 3/4	Lots of earthenware, some cobbles,
70-80 cm	Dark reddish brown silty sand 7.5YR 3/4	Decrease in earthenware
80-90 cm	Dark reddish brown silty sand 7.5YR 3/4	More compact than previous
90-100 cm	Dark reddish brown silty sand 7.5YR 3/4	Very few cobbles or gravels

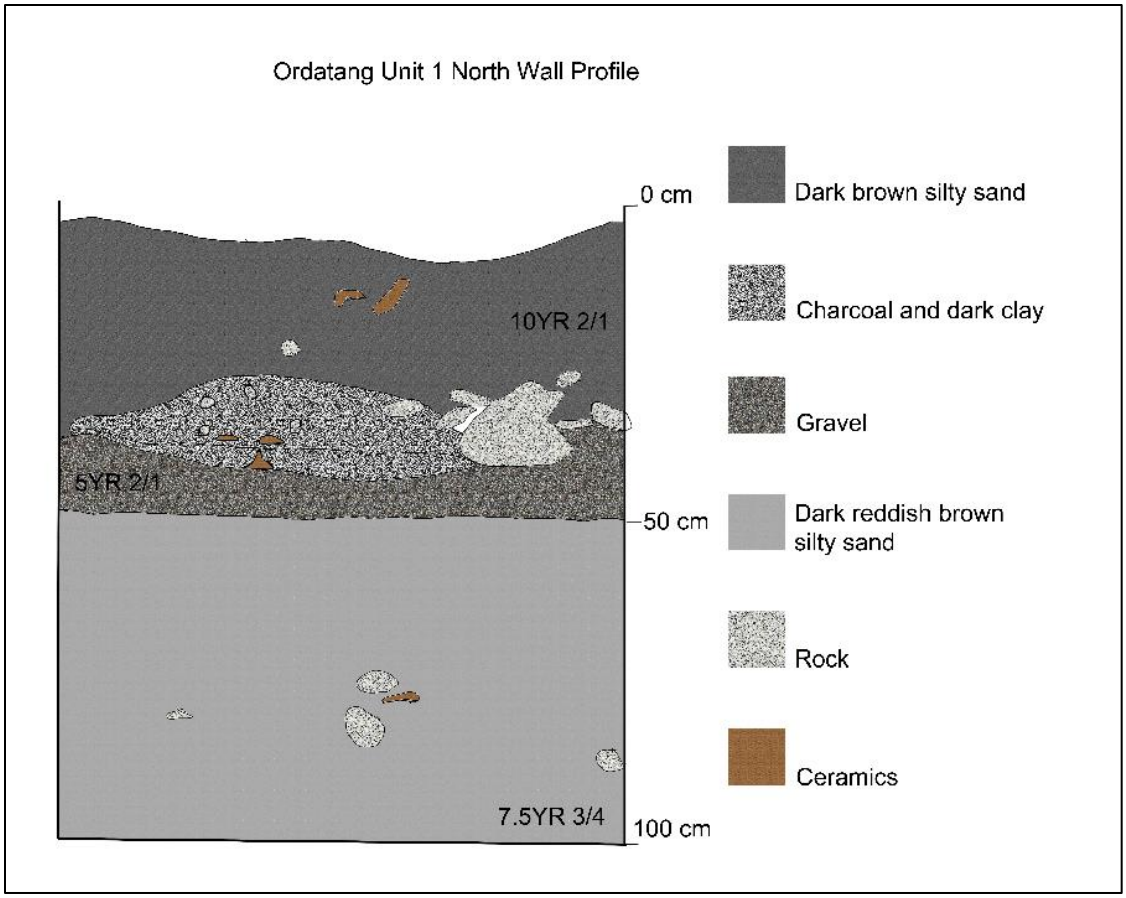


Figure 4.10 Ordatang Unit 1 north wall profile.

Unit 2

Unit 2 (Figure 4.11, Table 4.1) was located near probe # 101, which yielded 33 earthenware sherds, 2 pieces of porcelain, 4 pieces of bone, and 7 sherds of glass. I was hoping the mix of artifacts indicated an activity area. This unit was located ~10 m from the northeast corner of the nutmeg drying building and ~ 15 m from the edge of the northeastern building. There is a similar soil change from dark brown silty sand to a reddish brown silty sand in Unit 2 around 50 cm (Table 4.6, Figure 4.11), as seen in Unit 1. Some yellow mottling was noticed in Unit 2, but this can be attributed to bioturbation related to the ant's nest located in the unit. The ant's nest was not obvious on the surface. The soil change occurs at a shallower depth as compared to Unit 1 and there is no debris or wall collapse. Similar to Unit 1, the amount of porcelain/ tradeware decreases with depth and disappears after the soil change. Similar to Unit 1, earthenware predominates in this unit.

Table 4.5 Ordatang Unit 2 artifact summary.

Level	Ceramics	Porcelain	Bone	Glass	Metal
Surface	14	1		1	
0-10 cm	196	19	2	33	1
10-20 cm	99	18	1	12	
20-30 cm	244	6	2	4	1
30-40 cm	189				1
40-50 cm	170			1	
50-60 cm	119				
60-70 cm	52				
70-80 cm	17				
80-90 cm	4				
90-100 cm	3				

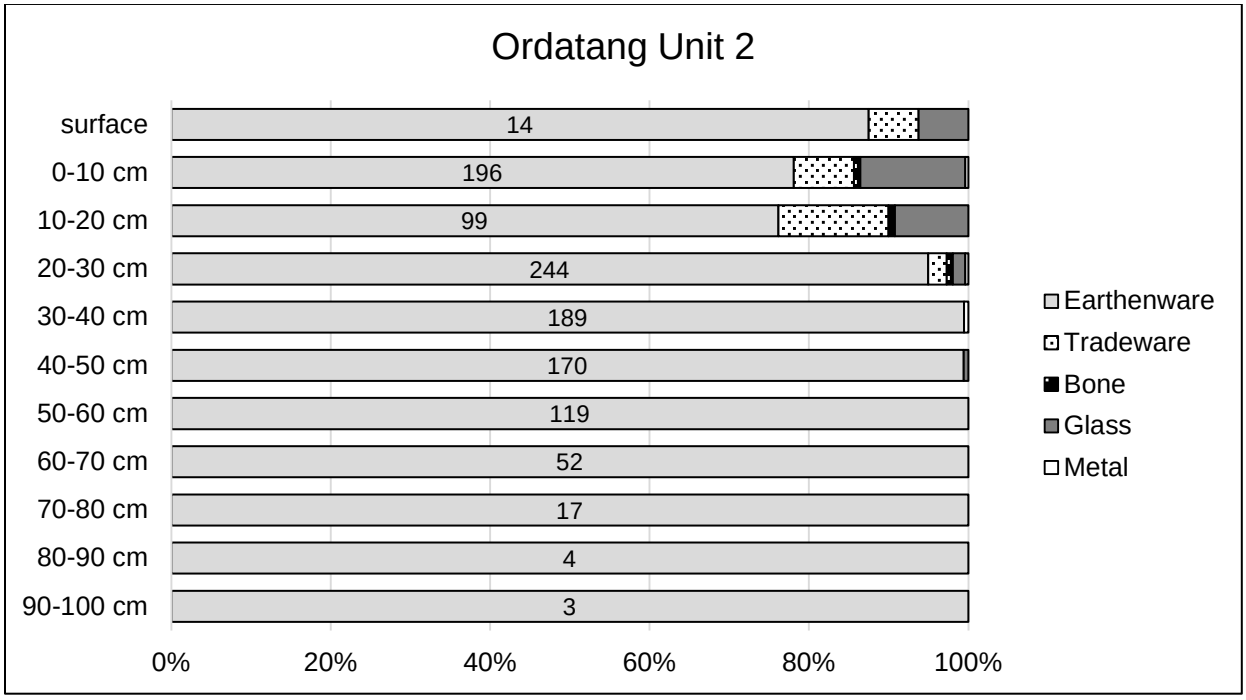


Figure 4.11 Ordatang Unit 2 artifact distribution.

Table 4.6 Ordatang Unit 2 sediments summary.

Level	Sediments	Comments
0-10 cm	Dark brown silty sand 10YR 2/1	Unit placed in ant nest
10-20 cm	Dark brown silty sand 10YR 2/1	Lots of ants, a few cobbles
20-30 cm	Dark brown silty sand 10YR 2/1	Ants still present
30-40 cm	Dark reddish brown silty sand with yellow gravels 5YR 3/2	Decrease in earthenware, no porcelain.
40-50 cm	Dark reddish brown silty sand with yellow gravels 5YR 3/2	Artifacts mostly earthenware.
50-60 cm	Dark reddish brown silty sand with yellow gravels 5YR 3/2	No more trade-associated artifacts (glass, tradeware),few small cobbles
60-70 cm	Dark reddish brown silty sand with yellow gravels 5YR 3/2	Few artifacts, very moist sediments.
70-80 cm	Dark reddish brown silty sand 5YR 3/2	Very moist sediments, some gravels
80-90 cm	Dark reddish brown silty sand 5YR 3/2	Very few artifacts
90-100 cm	Dark reddish brown silty sand 5YR 3/2	Lots of gravels, very moist

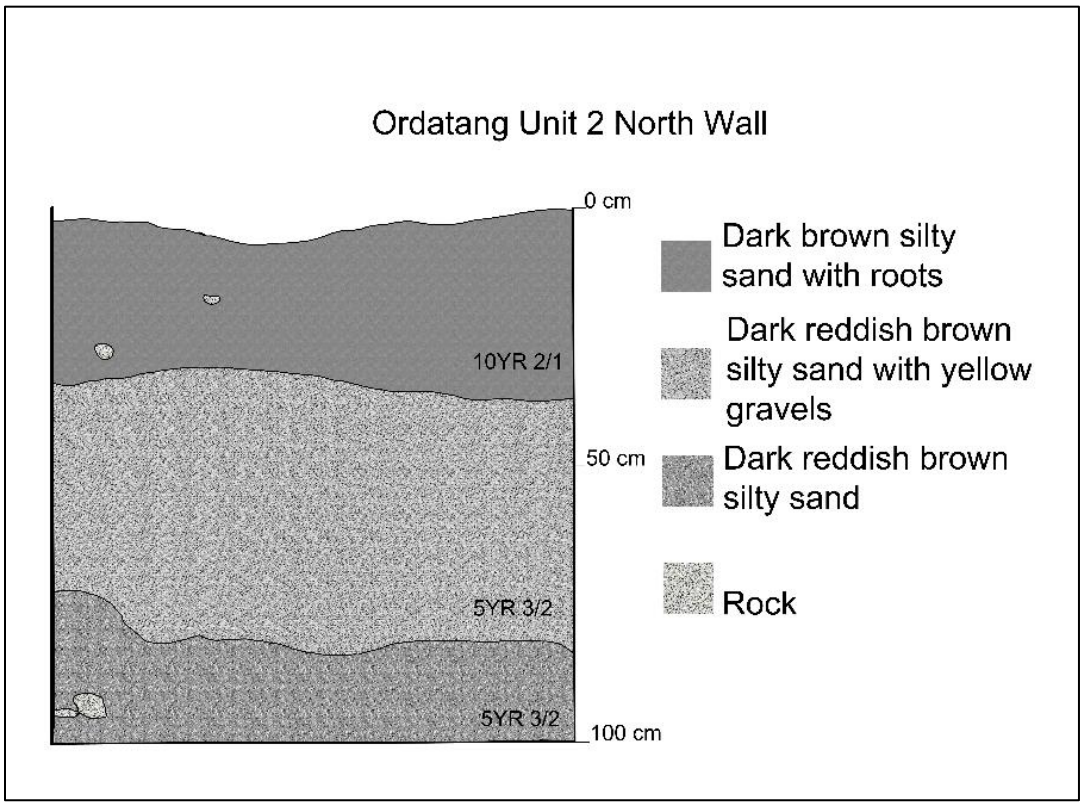


Figure 4.12 Ordatang Unit 2, north wall profile.

Unit 3

Unit 3 (Figure 4.13,Table 4.7) was located near auger probes # 66, which produced bone, and # 67, which yielded an 1859 Netherlands East Indies coin. The combination of bone and a colonial era coin led to the expectation of a possible colonial food prep area. However, upon the initiation of excavation, a fishing net (possibly used to catch the bats roosting in the nutmeg drying building) and modern plastic debris were recovered in the duff layer. The amount of modern trash in the same area suggests the bone was the result of recent use. Coral bits were found throughout this unit, likely the result of the collapse of the structure walls as coral was a common construction material in the colonial period (it is still obvious in the extant walls). This unit was located near a section of *perk* walls that were a bit more ruined than surrounding walls with a section that looked like it had been purposely knocked down to create a path through the *perk* walls. The walls were made of coral rocks mortared together; this likely explains the coral found in the unit which is far from the beach. Earthenware was scarce in this unit compared to the other units at this site. Soil changed from dark brown silty sand to dark reddish brown silty sand around 25 cm (Table 3.8, Figure 3.12). Discontinuous decomposing bedrock was encountered around 40 cm; the unit was terminated at 50 cm due to bedrock.

Table 4.7 Ordatang Unit 3 artifact summary.

Level	Earthenware	Tradeware	Bone	Glass	Metal
0-10 cm	27	4	3	2	2
10-20 cm	57	23	89	50	34
20-30 cm	11	7	10	32	2
30-40 cm	8	1	77	4	
40-50 cm	1	1	2		

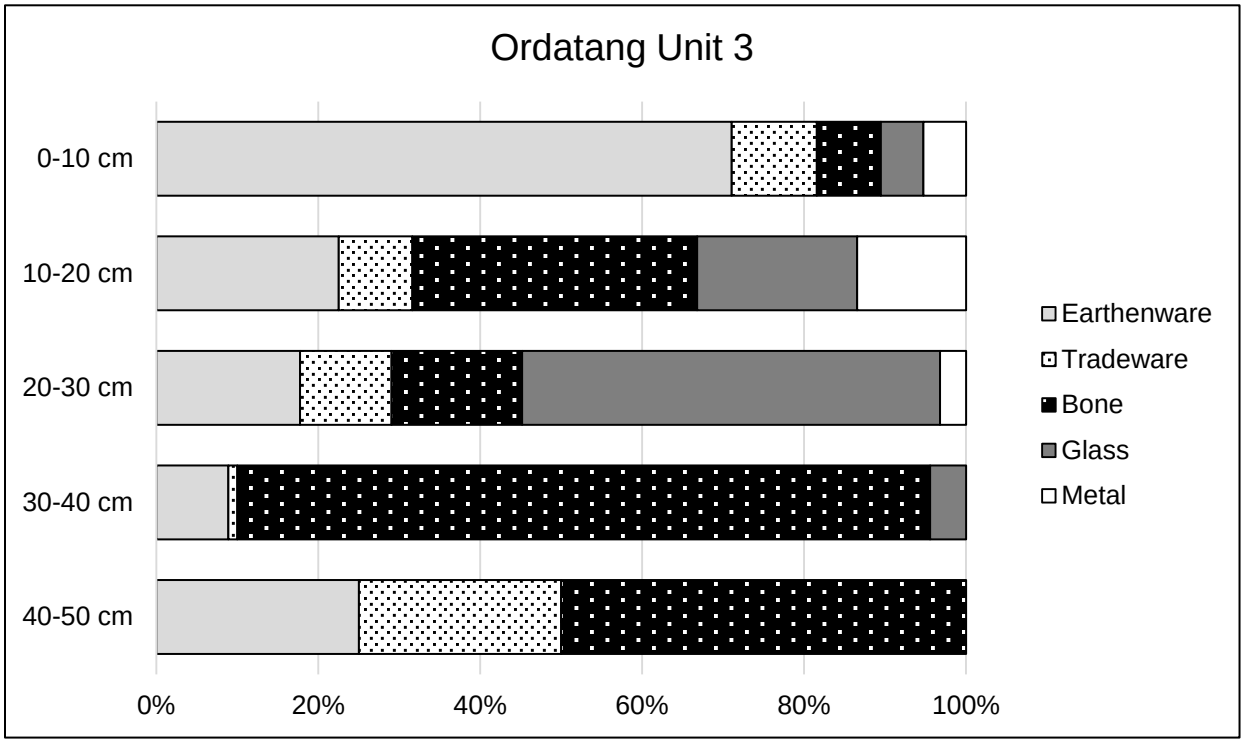


Figure 4.13 Ordatang Unit 3 artifact summary.

Table 4.8 Ordatang Unit 3 sediments summary.

Level	Sediments	Comments
0-10 cm	Dark brown silty sand 10YR 2/1	Lots of shell, gravel, rocks, coral, modern trash. Ants' nest. Coral is likely building material from collapsed walls.
10-20 cm	Dark brown silty sand 10YR 2/1	More bone than previous units. A bullet. Giant root ball in southern part of unit. Still lots of coral. Ants nest.
20-30 cm	Dark reddish brown silty sand 2.5 YR 3/2, at ~25 cm	Increase in gravels, decrease in artifacts. Some small cobbles. Coral chunks.
30-40 cm	Dark reddish brown silty sand 2.5 YR 3/2	Increase in gravels, a lot of coral, still producing bone.
40-50 cm	Dark reddish brown silty sand 2.5 YR 3/2	Decomposing bedrock, unit terminated.

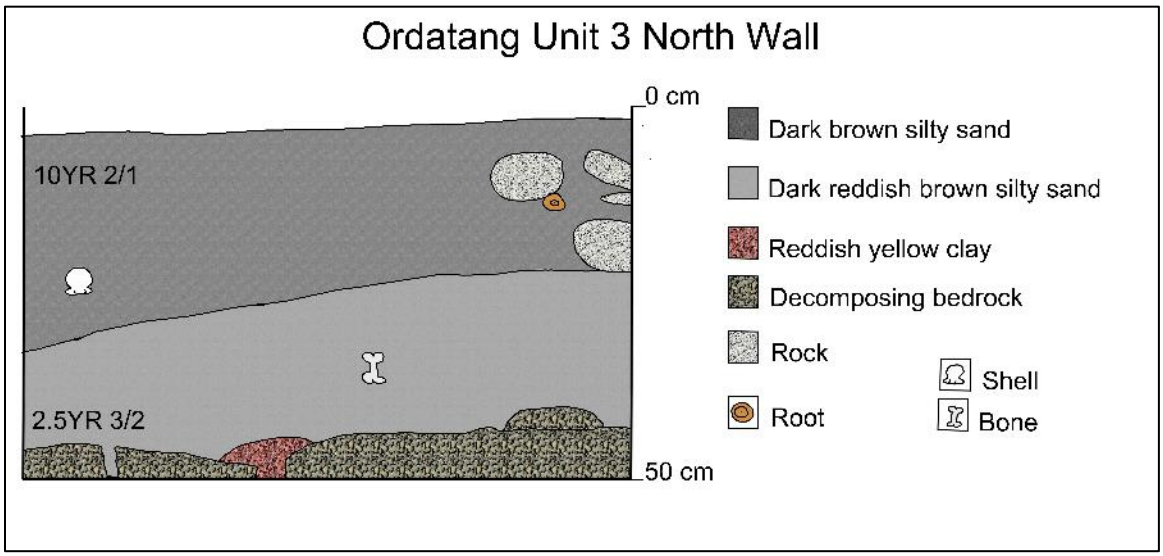


Figure 4.14 Ordatang Unit 3, north wall profile.

Conclusions

The sediments at Ordatang were relatively homogenous with dark brown silty sand transitioning to reddish brown silty sand around 50 cm. In addition to the soil change, artifact numbers decreased and all non-earthenware artifacts disappeared after 50 cm. The soil change is likely a natural result of the tropical forest environment. As Monk et al. (1997:109) note, "In continually moist conditions, heavy rainfall causes leaching of the basic cations (minerals and salts) from the soils so that these cations are replaced by hydrogen and aluminum ions, producing acidic soils." The lack of organic material such as bone and shell past 50 cm may be a result of destruction due to acidic sediments common to tropical forests, however tradeware is also not found past 50 cm and this material would not be affected by the acidity of the sediments. The amount of earthenware found at Ordatang is not duplicated at either of the other excavated *perken,* which suggests a different formation process for the deposition of the earthenware compared to the other two sites. The natural terrace and uneven bedrock may have necessitated the use of fill material to even out the terrace to create the foundation of the plantation compound. The below-50 cm earthenware sherds, then, are likely fill from a pre-colonial midden somewhere on the islands but not necessarily associated with any pre-colonial occupation of the area immediately around the *perk*. There is no historic mention of a pre-colonial village in the interior of the island and Hanna (1978:26) notes that when people did attempt to escape the Dutch conquest on Banda Besar by living in the interior forest, they often starved. The fictionalized *Mirah of Banda* notes a similar inability to thrive in the interior of Banda Besar during the Japanese occupation of WWII. However, Neolithic sites in Island Southeast Asia have been found in easily-defensible upland locations, so it is possible that the fill was taken from a location near the *perk*. Thermoluminescence dates (discussed in Chapter 5) on earthenware from Unit 1 fall around 3500 BP, this suggests that the fill used was taken from older deposits as opposed to creating

fill from contemporary deposits during the building of the *perk*. Despite the fact the earthenware is probably not directly associated with the pre-colonial occupation in the plantation area, the precolonial ceramics can provide information on changes associated with the transition to colonial rule.

Groot Waling

Environmental Setting

Groot Waling is located on the northern and interior side of Banda Besar, on a beach facing Banda Neira. Sediments consisted of beach sands to the maximum depth of excavation at 140 cm and the area surrounding the *perk* is relatively flat, suggesting a beach environment throughout occupation. A modern road passes behind the *perk* and the spine of the island begins to rise approximately 100 m beyond the *perk*. Unlike Ordatang, two wells were obvious at Groot Waling.

While still inhabited, Groot Waling is rather overgrown with native vegetation (Figure 4.15); an historic photograph of the site shows significantly less vegetation within the perk (Figure 4.16). The current inhabitant does maintain some fruit trees and ornamentals within the *perk* compound, in addition to an area devoted to a nutmeg seedling nursery. Neighboring villagers have placed gardens on the northeastern side of the exterior *perk* wall. A few stray cats, a dog, and some small lizards were the only animals noted within Groot Waling. The proximity to the beach suggests fish remains should be prevalent at this site.

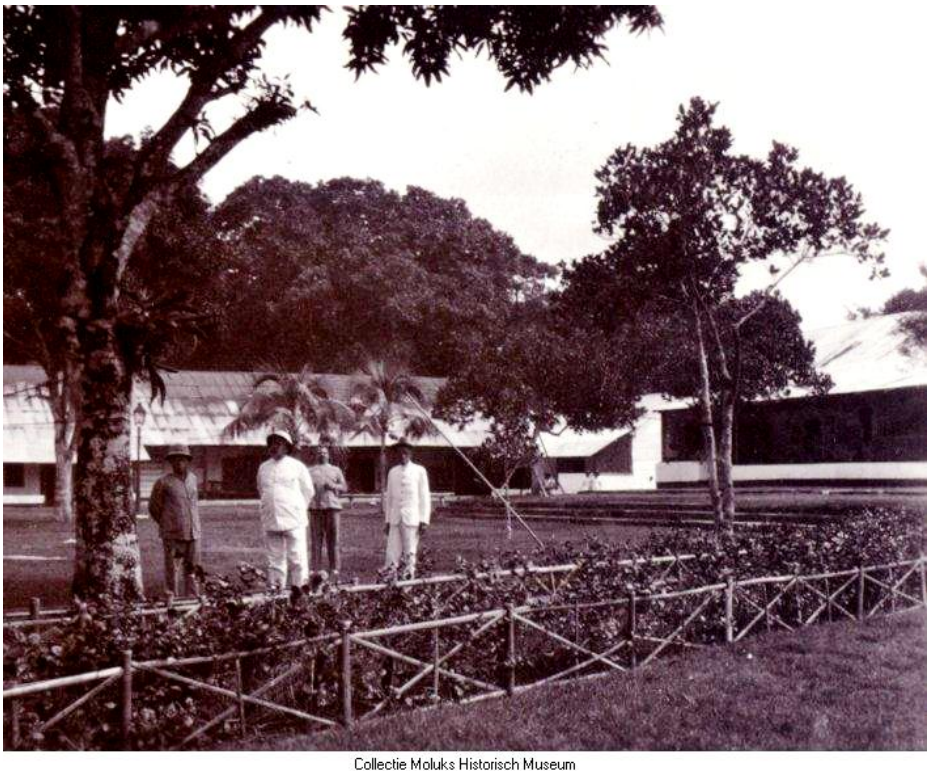
History

There is no historically known village at the location of Groot Waling (Lape 2000), but a thriving village currently exists surrounding the *perk*. The village was probably associated with the neighboring *perken* of Groot Waling and Klein Waling (Great and Small Waling), both owned by the van den Broecke family.

The current inhabitant of Groot Waling, Pongky van den Broecke, is a direct descendant of one of the original *perken*iers, Pieter van den Broecke (Figure 4.17). Pak Pongky informed me that Groot Waling was built in 1728, approximately 100 years after the Dutch conquest of the islands, but it is shown on Valentijn's 1687-88 map (Figure 4.3), suggesting an earlier construction. Due to the volcanic origin of the interior islands, tectonic destruction is not uncommon, and the 1728 construction date could have been rebuilding after a natural disaster. However, no historically recorded natural disaster corresponds to c. 1728 (Hanna 1978, Wichman 1918). It is possible that the *perk* lands were delineated but the plantation compound had not been erected during Valentijn's residence, but structures can be seen on Valentijn's map which suggests that something existed in that location in 1687. The 1728 date from van den Broeke family lore might reflect a rebuilding of original structures, unrelated to a recorded natural disaster, or it may be the result of a misunderstanding or mistranslation, either on my part or sometime during the transmission of oral history. However, a photo of Klein Waling, another one of the van den Broeke



Figure 4.15 Groot Waling, overview of courtyard from back entrance to *perk*, looking at back porch of main house.



Collectie Moluks Historisch Museum

Figure 4.16 Historic photo of Groot Waling, main house is to the right, nutmeg drying building is in background. Photograph was probably taken in southern corner of the perk, looking north.


Figure 4.17 Pieter van den Broecke, painted by Frans Hals.

family's *perken* shows the erection date of a gate to be 1769 (Figure 3.25). So is possible that the 18th century saw some construction/ reconstruction of the van den Broeke family *perken*. An original construction date in the early 17th century is more likely than one in the 18th century, based on the Valentijn map.

According to Pak Pongky, he is the 13th generation of van den Broeckes to reside in the Banda Islands. Previous generations controlled multiple *perken* on both Banda Besar and Pulau Ay, but the nationalization of the *perken* after independence removed the family's claim to all but the Groot Waling plantation compound. Despite nationalization, Pongky's father Wim was able to renew his family's *perk* operations in 1980 (De Jong 2011). Following in his ancestors' footprints, Pongky still uses the nutmeg drying building to smoke the nutmegs in addition to making nutmeg oil. He also maintains a nursery of nutmeg seedlings to ensure replacement of dead and dying trees and exports some seedlings to Japan and other Asian nations (Pongky van den Broecke 2010, personal communication). A modern house has

been built using portions of the old *perk* wall, but the *perk* structures (except the drying building) have been abandoned. Pak Pongky also maintains a residence in Banda Neira, dividing his time between the two residences. Pongky has a son from a previous marriage who attends school in Banda Neira, which partly explains his dual residences, but historic records (e.g., Hanna 1973) do note that *perkeniers* often lived in Banda Neira. It is possible, then, that Pongky maintains a traditional dual residence pattern. Boats move between the two islands regularly throughout the day and it takes less than 15 minutes to make the trip with modern motorboats. Even without modern gas-powered engines transport between the two islands would have been quite easy and Groot Waling has an excellent boat landing area, especially at low tide.

Excavation

Auger Probes

Groot Waling, while somewhat overgrown and in partial ruin, is in the best shape of all the *perken* I visited. The courtyard and immediate exterior of the *perk* walls were relatively easy to access resulting in 127 auger probes (Table 4.9, Figure 4.18). A larger number of auger probes were placed in the courtyard of Groot Waling than the other two *perken* mainly due to ease of access. Auger probes were placed 8 m from the back wall of Groot Waling because an asphalt road had been built immediately behind the wall, impeding any digging at the 3-5 m distance used at Ordatang. A cemetery with relatives of the current inhabitant was located at the southeastern corner of the auger probes; no probes were located here out of respect for the family. Most auger probes were excavated to 140 cm, the maximum extent of the auger; the sediment was beach sand throughout and there were few obstacles to create early termination.

There was a paucity of European-style artifacts, for instance only two kaolin clay pipe stem fragments and one bowl fragment. A Netherlands East Indies coin was found on the beach in front of the modern house, but beyond the line of auger probes. NEI coins are commonly found on the islands today and its presence on the beach is unsurprising. Earthenware predominated in the artifact assemblage. Unlike Ordatang, only two auger probes (#14 and # 76) were completely negative; both were located at the corner of a building. Whereas the auger probes surrounding the elite residence (assumed elite due historic descriptions) at Ordatang yielded few, if any earthenware ceramics, the elite residence at Groot Waling (as identified by Pak Ponky) produced earthenware and other artifacts in similar densities to the remainder of the probes. Similar to Ordatang, earthenware dominated the auger probe assemblage.

Table 4.9 Groot Waling auger probe results. (EW= Earthenware sherds, TW= Tradeware sherds, remaining categories is number of fragments).

Probe #	max depth (cm)	# EW	# TW	# Shell	# Bone	# Glass	# Metal	Total	Notes
1	140	7		47		1		55	
2	140	4		40		2		46	
3	110	2	1	52		3		58	
4	140	13		42	1			56	Tooth, possibly goat.
5	140	13	3	20				36	
6	140	11		29	1			41	
7	140	10		26				36	
8	140	4		24	1			29	Canine tooth (element, not species).
9	60	1		11	1	4		17	
10	140	4	1	20	5	1	1	32	
11	35	2	2	1	1	3	1	10	
12	45	1		14		1	1	17	
13	140	10	2	40		2		54	
14	25							0	
15	140	3	2	25	3	2		35	
16	140	8		62	1			71	
17	140	9	1	72				82	
18	140	15	2	53	3	2	3	78	
19	140	8	1	58				67	
20	140	9		27				36	
21	140	7		17				24	
22	120	8	3	13	2			26	
23	140	14		9				23	
24	140	11		10	5			26	
25	140	5		1				6	
26	140	2	1	12	1			16	
27	135	2						2	
28	140	4		2		1	1	8	1 floor tile fragment.
29	90	9		3	3	1	1	17	
30	30		1	1		1		3	1 pipe stem fragment.
31	140	16	1	10	1	7	1	36	
32	35	1		1				2	
33	140	9		18	50			77	1 fish vertebra, lots of mammal long bone fragments.
34	140	12	1	47				60	
35	140	4		83				87	
36	140	18		87	2	1		108	
37	140	10		45				55	
38	140	14	1	39				54	
39	135	10	1	59		5		75	1 pipe stem fragment.
40	140	31		22			3	56	
41	140	7		25				32	

Probe #	max depth (cm)	# EW	# TW	# Shell	# Bone	# Glass	# Metal	Total	Notes
42	140	12		59	1			72	Tooth- unidentified.
43	135	12	1	18				31	
44	140	9		43				52	
45	140	10		59				69	
46	140	10		66		2		78	
47	140	5	2	24				31	
48	30	11		4				15	
49	140	5	1	5				11	
50	60		3	1		2		6	Unit 2 placed here. Pipe bowl fragment, glass shards (very patinated), large bivalve fragment.
51	140	24	1	18		4		47	
52	140	15	2			1		18	
53	70	17		2				19	
54	50		1					1	
55	140	7		7		2		16	
56	140	4	1	21		2		28	
57	60	9	2	5			4	20	1 floor tile fragment.
58	140	4	1	9		4	14	32	Modern trash (not collected).
59	140	5		6		3		14	1 clay ball.
60	140	10	1	22				33	
61	140	6		5		2	lots	13	2 nails, various pieces of metal.
62	140	6	2	4		2	lots	14	Glass bottle base, various flat pieces of metal.
63	140	7	1	2			lots	10	Various pieces metal, church key (can opener).
64	140	2		6			lots	8	Various pieces of metal, possible button.
65	140	14		30	1			45	
66	140	3		8		1		12	
67	140	3		17				20	
68	35					1		1	
69	140	7		13				20	
70	140	6		33	2	1		42	Bottle base.
71	140	13		33	1		2	49	Unit 1 placed here.
72	140	18		55	2			75	
73	140	5		41	1			47	
74	50	2		1				3	
75	140	15	1	48				64	
76	140							0	
77	140	5		24				29	

Probe #	max depth (cm)	# EW	# TW	# Shell	# Bone	# Glass	# Metal	Total	Notes
78	140	6		22				28	
79	140	6		39	1			46	
80	140	11	1	21	1	1		35	1 floor tile fragment.
81	140	13		6	1			20	1 floor tile fragment.
82	140	19		12	2			33	
83	30	2	1	1				4	
84	140	7		45				52	
85	140	44	2	17	1			64	Unit 2 place here.
86	140	12	1	9	1			23	
87	140	9		30				39	
88	140	17	31	30	5	2		85	
89	140	5		31			2	38	
90	140	13	3	33		1		50	
91	140	3		19				22	
92	140	6		23	1	2		32	
93	140	22	1	31				54	
94	140	6	2	27		1		36	
95	140	15	1	55	1			72	
96	55	7		3	6	2		18	
97	20	13	1		2	3		19	1 pipe stem fragment.
98	50	12			1	2		15	1 glass marble
99	140	15		14				29	
100	140	8		12				20	
101	140	5	1	21				27	
102	140	4		40	1		1	46	1 metal nail.
103	140	7						7	
104	140	9		20				29	
105	50	2		5		1		8	
106	140	6		28	1			35	
107	140	11		48	2	1	3	65	1 floor tile fragment.
108	140	10		27	1		3	38	
109	140	5	1	10	42	2	2	62	1 floor tile, 1 piece carbon, 1 battery core (?). Unit 4 placed here.
110	140	5	1		1		1	8	
111	140	6	2	24				32	
112	140	11	2	3	1			17	
113	35	4	1					5	
114	140	19	1	16	6			42	5 fish bone, 1 long bone fragment, possibly chicken.
115	140	22	1	59	3			85	Lots of shell fragments.
116	140	9	1	33	1			44	
117	140	16	1	23	3			43	fish bone
118	140	15	1	31	12	1	1	61	

Probe #	max depth (cm)	# EW	# TW	# Shell	# Bone	# Glass	# Metal	Total	Notes
119	140	11		8	6			25	1 pestle
120	140	5						5	
121	140	17		29				46	
122	140	6	1	5	1	1		14	
123	140	8		28				36	
124	140	10		5	3			18	
125	140	6		55	4	3		68	
126	30	3	1	6				9	1 floor tile
127	140	8		15		1		24	
Total:		1120	102	2875	200	88	42	4427	

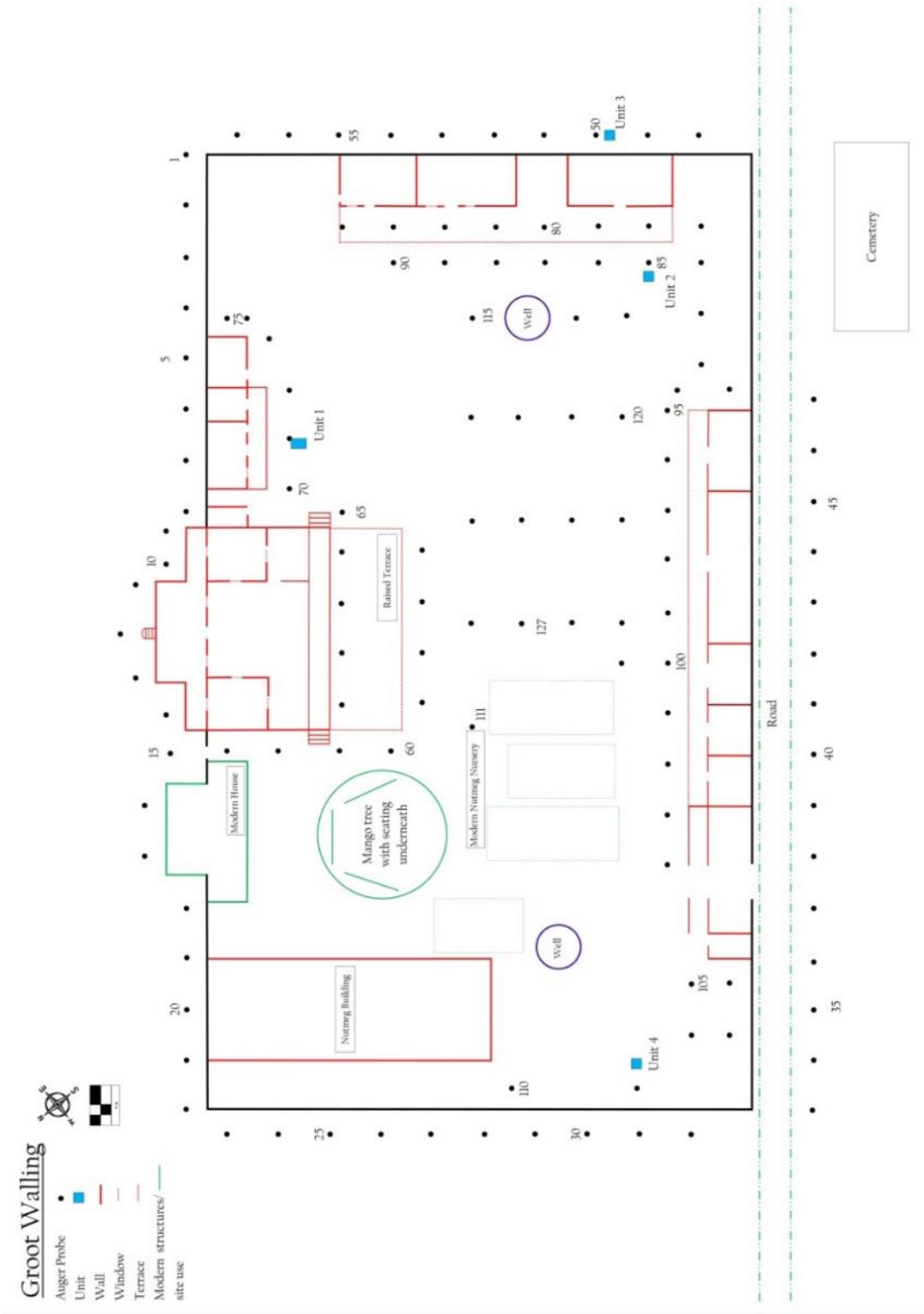


Figure 4.18 Groot Waling site map.

Unit 1 and 1.5

Unit 1 (Table 4.10, Figure 4.19) was placed near auger probe #71, which yielded a pestle fragment and some earthenware. Pak Pongky noted that this area was near the kitchen in his childhood house. I placed the unit here in hopes of finding dietary remains. This unit was also close to the base of a large tree, which may have mixed some sediments and artifacts. However, I thought that the location near the kitchen and positive auger probe results outweighed the risk of bioturbation. A silty sandy organic layer existed until about 35 cm where it transitioned to beach sand (Figure 4.19,Figure 4.20 Table 4.11). Water-worn artifacts began to appear around 60 cm and the percent of water-worn ceramics increases with depth (Figure 4.21). A large concentration of rocks in the southwest corner of the unit starting at 50 cm to 100 cm led me to extend the unit 50 cm to the south to determine if there was a pattern, creating Unit 1.5 (a 1 m x 0.5 m unit) (see Appendix A for excavation photos). Large rocks and boulders continued to be found throughout Unit 1.5, with a giant clam shell (*Tridacna spp*.) at 60-70 cm (Figure 4.22). There was a similar arrangement of large rocks/ boulders at the bottom of Unit 4. These boulders and large cobbles are somewhat mysterious. They may represent the remains of a volcanic eruption on a previous land surface, as similar boulders can be seen in the surrounding seabed and historic records of volcanic eruptions describe boulders raining down (Hanna 1978:84). A brick was found at 90-100 cm, indicating European contact (Figure 4.23). The European brick amongst the boulders is somewhat disconcerting. The sediment was homogeneous beach sands with decreasing amounts of artifacts and those that exist were often water worn. There was no indication of separate deposition events which could shed light on the combination of boulders and the brick. However, there were two sets of artifacts that refit between Unit 1 and Unit 1.5: a heat treated goat scapula whose pieces were from Unit 1.5 at 10-20 cm and Unit 1 at 80-90 cm and earthenware sherds from Unit 1 at 40-50 cm and Unit 1.5 at 70-80 cm. The tree roots may have contributed to mixing of the smaller artifacts (Schiffer 1987:210-212), but would be unlikely to affect the larger brick. The mixing could also be attributed to the modern practice of digging holes for trash disposal, except that no modern trash debris was noted in the deposit. The decreasing number of artifacts with depth and the increasing number of water-worn earthenware sherds with depth suggests that the deposit is somewhat intact, but not completely. The most parsimonious explanation, then, is that both units are a mixed deposit for their entire depth and, based on the existence of the brick at the bottom of the unit, the deposit dates to the colonial period.

Table 4.10 Groot Waling, Unit 1 and 1.5 artifact summary (Unit 1.5 in parentheses).

Level	Ceramics	Porcelain	Bone	Glass	Metal
0-10 cm	60 (18)	8 (1)	5 (2)	2 (0)	3 (0)
10-20 cm	81 (10)	5(3)	7(2)	3 (2)	0 (1)
20-30 cm	69 (34)	3 (2)	7 (7)	1 (0)	2 (3)
30-40 cm	44 (28)	2 (2)	3 (14)		2 (1)
40-50 cm	43 (16)	0(0)	8 (0)		1 (0)
50-60 cm	31 (13)	3 (0)	8 (0)		
60-70 cm	24 (19)	1 (0)	10 (0)		3 (0)
70-80 cm	25 (6)	0 (1)	10 (3)		
80-90 cm	26 (9)	0 (1)	6 (6)		
90-100 cm	15 (0)	0 (0)	3 (2)		
100-150 cm (auger probe)	1	0	0		

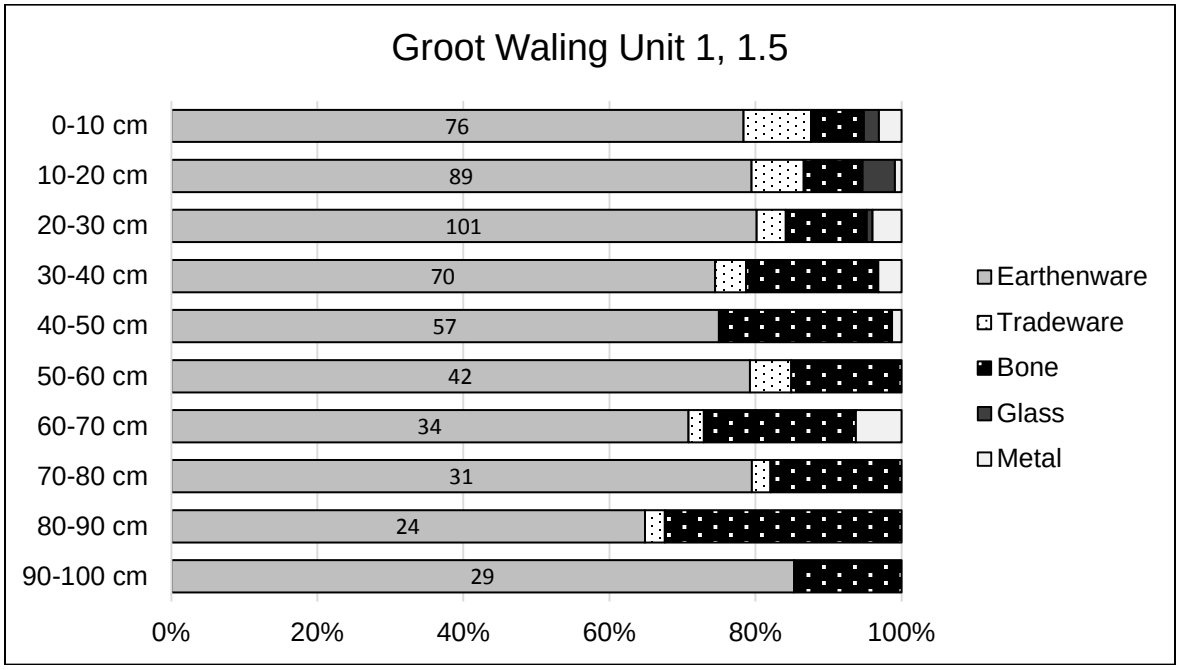


Figure 4.19 Groot Waling Unit 1 and 1.5 artifact summary.

Table 4.11 Groot Waling, Unit 1 and 1.5, sediments summary.

Level	Sediments	Comments
0-10 cm	Dark brown silty sand, 10 YR 2/1	Large roots
10-20 cm	Dark brown silty sand, 10 YR 2/1	Large root, large rocks
20-30 cm	Dark brown silty sand, but increasing sand content 10 YR 2/1	Large root, large rocks in north wall. Diffuse transition from humus to sand. (Yellowish brown silty sand pocket in Unit 1.5)
30-40 cm	Dark brown silty sand, but increasing sand content 10 YR 2/1	Large rock in north wall
40-50 cm	Dark brown sand, 10 YR 2/1	Large rocks in north wall
50-60 cm	Dark brown sand, 10 YR 2/1	Pile of rocks in SW corner
60-70 cm	Dark brown sand, 10 YR 2/1	Some ceramics are waterworn, others are not. Rocks still in SW corner.
70-80 cm	Dark brown sand, increase in gravels (~25%) 10 YR 2/1	Rocks still in SW corner
80-90 cm	Dark brown sand 10 YR 2/1	Artifacts water worn. Concentration of rocks still in SW corner.
90-100 cm	Dark brown sand 10 YR 2/1	Concentration of rocks still in SW corner.
100-150 cm (auger probe)	Dark brown sand 10 YR 2/1	Water table not reached, but sediments saturated and hole continually collapsed. 1 water-worn earthenware sherd.

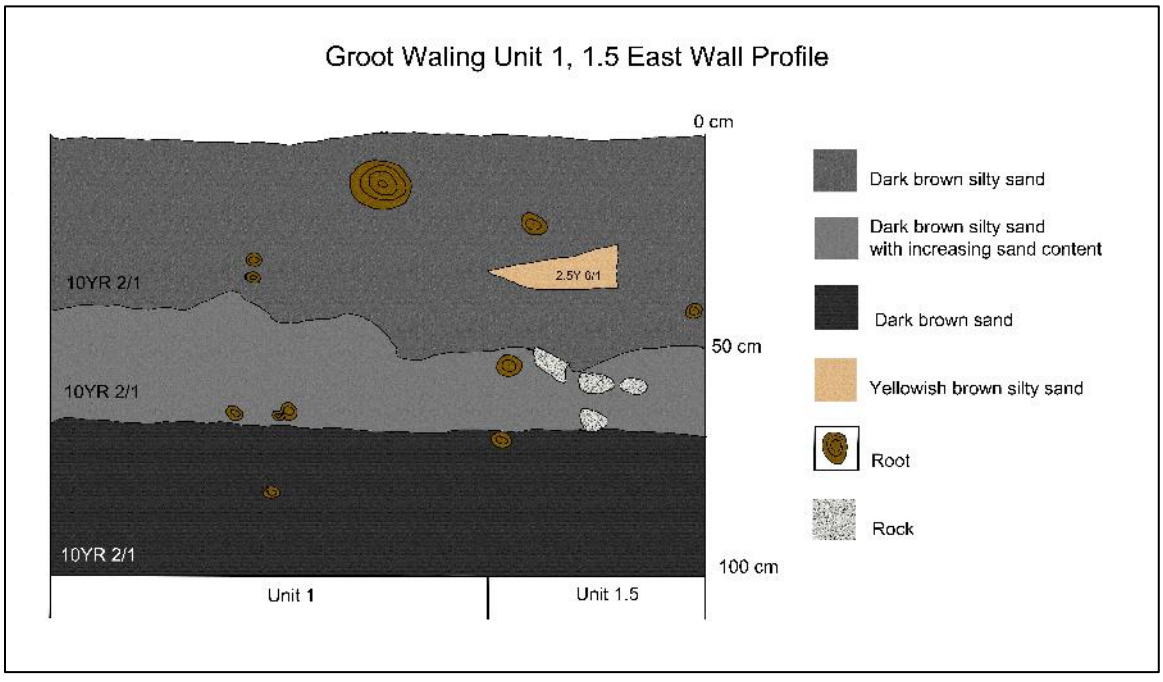


Figure 4.20 Groot Waling Unit 1 and 1.5, east wall profile (north is to the right), at 100 cm.

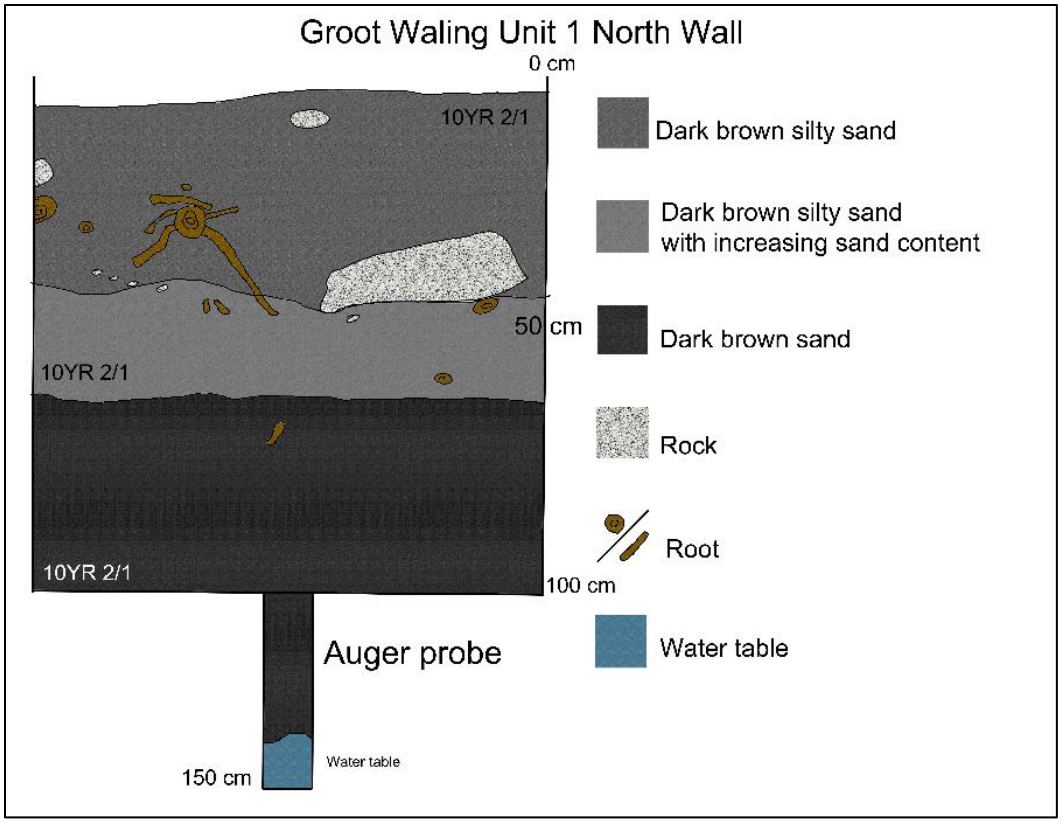


Figure 4.21 Groot Waling Unit 1 North Wall Profile.

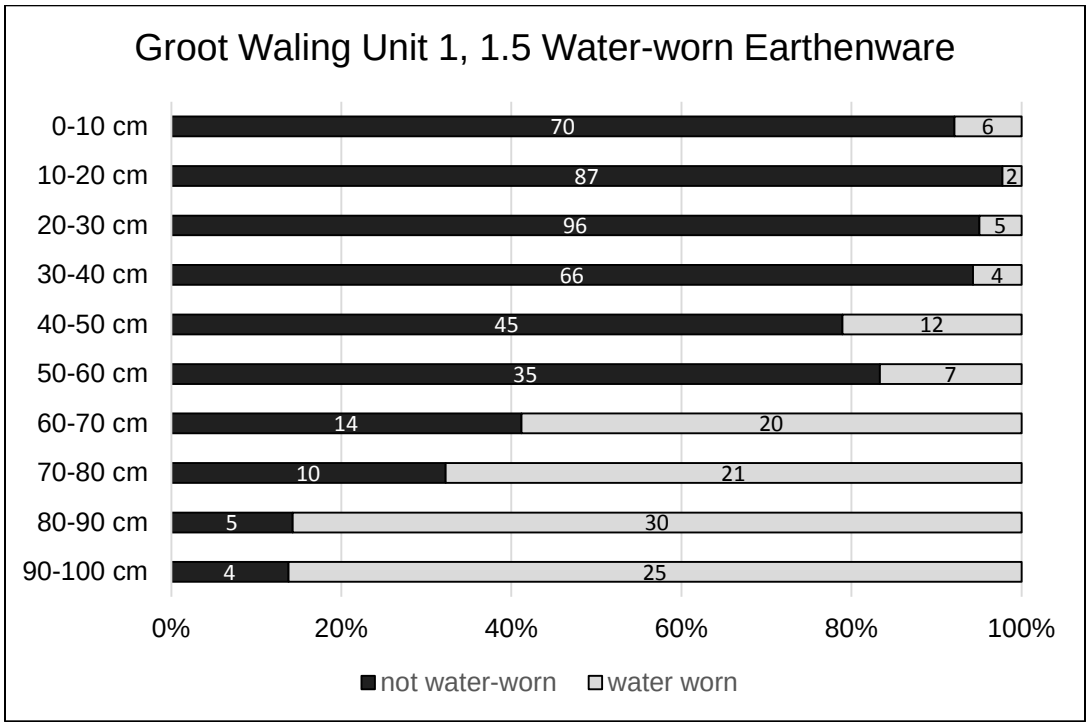


Figure 4.22 GW Unit 1, 1.5 Water-worn Earthenware.



Figure 4.23 Groot Walling, Unit 1.5 at 60-70 cm, Giant clam shell and rock.



Figure 4.24 Brick from Groot Walling Unit 1.5.



Figure 4.25. Groot Walling, Unit 1 and 1.5, rock feature at 100 cm. North is right side of photograph.

Unit 2

Unit 2 (Table 4.12, Figure 4.26) was located between the northeastern and southwestern structures and a few meters south of the old well. If these structures were workers' housing, this unit would have been located in an area of the *perk* that may have afforded some privacy due to the intersection of the two buildings and location behind the well. Two whole glass liquor bottles (Figure 4.27) were found at 10-40 cm, but these may have been associated with the current owner's father, according to local informants. One bottle was a J.H.Henkes gin bottle, stylistically dated to 1880-1930; this is a bit early for the current owner's father (who would have been about 10 years old in 1930), but could represent his grandfather's consumption. Alternatively, the bottle could have been re-used to house the local arak wine and the bottle could then date to a later time period. The other bottle was an unmarked green glass wine-style bottle with few datable stylistic attributes. No artifacts were found in this area to suggest workers were engaged in surreptitious resistance to the dominant powers, as has been seem in similar hidden areas in New World plantations (Singleton 1996). It is possible that the alcohol bottles were used by workers, but the lack of other items of resistance, the shallow depth, and the local lore associated with Pak Pongky's father, do support the local informants' interpretation. In general, artifacts decrease with depth to 50-60 cm (Table 4.12) and then increase at 90-100 cm; a similar pattern is seen in Units 3 and 4 at Groot Waling. Level 50-60 cm was sterile and may represent a transition from the pre-colonial period to the colonial era. Earthenware sherds found at 60-70 cm and deeper do exhibit water-rounding (Figure 4.28), suggesting these depths were pre-colonial beaches. Due to the water-wear, the

sherds were probably not related to a pre-colonial village habitation at this location but were being washed to the location from other villages along the coast of Banda Besar. Sediments were homogenous beach sand throughout (Table 4.13, Figure 4.29).

Table 4.12 Groot Waling Unit 2 artifact summary.

Level	Earthenware	Tradeware	Bone	Glass	Metal
0-10 cm	196	16	4	42	4
10-20 cm	237	24	23	24	11
20-30 cm	121	2	-	-	47
30-40 cm	4	1	-	-	3
40-50 cm	4	-	-	-	-
50-60 cm	-	-	-	-	-
60-70 cm	4	-	1	-	-
70-80 cm	6	-	2	-	-
80-90 cm	12	-	-	-	-
90-100 cm	72	-	-	-	-

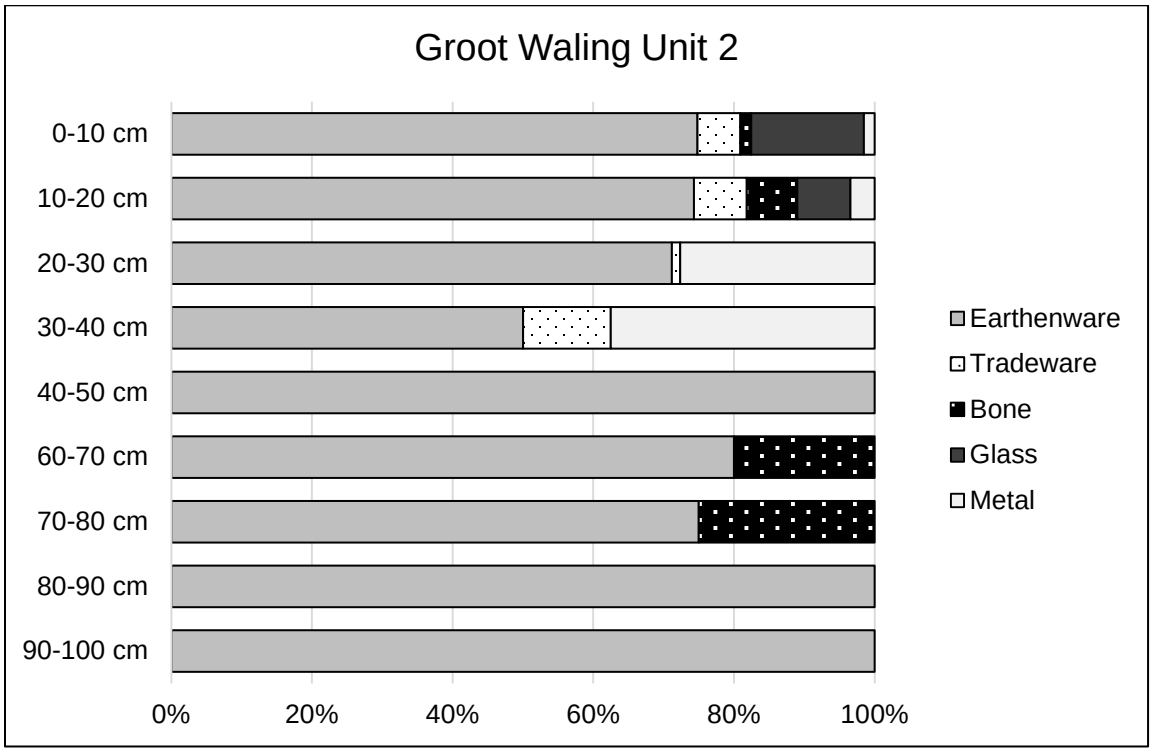


Figure 4.26 Groot Waling Unit 2 artifact summary.



Figure 4.27 Two whole bottles in south wall in GW Unit 2 at 20-30 cm, top of photo is north.

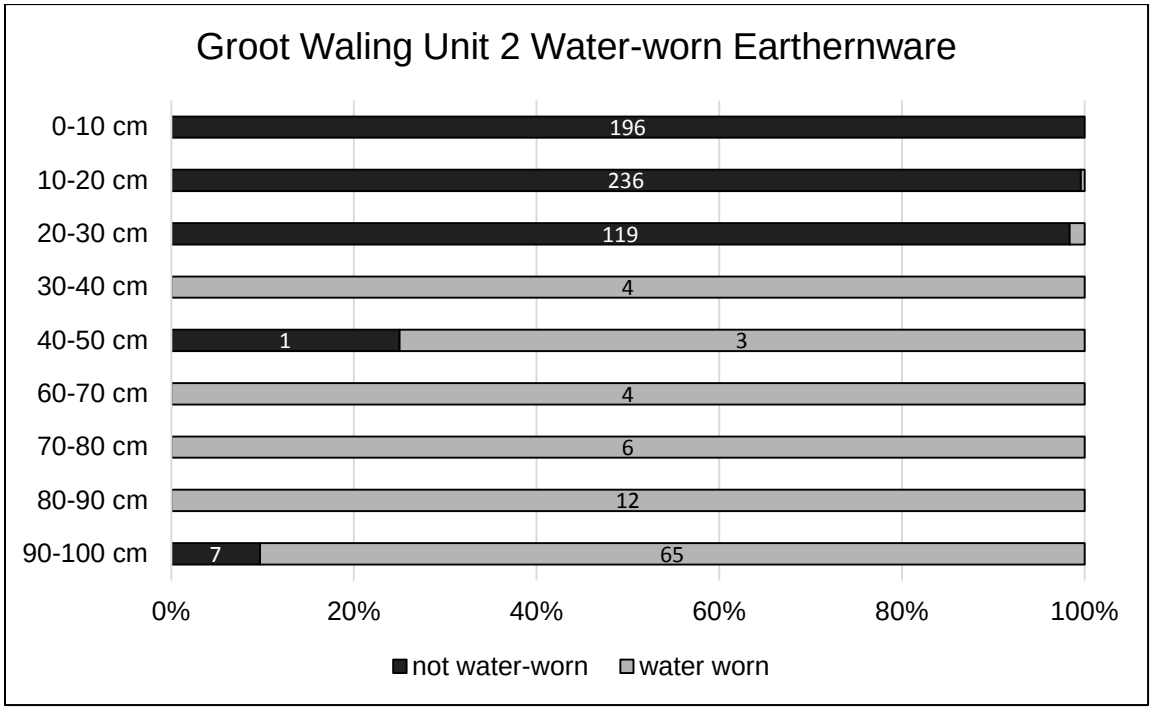


Figure 4.28 Groot Waling Unit 2 Water-worn Earthenware.

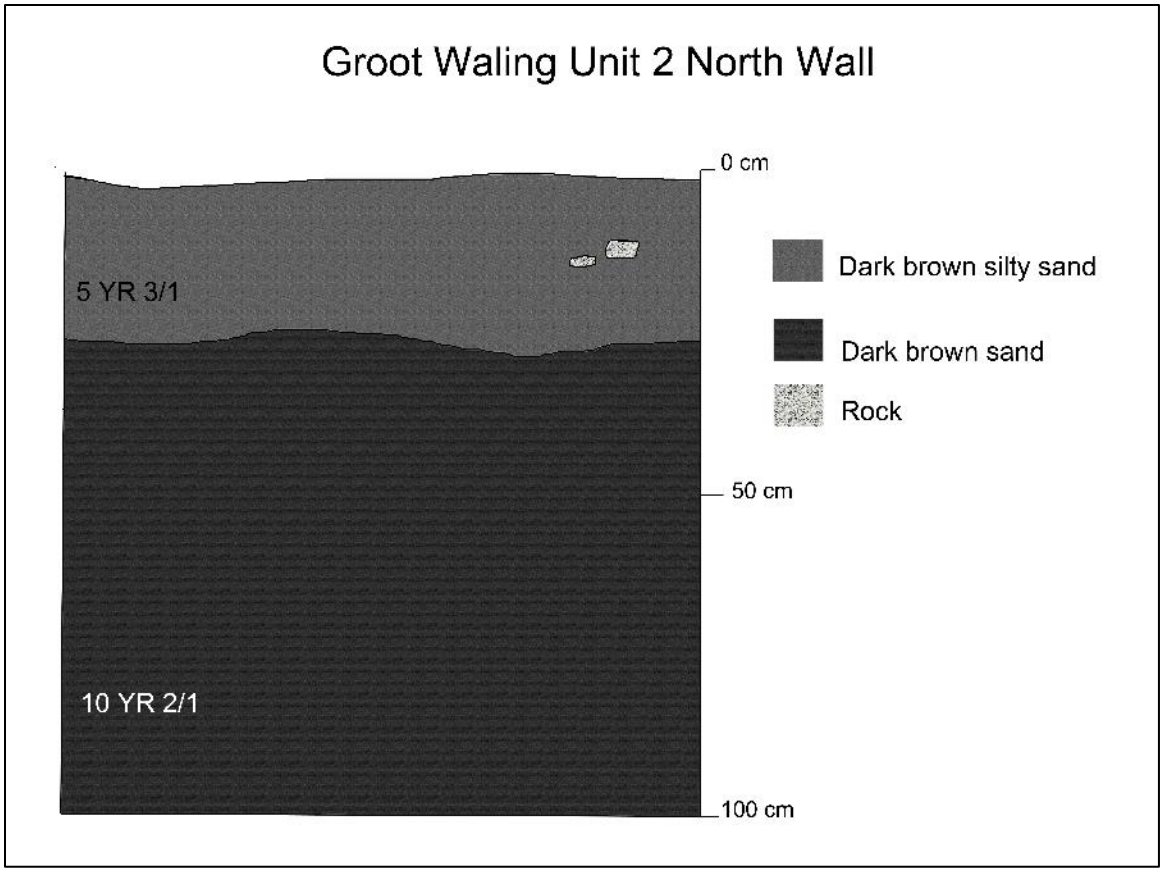


Figure 4.29 Groot Waling Unit 2 north wall profile.

Table 4.13 Groot Waling Unit 2 sediments summary.

Level	Sediments	Comments
0-10 cm	Dark brown silty sand 5 YR 3/1	Large metal pieces, lots of glass
10-20 cm	Dark brown silty sand 5 YR 3/1	Modern plastic trash, whole bottle in south wall.
20-30 cm	Dark brown sand 10 YR 2/1	Most artifacts below whole bottles in south wall.
30-40 cm	Dark brown sand 10 YR 2/1	Very few artifacts
40-50 cm	Dark brown sand 10 YR 2/1	Very few artifacts
50-60 cm	Dark brown sand 10 YR 2/1	Sterile
60-70 cm	Dark brown sand 10 YR 2/1	Water worn ceramics
70-80 cm	Dark brown sand 10 YR 2/1	Water worn ceramics
80-90 cm	Dark brown sand 10 YR 2/1	Water worn ceramics
90-100 cm	Dark brown sand 10 YR 2/1	Water worn ceramics

Unit 3

Unit 3 (Table 4.14, Figure 4.30) was located outside the southeastern portion of the *perk* wall, between auger probes #49 and #50, together containing 5 earthenware sherds, 4 porcelain sherds and two glass shards. This unit was placed outside the walls with the assumptions that individuals may have been disposing of trash outside the *perk* walls to keep the interior clean. This area is being used by local village inhabitants as garden plots and the tilling likely caused mixing of the shallow levels. Numbers of recovered artifacts are smaller than interior *perk* units. Similar to Unit 2 and Unit 4, artifact numbers decrease around 20-30 cm but increase around 80-90 cm. Unit 3 also shows an increase in water-worn earthenware with depth (Figure 4.30). There was a soil change (Table 4.15, Figure 4.31) from the organic layer to brownish-red silty sand, transitioning to gray sand, and then the beach sand found throughout the site. The majority of artifacts were found in the transitioning layers in addition to large numbers of glass fragments and some bricks, not collected. The pipe stems found at 20-30 cm suggests that the transitional layers are associated with colonial occupation. The upper 40 cm are likely associated with the *perk* occupation and may be mixed due to the agricultural activity. The lower levels are likely associated with pre-colonial use and the earthenware ceramics do suggest a pre-colonial date (see Chapter 5). The majority of the earthenware after 60 cm were waterworn so they are probably not in primary disposal context.

Table 4.14 Groot Waling Unit 3 artifact summary.

Level	Ceramics	Porcelain	Bone	Glass	Metal
0-10 cm	39	11		12	6
10-20 cm	49	6		16	4
20-30 cm	144	32	4	37	5
30-40 cm	24	6	6	7	
40-50 cm	19	1	11		1
50-60 cm	17	3			
60-70 cm	6	2		1	
70-80 cm	5				
80-90 cm	5	1	6		
90-100 cm	20		7		

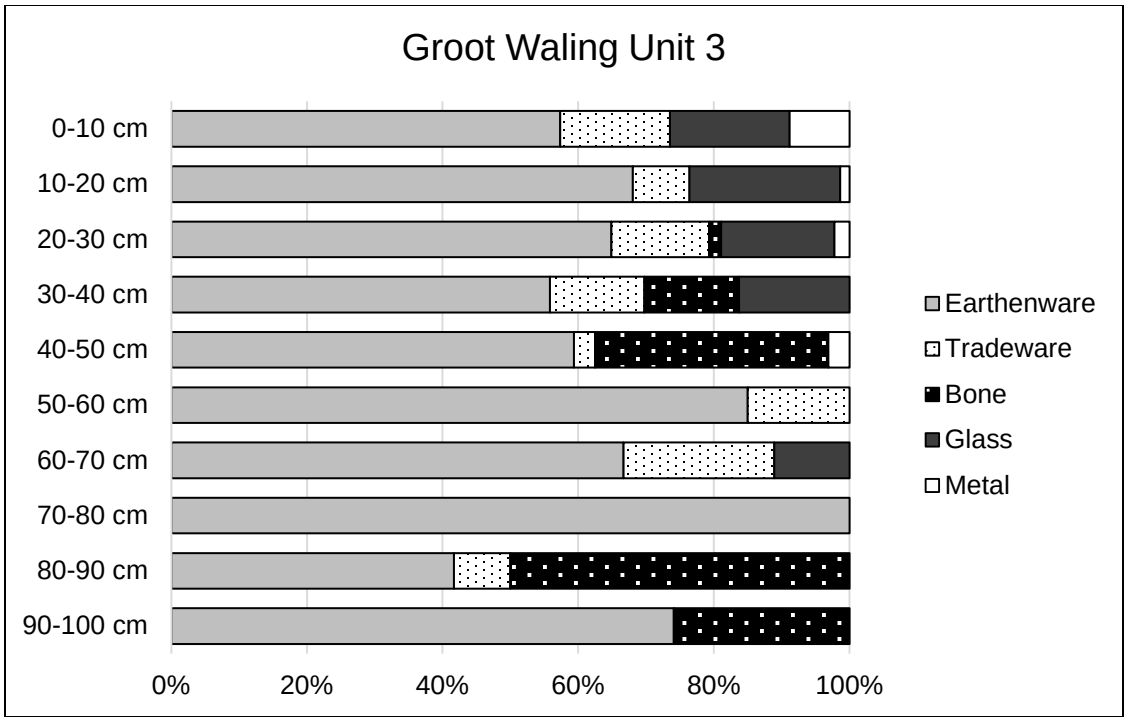


Figure 4.30 Groot Waling Unit 3 artifact summary.

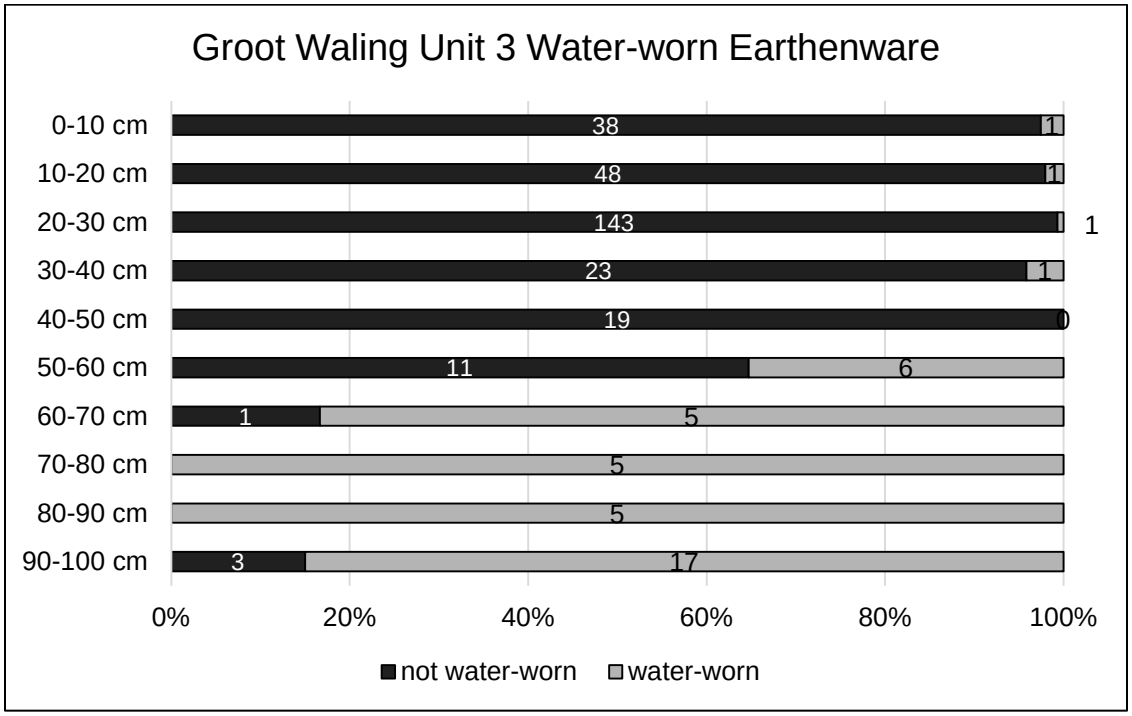


Figure 4.31 Groot Waling Unit 3 water-worn earthenware.

Table 4.15 Groot Waling Unit 3 sediment summary.

Level	Sediments	Comments
0-10 cm	Dark brown silty sand 5 YR 3/2	Modern trash, some roots
10-20 cm	Reddish brown silty sand 2.5 YR 4/2	Lots of roots, few artifacts
20-30 cm	Reddish brown silty sand 2.5 YR 4/2	2 pipe stems, lots of glass fragments, large pieces of porcelain, pile of bricks in south half (not collected)
30-40 cm	Dark gray silty sand 2.5 Y 3/2	Area where bricks were has orangey-brown mottling.
40-50 cm	Dark brown sand 10 YR 2/1	Few artifacts, dark gray silty sand continues in SW corner
50-60 cm	Dark brown sand 10 YR 2/1	Few artifacts
60-70 cm	Dark brown sand 10 YR 2/1	Few artifacts
70-80 cm	Dark brown sand 10 YR 2/1	Few artifacts
80-90 cm	Dark brown sand 10 YR 2/1	Water worn ceramics
90-100 cm	Dark brown sand 10 YR 2/1	Water worn ceramics

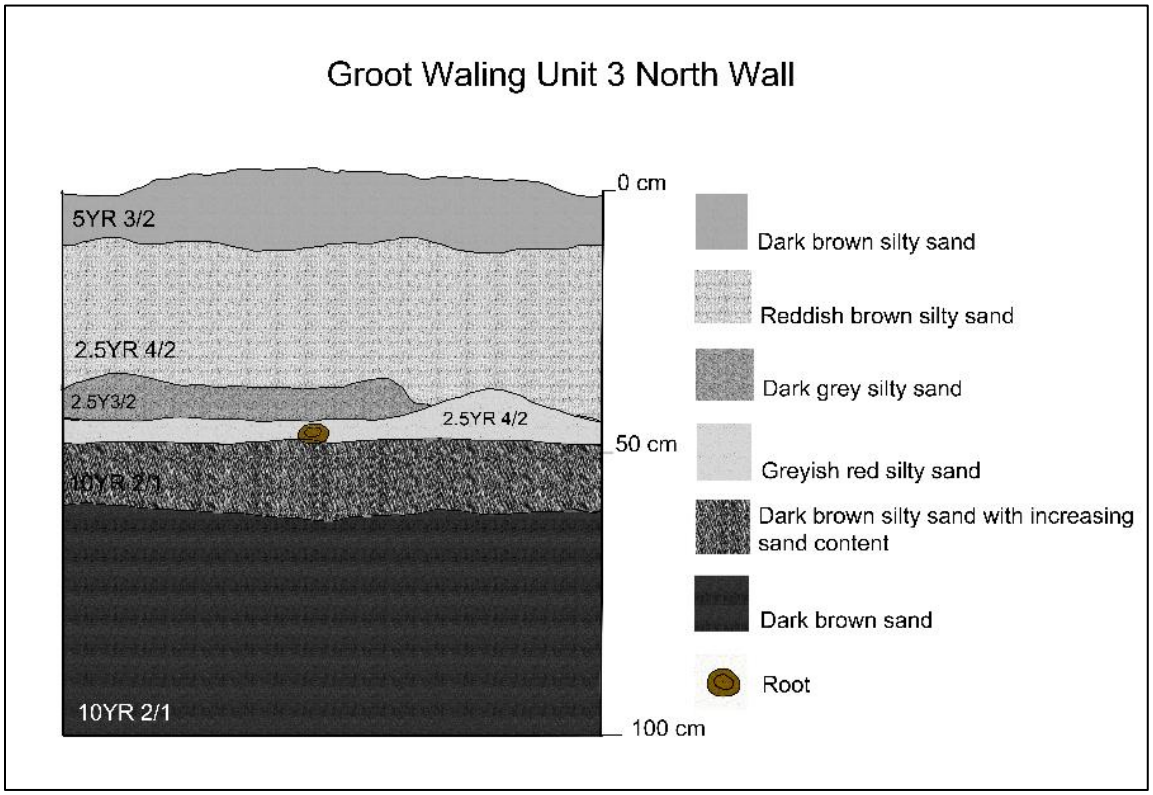


Figure 4.32 Groot Waling Unit 3 north wall profile.

Unit 4

Unit 4 (Table 4.16,Figure 4.33) was located between the nutmeg drying building and the southwestern building. The auger probes in this area (# 108-110) produced silty sand instead of beach sands and I wanted to investigate further. Similar to Unit 2, this unit was located in an area that would have been somewhat hidden from view. Unlike the other units at this site, there was no patterning to water-worn earthenware in this unit and few sherds in general were water-worn (Figure 4.34). Beach sand did not occur in this unit until 90-100 cm (Table 4.17, Figure 4.35). The lack of water-worn artifacts and beach sand suggests this are experienced some sediment mixing or deposition. Rocks, bricks, and mortar were found throughout the unit at 10-60 cm. This probably represents construction or repair debris. Similar to Unit 1, there was a concentration of large boulders at 90-100 cm (Figure 4.36). Two dog skeletons were also encountered in the southern wall at 20-40 cm. These appeared to be complete skeletons when interred and had no signs of human modification. As quasi-feral dogs are not uncommon on these islands, these remains likely represent hygienic burial as opposed to evidence of subsistence. Aside from the dog skeletons, numbers of artifacts recovered from this unit are quite low. Pak Pongky called this place "*tempat air*" which translates to "water place," but I have been unable to determine what the appropriate translation is. The corner area of the *perk* between the southwestern building and *perk* wall had lemongrass growing and was a bit moister than other areas of the *perk*. This area may have had other construction associated with the nutmeg building and the sediment has been mixed or moved from elsewhere. I had placed the unit here hoping that the hidden area would have been used to dispose of material associated with the work of the nutmeg drying building or the southern building. This does not appear to be the case, although the dog burial does suggest the area was used, at least recently, as an out-of-the-way disposal area. The lack of patterning with water-worn ceramics and the lack of patterning in the earthenware temper (see Chapter 5) coupled with the lack of sandy sediments until 90 cm suggests that this unit has a different deposition history than the other three units at Groot Waling and is likely mixed.

Table 4.16 Groot Waling Unit 4 artifact summary.

Level	Ceramics	Porcelain	Bone	Glass	Metal
0-10 cm	15	7	3	16	7
10-20 cm	21	6	33	35	2
20-30 cm	8	4	200	1	4
30-40 cm	21	3	150	2	3
40-50 cm	22	1	7	6	
50-60 cm	4		28	4	
60-70 cm	12		18		
70-80 cm	3	1			
80-90 cm	10				3
90-100 cm	35	2	3		

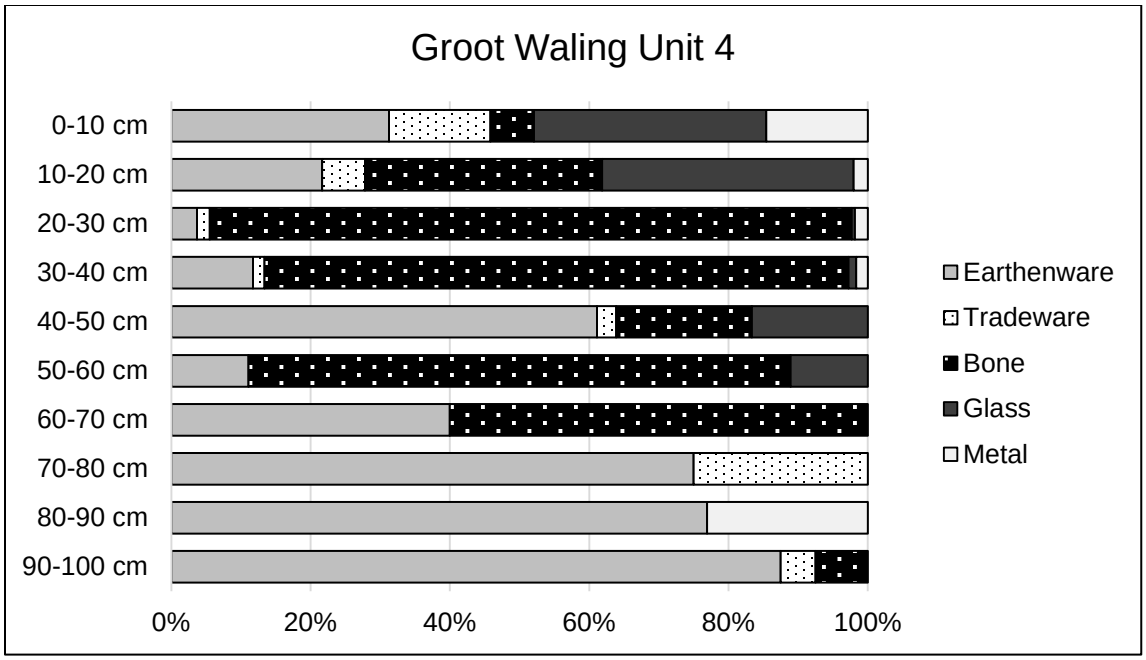


Figure 4.33 Groot Waling Unit 4 artifact summary.

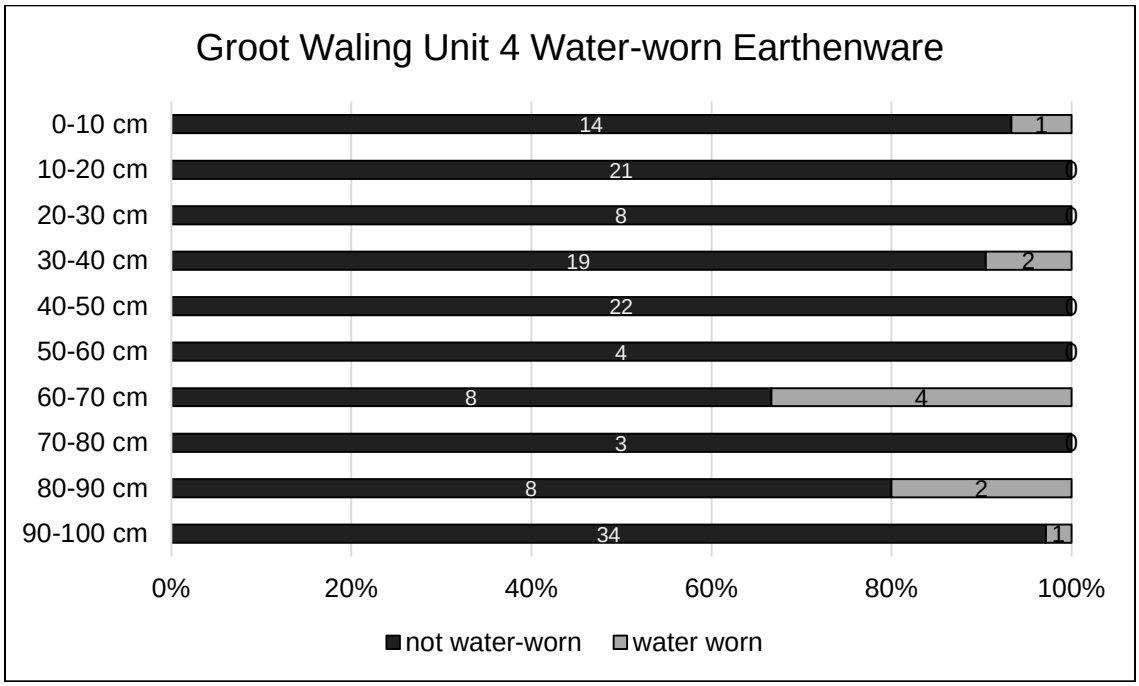


Figure 4.34 Groot Waling Unit 4 water-worn earthenware.

Table 4.17 Groot Waling Unit 4 sediment summary.

Level	Sediments	Comments
0-10 cm	Dark brown silty sand 7.5 YR 2/0	Lots of roots, a few rocks.
10-20 cm	Brownish black silty sand 10 YR 3/2	Large shells, large rocks and mortar (collapsed wall?), modern trash.
20-30 cm	Brownish black silty sand 10 YR 3/2	At least 2 med mammals (4 tibiae), probably articulated when deposited, possible wall fragments in north wall.
30-40 cm	Brownish black silty sand 10 YR 3/2	Lots of bone, wall fragments in north, red roofing tiles (not collected).
40-50 cm	Brownish black silty sand 10 YR 3/2	Roofing tile (not collected), large rocks still in north wall.
50-60 cm	Brownish black silty sand 10 YR 3/2	Rocks still in north wall.
60-70 cm	Dark gray silty sand 2.5 Y 3/1	Few artifacts.
70-80 cm	Dark gray silty sand 2.5 Y 3/1	Very few artifacts.
80-90 cm	Dark reddish gray silty clay 7.5 R 3/1	Large rocks appear in south half.
90-100 cm	Dark brown sand 10 YR 2/1	Large “circle” of rocks at 80-100, more rocks below but didn’t excavate, more artifacts than in previous levels.

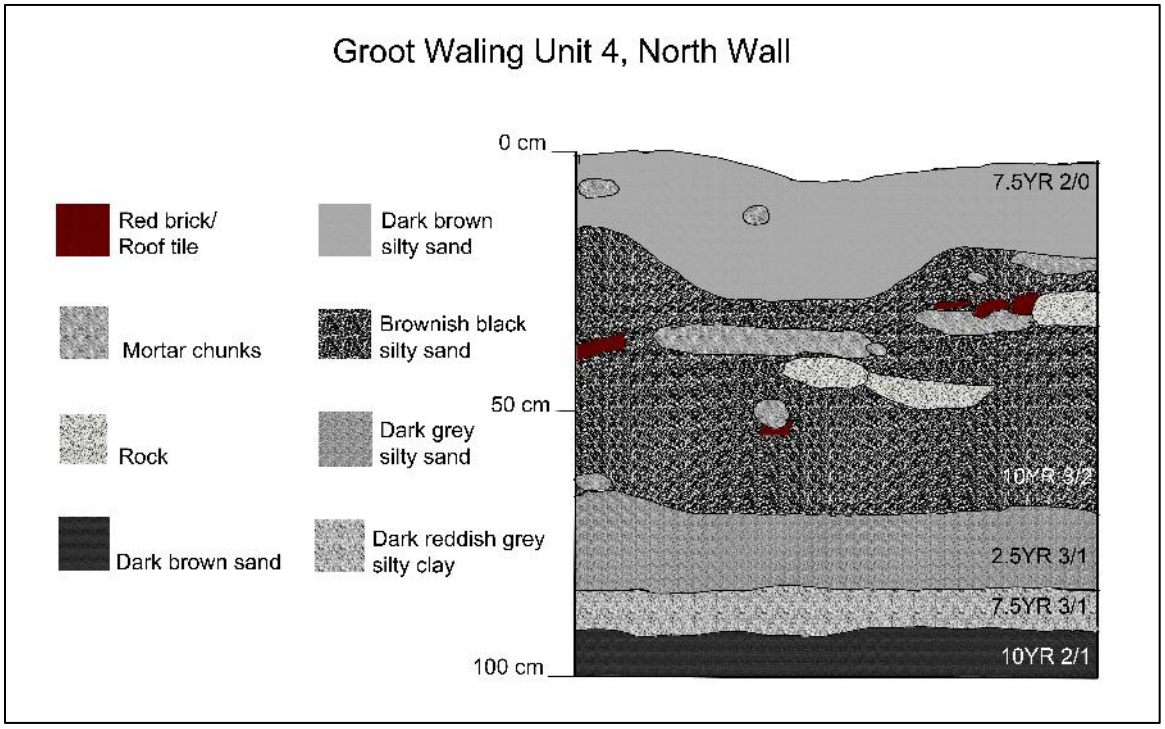


Figure 4.35 Groot Waling Unit 4 north wall profile.


Figure 4.36 Groot Walling, Unit 4 at 100 cm, boulders. Left side of photo is north.

Conclusions

There is no evidence for a pre-colonial village occupation at Groot Waling. This is consistent with historical records. However, the small numbers of water-worn earthenware and porcelain sherds do suggest habitation nearby. Artifacts decrease in number with depth and, if found, are often water-worn. The two units with large boulders at the bottom (90-100 cm) levels may be the result of volcanic deposition onto a seabed surface or may have been modification to the landscape (or seascape) prior to the construction of Groot Waling. An historic brick in association with the boulders in Unit 1 suggests that there may have been significant mixing of sediment in some areas.

Despite placing two units in locations that were somewhat hidden, there is no evidence that these areas were used as places of resistance by workers. Previous authors (e.g., Ferguson 1992, Singleton 1996) have noted hidden objects in slave cabins suggesting that areas hidden from view may be used as areas of resistance. This does not appear to be occurring at Groot Waling. The alcohol bottles found near the well in Unit 2 have no other associated artifacts to suggest surreptitious deposition by workers. No other whole bottles were found during the excavation so the two bottles together being found together is anomalous, but the lack association with other artifacts for context does not allow for substantial interpretation.

Superficially, the artifact assemblages at Groot Waling and Ordatang do not appear to differ significantly. Both sites had predominantly earthenware ceramics, little tradeware, and mostly fish bone for faunal remains.

Komber

Environmental Setting

Komber is located on a beach on the northern portion of Banda Besar, but still facing the interior bay and within sight of Banda Neira. The spine of the island rises up immediately behind Komber, resulting in a colluvial depositional environment. A small stream runs to the north of the site. Large boulders can still be seen in the yards of the current residents, suggesting a currently active colluvial environment. A school was built within the walls of the *perk* in the early 21st Century, but most of the original *perk* buildings were left standing and the school was built around them. Native floral was present along the stream edge, but the interior of the *perk* had sparse vegetation due to the school buildings. No fauna was noted, likely due to the higher population of this *perk* compared to others. The number of people occupying the school buildings probably drove away any animals, at least during the day when excavation occurred.

History

Komber is a historically-known village site, found on most of the early European maps of the Banda Islands (Figure 4.3). Komber is also spelled *Combir* or *Comber* on historic maps (Lape 2000b). I chose to adhere to a more modern spelling to show modern pronunciation (and to avoid confusion with Ordatang in abbreviated form on field records). Unlike Ordatang, the coastal location of Komber is maintained on both historic maps and the modern location. The unambiguous pre-colonial habitation at Komber should be reflected in artifacts recovered, but after analysis, this assemblage appears to be younger than the assemblage at Ordatang, but contemporaneous with the colonial- era Groot Waling. Lape (2000:127) notes that Komber was probably allied with the villages of Labbatacca, Wayer, and Oudender (Dender). This village alliance was less prosperous than that of Neira, Lonthor, Ortatta, and the islands of Rhun and Ay. Shiung (2011) postulates that this reflects a *Siwa-Lima* type relationship with ritualized or actual warfare reflecting a socio-religious dichotomy. As a member of the losing alliance and being less prosperous than Neira or Lonthor, Komber is not well-represented in colonial historic record. Komber village is still occupied today and has a different *kepala desa* (village head) than Ordatang and Groot Waling, showing the continuation of separateness today.

A school was built within the *perk* compound walls within the last decade or so. During the erection of the new school buildings, *perk* structures were generally avoided. The main house has been razed and a concrete pad poured upon the location. A portion of the front wall has also been rebuilt. There is a very narrow pathway between the new school building and the *perk* structure at the rear of the

perk, but the *perk* structure was not actively demolished to make more room. It is tempting to see the destruction of the administrator's house, but avoidance of workers' areas, as the erasing of painful social memories associated with slavery while allowing for the memory of the workers who may have still been living when the school was constructed. However, the old structures are being used as trash receptacles, so there is little honoring occurring. The area of the main house is currently used for soccer games. The destruction of the main house may be due more to location than an attempt at the erasure of historical memory. The main house was located in the front of the *perk*, in an area better suited to allowing an audience than other areas of the *perk*. It was probably easier to leave the remaining *perk* structures than knock them down when and the real estate taken up by the house was a desirable and visible central area, making the destruction more useful.

Excavations

Auger Probes

Sixty-one ager probes (Table 4.18, Figure 4.37) were excavated at Komber. Due to modern construction obstruction, fewer probes were placed at this site. Not all areas that were available at previous were available for excavation at Komber. Depths ranged from 10-110 cm. Rocks or other impediments frequently resulted in early termination of probes at Komber. Nine of the 61 probes produced no material culture. There was a general paucity of artifacts compared to the other sites, but there was also significantly fewer probes excavated.

Table 4.18 Komber auger probes.

Probe #	max depth (cm)	# EW	# TW	# Shell	# Bone	# Glass	# Metal	Total	Notes
1	40	10	4	3	6	1	1	25	Red brick fragments, construction debris
2	40	9	7	7	13	3		39	
3	25	1		8	5	3	8	25	Mortar fragments
4	70	43	15	21	11	8	4	102	
5	60	46	5	21	100	25	7	204	Unit 2 placed here.
6	65	41	8	10		7		66	Mortar and coral chunks throughout.
7	65	22	2	17	21	2	2	66	
8	65	25	2	4	7	2		40	
9	60	10	3	20	59	3		95	
10	65	8		1		3	1	13	
11	40	9	3			3	1	16	Lots of rocks.
12	70	3	1	1				5	Lots of rocks, few artifacts
13	30							0	Lots of gravels, rocks.
14	30	1		1				2	Lots of gravels, rocks.
15	30	4		3	1	15		23	Unit 3 placed here. Brick fragment, modern trash, red roof tile

Probe #	max depth (cm)	# EW	# TW	# Shell	# Bone	# Glass	# Metal	Total	Notes
16	20	1		1			1	3	1 piece plaster
17	25	1		1		1		3	Roof tile, brick fragments
18	10			2				2	Roof tile, brick fragments
19	30				1			1	Mortar fragments
20	15							0	Lots of rocks.
21	15							0	
22	50							0	
23	45							0	
24	100	1				1		2	Few rocks
25	90	2						2	Roof tile fragment
26	30	5				2		7	Roof tile on surface
27	60	4	1					5	
28	65	2						2	
29	65	7			1		1	9	
30	65	4	3	4	12	3	2	28	Modern trash throughout
31	60	5	2	5				12	
32	90	9	4	9			1	23	
33	90							0	
34	30							0	
35	25			5	1			6	
36	65	3	2	1		1		7	Unit 1 placed here. 5 pieces of plaster, construction debris
37	20	1				2		3	Modern trash, roof tiles
38	45	1			2			3	
39	40	3		1	4	2		10	Lots of rocks and construction debris
40	45	10		6	21	3		40	
41	85	3	1	26	3	1		34	
42	35	2		2	2	1		7	Construction debris
43	15			1			1	2	
44	70	9		3				12	
45	110	4		3				7	
46	55	1						1	
47	50				100			100	Lots of medium mammal bones, possibly goat. Vertebrae, cranium fragments, teeth, scapula.
48	60	5				1		6	
49	50	3		1				4	Construction debris
50	60							0	
51	50	2		3	1			6	
52	40	8						8	
53	30	4		3	2	3	1	13	
54	55	4		4	1	2		11	
55	40			6	13			19	
56	30	1					1	2	
57	20		1	1				2	Lots of rocks
58	30		1					1	Lots of rocks
59	30	1						1	Lots of rocks
60	35	2		6			3	11	Lots of rocks

Probe #	max depth (cm)	# EW	# TW	# Shell	# Bone	# Glass	# Metal	Total	Notes
61	45	3	1					4	Lots of rocks
Totals:		343	66	211	387	98	35	1140	

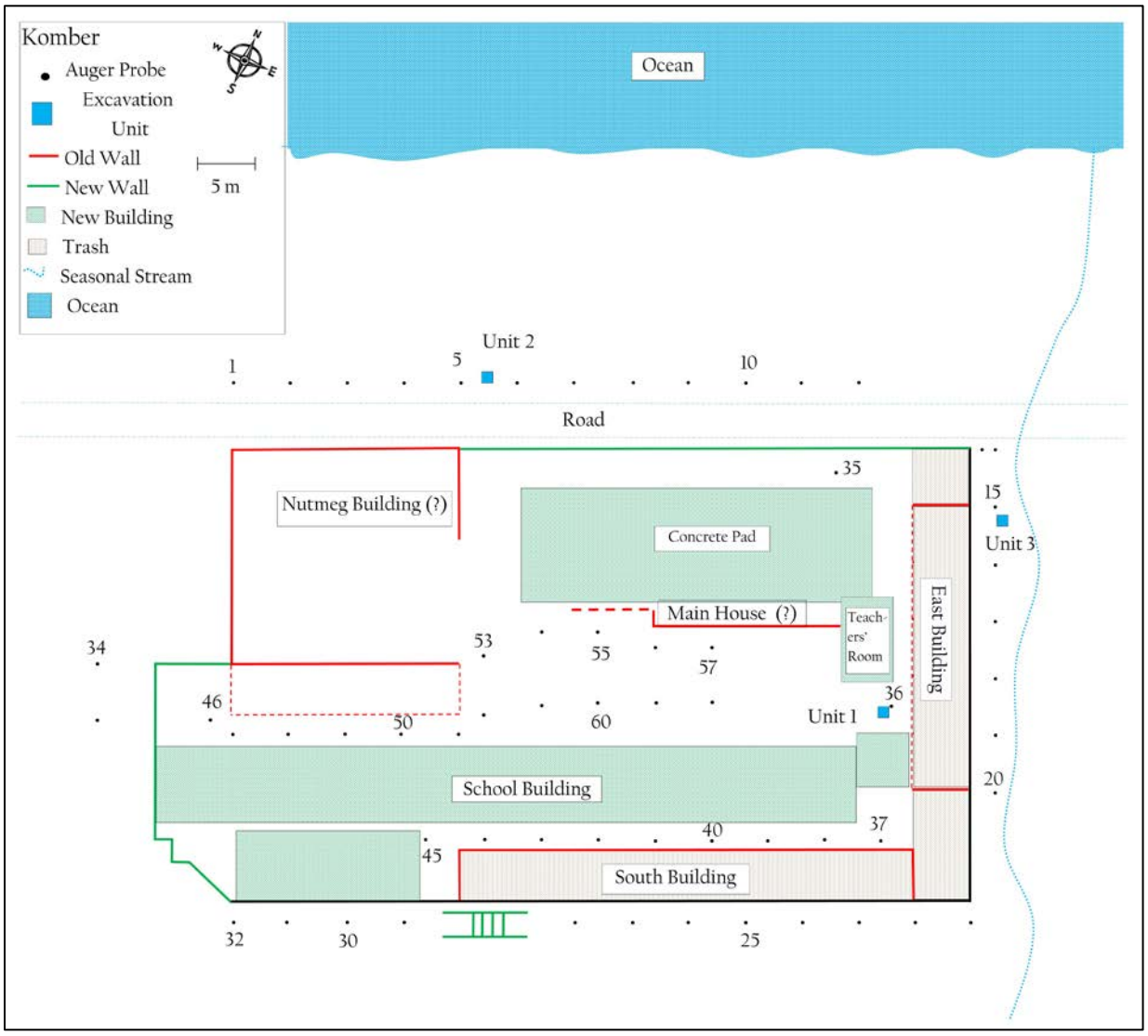


Figure 4.37 Komber site map.

Unit 1

Unit 1 (Figure 4.38, Table 4.19) was located in an area analogous with GW Unit 2 and OR Unit 2, in a corner of the yard between two buildings, again with the expectation of evidence of possible resistance due to the somewhat hidden nature of the location. Due to the narrower site plan of Komber, this location was much closer to the main house, however, and would not have been as shielded from the main house as at the other two sites. Sediments was sandy silt with large cobbles and, eventually,

boulders. Modern debris was found throughout. Large boulders at the bottom inhibited further excavation and the unit was terminated. This unit is assumed to be a deposit of mixed modern and archaeological material as a result of the construction of the school. Air pockets within the unconsolidated, poorly sorted sediments also suggest this unit was modern fill associated with the school construction.

Table 4.19 Komber Unit 1 artifact summary.

Level	Ceramics	Porcelain	Bone	Glass	Metal
0-10 cm	2		3	4	2
10-20 cm	2		2	1	
20-30 cm	2		2	1	
30-40 cm	2		5	5	
40-50 cm	11	3	23	3	
50-60 cm	13	2	100	7	
60-70 cm	4	1	7		

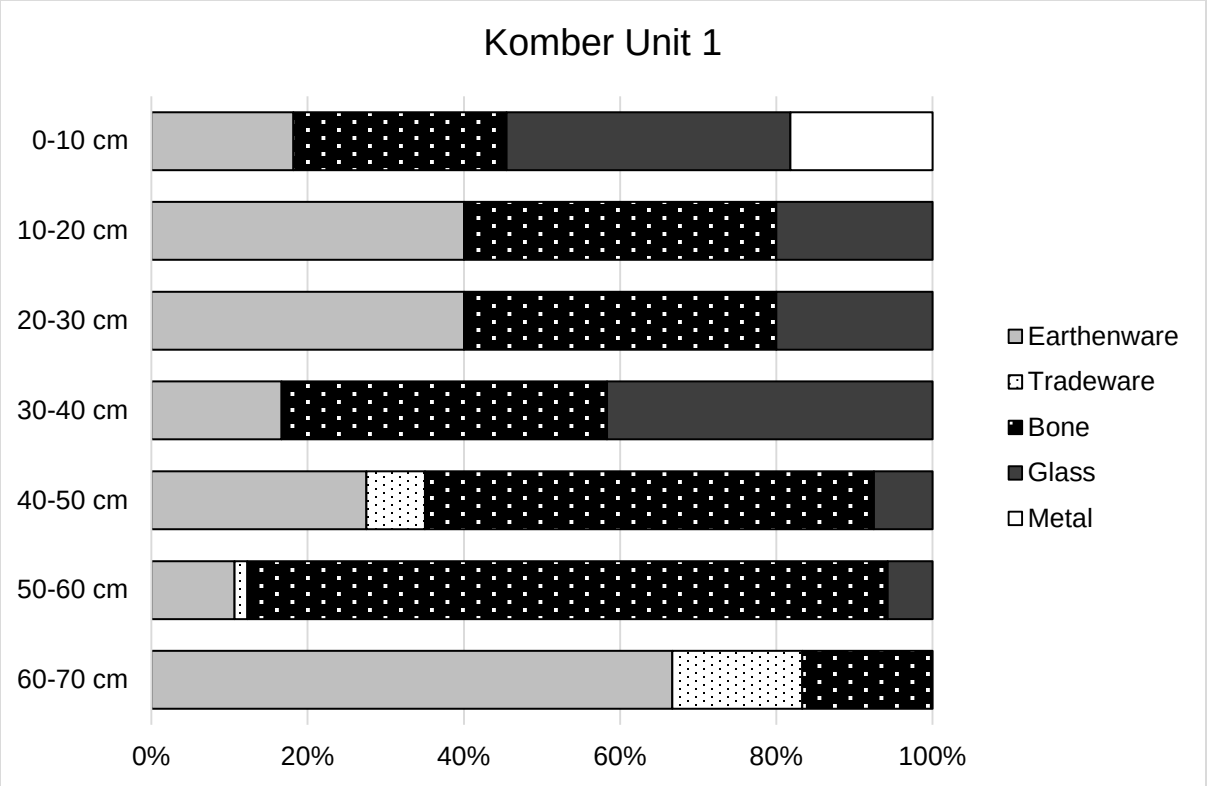


Figure 4.38 Komber Unit 1 artifact summary.

Table 4.20 Komber Unit 1 sediment summary.

Level	Sediments	Comments
0-10 cm	Brown sandy silt 10 YR 4/1	Netherlands East Indies coin. Thin layer of sand atop sandy silt, some gravels. Sand appears to cap construction layer (from building of school) with lots of debris. Very few artifacts.
10-20 cm	Brown sand 10 YR 4/1	Lots of construction debris, some large rocks, modern trash, few artifacts.
20-30 cm	Brown silty sand 10 YR 4/1	Lots of rocks from construction, many rocks still had mortar sticking to them.
30-40 cm	Brown silty sand 10 YR 4/1	Modern trash, construction debris
40-50 cm	Brown silty sand 10 YR 4/1	Still lots of rocks, construction debris
50-60 cm	Brown silty sand 10 YR 4/1	Still lots of rocks, construction debris
60-70 cm	Brown silty sand 10 YR 4/1	Colluvium or poorly sorted construction debris, few artifacts, boulders on bottom.

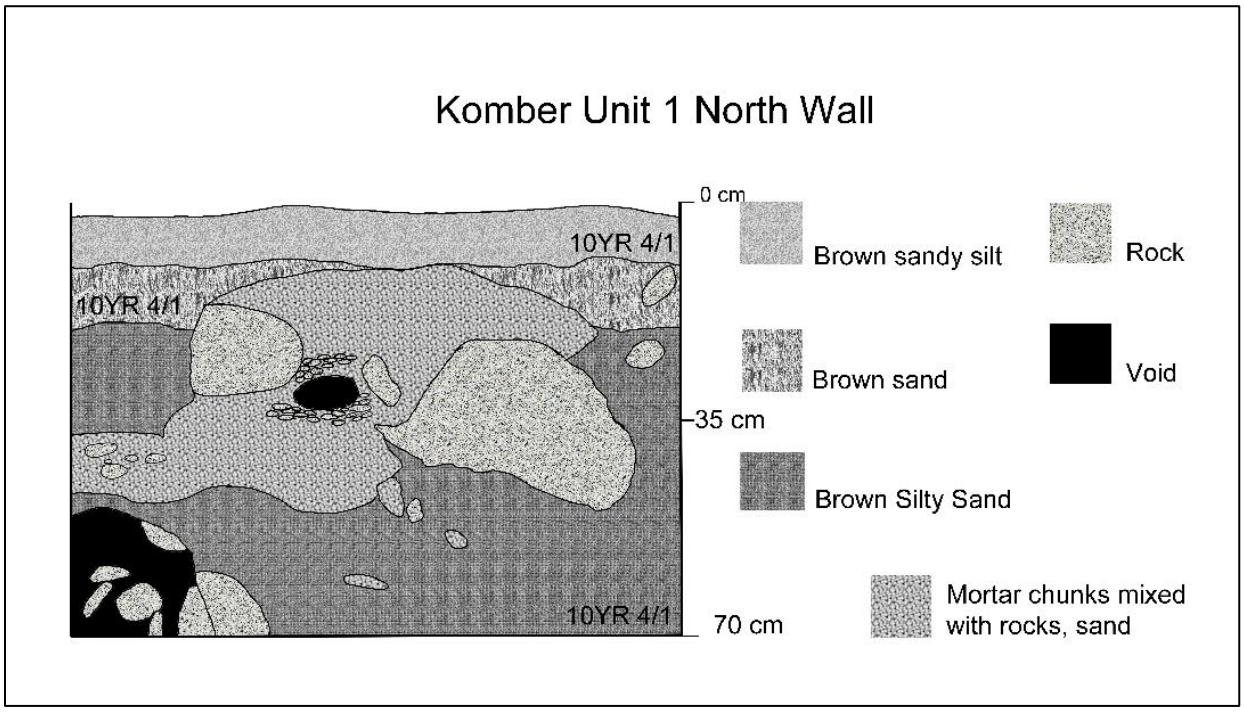


Figure 4.39 Komber Unit 1, north wall profile.

Unit 2

While this unit (Figure 4.40, Table 4.21) produced copious amounts of artifacts, unfortunately it was likely fill used in a recent attempt at anti-erosion measures to build up the beach. Large amounts of artifacts, especially transferware, were found in the auger probes along the beach. While myriad earthenware and tradeware sherds were found in this unit, they were mixed and not useful for relative dating purposes. While the large number of ceramics probably represents a recent fill episode, it could represent a village-wide deposition as people would more likely use multiple sources of household debris

for fill than focusing on one household. The entire beach in front of the school had been built up and one household would be provide sufficient material for the entire beach. It is likely, then, that this yields a mixture of many households' deposition. The sediments were silty sand until about 70 cm when it transitioned to beach sands. Poorly sorted cobbles and boulders were present throughout, again suggesting a fill deposit (Table 4.22, Figure 4.40). Glass was very common in this unit, compared to units at the other *perken*, suggesting a more recent deposit. A foraminifera-tempered sherd at 90-100 cm yielded a luminesce date of AD 870 ± 210 (see Chapter 5 for more detail). A grit tempered sherd at 0-10 cm yielded an erroneously old date, but this does suggest mixed stratigraphy as the grit-tempered sherds tend to be older than the foraminifera- tempered sherds. There was also large amounts of heavily fragmented bone. Few water-worn artifacts were noted, suggesting that this was not a natural beach deposit as would be expected from its location. Earthenware still dominates the assemblage, similar to units at the other perken

Table 4.21 Komber Unit 2 artifact summary.

Level	Ceramics	Porcelain	Bone	Glass	Metal
0-10 cm	30	19		31	1
10-20 cm	109	32	60	80	2
20-30 cm	165	26	100+	53	6
30-40 cm	106	16	100+	22	2
40-50 cm	69	8	45	17	
50-60 cm	25	7	45	9	
60-70 cm	57	8	25	22	2
70-80 cm	77	5	42	26	
80-90 cm	36	10	12	17	
90-100 cm	22	7		5	

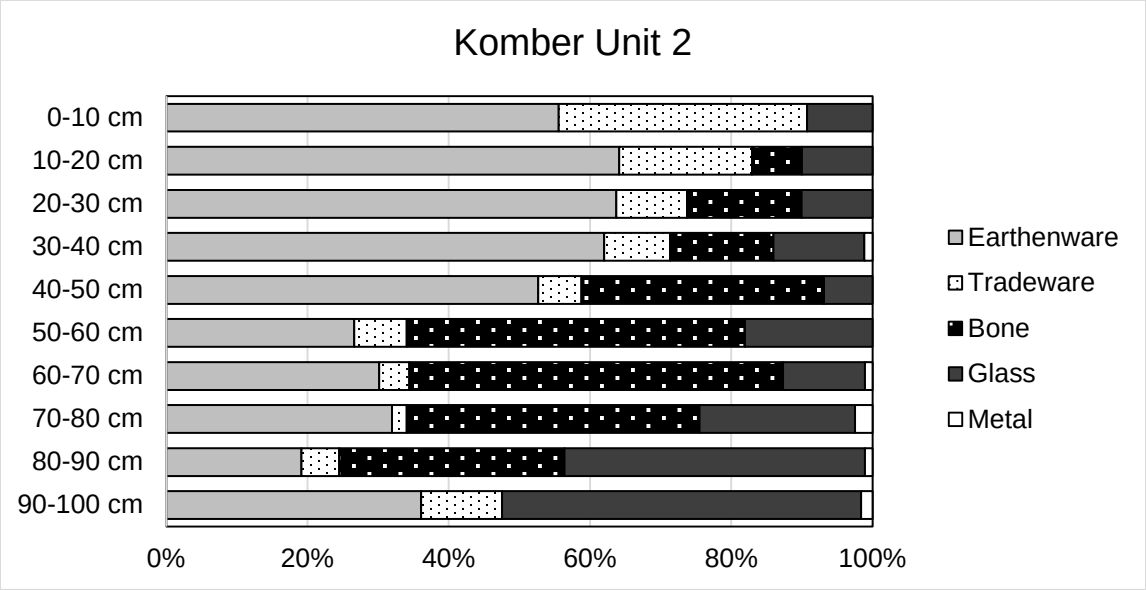


Figure 4.40 Komber Unit 2 artifact summary.

Table 4.22 Komber Unit 2 sediments summary.

Level	Sediments	Comments
0-10 cm	Brown silty sand 7.5 YR 2.5/0	Large chunks of charcoal (probably recent), lots of glass
10-20 cm	Brown silty sand 7.5 YR 2.5/0	Some metal nails, lots of rocks and large shells
20-30 cm	Brown silty sand 7.5 YR 2.5/0	Lots of shell, a vieux cognac bottle fragment, pipe bowl fragment.
30-40 cm	Brown silty sand 7.5 YR 2.5/0	Lots of shell, lots of large rocks, poorly sorted
40-50 cm	Yellowish brown silty sand 10 YR 4/6	Still lots of rocks, poorly sorted, modern glass
50-60 cm	Yellowish brown silty sand 10 YR 4/6	Boulder-sized rocks, no beach sands, still getting artifacts
60-70 cm	Yellowish brown silty sand 10 YR 4/6	Blue transferware and modern glass, rocks poorly sorted
70-80 cm	Dark brown sand 7.5 YR 3/1	Blue willow plate, artifacts in large pieces, rocks poorly sorted
80-90 cm	Dark brown sand 7.5 YR 3/1	More blue willow plate fragments, modern glass fragments, rocks poorly sorted
90-100 cm	Dark brown sand 7.5 YR 3/1	Still lots of artifacts, rocks poorly sorted

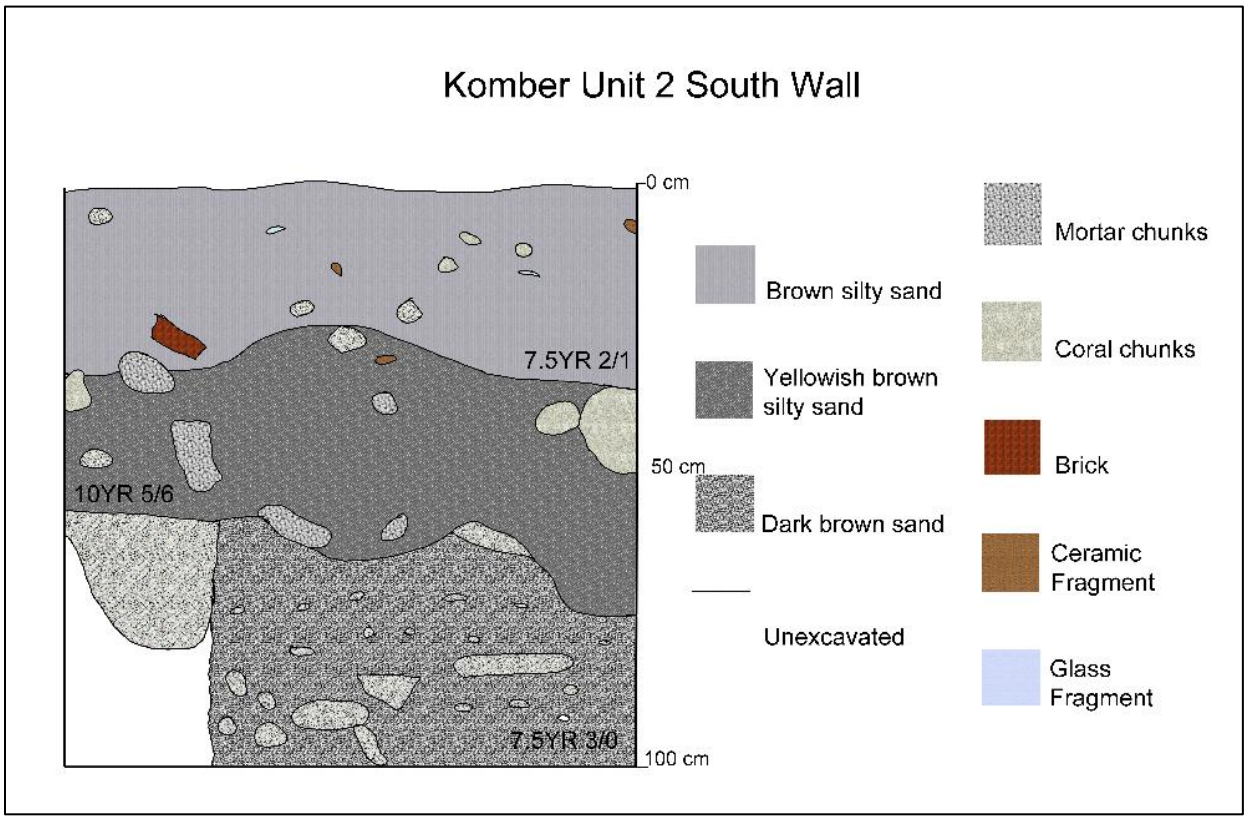


Figure 4.41 Komber Unit 2 south wall profile and base of unit with boulders.

Unit 3

Unit 3 (Figure 4.42, Table 4.23) was located next to the stream, along the eastern wall of the *perk*. The unit was placed here in the hopes of discovering an area of intact stratigraphy that hadn't been disturbed by construction. However, the colluvial nature of the depositional environment created a problematic excavation situation. Hard-packed cobbles made excavation time consuming and difficult. Sediment (Table 4.24, Figure 4.43, Figure 4.44) consisted of poorly sorted cobbles and some sandy silt. No earthenware was found in this unit. All artifacts were colonial-era or post-colonial. Few artifacts were found and, as my time on the islands was running short, I did not feel continuing to excavate this difficult unit would provide additional information.

Table 4.23 Komber Unit 3 artifact summary.

Level	Earthenware	Tradeware	Bone	Glass	Metal
0-10 cm	-	5	-	7	-
10-20 cm	-	13	-	6	3
20-30 cm	-	7	-	-	1
30-40 cm	-	-	-	-	-

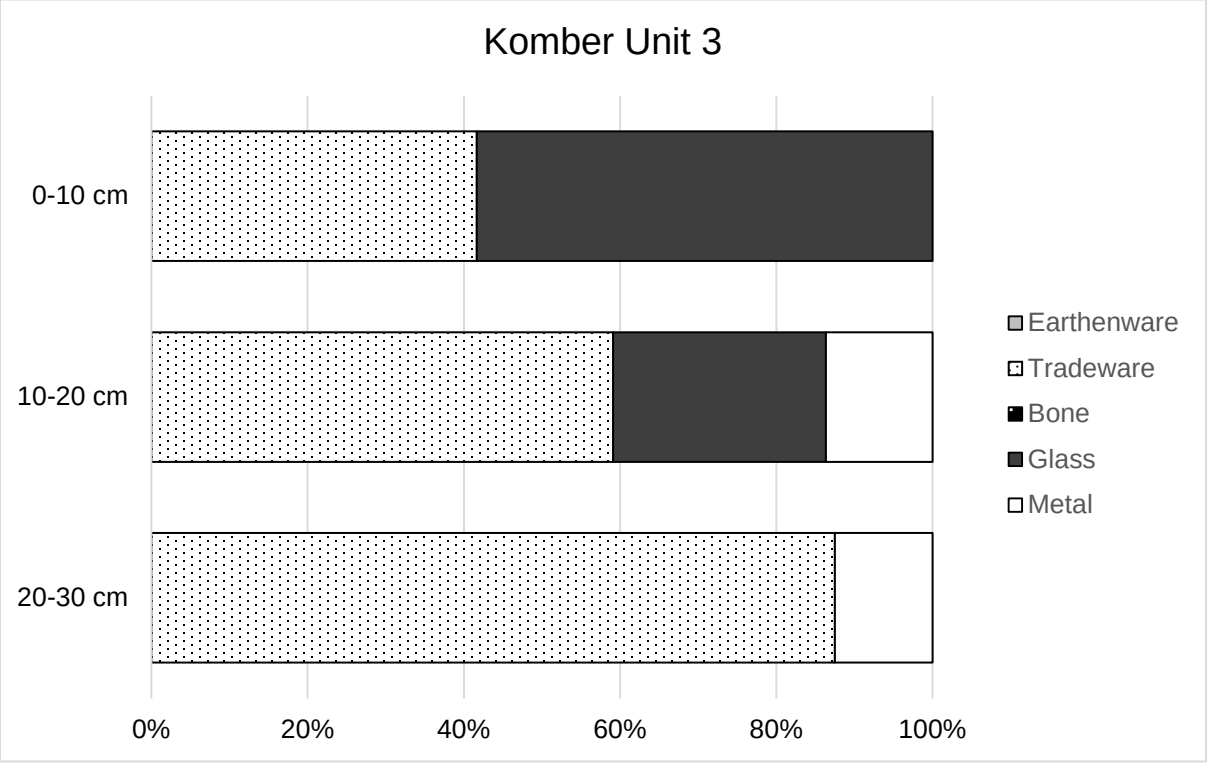


Figure 4.42 Komber Unit 3 artifact summary.

Table 4.24 Komber Unit 3 sediments summary.

Level	Sediments	Comments
0-10 cm	Dark brown silty sand 7.5 YR 2.5/2	Colluvium, unsorted gravels, very few artifacts, lots of modern trash.
10-20 cm	Dark brown silty sand 7.5 YR 2.5/2	Lots of rocks, the floor is almost all rocks, very little dirt.
20-30 cm	Dark brown silty sand 7.5 YR 2.5/2	Few artifacts, lots of rocks, colluvium
30-40 cm	Dark brown silty sand 7.5 YR 2.5/2	No artifacts, all rocks. Decided to stop because too difficult to excavate and not productive.



Figure 4.43 Komber Unit 3, plan view at 40 cm, top of photograph is north.

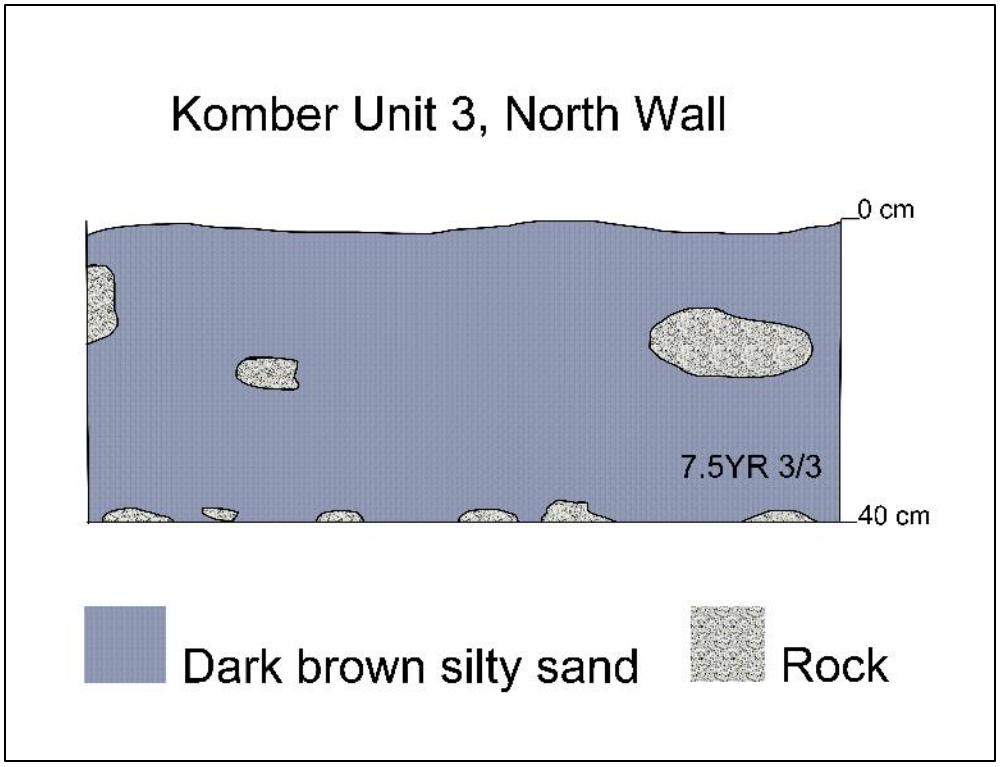


Figure 4.44 Komber Unit 3 North Wall Profile.

Conclusions

Of the three *perken* investigated, Komber was in the worst shape, preservation-wise. The construction of the school, while on the surface appearing somewhat limited in scope, did result in disturbance of the archaeological materials. The reverse stratigraphy and recent deposition in Unit 2 was also disappointing. While this site may yield little information regarding the colonial *perk* occupation, it should prove useful for comparative purposes.

Discussion

All three sites had somewhat different artifact assemblages (Figure 4.45, Table 4.25), indicating that the coastal location was not the only variable affecting access to resources. Ordatang had much more earthenware than the other two sites and Komber had more tradeware. Groot Waling had little evidence of occupation below 60 cm and much of that was water-worn and re-deposited. So, while the historic literature often treats the *perken* as a homogenous whole, each site did have a different history and shows differential access to resources. When looking at the averages of artifacts per auger probe (Table 4.26), Komber produces slightly more porcelain/ tradeware, metal, glass, and bone, but slightly less earthenware than the other sites. At a very gross level, this would suggest a more recent occupation of the area with the increased number of recent artifact classes and lower levels of earthenware, which was more prevalent in pre-colonial times. However, the village of Komber was definitely occupied in pre-

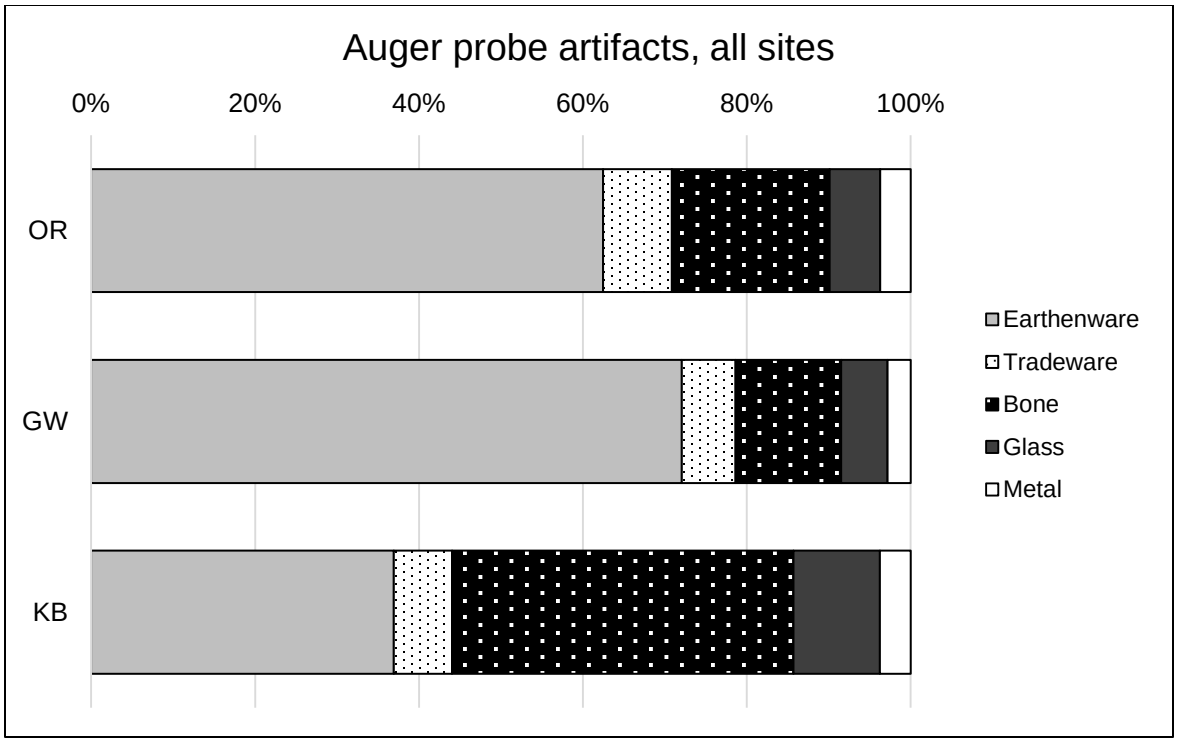


Figure 4.45 Comparison of auger probe artifacts at all three sites.

Table 4.25 Summary of auger probe artifacts, all sites.

Site	# auger probes	Total volume m^3	Earthen-ware	Trade-ware	Bone	Glass	Metal	Total	Total artifacts/ volume
OR	103	979.21	769	103	237	76	46	1801	1.84
GW	127	3447.25	1120	102	200	88	44	1554	0.45
KB	61	462.37	343	66	387	98	35	929	2.01

Table 4.26 Averages of artifacts per auger probe.

Averages	Earthenware	Tradeware	Bone	Glass	Metal
OR	7.466019	1	2.300971	0.737864	0.446602
GW	8.818898	0.80315	1.574803	0.692913	0.330709
KB	5.622951	1.081967	6.344262	1.606557	0.57377

colonial times. The pre-colonial and colonial occupation may not be reflected in the fill that was used for the beach anti-erosion measures. Interestingly, the density of artifacts is higher at Komber (Table 4.25), but this can be attributed to the smaller amount of soil excavated in the auger probes.

Each site had evidence of mixed deposits or disturbed stratigraphy. The large number of earthenware sherds at Ordatang may be the result of leveling a natural terrace during *perk* construction. Refits between earthenware and bones in Unit 1 and 1.5 at Groot Waling suggest subsurface mixing. The construction of the school and anti-erosion measures at the beach at Komber also resulted in significant mixing of archaeological deposits. Ordatang and Groot Waling also had some evidence of destruction/ construction in the units. The Banda Islands are tectonically active and this debris may be the result of the

earthquake damage or generalized repair of the *perk*. The modern construction disturbance at Komber makes the identification of any colonial repair or destruction difficult to identify.

There were no obvious areas of midden deposition at any of the *perken*. Modern residents dig holes, place trash in, and burn it. It's possible that trash disposal in the past followed different patterns, such as ocean disposal. Alternatively, the majority of debris would have been organic and could have been removed by dogs, cats, pigs, rats, and other scavengers leaving a low density scatter across habitation areas. Regardless, the lack of high density artifact scatter suggests a low density permanent population at the *perken*. I should note that tradeware sherds can be easily found in the remains of the forts and in the villages today. In this case, the absence of evidence at the *perken* should be interpreted as evidence of absence.

The mixed stratigraphy at all sites does negatively impact the ability to interpret human behavior in the colonial period as it is difficult to separate the colonial period from earlier deposits. However, in the following chapters, I hope to show that some relevant information can still be gleaned from these mixed deposits. Earthenware ceramics are discussed first, followed by tradeware, faunal, and finally, the starch grain analysis.

Chapter 5
Earthenware Analysis

Low-fired earthenware pottery sherds are the most numerous class of artifacts excavated from the plantation sites in the Banda Islands. Thus, the bulk of the artifact analysis undertaken in this study was based on this class.

Earthenware pottery can be a very informative artifact class. For example, these low-fired ceramics have been used to track migrating peoples based on clay sources or decorative designs, residue analysis on earthenware pots can be used to recreate diet, and sherds can be directly dated by means of luminescence dating (e.g., Rice 1987, Walker 2005). However, without a large corpus of data from a wide area of study and an established chronological sequence, much of the utility of earthenware studies is lost. The study of earthenware ceramics in Maluku is in its infancy. Few studies on the history and development of earthenware have been conducted in the Maluku region; the majority of information comes from a few surface surveys and small excavations (e.g., Bellwood et al. 1993, Bellwood et al. 1998, Ellen and Glover 1974, Latinis and Stark 2003, Mahirta 2000, Spriggs 1990, Spriggs and Miller 1979). The paucity of data and lack of chronological control can lead to only the most general conclusions. In the following pages, I will describe the state of our current understanding of earthenware in the Maluku region, describe the earthenware assemblages from my excavations, and discuss how the information that can be gleaned from these assemblages fit into the historical models used in this study.

Previous Earthenware Studies in the Maluku Region

The study of earthenware ceramics in Island Southeast Asia is often focused on the 'Neolithic package' of pottery and domesticates associated with the assumed expansion of Austronesian speakers (e.g., Bellwood 1997) or ethnoarchaeological studies on manufacture of contemporary ceramics (e.g., Ellen and Glover 1974, Soegondho 1995, Veth et al. 2005) although there have been some reviews of excavated materials (e.g., Latinis and Stark 2003). Earthenware ceramic production was still regularly practiced in the 1970s when much of the ethnoarchaeological research was done, but the tradition has tapered off due to the easy access to cheap plastic containers. Veth et al. (2005) describe practicing potters in the Aru Islands, but note that this tradition is not common. The lack of cultural continuity could hamper any modern attempts to locate clay or temper sources; the identification of clay or temper sources would be useful for any attempt to retrace trading networks. While this information would be useful to me, it is not currently available.

Neolithic Ceramics (c. 4500-2300 BP)

The earliest earthenware in the Maluku region dates to around 3400 BP (Bellwood et al. 1993), found in Halmahera. The earliest earthenware in the Banda Islands is broadly contemporaneous at 3550 BP (Lape 2000, Peterson 2015). The dates of the earliest appearance of pottery in the Maluku region is often associated with the spread of the Austronesian language group and the spread of a "Neolithic package" including domesticated plants and animals in addition to pottery. These, in turn, are assumed to be part of the story of the spread of the Lapita pottery complex and the peopling of the Pacific. What role, if any, the Maluku region played in the later "Conquest of the Pacific" (Bellwood 1979) is beyond the scope of this study. While the simplistic story of Austronesian speakers with a material culture of domesticates and pottery spreading quickly throughout Island Southeast Asia has been called into question recently (e.g., Anderson and O'Connor 2008, Donohue and Denham 2010), it should be noted that the appearance of earthenware pottery in the Maluku region around 3400 BP is not unsurprising, given dates of pottery in the surrounding areas. Lape (2000) found both pottery and pig bone in archaeological layers dating to 3500 BP, suggesting pottery and domesticates were present with the earliest occupation in the Banda Islands. Subsequent excavations pushed this date of both initial occupation of and the appearance of pottery in the Banda Islands back to 8000 BP and 3550 BP respectively (Peterson 2015) The original Bandanese language still exists in enclaves in the Kei Islands (Collins and Kaartinen 1998) and does fall into the Austronesian family (Monk et al. 1997). Thus, the co-existence of pottery and domesticated pigs on an island with a historically recorded Austronesian language does support the idea that there was some sort of overlap amongst these three things. However, as Denham (2004) notes, the adoption of the new artifact types and the Austronesian languages may have occurred at different times and for different reasons amongst populations in Island Southeast Asia.

The Neolithic pottery in Island Southeast Asia is not homogenous, but is generally red-slipped, regardless of form, temper, decoration, etc (Spriggs 2011). Unfortunately, red slip is not limited to the early Neolithic pottery in Island Southeast Asia, but can be found from the Neolithic to recent times. Thus, red slip is not a terribly useful chronological marker. No in-depth study of temper, decoration, or forms has been done on Neolithic pottery across the Maluku region at this time. Until more work on temper, form, and decoration is done on Neolithic earthenware in Island Southeast Asia, it will be hard to contextualize the Banda Islands material into the regional context.

Metal-Age Archaeological Investigations (2300-500BP)

Because the focus of earthenware research in Maluku has been on the Austronesian connection and because of the paucity of excavated material with associated dates, little information is available for the development of earthenware in the Metal Age. Since few excavations have been conducted in Maluku and much of the earthenware studied comes from surface assemblages, the attribution of Metal Age to sites is generally based on associated Chinese tradeware, which generally shows up around the Second

Millennium AD. However, archaeologically, the Metal Age begins long prior to that, so the evolution of earthenware between the Neolithic and the development of trade with China is largely unknown. Around AD 1200, long distance trade increased in Island Southeast Asia, largely due to increasing desire for exotic goods from the Indian, Chinese, and Muslim spheres (Kathirithamby-Wells 1990). Ceramic assemblages around this time see the addition of high-fired porcelains and other tradewares from the Chinese and Southeast Asian Mainland (e.g., Ellen and Glover 1974, Latinis and Stark 2003). But, like Neolithic pottery, above, no in depth study on regional Malukan Metal Age wares has been conducted. On Ambon, Metal Age earthenware remains are described as "extensive surface scatters of red and brown earthenware, a good portion of which is incised, red-slipped, burnished, and sometimes painted," with approximately 1-2% of Chinese, Thai, and Vietnamese stoneware and porcelain (Latinis and Stark 2005:127). Latinis and Stark (1991) conducted EDXRF (energy dispersive X-Ray florescence, which measures trace elements present in clay and temper and can be used to identify sources [Miksic and Yap 1992]) studies on a small number of sherds from Maluku sites and they show "considerable overlap in their EDXRF signatures, probably reflecting trade and interaction" (Latinis and Stark 2005:126). Few securely dated studies on earthenware pottery from this era have been conducted in the Maluku region. Based on ethnographic evidence, it does appear that pottery production in this era is centered on the Ambon-Lease region, including the islands of Seram, Saparua, and Ambon (Spriggs 1990).

I should note that historic records rarely mention or describe earthenware production or use, but earthenware was being produced in Maluku up until the 1970s and even today in some areas (such as the Aru Islands [Veth et al. 2005]). It is parsimonious, then, to assume that earthenware production continued from the Metal Age, throughout the Colonial Period and up until modern times. However, without more information on the dating of Malukan earthenware, little can be said about the change that must have occurred in the production and use of earthenware between the beginning of the Metal Age and the ethnographic period.

Comparative Ethnographic Studies

Many authors (e.g., Ellen and Glover 1974, Soegondho 1995, Spriggs and Miller 1979, Mahirta 2000) take an ethnographic or ethnoarchaeological approach to the study of Malukan earthenware. The aforementioned ethnographic studies of modern earthenware production suggest that women make the pots and male relatives trade them. In addition, Spriggs and Miller (1979) note that pottery is made in resource-poor areas (specifically poor in sago) and traded to resource- rich areas (in exchange for food or harvest rights). The Banda Islands are certainly resource poor in terms of sago, but rich in other resources. Earthenware from other islands may have been traded into the Banda Islands in exchange for nutmeg, mace, dried fish, or other items. Collins and Kaartinen (1998) note that the Bandanese refugees who settled on the Kei Islands after the VOC conquest of the Banda Islands maintained an earthenware production tradition into the late 20th Century and the Kei Islands population engage in trade with the Banda Islands long after 1621. It is possible that earthenware was part of this trade. Meilink-Roelofsz

(1962:172, 329) mentions that earthenware vessels were carried on vessels but were primarily used by the traders themselves and were not necessarily traded. Miller (1980) describes trade goods in use around the Banda Sea, but this is no specific mention earthenware. Cloth dominated the trade goods according to an English Commercial Resident stationed in the Banda Islands in 1797 (Miller 1980).

In their 1969-1971 ethnographic study of potters in Maluku, Ellen and Glover (1974) describe pottery manufacture techniques used in Central Maluku, including Ambon, Haruku, and Saparua. Pottery making is "exclusively the domain of women" (Ellen and Glover 1974:356) although male relatives generally engage in the trade of the earthenwares, pottery making is only practiced by women. Clay and appropriate temper are gathered in baskets from the forest. In the pottery making village of Ouw (Ouh) on Saparua, calcareous sand made up of foraminiferous marl is generally used for temper. The foraminiferous marl is a common marker of the Plio-Pleistocene boundary in Eastern Indonesia, but its use as temper is restricted to Ouw based on currently available evidence (Ellen and Glover 1974:375). Due to the availability of the foraminiferous marl throughout Eastern Indonesia, it is possible that the use of this temper is more wide-spread, but more work would need to be done to confirm this. Once the clay and temper is gathered and processed, the pot is formed by placing the ball of prepared clay on a "thin wooden board…which is turned on a smoothed section of a tree trunk" (Ellen and Glover 1974:356) and forming with hands as it is turned on the board. Coiling can also be used to build up the pot from the original base. The paddle and anvil technique is also used to create spherical pots. Burnishing may be done or a red slip applied. Pots are fired in small batches over an open fire, usually using bamboo as a heat source. Dammar tree resin is applied to pots that need to be water-proof immediately after firing.

Veth et al. (2005) describe historic and ethnographic pottery making at the village of Wangil on the Aru Islands. The Aru Islands are within the modern Indonesian province of Maluku and there is evidence of long-standing trade relations with the Banda Islands (Spyer 2000). The historic description of pottery manufacture in Wangil from Merton (1910:115) is similar to that on Ouw, with female potters shaping a lump of clay by hand, some paddle and anvil forming, and open firing. Merton (1910) also describes the manufacture of sago ovens which were common in Aru. Veth et al. (2005) witnessed a modern pottery-making demonstration in Wangil and noted it was similar to that described by Merton (1910). The recent demonstration had the addition of red and white painted decorations added to the pots prior to firing.

Soegondho (1995:47-48) also describes Malukan earthenware as a paddle-and-anvil formed, low-fired earthenware water-proofed with resin made by women in his review of Indonesian earthenware.

In general, then, the creation of earthenware ceramics seems to be a rather low-investment technology. Women gather the necessary materials, use basic hand-shaping and paddle-and-anvil forming techniques (instead of the higher technological investment of wheel-throwing the pottery), and use open firing instead of kiln firing. Basic decoration techniques such as burnishing, incising, and the application of a slip or paint are used. The use of a resin for water-proofing suggests that at least some of the pots are intended for storing liquids. While the formation of pots have been studied, the

ethnoarchaeological studies do not then go into detail regarding what the pots are then used for. Cooking and water-storage have been observed, however, by the authors (Ellen and Glover 1974, Veth et al. 2005).

Interestingly, both Latinis and Stark (2003) and Ellen and Glover (1974) note the lack of mention of earthenware trade in European historic records at the time of first contact with the Maluku region. This could be due to the quotidian nature of earthenware, as it is rarely mentioned in historic records, in general. Based on one of the few sourcing studies available (Dickenson 2004), earthenware was traded among the islands of Maluku, but it may have been so common as to not be regarded as important. Galvao (Jacobs 1971) does state that bamboo tubes, not pottery, were used for cooking. Earthenware, then, occupies an interesting state in Malukan archaeology: it is ubiquitous yet little is known about its functions.

Discussion

The amount of earthenware found in the Maluku region is in contrast with the number of studies about this class of artifact. Knowing what is expected in terms of chronological markers or markers of trade is useful in interpreting the material culture recovered from excavations. However, earthenware is a ubiquitous artifact class in Malukan sites, but little is currently known about it. Unlike many other regions in the world, earthenware in Maluku is not a useful chronological tool. Red slipping is common from the earliest production of earthenware in the region until modern times (Mahita 2000). Temper, aside from foraminifera temper which is assumed to be from Ambon-Lease, is not discussed in detail in most publications, likely due to its heterogeneity (e.g., Spriggs 1990:52). Decoration is also not discussed in detail or described beyond “incised” or “curvilinear.” While Lapita decoration in Oceania is discussed in detail in many places (e.g., Spriggs 1990b, Clark et al. 2001), its predecessors and their antecedents in Maluku lack its complexity and therefore receive little note. It is a frustrating state of affairs for any researcher.

Earthenware Studies in the Banda Islands

As mentioned in Chapter 3, three previous archaeological studies have been conducted in the Banda Islands. Lape (2000b) did not do an intensive study of collected earthenware as it was not applicable to his research questions. However, Shiung (2012) and Peterson (2015) used Lape’s (2000b) earthenware collections as the basis for their studies. Despite not doing an extensive study of earthenware, Lape (2000b) does discuss general trends and interesting forms. The site of BN1 which corresponds to the Labatecca village (discussed in above in Chapter 3 and below in Chapter 6 in more detail) had an assortment of “sculpted” earthenware, defined as earthenware pottery that is greater than 1 cm thing in the shape of animals (generally birds’ heads) or other abstract shapes (Lape 2000b:141). This sculpted earthenware likely dates to AD 500-1500 (Lape 2000b:170). No other site produced sculpted

earthenware. The site of PA1 on Pulau Ay produced the earliest dated earthenware, with associated radiocarbon dates of around 3500 BP.

Shiung (2012:75) focused only on rim sherds, decorated sherds, and “sherds of characteristics parts” that had been excavated during Lape’s (2000b) field work. Shiung (2012) measured the formal and technological attributes of the selected sherds, including surface treatment, temper, paste, decorating techniques, and lip thickness. Shiung (2012:400) sees a technological innovation between 3400-3000 BP with better firing technology allowing for higher firing temperatures and gradual changes in rim forms, lip design, temper, pastes, and surface treatments. There is a change in ceramics around 2000 years ago and this ceramic tradition continues until the colonial period. Shiung (2012:401) notes that the BN1 site, the village of Labatecca, has enormous amounts of earthenware, much of it decorated, and posits it is a center for economic, ritual, ceremonial or political activities. Shiung (2012:401) notes that the foraminifera-tempered (Shiung calls this “lime” temper) sherds probably from the Ambon-Lease region, appear in the Banda Islands around 1000 years ago, but beyond temper the forms of these rims are not statistically different from the other tempers. Shiung (2012:414) does note that the foraminifera- tempered sherds are not found at the Labatecca village site of BN1 and suggests that this site was not engaged in the same trading patterns as found at the other sites on Banda Neira and Banda Besar that did have the foraminifera-temper. Unfortunately, Shiung did not complete his dissertation until after I had already begun my earthenware analysis and I did not have access to his typology. I was unable to use his categories for temper and decoration so our studies are not directly comparable. I did, however, borrow his rim typology so those analyses should be comparable for future scholars if they chose to continue research on this topic.

Peterson (2015) conducted ICP-MS analysis in order to identify the number of clay sources, and therefore trade partners, available during the Neolithic based on some sherds excavated during Lape’s (2000b) excavations and subsequent excavations in 2007 and 2009. Peterson (2015) did not conduct an analysis of shapes, forms, technological attributes, or decoration but focused on elemental analysis. Peterson also limited analysis to Neolithic sherds and selected sherds from dated levels or levels lacking “significant quantities of tradeware” (Peterson 2015:85). Peterson (2015) identified three major source groups with multiple sub-groups. At least one of these groups was consistent with Banda Islands geology and was interpreted as a local source. Another macrogroup was consistent with foraminifera-temper from Ouw. The final group did not have a potential geological source identified. Similar to Shiung, Peterson had not completed her study prior to me beginning my analysis or writing my conclusions. Unfortunately, I was unable to incorporate the majority of Peterson’s findings into my work. 3 Peterson (2015: 91-94) has determined that the foraminifera-tempered sherds from the Banda sites share a probable source with clay samples from Ouw, suggesting it is the same as the foraminifer temper described by Ellen and Glover (1974).

Expectations from Models

As discussed in Chapter 2, certain distributions of earthenware ceramics are expected based on the three models. For energetic efficiency, locally produced (produced either in the greater Maluku region or Banda) earthenwares are expected in the workers' contexts. As elites would not be constrained by the same energy requirements and would want to signal access to resources, imported tradewares are expected in elite contexts for both the energetic efficiency model and the power/ resistance model. A mixture of imported and indigenous wares are expected for the Creolization model. However, these wares do indicate local trade routes and might show change in trade routes due to colonialization.

Ceramic Analyses

Thermoluminesce Dating

No organic material was sampled in the field for radiocarbon dating because *perk* occupation was assumed to be post-1621 and radiocarbon dates are not extremely reliable for the last 500 years for a variety of reasons (Walker 2005). After excavation, it became apparent that this post-1500 occupation assumption was not necessarily warranted. However, the potential mixing of deposits and destruction of organics due to acidic tropical soil made dating deposits with bone, the only organic material that was extant and collected, problematic. Since thermoluminescence (TL) dating can date the earthenware ceramics directly without the need for a bridging argument, TL dating seemed most useful.

Luminescence dating is based on the simple notion that certain commonly occurring minerals, such as quartz or feldspar, emit a certain amount of light as result of releasing trapped ions when stimulated by light or heat; this emitted light is proportional to the amount of time that has passed since the object's last heating event. The equation for this proportion is: Age (ka)= equivalent dose (Gy)/ dose rate (Gy/ ka); where the equivalent dose (D_e) is the amount of absorbed radiation that is needed to account for the measured luminescence signal and dose rate is the average amount of radiation absorbed through unit of time, in this case Gy per 1000 years. Luminescence dating has the advantage over other popular dating techniques in that it dates the artifact directly and does not require the demonstration of association. Luminescence dating has the added benefit of using ubiquitously occurring material (the above mentioned quartz and feldspars) and does not require special circumstances, such as excellent preservation of organic material or volcanic eruptions. Ceramics, sediments, and heat-treated lithic material can all be dated using luminescence techniques. (Walker 2005).

The preparation for the sherd consists of a series of chemical and mechanical separating procedures to isolate the proper sized fraction. The moisture content of the sherd was measured before processing for later corrections; this is necessary due to the fact that water absorbs radiation at a different rate than the sherd. The sample for analysis was drilled from the interior of the sherd using a tungsten carbide drill bit. Material from the outer 2mm of the sherd was avoided to ensure that only the natural radiation signal, and not external beta radiation, was measured. The collected sample was lightly ground

in a mortar and pestle to disaggregate the grains and what remained of the sherd (including the outer 2 mm) was set aside for radiation testing. The collected sample was washed with hydrochloric acid to remove carbonates, which can produce a spurious signal (Feathers and Rhode 1998:290). The hydrochloric acid was rinsed from the sample with water to avoid reaction with acetone in the next step. The sample was suspended in acetone and subject to a series of two minute and 20 minute settling cycles. This procedure isolates the grains measuring 1-8μm that are used for the analysis. The 1-8μm fraction is optimal for TL because this size fraction is abundant and small enough to be fully exposed to alpha particles, whereas the dating calculations of larger fractions are more reliant on external dose rate, which can be difficult to estimate. Once the 1-8μm fraction was again suspended in acetone, 2ml of the solution was dispensed onto stainless steel discs in test tubes, the platform for the luminescence readings. The volume of the sample placed onto the discs is normalized by the above process so that difference in volume will not affect the luminescence measurement. Once the acetone has been evaporated from the discs, the sample is ready for luminescence measurement.

Optimally, at least 50 discs are needed for measurement. Different measurements were performed on the discs for the calculation of a variety of variables. Some of the discs are measured for the natural thermoluminescence signal and these are given 50, 100, 150, 200, 250 seconds of beta irradiation to determine the regenerative curve. The remaining discs are given 40,80,120,160, or 200 seconds of beta irradiation (^{90}Sr) for calculations for the additive dose of 30, 60, 90, 120, or 150 minutes of exposure to the alpha irradiation source (^{241}Am) for calculation of alpha efficiency, using the b-value system. Prior to luminescence measurement, all discs were preheated to 70°C for one week to avoid the unstable signals skewing the curves. The above procedure is a combination of the additive dose and regeneration procedures for determining the D_e (also known as the paleodose, accrued dose, or accumulated dose [Aitken 1990:149]), or the amount of radiation that the object under question has received since the last heating event. The additive dose technique exposes aliquots to different increments of beta irradiation and measures the luminescence output. The data is then plotted in a growth curve with dose in Gy as the x-axis and luminescence counts as the y-axis. The relationship is assumed to be linear and the D_e is extrapolated from this data and assumed to be the intercept at the x-axis. Growth curves are not always linear and this method has large errors for rather young and rather old samples. The regeneration method zeros the sample by exposure to light or heat, then adds increments of irradiation to the reset aliquots. The luminescence is measured and the growth curve is constructed with the intercept at zero. The D_e is determined by the intercept of the natural signal on the y-axis. However, the act of zeroing the aliquots can create a sensitivity change so the slope of the regenerated curve does not match that of the natural signal. Any interpolation of the natural signal on a regenerated curve that has undergone sensitivity change will be in error. However, if the regenerated curve differs from the natural curve by proportion, “one of the curves can be adjusted to the other…the regeneration curve can be scaled and shifted to fit within the error terms of the additive dose curve” (Feathers and

Rhode 1998:292). The UW Luminescence Laboratory uses a computer program written by David Huntley at Simon Fraser University to shift and scale the data.

The ceramic sample was subject to TL, OSL, and IRSL measurements by the UW Luminescence Laboratory staff members (see Feathers and Rhode 1998:292 for details). The external dose rate (D_r) for the sample needs to be calculated in addition to the D_e. The D_r for pottery samples is combination of alpha, beta, gamma, and cosmic radiation: "For most pottery the latent TL is produced in roughly equal proportions by the nuclear radiations from potassium [K], thorium [Th], and uranium [U] (Aitken 1990:150)." The moisture content of the sherd, the elevation of collection, and surrounding soil radiation all significantly affect the calculation of the D_r. Aitken (1990:153-154) notes that surface collected pottery sherds are not optimally suited to TL dating as they have not been surrounded by 30cm of homogeneous soil, which would ensure an homogenous external dose. Three of the sherds were from 0-10 cm and no cosmic radiation samples were taken; this likely resulted in the unreliable dates for some of the sherds. Alpha, beta, gamma, and cosmic dose rates were calculated by the UW Luminescence Laboratory staff.

Six sherds from the 2011 Banda excavations were subjected to TL dating (Table 5.1), one from each site at 0-10 cm and 90-100 cm. The only determining quality of the sherd was that it be thick in order to acquire non-bleached material. No attempt was made to select a representative sample of temper as the temper analysis had not yet been conducted. The sherds from 0-10 cm and 90-100 cm were selected to roughly determine the date range for the occupation at each site and to check whether the stratigraphy was mixed. During the initial planning stages of this research project, it was assumed that dating could be

Table 5.1 Luminescence dates.

Sample	Site/ level	Temper	Age (ka)	% error	Basis for age	Calendar date (years BC/AD)
UW2643	***OR Unit 1 0-10-cm***	***Grit***	***3.56±0.62***	***17.5***	***OSL/IRSL***	***BC 1550 ± 620 (4170-2930 BP)***
UW2644	***OR Unit 1 90-100-cm***	***Grit***	***3.79±0.34***	***8.9***	***Uncorrected TL***	***BC 1780 ± 340 (4120-3440 BP)***
UW2645	GW Unit 2 0-10 cm	Grit	0.80±0.06*	7.6	IRSL	AD 1220 ± 60 (AD 1160-1280)
			0.12±0.02*	20.8	Uncorrected TL	AD 1900 ± 20 (AD 1880-1920)
UW2646	GW Unit 2 90-100 cm	Grit	7.66±1.26**	16.5	OSL/ uncorrected TL	BC 5650 ± 1260 (8910-6930 BP)
UW2647	KB Unit 2 0-10 cm	Grit	9.91±1.14**	11.5	OSL/ uncorrected TL	BC 7900 ± 1140 (11040-8760 BP)
UW2648	***KB Unit 2 90-100 cm***	***Shell (foraminifera)***	***1.14±0.21***	***18.4***	***OSL***	***AD 870 ± 210 (AD 660-1080)***

***Italicized* and bolded dates are unproblematic.**
*Likely under-estimated.
**Likely over-estimated.

based on tradewares and no money had been set aside for absolute dating methods. Therefore, only a few sherds could be dated at this time due to financial restrictions. Previous attempts to date Bandanese sherds with TL have not been successful (P. Lape, personal communication 2010). The six sherds submitted for TL dating yielded a 50% success rate. The difficulty arises, in part, from the volcanic nature of both the buried sediments and the clay parent material and also due to the lack of background measurements of the sediments (J. Feathers, personal communication 2015). However, it appears that TL dating can be relatively successful given a large enough sample size of sherds. Of the sherds that yielded unproblematic dates, two were grit-tempered sherds from Ordatang and one was a shell-tempered sherd from Komber. The dynamic beach environment of Komber and Groot Waling may be affecting the background radiation and ruining the measureable TL signal. Both of the grit-tempered sherds from Ordatang fall within the range of the Neolithic. The shell-tempered sherd from Komber dates to AD 660-1080, which is slightly earlier than dates usually associated with the beginning of the spice trade. This suggests, then, that increase in trade between the Ambon-Lease region and the Banda Islands, presumably involving spices among other goods, may have begun prior to its recognition in the historical record. Unfortunately, none of the dated sherds date to the colonial period, but this is not unexpected with a small sample size. Both shell-tempered and grit-tempered sherds are known to exist into the colonial period and into the late 20th century (Ellen and Glover 1974) so it cannot be assumed based on the TL dates that the entire assemblages pre-date the colonial period.

Analysis of Ceramic Formal Characteristics

An analysis of formal characteristics of the earthen sherd assemblage was undertaken to establish the basic characteristics of the assemblage. The broad goal of this project was to identify the potential differences between groups of people at the *perken* sites. Despite the mixed stratigraphy, a secondary goal of the analysis of formal characteristics was to determine if any difference existed that might be used to disentangle the deposits. A basic description of sherd characteristics within the assemblage was needed prior to being able to identify differences. There is currently no formal typology that exists for the Banda Islands or Maluku in general, so I needed to start from scratch with the descriptive characteristics. The basic information embedded in the formal characteristics of temper, thickness, hardness, and other characteristics can also yield information on performance characteristics, use, or taphonomy (Rice 1987). The discussion of formal characteristics of sherds is somewhat hampered by the lack of a formal typology for the region, creating a situation where there are many unknowns regarding the expected whole vessel forms and functions. A discussion of the predicted vessel forms expected based on other Malukan sites follows below, but it should be noted that Latinis and Stark (2003) do not think that the Banda earthenware assemblages are the same as that they studied in Central Maluku.

Methodology

A variety of measurements and data were recorded for each sherd, regardless of immediate planned analytical use. All sherds were weighed in grams to two decimal places. Thickness was measured twice, at the thinnest and thickest points and an average was taken, in millimeters. Minimum and maximum length was also taken, also in millimeters. The part of the vessel from which the sherd had originated (e.g., body, neck, base, rim, etc.) was identified. Interior and exterior slip and decoration was noted. The colors of the interior, exterior, and core were identified using Munsell values. Hardness was recorded using Mohs' hardness scale. Temper was identified macroscopically. As Spriggs (1990) noted, temper in Malukan earthenware assemblages is extremely heterogeneous. While I attempted to identify multiple components of the temper (e.g., sand, lava, mica) during the initial analysis, the discussion, below, uses only the macrogroups of "grit" and "shell" for ease of discussion. Shiung (2012) did identify multiple different temper inclusions, but did not identify any statistically significant patterns, so I decided to group all the non-foraminifera temper together. Original data can be found in Appendix B.

Temper

Temper is "the coarse components in a paste, usually assumed to have been added by potters to modify the properties of the clay" (Rice 1987:406). Temper is often used by archaeologists to determine different "types" of pottery in the archaeological record as it is believed that "the choice of tempering materials is assumed to represent a consistent or normative pattern and thus the regular covariation of particular tempering agents with particular vessel forms or styles is seen as culturally specific" (Rice 1987:409). The temper of earthenware sherds in the Maluku region has been described as, "too heterogeneous to be described here in detail" by Spriggs (1990:52) and subsequent authors (including me) tend to agree with him. Shiung (2012) has macroscopically described the tempers of some Bandanese sherds and Peterson (2015) has investigated clay and temper groupings of Bandanese sherds via ICP-MS. However, those studies were not available to me when I began my analysis and I was unable to use their work in my initial temper determinations.

While few Malukan studies have focused on temper in any way, Dickenson (2005) performed a petrographic analysis of sherds from Aru Island. For comparative purposes, Dickenson also looked at 10 sherds from Lape's (2000) excavations. Thus, there is actually more detailed information about Banda Islands temper than many other Malukan islands. Dickinson (2005:124) describes the temper from the Banda sherds as:

> A majority of the Banda sherds contain plagioclase-rich and pyroxene-bearing temper sands (hornblende-free) that are inferred to be indigenous to Banda, and are embedded in clay pastes that contain a significant component of vitroclastic volcanic ash presumably derived from ash blankets that mantle Banda. In thin section, the indigenous sherds are visually indistinguishable from exotic sherds previously recovered on Gorom and Aru, and comparison of the indigenous Banda temper type with tempers in the exotic Gorom-Aru sherds shows the three temper suites to be statistically indistinguishable. Ceramic

> transfer from Banda to both Gorom and Aru accordingly seems a robust inference. Subordinate Banda sherds containing hornblende-rich placer tempers are unlikely to derive from Banda, but apparently reflect ceramic transfer to Banda from elsewhere, either another volcanic island along the Banda chain or farther afield within Indonesia.

Shiung (2012) also described tempers from a selection of Lape's (2000) excavated earthenware, based on macroscopic analysis. However, both the Dickenson and Shiung study have focused on the pre-colonial period and they use somewhat different techniques and terminology. Because a petrographic analysis of earthenware would not shed light on whether or not plantation occupants were using food to signal social identity during the colonial period, I did not feel this analysis was necessary for this project. Peterson (2015) used ICP-MS to identify source groups of Banda sherds from Lape's excavations. This will be a welcome addition to the available information regarding ceramic technology in the Island Southeast Asia Neolithic, but the analysis was not available at the time of writing.

I identified temper macroscopically, as this was the most efficient technique. For the three plantation sites I investigated, there are two major groups of temper: foramifera-based temper ("shell") (Figure 5.1) and non-foraminfera heterogeneous temper ("grit") (Figure 5.2). The shell/ foraminifera temper generally corresponds to Shiung's (2012) "lime" temper. I used the term "shell" to describe the temper in my initial analyses and use it in graphs and tables, but it does represent foraminifera temper. The non-foraminifera temper has its roots in the Neolithic, but its use continued into the historic/ modern period based on Lape's (2000b) and Shiung's (2012) research. Much of the "grit"-tempered assemblage could be local (e.g., Peterson 2015), but additional analysis is required for positive identification as the temper is very heterogeneous. The foraminifera temper from Saparua (and possibly surrounding areas in Ambon-Lease or wider) has a more recent origin, estimated to be around AD 1400 (Spriggs 1990). A luminescence date on one of the foraminifera tempered sherds (UW2648, from Komber, Unit 2, 90-100 cm) yielded at date of AD 870 +/- 210, which is quite a bit earlier than Spriggs' (1990) initial estimate of a relatively modern development (<500 years). Generally, the incorporation of the Maluku region into a Eurasian trade network is dated to the second millennium AD (e.g., Kathirithamby-Wells 1990). The Saparuan pottery from the potting village of Ouw made ethnographically used a planktonic foraminifera temper, described as

> sand [that is] almost entirely composed of planktonic foraminifera characteristic of the Plio-Pleistocene boundary in Eastern Indonesia. The foraminifera are not cemented, which suggests that they have been washed out of a marl by the women potters rather than obtained in a concentrated form from a calcareous sand…Such marls are common in Indonesia but this is the only instance so far known to us where a filler of this nature has been regularly used. [Ellen and Glover 1974:375]

This planktonic foraminifera tempers sets the Ambon-Lease earthenware apart from the other mineral tempered wares of Maluku. This foraminifera- tempered ware can also be red-slipped, like the Neolithic wares, and could be water-proofed with the resin from the dammar tree (*Agathis alba*) (Ellen and Glover 1974). Spriggs (1990) does note that the older the sites on Saparua, the less foraminifera temper earthenware sherds they contained. Ouw was a popular pottery-making village when Ellen and

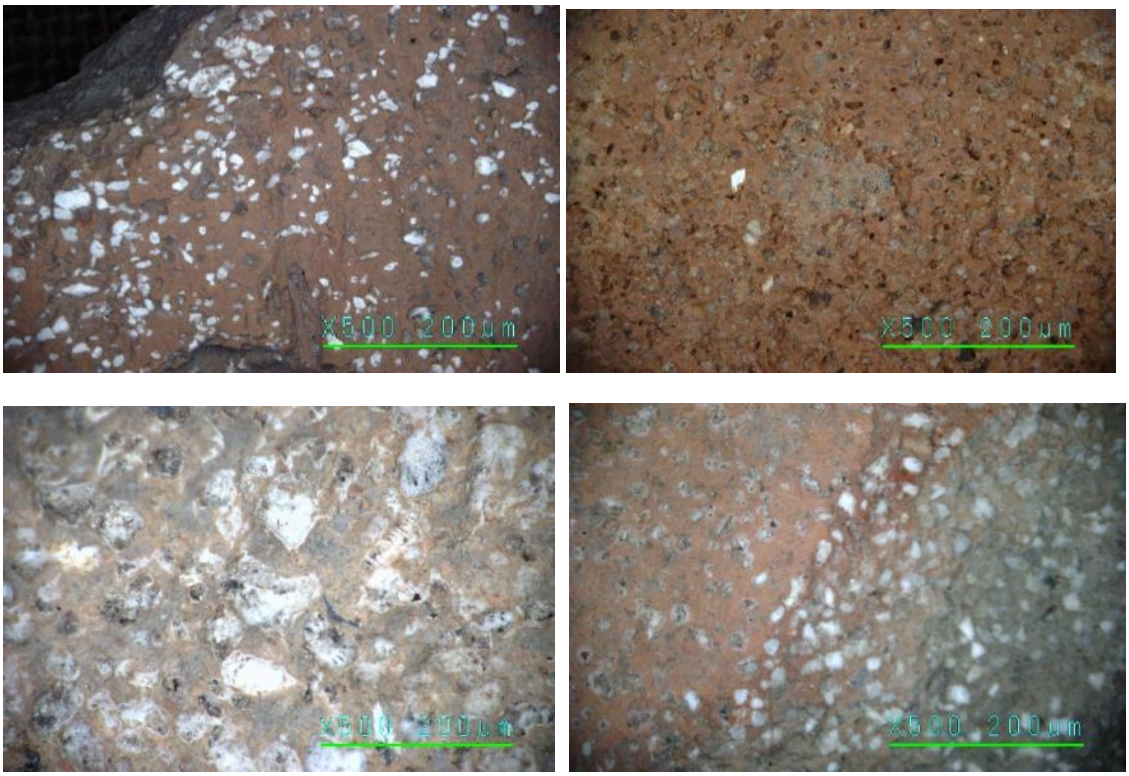


Figure 5.1 Shell/ foraminifera temper, clockwise from top left: GW.1.70-80.3, GW.3.0-10.13 (note holes due to decomposing temper), KB.2.70-80.2, KB.2.70-80.21.

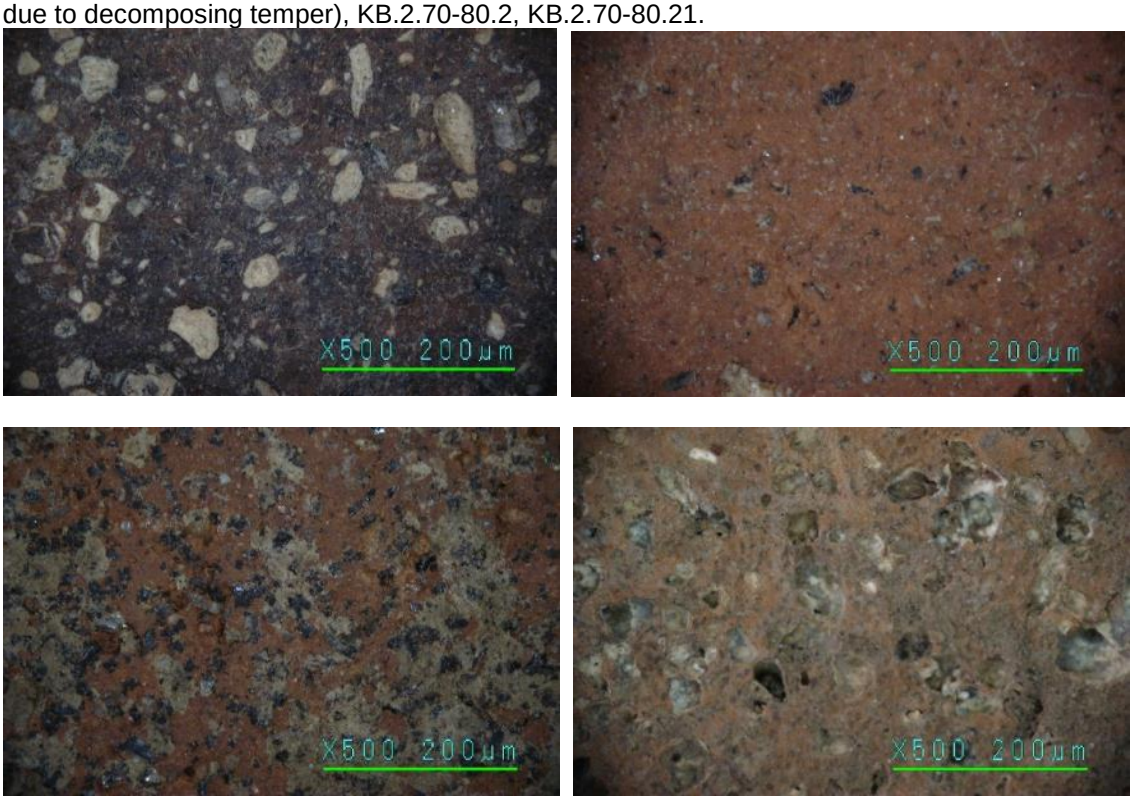


Figure 5.2 Grit temper, clockwise from top left, OR.1.60-70.1, OR.60-70.17, OR.1.60-70.41, GW.3.10-20.9

Glover visited in the 1970s, having almost a monopoly on pottery manufacture. However, it is possible that archaeological sherds with foraminifera temper may have been made in a variety of villages in the past that have ceased pottery production in the modern era. The planktonic foraminifera sand that is used for temper is commonly found at the Plio-Pleistocene geological boundary in Maluku and is widely available, but as Ellen and Glover (1974) note above, they've only seen it used as temper in Ouw. Dickenson (2006:20) notes that beach sands with calcareous inclusions have also been used as temper in Vanuatu and the Mariana Islands. It is possible that the foraminifera temper was more wide-spread in the past, but until more work is done to demonstrate its use, I will assume the foramifera-tempered sherds in the Banda Islands were from the Ambon-Lease region. The earlier date of the foraminifera-tempered sherd in the Banda islands may suggest an increase in local inter-island trade or a change in trading partners, prior to incorporation into a wider sphere. These early dates for foraminifera temper do suggest more work needs to be done in this region to establish a reliable earthenware chronology.

Other Sherd Characteristics According to Temper Class

The function of the entire vessel can sometimes be reflected in the physical characteristics of the sherd. For instance, much has been written about what may have caused the transition from grit and grog tempered pots to shell temper in in the Mississippian region of North America (see Feathers 2006 for a review). Research into the performance characteristics of shell-tempered pottery suggests that shell-tempered sherds can have thinner walls than grit-tempered sherds, allowing for better heat transfer to the internal contents and resulting in fewer boil-overs (Feathers 2006). Shell temper is also more resistant to thermal shock and, despite the thinner walls, is actually stronger and more resistant to breakage than grit and grog temper. Knowing that shell-temper has beneficial performance characteristics in comparison to grit temper, at least for cooking vessels, I was curious if the foraminifera-tempered pottery had similar characteristics that might be identified in the physical characteristics of the sherds. Foraminifera also have shells made from calcium carbonate, like mollusks, and I thought this temper may have similar performance characteristics to the more widely studied shell temper. To investigate if temper can be associated with different characteristics of the original vessel, I measured a variety of different characteristics.

Length

I chose the average size of sherds as a proxy for breakage. Length is a very rough measure of breakage. That is, the smaller the sherds, all things being equal, the more the original vessel broke up during the destruction event. Temper type, wall thickness, forming techniques, firing temperature, manner of destruction (thermal shock, gravity, etc.) among other variables can all affect the size of sherds after a vessel is broken. An additional problem is the differential existence of certain sherds in the archaeological record. That is, some types of pots break more often, break into smaller pieces, or are less durable than others and certain types of pots break at higher rates than others and may be over

represented in the archaeological record. This would be a major problem if vessel size and vessel shape varied radically across the expected assemblage, but no earthenware studies of Malukan earthenware suggest any radical variation in size or shape (e.g., Latinis and Stark 2003, Shiung 2012, Spriggs 1990a, Spriggs and Dickenson 2010). Size can also be a product of taphonomic processes, that is, if a sherd is deposited in a dynamic environment, the more likely it will continue to break and the smaller it is likely to become. Differences in size of sherd based on temper are expected to represent differences in original vessel form or function if other characteristics (e.g., wall thickness) also vary according to temper or if there are differences in taphonomic processes at the sites. If taphonomic processes create the size difference, if any, then there should be not corresponding variation with other characteristics.

The measurements for sherd lengths at all sites can be found in Figure 5.3 and Table 5.2. At Ordatang, the mean of the grit tempered sherds is larger than the shell tempered sherds at a statistically significant level ($p<0.01$). However, this may be a result of sample size as the grit-tempered sherds have a sample size that is an order of magnitude larger than the shell tempered sherds. At Groot Waling, the mean length of both shell- and grit-tempered sherds was around 25-26 mm and is not significantly different ($p=0.73$). At Komber, the mean length of grit-tempered sherds was 29.852 mm and shell-tempered sherds was 36.298 mm and the difference was statistically significant ($p <0.01$). The sherds from Komber Unit 2 were fairly obviously larger during analysis. Many of the sherds at Groot Waling were water-worn (discussed above in Chapter 4 and below) and this would impact their excavated size. If the sherds at Ordatang were also used as fill, it is possible that they, too, had additional post-depositional damage. The mean of the grit-tempered sherds from Ordatang is a little larger than that of the shell-tempered sherds, but the opposite is true at Komber where shell-tempered sherds have a larger mean. This discrepancy is probably due to differences in sample size as the larger mean is associated with the larger sample of temper at both sites.

Wall Thickness

As noted above, previous research suggests that shell-tempered pottery can have thinner walls than grit tempered pottery. The thinness of walls is a result of the shell fragments aligning when the shell temper is being worked into the clay (Feathers 2006). This characteristic would not necessarily occur with the foraminifera temper as the foraminifera shells resulted in more granular shapes (Ellen and Glover 1974) than the plate-like shapes that the mollusk shells create when processed for temper. However, it is possible the foraminifera temper may be able to create thinner walls. Thinner walls would reduce the weight of the pot which would likely be beneficial to pots that were being traded, as the foraminifera-tempered pots were. Thinner walls would also improve heat-transfer for cooking pots, but may be less important for water storage pots. I measured the minimum and maximum thickness of each sherd and averaged the two measurements to get an average thickness for each sherd.

For all sites, the minimum thickness of the grit temper was smaller than the shell-tempered sherds and the maximum thickness of the shell-tempered sherds was greater than the grit-tempered

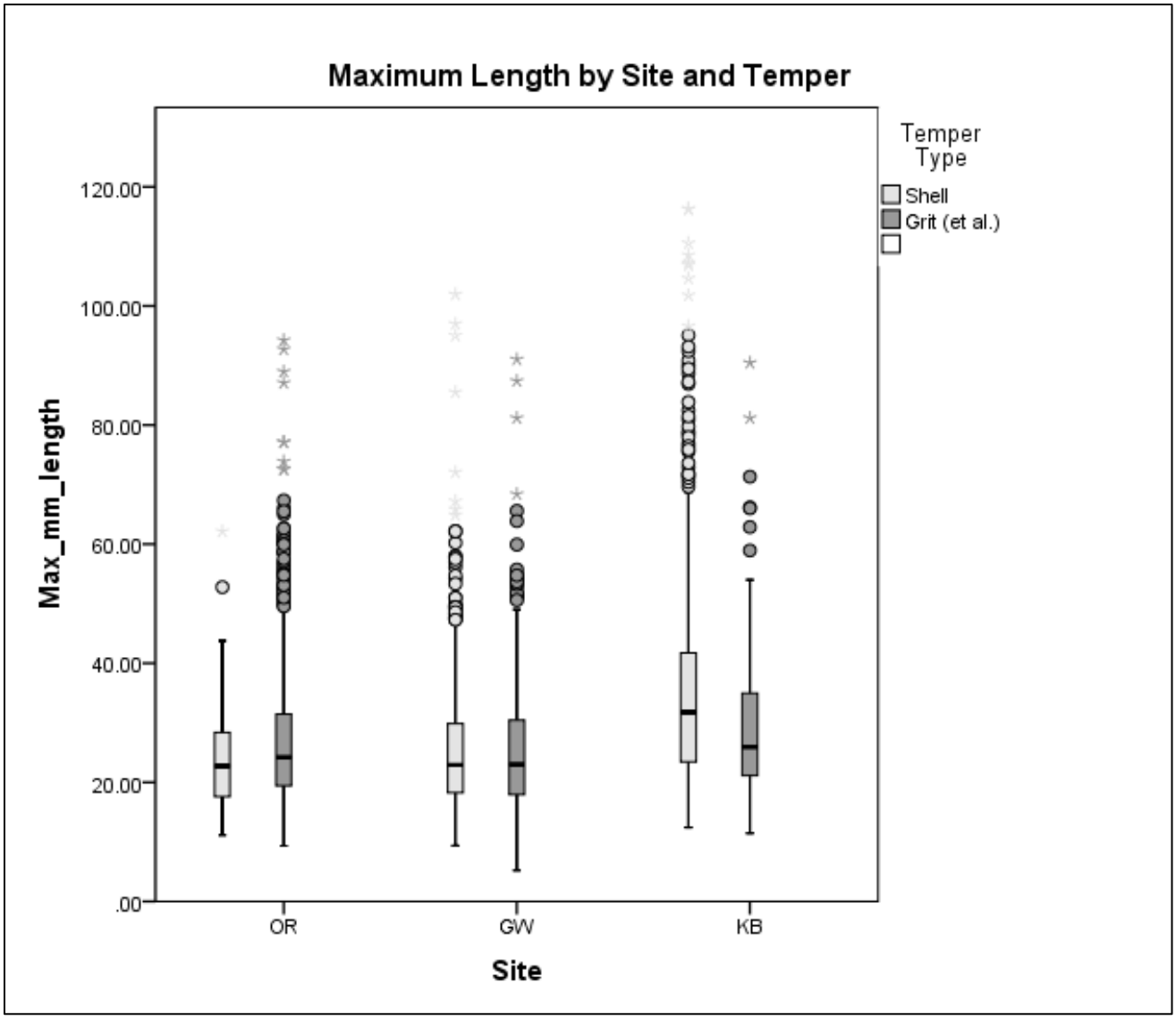


Figure 5.3 Maximum length of sherds by temper and site.

Table 5.2 Length (mm) by temper and by site.

Site	N		Minimum		Maximum		Mean		Standard Deviation		Confidence Interval ±		p=
	Grit	Shell	Grit	Shell	Grit	Shell	Grit	Shell	Grit	Shell	Grit	Shell	
OR	1531	152	9.35	11.12	94.24	62.15	26.756	23.841	10.804	8.255	0.54	1.31	<.01
GW	483	748	5.22	9.38	91.02	101.94	25.826	25.598	11.421	11.053	1.02	0.79	.73
KB	141	533	11.45	12.42	90.45	116.33	29.852	36.298	13.645	18.724	2.25	1.59	<.01

sherds (Figure 5.4, Table 5.3). The standard deviation for the shell-tempered sherds ranges from 1.75-3.37 at the three sites, showing a higher range of deviation than the grit- tempered sherds. The mean for both tempers at all sites ranges from 4.69 mm to 5.81 mm with p-values greater than 0.50 at all sites. There is no indication, then, that the foraminifera tempered vessels had thinner walls or, likely, the associated performance characteristics. The choice to use the foraminifera-tempered pottery does not appear to be related performance characteristics that can be identified by these, admittedly rudimentary, measures.

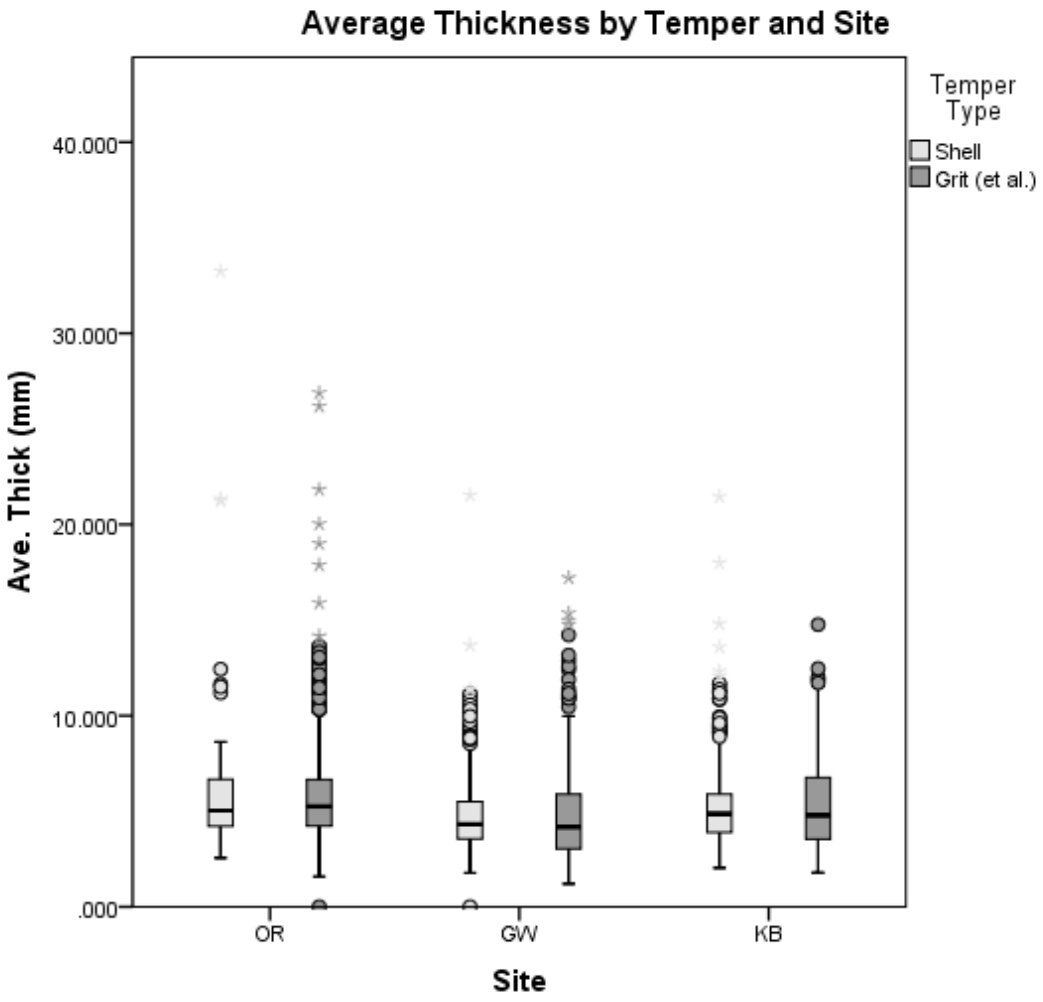


Figure 5.4 Average sherd thickness by temper and site.

Table 5.3 Grit Temper average thickness (mm) descriptive statistics.

Site	N		Minimum		Maximum		Mean		Standard Deviation		Confidence Interval ±		p=
	Grit	Shell	Grit	Shell	Grit	Shell	Grit	Shell	Grit	Shell	Grit	Shell	
OR	1531	152	1.575	2.56	26.885	33.25	5.72	5.81	2.30	3.37	0.12	0.54	.75
GW	489	749	1.205	1.78	17.210	21.53	4.76	4.69	2.51	1.75	0.22	0.13	.59
KB	144	532	1.785	2.04	17.965	21.46	5.44	5.26	2.76	2.09	0.45	0.18	.46

Mohs' Hardness

The durability of the original pot may also be identified via its "hardness," or its "resistance to mechanical deformation," specifically surface deformation (Rice 1973:354). The Mohs' mineral hardness scale is commonly used by archaeologists to determine the hardness of the sherd (Rice 1973:355). I identified the Mohs' hardness for each sherds via a traditional Mohs' scale. Unfortunately, the vast majority of the sherds (98.7%, N=3557) were a 3 on the Mohs' scale. Two sherds each had a Mohs' hardness of 4 or 5 and 28 sherds had a hardness rating of 2. A further 12 assigned catalog numbers were not measured as they were not complete sherds but small bits of the ceramics that had been broken off during transit or processing. Rice (1973:356) notes that non-kiln fired pottery usually scores between 3 and 5 on the hardness scale, so the earthenware in Banda falls on the expected scale for non-kiln fired earthenware. Due to the similarity of hardness throughout the entire assemblage, no significant patterns can be identified by temper type or site. The low score on the Mohs' scale does suggest that the earthenware pottery, regardless of temper, in the region was low-fired. This is in no way unexpected due to ethnographic descriptions of open firing pottery and previous research by Shiung (2012).

Discussion of Formal Characteristics

There appears to be no statistically significance in size, thickness, or hardness of the sherds based on temper type. Regionally, this suggests a low investment in ceramic technology in general; that is, no island group's earthenware was functionally better, on the measures identified here, than any other. While it is likely that the different tempers had performance characteristics that have not been identified in this study that influenced consumer choice, it is parsimonious at this time to assume that temper differences are merely the result of locally available material. Until more information is available regarding forms and use of the earthenware, it is difficult to determine what performance characteristics were most attractive for the users or how temper affected them. The clustering of mean thickness and the similarity of the Mohs' hardness suggests a regularity of form which may suggest earthenware had a generalized use and there were not many specialized uses for the ceramics. That is, there is no indication that the shell-tempered sherds were more useful for cooking starchy gruels whereas the grit-tempered sherds were not, as can be seen in the Mississippian region discussed above. While the similarity of characteristics between the two temper types could theoretically be due not to generic use as I postulate

but because all ceramics were used for the same specialized use, this is not a parsimonious explanation. Multiple different forms (discussed below) do exist for the earthenware suggesting that individual pots may have had specialized use, there is no indication at an assemblage level that there was a difference in performance characteristic and therefore, presumably, use based on temper type.

Temper by Site

As noted above, shell tempered sherds tend to be more recent than grit tempered sherds and tend to be more plentiful in younger sites in Central Maluku (Spriggs 1990:53) and the Banda Islands (Shiung 2012) although grit tempered sherds do continue to exist alongside shell tempered sherds into the modern period. I had hoped that the tendency of younger sites to produce more shell-tempered sherds would help to relatively date the *perken* occupation. Theoretically, the sites should all date to the colonial period and have similar temper distributions. Deviation from this expectation could indicate a pre-colonial occupation. Of the three sites, only Komber has a known pre-colonial occupation. While variants of the Ordatang name do exist as that of a pre-colonial coastal village, the location does not match the location of the *perk*. Hanna (1978) notes that habitation in the interior was difficult and Lape (2000a, 2000b) notes a lack of interior village sites on colonial maps. This suggests that the *perk* location of Ordatang does not correspond to the pre-colonial village site. Based on this, Komber should have the highest amount of grit-tempered earthenware with lower amounts found at Groot Waling and Ordatang. However, this is not the case as Ordatang produces significantly more grit tempered sherds than any of the other sites (1531 sherds at Ordatang versus 489 sherds at Groot Waling and 144 sherds at Komber).

Ordatang

Unit 1

The shell temper is not common at Ordatang Unit 1, making up less than 20% of the assemblage of any given level and it generally decreases with depth (Figure 5.5).

Unit 2

Shell tempered sherds are more common in Ordatang Unit 2, but also show a decrease with depth and do not occur below 50 cm (Figure 5.6).

Unit 3

The distribution of shell temper is somewhat different for Ordatang Unit 3 and shows no pattern of decrease (Figure 5.7). This unit had bedrock at 50 cm whereas the two units did not encounter bedrock. Significantly fewer sherds were found in this unit than the other two units.

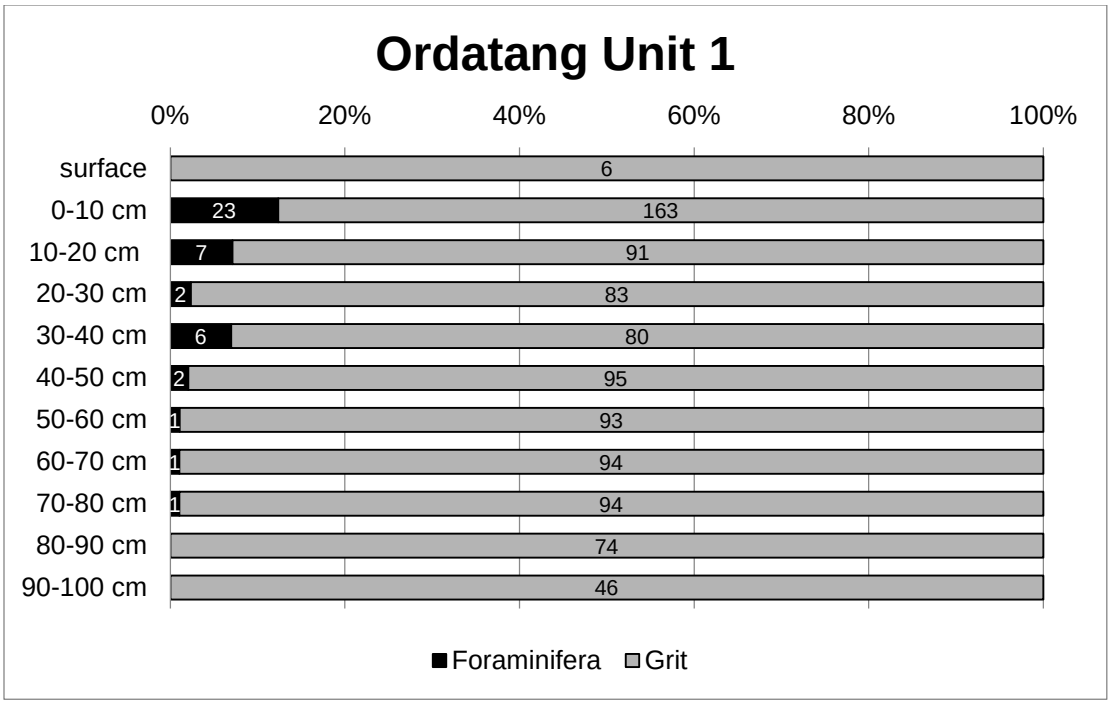


Figure 5.5. Ordatang Unit 1 temper distribution.

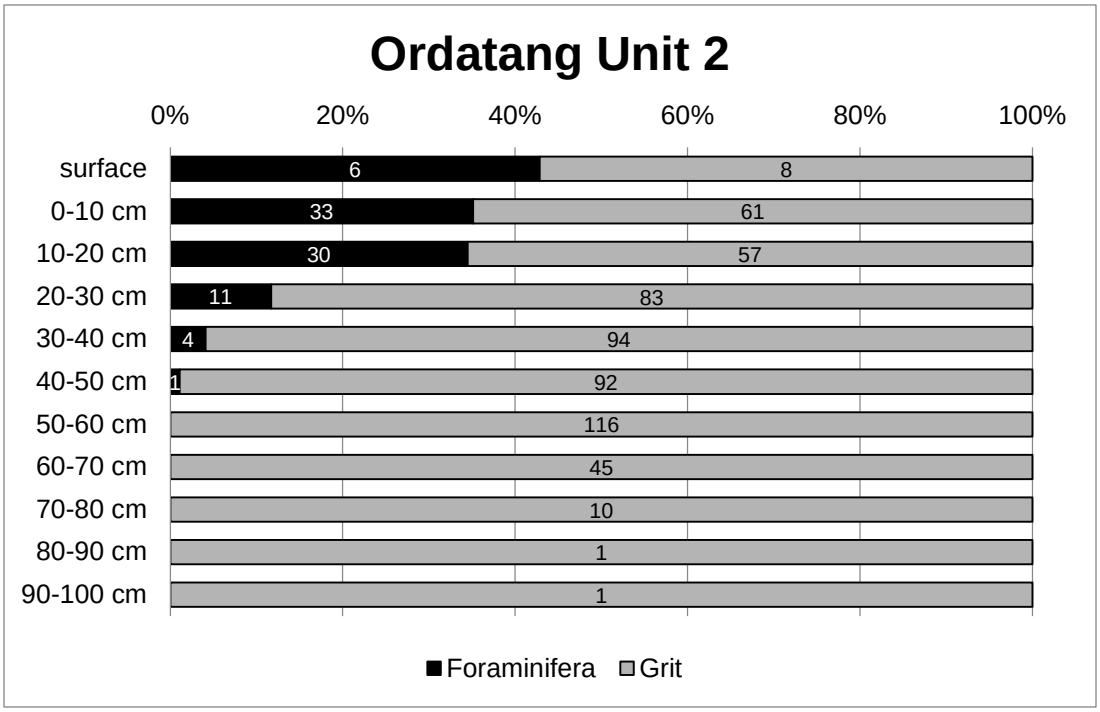


Figure 5.6. Ordatang Unit 2 temper distribution.

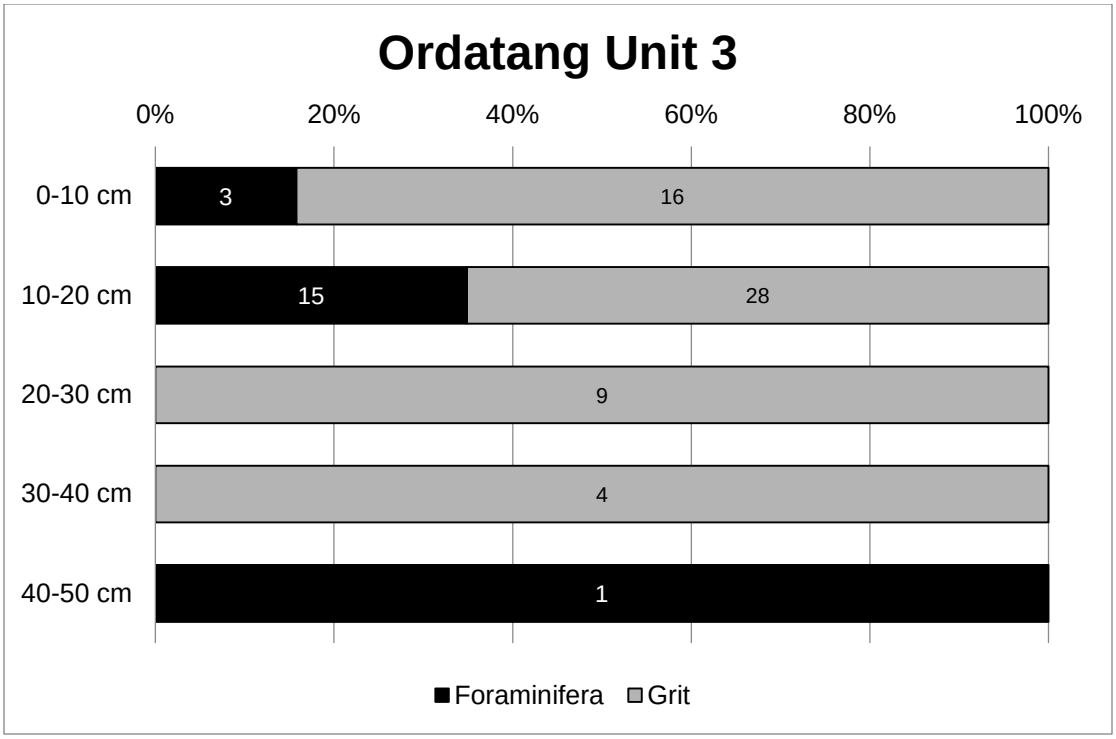


Figure 5.7. Ordatang Unit 3 temper distribution.

Discussion

Earthenware ceramics were the only artifact class found at Ordatang past 50 cm in depth. I hypothesized in Chapter 4 that this distribution was the result of earthenware being used as fill to level out the natural platform prior to the erection of the perk buildings. Unit 3 was located in an area with higher bedrock and did not require fill to build up that area to be level with the remainder of the perk. The fewer shell tempered sherds found below 50 cm supports Spriggs (1990) contention that the older the site, the fewer of what he called foraminifera tempered sherds are found. Additionally, the sparse number of shell tempered sherds below 50 cm (N=3) does support their more recent development. However, their existence below 50 cm may be the result of mixed deposits. Two grit-tempered sherds from Unit 1, at 0-10 cm and 90-100 cm, yielded TL dates of 1550 BC +/- 620 (4170-2930 BP) and 1780 BC +/- 340 (4120-3440 BP), respectively. These dates are within the expected range of a Neolithic occupation. It is also possible that Ordatang was not fully engaged with the Ambon-Lease trade and was not receiving the foraminifera-tempered sherds in large numbers.

The large number of grit-tempered sherds at Ordatang is unexpected. No evidence of a pre-colonial occupation is expected at this spot. Furthermore, the number of sherds found at Ordatang was much higher than the other two *perk* sites. This suggests that this site was somewhat anomalous both in terms of age of deposit and amount of recovered material. Based on the uneven bedrock at Ordatang, I believe the Neolithic sherds were brought in to Ordatang as fill and are not associated with the colonial

era *perk* occupation. It is possible that only the upper 50 cm of Unit 2 and all of Unit 3 can be associated with the colonial-era *perk* occupation.

Groot Waling

Unit 1, 1.5

There is a fairly clear decrease in foraminifera-tempered sherds with depth in this unit (Figure 5.8). Water worn ceramics also increase, generally, with depth (Figure 5.9). However, as noted in Chapter 4, there was a refit between two bone pieces found at 10-20 cm and 80-90 cm and between two sherds at 40-50 cm and 70-80 cm, suggesting somewhat mixed deposits. A large tree was next to the unit and the roots could have pushed around some of the material while still maintaining some stratigraphic integrity. The general decrease in foraminifera temper and increase in water worn ceramics does suggest that some integrity of deposit exists, despite mixing. This pattern of increasing grit-tempered sherds with depth is not present at Komber which also contains mixed deposits. A brick was found at 90-100 cm, suggesting the entire deposit falls after the European colonization or was deposited prior to the erection of the perk, similar to Ordatang. The higher percent of foraminifera-tempered sherds in this assemblage suggests a more recent occupation than that seen at Ordatang or a stronger relationship with Ambon-Lease, assuming this is the origin of the foraminifera temper. Although grit-tempered sherds were still being used after European colonization, the higher percent of foraminifera-tempered sherds throughout the deposit and the presences of water worn sherds in the deeper levels suggest that there was little to no pre-colonial occupation at Groot Waling and sherds that exist are likely redeposited.

Unit 2

Unit 2 shows a distribution of temper similar to Ordatang with foraminifera temper almost disappearing after 50 cm (Figure 5.10). However, 100% of sherds exhibit evidence of water erosion after 30 cm (Figure 5.9). The number of sherds also significantly decreases after 30 cm, although the number does start to increase again at 80-90 cm. The upper 30 cm probably represents the recent perk habitation whereas the water-worn sherds below 30 cm may represent a paleoshoreline. Sherds could have been washed up on the Groot Waling paleoshore prior to the building of the perk. These sherds likely would have been redeposited from one of the many villages along the northern shore of Banda Besar, such as Lonthor or Komber.

Unit 3

Unit 3 also shows a similar distribution to Units 1 and 2, with a decrease in foraminifera tempered sherds with depth (Figure 5.12). The amount of water-worn sherds increase at 50-60 cm (Figure 5.13). There is a decrease in sherds in Unit 2 up to 50 cm and then they begin to increase although they are water-worn. Unit 3 also sees a decrease in sherds and then an increase in water-worn sherds, although at a slightly different depth. The erratic distribution of foraminifera sherds in the upper 50 cm may be due

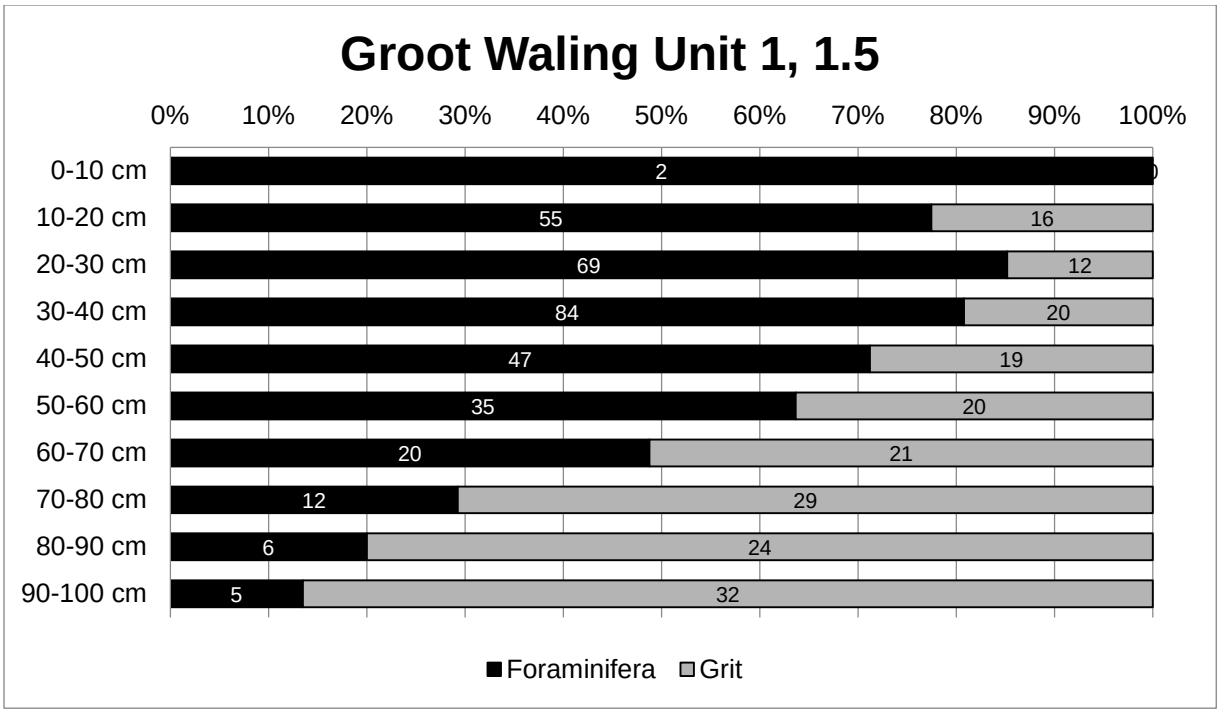


Figure 5.8. Groot Waling Unit 1, 1.5 temper distribution.

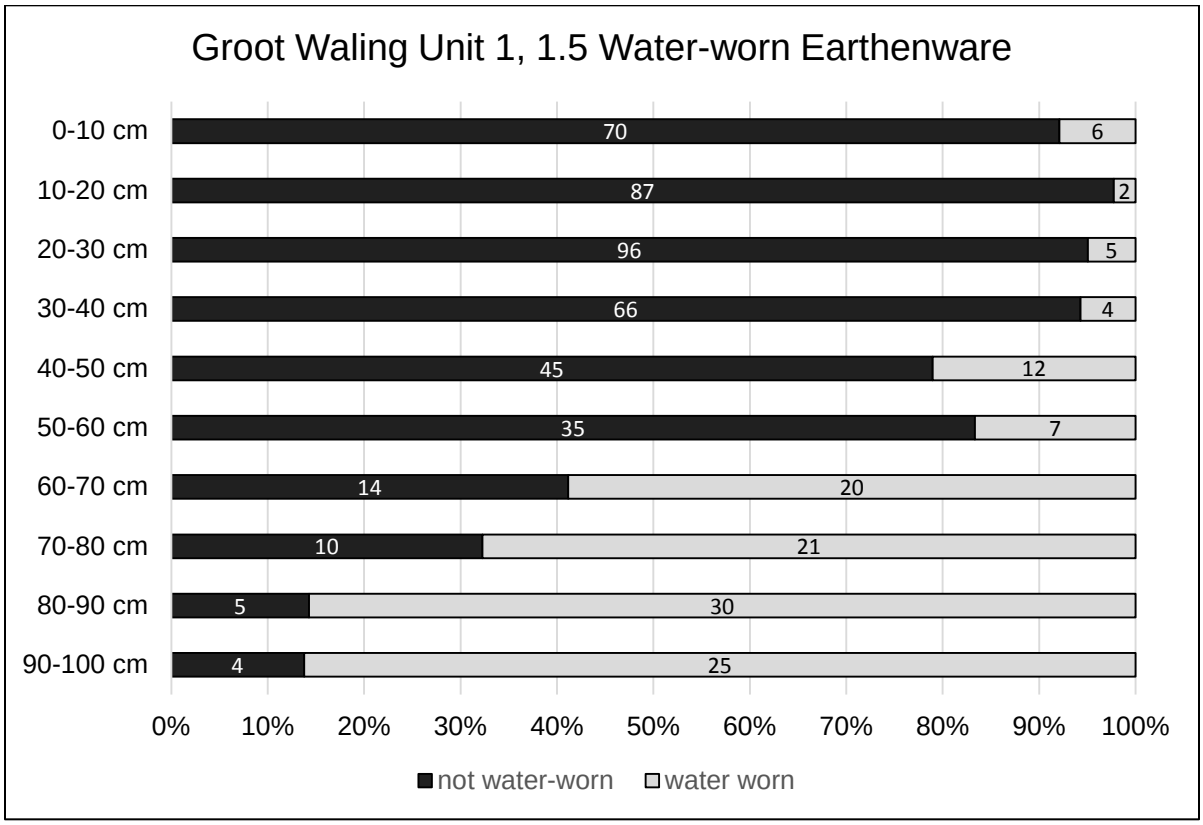


Figure 5.9 Groot Waling Unit 1 water-worn earthenware sherds.

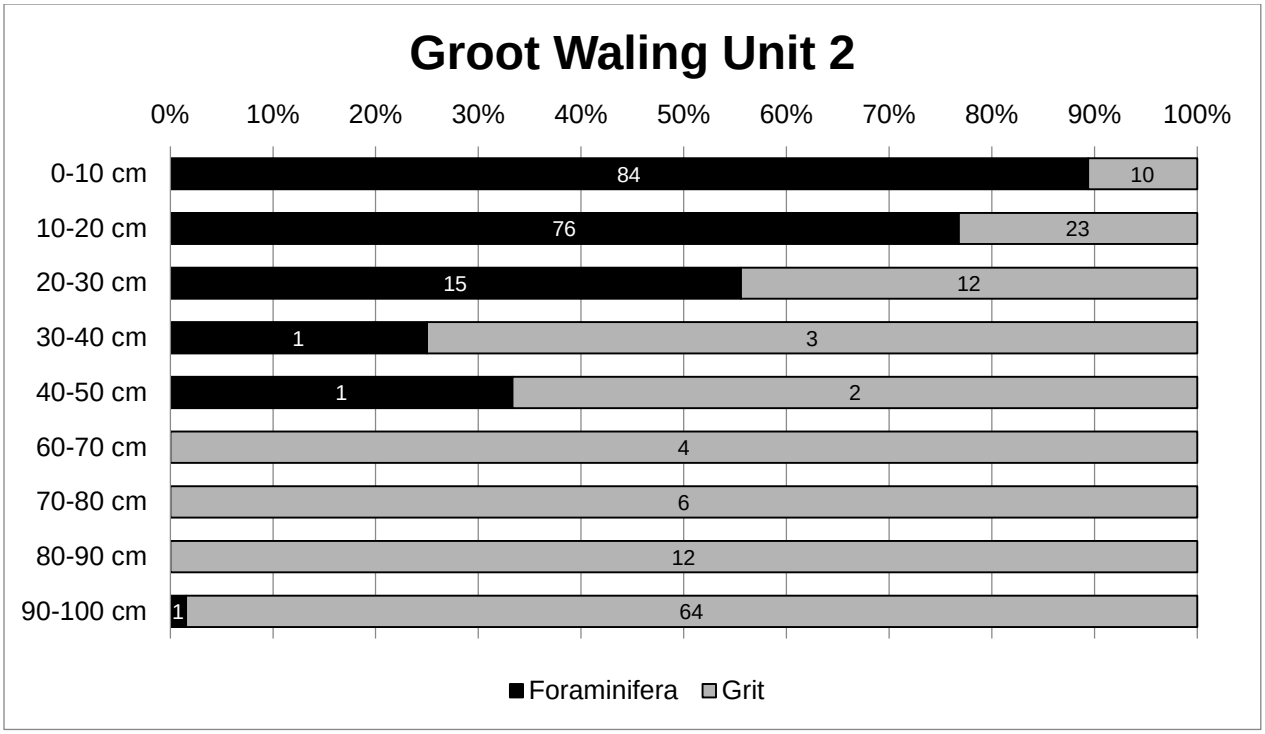


Figure 5.10. Groot Waling Unit 2 temper distribution.

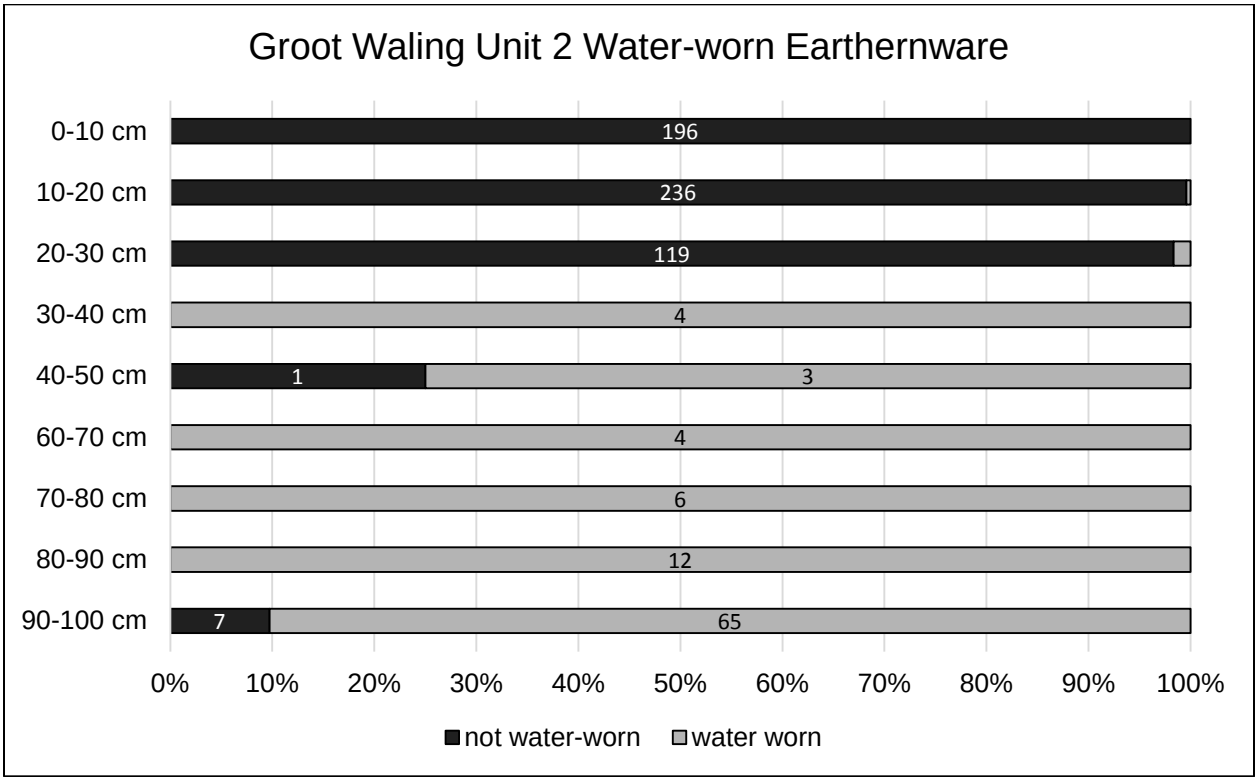


Figure 5.11 Groot Waling Unit 2, water-worn earthenware sherds.

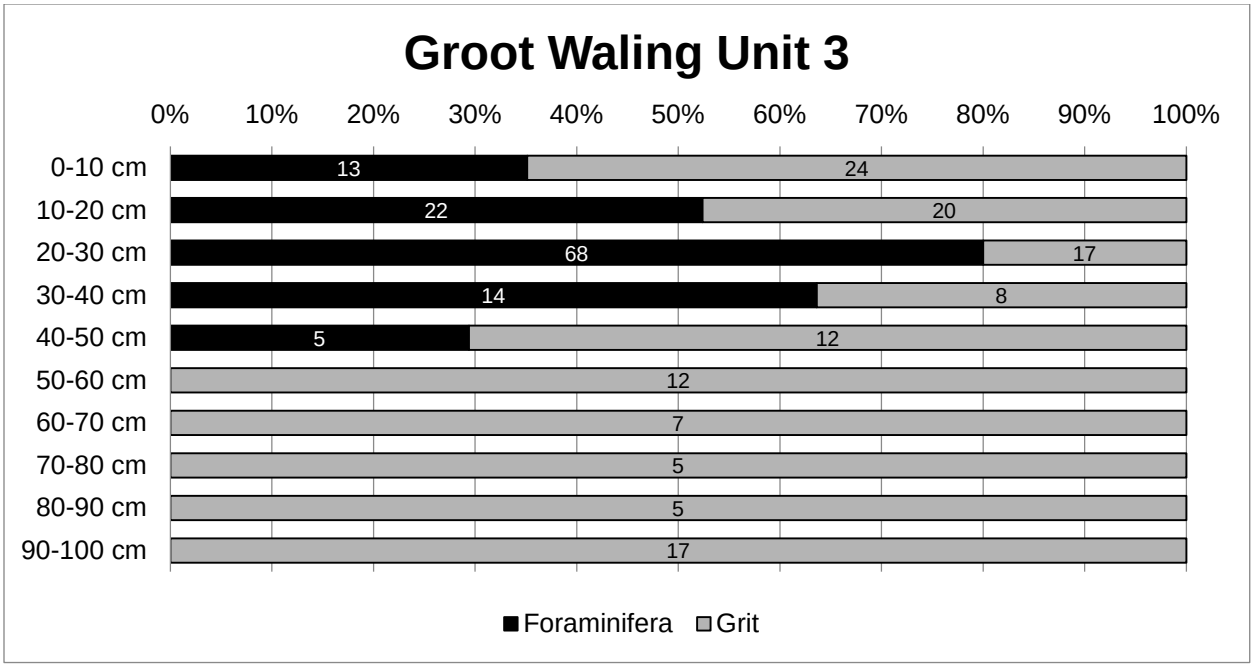


Figure 5.12 Groot Waling Unit 3 temper distribution.

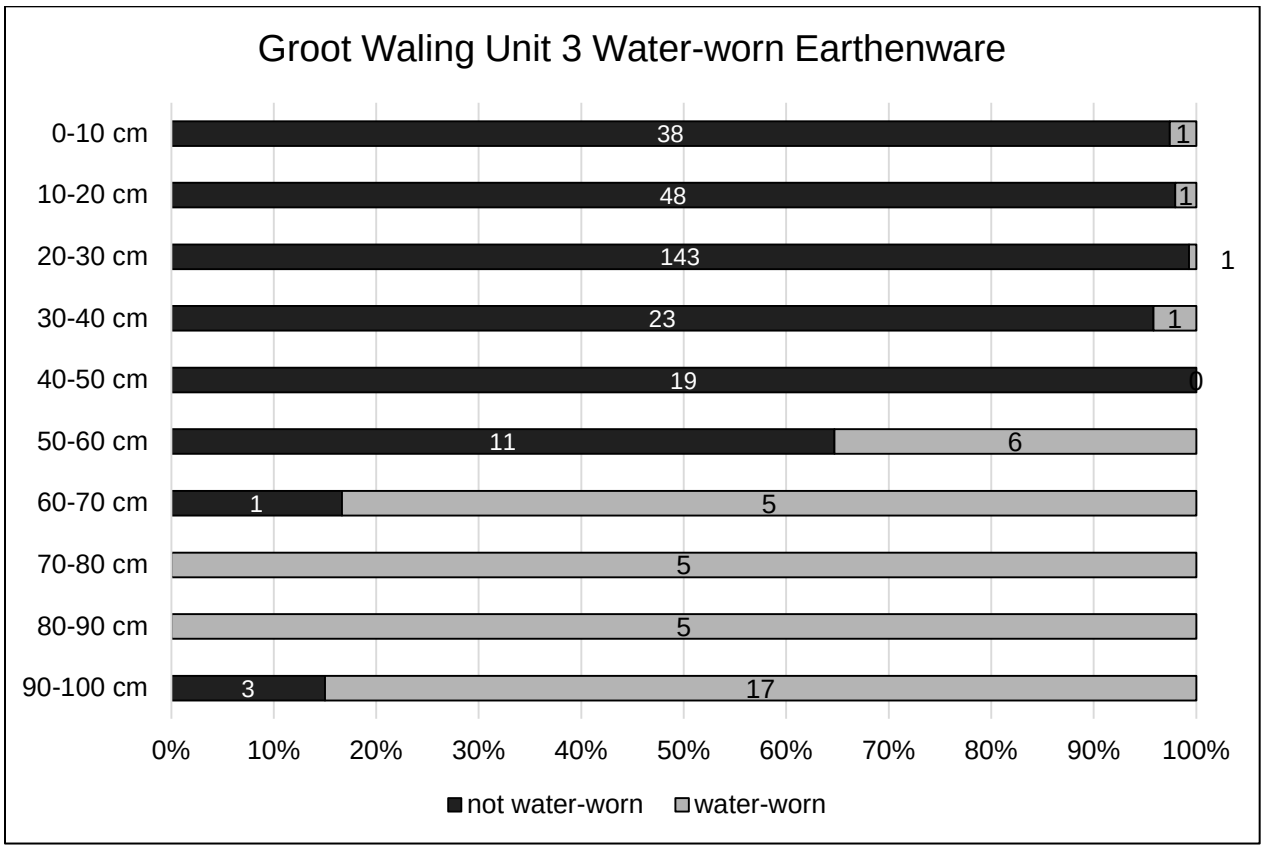


Figure 5.13 Groot Waling Unit 3 water-worn earthenware.

to the location of Unit 3 in an area outside the perk walls used for modern gardens. The upper 50 cm may be mixed due to farming practices. Similar to Unit 2, the upper 50 cm probably represent a colonial-modern era occupation and the lower 50 cm a paleoshoreline.

Unit 4

Unit 4 shows a completely different distribution of temper with no discernible pattern with depth (Figure 5.14). The lack of water-wear on the sherds suggests that Unit 4 is not part of the same paleoshoreline that exists in the other units (Figure 5.15). This unit was located near a well and had construction debris throughout, so it, too, is probably a mixed or disturbed context.

Discussion

Despite problems with mixed deposits, it appears that the shell temper almost completely replaces the grit temper at Groot Waling. Because there was likely no pre-colonial village at Groot Waling (see Lape 2002 for a discussion of pre-colonial village sites), it can comfortably be surmised that the shell temper can be associated with the Colonial or early pre-Colonial period. Assuming the 50 cm depth in Unit 2 and 3 represent pre-colonial colonial deposits, there is a significant number of water-worn sherds, indicating secondary deposit in that location. Shiung (2012) notes that the Labatecca village site(BN1) on Banda Neira has a colonial- era village but no shell tempered sherds (what Shiung calls lime temper), suggesting differential access to material culture. The higher percent of shell tempered sherds at Groot Waling compared to Ordatang may represent a chronological difference in the sites or a difference in access to resources. Groot Waling's beachside location may have given it greater access to trade goods than the interior and highland Ordatang.

Komber

Unit 1

Unit 1 at Komber is also a disturbed context, probably a result of building the school within the perk walls (Figure 5.16). Thus, there is no discernible pattern in the temper in this unit. There are few sherds in general in this unit and they show a mix of foraminifera and grit temper throughout.

Unit 2

Unit 2 is also a mixed deposit (Figure 5.17). This unit was located on the beach, outside the perk but this area yielded a significant number of tradeware sherds during the auger probes. It was only after this unit was excavated that I realized the beach had been built up recently as an anti-erosion measure and the earthenware and tradeware in this location were in secondary context. Due to the mixed context, it cannot be determined if foraminifera tempered sherds increased over time at Komber. However, one of the foraminifera-tempered sherds from 90-100 cm was TL dated to AD 870 +/- 210, suggesting Komber

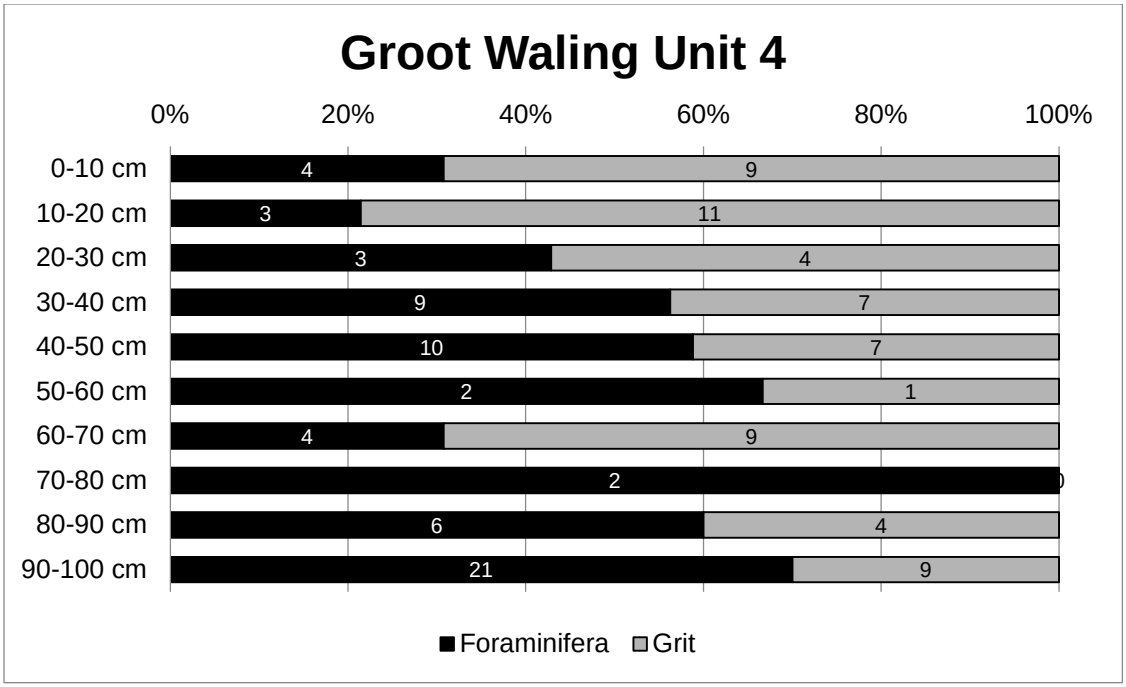


Figure 5.14 Groot Waling Unit 4 temper distribution.

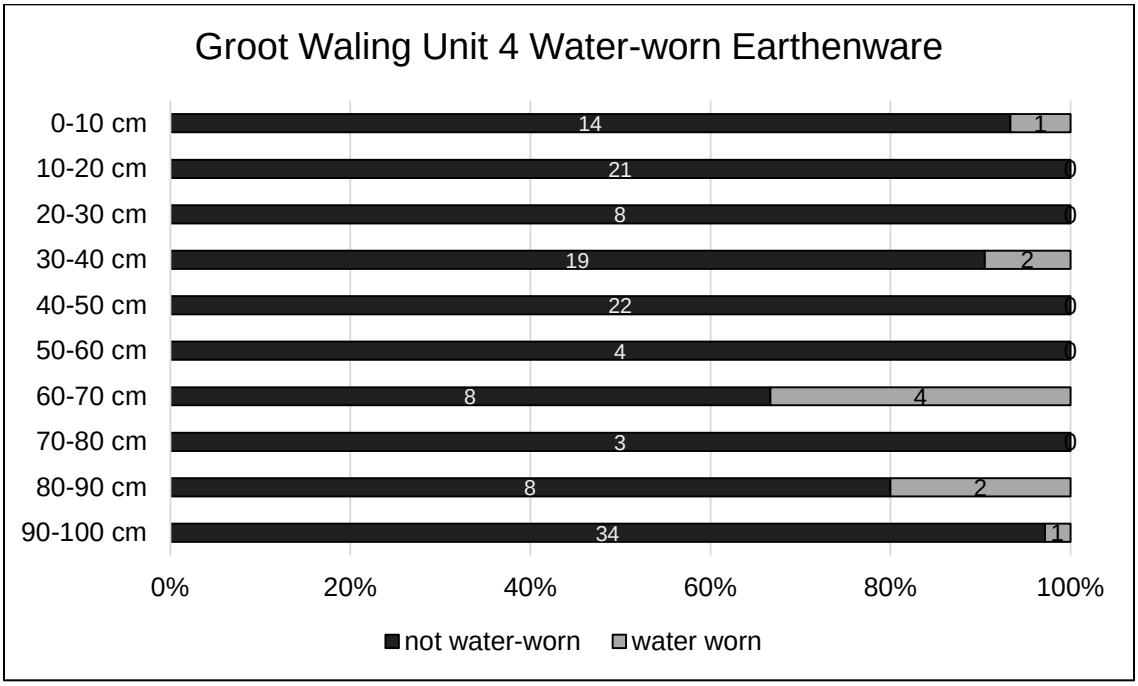


Figure 5.15 Groot Waling Unit 4 water-worn earthenware sherds.

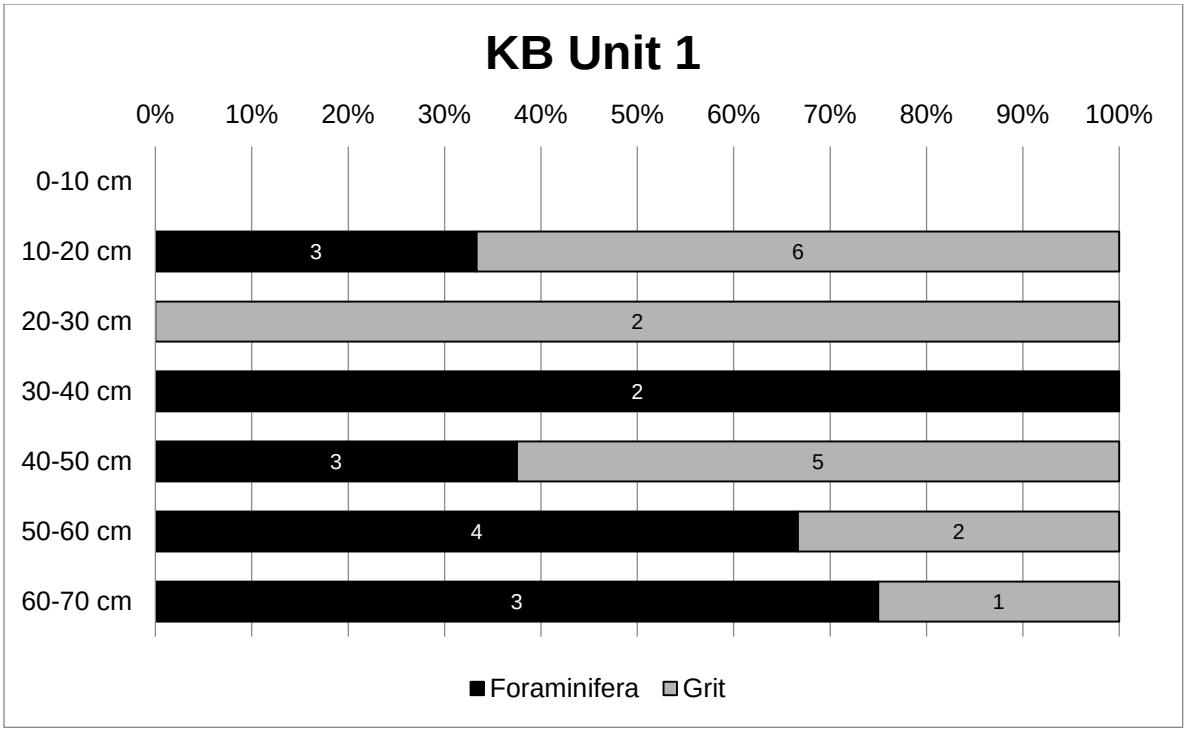


Figure 5.16 Komber Unit 1 temper distribution.

had early trading ties to the Ambon-Lease region (assuming that was the only location of foraminifera tempered-sherds).

Unit 3

No earthenware was identified in Unit 3. Unit 3 only went to 30 cm due to difficulty digging. A few pieces of porcelain were found and are discussed below.

Discussion

The earthenware assemblage at Komber probably represents a mixed deposit coming from multiple households from the surrounding village. However, this allows for an interesting, if unintended, comparison. The mixed deposit cannot be unmixed, but Komber has a similar assemblage of both foraminifera and grit tempered pots as Groot Waling. Which is to say that Komber has more shell tempered sherds than grit tempered sherds as opposed to having significantly more grit tempered sherds.

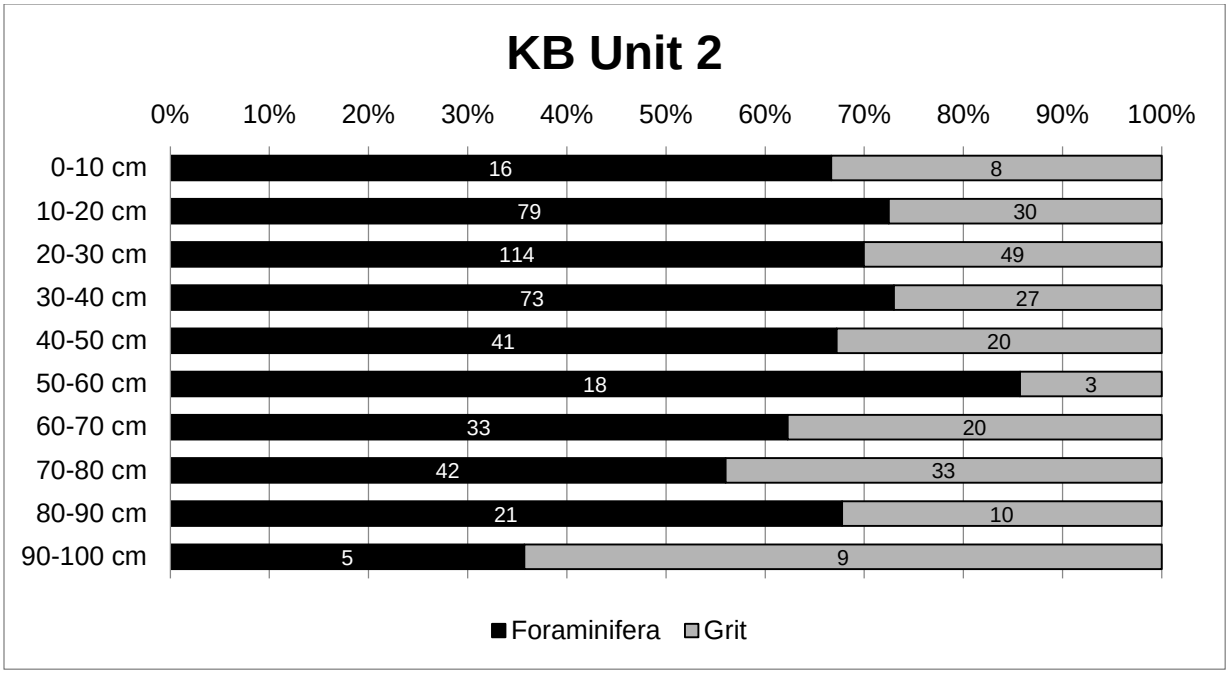


Figure 5.17 Komber Unit 2 temper distribution.

than shell as is seen at Ordatang. The existence of more shell tempered sherds at Komber and Groot Waling suggest that these two sites had access to the similar kinds of goods but that Ordatang did not have access to these goods.

Site Comparisons

The three plantation sites did have different temper distributions. Ordatang had very little foraminifera temper which was unexpected for a site that did not have an identifiable pre-colonial village. Groot Waling, at least in Unit 1, 1.5 and Unit 2, showed grit temper in the lower depths being replaced by foraminifera temper in the upper levels. Komber had a mix of grit and foraminifera temper throughout, probably due to mixed deposits. The different temper distributions do suggest that the *perken* had different occupation histories. This is not addressed in historic records which tend to treat the *perken* as homogenous. The different temper distributions also suggest that the *perken* may have differential access to the regional trade routes.

Vessel Forms

The form of the pot, if it can be identified, can be used to determine the use of the pot (Rice 1987). Unlike temper, there has been some description of vessel forms in the Maluku region. Ethnographically, earthenware pots in Maluku have been used for water storage, storage of valuables, and cooking (Ellen and Glover 1974, Latinis and Stark 2003). Ellen and Glover (1974:357-361) describe ethnographic pottery forms as: 1.) vessels with restricted forms (water jars, various cooking pots, serving vessels, spouted pitcher) and 2.) vessels with unrestricted forms (e.g., bowls, plates, mortars) which “may

be used for preparing food, for eating from, but seldom for storing food or liquids, or for cooking." Latinis and Stark (2003:118-125) provide a comprehensive review of the Central Malukan earthenware ceramics archaeological studies yet available. They describe eleven forms of earthenware found in Central Malukan sites on Ambon, Seram, and Buru: 1.) globular, cylindrical, or conical jars with restricted necks, 2.) unrestricted jars and deep bowls, 3.) unrestricted bowls, shallow jars, dishes, plates, and possible lids, 4.) unrestricted bowls or jars with inverted rims, 5.) shallow bowls, dishes, or plates on ring-stands/ feet, 6.) ring-stands/ feet, 7.) molds (mainly sago molds), 8.) *anglo* or *tungku*, 9.) knobs, 10.) oil lamps, and 11.) mystery pieces. However, Latinis and Stark (2006:126) do note that "the Banda assemblages, although showing some similarities, seem different enough to merit their exclusion from the Tomu and Hatusua tradition." Due to the higher level of detail, I relied on Latinis and Stark's vessel typology, despite their note that the assemblages are not directly comparable.

Of the 3601 analyzed sherds, only 138 could be identified to form; these primarily comprise of globular jars with restricted necks (L&S #1), unrestricted bowls, shallow jars, dishes, plates, and lids (L&S #3), ring-stand/ feet (L&S #6), molds (L&S #7), and anglo/ tungko (L&S #8), discussed below. At Ordatang and Groot Waling, sherds were generally too small to determine vessel form with any confidence. The larger sherds at Komber indicated a prevalence of globular jars with restricted necks and some carinated jars. It is possible that other forms Latinis and Stark described are present but are not identifiable as such based on their fragmented condition.

L&S #1 Globular Jars

Sherds from globular jars (Figure 5.18) are the most numerous identified pieces, making up 95 (70%) of the 136 sherds that could be placed into a form category. The majority of these, 88 (92%) sherds are from Komber; of the remaining, 3 sherds were found at Ordatang and 4 sherds at Groot Waling (Table 5.4). The three sherds from Ordatang were grit-tempered as was one sherd from Groot Waling. The larger size of the sherds found at Komber made the identification of globular jars easier, whereas the smaller sizes of sherds at the other *perken* sites made identification of form rather difficult. Many of the sherds at Komber refit, also allowing for identification (Figure 5.18). No macroscopic residue, like charring, could be seen on the globular jar sherds suggesting that they were not used for cooking starchy foods that may leave a residue. These jars may have been used for water storage as the restricted neck would inhibit evaporation (Rice 1987:237-240).

L&S #3 Unrestricted vessels

Latinis and Stark (2003) describe unrestricted vessels as unrestricted bowls, shallow jars, dishes, plates, and possible lids. Of these forms, 24 bowl sherds were identified, in addition to three lid fragments, and two plate fragments (Figure 5.19). Similar to the globular jar, most of the bowl fragments (20 sherds) were identified at Komber **(**Table 5.5). The remaining 4 bowl sherds were found at Ordatang.

Table 5.4 Globular Jar sherds.

Site	Unit	Level (cm)	Number	Temper
OR	1	60-70	31	grit
OR	1	60-70	67	grit
OR	1	90-100	45	grit
GW	2	10-20	1	shell
GW	2	10-20	2	shell
GW	2	20-30	1	shell
GW	2	70-80	1	grit
GW	3	20-30	26	shell
GW	4	40-50	1	shell
KB	1	60-70	3	shell
KB	1	60-70	4	shell
KB	2	10-20	2	shell
KB	2	10-20	3	shell
KB	2	20-30	6	shell
KB	2	20-30	9	shell
KB	2	20-30	10	shell
KB	2	30-40	3	shell
KB	2	30-40	4	shell
KB	2	30-40	5	shell
KB	2	30-40	6	shell
KB	2	30-40	7	shell
KB	2	30-40	8	shell
KB	2	30-40	12	shell
KB	2	30-40	14	shell
KB	2	30-40	19	shell
KB	2	30-40	20	shell
KB	2	30-40	21	shell
KB	2	30-40	22	shell
KB	2	30-40	23	shell
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KB	2	30-40	33	shell
KB	2	30-40	34	shell
KB	2	30-40	35	shell
KB	2	30-40	37	shell
KB	2	30-40	38	shell
KB	2	40-50	1	shell
KB	2	40-50	2	shell
KB	2	40-50	3	shell
KB	2	40-50	4	shell
KB	2	60-70	1	shell
KB	2	60-70	2	shell
KB	2	60-70	3	shell
KB	2	60-70	4	shell
KB	2	60-70	5	shell
KB	2	60-70	6	shell
KB	2	60-70	7	shell
KB	2	60-70	8	shell
KB	2	60-70	9	shell
KB	2	60-70	10	shell
KB	2	60-70	11	shell
KB	2	60-70	12	shell
KB	2	60-70	14	shell
KB	2	60-70	15	shell
KB	2	60-70	17	shell
KB	2	60-70	18	shell
KB	2	60-70	21	shell
KB	2	60-70	31	shell
KB	2	60-70	32	shell
KB	2	70-80	1	shell
KB	2	70-80	2	shell

Site	Unit	Level (cm)	Number	Temper
KB	2	70-80	3	shell
KB	2	70-80	4	shell
KB	2	70-80	5	shell
KB	2	70-80	6	shell
KB	2	70-80	7	shell
KB	2	70-80	8	shell
KB	2	70-80	9	shell
KB	2	70-80	10	shell
KB	2	70-80	11	shell
KB	2	70-80	12	shell
KB	2	70-80	13	shell
KB	2	70-80	14	shell
KB	2	70-80	15	shell
KB	2	70-80	16	shell
KB	2	70-80	17	shell
KB	2	70-80	40	shell
KB	2	70-80	41	shell
KB	2	70-80	42	shell
KB	2	70-80	43	shell
KB	2	70-80	44	shell
KB	2	70-80	45	shell
KB	2	80-90	2	shell
KB	2	80-90	3	shell
KB	2	80-90	4	shell
KB	2	80-90	5	shell
KB	2	80-90	6	shell
KB	2	80-90	7	shell
KB	2	80-90	8	shell
KB	2	80-90	10	shell



Figure 5.18 Globular jars

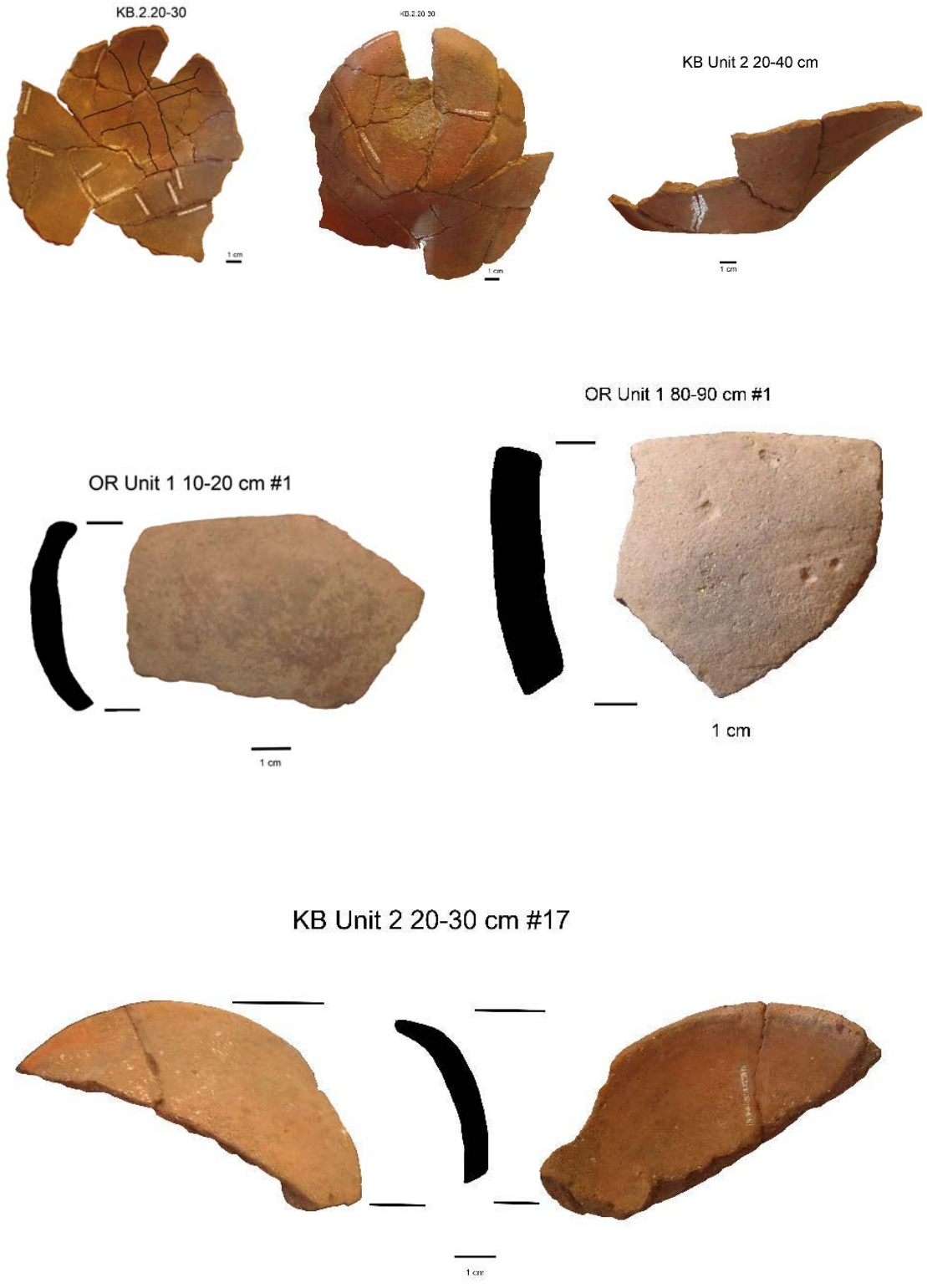


Figure 5.19 Unrestricted vessel: Top- wok-like vessel, Middle- bowl fragments, Bottom- lid fragment.

Table 5.5 Unrestricted vessel sherds.

Site	Unit	Level (cm)	Number	Temper
OR	1	10-20	1	Grit
OR	1	70-80	1	Grit
OR	1	80-90	1	Grit
OR	2	40-50	21	Grit
KB	2	20-30	16	Shell
KB	2	20-30	19	Shell
KB	2	20-30	24	Shell
KB	2	20-30	33	Shell
KB	2	20-30	34	Shell
KB	2	20-30	35	Shell
KB	2	20-30	36	Shell
KB	2	20-30	37	Shell
KB	2	20-30	38	Shell
KB	2	20-30	39	Shell
KB	2	20-30	40	Shell
KB	2	20-30	41	Shell
KB	2	20-30	42	Shell
KB	2	20-30	43	Shell
KB	2	20-30	44	Shell
KB	2	20-30	45	Shell
KB	2	20-30	46	Shell
KB	2	20-30	47	Shell
KB	2	20-30	83	Shell
KB	2	20-30	137	Shell

The 20 sherds at Komber mostly refit with each other, forming the remains of a single wok-like vessel. This vessel had a red cruciform symbol painted on the bottom of the dish. No macroscopic evidence existed to suggest it had been used as a cooking vessel, but it is not impossible. The bottom of the vessel also had a circular area of wear at bottom, suggesting this vessel was regularly placed on or used on a circular object. The amount of sherds recovered from this vessel that refit suggest that it was either deposited as a complete vessel or that the complete vessel was broken shortly before deposition and the remains were deposited together. Many of the sherds in Komber Unit 2 refit, so this is not unusual for this unit. The cruciform design at the bottom of the vessel's interior also suggests that it wasn't used for cooking. It is tempting to assign the cross-nature of the design to a Christian belief system, however a

quadpartite cross is also commonly used in non-Christian populations in cosmological designs (e.g., Schele et al. 1986). Shiung (2012:371) shows the base of a possible *forna* with a quadritpartite design from BN 4 (BN 4 Unit 2 130-140 cm #8). Bellwood (1979) shows quadripartite designs on Neolithic and Metal Age ceramics from Island Southeast Asia and Latinis and Stark (2003) show quadpartite designs incised onto the bottom of vessels, so this symbol may have an antiquity in the region that is not associated with Christianity.

Three lid fragments were identified, one at Groot Waling (Unit 1 30-40 cm #2), two at Komber (Unit 2 20-30 cm #17, 30-40 cm #72). Short of suggesting the presence of lidded vessels, little else can be said about this form.

Two plate fragments were found at Ordatang (Unit 1, 40-50 cm #98 and 60-70 cm #86). Again, the small sample size precludes any interpretation other than the existence of plates as an earthenware form. The presence of plates at Ordatang in the deeper, probably pre-colonial deposits suggests that earthenware plates may be an older form that could have been replaced by tradeware plates or organic serving vessels like banana or palm leaves.

L&S #6 Ring-feet/ bases

Two bases with ring feet were identified (KB.2.70-80.69, GW.2.90-100.1) (Figure 5.20). The base from Groot Waling was water-worn but relatively large. The sherd from Komber had red paint that was wearing off. Both sherds had applique rings and were shell tempered.



Figure 5.20 Ring feet bases.

L&S #7 Molds

Forna (sago molds) are described as

> molds used for cooking the hard, biscuit-like *sagu lempeng*…Most examples appear to have been rather informally crafted by a hand/ slab-building technique. Rectangular slot walls were apparently either applied to slabs, or slots were cut from a clay block…Almost

> all examples were smoothed but not slipped, painted or decorated. [Latinis and Stark 2003:121]

Forna are described in Latinis and Stark's (2003) assemblages, but are not common. *Forna* are similarly rare in the Banda assemblages. Lape (2000b) excavated one *forna* at BN2 (Harmonie Club) and 6 *forna* fragments from BN 4 (Governor's compound); 8 *forna* fragments were identified in this project. Three were found at Groot Waling and 5 at Komber (Table 5.6, Figure 5.21). The number of forna at the sites in Banda Neira and at the two coastal *perken* sites may be a result of the governor or other VOC administrators being in charge of doling out rations to the different *perken*; that is the molds were used to create the biscuits and the biscuits were provided to the workers. Today, in Banda Neira, the biscuits are not sold in the mold in the market, but individual biscuits are bundled together outside any ceramic form (Figure 5.22), so it is unlikely that the molds would have been given to the workers with the biscuits. If the molds are only needed to form, and not ship, the biscuits and sago is not processed in the Banda Islands, it is rather unexpected to find *forna* at all. This could suggest some sort of sago processing in the Banda Islands, which is unexpected. If the *sagu lempeng* biscuits were shipped in molds, however, their presence could be a sign of the VOC administrators skimming off the top of the workers' rations as they were only found at the sites associated with the colonial elite. The lack of *forna* at Ordatang may be due to two factors: 1) distance, that is the site was too far from the market or VOC headquarters and the molds just never made it past the coastal sites and up the hill to Ordatang or 2) time depth, that is, the use of *forna* for sago may have occurred after the dating of the fill deposit that was used for leveling out the site. Some authors (e.g., Latinis and Stark 2003:122, Spriggs and Miller 1979:31) suggest that *forna* are a relatively recent development associated with European colonialism and the spice trade. Since few of the colonial-era foraminifera-tempered sherds are found at Ordatang, perhaps *forna* were just not a part of the original assemblage used for fill. Regardless, the low number of *forna* in the all of the Banda assemblages does suggest that sago molds were not useful material culture in the Banda Islands.

Table 5.6 Forna/ sago mold fragments.

Site	Unit	Level (cm)	Number	Temper
GW	1.5	30-40	1	Grit
GW	1.5	60-70	9	Grit
GW	2	90-100	47	Grit
KB	2	20-30	14	Grit
KB	2	20-30	15	Grit
KB	2	20-30	124	Grit
KB	2	40-50	16	Grit
KB	2	40-50	17	Grit



Figure 5.21. Forna/ sago mold fragments.


Figure 5.22 *Sagu lempeng* for sale in Banda Neira market.

L&S #8 Anglo/ Tungku

Anglo or *tunku* are cylindrical or shallow, anvil-shaped charcoal oven vessels with three knobs for resting another vessel atop the charcoal fire; these knobs are often called “pig’s tongue” due to similarity in form (Latinis and Stark 2003:122). Latinis and Stark (2003:122) speculate that these vessels would have been useful for cooking on wooden boats to contain the coals, to reduce wind, concentrate heat, or to rest other vessels for cooking.

Two likely pig tongue style fragments and a possible *anglo* rim sherd were excavated at Ordatang, but are not found at the other two plantation sites (Figure 5.23). Both “pig’s tongue” knobs had punctate decoration. Similar to the above forms, the low number of *anglo* at the plantation sites suggest that this form of material culture was not necessary or valuable at the sites.

Other Forms

“Other forms” identified at the plantation sites include roofing tile fragments, a spout, a foot, a knob, a handle and two sherds with the remains of a drilled hole. The majority of the “other” forms are roofing tiles (Table 5.7). I identified 18 roofing tiles fragments, three at Ordatang, 11 at Groot Waling and 4 at Komber. If I identified roofing tiles in the field, I did not collect them as they were unlikely to provide much information beyond the existence of tile roofs, which were historically known. But there was not a lot of roofing tile remains, generally speaking, considering multiple episodes of destruction are



Figure 5.23 Anglo fragments.

Table 5.7 Roofing tiles.

Site	Unit	Level (cm)	Number	Temper
OR	1	60-70	17	Grit
OR	1	60-70	19	Grit
OR	1	80-90	74	Grit
GW	1	30-40	1	Grit
GW	1	40-50	1	Grit
GW	1.5	70-80	1	Grit
GW	3	10-20	13	Grit
GW	4	0-10	2	Grit
GW	4	10-20	1	Grit
GW	4	10-20	9	Grit
GW	4	20-30	7	Grit
GW	4	30-40	1	Grit
GW	4	30-40	5	Grit
GW	4	60-70	12	Grit
KB	2	0-10	7	Grit
KB	2	0-10	8	Grit
KB	2	50-60	2	Grit
KB	2	50-60	4	Grit

recorded for the *perken*. Some houses in Banda Neira still have the clay roofing tiles, so it is possible that any remaining useful tiles after *perk* abandonment were reused. Lack of obvious destruction layers at the *perken* from earthquakes, etc. could just be a result of cleaning up the site afterward and removing the rubble to out of the way places.

Other forms include a possible spout, a foot, a knob, two sherds with a drilled hole all found at Ordatang and a handle found at Groot Waling (Figure 5.24). The multiple unique forms found at Ordatang suggest that the pre-colonial or pre-spice trade era may have had more uses for earthenware that the later period. Rice (1987:237) does note that earthenware is often used in display contexts for public ceremonies. Certainly, the highly decorated Lapita pottery found in the Oceania region is assumed to have played a public, ritualized function in society (Bellwood 1997). The older Neolithic dates of the Ordatang assemblage does suggest that Neolithic earthenware may have served a different function in the Banda Islands than the later forms seen in the period of reliance on the Spice Trade. Historic and ethnographic data suggest cloth, feathers, metals and other items unlikely to leave traces in the archaeological record (Spyer 2000) were the prestige items that were traded, possibly replacing earthenware.

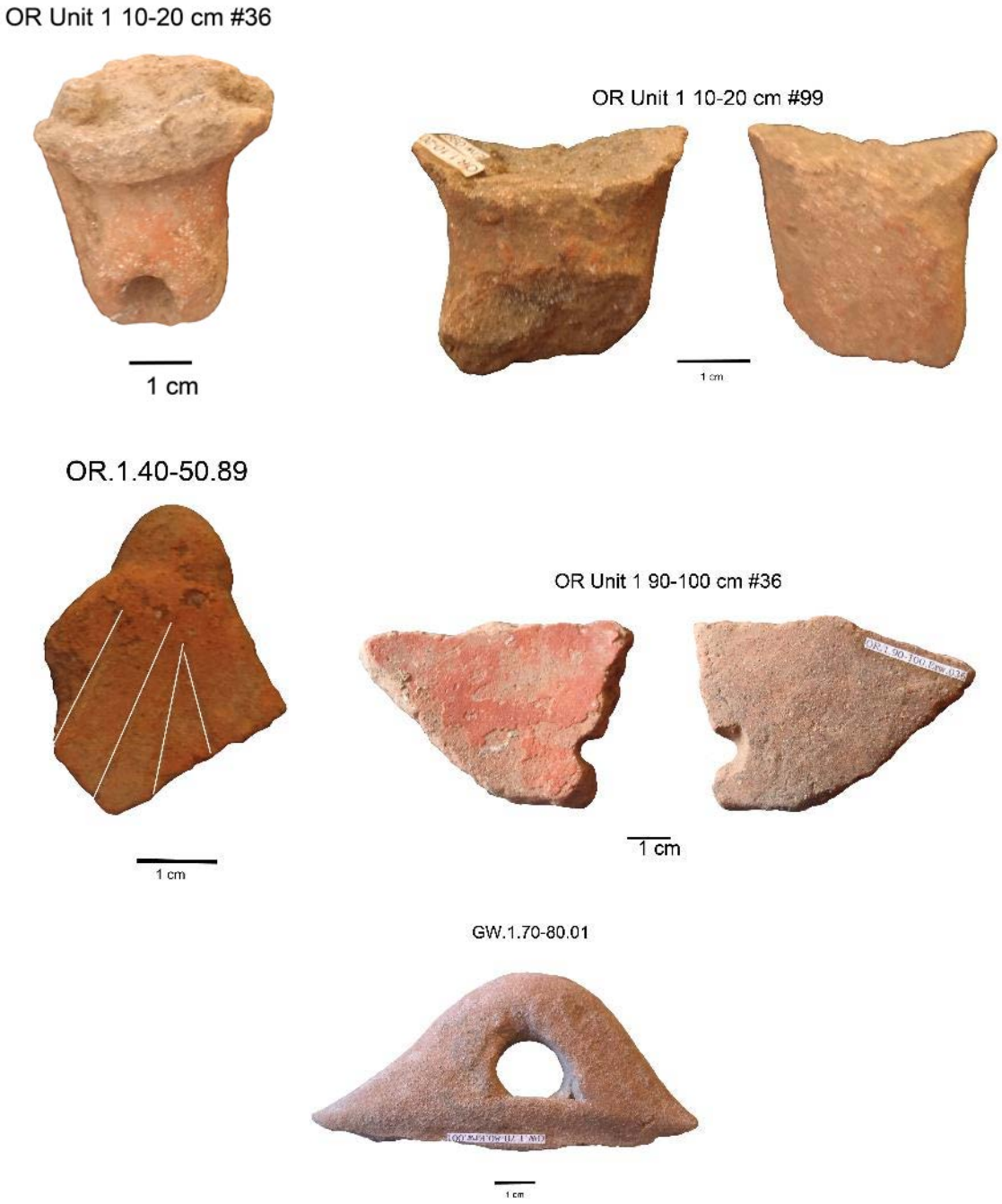


Figure 5.24 Other forms.

Table 5.8 Other forms.

Site	Unit	Level (cm)	Num-ber	Tem-per	Form
OR	1	10-20	36	Shell	spout
OR	1	10-20	99	Shell	foot
OR	1	40-50	89	Grit	Other, knob
OR	1	80-90	56	Grit	Other, drilled hole
OR	1	90-100	36	Grit	Other, drilled hole
GW	1	70-80	1	Grit	handle

Absence of forms

The lack of general forms like the unrestricted deep bowls is likely a product of analyzer error or inexperience. The small size of the majority of sherds did not make for easy identification and without access to other collections for comparison, I tended to lean toward "unidentifiable" for all but the most obvious of sherds. However, the absence of some forms are noteworthy. Bowls with ring feet and the ring feet themselves are present in the Latinis and Stark collections, but not only two were identified in Banda *perken* collections. Latinis and Stark illustrate many examples of impressed designs on bases and lids, but these impressed bases were not identified in the Banda *perken* assemblages. Oil lamps were also not identified in the Banda *perken* assemblages. Latinis and Stark (2006) do note that the Banda assemblages from Lape's (2000) excavations should not be included as part of the same pottery tradition that they identified in the Ambon-Lease region. Considering trade existed between the Ambon-Lease islands as evidenced by the foraminifera-tempered sherds and historical description, it is interesting that the forms are not more similar. However, the *perken* were somewhat specialized locations that probably did not represent the entire gamut of available material culture of the islands. More excavations of other locations and a more detailed ceramic analysis of Lape's (2000b) and later collections may yield more information on form and function of earthenware throughout the occupational history of the Banda Islands.

Site Comparison

Of the identifiable forms, Ordatang has higher variability in forms and Komber has the highest number of identified sherds, but the identifiable forms at Komber are almost all globular jars. The higher variability in forms may be due to the older date of Ordatang's assemblage (according to the luminescence dates) and possibly different social uses of earthenware pottery in the Neolithic compared to the later Metal Age. Based on the tradeware (discussed in Chapter 6) found with the earthenware at Komber, the Komber earthenware is likely more recent (late 19th/ early 20th century) than that at Ordatang and Groot Waling. It is possible, then that the high number of globular jars may represent a change in

consumption patterns in the late 19th/ early 20th century but it may also merely be that the result of the larger size of the sherds is affecting identification.

In comparison to Latinis and Stark (2006), many of the basic categories of sherds are similar between the Ambon and Banda sites. That is, the majority of both collections are body sherds. Latinis and Stark (2006:127) note only two oil lamp sherds and two sago mold sherds at Hatusua and none at Tomu. Globular jars are common, but bowl sherds are more common at Hatusua than the Banda assemblages. *Anglo* existed in low numbers at both Hatusua and Tomu, similar to Ordatang; that is, *anglo* are present but uncommon. Again, little can be said without additional information on ceramic sourcing in Island Southeast Asia earthenware collections, tighter chronological control, and useful decorative typologies. However, the forms of the vessels in the Banda *perken* earthenware collections do not appear to be radically different in comparison to other Malukan earthenware assemblages, but the Banda *perken* sites are missing many forms that Latinis and Stark (2003) and Ellen and Glover (1974) did identify.

Rim Forms

Rim forms are often used to classify ceramics as they have more useful identifying characteristics than body sherds (Rice 1987). Some authors (e.g., Latinis and Stark 2003) have presented some basic descriptions on Malukan earthenware rim forms. Ridge rim forms are mentioned as common in Malukan sites (Latinis and Stark 2003), however, these were not identified in the Banda assemblages. Shiung (2012) identified rim types from Lape's (2000) excavations as inverted-everted-straight and lips as rounded-flat-pointed (Figure 5.25, Figure 5.26). I followed Shiung's (2012) methodology to maintain consistency with both Banda assemblages and because no other typology that matched the Banda assemblage was available. Rims from all sites were grouped into single assemblages largely because of the mixed deposits coupled with the low number of rim sherds (N=386, 10% of the assemblage). Everted rounded rims are the most common rim in the entire assemblage (Figure 5.27), but the higher number of sherds at Ordatang skews the data toward that site (Figure 5.28). Groot Waling (Figure 5.29) also has the highest number of everted rounded rims followed by straight rounded rims. Komber has a higher number of everted pointed rims than the other two sites (Figure 5.30). Everted rims are most common at all the sites, but Komber has a higher number of inverted rims compared to the other two sites. When rims are separated by temper, there is a noticeably different distribution (Figure 5.31, Figure 5.32). The distribution of rim types for the grit and foraminifera temper are different at each site. Groot Waling does have a high variety of rim types for both grit and foraminifera. The low variation in rim types at Komber and in foraminifera rims at Ordatang are probably the result of low numbers of rims in general.

Everted rims are often associated with cooking vessels (Rice 1987:239-240) and the high number of everted rims could be interpreted as a large number of cooking vessels. However, only 70 (1.9%) of the sherds in the entire assemblage had evidence of charring. If the vessels were used for cooking, they weren't used in a manner that left charred residues. Galvão (Jacobs 1970:141) does note that Malukans did not often use pots for cooking, but preferred to use natural containers, like bamboo or leaves for

cooking. The everted rims could also be useful for water storage vessels as the constricted opening would limit evaporation (Rice 1987:241). Storage of foodstuffs or other items could also be another use of earthenware in the Banda Islands.

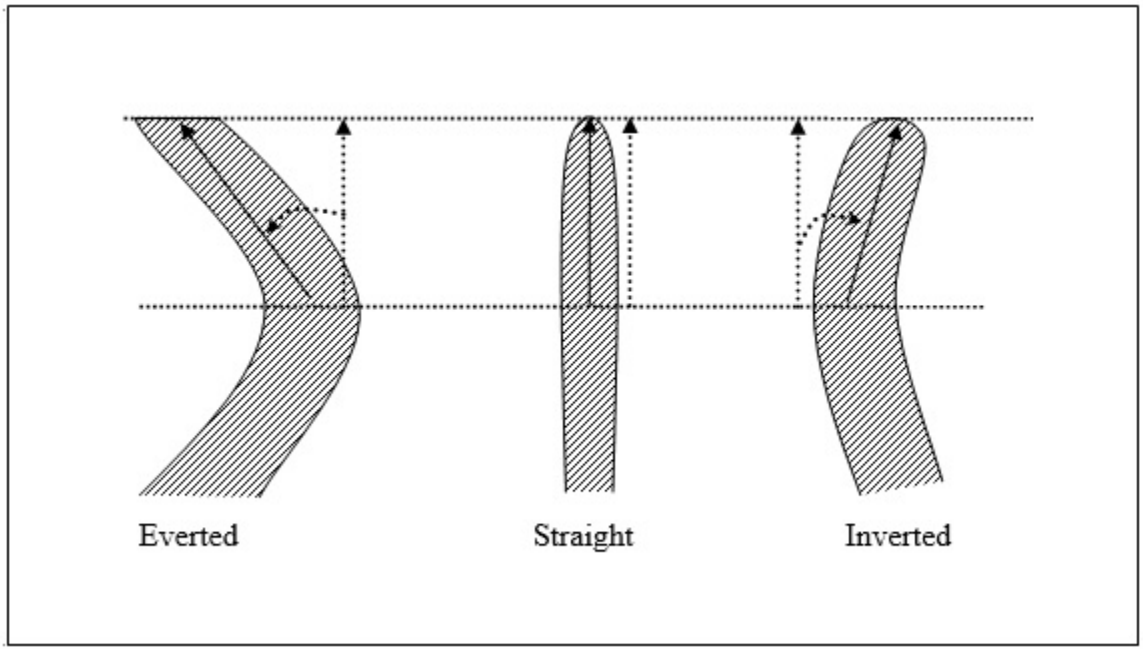


Figure 5.25 Rim forms, after Shiung (2012:211).

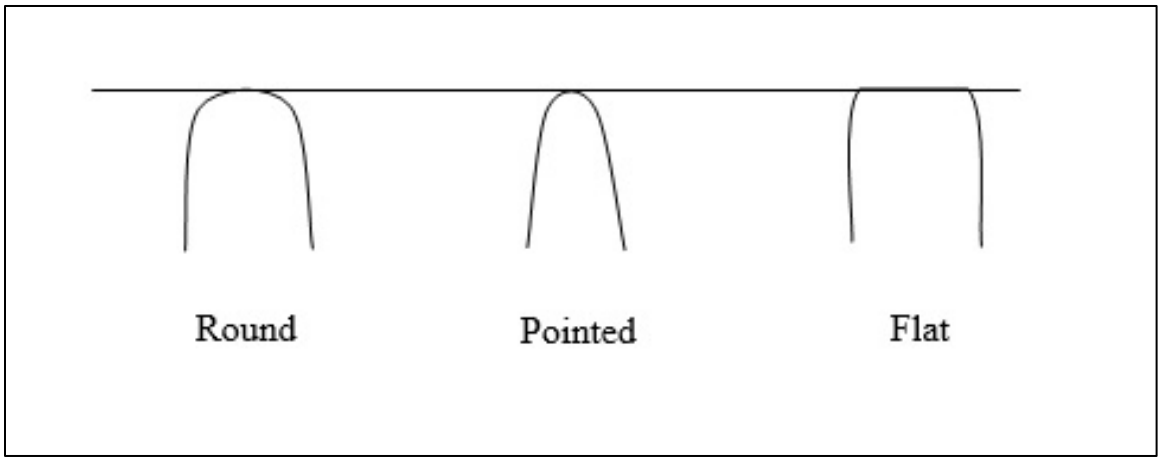


Figure 5.26 Lip forms, after Shiung (2012:215).

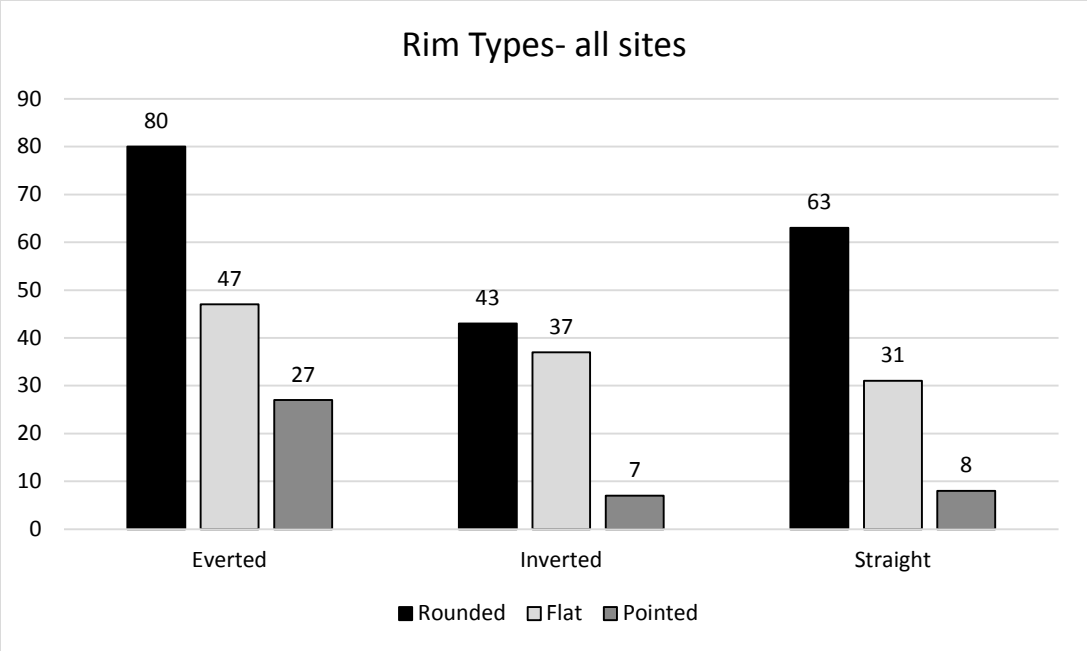


Figure 5.27. Rim types, all sites.

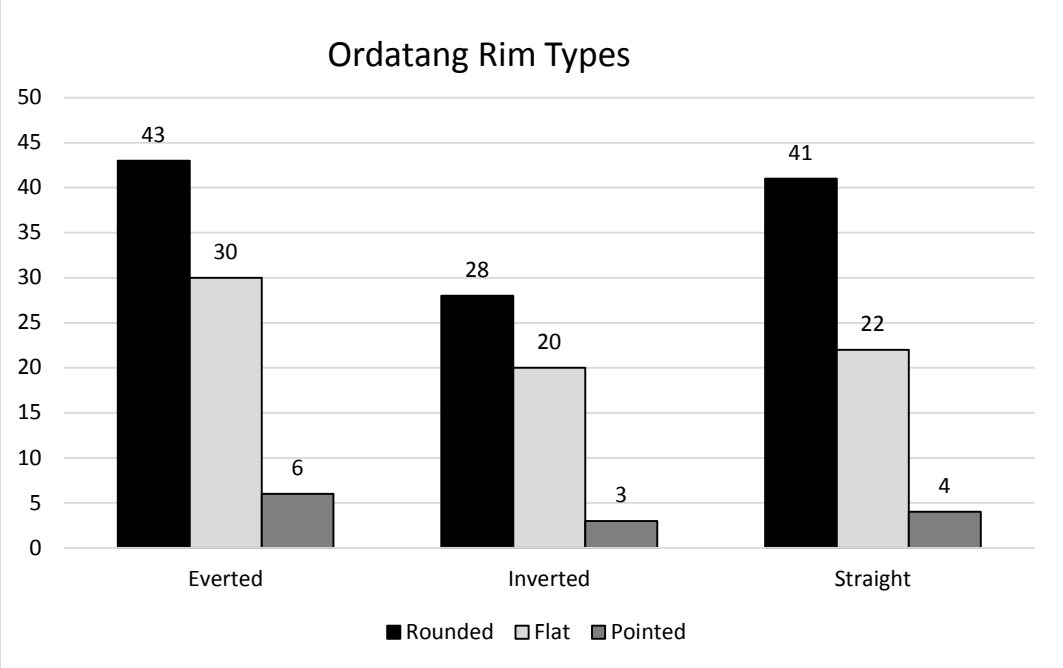


Figure 5.28 Ordatang rim types.

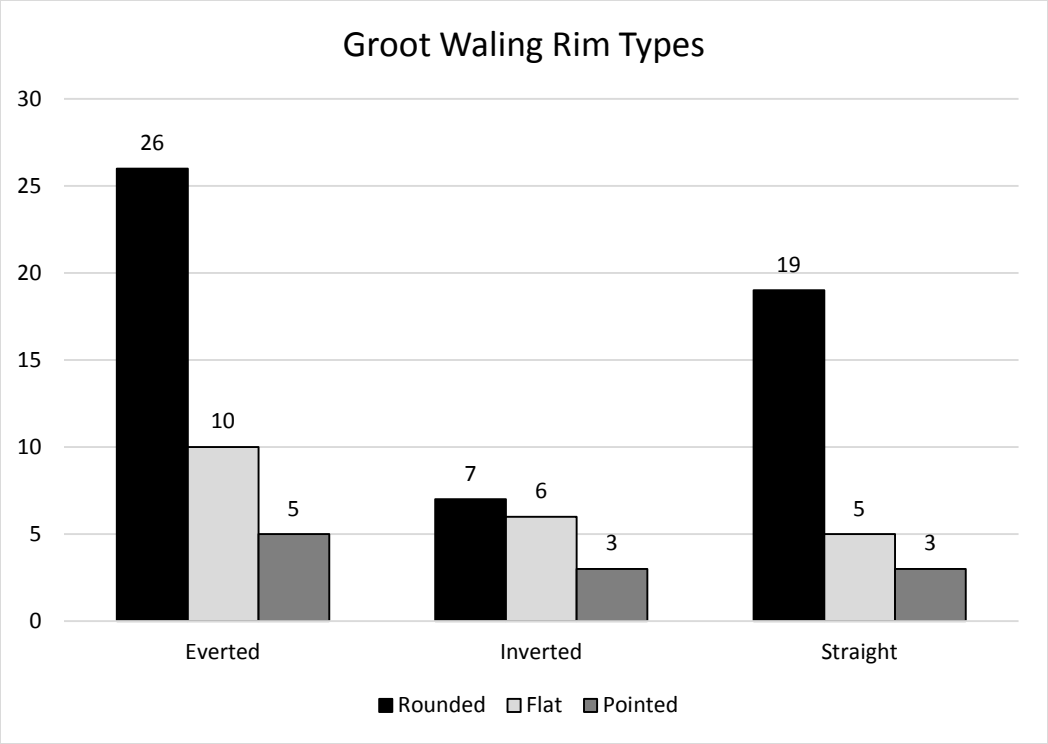


Figure 5.29 Groot Waling rim types.

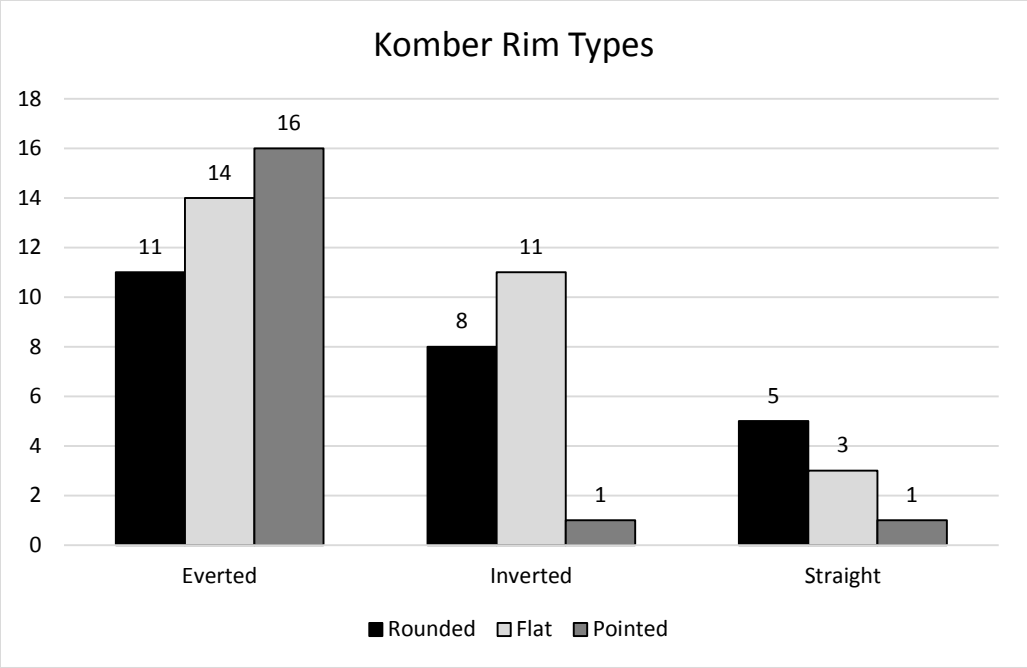


Figure 5.30 Komber rim types.

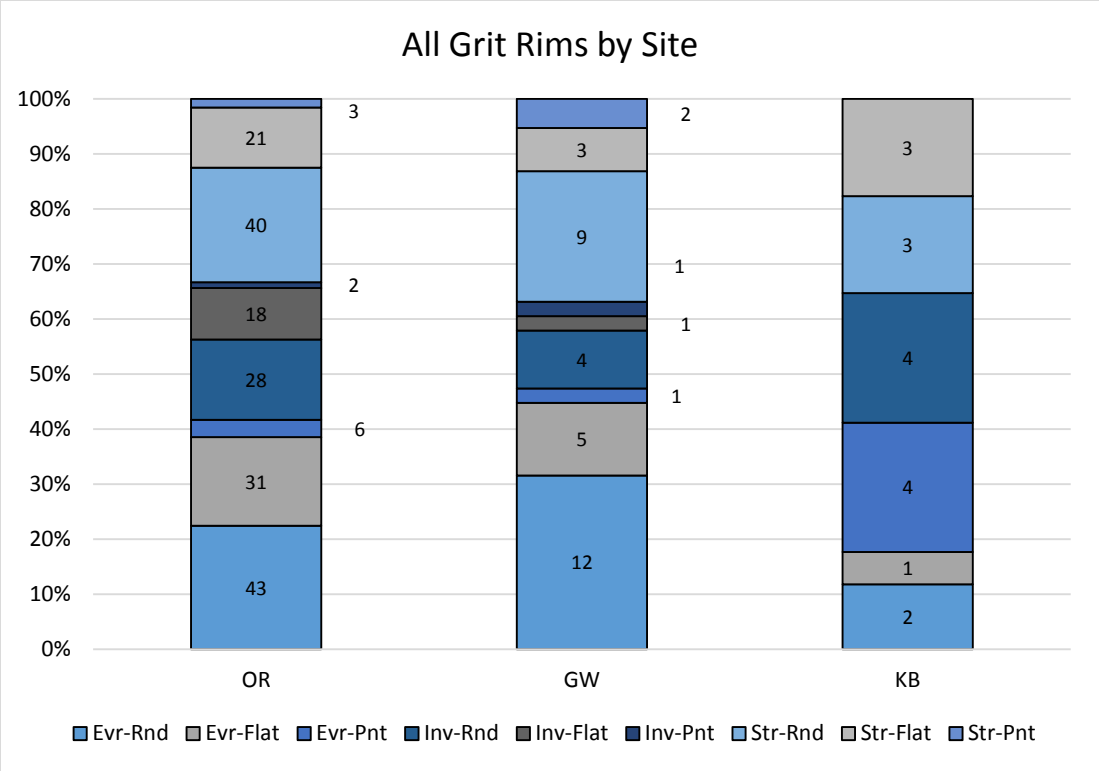


Figure 5.31 Rim types, all grit-tempered by site.

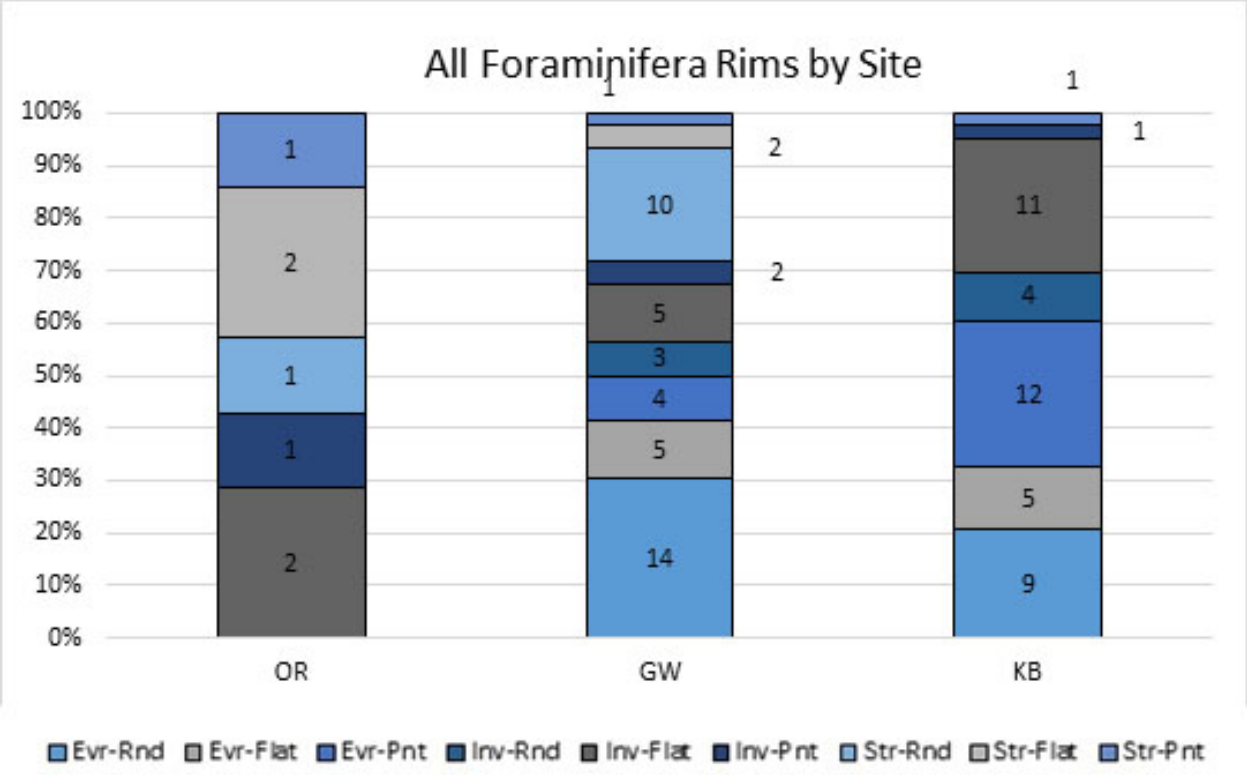


Figure 5.32 Rim types, all foraminifera temper by site.

Table 5.9 Rim types by Site. (Evr= Everted, Inv-Inverted, Str= Straight, Rnd= Rounded, Pnt= Pointed)

	Evr-Rnd, n=80		Evr-Flat, N=47		Evr-Pnt, N=27	
Site	Shell	Grit	Shell	Grit	Shell	Grit
OR	0	43	0	31	0	6
GW	14	12	5	5	4	1
KB	9	2	5	1	12	4
Sum	23	57	10	37	16	11

	Inv-Rnd, N=43		Inv-Flat, N=37		Inv-Pnt, N=7	
Site	Shell	Grit	Shell	Grit	Shell	Grit
OR	0	28	2	18	1	2
GW	3	4	5	1	2	1
KB	4	4	11	0	1	0
Sum	7	36	18	19	4	3

	Str-Rnd, N=63		Str-Flat, N=31		Str-Pnt, N=8	
Site	Shell	Grit	Shell	Grit	Shell	Grit
OR	1	40	2	21	1	3
GW	10	9	2	3	1	2
KB	0	3	0	3	1	0
Sum	11	52	4	27	3	5

Analysis of Ceramic Decoration

Rice (1987:144) defines decoration as “embellishment of a vessel beyond the procedures used in forming the clay mass into the final vessel shape and finishing its overall surface.” Decoration can have both utilitarian and symbolic functions. For example, corrugation in Southwestern US pots is both decorative in that is modifies the original forming coils but it is also functional in that it makes the pot easier to grasp and evens out heat transfer (Pierce 2005). Other decoration, such as incising patterns onto the pottery, could help identify the owner/ creator of the vessel while also being symbolic (Rice 1987). Decoration tends to be either additive or subtractive; that is, clay is removed from the vessel, as is the case with incising, or clay or other material is added, as is the case with slip or applique (Rice 1987:144-152).

As noted above, incising and red slip are the most common forms of earthenware decoration in the Maluku region (e.g., Ellen and Glover 1974, Latinis and Stark 2003). Dentate stamping is associated with Lapita pottery, but no dentate stamped pottery was found in the Banda *perken* assemblages. Lape

(2000:226) did recover a sherd that was described as “Lapita-like” (Reepmeyer et al. 2011, Spriggs 2011) (Figure 5.33) but similar sherds were not identified in the *perken* assemblages. The circular stamp motif



Figure 5.33 "Lapita-like" (Spriggs 2011) sherd from Pulau Ay, after Lape 2000b.

that Bellwood (2004:33) references as Lapita-like is found in the Banda *perken* assemblages, however, and is discussed below.

Of the 3601 analyzed sherds, 601 (16.7%) had red slip, 461 (12.8%) had some form of decoration, and 95 (2.6%) had red slip and some form of decoration. Of the 601 red-slipped sherds, 199 (33.1%) are shell tempered and 402 (66.9%) are grit tempered. Of the 461 decorated sherds, 144 (31.2%) of the decorated sherds are shell tempered and 317 (68.8%) are grit tempered. Of the 3601 analyzed sherds, 1141 (31.6%) are shell tempered so the distribution of decorated sherds and red-slipped sherds across temper types approximates the general distribution of temper.

Below I discuss the general categories of decoration that I identified at the *perken* sites.

Methodology

The creation of a decorative typology for ceramics is fraught with interpretive land mines. The assignation of design elements to one category to another is generally intuitive, especially when dealing with numerically small assemblages. The assignations may vary from researcher to researcher andthe categories developed by the modern researcher may not have any meaning to the people that originally created the vessel. That is, they reflect etic categories that are useful to the researcher, not emic categories that would reflect the values of the society that created the pot. Despite these problems, decorative typologies have proven very useful to archaeologists over the years, starting with Flinders Petrie in the late 19th century (Renfrew and Bahn 2012:125). Decorative typologies work best when there is good stratigraphic control in the excavations. Unfortunately, stratigraphic control is lacking in this project. However, stratigraphic control is also lacking in other Malukan excavations and surface collections of earthenware. There is a paucity of information regarding Malukan earthenware so I felt that

any discussion of decoration would be beneficial to future scholars. I was also hoping to determine if there were any decorative patterns that could be used to identify differences between the sites in terms of chronology or trade.

To create the typology, I recorded if the sherd had any decoration (e.g., incising, paint, impress, etc.) during the initial ceramic analysis. I separated the sherds that had decoration into the different techniques used for decoration. I tried to identify any similar patterns in the incised designs, the impressed designs, etc. I created categories based on the similarities I saw in the designs. Due to the small size of most of the sherds, larger patterns where the design could be identified were rare. The majority of the sherds fell into heterogeneous design groups. Komber had larger sherds in general and therefore had a larger number of sherds that could be placed into categories with identifiable patterns. The smaller sized sherds from Ordatang and Groot Waling tended to fall into simple design categories (e.g., "Single Incise"). It appears, then, that Groot Waling and Ordatang have a more similar decorations to each other compared to Komber, but this very well may be an artifact of analysis. Despite my inability to create a necessarily meaningful typology, I feel that the descriptions and depictions of the decoration may be useful for future researcher.

Red slip

Slip is defined as "a fluid suspension of clay (and/ or other materials) in water that is applied before firing to form a thin coating" (Rice 1987:149). A slip is useful on vessels that store liquids as it reduces permeability (Rice 1987:231). Red slip is common throughout Island Southeast Asia, from the Neolithic to the ethnographic period.

Of the three sites, Komber has a higher percentage of red slip than the other sites (Table 5.10**)** and compared to the assemblage as a whole (16.7%). Komber also had larger sherds and a potentially more recent deposit. It is possible that the higher percentage of slipped sherds at Komber is a result of taphonomic processes. Certainly, the higher number of water-worn sherds at Groot Waling would reduce the overall percentage of red slip still extant. Ordatang has the lowest percent of red-slipped sherds of the three sites. It is possible that the acidic tropical forest soil at Ordatang may have differentially affected the preservation of slip, but it is just as likely that the low percentage of red-slipped sherds can be attributed to cultural forces. For whatever reasons, red slip may not have been as desired in the older assemblage at Ordatang.

The ubiquitous nature of red slip in Island Southeast Asia implies that pots are fired in an oxidizing atmosphere (open firing) using iron-rich raw material. This is not unsurprising based on what is known of pyrotechnology and available resources. Until more work is done on petrography and other mineral studies, little more can be said.

Incising

Rice (1987:146) defines incising as "cutting lines into the surface of a vessel with a pointed implement." Incising is the most common decorative technique, after red slipping, in the Banda

Table 5.10 Red slipped sherds by site.

Site	N Total Site		N Red Slip		% Red Slip		% Total Red slip
	Shell	Grit	Shell	Grit	Shell	Grit	
OR	153	1533	11	221	7.2	14.4	13.7
GW	736	503	75	128	10.1	25.4	16.3
KB	533	143	113	53	21.2	37	24.5

assemblage with 235 (6.5% of the total assemblage, 50.9% of the decorated assemblage) sherds showing some form of incising. Incising is a simple technique requiring few specialized tools and can be accomplished with a fingernail or a stick. Incising, like red slip, can be found in Neolithic assemblages through modern assemblages. The act of incising itself cannot be used as a chronological marker. As mentioned above, there is no chronological typology currently available for Island Southeast Asia. I hope that the subsequent descriptions may one day alleviate the lack of typology. However, chronologically useful typologies will be hindered until more sites with reliable dating in the Maluku region are published.

Single Incise

I defined single incising as one single incised line on a sherd (Figure 5.34). Due to the small sizes of many the sherds, these incised lines could possibly be part of larger designs. Seventy-seven sherds were identified with single incise; more sherds with single incise were identified at Ordatang (Table 5.11), but this is likely due to sample size. Due to the small size of the sherds, "single incise" is an etic category, defined by the ceramic analyst, and not an emic category that has social meaning. Other than the fact that incising existed as a decorative technique throughout time and space, little else can be said.

Diagonal Hatch

I defined diagonal hatch as multiple diagonal lines on a sherd (Figure 5.35). These diagonal lines were often in the form of a chevron, but not always. Again, due to the small size of most sherds, it was difficult to determine whole patterns. Some of the larger sherds did have larger identifiable patterns. Shiung (2012:253) also notes chevron-like incising in the Banda Island collections he analyzed. Fifty-four sherds were determined to be diagonal hatch and Ordatang has the highest number of diagonal hatch sherds (Table 5.12), but this is likely due to sample size. Groot Waling and Komber also have a few diagonal hatch sherds. Following the general temper pattern at these sites, the sherds from Ordatang were grit tempered and those from Groot Waling and Komber were shell-tempered.

Parallel incise

I defined parallel incise as at least two parallel lines on a sherd (Figure 5.36). If a rim was present or could be assumed based on the shape of the sherd, these lines were also parallel to the alignment of the rim (as opposed to perpendicular). Forty-two sherds were identified as parallel incise. Following the same distribution as other decorative patterns, parallel incise is most common at Ordatang with a few

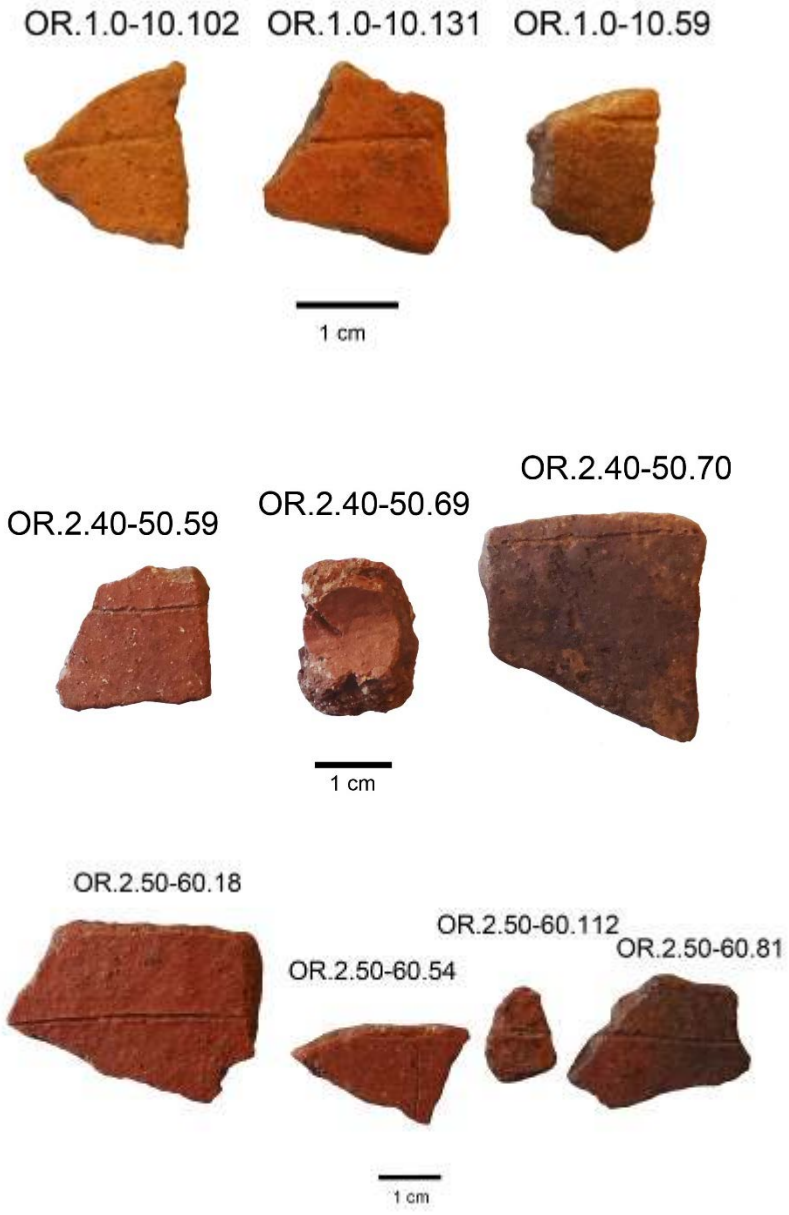


Figure 5.34 Single incise sherds.

Table 5.11 Single Incised sherds.

Site	Unit	Level (cm)	Sherd #	Vessel part	Temper Type
OR	1	0-10	59	body	Shell
OR	1	0-10	102	body	Grit
OR	1	0-10	131	body	grit
OR	1	0-10	134	body	Grit
OR	1	10-20	27	body	grit
OR	1	10-20	69	body	Grit
OR	1	10-20	71	body	Grit
OR	1	10-20	80	body	sand
OR	1	10-20	88	rim	Grit
OR	1	20-30	55	rim	sand
OR	1	20-30	73	body	Grit
OR	1	30-40	63	body	grit
OR	1	30-40	75	body	grit
OR	1	30-40	77	rim	shell
OR	1	30-40	84	body	Grit
OR	1	40-50	93	body	grit
OR	1	40-50	95	rim	grit
OR	1	50-60	59	rim	grit
OR	1	50-60	74	neck	sand
OR	1	50-60	79	rim	grit
OR	1	50-60	85	body	grit
OR	1	60-70	76	body	grit
OR	1	60-70	78	body	grit
OR	1	60-70	85	body	grit
OR	1	70-80	7	body	grit
OR	1	70-80	79	shoulder	grit
OR	1	70-80	88	neck	grit
OR	1	70-80	92	body	grit
OR	1	70-80	97	body	grit
OR	1	80-90	21	body	grit
OR	1	80-90	58	body	grit
OR	1	90-100	10	body	grit
OR	1	90-100	25	body	grit
OR	1	90-100	39	rim	grit
OR	2	10-20	59	body	grit
OR	2	20-30	8	rim	grit
OR	2	50-60	18	body	Grit
OR	2	50-60	54	body	grit
OR	1	70-80	97	body	grit
OR	1	80-90	21	body	grit
OR	1	80-90	58	body	grit
OR	1	90-100	10	body	grit
OR	1	90-100	25	body	grit
OR	1	90-100	39	rim	grit
OR	2	10-20	59	body	grit
OR	2	20-30	8	rim	grit
OR	2	20-30	9	body	shell
OR	2	20-30	69	body	grit
OR	2	30-40	15	rim	grit
OR	2	30-40	52	body	grit
OR	2	30-40	62	body	grit
OR	2	30-40	97	body	grit
OR	2	40-50	59	body	grit
OR	2	40-50	70	body	Grit
OR	2	50-60	18	body	grit
OR	2	50-60	54	body	grit
OR	2	50-60	81	body	grit
OR	2	50-60	112	body	grit
OR	2	60-70	9	shoulder	grit
GW	1	0-10	9	body	shell
GW	1	10-20	59	body	shell
GW	1	30-40	33	body	shell
GW	2	0-10	68	body	shell
GW	2	10-20	60	body	shell
GW	2	10-20	84	rim	shell
GW	3	40-50	9	body	shell
GW	3	40-50	9	body	shell
KB	2	10-20	48	body	shell
KB	2	20-30	79	body	shell
KB	2	30-40	77	body	shell
KB	2	30-40	100	body	shell

Site	Unit	Level (cm)	Sherd #	Vessel part	Temper Type
OR	2	20-30	9	body	shell
OR	2	30-40	52	body	grit
OR	2	30-40	62	body	grit
OR	2	30-40	97	body	grit
OR	2	40-50	59	body	grit
OR	2	40-50	70	body	grit

Site	Unit	Level (cm)	Sherd #	Vessel part	Temper Type

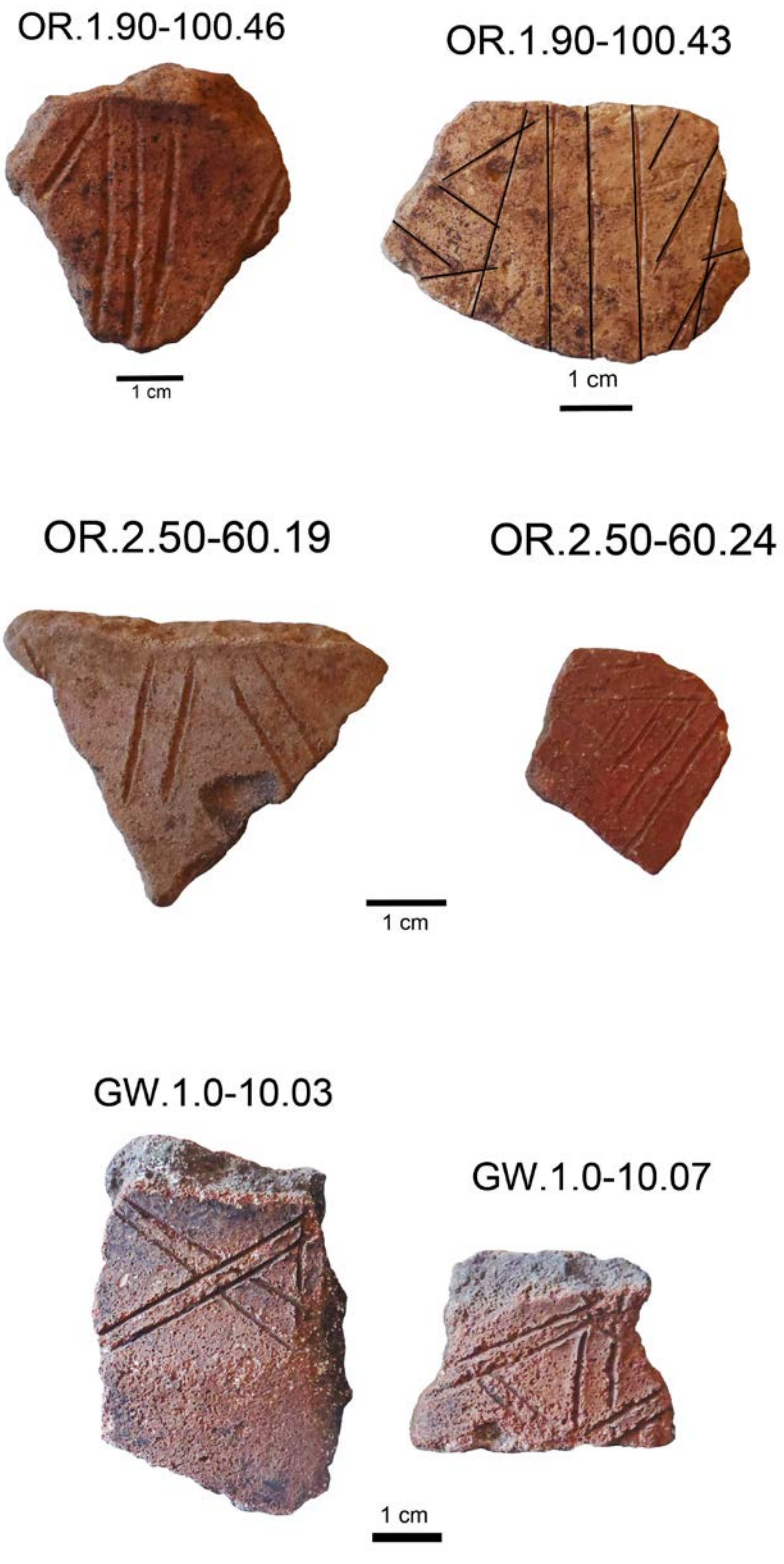


Figure 5.35 Diagonal hatch.

Table 5.12 Diagonal hatch sherds.

Site	Unit	Level (cm)	Number	Vessel Part	Temper
OR	1	10-20	11	body	Grit
OR	1	10-20	84	body	Grit
OR	1	30-40	85	body	Grit
OR	1	50-60	75	body	Grit
OR	1	60-70	87	body	Grit
OR	1	70-80	67	body	Grit
OR	1	70-80	69	body	Grit
OR	1	70-80	73	body	Grit
OR	1	70-80	93	rim	Grit
OR	1	70-80	95	body	Grit
OR	1	70-80	96	rim	Grit
OR	1	80-90	68	neck	Grit
OR	1	90-100	40	rim	Grit
OR	1	90-100	43	body	Grit
OR	1	90-100	46	rim	Grit
OR	2	0-10	34	rim	Grit
OR	2	0-10	54	rim	grit
OR	2	0-10	71	body	shell
OR	2	20-30	54	neck	Grit
OR	2	30-40	36	Rim	Grit
OR	2	30-40	93	body	Grit
OR	2	40-50	75	Rim	grit
OR	2	40-50	89	body	Grit
OR	2	40-50	90	body	Grit
OR	2	40-50	91	body	Grit
OR	2	40-50	92	body	Grit
OR	2	40-50	93	body	Grit
OR	2	50-60	11	body	Grit
OR	2	50-60	16	body	Grit
OR	2	50-60	19	body	Grit
OR	2	50-60	24	body	Grit
OR	2	50-60	91	body	Grit

Site	Unit	Level (cm)	Number	Vessel Part	Temper
OR	2	60-70	16	body	grit
OR	2	60-70	17	body	grit
OR	2	70-80	5	body	grit
OR	2	70-80	8	body	grit
GW	1	0-10	3	neck	shell
GW	1	0-10	7	neck	shell
GW	2	0-10	1	rim	shell
GW	2	0-10	6	body	shell
GW	2	0-10	13	body	shell
GW	2	10-20	2	rim	shell
GW	2	10-20	13	body	shell
GW	2	10-20	24	body	shell
GW	2	20-30	1	rim	shell
GW	2	20-30	12	body	shell
GW	3	10-20	33	rim	shell
KB	1	40-50	1	rim	shell
KB	1	50-60	1	neck	shell
KB	2	20-30	3	rim	Shell
KB	2	20-30	20	body	shell
KB	2	20-30	21	body	shell
KB	2	20-30	78	body	shell
KB	2	20-30	115	body	shell
KB	2	20-30	115	body	shell

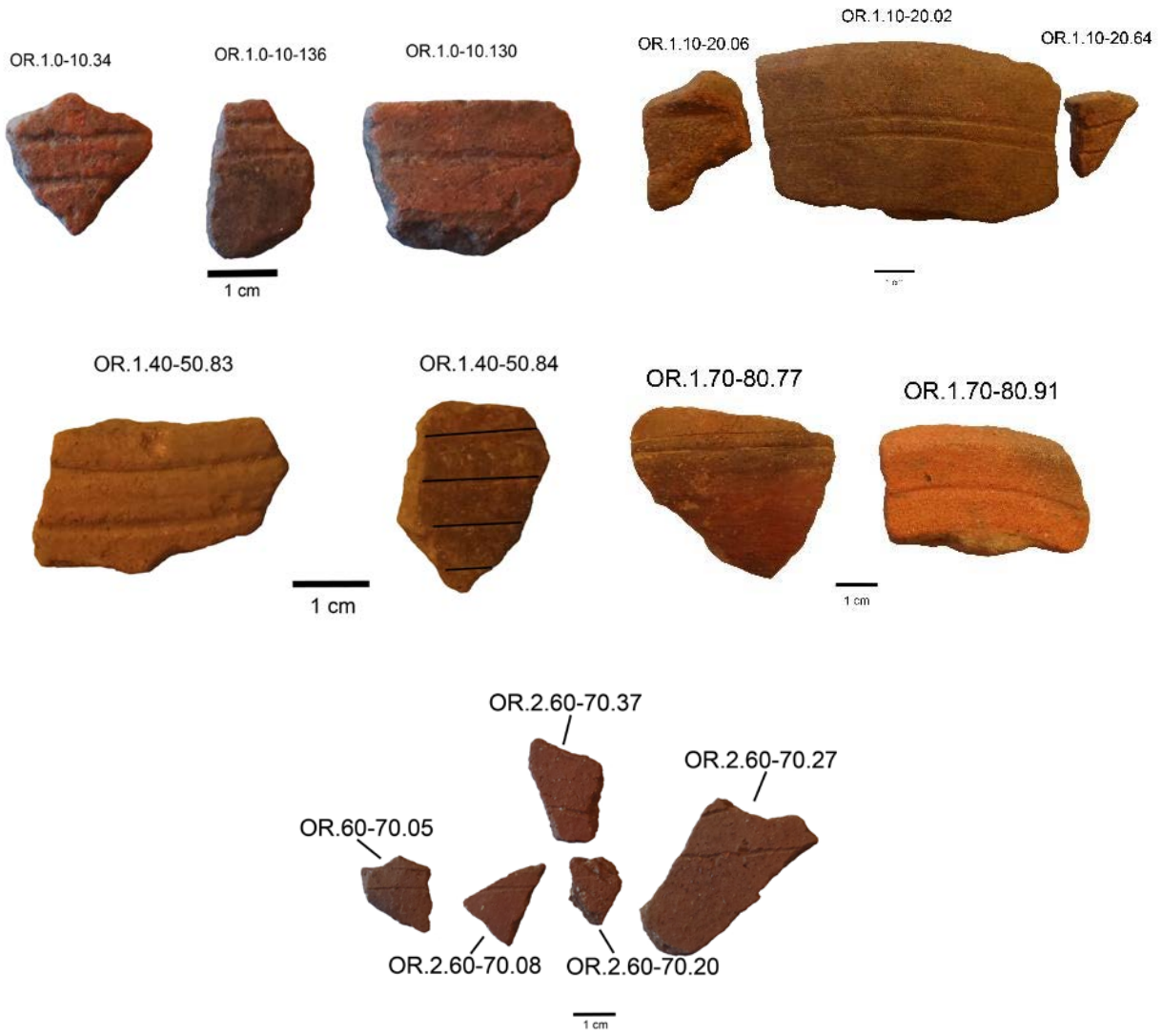


Figure 5.36 Parallel incise.

sherds also found at Groot Waling and Komber (Table 5.13). Again, the temper generally adheres to the temper distribution of the sites. This is a relatively simple pattern and may be part of a larger decorative scheme that was not identifiable due to size of the sherd.

Perpendicular incising

I defined perpendicular incising as incised lines that ran perpendicular to the vessel's rim (Figure 5.37). Eleven sherds were identified with perpendicular incising. Unlike most decorative elements, higher numbers of these sherds were found at Komber instead of Ordatang (Table 5.14). Those at Ordatang are quite different than those found at Komber and Groot Waling. At Komber and Groot Waling, double incised lines are found on large sherds of globular jars with or without carinated shoulders. The Table

5.13 Parallel incise sherds.

Site	Unit	Level (cm)	Number	Vessel Part	Temper
OR	1	0-10	34	body	grit
OR	1	0-10	130	rim	grit
OR	1	0-10	136	rim	grit
OR	1	10-20	2	rim	grit
OR	1	10-20	6	shoulder	grit
OR	1	10-20	64	body	grit
OR	1	30-40	68	rim	grit
OR	1	30-40	69	body	grit
OR	1	40-50	81	rim	grit
OR	1	40-50	82	rim	grit
OR	1	40-50	83	body	grit
OR	1	40-50	84	body	grit
OR	1	40-50	86	rim	grit
OR	1	50-60	91	body	grit
OR	1	60-70	51	body	grit
OR	1	60-70	82	body	grit
OR	1	60-70	92	body	grit
OR	1	70-80	66	body	grit
OR	1	70-80	77	neck	grit
OR	1	70-80	91	rim	grit
OR	1	80-90	59	body	grit
OR	2	10-20	65	body	grit
OR	2	20-30	62	rim	grit
OR	2	30-40	92	body	grit
OR	2	30-40	95	rim	grit
OR	2	40-50	41	body	grit
OR	2	40-50	87	body	grit
OR	2	50-60	1	body	grit
OR	2	50-60	93	body	grit
OR	2	50-60	103	rim	grit
OR	2	60-70	5	body	grit
OR	2	60-70	8	body	grit
OR	2	60-70	20	body	grit
OR	2	60-70	27	body	grit
OR	2	60-70	37	body	grit
OR	3	20-30	8	body	grit
GW	1	10-20	67	body	grit
GW	1	60-70	5	rim	shell
GW	3	20-30	61	neck	shell
GW	3	20-30	72	body	shell
KB	2	0-10	14	rim	shell
KB	2	30-40	40	shoulder	shell

perpendicular lines at Ordatang do not come specifically in pairs and the form cannot be determined to be a globular jar. The predominance of the perpendicular incising at the later sites coupled with the appearance on shell-tempered globular jars suggests this decorative element is associated with the Ambon-Lease pottery production and probably the spice trade.

Parallel perpendicular

I defined parallel perpendicular incise as an incised line or lines that ran parallel to the assumed rim with additional lines running perpendicular to the parallel line (Figure 5.38). Six of these sherds were identified and they were only found at Ordatang (Table 5.15). All but one is grit-tempered.

Incised Links

Only two sherds (KB. 2.20-30.13 and KB.2.30-40.2) had this decorative style, but it was distinct and recognizable so I included it as a separate category. I defined incised links as interconnected sideways S-shaped links. Both sherds are shell tempered and were found at Komber. KB.2.20-30.13 also has a possible incised diagonal hatch/ chevron shape above it. Both sherds are also carinated.

Star

The star design was only identified on one sherd that refit with 8 other sherds (Figure 5.40). This was a shell tempered globular jar found at Komber, mostly at the 70-80 cm level. Star is somewhat of a misnomer, but I was unable to think of a more accurate descriptor of the shape. The “star” is an upside down triangle formed of double lines with a double-lined V atop and a half-moon stamp at one of the side angles (the sherd with the other angle was not recovered). No other incising is found on any of the other sherds, suggesting that this design was to be the centerpiece of the original vessel. This is a rather unique motif and decorative style in the plantation assemblages. Generally, patterns appear to be repeated, often in bands, on the rim/ neck/ shoulder of the vessels. This singular design is unusual.

Nested squares

Nested squares were also only identified on two sherds (OR.1.90-100.45 and OR.2.50-60.85) but were distinctive enough to warrant their own category (Figure 5.41). Nested squares were only identified at Ordatang and are grit-tempered. OR.1.90-100.45 clearly has a series of incised rectangles of decreasing size. OR.2.50-60.85 is less clearly a series of nesting rectangles, but the angle of the existing lines suggested a similar design. Regardless, OR.1.90-100.45 is an obvious design on a carinated vessel. The extra effort put into the multiple squares in comparison to the more simplistic incising seen on other sherds at Ordatang is intriguing, but without additional information regarding source or function of the vessel, little else can be said. I suspect this sherd is imported from somewhere outside the usual trading routes, but from whence I cannot say.



Figure 5.37 Perpendicular incising.

Table 5.14 Perpendicular incising.

Site	Unit	Level (cm)	Number	Vessel Part	Temper
OR	1	20-30	81	rim	grit
OR	1	90-100	15	rim	grit
OR	1	90-100	31	rim	grit
OR	3	10-20	1	neck	shell
GW	4	40-50	1	rim	shell
KB	2	20-30	6	rim	shell
KB	2	30-40	40	Body	Shell
KB	2	70-80	9	body	shell
KB	2	70-80	10	body	shell
KB	2	70-80	11	rim	shell
KB	2	70-80	13	body	shell
KB	2	70-80	14	rim	shell

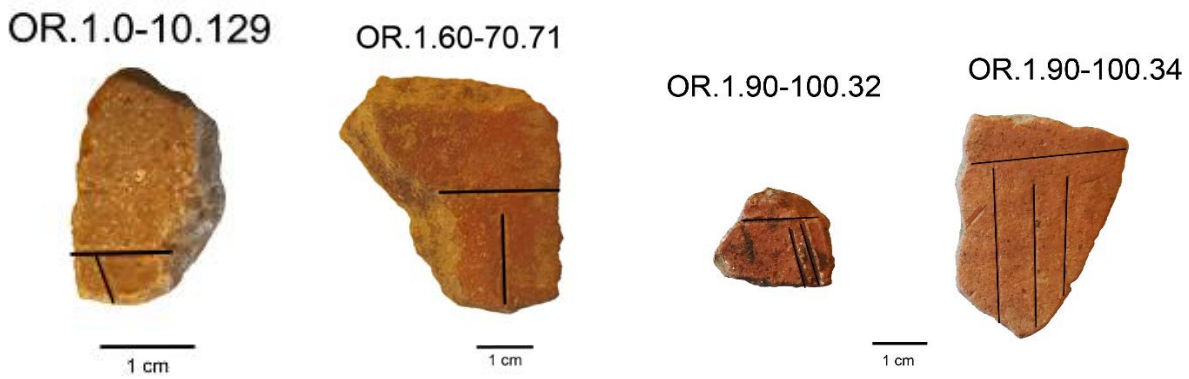


Figure 5.38 Parallel perpendicular incising.

Table 5.15 Parallel perpendicular incising.

Site	Unit	Level (cm)	Number	Vessel Part	Temper
OR	1	0-10	129	body	shell
OR	1	30-40	86	body	grit
OR	1	50-60	73	body	grit
OR	1	60-70	71	neck	grit
OR	1	90-100	32	body	grit
OR	1	90-100	34	neck	grit



Figure 5.39 Incised links.

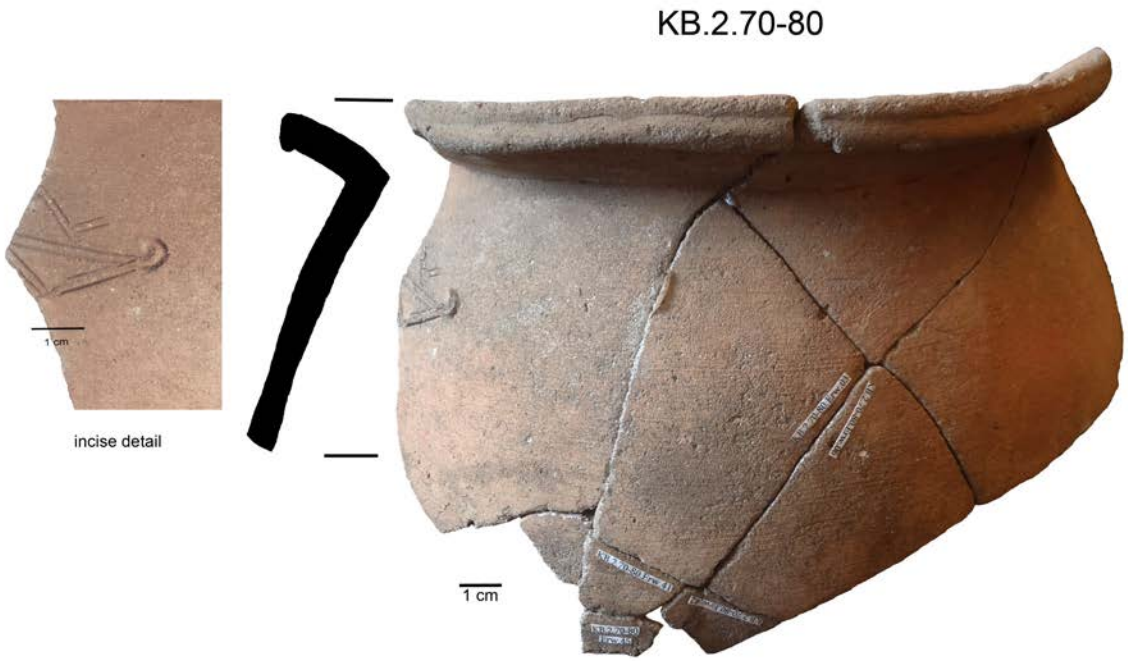


Figure 5.40 Star incise.

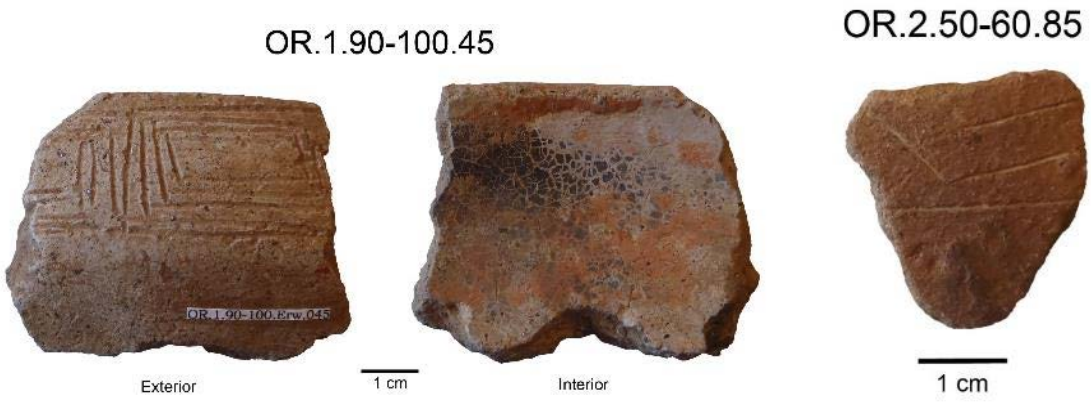


Figure 5.41 Nested Squares incising.

Other incise

I defined other incising as multiple incised lines that could be part of a larger design, but the nature of the design could not be determined or incising that could not be identified to any of the above groups (Figure 5.42). Other incise tends to have multiple lines that are part of a larger pattern but the sherd does not contain enough of the pattern to allow for a description. Similar to many of the other designs, the majority of the 33 identified sherds were found at Ordatang (Table 5.16). OR.1.60-70.90 and

OR.1.80-90.69 could be part of a diagonal hatch tradition. The design on OR.2.50-60.90 appears to be leaves. These designs are intriguing in their incompleteness.

Impress

Impress is defined by Rice (1987:144-145) as “the imprint of a tool on the clay surface create[ing] a pattern.” Similar to incising, impress is a relatively low investment decorative technique and can be completed with simple tools such as cord-wrapped paddles, fingernails, rope, etc. Cord-marked sherds are known from the region in the Neolithic period, possibly an influence from Taiwan (Bellwood 1997). Impress is less common than incising, being seen on only 73 of the sherds. Two different types of impress were identified, impress on body and impress on rim.

Impress on body

Twenty-eight sherds were identified as impress on body (Figure 5.43). Similar to other decorative techniques, the majority of impress sherds were found at Ordatang but this is likely due to sample size. The impress is often a simple line or series of short impressed lines, possibly caused by cord-marking (e.g., OR.1.60-70.88, OR.1.70-80.70). Only 7 of the 29 impress on body sherds (24%) were shell-tempered suggesting that the use of impress has a long history in the region and continued into the Metal Age from the Neolithic.

Impress on rim

I defined impress on rim as rim sherds that had impress directly on the edge of the rim (Figure 5.44). These sherds were slightly more plentiful than the impress on body sherds, totaling 36 sherds. No impress on rim sherds were found at Komber and, per usual, the largest number of impress on rim sherds (N= 30, 83%) were found at Ordatang (Figure 5.44). Only four of the sherds (11%) were shell tempered and these were all found at Groot Waling. Again, this suggests a long history of the impress on rim in the region. The lack of impress on rim at Komber is interesting as impress on body sherds were found at Komber. Again, this is a relatively simple and easy decorative technique, requiring little extra energy expenditure or specialized tools during the forming stage.



Figure 5.42 Other incised designs.

Table 5.16 Other incised designs.

Site	Unit	Level (cm)	Number	Vessel Part	Temper
OR	1	0-10	44	body	grit
OR	1	0-10	96	body	grit
OR	1	10-20	10	Rim	grit
OR	1	10-20	78	Rim	grit
OR	1	20-30	82	Rim	grit
OR	1	20-30	78	body	grit
OR	1	20-30	82	Rim	grit
OR	1	50-60	7	Body	grit
OR	1	50-60	78	body	grit
OR	1	50-60	84	neck	grit
OR	1	50-60	88	body	grit
OR	1	60-70	90	body	grit
OR	1	70-80	68	neck	grit
OR	1	70-80	80	body	grit
OR	1	80-90	47	body	grit
OR	1	80-90	69	Neck	grit
OR	2	0-10	21	base	grit
OR	2	10-20	2	Rim	grit
OR	2	30-40	28	rim	grit
OR	2	30-40	54	body	grit
OR	2	30-40	68	body	grit
OR	2	30-40	94	body	grit
OR	2	40-50	49	base	grit
OR	2	50-60	90	body	grit
OR	2	60-70	7	body	grit
OR	2	60-70	28	body	grit
GW	1	30-40	19	body	shell
GW	1	50-60	14	body	shell
GW	1	50-60	24	rim	shell
GW	2	10-20	1	rim	shell
GW	4	20-30	6	body	grit
KB	2	10-20	72	body	shell
KB	2	20-30	3	rim	shell

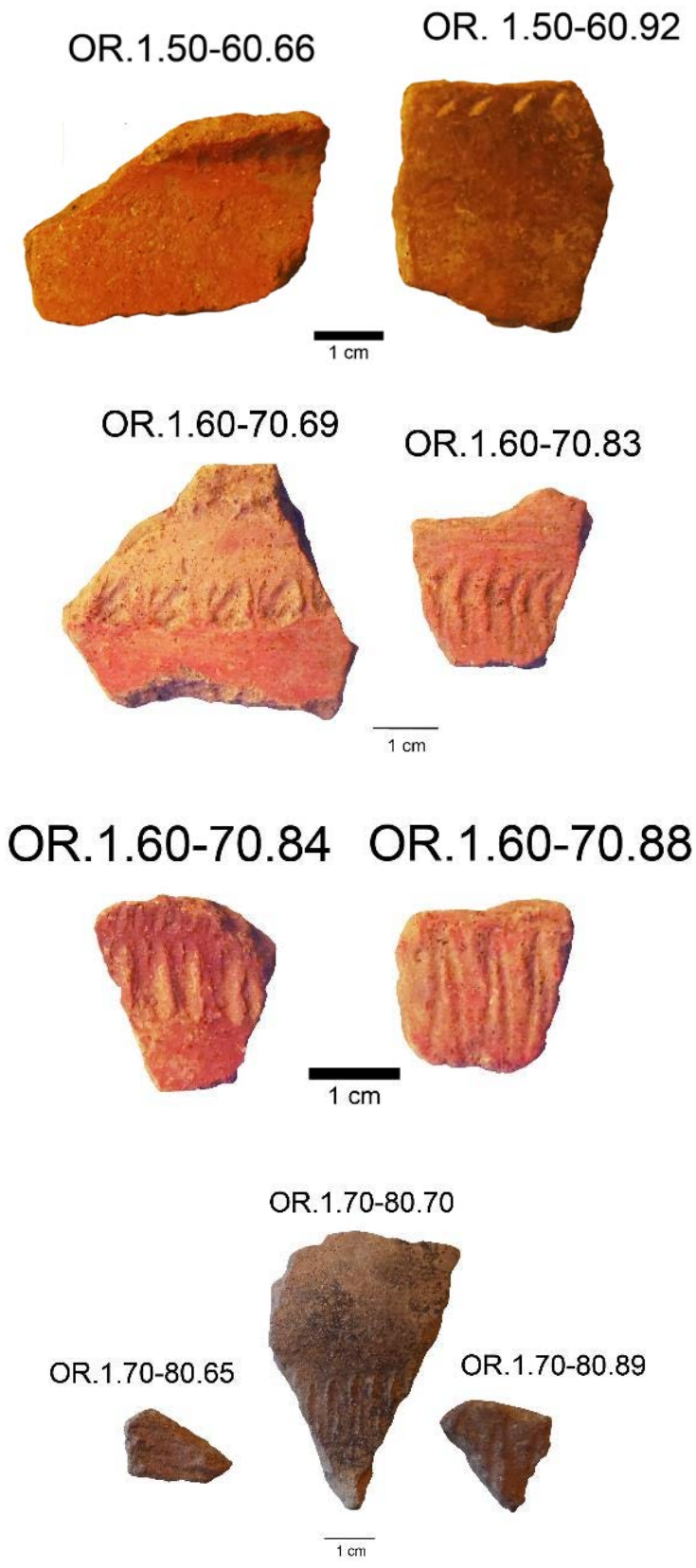


Figure 5.43 Impress on body.

Table 5.17 Impress on body.

Site	Unit	Level (cm)	Number	Vessel Part	Temper
OR	1	0-10	56	body	grit
OR	1	0-10	122	body	grit
OR	1	10-20	70	rim	grit
OR	1	20-30	52	rim	grit
OR	1	20-30	64	rim	grit
OR	1	20-30	66	rim	grit
OR	1	20-30	69	body	grit
OR	1	20-30	85	body	grit
OR	1	30-40	73	neck	shell
OR	1	50-60	66	neck	grit
OR	1	50-60	92	body	grit
OR	1	60-70	69	rim	grit
OR	1	60-70	83	neck	grit
OR	1	60-70	84	neck	grit
OR	1	60-70	88	body	grit
OR	1	60-70	95	rim	grit
OR	1	70-80	65	body	grit
OR	1	70-80	70	neck	grit
OR	1	70-80	89	body	grit
OR	2	20-30	2	body	grit
OR	2	30-40	32	rim	grit
GW	1	30-40	21	body	grit
GW	1.5	20-30	6	neck	shell
GW	3	0-10	17	body	shell
GW	3	20-30	30	rim	shell
GW	3	30-40	1	rim	grit
GW	3	40-50	6	rim	shell
KB	2	20-30	11	rim	shell

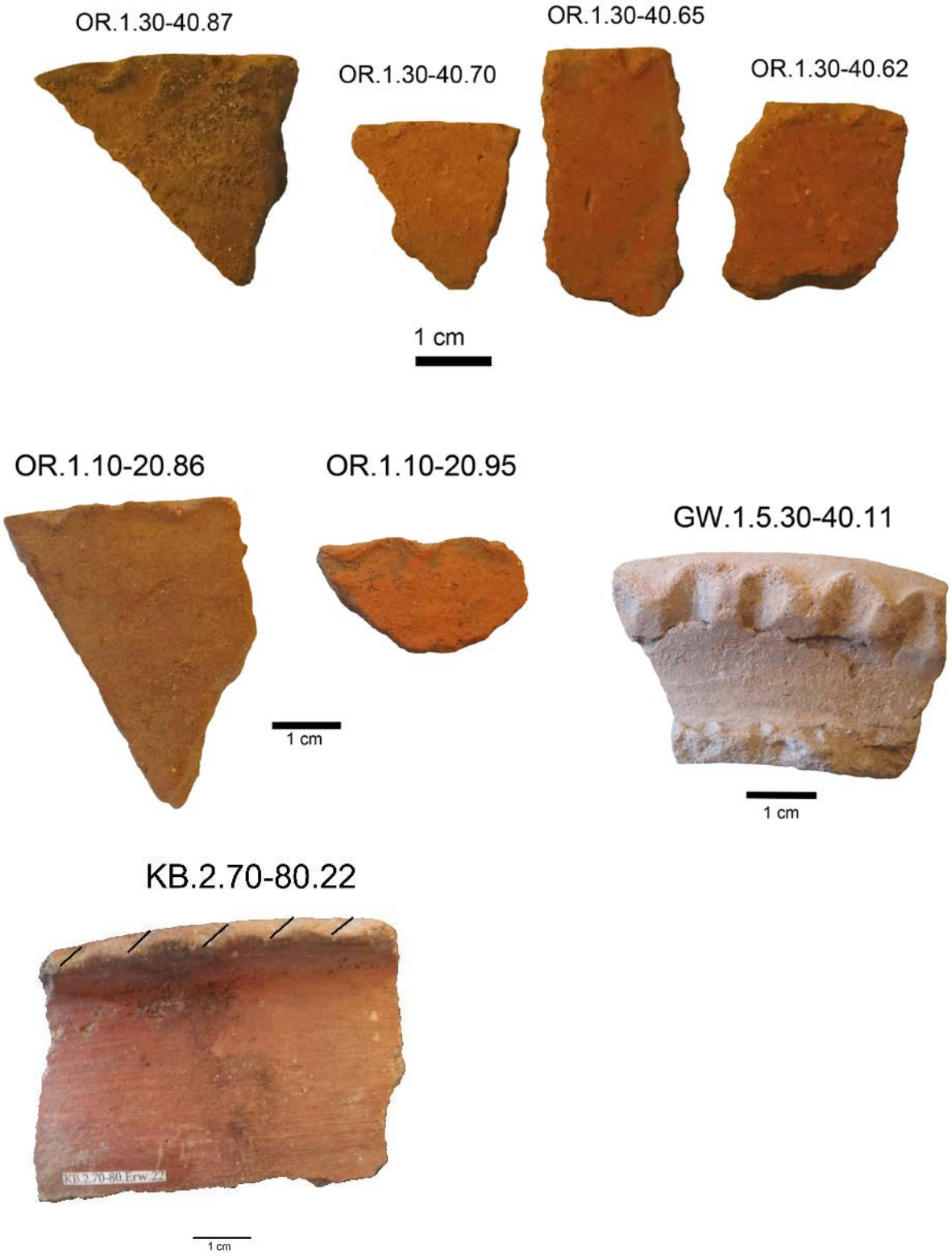


Figure 5.44 Impress on rim.

Table 5.18 Impress on Rim.

Site	Unit	Level (cm)	Num-ber	Vessel Part	Temper
OR	1	0-10	6	rim	grit
OR	1	10-20	10	rim	grit
OR	1	10-20	5	rim	grit
OR	1	10-20	79	rim	grit
OR	1	10-20	86	rim	grit
OR	1	10-20	95	rim	grit
OR	1	30-40	62	rim	grit
OR	1	30-40	65	rim	grit
OR	1	30-40	70	rim	grit
OR	1	30-40	87	rim	grit
OR	1	40-50	78	rim	grit
OR	1	50-60	70	rim	grit
OR	1	50-60	81	rim	grit
OR	1	60-70	31	rim	grit
OR	1	60-70	49	rim	grit
OR	1	60-70	93	rim	grit
OR	1	60-70	97	rim	grit
OR	1	70-80	71	rim	grit
OR	1	70-80	74	rim	grit
OR	1	70-80	81	rim	grit
OR	1	70-80	83	rim	grit
OR	1	70-80	84	rim	grit
OR	1	80-90	72	rim	grit
OR	1	90-100	17	rim	grit

Site	Unit	Level (cm)	Num-ber	Vessel Part	Temper
OR	2	surface	6	rim	grit
OR	2	20-30	12	rim	grit
OR	2	20-30	27	rim	grit
OR	2	20-30	34	rim	grit
OR	2	20-30	39	rim	grit
OR	2	20-30	92	rim	grit
OR	2	30-40	51	rim	grit
OR	2	40-50	60	rim	grit
OR	2	40-50	79	rim	grit
GW	1	40-50	22	rim	shell
GW	1.5	30-40	11	rim	shell
GW	2	10-20	9	rim	shell
GW	3	10-20	36	rim	grit
GW	3	50-60	1	rim	grit
GW	4	40-50	12	rim	shell
KB	2	70-80	22	rim	shell

Punctate

Punctuation is defined as “depressions are punched into wet clay, usually with a sharp or pointed instrument” (Rice 1987:145). Punctatation and impress can be similar, asking the analyst to determine which design is the imprint of a tool versus a depression created by a tool. To me, the difference is in the force used and the depth of the design. I placed the sherds with deeper depressions into the punctate category.

Plain punctate

I defined plain punctate as amorphous depressions. In the plantation assemblages, these tended to be repetitive depressions that were similar on each individual sherd but did not appear to be regular across different sherds (Figure 5.45). The punctuations could have been made by a stick or other simple tool. Nine plain punctate sherds were identified; all but one were grit tempered (Table 5.19). Plain punctate sherds were found at Ordatang and Groot Waling, but not at Komber. Other punctate sherds were found at Komber, however, and are discussed below.

Semi-circular stamp

Rice (1987:145) defines stamping as a decorative technique where "a tool…is used as a die to impress a repeated pattern of identical motifs." The semi-circular stamp motif was the only design that had a regular, repeating design and could be found at all three sites. Semi-circular stamp consists of a semi-circle stamped into the wet clay prior to firing, generally in a band immediately below the rim of a globular pot (Figure 5.46). A possible tool for this stamp would be half of a bamboo tube. This decorative style was identified at all three sites, but was most common at Komber (Table 5.20). Of the 19 sherds identified as semi-circular stamp, two were grit tempered and the remaining 17 were shell tempered. This design motif was very regular in execution and placement for the sherds found at Komber and Groot Waling. The shell/ foraminifera temper suggests that the majority of these pots were coming from the Ambon-Lease region (assuming that is the only source of the foraminifera temper), but the two grit tempered sherds at Ordatang indicate that this semi-circular stamp motif may have had wider regional importance. The Ambon-Lease temper also suggests an association with the Metal Age/ Spice Trade economy, but the grit-tempered sherds hint that this may be an older motif. Stamping was a common decorative for Lapita sherds (Bellwood 1997) and may have antiquity in the region, but it is also a simple technique that doesn't require specialized tools.

Multiple design elements

I categorized sherds as "Multiple design elements" when multiple elements were present on the same sherd.

Chevron and Stamp

I defined chevron and stamp (Figure 5.47) as sherds with diagonal or chevron designs with small circular stamps. Three sherds were identified as chevron and stamp (OR.2.40-50.88, OR.2.60-70.13, and GW.2.10-20.08). The two sherds from Ordatang have a very similar pattern with incised diamonds (or

OR.1.10-20.97



OR.1.10-20.98



1 cm

OR.1.20-30.07



OR.1.20-30.70



1 cm

OR.1.20-30.75



1 cm

OR.1.70-80.75



1 cm



Figure 5.45 Plain punctate.

Table 5.19 Plain punctate.

Site	Unit	Level (cm)	Number	Vessel Part	Temper
OR	1	10-20	97	neck	grit
OR	1	10-20	98	rim	grit
OR	1	20-30	7	body	grit
OR	1	20-30	70	neck	grit
OR	1	20-30	75	neck	grit
OR	1	70-80	75	neck	grit
GW	1	50-60	15	body	grit
GW	2	10-20	3	rim	shell
GW	2	10-20	33	rim	grit

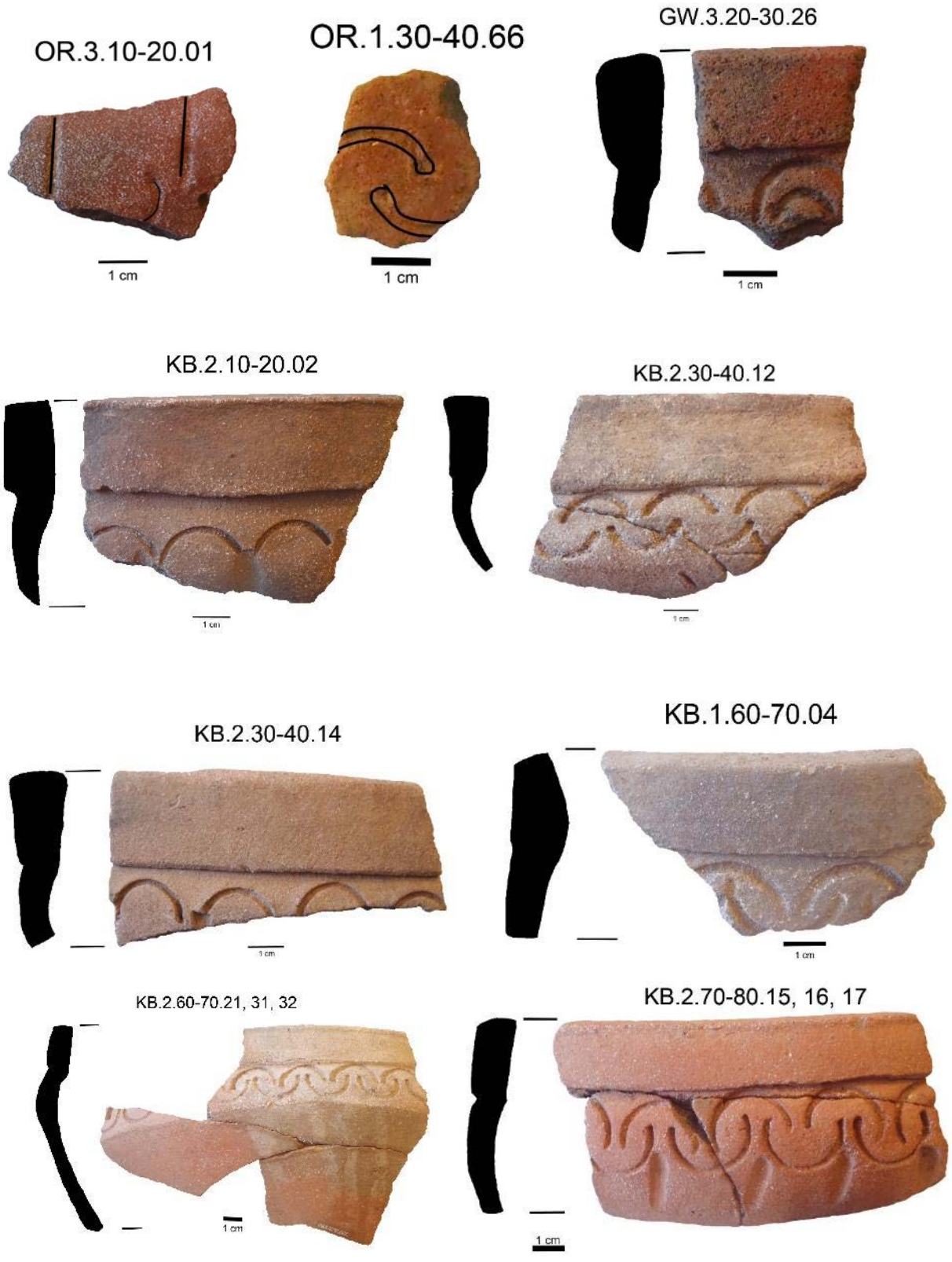


Figure 5.46 Semi-circular stamp.

Table 5.20 Semi-circular stamp.

Site	Unit	Level (cm)	Number	Vessel Part	Temper
OR	1	30-40	66	body	grit
OR	2	10-20	25	body	grit
OR	3	0-10	4	neck	shell
OR	3	10-20	1	Body	shell
GW	3	20-30	26	rim	shell
GW	4	0-10	6	body	shell
KB	1	60-70	3	rim	shell
KB	1	60-70	4	rim	shell
KB	2	10-20	2	rim	shell
KB	2	10-20	3	rim	shell
KB	2	20-30	2	rim	shell
KB	2	20-30	9	rim	shell
KB	2	20-30	10	neck	shell
KB	2	30-40	12	rim	shell
KB	2	30-40	14	rim	shell
KB	2	60-70	31	rim	shell
KB	2	60-70	32	body	shell
KB	2	70-80	15	rim	shell
KB	2	70-80	16	body	shell
KB	2	70-80	17	body	shell



Figure 5.47 Chevron and stamp.

chevrons) and a circular stamp within the diamond; and both are grit tempered. The sherd from Groot Waling is. foraminifera-tempered and has a slightly different pattern with diagonal incising but not diamonds/ chevrons. The circular stamp is common in Lapita pottery, but is generally associated with denticulate decoration. As Sprecht et al. (2014:94-95) note, Lapita "decoration was applied mainly with straight and curved dentate tools…often combined with plain circle stamps". No denticulate stamping was found at the plantation sites. The circular stamp motif is found in the Philippines at Batungan Mountain site, possibly dating to around 900 BC (Bellwood 2007:221) and the chevron and stamp is similar to what Bellwood (1979:259-260) calls "Sohono style" pottery from the Solomon Islands dating to 500 BC - AD 800. Bellwood (1979) notes that the Sohono style pottery has rows of stamped circles or chevron designs with punctate and suggests that this is a possible borrowing from Lapita. The 500 BC-AD 800 date of the Sohono style are well-within the occupation period of the islands. While long distance trade between the Solomons and the Banda Islands is an intriguing prospect, there is nothing to suggest direct trade at the moment. The chevron and stamp from the Bandas and the Sohono style have similar motifs but are still quite different, it is more likely due to a common inheritance from Lapita or Lapita-like pottery styles. However, long distance sea trade was occurring in both the Banda Islands and the Solomon Islands so future research may prove my pessimism regarding trade contact incorrect. The chevron and stamp design is probably part of a larger regional decorative tradition that reaches back the Neolithic and possibly reflects Austronesian influence.

Impress/ Incise

I defined impress/ incise as a combination of impress on rim and parallel incising (Figure 5.48). All eight sherds were found at Ordatang and are grit tempered (Table 5.21). OR.1.20-30.83 and OR.1.20-30.84 are flat sherds, probably from a slab built vessel. While these may be forna sherds, no evidence for a connecting slab can be seen on either sherd so I was not comfortable attributing these sherds to a mold category. OR.1.20-30.83 does not have a right angle for its left edge making its original form somewhat difficult to determine. The combination of impress on rim and parallel incising suggests that these design elements may have been connected in the minds of the potters. Impress on rim, parallel incising, and impress/ incise are found in the highest numbers at Ordatang and have predominantly grit temper. This is partially due to the larger sample size at Ordatang, but one can surmise that these decorative elements have antiquity in the region due to the Neolithic dates at Ordatang and the antiquity of the grit temper in general. It would be interesting to conduct mineralogical studies of the temper and clay of these decorative elements to determine origin and dispersal patterns.

Other Multiple Design Elements

I defined "other multiple design elements" as sherds that contained multiple decorative techniques (i.e., incising and punctate) but that had no discernable pattern (Figure 5.49). A total of 7 sherds fell into this category, 5 from Ordatang and two from Komber (Table 5.22). OR.1.60-70.67 is a red slipped sherd with an incised line parallel to the rim and a small impressed or cord-marked line beneath the incising. OR.2.20-30.05 is a flat rim sherd with deep incise and punctuation. The punctuation is in a band around the incised design which has diagonal hatching visible. OR.2.30-40.11 also has deep incising and punctuation, with a straight incised line beneath a curvilinear line and the punctuation in a band beneath the straight line. KB.1.10-20.02 is a high fired carinated vessel with double red paint lines and double incised lines perpendicular to the rim. This vessel was likely wheel-thrown based on remnants of forming techniques still visible. KB.2.40-50.32 has an incised line parallel to the rim on the exterior and a thick band of red paint on the interior, also parallel to the rim. Other multiple design techniques is a heterogeneous and etic category so little meaningful can be said about this category.

Other design elements

Other design elements includes categories that do not well fit in any of the above categories and consist of applique, crenelated rims, and painted sherds. Again, these are etic categories that would not necessarily have any meaning for the people who created the original vessels.

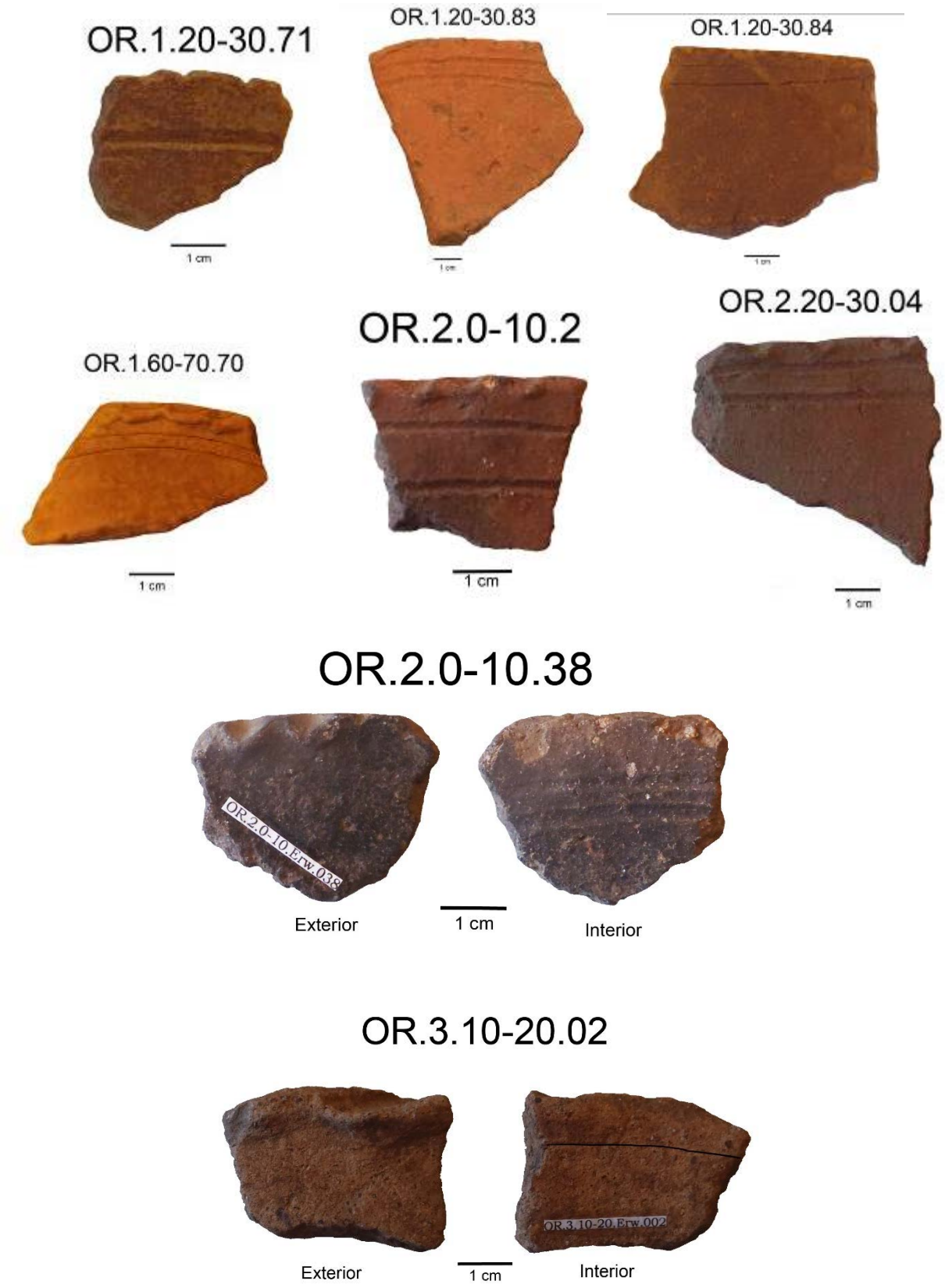


Figure 5.48 Impress/ incise sherds.

Table 5.21 Impress/ incise sherds.

Site	Unit	Level (cm)	Number	Vessel Part	Temper
OR	1	20-30	71	rim	grit
OR	1	20-30	83	rim	grit
OR	1	20-30	84	rim	grit
OR	1	60-70	70	rim	grit
OR	2	0-10	2	rim	grit
OR	2	0-10	38	rim	grit
OR	2	20-30	4	rim	grit
OR	3	10-20	2	rim	grit

Applique

Rice (19887:148) defined applique as “small, shaped pieces of clay [applied] to the surface of the vessel.” Two sherds were identified with applique, although the ring foot of ring foot vessels are also applique. OR.3.0-10.01 is a large, thick, grit tempered rim sherd with a thick undulating applique that has also been incised that was applied to the exterior of the vessel (Figure 5.50). In addition to the applique, this sherd also appears to have pieces of clay cut out of the vessel body (see arrow in Figure 5.50).

OR.3.0-10.01 also has an interior lip on the rim. The applique with incising and cut out are all unique decorative elements not seen on any other sherd in the plantation assemblages. The other sherd with applique is GW.4.90-100.04, a grit tempered sherd from Groot Waling. The two lines of applique on this sherd are superficially similar to that found on the ring foot vessels, but the applique lines are not quite parallel and would run into each other if they continue on the trajectory apparent on the extant sherd. This sherd could possibly be a variant of a ring foot vessel or a lid, but positive identification is limited by the small size of the sherd.

Other

OR.2.20-30.01 is a very large and thick rim sherd with deep incising or possible stamps that appear to read MX[I..] in Roman numerals with a serif font. This sherd is likely from a European-made vessel. It is the only earthenware sherd with any identifiable European characteristics.

Crenellated Rim

Crenellated rims are rim sherds that have either deep indentations or cut outs along the rim, similar to that of battlements of a castle. Four of these crenellated rim sherds were identified, all at Ordatang and all are grit tempered. The deep crenellations might not be beneficial to a cooking pot or storage vessel. These sherds may be from a slightly more decorative vessel or, potentially, an *anglo/*



Figure 5.49 Other multiple design elements.

Table 5.22 Other multiple design elements.

Site	Unit	Level (cm)	Number	Vessel Part	Exterior surface Treatment	Temper
OR	1	20-30	77	rim	Punctate, incising	grit
OR	1	30-40	72	body	Punctate, incising	grit
OR	1	60-70	67	rim	Impress, incise	grit
OR	2	20-30	1	body	incising	grit
OR	2	20-30	5	rim	incising	grit
OR	2	30-40	11	body	Punctate, incising	grit
KB	1	10-20	2	neck	Paint, incising	grit
KB	2	40-50	32	rim	incising	shell



Figure 5.50. Other design elements.

tunkgo that required air flow. Shiung (2012) presents “notched rim” sherds from the PA1 site, dating to the Neolithic (radiocarbon dates ranging from 3350 to 2360 BP). The notched rim sherds show shallower notches than what I am calling crenellated. However, these modifications may be a continuum of behavior and Shiung’s notched rims and my crenellated rims may be variants of the same type of vessel. OR.3.10-20.4 is more similar to Shiung’s notched rims than the other three sherds. If these crenellated rim sherds are of the same kind of vessel as Shiung’s notched rim sherds, then it suggests these are part of the Neolithic component of Ordatang’s assemblage.

Painted sherds

Paint is different from slip as slip is a fluid suspension of clay applied before firing where paint is pigment and binder (which may be clay but not necessarily) that can be applied before or after firing (Rice 1987:148-149). All painted sherds have some variation of red paint. The use of red paint may be an attempt at mimicking the common red slip, but it may also be coincidence based on available raw materials. Paint has a tendency to wear off easier than slip as it isn’t fused onto the clay body during the firing process. There is potential, then, that many more of the sherds had been painted but the paint is no longer extant.

Red paint

Remnants of red paint were identified on a total of 13 sherds (Figure 5.52): two at Ordatang, four at Groot Waling and the remaining at Komber (Table 5.23). The lack of paint at Ordatang despite the higher number of overall sherds may be a result of taphonomic processes. Red paint is found on both grit tempered and shell tempered sherds. Generally, the red paint is in parallel lines or small, amorphous patches where any overall design cannot be determined. However, KB.2.90-100.01 has painted chevrons around the rim of what looks like a plate or bowl

Red and Black paint

Three sherds were identified with red and black paint (Figure 5.53,Table 5.24). These sherds were small and the overall pattern could not be determined, but parallel lines are indicated on the existing sherds. The small sample size makes it difficult to make interpretations.

Red and White Paint

Red and white paint was identified on 11 sherds all from Komber Unit 2 level 70-80 cm (Table 5.25). The sherds were unable to be refit, but it does seem likely that these sherds are all part of a single vessel. Red chevron and curvilinear designs are painted in a series of bands on a white background (Figure 5.54). This red paint on white background is similar to the designs on vessels made in the Aru islands as described by Veth et al. (2005). The Aru Island pots have a sand temper, but shell or foraminifera could be mixed in with the sand (the Ambon-Lease temper is called “calcareous sand” by



Figure 5.51 Crenelated rims.

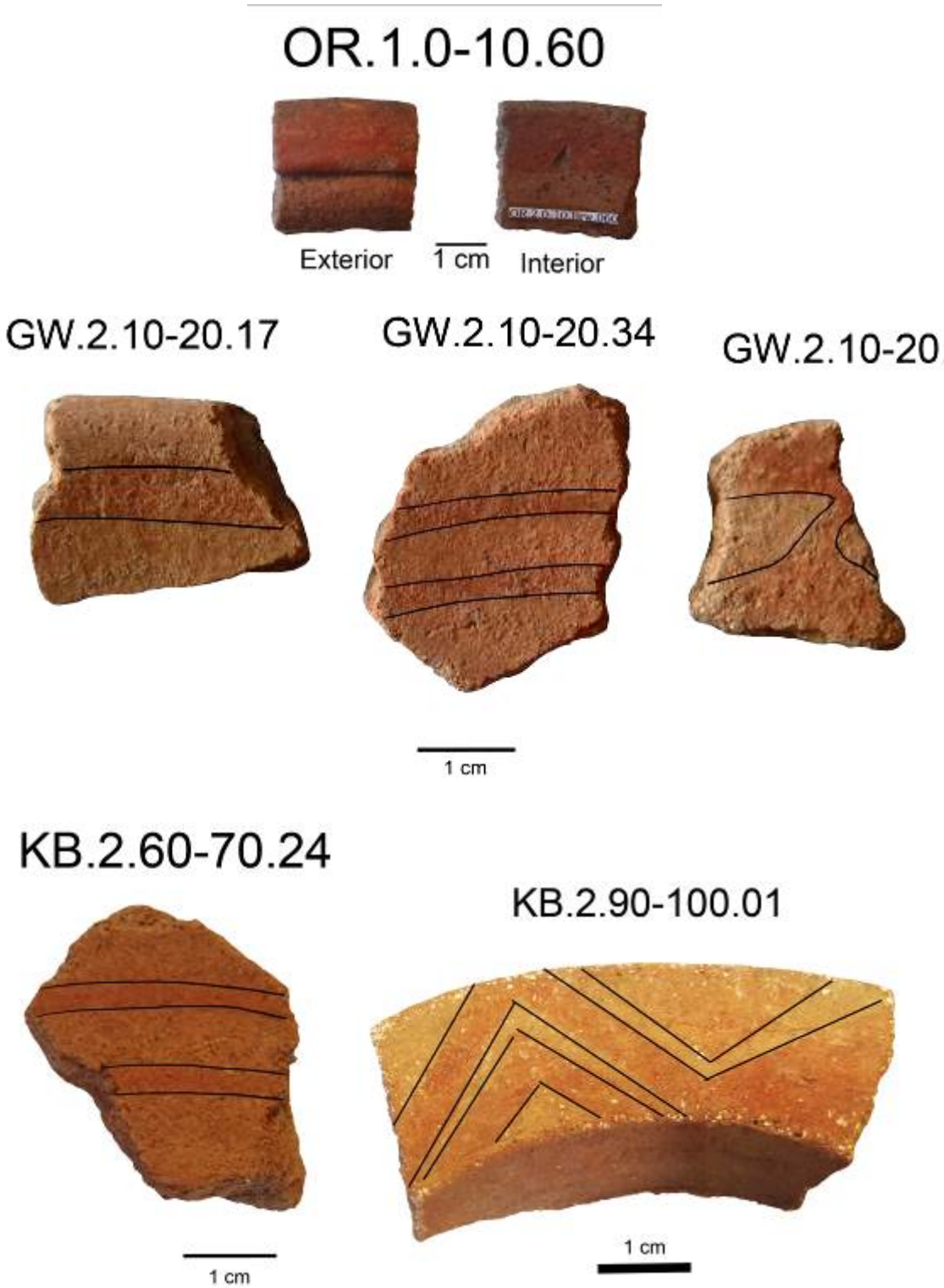


Figure 5.52 Red painted sherds.

Table 5.23. Red painted sherds.

Site	Unit	Level (cm)	Number	Vessel Part	Interior surface treatment	Exterior surface treatment	Temper
OR	1	20-30	61	rim	paint	none	grit
OR	2	0-10	60	rim	Paint	Paint	grit
GW	2	10-20	17	rim	paint	paint	grit
GW	2	10-20	34	body	paint	none	grit
GW	2	10-20	51	rim	none	paint	grit
KB	2	10-20	50	body	none	paint	grit
KB	2	20-30	7	base	none	paint	shell
KB	2	20-30	57	rim	paint	none	grit
KB	2	40-50	18	body	paint	none	grit
KB	2	40-50	32	Rim	Paint	none	shell
KB	2	80-90	22	body	none	paint	shell
KB	2	80-90	23	body	none	paint	shell
KB	2	90-100	1	rim	none	paint	shell

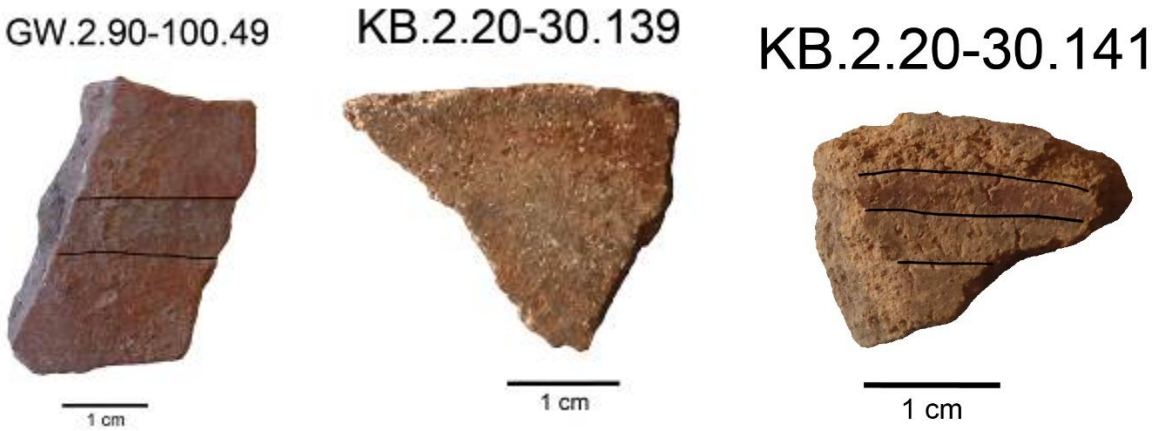


Figure 5.53 Red and black painted sherds.

Table 5.24 Red and black painted sherds.

Site	Unit	Level (cm)	Number	Vessel Part	Interior surface treatment	Exterior surface treatment	Temper
GW	2	90-100	49	body	n	paint	grit
KB	2	20-30	139	body	n	paint	shell
KB	2	20-30	141	rim	paint	n	grit

Table 5.25 Red and white painted sherds.

Site	Unite	Level (cm)	Number	Vessel Part	Temper
KB	2	70-80	51	body	shell
KB	2	70-80	65	shoulder	shell
KB	2	70-80	66	body	shell
KB	2	70-80	67	body	shell
KB	2	70-80	68	shoulder	shell
KB	2	70-80	69	shoulder	shell
KB	2	70-80	70	body	shell
KB	2	70-80	71	body	shell
KB	2	70-80	72	body	shell
KB	2	70-80	73	body	shell
KB	2	70-80	74	body	shell



Figure 5.54 Red and white painted sherds.

Ellen and Glover 1974) allowing for the determination of “shell” temper for these sherds. Alternatively, the red on white painting tradition could have had a wider distribution than what is currently recorded ethnographically. Certainly trade between the Aru Islands and the Banda Islands is known historically, as is trade between the Banda Islands and Ambon. This confusion of temper and style geographic distribution just underscores the need for more detailed description of earthenware in Maluku.

Coating

In their description of ethnographic potting techniques in Ambon-Lease (Ellen and Glover 1974) and Aru (Veth et al. 2005) describe water-proofing techniques. In Aru, pots are rubbed with mangrove fruit or soap, but in Ambon-Lease, dammar resin is used. Dammar resin is made from the dammar tree (*Agathis alba)* and results in a white or clear resinous coating and is placed on the vessel immediately subsequent to firing (Ellen and Glover 1974). A total of 29 sherds were recorded with some sort of coating (Table 5.26, see KB.2.40-50.32 in Figure 5.49 above and Figure 5.55). All sherds were found in the beach deposits at Groot Waling and Komber and may represent some sort of caliche or leaching taphonomic process, but it may also reflect a water-proof coating applied to the original vessel. If the coating is a result of water-proofing, it would suggest these vessels were used for water-storage or cooking soups or stews.



Figure 5.55 Coated sherd example.

Table 5.26 Coated sherds.

Site	Unit	Level (cm)	Sherd #	Vessel part	Temper Type
GW	1	30-40	28	body	shell
GW	3	20-30	61	neck	shell
GW	4	30-40	10	body	shell
KB	1	10-20	2	neck	grit
KB	1	10-20	7	body	grit
KB	1	20-30	1	body	grit
KB	2	10-20	46	body	shell
KB	2	10-20	62	body	grit
KB	2	20-30	53	body	shell
KB	2	20-30	54	body	shell
KB	2	20-30	125	body	shell
KB	2	20-30	131	body	shell
KB	2	20-30	147	body	shell
KB	2	30-40	13	rim	shell
KB	2	40-50	40	body	shell
KB	2	60-70	1	body	shell
KB	2	60-70	2	body	shell
KB	2	60-70	3	body	shell
KB	2	60-70	4	body	shell
KB	2	60-70	5	body	shell
KB	2	60-70	6	body	shell
KB	2	60-70	7	body	shell
KB	2	60-70	8	body	shell
KB	2	60-70	9	body	shell
KB	2	60-70	10	body	shell
KB	2	70-80	35	body	shell
KB	2	70-80	36	body	shell
KB	2	70-80	37	body	shell

Discussion

Decorated sherds consisted of about 10% of the total 3601 sherd total. Sherds from Ordatang dominate most of the categories as Ordatang had the highest number of sherds. Some styles, such as Incised Links and Incised Star are only found in very low numbers at Komber. Komber also has the highest number of the Semi-Circular Stamp style. Otherwise, motifs overlapped primarily at Ordatang and Groot Waling. Komber's earthenware assemblage is somewhat different from Ordatang and Groot Waling, likely representing a village assemblage and/ or a late 19th/ early 20th century deposit instead of solely a *perk* assemblage.

The decorative styles do not appear to be restricted to temper types, however, this may be a result of the small size of the sherds and an inability to identify the entirety of the motif. That is, with larger sherds, differentiations in the motifs could be distinguished. Nor do design motifs appear to be restricted in stratigraphic levels at the three sites, suggesting mixed deposits or long-term retention of design motifs.

The different styles at Komber may also be the result of having trading relationships that were different from those of Ordatang and Groot Waling. As Rice (1987:267) notes, "Styles send messages of social, political, and economic group affiliation that are known and recognized by the person displaying the message and by the person intended to receive it." On the other hand, as Rice also notes (1987:269) "pottery may symbolize affiliation and maintain boundaries, but it also may not." Alternatively, the designs may have been meaningful where the pots were created, but not necessarily where they ended up. The fact that Komber existed as a pre-colonial village but the other two sites did not may mean that Komber had traditional trading patterns that the colonial occupation did not or could not disrupt. The red and white painted sherds found only at Komber may represent connections to the Aru Islands that are not seen at the other sites, alternatively the painted designs could have worn off due to taphonomic issues at the other two sites or the sherds represent a heretofore undescribed decorative technique from Ambon-Lease.

The simple incised and impressed designs suggest low investment in decorating the earthenware in general, unlike the highly decorated fine Lapita ware that is the focus of much research. Rice (1987:267-268) notes that the highly decorated forms are often used for public display. Thus, it can be assumed that the earthenware assemblages at the perks represent private, utilitarian use. The low investment in this trade good is somewhat interesting. Earthenware is traded throughout Maluku, but it is not mentioned in historic descriptions of trade (Ellen and Glover 1974, Latinis and Stark 2003). The ubiquitous nature of the deposits coupled with a lack of importance of the trade is somewhat incongruous. If pots were not important, why were they traded? And if they were important, why are they not mentioned?

It is difficult to determine which model the earthenware supports with the currently available information largely due to the mixed deposits. The low investment in decoration could support the energetic efficiency model throughout the Maluku region, at least for the initial formation process. However, due to the fact that much of the earthenware was probably traded into the Banda Islands, this

may not be the best fit for the model for the sites of interest. However, other sites excavated on the Banda Islands show a similar distribution of a mix of the shell tempered and grit tempered sherds both in the pre-Colonial Period and into the Colonial Period (Lape 2000b, Shiung 2012). In addition, the imposition of colonial occupation was not able to disrupt traditional trading patterns (e.g., Ellen 2003, Hanna 1973). Despite the eradication of much of the indigenous Bandanese population, extra-local traders still existed on the islands and the trading partners on other islands continued to take advantage of the trade winds and Banda's location as they had prior to colonial occupation. The VOC was only able to place themselves at the top of a functional trading network, they were not able to destroy it in their attempts to control the nutmeg monopoly. Despite the mixed deposits, I believe that the lack of discernable change in earthenware assemblages represents a resistance to colonialism based on the greater contextual evidence of trade in the region. However, a better understanding of the function of the vessels and a better understanding of the source of the vessels would certainly elucidate how these objects functioned in the social realm during the Colonial Period.

Chapter 6
Tradeware

Tradeware is another form of ceramics. Tradeware, for the purposes of this project, is defined as high-fired (i.e., non-earthenware) ceramics. These ceramics were all imported to the Banda Islands. The ceramics in the tradeware category fall into a number of classes that archaeologists have variously called porcelain, stoneware, ironstone-ware, improved whiteware, refined earthenware, among others (Majewski and O'Brien 1987). In a non-technical way, these ceramics could be called "porcelain" but they are not all true porcelains. True porcelain is defined as

> a thin, white translucent vitrified ceramic that is customarily fired at temperatures of 1280-1400 °C or higher. Porcelains are made of a white-firing, highly refractory kaolin clay…relatively free of impurities, mixed with quartz and with ground, partially decomposed feldspathic rock…When fired to high temperatures the feldspar melts, giving the product its characteristic translucency, hardness, and melodious ring when tapped….When Chinese porcelains…reached Europe, potters there trued a variety of experiments to achieve the same hardness and translucency…but they met with little success. [Rice 1987:6]

Whereas stoneware is defined as ceramics

> that are fired at temperatures of roughly 1200 to 1350 °C. high enough to achieve at least partial fusion or vitrification of the clay body, depending on its composition. The body is medium coarse and opaque rather than translucent and often is gray or light brown. It is usually composed of "stoneware clays," which are typically sedimentary deposits such as ball clays…[which are] highly plastic and low in iron. [Rice 1987:6]

The inhabitants of both the Banda Islands and the Maluku region did not have the raw material or pyrotechnology to produce either stoneware or true porcelains, therefore all these objects were imported from some distance away, either the Asian mainland or, later, Europe.

Below, I discuss the history of tradewares in the Maluku region, the expected distribution based on previously discussed models, and the results of the analysis.

Background

Tradewares, both porcelains and stonewares, could have been traded to the Banda Islands from either Europe or the Asian mainland during the colonial period. High-fired stoneware had been produced in China since around the thirteenth century BC and true porcelain developed around AD 600 (Madsen and White 2011:31). High-fired stonewares were also being produced in areas of Mainland Southeast Asia at least 2000 years ago (Brown 1977:9). Stoneware production had been established in Europe since the 16th Century AD (Jordan 2014) and both the English and Dutch attempted to replicate the true porcelain, succeeding in the late 18th Century (Madsen and White 2011:23). Dutch- and English- made

stonewares were imported into their respective colonies in North America and Africa, as were the more highly valued Chinese porcelain (e.g., Bradley 2007, Deetz 1977, Noel Hume 2001, and Schrire 2014). Archaeological excavations in Island Southeast Asia and shipwrecks have also yielded porcelain and stoneware from China and Mainland Southeast Asia (e.g., Ellen and Glover 1974, Lape 2000b, van der Pijl-Ketel 1982). Tradeware, then, was expected in the Banda Island plantation sites.

Tradeware and porcelain are of interest not only to archaeologists, but also collectors of antiques and fine art. Due to this fact, the amount of information available is somewhat overwhelming and often not entirely useful to archaeologists studying small, broken pieces of vessels instead of whole, museum-quality pieces. I will not, therefore, provide an exhaustive review of the information currently available. Interested readers can find discussion of porcelain production in China in Madsen and White (2011), Hobsen (1948); stoneware produced in Mainland Southeast Asia and China can be found in Brown (1977, 2004); and reviews of English and Dutch porcelain and stoneware can be found Schaefer (1998) and Noël Hume (2001b). English tradeware is included because England had taken control over the islands during the Napoleonic Wars and trade relations did exist between the two nations during the Colonial Period. For the purposes of this study, identification of origin and date was the most useful information. Unfortunately, the small size of many of the pieces precluded identifying even this basic information.

Based on previously excavated colonial-era Dutch sites, a mix of *kraak*-style Chinese export porcelain and European-made stoneware and porcelain are expected (e.g., Bradeley 2007, Schrire 2014). *Kraak* porcelain, possibly named after the Portuguese *carrack* ships that original imported the porcelain to Europe, is somewhat hard to define, but is generally accepted to be the mass-produced underglaze blue-and-white porcelain made for the export market at the Jingdezhen kilns during the late 16th-early 17th Century (van der Pijl-Ketel 1982). *Kraak* porcelain was followed by Kangxi ware, which was similarly mass produced blue and white underglaze porcelain made at the Jingdezhen kilns during and after the reign of Emperor Kangxi (c. 1680-1750) (Madsen and White 2011:59). The decorative style is different for *kraak* and Kangxi porcelain, but the small size of the sherds often precludes differentiating between the two. Swatow-style porcelain is a contemporaneous ware made for export to the Southeast Asian market, as opposed to the European market, and is a similar blue and white underglaze porcelain but of poorer quality (van der Pijl-Ketel 1982). For this study, it has been difficult to differentiate between the kraak, Kangxi, and Swatow underglaze blue-and-white porcelain due to the small size of sherds and inability to discern larger, chronologically distinct patterns. In addition to Chinese made porcelains, other stoneware from Mainland Southeast Asia can be expected to be found in Bandanese sites based on their presence in 2nd Millennium AD shipwrecks in Southeast Asia (Brown 2004), indicating widespread trade throughout the Mainland and Island Southeast Asian regions. Mainland Southeast Asian tradeware is of lower quality than the true porcelain from China, often with a pink core instead of white, and the stoneware often consists of thick sherds covered in a brown glaze (Brown 2004).

European tobacco pipes form a special class of tradeware. These pipes were made from a kaolin clay and were manufactured by both English and Dutch factories (Davey and Pogue 1979, Walker 1971). Kaolin pipe fragments are a useful chronological marker as they could not exist in the Banda Islands prior to the colonial period which saw the discovery of the New World and tobacco and the subsequent popularization of smoking in European populations. In addition to a chronological marker, pipe fragments can also be seen an ethnic/ class marker of "European-ness." Thus, the presence of pipe fragments in an archaeological assemblage should also indicate the presence of Europeans or European-affiliated populations. Both pipe stem fragments and pipe bowl fragments appear in the archaeological record, but due to their fragile nature, pipe stems break more easily and are more common (e.g., Mallios 2005:90, Noel Hume 2001: 302). The pipe bowl often displayed a maker's mark which can be used to date the pipe and determine its origin (e.g., Noël Hume 2001: 302-312), if they are available.

Expectations from Models

Due to the exotic nature of the imported tradeware, it should be considered a luxury or high status object. For the energetic efficiency model, no tradeware or porcelain should be found in worker's contexts as workers are not expected to be able to afford luxury goods. As the *perkeniers* are not expected to be limited by energetic costs, tradeware should exist in their contexts. For the power/ resistance model, tradeware is expected in elite contexts but it is expected that the elites limit the worker's access to prestige goods therefore little to no tradeware should be found in worker's contexts. There should also be more European-made ware in elite contexts for the power/ resistance model and if tradeware is found in worker's contexts, it should be coming from the more familiar, pre-colonial Chinese or Mainland Asian sources For the creolization model, workers are expected to have some access to tradeware but it may be used in slightly different ways than originally intended. For creolization, it is expected that European wares would be valuable for workers to signal either access to the goods or alliance with the ruling class.

Methodology

Similar to the earthenware analysis described above, tradeware sherds were measured, weighed, and vessel part was identified. In addition, any decoration was noted and the sherd was identified as European, Chinese, or "Other" (presumably Mainland Asian) tradeware, if possible. Due the lower quality of European porcelains, if a plain white sherd showed evidence of cracking or "crazing," (Rhodes 1973:170-171) the sherd was identified as European. Majewski and O'Brien (1987:112) note, "the higher the firing temperature at which a (white) ceramic body matures, the less distinguishable the interface between the clay body and the glaze will be…The more absorbent the ware, the more subject the glazed surface will be to crazing and discoloration." Some of the Chinese-made porcelain and Mainland Asian stoneware does exhibit crazing. However, the Chinese potters had long been making porcelain prior to the Europeans and had an assembly line-like system (Madsen and White 2011) allowing for regularity in production. The high firing temperatures creating a vitrified surface in Chinese porcelains is different than that of the European-made wares, allowing for distinguishing the two places of origins even if crazing was

present. Mainland Asian stoneware often has a pink core (or non-white) and can thus be distinguished (Brown 2004). There is still an element of subjectivity in the assignation of origin, however. If I was unable to identify the origin due to small size or lack of distinguishing characteristics, I placed it into the "Unknown" category. For the graphs and tables below, I condensed the "Other" and "Unknown" categories.

Sites

The tradeware assemblages for each unit are presented as a whole, as opposed to dividing by level. This is due to both the relatively small number of recovered sherds and the assumed mixing of stratigraphic levels at all sites. Tradeware makes up less than 20% of the ceramic assemblage for all three sites. Tradeware makes up 3% of Ordatang's assemblage, 9% of Groot Walling's assemblage, and 19% of Komber's assemblage (Figure 6.1).

Ordatang

Ordatang had a total of 104 tradeware sherds, all found in the upper 40 cm of the excavated units. Tradeware made up 3% of the ceramics at this site, compared to earthenware which produced 3793 sherds.

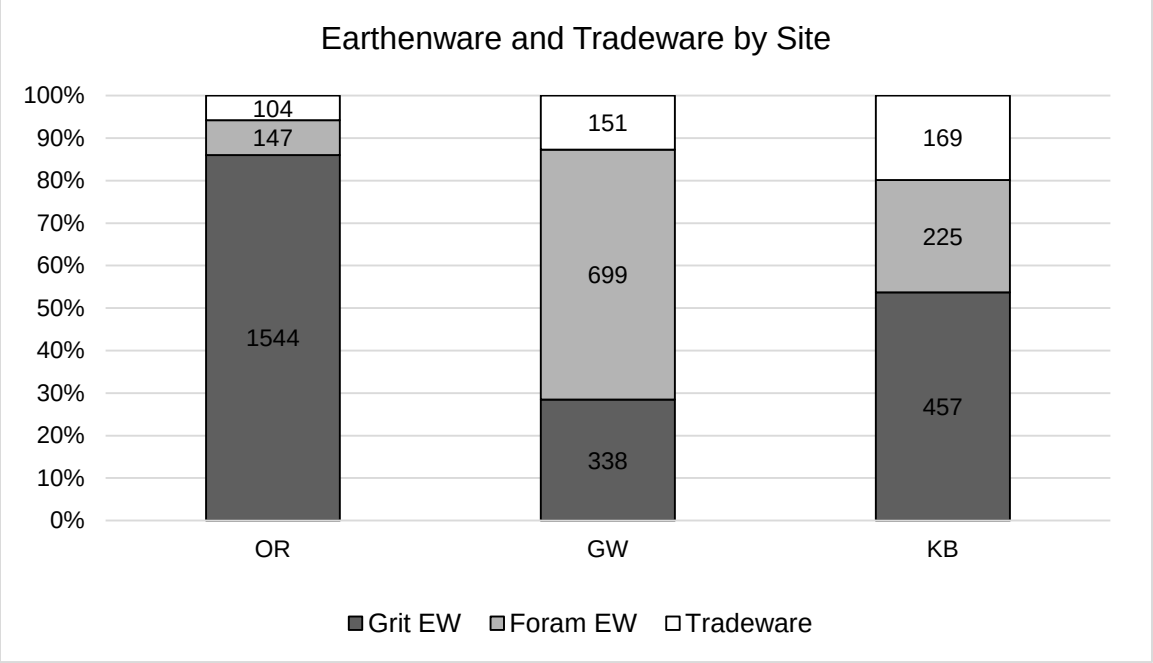


Figure 6.1 Earthenware vs Tradeware by Site.

Unit 1

In Unit 1, 29 tradeware sherds were found (Figure 6.2). All tradeware sherds were found in the upper 40 cm of the unit. This unit probably experienced some stratigraphic mixing due to the Neolithic luminesce date at 0-10 cm but the lack of tradeware with depth but continuing existence of numerous

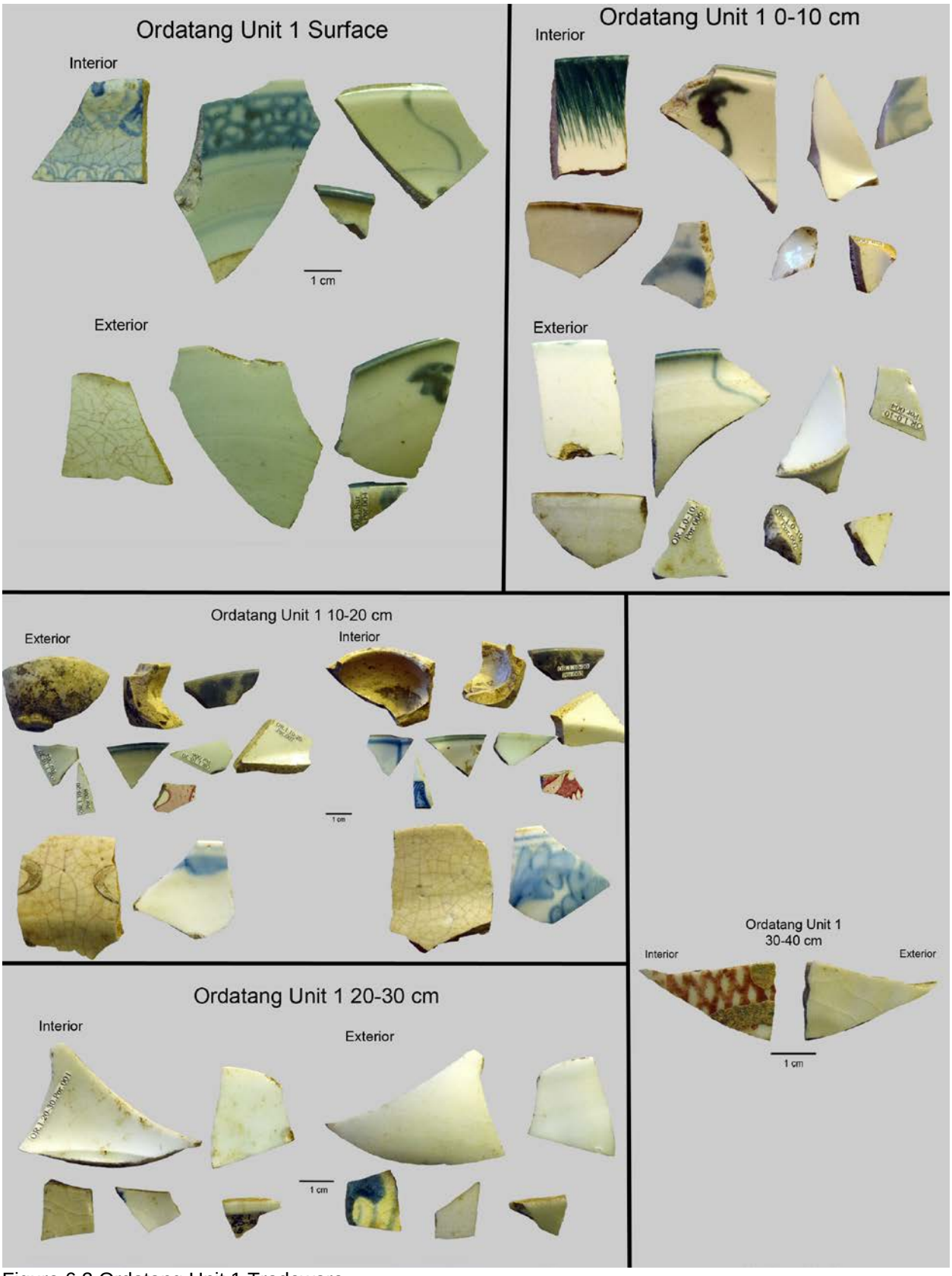


Figure 6.2 Ordatang Unit 1 Tradeware.

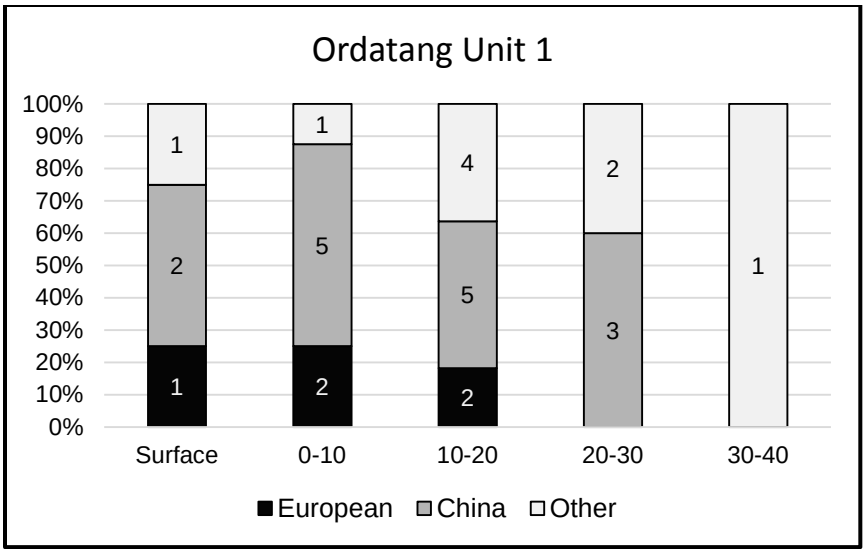


Figure 6.3 Ordatang Unit 1 tradeware by origin.

earthenware sherds does suggest the tradeware is likely associated with the *perk* occupation. Of the 29 sherds found in this unit, 15 (50%) of true Chinese porcelain, 5 (17%) European porcelain, and the remaining 9 (31%) were not true porcelain but were tradeware from undetermined places ("other"), possibly Mainland Southeast Asia or China. In this unit, more tradeware came from China than Europe, but European tradeware, including English-made pearlware is present. The Chinese porcelain is lower quality, *kraak*-or Swatow-style for export market. A possible *rouge-de-fer* red overglaze enamel-ware was found at 30-40 cm. This red enamelware is less common than the blue underglaze porcelain (Madsen and White 2011). The datable material ranges from c.1700-post-1830.The small size of most of the sherds precludes me from identifying the overall design which could be used to further narrow the date range. The small size also inhibits the identification of form, but 4 plate fragments, 5 bowl fragments, and 2 jar fragments were identified, but I could not identifying the original form of the remaining 18 sherds.

Unit 2

I found 38 sherds of tradeware in Unit 2 (Figure 6.4). All tradeware sherds were found above 40 cm and are likely associated with the *perk* occupation. Of the 38 sherds, 20 sherds (52%) of true Chinese porcelain, 13 sherds (34%) of European porcelain or stoneware, and the remaining 5 sherds (13%) of indeterminate origin (Figure 6.5). Similar to Unit 1, the Chinese porcelain was the lower-quality *kraak* export ware. Also similar to Unit 1, about half the assemblage was of Chinese origin, but the percent of European and Other are reversed in Unit 2. The small size, again, made dating difficult, but one sherd did have the manufacturing date (1836) and location (Maastricht) conveniently stamped on the base. In addition, the red transferware can be dated to post-1830 (Samford 1997). Of the 38 sherds, only 4 could be identified to form: a bowl fragment and 3 plate fragments.

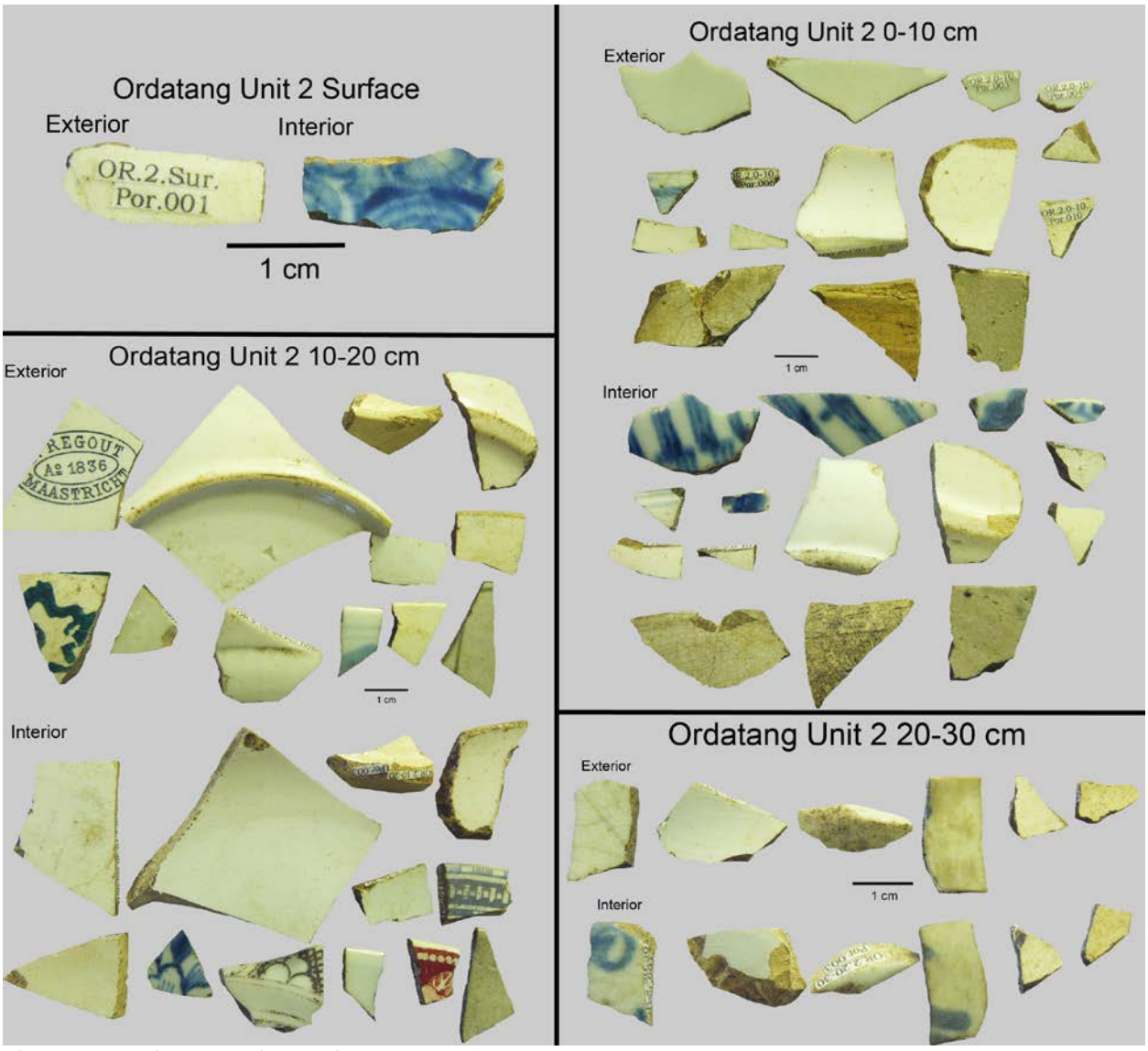


Figure 6.4 Ordatang Unit 2 tradeware.

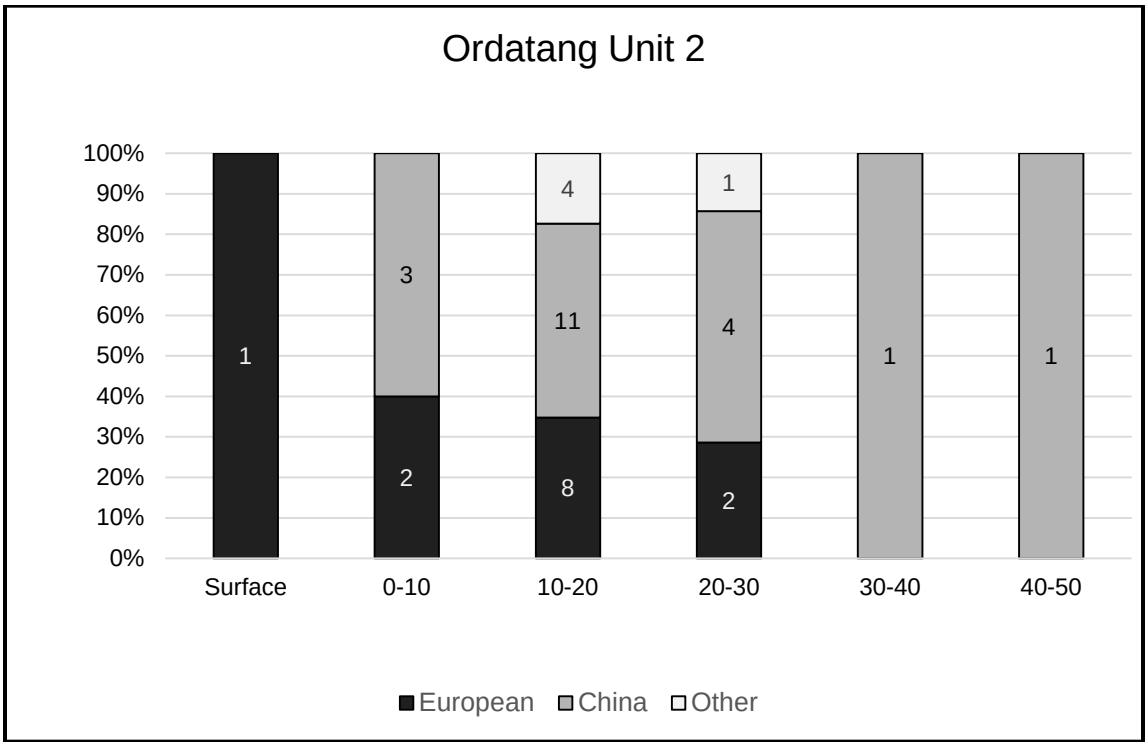


Figure 6.5 Ordatang Unit 2 tradeware by origin.

Unit 3

I identified 35 tradeware sherds in Unit 3 (Figure 6.6). Unit 3 was only excavated to 50 cm, all sherds were found above 30 cm and are likely associated with the *perk* occupation. Of the 35 sherds, 13 sherds (37%) are Chinese porcelain, 18 sherds (51%) are European porcelain or stoneware, and 7 sherds (20%) are of indeterminate origin (Figure 6.7). Unlike the previous two units, about half of the sherds in this unit were identified as of European origin, not Chinese. Many of the sherds (27 or 77%) were plain or undecorated sherds. This also hampered identification. One sherd had a hole drilled through that appears to have been created during the formation process, as opposed to after production. The date range based on decorative patterns suggest late 18th Century to early- or mid-20th Century. Again, few sherds could be identified to form, among them 3 bowl fragments, 2 plate fragments and 2 cup fragments.

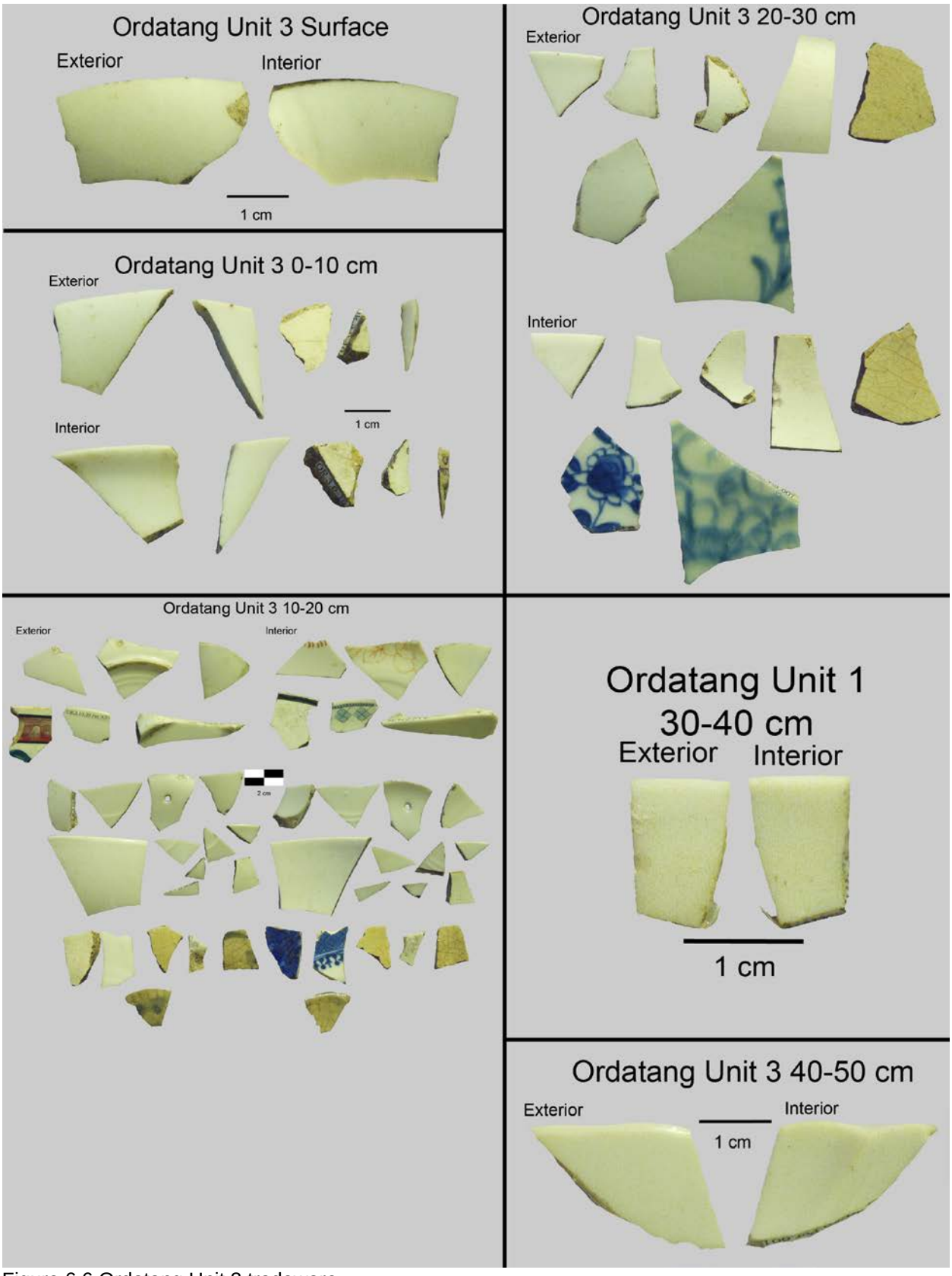


Figure 6.6 Ordatang Unit 3 tradeware.

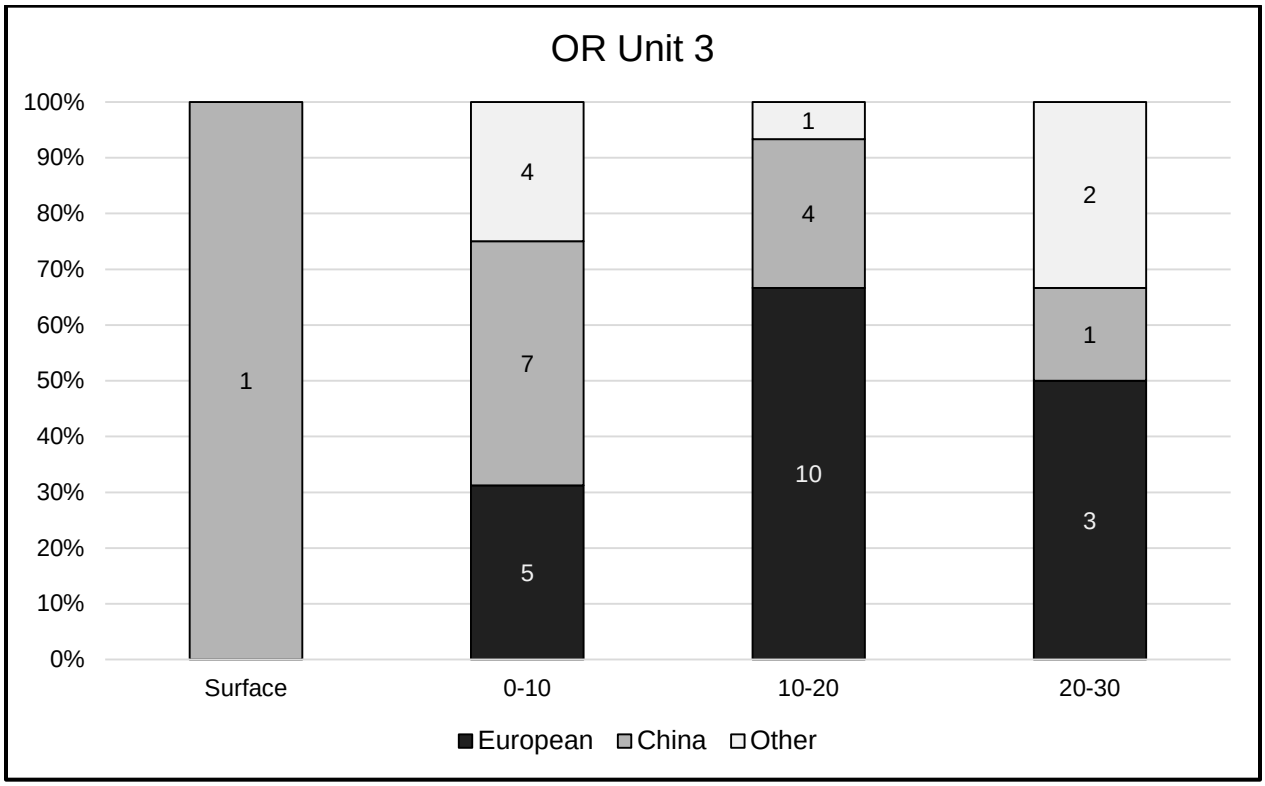


Figure 6.7 Ordatang Unit 3 tradeware by origin.

Discussion

The existence of tradeware at this site suggests a certain element of displaying wealth or access to higher status items than earthenware, but the material is not particularly fine. Furthermore, tradeware sherds are common along the forest paths in the Banda Islands, so the tradeware present at Ordatang may be part of an island-wide sheet midden. Overall, Chinese porcelain makes up a little less than 50% of the assemblage at Ordatang (Figure 6.8). This may be due to the use of older material to build up the site prior to the erection of the *perk* or it may reflect a closer trade relationship to supplies of Chinese porcelain. Unlike the other two sites, no pipe stems or bowls were found in the units (although one pipe stem was found in the auger probes), suggesting that there was less European presence at this site.

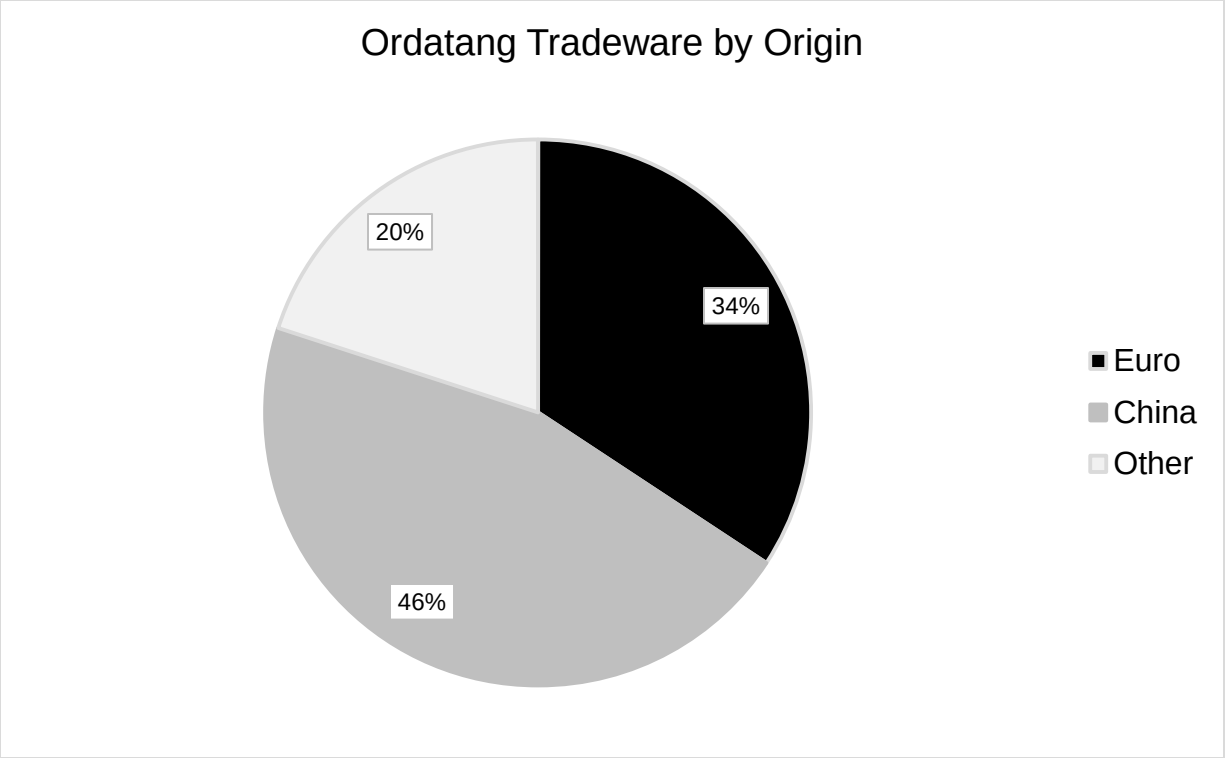


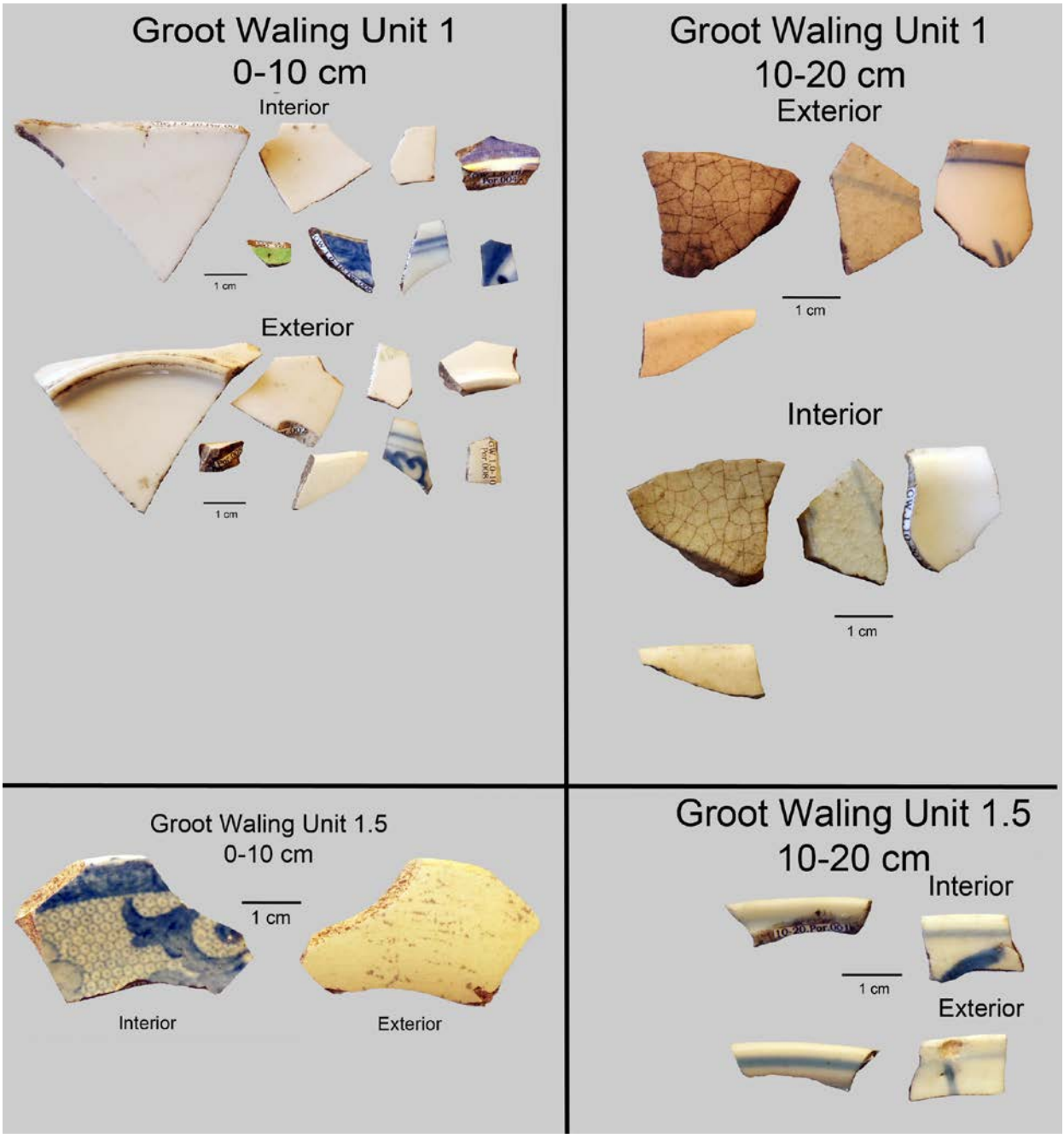
Figure 6.8 Ordatang tradeware by origin.

Groot Waling

Groot Waling had a total of 160 tradeware sherds. Unlike Ordatang, tradeware was found at depths up to 100 cm, albeit few. Tradeware makes up 9% of the ceramic assemblage at Groot Walling,

Unit 1, 1.5

I identified 31 tradeware sherds in the combined Units 1 and 1.5 at Groot Waling (Figure 6.9). Unit 1, 1.5 had refits between two bone fragments at 10-20 cm and 80-90 cm and an earthenware sherd at 40-50 cm and 70-80 cm, suggesting mixed deposits. Of the 31 sherds found, 14 sherds (45%) are Chinese porcelain, 4 sherds (13%) are European porcelain or stoneware, and 13 sherds (42%) are of indeterminate origin (Figure 6.10). Similar to Units 1 and 2 at Ordatang, Chinese porcelain dominates this assemblage. The lack of transferware pushes this assemblage's dates back into the late 18th century, but this is likely due to absence of evidence, not evidence of absence. Only one plate fragment and one cup fragment could be definitively identified to form.


Groot Waling Unit 1
0-10 cm
Interior
1 cm
Exterior
1 cm
Groot Waling Unit 1
10-20 cm
Exterior
1 cm
Interior
1 cm
Groot Waling Unit 1.5
0-10 cm
1 cm
Interior
Exterior
Groot Waling Unit 1.5
10-20 cm
Interior
1 cm
Exterior

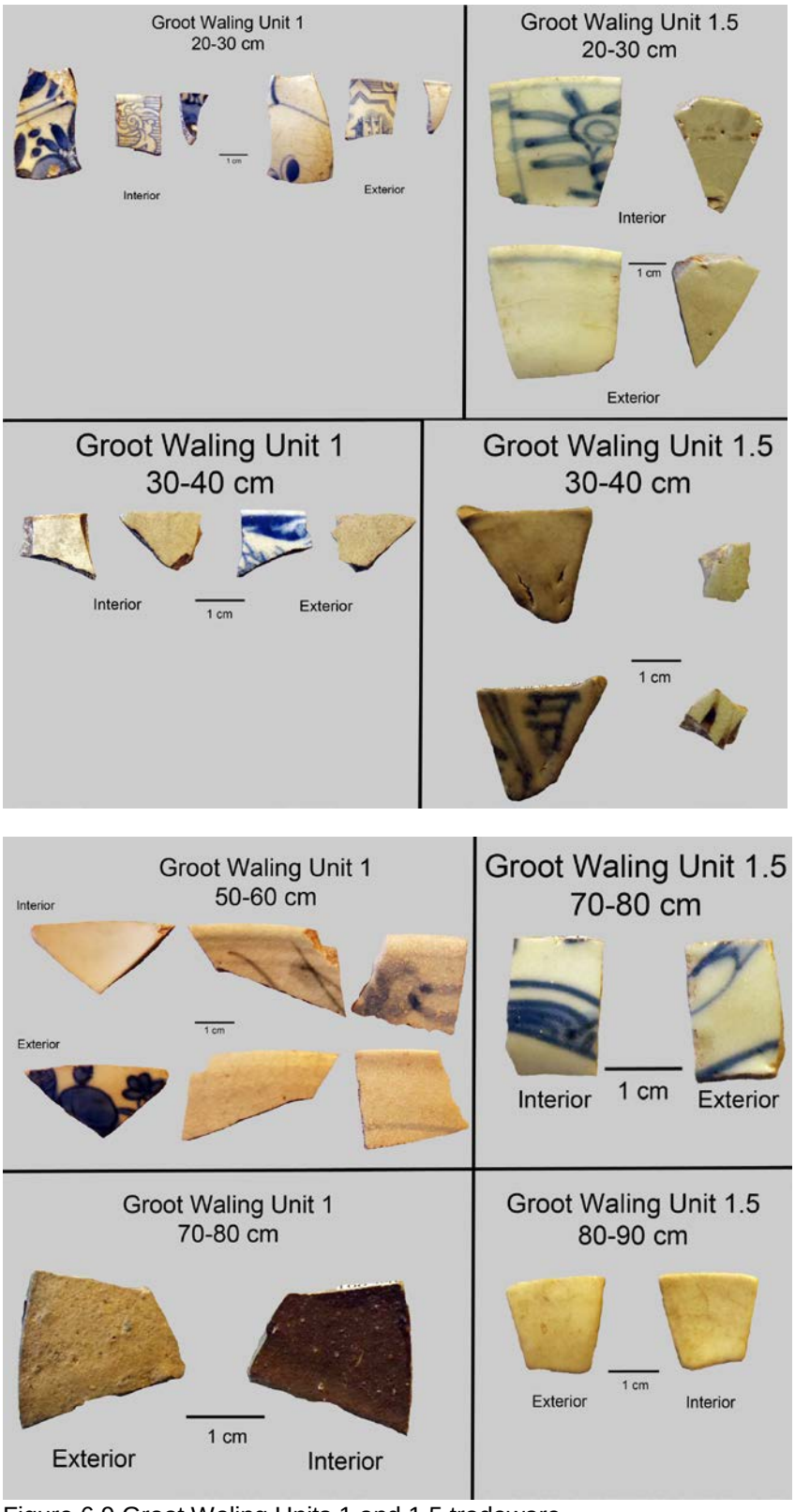


Figure 6.9 Groot Waling Units 1 and 1.5 tradeware.

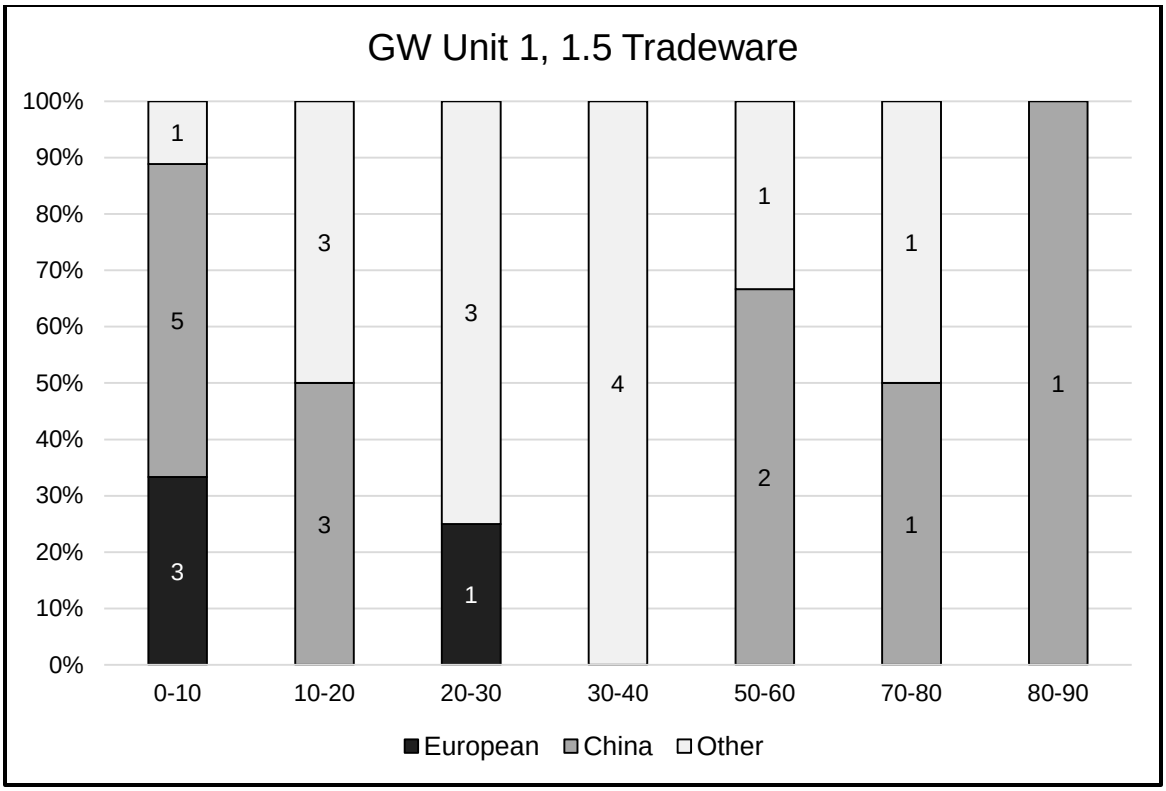


Figure 6.10 Groot Waling Units 1 and 1.5 tradeware by origin.

Unit 2

Unit 2 produced 41 tradeware sherds (Figure 6.11). Unit 2 may have intact stratigraphy with sherds below 30 cm representing a pre-colonial occupation, based on the evidence of water-wear on both tradeware and earthenware sherds. Only two tradeware sherds are found below 30 cm in Unit 2 and they should not significantly impact the analysis. OF the 41 sherds found, 8 sherds (20%) are Chinese porcelain, 20 sherds (49%) are European porcelain or stoneware, and 13 sherds (31%) are of indeterminate origin (Figure 6.12). When decoration is present, there is a mix of Chinese *kraak* designs and European transferware, leading to estimated dates of late 17th century to mid-19th century. Unlike Unit 1, European made sherds dominate this assemblage. Three sherds with a pinkish core and one thick brown glazed sherd suggest a possible Thai origin for these items (Brown 1977). Few items could be identified to form, but those include two bowl fragments, three plate fragments and one cup fragment.

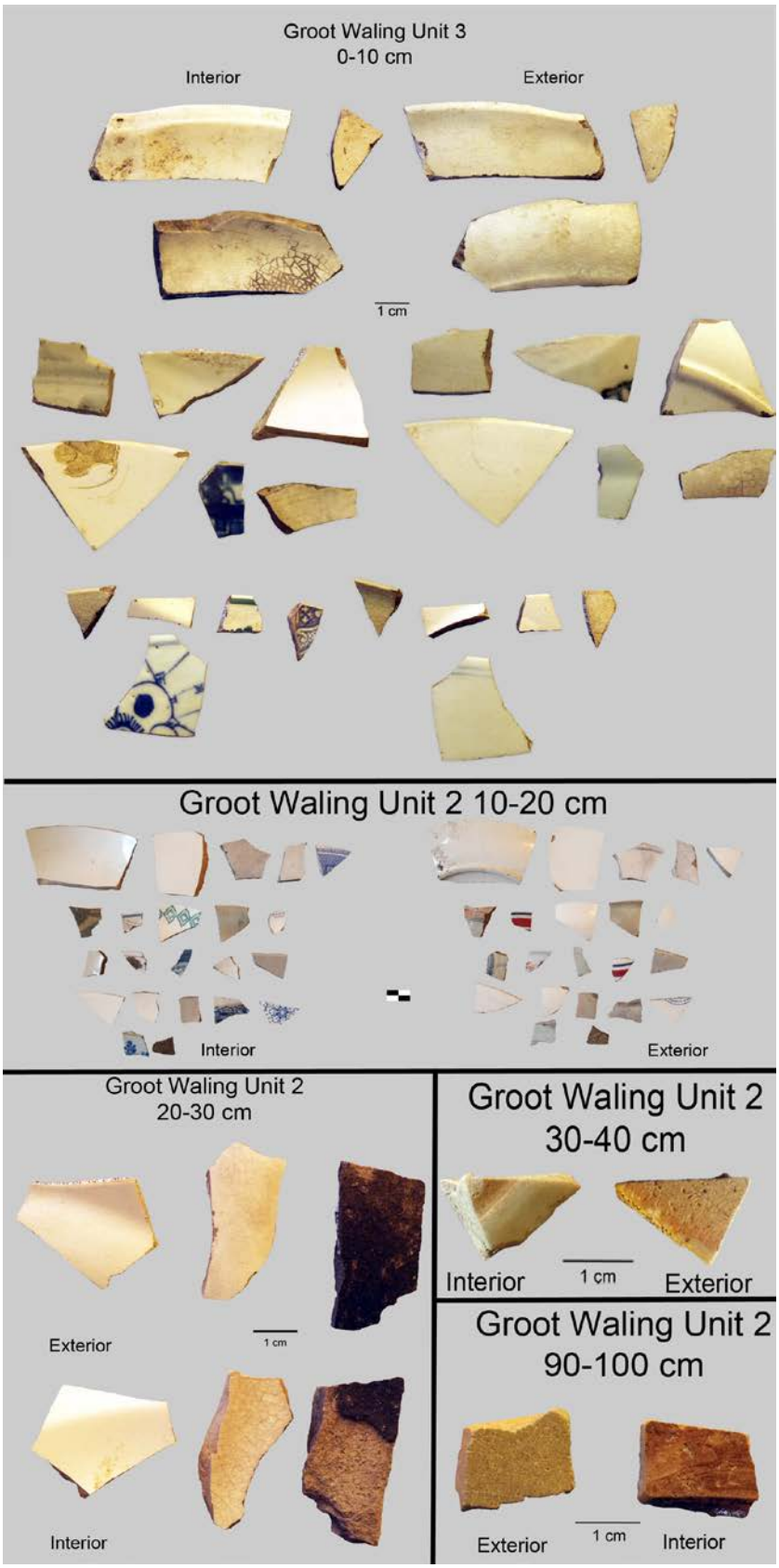


Figure 6.11 Groot Waling Unit 2 tradeware.

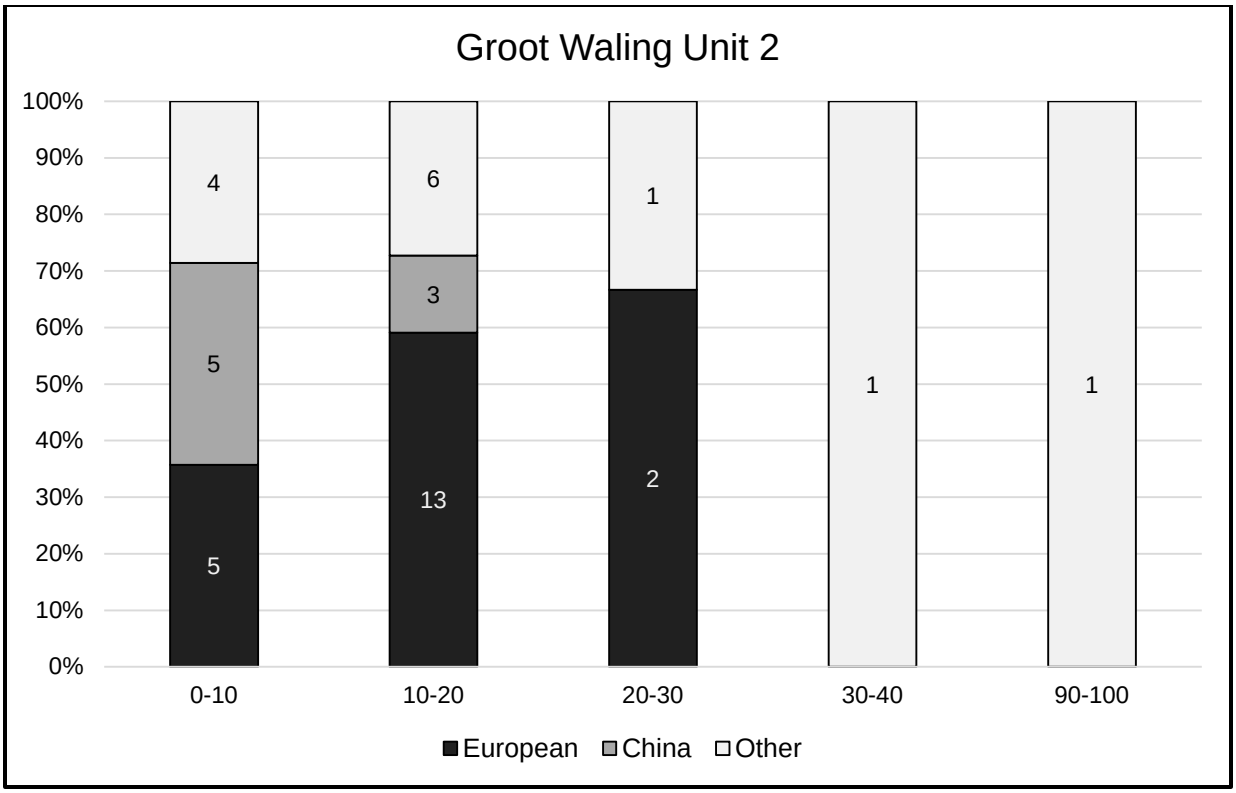


Figure 6.12 Groot Waling Unit 2 tradeware by origin.

Unit 3

Unit 3 produced 64 tradeware sherds (Figure 6.13). Unit 3 may also have intact stratigraphy with a pre-colonial level below 60 cm, again, based on the presence of water-worn earthenware and tradeware sherds. Only one sherd was found below 60 cm and should not significantly impact conclusions. Of the 64 sherds, 21 sherds (32%) are Chinese porcelain, 16 sherds are(25%) European porcelain or stoneware, and 27 sherds (42%) are of indeterminate origin (Figure 6.14). Unlike previous units, sherds of an indeterminate origin were the majority. *Kraak*-style porcelain was common in this unit but transferware was not identified. A stoneware bottle neck and two pipe stems were found in this unit; this items are rare in the assemblage as a whole. The presence of *kraak* porcelain and lack of transferware dates this assemblage to mid-17th to mid-19th century, but as the site is still occupied, this date range is likely an artifact of analysis. Few forms could be identified, but those include two bowl fragments, two cup fragments, one bottle fragment, and two pipe stem fragments. I should note that Unit 3 was located outside the *perk* walls in an area that showed signs of gardening. Four pipe stem or bowl fragments were identified in the auger probes at Groot Walling and three of them were located outside of the walls of the *perk*. As 80% of these artifacts are found outside the walls of the *perk*, this seems to reflect some sort of patterning in behavior but there isn't enough evidence at the moment to determine if the location represents primary or secondary deposits. But the patterning is somewhat intriguing. The mixture of Chinese, European and indeterminate origin items in this assemblage suggests occupants had

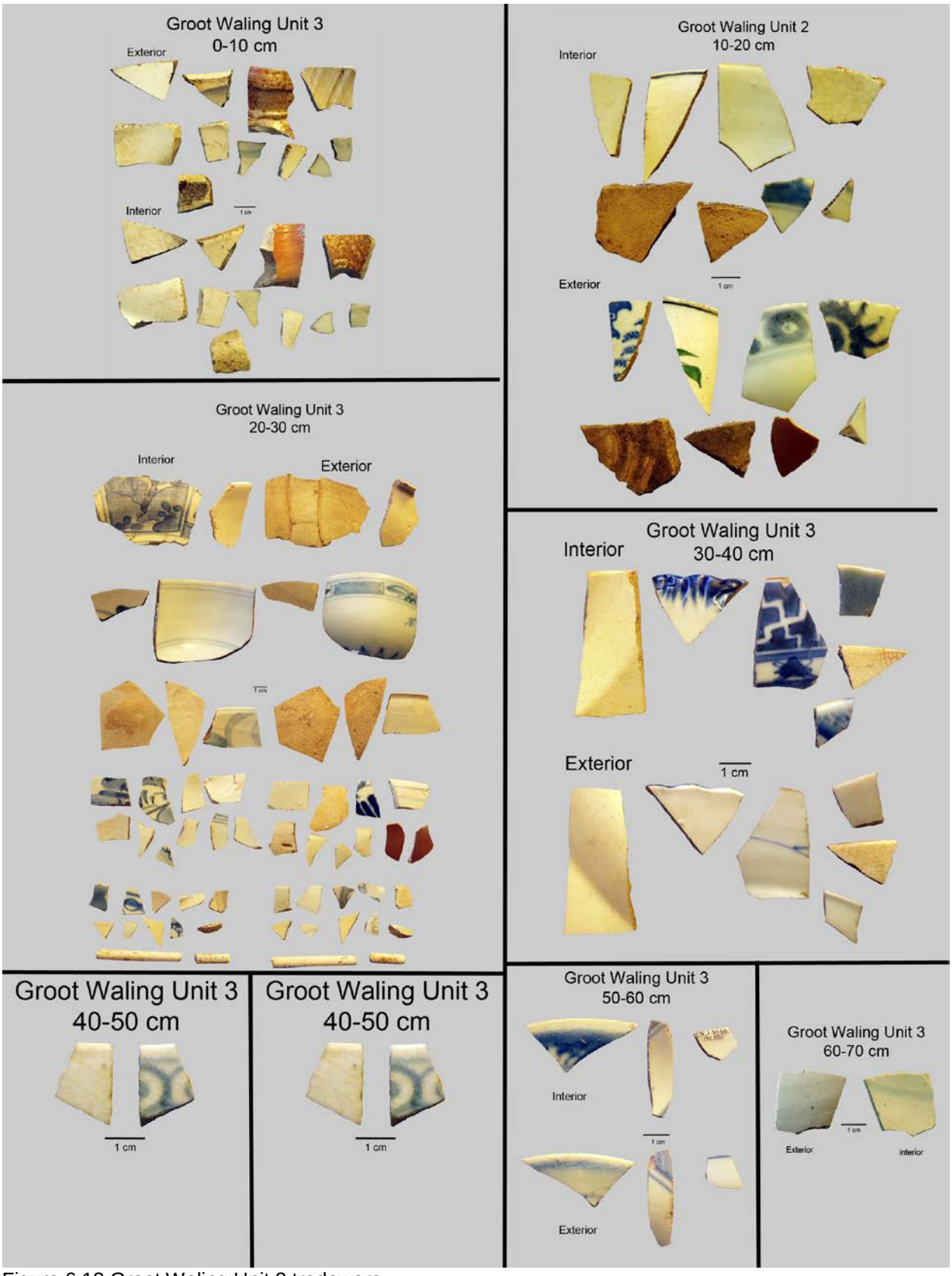


Figure 6.13 Groot Waling Unit 3 tradeware.

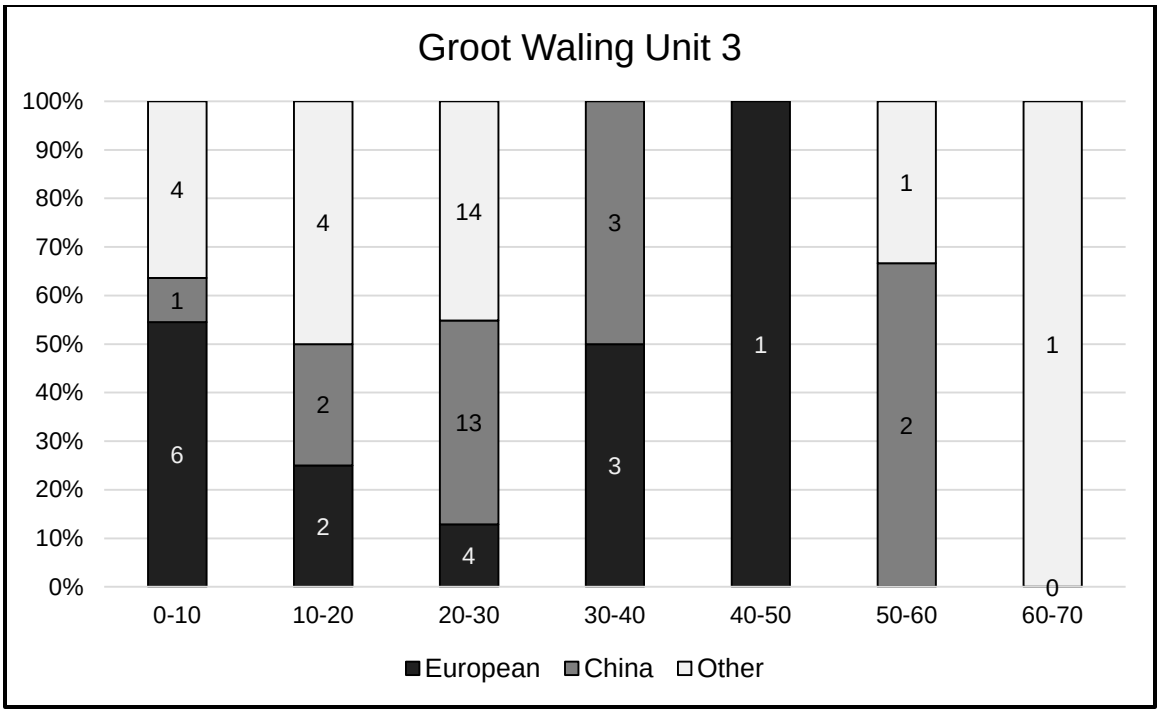


Figure 6.14 Groot Waling Unit 3 tradeware by origin.

access to a wider trade network than Ordatang. Also, the mixture of artifacts suggests more of a creolization of material culture, but this may also be influenced by the exterior location of the unit and possible mixing of multiple household deposits.

Unit 4

The final unit at Groot Waling produced 24 sherds (Figure 6.15). Unit 4 was a mixed deposit, however, based on the predominance of tradeware sherds in the other units at this site dating to the colonial occupation. I am comfortable assuming that the sherds in this unit are associated with the colonial occupation of this site. Of the 24 sherds found, 4 are Chinese porcelain sherds (16%), 4 sherds (16%) are European porcelain or stoneware, and 16 (67%) sherds are of indeterminate origin (Figure 6.16). At least one sherd from 90-100 cm was likely of Mainland Southeast Asia origin based on the pink core. The lack of decoration on many of the sherds hampered identification of origin and dating. I was unable to date any of the pieces. Few of the forms could be identified excepting two plate fragments, one bowl fragment and one cup fragment. Another sherd with a pink core and a thick brown-glazed sherd are likely from Mainland Southeast Asia, but not China.

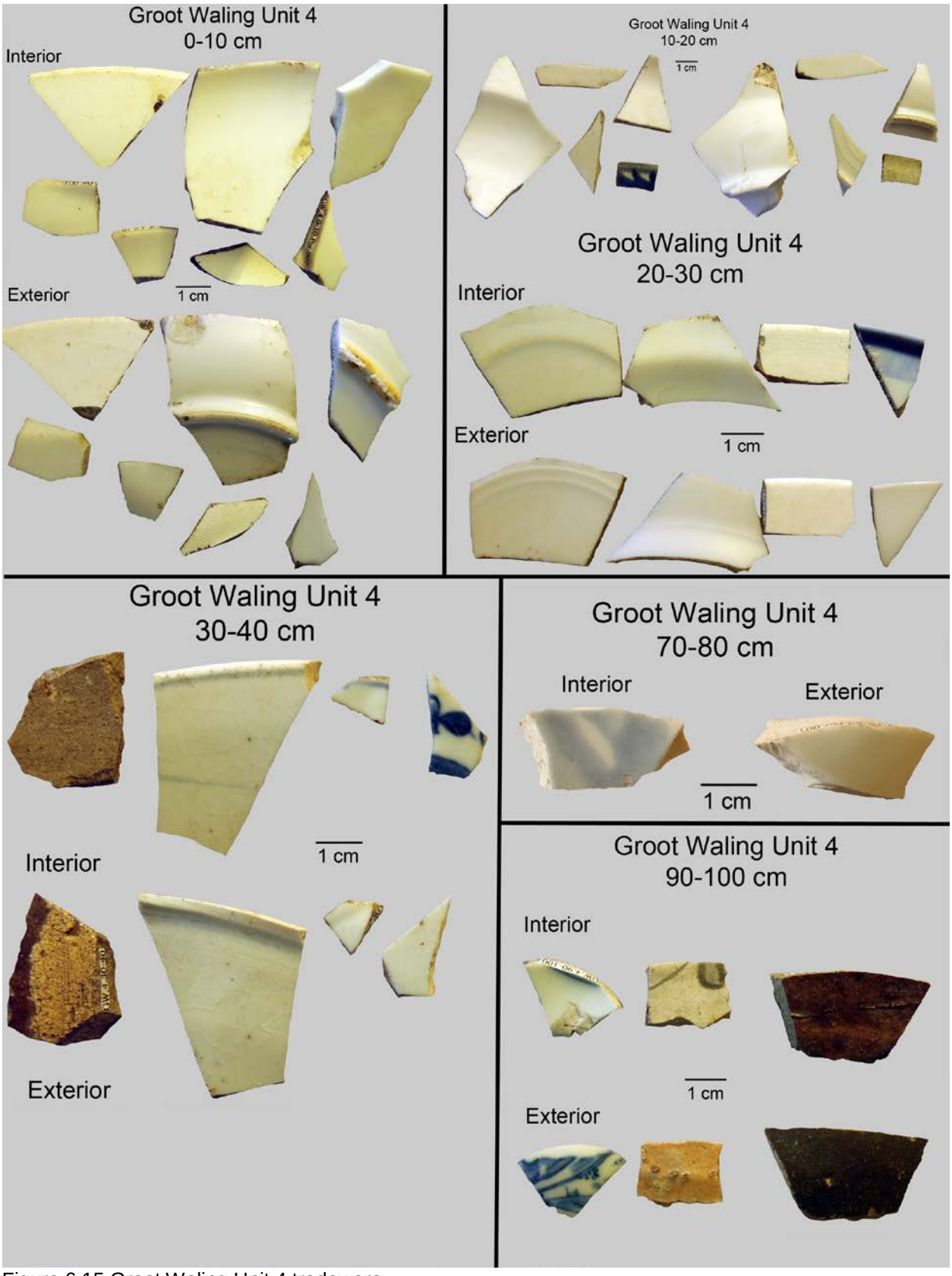


Figure 6.15 Groot Waling Unit 4 tradeware.

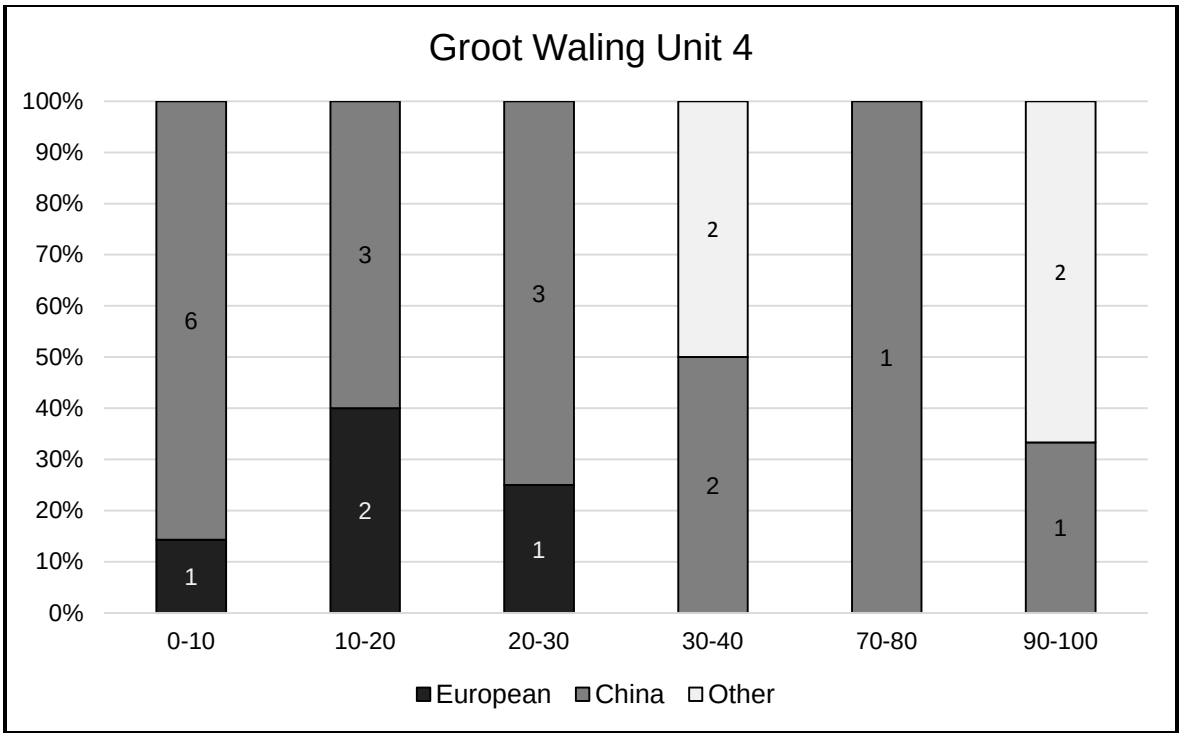


Figure 6.16 Groot Waling Unit 4 tradeware by origin.

Discussion

Groot Waling has more porcelain than Ordatang, but less than Komber. For the sherds that could be dated, the dates are similar to the other *perk* sites and fall within the colonial period. The distribution of origin is about equal between the Chinese, European and indeterminate sherds (Figure 6.17). This equitable distribution may be a result of access to a wider trade network than the other sites. Similar to Ordatang, the tradeware is not particularly fine, but of export quality from China and the mass produced material from Europe.

Komber

A total of 175 tradeware sherds were found at Komber, at depths up to 100 cm. Tradeware sherds at Komber did not have evidence of water-wear, suggesting that these sherds had not been deposited in a dynamic beach environment. However, all units at Komber had mixed stratigraphy. The tradeware that could be dated does date to the colonial period.

Unit 1

Few tradeware sherds were identified in Unit 1 totaling only 8 sherds (Figure 6.18). Of these 8 sherds, half were Chinese porcelain and the other half were of European origin. The small size precluded dating the sherds more narrowly than post-17th Century. One sherd was able to be identified as a handled vessel fragment, but the remainder were unidentified. Unit 1 at Komber appeared to be a mixed

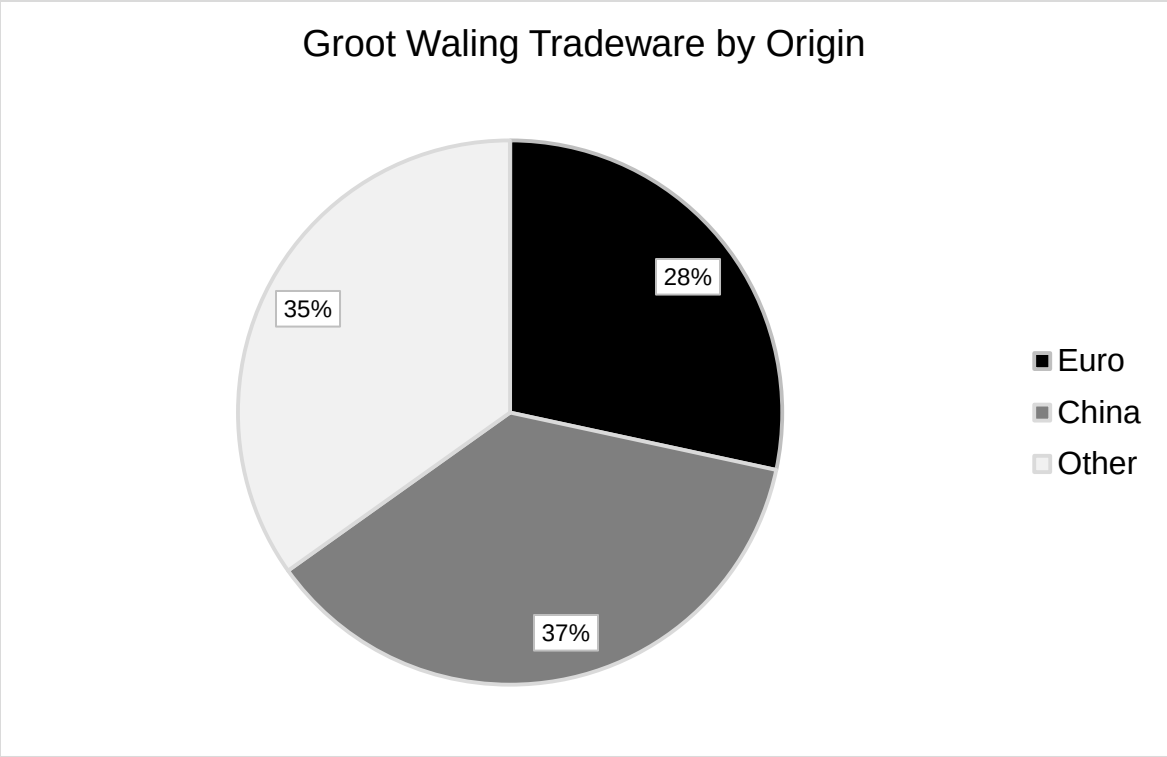


Figure 6.17 Groot Waling Tradeware by Origin.

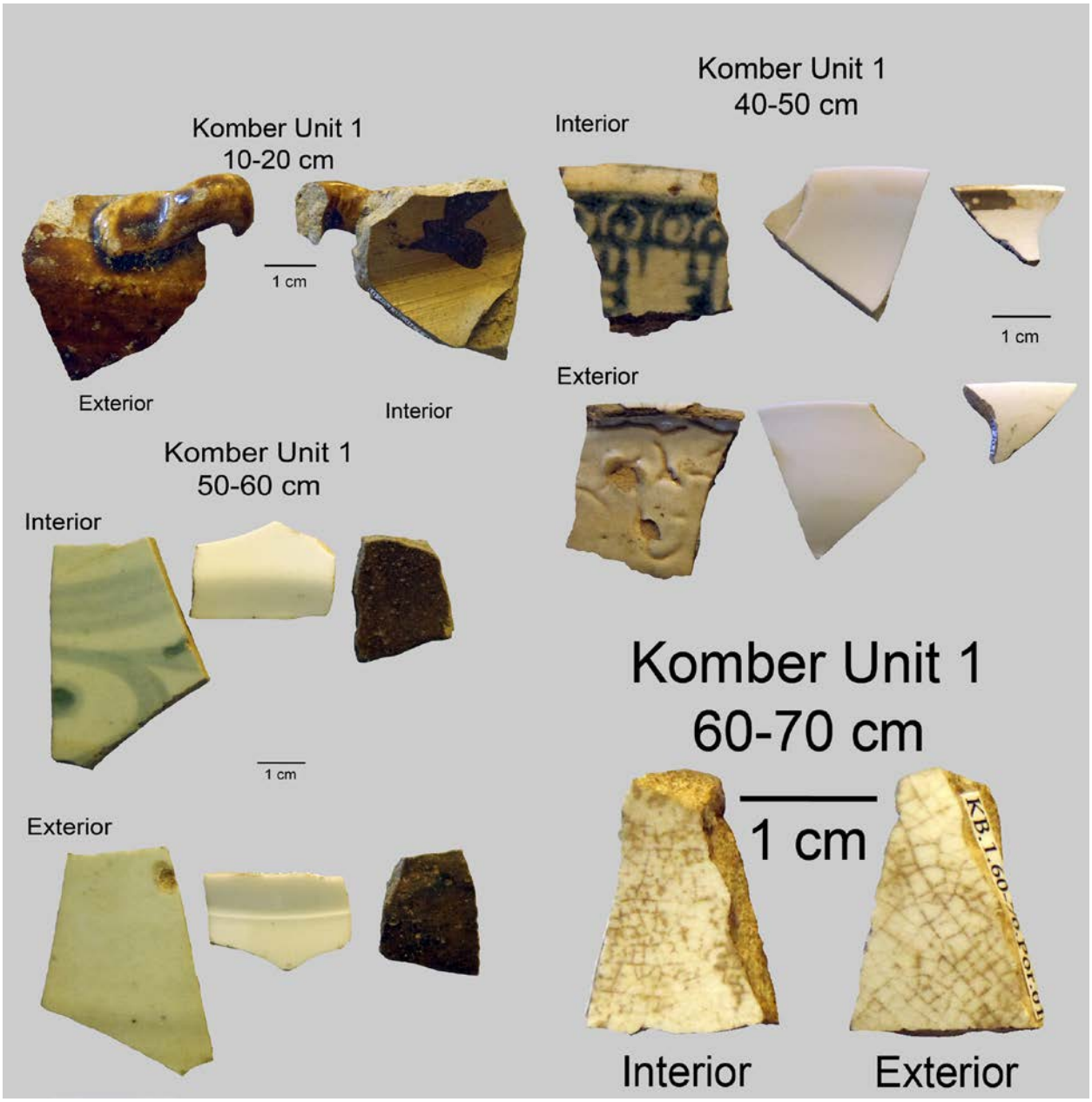


Figure 6.18 Komber Unit 1 tradeware.

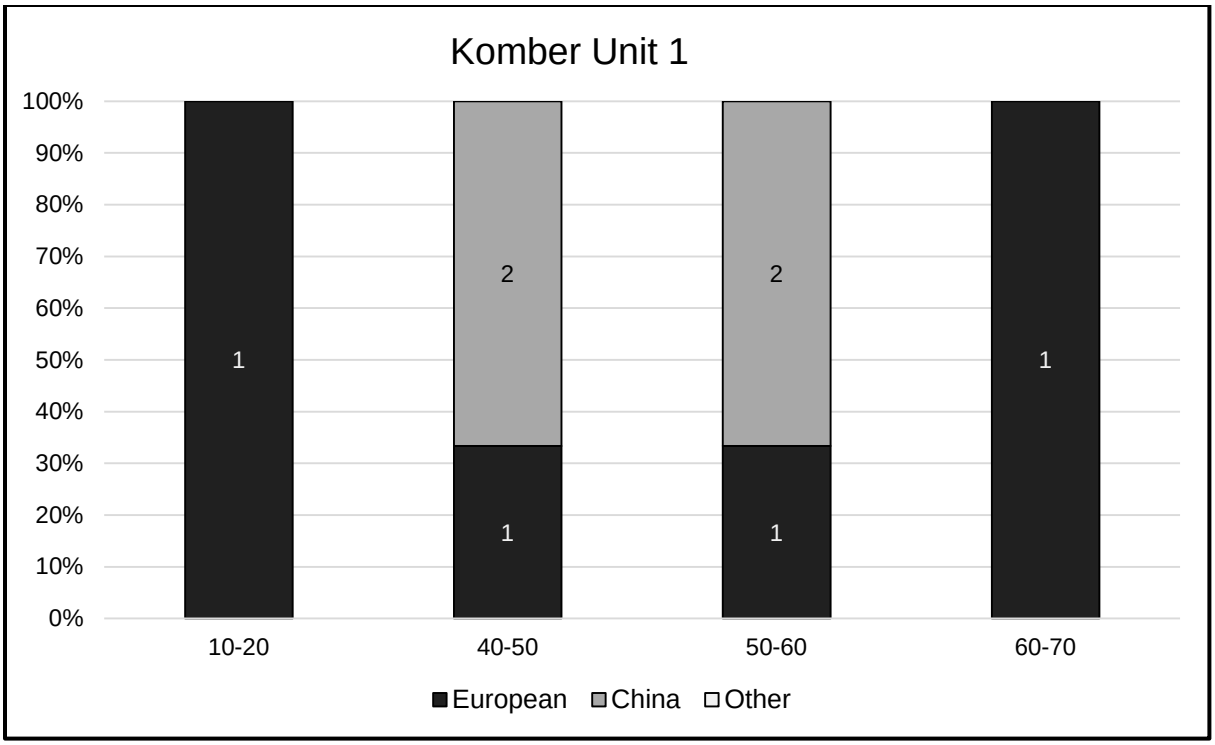
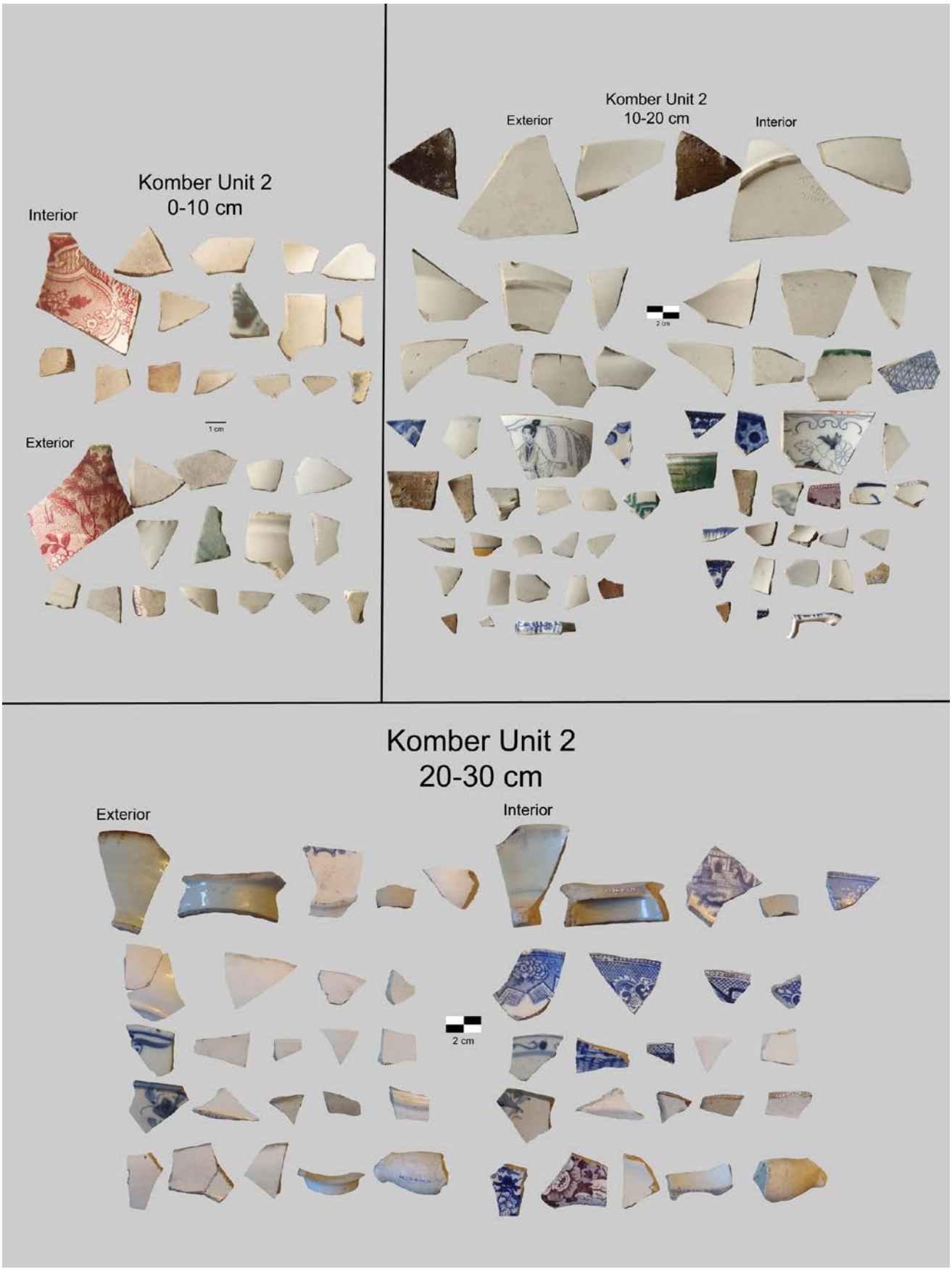
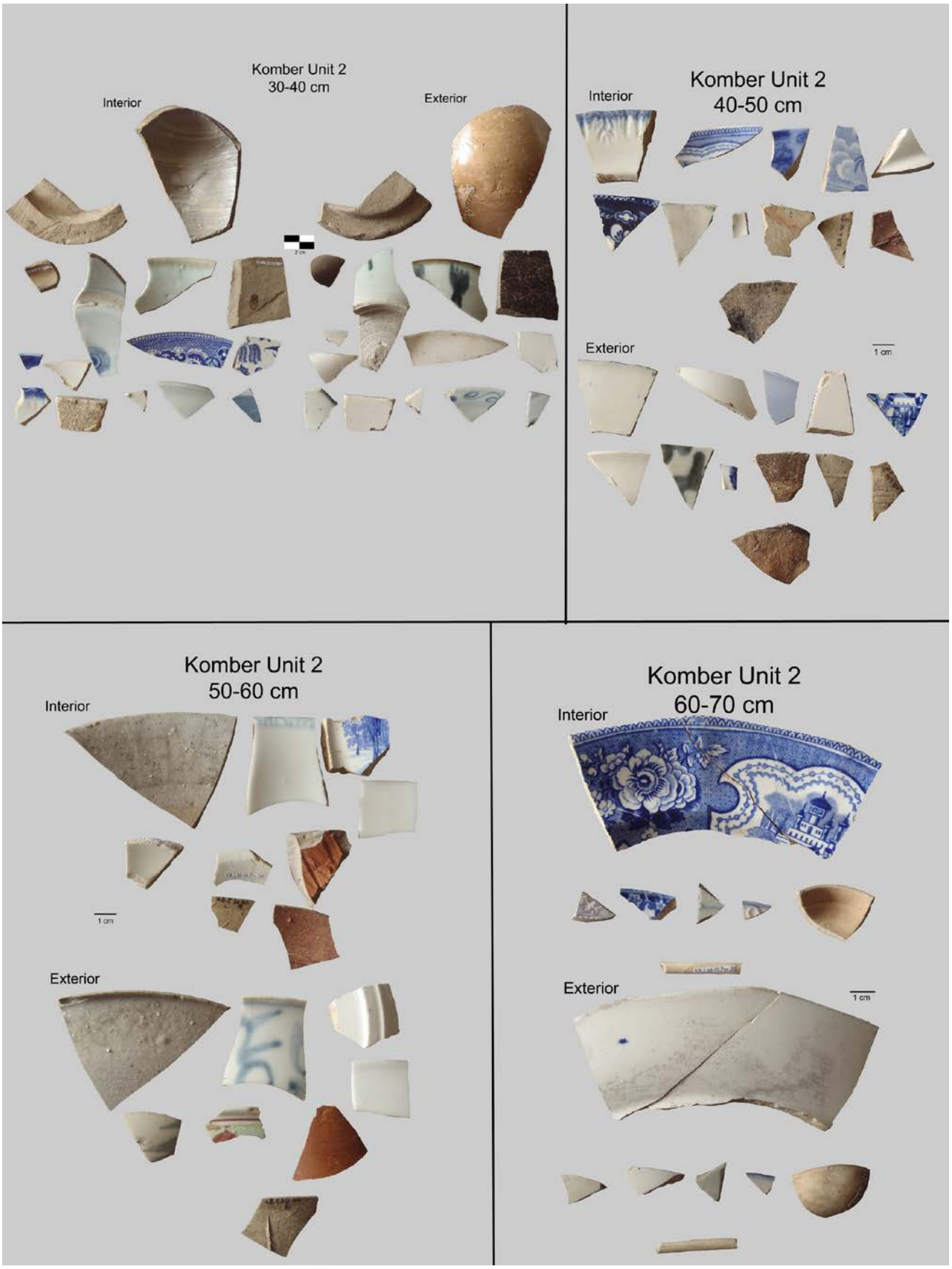


Figure 6.19 Komber Unit 1 tradeware by origin.

Unit 2

Unit 2 was placed between auger probes that had produced large amounts of tradeware sherds. Unit 2 was by far the most productive unit in terms of tradeware, yielding 142 sherds (Figure 6.20). Of these 142 sherds, 25 sherds (18%) were Chinese porcelain, 83 sherds (58%) were European porcelain or stoneware, and the remaining 34 sherds (24%) were of indeterminate origin (Figure 6.21). The transferware, pearlware, and *kraak*-style porcelain suggest a date range of mid-18th Century to mid-19th Century. The unit yielded red, purple, and blue transferware suggesting this site had a wide variety of trade options available. Both Dutch-made (evidenced by the Maastricht maker's mark) and English-made pearlware were present. A pipe bowl and pipe stem fragments and stoneware bottle fragment show additional available European wares. Chinese porcelain, Japanese Imari (or Chinese made Imari-influenced), and a possible Celadon green sherd from Mainland Southeast Asia show a similar variety of available Asian wares. The larger sherd size allowed for slightly more forms to be identified including 17 bowl fragments, one teacup handle, 1 lid fragment, 20 plate fragments, two jar fragments, four pipe fragments, and two tile fragments. This unit, as has been previously discussed, is likely the result of a modern fill event to build up the beach as an anti-erosion measure. As such, it likely does not represent the *perk* habitation but more likely recent village habitation. That being said, the variation in tradeware in this unit suggests that inhabitants of the village or surrounding area did have access to the wider trading network and were not inhibited from acquiring goods.


Komber Unit 2
0-10 cm
Interior
1 cm
Exterior
Komber Unit 2
10-20 cm
Exterior
Interior
2 cm
Komber Unit 2
20-30 cm
Exterior
Interior
2 cm


Komber Unit 2
30-40 cm
Interior
Exterior
Komber Unit 2
40-50 cm
Interior
Exterior
1 cm
Komber Unit 2
50-60 cm
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Komber Unit 2
60-70 cm
Interior
Exterior
1 cm

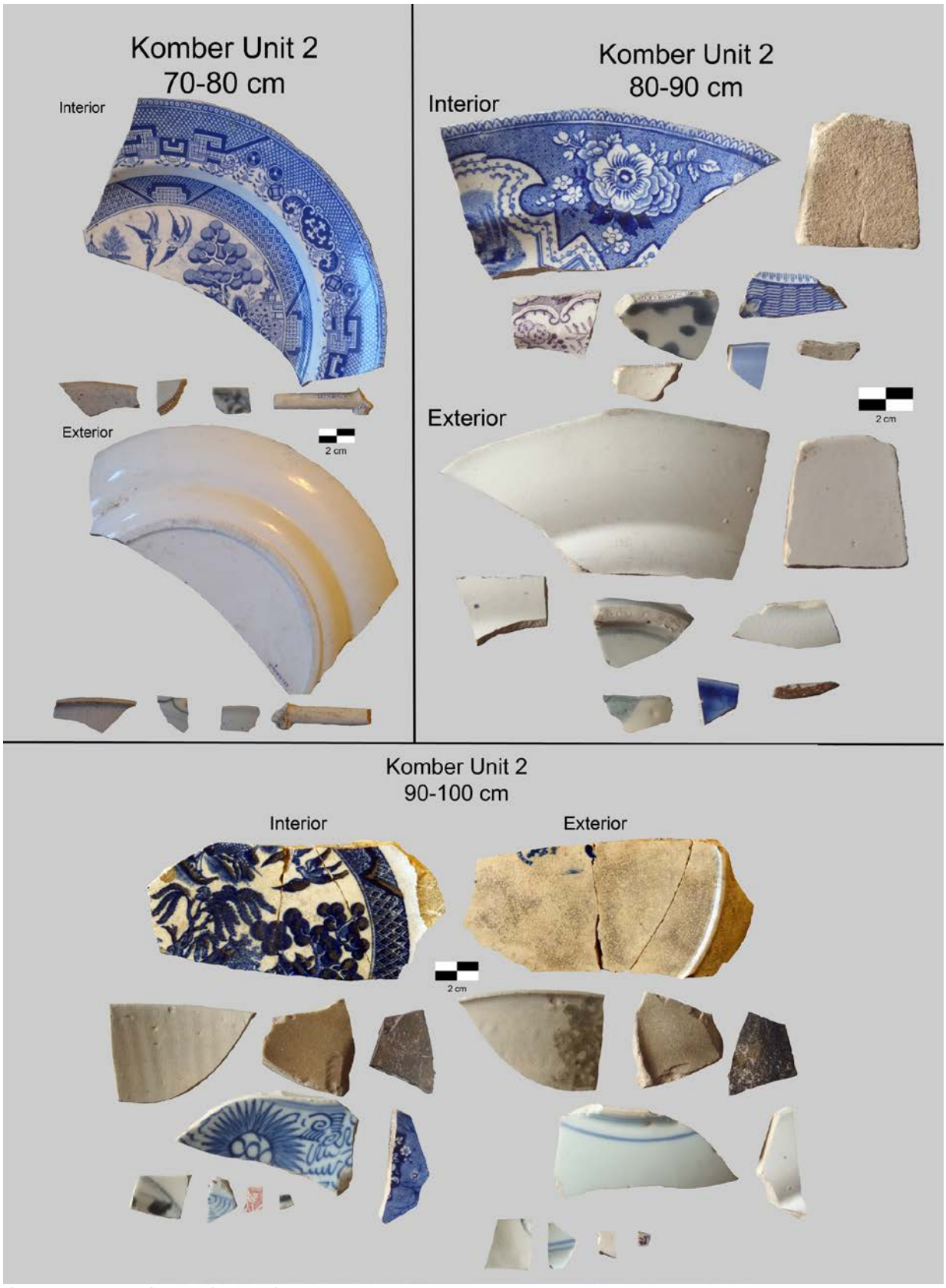


Figure 6.20 Komber Unit 2 tradeware.

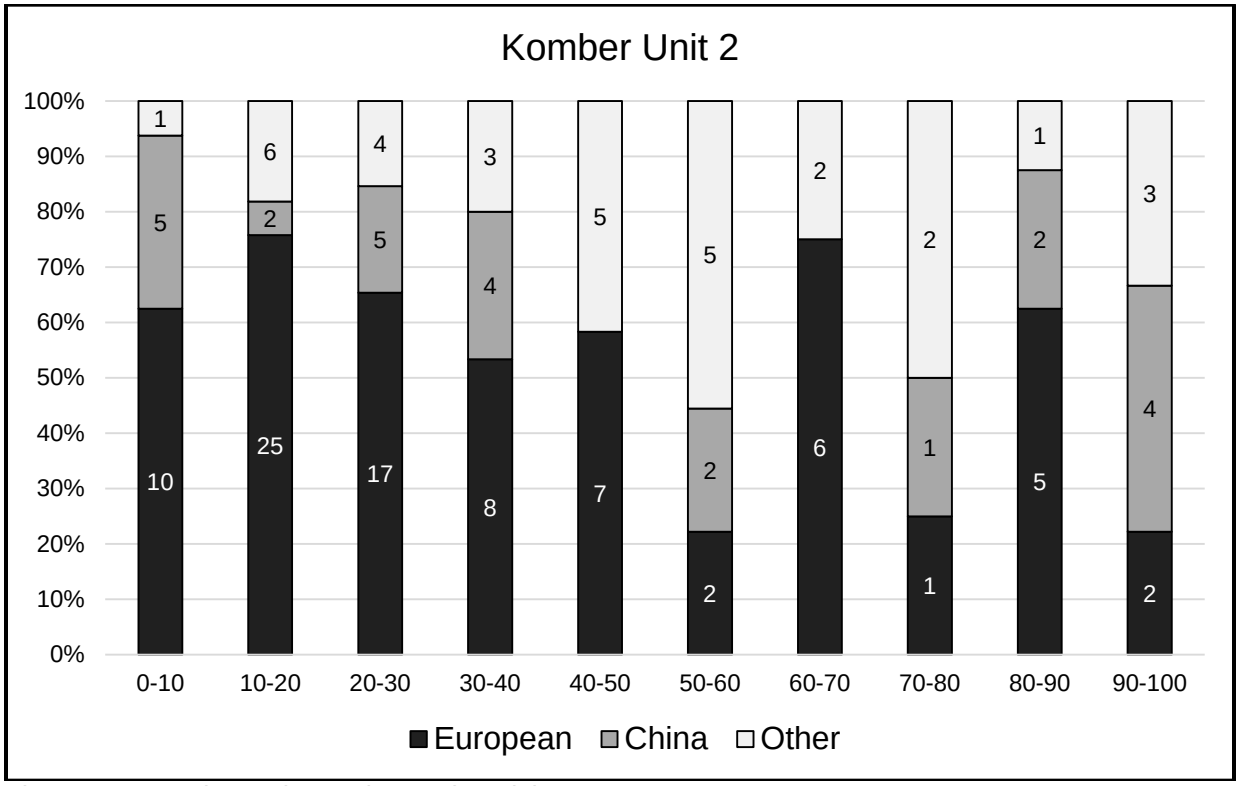


Figure 6.21 Komber Unit 2 tradeware by origin.

secondary deposit that had been created during the recent construction of the school within the *perk* compound.

Unit 3

Unit 3 was located outside the *perk* walls and only excavated to a depth of 40 cm due to difficult conditions. The only artifact class that was recovered from this unit was tradeware; 25 tradeware sherds were recovered (Figure 6.22). The majority of the tradeware was of European origin with 20 sherds (80%). The remaining 5 sherds (20%) were Chinese porcelain. Ten of the sherds could be identified as plate fragments. European transferware suggests mid- to late-19th Century date for the assemblage. One blue willow pattern plate had a maker's mark from Maastricht and the green pearlware (level 10-20 cm) is likely from England.

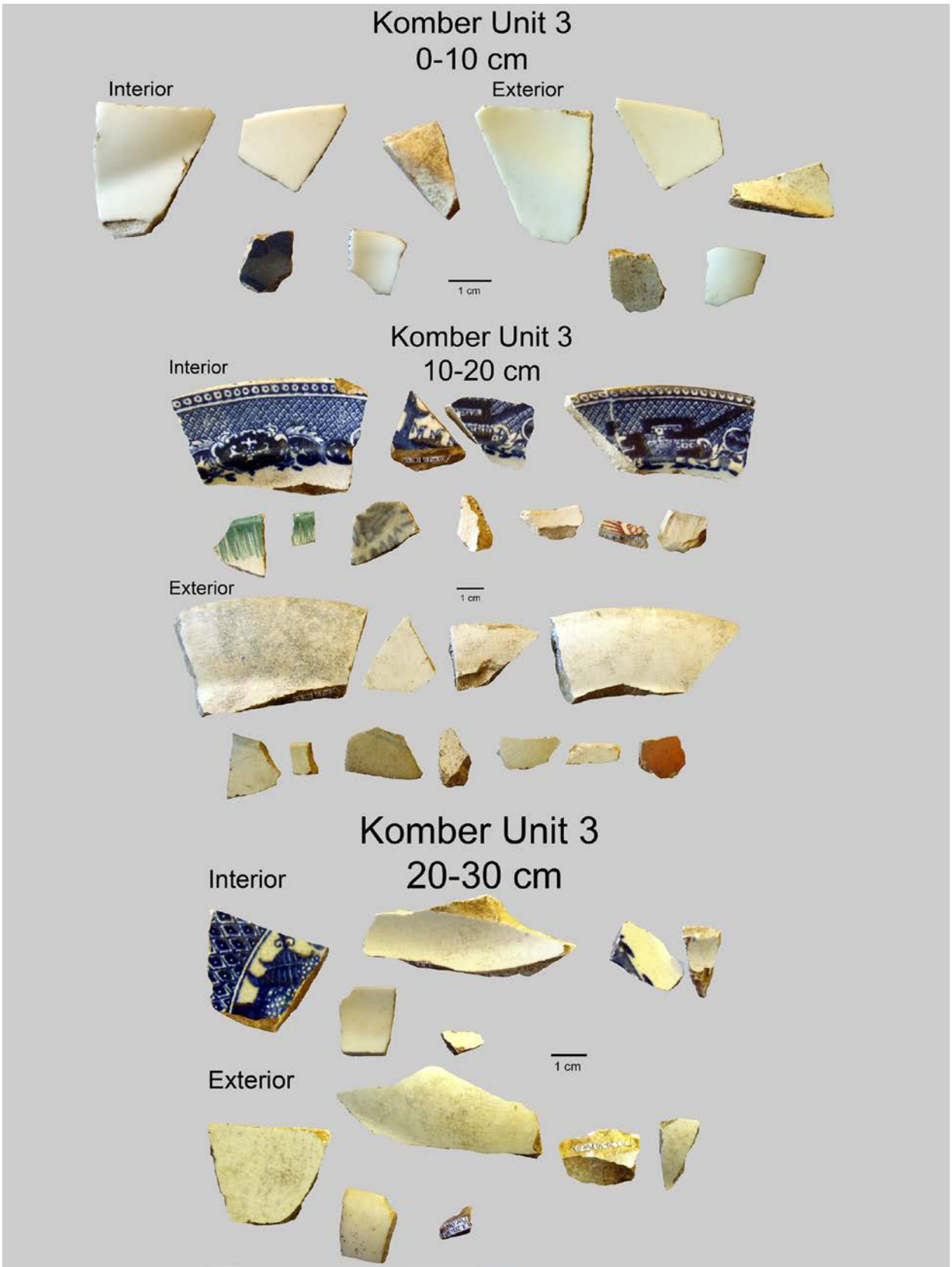


Figure 6.22 Komber Unit 3 tradeware.

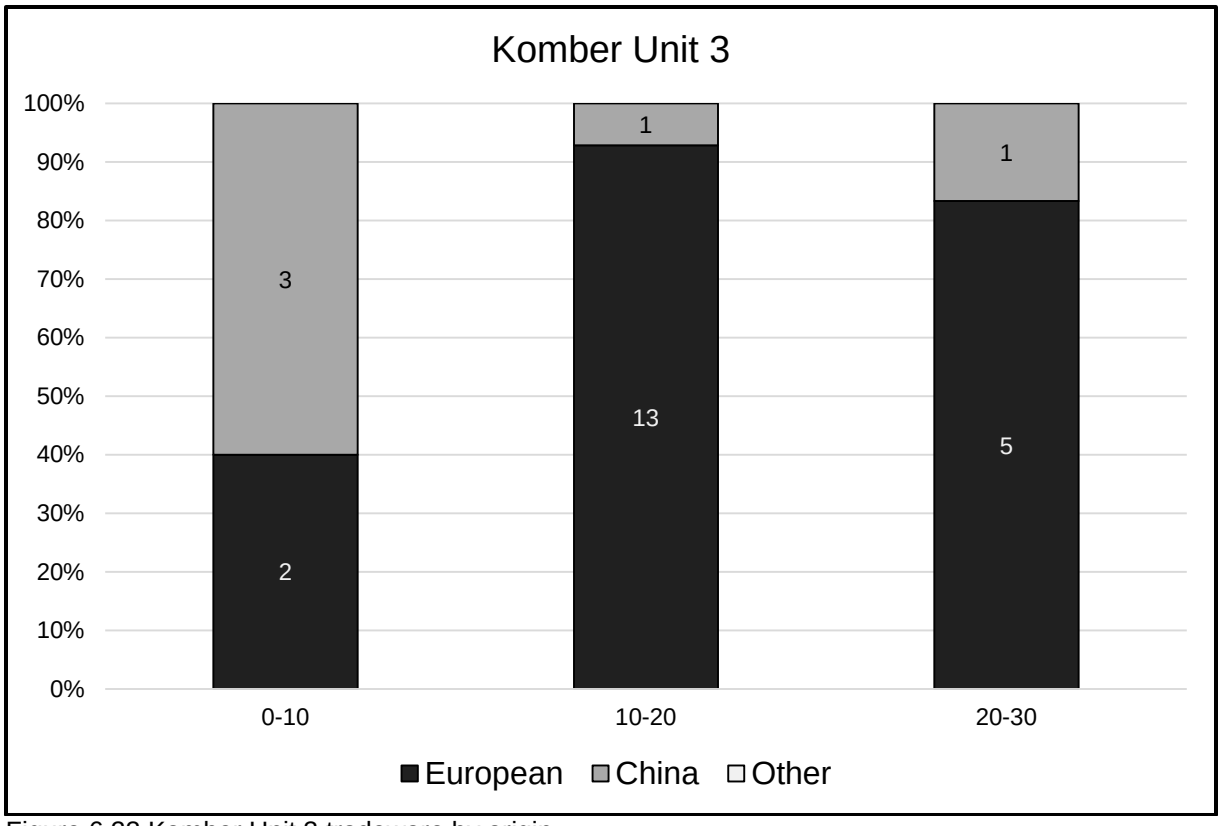


Figure 6.23 Komber Unit 3 tradeware by origin.

Discussion

Unit 2 from Komber is unique in the amount of porcelain produced. While I don't think that it can necessarily be associated with the *perk* occupation, it does show that a variety of tradeware was available in the location and the lack of variation in material in the other units could reflect a lack of tradeware at the *perken* sites. The amount of European transferware at Komber in comparison to the other sites is interesting. This may be a result of the coagulated village deposit and may reflect the ability of inhabitants of the village to purchase tradeware during the 19th Century. Alternatively, the deposit may be the result of recent inhabitants rejecting the old material culture that represented colonial powers by using it effectively as trash to build up the beach. Certainly, local residents could have provided information that could elucidate these matters, but due to time constraints, I was unable to quiz local inhabitants about the timing and nature of the erection of the school and the construction of the beach.

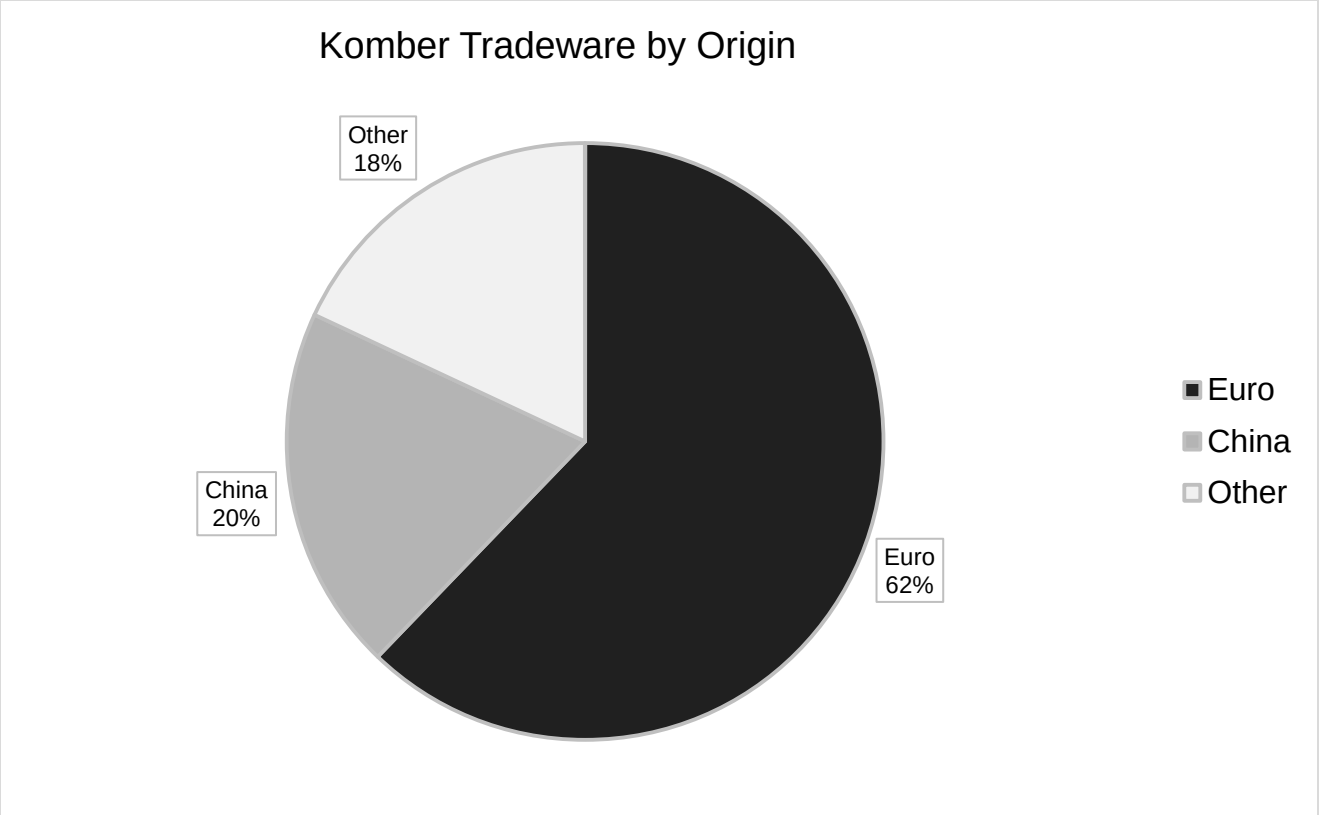


Figure 6.24 Komber Tradeware by Origin

All Sites Comparison

When comparing the distribution of tradeware origin across the three sites, there are differences (Figure 6.25). About half of Ordatang's assemblage is from China, Groot Walling has about equal distribution of Euro-China-Other tradeware, and Komber has mostly European tradeware. It is interesting that the contemporaneous *perken* have different distributions of tradeware given that they were supposedly part of the same trading network. Considering that the Chinese-origin tradeware would likely have been the oldest, associated with the beginning of the Spice Trade and that the European tradeware would be more prevalent with the later colonial period (after the Europeans developed the technology to create porcelain and after a desire for European-made porcelain had been created in consumers), the distribution of tradeware matches the general age distribution of the earthenware with Ordatang having the oldest assemblage, Komber the most recent and Groot Walling falling in between the other two. The tradeware does seem to hover between the mid-17th Century and mid-19th Century, despite the fact that the three sites are known to have been occupied well into the 20th Century (and 21st Century). This is very likely an artifact of analysis in that it was easiest for me to date the European transferware and Chinese *kraak* porcelain, but other plainware pieces could be dated later by someone with more experience in dating tradeware. However, this date range might also reflect the height of the Bandanese nutmeg export economy. After the elimination of slavery in 1856 and the increase in competition from other areas that had started nutmeg plantations, the perkeniers abandoned, sold, or lost their plantations to their debtors

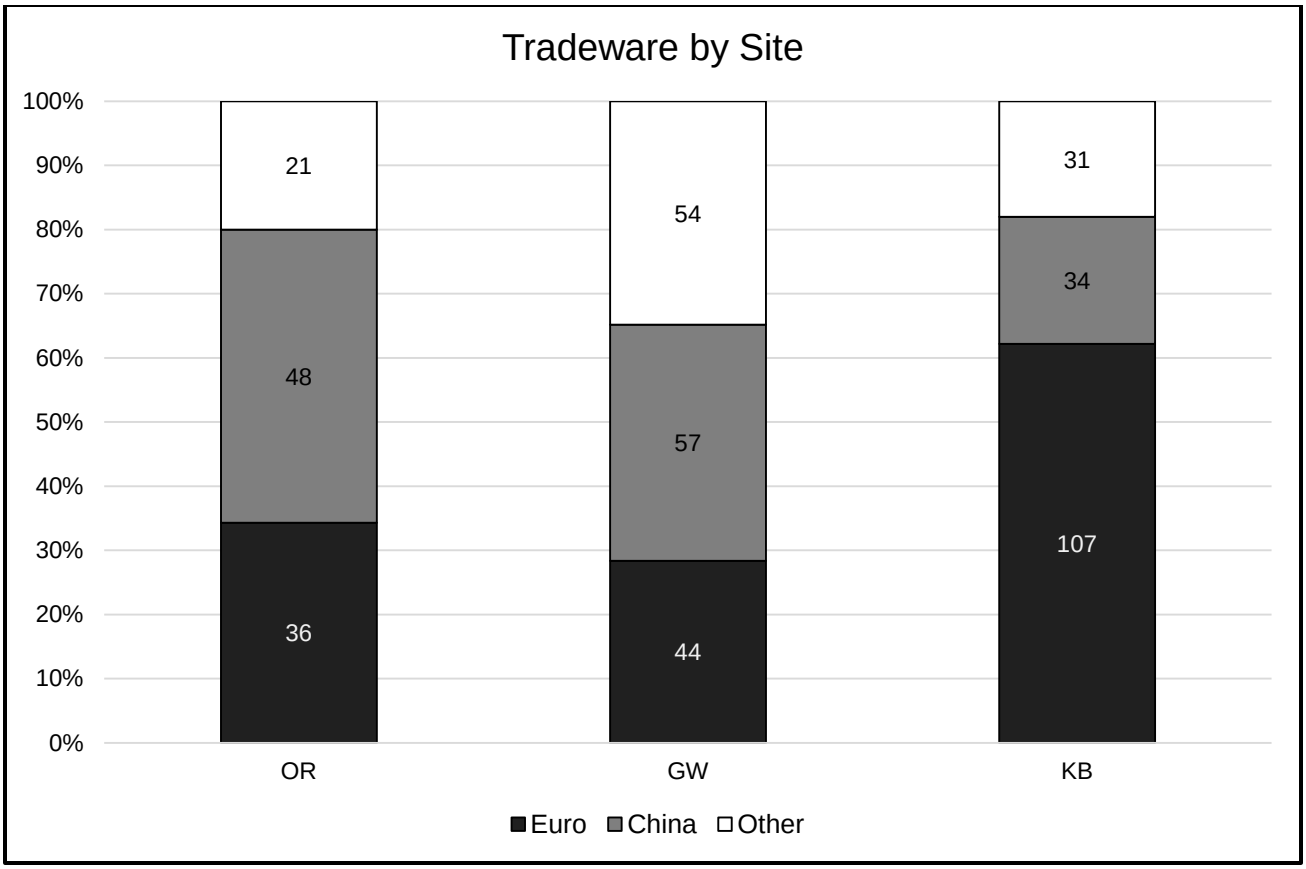


Figure 6.25 Tradeware distribution by site.

(Hanna 1978). The lack of late 19th- early 20th century tradeware might be a result of this material no longer being imported or no longer affordable for many of the residents. Alternatively, the lack of later tradeware could be the result of the changing nature of *perken* use after the eradication of slavery. There was also significant political upheaval in early-to-mid 20th century China which impacted porcelain production and export. This date distribution is intriguing and could be further investigated in the future.

Another intriguing pattern in the tradeware is the origin of the European tradeware. There are three pieces of tradeware with intact maker's marks and all are from Maastricht. There were other porcelain/ stoneware factories in the Netherlands, but the factory from Maastricht seems to have been favored for importation to the Banda Islands. Three is a very small sample size from which to draw any conclusions, but it is interesting that all the maker's marks are from the same location, despite the fact that the sherds were all found at different sites. There is also evidence for English pearlware dating to the late 18th- early 19th century. This broadly overlaps with the English occupation under Sir Stamford Raffles during the Napoleonic Wars and shows that the Banda Islands were still part of the global trade network during this period. English made porcelain and stoneware was becoming less expensive at this point in time (Miller 1980:6) and the presence may also reflect the lower cost of these ceramics.

As far as can be identified, the tradeware present at the *perken* sites are generally export quality or mass produced tableware as opposed to special orders or decorative items. This suggests a relatively

lower economic status than the people who were able to acquire large serving platters, special order personalized items, or non-function figurines or other decorative items. The *perken*, then, were probably not the location of elite gatherings that used the display of exotic porcelains as a form of social signaling.

Forms

As noted above, the small size of most of the sherds precluded the identification of the original form of the vessels. Of the 440 sherds, only 102 could be identified to form. Of those 102, there were 33 bowl fragments, 8 cup fragments, 47 plate fragments, 8 jar/jug/bottle fragments, and 6 pipe fragments (Figure 6.26). This suggests individual settings for food service. However, this likely also represents what was available for purchase. While larger communal serving platters and vessels were made and may have been used for elite dinner parties, this likely occurred at elite residences in Banda Neira and not the *perken*, based on historical descriptions (e.g., Bosma and Raben 2008:150-161).

The use of European-style serving vessels by workers was predicted by the creolization model. There is evidence in North American enslaved workers contexts that the workers were either reusing the higher status stoneware or porcelain (after it had been abandoned by the elites) or were purchasing the items themselves (e.g., Neiman et al. 2000, Otto 9184). This has been interpreted as workers consciously adopting the symbols of the dominant class as a signal that the workers, too, can afford the symbols of power, despite their enslaved or lower economic status (e.g., Galle 2010). I should note that I have seen China cabinets in modern households in Banda Neira displaying porcelain sets. The use of porcelain as a specific display item exists in the modern Banda Islands. The furniture used for display are European-style large cabinets with glass doors. The use of European furniture to display the treasured items does suggest a creolization occurred at some time in the past.

Comparison to Previously Excavated Sites

I had expected to find more tradeware in the *perk* sites as they were associated with elite occupants. In order to determine if the lack of tradeware was evidence of absence or absence of evidence, I compared the earthenware/ tradeware distribution to Lape's (2000b) previously excavated sites on Banda Neira and Pulau Ay. Otto (1997:91-92) states

> To predict status differences accurately from the differences in ceramic types or shapes, one would have to excavate a number of sites and demonstrate a pattern. Another approach, however, involves the use of documents to establish the status of site inhabitants before comparing the ceramics. If ceramics from sites that were occupied by "historically known affluent people at one point in time" can be compared with ceramics from sites occupied by 'historically known non-affluent individuals at the *same period of time*," the difference in ceramic types and shapes could be explained by differences in known status and access to material resources (South 1972:100).

Luckily, prior to this project, archaeological sites of known affluence were excavated. Lape (2000b) excavated the house compound occupied by the VOC Governor of the Banda Islands until 1824 on Banda Neira, this site was designated BN4. Lape (2000b) also excavated near the subsequent home of the governor, a location that was also near the Harmonie Club, a gathering place for the local elite; this

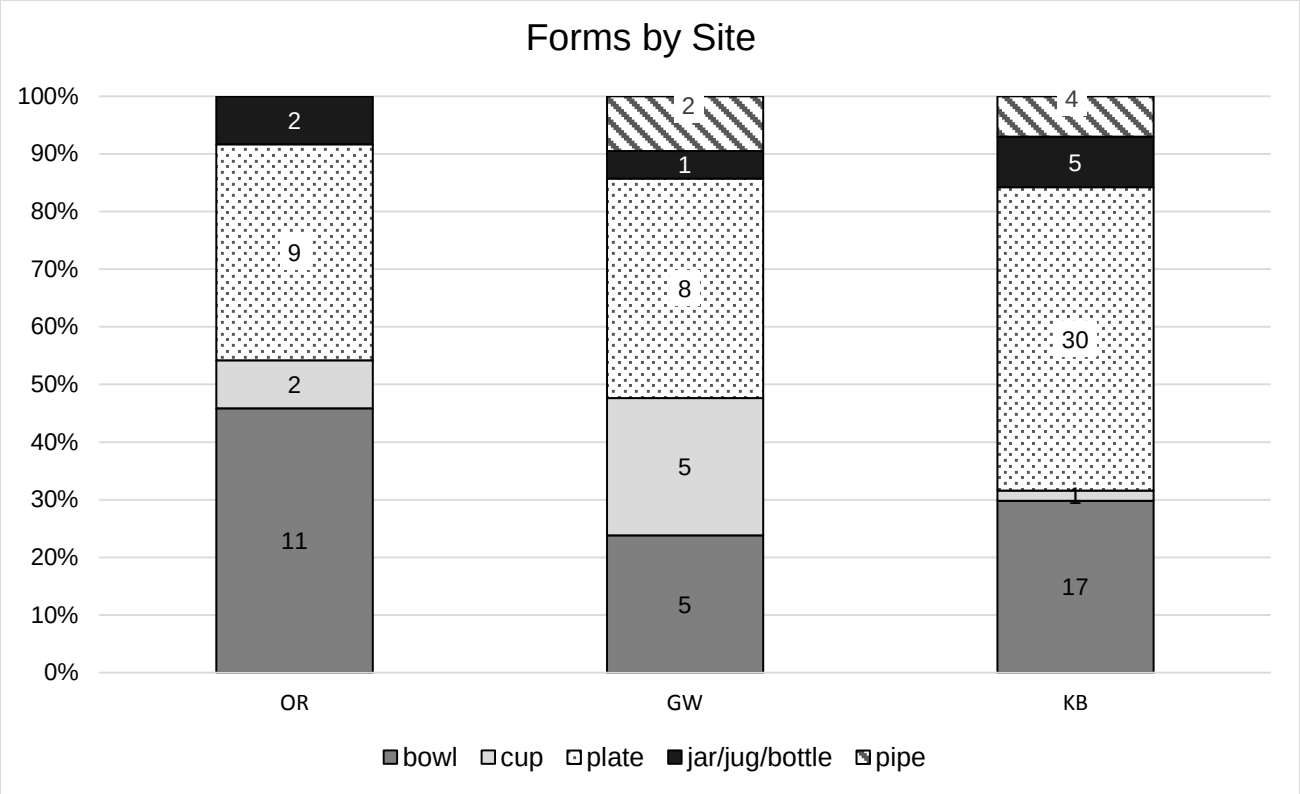


Figure 6.26 Tradeware forms by site.

site was designated BN2. A village site associated with the pre-colonial village known as Labatecca was also excavated, this site was designated BN1. Lape (2015, personal communication) notes that the BN1/ Labatecca village site was located near a *perk* called Lautaka (the units were not located within the *perk* compound or within 5 m of the compound walls and cannot therefore be considered at the same level of association as the units excavated for this study). The sites of PA2 and PA3 were located on Pulau Ay, just outside the Dutch Fort Revenge and likely the location of a pre-colonial village (Lape 2000b: 230). Lape distinguished between the pre-colonial and colonial levels of these sites based on radiocarbon dates or tradeware. These sites were selected for comparison because they had a known colonial occupation and excavated artifacts had been quantified by Lape (2000b). Figure 6.27 shows the location of these sites in relation to the plantation sites.

I used Lape's original level record sheets to acquire the raw number of sherds in his excavations. The data were included from BN1 Units 1-4, BN2 Units 1 and 2, BN4 Units 1 and 2, PA2 Unit 2 and PA3 Unit 1. Lape used different artifact classes than I did. In order to compare the different assemblages, I combined all of Lape's earthenware categories and all of Lape's stoneware categories with his true porcelain. Lape (2000) did not distinguish between Asian and European tradeware, so I was unable to separate that artifact class by origin. Lape's pipestems were maintained as a separate category. The pre-colonial and colonial levels were separated (if applicable) and then all units at the individual Lape (2000) sites were also collapsed into one category, as were all units at the *perk* excavations. Percentages were

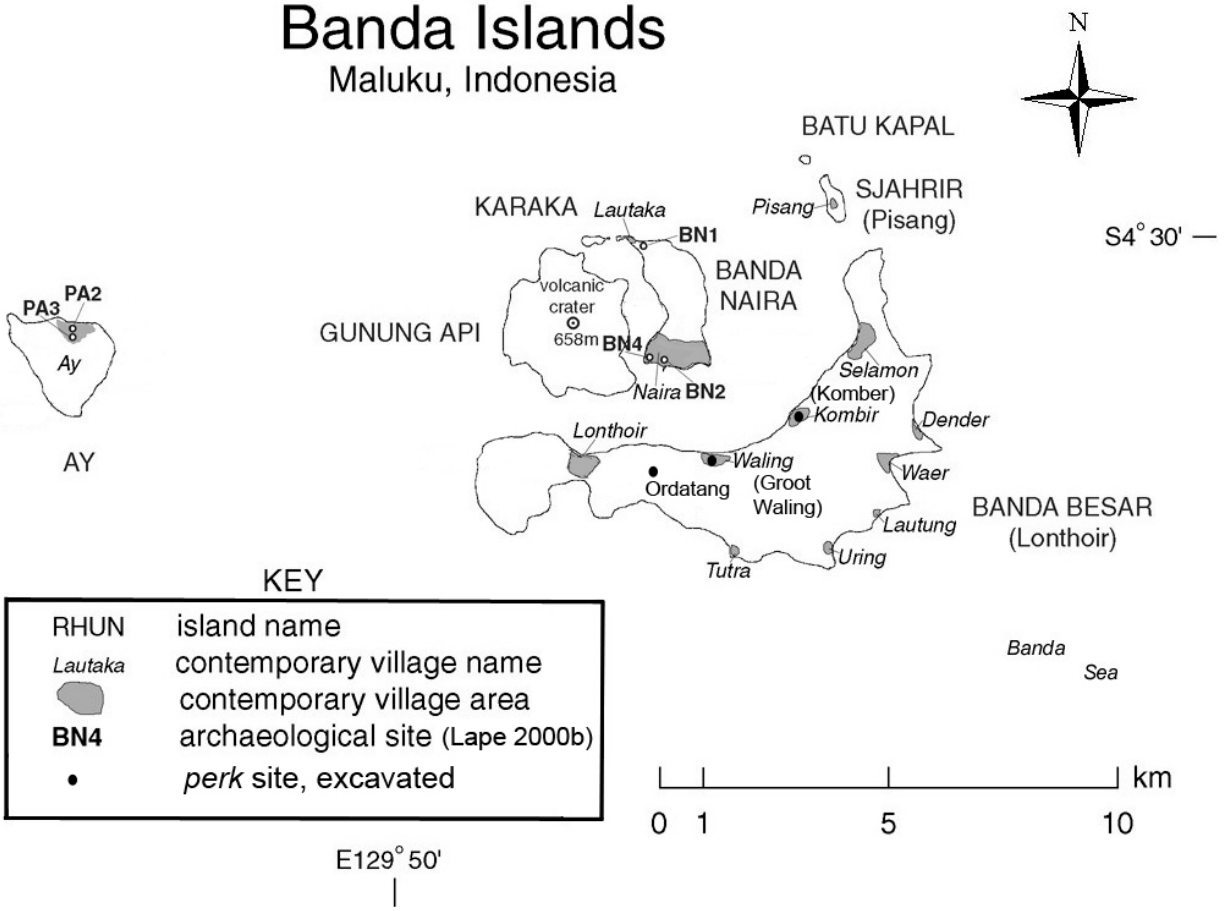


Figure 6.27 Lape (2000) sites and plantation sites.

used for comparison because not all sites had the same number of exaction units or the same sized units. For example, Lape excavated 1 m x 1 m units at BN1 and BN2, but 2 m x 2 m units at BN4. In addition, Lape's units ranged in depth from 160-320 cm. Both raw numbers and percentages are provided in Table 6.1.

Only BN1 (Labatecca) and PA2 had recognizable pre-colonial levels. BN4 (Governor's house) and BN2 (Harmonie Club) are known European elite residences. BN1 represents a pre-colonial and colonial village site. It should be noted that Lape (2000b) interprets BN1 as being on the losing side of a battle with Banda Neira over the control of trade in the islands. Thus, the artifact assemblage at BN1 probably represents a lower status village. Shiung (2011) notes that BN1 lacked the foraminifera temper assumed to be from Ambon-Lease in the sherds he analyzed suggesting that BN1 did not have access to the same trading networks as Banda Neira or other excavated sites. The two Pulau Ay sites are both located next to Fort Revenge which was occupied by VOC forces, but likely lower ranking soldiers and not elites. Bosma and Raben (2008:152) note that the garrisons at the forts were regularly refilled with Europeans, indigenous troops were recruited by both the VOC and Netherlands East Indies government (e.g., Ricklefs (2001), so it should not be assumed that Fort Revenge was a predominantly "European" site in terms of its population or material culture.

Table 6.1 and Figure 6.28 below show the number and percent of earthenware, tradeware, and pipe stems at the sites excavated by Lape (2000b) and the perks excavated for this study. Kaolin pipes are an accurate indicator of European settlement both chronologically and culturally. Tobacco is a New World crop and was unavailable until after European colonization. Kaolin clay pipes were made in Europe and used by Europeans (and those who wanted to affiliate with Europeans) and can therefore be used as a marker of European affiliation. The known European elite residences (BN2 and BN4) show a relatively high number of pipe stems compared to the other sites. While the pipe stems at BN4 only represent 3% of the ceramics assemblage, they do number in the hundreds. Pipe stems make up 15% of the ceramic assemblage at the Harmonie Social Club, suggesting inhabitants engaged in smoking on a regular basis. Only two pipe stems were found at BN1, the village of Labatecca. Similarly, 10 or fewer pipe stems were found at the Fort Revenge sites. In comparison, fewer than ten pipe fragments were found at the plantation sites. I should note that the pipe fragments used in this table include those found in the auger probes and the excavated units, so the number is slightly different than that reported above. The extreme paucity of pipe stems at the *perk* sites compared to the known European elite habitation sites can be interpreted as the lack of a European presence at the *perken (*and possibly Fort Revenge!). In addition to the difference in the number of pipe stems present, the ratio of earthenware to tradeware is also different at the known elite residences compared to the village and perk sites. Tradeware represents less than 20% (more commonly less than 10%) of the assemblages at BN1 and the perk sites, but more than 20% at the known elite residences of BN2 and BN4. Surprisingly, tradeware makes up a little over 40% of the assemblage at PA3. The percent of tradeware at the Fort Revenge sites more closely matches that of the European elite habitation sites, but the lack of pipe stems suggests that either a different population than that at the Banda Neira elite sites lived at Fort Revenge, albeit one that had access to the same trade

Table 6.1 Ceramic distribution at plantation and other sites. (*=Colonial period elite sites, †=perk sites. PC= pre-colonial, Col= Colonial).

Site	Earthenware	Earthenware %	Tradeware	Tradeware %	Pipe	Pipe %
BN1_AllUnits_PC	7365	97%	245	3%	0	0%
BN1_AllUnits_Col	1438	95%	72	5%	2	0%
BN2_AllUnits_Col*	1832	58%	872	27%	472	15%
BN4_AllUnits_Col*	4286	68%	1259	29%	202	3%
PA2_AllUnits_PC	63	90%	7	10%	0	0%
PA2_AllUnits_Col	613	77%	177	22%	10	1%
PA3 Unit 1 Col	287	58%	204	41%	4	1%
OR_AllUnits†	3793	97%	105	3%	1	0%
GW_AllUnits†	1707	91%	153	9%	6	0%
KB_AllUnits†	732	83%	168	16%	4	0%

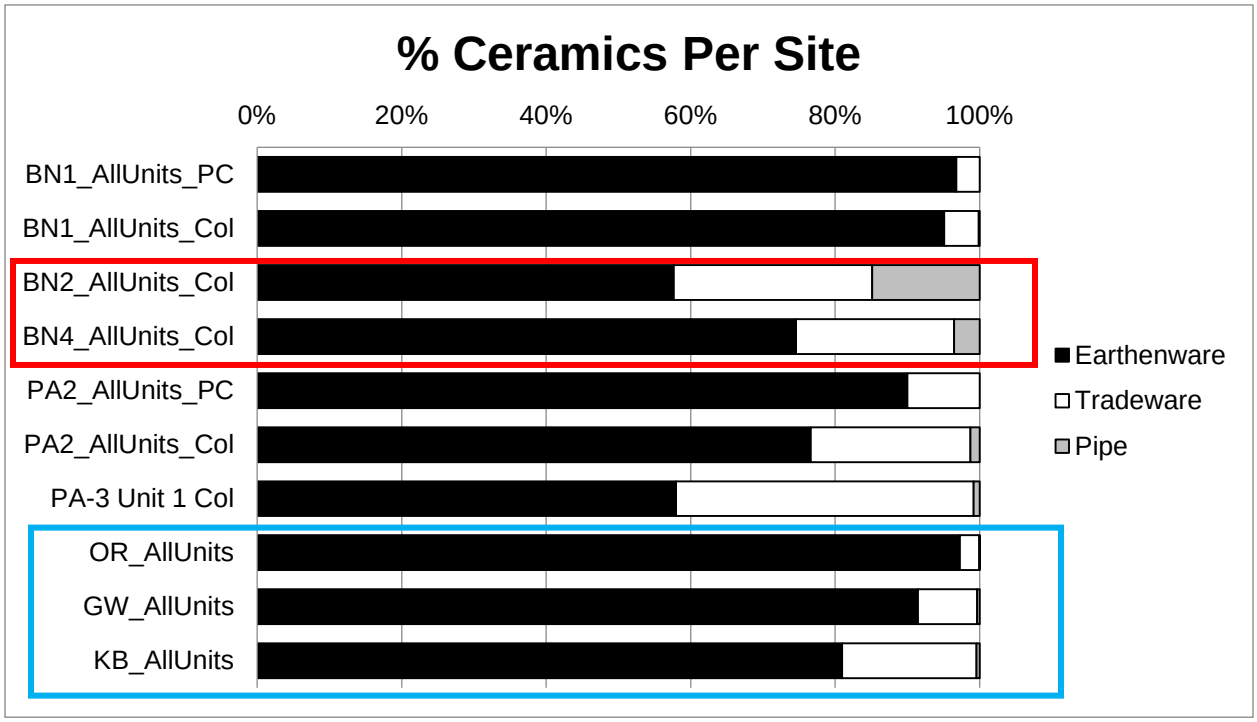


Figure 6.28 Ceramic distribution at plantation and other sites (Elite sites outlined in red/ top rectangle, *perk* sites outlined in blue at bottom. PC= pre-colonial, Col= Colonial).

networks, or that smoking tobacco was not available at the more remote Pulau Ay. However, if porcelain was able to be transported to Pulau Ay, it is likely that tobacco would also have been transportable. It is more parsimonious to assume that smoking tobacco was not valued at Fort Revenge.

In terms of ratios of earthenware, tradeware, and pipe stems, the perk sites most closely resemble the village site of Labatecca (BN1) and the pre-colonial village occupation of PA 2 and not the elite residences of BN2 and BN4. This is interesting for a variety of reasons. The *perk* sites and the sites on Banda Neira were are close enough to the main port that differential transport costs are unlikely. The lack of tradeware more likely represents an inability of residents to afford or lack of desire to possess these elite goods. The lack of pipe stems indicates that the European elite did not spend much time at the perks. While the *perkeniers* may have visited their properties regularly, it appears that the visits were short in duration and did not result in the deposition of many broken pipes, unlike the situation at the known elite residences in Banda Neira. The similarity to Labatecca (BN1) to the *perk* sites is interesting for the lower status that the village of Labatecca had and likely different trading partners, according to Lape (2000b). The amount of tradeware at the perk sites more closely resembles the pre-colonial village site assemblages. Low-value imported or locally made earthenware dominates the assemblages at the perks and Labatecca. It seems likely, then, that the perkeniers actively limited the kinds of goods that were available at the *perken* or that *perken* did not see the same kind of residence patterns as the villages did. Excavations in the modern villages surrounding Groot Waling and Komber might elucidate the question of limited access to elite goods. It should be noted, however, that Komber had the highest percentage of tradeware of the *perk* sites. The unit producing the most tradeware was the result of a somewhat recent fill episode and appears to have been a multi-household dump of ceramics and tradeware as an anti-erosion measure for the beach in front of the perk. If this unit does represent a village deposition and is not related to activity at the perk, this would support the hypothesis that the *perken* had different residential patterns than the surrounding villages.

Conclusions

The different distribution of tradeware at the three plantation sites suggests differential consumption of tradeware although all three sites do show access to European and Asian, both Chinese and other, wares. European ware is represented by both Dutch and English porcelain and stoneware. Chinese porcelain and Mainland Asian stonewares are also present at all sites. The date range of the tradeware hovers around the late 17th to mid-19th century. This may be due to analyst bias, but it might also represent a lack of access to or an inability to afford imported elite goods after the islands lost their monopoly on the nutmeg trade. The amount of tradeware at the plantation sites in comparison to earthenware more closely matches the distribution at a contemporaneous village site as opposed to the known elite residences on Banda Neira. This suggests that the plantations were not elite residences or, at least, not frequented by the elites.

Because the three plantation sites have a different distribution of tradeware, it is hard to come to a generalized conclusion about which model can explain the distribution. The lack low percentage of tradeware at Ordatang suggests energetic efficiency in that this elite good was not taken in great numbers to this somewhat remote site. The approximately equal distribution of European, Chinese, and

Indeterminate origin suggests creolization. The dominance of tradeware of European origin could be seen as local inhabitants adopting elite symbols of power (when they could afford it). Even within the same artifact class, different models can be used to explain the distribution at different sites. In general, however, the distribution of tradeware at the different sites suggests that the plantations were not the theatre of social negotiation in the Banda Islands.

Chapter 7
Faunal Analysis

Background

As noted in previous chapters, terrestrial animal protein was somewhat limited in the Banda Islands. Due to the small size of the islands, domesticated animal herds could not be large and wild terrestrial animals useful for human dietary needs were limited to relatively small bodied birds, bats, cuscus, rats and lizards. However, marine resources were abundant and most authors (e.g., Ellen 2003, Hanna 1973, Loth 1998) assume that inhabitants were primarily dependent on marine resources. Lape (2000) notes the presence of fish, shellfish, bird, and large mammal remains in his excavated sites, but does not present detailed discussion of the material. Lape (2000) primarily focused on identifying pig remains in order to date the adoption of Islamic religious practices on the islands and found pig remains in pre-colonial deposits on Banda Neira and Pulau Ay; Peterson (2015) provided a more detailed analysis of these materials. Historically, pigs, cows, chickens, deer, goats, and fish are mentioned in records. Hanna (1973:66) describes the foodstuffs imported by the VOC as recorded by Johan Wurffbain c. 1638 as "rice, salt meat and bacon, oil, vinegar, and wine." Loth (1998:83) also notes that *perkeniers* were allowed to keep a cow for milk at the *perk* location, but most of the cattle was relegated to the uninhabited Gunung Api to protect nutmeg seedlings. Pigs and goats were also allowed to roam, which caused problems when they destroyed neighbors' gardens and nutmeg seedlings (Loth 1998:83). Chickens were probably imported with the Neolithic period colonizers or soon after and Peterson (2015) did find chicken remains in Neolithic layers on Pulau Ay. Loth (1998:84) notes the VOC attempted to introduce rabbits, deer, and turkey for subsistence; some Southeast Asian deer are still observed on the island today, but there is no evidence for the existence of rabbits or turkey. Geese and ducks have been observed in Banda Neira today (see Figure 3.8). Domesticated cats are common on the islands today, dogs less so. Dogs exist on Banda Besar, but I did not observe them on the other islands. The lack of dogs may be due to Islamic prohibitions associated with the animals and the dispersal of the Christian population in the late 1990s. The existence of dogs on Banda Besar may be due to their usefulness in keeping the only extant population of pigs on the islands away from the garden; that is, dogs are a lesser evil than the pigs. Sea birds, snakes, rats, bats, cuscus, and iguanas also exist on the islands (Loth 1998).

As noted in Chapter 2, certain distributions are expected based on the operating models. For the energetic efficiency model, small or reef fish are expected in worker's contexts due to their low search and handling costs and because *perkeniers* would select the better fish from their slaves' morning catch for their own consumption (Loth 1998:82). Domesticated chickens would also be a relatively low cost

protein; eggs might have been more common in daily diet but would be harder to detect archaeologically. Large mammal remains are expected to be found in elite contexts, but not worker's contexts, as it is assumed elites limited workers access to this higher status food source. If large mammal remains are found in worker's contexts, it is expected to be the lower value cuts of meat. Some small wild game may be expected in worker's contexts as a way to supplement diet (e.g., Turner 1995), but there is little wild terrestrial game on the Banda Islands so fish remains would be more likely as a supplemental protein. A similar distribution of faunal remains may be expected in the power/ resistance model as workers would be resisting a dependence on imported European foods in favor of traditional food sources and the European elites would reject the unfamiliar fish and wild game in favor if their traditional domesticates. For the creolization model, a mixture of all ingredients is expected. However, as noted in previous chapters, I do not expect to recover elite or *perkenier* dietary signals at the *perken*. Based on the economic similarity of the *perk* tradeware deposits to village assemblages excavated by Lape (2000), it is more likely that the faunal remains reflect solely the workers diet, if they do, in fact, reflect *perk* habitation.

Based on previous excavations by Lape (2000b), I had expected to find faunal remains throughout the deposits. However, there was a paucity of recovered faunal remains, totaling just under a kilogram (0.959 kg or a little over 2 pounds), and what was recovered tended to be highly fragmented. The fragmentation inhibited identification and the low volume of recovered material further inhibited significant interpretation. The lack of faunal remains may be due to a combination of destructive taphonomic processes, either chemical or scavenger destruction, or a disposal pattern that avoided the areas within the *perk* walls or immediately outside. Due to the low numbers of remains and the inability to securely identify the material, only general conclusions can be made.

Methodology

Methodology for the faunal analysis followed Reitz and Wing (1999). Faunal remains were sorted according to class (bird, fish, mammal, or other/ unidentifiable). Individual fragments were weighed and identified to element, when possible. If possible, mammal bone was identified to size class of small, medium, and large. The size classes were based on assumed mammal population on the islands with large mammals being cow, pig, deer, and horse; medium mammal being dog, cat, and goat; and small mammal being rat, bat, cuscus, mouse, etc. Attempts were made to identify species of domesticated mammal, if comparative collections were available. While comparative collections for domesticated chicken were available, no comparative collections for native waterfowl was available No comparative collections for local fish were available, either. Thus, for avian and fish remains, no attempt to identify species was made. Due to the religious taboo against eating pork for Muslims, an attempt was made to differentiate between pig, cow, deer, and goat amongst the mammal remains, but due to the fragmented nature of the assemblage, this was rarely possible. See Appendix D for detailed faunal catalog.

As Grayson (1981:78) notes, the point of a faunal analysis in an archaeological assemblage is to either identify human subsistence patterns or to identify the local environment based on animals present.

For the purposes of this study, I want to identify the subsistence patterns of the inhabitants of the *perken*. Archaeologists have to assume that the faunal assemblage recovered is a representative sample of what was deposited by humans, however various human behaviors and taphonomic processes can affect archaeological recovery. Behaviorally, humans may not bring the entire animal carcass to the habitation site (the schlepp effect [Perkins and Daly 1968]), or certain skeletal elements may be used to create tools, certain skeletal elements may have a ritual disposal pattern, etc., all of which precludes the recovery of these elements in a recognized subsistence deposit, like a midden. Taphonomically, scavengers may destroy or remove faunal remains from the site, acidic or alkaline soil may destroy bone (Gordon and Buikstra 1981), and certain portions of bone preserve better than others (i.e., hard, cortical bone preserves better than spongy, cancellous bone [Lyman 1984]). Because of differential preservation, one may end up measuring not human dietary preference, but merely the bones that resisted taphonomic destruction and that were big enough not to fall through the archaeologists screen. The larger the sample size of recovered faunal remains, the easier it is for the archaeologist to mitigate issues of preservation bias by statistical analysis (Grayson 1981). However, in the case of this study, the recovered assemblage was so small, I did not feel that statistical analyses would yield any significant results. Even in the most productive units, the number of identified remains was less than 100, excepting domesticated commensals (e.g., cat and dog). When minimum number of individuals (MNI) could be calculated, it was either one or, in the case of a dog burial at Groot Waling, two. Thus, only the number of identified specimens (NISP) is presented along with weight.

As noted in previous chapters, extensive mixing occurred at all the sites. The Neolithic luminescence dates on earthenware from Ordatang Unit 1 at 0-10 cm and 90-100 cm suggests this unit is mixed. However, faunal remains are not found at Ordatang at all below 50 cm; the lack of remains suggests differential preservation, likely due to acidic tropical soils (Gordon and Buikstra 1981). Bone refits at Groot Waling's Unit 1 and 1.5 at 10-20 cm and 80-90 cm also suggest mixing. Units 2 and 3 at Groot Waling may have intact stratigraphy, but very few faunal remains were recovered from this units. Both units with faunal remains at Komber were also hopelessly mixed due to the construction of the school within the *perk* and the building up of the beach with fill. Because of these issues with mixing and the low number of recovered remains, each unit is discussed as an entire assemblage.

Results

Ordatang

Unit 1

A total of 15 pieces of bone were found in Unit 1 (see Ordatang site map, Figure 4.8, for location of units). A total of 5.8 g of faunal material was recovered from Unit 1. Unit 1 (Table 7.1) only produced faunal remains in the upper 50 cm, similar to porcelain/ tradeware (which tapered off at 30-40 cm). The

upper 50 cm also comprise a darker soil horizon. A meaningful interpretation from this small amount of faunal remains is unlikely. However, the presence of fish bone at this island-top site suggests human transport from the beach. Fish maxilla and cranium fragments suggests transport of the whole fish. Modern populations in the Banda Islands often cook whole fish, especially the smaller species. Ordatang has modern gardens in close proximity and modern inhabitants will cook a fish for lunch prior to making the climb to their gardens for tending. It is possible that the fish bones may represent the remains of a modern meal. Little can be gleaned from the presence of large/ medium mammal long bone and rib fragments except for the existence of large or medium mammals in the vicinity of the *perk.* The small size of the fragments precluded identification. As noted in previous chapters, the post-50 cm levels are likely fill associated with the building of the *perk*. Since a sherd found at 0-10 cm was dated to the Neolithic, it is likely some mixing occurred in this unit. The faunal remains found in this unit are likely recent, that is, colonial-era or modern and not Neolithic. Due to the lack of faunal remains below 50 cm, I am inclined to believe that chemical taphonomic processes are destroying the buried bone, as is expected in acidic tropical soil (although the volcanic bedrock of Banda Besar may, in fact, create alkaline soil [Monk et al. 1997:101-106], neither acidic nor alkaline soils preserve bone well). It is likely, then, that the faunal remains are 20th century and not associated with the *perk* at all.

Table 7.1 Faunal Remains at Ordatang Unit 1.

	0-10 cm		10-20 cm		30-40 cm		40-50 cm	
Specimen	NISP	Weight (g)	NISP	Weight (g)	NISP	Weight (g)	NISP	Weight (g)
Fish (Total NISP=10, Total Weight=3.2g)								
Cranium (fragment)	1	0.25			1	0.64		
Maxilla	1	0.61						
Vertebrae	2	1.03						
Fin							1	0.14
Unidentified	3	0.45			1	0.08		
Total	*7*	*2.34*			*2*	*0.72*	*1*	*0.14*
Mammal (Total NISP=5, Total Weight= 2.6g)								
Large mammal								
Long Bone Fragment			1	0.76				
Medium mammal								
Long Bone Fragment			3	0.19				
Rib			1	0.89				
Total			*5*	*2.6*				
Level Total	*7*	*2.34*	*5*	*2.6*	*2*	*0.72*	*1*	*0.14*

Unit 2

A total of 5 pieces of bone (1.63 g total) were found in Unit 2, all at 0-30 cm. No non-earthenware ceramic artifacts were found in Unit 2 after 50 cm. While a similar soil change occurred around 50 cm as found in Unit 1, the lack of artifacts suggests that the earthenware found at 40-100 cm is likely fill

associated with the construction of the *perk.* Like Unit 1, little can be discerned from the small amount of faunal material in Unit 2. Avian rib and pelvis fragments were identified, but species could not be determined due to the fragmented nature of the bones. The one fish bone was a cranium fragment (at 10-20 cm), again suggesting whole fish were being transported to the site. The one large mammal long bone fragment had been subject to enough direct heat to turn it black. There was, however, no indication of a fire or hearth in the unit, suggesting some sort of transport from the area of burning to the find location. The shallow depth of the faunal material does suggest recent deposition and the paucity of faunal remains at this site in general coupled with the assumed acidic soil of tropical forests also suggests a relatively modern deposition of this material.

Table 7.2 Faunal remains at Ordatang Unit 2.

	0-10 cm		10-20 cm		20-30 cm	
Specimen	NISP	Weight (g)	NISP	Weight (g)	NISP	Weight (g)
Avian (Total NISP= 3, Total Weight=1.3g)						
Rib	1	0.07			1	1.01
Pelvis					1	0.22
Total:	*1*	*0.07*			*2*	*1.23*
Fish (Total NISP= 1, Total Weight= 0.33g)						
Cranium (fragment)			1	0.33		
Total			*1*	*0.33*		
Mammal, Large (Total NISP= 1, Total Weight= 0.38g)						
Long Bone Fragment			1	0.38		
Total			*1*	*0.38*		
Level total:	*1*	*0.07*	*2*	*0.71*	*2*	*1.23*

Unit 3

Significantly more faunal material was identified in Unit 3 with a total of 138 specimens, plus various unidentified bits less than 1/8" (68.43 g total). Unit 3 was only excavated to 50 cm but produced relatively copious amounts of bone (Table 7.3). The majority (89.7%, by weight) of the faunal remains at Ordatang were found in this excavation unit. The auger probe placed near this unit produced a large amount of bone, in addition to metal and a coin. The "relatively" copious amounts of faunal remains still do not yield an entire ounce of material per class per level, however, so the amounts are still rather uninformative beyond presence/ absence. Throughout the unit, fish bones generally consist of vertebra, fins, and some cranial fragments. This is consistent with the other two units and the other sites excavated. Long bones, phalanges, and metatarsals/ metacarpals from a juvenile domestic dog were found. The whole long bones and the existence of the small metatarsal/ carpals and phalanges suggest that the medium-sized mammal was intact when interred. There are no cut-marks evident and it is unlikely to represent dietary intake of the inhabitants. Twelve goat teeth at 30-40 cm, consisting of molar fragments and an incisor, were also identified. The goat teeth are interesting as goat teeth were also found at Komber. However, no other goat remains were identified in the unit, but goats are common on

Banda Besar. Goats are relatively easy to care for and are favored for some Muslim holidays, so they could be associated either with a lower economic cost or religious value. Teeth are also more likely to survive burial (Reitz and Wing 1999:117) and their presence may be a taphonomic effect. Cut marks, indicating human modification, were found on a large mammal rib (Figure 7.1). Five unidentified bone fragments were found that could possibly belong to a sea turtle carapace (Figure 7.2). Sea turtle was not mentioned as a food source in historic records of the Banda Islands, but they are noted as a favored food of sailors during global sailings (e.g., Roberts 2010). Monk et al. (1997: 584-587), note that turtle hunting is practiced in Maluku, but the demand comes from Bali and other non-local islands, but I did notice a turtle carapace in a yard in Banda Besar on the way to Ordatang. Sea turtle carapaces are large and may serve a function beyond that of subsistence, such as water storage, or as raw material for tools or other items.

Table 7.3 Faunal Remains at Ordatang Unit 3.

	0-10 cm		10-20 cm		20-30 cm		30-40 cm		40-50 cm	
Specimen	NISP	Weight (g)	NISP	Weight (g)	NISP	Weight (g)	NISP	Weight (g)	NISP	Weight (g)
Avian (Total NISP= 4, Total Weight=4.52g)										
Cranium			1	0.88						
Humerus			1	2.78						
Tibia/ Filbula			1	0.37						
Long bone fragment					1	0.48				
Total:			*3*	*4.03*	*1*	*0.48*				
Fish (Total NISP= 64, Total Weight= 15.25 g)										
Cranium (fragment)			4	1.19						
Maxilla/ mandible			2	0.35						
Vertebrae	2	0.85	47	10.76	1	0.21	2	0.69		
Rib	1	0.14								
Fin	1	0.13	3	0.59	3	0.92				
Total	*4*	*1.08*	*56*	*12.89*	*4*	*1.13*	*2*	*0.69*		
Mammal, Large (Total NISP= 5, Total Weight= 7.06g)										
Rib	2	5.6								
Vertebra					1	0.19				
Long Bone Fragment					2	1.27				
Total	*2*	*5.6*			*3*	*1.46*				
Mammal, Medium (Total NISP= 71, Total Weight= 36.22g)										
Capra spp.							12	2.35		
Teeth										
Canis familiaris										
Cranium							2	0.91		
Scapula							1	0.48	1	0.21
Humerus							2	3.43		
Ulna			1	0.28						
Rib			5	1.17			2	0.04		

	0-10 cm		10-20 cm		20-30 cm		30-40 cm		40-50 cm	
Specimen	NISP	Weight (g)	NISP	Weight (g)	NISP	Weight (g)	NISP	Weight (g)	NISP	Weight (g)
Vertebrae			1	0.38			2	0.26		
Pelvis			2	1.83			2	0.24	1	0.13
Femur							3	4.11		
Tibia			1	1.49			2	3.73		
Fibula			3	1.92						
Astragalus			2	3.57						
Tarsal/ Carpal							4	0.93		
Metatarsal/ metacarpal							9	3.25		
Phalanx							6	0.77		
Long Bone Fragment							3	3.94		
Flat bone fragment			3	0.8						
Total			*18*	*11.44*			*50*	*24.44*	*2*	*0.34*
Mammal, Small (Total NISP=1 , Total Weight= 0.26 g)										
Mandible					1	0.26				
Unidentified (Total NISP=5+, Total Weight= 5.12 g)										
Possible turtle carapace			5	4.57						
<1/8”		0.41		1.54				3.17		
Level Total	*6*	*7.09*	*82*	*29.9*	*9*	*3.33*	*52*	*28.3*	*2*	*0.34*

*possible turtle carapace fragments



Figure 7.1 Ordatang Unit 1 cut marks.



Figure 7.2 Ordatang Unit 3 possible turtle carapace.

Discussion

Fish remains (75 or 44%), followed by the domestic dog (59 or 35%), dominate the faunal assemblage by NISP (Figure 7.3). The remaining classes make up 4% of the total (6 or 7 specimens each), excepting unidentified medium mammal which consists of 16 specimens and is 9% of the total. The majority (33.87 g or 45%) of the Ordatang sample by weight is domestic dog remains, followed by fish (18.78 g or 25%), then bird (5.82 g or 8%) and other/ unidentifiable (5.38 g or 7%) (Figure 7.4) However, little should be made of the percentages since so very little material remains. What little that can be said of the assemblage rests mainly on presence or absence of material. The presence of cranial, maxilla/ mandible, vertebrae, and fin elements suggests the transport of whole fish to the site as all the elements are represented. The size of the material suggests small, reef fish and not larger pelagic or oceanic fish. The presence of dogs at the site presents the possibility that the lack of faunal remains may be due to scavenging by these domesticates, or other domesticated scavenging animals such as pigs or goats. Acidic soil may also explain the lack of faunal remains. As noted in previous chapters, while no pH reading was taken in the field, the tropical forest environment suggests acidic soils. The similar stratigraphic distribution of faunal remains and porcelain/ tradeware in opposition to the earthenware suggests the earthenware below 50 cm may not be associated with the colonial occupation of the *perk*. The faunal remains at Ordatang may, in fact, reflect more recent use of the site and not the colonial era occupation at all.

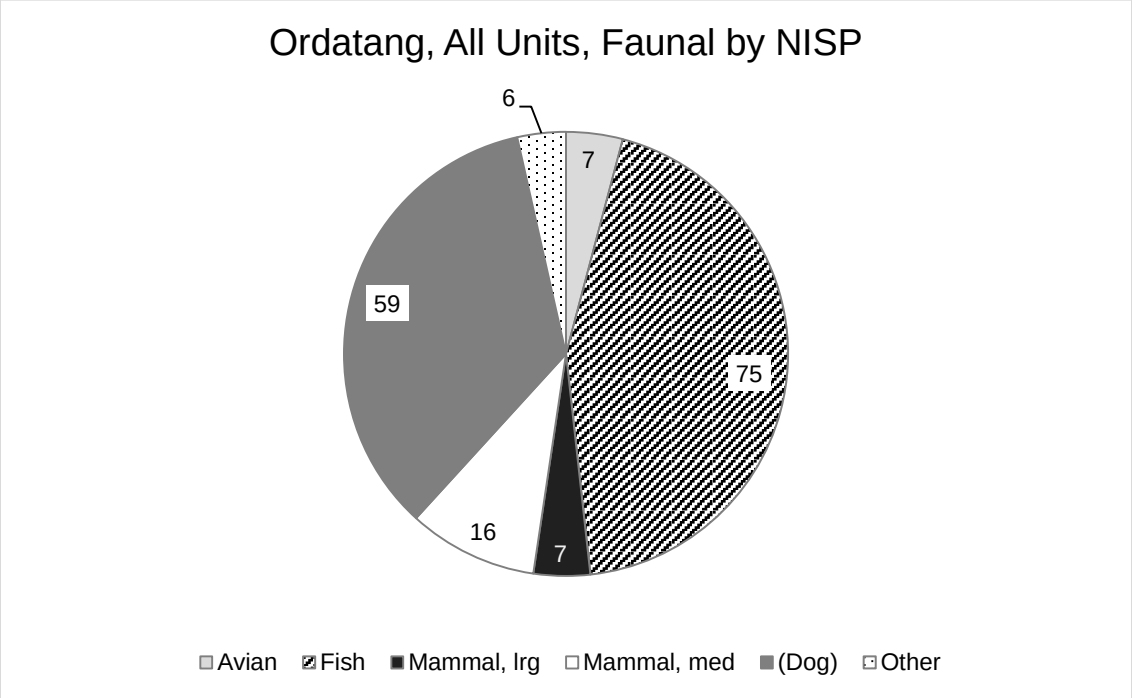


Figure 7.3 Ordatang faunal by NISP, all units.

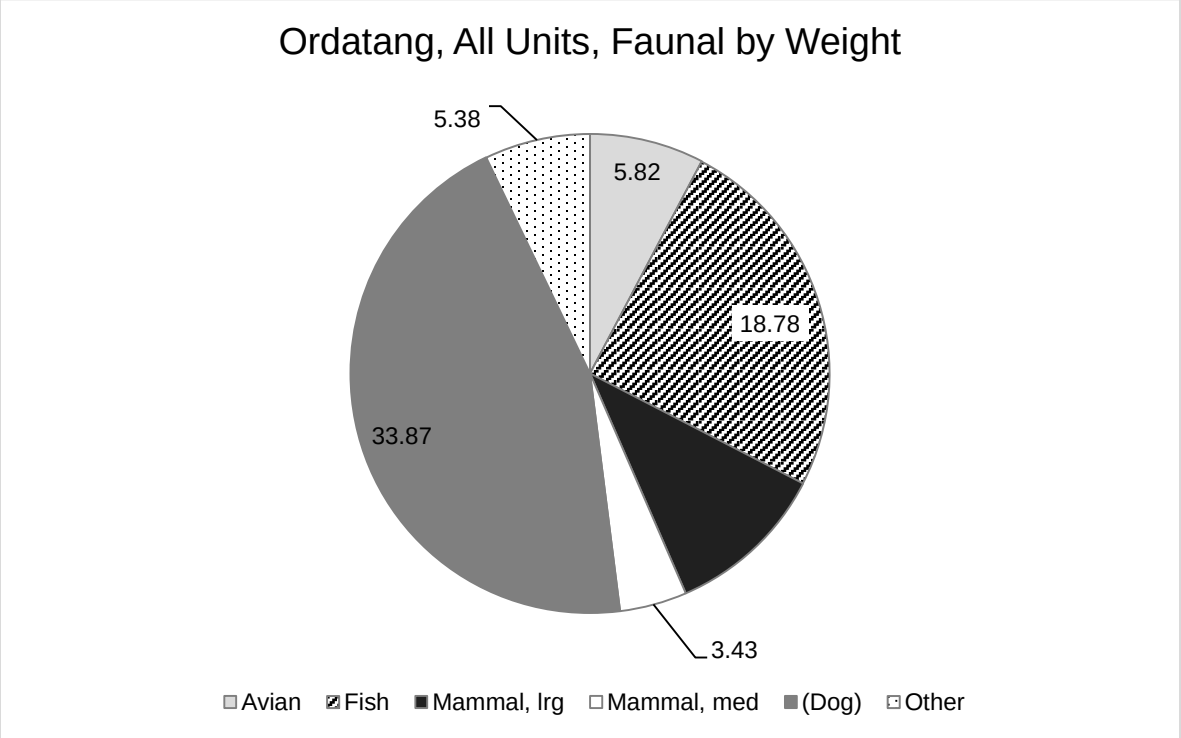


Figure 7.4 Ordatang faunal by weight (g), all units..

Groot Waling

Units 1, 1.5

The faunal remains from Unit 1 and Unit 1.5 (Table 7.4) (see Groot Waling site map, Figure 4.18, for unit locations) have been combined as they were assumed to represent a homogenous deposit after refits were identified between the units. A total of 94 specimens weighing 97.76 g was recovered. The dominant class in Units 1 and 1.5 is mammal at 92.61 g; fish (5.66 g) and bird (1.82 g) make up a small fraction of this unit. Large and medium mammal ribs, teeth, metatarsal/ carpals, long bone fragments, caudal vertebrae, cranial fragments and scapula fragments were all identified.

There was some evidence of human modification of these remains including burning on some of the large mammal and fish bones (N=11, 7.5 g). Some of the large mammal remains did have evidence of cut marks (Figure 7.5). One of the rib bones at 70-80 cm showed pitting (Figure 7.6), the pitting suggesting gnawing or other dental modification, likely by a dog (Binford 1978). A burnt *Capra spp.* scapula fragment in Unit 1 at 80-90 cm refit with a fragment in Unit 1.5 at 10-20 cm (Figure 7.7) and a large mammal metatarsal in Unit 1 at 90-100 cm refit with another fragment in Unit 1.5 at 70-80 cm. The "long-distance" refit from 10-20 cm and 80-90 cm suggests these units represent a mixed deposit from at least 10-90 cm, if not the entire excavated meter depth. An area of ash at 30-40 cm in the northeast corner of the units may be the locus of burning of the bones, but no modern trash was found in this area suggesting it is not a modern trash burn pit. The shallow depth coupled with the modern practice of digging a shallow hole and burning garbage suggests this might be a recent garbage disposal area at this level. A large giant clam shell (*Tridacna gigas)* was also found at 50-70 cm (see Figure 4.23), but I do not assume that they represent dietary intake as the exploitation of these clams were not mentioned in historic records and giant clams are not commonly eaten on the islands today. While absence of evidence of giant clam dietary exploitation in the historical record cannot be assumed to be evidence of absence, the lack of modern exploitation coupled with lack of historic mention suggests to me that there is avoidance of this large and relatively easy to obtain meat package for some reason.

Interestingly, the mammal bone in these units outweigh the entire faunal sample from the Ordatang site. Long bone fragments and metatarsal/ carpal elements are most common in these units, but skull fragments, scapula fragments, and a caudal vertebra are also present. Again, few meaningful conclusions can be made from the small sample beyond presence/ absence. However, the presence of head and foot elements has often been used to suggest either a "kill" site (Binford 1978) or the low value elements resulting from scavenging (e.g., Binford 1985, Blumenschine 1986, Mellars 1996). Alternative explanations for the predominance of head-foot elements and long bone fragments is differential preservation, that is the harder cortical bone preserves better than spongy bone (Lyman 1984), and analyst bias, that is, cranial and foot elements are easier to identify (Pickering et al. 2003). The presence of pitting is often associated with the scavenging of dogs at habitation sites (Binford 1981), although pigs

Table 7.4 Faunal Remains at Groot Waling, Units1 and 1.5, by weight.*refit.

Groot Waling Unit 1, 1.5										
	0-10 cm		10-20 cm		20-30 cm		30-40 cm		40-50 cm	
Specimen	NISP	Weight (g)	NISP	Weight (g)	NISP	Weight (g)	NISP	Weight (g)	NISP	Weight (g)
Fish (Total NISP= 44, Total Weight= 5.66 g)										
Maxilla/ mandible	1	0.01								
Vertebrae					2	0.06			1	0.49
Rib									1	0.05
Unidentified	4	0.42	1	0.12	6	0.31	13	1.56	2	0.22
Total	*5*	*0.43*	*1*	*0.12*	*8*	*0.37*	*12*	*1.56*	*4*	*0.76*
Mammal, Large (Total NISP=22 , Total Weight= 44.75 g)										
Rib					1	1.69	2	2.29		
Tibia									1	27.16
Tarsal									4	4.55
phalanx									3	1.16
Long Bone Fragment					3	0.47	3	1.13	2	3.13
Flat Bone Fragment					1	1.27				
Unidentified					1	0.06				
Total					*6*	*3.49*	*3*	*1.13*	*10*	*36.00*
Mammal, Medium (Total NISP= 23, Total Weight= 45.53 g)										
Capra spp.										
Teeth	1	0.45			1	0.36				
Scapula			1	15.26*						
Unidentified medium mammal										
Cranium										
Long Bone Fragment			4	11.32	3	0.49				
Rib	1	0.27							1	0.27
Carpal/ tarsal									3	0.49
Flat bone fragment	2	3.4								
Unidentified					1	0.04				
Total	*4*	*4.12*	*5*	*26.58*	*5*	*0.89*			*4*	*0.76*
Level Total	*9*	*9.55*	*6*	*26.70*	*19*	*4.75*	*15*	*2.69*	*18*	*37.52*

	50-60 cm		60-70 cm		70-80 cm		80-90 cm		90-100 cm	
Specimen	NISP	Weight (g)	NISP	Weight (g)	NISP	Weight (g)	NISP	Weight (g)	NISP	Weight (g)
Avian (Total NISP= 5, Total Weight= 1.82 g) (no avian found in 0-50 cm)										
Long bone fragment							1	1.28		
Unidentified	3	0.1					1	0.44		
Total:	*3*	*0.1*					*2*	*1.72*		
Fish										
Maxilla/ mandible			1	0.61						
Vertebrae	1	0.35	2	0.35	2	0.1	1	0.08		

	50-60 cm		60-70 cm		70-80 cm		80-90 cm		90-100 cm	
Unidentified	3	0.12	1	0.09	1	0.3	1	0.26	1	0.16
Total:	*4*	*0.47*	*5*	*1.05*	*3*	*0.4*	*2*	*0.34*	*1*	*0.16*
Mammal, Large										
Rib					1	2.53				
Long Bone Fragment									1	1.45
Unidentified									1	0.15
Total:					*1*	*2.53*			*2*	*1.60*
Mammal, Medium										
Capra spp.										
Scapula							1	3.77*		
Unidentified medium mammal										
Vertebrae	1	0.37								
Metatarsal					1	2.4*			1	5.54*
Long Bone Fragment	1	1.1								
Total:	*2*	*1.47*			*1*	*2.4*	*1*	*3.77*	*1*	*5.54*
Level Total:	*9*	*2.04*	*5*	*1.05*	*5*	*5.33*	*5*	*5.83*	*4*	*7.3*



Figure 7.5 Cut marks at Groot Unit 1.



Figure 7.6 Groot Waling Unit 1, 70-80 cm, bone with gnawing.

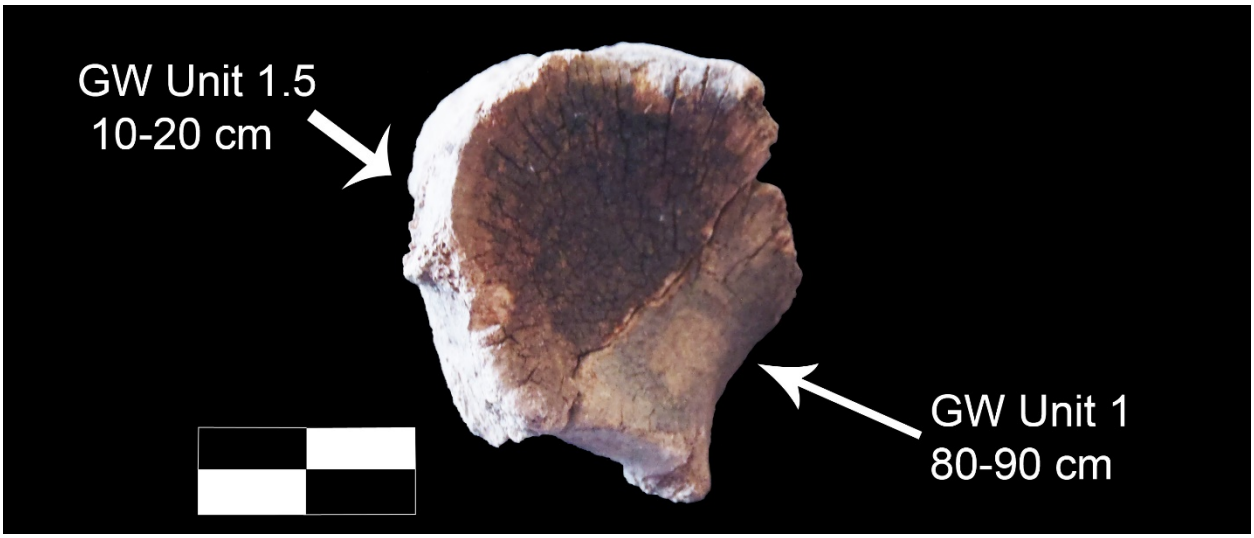


Figure 7.7 Groot Unit 1 and 1.5 refits.

may also have been scavenging organic refuse. If dogs or pigs were scavenging human refuse within the plantation and/ or acidic soil is increasing decomposition rates, we would expect to find hard the hard cortical bone of long bones (including the metatarsal/ carpals) to be the predominant elements in the assemblage. The goat scapula is interesting if only because no goats are currently kept at Groot Waling, but they are very common animals throughout the islands. The evidence of burning on the scapula coupled with the modern practice of burning trash and burying it in a pit suggests that this may be a modern specimen.

Unit 2

Very few faunal remains were found in Unit 2 (N=15, 25.12 g), with the majority discovered at 10-20 cm (Table 7.5). The remains of a medium or large mammal are the dominant material. Again, the fragmented nature of the remains precluded significant interpretation. However, the presence of many elements including pelvis, cranium, long bones, rib, and tarsals suggests a complete animal was transported to the site. Cut marks on the long bones indicate butchery (Figure 7.9). As there are no obviously repetitive elements (due to the fragmentary nature of the assemblage), these remains could represent a single individual. It is hard to determine what these remains could represent. The entire animal could have been eaten at the site and this is what remains of the refuse of a single meal shared between multiple people. Alternatively, the animal could have been butchered with the prime cuts removed from this site and the remnants of poor quality cuts were left with the workers. Or the remains could represent multiple episodes of butchery and use of the years. While the location of Unit 2 could be associated with what has been assumed to be worker's housing, imported alcohol bottles attributed to the current owner's father were also found at this location. The shallow depth of the bone makes me loath to definitely attribute the deposit to enslaved or other workers at Groot Waling. Without more information, all that can truly be said is that small fragments of many different elements, some with cut marks, were found in the same level.

Unit 3

Unit 3 (Table 7.6) was located outside the *perk* walls in a more public area. I had initially hoped that workers would have used the exterior of the *perk* as a midden location. The lack of faunal remains suggests this was either not the case or poor preservation conditions have destroyed much of the organic materials. Despite the fragmented nature, some of the mammal remains at 30- 50 cm show signs of burning. The faunal remains in the deepest levels (80-100 cm) are water worn (Figure 7.10), similar to other units at this site, and are unlikely to be associated with the *perk* occupation, or necessarily humans at all. Again metatarsal/ carpal fragments, long bone fragments, and rib or vertebra fragments are present; these elements not associated with high value cuts of meat, but are among the hardier bones which resist decomposition.

Unit 4

Unit 4 was located in the southwest corner of the site, near a well and between the nutmeg processing building and what is presumed to be a worker's housing or storage building (Table 7.7). At least two whole dog carcasses were buried at 0-40 cm, making up the largest percentage of faunal remains in this unit, but they are not associated with the occupants' dietary choices. While Christians in the Maluku region do eat dog and the residents of the *perk* were Christians until recently, there are no cut marks or any other evidence that these dog skeletons were the result of dietary intake. A few medium/ large mammal elements that may be associated with dietary choices include a phalanx, rib, long bone

Table 7.5 Faunal Remains at Groot Waling, Unit 2.

	0-10 cm		10-20 cm		70-80 cm	
Specimen	NISP	Weight (g)	NISP	Weight (g)	NISP	Weight (g)
Avian (Total NISP=1, Total Weight=0.95 g)						
Long bone fragment			1	0.95		
Fish (Total NISP=5, Total Weight=2.06 g)						
Vertebrae	1	0.38				
Spine	2	0.18				
Unidentified	1	0.12	1	1.38		
Total	4	0.68	1	1.38		
Mammal (Total NISP=9, Total Weight= 22.11 g)						
Large mammal						
Long Bone Fragment			1	1.03		
Unidentified			2	2.32		
Total			3	3.35		
Medium mammal						
Pelvis			1	13.27		
Rib			1	0.78		
Tarsal			2	3.62		
Hoof/ horn			1	0.74		
Unidentified					1	0.35†
Total			5	18.41	1	0.35
Level Total	4	0.68	10	24.09	1	0.35

†Water-worn

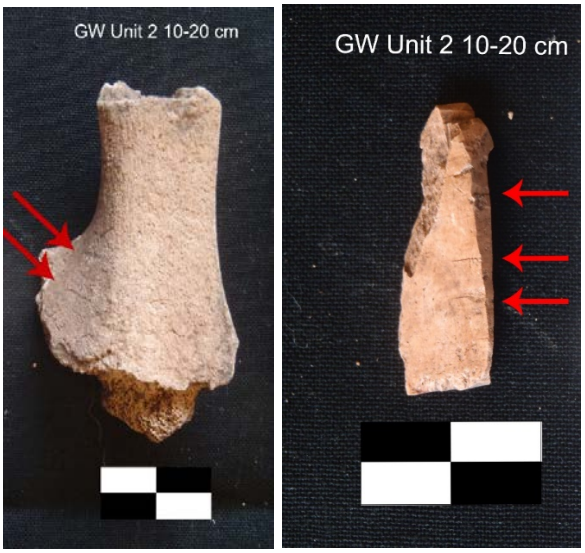


Figure 7.8 Groot Unit 2, 10-20 cm, cut marks.

Table 7.6 Faunal Remains at Groot Waling, Unit 3.

	0-10 cm		20-30 cm		30-40 cm		40-50 cm		80-90 cm		90-100 cm	
Speci-men	NISP	Wgt (g)	NISP	Wgt (g)	NISP	Wgt (g)	NISP	Wgt (g)	NISP	Wgt (g)	NISP	Wgt (g)
Fish (Total NISP=3, Total Weight=1.08 g)												
Verte-brae			1	0.02							3	0.44†
Uniden-tified									3	0.62 †		
Total			*1*	*0.02*					*3*	*0.62 †*	3	0.44†
Mammal, Medium (Total NISP= 7, Total Weight= 3.29 g)												
Rib			1	0.55								
Meta-tarsal					1	0.6[1]						
Verte-brae			1	0.64								
Uniden-tified	1	0.03	1	0.37	1	0.54	1	0.56[1]				
Total	*1*	*0.03*	*3*	*1.56*	*2*	*1.14*	*1*	*0.56*				
Level Total:	*1*	*0.03*	*4*	*1.58*	*2*	*1.14*	*1*	*0.56*	*1*	*0.62 †*	*3*	*0.45*†

†water-worn [1] burnt.



Figure 7.9 Groot Unit 3, water worn faunal remains.

Table 7.7 Faunal Remains at Groot Waling, Unit 4.

	0-10 cm		10-20 cm		20-30 cm		30-40 cm		40-50 cm		50-60 cm		60-70 cm		90-100 cm	
Specimen	NISP	Wgt (g)	NISP	Wgt (g)	NISP	Wgt (g)	NISP	Wgt (g)	NISP	Wgt (g)	NISP	Wgt (g)	NISP	Wgt (g)	NISP	Wgt (g)
Fish (Total NISP= 27, Total Weight= 11.13 g)																
Cranium			2	1.08	3	1.98										
Vertebrae	1	0.44	8	2.89	6	0.99							3	0.34		
Spine			2	0.93												
Fin			1	0.11												
Unidentified			1	0.13	<1/8"	1.46			<1/8"	0.26			<1/8"	0.38	<1/8"	0.14
Total	1	0.44	14	5.14	9	4.43				0.26			3	0.72		0.14
Mammal, Large (Total NISP=9, Total Weight= 20.99 g)																
Rib							1	3.03								
Phalanx							1	12.63			1	3.2				
Long Bone Fragment									1	0.38						
Flat Bone Fragment											5	1.75				
Unidentified																
Total							2	15.66	1	0.38	6	4.95				
Mammal, Medium (Total NISP= 335, Total Weight= 206.82 g)																
Capra spp.																
Teeth					2	4.34					20+	15.95				
Scapula																
Canis familiaris																
Cranium	1	0.51	5	3.38	1	2.29										
Vertebrae			10	2.8	25	14.58	35	17.34								
Scapula					5	3.07	2	0.945								
Humerus					2	11.022	2	11.22								
Ulna					2	7.213	2	5.235								
Radius					2	5.153	2	4.223								
Rib			1	0.2	51	7.445	54	6.595								
Pelvis							1	5.38								
Femur					1	5.3	3	21.64								
Tibia					4	23.041			1	0.18						
Fibula					9	2.71										
Carpal/ tarsal			1	1.33	11	4.45										
Metatarsals / Phalanx	1	0.24			59	7.854	22	3.61								
Long Bone Fragment																
Flat bone fragment																
Total Canis:	2	0.75	17	7.71	172	94.11	123	76.17	1	0.18						
Unidentified mammal																
Cranium													1	5.05†		
Unidentified <1/8"		0.04		0.12		10.78		5.65					<1/8"	1.09		
Total Med. Mammal	2	0.79	17	7.83	172	94.11										
Level Total	3	1.23	17	7.83	174	109.23	123	81.82	1	0.18	26+	20.9	4	7.63		0.14

†Water worn

[1] two whole right, two whole left long bones

[2] one distal right, one distal left long bones

[3] one whole right, one whole left long bone

[4] one whole right calcaneus, one whole left calcaneus, one whole right talus, two whole left talus

[5] fragments of right and left bones.

[6] including <1/8"

fragments and some goat teeth. Again low value, but hardy, elements are present. Water-wear is noted on faunal remains at 60-70 cm, similar to other units and unlikely to be associated with the time period of interest here. Fish vertebrae and cranial elements dominate the assemblage, again suggesting the consumption of whole fish. The beach front location of the site and modern behavior does not make this act surprising.

Discussion

Similar to Ordatang, little can be said of the assemblage at Groot Waling, mainly due to the fragmentary nature of the sample and the existence of domestic dog burials and water-worn elements which are likely not associated with the *perk* inhabitants' diet. The existence of cut marks and evidence of burning can, at least, argue for human modification of the assemblage. The existence of elements from multiple parts of a given animal suggests the entire carcass was at the site in some stage of butchery or transport, although it cannot be determined whether it was the same animal at this time. The existence of the hardier elements of the mammal skeleton can suggest either low value meat at the site or differential preservation. Differential preservation is more likely due to the presence of domesticated scavengers as assumed pre-colonial fish bones are found at the lower levels of units. The existence of cranial and fin elements for fish suggests the whole fish was also at the site, similar to Ordatang. As this is a beach location, the existence of whole fish is not unsurprising. The existence of the multiple dog burials suggests a recent hygienic, not dietary, act. Finally, the existence of a bone with pitting, suggestive of a trip through a digestive track is evidence of scavenging which may have contributed to the small assemblage sizes. Like Ordatang, mammals are more numerous than other classes in the assemblage by weight (Figure 7.11) and NISP (Figure 7.12). Mammals do weigh more than fish and will dominate if measured by weight. Fish is common, as would be expected at a beach site, but birds are almost non-existent.

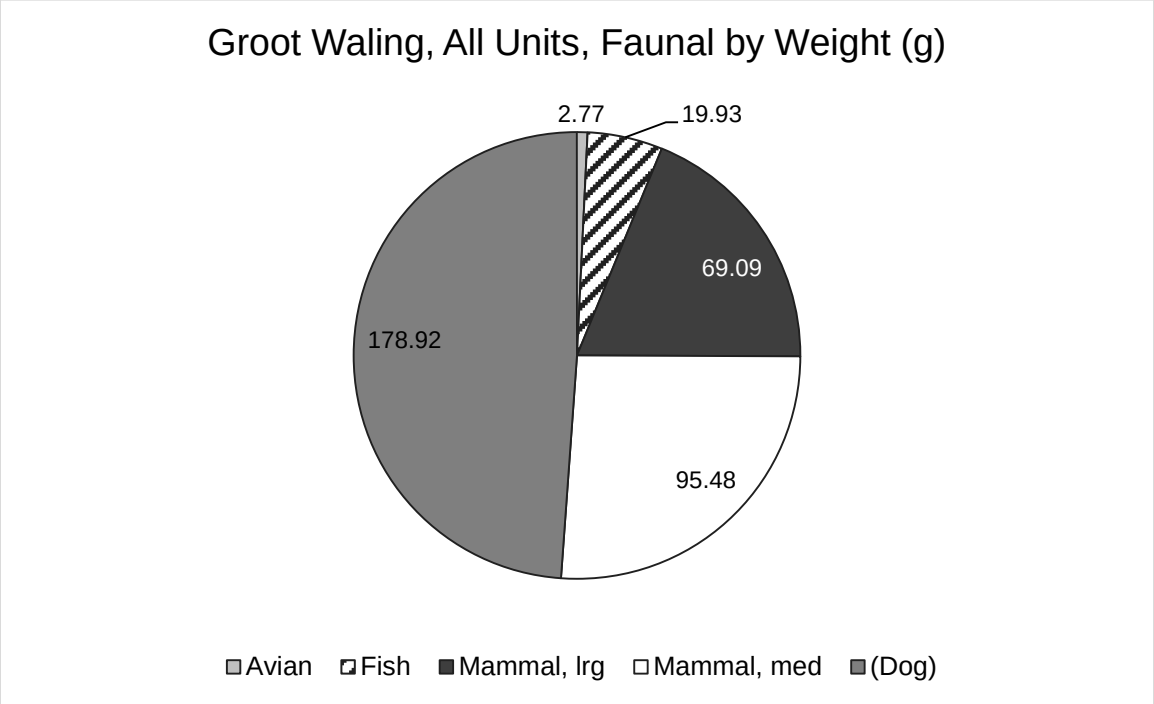


Figure 7.10 Groot Waling faunal by weight (g), all units.

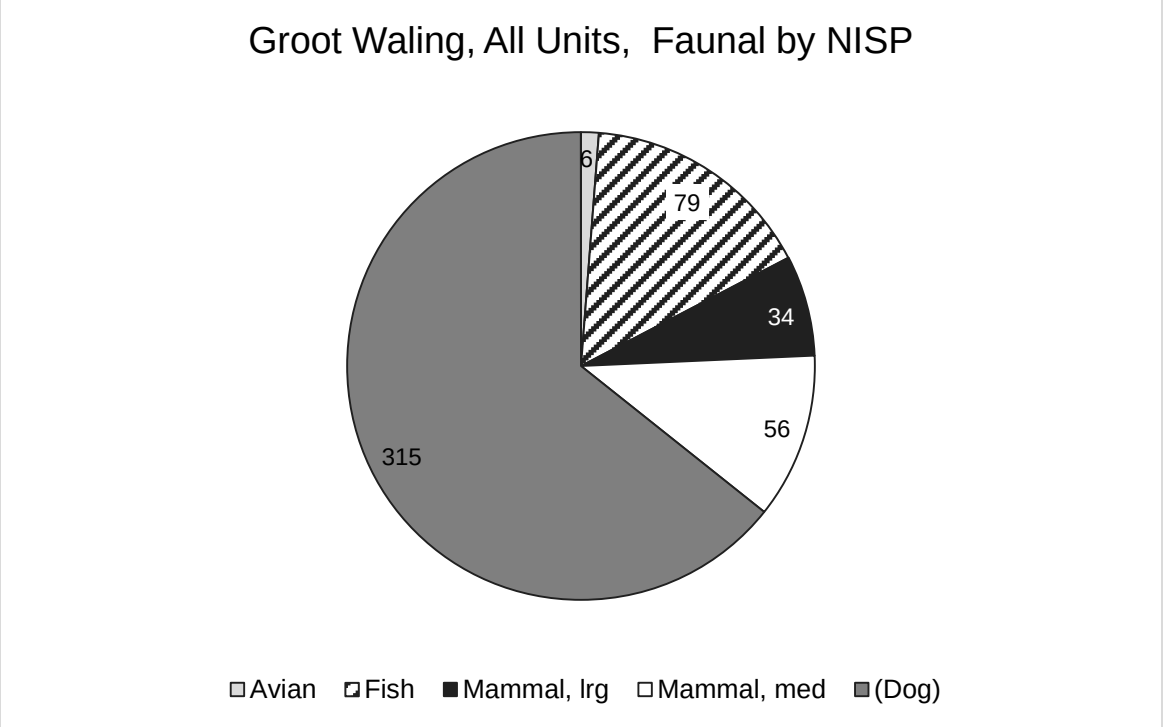


Figure 7.11 Groot Waling faunal by NISP.

Komber

Unit 1

A total of 95 specimens weighing 28.07 g was recovered from Unit 1 (Table 7.8). Unit 1 at Komber was located in an area analogous to OR Unit 2 and GW Unit 2 in that they were located near the corner of the two presumed storage/ worker habitation buildings. More medium mammal distal hind limbs, consistent with domesticated cat, were located in this unit. However, the deposit may be mixed due to the recent construction of a school within the *perk* walls. The sediments consisted of poorly sorted cobbles in a sandy silt and were indicative of the colluvial environs, but a large air pocket suggested that it was a result of moving dirt around for the school buildings. The cat remains, then, could easily have been deposited during the construction episode. The deepest level (60-70 cm) contained an avian humerus with cut-marks (Figure 7.8). This, however, could have been the result of a worker's lunch during construction; if Indonesian construction workers are anything like American workers, the deposition of lunch debris is common practice. Fish vertebrae and cranial elements are predominant in this unit, again indicating whole fish are being eaten. Similar to the chicken bone above, these fish remains may be from relatively contemporary lunches.

Table 7.8 Faunal Remains at Komber, Unit 1, by weight (g).

Komber Unit 1												
	0-10 cm		20-30 cm		30-40 cm		40-50 cm		50-60 cm		60-70 cm	
Specimen	NISP	Wgt (g)	NISP	Wgt (g)	NISP	Wgt (g)	NISP	Wgt (g)	NISP	Wgt (g)	NISP	Wgt (g)
Avian (Total NISP=1 , Total Weight= 1.6 g)												
Humerus											1	1.6
Total:											*1*	*1.6*
Fish (Total NISP= 19, Total Weight= 14.62 g)												
Cranium	1	0.28					1	0.36				
Maxilla/ mandible			2	0.83			2	0.63			1	1.54
Vertebrae					2	0.11	6	0.58	2	1.26	1	0.17
Spine	1	0.16									1	0.13
Fin							1	0.16				
Unidentified							<1/8"	0.75	<1/8"	7.66		
Total	*2*	*0.44*	*2*	*0.83*	*2*	*0.11*	*10*	*2.48*	*2*	*8.92*	*3*	*1.84*
Mammal, Large (not included in total)												
Tooth					1	1.02[1]						
Mammal, Medium (Total NISP= 73, Total Weight= 11.71 g)												
Felis catus												
Vertebrae									1	0.83		
Pelvis									3	1.14		
Femur									8	2.92[2]		
Tibia									6	1.42[3]		
Calcaneus									2	0.76[4]		
Metatarsal/ Phalanx									33	2.06		
Long Bone Fragment	1	0.48									1	0.05

Komber Unit 1												
	0-10 cm		20-30 cm		30-40 cm		40-50 cm		50-60 cm		60-70 cm	
< 1/8”										2.05		
Total	*1*	*0.48*							*71*	*11.18*	*1*	*0.05*
Mammal, Small (Total NISP= 2, Total Weight= 0.14 g)												
Long Bone Fragment					1	0.13						
Unidentified					1	0.01						
Total					*2*	*0.14*						
Level Total	*3*	*.92*	*2*	*0.83*	*4*	*0.25*	*10*	*2.48*	*73*	*20.10*	*4*	*3.49*

[1] Human molar
[2] Left and right femur fragments, 3 femoral heads.



Figure 7.12 Komber Unit 1 60-70 cm cutmarks.

Unit 2

Unit 2 was located on the beach and was a quite productive unit, producing 431 specimens weighing 573.75 (Table 7.9). However, this unit is likely also the result of recent construction efforts, namely anti-erosion measures. Based on association with the earthenware and porcelain/ tradeware, much of the faunal is 20th century material. Unlike Groot Waling, however, the 20th century material is probably associated with an entire village and not a single household. That is, the necessary material to build up the length and width of the beach could not have come from one household alone. Medium and large mammal dominates the assemblage (N=220, 476.07 g). Similar to Groot Waling, the hardier and low value elements are also found at Komber including large mammal phalanx, teeth, mandible fragment, ribs, calcaneus, long bone fragments, pelvis fragments, cranial fragments and caudal vertebra. Medium mammal (probably goat) elements include teeth, rib, humerus, and vertebra. Fish remains consisted of 85.52 g and were generally vertebrae and cranial elements. Fish remains in 0-10 cm were burnt, but the shallow depth suggests recent deposition. Small mammal remains were also found in this unit. The maxilla fragment was consistent in morphology with cuscus (*Phalanger spp.)* but inconsistent with bat

morphology and too large for rat or mouse. I did not have access to a cuscus comparative skeleton, so I cannot definitely determine taxonomy, but of the few small animals that exist on the islands, the maxilla is consistent with cuscus.

Table 7.9 Faunal Remains at Komber Unit 2.

	0-10 cm		10-20 cm		20-30 cm		30-40 cm		40-50 cm	
Specimen	NISP	Wgt (g)	NISP	Wgt (g)	NISP	Wgt (g)	NISP	Wgt (g)	NISP	Wgt (g)
Avian (Total NISP=14, Total Weight= 10.64 g)										
Long Bone Fragment					1	2.31	1	1.17	9	3.26
Total					*1*	*2.31*	*1*	*1.17*	*9*	*3.26*
Fish (Total NISP= 196, Total Weight= 85.52g)										
Cranium					9	4.27			15	6.74
Maxilla	1	0.31			1	0.4				
Spine	1	0.04							5	2.58
Vertebra					6	1.27			3	1.62
Uniden-tified	1	0.02	<1/8”	12.92	<1/8”	15.34	48	13.78	<1/8”	3.23
Total	*3*	*0.37*		*12.92*	*16*	*21.28*	*48*	*13.78*	*23*	*15.17*
Mammal (Total NISP= 71, Total Weight= 184.58 g)										
Bos spp.										
Teeth							5	57.51		
Mandible							5	42.1		
Phalanx	1	16.77								
Unidentified lrg. mammal										
Rib							30	5.77		
Total	*1*	*16.77*					*40*	*105.38*		
Mammal, Medium (Total NISP= 149, Total Weight= 291.49 g)										
Unidentified med. mammal										
Cranium					4	12.17				
Teeth					1	2.36				
Phalanx										
Rib	1	0.44								
Vertebrae							3	0.16		
Long Bone Fragment					19	1.2			1	85.7[1]
Uniden-tified			<1/8”	1.17					<1/8”	4.66
Total	*1*	*0.44*		*1.17*	*24*	*15.73*	*3*	*0.16*		
Level Total	*5*	*17.58*		*14.09*	*41*	*39.32*	*92*	*120.49*	*1*	*90.36*

	50-60 cm		60-70 cm		70-80 cm		80-90 cm	
Specimen	NISP	Wgt (g)	NISP	Wgt (g)	NISP	Wgt (g)	NISP	Wgt (g)
Avian								
Long Bone Fragment	1	1.74			2	2.16		
Total	*1*	*1.74*			*2*	*2.16*		
Fish								
Cranium	36	3.94						
Maxilla/ Maandible			3	1.05				
Spine	4	1.98						
Vertebra	2	0.83	3	0.35	2	0.6	1	0.17
Uniden-tified	<1/8"	2.14	23	1.8	26 <1/8"	8.25	21 <1/8"	0.92
Total	*42*	*8.86*	*29*	*3.2*	*28*	*8.85*	*22*	*1.09*
Mammal, Large								
Unidentified lrg. mammal								
Cranium					8	15.24		
Rib					4	10.77		
Pelvis	7	28.74						
Long bone fragment	11	7.68						
Total	*18*	*36.42*			*12*	*26.01*		
Mammal, Medium								
Unidentified med. mammal								
Cranium							2	2.91
Teeth							1	2.21[3]
Rib			7	4.53				
Vertebrae			1	0.78				
Total			*7*	*4.53*			*3*	*5.12*
Mammal, Small (Total NISP=1, Total Weight= 1.52 g)[2]								
Maxilla							1	0.62
Vertebra							1	0.13
Humerus			1	1.52				
Total			*1*	*1.52*			*2*	*0.75*
Level Total	*81*	*47.02*	*36*	*7.73*	*22*	*37.02*	*27*	*6.93*

[1] cut marks, probably goat.
[2] possibly *Phalanger*
[3] probably goat.

Komber Discussion

The disturbed context of Komber makes any interpretation of colonial dietary choices suspect. Similar to the other sites, whole fish were (and are) being consumed at Komber. Medium-large mammal remains were produced in greater weights than the other two sites, but considering much of it may have been recent village-based deposition, I am loathe to attribute this to colonial habits. Low value, but hardy, elements are found at Komber, similar to the other two sites. Similar to the other two sites, mammal dominates the assemblage by weight but fish is also present in relatively large numbers (Figure 7.14,

Figure 7.15). More avian remains are found at Komber than the other two sites, but this may be due to the recent fill nature of the deposit, that is, either the avian remains were more likely to survive if it was a recent deposit.

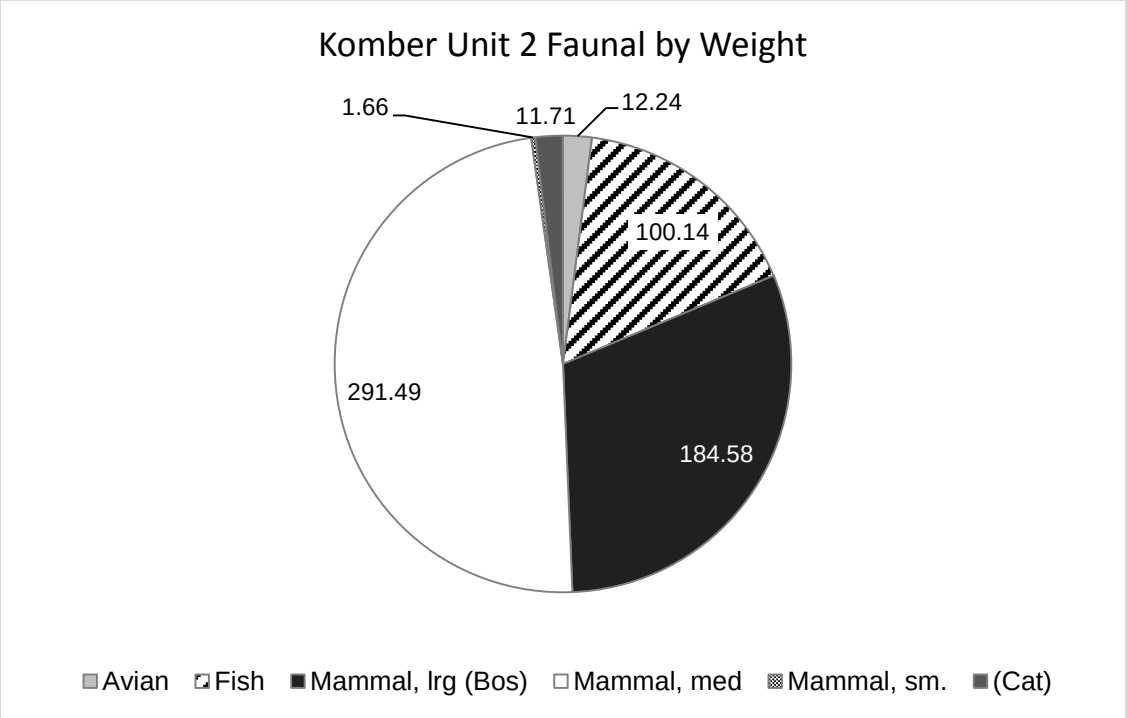


Figure 7.13 Komber faunal by weight (g), all units.

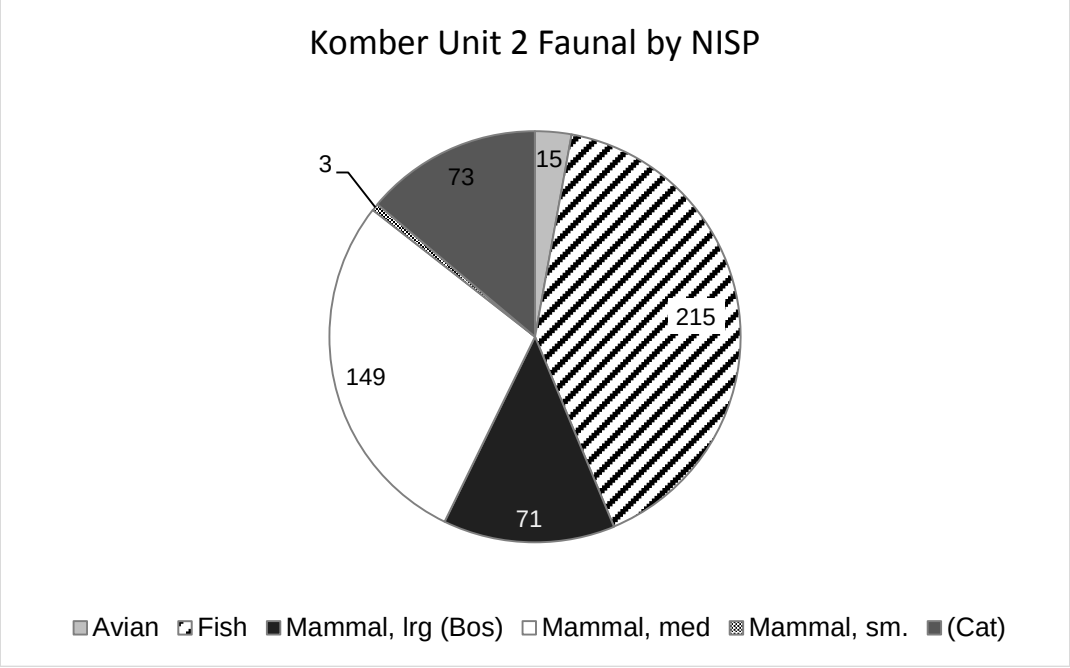


Figure 7.14 Komber faunal by NISP.

Discussion

A comparison of all sites (Table 7.10, Figure 7.16, Figure 7.17) shows that Komber has the highest amount of faunal material by both number and weight, despite only two units producing faunal remains compared to the other sites with three or four units. All sites have cranial and fin elements of fish, suggesting whole fish are being consumed. This matches modern behavior and historical records. The mammal remains of all sites consist of long bone fragments (e.g., cortical bone), metacarpal/ tarsals and fragments, rib fragments, and cranial elements. Pelvis and scapula fragments are found at some, but not all, sites. The found elements suggest that the entire animal was present at the site. Due to the presence of domesticated scavengers at the sites today (dogs and cats were seen at all sites) and of roaming pigs in the historical records, I am loathe to attribute the low value elements merely to economic decisions and not taphonomic processes. The fragmented nature of all the faunal remains suggests much of what had been deposited has been destroyed by natural forces. Given the presumed acidic nature of the soil at Ordatang and its complete abandonment since the 1970s, the low quantity is not surprising as what was there has presumably been destroyed and not replaced with much recent deposition. The larger number of fish bones at Komber compared to Groot Waling may also be due to recent deposition; the small amount of fish at Ordatang is not surprising due to its location some distance from the sea. The relative lack of bird remains at the sites is somewhat unexpected due to the prevalence of chicken around the islands today. However, the fragile nature of hollow bird bones makes them more susceptible to destructive taphonomic processes (e.g., Reitz and Wing 1999). Also, today chickens are kept mainly for their eggs and meat is often imported from Ambon. It is possible that chickens were more valued for their frequent egg production, providing few instances of the one-time-only production of meat, and therefore statistically unlikely to show up in a small sample (Grayson 1981).

Despite the existence of large pelagic fish, such as tuna, being historically recorded and fished in modern times in the Banda Islands, only the remains of relatively small fish were found at the *perken*. This does suggest an element of energetic efficiency, in that inhabitants did not have the time or ability to pursue high value, deep sea fishes and had to make do what small, easy to catch, presumably local reef fish. Large and medium mammal remains are found at all sites, in varying quantities. The presence of many different elements suggests the entire animal was processed, if not eaten, at the *perk*. The head and foot dominated assemblages suggest taphonomic issues as opposed to economic decisions. After 500 years of occupation, I expected the *perken* to be produce more faunal remains. The lack of faunal remains does suggest destructive taphonomic processes or a disposal pattern that did not involve deposition at the *perk* itself. The paucity of faunal remains and fragmented nature of that which does exist makes meaningful interpretation difficult.

Table 7.10 Total weight (g) and NISP of faunal remains at *perk* sites.

	Ordatang		Groot Waling		Komber		Total	
	NISP	Wgt (g)	NISP	Wgt (g)	NISP	Wgt (g)	NISP	Wgt (g)
Avian	7	5.82	6	2.77	15	12.24	28	20.83
Fish	75	18.78	79	19.93	215	100.14	369	138.85
Mammal, lrg	7	8.2	34	69.09	71	184.58	112	261.87
Mammal, med	16	2.43	56	95.48	149	291.49	221	389.4
Mammal, sm	0	0	0	0	3	1.66	3	1.66
Cat/ Dog	59	33.87	315	95.48	73	11.71	447	141.06
Other	6	5.38	0	0	0	0	6	5.38
Total:	170	74.48	490	282.75	526	601.82	1186	959.05

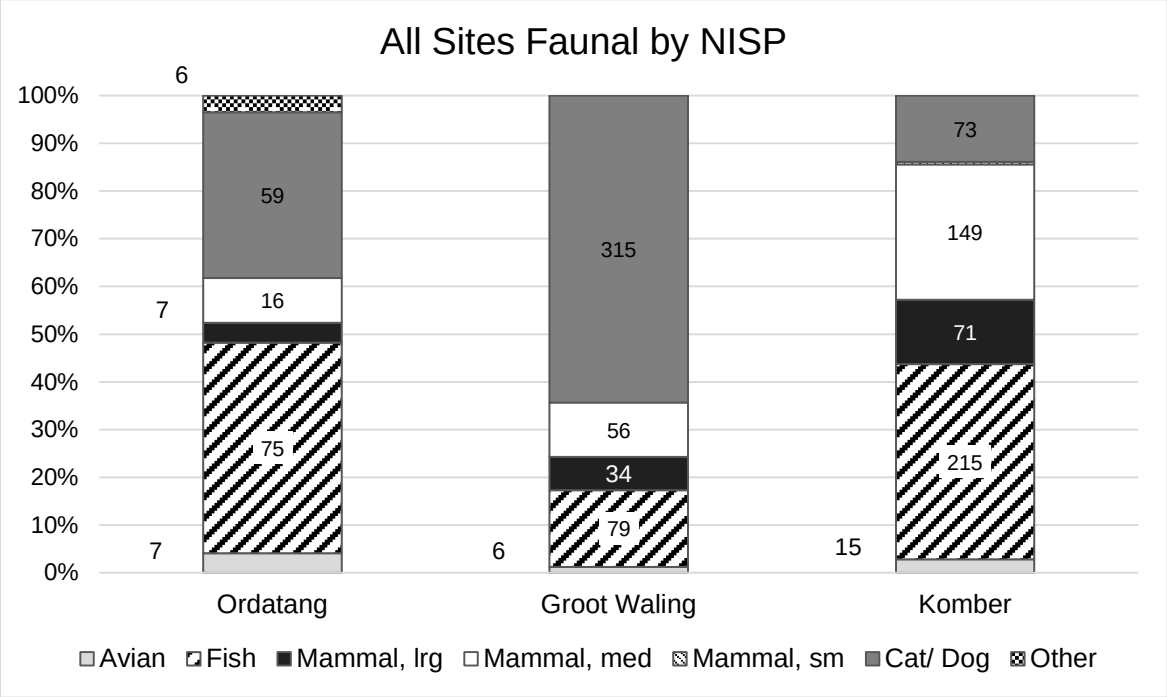


Figure 7.15 Faunal remains at all sites, NISP.

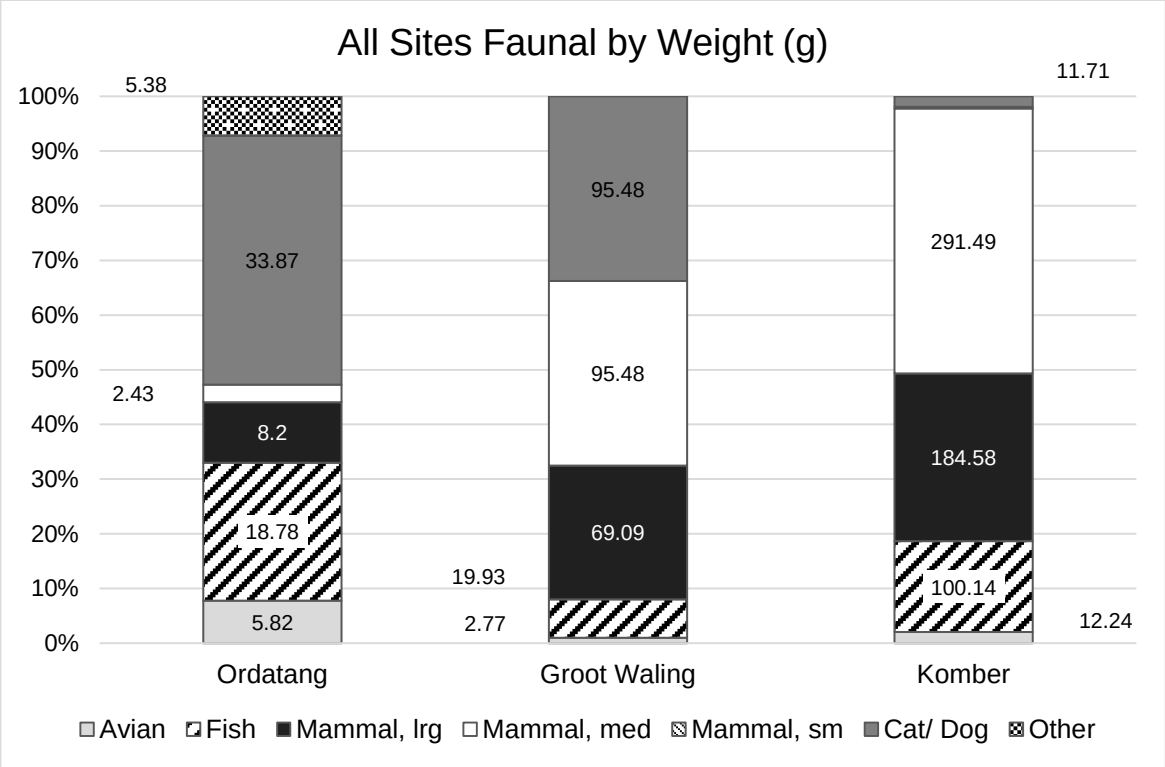


Figure 7.16 Faunal remains at all sites by weight.

Chapter 8
Starch Grain Analysis

Starch grain analysis is a useful technique for identifying botanical remains in tropical environments were macrobotanical remains do not well preserve (Torrence 2006). Previous research by Field (2008) demonstrates that starch grains have been preserved on earthenware ceramics from a Neolithic-era site on the Banda Islands. In addition, historic documents suggest that an ethnic preference existed in the Maluku region with most residents preferring sago over rice or other starches (Ellen 1979). Sago was regionally abundant and easy to harvest, but rice had to be imported and was thus more expensive (Loth 1998). The expected ethnic (and economic) preference for starch and the demonstration of preservation suggested that starch grain analysis would be a productive line of inquiry. Below, I review the basic tenants behind starch grain analysis, previous work in the region, and expectations based on the historical record prior to presenting the results of the analysis.

Background

Starch is a carbohydrate, an important feature of most humans' diet, and a dietary source of energy. Starch is basically a plant's mechanism for energy storage (Gott et al. 2006). As Gott et al. (2006:42) describe:

> Starch is a semicrystalline substance composed of crystalline and non-crystalline regions made up of different compounds. The building blocks of the granules are units of the simples sugar glucose, that have been formed into two different glucose chains which include the essentially unbranched molecule called amylose, and a branched molecule called amylopectin….The amylose-amylopectin ratio in starch granules affects certain physical properties such as gelatinization and reactions to stains.

The formation of starch begins with the process of photosynthesis wherein sunlight is transformed into a solid form of energy. The plant turns sunlight into glucose (sugar) and this simple sugar is the basis for the protein, fat, and complex carbohydrates that the plant needs. Some of the glucose is converted into stored energy or starch. When the plant needs energy, the stored starch is converted back to sugar and is transferred to that part of plant that needs it. All plants make starch and starch is found in virtually every part of the plant. Many starch grains, particularly stored (as opposed to transient) starch, are identifiable to genera or species based on specific characteristics. The ubiquitousness of starch and its demonstrated persistence of starch in the fossil record makes it an excellent avenue to explore paleoenvironments and paleodiets. (Torrence 2006)

A starch granule starts to form at a point called the hilum and layers are laid down successively (Gott et al. 2006:35). The combination of crystalline and non-crystalline regions and a specific starting point creates the most distinctive characteristics of a starch granule: birefringence and an 'extinction

cross' under polarized light. The different crystalline structures cause light to travel through the granule at different velocities which creates birefringence, which is, at a very basic level, the property of appearing in different colors in polarized and non-polarized light. The hilum creates the center point of the extinction cross, which rotates under polarized light (Gott et al. 2006:43-44).

The form of a starch grain depends on the type of plant, where the starch formed within a plant, and the environmental health of a plant (Gott et al. 2006:36-40). Starch can be found in almost every part of a plant, but generally only the storage starch is extracted for human consumption. Transient starch, which the plant makes and uses in the same day, is generally only about 1 micron in length, does not have distinguishing characteristics, and is not the subject of archaeological inquiry. Different plants have different locations for their storage starch that is exploited by humans. For instance, the seeds of some plants such as corn, wheat, and rye are the locus of storage starch. However, while seeds can be useful for starch exploitation, not all seeds store starch; "In many important food sources, the principal seed storage is lipid (oil or fat) accompanied by significant amounts of protein but very little starch" (Gott et al. 2006:39). Other plants, such as the potato and other tubers, the starch is located in an underground storage organ (Torrence 2006). Fruits, such as banana (or plantains) and breadfruit, can also be an excellent source of starch. Because of the variation in plant species, "starch granule morphology is largely dependent on the genetic composition of the plant, but size and shape can be modified by both the internal and external environments of the plant….Some granules are highly diagnostic, whereas others are less useful for identifying the plant species." (Gott et al. 2006:40). The identification of starch granules in archaeological contexts is generally conducted via a modern reference collection (Field 2006). Unfortunately, plants in stressed environments (e.g., drought) do show smaller and fewer starch grains than do healthy plants (Gott et al. 2006:42) and this may affect identification.

There are certain characteristics of starch grain that allow for identification. The size and shape of a granule are most useful, in addition, the presence of features such as fissures, lamellae (growth layers), vacuoles, pores, and equatorial grooves can be helpful in identification (Gott et al. 2006:40). There are three basic forms of starch grains: simple, compound, and semi-compound; these forms are further separated into types (Nageli 1858) (Table 8.1). The size of starch grains can vary from ~1-100 microns. Generally, the larger the granule, the higher the amount of water is stored within. Starch grain morphology can be altered by addition of water and/ or application of heat (Gott et al. 2006:45), which is the primary cooking process for any given starch. Gelatinization can occur, depending on the starch, at or above 50□ C; gelatinization can result in an altered (or burst) granule and the loss of the extinction cross, inhibiting identification. Gelatinized starches can be identified as starch with the assistance of chemical stains, such as Congo red dye (e.g., Lamb and Loy 2005, Torrence 2006,) and not all starches will be gelatinized, due to a variety of factors, which can allow for further taxonomic identification. Thus, while cooking and other processing can alter morphology, damaged starch grains can still be identified (Gott et al. 2006, Field 2007, Henry et al. 2009).

Table 8.1 Nageli (1858) typology of starch.

Type	Hilum	Form	Description, Example
Simple Granule			
1	Centric	Spherical	*Zea mays*
2	Centric	Lenticular	*Secale*
3	Centric	Oval	*Phaseolus*
4	Centric	Spindle-shaped	*Euphorbia*
5	Centric	Bone-shaped	*Euphorbia*
6	Eccentric	Inverted cone-shaped	*Solanum tuberosum*
7	Eccentric	Cone-shaped	*Scilla peruvian*
8	Eccentric	Wedge shaped/ compressed	*Canna edulis*
9	Eccentric	Rod-shaped	*Iris florentina*
10	Obscure	Under-developed	*Narcissus poetica*
Semi-Compound Granule			
11	n/a	Semi-compound granule	*Hyacinthus orientalis*
Compound Granule			
12	n/a	Fused part-granules	*Zingiber officinale*
13	n/a	Granules in 1 or 2 rows	*Polygonum fagopyrum*
14	n/a	Equally divided granules of few components	*Batatas edulis*
15	n/a	Unequally divided granules of few components	*Aconitum napellus*
16	n/a	Multiple granules	*Oryza sativa*
17	n/a	Hollow spherical granules	Algae

Starch grains are not visible to the naked eye; microscopy is used to view and identify them. Starch grain analysis is generally conducted under magnification by means of a cross-polarized light microscope, up to 800x magnification (Barton and Fullager 2006:47). Cross-polarized light is used for the identification of special characteristics of starch cells, such as the extinction cross, which can help distinguish them from other parts of the plant. Starch was first identified and described microscopically in the 18th century, by Anton Leeuwenhoek (Ugent 2006:116). A few authors (e.g., Fritzche 1834, Schleiden 1849, Nageli 1848) continued to describe and classify starch granules into the 19th century. Nageli (1858) was not the first to create a taxonomy of starch morphology, but his is still in use today (Torrence 2006:117). In the early 20th century, Reichert (1913) produced a dense tome bringing together previous research and publishing photographs of hundreds of starch grains from both domesticated and wild species. In the late 20th century, Ugent (e.g., 1994, 1997, Ugent et al 1981, 1982, 1983, 1984, 1986, 1987) was instrumental in applying the technique of starch grain analysis to archaeological material. Ugent (1994) demonstrated that starch was preserved in archaeological contexts and could be identified to species.

Modern archaeological starch grain research is useful in tropical areas where macrofloral remains do not preserve well (Torrence 2006:17) . Starch grain analysis has been instrumental in the identification of early domesticated manioc (Piperno et al. 2000), maize/ corn (Dickau et al. 2007), chili peppers (Perry et a. 200), and other roots and tubers (Denhem et al. 2004, Fullagar et al. 2006) in the tropics. However, starch grain analysis is not limited to tropical environments but has been conducted in the temperate

forests of eastern North America (Messner 2011), the Great Basin (Louderback 2014), the Middle East (Piperno et al. 2004), the Indian subcontinent (Kashyap and Weber 2013), and China (Liu et al. 2010, Tao et al. 2011, Yang et al. 2012). Starch grains have been extracted from sediments (e.g., Horrocks and Lawlor 2006, Horrocks and Nunn 2007, Lentfer et al. 2002), ceramics (e.g., Crowther 2006, Rosenswig et al. 2014), grinding stones (e.g., Fullagar et al. 2006, Piperno et al. 2000, Liu et al. 2010), chipped stone (e.g., Fullagar et al. 2006, Loy 1990) and human dental calculus (Mickleburgh and Pagan-Jimenez 2012). The ability to recover starch grains from a variety of environmental contexts and artifact classes makes it a useful research tool.

Starch grain analysis has been a very productive field of research in the Pacific Islands where there are preservation issues for most botanical remains. While little research has been conducted in Island Southeast Asia specifically, starch grain studies in Oceania and Polynesia proliferate. In Island Southeast Asia, Niah Cave in Sarawak on Borneo yielded tuber starch (*Alocasia longiloba* and *Dioscorea spp.*) and sago (*Metroxylon sagu)* starch dating to c. 45,000 years ago (e.g., Barker et al. 2007, Barton 2005). Studies in New Zealand demonstrated landscape modification and introduced agricultural crops (Horrocks and Lawlor 2006). Sediments and ceramics in Lapita settlements and sites have been studied to identify horticulture and plant use (e.g., Crowther 2005, Horrocks and Nunn 2007, Horrocks et al. 2008, Horrocks and Bedford 2004, Loy et al. 1992). Based on the multiple starch studies in the Pacific islands and its preservation in tropical environments, I expected starch grain to be a productive avenue for exploration.

Starch Expectations for the Banda Islands

Field (2008) demonstrated that starch was preserved on the Neolithic sherds from PA1, excavated by Lape in 2007. Since it was demonstrated that starch preserved on earthenware in the Banda Islands, I decided that this artifact class would be most useful for starch grain analysis as opposed to sediment analysis. This was largely due to the logistics of bringing multiple classes back for analysis and US import laws regarding soil.

As discussed in Chapter 3, historical documents and ethnographic research suggest that sago should be the dominant starch in pre-colonial contexts (Ellen 2003, Stark and Latinis 1992, 1996). After the colonial conquest, rice was imported in large amounts by the VOC and later Dutch East Indies government, ostensibly to feed the *perken* workers (Hanna 1978, Loth 1998).

Based on the three models previously discussed in Chapter 2, certain starch distribution is predicted. For the energetic efficiency model, imported rice is expected to dominate both worker and *perkenier* contexts as it was provided by the VOC or government. However, after the rice subsidization stopped in 1824 (Hanna 1978), rice is expected to be more costly and decrease in workers' contexts. Sago is expected to have supplements workers' rations in times of a rice ration shortage and after the subsidy ceased. For the Power/ Resistance model, starch residues are expected to be mutually exclusive, with Europeans and their descendants eating imported rice and workers subsisting on sago. For the creolization model, mixing of starches is expected.

Rice and sago are the most commonly discussed starches in the historical records. But other starches are currently available and may have been available in the past, despite lack of discussion. The previous study by Field (2008) on Neolithic sherds from PA1 did not have sago or rice but unidentified tubers. Cassava (*Manihot esculenta*) is commonly grown in Banda today but was put into production in the late 19th/ early 20th century (Heeres 1908, Winn 2001). Various other starches have been mentioned in historical descriptions of Banda (Table 8.2) and a comparative collection, discussed below, was created based on this data, modern observations of starches present in Banda markets, and presence in other Pacific Island sites. The expectation was that rice and sago starches should dominate the starch assemblages based on historic records.

Table 8.2 Historically described starches.

Scientific Name	Common Name	Present in modern markets	Presence in other regional sites	Citation
Colocasia esculenta	Taro		X	Matthews (2003)
Dioscorea esculenta	Yam		X	Heeres 1908
Ipomoea batatas	Sweet potato	X	X	Heeres 1908
Manihot esculenta	Cassava/ manioc	X		Winn 2001
Metroxylon sagu	Sago	X	X	Hanna 1978, Ellen 2003, Heeres 1908
Oryza sativa	Rice	X	X	Hanna 1978, Loth 1998, Valentijn 2002
Solanum tuberosum	White potato	X		Modern use in islands
Zea mays	Corn	X		Hanna 1978, Loth 1998

Methodology

During excavation, one to three sherds were separated for starch analysis from each level that contained more than 20 earthenware or tradeware sherds. Because washing the sherds could remove any adhering starch, sherds were not washed. No attempt was made to select for specific temper or other characteristics as few characteristics could be observed prior to washing. A total of 111 sherds of earthenware or tradeware were selected during excavation.

The preliminary starch analysis was funded by a National Science Foundation East Asia and Pacific Summer Institutes grant. The analysis was performed under the guidance of Judith Field at the School of Biological, Earth and Environmental Sciences at the University of New South Wales, Sydney, Australia. Starch sampling methodology followed Field (2006, 2008). All samples were sonicated for 1 minute in a distilled water bath. The sediment released from sonication was screened through a 125 micronmeter sieve. The remaining material underwent heavy liquid density separation to remove starch grains. The sample was centrifuged for 3 minutes and the supernatant was discarded. Sodium polytungstate was added to the sample and centrifuged again to separate the starch. The supernatant from this centrifuge is retained for analysis and the heavy fraction discarded. The sodium polytungstate is removed from the sample via added distilled water and centrifuging and pouring off the water 3-5 times.

Acetone is added after the final rinse and the sample is left to dry overnight. After drying, the sample was mixed with a 50/50 glycerol water mounting medium and mounted on a microscope slide. The cover slip was sealed with clear nail polish.

One slide from each sample was mounted and analyzed for starch grain while in Australia. Of these original 111 samples, 24 (21%) produced starch grains. One or two additional slides were mounted for 30 samples in Australia to check for additional starch. During the second run of analysis, an additional 17 slides contained starch, including 8 whose original sample did not contain starch grains. I determined that a single slide was not representative and the entire sample needed to be mounted for analysis. However, it soon became apparent that, due to time constraints, I would be unable to analyze all 111 samples. I decided to mount the entire sample for the sherds that originally tested positive for starch in Australia and at least one sample per level. This sampling strategy yielded a total of 84 sherds, 15 tradeware and 69 earthenware, and 1505 slides (Table 8.3).

After mounting, slides were examined under a polarizing light microscope with an attached digital camera. Starch grains were measured and characteristics (including size, shape, extinction cross placement, presence of lamellae, etc) described. While scanning electron microscopy would have yielded additional information regarding granule form, it is more expensive and time consuming than the polarizing light microscopy method. As the starch grain analysis was only one portion of this dissertation, the lower cost method was preferred. In addition, no staining was conducted on the specimens for this project due to time constraints. While certain stains can identify starch grains that have been heated or cooked, the number of slides that needed to be analyzed was quite high and adding an additional technique would have been problematic. However, this is a potential future research project.

I created a comparative collection based on historically described starches that existed in the Banda Islands in addition to other regional possibilities. The comparative collection species can be found in Table 8.4 and Figure 8.1-8.12. The taro (*Colocasia esculenta)* and yam (*Dioscorea esculenta*) samples were part of Judith Field's personal comparative collection. The manioc (*Manihot esculenta)*, rice (*O. sativa)*, white potato (*Solanum tuberosum)*, sweet potato (*Ipomea batatas)*, corn (*Zea mays*), and long nutmeg (*Myristica spp)* were purchased at grocery stores in Australia. The round nutmeg (*Myristica fragrans)* and sago (*Metroxylon sagu)* were procured in the Banda Islands. The sago was sampled from *sagu lempeng*, dehydrated sago biscuits that I purchased in the Banda Islands (see Figure 5.22). Kenari nuts (*Canarium spp.)* were also subjected to mounting but no starch could be identified in the nut, suggesting that it is an oily or protein rich nut (Gott et al. 2006). The kenari nuts were also collected in the Banda Islands. Kenari is described as an important food source in Maluku (e.g., Stark and Latinis 1996, Winn 2002), but it does not appear that starch grain analysis will be successful in demonstrating its use. For most samples, a small amount of material was removed from the original object and that was crushed in a mortar and pestle. A few grains of rice were crushed in the mortar and pestle en masse The material in the mortar was mixed with glycerol mounting medium and placed on a microscope slide and covered with a slip cover sealed with clear nail polish.

Table 8.3 Ceramic sherds sampled for starch grain analysis.

Sample	Temper	type	# slides	# slides w/ starch	# starch grains	% slides w/ starch
OR.1.0-10.1	Shell	body	23	8	11	35%
OR.1.0-10.2	Shell	body	32	5	5	16%
OR.1.10-20.3	Grit	body	38	6	11	16%
OR.1.20-30.1	Grit	body	16	3	7	19%
OR.1.20-30.2	Grit	rim	11	11	164	100%
OR.1.20-30.3	Grit	body	21	17	45	81%
OR.1.30-40.2	Grit	body	12	4	7	33%
OR.1.40-50.1	Grit	base	2	2	5	100%
OR.1.50-60.1	Grit	rim	2	2	6	100%
OR.1.50-60.2	Grit	rim	3	3	10	100%
OR.1.50-60.3	Grit	body	4	1	1	25%
OR.1.60-70.1	Grit	base	2	2	11	100%
OR.1.60-70.2	Grit	rim	2	2	3	100%
OR.1.70-80.1	Grit	rim	7	3	4	0%
OR.1.70-80.2	Grit	body	3	0	0	0%
OR.1.80-90.1	Grit	body	7	2	4	29%
OR.1.80-90.2	Grit	body	5	2	4	40%
OR.1.90-100.1	Grit	body	6	3	5	50%
OR.1.90-100.2	Grit	body	8	3	4	38%
OR.2.10-20.1	Grit	body	26	3	3	12%
OR.2.20-30.1	Grit	body	41	6	8	15%
OR.2.30-40.1	Grit	body	23	3	3	13%
OR.2.40-50.1	Grit	body	21	20	70	95%
OR.2.50-60.2	Grit	body	20	6	8	30%
OR.2.60-70.1	Grit	rim	41	7	7	17%
OR.3.0-10.1	Shell	body	8	5	9	63%
OR.3.10-20.1	Grit	body	13	3	5	23%
OR.3.10-20.2	Grit	shoulder	15	7	9	47%
OR.2.0-10.p1	Tradeware	rim	3	3	14	100%
OR.2.0-10.p2	Tradeware	rim	8	3	3	38%
OR.2.10-20.p1	Tradeware	rim	3	3	5	100%
OR.2.10-20.p2	Tradeware	base	5	5	11	100%
OR.3.10-20.p3	Tradeware	rim	6	1	2	17%
GW.1.0-10.1	Shell	body	33	3	3	9%
GW.1.10-20.1	Shell	body	19	3	4	16%
GW.1.10-20.2	Shell	body	15	7	19	47%
GW.1.20-30.1	Shell	body	25	8	10	32%
GW.1.30-40.1	Shell	body	35	5	6	14%
GW.1.40-50.1	Shell	body	19	2	2	11%
GW.1.50-60.1A	Shell	body	14	5	8	36%

Sample	Temper	type	# slides	# slides w/ starch	# starch grains	% slides w/ starch
GW.1.50-60.1b	Shell	rim	20	4	7	20%
GW.2.0-10.1	Shell	body	27	4	4	15%
GW.2.10-20.1	Shell	body	31	4	4	13%
GW.2.20-30.1	Grit	rim	31	7	10	23%
GW.2.20-30.2	Shell	body	31	4	4	13%
GW.2.90-100.1	Grit	rim	12	5	7	42%
GW.3.0-10.1	Grit	body	28	3	3	11%
GW.3.10-20.1	Shell	shoulder	35	15	23	43%
GW.3.20-30.1	Shell	body	31	0	0	0%
GW.3.30-40.1	Shell	body	20	6	7	30%
GW.3.50-60.1	Grit	body	9	1	1	11%
GW.3.90-100.1	Grit	body	9	1	1	11%
GW.4.10-20.1	Grit	body	6	2	2	33%
GW.4.10-20.2	Shell	body	32	8	8	25%
GW.4.30-40.1	Grit	body	2	2	2	100%
GW.4.30-40.2	Shell	body	2	2	2	100%
GW.4.40-50.1	Shell	body	7	1	1	14%
GW.4.40-50.2	Tradeware	base	8	1	1	13%
GW.4.90-100.1	Shell	rim	57	9	11	16%
KB.1.10-20.1	Shell	body	31		0	0%
KB.1.50-60.1	Shell	rim	28	4	5	14%
KB.2.0-10.2	Shell	body	25	4	5	16%
KB.2.10-20.1	Shell	rim	31	1	1	3%
KB.2.10-20.2	Shell	body	14	2	2	14%
KB.2.20-30.1	Shell	body	24	7	9	29%
KB.2.20-30.2	Shell	shoulder	29	0	0	0%
KB.2.30-40.1	Shell	body	27	8	11	30%
KB.2.40-50.1	Grit	rim	21	7	10	33%
KB.2.50-60.1	Shell	body	30	4	4	13%
KB.2.60-70.1	Shell	body	42	1	1	2%
KB.2.70-80.1	Shell	base	31	5	6	16%
KB.2.80-90.1	Shell	body	19	4	6	21%
KB.2.90-100.1	Shell	body	41	3	3	7%
KB.2.90-100.2	Grit	shoulder	13	5	7	38%
KB.2.0-10.p1	Tradeware	rim	10	4	5	40%
KB.2.0-10.p2	Tradeware	body	10	5	11	50%
KB.2.10-20.p1	Tradeware	body	18	4	5	22%
KB.2.20-30.p1	Tradeware	body	12	5	10	42%
KB.2.20-30.p2	Tradeware	rim	12	6	13	50%
KB.2.30-40.p1	Tradeware	rim	11	3	4	27%
KB.2.30-40.p2	Tradeware	base	9	6	25	67%

Sample	Temper	type	# slides	# slides w/ starch	# starch grains	% slides w/ starch
KB.2.80-90.p1	Tradeware	rim	10	3	3	30%
KB.2.80-90.p2	Tradeware	body	12	7	7	58%
# slides			1505	361	767	

Table 8.4. Starch Grain Measurements and Nageli Types for Comparative Collection.

Species	Ave.	Min.	Max.	S.D.	Shape	Hilum	Type 1	Type 2	Type 3	Type 6	Type 16
Colocasia esculenta	4.87	2.63	9.37	1.18	subround-polygonal	centric		X			
Dioscorea esculenta	3.314	1.68	5.09	0.68	round-subround	centric		X			
Ipomoea batatas	15.81	7.11	33.12	5.75	subround-subovoid-polygonal	centric			X		
Manihot esculenta	11.86	3.86	20.56	3.77	round-subround	centric	X				
Metroxylon sagu	45.28	24.14	73.47	8.04	ovoid-lanceolate	eccentric				X	
Myristica fragrans	7.3	3.69	14.45	2.28	round-subround	centric	X				
Myristica spp	7.57	4.1	14.05	1.9	round-subround	centric	X				
Oryza sativa japonica	7.59	4.46	11.7	1.53	compound	centric					X
Oryza sativa-1	6.15	2.95	9.73	1.49	compound	centric					X
Oryza sativa-2	6.17	3.48	11.31	1.52	compound	centric					X
Solanum tuberosum	23.01	3.92	67.8	13.1	ovoid-lanceolate	eccentric				X	
Zea mays	7.3	3.81	14.62	1.8	round-subround	centric	X				

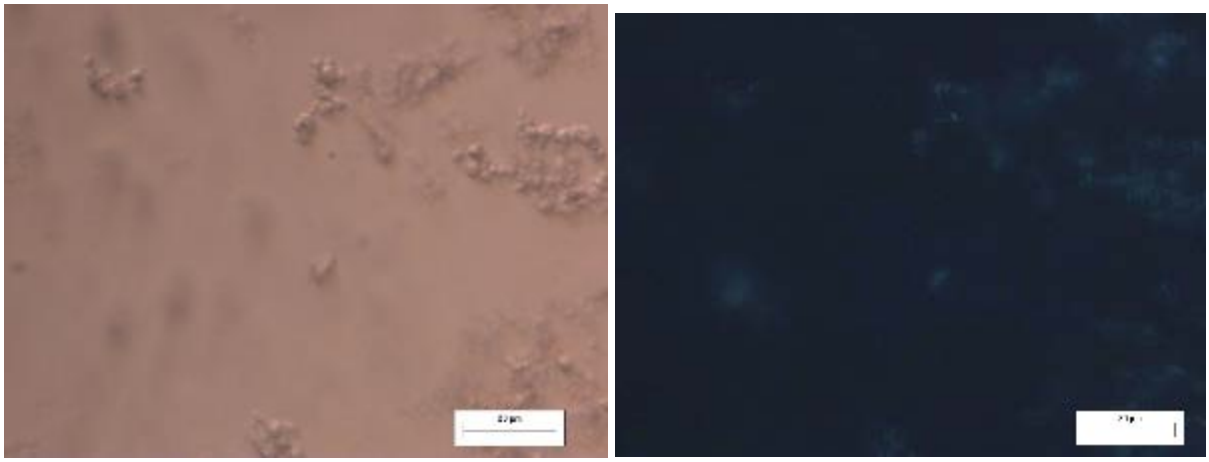


Figure 8.1 Taro (*Colocasia esculenta)* starch grains, comparative sample.

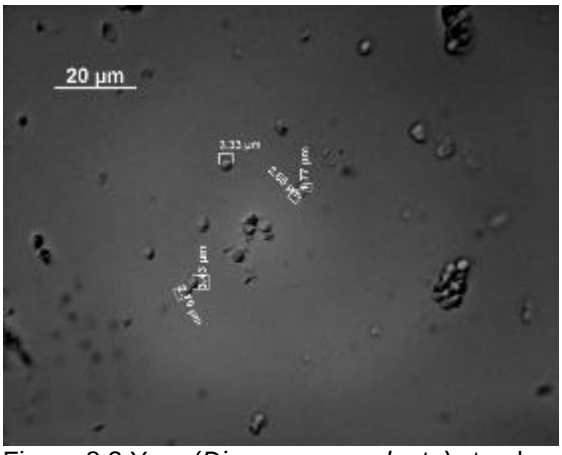
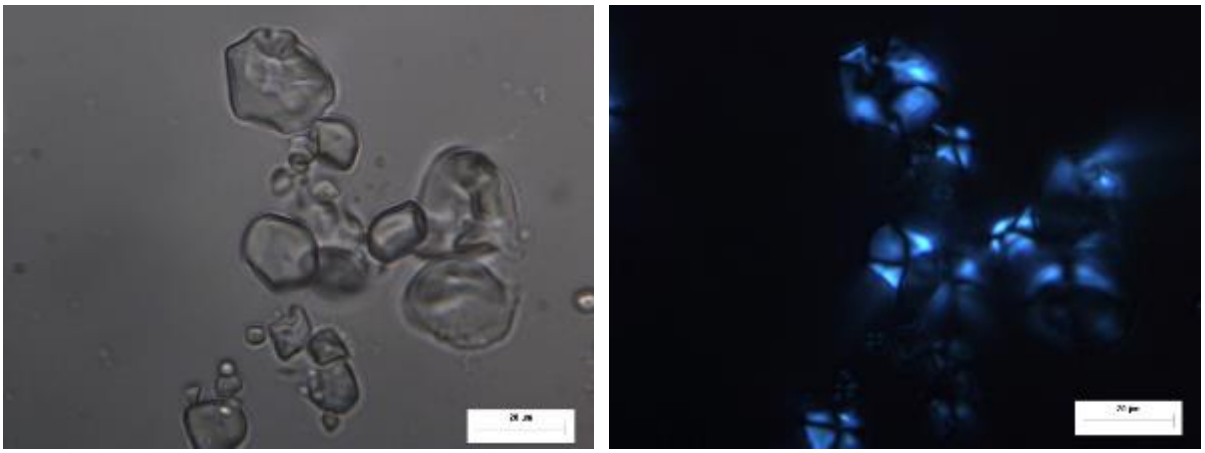
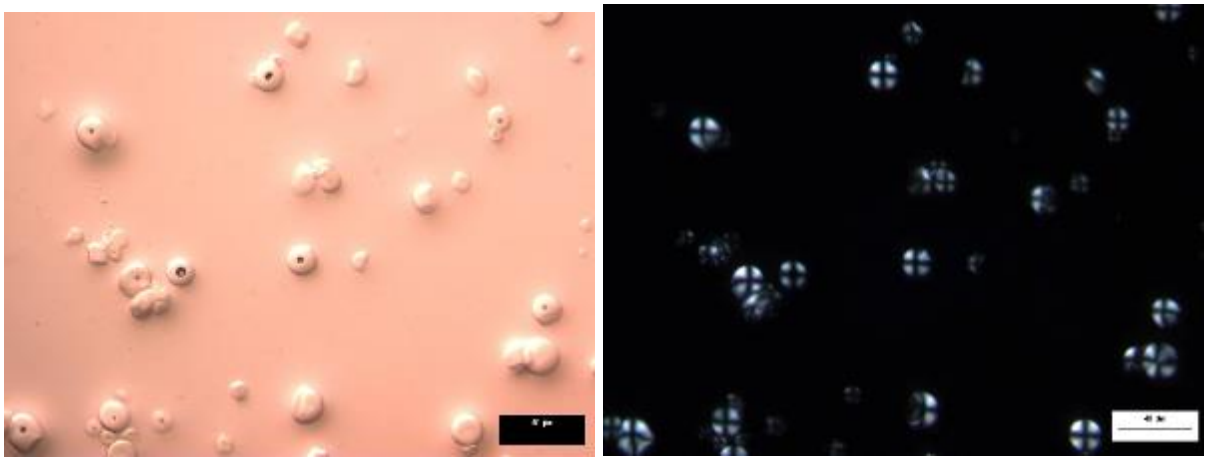


Figure 8.2 Yam (*Dioscorea esculenta)* starch grains, comparative sample (no cross-polarized photo taken).


Figure 8.3 Sweet potato (*Ipomea batatas)* starch grains, comparative sample.


Figure 8.4 Manioc/ cassava (*Manihot esculenta)* starch grains, comparative sample.

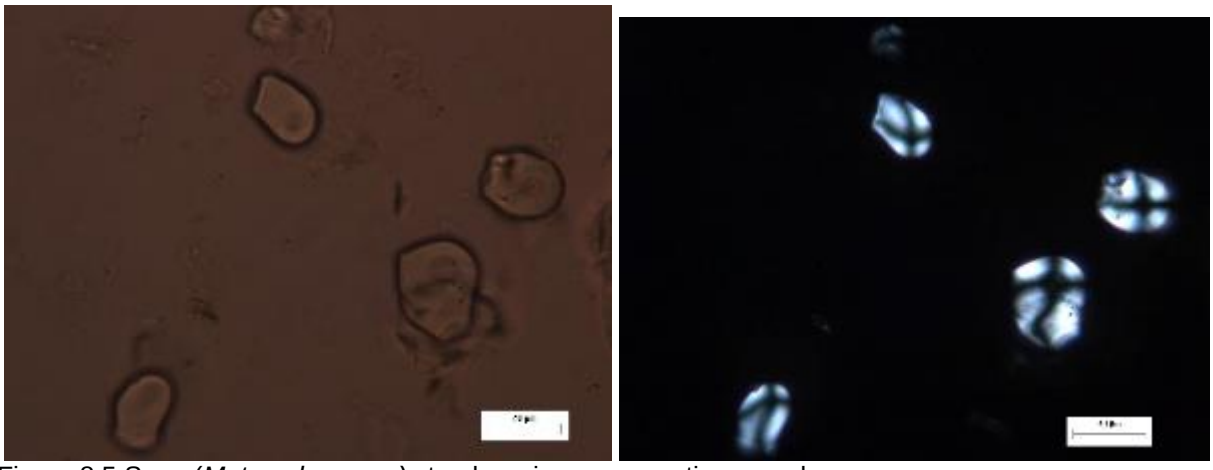


Figure 8.5 Sago (*Metroxylon sago)* starch grains, comparative sample.

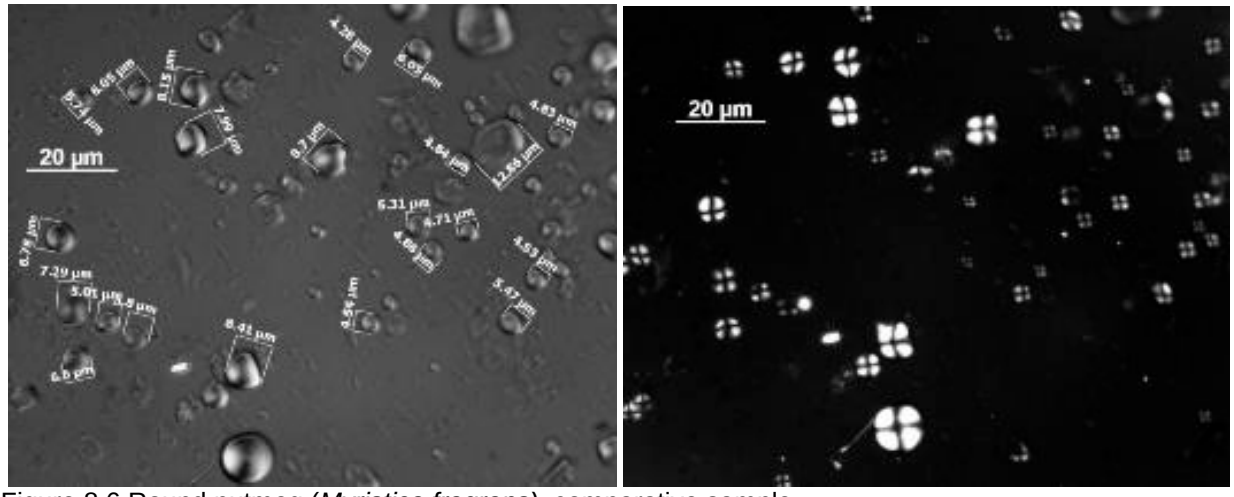


Figure 8.6 Round nutmeg (*Myristica fragrans),* comparative sample.

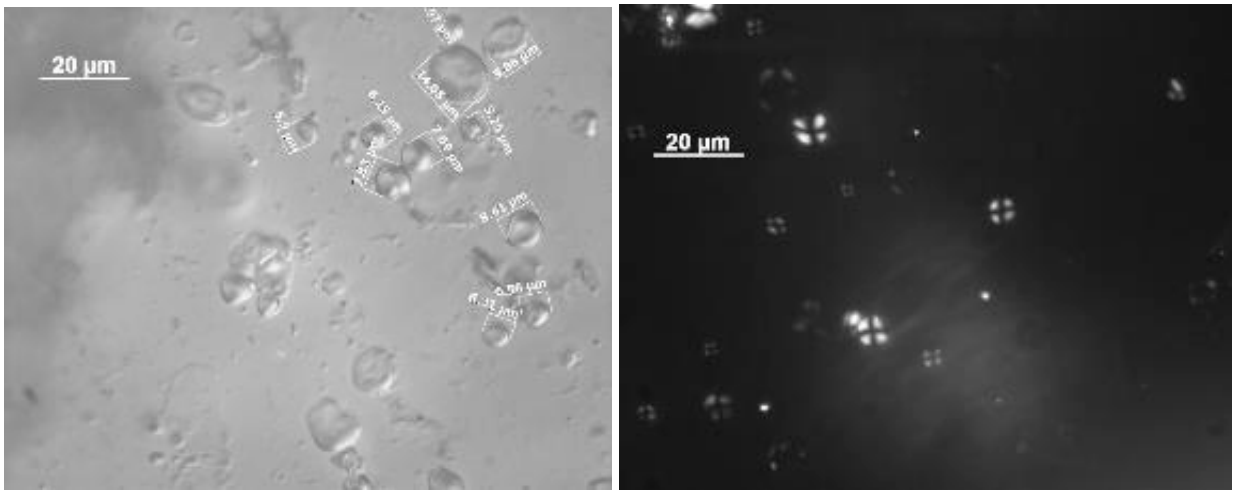


Figure 8.7 Long nutmeg (*Myristica spp*.) starch grains, comparative sample.

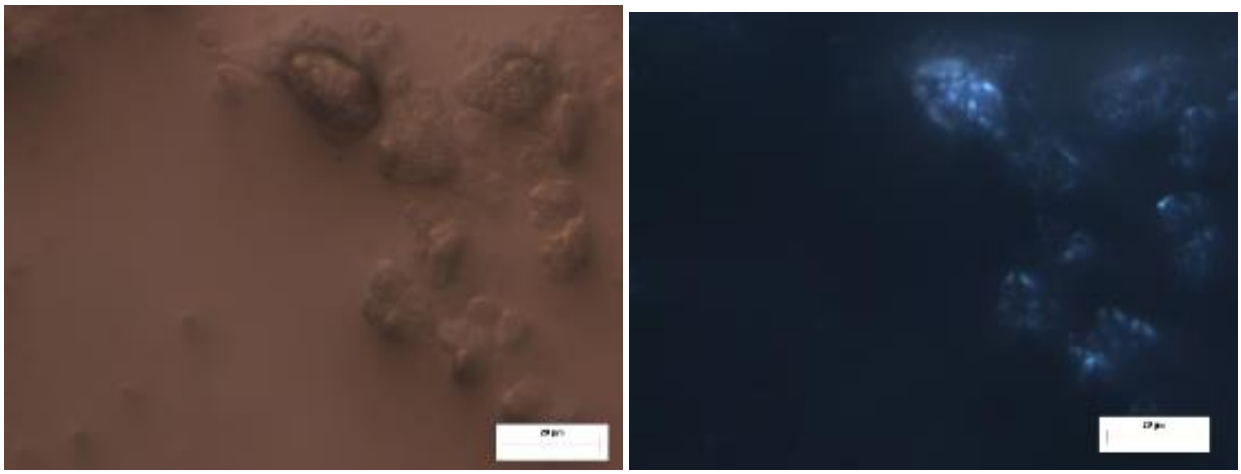


Figure 8.8 Long grain white rice (*Oryza sativa)* starch grains, comparative sample.

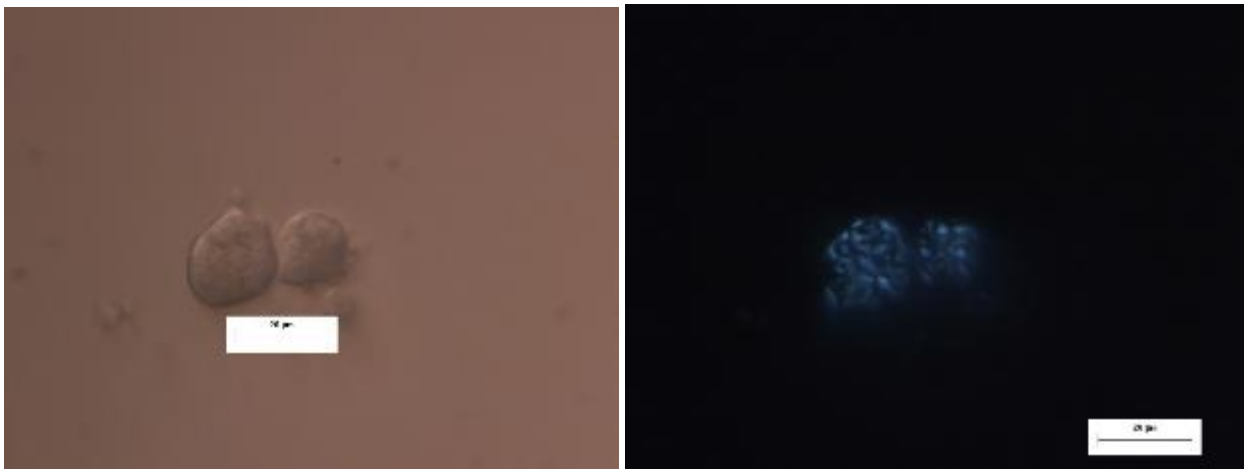


Figure 8.9 Long grain brown rice (*Oryza sativa)* starch grains, comparative sample.

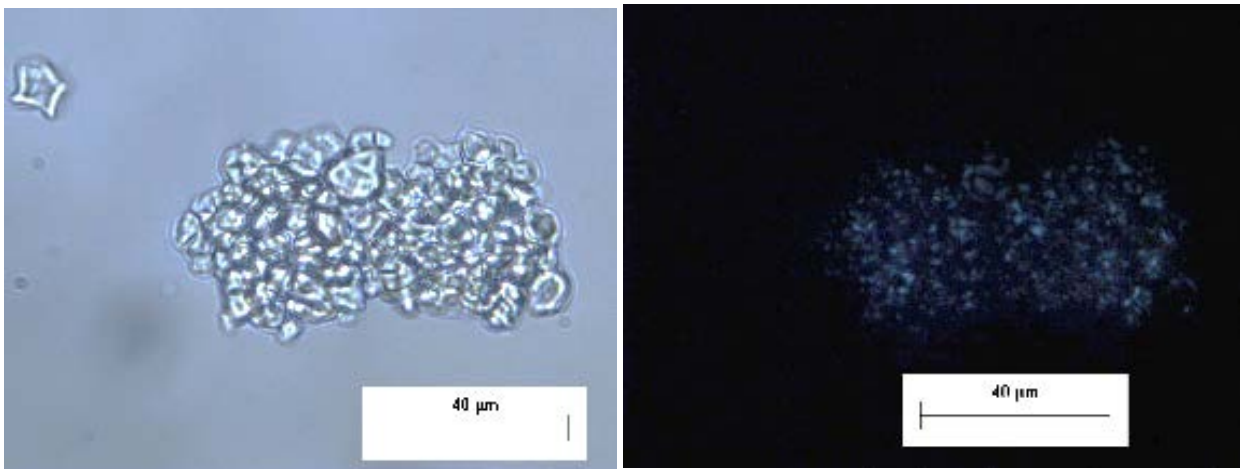
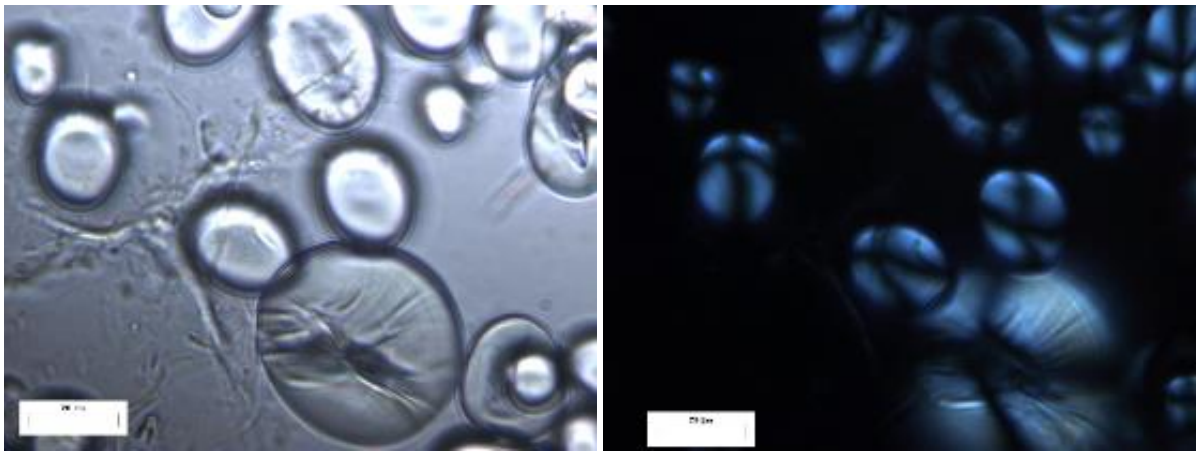
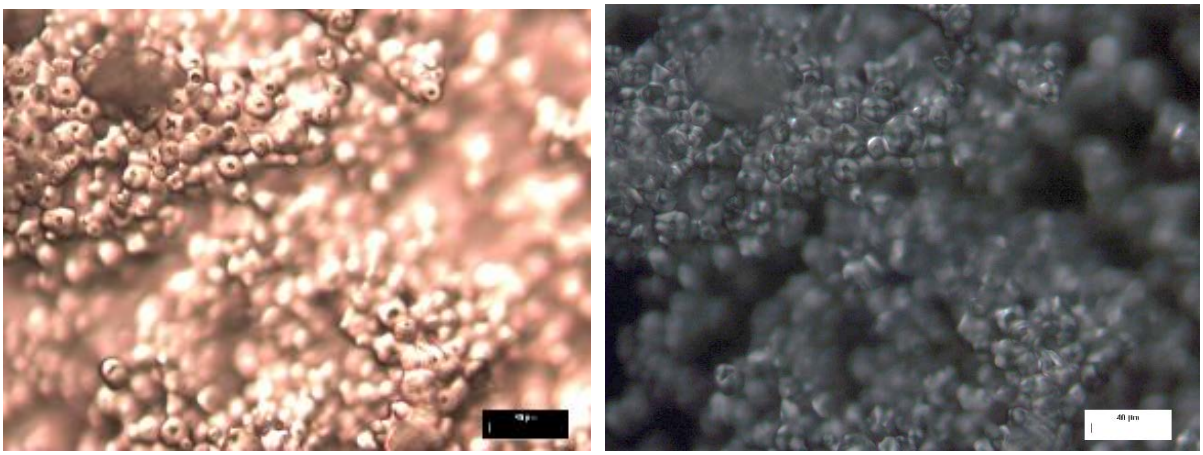


Figure 8.10 Short grain white rice (*Oryza sativa japonica*) starch grains, comparative sample.


Figure 8.11 White potato (*Solanum tuberosum)* starch grains, comparative sample.


Figure 8.12 Corn *(Zea mays*) starch grains, comparative sample.

Maximum diameter was measured for 100 starch grains for each comparative sample. In addition to diameter measurements (Figure 8.13), starch grains were assigned Nageli types based on morphology. Nageli Type 1 is a simple grain with a centric hilum and spherical shape; the comparative collections starch grains of cassava (*M. esculenta)*, nutmeg (*M. fragrans and Myristica spp.)* and corn (*Z. mays)* fall under this category. Nageli Type 2 is a simple grain with a centric hilum and lenticular shape; the comparative collections starch grains of taro (*C. esculenta)* and yam (*D. esculenta)* fall under this category. Nageli Type 3 is a simple grain with a centric hilum and an oval shape; the comparative collections starch grains of sweet potato (*I. batatas*) fall under this category. Nageli Type 6 is a simple grain with an eccentric hilum and inverted cone shape; the comparative collections starch grains of sago *(M. sago)* and white potato (*S. tuberosum)* are Type 6 grains. Nageli Type 16 is a compound grain with multiple granules; Nageli's example of this type is *Oryza sativa*. Cornstarch and potato starch are used in the shipping or production of scientific materials and can be a source of contamination (Crowther et al. 2014). While these starches were historically mentioned, if they dominated the assemblage, it would suggest contamination. See Appendix E for the complete starch catalog.

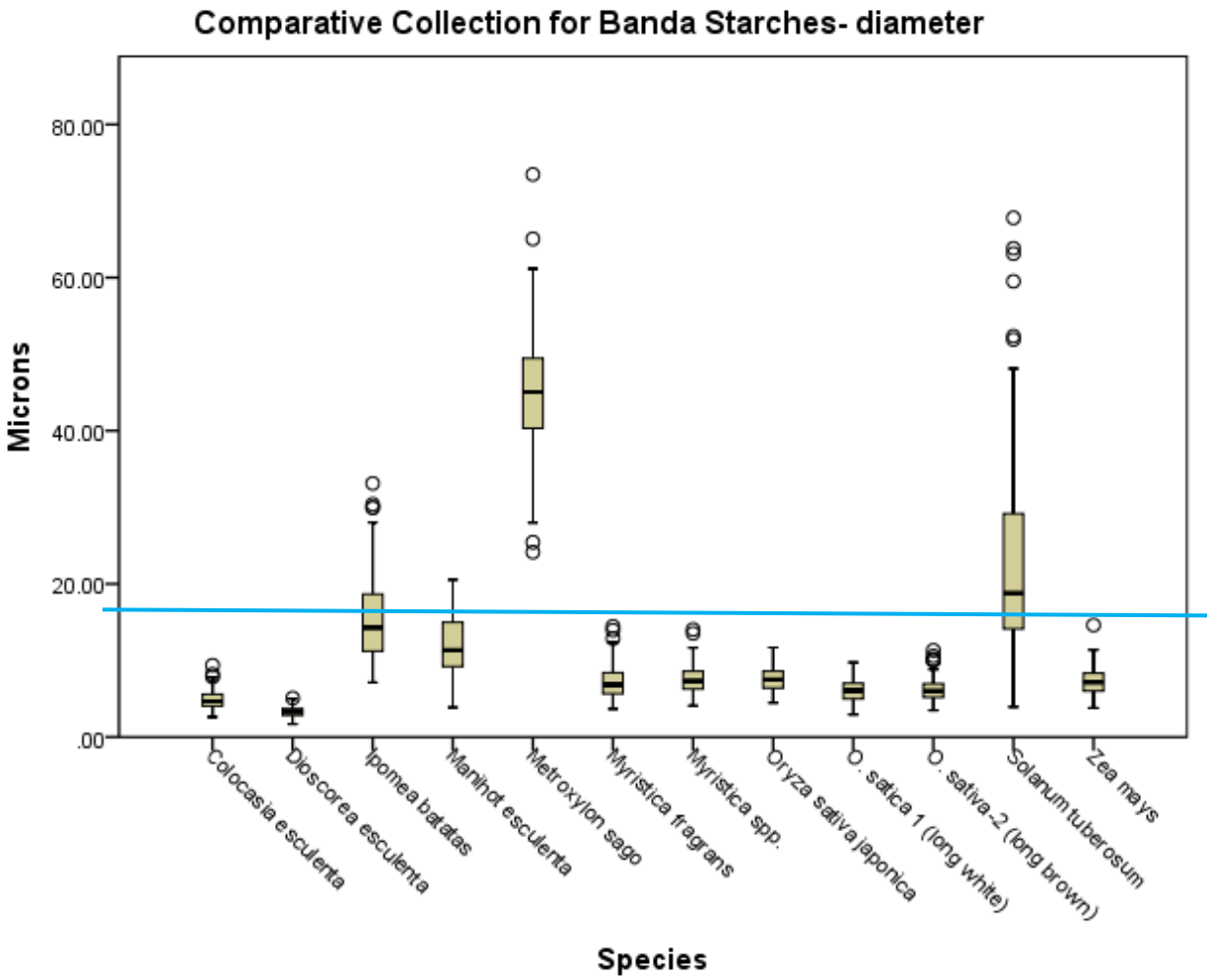


Figure 8.13 Size distribution of starch grain comparative collection (blue line at archaeological assemblage mean).

Banda Islands Sites

After the comparison collection was complete and the initial slides from the pilot study had been analyzed, I completed the analysis of the remaining slides. For the complete starch grain analysis, 1505 slides were analyzed for 84 individual sherds. As starch extraction had been completed during the pilot study, there was no change in methodology of sample extraction or preparation. Of the 1505 slides, 338 slides produced starch grains for a total of 773 individual starch grains (Table 8.1, above). On average, 23% of the total slides produced starch grains. In the original pilot study of 111 sherds, a similar 21% of the slides produced starch. The number of starch grains per sample ranged from 1-165, with an average of 9 grains per sherd. The majority of the samples produced fewer than 10 starch grains per sherd (N=64, 85%) (Figure 8.14). The amount of slides each sherd produced ranged from 1 slide to 56 slides mounted per sample, with an average of 17.5 slides per sherd. There was no correlation between size of sample and amount of starch recovered. That is, the higher number of slides that were analyzed did not result in a higher number of starch grains recovered (see Table 8.3). For instance, the highest count of starch grains (N=165) was recovered from a sample of 10 total slides, whereas three samples of about 30 slides produced no starch grains. Considering the high number of individual slides analyzed, I feel that the recovery rate for starch was small. However, few authors provide rate of recovery per sample in their publications, so the rate of recovery may or may not be low. Assuming the recovery rate is low, this may be due to issues of preservation. That is, the starch was not identified because it had gelatinized and lost the necessary characteristics for identification. However, only one of the sherds under analysis showed potential signs of charring and only 70 of the 3606 sherds (1.9%) in the ceramic assemblage had evidence of charring. This suggests that starchy staples were not primarily cooked in earthenware vessels. Galvão (Jacobs 1971:141) does note that Malukans made “little use of pots” preferring to steam their starches in banana or *pandanus* leaves or bamboo tubes. Of the 84 sherds under analysis, 5 produced no starch. Three of these were from Groot Waling and one each from Ordatang and Komber. Ordatang had 33 sherds under analysis, Groot Waling had 26 sherds under analysis, and Komber had 25 sherds under analysis. It is likely that the higher number of sherds lacking starch from Groot Waling is not due to chance. Groot Waling had a higher water table and the sherds could have been “washed” clean by the rising and lowering tides affecting the water table.

The mean length of starch grains in the entire assemblage was 17.488 µ, with a minimum of 2.15 µ, maximum of 67.214 µ and standard deviation of 6.698 µ (Table 8.5, Figure 8.15). The mean does not approximate the mean of any of the starches in the reference collection so the majority of starches recovered do not appear to match those in the comparative collection (Table 8.6, Figure 8.13, above). It would be expected that a sample population that consisted of a variety of different starch grains from different species would not yield a mean that would approximate a single comparative population, the majority of the archaeologically recovered grains do not match the sizes or shapes seen in the comparative collections, resulting in the vast majority of starches from the archaeological assemblages being unidentified. *Ipomea batatas (*sweet potato) is closest to the archaeological collection’s mean with

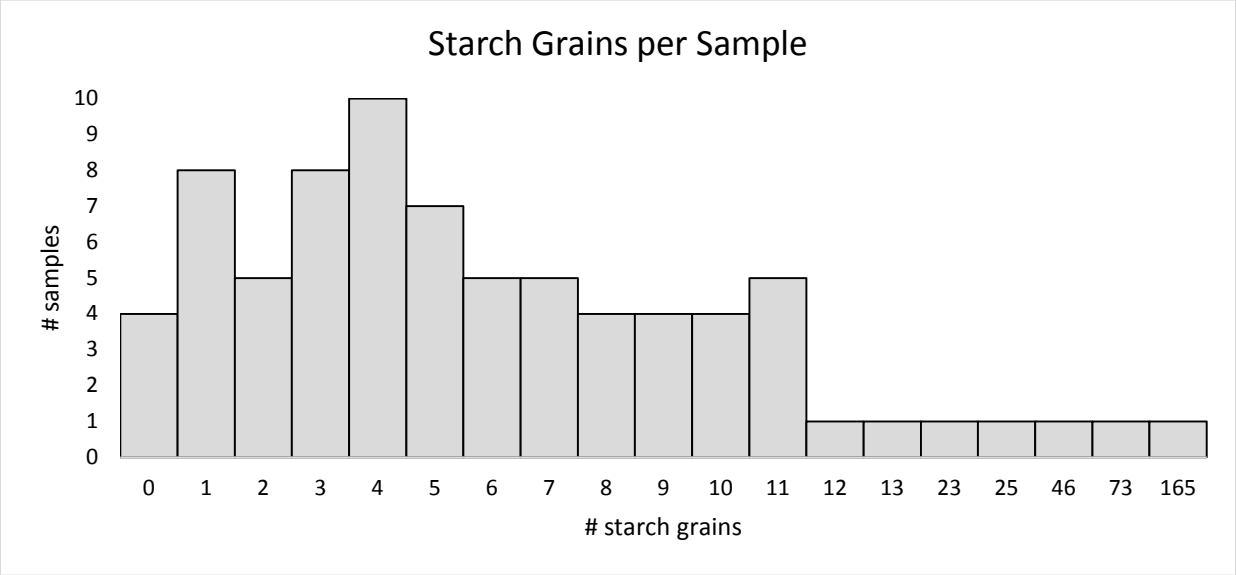


Figure 8.14 Starch grains per sample.

Table 8.5 Descriptive statistics for starch measurements, all units.

Site	Unit	N	Min	Max	Mean	Range	SD
OR	1	304	2.95	56.037	17.61	53.087	5.67
OR	2	136	2.15	67.214	17.509	65.064	9.0447
OR	3	25	11.82	27.65	17.9	15.83	4.387
GW	1	59	5.97	40.066	16.512	34.096	7.47
GW	2	32	9.108	49.355	20.098	40.247	6.7
GW	3	35	5.792	35.077	18.14	29.285	5.76
GW	4	29	7.34	36.105	17.258	28.765	6.549
KB	1	5	13.323	19.7	17.253	6.377	2.38
KB	2	149	2.44	35.54	16.864	33.1	6.421
Entire assemblage		774	2.15	67.214	17.488	65.064	6.698

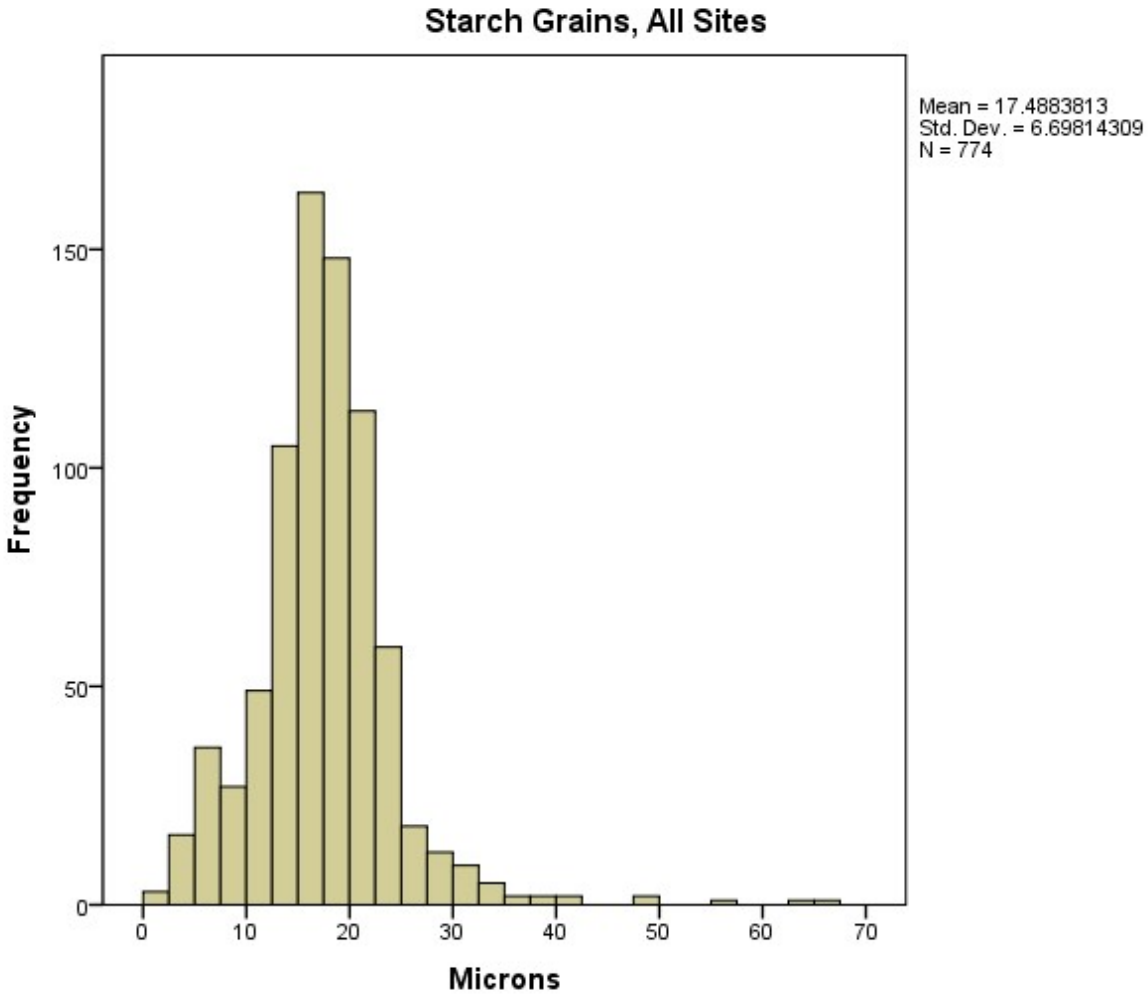


Figure 8.15 Starch grain size distribution for archaeological assemblage.

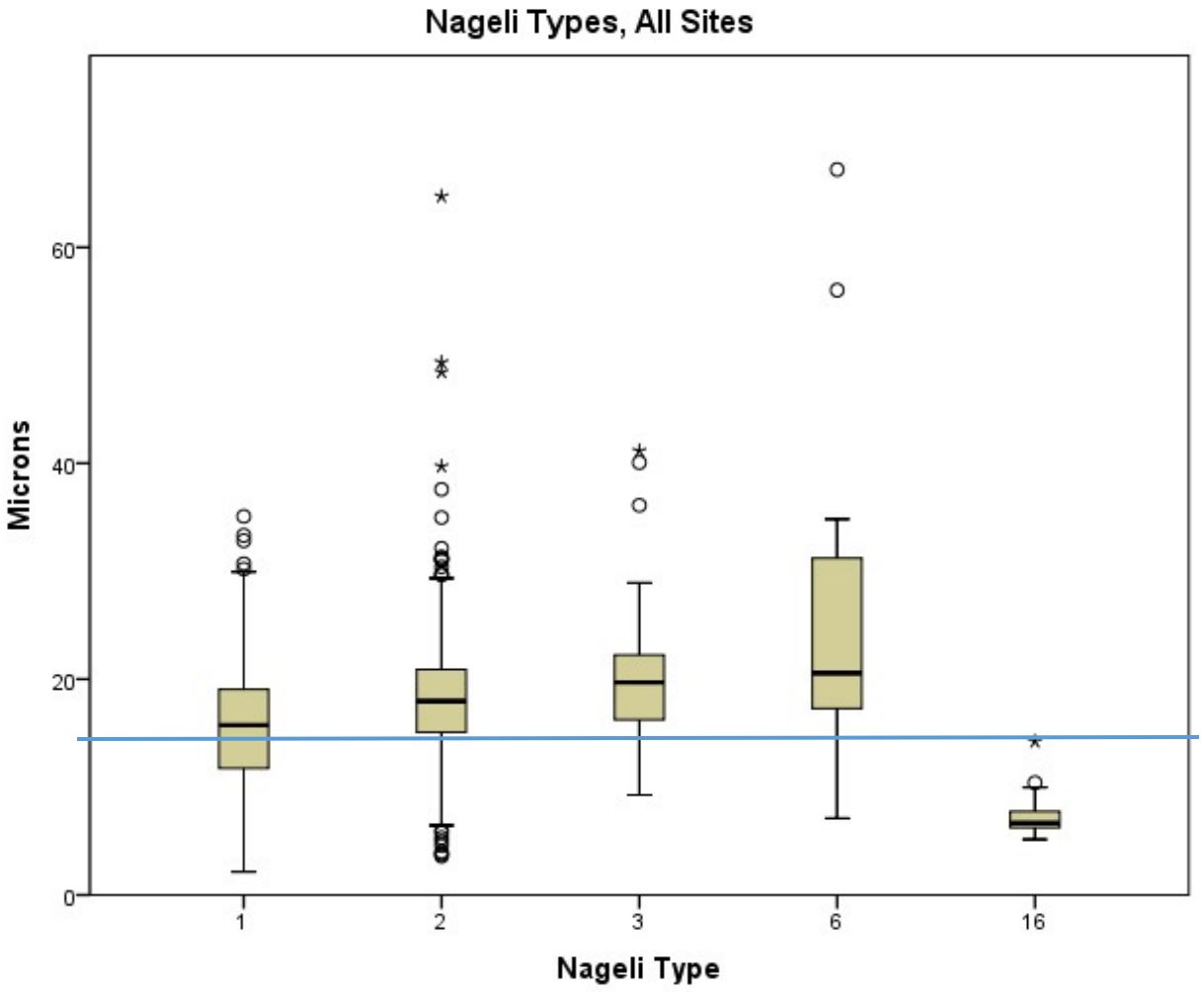


Figure 8.16 Size distribution by Nageli Type, blue line at archaeological assemblage mean.

Table 8.6 Descriptive Statistics for Nageli Types in archaeological assemblage.

Nageli Type	Number	Min	Max	Ave	SD
1	215	2.15	35.07	15.46	6.17
2	475	3.6	64.726	18.268	5.79
3	48	9.26	41.15	20.406	6.36
6	15	7.11	67.214	26.627	16.15
16	21	5.16	14.223	7.406	2.103

a mean of 15.81 µ. Unfortunately, *I. batatas* is Nageli Type 3; Nageli Type 3 consists of 48 samples, or 6%, of the assemblage which suggests that *I. batatas* cannot be the primary cause of the size distribution.

Nageli Type 2 (61%), followed by Type 1 (27%), dominate the assemblage, making up the majority of the assemblage. Both of these types are simple grains with centric hila and are spherical or lenticular (oval). These forms are relatively undiagnostic. All Nageli Types from the archaeological assemblage have a diffuse distribution. The distribution of sizes in the comparative collections is much tighter, except for *M. sagu* and *S. tuberosum. M. sagu* and *S. tuberosum* are large grains; species with larger grains tend to have a diffuse distribution in general (Sivak and Preiss 1998). Except for *M. sagu* and *S. tuberosum,* all reference collections have standard deviations below 6 µ whereas all the archaeological collection except the small grained Type 16 have standard deviations above 6 µ. This suggests that the archaeological grains are not from a single source for each Nageli Type, but a mix of different species.

There is no obvious difference in Nageli Type distribution across the three sites (Figure 8.17, Table 8.7). Each type is most populous at Ordatang because Ordatang produces the highest number of starch grains. Except for Type 16 (rice) which was not identified at Komber, all types are represented at each site. Rice is expected at all the *perk* sites and there is no particular taphonomic activity occurring at Komber and not Groot Waling due to their similar beach environments. The lack of rice at Komber is somewhat inexplicable as it should be present in historic assemblages and is present at the other sites

Ordatang

Unit 1

A total of 19 sherds were sampled from Unit 1 (Figure 8.18). Only two (10%) of these sherds were “shell” (foraminifera) temper, the remaining were grit tempered. Five (26%) were rim sherds, two (10%) were base sherds and the remaining 12 (63%) were body sherds. Five (26%) of the sherds were decorated. No tradeware was selected from this unit. All but one of the sheds (OR.1.70-80.2) produced starch grains (Table 8.8). The majority of sherds (N=15, 79%) produced 10 or fewer starch grains; two sherds produced more than 20 starch grains (OR.1.20-30.2 and OR.1.20-30.3). OR.1.20-30.2 produced over 150 starch grains, by far the highest number of any sherd in the assemblage. OR.1.20-30.3 produced 45 starch grains, which is still a high number. The high number cannot be attributed to a larger sample as many sherds yielded >30 slides per sample and did not produce near the number of starch grains as did these two sherds. OR.1.20-30.2 is a rim sherd and starchy residue can often be found on restricted neck vessels due to overflow (Eerkens 2005). However, no other rim sherd produced the high number of starch grains as seen in OR.1.20-30.2. There was a total of 304 starch grain found in this unit. The percent of slides with starch varies from 16% to 100% for these samples.

Nageli type 2 (Figure 8.20), a simple grain with a lenticular shape and a centric hilum, dominates this assemblage largely due to OR.1.20-30.2 which has 121 of these grains. Nageli Type 2, a simple grain with a spherical shape and centric hilum is the next prolific, with 59 grains. The mean of the entire unit is 17.61 µ, minimum is 2.95 µ, maximum is 56.037 µ and standard deviation is 5.67 µ (Figure 8.21).

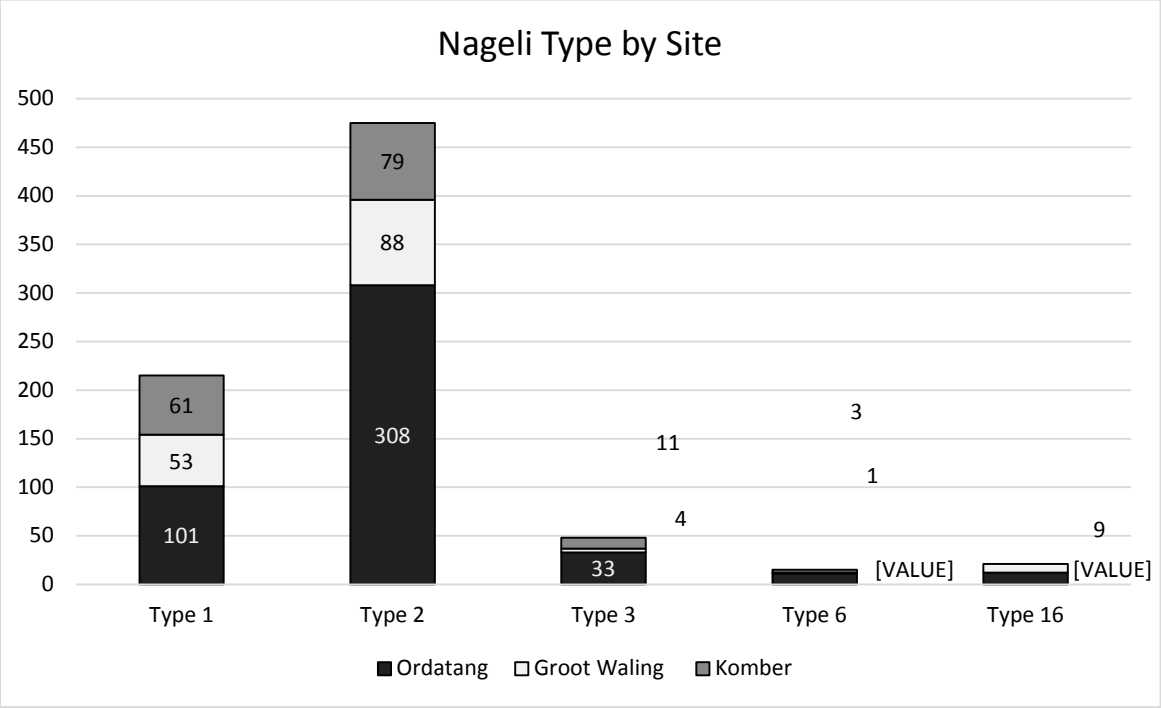


Figure 8.17 Nageli Types by Site

Table 8.7 Nageli Type by Site.

Nageli type	Ordatang	Groot Waling	Komber	Total
Type 1	101	53	61	215
Type 2	308	88	79	475
Type 3	33	4	11	48
Type 6	11	1	3	15
Type 16	12	9	0	21
Total	465	155	154	774

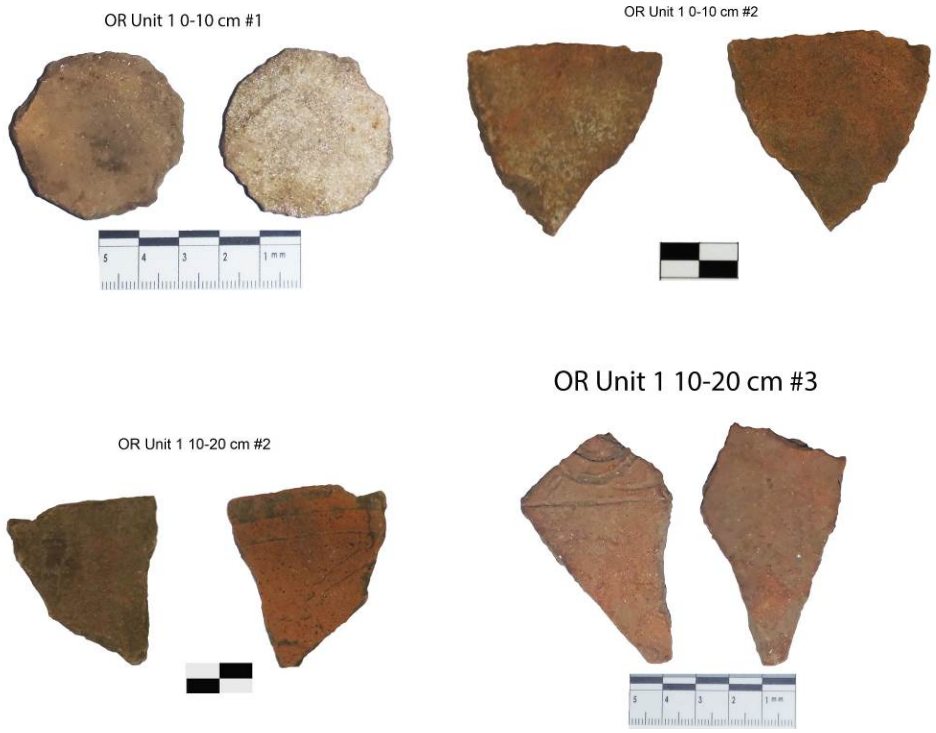


Figure 8.18 Ordatang Unit 1 starch analysis sherds, levels 0-40 cm.

Banda 2011 OR Unit 1 40-50 cm #1



OR Unit 2 40-50 cm #1



OR Unit 1 50-60 cm #3



OR Unit 1 70-80 cm #1



OR Unit 1 70-80 cm #2



OR Unit 1 80-90 cm #2



OR Unit 1 90-100 cm #1



OR Unit 1 90-100 cm #2



Figure 8.19 Ordatang Unit 1 starch analysis sherds, levels 40-100 cm.

Table 8.8. Ordatang Unit 1, Nageli Starch Types per sample.

Sample	Temper	Vessel part/ decoration	ave grains/ slide	Type 1	Type 2	Type 3	Type 6	Type 16	Total
OR.1.0-10.1	Shell	Body	0.48	1	6	1	3	0	11
OR.1.0-10.2	Shell	Body	0.13	1	3	0	0	0	4
OR.1.10-20.3	Grit	Body, incise on ext	0.29	0	6	0	1	4	11
OR.1.20-30.1	Grit	Body	0.25	0	2	2	0	0	4
OR.1.20-30.2	Grit	Rim, impress on ext	14.91	36	121	6	1	0	164
OR.1.20-30.3	Grit	Body	2.19	14	22	9	1	0	45
OR.1.30-40.2	Grit	Body	0.58	1	3	3	0	0	7
OR.1.40-50.1	Grit	Base	2.50	0	4	1	0	0	5
OR.1.50-60.1	Grit	Rim	3.50	0	7	0	0	0	7
OR.1.50-60.2	Grit	Rim	3.67	1	10	0	0	0	11
OR.1.50-60.3	Grit	Body, incise on ext	0.25	0	1	0	0	0	1
OR.1.60-70.1	Grit	Base	5.50	2	7	1	1	0	11
OR.1.60-70.2	Grit	Rim, impress on ext	0.50	1	0	0	0	0	1
OR.1.70-80.1	Grit	Rim, impress on ext	0.57	1	3	0	0	0	4
OR.1.70-80.2	Grit	Body	0.00	0	0	0	0	0	0
OR.1.80-90.1	Grit	Body	0.57	0	3	1	0	0	4
OR.1.80-90.2	Grit	Body	0.80	0	4	0	0	0	4
OR.1.90-100.1	Grit	Body	0.83	1	2	1	1	0	5
OR.1.90-100.2	Grit	body	0.50	0	3	1	0	0	4
Totals:				59	207	26	8	4	304

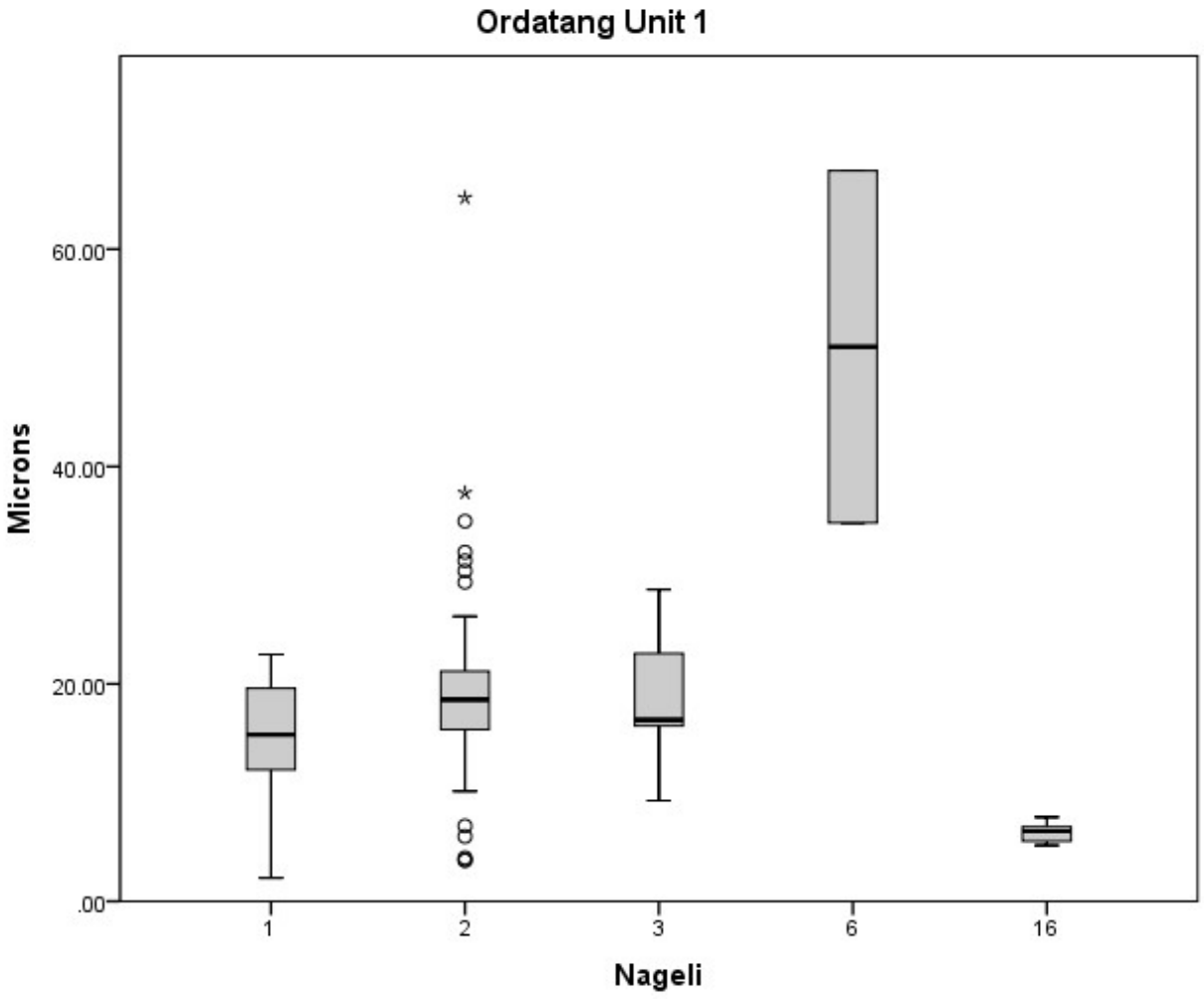


Figure 8.20 Ordatang Unit 1 Nageli Types

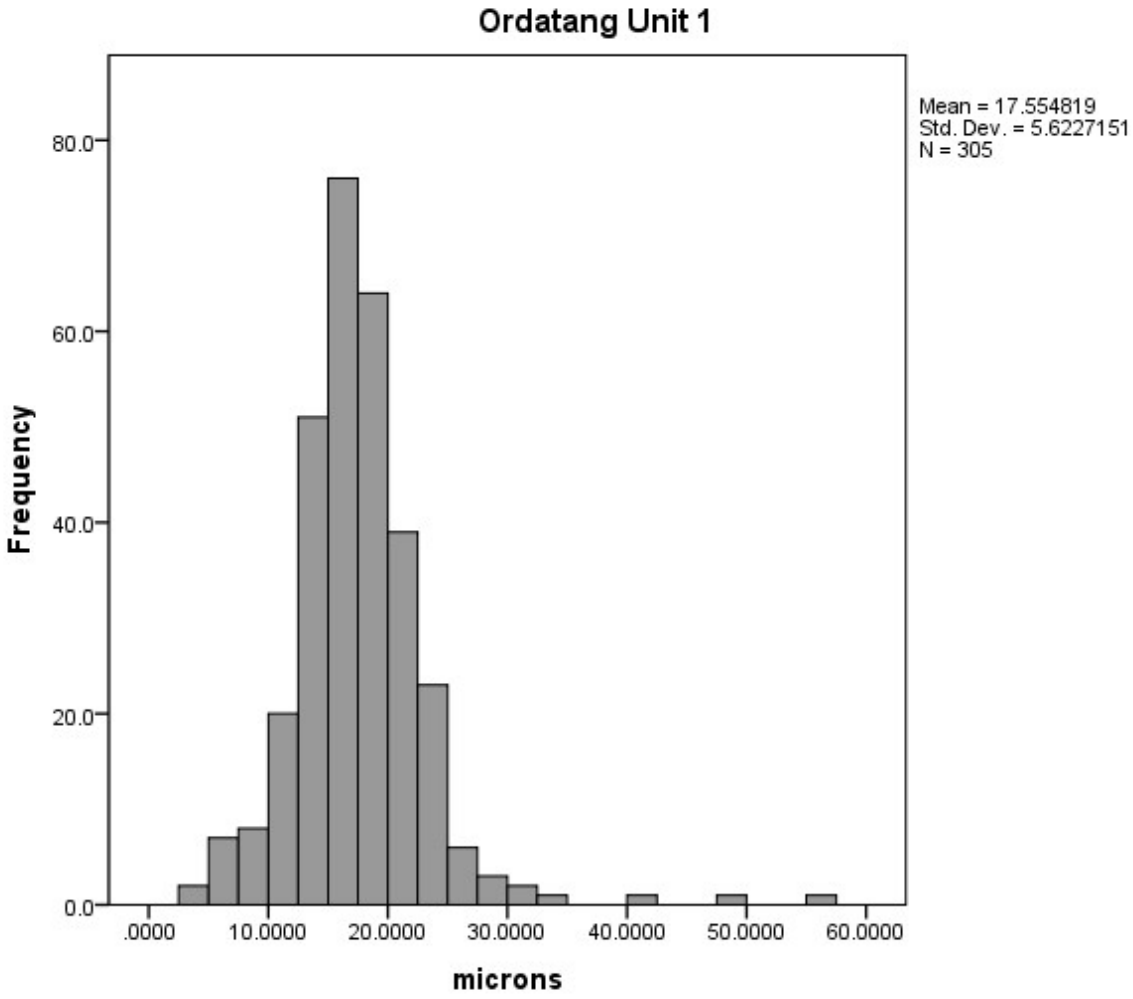
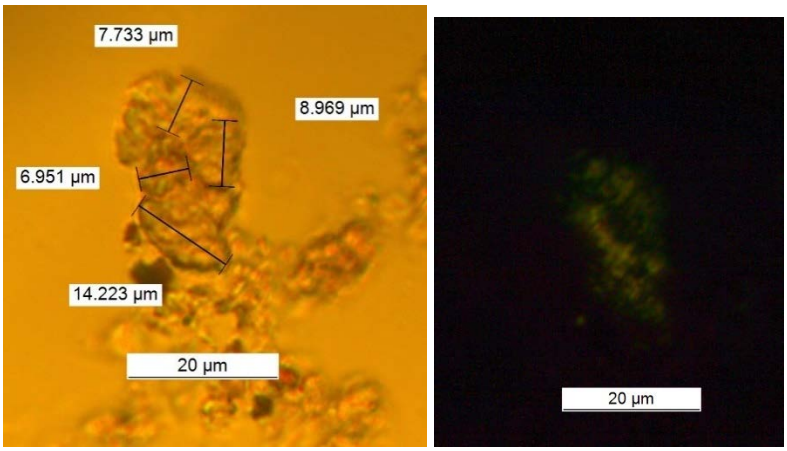


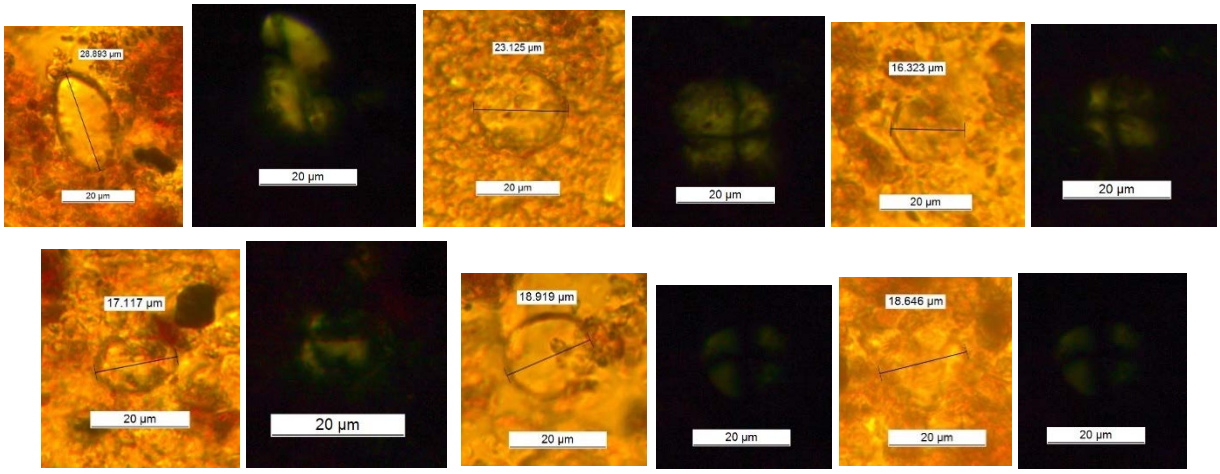
Figure 8.21 Ordatang Unit 1 starch grain diameter histogram.

This is not dissimilar from the entire assemblage, however this unit makes up 39% of the entire assemblage and may be affecting the statistics.

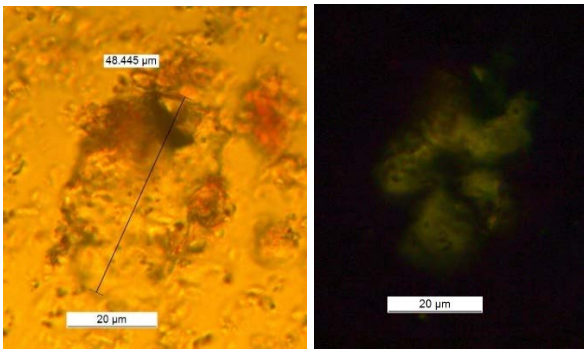
There was one identified starch grain from this unit. Nageli Type 16 (Figure 8.22) from OR.1.10-20.3 is likely rice grain. This sherd was a grit-tempered body sherd with incising on the exterior. Other starch grains were also found on this sherd, including Type 2 grains (N=6) and one Type 6 grain. The Type 6 grain is damaged which suggests that it was processed, possibly cooked or ground. The three different Nageli Types on this sherd suggest that the original vessel was used for a variety of starches.



OR.1.10-20.3.21a Type 16 (rice) grain.



OR.1.10-20.3 Type 2 grains (top row, left to right: 9a, 17a, 20a; bottom row, left to right: 21b, 22a, 25a)



OR.1.10-20.3.20b Type 6 grain.

Figure 8.22 Ordatang Unit 1, 10-20 cm, Sherd #3 Starch Grains.

Unit 2

Six grit-tempered earthenware sherds and four tradeware sherds were selected for analysis from OR Unit 2 (Figure 8.23). All but one (OR.2.60-70.1) were body sherds. One tradeware sherd had underglaze blue hand painted decoration, the remaining sherds were undecorated. Two tradeware sherds

from 0-10 cm and 10-20 cm refit. All sherds produced starch grains, ranging from 12-100% of the slides per sample. Similar to Ordatang Unit 1, the majority (N=9, 90%) produced fewer than 20 starch grains per sample (Table 8.9). One sherd (OR.2.40-50.1) produced 70 starch grains. The percent of slides with starch varies from 12% to 95% for these samples.

The dominant Nageli Type is Type 2 (59%) with 82 grains, followed by Type 1 (29%) with 40 grains (Figure 8.24). There was a total of 136 starch grains found in the samples. The mean of the unit was 17.509, the minimum was 2.15, the maximum was 67.214 and the standard deviation was 9.0447 (Figure 8.25). This is similar to the entire assemblage. Two refitting tradeware sherds (OR.2.0-10.P1 and OR.2.10-20.P2) contained Nageli Type 16, which are likely rice grains. These sherds also contained Type 1 and/ or Type 2 starch grains (Figure 8.26). The mix of rice and other grains may suggest creolization, but the sample size is extremely small to reach this conclusion with any confidence.

Unit 3

Four sherds were selected from Unit 3 (Figure 8.27). Two sherds were grit tempered earthenware, one was shell-tempered earthenware and one was tradeware. The earthenware and sherds were body or shoulder sherds; the tradeware sherd was a rim sherd. None of the sherds were decorated. All sherds produced starch grains and there were a total of 25 starch grains for this unit.

Similar to other units, Nageli Type 2 (76%) dominates the assemblage followed by Nageli Type 1 (20%) (Table 8.10,Figure 8.28). The mean of this assemblage was 17.929 µ, the minimum was 11.82 µ, the maximum was 27.65 µ and the standard deviation was 4.39 µ (Figure 8.29). There is a relatively low range of starch sizes and a lower standard deviation than other units, but this can be attributed to the small sample size. The starch grains were generally rounded or sub-rounded with centric hila but non-diagnostic (Figure 8.30). Two starch grains from OR.3.10-20.2 had processing damage (Figure 8.31), as the extinction cross was still extant, this damage was likely not a result of heating but possibly milling (Henry et al. 2009).

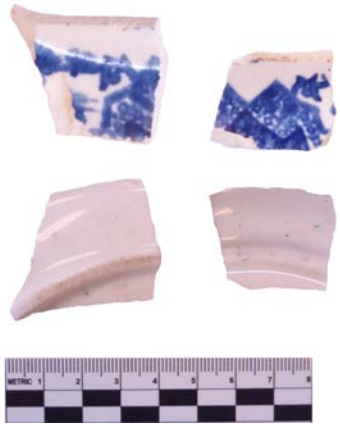
Discussion

A total of 33 sherds were analyzed and produced 465 starch grains for an average of 14.1 grains per sherd. Three sherds, one grit-tempered earthenware sherd and two tradeware sherds, at Ordatang produced likely rice grains and these sherds also produced a mix of other grains. The rice grains were found on sherds between 0-20 cm, suggesting recent deposit. However, Ordatang also showed evidence of mixing with a 3000 year old sherd at 0-10 cm in Unit 1, suggesting some level of mixing. The tradeware sherds are most likely post-1621, but may be more recent. The two tradeware sherds that produced rice grains in Unit 2 did refit, but were found at different levels. Again, suggesting mixed deposits. Regardless, finding a mix of rice grains and other starch grains on both tradeware and earthenware suggests a creolization of starches, albeit possibly within the 20th century and not the colonial period.

OR Unit 2 0-10 cm P1



OR 2 0-10 p2 OR 2 10-20 cm p2



OR Unit 2 10-20 cm P1



OR Unit 2 10-20 cm #1



OR Unit 2 30-40 cm #1



OR Unit 2 40-50 cm #1



OR Unit 2 60-70 cm #1



Figure 8.23 Ordatang Unit 2 starch analysis sherds.

Table 8.9 Ordatang Unit 2 Nageli Types

Sample	Temper	Vessel part/ decoration	ave grains/ slide	Type 1	Type 2	Type 3	Type 6	Type 16	Totals
OR.2.0-10.P1	Tradeware	body	5.00	4	6	1	0	4	15
OR.2.0-10.P2*	Tradeware	body	0.38	0	2	0	1	0	3
OR.2.10-20.1	Grit	body	0.12	0	3	0	0	0	3
OR.2.10-20.P1	Tradeware	body	1.67	0	3	2	0	0	5
OR.2.10-20.P2*	Tradeware	body	2.20	0	6	1	0	4	11
OR.2.20-30.1	Grit	body	0.20	3	5	0	0	0	8
OR.2.30-40.1	Grit	body	0.14	1	1	1	0	0	3
OR.2.40-50.1	Grit	body	3.48	24	46	2	1	0	33
OR.2.50-60.2	Grit	body	0.40	4	4	0	0	0	8
OR.2.60-70.1	Grit	rim	0.17	1	6	0	0	0	7
			Totals:	37	82	7	2	8	102

* refit

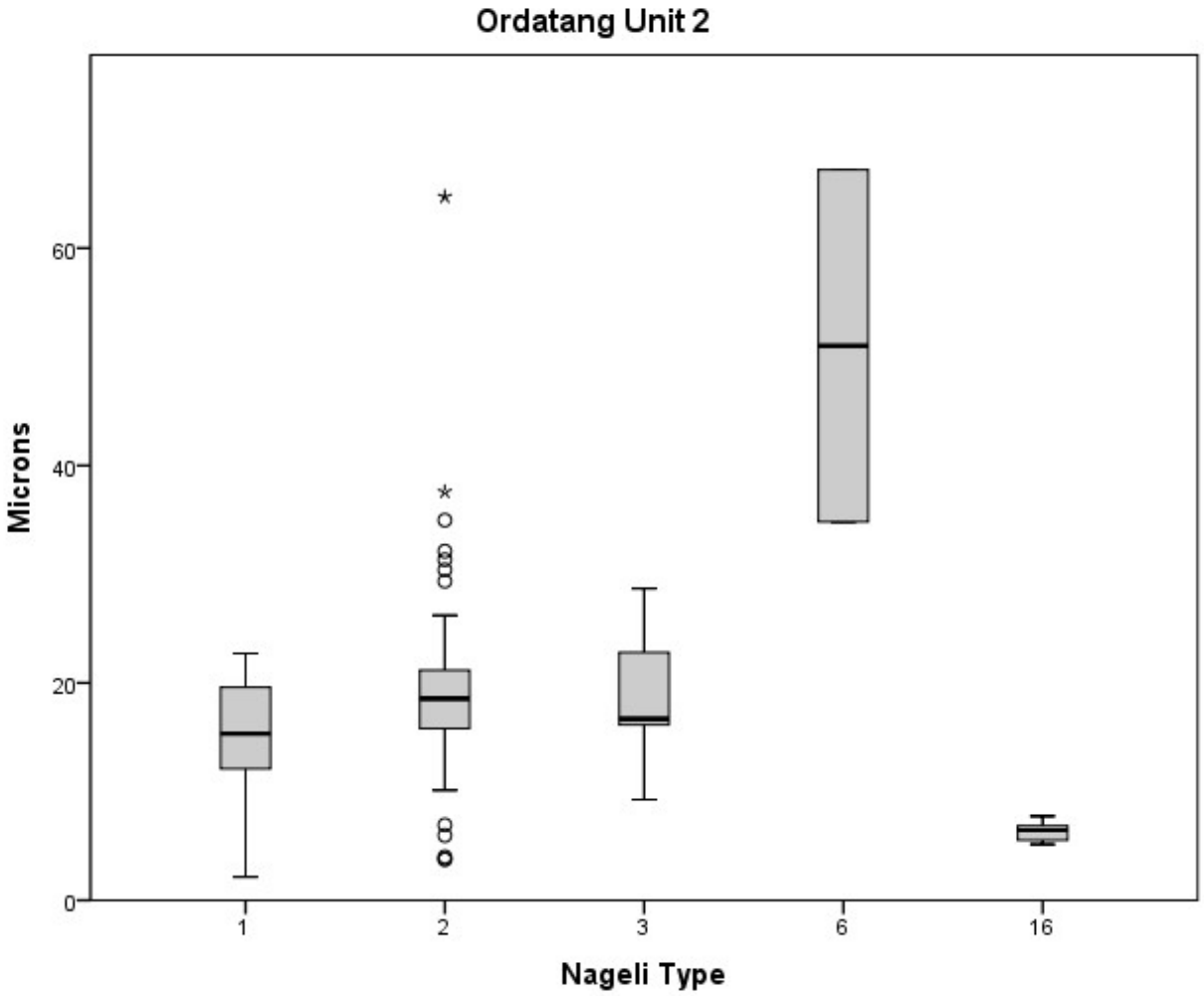


Figure 8.24 Ordatang Unit 2 Nageli Type.

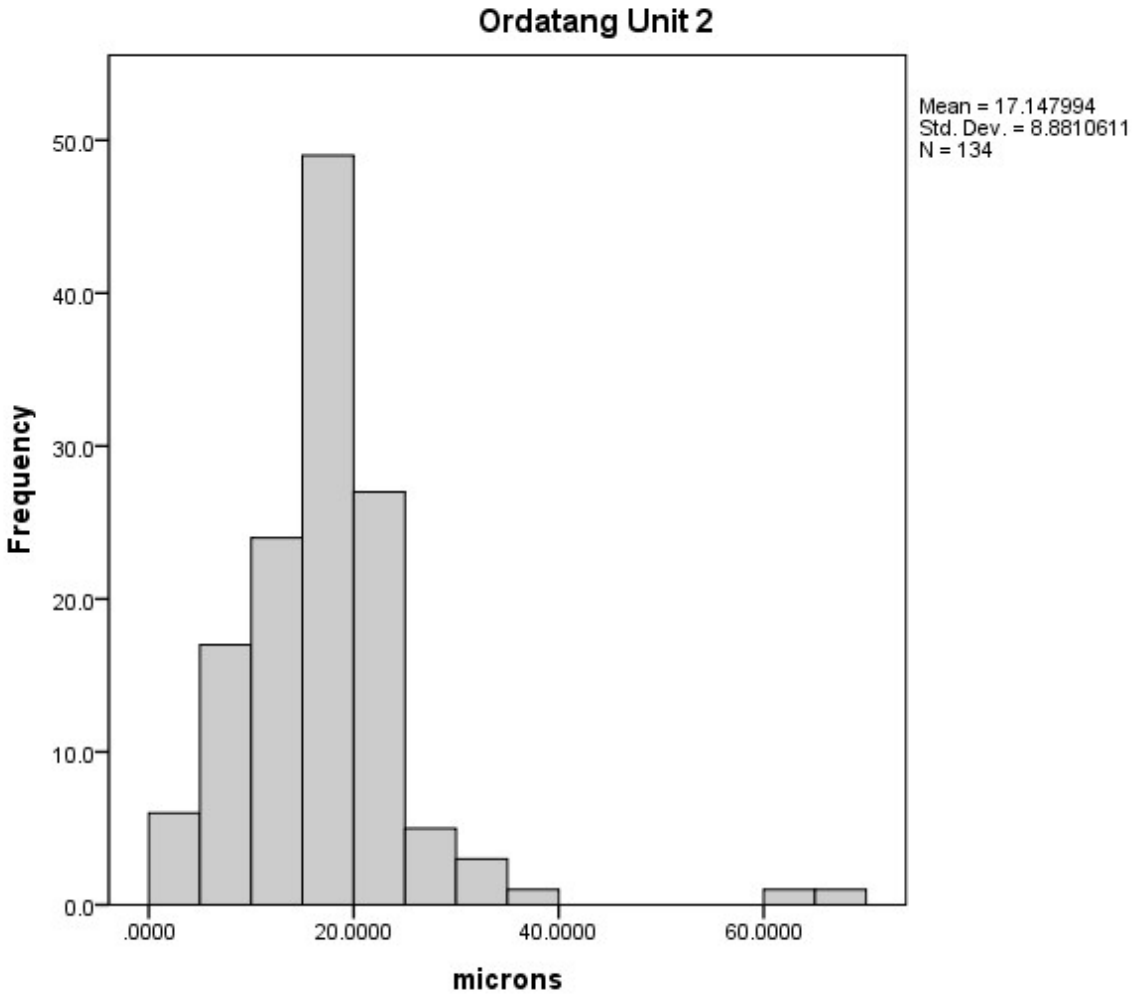
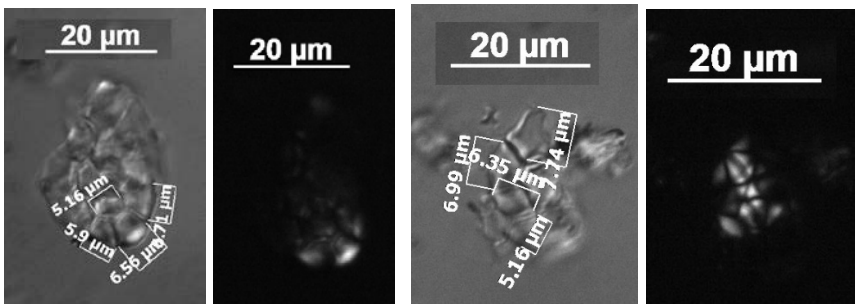
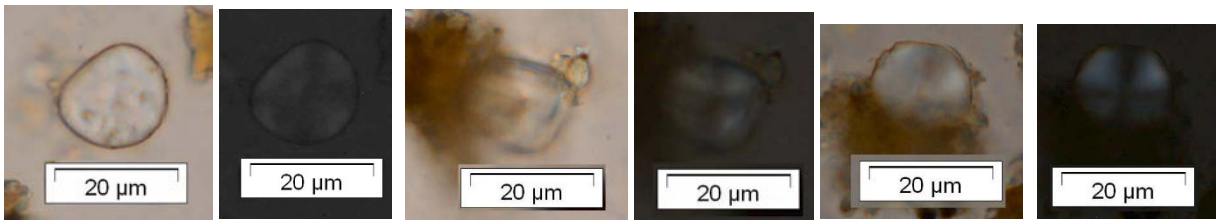


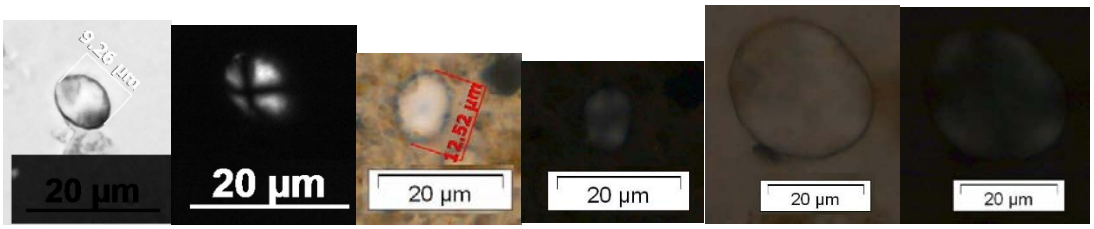
Figure 8.25 Ordatang Unit 2 starch grain diameter histogram.



Type 16 (rice): OR.2.0-10.P1; OR.2.10-20.P2



Type 2: OR.2.0-10.P1.2a; OR.2.0-10.P1.3a; OR.2.0-10.P1.3b



Type 2: OR.2.10-20.P2.1a, OR.2.10-10.P2.2a, OR.2.10-20.P2.4c,

Figure 8.26 Ordatang Unit 2 Type 16 and others starch grains.



Figure 8.27 Ordatang Unit 3 starch sherds.

Table 8.10 Ordatang Unit 3 Nagelli types.

Sample	Temper	Vessel part/ decoration	ave grains/ slide	Type 1	Type 2	Type 3	Type 6	Type 16	Totals
OR.3.0-10.1	Shell	body	1.13	0	9	0	0	0	9
OR.3.10-20.1	Grit	body	0.38	0	4	0	1	0	5
OR.3.10-20.2	Grit	shoulder	0.60	3	6	0	0	0	9
OR.3.10-20.p3	Tradeware	rim	0.33	2	0	0	0	0	2
		Totals:		5	19	0	1	0	25

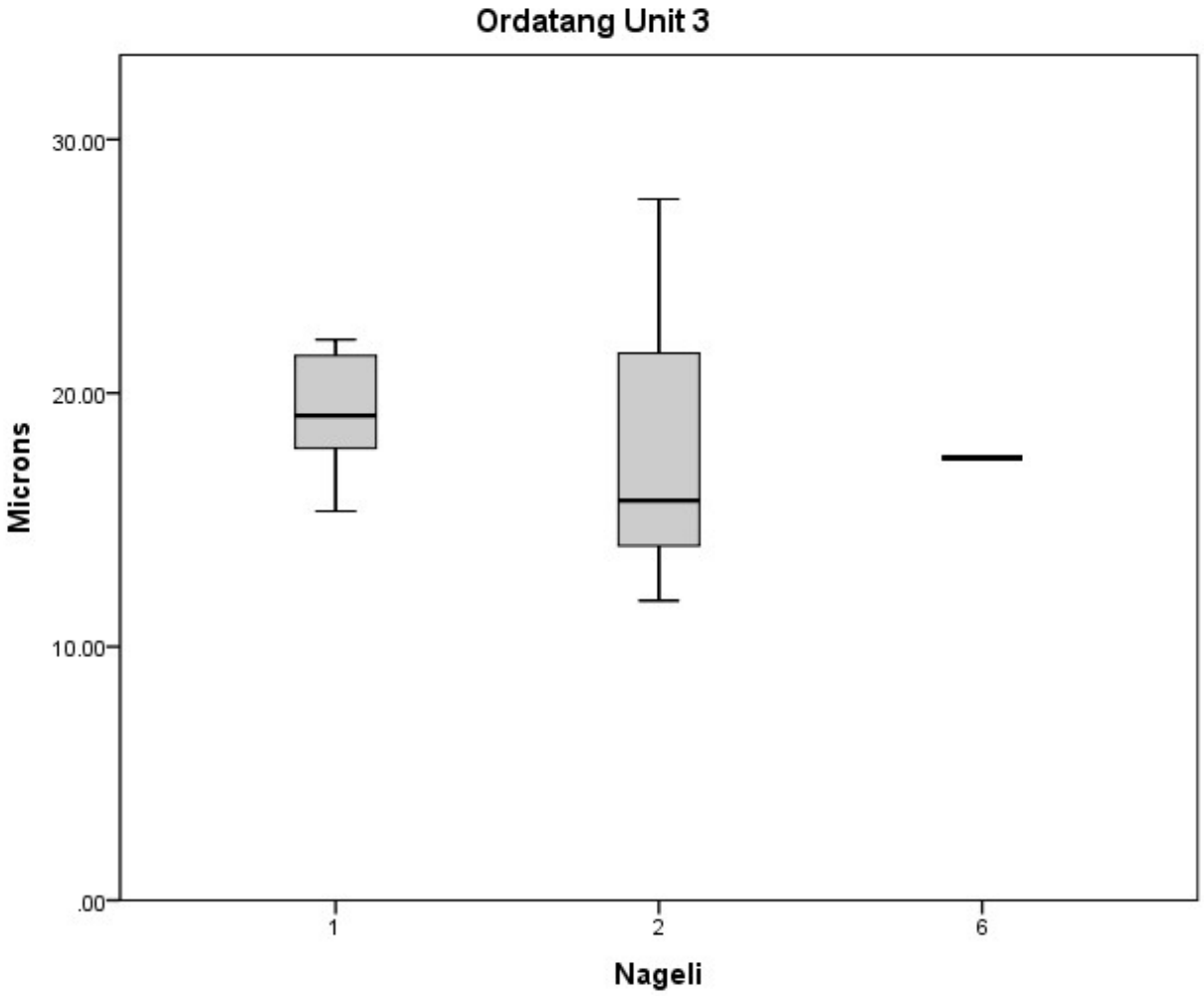


Figure 8.28 Ordatang Unit 3 Nageli types.

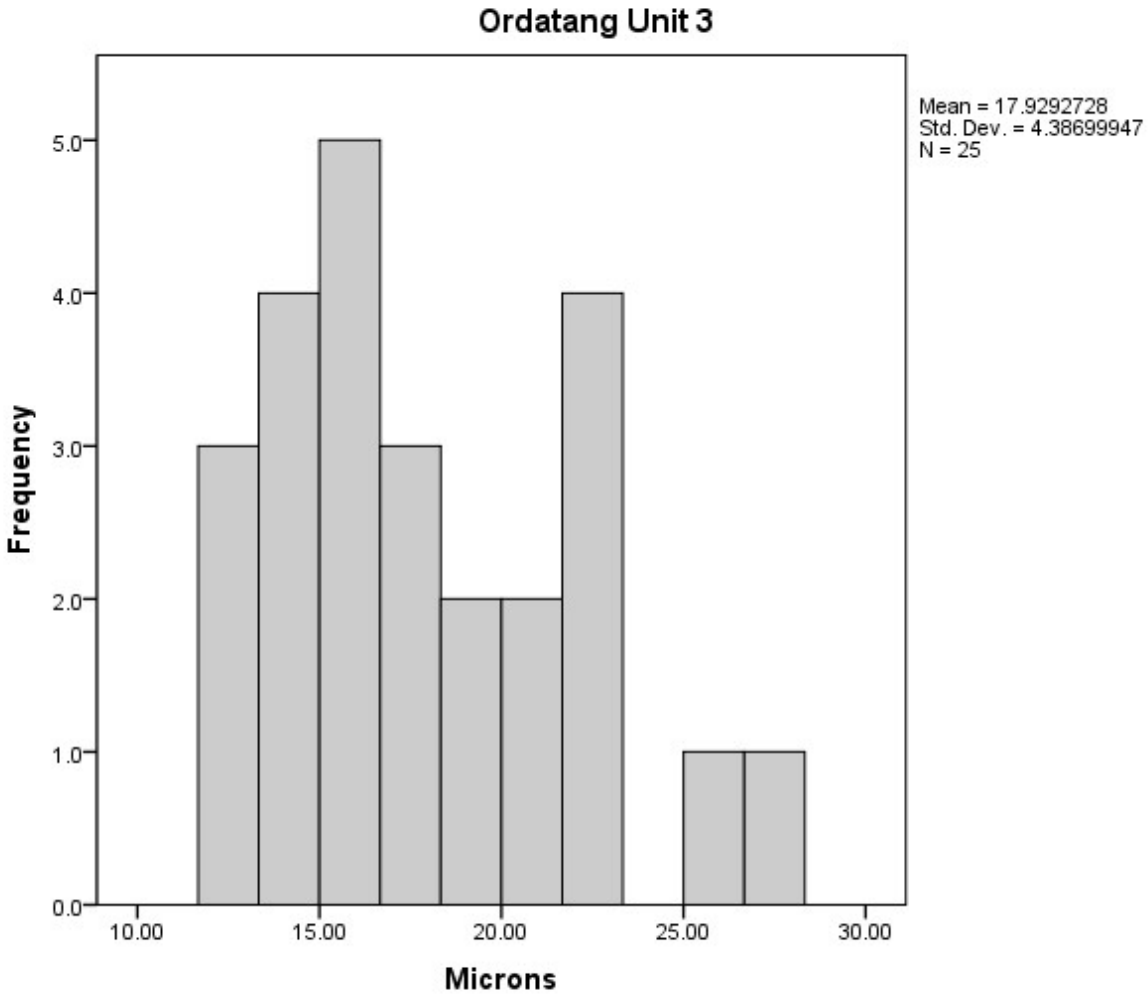
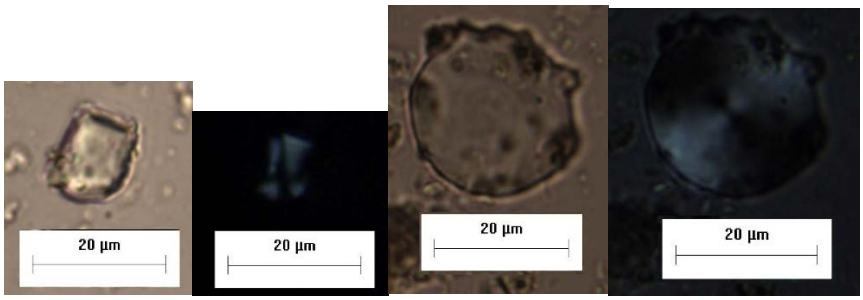
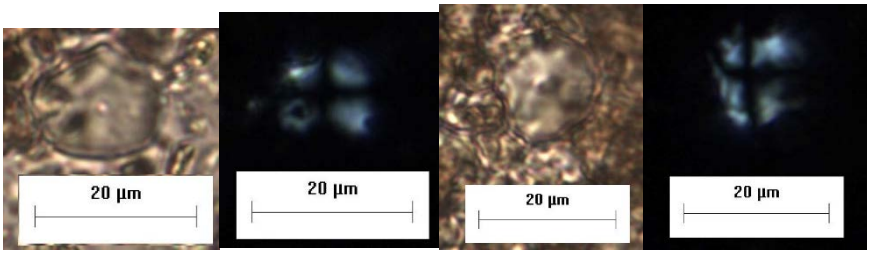


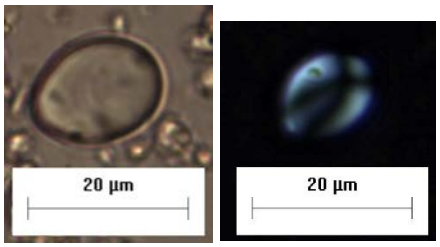
Figure 8.29 Ordatang Unit 3 starch grain diameter distribution.



Type 2: OR.3.0-10.1.3a; OR.3.0-10.4b;

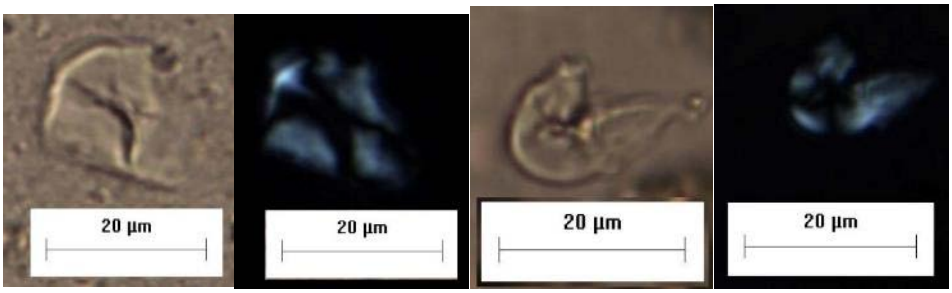


Type 2: OR.3.10-20.2.11a, OR.3.10-20.2.5a



Type 6: OR.3.10-20.1.6a

Figure 8.30 Ordatang Unit 3 starch grain examples.



OR.3.10-20.2.2a OR.3.10-20.2.12a

Figure 8.31 Exploded starch grains.

Groot Waling

Unit 1

Eight sherds were selected from Groot Waling Unit 1 (Figure 8.32). All were shell-tempered earthenware. All but one sherd were body sherds. One sherd had incising on the exterior and one had possible charring on the interior. A total of 59 starch grains were recovered from Groot Waling Unit 1 (Table 8.11). All sherds produced starch grains ranging between 1 and 12 starch grains per sherd. For all sherds, fewer than 50% of the slides produced starch. The low rate of starch grain presence may be due to the beach environment of Groot Waling. The water table was encountered during the excavation of Unit 1 around 1.3 m. It is possible that the sherds could have been "washed" during high tide, potentially removing some starch residue.

Like the other units, the dominant type is Nageli Type 2 (46%) followed by Nageli Type 1 (36%) (Figure 8.33). The mean of the starch grain diameters for Unit 1 is 16.52 µ, the minimum is 5.97 µ, the maximum is 40.066 µ, and the standard deviation is 7.47 µ (Figure 8.34). The mean for this unit is slightly lower than for the assemblage as a whole.

One sherd (Groot Waling.1.10-20.2), a shell-tempered body sherd, produced rice grains in addition to other unidentified starch grains (Figure 8.35). The co-occurrence of rice and other starch grains is the same situation with the rice grain producing sherds at Ordatang (above).

Unit 2

Five earthenware sherds were selected from Unit 2; three of these sherds were shell tempered, the other two sherds were grit tempered (Figure 8.36). One sherd had a lime coating on the exterior, another had red paint on the interior. Two of the five sherds were rim sherds and the remaining three were body sherds. All sherds produced starch grains, for a total of 32 starch grains. The number of grains ranged from 4 to 10 grains per sherd and between 13% to 45% of the slides produced starch grains.

Like other units, Nageli Type 2 (69%) dominates, followed by Nageli Type 1 (28%). The mean of the unit is 20.1 µ, the minimum is 9.108 µ, the maximum is 49.355 µ and the standard deviation is 6.7 µ (Figure 8.38). The mean for this unit is somewhat higher than other units but this can be contributed to the small sample size. No starch grains were identifiable in this unit (Figure 8.39).

Unit 3

Six sherds were selected from Unit 3 (Figure 8.40). Half were grit-tempered and half were shell-tempered. Five of the sherds were body sherds and one was a shoulder sherd. Four sherds produced starch grains, for a total of 35 starch grains. GW.3.20-30.1 and GW.3.90-100.1 produced no starch grains. The lack of starch grains could be attributed to tidal "washing" removing starch grains. A total 5 of the 84 analyzed sherds produced no starches, three of those sherds were from Groot Waling and two of them were from Unit 3. The higher number of sherds lacking starch grains suggests that Groot Waling may have experienced a different taphonomic history than the other two sites. Like the other units, Nageli Type 2 (66%) dominates the assemblage, followed by Nageli Type 1 (31%) (Figure 8.41). The mean of

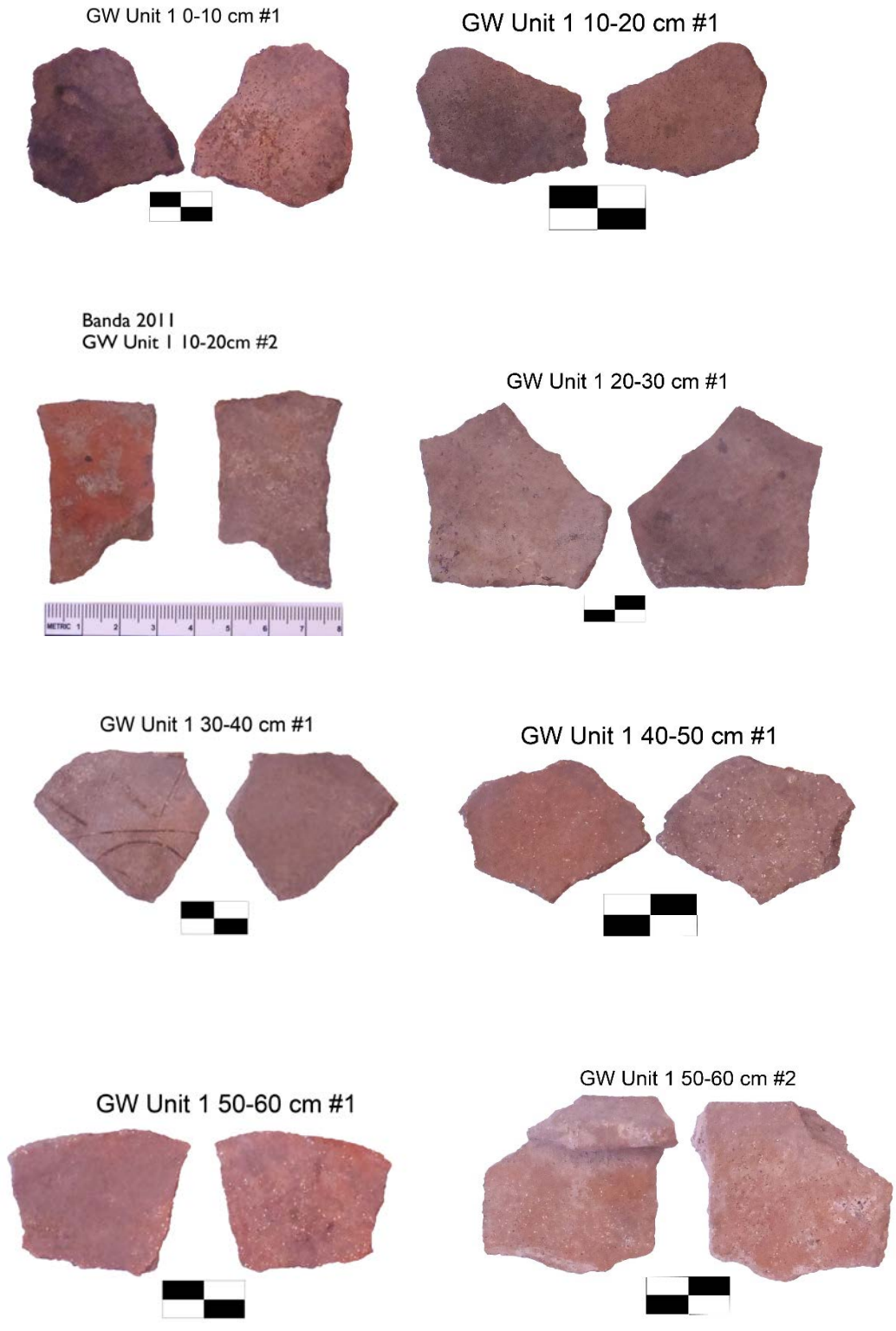


Figure 8.32 Groot Waling Unit 1 starch analysis sherds.

Table 8.11 Groot Waling Unit 1, Nageli Types.

Sample	Temper	Vessel part/ decoration	ave grains/ slide	Type 1	Type 2	Type 3	Type 6	Type 16	Total
GW.1.0-10.1	Shell	Body, Possible charring on interior.	0.09	2	1	0	0	0	3
GW.1.10-20.1	Shell	Body	0.21	2	1	0	1	0	4
GW.1.10-20.2	Shell	Body	1.20	2	7	0	0	9	18
GW.1.20-30.1	Shell	Body	0.40	5	5	0	0	0	10
GW.1.30-40.1	Shell	Body, Incising on exterior.	0.17	3	3	0	0	0	6
GW.1.40-50.2	Shell	Body	0.11	1	1	0	0	0	2
GW.1.50-60.1A	Shell	Body	0.64	5	3	1	0	0	9
GW.1.50-60.1b	Shell	Body/ rim	0.15	1	6	0	0	0	7
		Totals:		21	27	1	1	9	59

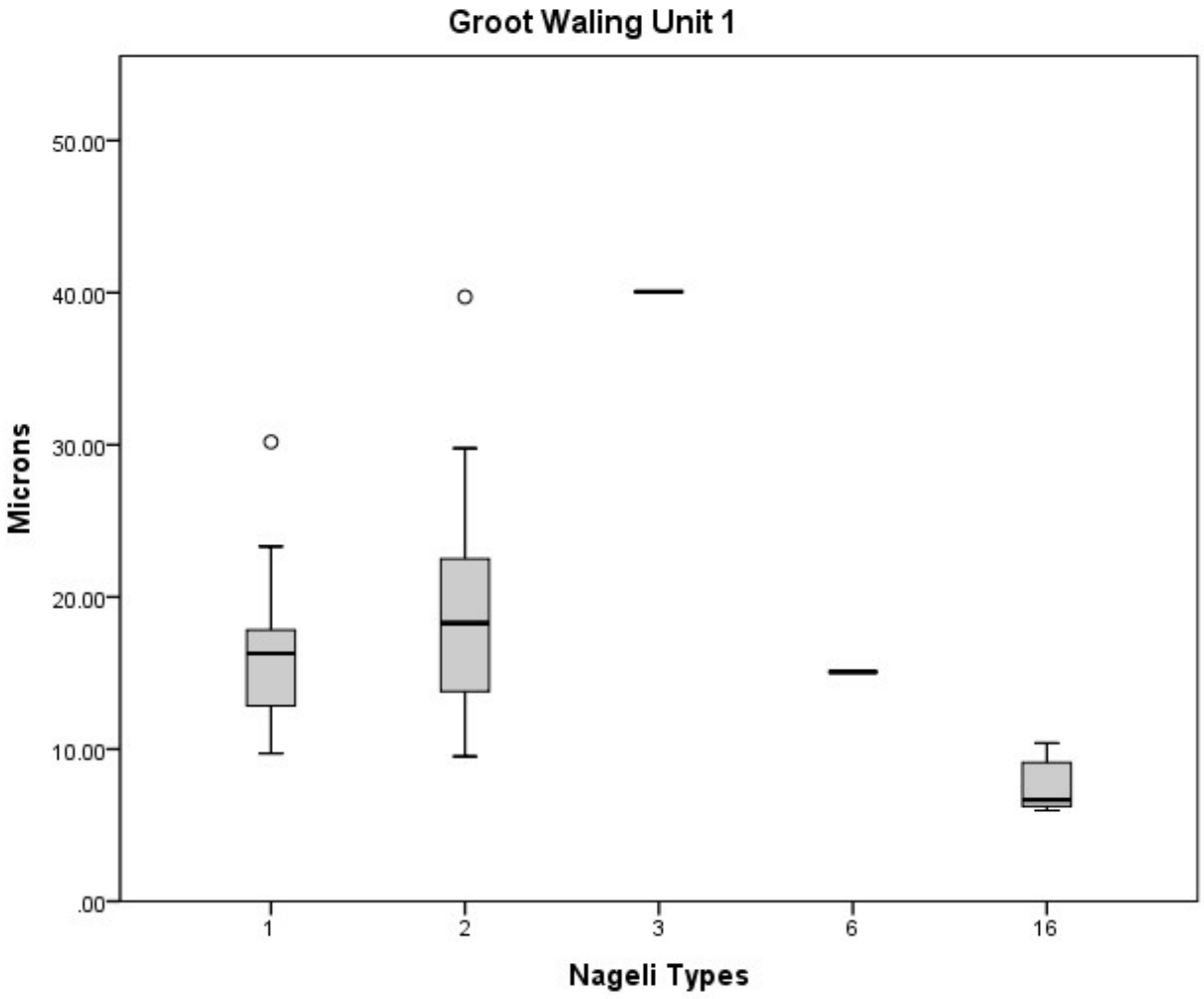


Figure 8.33 Groot Waling Unit 1 Nageli Types Diameters.

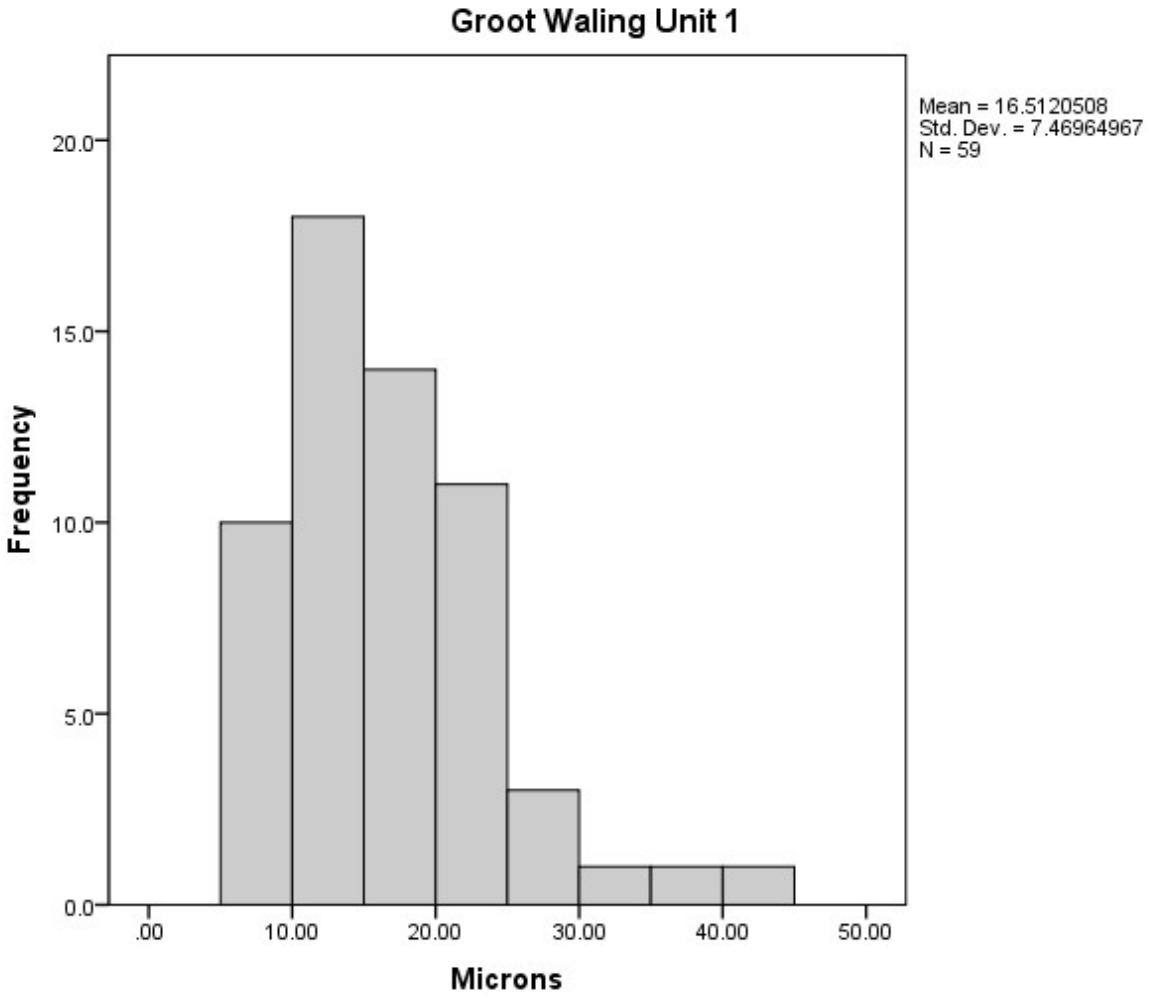
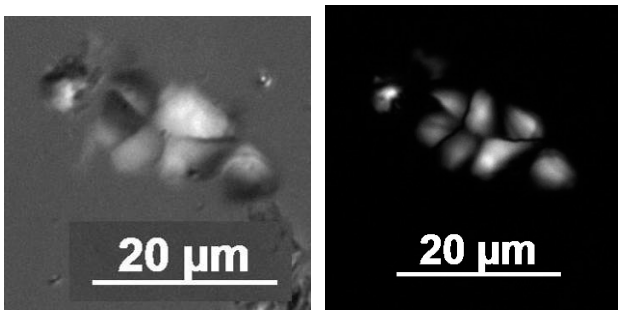
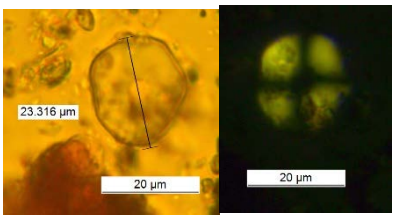


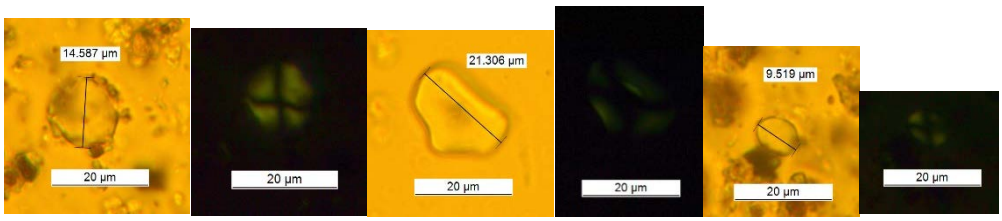
Figure 8.34 Groot Waling Unit 1 starch grain diameter.



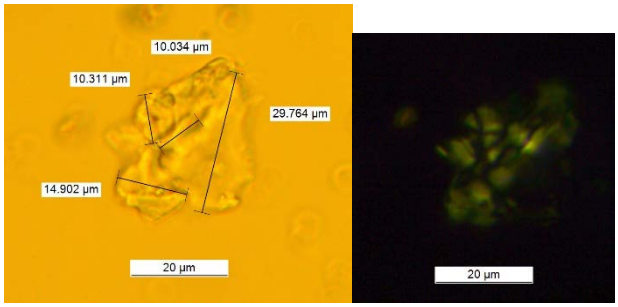
Type 16: GW.1.10-20.2.1_4



Type 1: GW.1.10-20.2.13c



Type 2: GW.1.10-20.2.2a; GW.1.10-20.2.4a; GW.1.10-20.2.6a;



Damaged grain: GW.1.10-20.2.10a

Figure 8.35 Groot Waling Unit 1 10-20 cm Sherd #2 starch grains.

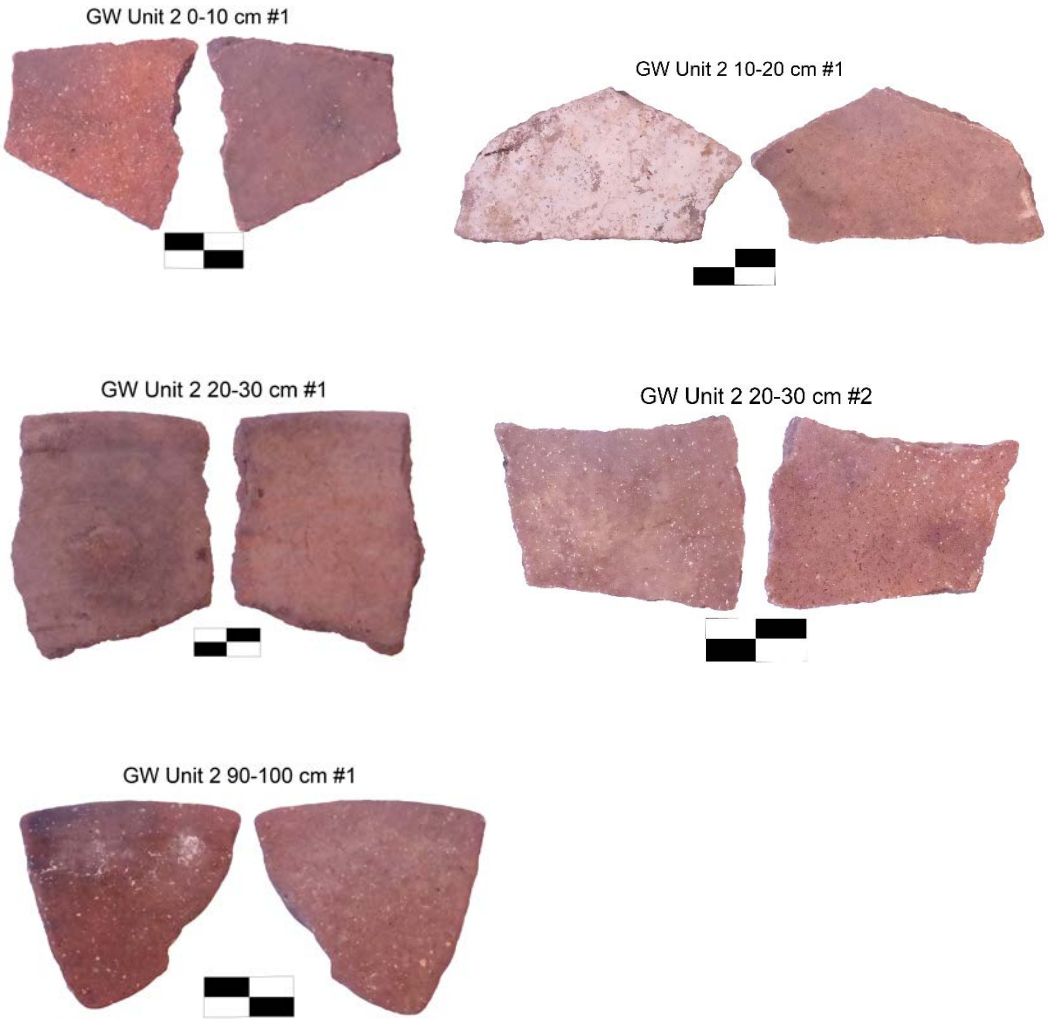


Figure 8.36 Groot Waling Unit 2 starch analysis sherds.

Table 8.12 Groot Waling Unit 2

Sample	Temper	Vessel part/ decoration	ave grains/ slide	Type 1	Type 2	Type 3	Type 6	Type 16	Total
GW.2.0-10.1	Shell	Body	0.15	1	3	0	0	0	4
GW.2.10-20.1	Shell	Body, resin coating on ext	0.13	1	3	0	0	0	4
GW.2.20-30.1	Grit	Rim, paint on int.	0.32	4	6	0	0	0	10
GW.2.20-30.2	Shell	Body	0.23	1	5	1	0	0	7
GW.2.90-100.1	Grit	Rim	0.58	2	5	0	0	0	7
		Totals:		9	22	1	0	0	32

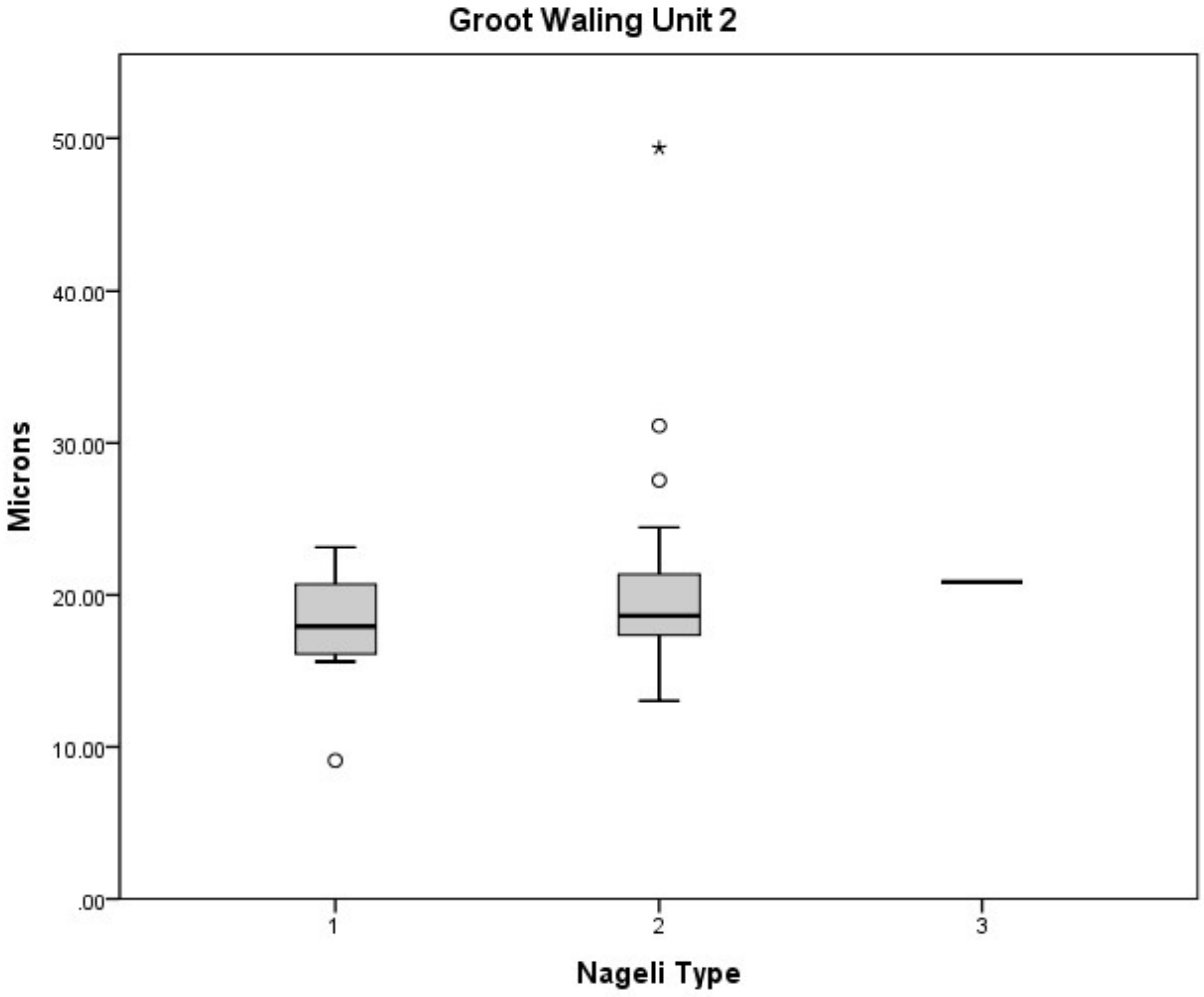

Groot Waling Unit 2
Microns
50.00
40.00
30.00
20.00
10.00
.00
1
2
3
Nageli Type

Figure 8.37 Groot Waling Unit 2 starch grain diameter by Nageli Type.

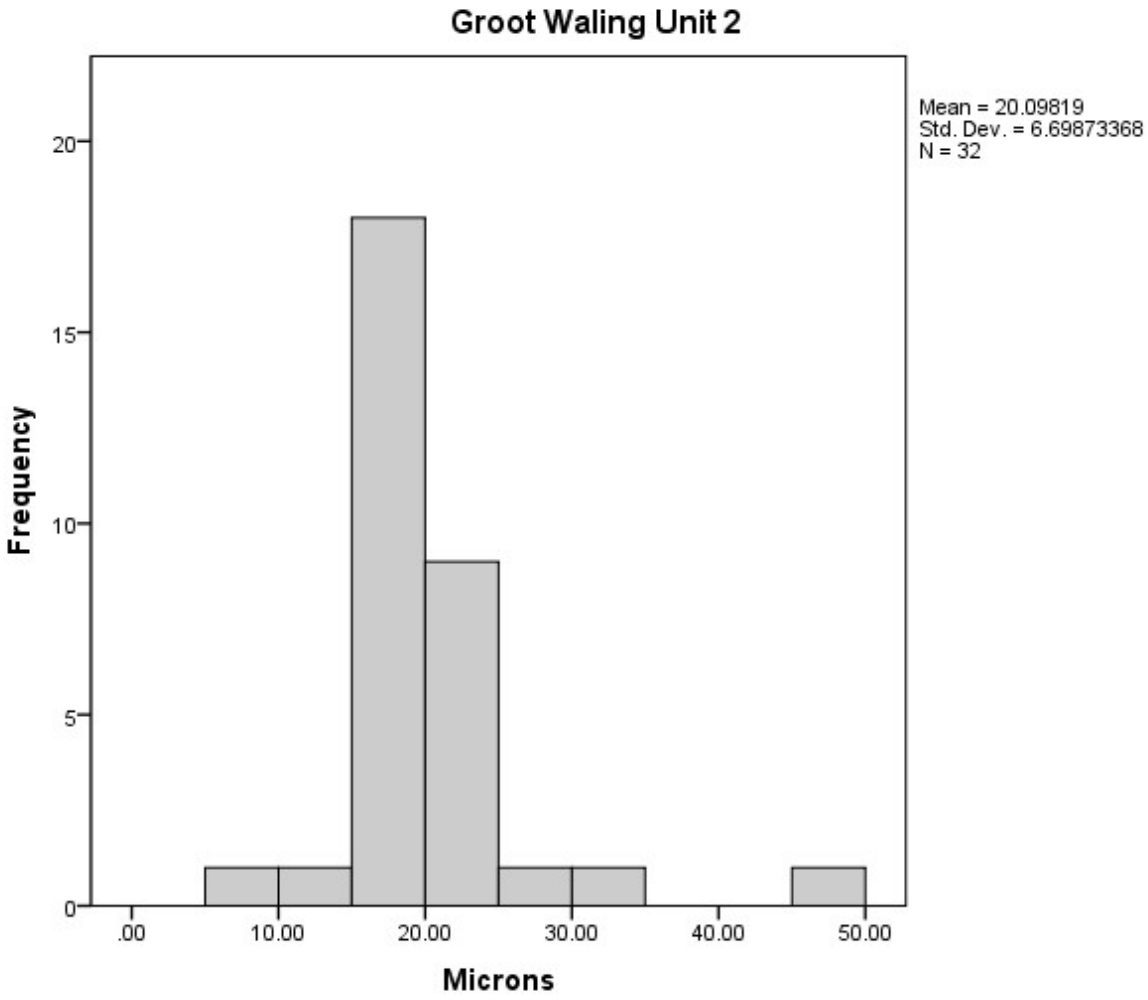
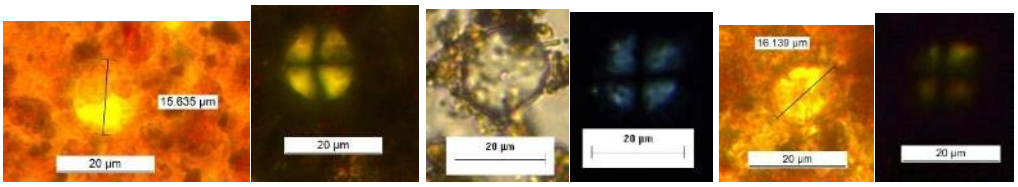
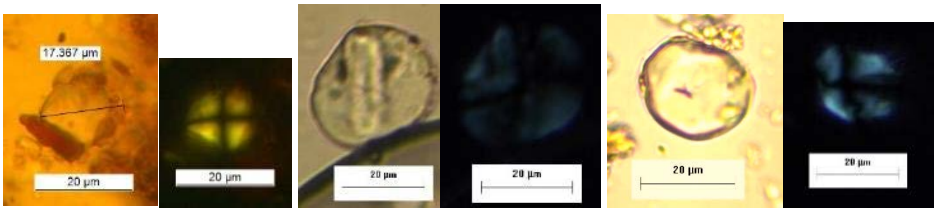


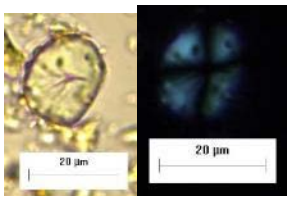
Figure 8.38 Groot Waling Unit 2 starch grain diameter.



Type 1: GW.2.0-10.1.13a; GW.2.10-20.1.7a; GW.2.20-20.1.13



Type 2: GW.2.0-10.1.12a; GW.2.10-20.1.26a; GW.2.90-100.3a,



Type 2: GW.2.90-100.1.10a



Type 3: GW.2.20-30.2.15a

Figure 8.39 Groot Waling Unit 2 starch grain images.

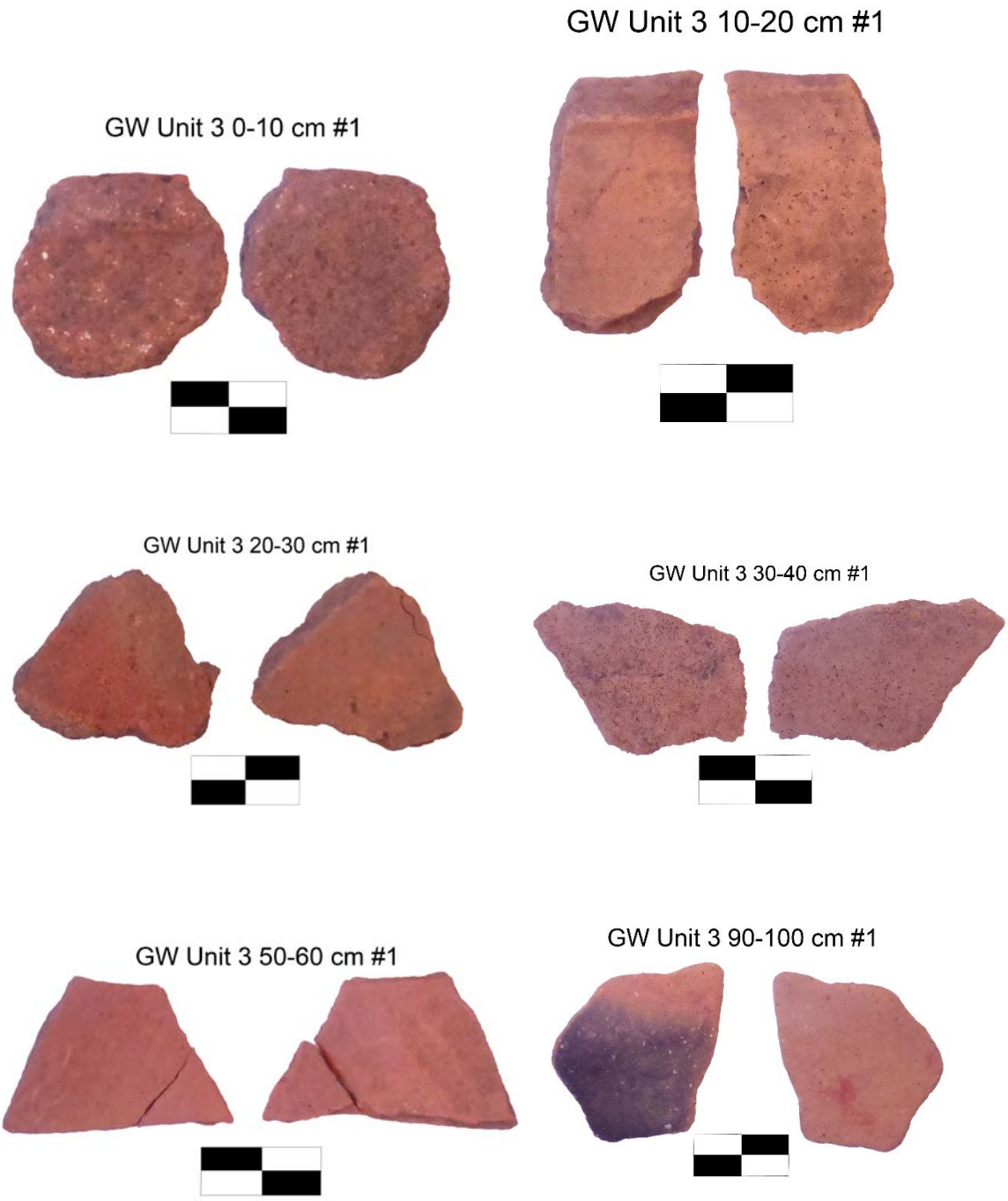


Figure 8.40 Groot Waling Unit 3 starch analysis sherds.

Table 8.13 Groot Waling Unit 3 Nageli Types.

Sample	Temper	Vessel part/ decoration	ave grains/ slide	Type 1	Type 2	Type 3	Type 6	Type 16	Total
GW.3.0-10.1	Grit	Body	0.11	1	1	1	0	0	3
GW.3.10-20.1	Shell	Body	0.66	7	16	0	0	0	23
GW.3.20-30.1	Shell	Body	0.00	0	0	0	0	0	0
GW.3.30-40.1	Shell	Body	0.35	2	5	0	0	0	7
GW.3.50-60.1	Grit	Body	0.11	1	0	0	0	0	1
GW.3.90-100.1	Grit	Body	0.11	0	1	0	0	0	1
			Totals:	11	23	1	0	0	35

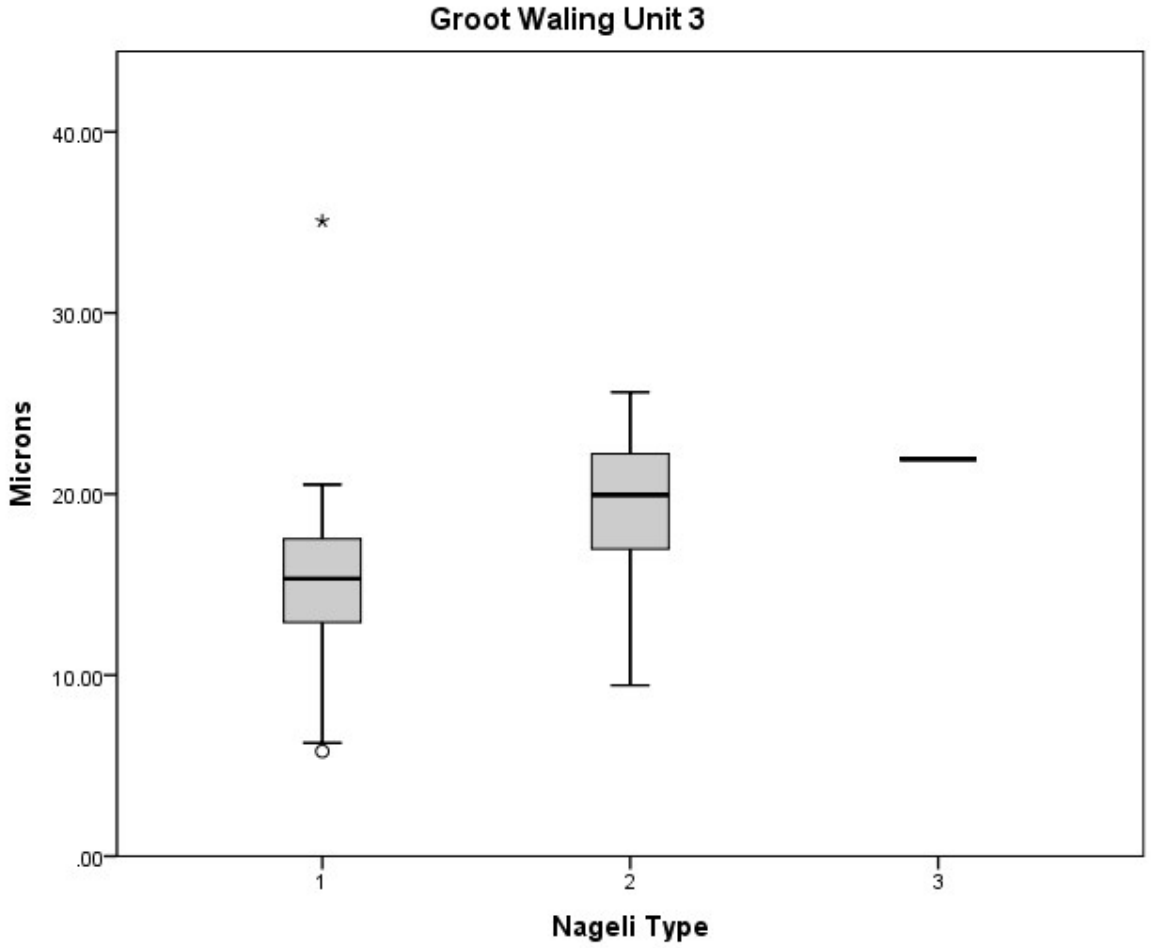


Figure 8.41 Groot Waling Unit 3 Starch Grain Diameters by Nageli Type.

cthis unit is 18.14 µ, the minimum is 5.792 µ, the maximum is 35.077 µ, and the standard deviation is 5.76 µ (Figure 8.42). Similar to other units at Groot Waling, the mean is slightly different from the assemblage mean, but this can be attributed to a small sample size. No starches were identified to species in this unit (Figure 8.43).

Unit 4

Seven earthenware sherds were selected from Unit 4 (Figure 8.44). Four of the sherds were shell tempered, three were grit tempered and one was high-fired stoneware. All but one are body sherds and there is one rim sherd. None of the sherds was decorated, but one did have a resin or lime coating. All sherds produced starch for a total of 29 starch grains. Sherds produced between 1 and 11 starch grains. Between 14% and 100% of slides produced starch grains.

Similar to other units, Nageli Type 2 (55%) is the dominant starch, followed by Nageli Type 1 (41%) (Figure 8.45). The mean of this unit is 17.258 μ, the minimum is 7.34 μ, the maximum is 36.105 μ, and the standard deviation is 6.54 μ (Figure 8.46). This distribution is more similar to that of the entire assemblage than the other units at Groot Waling. However, due to the small sample size this is not significant. No starches were identified in this unit (Figure 8.47).

Discussion

A total of 25 sherds were selected for analysis at Groot Waling, producing 155 starch grains for an average of 6.2 grains per sherd. Both Groot Waling and Komber produced fewer sherds in general than Ordatang and therefore yielded fewer sherds for analysis. While Ordatang produced an average of 14.1 grains per sherd, Groot Waling produced only 6.2 grains per slide. The dynamic beach environment with a water table that rose and lowered with the tides could have effectively “washed” the sherds of much of any residue that may have existed prior to burial and excavation. One shell tempered sherd at Groot Waling in Unit 1 at 10-20 cm did produce a starch grain and other identified grains, similar to Ordatang. Finding rice grains on both shell and grit-tempered sherds suggest that these tempers fulfilled similar functions with regard to rice. While no evidence of functional difference was found between the tempers in Chapter 5, it is possible that a difference in use did occur. Finding rice on sherds of both tempers suggests they were used in similar ways

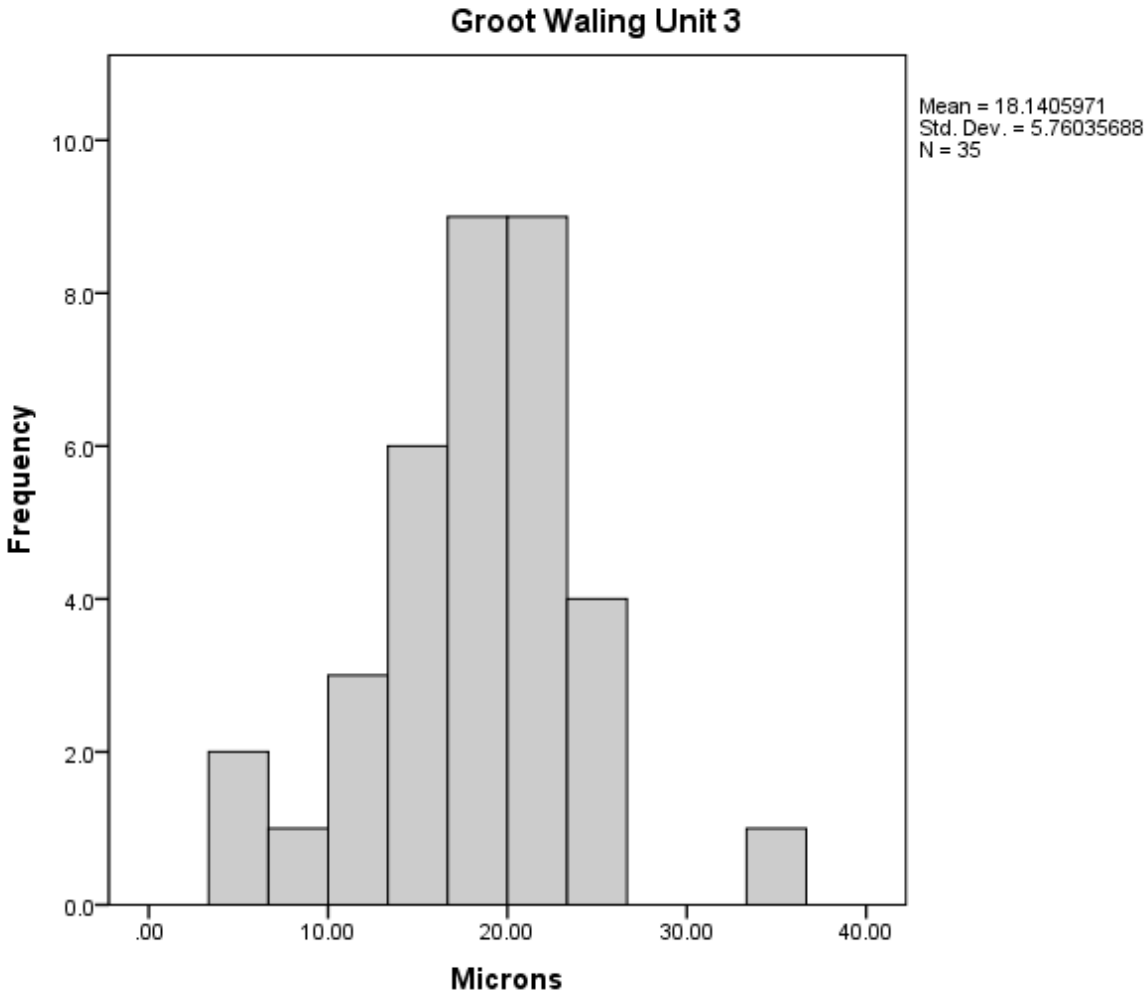
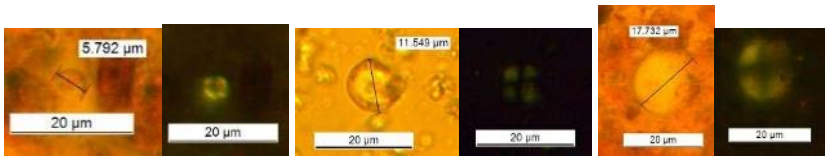
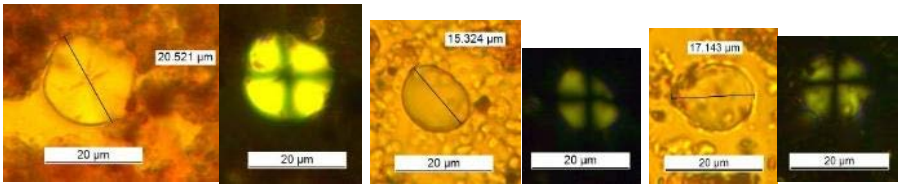


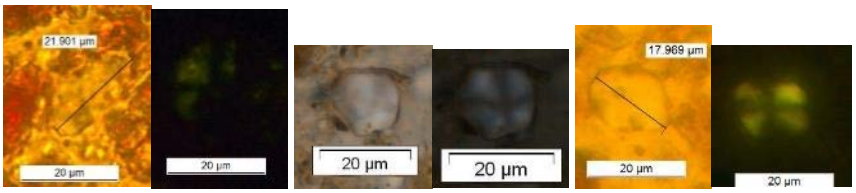
Figure 8.42 Groot Waling Unit 3 starch grain diameter.



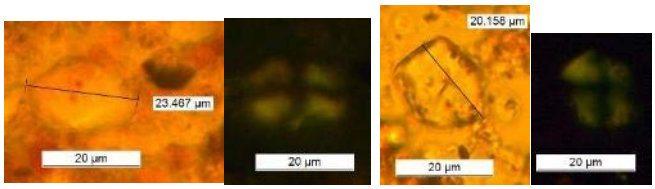
Type 1: GW.3.10-20.1.20a, GW.3.0-10.1.21b, GW.3.10-20.1.6a,



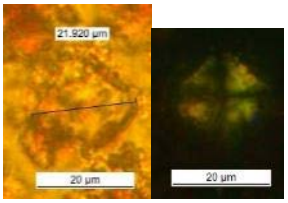
Type 1: GW.3.10-20.1.18d, GW.3.30-40.1.12a, GW.3.50-60.1.5a



Type 2: GW.3.0-10.1.21a, GW.3.10-20.1.1a, GW.3.10-20.1.3a,



Type 2:GW.3.10-20.1.15c, GW.3.30-40.1.8a,



Type 3: GW.3.0-10.1.9a

Figure 8.43 Groot Waling Unit 3 starch images.

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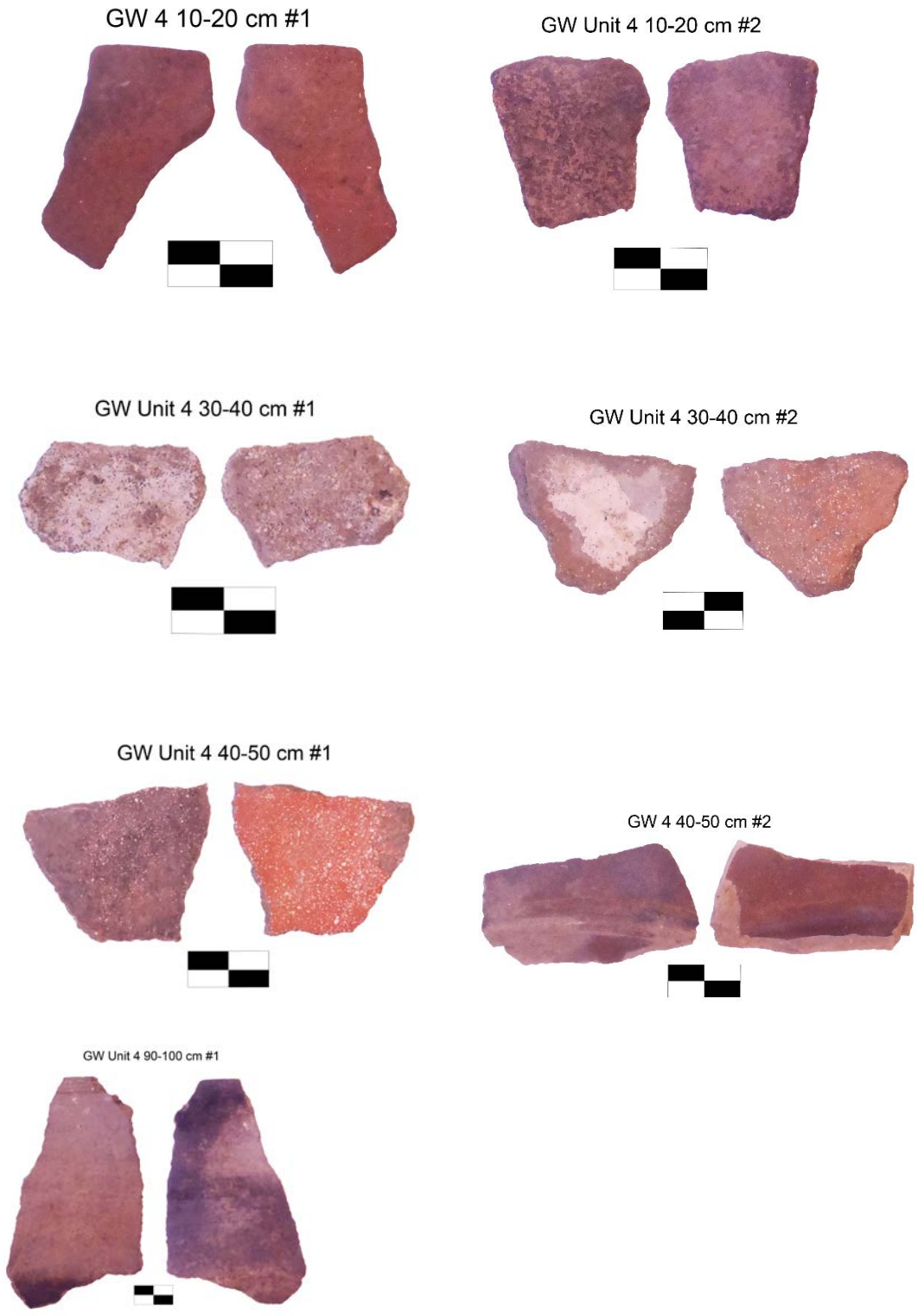


Figure 8.44 Groot Waling Unit 4 starch analysis sherds.

Table 8.14 Groot Waling Unit 4 Nageli Types.

Sample	Temper	Vessel part/ decoration	ave grains/ slide	Type 1	Type 2	Type 3	Type 6	Type 16	Total
GW.4.10-20.1	Grit	Body	0.33	0	2	0	0	0	2
GW.4.10-20.2	Shell	Body	0.25	4	3	1	0	0	8
GW.4.30-40.1	Grit	Body	1.00	1	1	0	0	0	2
GW.4.30-40.2	Shell	Body, resin coating on ext	2.00	0	4	0	0	0	4
GW.4.40-50.1	Shell	Body	0.13	0	1	0	0	0	1
GW.4.40-50.2	Stoneware	Base	0.13	1	0	0	0	0	1
GW.4.90-100.1	Shell	Rim	0.19	6	5	0	0	0	11
			Totals:	12	16	1	0	0	29

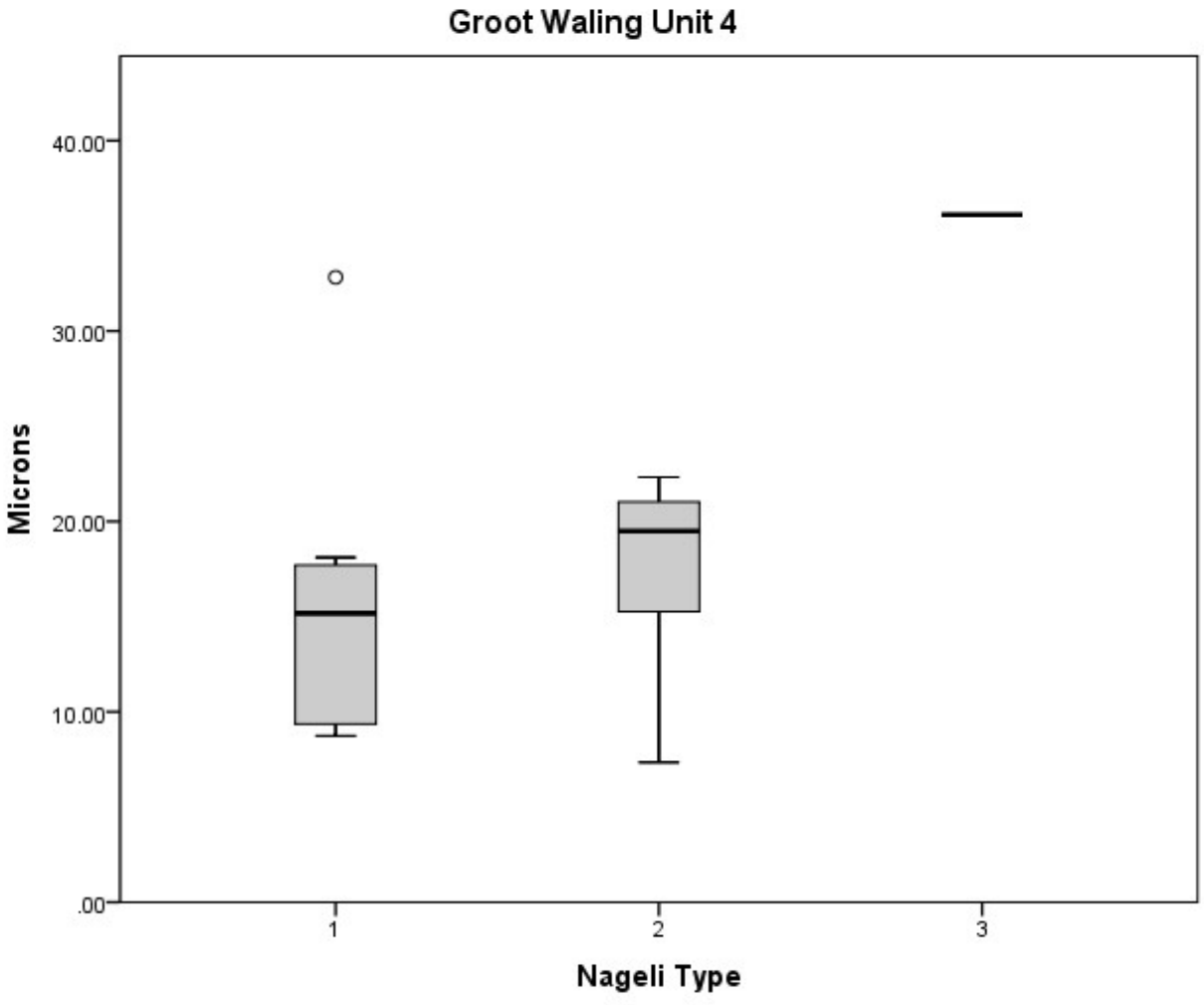


Figure 8.45 Groot Waling Unit 4 Diameter by Nageli Type.

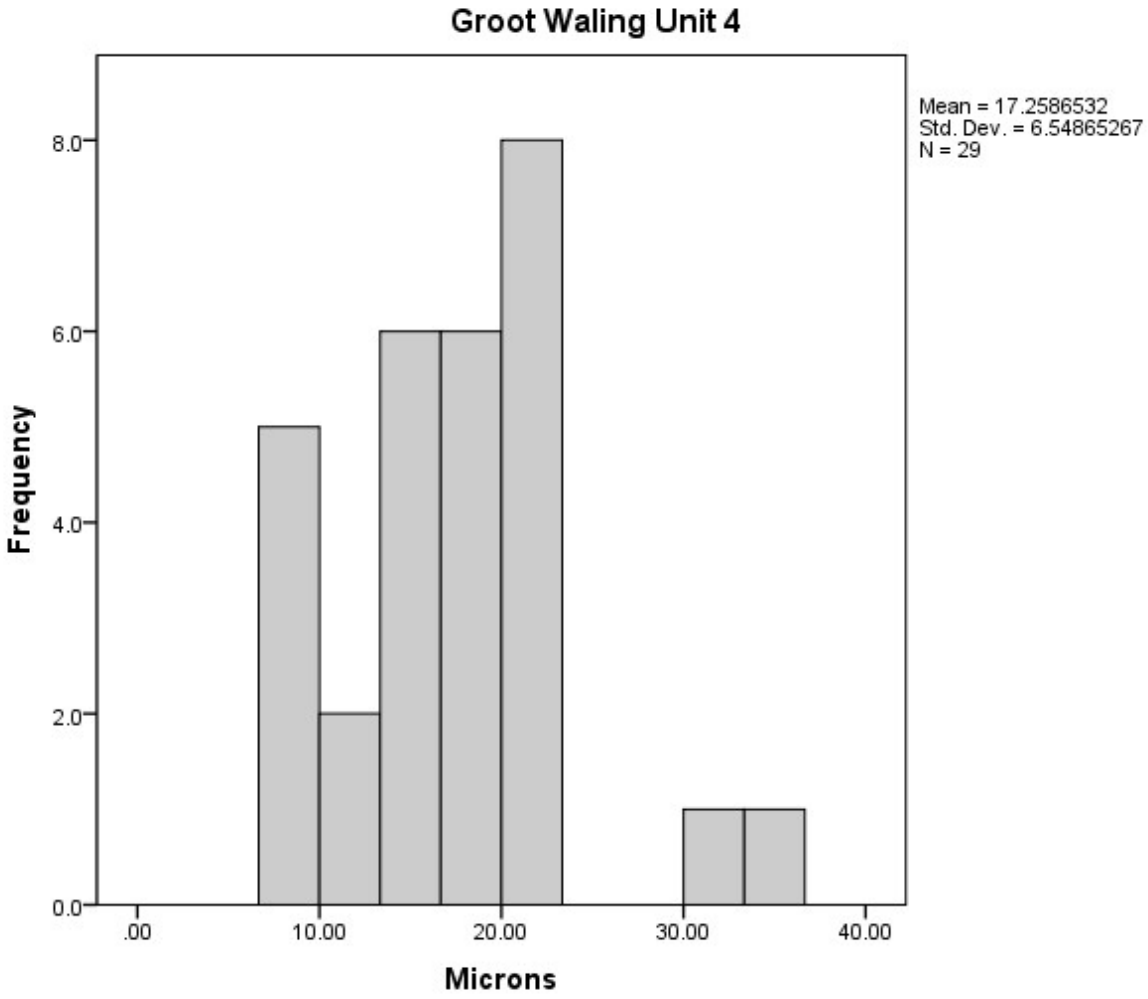
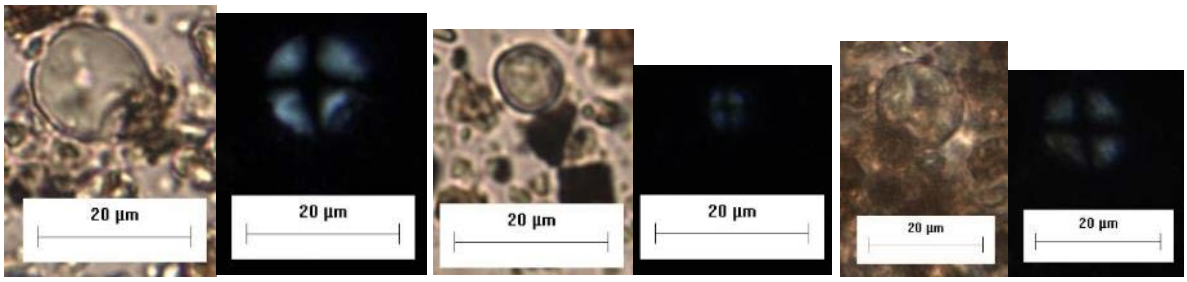
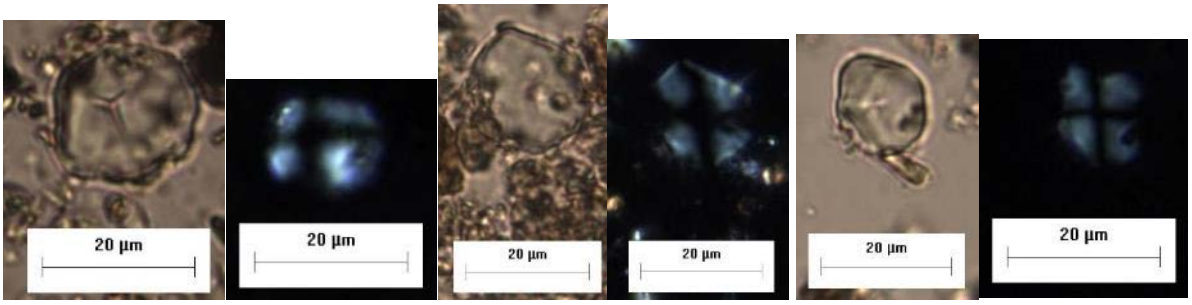


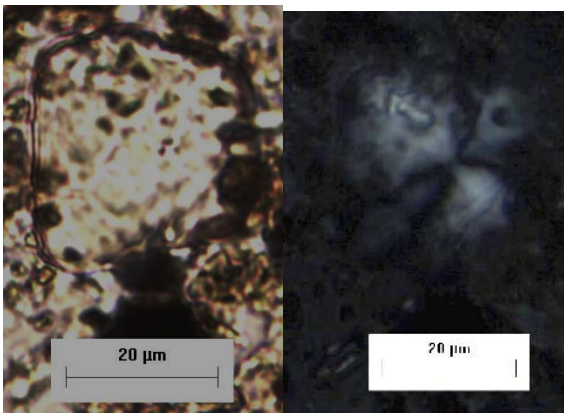
Figure 8.46 Groot Waling Unit 4 starch grain diameter.



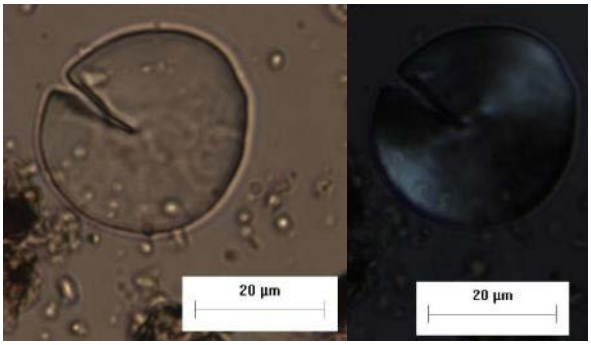
Type 1: GW.4.10-20.2.5a, GW.4.10-20.2.18a, GW.4.40-50.2.4a



Type 2: GW.4.10-20.2.4a, GW.4.30-40.1.2a, GW.4.30-40.2.10b



Type 3: GW.4.10-20.2.14a



Damaged grain: GW.4.10-20.2.24a

Figure 8.47 Groot Waling Unit 4 starch grain images.

Komber

Unit 1

Two sherds were selected from Unit 1, one body sherd and one rim sherd, both shell tempered (Figure 8.48). Unit 1 was not a productive unit for artifacts in general and was likely mixed. One sherd (KB.1.10-20.1) produced no starch, the other sherd (KB.1.50-60.1) produced 5 Nageli Type 2 starches.

The mean of this unit is 17.253 µ, the minimum is 13.232 µ, the maximum is 19.7 µ, and the standard deviation is 2.38 µ. All starch grains are Nageli Type 2 (Figure 8.49). The five starch grains making up this sample are likely from the same species, but little else can be said due to the small sample size. The starch was not identified to species (Figure 8.50).



Figure 8.48 Komber Unit 1 starch analysis sherds.

Table 8.15 KB Unit 1 Nageli Types.

Sample	Temper	Vessel part/ decoration	ave grains/ slide	Type 1	Type 2	Type 3	Type 6	Type 16	Total
KB.1.10-20.1	Shell	Body	0.00	0	0	0	0	0	0
KB.1.50-60.1	Shell	Rim	0.18	0	5	0	0	0	5
Totals:				0	5	0	0	0	5

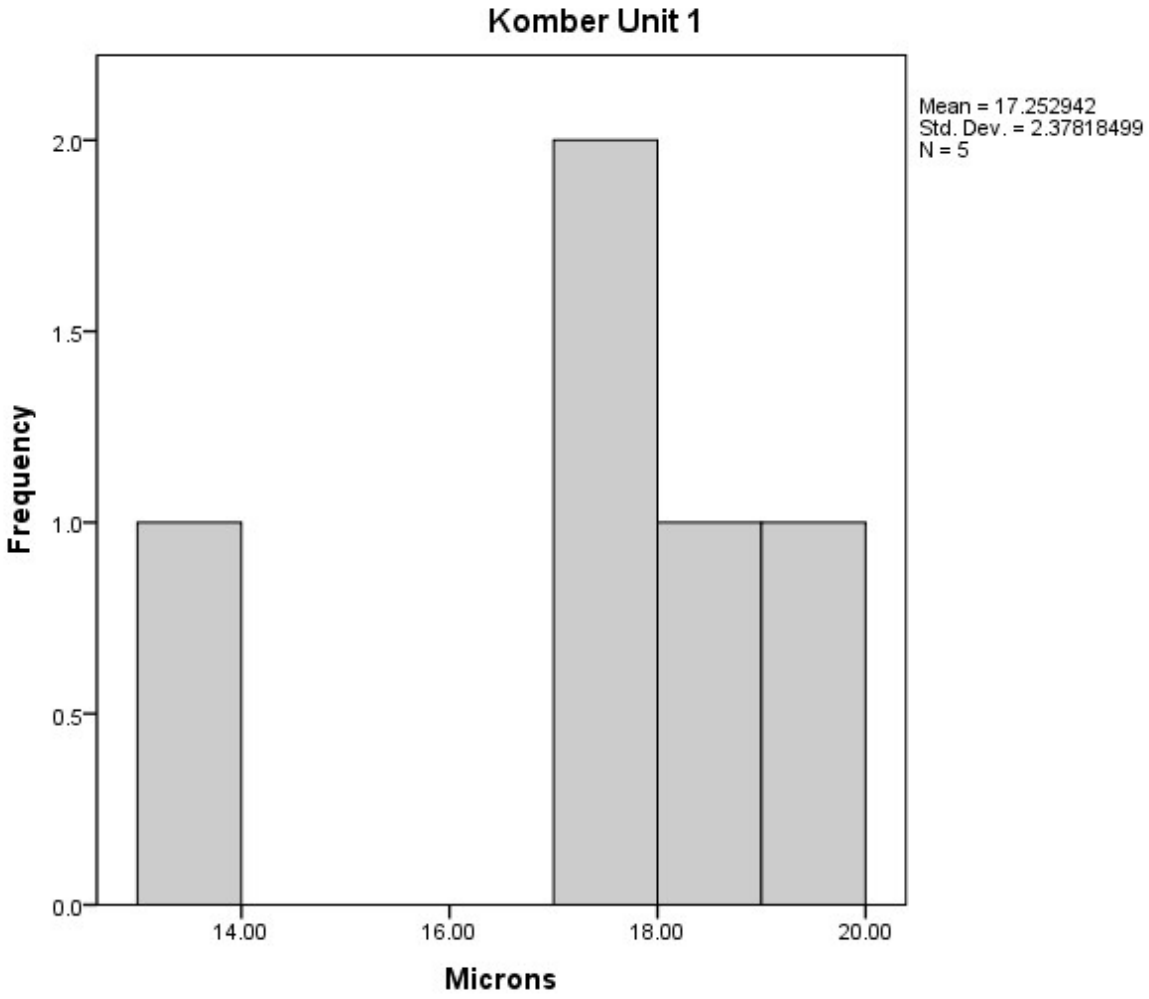
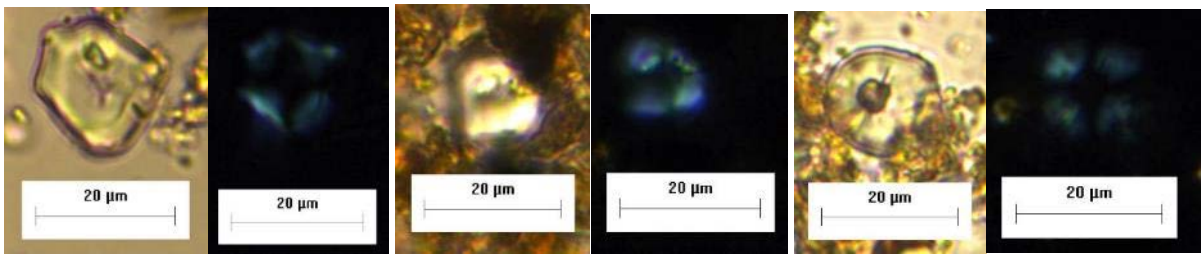
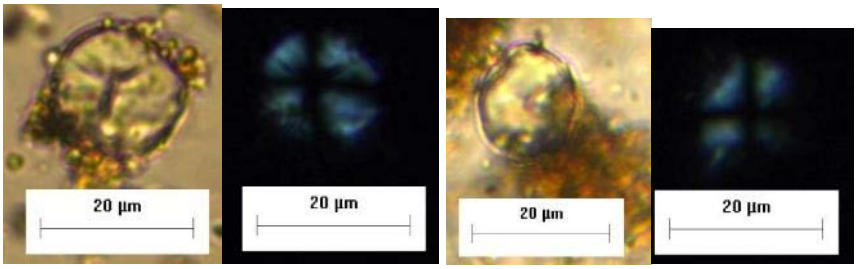


Figure 8.49 Komber Unit 1 diameter.



Type 2: KB.1.50-60.1.10a, KB.1.50-60.1.18a, KB.1.50-60.1.20a,



Type 2: KB.1.50-60.1.22a, KB.1.50-60.1.22b,

Figure 8.50 Komber Unit 1 starch grain images.

Unit 2

The vast majority of sherds from Komber are from Unit 2; 22 sherds were selected for analysis (Figure 8.51, Figure 8.52, Figure 8.53). Nine of these sherds were tradeware, 6 of these tradeware sherds were European transferware and the remaining three were Chinese porcelain. Of the 13 earthenware sherds, one was grit-tempered and the remaining are shell-tempered. Ten of the earthenware sherds are body sherds, 2 are rim sherds, and one is a base. For the tradeware, 5 are rim sherds, three are body sherds and one is a base. All but one sherd (KB.2.20-30.2) produced starch grains for a total of 149 starch grains. The number of starch grains per sherd ranges from 1 to 25 starch grains and between 3% and 56% of slides produced starch per sherd. While this unit was prolific in sherd production, the unit consisted of fill and the stratigraphy is not intact.

As in other units, Nageli Type 2 (49%) dominates the assemblage, followed by Nageli Type 1 (42%) (Figure 8.54). The mean of this unit is 16.864 µ, the minimum is 2.44 µ, the maximum is 35.54 µ, and the standard deviation is 6.421 µ (Figure 8.55). The mean is slightly lower than the mean for the entire assemblage as is the standard deviation. The sample size for this unit is 151, so the lower mean and standard deviation cannot be attributed to a small sample size. At Ordatang the largest starch grain was 67.214 µ and at Groot Waling the largest starch grain was 49.355 µ. The range for this assemblage is 33.1 µ which is about half of the range for Ordatang Unit 2 (which had a sample size of 102 starch grains). The standard deviation is still larger than that of the comparative starches, except for the two largest starches (*M. sagu* and *S. tuberosum*). This suggests that this unit has a smaller range of species than the other units in the assemblage. Assuming the assemblage at Komber is more recent than Ordatang and Groot Waling, this suggests that fewer starches were available in the late colonial and post-colonial periods than previously. This could be due to the lower economic status the Banda Islands experienced after the mid-19th century.

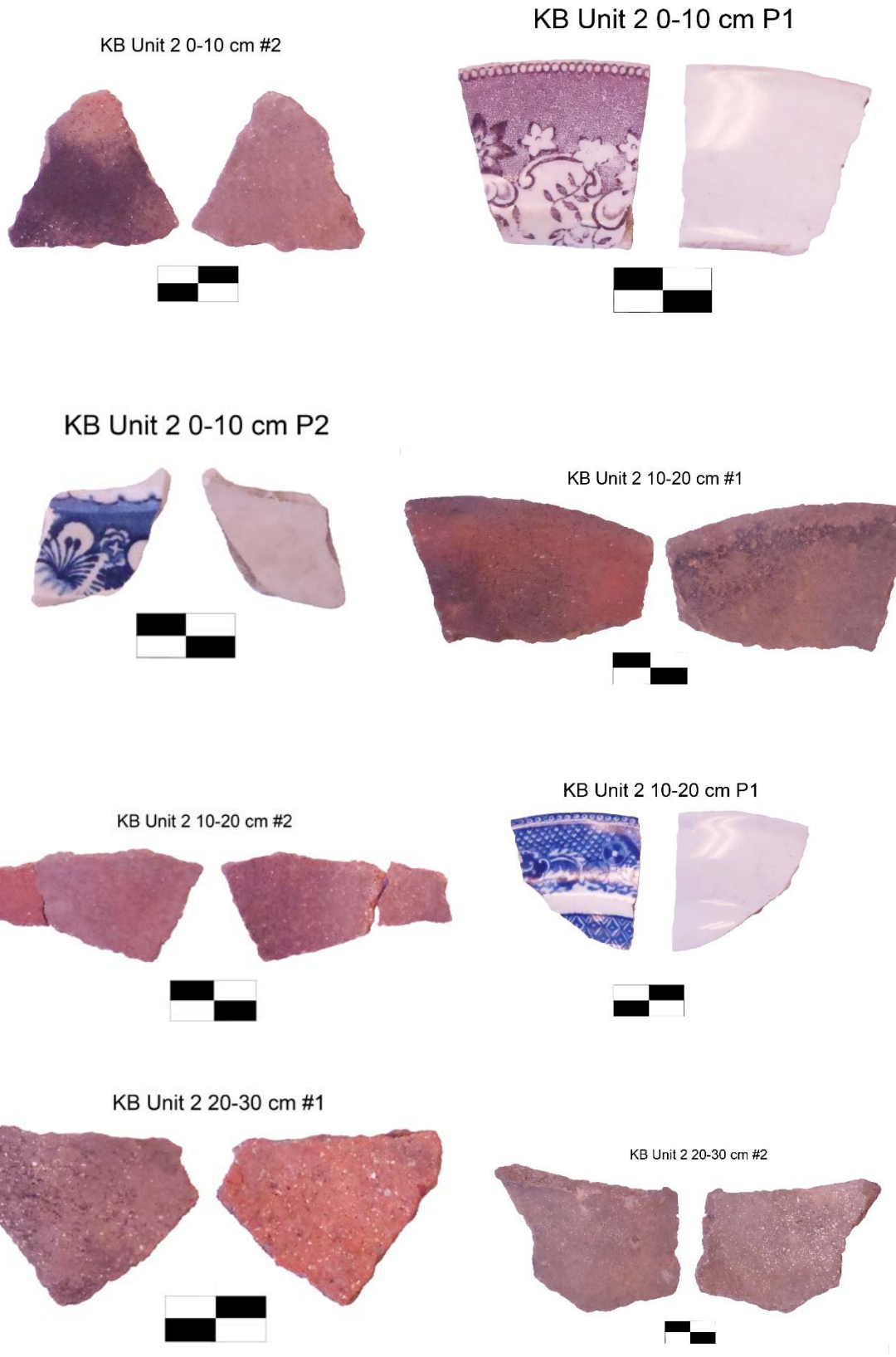


Figure 8.51 Komber Unit 2, levels 0-30 cm.

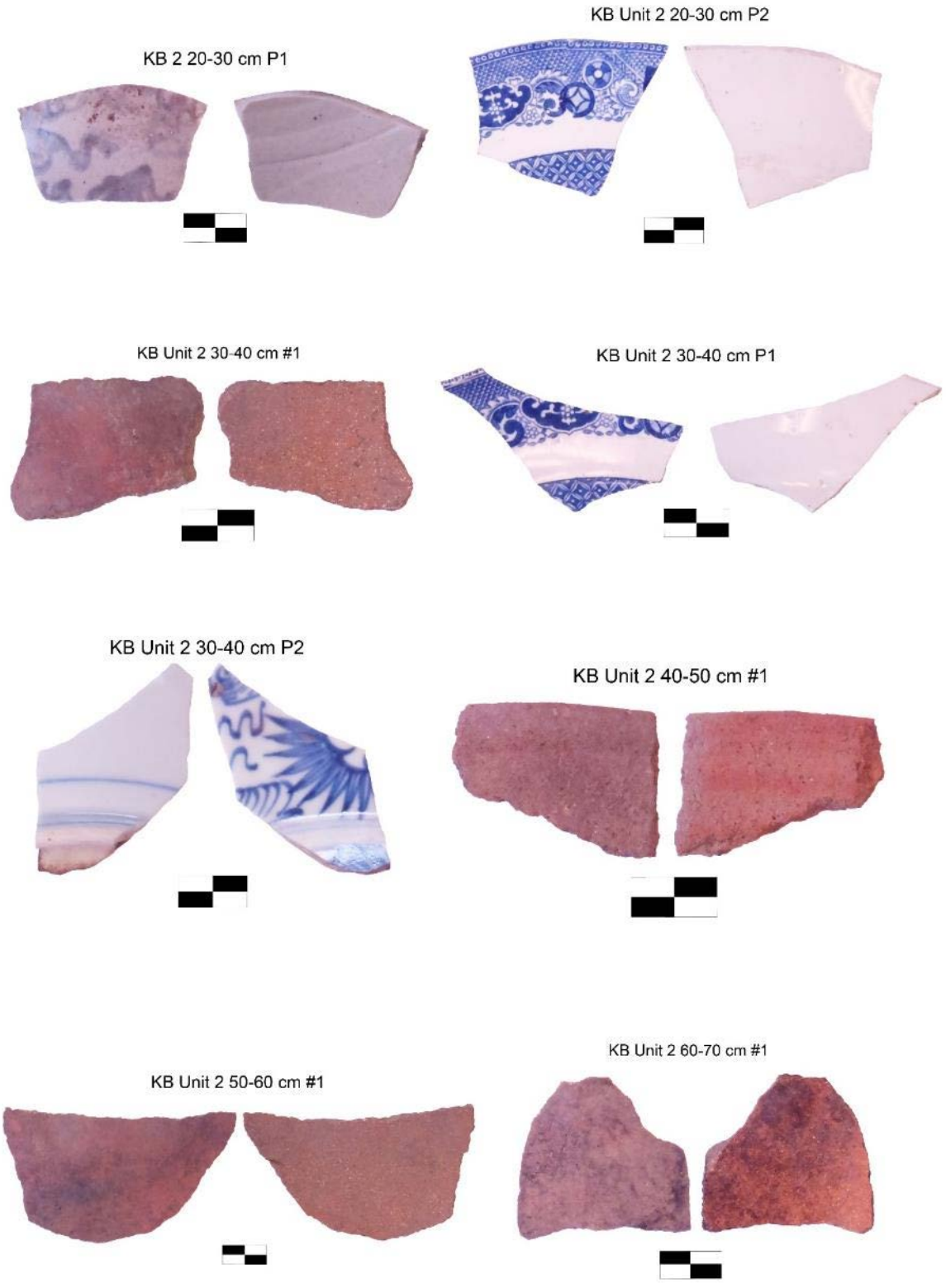


Figure 8.52 Komber Unit 2, levels 30-70 cm.

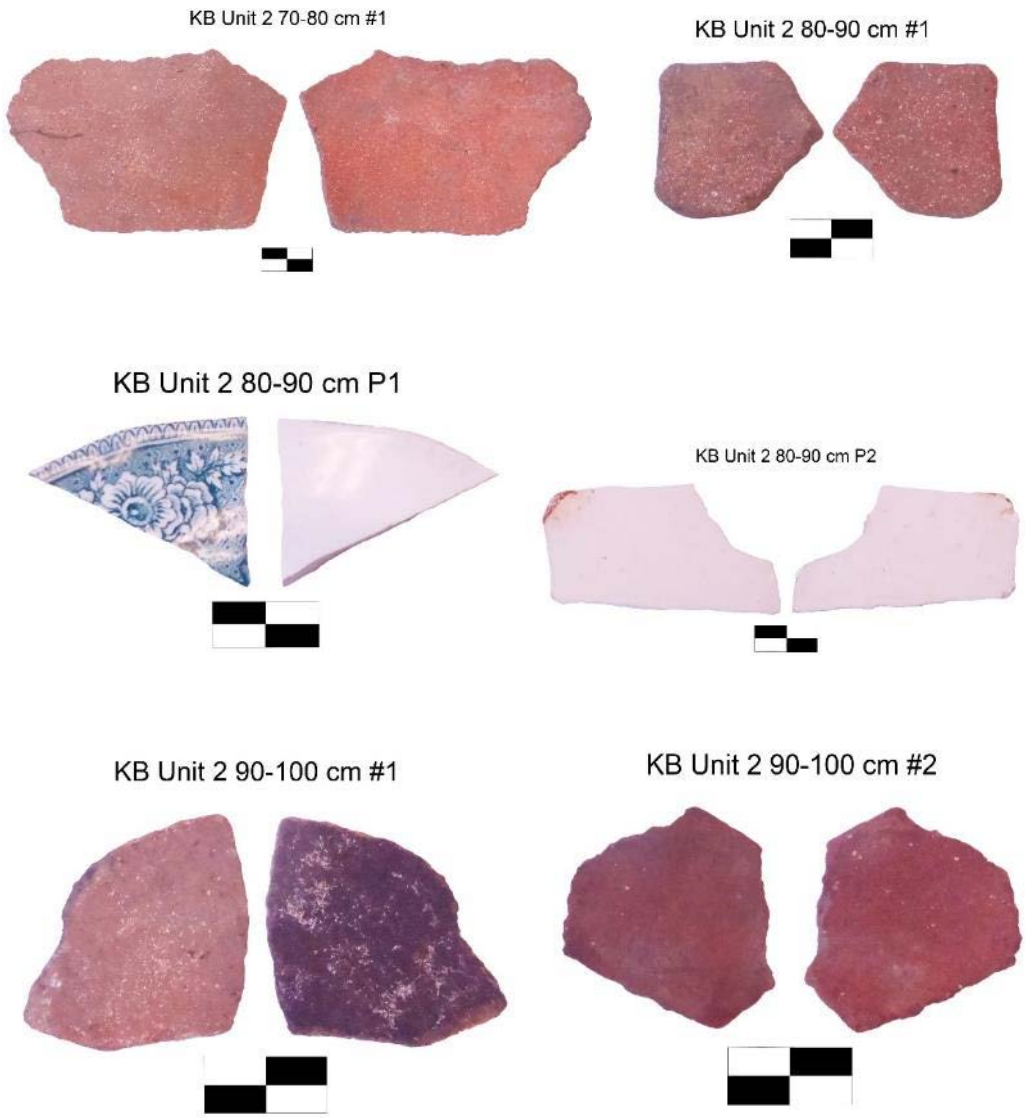


Figure 8.53 Komber Unit 2, levels 70-100 cm.

Table 8.16 Komber Unit 2 starch grains.

Sample	Temper	Vessel part/ decoration	ave grains/ slide	Type 1	Type 2	Type 3	Type 6	Type 16	Total
KB.2.0-10.2	Shell	Body	0.20	1	3	1	0	0	5
KB.2.0-10.p1	Tradeware	Rim	0.50	3	2	0	0	0	5
KB.2.0-10.p2	Tradeware	Body	1.10	4	6	1	0	0	11
KB.2.10-20.1	Shell	Rim	0.03	0	1	0	0	0	1
KB.2.10-20.2	Shell	Body	0.14	1	1	0	0	0	2
KB.2.10-20.p1	Tradeware	Rim	0.28	3	1	1	0	0	5
KB.2.20-30.1	Shell	Body	0.38	4	3	2	0	0	9
KB.2.20-30.2	Shell	Body	0.00	0	0	0	0	0	0
KB.2.20-30.p1	Tradeware	Body	0.83	4	6	0	0	0	10
KB.2.20-30.p2	Tradeware	Rim	1.08	8	4	1	1	0	14
KB.2.30-40.1	Shell	Body	0.41	3	7	1	1	0	12
KB.2.30-40.p1	Tradeware	Rim	0.36	2	2	0	0	0	4
KB.2.30-40.p2	Tradeware	Base	2.78	19	3	2	1	0	25
KB.2.40-50.1	Shell	Rim, paint on int.	0.48	2	7	1	0	0	10
KB.2.50-60.1	Shell	Body	0.13	0	4	0	0	0	4
KB.2.60-70.1	Shell	Body	0.02	1	0	0	0	0	1
KB.2.70-80.1	Shell	Base	0.19	0	6	0	0	0	6
KB.2.80-90.1	Shell	Body	0.32	2	3	1	0	0	6
KB.2.80-90.p1	Tradeware	Rim	0.30	2	1	0	0	0	3
KB.2.80-90.p2	Tradeware	Body	0.58	0	5	2	0	0	7
KB.2.90-100.1	Shell	Body, charring on int.	0.07	2	1	0	0	0	3
KB.2.90-100.2	Grit	Body	0.62	1	7	0	0	0	8
			Totals:	62	73	13	3	0	151

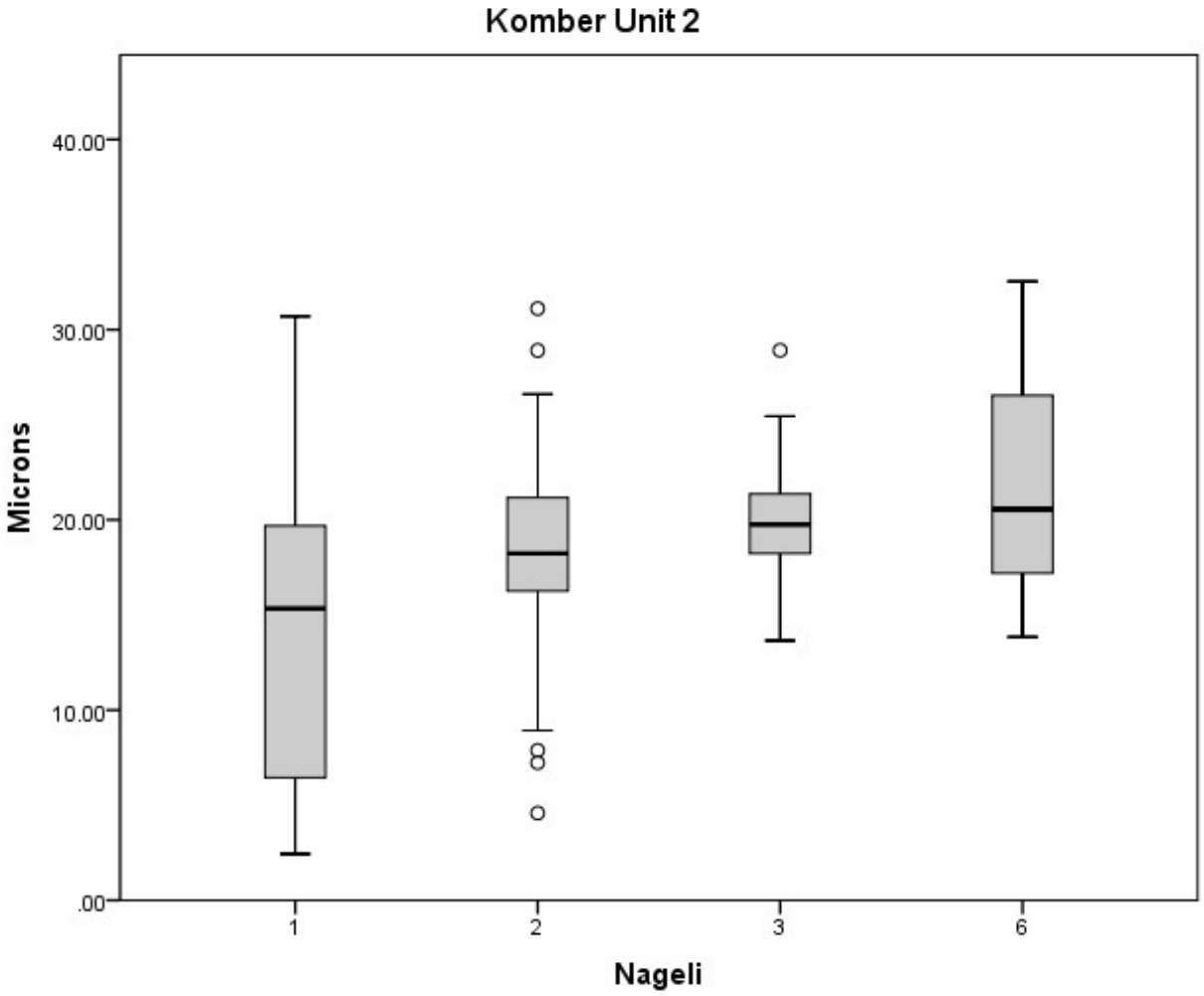


Figure 8.54 Komber Unit 2 diameter Nageli types.

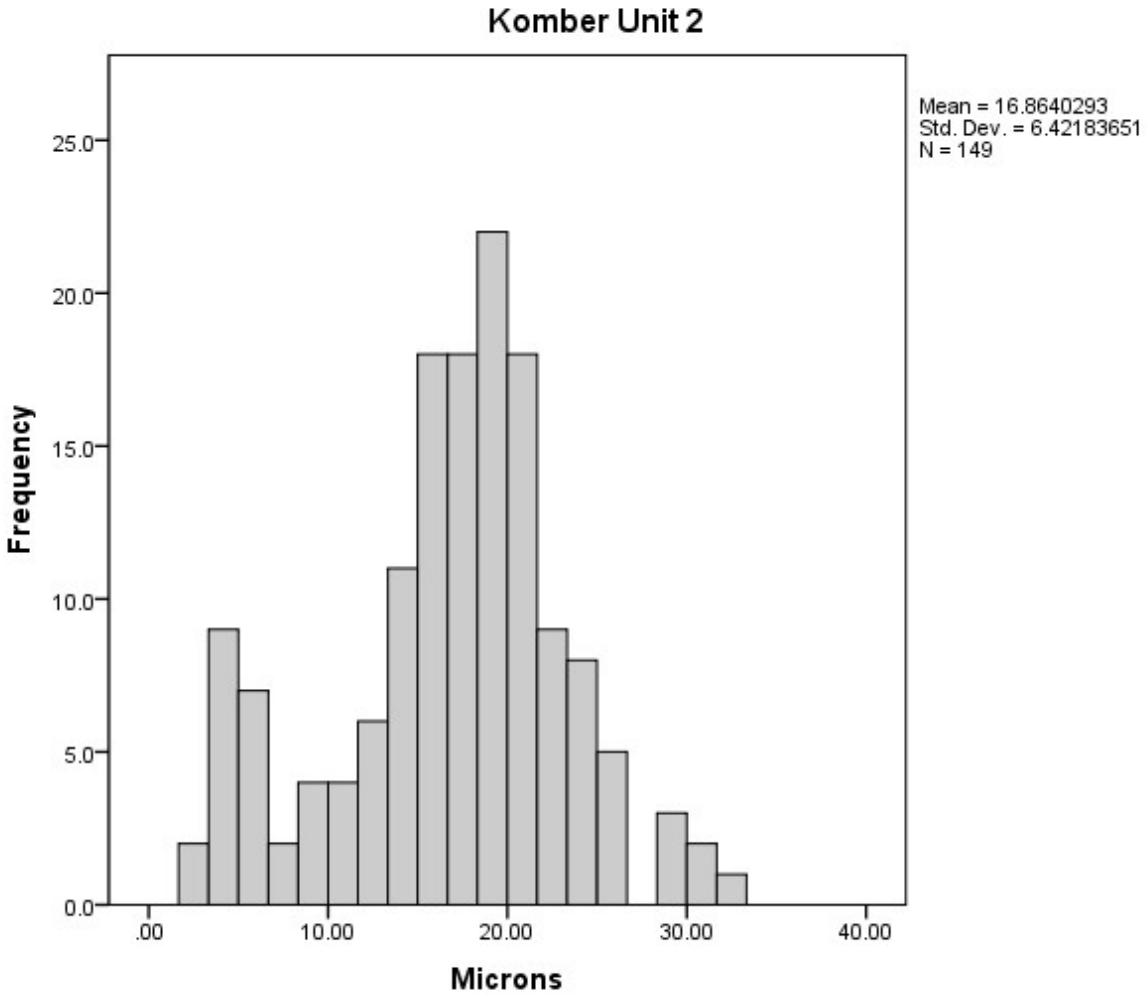
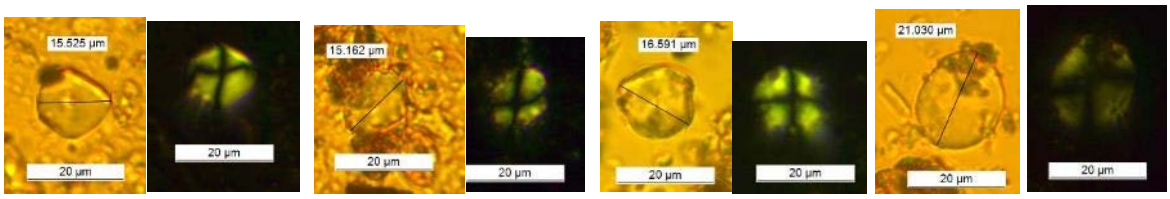
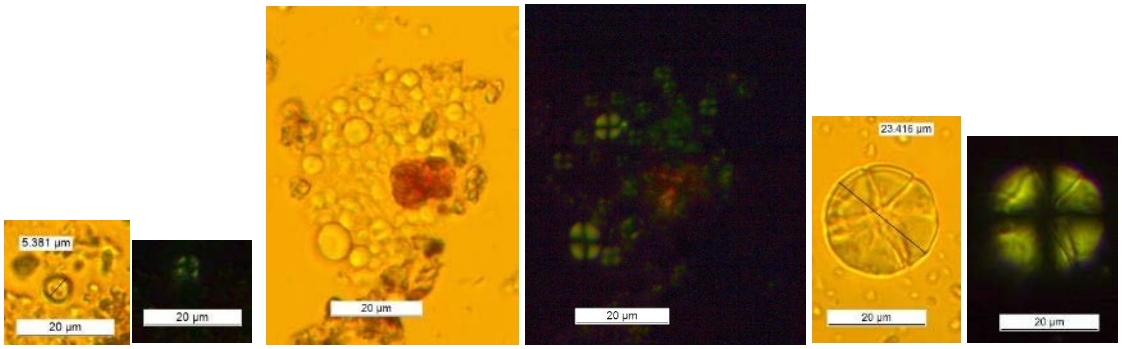


Figure 8.55 Komber Unit 2 starch grain diameter.

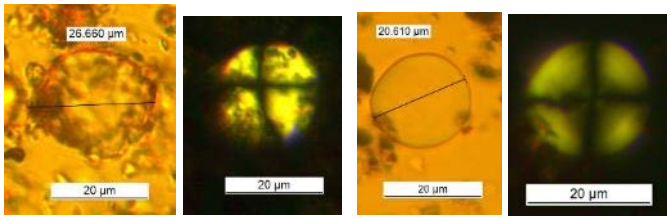
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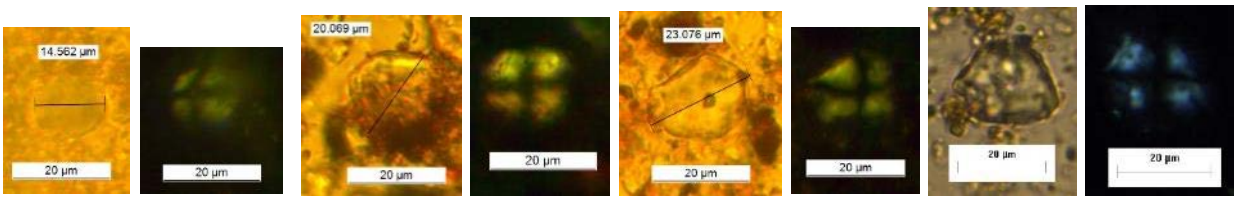


KB. 2.20-30.P2.3a, KB.2.30-40.P2.5a-q, KB.2.60-70.1.40a

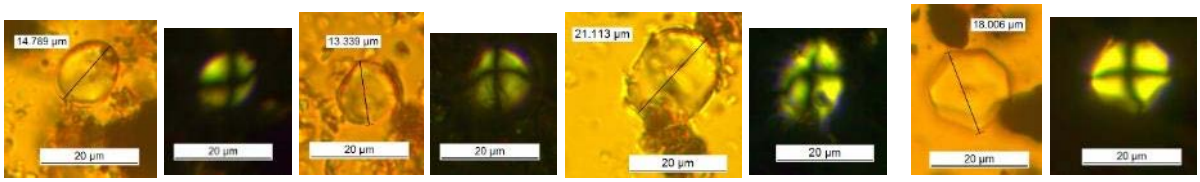


KB.2.80-90.P1.9a, KB.2.90-100.1.29a

Type 2:



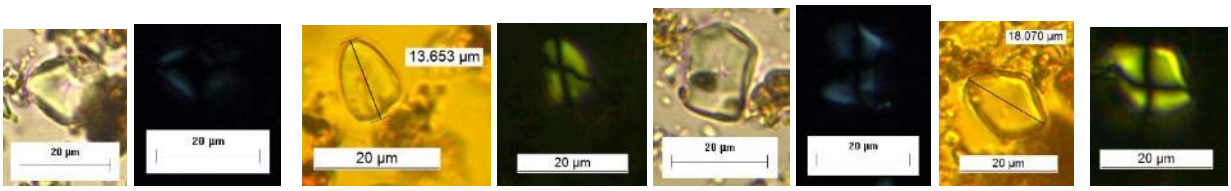
KB.2.0-10.P2.7c, KB.2.20-30.P1.11a, KB.2.30-40.1.5a, KB.2.40-50.1.14a



KB.2.50-60.1.10a, KB.2.80-90.1.8c KB.2.80-90.P2.12a KB.2.90-100.1.39a

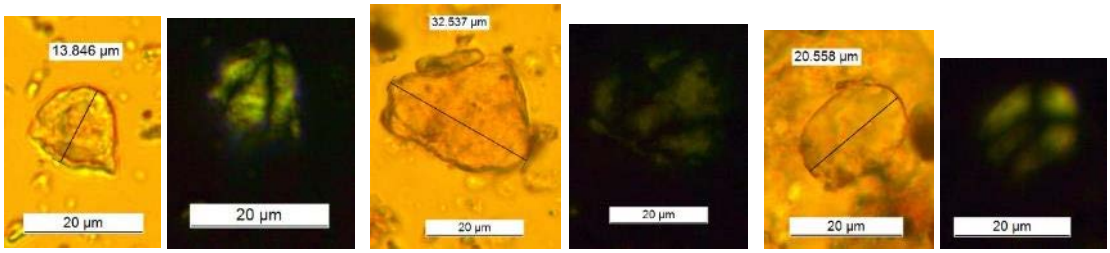
Figure 8.56 Komber Unit 2 starch images, Nageli types 1 and 2.

Type 3:



KB.2.0-10.2.25a, KB.2.20-30.1.4a, KB.2.40-50.1.19c, KB.2.80-90.P2.9a

Type 6:



KB.2.20-30.P2.4b, KB.2.30-40.1.2a, KB.2.30-40.P2.4a

Figure 8.57 Komber Unit 2 starch images, Nageli types 3 and 6.

There was one interesting result was a clump of starch found on a tradeware sherd from 30-40 cm (KB.2.30-40.p2, Figure 8.52, Figure 8.56). While the species has not been identified, this clump suggests the vessel was used for serving or processing a starchy food as opposed to environmental transfer.

Discussion

Komber was very similar to Groot Waling in number of sherds and production of starch grains. A total of 24 sherds were analyzed at Komber producing 154 starch grains for an average of 6.4 starch grains per sherd. No rice grains were identified at Komber. Both Komber and Groot Waling were located in beach location, and Komber's assemblage could also have been affected by tidal "washing." However, assuming that the Komber assemblage is the result of a recent fill episode and predominantly reflects a later ceramics assemblage (early –late 20th century) than the other sites, the lack of rice is surprising. By the 20th century, rice was widely available and was eaten by the students within the school at lunch and at the small *warung* (food stand) at the boat launch at the site. If the deposits are modern, or a mix of modern and late colonial assemblages, then rice should be prevalent. However, it is non-existent. Unfortunately, the small amount of rice at both Groot Waling and Ordatang may reflect modern transfer or contaminant and not be reflective of diet at all.

Discussion of Assemblage

Amount of starch present in the archaeological assemblage

The number of starch grains in the archaeological sample (N= 767 on 82 sherds, average 9.3 grains per sherd) seems high. However, Horrocks et al. (2008) found thousands of starch grains in soil samples, although the soil samples were larger (~3.5 cm^3) than the residue samples in this study (<2 ml). A majority of the sampled sherds (93%) did produce starch. However, only 24% of the total slides (361 of 1505 slides) were positive for starch. The number of starch grains per sample was also quite low (≤10 grains per sample) for the majority of the assemblage (85%). It is difficult to determine if the amount of starch grains in this study is similar or different from other studies as publishing raw numbers of starch grains or recovery percent is not common practice. However, because OR.1.20-30.2 produced 164 starch grains, it suggests that a large number of grains per sample is possible. When the comparative collection was mounted, high numbers of starch grains were present in every portion of the slide viewed. This is to be expected as the entire slide was starch with no soil or other residue. If starchy residues were present in significant amounts on sherds, the starch density for the archaeological samples should be similar to the density seen in comparative collections. This was patently not the case except for OR.1.20-20.2. OR.1.20-30.2 was a rim sherd and it is possible that starch was concentrated near the rim due to overflow during cooking (Eerkens 2005), but 20 other rim sherds were examined and no other sherd showed such a high number of starch grains.

Starch grains were also clumped together in the comparative collection but tended to be found as single grains in the archaeological collections (except for the compound rice grains). The clumping is due to the fact that the starches underwent little processing prior to mounting. Multiple adjacent grains were rare in the archaeological record. However, one sample did have a large group of numerous grains (KB.2.30-40.P2) (Figure 8.56). This suggests that whatever this starch is, it had undergone little processing prior to be deposited on this sherd and was probably raw.

The overall low density of starch residue present in the archaeological assemblage could be due to preservation bias or other taphonomic issues, as previously noted. Crowther (2005) notes the presence of starch grains on Lapita pottery is likely the result of pots being disposed of in an aroid processing area. Some of the starchy residues found in this study could also be the result of transfer. Due to the different environments (beach and interior upland forest) sampled in this Banda Islands study, the starches found are unlikely to be due to natural processes. That is, the same starch-bearing roots or other plant parts are unlikely to be growing in both the beach environment and interior upland forest. If the starches found here were the result of soil transfer, their presence in the soil is still likely a result of human deposition. Thus, it is my belief that the small recovery rate for starches can be attributed to the fact that people were not using ceramics to cook, serve, or store starchy foods. It is likely that alternative vessels, such as bamboo or leaves, were used in the preparation and serving of starchy staples as described in ethnographic accounts (e.g., Jacobs 1971) and can be seen in modern preparations.

Another explanation for the presence of starch grains, but those that could not be identified to the comparative collection based on the historical records is laboratory transfer (Crowther et al. 2014). Louderbeck et al. (2015) note that starch grain contamination existed during the slide preparation stage of the protocol in the University of New South Wales laboratory that was used during the initial stages of this project. To limit environmental transfer, the use of non-powdered latex gloves was added to protocol and the use of lab glass wipes was discontinued. These protocols were initiated after I had completed mounting all of my slides. I did not use latex gloves during any stage of starch extraction or sample mounting nor did I take any steps to limit other forms of environmental contamination as early studies on this problem had not yet been published. As disheartening as the studies on potential laboratory contamination were, especially coupled with the high number of unidentified starches, I do not believe that these contaminants resulted in spurious results for this study. If laboratory contamination produced the majority of the starch grains on the slides produced for this study, there should be no difference in the results per site. However, Ordatang produced significantly more starch grains (N=465) than the other two sites (N-154, 155) and more than double the average number of grains per slide (OR= 14.1, GW= 6.2, KB=6.4). If contamination were a problem, it should be present in all sites in the same approximate amount. This is not the case.

It is possible that the older assemblage at Ordatang and the higher amount of starch reflects a different cooking tradition in the pre-colonial period. Alternatively, Komber and Groot Waling could be experiencing taphonomic issues due to tidal 'washing' of the deposits not seen at the higher elevation of Ordatang. Regardless of issues of environmental contamination or laboratory contamination, the expected dominant starches of rice and sago were not identified in any significant number suggesting that ceramics were not used to cook, store, or serve these foods.

Variety of starch present in the archaeological assemblage

Of the historically dominant starches- rice and sago- there is little evidence. Only 4 sherds of the 82 tested had identifiable rice starch; 33 of the individual slides had starch grains consistent in size with sago but 29 of these fall below the average for the comparative collection. If these starch grains represented sago, I would expect them to overlap the entire range of size. The average for the entire archaeological collections is 17 microns, this falls outside the average for any of the species in the comparative collection. There is some overlap in distribution with sweet potato and white potato, but the range and Nageli type do not match. What I think can be concluded from this data is that more starches were available than the historic records describe and the Banda Islands may not have been as dependent on outside sources of starch as the historic records indicate. While it is not unusual to come to the conclusion that the historic record is incomplete and more work needs to be done, it is, I think, still a significant conclusion. The use of local, low-valued starches to supplement the diet of workers might be evidence of resistance to the colonial power and a continuation of indigenous knowledge despite colonial attempts at eradication. The description of the Banda Islands as being resource-poor but spice-rich might be an over-generalization. European writers may not have recognized non-domesticated or non-cultivated

starches as a significant part of the diet because these resources did not fit European notions of acceptable food.

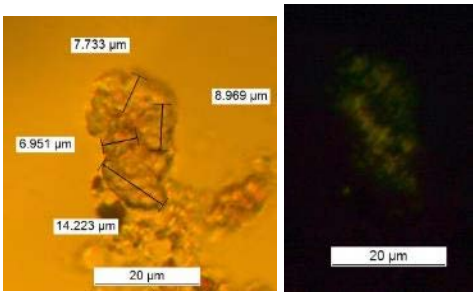
It is interesting to note that Ordatang has a higher diversity of starches, based on range of sizes. It is tempting to suggest that this might represent a higher diversity of starches available in the pre-colonial era as Ordatang has a higher number of earlier sherds. Again, this diversity may be due to preservation bias and a higher number of starch grains preserving at Ordatang than the other sites. Since Ordatang was inland and not on a beach, buried sherds wouldn't be "washed" by changes in tides. However, I do not think the presumption of a higher diversity of available starches should be discounted due to preservation bias. A higher diversity of starches may have *preserved* on the Ordatang sherds compared to the other sites, but it does show that a diversity of starches were available pre-colonially. These starches may have continued to be available during the colonial period, but evidence has been lost at the other two sites due to taphonomic effects. It is also possible that starch diversity decreased after colonialism and the small range at Groot Waling and Komber is a reflection of actual use and not preservation bias. Either way, the range of starch grain size does suggest that a diversity of starches were available in pre-colonial times that are not discussed in the historical record.

Identifications and Possible identifications

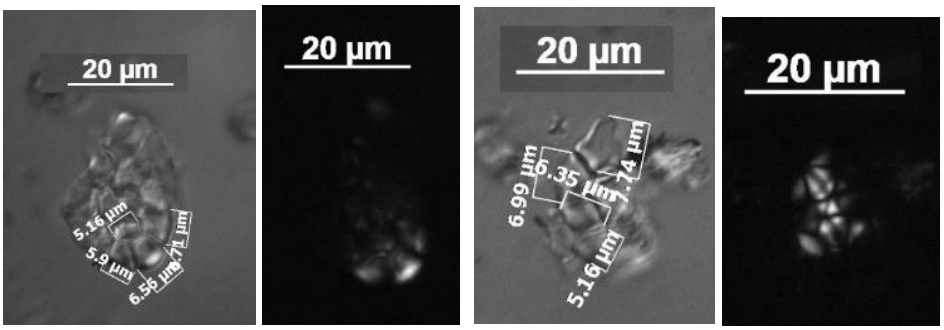
While starch grains are useful for study as they can, theoretically, be used to identify species, in practice, identification can be difficult. This is true for pollen and phytolith analysis, too, however. Many species produce starch grains, pollen, or phytolith forms that can be broadly assigned to family or are ambiguous. In this study, since I was trying to identify which starches described in the historic record were present (and presumably imported) on ceramics, I used a comparative collection based on historic records instead of using plant samples collected in the Banda Islands. The starches present in the archaeological assemblage did not correspond shapes and sizes of the comparative collection. Thus, the majority of starches present in the archaeological assemblage could be local starches or other plant matter not mentioned in the historic record. Some of the problem could be attributed to environmental differences. For instance, the more water available to the plant, the larger the starch grain, so plants experiencing a drought would be smaller than the modern comparative collections (Gott et al. 2006:36-40). However, the time depth associated with this assemblage (ranging for the Neolithic to the Modern Period) should negate any short term environmental changes. Regardless of slight changes in size that could be affecting the individual starch grains, there are characteristics of rice and sago- the two major starches mentioned in historic records- that should still identifiable in the archaeological material. Rice grains are small and compound, unlike any other expected starch. Sago is very large in comparison to other starch grains and has protuberances. While a few rice grains were identified, no unproblematic sago grains were identified. Despite these problems, some of the starch grains in this assemblage do match the size and shape of the starches in the comparative collection, with various degrees of certainty in identification.

Rice (*Oryza sativa spp.)* is the easiest of the starches in the comparative collection to distinguish, due to its small size and compound grains. Rice was commonly mentioned in the historic records and I expected it to be common in the archaeological assemblage. However, that was not the case. Four sherds (GW.1.10-20.2, GW.1.10-20.3, OR.2.0-10.P1, and OR.2.10-20.P2) produced starch grains that I am comfortable attributing to *Oryza sativa* (Figure 8.58). All sherds came from relatively shallow depths (0-20 cm). Rice grains were only found at Groot Waling and Ordatang, no sherds from Komber produced rice grains. The rice grains came from the same unit at both Groot Waling and Ordatang, and the same level at Groot Waling. The rice grains were found on tradeware at Ordatang and earthenware at Groot Waling, suggesting that rice was not relegated to "elite" or, at the very least, more expensive vessels. The lack of rice at Komber is inexplicable to me at this time. Only 4 out of the total 85 sherds produced rice grains. This was certainly unexpected. Rice is the dominant starch on the islands today, at least based on how much is available in the markets versus sago. The lack of rice grains in the starch assemblage is belied by the historic record and modern dependence. But rice is often steamed in banana or palm leaves, as mentioned by Galvao (Jacobs 1971) and eaten from this ready-made serving dish today. The lack of rice grain may be related to cooking and serving. That is, earthenware and tradeware were not used to cook or serve rice and therefore the remains of the starch would not be found on this material.

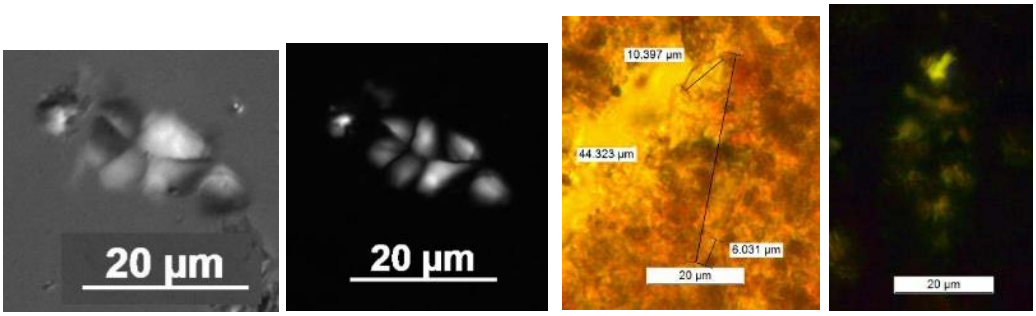
After rice, sago (*Metroxylon sago*) was expected to be common in the archaeological assemblage due to its prevalence in Maluku, in both historic and ethnographic records. Sago produces relatively large ovoid or sub-ovoid starch grains (24.14-73.47 μ) with an eccentric hilum; grains often have an asymmetrical outgrowth or protuberance. Only 9 grains in the archaeological assemblage had ovoid grains with eccentric hila whose diameter was over 20 μ (Figure 8.59, Table 8.17); I included grains that were smaller than the comparative collection in order to be sure no potential grains were missed. However, I do not feel comfortable attributing any of these starch grains to sago. Only one has a protuberance - GW.1.10-20.2- and that one falls below the comparative collection measurements. The size difference could be attributed to environmental conditions so the GW.1.10-20.2.4a starch could be sago, but I am not willing to definitively call it thus. The lack of other ovoid starches with eccentric hila and protuberances, regardless of size is disheartening. The sago used for the comparative collection was a modern sago biscuit (*sagu lempeng)* that I purchased in the market in Banda Neira, so it likely was directly analogous to what was available archaeologically. It is unlikely that the shape difference could be attributed to processing differences between modern and past techniques. The most likely conclusion is that sago was not served or stored on the ceramics available at the *perken*. Sago may still have been eaten at the *perken*, but prepared using leaves or bamboo tubes. I should note that no sago molds were sampled for starch. I chose large sherds for analysis, prior to any sort of ceramic analysis. Since there were only 4 sago mods identified in the assemblage, they were statistically unlikely to be selected. On a final note, while OR.2.0-10.P2 has a large ovoid grain with an eccentric hilum, this grain is most likely white potato and not sago.



OR.1.10-20.3.21.a-d

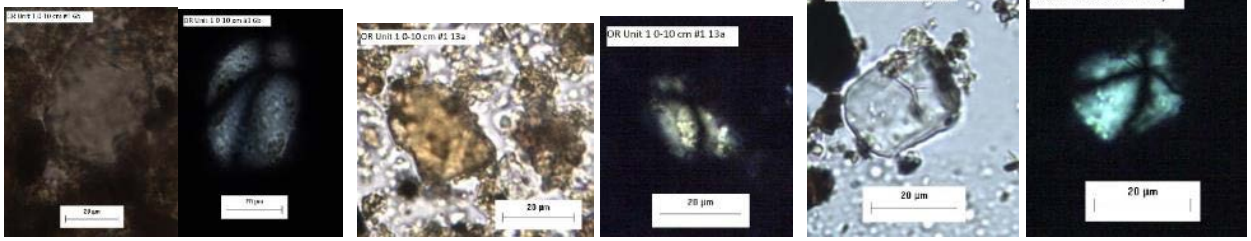


OR.2.0-10.P1.1.i-1-4 OR.2.10-20.P2.1b-e

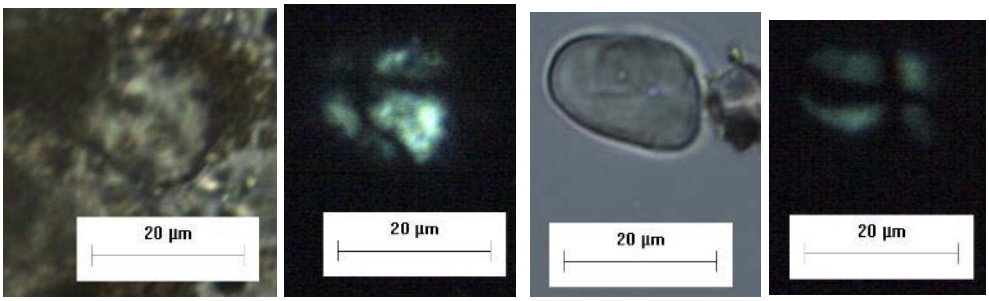


GW.1.10-20.2.1.4a-4g GW.1.10-20.2.13.a,b

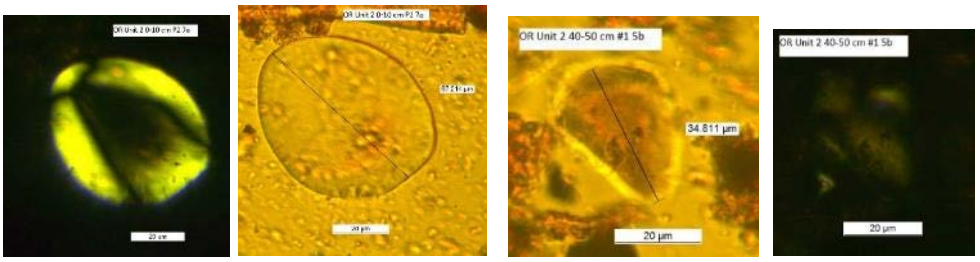
Figure 8.58 Rice starch grains.



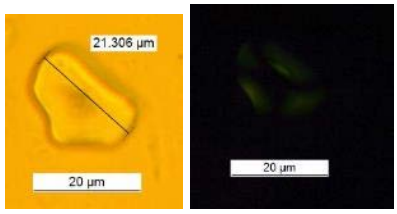
OR.1.0-10.1.6b **OR.1.0-10.1.13a** **OR.1.20-30.2.8j**



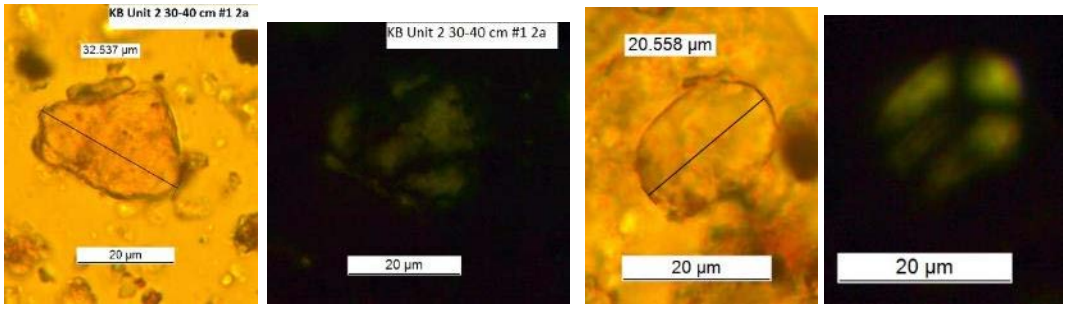
OR.1.20-30.3.10a **OR.1.90-100.1.6a**



OR.2.0-10.P2.7a (probably *S.tuberosum*) **OR.2.40-50.1.5b**



GW.1.10-20.2.4a



KB.2.30-40.1.2a **KB.2.30-40.P2.4a**

Figure 8.59 Possible sago starch grains (grains within reference collection range are bolded).

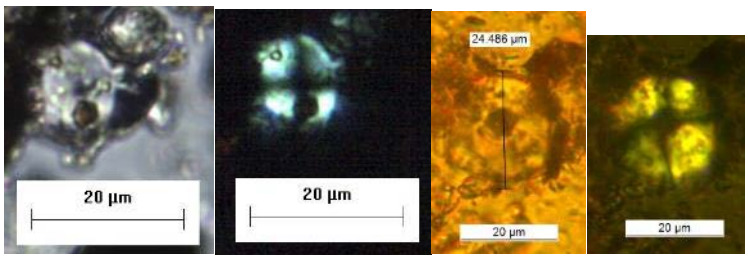
Table 8.17 Possible sago starch grains. (Grains within reference collection range are bolded.)

Sample	Slide	Starch #	Microns
OR.1.0-10.1	**6**	**b**	**56.0377**
OR.1.0-10.1	**13**	**a**	**29.89047**
OR.1.20-30.2	**8**	**j**	**27.29255**
OR.1.20-30.3	**10**	**a**	**22.53092**
OR.1.90-100.1	**6**	**a**	20.21136
OR.2.0-10.P2	**7**	**a**	**67.214**
OR.2.40-50.1	5	b	**34.811**
GW.1.10-20.2	4	a	21.306
KB.2.30-40.1	**2**	**a**	**32.537**
KB.2.30-40.P2	4	a	20.558

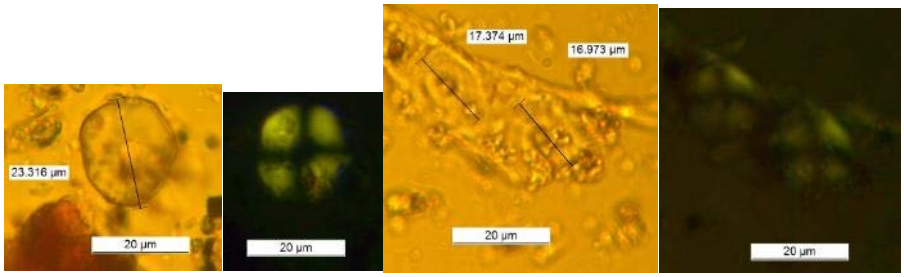
Manioc (*Manihot esculenta)* was not commonly mentioned in historic records but is closest to the size and shape of grains that exist in the archaeological record. Manioc is a Nageli Type 1 grain, which is round with a centric hilum. While Nageli Type 2 is the most common starch grain, Type 1 is second-most common. The average for the assemblage (17.488 µ) also fits within the range for manioc (3.86-20.56 µ), so it was possible that manioc may have been a significant portion of the assemblage. However, manioc also has an identifying feature: a "pitted" hilum. Fissures are also common. Not all reference collection grains had the pitted hilum or fissures, but they were common features. In the archaeological assemblage, only 7 grains have pitted hila and 5 of these match the size of the grains in the reference collection (Figure 8.60, Table 8.18). While these few grains may be manioc, it is unlikely that a significant portion of the assemblage consists of manioc.

Finally, *Dioscorea esculenta*, used in the comparative collection, has smaller and more angular starch grains than other *Discorea* species (Onwueme and Charles 2008:98). It is possible that some of the Type 2 starches may also belong to a species of yam that was not used for the comparative collection. *Dioscorea esculenta* was used because Dr. Field had it available in her comparative collection and it was mentioned as being available in Heeres (1908). Unfortunately, no other *Dioscorea spp.* were available at the time of the creation of the comparative collection.

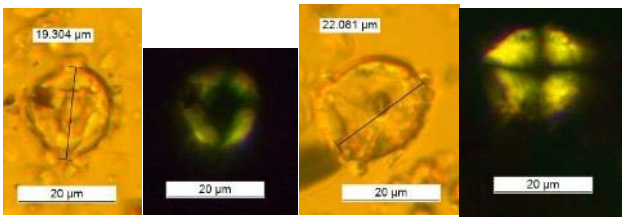
Nutmeg, both the native round nutmeg (*M. fragrans*) and non-local long nutmeg (*Myristica spp*) were sampled to see if nutmeg was being stored or otherwise processed in earthenware or tradeware. Both round and long nutmeg had Nagelli Type 1 grains that were round with a centric hilum, an average of 7.3 µ and 7.57 µ, respectively. The maximum measurement of both nutmegs is under 15 µ. Nageli Type 1 is the second-most common grain type in the assemblage with an average length of 15.46 µ. It is certainly reasonable to assume that some of the grains in the assemblage may be nutmeg, but the majority of the Type 1 grains seem to be larger than expected for nutmeg. Nutmeg was processed in the *perk* and it is possible that there was some environmental transfer even if the nutmeg wasn't stored in the



OR.1.20-30.2.3f OR.1.40-50.1.19e



GW.1.10-20.2.13c GW.1.30-40.23a,b



KB.2.30-40.P2.5r KB.2.80-90.P1.10a

Figure 8.60 Possible manioc starch grains.

Table 8.18 Possible manioc starch grains. (Grains within reference collection range are bolded.)

Sample	Slide	Starch #	Microns
OR.1.20-30.2	3	f	23.316
OR.1.40-50.1	**19**	**e**	**16.973**
GW.1.10-20.2	**13**	**c**	**17.374**
GW.1.30-40	**23**	**a**	**19.304**
GW.1.30-40	23	b	22.081
KB.2.30-40.P2	**5**	**r**	**19.89669**
KB.2.80-90.P1	**10**	**a**	**20.486**

earthenware or tradeware ceramic vessels. If the starch grains evident on the ceramics were from environmental transfer, they would be expected to be closer in measurement to the nutmeg.

Predictions from models

It is difficult to identify which predictive model best fits the starch grain results as very little rice or sago was identified in the assemblage. The mix of rice and other unidentified (but presumably local) starch suggests creolization. However, the rice was all identified in the upper levels of excavations, above 20 cm in depth. This suggests recent deposition, even presuming the mixing of deposits. The few rice grains that were identified were found on both tradeware and earthenware which also suggests creolization, as the presumably elite starch was identified on elite and non-elite ceramics. However, the tradeware at the plantation sites tended to be the lower quality export ware from both China and Europe, so this may not be strong support for mixing of elite and non-elite material culture. It is also possible that the use of the unidentified, but presumably local, starch may be resistance to dependence on the colonizers for food. Unfortunately, much of the identified starch could be pre-colonial due to mixing of deposits. Creolization is the model with a better fit with the currently available data, but the fit could be better.

The lack of rice and obviously sago starch in the samples also suggests that life on the plantation may not be accurately reflected in general historic descriptions of the Banda Islands. The VOC and later Dutch East Indies government did ship rice to the islands to feed the workers and other inhabitants (Hanna 1978). Sago was commonly traded throughout the region prior to and subsequent to colonization (Ellen 2003). Rice and sago *should* exist in the archaeological assemblage. The lack of evidence may be due to temporary habitation within the perks themselves. That is, people only lived within the perk confines during harvest time or other period of heavy activity and returned to villages when the required work period was over or at the end of the day. Workers also may not have been eating within the confines of the perk. But the most likely scenario is that earthenware pottery was not used for storing, cooking, or serving starches.

Which begs the question of what were earthenware pots used for? The current state of the sherds does not suggest use for water storage, but slipping or other water-proofing may have eroded over time and lime coating is evident on some sherds. Alternatively, earthenware could have been use to boil soups that did not contain starches. Eerkens (2005:85-86) notes,

> Pots with restricted orifices used in high-temperature boiling build up heat within the neck, causing explosive overboiling of the contents or even breakage of the vessel across the neck. Thus, pots used to cook seeds should have direct rims and wide mouths, while those used to cook meats should be incurved or recurved, with more narrow mouths. Together, these results suggest that boiling of seed and other carbohydrate-rich plant resources was an important function of … pots, especially in the V-shaped forms. Residues from these resources should be prevalent in such pots. Recurved bowls, on the other hand, are predicted to have been used more for lower-temperature simmering for meat

The rim sherds from the Banda Islands are primarily what Eerkens calls “recurved” which suggests that boiling starchy foods in these pots would cause boil overs and would not be preferred. More analysis on the use of earthenware pots in Island Southeast Asia would be useful in addition to identifying the sources of the earthenware pottery and the reason for their trade. More research on forms and uses would also be helpful.

Conclusions

Without more information on the use of ceramics in the Banda Islands and local and regionally available starchy foods, it is difficult to come to any conclusions about the dietary starches. What can be concluded is that the historically recorded starches were likely not stored or served in earthenware or tradeware vessels. A creolization of the starchy aspect of the diet is suggested by the mix of multiple starch grain types on the individual sherds. However, the potential for laboratory or environmental contamination impacting the assemblage cannot be discounted completely at this time.

Chapter 9
Discussion and Conclusions

The previous chapters described a tremendous amount of data; in this chapter I synthesize the data in relation to the predictive models introduced in Chapter 2.

Discussion

To review, three explanatory models that are commonly used in plantation archaeology in the American Southeast were used to develop expected distributions of material culture for the Bandanese nutmeg plantations (Table 9.1). Energetic efficiency predicts that people will chose dietary resources with the lowest search and handling times but highest energetic yield. I assumed that energetic efficiency would mostly likely be seen in workers' contexts as elites should have extra financial resources to mitigate environmental constraints. I assumed low cost fish and domesticated chicken would dominate in workers' contexts, regionally produced earthenware should dominate the ceramics assemblage, and rice and/or sago should dominate the starch assemblage. As elites should not have been limited by environmental constraints, they could afford the higher cost domesticated mammals, although the lower cost resources were probably not absent; imported high quality tradewares should outnumber regionally produced earthenware, and imported starches (including rice) should dominate the assemblage. For the power/ resistance model, it is expected that workers and elites should have little to no over-lapping material culture or dietary traditions and that workers would reject some of the signals of the elites, such as the large domesticated mammals or tradeware, and the elites would avoid using the material culture of the workers, such as indigenous earthenware or sago. For the creolization model, the material culture and dietary traditions were expected to generally overlap.

The first problem that arose during excavation was that it appeared that there were no clearly delineated areas of elite and non-elite middens (see Chapter 4). I could not, therefore, determine if the excavated materials were the result of workers, elites, or both. The general paucity of elite artifacts, especially pipe stems which were numerous at European elite sites (the Governor's mansion and Harmonie Club on Banda Neira) previously excavated by Lape (2000b), led me to compare the plantation sites against Lape's (2000b) European sites and colonial-period village sites. As noted in Chapter 6 (see Table 6.1, Figure 6.26), the plantation sites more closely matched the village sites in comparison to the elite residences. The lack of elite artifacts effectively removed the elite predictions from testing. The second problem that arose during excavation was the lack of intact stratigraphy. All sites

Table 9.1 Models and hypotheses.

Resources	Energetic Efficiency		Power/ Resistance		Creolization	
	Workers	Perkeniers	Workers	Perkeniers	Workers	Perkeniers
Faunal Resources						
Cow	-	+	-	+	≈	≈
Pig	-	+	≠	+	≈	≈
Chicken	+	-	+	-	≈	≈
Local Shellfish	+	-	+	-	≈	≈
Local Wild game- small	+	-	+	≠	≈	≈
Local Wild game- large	≠	+	-	+	≈	≈
Ceramics						
Indigenous	+	≠	+	≠	≈	≈
Imported Asian	-	+	-	+	≈	≈
Imported European	-	+	≠	+	≈	≈
Individual settings	≠	+	≠	+	≈	≈
Starches						
Rice	≈	≈	-	+	≈	≈
Sago/ Cassava	+	-	+	≠	≈	≈
Maize/ Wheat	≠	+	≠	+	≈	≈

≠: not present
+: higher % than other economic class
-: lower % than other economic class
≈: little to no difference in distribution.

showed some mixed stratigraphy and it was difficult identify the material correlates of chronological horizons, such as the dissolution of slavery, which may have impacted material culture. Thirdly, the paucity of faunal remains impacted the ability to acquire meaningful results for this class of artifacts and diet. The fourth major problem, which occurred during analysis, was the fact that the starch grains present did not adequately match any of the starches in the comparative collection. These problems collectively served to limit my ability to find meaningful results based on the models I had selected for use. Each material class supported different models. Below I review the artifact classes and their relation to the models.

Earthenware proved to be the most numerous artifact class recovered. Three acceptable luminescence dates were acquired, two from Ordatang dating to the Neolithic and one from Komber dating to the Metal Age (see Table 5.x). These dates were useful to establish the shell/ foraminifera temper as dating to the Second Millennium AD and therefore to the late Metal Age. This allowed for a very broad relative chronology for the sites. The earthenware category produced a lot of data, but most of it was unrelated to this project and produced more questions than answers. The overwhelming presence of earthenware at the plantation sites supports both the energetic efficiency and power/ resistance models because it could have been less costly to procure and it could have signaled adherence to pre-colonial traditions. I believe, however, that for earthenware, the power/ resistance model is better fit with contextual information. Ellen (2003) notes that the Dutch had to accept the previously established trading network in the Maluku region and they were unable to every truly establish the kind of trade monopoly that Jan Pieterzoon Coen imagined. Early visitors such as Galvão (Jacobs: 1971) and later authors (e.g., Hanna 1978, Loth1998) note the presence of non-native traders in the Banda Islands, including

Javanese, Chinese, Arab, etc. (e.g., Aveling 1967, Hanna 1978, Valentijn 2002), and these traders were not subjected to the eradication and expulsion that the indigenous Bandanese were in 1621. Therefore, the non-conquered trading partners in the 17th Century and the non-European traders in the Banda Islands were able to maintain their economic independence from the Dutch. When the VOC did gain economic control over other regions in Island Southeast Asia, they were not interested in repeating Coen's conquest strategy and allowed previously established, and profitable, trade to continue (Ricklefs 2001). Winn (2010) also notes that the inability of the Dutch to isolate their enslaved workers from the broader society on the Banda Islands and elsewhere inhibited their ability to create a European-style slave system as seen in North America; the Dutch had to adapt to the pre-colonial Asian system of slavery. In addition, the three plantation sites had slightly different earthenware decoration and distribution; this may be a result of the pre-colonial *Siwa-Lima* regional relationships (e.g., Shiung 2012, Valeri 1989). It is likely that the earthenware was traded amongst favored trading partners based on the unequal distribution of grit-tempered and shell-tempered earthenware at contemporary sites, some of which had known *Siwa-Lima* affiliations. Thus, the maintenance of the pre-colonial trading networks reflected in the earthenware suggests resistance to colonialism. Whatever role earthenware played in the inter-island trading economy, based on the evidence from the Banda Islands plantations, its exchange does not appear to have been significantly disrupted by the conquest of the islands by the Dutch.

Tradeware was an artifact class that had the potential to determine cultural affiliations as China and other mainland Southeast Asian nations exported variable quality high fired wares and, later, European nations also started to produce these wares for home and colony consumption. A predominance of European-made ware would suggest a closer affiliation with these lands. Each plantation site had a different distribution of tradeware, with Ordatang having more Chinese-made ware, Groot Waling had about equal amounts of Chinese- and European-made wares, and Komber had a higher amount of European-made wares (see Figure 6.22). These distributions are most likely explained by the chronology of the sites. That is, Ordatang tends to be older with pre-colonial deposits, Komber's tradeware tends to be late 19th/ early 20th century, and Groot Waling tends to fall in between. The dominance of the European tradeware at Komber may be due to a decrease in available Chinese wares and an increase in available European wares due to global economic forces in the late 19th/ early 20th century (such as the Boxer rebellion and the Chinese Civil War interrupting shipping and production), not necessarily consumer choice. Due to issues of broad date ranges and ambiguous origin, it was difficult to assign a model of best fit to the tradeware category. The mix of different origins suggests creolization. However, the tradeware that does exist is somewhat lower quality; if the plantation inhabitants were limited in ability to acquire higher quality goods this would suggest energetic efficiency. The dominance of European wares may be a result of using colonial symbols of power (and later rejecting them by depositing them in the beach fill deposit at Komber). It's also entirely possible that the social signal of tradeware had changed over time and the mixing of deposits has erased this signal. Tradeware, then, is an ultimately ambiguous signal.

Despite the paucity of faunal remains, the dominance of fish remains with cranial and fin elements suggests the use of whole small reef fish which don't require ocean-going vessel technology or the care requirements of domesticated animals and likely the highest reward for the lowest energy output. The faunal remains therefore probably represent energetic efficiency. Large mammal remains were fragmented, possibly due to scavengers, and difficult to assign to species. However, low quality elements, such as head and feet, were identified at all sites which suggests that the entire animal was present at the sites. Despite taphonomic issues, I am comfortable assigning the results of the faunal analysis to the energetic efficiency model. It is interesting to note that no evidence of pig remains could be securely identified; the lack of pig and the presence of goat does align with Islamic dietary preferences. The presence of dogs at the sites may suggest a more lax prohibition against dogs in the recent past than in the contemporary society. However, the lack of pigs and the presence of goats may be a recent phenomenon, due to taphonomic issues, and not reflective of colonial period food choice. The taphonomic issues also suggest that the faunal remains may be relatively recent, possibly even less than 20 years old. Thus, it may reflect the intermittent use of the *perken* in recent times rather than dietary choices in the colonial period.

The starch analysis also yielded ambiguous results, mainly due to a lack of starches used in the comparative collections being found in the archaeological assemblage. In the few instances when rice was identified on a sherd, other starch grains were also found on the same sherd which suggests creolization. It was common to find multiple Nageli types of starch grains on individual sherds, suggesting a mix of starches which consistent with creolization. No definitive sago starch grains were identified which is odd based on the historical importance of sago. The vast majority of the starches were unidentified. The majority of the sherds produced round grains with a centric hilum around 16-17 μ in diameter which doesn't fit with any of the starches in the comparative collection. It is possible that there was environmental contamination and the starch grains found on the sherds were from plants growing around the sites. This is somewhat unlikely because the sites are in different environments (beach and interior upland forest) and the same plants aren't growing in those environments, from what I observed. However, I am not a botanist and I may be mistaken. It is also possible that there was environmental contaminant from plant processing in and around the plantations; the two main plants discussed as being processed in the Banda Islands are nutmeg and kenari. The unidentified starches didn't match nutmeg, which was included in the comparative collection, and the kenari nut didn't produce starch. The starches also didn't match the usual laboratory contaminants (Crowther et al. 2014). Hundreds of starch grains were found in the analysis, but few of them could be identified. Ultimately, the starch grain analysis leaves us with more questions than answers and a fervent plea for more botanical research to be conducted in the Banda Islands, specifically identifying the economic and dietarily useful plants beyond nutmeg.

Conclusions

This project was conceived as an attempt to explain the ethnogenesis of the Colonial era inhabitants of the Banda Islands by using explanatory models previously used on New World plantations, focusing on changes in ceramic, faunal, and starch grains to identify diet. It was assumed that an ethnogenesis had occurred during the Colonial Period due to a historically described replacement of indigenous Bandanese with imported, enslaved workers and the imposition of an extra-local elite European planter class. However, identifying artifacts that could be linked to the different social classes on the plantation sites proved difficult and identifying changes over time in the material classes was similarly elusive. Without the presence of certain expected materials (i.e., rice and sago starch grains) and without clearly stratified sites, the ethnogenesis of either the workers or the *perkeniers* was impossible to clearly identify or explain. But a few conclusions can still be made and are discussed below.

1. The plantation was not the theater of social negotiation in the Banda Islands.

As noted earlier, plantations were chosen for analysis because they are "microcosms of the colonial…effort… in which racial, class, ethnic, and gender hierarchies were manipulated, contested, and transformed" (Stoler 1985:2). The material culture found at the plantations in the Banda Islands do not reflect the manipulation, contestation, and transformation of social identities. Reid (1983a, 1983b) claimed that the Banda Island plantations were analogous to New World plantations with their imported and enslaved labor, but the similarity seems somewhat superficial. The small size of the individual islands and remote location created a unique position with regards to control over the laboring population compared to New World locations. While escapism as a concern shortly after the Dutch conquest in 1621, as surviving Bandanese would attempt rescue (Hanna 1978), the concern seems to have diminished over time. In contrast, enslaved workers had some wilderness into which to escape on the continents. Escaped slaves in the American Southeast, Brazil, and other places were able to join with Native American groups and maintain viable populations outside the reach of the dominant hegemony (e.g., Marshall 2015, Orser and Funari 2001, Weik 2009). In the Banda Islands, unless they had possession of an ocean-going vessel, workers had little alternative but to stay put. While workers on the continents of the New World were able to escape into large swathes of lands with low population density, the lack of near-by land proved prohibitive to any enslaved worker desiring freedom on Banda. Hanna (1978) also notes that *perkeniers* would allow certain enslaved workers to engage in trading expeditions to other islands, but does not mention these voyages being a used as escape voyages.

It is possible that enslaved workers were not fleeing because they had a higher degree of freedom and autonomy than those in the New World. If the *perkeniers* maintained an Asian-style of slavery, as Winn (2010) suggests, workers likely maintained residences outside plantations and were not subject to a high degree of observation and limited movement. Workers may have only stayed within the plantation walls during harvest time. Certainly, that is the assumption in *Mirah of Banda* (Rambe 2010), a fictionalized and highly romanticized account of the late colonial and post-colonial periods on the Banda

Islands. Workers would have been unable to escape the islands, but would have been able to maintain their own household (Reid 1983b), their own gardens (Hanna 1978), and would have engaged in community building activities (Winn 2010). The lack of permanent residence within the plantations may explain the lack of subsistence remains found. Workers could have eaten in the field while working or at home. As most *perkeniers* owned multiple *perken* and maintained a residence in Banda Neira (Hanna 1978), their subsistence remains are also unlikely to be found at the perks. Historic photos and extant ruins show that houses existed at the perks, but these may have been a combination of administration and storage in addition to temporary living quarters. Excavations at the living quarters of enslaved workers at the Kingsmill Plantation in Virginia indicate that workers would hide personal belongings under house floor (Kelso 1984:114-120). Evidence of surreptitious use of plantation space was lacking at the Banda plantations excavated. It is possible that this can be attributed to personal space being available outside the plantation. If one has a home to go home to, one need not hide personal belongings at the plantation. Hanna (1978) does note that workers were allowed free time to work gardens to help supplement their meager food allowance. What else were workers allowed/ encouraged to do? Certainly enslaved workers in the New World were allowed to work for others and either keep their earnings or share that wage with their legal owner. It's not unlikely that workers not harvesting nutmeg might also be allowed to fish or engage in activities that would bring profit to their associated perkenier during the off season. This labor may even have brought prestige to the associated *perkenier* according to the Asian traditions of indentured servitude (Reid 1983b).

Additionally, few European elite artifacts were identified at the plantation sites. In comparison to known elite residences excavated on Banda Neira, the amount of European artifacts found at the plantations is sparse. The material culture distribution more closely aligns to pre-colonial or colonial era village sites. The lack of pipe stems at the *perken*, in comparison to the Governor's Mansion in Banda Neira, is very telling. Tobacco smoking was brought by the Europeans to the islands and likely remained an elite, expensive habit. If high numbers of Europeans resided at the *perken*, like it is known resided at the Governor's mansion, this would be reflected in the presence of pipe stems. It is not. Concurrently, few other specifically European artifacts were found in comparison to indigenous wares. European porcelains do not out number Asian porcelain and tradeware. The low number of specifically European artifacts at the perks indicates a lack of desire to signal "European-ness" at the perk locations. While signaling this would be associated with power, it's possible that the lack of social signaling can be attributed to lack of European presence at the perks. That is, the *perkeniers* remained in Banda Neira, living off the profits of the perk while overseers controlled daily operations. The overseers may not have been able to afford to signal power with European-associated artifacts like smoking pipes or they may have had been more effective at signaling power by using Asian-associated material culture. The similarity in ceramics before and after colonialization suggests that the imposition of European rule on the Banda Islands did not have a major impact on the trade networks in the greater Maluku region.

Where, then (if anywhere), did negotiation of social boundaries occur if not the plantations? Future research could explore forts, villages, markets, or plantations on other islands. Banda Neira was inter-visible from all excavated plantation sites. It was easy for me to sleep on Banda Neira, spend the day working on Banda Besar, and return home in time for dinner and a spot of artifact analysis before bed. It is theoretically possible to swim from Banda Neira to Banda Besar, had I a more adventurous spirit and wasn't afraid of being run over by a boat. Even in the days before motor boats, if the wind wasn't co-operating, rowing between the islands would have been relatively easy. It might have been too easy, then, to just go back to Banda Neira at the end of the day and Europeans didn't spend a lot of time on at the plantations Banda Besar, specifically. It is possible, then, that the more remote islands of Run or Ay, or even the plantations on the other side of Banda Besar, would have different levels of European material culture. The many forts in the Banda Islands may also show different levels of social interaction. Soldiers for the VOC were taken from all over the empire, including India, and complete garrisons from other Indonesian islands (Hanna 1978), so ethnogenesis may be evident in these locations. Evidence for ethnogenesis may also be available in the market town of Banda Neira. Excavating elite houses and comparing them to non-elite residences may yield more information on how social negotiations occurred in the colonial period.

2. *Despite location on same island and similar environments, each plantation had a different historical trajectory.*

The plantations are often homogenized in historic records and descriptions, if they are mentioned at all. However, each plantation excavated had slightly different material culture: Ordatang had older earthenware and little recent European transferware; Groot Waling had a replacement of the older grit-tempered earthenware with the foraminifera-tempered earthenware from Ambon-Lease; Komber had more European transferware and red-and-white painted earthenware not seen at other sites. Despite their close location to each other and presumably the same access to trade goods at Banda Neira, the plantations do not yield the same material culture. The inhabitants of the sites may have had differential access to trade partners due to a *Siwa-Lima* relationship with other villages. If this is the case, it makes a stronger argument for the retention of pre-colonial Malukan traditions than European historic records allow. The maintenance of these pre-colonial trade relations also suggest that the *perkeniers* were either engaged in these relations or turned a blind eye to these connections, likely because it proved profitable to them. Both Dutch and English records mention perkeniers being engaged in extra-company trade and using enslaved workers to engage in this trade (Hanna 1978, Winn 2010). More excavations at other plantation sites and other site types could provide additional information on the adaptation to colonialism in the Banda Islands.

3. *Change in material culture appears to be associated with the rise of the spice trade and not European colonialism.*

The major change noted in material culture was the change from grit-tempered earthenware to shell/ foramifera tempered earthenware. The only shell-tempered sherd that yielded a luminescence date was around AD 660-1080 and the increase in the regional spice trade is assumed to have occurred around the early 2nd Millennium AD based on the presence of Malukan spices in Chinese, Indian, and European records (e.g., Ptak 1992, Andaya 1993, Shiung 2012). It would be helpful to have more secure dates for this pottery and additional data on the potential sources and distribution of this temper, but the one luminescence date and assumed source in Ambon-Lease suggests the Banda Islands are being drawn into the larger trading world in the early 2nd Millennium AD, consistent with historic records. Whether the islands were already exporting nutmeg in large quantities at this time is unknown.

A minor change in material culture is the apparent reduction in tradeware in the late 19th/ early 20th century. This reduction may be partially due to analyst bias in that mid-19th wares were easier for me to identify. I was unable to date plainware and many small sherds with unidentifiable designs and these may have been imported later. However, the Banda Islands had lost their monopoly on nutmeg in the late 1800s, slavery was abolished in 1860, and the European desire for nutmeg had waned in general (Hanna 1978). That meant that perkeniers had to pay more for workers and were making less profit on the nutmeg. The late 19th/ early 20th century is also when many *perkeniers* abandoned the islands and the *perken* were taken over by local Arab or Chinese traders (Hanna 1978). It is possible that the reduction in tradeware was a result of the economic depression that occurred at this time. However, China was experiencing social upheaval in the late 19th/ early 20th century and this may have impacted the production and export of tradeware, leading residents to import more European-made tradeware.

In general, the lack of any significant changes in material culture at the *perken* from the pre-colonial period supports Ellen's (2003) supposition that Europeans had to adapt to previously established Malukan lifeways and trade routes, instead of changing them, to survive. The population of the Banda Islands trading class was never limited to Europeans. Chinese, Javanese, Arab, or other traders have been noted in most available censuses (e.g., Aveling 1967, Hanna 1978, Valentijn 2002) These established traders probably influenced the available material culture more than European historic records have noted. While many of these local-but-not-indigenous traders were at least as wealthy as the perkeniers, if not more so according to Hanna (1978), they would not have had the same tastes in elite objects as the European perkeniers and their signature might not be obvious in the archaeological record.

4. *There were multiple different ways to adapt to colonialism.*

Due to a variety of reasons, the dominant narrative in colonialism in one of European conquest and domination, both cultural and military. But that is not the story for the Banda Islands. That's not even the story for many of the New World colonies, at least not at first. Certainly, the initial Jamestown colony in the US was incapable of conquest and domination. A mixed mestizo or Creole class arose in many

Spanish and French colonies. Different colonies had different trajectories for a variety of reasons. Despite the initial violent conquest of the Banda Islands, the Dutch seemed to have little lasting cultural influence, the language spoken in the Banda Islands is Malay-based and the current culture is more influenced by the Javanese culture in modern Indonesia than that of the past Dutch. There are myriad reasons for this. However, there is also very little noticeable Dutch or European influence in the material culture of the plantations. A few pieces of Maastricht-made and English porcelain, a few pipe stems, and gin bottles are all that were found at the plantations. The Dutch influence was fleeting and ephemeral, at least in the material culture, despite their existence on the islands for over 300 years.

It is important to identify contradictions in the dominant narrative of European superiority in colonialism. It is a racist presumption but it is still one that is difficult to fight in our modern globalized world where European nations still have economic and cultural clout. Each episode of colonization by European powers, be it in North or South America, Asia, Africa, or Australia was unique. No episode of conquest was pre-ordained or pre-determined. It is important, then, to note the episodes where the conquest was incomplete, at least culturally, as it appears to have been in the Banda Islands. The VOC may have taken over governance from the *orang kaya*s, but they couldn't ensure a trade monopoly on spices, the *perkeniers* engaged in illicit trade, non-VOC employees continued trading on the islands, trade routes weren't interrupted, and the *perkeniers* were dependent on this trade for survival (e.g., Ellen 2003, Hanna 1978, Winn 2010). In the case of the Banda Islands, it appears the Europeans needed to adapt to survive which allowed for the retention of pre-colonial material culture during the Colonial Period. Colonial era visitors describe the use of the pre-colonial fleets of local boats by village inhabitants as a means of welcome or a show of strength (Hanna 1978:106) (Figure 9.1). Winn (2010) describes the incorporation of the Dutch elite into traditional well-cleaning ceremonies prior to WWII. Early 20th century photos show the performance of a pre-colonial *cakalele* war dance (Figure 9.2) and Hanna (1978:106) mentions its use in the welcome ceremonies for a Governor General in 1860. Even though the population was decimated, the European culture never dominated the Banda Islands like it did in areas with plantations in the New World, such as the Southeastern United States or the Caribbean where dances and pre-slavery traditions were outlawed (e.g., Rucker 2003). The Banda Islands were remote, but they were not completely isolated and they were engaged in a vibrant long distance trade network. I think the lack of European goods at the plantations was due to a lack of desire for them. Certainly Lape (2000b) found pipe stems in prolific amounts at the elite locations in Banda Neira. But the plantations on the Banda Besar do not appear to be a location of European dominance in material culture, and presumably, political or cultural dominance. For colonial plantation sites, this is somewhat unusual.



Figure 9.1 *Kora-kora* war boats celebrating Queen Wilhelmina's jubilee in 1923. Troppen Museum, TM-10001677.



Figure 9.2 Cakalele war dance, c. 1860-1920, Banda Neira. Kern Photography Collection, Museum of Ethnology A94-1-31.

5. *Multiple lines of evidence and multiple working can be confusing but are ultimately more informative than one*.

Chamberlin (1965) called for the use of multiple working hypotheses in scientific inquiry, but this tends to be a difficult and time consuming way to investigate scientific phenomena. The three different explanatory models and three artifact classes I used proved to tell three different stories. However, individually they would not have been as useful. I interpreted the earthenware ceramics as supporting a resistance to colonialism, the tradeware ceramics were ambiguous, the faunal remains suggested energetic efficiency, and the starch grain analysis suggested creolization (possibly). If only one material culture class had been investigated, the story would be skewed. If I had only tested one model, I would not have been able to determine that the models developed in the New World to explain culture history on plantations don't work very well in the Banda Islands and that the assumed similarities between the New World plantations and the Banda Island plantations were unrealistic. Reid's (1983a, 1983b) and Hanna's (1978) more traditional presentation of the Banda Islands as a wholly conquered colony and plantation society is not supported in Winn's (2010) more recent ethnographies, so there is certainly debate about the nature of the Bandanese colonial society in the literature. Post-colonial writing is often critical of the presentation of European dominance during the colonial periods of different nations (e.g., Spivak 1999) and the Banda Islands are no different.

In addition to contradictory artifact classes, historic records don't tell the whole story. Historic records are notoriously incomplete when it comes to the non-elite in any society and non-Europeans in European colonies. This is not new information. But the starch grain analysis predictions were heavily based on historic records and none of the historically recorded starches were found in significant numbers. Earthenware was the artifact class recovered in the highest numbers, but historic records tend to ignore earthenware, despite its ubiquity in archaeological sites. Earthenware was not deemed worthy of mention in historical description of the Banda Islands or Maluku in general (see Ellen and Glover 1974). The description by Galvão (Jacobs 1971:141) that Malukans made "little use of pots" is somewhat belied by the archaeological record. The largest artifact class has the least mention in historic records. Using historic records as a basis for the predictions for each of the models proved to be problematic and confusing when it came to interpreting the results due to the lack of overlap.

The interpretation of archaeological data is notoriously problematic and the appropriate form of establishing a link between data and interpretations- be it a hypothetico-deductive, hermeneutic, or other approach- has been the subject of many publications (e.g., Binford 1977, Fritz and Plog 1970, Hodder 1991, Hodder 1999, Watson et al. 1971). However, this is not the place to discuss an overview of the last 40 years of archaeological theory. Suffice it to say, despite the difficulties in testing multiple models with multiple artifact classes and a resulting lack of definite conclusions, I think this *modus operandi* is a useful endeavor. As Wylie (2002:126) notes "these tensions can make it possible to play evidential and conceptual resources off against one another in a way that may not guarantee convergence on a single

truth but can provide grounds for assessing degrees of plausibility and for rejecting (sometimes decisively) a good many alternatives."

6. *More work needs to be done.*

Again, it is unsurprising to call for additional research when one's models don't fit one's data. However, Island Southeast Asia is an under-studied part of the world and the post-Lapita era is especially under-studied in the region. Sourcing and dating of regional earthenware would provide more information on the timing of the spice trade and routes that material may have taken. Additional residue analysis could explain what earthenware pots were used for. Environmental studies on locally available plants in the Banda Islands may yield information on the potential identity of the starch grains. Additionally, the Banda Islands have the potential for identifying adaptations to local catastrophes with the relatively frequent volcanic eruptions, earthquakes, and tsunamis.

Despite the lack of a clean and clear story of ethnogenesis in the Banda Islands based on the material culture of plantation sites, this project was not a failure. The discipline of archaeology could not advance without projects that left more questions than answers, such as this one. The fact that models developed to explain plantations in the New World cannot be extrapolated to Asian plantations is new information that can be tested against more data. Perhaps plantations in the Philippines or India do fit New World models. Or perhaps the later, more controlled plantations described by Stoler (1985) but staffed by wage laborers better fit the models developed for enslaved workers. The data's inability to fit the models produces a plethora of questions that could guide future research both within and outside the Banda Islands. The Banda Islands are a unique place, both geographically and in World History, and they have the potential to elucidate many different archaeological questions and problems.

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Appendix A

Fieldwork Photographs

Ordatang

Fieldwork Photographs

Ordatang Overviews Photograph Log

1 view of foundation, S
2 ruined ext. wall, N
3 front stairs, main house (w. KD Lonthor), S
4 rumah kebun from NW corner ext wall, W
5 NW corner of ext wall from rumah kebun, E
6 ext wall and main house, E
7 ext wall and nutmeg shed, E
8 ext wall and nutmeg shed, plus edge of terrace, E
9 terracing with path in the middle in front of ext E wall, N
10 SW corner of wall, nutmeg shed, retaining wall, E
11 Ext S wall and nutmeg shed, retataining wall, E
12 ext wall, nutmeg shed, s side, N
13 S ext wall, N
14 SE corner, ext wall, NW
15 E ext wall, W
16 NE ext wall w kenari tree, W
17 N wall, W
18 stairs to main house, S
19 entrance to perek at edge of perek looking S
20 at entrance to perk looking W, north bldg
21 entrance to perek, east wall w kenari tree, E
22 N perek wall, near 49 W
23 perek wall remains
24 Neira from OR
25 from stairs into house W
26 OR perek wall, N
27 mandi in north structure
28 wall of n structure, N
29 gadiha plants near OR-83
30 pala shed, E
31 wall near OR-85, W
32 northern structure, W
33 interior of 1st room
34 NE corner, looking S
35 across yard w nutmeg shed SW
36 close up collapsed wall. E
37 nutmeg shed damage
38 nutmeg shed damage
39 nutmeg shed damage
40 OR north bldg, kitchen
41 OR north bldg, porch
42 OR north bldg, kitchen
43 OR north bldg, room next to kitchen
44 OR north bldg, kenari trees
45 OR north bldg, ruined wall
46 OR north bldg, mandi
47 OR north bldg, twd E
48 OR north gate
49 BN from OR north gate
50 BN from OR north gate
51 OR interior plants
52 OR east bldg
53 OR east bldg
54 OR east bldg wall
55 OR east bldg, by unit 1
56 OR east bldg, twd S
57 OR east bldg
58 OR nutmeg shed
59 root outside S entrance, w ceramics
60 nutmeg shed w glass windows
61 road outside OR
62 cut road outside OR
63 pala trees W of OR
64 trees at OR
65 OR banana trees at west gate
66 OR main road to W gate
67 OR west gate strairs
68 OR rumah kebun
69 OR rumah kebun, artifacts on surface
70 OR rumah kebun, artifacts on surface
71 OR rumah kebun
72 OR rumah kebun, artifacts
73 OR rumah kebun, artifacts
74 OR, E from rumah kebun, slope
75 OR, E from rumah kebun
76 OR, looking downslope from RK
77 outside wall, looking into house
78 rumah inside wall
79 OR stairs to house
80 OR, looking into house, E
81 OR looking into house
82 OR, back of house looking in, W
83 OR, house
84 OR, back porch
85 OR, stairs
86 OR, lookking into house from porch
87 OR, back porch
88 OR, north bldg from porch
89 OR, pala shed from porch
90 OR, plaster sloughing from house wall
91 OR, unit 3 from porch
92 OR, unit 3 from porch


92 OR, unit 3 from porch


1 view of foundation, S


2 ruined ext. wall, N


stairs, main house (w. KD Lon


ıh kebun from NW corner ext v


ɔrner of ext wall from rumah k


6 ext wall and main house, E


7 ext wall and nutmeg shed, E


ınd nutmeg shed, plus edge of


th path in the middle in front of


ıer of wall, nutmeg shed, retaii


/all and nutmeg shed, retataini


ext wall, nutmeg shed, s side,


13 S ext wall, N


14 SE corner, ext wall, NW


15 E ext wall, W


16 NE ext wall w kenari tree, W


17 N wall, W


18 stairs to main house, S


ıce to perek at edge of perek I


ntrance to perk looking W, nor


ıce to perek, east wall w kena


22 N perek wall, near 49 W


23 perek wall remains


24 Neira from OR


25 from stairs into house W


26 OR perek wall, N


27 mandi in north structure


28 wall of n structure, N


29 gadiha plants near OR-83


30 pala shed, E


31 wall near OR-85, W


32 northern structure, W


33 interior of 1st room


34 NE corner, looking S


across yard w nutmeg shed S


36 close up collapsed wall. E


37 nutmeg shed damage


38 nutmeg shed damage


39 nutmeg shed damage


40 OR north bldg, kitchen


41 OR north bldg, porch


42 OR north bldg, kitchen


)R north bldg, room next to kit


44 OR north bldg, kenari trees


45 OR north bldg, ruined wall


46 OR north bldg, mandi


47 OR north bldg, twd E


48 OR north gate


49 BN from OR north gate


50 BN from OR north gate


51 OR interior plants


52 OR east bldg


53 OR east bldg


54 OR east bldg wall


55 OR east bldg, by unit 1


56 OR east bldg, twd S


57 OR east bldg


58 OR nutmeg shed


)ot outside S entrance, w cera


) nutmeg shed w glass windov


61 road outside OR


62 cut road outside OR


63 pala trees W of OR


64 trees at OR


5 OR banana trees at west ga


66 OR main road to W gate


67 OR west gate strairs


68 OR rumah kebun


R rumah kebun, artifacts on su



R rumah kebun, artifacts on su



71 OR rumah kebun



72 OR rumah kebun, artifacts



73 OR rumah kebun, artifacts



OR, E from rumah kebun, slo



75 OR, E from rumah kebun



OR, looking downslope from F



outside wall, looking into hou



78 rumah inside wall



79 OR stairs to house



80 OR, looking into house, E



81 OR looking into house



OR, back of house looking in,



83 OR, house



84 OR, back porch



85 OR, stairs



OR, lookking into house from p



87 OR, back porch



88 OR, north bldg from porch



89 OR, pala shed from porch



R, plaster sloughing from hous



91 OR, unit 3 from porch

Ordatang Auger Probe Photograph Log

- 3.24.01 OR-1
- 3.24.02 OR-2
- 3.24.03 OR-3
- 3.24.04 OR-4
- 3.24.05 OR-5
- 3.24.06 OR-6
- 3.24.07 OR-7, before exc
- 3.24.08 OR-7
- 3.24.09 OR-8
- 3.24.10 OR-9
- 3.24.11 OR-10
- 3.24.12 OR-10
- 3.24.13 OR-11
- 3.24.14 OR-12
- 3.24.15 OR-13
- 3.24.16 OR-14
- 3.24.17 OR-15
- 3.24.18 OR-16
- 3.24.19 OR-17
- 3.24.20 OR-18
- 3.24.21 OR-19
- 3.24.22 OR-20
- 3.24.23 OR-21
- 3.24.24 OR-22
- 3.28.01 OR-23
- 3.28.02 OR 24
- 3.28.03 OR 25
- 3.28.04 OR-25
- 3.28.05 OR-26
- 3.28.06 OR-27
- 3.28.07 OR-27
- 3.28.08 OR-28
- 3.28.09 OR-29
- 3.28.10 OR-29
- 3.28.11 OR-29
- 3.28.12 OR-30
- 3.28.13 OR-31
- 3.28.14 OR-32
- 3.28.15 OR-33
- 3.28.16 OR-34
- 3.28.17 OR-35
- 3.28.18 OR-35
- 3.28.19 OR-36
- 3.28.20 OR-36
- 3.28.21 OR-37
- 3.28.22 OR-37
- 3.28.23 OR-38
- 3.28.24 OR-39
- 3.28.25 OR-39
- 3.28.26 OR-40
- 3.28.27 OR-40
- 3.28.28 OR-41
- 3.28.29 OR-42
- 3.28.30 OR-43
- 3.28.31 OR-44
- 3.28.32 N corner of perek, looking SE
- 3.28.33 OR 45
- 3.29.04 OR-46
- 3.29.05 OR-46
- 3.29.06 OR-47
- 3.29.07 OR-47
- 3.29.08 OR-47
- 3.29.09 OR-48
- 3.29.10 OR-49
- 3.29.13 OR-50
- 3.29.14 OR-51
- 3.29.15 OR-52
- 3.29.16 OR-53
- 3.29.17 OR-54
- 3.29.18 OR-55
- 3.29.20 OR-56
- 3.29.21 OR-56
- 3.29.22 OR-56
- 3.29.23 OR-56
- 3.29.24 OR-56
- 3.29.26 OR-57
- 3.29.27 OR-58
- 3.29.28 OR-58
- 3.29.29 OR-59
- 3.29.30 OR-60
- 3.29.31 OR-61
- 3.29.32 OR-62
- 3.29.33 OR-63
- 3.29.34 OR-64
- 3.29.35 OR-64
- 3.29.36 OR-64
- 3.30.02 OR-66
- 3.30.03 OR-67
- 3.30.04 OR-67
- 3.30.05 oR-68
- 3.30.06 OR-68
- 3.30.07 OR-69
- 3.30.08 OR-69
- 3.30.09 OR-69
- 3.30.10 OR-70
- 3.30.11 OR-71
- 3.30.12 OR-72
- 3.30.13 OR-72
- 3.30.14 OR-73
- 3.30.15 OR-74
- 3.30.18 OR-75
- 3.30.19 OR-76
- 3.30.20 OR-77
- 3.30.21 OR-77
- 3.30.22 OR-78
- 3.30.23 OR-79
- 3.30.24 OR-80
- 3.30.25 OR-80
- 3.30.26 OR-81
- 3.30.27 OR-82
- 3.30.28 OR-82
- 3.30.29 OR-82
- 3.30.31 OR-83
- 3.30.33 OR-84
- 3.30.35 OR-85
- 3.30.37 OR-65
- 3.30.38 OR-65
- 3.31.01 OR-87
- 3.31.02 OR-87
- 3.31.03 OR-87
- 3.31.04 OR-88
- 3.31.05 OR-88
- 3.31.06 OR-88
- 3.31.07 OR-89
- 3.31.08 OR-89
- 3.31.09 OR-89
- 3.31.10 OR-90
- 3.31.11 OR-90
- 3.31.12 OR-91
- 3.31.13 OR-91
- 3.31.17 OR-92
- 3.31.18 OR-92
- 3.31.19 OR-93
- 3.31.20 OR-93
- 3.31.21 OR-94
- 3.31.22 OR-95
- 3.31.23 OR-96
- 3.31.24 OR-97
- 3.31.25 OR-98
- 3.31.26 OR-99
- 3.31.27 OR-99 overview
- 3.31.28 OR-100
- 3.31.29 OR-101
- 3.31.30 OR-101
- 3.31.31 tree by OR-102, W
- 3.31.32 tree by OR-102, W
- 3.31.33 OR-102
- 3.31.34 OR-103



3.31.34 OR-103



3.24.01 OR-1



3.24.02 OR-2



3.24.03 OR-3



3.24.04 OR-4



3.24.05 OR-5



3.24.06 OR-6



3.24.07 OR-7, before exc



3.24.08 OR-7



3.24.09 OR-8



3.24.10 OR-9



3.24.11 OR-10



3.24.12 OR-10



3.24.13 OR-11



3.24.14 OR-12



3.24.15 OR-13



3.24.16 OR-14



3.24.17 OR-15



3.24.18 OR-16



3.24.19 OR-17



3.24.20 OR-18



3.24.21 OR-19



3.24.22 OR-20



3.24.23 OR-21



3.24.24 OR-22



3.28.01 OR-23



3.28.02 OR 24



3.28.03 OR 25



3.28.04 OR-25



3.28.05 OR-26



3.28.06 OR-27



3.28.07 OR-27



3.28.08 OR-28



3.28.09 OR-29



3.28.10 OR-29



3.28.11 OR-29



3.28.12 OR-30



3.28.13 OR-31



3.28.14 OR-32



3.28.15 OR-33



3.28.16 OR-34



3.28.17 OR-35



3.28.18 OR-35



3.28.19 OR-36



3.28.20 OR-36



3.28.21 OR-37



3.28.22 OR-37



3.28.23 OR-38



3.28.24 OR-39



3.28.25 OR-39



3.28.26 OR-40



3.28.27 OR-40



3.28.28 OR-41



3.28.29 OR-42



3.28.30 OR-43



3.28.31 OR-44



.32 N corner of perek, looking



3.28.33 OR 45



3.29.04 OR-46



3.29.05 OR-46



3.29.06 OR-47



3.29.07 OR-47



3.29.08 OR-47



3.29.09 OR-48



3.29.10 OR-49



3.29.13 OR-50



3.29.14 OR-51



3.29.15 OR-52



3.29.16 OR-53



3.29.17 OR-54


3.29.18 OR-55


3.29.20 OR-56


3.29.21 OR-56


3.29.22 OR-56


3.29.23 OR-56


3.29.24 OR-56


3.29.26 OR-57


3.29.27 OR-58


3.29.28 OR-58


3.29.29 OR-59


3.29.30 OR-60


3.29.31 OR-61


3.29.32 OR-62


3.29.33 OR-63


3.29.34 OR-64


3.29.35 OR-64

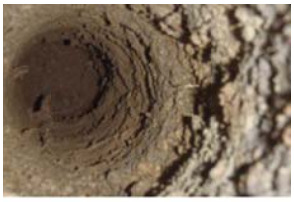

3.29.36 OR-64


3.30.02 OR-66


3.30.03 OR-67

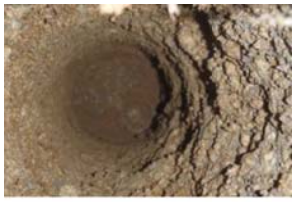

3.30.04 OR-67


3.30.05 oR-68


3.30.06 OR-68


3.30.07 OR-69


3.30.08 OR-69


3.30.09 OR-69


3.30.10 OR-70


3.30.11 OR-71


3.30.12 OR-72


3.30.13 OR-72


3.30.14 OR-73


3.30.15 OR-74


3.30.18 OR-75


3.30.19 OR-76


3.30.20 OR-77


3.30.21 OR-77


3.30.22 OR-78


3.30.23 OR-79


3.30.24 OR-80


3.30.25 OR-80


3.30.26 OR-81


3.30.27 OR-82


3.30.28 OR-82


3.30.29 OR-82


3.30.31 OR-83

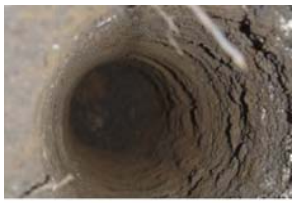

3.30.33 OR-84


3.30.35 OR-85


3.30.37 OR-65


3.30.38 OR-65

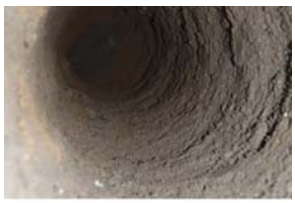

3.31.01 OR-87


3.31.02 OR-87


3.31.03 OR-87


3.31.04 OR-88


3.31.05 OR-88


3.31.06 OR-88


3.31.07 OR-89


3.31.08 OR-89


3.31.09 OR-89


3.31.10 OR-90


3.31.11 OR-90

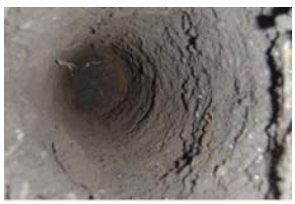

3.31.12 OR-91


3.31.13 OR-91


3.31.17 OR-92


3.31.18 OR-92


3.31.19 OR-93


3.31.20 OR-93


3.31.21 OR-94


3.31.22 OR-95


3.31.23 OR-96


3.31.24 OR-97


3.31.25 OR-98



3.31.26 OR-99



3.31.27 OR-99 overview



3.31.28 OR-100



3.31.29 OR-101



3.31.30 OR-101



3.31.31 tree by OR-102, W



3.31.32 tree by OR-102, W



3.31.33 OR-102

Ordatang Unit 1 Photograph Log

1. OR-Unit 1 Surface
2. OR-Unit 1 NE 0-10 cm
3. OR-Unit 1 NE 0-10 cm
4. OR-Unit 1 SE 0-10 cm
5. OR-Unit 1 SE 0-10 cm
6. OR-Unit 1 NW 0-10 cm overview
7. OR-Unit 1 NW 0-10 cm close up
8. OR-Unit 1 SW 0-10 cm
9. OR-Unit 1 SW 0-10 cm
10. OR-Unit 1 NE 10-20 cm
11. OR-Unit 1 NE 10-20 cm
12. OR- Unit 1 NE 10-20 cm
13. OR-Unit 1 SE 10-20 cm
14. OR-Unit 1 SE 10-20 cm
15. OR-Unit 1 SW 10-20 cm
16. OR-Unit 1 SW 10-20 cm
17. OR-Unit 1 NW 10-20 cm
18. OR-Unit 1 NW 10-20 cm
19. OR-Unit 1 NE 20-30 cm
20. OR-Unit 1 NE 20-30 cm
21. OR-Unit 1 SE 20-30 cm
22. OR-Unit 1 SE 20-30 cm
23. OR-Unit 1 SE 20-30 cm
24. OR-Unit 1 SE 20-30 cm
25. OR-Unit 1 SW 20-30 cm
26. OR-Unit 1 SW 20-30 cm
27. OR-Unit SW 20-30 cm
28. OR-Unit 1 SW 20-30 cm
29. OR-Unit 1 SW 20-30 cm
30. OR-Unit 1 NW 20-30 cm
31. OR-Unit 1 NW 20-30 cm
32. OR-Unit 1 NW 20-30 cm
33. OR-Unit 1 NW 20-30 cm
34. OR-Unit 1 NE 30-40 cm
35. OR-Unit 1 NE 30-40 cm
36. OR-Unit 1 NE 30-40 cm
37. OR-Unit 1 SE 30-40 cm
38. OR-Unit 1 SE 30-40 cm
39. OR-Unit 1 SE 30-40 cm
40. OR-Unit 1 SW 30-40 cm
41. OR-Unit 1 SW 30-40 cm
42. OR-Unit 1 SW 30-40 cm
43. OR-Unit 1 NW 30-40 cm
44. OR-Unit 1 NW 30-40 cm
45. OR-Unit 1 NW 30-40 cm
46. OR-Unit 1 NW 30-40 cm
47. OR-Unit 1 NW 30-40 cm
48. OR-Unit 1 NE 40-50 cm
49. OR-Unit 1 NE 40-50 cm
50. OR-Unit 1 NE 50-60 cm
51. OR-Unit 1 NE 50-60 cm
52. OR-Unit 1 NE 60-70 cm
52.2 OR Unit 1 NE quad close up
53. OR-Unit 1 NE 70-80 cm
54 OR Unit 1 NE 70-80 cm
55 OR Unit 1 NE 70-80 cm
56. OR-Unit 1 NE 80-90 cm
57. OR-Unit 1 NE 80-90 cm
58. OR Unit 1 NE 80-90 cm, east wall
59 OR Unit 1 NE 80-90 cm
60. Or-Unit 1 90-100 cm north wall
61. OR-Unit 1 90-100 cm east wall
62. OR-Unit 1 90-100 cm
63. OR-Unit 1 profile north wall
64 OR Unit 1 profile, east wall


64 OR Unit 1 profile, east wall


1. OR-Unit 1 Surface


2. OR-Unit 1 NE 0-10 cm


3. OR-Unit 1 NE 0-10 cm


4. OR-Unit 1 SE 0-10 cm


5. OR-Unit 1 SE 0-10 cm


OR-Unit 1 NW 0-10 cm overvi


OR-Unit 1 NW 0-10 cm close


8. OR-Unit 1 SW 0-10 cm


9. OR-Unit 1 SW 0-10 cm


10. OR-Unit 1 NE 10-20 cm


11. OR-Unit 1 NE 10-20 cm


12. OR- Unit 1 NE 10-20 cm


13. OR-Unit 1 SE 10-20 cm


14. OR-Unit 1 SE 10-20 cm

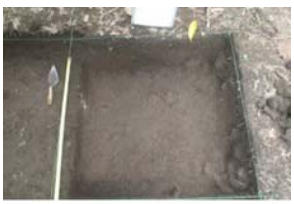

15. OR-Unit 1 SW 10-20 cm


16. OR-Unit 1 SW 10-20 cm


17. OR-Unit 1 NW 10-20 cm


18. OR-Unit 1 NW 10-20 cm


19. OR-Unit 1 NE 20-30 cm


20. OR-Unit 1 NE 20-30 cm


21. OR-Unit 1 SE 20-30 cm

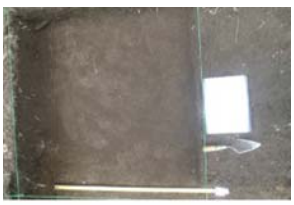

22. OR-Unit 1 SE 20-30 cm

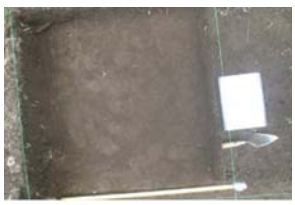

23. OR-Unit 1 SE 20-30 cm

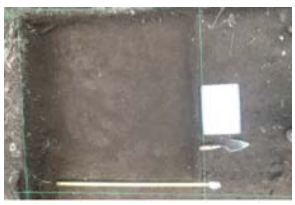

24. OR-Unit 1 SE 20-30 cm


25. OR-Unit 1 SW 20-30 cm


26. OR-Unit 1 SW 20-30 cm

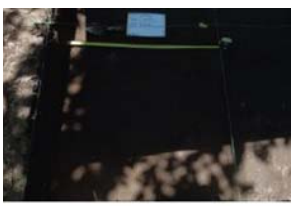

27. OR-Unit SW 20-30 cm


28. OR-Unit 1 SW 20-30 cm


29. OR-Unit 1 SW 20-30 cm


30. OR-Unit 1 NW 20-30 cm

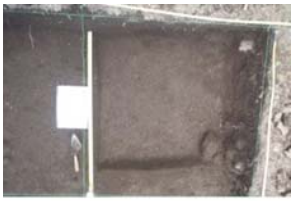

31. OR-Unit 1 NW 20-30 cm


32. OR-Unit 1 NW 20-30 cm

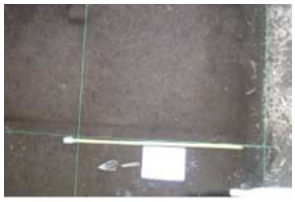

33. OR-Unit 1 NW 20-30 cm

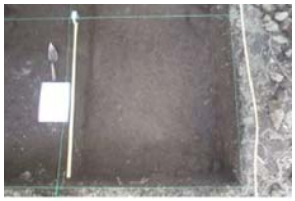

34. OR-Unit 1 NE 30-40 cm


35. OR-Unit 1 NE 30-40 cm


36. OR-Unit 1 NE 30-40 cm

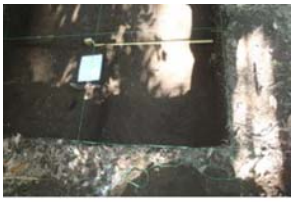

37. OR-Unit 1 SE 30-40 cm


38. OR-Unit 1 SE 30-40 cm


39. OR-Unit 1 SE 30-40 cm

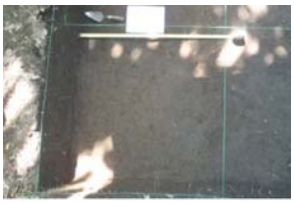

40. OR-Unit 1 SW 30-40 cm


41. OR-Unit 1 SW 30-40 cm

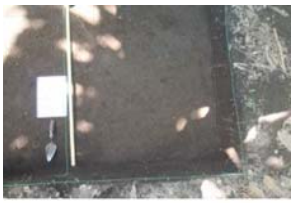

42. OR-Unit 1 SW 30-40 cm


43. OR-Unit 1 NW 30-40 cm


44. OR-Unit 1 NW 30-40 cm


45. OR-Unit 1 NW 30-40 cm


46. OR-Unit 1 NW 30-40 cm


47. OR-Unit 1 NW 30-40 cm


48. OR-Unit 1 NE 40-50 cm


49. OR-Unit 1 NE 40-50 cm

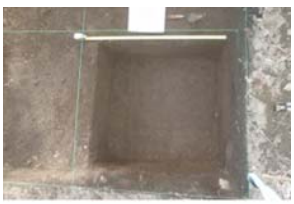

50. OR-Unit 1 NE 50-60 cm


51. OR-Unit 1 NE 50-60 cm


52. OR-Unit 1 NE 60-70 cm


2.2 OR Unit 1 NE quad close u


53. OR-Unit 1 NE 70-80 cm


54 OR Unit 1 NE 70-80 cm


55 OR Unit 1 NE 70-80 cm


56. OR-Unit 1 NE 80-90 cm


57. OR-Unit 1 NE 80-90 cm


OR Unit 1 NE 80-90 cm, east


59 OR Unit 1 NE 80-90 cm


. Or-Unit 1 90-100 cm north w


. OR-Unit 1 90-100 cm east w


62. OR-Unit 1 90-100 cm


63. OR-Unit 1 profile north wal

Ordatang Unit 2 Photograph Log

1. OR-Unit 2, surface
2. OR-Unit 2, surface
3. OR-Unit 2, overview to N
4. OR-Unit 2, overview to S
5. OR-Unit 2, 0-10 cm
6. OR-Unit 2, 0-10 cm
7. OR-Unit 2, 10-20 cm
8. OR-Unit 2, 10-20 cm
9. OR-Unit 2, 20-30 cm
10. OR-Unit 2, 20-30 cm
11. OR-Unit 2, 20-30 cm
12. OR-Unit 2, 30-40 cm
13. OR-Unit 2, 30-40 cm
14. OR-Unit 2, 30-40 cm
15. OR-Unit 2, 40-50 cm
16. OR-Unit 2, 40-50 cm
17 OR Unit 2 40-50 cm
18 OR Unit 2 50-60 cm
19 OR Unit 2 50-60 cm
20 OR Unit 2 50-60 cm
21 OR Unit 2 60-70 cm
22. OR Unit 2, 60-70 cm
23 OR Unit 2 70-80 cm
24 OR Unit 2 70-80 cm
25. Or Unit 2 80-90 cm
26. OR Unit 2, 80-90 cm
27. OR Unit 2, 80-90 cm
28. OR Unit 2, 80-90 cm
30 OR Unit 2 80-90 cm
31 OR Unit 2 80-90 cm
32 OR Unit 2 80-90 cm
33. OR-Unit 2, 80-90 cm
34 OR Unit 2 90-100 cm
35. OR-Unit 2, 90-100 cm
36. OR-Unit 2, 90-100 cm


36. OR-Unit 2, 90-100 cm


1. OR-Unit 2, surface


2. OR-Unit 2, surface

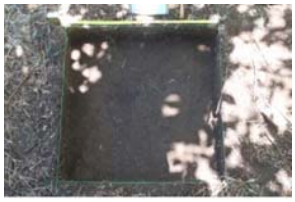

3. OR-Unit 2, overview to N


4. OR-Unit 2, overview to S


5. OR-Unit 2, 0-10 cm


6. OR-Unit 2, 0-10 cm


7. OR-Unit 2, 10-20 cm


8. OR-Unit 2, 10-20 cm

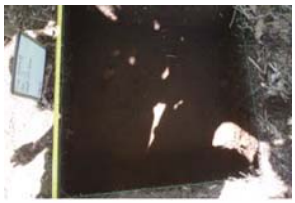

9. OR-Unit 2, 20-30 cm


10. OR-Unit 2, 20-30 cm


11. OR-Unit 2, 20-30 cm

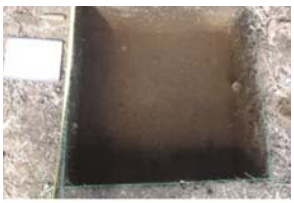

12. OR-Unit 2, 30-40 cm


13. OR-Unit 2, 30-40 cm


14. OR-Unit 2, 30-40 cm


15. OR-Unit 2, 40-50 cm


16. OR-Unit 2, 40-50 cm


17 OR Unit 2 40-50 cm


18 OR Unit 2 50-60 cm


19 OR Unit 2 50-60 cm


20 OR Unit 2 50-60 cm

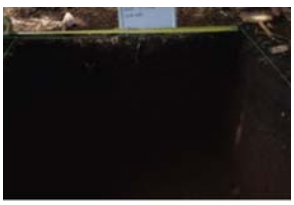

21 OR Unit 2 60-70 cm


22. OR Unit 2, 60-70 cm


23 OR Unit 2 70-80 cm

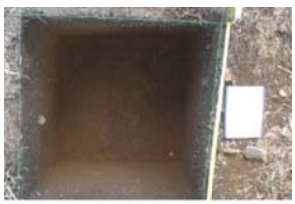

24 OR Unit 2 70-80 cm


25. Or Unit 2 80-90 cm


26. OR Unit 2, 80-90 cm


27. OR Unit 2, 80-90 cm


28. OR Unit 2, 80-90 cm


30 OR Unit 2 80-90 cm


31 OR Unit 2 80-90 cm


32 OR Unit 2 80-90 cm


33. OR-Unit 2, 80-90 cm


34 OR Unit 2 90-100 cm


35. OR-Unit 2, 90-100 cm

Ordatang Unit 3 Photograph Log

1. OR-Unit 3, surface
2. OR-Unit 3, surface
3. OR-Unit 3, 0-10 cm
4. OR-Unit 3, 0-10 cm
5. OR-Unit 3, 0-10 cm
6. OR-Unit 3, 10-20 cm
7. OR-Unit 3, 20-30 cm
8. OR-Unit 3, 20-30 cm
9. OR-Unit 3, 30-40 cm
10. OR-Unit 3, 30-40 cm
11. 4.14.01 OR-3 30-40 cm plan
12. 4.14.02 OR-3 30-40 cm profile
13. 4.14.03 OR-3 40-50 cm plan
14. 4.14.04 OR-3 40-50 cm profile



. 4.14.04 OR-3 40-50 cm prof



1. OR-Unit 3, surface



2. OR-Unit 3, surface



3. OR-Unit 3, 0-10 cm



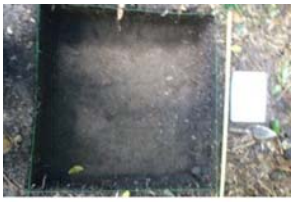
4. OR-Unit 3, 0-10 cm



5. OR-Unit 3, 0-10 cm



6. OR-Unit 3, 10-20 cm



7. OR-Unit 3, 20-30 cm



8. OR-Unit 3, 20-30 cm



9. OR-Unit 3, 30-40 cm



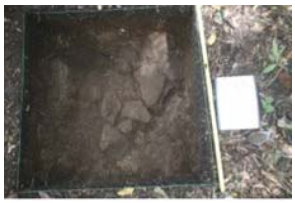
10. OR-Unit 3, 30-40 cm



1. 4.14.01 OR-3 30-40 cm pla



. 4.14.02 OR-3 30-40 cm prof



3. 4.14.03 OR-3 40-50 cm pla

Groot Waling

Fieldwork Photographs

Groot Waling Overviews Photograph Log


4.18.01 GW gate


4.18.02 N bldg, from ctyd


4.18.03 N bldg, stairs, E


4.18.04 N bldg, from beach, S


4.18.05 BN from GW


4.18.06 N bldg, from pation, N


4.18.07 path w boat from N bldg, N


4.18.08 N wall from N porch


4.18.09 E bldg from ctyd, at SE corner of N bldg terrace


4.18.10 NE bldg


4.18.11 E bldg, SE


4.18.12 E bldg


4.18.13 E bldg stairs, ruined wall, E


4.18.14 E bldg, ruined walls


4.18.15 remains of 2nd to last room in E bldg


4.18.16 E wall, S bldg


4.18.17 S bldg, from ctyd, S


4.18.18 N bldg from S bldg


4.18.19 extant paving, plaster from S bldg porch


4.18.20 walls of porch and back door of S bldg


4.18.21 gadihu path


4.18.22 well and nutmeg shed


4.18.23 nutmeg nursery


4.18.24 nutmeg shed


4.18.25 ctyd and S bldg from N bldg


4.19.10 Pongky's kids


4.19.10 Pongky's kids


4.18.01 GW gate


4.18.02 N bldg, from ctyd


4.18.03 N bldg, stairs, E


4.18.04 N bldg, from beach, S


4.18.05 BN from GW


4.18.06 N bldg, from pation, N


8.07 path w boat from N bldg,


4.18.08 N wall from N porch


lg from ctyd, at SE corner of N


4.18.10 NE bldg


4.18.11 E bldg, SE


4.18.12 E bldg


8.13 E bldg stairs, ruined wall


4.18.14 E bldg, ruined walls


remains of 2nd to last room ir


4.18.16 E wall, S bldg


4.18.17 S bldg, from ctyd, S


4.18.18 N bldg from S bldg


xtant paving, plaster from S bl


walls of porch and back door c


4.18.21 gadihu path


4.18.22 well and nutmeg shed


4.18.23 nutmeg nursery


4.18.24 nutmeg shed


8.25 ctyd and S bldg from N b


4.26.16 GW-stp 127


4.18.26 GW-STP 1


4.18.27 GW-stp 1


4.18.28 GW-stp 2


4.18.29 GW-stp 2


4.18.30 GW-stp 3


4.18.31 GW-stp 4


4.18.32 GW-stp 4


4.18.33 GW-stp 5


4.18.34 GW-stp 5


4.18.35 GW-stp 6


4.18.36 GW-stp 6


4.18.37 GW-stp 7


4.18.38 GW-stp 7


4.18.39 GW-stp 8


4.18.40 GW-stp 8


4.18.41 GW-stp 9


4.18.42 GW-stp 10


4.18.43 GW-stp 10


4.19.01 GW-stp 11


4.19.02 GW-stp 12


4.19.03 GW-stp 13


4.19.04 GW-stp 13


4.19.05 GW-stp 14


4.19.06 GW-stp 15


4.19.07 GW-stp 15


4.19.08 GW-stp 16


4.19.09 GW- stp 16


4.19.11 GW-stp 17


4.19.12 GW-stp 17


4.19.13 GW-stp 18


4.19.14 GW-stp 18


4.19.15 GW-stp 19


4.19.16 GW-stp 19


4.19.17 GW-stp 20


4.19.18 GW-stp 20


4.19.19 GW-stp 21


4.19.20 GW-stp 21


4.19.21 GW-stp 22


4.19.22 GW-stp 22


4.19.23 GW-stp 23


4.19.24 GW-stp 23


4.19.25 GW-stp 24


4.19.26 GW-stp 24


4.19.27 GW-stp 25


4.19.28 GW-stp 25


4.19.29 GW-stp 26


4.19.30 GW-stp 27


4.19.31 GW-stp 27


4.19.32 GW-stp 28


4.19.33 GW-stp 28


4.19.34 GW-stp 29


4.19.35 GW-stp 29


4.19.36 GW-stp 30


4.19.37 GW-stp 31


4.19.38 GW-stp 31


4.19.39 GW-stp 32


4.20.01 GW-stp 33


4.20.02 GW-stp 33


4.20.03 GW-stp 34


4.20.04 GW-stp 34

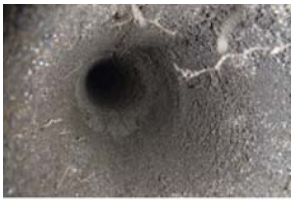

4.20.05 GW-stp 35


4.20.06 GW-stp 35


4.20.07 GW-stp 36


4.20.08 GW-stp 36


4.20.09 GW-stp 37


4.20.10 GW-stp 37


4.20.11 GW-stp 38


4.20.12 GW-stp 38


4.20.13 GW-stp 39


4.20.14 GW-stp 39


4.20.15 GW-stp 40


4.20.16 GW-stp 40


4.20.17 GW-stp 41


4.20.18 GW-stp 41


4.20.19 GW-stp 42


4.20.20 GW-stp 42


4.20.21 GW-stp 43


4.20.22 GW-stp 43


4.20.23 GW-stp 44


4.20.24 GW-stp 44


4.20.25 GW-stp 45


4.20.26 GW- stp 45


4.20.27 cut behind GW


4.20.28 cut behind GW


4.20.29 cur behind GW


4.20.30 GW-stp 46


4.20.31 GW-stp 46


4.20.32 GW-stp 47


4.20.33 GW-stp 47


4.20.34 GW-stp 48


4.20.35 GW - stp 49


4.20.36 GW-stp 49


4.20.37 GW-stp 50


4.20.38 GW-stp 51


4.20.39 GW-stp 51


4.20.40 GW-stp 52


4.20.41 GW-stp 52


4.20.42 GW-stp 53


4.20.43 GW-stp 53


4.20.44 GW-stp 54


4.20.45 GW-stp 55


4.20.46 GW-stp 55


4.20.47 GW-stp 56


4.20.48 GW-stp 56


4.21.01 GW-stp 57


4.21.02 GW-stp 58


4.21.03 GW-stp 58


4.21.04 GW-stp 59


4.21.05 GW-stp 59


4.21.06 GW-stp 60


4.21.07 GW-stp 60


4.21.08 GW-stp 61


4.21.09 GW-stp 61


4.21.10 GW-stp 62


4.21.11 GW-stp 62


4.21.12 GW-stp 63


4.21.13 GW-stp 63


4.21.14 GW-stp 64


4.21.15 GW-stp 64


4.21.16 GW-stp 65


4.21.17 GW-stp 65


4.21.18 GW-stp 66


4.21.19 GW-stp 66


4.21.20 GW-stp 67


4.21.21 GW-stp 67


4.21.22 GW-stp 68


4.21.23 GW-stp 69


4.21.24 GW-stp 69


4.21.25 GW-stp 70


4.21.26 GW-stp 70


4.21.27 GW-stp 71


4.21.28 GW-stp 71

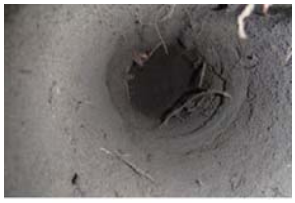

4.21.29 GW-stp 72


4.21.30 GW-stp 72


4.21.31 GW-stp 73


4.21.32 GW-stp 73


4.21.33 GW-stp 74


4.21.34 GW-stp 74


4.21.35 GW-stp 75


4.21.36 GW-stp 75


4.21.37 GW-stp 76


4.21.38 GW-stp 76


4.21.39 GW-stp 77


4.21.40 GW-stp 77


4.21.41 GW-stp 78


4.21.42 GW-stp 78


4.21.43 GW-stp 79


4.21.44 GW-stp 79


4.21.45 GW-stp 80


4.21.46 GW-stp 80


4.22.01 GW-stp 81


4.22.02 GW-stp 81


4.22.03 GW-stp 82


4.22.04 GW-stp 82


4.22.05 GW-stp 83


4.22.06 GW_stp 84


4.22.07 GW-stp 84


4.22.08 GW-stp 85


4.22.09 GW-stp 85


4.22.10 GW-stp 86


4.22.11 GW-stp 86


4.22.12 GW-stp 87


4.22.13 GW-stp 87


4.22.14 GW-stp 88


4.22.15 GW-stp 88


4.22.16 GW-stp 89


4.22.17 GW-stp 89


4.22.18 GW-stp 90


4.22.19 GW-stp 90


4.22.25 GW-stp 91


4.22.26 GW-stp 91


4.22.27 GW-stp 92


4.22.28 GW-stp 92


4.22.29 GW-stp 93


4.22.30 GW-stp 93


4.22.31 GW-stp 94


4.22.32 GW-stp 94


4.22.33 GW-stp 95


4.22.34 GW-stp 95


4.22.35 GW-stp 96


4.22.36 GW-stp 96


4.22.37 GW-stp 97


4.22.38 GW-stp 98


4.22.39 GW-stp 99


4.22.40 GW-stp 99


4.22.41 GW-stp 100


4.22.42 GW-stp 100


4.22.43 GW-stp 101


4.22.44 GW-stp 101


4.22.45 GW-stp 102


4.22.46 GW-stp 102


4.22.47 GW-stp 103


4.22.48 GW-stp 103


4.22.49 GW-stp 104


4.22.50 GW-stp 104


4.22.51 GW-stp 105


4.22.52 GW-stp 105


4.22.53 GW-stp 106


4.22.54 GW-stp 106


4.25.01 GW-stp 107


4.25.02 GW-stp 107


4.25.03 GW-stp 108


4.25.04 GW-stp 108


4.25.05 GW-stp 109


4.25.06 GW-stp 109


4.25.07 GW-stp 110


4.25.08 GW-stp 110


4.25.09 GW-stp 111


4.25.10 GW-stp 111


4.25.11 GW-stp 112


4.25.12 GW-stp 112


4.25.13 GW-stp 113


4.25.14 GW-stp 113


4.25.15 GW-stp 114


4.25.16 GW-stp 114


4.25.17 GW-stp 115


4.25.18 GW-stp 115


4.25.19 GW-stp 116


4.25.20 GW-stp 116


4.25.21 GW-stp 117


4.25.22 GW-stp 117


4.25.23 GW-stp 118


4.25.24 GW-stp 118


4.25.25 GW-stp 119


4.25.26 GW-stp 119


4.26.01 GW-stp 120


4.26.02 GW-stp 120


4.26.03 GW-stp 121


4.26.04 GW-stp 121

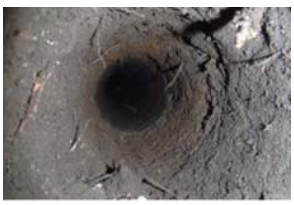

4.26.05 GW-stp 122


4.26.06 GW-stp 122


4.26.07 GW-stp 123


4.26.08 GW-stp 123


4.26.09 GW-stp 124


4.26.10 GW-stp 124


4.26.11 GW-stp 125


4.26.12 GW-stp 125


4.26.13 GW-stp 126


4.26.14 GW-stp 126


4.26.15 GW-stp 127

Groot Waling Unit 1 and 1.5 Photography Log

- 4.26.17 GW Unit 1 Surface
- 4.26.18 GW Unit 1 0-10 cm
- 4.26.19 GW Unit 1 10-20 cm
- 4.26.20 GW Unit 1 10-20 cm
- 4.26.21 GW Unit 1 20-30 cm
- 4.26.22 GW Unit 1 30-40 cm
- 4.26.23 GW Unit 1 30-40 cm
- 4.27.01 GW Unit 1 40-50 cm
- 4.27.02 GW Unit 1 40-50 cm
- 4.27.03 GW Unit 1 40-50 cm
- 4.27.04 GW Unit 1 40-50 cm
- 4.27.05 Unit 1 50-60 cm
- 4.27.06 GW Unit 1 50-60 cm
- 4.27.07 GW Unit 1 50-60 cm
- 4.27.08 GW Unit 1 60-70 cm
- 4.27.09 GW Unit 1 60-70 cm
- 4.27.10 GW Unit 1 60-70 cm
- 4.27.11 GW Unit 1 70-80 cm
- 4.27.12 GW Unit 1 70-80 cm
- 4.27.13 GW Unit 1 80-90 cm
- 4.27.15 GW Unit 1 80-90 cm
- 4.27.16 GW Unit 1 80-90 cm
- 4.27.17 GW Unit 1 80-90 cm
- 4.27.18 GW Unit 1 90-100 cm
- 4.27.19 GW Unit 1 90-100 cm
- 4.27.20 GW Unit 1 90-100 cm
- 4.27.21 GW Unit 1, auger
- 4.27.22 GW Unit 1, auger
- 4.28.01 GW Unit 1.5 surface
- 4.28.02 GW Unit 1.5 0-10 cm
- 4.28.03 GW Unit 1.5 0-10 cm
- 4.28.04 GW Unit 1.5 10-20 cm
- 4.28.05 GW Unit 1.5 10-20 cm
- 4.28.06 GW Unit 1.5 20-30 cm
- 4.28.07 GW Unit 1.5 20-30 cm
- 4.28.08 GW Unit 1.5 20-30 cm
- 4.28.09 GW Unit 1.5 20-30 cm
- 4.28.10 GW Unit 1.5 20-30 cm
- 4.28.11 GW Unit 1.5 30-40 cm
- 4.28.12 GW Unit 1.5 30-40 cm
- 4.28.13 GW Unit 1.5 30-40 cm
- 4.28.14 GW Unit 1.5 30-40 cm
- 4.28.15 GW Unit 1.5 40-50 cm
- 4.28.16 GW Unit 1.5 40-50 cm
- 4.28.17 GW Unit 1.5 40-50 cm
- 4.28.18 GW Unit 1.5 40-50 cm
- 4.28.19 GW Unit 1.5 40-50 cm
- 4.28.20 GW Unit 1.5 40-50 cm
- 4.28.21 GW Unit 1.5 40-50 cm
- 4.28.22 GW Unit 1.5 40-50 cm
- 4.28.23 GW Unit 1.5 40-50 cm
- 4.28.24 GW Unit 1.5 40-50 cm
- 4.28.25 GW Unit 1.5 50-60 cm
- 4.28.26 GW Unit 1.5 50-60 cm
- 4.28.27 GW Unit 1.5 50-60 cm
- 4.28.28 GW Unit 1.5 50-60 cm
- 4.28.29 GW Unit 1.5 50-60 cm
- 4.28.30 GW Unit 1.5 60-70 cm
- 4.28.31 GW Unit 1.5 60-70 cm
- 4.28.32 GW Unit 1.5 60-70 cm
- 4.28.33 GW Unit 1.5 60-70 cm
- 4.28.34 GW Unit 1.5 shell
- 4.28.35 GW Unit 1.5 shell
- 4.28.36 GW Unit 1.5 70-80 cm
- 4.28.37 GW Unit 1.5 70-80 cm
- 4.28.38 GW Unit 1.5 70-80 cm
- 4.28.39 GW Unit 1.5 70-80 cm
- 4.28.40 GW Unit 1.5 brick from 70-90 cm
- 4.28.41 GW Unit 1.5 brick from 70-90 cm
- 4.28.42 GW Unit 1.5 80-90 cm
- 4.28.43 GW Unit 1.5 80-90 cm
- 4.28.44 GW Unit 1.5 80-90 cm
- 4.28.45 GW Unit 1.5 80-90 cm
- 4.28.46 GW Unit 1.5 80-90 cm
- 4.28.47 GW Unit 1.5 90-100 cm
- 4.28.48 GW Unit 1.5 90-100 cm west wall profile
- 4.28.49 GW Unit 90-100 cm
- 4.28.50 GW Unit 1.5 90-100 cm
- 4.28.51 GW Unit 1.5 90-100 cm
- 4.28.52 GW Unit 1.5 90-100 cm
- 4.28.53 GW Unit 1.5 90-100 cm
- 4.28.54 GW Unit 1.5 90-100 cm west wall profile



iW Unit 1.5 90-100 cm west w



4.26.17 GW Unit 1 Surface



4.26.18 GW Unit 1 0-10 cm



4.26.19 GW Unit 1 10-20 cm



4.26.20 GW Unit 1 10-20 cm



4.26.21 GW Unit 1 20-30 cm



4.26.22 GW Unit 1 30-40 cm



4.26.23 GW Unit 1 30-40 cm



4.27.01 GW Unit 1 40-50 cm



4.27.02 GW Unit 1 40-50 cm



4.27.03 GW Unit 1 40-50 cm



4.27.04 GW Unit 1 40-50 cm



4.27.05 Unit 1 50-60 cm



4.27.06 GW Unit 1 50-60 cm



4.27.07 GW Unit 1 50-60 cm



4.27.08 GW Unit 1 60-70 cm



4.27.09 GW Unit 1 60-70 cm



4.27.10 GW Unit 1 60-70 cm



4.27.11 GW Unit 1 70-80 cm



4.27.12 GW Unit 1 70-80 cm



4.27.13 GW Unit 1 80-90 cm



4.27.15 GW Unit 1 80-90 cm



4.27.16 GW Unit 1 80-90 cm



4.27.17 GW Unit 1 80-90 cm



4.27.18 GW Unit 1 90-100 cm



4.27.19 GW Unit 1 90-100 cm



4.27.20 GW Unit 1 90-100 cm



4.27.21 GW Unit 1, auger



4.27.22 GW Unit 1, auger



4.28.01 GW Unit 1.5 surface



4.28.02 GW Unit 1.5 0-10 cm



4.28.03 GW Unit 1.5 0-10 cm



4.28.04 GW Unit 1.5 10-20 cm



4.28.05 GW Unit 1.5 10-20 cm



4.28.06 GW Unit 1.5 20-30 cm


4.28.07 GW Unit 1.5 20-30 cm


4.28.08 GW Unit 1.5 20-30 cm


4.28.09 GW Unit 1.5 20-30 cm


4.28.10 GW Unit 1.5 20-30 cm


4.28.11 GW Unit 1.5 30-40 cm


4.28.12 GW Unit 1.5 30-40 cm


4.28.13 GW Unit 1.5 30-40 cm


4.28.14 GW Unit 1.5 30-40 cm


4.28.15 GW Unit 1.5 40-50 cm


4.28.16 GW Unit 1.5 40-50 cm


4.28.17 GW Unit 1.5 40-50 cm


4.28.18 GW Unit 1.5 40-50 cm


4.28.19 GW Unit 1.5 40-50 cm


4.28.20 GW Unit 1.5 40-50 cm


4.28.21 GW Unit 1.5 40-50 cm


4.28.22 GW Unit 1.5 40-50 cm


4.28.23 GW Unit 1.5 40-50 cm


4.28.24 GW Unit 1.5 40-50 cm


4.28.25 GW Unit 1.5 50-60 cm


4.28.26 GW Unit 1.5 50-60 cm


4.28.27 GW Unit 1.5 50-60 cm


4.28.28 GW Unit 1.5 50-60 cm


4.28.29 GW Unit 1.5 50-60 cm


4.28.30 GW Unit 1.5 60-70 cm


4.28.31 GW Unit 1.5 60-70 cm


4.28.32 GW Unit 1.5 60-70 cm


4.28.33 GW Unit 1.5 60-70 cm


4.28.34 GW Unit 1.5 shell


4.28.35 GW Unit 1.5 shell


4.28.36 GW Unit 1.5 70-80 cm


4.28.37 GW Unit 1.5 70-80 cm


4.28.38 GW Unit 1.5 70-80 cm


4.28.39 GW Unit 1.5 70-80 cm


40 GW Unit 1.5 brick from 70-9


41 GW Unit 1.5 brick from 70-9



4.28.42 GW Unit 1.5 80-90 cm



4.28.43 GW Unit 1.5 80-90 cm



4.28.44 GW Unit 1.5 80-90 cm



4.28.45 GW Unit 1.5 80-90 cm



4.28.46 GW Unit 1.5 80-90 cm



.28.47 GW Unit 1.5 90-100 cn



GW Unit 1.5 90-100 cm west w



4.28.49 GW Unit 90-100 cm



.28.50 GW Unit 1.5 90-100 cn



.28.51 GW Unit 1.5 90-100 cn



.28.52 GW Unit 1.5 90-100 cn



.28.53 GW Unit 1.5 90-100 cn

Groot Waling Unit 2 Photography Log

1 GW Unit 2 surface
2 GW Unit 2 surface
3 GW Unit 2 0-10 cm
4 GW Unit 2 0-10 cm
5 GW Unit 2 10-20 cm
5.02.07 GW Unit 2 90-100 cm
6 GW Unit 2 10-20 cm
7 GW Unit 2 20-30 cm w btl
8 GW Unit 2 20-30 cm w btl
9 GW Unit 2 20-30 cm w.o btl
10 GW Unit 20-30 cm w.o btl
11 GW Unit 2 30-40 cm
12 GW Unit 2 30-40 cm
13 GW Unit 2 40-50 cm
14 GW Unit 2 40-50 cm
15 GW Unit 2 50-60 cm
16 GW Unit 2 50-60 cm
17 GW Unit 2 60-70 cm
18 GW Unit 2 60-70 cm
19 GW Unit 2 70-80 cm
20 GW Unit 2 70-80 cm
21 GW Unit 2 80-90 cm
22 GW Unit 2 80-90 cm
23 GW Unit 2 90-100 cm
24 GW Unint 2 90-100 cm
25 Unit 2 90-100 cm
26 GW Unit 2 90-100 cm
27 Henkes gin btl, GW 2 20-30 cm
28 Henkes gin btl top, GW 2 20-30 cm
29 Henkes gin btl base, GW 2 20-30 cm
34 Henkes gin btl mark close up, GW 2 20-30 cm
35 Henkes gin btl mark close up, GW 2 20-30 cm
37 Henkes gin btl mark close up, GW 2 20-30 cm
38 Henkes gin btl mark close up, GW 2 20-30 cm
39 wine bottle, GW 2 10-20 cm
40 wine bottle top, GW 2 10-20 cm
41 wine bottle bottom, GW 2 10-20 cm
42 wine bottle, GW 2 10-20 cm
43 wine bottle GW 2 10-20 cm
44 wine bottle GW 2 10-20 cm

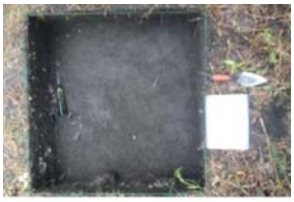

44 wine bottle GW 2 10-20 cm


1 GW Unit 2 surface


2 GW Unit 2 surface


3 GW Unit 2 0-10 cm


4 GW Unit 2 0-10 cm


5 GW Unit 2 10-20 cm


5.02.07 GW Unit 2 90-100 cm


6 GW Unit 2 10-20 cm


7 GW Unit 2 20-30 cm w btl


8 GW Unit 2 20-30 cm w btl


9 GW Unit 2 20-30 cm w.o btl


10 GW Unit 20-30 cm w.o btl


11 GW Unit 2 30-40 cm


12 GW Unit 2 30-40 cm


13 GW Unit 2 40-50 cm


14 GW Unit 2 40-50 cm


15 GW Unit 2 50-60 cm


16 GW Unit 2 50-60 cm


17 GW Unit 2 60-70 cm


18 GW Unit 2 60-70 cm


19 GW Unit 2 70-80 cm


20 GW Unit 2 70-80 cm

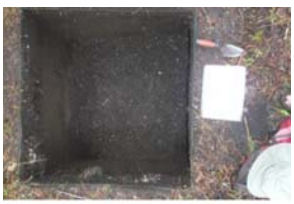

21 GW Unit 2 80-90 cm


22 GW Unit 2 80-90 cm


23 GW Unit 2 90-100 cm


24 GW Unint 2 90-100 cm


25 Unit 2 90-100 cm


26 GW Unit 2 90-100 cm


Henkes gin btl, GW 2 20-30 c


lenkes gin btl top, GW 2 20-3(


enkes gin btl base, GW 2 20-3


s gin btl mark close up, GW 2


s gin btl mark close up, GW 2


s gin btl mark close up, GW 2


s gin btl mark close up, GW 2



39 wine bottle, GW 2 10-20 cm



wine bottle top, GW 2 10-20 c



ine bottle bottom, GW 2 10-2(



42 wine bottle, GW 2 10-20 cm



43 wine bottle GW 2 10-20 cm

Groot Waling Unit 3 Photography Log

5.02.08 GW Unit 3 surface
5.02.09 GW Unit 3 surface
5.02.10 GW Unit 3 0-10 cm
5.02.11 GW Unit 3 0-10 cm
5.02.12 GW Unit 3 10-20 cm
5.02.13 GW Unit 3 10-20 cm
5.02.14 GW Unit 3 20-30 cm
5.02.15 GW Unit 3 20-30 cm
5.03.01 GW unit 3 30-40 cm
5.03.02 GW Unit 3 30-40 cm
5.03.03 GW Unit 3 40-50 cm
5.03.04 GW Unit 3 40-50 cm
5.03.05 GW Unit 3 40-50 cm
5.03.06 GW Unit 3 40-50 cm
5.03.07 GW Unit 3 50-60 cm
5.03.08 GW Unit 3 50-60 cm
5.03.09 GW Unit 3 50-60 cm
5.03.10 GW Unit 3 50-60 cm
5.03.11 GW Unit 3 60-70 cm
5.03.12 GW Unit 3 60-70 cm
5.03.13 GW Unit 3 60-70 cm
5.03.14 GW Unit 3 60-70 cm
5.03.15 GW Unit 3 70-80 cm
5.03.16 GW Unit 3 70-80 cm
5.03.17 GW Unit 3 70-80 cm
5.03.18 GW Unit 3 70-80 cm
5.03.19 GW Unit 3 80-90 cm
5.03.20 GW Unit 3 80-90 cm
5.03.21 GW Unit 3 80-90 cm
5.03.22 GW Unit 3 80-90 cm
5.03.23 GW Unit 3 90-100 cm
5.03.24 GW Unit 3 90-100 cm
5.03.25 GW Unit 3 90-100 cm
5.03.26 GW Unit 3 90-100 cm

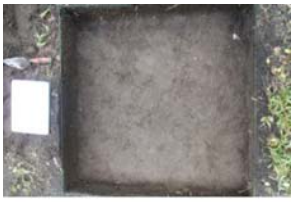

5.03.26 GW Unit 3 90-100 cm


5.02.08 GW Unit 3 surface


5.02.09 GW Unit 3 surface


5.02.10 GW Unit 3 0-10 cm


5.02.11 GW Unit 3 0-10 cm


5.02.12 GW Unit 3 10-20 cm


5.02.13 GW Unit 3 10-20 cm


5.02.14 GW Unit 3 20-30 cm


5.02.15 GW Unit 3 20-30 cm


5.03.01 GW unit 3 30-40 cm


5.03.02 GW Unit 3 30-40 cm


5.03.03 GW Unit 3 40-50 cm


5.03.04 GW Unit 3 40-50 cm


5.03.05 GW Unit 3 40-50 cm


5.03.06 GW Unit 3 40-50 cm


5.03.07 GW Unit 3 50-60 cm


5.03.08 GW Unit 3 50-60 cm


5.03.09 GW Unit 3 50-60 cm


5.03.10 GW Unit 3 50-60 cm


5.03.11 GW Unit 3 60-70 cm


5.03.12 GW Unit 3 60-70 cm


5.03.13 GW Unit 3 60-70 cm


5.03.14 GW Unit 3 60-70 cm


5.03.15 GW Unit 3 70-80 cm


5.03.16 GW Unit 3 70-80 cm


5.03.17 GW Unit 3 70-80 cm


5.03.18 GW Unit 3 70-80 cm


5.03.19 GW Unit 3 80-90 cm


5.03.20 GW Unit 3 80-90 cm


5.03.21 GW Unit 3 80-90 cm


5.03.22 GW Unit 3 80-90 cm


5.03.23 GW Unit 3 90-100 cm


5.03.24 GW Unit 3 90-100 cm


5.03.25 GW Unit 3 90-100 cm

Groot Waling Unit 4 Photography Log

5.04.01 GW Unit 4 surface
5.04.02 GW Unit 4 surface
5.04.03 GW Unit 4 surface
5.04.04 GW Unit 4 0-10 cm
5.04.05 GW Unit 4 0-10 cm
5.04.06 GW Unit 4 10-20 cm
5.04.07 GW Unit 4 10-20 cm
5.04.08 GW Unit 4 20-30 cm
5.04.09 GW Unit 4 20-30 cm
5.04.10 GW Unit 4 30-40 cm
5.04.11 GW Unit 4 30-40 cm
5.04.12 GW Unit 4 30-40 cm
5.04.13 GW Unit 4 40-50 cm
5.04.14 GW Unit 4 40-50 cm
5.04.15 GW Unit 4 40-50 cm
5.04.16 GW Unit 4 50-60 cm
5.04.17 GW Unit 4 50-60 cm
5.04.18 GW Unit 4 60-70 cm
5.04.19 GW Unit 4 60-70 cm
5.04.20 GW Unit 4 60-70 cm
5.04.21 GW Unit 4 70-80 cm
5.04.22 GW Unit 4 70-80 cm
5.04.23 GW Unit 4 70-80 cm
5.04.24 GW Unit 4 70-80 cm
5.04.25 GW Unit 4 70-80 cm
5.04.26 GW Unit 4 80-90 cm
5.04.27 GW Unit 4 80-90 cm
5.04.28 GW Unit 4 80-90 cm
5.04.29 GW Unit 4 80-90 cm
5.05.01 GW Unit 4 90-100 cm
5.05.02 GW Unit 4 90-100 cm
5.05.03 GW Unit 4 90-100 cm
5.05.04 GW Unit 4 90-100 cm
5.05.05 GW Unit 4 90-100 cm


5.05.05 GW Unit 4 90-100 cm


5.04.01 GW Unit 4 surface


5.04.02 GW Unit 4 surface


5.04.03 GW Unit 4 surface


5.04.04 GW Unit 4 0-10 cm


5.04.05 GW Unit 4 0-10 cm


5.04.06 GW Unit 4 10-20 cm


5.04.07 GW Unit 4 10-20 cm


5.04.08 GW Unit 4 20-30 cm


5.04.09 GW Unit 4 20-30 cm


5.04.10 GW Unit 4 30-40 cm


5.04.11 GW Unit 4 30-40 cm


5.04.12 GW Unit 4 30-40 cm


5.04.13 GW Unit 4 40-50 cm


5.04.14 GW Unit 4 40-50 cm


5.04.15 GW Unit 4 40-50 cm


5.04.16 GW Unit 4 50-60 cm


5.04.17 GW Unit 4 50-60 cm


5.04.18 GW Unit 4 60-70 cm


5.04.19 GW Unit 4 60-70 cm


5.04.20 GW Unit 4 60-70 cm


5.04.21 GW Unit 4 70-80 cm


5.04.22 GW Unit 4 70-80 cm


5.04.23 GW Unit 4 70-80 cm


5.04.24 GW Unit 4 70-80 cm


5.04.25 GW Unit 4 70-80 cm


5.04.26 GW Unit 4 80-90 cm


5.04.27 GW Unit 4 80-90 cm


5.04.28 GW Unit 4 80-90 cm


5.04.29 GW Unit 4 80-90 cm


5.05.01 GW Unit 4 90-100 cm


5.05.02 GW Unit 4 90-100 cm


5.05.03 GW Unit 4 90-100 cm


5.05.04 GW Unit 4 90-100 cm

Komber

Fieldwork Photographs

Komber Overviews Photograph Log

5.08.01 pala bldg overview
5.08.02 pala bldg overview
5.08.03 pala bldg and school
5.08.04 new wall, school bldg
5.08.05 perk ruined E wall remains
5.08.06 stream east side of perk
5.08.07 East wall ruins
5.08.08 East wall ruins
5.08.09 East wall ruins
5.08.10 South perk walls
5.08.11 South perk wall
5.08.12 South perk wall
5.08.13 South perk wall (ext)
5.08.14 School bldg from perk wall
5.08.15 School bldg from top of perk wall
5.08.16 Stairs behind perk
5.08.17 new wall construction south of perk
5.08.18 new wall construction, grafitti
5.08.19 perk wall and new house
5.08.20 concrete pad on top of perk foundation
5.08.21 new construction on perk foundation
5.08.22 new construction on perk foundation
5.08.23 new wall and pala porch foundation
5.08.24 Neira from Komber
5.08.25 Neira from Komber
5.09.01 northern portion of Banda Besar
5.10.01 perk foundations between school and wall
5.10.02 perk foundations
5.10.03 perk foundations between school and wall
5.10.04 earthenware sherd among debris between school and wall
5.10.05 perk foundations
5.10.06 perk foundations
5.10.07 perk foundations
5.10.08 perk foundations
5.10.09 concrete pad on top perk foundations
5.10.10 concrete pad on top of perk foundations
5.10.11 overview of perk from back of compound
5.10.12 remains of pala porch from courtyard
5.10.13 presumed foundations of perk house behind tree
5.10.14 possible foundation debris of perk house



ossible foundation debris of pe



5.08.01 pala bldg overview



5.08.02 pala bldg overview



5.08.03 pala bldg and school



5.08.04 new wall, school bldg



)8.05 perk ruined E wall remai



.08.06 stream east side of per



5.08.07 East wall ruins



5.08.08 East wall ruins



5.08.09 East wall ruins



5.08.10 South perk walls



5.08.11 South perk wall



5.08.12 South perk wall



5.08.13 South perk wall (ext)



)8.14 School bldg from perk w



15 School bldg from top of per



5.08.16 Stairs behind perk



7 new wall construction south



3.18 new wall construction, gra



.08.19 perk wall and new hous



concrete pad on top of perk fo



new construction on perk fou



new construction on perk fou



3 new wall and pala porch four



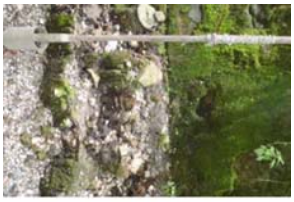
5.08.24 Neira from Komber



5.08.25 Neira from Komber



01 northern portion of Banda E



erk foundations between schoo



5.10.02 perk foundations



erk foundations between schoo



re sherd among debris betwe



5.10.05 perk foundations



5.10.06 perk foundations



5.10.07 perk foundations



5.10.08 perk foundations



concrete pad on top perk four



oncrete pad on top of perk fou



verview of perk from back of c



remains of pala porch from cc



ımed foundations of perk hous

Komber Auger Probe Photography Log

5.08.01 KB 1
5.08.02 KB 2
5.08.03 KB 3
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5.09.01 KB 13
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5.09.32 KB 34
5.10.01 KB 35
5.10.02 KB 36
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5.10.04 KB 37
5.10.05 KB 38
5.10.06 KB 39
5.10.07 KB 39
5.10.08 KB 40
5.10.09 KB 40
5.10.10 KB 41
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5.10.40 KB 61


5.10.40 KB 61


5.08.01 KB 1


5.08.02 KB 2


5.08.03 KB 3


5.08.04 KB 4


5.08.05 KB 4


5.08.06 KB 5


5.08.07 KB 5


5.08.08 KB 6


5.08.09 KB 6


5.08.10 KB 7


5.08.11 KB 7


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5.08.13 KB 8


5.08.14 KB 9


5.08.15 KB 9


5.08.16 KB 10


5.08.17 KB 10


5.08.18 KB 11


5.08.19 KB 12


5.08.20 KB 12


5.09.01 KB 13


5.09.02 KB 14


5.09.03 KB 15


5.09.04 KB 16


5.09.05 KB 17


5.09.06 KB 18


5.09.07 KB 19


5.09.08 KB 20


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5.10.10 KB 41


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5.10.12 KB 42


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5.10.16 KB 45


5.10.17 KB 45



5.10.19 KB 45



5.10.20 KB 46



5.10.21 KB 46



5.10.22 KB 47



5.10.23 KB 47



5.10.24 KB 48



5.10.25 KB 49



5.10.26 KB 49



5.10.27 KB 50



5.10.28 KB 50



5.10.29 KB 51



5.10.30 KB 51



5.10.31 KB 52



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5.10.36 KB 56



5.10.37 KB 57



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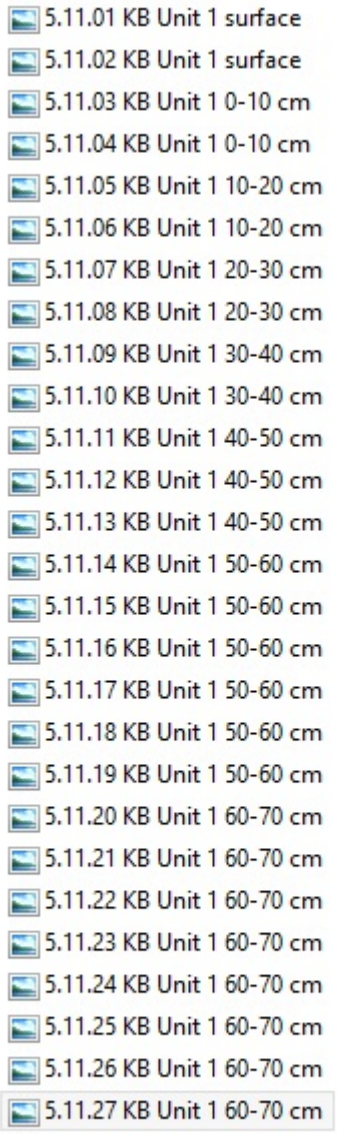


5.10.39 KB 59



5.10.40 KB 60

Komber Unit 1 Photograph Log




5.11.27 KB Unit 1 60-70 cm


5.11.01 KB Unit 1 surface


5.11.02 KB Unit 1 surface


5.11.03 KB Unit 1 0-10 cm


5.11.04 KB Unit 1 0-10 cm


5.11.05 KB Unit 1 10-20 cm


5.11.06 KB Unit 1 10-20 cm


5.11.07 KB Unit 1 20-30 cm


5.11.08 KB Unit 1 20-30 cm


5.11.09 KB Unit 1 30-40 cm


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5.11.12 KB Unit 1 40-50 cm


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5.11.14 KB Unit 1 50-60 cm


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5.11.16 KB Unit 1 50-60 cm


5.11.17 KB Unit 1 50-60 cm


5.11.18 KB Unit 1 50-60 cm


5.11.19 KB Unit 1 50-60 cm


5.11.20 KB Unit 1 60-70 cm


5.11.21 KB Unit 1 60-70 cm


5.11.22 KB Unit 1 60-70 cm

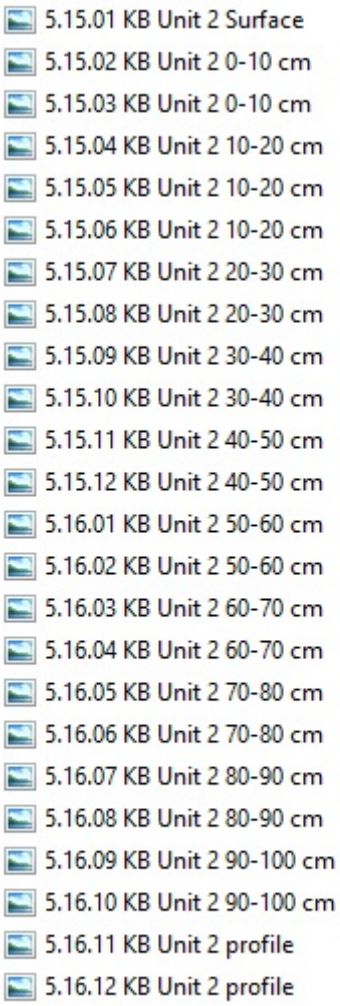

5.11.23 KB Unit 1 60-70 cm


5.11.24 KB Unit 1 60-70 cm


5.11.25 KB Unit 1 60-70 cm


5.11.26 KB Unit 1 60-70 cm

Komber Unit 2 Photograph Log




5.16.12 KB Unit 2 profile


5.15.01 KB Unit 2 Surface


5.15.02 KB Unit 2 0-10 cm


5.15.03 KB Unit 2 0-10 cm


5.15.04 KB Unit 2 10-20 cm


5.15.05 KB Unit 2 10-20 cm


5.15.06 KB Unit 2 10-20 cm


5.15.07 KB Unit 2 20-30 cm


5.15.08 KB Unit 2 20-30 cm


5.15.09 KB Unit 2 30-40 cm


5.15.10 KB Unit 2 30-40 cm


5.15.11 KB Unit 2 40-50 cm


5.15.12 KB Unit 2 40-50 cm


5.16.01 KB Unit 2 50-60 cm


5.16.02 KB Unit 2 50-60 cm


5.16.03 KB Unit 2 60-70 cm


5.16.04 KB Unit 2 60-70 cm


5.16.05 KB Unit 2 70-80 cm


5.16.06 KB Unit 2 70-80 cm


5.16.07 KB Unit 2 80-90 cm


5.16.08 KB Unit 2 80-90 cm


5.16.09 KB Unit 2 90-100 cm


5.16.10 KB Unit 2 90-100 cm


5.16.11 KB Unit 2 profile

Komber Unit 3 Photograph Log

5.16.01 KB Unit 3 Surface
5.16.02 KB Unit 3 Surface
5.17.01 KB Unit 3 0-10 cm
5.17.02 KB Unit 3 0-10 cm
5.17.03 KB Unit 3 10-20 cm
5.17.04 KB Unit 3 10-20 cm
5.17.05 KB Unit 3 20-30 cm
5.17.06 KB Unit 3 20-30 cm



5.17.06 KB Unit 3 20-30 cm



5.16.01 KB Unit 3 Surface



5.16.02 KB Unit 3 Surface



5.17.01 KB Unit 3 0-10 cm



5.17.02 KB Unit 3 0-10 cm



5.17.03 KB Unit 3 10-20 cm



5.17.04 KB Unit 3 10-20 cm



5.17.05 KB Unit 3 20-30 cm

Appendix B

Earthenware

Analysis

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
OR	1	0-10	1	31.14	8.44	15.81	12.125	2.5682	57.02	38.76	1.4711	Body w/ Neck	N	N	N	N	Grit w/ Mica	Coarse	5yr5/8	5yr5/8	5yr5/8	Oxidizing	3					
OR	1	0-10	2	14.41	12.71	12.27	12.49	1.1537	39.04	27.94	1.39728	Body	N	Y	N	N	Grit w/ Mica	Coarse	2.5yr5/8	2.5yr5/8	2.5yr4/8	Oxidizing	3					
OR	1	0-10	3	17.06	11.75	9.21	10.48	1.6279	40.22	35.66	1.12787	Rim	Y	Y	N	N	Sand	Medium	5yr4/2	2.5yr5/6	2.5yr5/6	Oxidizing	3		Inverted	Damaged		
OR	1	0-10	4	5.58	6.41	4.32	5.365	1.0401	29	32.57	0.89039	Body	N	N	Charred	N	Shell (foraminifera)	Fine	10yr5/2	7.5yr2/0	10yr5/2	Reducing	3					
OR	1	0-10	5	6	7.01	6.91	6.96	0.8621	29.89	23.27	1.28449	Body	N	Y	N	N	Grit w/ Mica	Fine	10yr5/4	10yr5/4	10r4/3	Oxidizing	3					
OR	1	0-10	6	3.41	5.55	5.41	5.48	0.6223	29.57	15.28	1.93521	Rim	Y	Y	N	Impress	Grit w/ Mica	Fine	5yr5/1	2.5yr4/4	2.5yr4/4	Reducing	3	Impress on Rim	Straight	Pointed		rim treatment- top pushed down
OR	1	0-10	7	1	3.95	2.94	3.445	0.2903	18.6	12.78	1.4554	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/0	2.5yr5/6	2.5yr5/6	Reducing	3					
OR	1	0-10	8	7.1	14.69	8.59	11.64	0.61	26.58	19.71	1.34855	Rim	N	N	N	N	Shell (foraminifera)	Fine	5yr7/1	5yr5/6	5yr5/6	Reducing	3		Inverted	Flat		
OR	1	0-10	9	1.53	3.87	4.7	21.23	0.0721	25.81	16.65	1.55015	Body	N	N	N	N	?Shell (foraminifera)	Fine	7.5r3/0	7.5r3/0	7.5r3/0	Reducing	3					temper has decomposed, lots of holes, looks aerated
OR	1	0-10	10	1.66	4.04	3.37	3.705	0.448	21.22	15.19	1.39697	Body	N	N	N	N	Grit w/ Mica	Fine	5yr4/3	5yr4/3	5yr4/3	Reducing	3					can't tell if core is dirty or just same color as
OR	1	0-10	11	11.55	6.93	4.23	5.58	2.0699	49.3	38.92	1.2667	Body	N	N	N	N	Grit w/ Coral	Medium	2.5yr4/2	2.5yr4/8	10r4/4	Reducing	3					int. slip is peeling off
OR	1	0-10	12	7.3	11.87	8.78	10.325	0.707	25.53	20.39	1.25208	Body	N	N	N	N	Grit w/ Mica	Coarse	2.5yr4/6	2.5yr4/6	2.5yr4/6	Reducing	3					
OR	1	0-10	13	1.78	4.5	4.28	4.39	0.4055	22.01	8.32	2.64543	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/1	5yr6/8	10yr5/1	Reducing	3					ext is grey, int is red. Also has decompsing
OR	1	0-10	14	0.71	5.04	4.48	4.76	0.1492	13.72	11.45	1.19825	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/6	10yr6/2	5yr5/6	Oxidizing	3					int. is grey, ext is red. fine and hard to determine int/ ext, so may be reversed.
OR	1	0-10	15	1.02	4.2	4.5	4.35	0.2345	21.33	11.62	1.83563	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/1	5yr5/4	5yr6/6	Reducing	3					
OR	1	0-10	16	2.64	5.27	3.69	4.48	0.5893	23.5	19.7	1.19289	Body	N	N	N	N	Grit w/ Mica	Coarse	5yr5/1	5yr6/6	5yr4/6	Reducing	3					
OR	1	0-10	17	4.72	8.8	6.01	7.405	0.6374	29.57	17.76	1.66498	Body	N	N	N	N	Grit w/ Mica	Coarse	5yr5/3	2.5yr4/6	5yr5/8	Oxidizing	3					
OR	1	0-10	18	2.1	6.1	5.76	5.93	0.3541	21.76	16.74	1.29988	Body	N	Y	N	N	Grit w/ Mica	Fine	5yr5/1	5yr3/1	2.5yr4/2	Reducing	3					int has residue, ext looks burnished? Looks like there is residue or s.t. atop the red.
OR	1	0-10	19	2.41	3.71	3.59	17.875	0.1348	25.24	10.51	2.40152	Body	N	N	N	N	Grit w/ Lava	Fine	5yr5/1	2.5yr5/6	2.5yr5/6	Reducing	3					
OR	1	0-10	20	1.99	4.76	3.71	4.235	0.4699	25.14	16.74	1.50179	Body	N	N	N	N	Grit w/ Mica	Fine	5yr4/2	10r4/8	10r3/1	Reducing	3					
OR	1	0-10	21	2.96	7.37	6.67	7.02	0.4217	18.69	18.28	1.02243	Body	N	N	N	N	Grit w/ Mica	Coarse	5yr5/6	5yr5/6	2.5yr3/4	Oxidizing	3					
OR	1	0-10	22	5.8	9.87	9.16	9.515	0.6096	24.85	22.91	1.08468	Body	N	N	N	N	Grit w/ Mica	Medium	2.5yr6/8	5yr6/6	2.5yr6/8	Oxidizing	3					
OR	1	0-10	23	2.7	8.18	7.92	8.05	0.3354	23.66	15.54	1.52252	Body	N	N	N	N	Grit	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3					almost all temper, v. little clay, pos. low fire, v. crumbly
OR	1	0-10	24	3.25	5.77	6.67	6.22	0.5225	24.3	18.55	1.30997	Body	N	N	N	N	Grit w/ Mica	Coarse	2.5yr5/8	5yr5/2	2.5yr5/8	Oxidizing	3					
OR	1	0-10	25	2.38	6.33	6.77	6.55	0.3634	21.73	17.28	1.25752	Body	N	N	N	N	Grit w/ Mica	Coarse	5yr5/6	5yr5/6	5yr5/6	Oxidizing	3					
OR	1	0-10	26	2.79	6.63	4.94	5.785	0.4823	28.49	18.27	1.55939	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5r3/0	2.5yr5/6	7.5r3/0	Reducing	3					
OR	1	0-10	27	2.52	4.25	4.76	4.505	0.5594	22.07	19.26	1.1459	Body	N	N	N	N	Grit w/ Mica	Coarse	2.5yr5/8	2.5yr5/8	2.5yr4/4	Oxidizing	3					firing cloud on ext
OR	1	0-10	28	1.34	4.29	4.62	4.455	0.3008	18.45	13.05	1.41379	Body	N	N	N	N	Grit	Fine	10yr7/4	10yr7/4	10yr7/4	Reducing	3					
OR	1	0-10	29	1.13	4.27	4.34	4.305	0.2625	17.91	12.85	1.39377	Body	N	N	N	N	Grit	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	1	0-10	30	2.25	9.3	6.83	8.065	0.279	16.49	15.07	1.09423	Body	N	N	N	N	Grit	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3					almost all temper, v. little clay, pos. low fire, v. crumbly
OR	1	0-10	31	2.49	5.54	6.08	5.81	0.4286	19.01	17.77	1.06978	Body	N	N	N	N	Grit w/ Coral	Coarse	5yr2.5/1	5yr2.5/1	10r3/6	Reducing	3					
OR	1	0-10	32	1.52	3.89	4.02	3.955	0.3843	19.69	17.7	1.11243	Body	N	N	N	N	grit w/ mica	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					almost all temper, but not crumbly
OR	1	0-10	33	2.3	3.67	3.97	3.82	0.6021	22.94	18.55	1.23666	Body	N	N	N	N	?Shell (foraminifera)	Fine	7.5yr6/6	7.5yr6/6	7.5yr6/6	Oxidizing	3					temper has decomposed, lots of holes, looks aerated
OR	1	0-10	34	1.97	5.2	5.44	5.32	0.3703	18.02	18.46	0.97616	Body	N	N	N	Incising	Grit w/ Mica	Fine	2.5yr5/8	5yr6/3	2.5yr5/8	Oxidizing	3	Parallel Incise				2 parallel lines incised on ext
OR	1	0-10	35	7.88	10.23	9.3	9.765	0.807	37.17	21.6	1.72083	Body	N	N	N	N	Grit w/ Coral	Varies	10r4/8	10r4/8	5yr7/3	Oxidizing	3					
OR	1	0-10	36	1.34	4.97	4.9	4.935	0.2715	17.07	12.74	1.33987	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	0-10	37	1.38	3.82	4.2	4.01	0.3441	18.47	12.61	1.46471	Body	N	N	N	N	Grit w/ Mica	Fine	5yr6/4	5yr6/4	5yr6/4	Oxidizing	3					
OR	1	0-10	38	1.54	3.34	3.84	3.59	0.429	24.68	14.29	1.72708	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/8	2.5yr5/8	5yr6/6	Oxidizing	3					
OR	1	0-10	39	2.17	6.03	5.58	5.805	0.3738	19.94	12.56	1.58758	Body	N	N	N	N	Grit	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3					almost all temper, v. little clay, pos. low fire, v. crumbly
OR	1	0-10	40	2.48	7.13	7.76	7.445	0.3331	16.84	14.81	1.13707	Body	N	N	N	N	grit w/ mica	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					almost all temper, but not crumbly
OR	1	0-10	41	1.17	4.91	4.88	4.895	0.239	24.24	8.08	3	Body	N	N	N	N	Grit	Fine	5yr7/6	5yr7/6	5yr5/4	Oxidizing	3					
OR	1	0-10	42	0.85	4.53	4.8	4.665	0.1822	12.69	10.87	1.16743	Body	N	N	N	N	Sand	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	0-10	43	1.29	4.55	4.68	4.615	0.2795	16.25	13.65	1.19048	Body	N	N	N	N	Grit	Medium	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	1	0-10	44	0.67	3.15	3.26	3.205	0.209	17.91	10.19	1.75761	Body	N	N	N	Incising	Grit	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3	Other Incise				2 parallel lines w/ curvilinear pattern in
OR	1	0-10	45	1.01	3.93	3.76	3.845	0.2627	16.1	13.96	1.1533	Body	N	N	N	N	Grit w/ Mica	Fine	10yr3/1	10yr3/1	10yr3/1	Reducing	3					
OR	1	0-10	46	1.57	4.71	4.66	4.685	0.3351	21.44	12.89	1.6633	Body	N	N	N	N	Grit w/ Mica	Fine	10r5/8	10yr2/1	10r5/8	Oxidizing	3					
OR	1	0-10	47	0.82	4.51	4.4	4.455	0.1841	16.66	10.94	1.52285	Body	N	N	N	N	Grit	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	0-10	48	3.24	5.93	5.43	5.68	0.5704	23.4	20.15	1.16129	Body	N	N	N	N	Grit w/ Mica	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	0-10	49	2.9	4.65	5.25	4.95	0.5859	20.72	19.97	1.03756	Body	N	N	N	N	Grit	Fine	10yr3/2	10yr3/2	10yr3/2	Reducing	3					
OR	1	0-10	50	1.05	4	3.78	3.89	0.2699	18.51	15.31	1.20901	Body	N	N	N	N	Sand	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	0-10	51	1.08	4.24	4.12	4.18	0.2584	19.62	11.53	1.70165	Body	N	Y	N	N	Grit	Fine	7.5yr7/6	7.5yr7/6	2.5yr4/8	Reducing	3					
OR	1	0-10	52	1.23	5.26	5.47	5.365	0.2293	12.48	15.23	0.81944	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr4/0	2.5yr6/8	2.5yr4/8	Reducing	3					
OR	1	0-10	53	1.06	4.6	4.51	4.555	0.2327	17.41	17.45	0.99771	Body	N	N	N	N	Grit	Fine	10r2.5/1	10r2.5/1	10r2.5/1	Reducing	3					temper has decomposed, lots of holes, looks aerated
OR	1	0-10	54	1.44	5.69	6.29	5.99	0.2404	17.83	13.18	1.35281	Body	N	N	N	N	Grit	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					almost all temper, v. little clay, pos. low fire, v. crumbly
OR	1	0-10	55	1.09	4.34	4.59	4.465	0.2441	16.57	13	1.27462	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	0-10	56	3.52	6	4.6	5.3	0.6642	25.83	16.81	1.53659	Body	N	N	N	Impress	Grit w/ Mica	Fine	2.5yr3/2	2.5yr2.5/2	2.5yr3/2	Oxidizing	3	Impress on Body				some trowel marks, but 3 parallel lines are covered in dirt and probably old.
OR	1	0-10	57	0.88	2.89	3.54	3.215	0.2737	15.93	11.62	1.37091	Body	N	N	N	N	Grit w/ Mica	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	0-10	58	0.82	6.39	8.27	7.33	0.1119	17.55	6.06	2.89604	Body	N	N	N	N	Grit w/ Coral	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3					almost all temper, v. little clay, pos. low fire, v. crumbly
OR	1	0-10	59	0.94	4	4.66	4.33	0.2171	16.03	11.42	1.40368	Body	N	N	N	Incising	Shell (foraminifera)	Fine	10r4/1	10r5/8	10r4/1	Reducing	3	Single Incise				
OR	1	0-10	60	0.56	3.16	3.02	3.09	0.1812	12.79	10.24	1.24902	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/8	2.5yr5/8	10r4/6	Oxidizing	3					
OR	1	0-10	61	9.12	6.02	5.32	5.67	1.6085	40.87	30.88	1.32351	Body	Y	Y	Impress	N	Grit	Fine	10r5/8	2.5yr3/0	10r4/8	Oxidizing	3	Impress				some firing clouds on ext
OR	1	0-10	62	0.67	4.11	3.73	3.92	0.1709	13.65	12.08	1.12997	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/8	2.5yr3/0	2.5yr6/8	Oxidizing	3					
OR	1	0-10	63	0.72	3.65	4.32	3.985	0.1807	14.85	13.5	1.1	Body	N	N	N	N	Grit	Fine	2.5yr6/8	2.5yr6/8	2.5yr3/6	Oxidizing	3					
OR	1	0-10	64	1.16	4.95	4.8	4.875	0.2379	16.61	12.27	1.35371	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/8	2.5yr6/8	2.5yr6/8	Oxidizing	3					
OR	1	0-10	65	1	3.95	4.02	3.985	0.2509	16.14	12.63	1.27791	Body	N	N	N	N	Grit w/ Grog, Mica	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	0-10	66	1.48	4.84	4.45	4.645	0.3186	21.63	12.67	1.70718	Body	N	N	N	N	Grit w/ Mica	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	0-10	67	1.43	2.63	2.68	2.655	0.5386	23.33	19.09	1.22211	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr6/8	2.5yr6/8	2.5yr6/8	Oxidizing	3					
OR	1	0-10	68	0.55	3.46	3.34	3.4	0.1618	13.59	10.36	1.31178	Body	N	N	N	N	?Shell (foraminifera)	Fine	2.5yr6/8	2.5yr2.5/2	2.5yr6/8	Oxidizing	3					temper has decomposed, lots of holes, looks aerated
OR	1	0-10	69	1.77	4.92	5.04	4.98	0.3554	18.4	14.8	1.24324	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/8	2.5yr5/8	2.5yr3/2	Oxidizing	3					
OR	1	0-10	70	1.03	3.93	4.12	4.025	0.2559	14.68	13.24	1.10876	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/8	2.5yr5/8	2.5yr3/2	Oxidizing	3					
OR	1	0-10	71	1.03	4.66	4.58	4.62	0.2229	13.88	12.71	1.09205	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr4/8	2.5yr4/2	2.5yr4/8	Oxidizing	3					
OR	1	0-10	72	0.56	4.11	4.04	4.075	0.1374	11.97	9.59	1.24818	Body	N	N	N	N	Sand	Fine	5yr6/6	5yr6/6	5yr6/6	Reducing	3					
OR	1	0-10	73	0.59	4.24	4.58	4.41	0.1338	11.9	10.81	1.10083	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5r4/0	10r6/6	10r6/6	Reducing	3					
OR	1	0-10	74	0.7	4.33	3.37	3.85	0.1818	16.01	9.79	1.63534	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5r4/0	2.5yr6/4	2.5yr6/4	Reducing	3					
OR	1	0-10	75	1.13	3.93	3.39	3.66	0.3087	18.09	13.55	1.33506	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/6	10r5/6	10r5/6	Reducing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
OR	1	0-10	76	0.77	3.77	4.02	3.895	0.1977	14.12	13.74	1.02766	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/2	2.5yr5/8	2.5yr5/8	Reducing	3					
OR	1	0-10	77	1.73	6.29	4.95	5.62	0.3078	19.58	15.61	1.25432	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5r5/0	1056/8	1056/8	Reducing	3					
OR	1	0-10	78	1.97	4.38	4.67	4.525	0.4354	16.97	11.47	1.47951	Body	N	N	N	N	Grit w/ Mica	Fine	10R4/8	10R4/8	10R4/8	Oxidizing	3					
OR	1	0-10	79	1.03	4.41	4.66	4.535	0.2271	16.56	10.76	1.53903	Body	N	N	N	N	Sand	Fine	10r6/8	10r6/8	10r6/8	Oxidizing	3					
OR	1	0-10	80	1.1	4.94	5.12	5.03	0.2187	16.28	12.19	1.33552	Body	N	N	N	N	Grit w/ ?Grog	Medium	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	0-10	81	0.53	3.62	3.87	3.745	0.1415	11.12	10.72	1.03731	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/1	2.5yr6/6	2.5yr6/6	Reducing	3					
OR	1	0-10	82	0.58	3.96	3.48	3.72	0.1559	11.54	9.56	1.20711	Body	N	N	N	N	Shell (foraminifera)	Fine	10r6/8	10r6/8	10r4/8	Oxidizing	3					
OR	1	0-10	83	2.35	5.81	6.4	6.105	0.3849	23.61	18.14	1.30154	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/2	2.5yr5/2	2.5yr6/8	Reducing	3					
OR	1	0-10	84	2.01	5.05	5.99	5.52	0.3641	20.89	17.57	1.18896	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/6	2.5yr5/8	2.5yr5/8	Oxidizing	3					lots of temper
OR	1	0-10	85	5.65	7.74	7.51	7.625	0.741	28.2	24.35	1.15811	Body	N	N	N	N	Grit w/ ?Grog	Coarse	5yr5/6	5yr5/6	5yr5/6	Oxidizing	3					
OR	1	0-10	86	1.32	4.91	4.93	4.92	0.2683	17.01	12.98	1.31048	Body	N	N	N	N	Grit	Coarse	10r3/1	2.5yr2.5/0	10r3/1	Reducing	3					crumbly
OR	1	0-10	87	2.41	5.41	4.73	5.07	0.4753	23.49	17.31	1.35702	Body	N	N	N	N	Sand	Medium	5yr6/4	5yr6/4	5yr6/4	Reducing	3					
OR	1	0-10	88	0.66	3.23	3.36	3.295	0.2003	12.21	11.97	1.02005	Body	N	N	N	N	Grit w/ ?Shell	Fine	5yr6/6	5yr6/6	5yr5/1	Oxidizing	3					some grit visible, but also aerated holes
OR	1	0-10	89	0.85	4.02	3.44	3.73	0.2279	13.19	11.72	1.12543	Body	N	N	N	N	Grit	Fine	10r5/1	10yr7/2	5yr7/2	Reducing	3					some sort of white-ish coating on both
OR	1	0-10	90	3.99	6.84	5.9	6.37	0.6264	28.67	19.23	1.4909	Body	N	N	N	N	Sand	Fine	5yr6/8	10yr4/2	5yr6/8	Oxidizing	3					
OR	1	0-10	91	0.87	2.58	2.94	2.76	0.3152	18.13	13.3	1.36316	Body	N	N	N	N	Grit	Fine	2.5yr5/8	2.5yr3/0	2.5yr5/8	Oxidizing	3					
OR	1	0-10	92	2.35	4.02	4.65	4.335	0.5421	19.41	18.71	1.03741	Body	N	N	N	N	?Sand w/ Grog	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	0-10	93	1.32	4.41	2.81	3.61	0.3657	19.25	15.8	1.21835	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	1	0-10	94	1.97	6.08	5.41	5.745	0.3429	19.79	15.97	1.2392	Body	N	N	N	N	Grit w/ Mica	Medium	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	0-10	95	0.82	3.66	3.37	3.515	0.2333	13.24	13.03	1.01612	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/8	5yr3/1	2.5yr5/8	Oxidizing	3					
OR	1	0-10	96	1.14	4.99	4.85	4.92	0.2317	21.41	9.62	2.22557	Body	N	N	N	Incising	Grit	Fine	2.5yr6/6	2.5yr6/6	2.5yr6/6	Oxidizing	3	Other Incise				4 parallel lines w/ 1 line crossing them
OR	1	0-10	97	0.69	4.2	4.16	4.18	0.1651	15.67	10.47	1.49666	Body	N	N	N	N	Grit	Fine	5yr6/4	2.5yr5/8	5yr6/4	Oxidizing	3					
OR	1	0-10	98	2.45	5.23	5.37	5.3	0.4623	27.91	13.1	2.13053	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr6/6	2.5yr6/6	2.5yr6/6	Oxidizing	3					
OR	1	0-10	99	1.27	4.51	4.45	4.48	0.2835	16.49	14.4	1.14514	Body	N	N	N	N	Sand	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	0-10	100	0.9	3.16	3.41	3.285	0.274	15.54	14.21	1.0936	Body	N	N	N	N	Grit	Fine	5yr5/8	5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	0-10	101	0.74	4.25	4.23	4.24	0.1745	15.92	11.99	1.32777	Body	N	N	N	N	Sand	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	0-10	102	1.1	4.31	4.11	4.21	0.2613	17.64	15.29	1.1537	Body	N	N	N	Incising	Grit	Fine	5yr6/6	5yr6/6	5yr6/6	Oxidizing	3	Single Incise				
OR	1	0-10	103	0.77	5.29	4.83	5.06	0.1522	14.92	9.87	1.51165	Body	N	N	N	N	Grit	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3					almost all temper, v. little clay, pos. low fire, v. crumbly
OR	1	0-10	104	1.18	4.76	4.95	4.855	0.243	19.5	11.56	1.68685	Body	N	N	N	N	Sand	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	0-10	105	1.47	5.65	5.7	5.675	0.259	14.57	13.18	1.10546	Body	N	N	N	N	Grit w/ Mica	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	0-10	106	1.24	5.27	5.38	5.325	0.2329	17.5	12.35	1.417	Body	N	N	N	N	Grit w/ Mica	Medium	2.5yr4/8	2.5yr5/8	2.5yr4/8	Oxidizing	3					
OR	1	0-10	107	0.86	5.94	5.77	5.855	0.1469	15.93	10.44	1.52586	Body	N	N	N	N	Sand	Fine	7.5yr5/6	7.5yr5/6	7.5yr5/6	Oxidizing	3					
OR	1	0-10	108	1.04	3.81	3.89	3.85	0.2701	16.82	12.79	1.31509	Body	N	N	N	N	Grit	Coarse	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	1	0-10	109	1.6	3.47	3.31	3.39	0.472	22.79	14.34	1.58926	Body	N	N	N	N	grit w/ mica	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	0-10	110	2.93	8.9	4.43	6.665	0.4396	18.81	13.62	1.38106	Base	Y	Y	N	N	Grit	Fine	10r5/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	0-10	111	2.17	5.85	4.64	5.245	0.4137	21.68	15.41	1.40688	Body	N	N	N	N	Grit w/ Coral	Fine	10r3/6	10r3/6	7.5yr2/0	Oxidizing	3					
OR	1	0-10	112	7.36	5.37	6.28	5.825	1.2635	35.9	19.04	1.8855	Body	N	N	N	N	Grit w/ Mica	Fine	10yr6/3	10yr6/3	2.5yr4/6	Reducing	3					
OR	1	0-10	113	1.15	4.36	4.21	4.285	0.2684	18.63	10.39	1.79307	Body	N	Y	N	N	Grit w/ Mica	Fine	10r5/8	10r5/8	7.5r3/0	Oxidizing	3					
OR	1	0-10	114	0.66	3.7	2.72	3.21	0.2056	12.67	12.44	1.01849	Body	N	N	N	N	Grit w/ Mica	Fine	10r5/6	10r5/6	10r5/6	Oxidizing	3					
OR	1	0-10	115	0.26	1.65	1.5	1.575	0.1651	13.67	8.72	1.56766	Body	N	N	N	N	Grit w/ Mica	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	0-10	116	0.54	3.2	3.5	3.35	0.1612	12.28	11.32	1.08481	Body	N	N	N	N	Sand	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	0-10	117	0.7	4.06	4.17	4.115	0.1701	12.5	11.41	1.09553	Body	N	N	N	N	Sand	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	0-10	118	1.03	4.18	3.38	3.78	0.2725	18.22	12.59	1.44718	Body	N	N	N	N	Grit w/ Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	0-10	119	0.89	3.44	3.73	3.585	0.2483	16.01	12.3	1.30163	Body	N	N	N	N	Sand	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	0-10	120	0.75	3.44	3.51	3.475	0.2158	13.46	13.09	1.02827	Body	N	Y	N	N	Grit	Fine	10yr7/4	10yr7/4	7.5yr4/8	Reducing	3					
OR	1	0-10	121	0.86	3.55	2.68	3.115	0.2761	17.02	11.52	1.47743	Body	N	Y	N	N	Grit	Fine	5yr6/4	5yr6/4	10r4/8	Reducing	3					
OR	1	0-10	122	4.09	7.4	6.96	7.18	0.5696	24.28	15.05	1.61329	Body	N	N	N	Impress	Grit	Fine	5yr6/2	10r5/8	10r5/8	Oxidizing	3	Impress on Body				
OR	1	0-10	123	0.51	3.13	3.3	3.215	0.1586	12.39	9.36	1.32372	Body	N	N	N	N	Grit	Medium	10r6/6	10r6/6	10r6/6	Oxidizing	3					rounded, beach-worn?
OR	1	0-10	124	1.35	4.44	4.55	4.495	0.3003	23.33	12.94	1.80294	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/2	10r5/8	10r5/8	Reducing	3					
OR	1	0-10	125	1.36	4.32	4.08	4.2	0.3238	18.27	17.23	1.06036	Body	N	N	N	N	Grit	Fine	7.5r4/8	7.5r4/8	7.5r4/8	Oxidizing	3					some sort of coating on both sides
OR	1	0-10	126	1.36	6.1	6.25	6.175	0.2202	17.13	8.71	1.9667	Body	N	N	N	N	Grit	Fine	10yr5/1	5yr3/0	2.5yr5/8	Oxidizing	3					some sort of coating on both sides
OR	1	0-10	127	1.62	3.93	4.08	4.005	0.4045	21.44	15.32	1.39948	Body	N	N	N	N	Grit w/ Mica	Fine	10r4/4	10r3/1	10r4/4	Oxidizing	3					
OR	1	0-10	128	0.94	5.54	4.51	5.025	0.1871	21.67	8.98	2.41314	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/2	5yr7/6	10r6/8	Reducing	3					
OR	1	0-10	129	2.75	7.22	6.14	6.68	0.4117	24.5	15.18	1.61397	Body	N	N	N	Incising	Shell (foraminifera)	Fine	5yr6/2	5yr6/2	5yr6/2	Reducing	3	Parallel Perpendicular				
OR	1	0-10	130	5.41	6.21	6.09	6.15	0.8797	32.23	21.5	1.49907	Rim	N	N	N	Incising	Grit w/ Mica	Medium	10r5/8	5yr6/4	10r5/8	Oxidizing	3	Parallel Incise	Straight	Flat		
OR	1	0-10	131	1.57	4.36	4.42	4.39	0.3576	18.3	16.01	1.14304	Body	N	N	N	Incising	Grit w/ Mica	Fine	2.5r5/8	5yr3/1	2.5r5/8	Oxidizing	3	Single Incise				
OR	1	0-10	132	0.65	4.28	4.05	4.165	0.1561	13.59	11.41	1.19106	Body	N	N	N	N	Sand	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	0-10	133	1.25	3.4	3.31	3.355	0.3726	18.89	12.14	1.55601	Body	N	N	N	N	Sand	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	0-10	134	1.59	3.63	3.98	3.805	0.4179	19.15	16.98	1.1278	Body	Y	Y	Impress	Incising	Grit	Fine	7.5r4.8	2.5yr3/0	2.5yr3/0	Oxidizing	3	Single Incise				firing clouds and burnishing
OR	1	0-10	135	2.08	4.26	3.82	4.04	0.5149	26.15	11.45	2.28384	Body	N	N	N	N	Grit	Medium	5yr8/3	5yr8/3	7.5r4/4	Oxidizing	3					trowel marks
OR	1	0-10	136	2.32	4.87	4.65	4.76	0.4874	22.3	8.57	2.6021	Rim	N	N	N	Incising	Grit w/ Mica	Fine	10r5/8	10r5/8	10r3/1	Oxidizing	3	Parallel Incise	Inverted	Flat		
OR	1	0-10	137	3.12	6.07	4.6	5.335	0.5848	23.42	12.81	1.82826	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	0-10	138	2	7.33	7.15	7.24	0.2762	19.06	16	1.19125	Body	N	N	N	N	Sand	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	0-10	139	0.67	3.45	3.95	3.7	0.1811	13.67	10.84	1.26107	Body	N	N	N	N	Sand	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	0-10	140	0.37	4.09	4.2	4.145	0.0893	12.68	6.05	2.09587	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/2	10r6/8	10r5/8	Reducing	3					
OR	1	0-10	141	1.14	4.16	3.74	3.95	0.2886	17.05	11.57	1.47364	Body	N	N	N	N	Grit w/ Mica	Fine	7.5r2.5/0	7.5r2.5/0	7.5r4/8	Reducing	3					
OR	1	0-10	142	0.67	4.62	3.78	4.2	0.1595	13.61	7.65	1.77908	Body	N	N	N	N	Grit w/ Mica	Fine	10r6/8	10r6/8	10r6/8	Oxidizing	3					
OR	1	0-10	143	0.15	1.89	2.18	2.035	0.0737	9.79	7.21	1.35784	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr5/8	2.5yr5/8	10r5/8	Oxidizing	3					
OR	1	0-10	144	2.1	4.58	4.48	4.53	0.4636	19.36	17.56	1.10251	Body	N	N	N	N	Grit w/ Coral	Fine	10r3/1	10r3/2	10r3/1	Reducing	3					
OR	1	0-10	145	0.46	4.55	4	4.275	0.1076	11.82	9.41	1.25611	Body	N	N	N	N	Sand	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	0-10	146	1.53	3.56	3.09	3.325	0.4602	23.2	9.34	2.48394	Body	N	N	N	N	Sand	Fine	5yr8/3	5yr8/3	7.5yr6/4	Reducing	3					
OR	1	0-10	147	0.83	3.19	3.2	3.195	0.2598	18.72	14.75	1.26915	Body	N	N	N	N	Sand	Fine	5yr7/4	5yr7/4	5yr6/6	Oxidizing	3					
OR	1	0-10	148	0.38	2.81	2.53	2.67	0.1423	11.03	10.54	1.04649	Body	N	N	N	N	Sand	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	0-10	149	0.57	2.8	2.68	2.74	0.208	15.81	10.49	1.50715	Body	N	N	N	N	Grit	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	10-20	1	34.77	7.16	6.42	6.79	5.1208	77.16	41.64	1.85303	Rim	Y	Y	N	N	Grit	Fine	2.5yr5/8	10r4/8	2.5yr3/2	Oxidizing	3		Inverted	Rounded	L&S #3-Bowl	
OR	1	10-20	2	36.46	8.29	7.41	7.85	4.6446	72.54	34.61	2.09593	Rim	Y	N	Impress	Incising	Grit	Fine	10r4/8	2.5yr2.5/0	10r3/2	Oxidizing	3	Parallel Incise	Inverterd	rounded		
OR	1	10-20	3	13.82	8.3	5.32	6.81	2.0294	42.15	31.97	1.31842	Body	N	N	N	N	Grit	Fine	10r4/8	10r4/8	10r3/3	Oxidizing	3					
OR	1	10-20	4	18.86	7.49	6.11	6.8	2.7735	51.68	40.23	1.28461	Body	N	N	N	N	Sand	Fine	5yr5/8	10yr6/4	5yr5/8	Oxidizing	3					
OR	1	10-20	5	14.78	7.59	6.81	7.2	2.0528	39.98	30.88	1.29469	Rim	Y	N	Impress	Grit w/ Coral	Fine	10r5/8	2.5yr6/8	10r4/8	Oxidizing	3	Impress on Rim	Straight	Rounded		
OR	1	10-20	6	5.19	7.04	7.15	7.095	0.7315	35.15	25.74	1.36558	Shoulder	N	N	N	Incising	grit w/ mica	Coarse	2.5yr5/8	2.5yr5/8	10r3/4	Oxidizing	3	Parallel Incise	Everted	flat		
OR	1	10-20	7	2.95	4.76	4.43	4.595	0.642	22.96	16.6	1.38313	Body	N	N	N	N	Grit	Fine	10r5/6	10r3/1	5yr6/4	Oxidizing	3					
OR	1	10-20	8	8.36	6.2	6.75	6.475	1.2911	45.99	27.11	1.69642	Rim	N	N	N	N	Grit w/ Coral	Coarse	2.5yr5/8	2.5yr5/8	2.5yr3/0	Oxidizing	3		Everted	Flat		firing clouds
OR	1	10-20	9	4.49	5.4	2.61	4.005	1.1211	31.87	18.85	1.69072	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/2	2.5yr4/2	2.5yr4/2	Reducing	3					
OR	1	10-20	10	5.72	5.14	4.33	4.735	1.208	36.75	9.22	3.9859	Rim	N	N	N	Incising	Grit	Fine	5yr7/6	5yr7/6	5yr6/3	Reducing	3	Other Incise	Inverted	Rounded		
OR	1	10-20	11	10.87	7.24	7.11	7.175	1.515	38.65	24.64	1.56859	Body	N	N	N	N	Grit w/ Coral	Fine	5yr7/3	5yr7/3	2.5yr4/8	Reducing	3					
OR	1	10-20	12	3.85	4.85	5.45	5.15	0.7476	31.43	24.6	1.27764	Body	N	Y	N	N	Grit w/ Coral	Fine	10r5/1	2.5yr5/8	10r4/8	Reducing	3					
OR	1	10-20	13	3.48	5.72	5.35	5.535	0.6287	26.26	24.74	1.06144	Body	N	N	N	N	Sand	Fine	2.5yr4/8	2.5yr3/6	2.5yr4/8	Oxidizing	3					
OR	1	10-20	14	1.15	3.69	2.66	3.175	0.3622	18.81	16.43	1.14486	Body	N	N	N	N	Grit w/ Coral	Medium	10r4/8	10r4/8	10r4/8	Oxidizing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
OR	1	10-20	15	1.91	3.83	3.91	3.87	0.4935	21.34	15.09	1.41418	Body	N	Y	N	N	Grit w/ Coral	Fine	10r6/8	2.5yr4/8	2.5yr5/8	Oxidizing	3					
OR	1	10-20	16	7.37	7.13	6.46	6.795	1.0846	29.77	21.43	1.38917	Body	N	N	N	N	Grit w/ Grog, Sand	Medium	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	10-20	17	12.69	7.9	6.92	7.41	1.7126	45.07	22.07	2.04214	Body	N	N	N	N	Grit w/ Coral	Varies	5yr6/4	2.5yr5/8	2.5yr5/8	Reducing	3					
OR	1	10-20	18	2.04	5.66	4.65	5.155	0.3957	20.2	9.57	2.11076	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr6/8	2.5yr6/8	2.5yr6/8	Oxidizing	3					
OR	1	10-20	19	5.86	4.79	6.3	5.545	1.0568	33.6	31.69	1.06027	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr4/8	2.5yr4/6	2.5yr4/8	Oxidizing	3					
OR	1	10-20	20	8.29	5.04	2.59	3.815	2.173	38.69	34.4	1.12471	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	10-20	21	3	5.02	5.24	5.13	0.5848	29.56	15.92	1.85678	Body	N	N	N	N	Grit w/ Coral	Coarse	10r5/8	10r3/2	2.5yr3/2	Oxidizing	3					
OR	1	10-20	22	5.41	8.06	7.88	21.825	0.2479	26.7	16.95	1.57522	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	10-20	23	6.25	5.67	4.94	5.305	1.1781	37.83	20.37	1.85714	Body	N	N	N	N	Grit w/ Sand	Fine	5yr6/6	5yr6/6	10yr5/2	Oxidizing	3					thumb indentation on the interior
OR	1	10-20	24	1.44	4.35	3.54	3.945	0.365	18.1	14.49	1.24914	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/6	2.5yr5/6	2.5yr5/6	Oxidizing	3					
OR	1	10-20	25	1.91	3.59	2.97	3.28	0.5823	30.27	14.84	2.03976	Body	N	N	N	N	Grit w/ Coral	Fine	10r5/8	10r3/6	10r3/2	Oxidizing	3					
OR	1	10-20	26	2.95	6.07	5.11	5.59	0.5277	24.89	22.88	1.08785	Body	N	N	N	N	Grit	Fine	2.5yr5/8	2.5yr3/4	2.5yr5/8	Oxidizing	3					
OR	1	10-20	27	2.22	8.52	8.07	8.295	0.2676	18.56	13.37	1.38818	Body	N	N	N	N	Grit	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					lots of missing temper, aerated-look
OR	1	10-20	28	1.56	5.36	5.24	5.3	0.2943	15.41	14.12	1.09136	Body	N	N	N	N	Grit w/ Grog	Fine	10r5/6	10r5/6	10r5/6	Oxidizing	3					v. crumbly
OR	1	10-20	29	4.79	7.42	6.15	6.785	0.706	34.83	14.63	2.38072	Body	N	N	N	N	Grit w/ Mica	Fine	10yr6/4	10yr6/4	10yr6/4	Reducing	3					
OR	1	10-20	30	2.15	4.94	4.9	4.92	0.437	20.01	14.22	1.40717	Body	N	N	N	N	Grit w/ Grog	Fine	2.5yr6/8	2.5yr6/8	2.5yr6/8	Oxidizing	3					
OR	1	10-20	31	1.58	3.67	3.73	3.7	0.427	22.04	14.82	1.48718	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr3/6	5yr5/2	2.5yr3/6	Oxidizing	3					
OR	1	10-20	32	14.16	3.85	7.19	5.52	2.5652	64.98	42.37	1.53363	Neck	N	N	N	N	Grit w/ Coral	Varies	5yr6/4	2.5yr6/8	2.5yr5/8	Reducing	3					
OR	1	10-20	33	7.81	7.36	7.6	7.48	1.0441	33.51	23.08	1.45191	Body	N	N	N	N	Grit w/ Grog	Coarse	10r5/8	10r3/3	10r3/3	Oxidizing	3					v. crumbly
OR	1	10-20	34	3.51	4.85	5.24	5.045	0.6957	25.66	23.38	1.09752	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	10-20	35	3.71	7.14	7.56	7.35	0.5048	20.76	17.03	1.21903	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr5/8	2.5yr4/6	2.5yr5/8	Oxidizing	3					v.crumbly
OR	1	10-20	36	3.63	6.21	3.72	4.965	0.7311	29.19	15.85	1.84164	Body	N	N	Charred	N	Grit	Fine	2.5yr4/6	10r3/0	2.5yr4/6	Oxidizing	3					
OR	1	10-20	37	1.79	6.36	5.27	5.815	0.3078	27.45	16.64	1.64964	Body	N	N	N	N	Grit w/ Grog	Varies	10yr7/3	10yr7/3	10yr7/3	Reducing	3					lots of missing temper, aerated-look; v. crumbly. Yellow iso red
OR	1	10-20	38	6.05	9.11	6.21	7.66	0.7898	25.1	23.7	1.05907	Body	N	N	N	N	Grit w/ Coral, Grog, Sand	Varies	10r4/6	10r4/6	10r4/6	Oxidizing	3					
OR	1	10-20	39	6.97	6.81	5.01	5.91	1.1794	38.89	28.01	1.38843	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	10-20	40	6.16	7.86	8.59	8.225	0.7489	31.62	17.23	1.83517	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/4	10r4/4	10r6/8	Oxidizing	3					firing clouds
OR	1	10-20	41	8.58	6.55	5.33	5.94	1.4444	46.73	25.74	1.81546	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr5/8	2.5yr5/8	10r3/0	Oxidizing	3					firing clouds
OR	1	10-20	42	12.6	12.97	11.56	12.265	1.0273	39.3	17.83	2.20415	Body	N	N	N	N	Grit w/ Mica	Varies	10r5/8	10r4/6	10r5/8	Oxidizing	3					
OR	1	10-20	43	4.37	4.95	4.61	4.78	0.9142	34.57	18.6	1.8586	Body	N	N	N	N	Grit w/ Coral	Fine	10r5/8	10r5/8	10r3/0	Oxidizing	3					firing clouds
OR	1	10-20	45	6.61	5.82	4.93	5.375	0.1662	39.76	25.13	1.58217	Body	N	N	N	N	Sand	Fine	10r5/8	10r3/2	7.5yr6/4	Oxidizing	3					
OR	1	10-20	46	1.71	4.23	4.11	4.17	0.4101	29.64	6.07	4.88303	Body	N	N	N	N	Grit	Fine	10r3/2	2.5yr5/8	10r3/2	Oxidizing	3					
OR	1	10-20	47	6.8	5.76	4.74	5.25	1.2952	45.01	32.72	1.37561	Body	N	N	N	N	Sand	Fine	10r5/8	2.5yr6/8	2.5yr54/4	Oxidizing	3					
OR	1	10-20	48	2.25	5.68	5.81	5.745	0.3916	22.03	17.56	1.25456	Body	N	N	N	N	Grit w/ Coral, Grog, Sand	Varies	2.5r4/8	2.5r4/8	2.5r4/8	Oxidizing	3					
OR	1	10-20	49	4.46	6.86	7.47	7.165	0.6225	32.34	10.2	3.17059	Body	N	N	N	N	Sand	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	10-20	50	4.92	6.51	7.42	6.965	0.7064	26.3	21.23	1.23881	Body	N	N	N	N	Grit w/ Coral	Coarse	10r5/8	10r5/8	2.5yr5/8	Oxidizing	3					
OR	1	10-20	51	2.2	4.91	4.74	4.825	0.456	23.1	15.57	1.48362	Body	N	N	N	N	Sand	Fine	10r3/0	10r3/0	10r5/8	Reducing	3					aerated look
OR	1	10-20	52	2.01	5.73	5.61	5.67	0.3545	20	9.99	2.002	Body	N	N	N	N	Grit	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					v. crumbly, aerated look
OR	1	10-20	53	7.27	9.35	7.89	8.62	0.8434	29.71	12.34	2.40762	Body	N	N	N	N	Sand	Fine	5yr5/0	5yr6/6	2.5yr5/6	Reducing	3					
OR	1	10-20	54	3.48	6.51	5.89	6.2	0.5613	30.15	15.18	1.98617	Body	N	N	N	N	Sand	Fine	10r3/2	10r3/2	10r4/4	Oxidizing	3					
OR	1	10-20	55	1.92	4.54	4.39	4.465	0.43	20.56	15.08	1.3634	Body	N	N	N	N	Grit w/ Mica	Varies	10r3/0	10r3/2	10r3/4	Reducing	3					
OR	1	10-20	56	2.21	6.61	5.6	6.105	0.362	22.42	9.66	2.32091	Body	N	N	N	N	Grit w/ Mica	Medium	5yr3/1	10r4/8	10r5/8	Reducing	3					
OR	1	10-20	57	2.92	6.63	7.06	6.845	0.4266	24.1	10.15	2.37438	Body	N	N	N	N	Grit w/ Mica	Fine	10r5/8	10r3/1	10r5/8	Oxidizing	3					
OR	1	10-20	58	1.52	6.14	6.23	6.185	0.2458	19.9	9.4	2.11702	Body	N	N	N	N	Grit w/ Coral	Medium	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	1	10-20	59	9.4	8.61	8.18	8.395	1.1197	40.97	26.18	1.56494	Body	N	N	N	N	Grit w/ Coral	Coarse	10r5/8	2.5yr4/6	5yr3/0	Oxidizing	4					roofing tile? Weird coating on int and ext
OR	1	10-20	60	15.89	9.31	7.3	8.305	1.9133	60.99	33.16	1.83926	Rim	N	N	N	Impress	Grit w/ Grog	Coarse	10r4/8	2.5yr5/8	5yr4/3	Oxidizing	3	Impress	Inverted	Flat		lip on int and impress on ext
OR	1	10-20	61	2.14	3.8	4.13	3.965	0.5397	27.09	13.21	2.05072	Body	N	N	N	N	Grit w/ Coral	Fine	10r6/8	10r3/2	10r6/8	Oxidizing	3					
OR	1	10-20	62	2.72	5.82	4.48	5.15	0.5282	25.63	16.07	1.5949	Rim	N	N	N	N	Grit w/ Grog	Varies	2.5yr5/6	2.5yr5/6	2.5yr5/6	Oxidizing	3		Straight	Flat		
OR	1	10-20	63	3.38	5.41	5.19	5.3	0.6377	29.36	19.03	1.54283	Neck	N	Y	N	N	Grit w/ Grog	Fine	2.5yr5/8	2.5yr5/8	10r4/6	Oxidizing	3					
OR	1	10-20	64	2.23	6.44	5.81	6.125	0.3641	20.7	12.35	1.67611	Body	N	N	N	Impress	Grit w/ Coral	Fine	2.5yr6/8	2.5yr6/8	2.5yr6/8	Oxidizing	3	Parallel Incise				
OR	1	10-20	65	1.1	2.71	3.15	2.93	0.3754	18.05	11.71	1.54142	Body	N	N	N	N	Grit	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	10-20	66	1.87	5.19	4.32	4.755	0.3933	19.69	12.38	1.59047	Body	N	Y	N	N	Grit	Fine	5yr6/4	5yr6/4	7.5r4/8	Oxidizing	3					
OR	1	10-20	67	3.87	5.27	4.33	4.8	0.8063	28.57	15.64	1.82673	Rim	N	N	N	Indent	Grit	Fine	10r4/8	10r3/2	5r6/8	Oxidizing	3	Other Incise	Straight	Rounded		perforations bottom of sherd
OR	1	10-20	68	2.85	4.86	4.07	4.465	0.6383	24.56	23.64	1.03892	Body	N	Y	N	N	Grit	Fine	2.5yr5/4	2.5yr5/4	10r4/6	Oxidizing	3					
OR	1	10-20	69	3.2	5.67	5.95	5.81	0.5508	21.99	19.8	1.11061	Body	N	N	N	Incising	Grit w/ Grog	Coarse	7.5yr6/6	7.5yr6/6	7.5yr6/6	Oxidizing	3	Single Incise				
OR	1	10-20	70	6.33	8	6.3	7.15	0.8853	29.68	24.96	1.1891	Rim	Y	Y	N	Impress	Grit	Coarse	2.5yr6/8	10r4/8	10r4/8	Oxidizing	3	Impress on Body	Inverted	Pointed		
OR	1	10-20	71	3.38	5.28	4.56	4.92	0.687	32.01	12	2.6675	Body	N	N	N	Incising	Grit	Fine	10r3/2	10r5/8	10r4/4	Oxidizing	3	Single Incise				
OR	1	10-20	72	3.85	4.59	3.46	4.025	0.9565	33.35	16.08	2.074	Body	N	N	N	N	Grit w/ Mica	Fine	7.5yr6/6	7.5yr6/6	2.5yr5/8	Oxidizing	3					
OR	1	10-20	73	6.14	6.22	3.72	4.97	1.2354	39.58	26.64	1.48574	Rim	N	N	N	Manufactu	Grit w/ Coral	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3		Inverted	Rounded		
OR	1	10-20	74	9.88	8.72	5.17	6.945	1.4226	42.12	19.55	2.15448	Body	Y	Y	N	N	grit w/ mica	Coarse	10r4/8	10r3/1	10r3/1	Oxidizing	3					
OR	1	10-20	75	9.58	5.53	4.9	5.215	1.837	41.75	29.5	1.41525	Body	N	Y	N	N	Grit	Fine	7.5r4/0	2.5yr5/2	10r3/1	Reducing	3					
OR	1	10-20	76	3.35	4.96	4.1	4.53	0.7395	26.97	21.75	1.24	Body	N	N	N	N	Grit w/ Coral	Medium	10r4/8	10r3/0	10r3/0	Oxidizing	3					
OR	1	10-20	77	2.28	7.95	6.99	7.47	0.3052	23.86	9.96	2.39558	Body	N	N	N	N	Grit w/ Mica	Fine	10r4/8	7.5yr6/4	10r4/8	Oxidizing	3					
OR	1	10-20	78	4.37	7.38	5.58	6.48	0.6744	26.85	15.87	1.69187	Body	N	N	N	Manufactu	Grit w/ Mica	Fine	2.5yr2.5/2	2.5yr2.5/2	2.5yr2.5/2	Oxidizing	3					
OR	1	10-20	79	7.45	7.76	4.33	6.045	1.2324	28.56	26.72	1.06886	Rim	Y	Y	N	Impress	Grit w/ Mica	Medium	10yr5/3	2.5yr4/2	2.5yr2.5/2	Oxidizing	3	Impress on Rim	Inverted	Rounded		
OR	1	10-20	80	4.94	6.25	5.35	5.8	0.8517	27.56	24.39	1.12997	Body	N	Y	N	Incising	Sand	Fine	10r4/8	10r3/1	10r3/1	Oxidizing	3	Single Incise				
OR	1	10-20	81	2.41	8.86	8.34	8.6	0.2802	26.23	10.37	2.52941	Body	N	N	N	N	Grit	Fine	2.5yr4/0	10r5/8	5yr6/3	Reducing	3					aerated look
OR	1	10-20	82	1.34	4.51	3.19	3.85	0.3481	20.61	12.23	1.6852	Rim	Y	Y	N	N	Sand	Fine	10r5/8	7.5yr7/4	7.5yr7/4	Oxidizing	3		Straight	Flat		
OR	1	10-20	83	1.24	5.23	5.37	5.3	0.234	16.97	14.13	1.20099	Body	N	N	N	N	Grit w/ Coral	Varies	7.5r4/0	7.5yr6/4	10r5/8	Reducing	3					
OR	1	10-20	84	5.46	6.26	5.09	26.185	0.2085	34.25	18.12	1.89018	Body	N	N	N	Incising	Sand	Coarse	2.5yr5/8	2.5yr5/8	10r4/8	Oxidizing	3	Diagonal Hatch				
OR	1	10-20	85	25.36	9.13	7.25	8.19	3.0965	51.16	48.66	1.05138	Rim	N	N	N	N	Grit w/ Mica	Fine	10r5/8	10r5/8	7.5yr6/4	Oxidizing	3		Everted	Flat		
OR	1	10-20	86	8.27	6.77	5.53	6.15	1.3447	43.08	24.67	1.74625	Rim	N	N	N	Impress	Grit w/ Mica	Fine	10r5/8	10r3/3	10r5/8	Oxidizing	3	Impress on Rim	Inverted	Rounded		
OR	1	10-20	87	6.21	10.21	7.77	8.99	0.6908	35.6	14.73	2.41684	Rim	N	Y	N	N	Grit w/ Mica	Fine	10r3/2	10r3/2	10r4/8	Oxidizing	3		Inverted	Rounded		
OR	1	10-20	88	4.87	6.63	6.23	6.43	0.7574	27.64	23.09	1.19706	Rim	N	N	N	Incising	Grit w/ Coral	Medium	10r5/8	7.5r3/0	10r3/1	Oxidizing	3	Single Incise	Straight	Flat		
OR	1	10-20	89	2.98	7.22	6.27	6.745	0.4418	22.25	18.06	1.232	Rim	N	N	N	N	Grit	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3		Everted	Flat		
OR	1	10-20	90	3.96	8.93	8.36	8.645	0.4581	20.94	22.84	0.91681	Rim	N	N	N	Manufactu	Grit	Coarse	10r3/6	10r3/6	7.5r3/0	Oxidizing	3		Straight	Rounded		
OR	1	10-20	91	3.42	6.22	5.88	6.05	0.5653	23.65	19.88	1.18964	Rim	Y	Y	N	N	Grit w/ Mica	Fine	2.5yr5/8	10r4/8	2.5yr5/8	Oxidizing	3		Inverted	Rounded		
OR	1	10-20	92	10.72	9.24	8.39	8.815	1.2161	36.66	21.49	1.70591	Rim	N	N	N	N	Grit w/ Mica	Medium	10r4/8	10r3/1	10r3/1	Oxidizing	3		Straight	Rounded		
OR	1	10-20	93	6.02	5.61	5.09	5.35	1.1252	29.03	22.57	1.28622	Rim	N	N	N	N	Grit w/ Mica	Fine	10r4/8	7.5r3/4	10r4/6	Oxidizing	3		Straight	Rounded		
OR	1	10-20	95	2.67	4.6	3.89	4.245	0.629	30.16	16.83	1.79204	Rim	N	N	N	Impress	Grit w/ Mica	Medium	2.5yr6/8	2.5yr6/8	2.5yr6/8	Oxidizing	3	Impress on Rim	Straight	Rounded		
OR	1	10-20	96	10.1	10.63	5.95	8.29	1.2183	38.15	23.88	1.59757	Rim	Y	Y	N	N	Grit	Fine	7.5r4/0	7.5r3/0	7.5r3/0	Reducing	3		Everted	Flat		
OR	1	10-20	97	5.89	8.22	4.45	6.335	0.9298	34.52	28.66	1.20447	Neck	N	N	N	Punctate	Grit w/ Coral	Varies	10r4/8	10r3/3	10r4/8	Oxidizing	3	Punctate	Everted			
OR	1	10-20	98	2.11	4.86	4	4.43	0.4763	20.97	17.45	1.20172	Rim	N	N	N	Punctate	Grit w/ Mica	Medium	10r4/4	10r3/6	10r3/6	Oxidizing	3	Punctate	Everted	Damaged		
OR	1	10-20	99	23.69	22.98	19.7	21.34	1.1101	33.09	28.56	1.15861	Foot	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr3/0	10r5/8	10r5/8	Reducing	3				Other, Foot	
OR	1	10-20	100	6.39	10.05	9.7	9.875	0.6471	28.97	26.15	1.10784	Mortar	N	N	N	N	Grit w/ Lava	Coarse	2.5yr5/0	2.5yr5/0	7.5yr5/2	Reducing	5					
OR	1	10-20	1	2.94	4.56	4.74	4.65	0.6323	26.67	16.67	1.59988	Body	N	N	N	N	Sand	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	10-20	2	3.16	6.47	7.3	6.885	0.459	20.46	13.15	1.55589	Body	N	N	N	N	Grit w/ Mica	Medium	10r4/8	10r4/8	7.5r3/4	Oxidizing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
OR	1	10-20	3	1.91	4.87	5.13	5	0.382	23.24	15.35	1.51401	Body	N	N	N	N	Grit w/ Coral	Fine	5yr8/3	5yr8/3	10r6/8	Reducing	3					lots of missing temper, aerated-look
OR	1	10-20	4	5.56	8.05	5.33	6.69	0.8311	34.72	15.93	2.17954	Body	N	N	N	N	Grit w/ Mica	Fine	10r5/8	2.5yr5/6	10r5/8	Reducing	3					some charcoal or lava as temper?
OR	1	10-20	5	1.63	4.21	4.44	4.325	0.3769	18.3	13.47	1.35857	Body	N	N	N	N	Grit w/ Coral	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	10-20	6	3.9	4.37	2.54	3.455	1.1288	29.69	21.15	1.40378	Body	N	N	N	N	Grit w/ Coral	Fine	7.5yr4/2	5yr6/3	10r3/2	Oxidizing	3					some coating on interior and exterior
OR	1	10-20	7	1.61	5.98	5.85	5.915	0.2722	19.14	9.62	1.9896	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/8	10r6/8	10r4/8	Oxidizing	3					
OR	1	10-20	8	1.44	4	2.79	3.395	0.4242	22.19	12.47	1.77947	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/8	5yr7/4	2.5yr5/8	Oxidizing	3					
OR	1	10-20	9	0.93	3.93	3.33	3.63	0.2562	17.11	10.45	1.63732	Body	N	N	N	N	Grit	Fine	2.5yr6/6	2.5yr6/6	10r6/6	Oxidizing	3					
OR	1	10-20	10	3.89	4.63	4.24	4.435	0.8771	24.75	24.36	1.01601	Rim	N	N	N	Impress	Grit w/ Lava	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3	Impress on Rim	straight	rounded		rim has indentations, still v. dirty or has
OR	1	10-20	11	2.43	5.39	4.77	5.08	0.4783	25.56	17.54	1.45724	Body	N	N	N	Incising	grit w/ mica	Coarse	10r4/6	10r4/6	10r4/6	Oxidizing	3	Diagonal Hatch				
OR	1	10-20	12	1.46	3.87	4.2	4.035	0.3618	20.36	12.46	1.63403	Body	N	N	N	N	Sand	Fine	10r5/8	10r5/8	10r3/6	Oxidizing	3					
OR	1	10-20	13	1.96	5.39	5.76	5.575	0.3516	17.96	13.58	1.32253	Body	Y	Y	N	N	Grit w/ Coral	Fine	10r5/8	7.5r4/6	10r4/4	Oxidizing	3					
OR	1	10-20	14	16.63	12.59	8.42	10.505	1.5831	39.41	22.08	1.78487	Body	N	N	N	N	Grit w/ Coral	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	10-20	15	0.65	3.97	3.91	3.94	0.165	13.22	7.63	1.73263	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/4	2.5yr6/4	10r6/8	Reducing	3					
OR	1	10-20	16	2.65	6.79	5.73	6.26	0.4233	21.6	11.19	1.93029	Body	N	N	N	N	Grit w/ Coral, Mica	Varies	2.5yr6/6	2.5yr6/6	2.5yr6/6	Oxidizing	3					
OR	1	10-20	17	1.82	3.64	3.45	3.545	0.5134	20.08	18.31	1.09667	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	10r5/8	10r4/2	Oxidizing	3					
OR	1	10-20	18	3.69	6.21	5.75	5.98	0.6171	29.49	18.26	1.61501	Body	N	N	N	N	Grit	Fine	2.5yr6/6	2.5yr3/0	2.5yr6/6	Oxidizing	3					firing clouds on interior
OR	1	10-20	19	5.71	8.89	7.03	7.96	0.7173	23.95	14.66	1.6337	Rim	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr4/0	10r5/8	10r5/8	Reducing	3		Straight	flat		
OR	1	10-20	20	3.19	5.57	4.2	4.885	0.653	21.4	16.77	1.27609	Body	N	N	N	N	Sand	Coarse	10r4/4	10r4/4	7.5r3/4	Oxidizing	3					
OR	1	10-20	21	6.94	10.45	8.87	9.66	0.7184	27.48	23.39	1.17486	Body	N	N	N	N	grit w/ mica	Coarse	10r3/2	10r5/8	10r5/8	Oxidizing	3					
OR	1	10-20	22	1.73	3.13	2.72	2.925	0.5915	37.17	11.11	3.34563	Body	N	N	N	N	Grit w/ Mica	Fine	7.5yr6/4	7.5yr6/4	5yr6/4	Reducing	3					
OR	1	10-20	23	3.42	6.31	6.33	6.32	0.5411	29.98	16.06	1.86675	Body	N	N	N	N	Sand	Fine	5yr5/2	10r4/4	7.5yr7/4	Oxidizing	3					
OR	1	10-20	24	5.68	5.61	4.7	5.155	1.1018	29.85	23.38	1.27673	Body	N	N	N	N	Sand	Fine	10r4/6	10r4/6	2.5yr5/8	Oxidizing	3					
OR	1	10-20	25	1.55	4.53	4.22	4.375	0.3543	19.45	15.4	1.26299	Body	N	Y	N	N	Grit w/ Coral	Fine	10r3/4	10r3/4	10r5/8	Oxidizing	3					
OR	1	10-20	26	4.97	6.91	7.03	6.97	0.7131	28.88	22.1	1.30679	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/6	10r4/6	10r5/8	Oxidizing	3					black residue on int and ext
OR	1	10-20	27	3.22	7.46	6.25	6.855	0.4697	24.86	20.8	1.19519	Body	N	N	N	Incising	Grit w/ Mica	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3	Single Incise				cord impressed
OR	1	10-20	28	1.41	3.02	3.36	3.19	0.442	21	14.63	1.43541	Body	N	Y	N	N	Grit	Fine	7.5yr6/4	7.5yr6/4	10r5/8	Oxidizing	3					
OR	1	10-20	29	2.26	7.51	5.69	6.6	0.3424	20.68	15.14	1.36592	Neck	N	N	N	N	Grit	Fine	5yr6/4	5yr6/4	7.5yr6/8	Oxidizing	3					
OR	1	10-20	30	1.06	4.03	4.78	4.405	0.2406	15.27	8.41	1.8157	Body	N	N	N	N	Grit	Fine	2.5yr6/8	2.5yr6/8	2.5yr6/8	Oxidizing	3					
OR	1	10-20	31	1.71	7.38	7.73	7.555	0.2263	16.93	8.8	1.92386	Body	N	N	N	N	Sand	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	10-20	32	1.09	4.61	4.83	4.72	0.2309	15.22	10	1.522	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/0	5yr6/3	5yr3/1	Reducing	3					
OR	1	10-20	33	10.15	11.39	12.43	11.91	0.8522	33.55	21.73	1.54395	Body	N	N	N	N	Sand	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	10-20	34	3.65	6.11	6.04	6.075	0.6008	24.51	12.26	1.99918	Body	N	Y	N	N	Grit	Fine	10r3/3	10r3/3	10r5/8	Oxidizing	3					
OR	1	10-20	35	51.69	9.09	5.09	7.09	7.2906	92.71	61.95	1.49653	Rim	N	N	N	N	Grit w/ Coral	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3		Inverted	Rounded		
OR	1	10-20	36	38.92	25.64	40.86	33.25	1.1705	41.24	26.06	1.5825	Spout	N	Y	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr6/4	10r5/8	Reducing	3				Other, Spout	spout or foot, w/ hole. Hole is 5.8mm at juncture, 7.26mm at exterior
OR	1	10-20	37	17.14	8.11	6.04	7.075	2.4226	52.7	34.05	1.54772	Rim	N	N	N	N	Grit w/ Mica	Fine	2.5yr3/0	10r3/3	10r5/8	Oxidizing	3		Everted	Rounded		firing clouds
OR	1	20-30	1	1.79	5.14	5.06	5.1	0.351	17.3	12.14	1.42504	Body	N	N	N	N	Grit w/ Mica	Fine	10r4/8	10r3/6	10r3/2	Oxidizing	3					
OR	1	20-30	2	2.6	4.25	4.49	4.37	0.595	26.69	13.39	1.99328	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	20-30	3	5.78	10.19	7.32	8.755	0.6602	37.58	13.44	2.79613	Body	N	N	N	N	Grit w/ Grog	Coarse	5yr6/4	2.5yr4/0	5yr6/4	Oxidizing	3					
OR	1	20-30	4	1.36	4.97	4.41	4.69	0.29	16.97	11.07	1.53297	Body	N	N	N	N	Sand	Fine	2.5yr6/6	2.5yr6/6	2.5yr6/8	Oxidizing	3					
OR	1	20-30	5	1.05	4.28	3.95	4.115	0.2552	15.02	10.91	1.37672	Body	N	N	N	N	Sand	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	20-30	6	2.57	6.85	5.97	6.41	0.4009	23.73	15.03	1.57884	Body	N	N	N	N	Grit w/ Grog, Sand	Coarse	2.5yr3/0	10r4/8	10r4/8	Reducing	3					
OR	1	20-30	7	2.42	4.06	4.57	4.315	0.5608	21.32	14.11	0.17151	Body	N	N	N	Punctate	Grit w/ Mica	Medium	10r3/4	10r3/1	10r3/4	Oxidizing	3	Punctate				
OR	1	20-30	8	1.88	3.41	3.55	3.48	0.5402	21.7	16.7	1.2994	Body	N	N	N	N	Grit	Fine	10r3/2	10r3/6	10r3/6	Oxidizing	3					
OR	1	20-30	9	1.92	5.25	4.01	4.63	0.4147	23	16.58	1.38721	Body	N	N	N	N	Sand	Fine	2.5yr3/2	2.5yr4/8	2.5yr3/2	Oxidizing	3					
OR	1	20-30	10	1.8	5.44	5.35	5.395	0.3336	19.01	9.73	1.95375	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr3/0	5yr4/1	5yr4/1	Reducing	3					
OR	1	20-30	11	4.69	7.43	7.16	7.295	0.6429	26.62	12.5	2.1296	Body	N	N	N	N	Grit	Fine	2.5yr6/6	2.5yr6/6	10r3/2	Oxidizing	3					
OR	1	20-30	12	1.69	4	3.42	3.71	0.4555	21.53	12.21	1.76331	Body	N	N	N	N	Grit	Fine	10r5/8	10yr6/3	10yr7/3	Oxidizing	3					coating on interior
OR	1	20-30	13	2.86	5.4	5.18	5.29	0.5406	26.99	13.77	1.96006	Body	N	N	N	N	Grit w/ Coral, Sand		10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	20-30	14	4.29	4.11	4.79	4.45	0.964	30.03	17.49	1.71698	Body	N	N	N	N	Grit	Fine	2.5yr3/0	2.5yr3/2	2.5yr6/8	Reducing	3					
OR	1	20-30	15	2.68	5.41	4.22	4.815	0.5566	20.53	19.79	1.03739	Body	N	N	N	N	Grit w/ Grog	Medium	5yr6/6	5yr6/6	5yr6/6	Oxidizing	3					v. crumbly
OR	1	20-30	16	3.5	9.52	7.48	8.5	0.4118	25.96	8.85	2.93333	Body	N	N	N	N	Sand	Fine	10r4/6	10r3/3	10r3/1	Oxidizing	3					
OR	1	20-30	17	3.06	4.76	5.12	4.94	0.6194	23.53	14.14	1.66407	Body	N	N	N	N	Sand	Fine	10r5/8	10r3/2	10r4/2	Oxidizing	3					
OR	1	20-30	18	1.21	4.86	4.22	4.54	0.2665	18.53	11.87	1.56108	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr3/0	5yr4/2	2.5yr3/0	Reducing	3					
OR	1	20-30	19	2.81	5.21	4.6	4.905	0.5729	32.16	18.02	1.78468	Body	N	N	N	N	Grit w/ Coral, Sand	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	20-30	20	3.59	6.06	6.24	6.15	0.5837	23.96	16.73	1.43216	Body	N	N	N	N	Grit w/ Grog, Mica	Coarse	2.5yr6/8	2.5yr6/8	5yr3/1	Oxidizing	3					
OR	1	20-30	21	1.11	3.39	3.67	3.53	0.3144	20.06	13.08	1.53364	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	10r4/8	2.5yr5/8	Oxidizing	3					
OR	1	20-30	22	0.37	3.16	3.17	3.165	0.1169	12.06	7.22	1.67036	Body	N	N	N	N	Grit	Fine	5yr6/8	5yr6/8	5yr6/8	Oxidizing	3					
OR	1	20-30	23	2.38	5.45	5.03	5.24	0.4542	19.48	19.1	1.0199	Rim	N	N	N	N	Grit	Fine	2.5yr3/8	2.5yr5/8	2.5yr3/8	Oxidizing	3		Straight	Flat		
OR	1	20-30	24	5.09	6.43	7.1	6.765	0.7524	28.24	16.98	1.66313	Body	N	N	N	N	Grit w/ Coral, Grog, Sand	Coarse	2.5yr5/8	2.5yr3/2	2.5yr4/6	Oxidizing	3					
OR	1	20-30	25	2.05	5.76	6	5.88	0.3486	20	11.17	1.79051	Body	N	N	N	N	Grit	Coarse	10r3/2	10r3/2	5yr3/1	Oxidizing	3					
OR	1	20-30	26	2.36	4.11	4.36	4.235	0.5573	22.34	14.69	1.52076	Body	N	N	N	N	Grit	Fine	5yr7/4	5yr7/4	5yr7/4	Oxidizing	3					coating on ext and int
OR	1	20-30	27	0.99	4.14	4.01	4.075	0.2429	17.82	8.21	2.17052	Body	N	N	N	N	Grit w/ Coral, Grog, Sand	Coarse	10r5/8	2.5yr3/0	10r5/8	Oxidizing	3					
OR	1	20-30	28	4.16	7.55	7.31	7.43	0.5599	25.99	21.44	1.21222	Body	N	N	N	N	grit w/ mica	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	20-30	29	0.88	2.82	2.92	2.87	0.3066	17.12	14.45	1.18478	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/0	10r5/5	7.5yr5/4	Reducing	3					
OR	1	20-30	30	2.1	6.41	5.76	6.085	0.3451	20.52	13.41	1.5302	Body	N	N	N	N	grit w/ mica	Coarse	5yr3/1	10r3/2	7.5yr3/2	Reducing	3					
OR	1	20-30	31	1.99	3.5	3.86	3.68	0.5408	21.08	11.3	1.86549	Body	N	N	N	N	Grit	Fine	10r3/2	10r3/1	10r3/1	Oxidizing	3					
OR	1	20-30	32	0.94	3.45	2.97	3.21	0.2928	15.5	11.92	1.30034	Body	N	N	N	N	Sand	Fine	2.5yr5/6	2.5yr5/6	5yr5/4	Oxidizing	3					
OR	1	20-30	33	3.45	5.55	5.33	5.44	0.6342	21.3	20.41	1.04361	Body	N	N	N	N	grit w/ mica	Coarse	2.5yr5/8	2.5yr5/8	10r5/8	Oxidizing	3					
OR	1	20-30	34	4.85	7.04	7.16	7.1	0.6831	28.78	14.69	1.95916	Body	N	N	N	N	Grit	Medium	5yr5/6	5yr3/2	5yr4/3	Oxidizing	3					
OR	1	20-30	35	1.74	4.34	4.05	4.195	0.4148	20.75	12.52	1.65735	Body	N	N	N	N	Sand	Fine	2.5yr4/8	10r3/3	2.5yr4/8	Oxidizing	3					
OR	1	20-30	36	3.65	8.57	7.82	8.195	0.4454	25.57	17.95	1.42451	Body	N	N	N	N	Grit w/ Grog	Coarse	2.5yr6/8	5yr5/1	10yr6/3	Oxidizing	3					
OR	1	20-30	37	1.98	6.57	6.71	6.64	0.2982	18.51	13.66	1.35505	Body	N	N	N	N	Grit	Coarse	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	1	20-30	38	1.47	4.44	3.94	4.19	0.3508	19.38	13.83	1.4013	Body	N	N	N	N	Grit w/ Mica, Sand	Coarse	10r4/8	10r4/8	7.5yr4/4	Oxidizing	3					
OR	1	20-30	39	2.03	5.77	5.73	5.75	0.353	18.56	16.92	1.09693	Body	N	N	N	N	grit w/ mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	20-30	40	0.76	3.02	3.35	3.185	0.2386	18.01	7.89	2.28264	Body	N	N	N	N	Grit	Fine	10r3/2	2.5yr3/0	2.5yr3/0	Oxidizing	3					
OR	1	20-30	41	1.54	4.08	2.81	3.445	0.447	23.12	18.32	1.26201	Body	N	N	N	N	Grit	Fine	2.5yr3/0	2.5yr5/8	2.5yr3/0	Reducing	3					
OR	1	20-30	42	0.56	2.95	2.71	2.83	0.1979	14.77	9.55	1.5466	Body	N	N	N	N	Sand	Fine	10r5/8	10r3/3	10r3/3	Oxidizing	3					
OR	1	20-30	43	2.96	8.51	6.62	7.565	0.3913	21.34	14.33	1.48918	Body	N	N	N	N	Grit w/ Grog, Mica, Sand	Coarse	10r6/8	10r6/8	10r6/8	Oxidizing	3					lots of temper
OR	1	20-30	45	1.4	4.69	3.89	4.29	0.3263	17.06	16.77	1.01729	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	20-30	46	1.52	3.94	3.73	3.835	0.3963	19.66	8.51	2.31022	Body	N	N	N	N	Grit	Fine	7.5yr4/4	5yr5/4	2.5yr5/6	Oxidizing	3					
OR	1	20-30	47	2.43	4.82	3.77	4.295	0.5658	21.78	19.82	1.09889	Body	N	N	N	N	Grit	Fine	7.5yr7/4	7.5yr4/2	7.5yr6/4	Oxidizing	3					
OR	1	20-30	48	2.8	5.96	6.47	6.215	0.4505	23.99	17.74	1.35231	Body	N	N	N	N	grit w/ mica	Coarse	2.5yr5/8	10r3/1	2.5yr3/2	Oxidizing	3					
OR	1	20-30	49	5.06	6.9	5.48	6.19	0.8174	30.99	21.85	1.41831	Body	N	N	N	N	Grit w/ Grog, Mica	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	20-30	50	2.94	8.5	7.77	8.135	0.3614	25.76	10.34	2.4913	Body	Y	N	N	N	Grit w/ Coral	Coarse	10r3/2	10r4/6	10r3/2	Oxidizing	3					
OR	1	20-30	51	3.3	5.56	5.64	5.6	0.5893	30.39	18.82	1.61477	Body	N	N	N	N	Sand	Fine	2.5yr3/2	2.5yr4/4	10r2/2	Oxidizing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
OR	1	20-30	52	7.15	7.11	6.28	6.695	1.068	27.41	26.62	1.02968	Rim	Y	Y	N	Impress	grit w/ mica	Coarse	7.5yr4/2	2.5yr3/2	10r5/8	Reducing	3	Impress on Body	Straight	Flat		cord marked?
OR	1	20-30	53	1.18	3.83	3.37	3.6	0.3278	15.08	14.98	1.00668	Body	N	N	N	N	Grit w/ Coral	Medium	2.5yr5/6	2.5yr5/6	2.5yr5/6	Oxidizing	3					
OR	1	20-30	54	0.97	4.44	4.36	4.4	0.2205	17.47	13.34	1.3096	Body	N	N	N	N	Grit w/ Lava, Sand	Fine	10r3/6	10r3/2	10r3/2	Oxidizing	3					
OR	1	20-30	55	3.56	8.76	4.13	6.445	0.5524	20.68	18.49	1.11844	Rim	Y	Y	N	Incising	Sand	Fine	10r5/8	7.5r3/8	2.5yr3/0	Oxidizing	3	Single Incise	Everted	Flat		
OR	1	20-30	56	1.62	5.03	4.86	4.945	0.3276	18.12	11.43	1.5853	Body	Y	N	N	N	Grit	Fine	2.5yr5/8	10r3/2	5yr3/2	Oxidizing	3					
OR	1	20-30	57	1.71	5.56	5.43	5.495	0.3112	18.5	16.04	1.15337	Body	N	N	N	N	Grit w/ Grog, Mica, Sand	Fine	2.5yr4/0	10r3/0	2.5yr5/4	Reducing	3					
OR	1	20-30	58	0.58	3.06	3.11	3.085	0.188	13.48	11.72	1.15017	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr4/6	2.5yr3/4	7.5r4/6	Oxidizing	3					
OR	1	20-30	59	2.38	6.03	6.06	6.045	0.3937	20.76	16.04	1.29426	Body	N	N	N	N	Grit	Fine	10r5/8	10r5/8	10r5/6	Oxidizing	3					
OR	1	20-30	60	13.34	7.37	7.72	7.545	1.7681	61.74	25.04	2.46565	Body	N	N	N	N	Grit w/ Coral	Fine	5yr6/6	5yr6/6	5yr6/6	Oxidizing	3					firing clouds
OR	1	20-30	61	7.79	6.78	6.02	6.4	1.2172	37.74	18.19	2.07477	Rim	N	N	Paint	N	Sand	Fine	10r3/6	10r5/6	10r3/6	Oxidizing	3	Red Paint	Straight	rounded		
OR	1	20-30	62	20.17	13.69	6.81	10.25	1.9678	44.43	27.82	1.59705	Body	N	N	N	N	Grit	Coarse	10r3/2	2.5yr3/0	10r3/2	Oxidizing	3					
OR	1	20-30	63	3.1	5.92	3.85	4.885	0.6346	31.86	18.6	1.7129	Body	Y	Y	N	N	Grit	Medium	2.5yr4/8	10r4/8	10r3/4	Oxidizing	3					
OR	1	20-30	64	8.52	8.29	5.63	6.96	1.2241	33.9	26.1	1.29885	Rim	N	N	N	Impress	Sand	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3	Impress on Body	Inverted	Flat		firing clouds to 10r3/2
OR	1	20-30	65	3.8	4.82	4.64	4.73	0.8034	27.62	13.4	2.06119	Body	N	N	N	N	Grit	Fine	5yr2.5/0	5yr5/4	5yr2.5/0	Reducing	3					coating on int
OR	1	20-30	66	3.53	5.96	5.35	5.655	0.6242	17.68	12	1.47333	Rim	N	N	Incising	Impress	Grit w/ Mica	Varies	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3	Impress on Body	Inverted	Flat		
OR	1	20-30	67	3.2	4.13	3.67	3.9	0.8205	30.53	19.44	1.57047	Body	N	N	N	N	Grit w/ Coral, Grog	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	20-30	68	1.12	3.54	3.26	3.4	0.3294	15.46	9.57	1.61546	Body	N	N	N	N	Grit	Fine	10r3/4	10r3/4	10r4/8	Oxidizing	3					
OR	1	20-30	69	3.8	5.24	4.88	5.06	0.751	26.21	17.87	1.4667	Body	N	N	N	Impress	Grit w/ Mica	Medium	10r4/8	10r4/8	10r4/8	Oxidizing	3	Impress on Body				2 parallel lines going around the pot
OR	1	20-30	70	3.83	8.93	7.12	8.025	0.4773	23.46	21.76	1.07813	Neck	N	N	N	Punctate	Grit w/ Coral	Medium	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3	Punctate				
OR	1	20-30	71	8.45	6.47	6.02	6.245	1.3531	35.37	29.01	1.21923	Rim	N	N	N	Incising	Grit w/ Mica	Fine	10r5/8	10r3/6	10r3/2	Oxidizing	3	Impress/ Incise	Straight	Crenalated, rounded		
OR	1	20-30	72	0.93	4.07	4.27	4.17	0.223	15.54	14.8	1.05	Body	N	Y	N	N	Grit	Fine	5yr3/2	5yr3/1	10r4/8	Oxidizing	3					
OR	1	20-30	73	1.79	4.77	4.8	4.785	0.3741	25.93	13.11	1.97788	Body	N	N	N	Incising	Grit w/ Mica	Fine	7.5yr3/0	2.5yr6/8	7.5yr3/0	Oxidizing	3	Single Incise				
OR	1	20-30	74	5.03	8.16	9.43	8.795	0.5719	26.34	17.97	1.46578	Rim	Y	N	N	N	Grit w/ Coral	Coarse	7.5yr6/4	10r4/6	7.5yr6/4	Oxidizing	3		Everted	Flat		
OR	1	20-30	75	5.94	4.81	4.23	4.52	1.3142	30.61	24.46	1.25143	Neck	N	N	N	Punctate	Grit w/ Coral	Fine	10r4/8	10r4/4	10r4/8	Oxidizing	3	Punctate				
OR	1	20-30	76	6.51	8.05	5.35	6.7	0.9716	34.24	25.12	1.36306	Neck	Y	Y	Pitting	N	Grit w/ Coral, Mica	Varies	2.5yr4/0	10r4/8	10r4/8	Reducing	3					
OR	1	20-30	77	5.31	7.19	5.09	6.14	0.8648	28.94	25.83	1.1204	Rim	N	N	N	Punctate,	Grit w/ Coral	Coarse	10r4/6	5yr6/8	5yr6/6	Oxidizing	3	Multiple Design El	Everted	Rounded		
OR	1	20-30	78	4.54	5.32	5.12	5.22	0.8697	26.85	23.72	1.13196	Body	N	N	N	Incising	Grit	Fine	2.5yr3/4	2.5yr3/0	10r3/2	Oxidizing	3	Other Incise				2 parellel lines, 2 wavy lines atop that. Dashed lines below II lines
OR	1	20-30	79	6.53	7.39	7.17	7.28	0.897	29.66	16.06	1.84682	Body	N	N	N	N	Grit w/ Mica, Sand	Coarse	10r5/8	10r3/2	10r5/8	Oxidizing	3					
OR	1	20-30	80	39.58	8.98	8.96	8.97	4.4125	72.62	23.52	3.08759	Rim	N	N	N	N	Grit w/ Coral	Fine	10r3/2	2.5yr5/8	2.5yr3/0	Oxidizing	3		Ev-In	Flat		firing clouds
OR	1	20-30	81	12.87	7.95	4.38	6.165	2.0876	47.83	22.92	2.08682	Rim	N	N	N	Incising	Sand	Fine	10r4/6	2.5yr4/8	2.5yr5/8	Oxidizing	3	Perpendicular Inci	Everted	Rounded		incised lines rin perpendicular to rim; firing
OR	1	20-30	82	60.88	19.83	11.95	15.89	3.8313	60.37	29.93	2.01704	Rim	N	N	N	Incising	Grit w/ Coral	Coarse	10r3/2	5yr5/6	5yr3/1	Oxidizing	3	Other Incise	Everted	Damaged		2 II incised lines, series of wavy lines beneath; firing clouds
OR	1	20-30	83	70.62	15.12	9.97	12.545	5.6293	77.09	66.6	1.15751	Rim	N	N	N	Incising	Grit w/ Coral, Grog, Sand	Varies	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3	Impress/ Incise	Everted	Flat		2 L rims? Roofing tile or non-pot sherd? 2 II lines on body, plus 3 incised lines on rim.
OR	1	20-30	84	38.68	11.27	7.67	9.47	4.0845	66.06	37.11	1.78011	Rim	N	N	N	Incising	Grit w/ Coral, Grog, Sand	Varies	7.5r3/0	5yr3/2	7.5r3/0	Reducing	3	Impress/ Incise	Straight	Flat		2 L rims? non-pot sherd? 2 II lines on body, plus punctates on rim
OR	1	20-30	85	38.35	14.81	10.18	12.495	3.0692	58.64	54.21	1.08172	Body	N	N	N	Impress	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3	Impress on Body				incised lines may be part of mfg process, not continuous. Firing clouds.
OR	1	20-30	86	28.76	24.03	16.03	20.03	1.4358	47.34	21.89	2.16263	Pig Tong	N	N	N	Incising	Grit w/ Coral	Coarse	10r4/8	10r5/8	10r4/8	Oxidizing	3				L&S #8- Anglo	2 sets of 2 II lines running down ext of leg/
OR	1	30-40	1	13.81	9.02	8.04	8.53	1.619	43.22	31.61	1.36729	Body	N	N	N	N	Grit w/ Mica, Shell	Coarse	10r4/8	10r4/8	10r3/1	Oxidizing	3					trowel marks
OR	1	30-40	2	4.39	7.16	5.24	6.2	0.7081	22.55	22.34	1.0094	Body	N	N	N	N	Grit w/ Grog, Sand	Medium	5yr6/6	5yr6/6	5yr6/6	Oxidizing	3					
OR	1	30-40	3	5.36	4.23	2.27	3.25	1.6492	35.84	33.89	1.05754	Body	N	N	N	N	Grit	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					firing clouds on int
OR	1	30-40	4	6.54	7.61	6.52	7.065	0.9257	37.34	25.45	1.46719	Body	N	N	N	N	Grit w/ Grog	Fine	2.5yr4/0	5yr6/4	5yr6/4	Reducing	3					
OR	1	30-40	5	3.78	5.75	5.42	5.585	0.6768	26.17	25.39	1.03072	Body	N	N	N	N	Grit	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	30-40	6	2.42	4.74	3.75	4.245	0.5701	25.16	22.47	1.11972	Body	N	N	N	N	Grit	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	30-40	7	3.91	5.55	4.55	5.05	0.7743	27.47	20.71	1.32641	Body	N	N	N	N	Grit	Medium	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	30-40	8	4.44	5.14	4.94	5.04	0.881	30.46	20.55	1.48224	Body	N	N	N	N	Grit	Fine	7.5yr6/6	7.5yr7/4	2.5yr6/6	Oxidizing	3					
OR	1	30-40	9	8.15	6.48	8.89	7.685	1.0605	40.52	24.76	1.63651	Rim	N	N	N	N	Sand	Fine	2.5yr3/0	5yr4/2	5yr4/2	Reducing	3		Everted	Pointed		worn, outer layers sloughing off
OR	1	30-40	10	1.02	3.51	2.73	3.12	0.3269	18.59	16.28	1.14189	Body	N	N	N	N	grit w/ mica	Coarse	10r5/8	10r5/8	5yr3/3	Oxidizing	3					
OR	1	30-40	11	1.51	6.69	4.55	5.62	0.2687	20.59	18.04	1.14135	Body	N	N	N	N	?Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr5/8	Reducing	3					aerated look
OR	1	30-40	12	5.3	12.09	11.31	11.7	0.453	22.44	18.22	1.23161	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/8	10r4/8	2.5yr4/6	Oxidizing	3					
OR	1	30-40	13	1.69	4.85	4.55	4.7	0.3596	19.58	12.28	1.59446	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	30-40	14	4.8	10.7	10.62	10.66	0.4503	24.13	17.98	1.34205	Body	N	N	N	N	Grit	Fine	10r3/2	2.5yr5/8	2.5yr4/6	Oxidizing	3					
OR	1	30-40	15	9.38	6.35	5.05	5.7	1.6456	39.09	35.07	1.11463	Body	N	N	N	N	Sand w/ Coral	Fine	5yr4/3	7.5yr7/8	7.5yr5/6	Oxidizing	3					
OR	1	30-40	16	15.45	12.51	11.35	11.93	1.2951	46.85	24.89	1.88228	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/8	10r4/8	7.5yr6/4	Oxidizing	3					
OR	1	30-40	17	2.25	7.42	5.6	6.51	0.3456	29.01	18.78	1.54473	Body	N	N	N	N	?Shell (foraminifera)	Fine	7.5yr3/0	10r5/8	10r5/8	Reducing	3					aerated, lots of missing temper
OR	1	30-40	18	2.08	4.28	3.07	3.675	0.566	23.58	18.83	1.25226	Body	N	N	N	N	Grit	Fine	5yr6/8	5yr5/6	5yr3/4	Oxidizing	3					
OR	1	30-40	19	2.11	5.78	4.08	4.93	0.428	22.6	14.54	1.55433	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr6/8	2.5yr6/8	2.5yr6/8	Oxidizing	3					some aerated, missing temper
OR	1	30-40	20	2.72	6.14	6.11	6.125	0.4441	26.65	15.74	1.69314	Body	N	N	N	N	?Shell (foraminifera)	Fine	2.5yr6/8	2.5yr6/8	2.5yr6/8	Oxidizing	3					aerated, lots of missing temper
OR	1	30-40	21	3.57	4.3	4.23	4.265	0.837	27.79	20.67	1.34446	Body	N	N	N	N	Grit	Fine	10r3/6	10r3/6	10r3/2	Oxidizing	3					
OR	1	30-40	22	1.88	4.23	3.93	4.08	0.4608	22.55	15.78	1.42902	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr6/4	5yr6/4	Reducing	3					
OR	1	30-40	23	3.47	5.54	5.92	5.73	0.6056	26.58	22.63	1.17455	Body	N	N	N	N	Grit	Fine	10r4/6	10r3/2	5yr2.5/1	Oxidizing	3					
OR	1	30-40	24	4.64	9.13	8.01	8.57	0.5414	22.01	20.73	1.06175	Body	N	N	N	N	Grit w/ Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	30-40	25	2.75	5.84	6.11	5.975	0.4603	21.4	19.31	1.10823	Body	N	N	N	N	Grit	Fine	10r4/8	10r4/8	10r3/1	Oxidizing	3					
OR	1	30-40	26	2.81	6.93	7.41	7.17	0.3919	18.59	17.15	1.08397	Body	N	N	N	N	Grit w/ Mica	Fine	10r5/8	7.5yr3/0	2.5yr3/4	Oxidizing	3					
OR	1	30-40	27	3.48	5.46	4.57	5.015	0.6939	27.55	20.8	1.32452	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr4/8	10r4/6	2.5yr4/8	Oxidizing	3					
OR	1	30-40	28	5.46	6.35	5.61	5.98	0.913	30.54	25.5	1.19765	Body	N	N	N	N	Grit	Fine	2.5yr3/2	2.5yr5/6	10r5/8	Oxidizing	3					
OR	1	30-40	29	4.35	4.32	3.59	3.955	1.0999	28.71	26.91	1.06689	Body	N	N	N	N	Grit w/ Coral	Fine	10r3/2	10r3/2	5yr6/6	Oxidizing	3					
OR	1	30-40	30	2.5	6.26	5.96	6.11	0.4092	21.08	20.19	1.04408	Body	N	N	N	N	Sand	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	30-40	31	14.38	8.38	8.58	8.48	1.6958	38.59	26.29	1.46786	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr3/2	2.5yr4/8	10r3/2	Reducing	3					
OR	1	30-40	32	5.33	7.7	4.97	6.335	0.8414	29.82	20.86	1.42953	Body	N	N	N	N	Grit w/ Mica	Fine	10r4/8	10r4/8	10r4/6	Oxidizing	3					
OR	1	30-40	33	5.7	6.46	5.45	5.955	0.9572	36.04	29.3	1.23003	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr5/8	2.5yr3/2	7.5yr6/4	Oxidizing	3					
OR	1	30-40	34	1.33	5.28	5.18	5.23	0.2543	14.75	14.35	1.02787	Body	N	N	N	N	Grit w/ Coral, Grog, Mica, Sand	Fine	5yr4/3	2.5yr4/8	5yr4/3	Oxidizing	3					
OR	1	30-40	35	8.27	10.2	7.83	9.015	0.9174	31.16	24.9	1.25141	Body	N	N	N	N	Grit w/ Grog	Coarse	2.5yr4/8	10r3/1	10r3/1	Oxidizing	3					
OR	1	30-40	36	6.31	9.68	6.9	8.29	0.7612	29.72	21.8	1.3633	Neck	N	N	N	N	Grit	Coarse	10r3/4	10r3/4	10r3/4	Oxidizing	3					
OR	1	30-40	37	3.35	5.62	5.9	5.76	0.5816	24.26	17.59	1.37919	Body	N	N	N	N	Sand	Fine	10yr8/3	10yr8/3	2.5yr5/8	Reducing	3					
OR	1	30-40	38	1.52	6.09	4	5.045	0.3013	20.66	19.32	1.06936	Body	N	N	N	N	?Shell (foraminifera)	Fine	2.5yr5/0	10r6/1	2.5yr5/8	Reducing	3					aerated look, missing temper
OR	1	30-40	39	3.94	5.93	4.95	5.44	0.7243	22.39	19.98	1.12062	Body	N	N	N	N	Grit	Fine	7.5yr3/0	7.5yr3/0	10r3/1	Reducing	3					some missing temper, aerated, but v. little
OR	1	30-40	40	9.32	6.55	6.54	6.545	1.424	40.93	29.98	1.36524	Body	N	Y	N	N	Grit w/ Coral, Sand	Coarse	10r4/8	10r4/8	2.5yr2/0	Oxidizing	3					
OR	1	30-40	41	1.55	3.99	3.3	3.645	0.4252	20	11.85	1.68776	Body	N	N	N	N	Grit	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	30-40	42	1.87	4.57	3.77	4.17	0.4484	20.17	10.34	1.95068	Body	N	N	N	N	Grit w/ Mica	Medium	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	30-40	43	1.6	4.47	4.1	4.285	0.3734	22.57	15.47	1.45895	Body	N	N	N	N	Grit w/ Coral, Sand	Medium	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	1	30-40	45	1.65	6.2	4.85	5.525	0.2986	22.12	15.1	1.4649	Rim	N	N	N	N	Sand	Fine	7.5yr4/0	2.5yr4/8	2.5yr4/8	Reducing	3		Everted	Flat		
OR	1	30-40	46	3.14	4.52	5.67	5.095	0.6163	22.89	20.86	1.09732	Body	N	N	N	N	Grit w/ Coral, Sand	Coarse	2.5yr3/4	2.5yr3/4	2.5yr3/4	Oxidizing	3					
OR	1	30-40	47	1.23	5.09	4.16	4.625	0.2659	15.81	15.05	1.0505	Body	N	N	N	N	Grit w/ Sand	Fine	2.5yr5/8	2.5yr5/8	2.5yr4/8	Oxidizing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
OR	1	30-40	48	2.42	4.35	3.42	3.885	0.6229	22.3	20.68	1.07834	Body	N	N	N	N	Grit	Fine	10r4/8	10r3/2	10r4/8	Oxidizing	3					
OR	1	30-40	49	5.01	8.01	6.51	7.26	0.6901	24.94	21.47	1.16162	Body	N	N	N	N	Grit	Coarse	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	1	30-40	50	1.62	5.08	4.66	4.87	0.3326	17.42	16.99	1.02531	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr3/2	2.5yr5/8	Reducing	3					
OR	1	30-40	51	5.3	9.8	7.39	8.595	0.6166	25.46	18.67	1.36369	Body	N	N	N	N	Grit	Fine	10r4/8	2.5yr3/0	10r4/8	Oxidizing	3					
OR	1	30-40	52	0.81	4	3.48	3.74	0.2166	16.33	11.16	1.46326	Body	N	N	N	N	Grit	Fine	10r4/8	10r3/3	10r4/8	Oxidizing	3					
OR	1	30-40	53	1.11	3.64	3.42	3.53	0.3144	24.84	12.13	2.04782	Body	N	N	N	N	Grit w/ Lava, Sand	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	30-40	54	8.35	8.37	9.25	8.81	0.9478	29.02	27.8	1.04388	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	30-40	55	8.49	7.56	8.02	7.79	1.0899	36.36	27.56	1.3193	Body	N	N	N	N	Grit	Coarse	10yr6/1	10r3/3	2.5yr6/0	Reducing	3					
OR	1	30-40	56	3.31	6.02	4.05	5.035	0.6574	29.17	22.91	1.27324	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/4	10r4/4	10r3/4	Oxidizing	3					
OR	1	30-40	57	22.86	13.54	9.42	11.48	1.9913	42.56	35.57	1.19651	Base	N	N	N	N	Grit w/ Coral, Sand	Coarse	10r4/4	10r4/4	10r4/4	Oxidizing	3					
OR	1	30-40	58	3.04	6.71	4.98	5.845	0.5201	21.33	19.99	1.06703	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	2.5yr3/6	10r3/1	Oxidizing	3					
OR	1	30-40	59	3.3	4.97	4.06	4.515	0.7309	25.37	19.26	1.31724	Body	N	N	Charred	N	Grit w/ Coral	Fine	10r4/8	2.5yr3/0	10r4/8	Oxidizing	3					
OR	1	30-40	60	2.45	4.72	4.63	4.675	0.5241	33.97	15.89	2.13782	Body	Y	N	N	N	Grit w/ Coral	Fine	10r5/8	10r4/6	10r5/8	Oxidizing	3					
OR	1	30-40	61	4.87	6.68	4.65	5.665	0.8597	28.4	23.34	1.2168	Body	N	N	N	N	Grit w/ Mica	Medium	10r4/6	10r4/6	10r4/6	Oxidizing	3					coating all over it, probably dirt, but doesn't wash off
OR	1	30-40	62	4.25	5.04	5.1	5.07	0.8383	25.98	23.58	1.10178	Rim	N	Y	N	Impress	Grit w/ Mica	Medium	2.5yr6/6	2.5yr6/6	2.5yr5/8	Oxidizing	3	Impress on Rim	Straight	Rounded		
OR	1	30-40	63	10.36	9.15	8.89	9.02	1.1486	38.05	28.92	1.3157	Body	N	N	N	Incising	Grit w/ Coral, Grog	Coarse	2.5yr5/8	2.5yr4/8	2.5yr5/8	Oxidizing	3	Single Incise				
OR	1	30-40	64	1.99	5.49	5.08	5.285	0.3765	20.63	17.05	1.20997	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr3/4	2.5yr3/4	2.5yr3/6	Oxidizing	3					
OR	1	30-40	65	5.09	5.52	4.48	5	1.018	35.23	18.61	1.89307	Rim	N	N	Pitting	Impress	Grit w/ Coral, Grog, Mica	Coarse	2.5yr5/6	2.5yr5/6	2.5yr5/8	Oxidizing	3	Impress on Rim	Inverted	Flat		
OR	1	30-40	66	4.99	5.61	3.87	4.74	1.0527	28.4	25.45	1.11591	Body	N	N	N	Punctate	Grit w/ Coral, Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3	Semi-Circular Stamp				
OR	1	30-40	67	2.06	3.57	5.24	4.405	0.4677	23.6	17.18	1.37369	Rim	N	N	N	Ridge	Grit w/ Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3		Straight	Flat		
OR	1	30-40	68	4.34	7.83	5.32	6.575	0.6601	31.64	19.34	1.63599	Rim	N	N	N	Incising	Grit w/ Coral	Coarse	2.5yr3/2	2.5yr3/2	10r3/1	Oxidizing	3	Parallel Incise	Everted	Rounded		
OR	1	30-40	69	3.7	6.85	5.59	6.22	0.5949	24.41	14.16	1.72387	Rim	Y	Y	N	Punctate,	Grit w/ Mica	Fine	2.5yr4/8	10r4/8	10r4/6	Oxidizing	3	Parallel Incise	Straight	Flat		
OR	1	30-40	70	2.55	4.79	6.6	5.695	0.4478	21.91	21.8	1.00505	Rim	Y	Y	N	Impress	Grit w/ Mica	Fine	2.5yr5/0	5yr5/6	5yr5/6	Reducing	3	Impress on Rim	Straight	Flat		
OR	1	30-40	71	4.94	5.87	5.77	5.82	0.8488	24.87	21.4	1.16215	Body	Y	Y	N	N	Grit w/ Coral, Sand	Fine	10r4/8	10r3/4	10r3/1	Oxidizing	3					
OR	1	30-40	72	9.31	8.56	9.15	8.855	1.0514	33.57	32.92	1.01974	Body	N	N	N	Punctate,	Grit w/ Coral	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3	Multiple Design Elements				w/ incise above punctate
OR	1	30-40	73	5.63	6.75	4.12	5.435	1.0359	36.09	29.91	1.20662	Neck	N	N	N	Impress	Shell (foraminifera)	Fine	2.5yr5/8	10r4/8	5yr6/6	Oxidizing	3	Impress on Body				rocker impress
OR	1	30-40	74	2.3	5.3	4.13	4.715	0.4878	23.04	18.21	1.26524	Body	N	N	N	N	Grit w/ Grog, Mica	Fine	2.5yr6/8	2.5yr6/8	2.5yr6/8	Oxidizing	3					
OR	1	30-40	75	1.58	6.03	4.29	5.16	0.3062	18.52	17.92	1.03348	Body	N	N	N	Incising	Grit w/ Coral, Grog, Sand	Coarse	10r4/4	10r4/4	10r5/8	Oxidizing	3	Single Incise				
OR	1	30-40	76	19.13	16.65	9.3	12.975	1.4744	62.61	18.22	3.43633	Rim	Y	Y	N	N	Grit	Fine	5yr6/8	10r5/8	10r4/8	Oxidizing	3		Everted	rounded		
OR	1	30-40	77	2.13	6.92	5.27	6.095	0.3495	24.81	20.94	1.18481	Rim	N	N	N	Incising	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	2.5yr5/8	Reducing	2	Single Incise	Straight	Flat		aerated, missing temper
OR	1	30-40	78	8.91	7.89	8.85	8.37	1.0645	33.06	30.43	1.08643	Rim	Y	Y	N	N	Grit	Medium	10yr5/4	5yr6/6	5yr6/8	Oxidizing	3		Straight	rounded		
OR	1	30-40	79	5.58	8.17	6.31	7.24	0.7707	33.96	19.87	1.70911	Base	N	N	N	N	Sand	Fine	2.5yr5/0	10yr6/4	10r3/4	Reducing	3					
OR	1	30-40	80	3.9	6.5	4.67	5.585	0.6983	31.28	21.36	1.46442	Neck	N	Y	N	N	Grit	Fine	2.5yr5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	30-40	81	2.25	3.91	3.77	3.84	0.5859	25.05	17.15	1.46064	Neck	Y	Y	N	N	Grit	Fine	2.5yr5/0	10r4/8	10r4/8	Reducing	3					
OR	1	30-40	82	3.81	7.98	6.91	7.445	0.5118	23.34	19.43	1.20124	Body	Y	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr5/8	2.5yr5/8	10r4/8	Oxidizing	3					
OR	1	30-40	83	1.66	4.02	4.03	4.025	0.4124	23.74	17.04	1.39319	Body	N	Y	N	N	Grit	Fine	5yr5/1	7.5yr5/4	10r3/6	Reducing	3					
OR	1	30-40	84	8.92	6.07	6.34	6.205	1.4376	44.78	28.89	1.55002	Body	Y	N	N	N	Grit w/ Coral	Coarse	2.5yr3/2	2.5yr3/4	2.5yr3/2	Oxidizing	3	Single Incise				
OR	1	30-40	85	1.11	3.82	3.58	3.7	0.3	18.4	17.37	1.0593	Body	N	N	N	Incising	Grit	Fine	5yr6/6	5yr6/6	5yr6/6	Oxidizing	3	Diagonal Hatch				2 incised chevrons
OR	1	30-40	86	3.38	6.87	4.93	5.9	0.5729	23.89	18.28	1.30689	Body	N	N	N	Incising	Grit w/ Grog	Fine	7.5yr6/4	7.5yr6/4	7.5yr6/6	Oxidizing	3	Parallel Perpendicular				incised line w/ diagnols running down
OR	1	30-40	87	6.86	7.17	6.93	7.05	0.973	33.01	30.03	1.09923	Rim	N	N	Charred	Impress	Grit w/ Coral, Grog	Coarse	2.5yr4/6	7.5yr3/0	7.5yr4/0	Oxidizing	3	Impress on Rim	Straight	Rounded		
OR	1	40-50	1	3.9	9.6	11.55	10.575	0.3688	20.17	17.56	1.14863	Base	N	N	N	N	grit w/ mica	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	40-50	2	2.52	4.38	4.67	4.525	0.5569	23.87	17.98	1.32759	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r2/1	10r4/8	Oxidizing	3					
OR	1	40-50	3	1.14	3.53	3.62	3.575	0.3189	16.68	16.39	1.01769	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/0	5yr6/3	10r3/2	Reducing	3					
OR	1	40-50	4	2.74	4.51	2.49	3.5	0.7829	24.96	22.4	1.11429	Body	Y	Y	N	N	Grit	Fine	2.5yr5/8	10r4/8	2.5yr4/6	Oxidizing	3					
OR	1	40-50	5	5.66	6.38	4.81	5.595	1.0116	35.56	25.04	1.42013	Body	Y	Y	N	N	Grit	Fine	2.5yr4/8	2.5yr5/8	10r4/6	Oxidizing	3					
OR	1	40-50	6	3.01	5.63	5.58	5.605	0.537	19.64	19.02	1.0326	Body	N	N	N	N	Grit w/ Grog, Lava	Fine	2.5yr5/0	10r6/8	2.5yr6/6	Reducing	3					
OR	1	40-50	7	10.19	6.55	7.35	6.95	1.4662	38.9	31.39	1.23925	Body	N	N	N	N	Grit w/ Coral, Lava, Sand	Coarse	2.5yr5/8	2.5yr3/2	2.5yr5/8	Oxidizing	3					
OR	1	40-50	8	1.83	4.06	4.05	4.055	0.4513	19.94	16	1.24625	Rim	N	N	N	N	Grit w/ Mica	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	40-50	9	2.76	4.22	3.43	3.825	0.7216	28.02	22.2	1.26216	Body	N	N	N	N	Grit	Fine	10r5/8	10r3/4	10r3/1	Oxidizing	3					charcoal? Temper
OR	1	40-50	10	5.72	6.82	6.71	6.765	0.8455	26.76	22.32	1.19892	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr3/4	2.5yr5/6	2.5yr6/8	Oxidizing	3					
OR	1	40-50	11	2.79	5.55	3.89	4.72	0.5911	23.82	20.4	1.16765	Body	N	N	N	N	Grit w/ Coral, Grog	Medium	10r5/8	2.5yr4/8	10r5/8	Oxidizing	3					
OR	1	40-50	12	6.91	7.17	5.71	6.44	1.073	33.37	21.62	1.54348	Body	N	N	N	N	Grit w/ Coral	Coarse	10r3/1	10r4/8	10r4/8	Reducing	3					
OR	1	40-50	13	2.35	4.26	4.22	4.24	0.5542	21.74	20.2	1.07624	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr5/8	10r5/8	2.5yr3/2	Oxidizing	3					
OR	1	40-50	14	1.34	4.38	4.47	4.425	0.3028	18.2	17.65	1.03116	Body	N	N	N	N	Grit	Coarse	10r3/6	10r3/6	10r3/6	Oxidizing	3					
OR	1	40-50	15	2.47	3.32	2.91	3.115	0.7929	28.99	23.07	1.25661	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr5/8	2.5yr5/8	10r4/8	Oxidizing	3					
OR	1	40-50	16	2.95	6.84	6.65	6.745	0.4374	28.68	21.81	1.31499	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr5/0	10r5/8	2.5yr3/0	Reducing	3					lots of temper, crumbly. Trowel mark.
OR	1	40-50	17	6.41	8.98	6.51	7.745	0.8276	28.45	27.68	1.02782	Body	N	N	N	N	grit w/ mica	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	40-50	18	1.43	5.46	3.78	4.62	0.3095	16.92	12.68	1.33438	Body	N	N	N	N	grit w/ mica	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	40-50	19	7.6	5.69	6	5.845	1.3003	40	28.23	1.41693	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr5/8	10r3/1	2.5yr5/8	Oxidizing	3					
OR	1	40-50	20	9.87	10	8.39	9.195	1.0734	31.75	26.04	1.21928	Body	N	N	N	N	grit w/ mica	Coarse	10r4/8	10r4/3	10r5/8	Oxidizing	3					
OR	1	40-50	21	4.12	5.17	4.05	4.61	0.8937	33.62	22.95	1.46492	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr3/4	2.5yr3/4	10r4/8	Oxidizing	3					
OR	1	40-50	22	1.47	4.52	3.87	4.195	0.3504	25.58	13.78	1.85631	Body	N	N	N	N	Grit w/ Coral	Fine	10r5/6	5yr6/6	10r5/8	Oxidizing	3					
OR	1	40-50	23	1.32	5.51	4.79	5.15	0.2563	16.4	13.05	1.2567	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/1	10r3/1	10r3/2	Reducing	3					
OR	1	40-50	24	4.76	6.09	5.65	5.87	0.8109	28.24	20.79	1.35835	Body	N	N	N	N	Grit	Fine	10r3/6	10r3/1	10r3/2	Oxidizing	3					
OR	1	40-50	25	4.46	9.09	9.48	9.285	0.4803	26.66	21.09	1.26411	Body	N	N	N	N	grit w/ mica	Coarse	10r4/6	10r4/6	2.5yr6/8	Oxidizing	3					
OR	1	40-50	26	1.23	5.31	4.43	4.87	0.2526	15.09	13.14	1.1484	Body	N	N	N	N	Grit	Fine	10r5/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	40-50	27	6.92	9.43	8.33	8.88	0.7793	27.1	24.52	1.10522	Body	N	N	N	N	grit w/ mica	Coarse	10r4/8	10r4/8	2.5yr6/6	Oxidizing	3					
OR	1	40-50	28	0.89	4.63	4.44	4.535	0.1963	15.15	14.99	1.01067	Body	N	N	N	N	Grit	Fine	5yr6/4	2.5yr6/6	2.5yr6/6	Oxidizing	3					
OR	1	40-50	29	1.49	5.29	5.45	5.37	0.2775	21.13	13.43	1.57334	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/8	10r5/8	10r4/8	Oxidizing	3					
OR	1	40-50	30	1.04	4.52	4.07	4.295	0.2421	17.77	10.67	1.66542	Body	N	N	N	N	Grit w/ Grog	Fine	10r5/6	10r5/6	10r5/6	Oxidizing	3					
OR	1	40-50	31	6.48	7.79	7.15	7.47	0.8675	36.4	19.64	1.85336	Body	N	N	N	N	Grit w/ Coral	Medium	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	40-50	32	4.01	7.29	5.69	6.49	0.6179	29.16	18.19	1.60308	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	40-50	33	13.16	8.4	7.17	7.785	1.6904	48.26	27.99	1.72419	Body	N	N	N	N	Grit w/ Coral	Medium	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	1	40-50	34	2.95	9.42	3.31	6.365	0.4635	24.03	19.44	1.23611	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	5yr4/4	5yr4/4	5yr5/6	Oxidizing	3					
OR	1	40-50	35	0.77	3.99	3.75	3.87	0.199	11.72	11.67	1.00428	Body	N	N	N	N	Grit w/ Mica	Medium	2.5yr6/8	2.5yr6/8	2.5yr6/8	Oxidizing	3					
OR	1	40-50	36	1.35	4.95	5.13	5.04	0.2679	19.27	15.89	1.21271	Body	Y	Y	N	N	?Shell (foraminifera)	Fine	2.5yr4/0	7.5yr6/4	7.5yr6/4	Reducing	3					aerated, lots of missing temper
OR	1	40-50	37	1.06	4.14	3.78	3.96	0.2677	15.48	14.02	1.10414	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr4/6	2.5yr2.5/2	2.5yr4/6	Oxidizing	3					
OR	1	40-50	38	2.6	7.69	7.54	7.615	0.3414	16.75	15.12	1.1078	Body	N	N	N	N	Grit w/ Coral	Coarse	10r5/8	10r4/4	10r5/8	Oxidizing	3					
OR	1	40-50	39	2.18	4.97	4.87	4.92	0.4431	22.21	17.79	1.24845	Body	N	N	N	N	Sand	Fine	2.5yr5/8	2.5yr3/6	10r3/2	Oxidizing	3					
OR	1	40-50	40	14.94	13.93	12.63	13.28	1.125	36.36	25.13	1.44688	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	1	40-50	41	7.72	6.29	6.51	6.4	1.2063	32.68	24.41	1.3388	Body	N	N	N	N	Grit w/ Coral	Medium	2.5yr4/2	10r4/8	10r4/8	Reducing	3					
OR	1	40-50	42	2.14	7.12	5.63	6.375	0.3357	19.12	13.44	1.42262	Body	N	N	N	N	Grit w/ Coral	Medium	10r5/8	10r5/8	10r3/2	Oxidizing	3					
OR	1	40-50	43	5.38	7.6	6.13	6.865	0.7837	31.3	15.74	1.98856	Body	N	N	N	N	Grit w/ Coral, Mica, Sand	Varies	10r5/8	2.5yr3/2	2.5yr3/2	Oxidizing	3					
OR	1	40-50	45	2.65	5.26	5.29	5.275	0.5024	26.54	16.73	1.58637	Body	N	N	N	N	Grit w/ Mica	Fine	10r5/8	10r3/3	10r5/8	Oxidizing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
OR	1	40-50	46	28.43	11.39	13.26	12.325	2.3067	73.87	12.07	6.12013	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	2.5yr5/8	2.5yr5/8	2.5yr6/8	Oxidizing	3					
OR	1	40-50	47	2.13	5.88	4.48	5.18	0.4112	22.16	9.48	2.33755	Body	N	N	N	N	Grit w/ Mica	Fine	10r5/8	10r4/4	10r4/8	Oxidizing	3					
OR	1	40-50	48	9.36	11.34	8	9.67	0.9679	38.51	28.12	1.36949	Body	N	N	N	N	Grit w/ ?Charcoal	Coarse	10yr7/2	10r5/8	10yr7/2	Reducing	3					aerated, lots of missing temper
OR	1	40-50	49	1.54	4.61	3.63	4.12	0.3738	24.93	19.31	1.29104	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	40-50	50	2.07	4.61	4.56	4.585	0.4515	17.43	13.11	1.32952	Body	N	Y	Charred	N	Grit w/ Mica	Fine	2.5yr4/0	10r2.5/1	10r3/4	Reducing	3					
OR	1	40-50	51	1.14	3.86	4.1	3.98	0.2864	20.69	9.27	2.23193	Body	N	N	N	N	Grit	Fine	7.5yr6/4	7.5yr6/4	7.5yr6/4	Reducing	3					
OR	1	40-50	52	0.63	2.82	2.87	2.845	0.2214	13.14	10.28	1.27821	Body	N	N	N	N	Grit	Fine	10r5/8	10r5/8	10r3/4	Oxidizing	3					
OR	1	40-50	53	1.86	4.52	3.03	3.775	0.4927	23.47	10.31	2.27643	Body	N	N	N	N	Grit w/ Coral	Fine	7.5yr6/2	2.5yr4/8	2.5yr6/8	Reducing	3					
OR	1	40-50	54	11.23	9.32	7.65	8.485	1.3235	36.85	22.89	1.60987	Body	N	N	N	N	Grit w/ Coral	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	40-50	55	19.12	9.8	9.23	9.515	2.0095	49.9	20.85	2.39329	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr4/0	10r5/8	10r5/8	Reducing	3					
OR	1	40-50	56	0.5	3.06	3.1	3.08	0.1623	11.48	7.13	1.6101	Body	N	N	N	N	Grit	Fine	2.5yr4/0	10r3/4	10r5/8	Reducing	3					
OR	1	40-50	57	0.93	4.46	4.32	4.39	0.2118	13.78	12.25	1.1249	Body	N	N	N	N	Grit	Fine	10r5/8	10r5/8	10r3/1	Oxidizing	3					
OR	1	40-50	58	0.48	2.7	2.34	2.52	0.1905	13.11	11.43	1.14698	Body	N	N	N	N	Grit	Fine	10r5/8	10r5/8	2.5yr5/4	Oxidizing	3					
OR	1	40-50	59	0.82	3.86	4.04	3.95	0.2076	13.48	13.73	0.98179	Body	N	N	N	N	Sand	Fine	2.5yr6/8	2.5yr6/8	10r5/8	Oxidizing	3					
OR	1	40-50	60	1.31	3.93	3.96	3.945	0.3321	21.3	6.2	3.43548	Body	N	N	N	N	Grit w/ Grog, Mica	Fine	10r4/8	10r4/8	2.5yr3/0	Oxidizing	3					
OR	1	40-50	61	1.65	4	3.34	3.67	0.4496	23.01	9.34	2.4636	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr4/0	2.5yr2.5/0	2.5yr6/8	Reducing	3					
OR	1	40-50	62	4.25	7.84	3.74	5.79	0.734	25.32	14.91	1.69819	Body	N	N	N	N	grit w/ mica	Coarse	10r4/4	10r4/6	10r4/8	Oxidizing	3					
OR	1	40-50	63	1.13	3.47	3.53	3.5	0.3229	17.55	11.07	1.58537	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr5/8	10r3/2	10r4/4	Oxidizing	3					
OR	1	40-50	64	3.71	10.53	7.2	8.865	0.4185	20.13	17.12	1.17582	Body	N	N	N	N	Sand	Fine	10r3/6	104/8	10r6/8	Oxidizing	3					
OR	1	40-50	65	1.3	3.89	3.74	3.815	0.3408	16.98	11.3	1.50265	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr6/6	2.5yr6/6	10r3/2	Oxidizing	3					
OR	1	40-50	66	3.11	6.25	5.95	6.1	0.5098	21.49	19.55	1.09923	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/6	10r4/6	10r3/8	Oxidizing	3					
OR	1	40-50	67	11.44	11.4	8.73	10.065	1.1366	35.13	27.84	1.26185	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	40-50	68	11.42	11.13	9.77	10.45	1.0928	35.97	13.09	2.7479	Body	N	N	N	N	Grit w/ Mica	Fine	10r5/8	10r3/6	10r3/6	Oxidizing	3					
OR	1	40-50	69	1.69	6.81	5.99	6.4	0.2641	15.82	13.45	1.17621	Body	N	N	N	N	Grit	Fine	10r5/8	10yr6/3	10r5/8	Oxidizing	3					
OR	1	40-50	70	4.35	9.2	9.34	9.27	0.4693	22.16	16.91	1.31047	Body	Y	N	N	N	grit w/ mica	Coarse	2.5yr6/6	10r4/8	2.5yr6/6	Oxidizing	3					
OR	1	40-50	71	2.01	4.17	3.74	3.955	0.5082	19.45	19.01	1.02315	Body	N	N	Charred	N	Grit	Coarse	10r2.5/1	10r2.5/1	2.5yr3/2	Reducing	3					
OR	1	40-50	72	0.82	2.83	2.69	2.76	0.2971	16.73	14.08	1.18821	Body	N	N	N	N	Grit w/ Mica	Fine	10r3/6	10r3/6	10r3/2	Oxidizing	3					
OR	1	40-50	73	2.93	2.47	2.93	2.7	1.0852	34.18	23.58	1.44953	Body	N	N	N	N	Grit	Fine	2.5yr3/0	2.5yr3/0	2.5yr3/0	Reducing	3					3 pcs glued together
OR	1	40-50	74	3.93	8.91	7.21	8.06	0.4876	21.21	14.52	1.46074	Body	N	N	N	N	Grit w/ Mica	Fine	10r4/8	10r4/8	10r3/3	Oxidizing	3					
OR	1	40-50	75	1.32	4.38	4.09	4.235	0.3117	19.55	14.99	1.3042	Body	N	N	N	N	Grit w/ Coral	Medium	2.5yr6/8	10r3/1	10r3/3	Oxidizing	3					
OR	1	40-50	76	6.93	10.82	9.84	10.33	0.6709	30.12	24.41	1.23392	Body	N	N	N	N	?Charcoal	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					aerated, missing temper. Trowel stab.
OR	1	40-50	77	14.91	15.89	9.71	12.8	1.1648	33.51	29.98	1.11775	Lip	N	N	N	N	Grit w/ Coral	Coarse	10r4/6	10r4/8	10r3/2	Oxidizing	3					
OR	1	40-50	78	5.01	6.34	6.25	6.295	0.7959	23.19	19.33	1.19969	Rim	N	N	N	Impress	grit w/ mica	Coarse	2.5yr3/0	10r3/1	10r4/8	Reducing	3	Impress on Rim	Everted	Flat		
OR	1	40-50	79	2.67	4.58	4.69	13.57	0.1968	22.45	17.45	1.28653	Body	Y	Y	N	N	Grit w/ Mica	Varies	2.5yr4/0	10r4/8	10r4/8	Reducing	3					
OR	1	40-50	80	44.85	10.11	7.56	8.835	5.0764	53.25	46.88	1.13588	Base	N	N	N	N	Grit w/ Coral	Coarse	2.5yr5/6	2.5yr4/4	2.5yr5/8	Oxidizing	3				L&S #8- Anglo	
OR	1	40-50	81	6.24	7.95	6.17	7.06	0.8839	32.07	21.27	1.50776	Rim	Y	Y	N	Incising	Grit w/ Coral	Coarse	2.5yr4/4	10r4/6	10r4/8	Oxidizing	3	Parallel Incise	Inverted	Flat		
OR	1	40-50	82	10.15	10.01	8.18	9.095	1.116	33.92	33.52	1.01193	Rim	N	N	N	Incising	Grit w/ Coral, Sand	Fine	10r4/8	2.5yr3/4	2.5yr3/2	Oxidizing	3	Parallel Incise	Inverted	Rounded		3 II lines
OR	1	40-50	83	4.65	6.94	4.96	5.95	0.7815	33.04	19.81	1.66784	Body	N	N	N	Incising	Grit w/ Coral	Fine	5yr6/6	5yr5/4	5yr6/6	Oxidizing	3	Parallel Incise				2 II lines
OR	1	40-50	84	2.35	5.56	3.59	4.575	0.5137	24.24	15.22	1.59264	Body	N	N	N	Incising	Grit w/ Coral	Fine	2.5yr4/0	2.5yr3/2	10r3/1	Reducing	3	Parallel Incise				5 II lines
OR	1	40-50	85	16	10.95	8.51	9.73	1.6444	38.23	36.54	1.04625	Rim	N	N	N	N	Grit w/ Coral	Fine	10r4/6	10r5/8	2.5yr5/8	Oxidizing	3		Inverted	Flat		
OR	1	40-50	86	9.02	8.17	6.81	7.49	1.2043	35.53	22.52	1.57771	Rim	Y	Y	N	Incising	Grit w/ Mica	Fine	10r4/6	10r4/4	10r4/8	Reducing	3	Parallel Incise	Straight	Pointed		
OR	1	40-50	87	2.42	6.09	5.77	5.93	0.4081	24.69	7.75	3.18581	Body	N	N	N	N	Grit w/ Mica	Medium	10r3/2	10r3/4	10r4/8	Oxidizing	3					
OR	1	40-50	88	2.34	5.91	3.95	4.93	0.4746	26.93	15.69	1.71638	Body	N	N	N	N	Grit	Fine	2.5yr5/8	2.5yr3/6	10r4/6	Oxidizing	3					
OR	1	40-50	89	7.66	10.62	7.99	9.305	0.8232	37.94	30.83	1.23062	Knob	N	N	N	Incising	Grit w/ Coral, Sand	Varies	2.5yr4/0	2.5yr6/8	2.5yr5/8	Oxidizing	3	Other, knob			Other, Knob	flat pc w/ nub on end, 4 incised lined, 2 coming to a V, radiating from nub
OR	1	40-50	90	11.76	7.78	6.2	6.99	1.6824	36	32.93	1.09323	Rim	N	N	N	N	Grit w/ Mica	Fine	2.5yr6/8	2.5yr6/8	2.5yr5/8	Oxidizing	3		Inverted	Flat		
OR	1	40-50	91	2.72	5.88	5.14	5.51	0.4936	21.16	15.98	1.32416	Rim	N	N	N	N	Grit w/ Coral, Grog	Fine	2.5yr4/4	10r3/1	10r3/4	Oxidizing	3		Straight	Flat		
OR	1	40-50	92	6.48	7.07	5.93	6.5	0.9969	27.4	26.2	1.0458	Body	N	N	N	N	Sand	Fine	10r4/8	10r4/8	10r3/2	Oxidizing	3					
OR	1	40-50	93	3.1	7.5	5.34	6.42	0.4829	20.24	13.3	1.5218	Body	N	N	N	Incising	Grit w/ Coral	Medium	10r5/8	10r3/2	10r5/8	Oxidizing	3	Single Incise				
OR	1	40-50	95	3.17	6.72	6.46	6.59	0.481	22.87	8.91	2.56678	Rim	N	N	N	Incising	grit w/ mica	Coarse	2.5yr4/8	2.5yr6/6	2.5yr2.5/4	Oxidizing	3	Single Incise	Inverted	Rounded		1 incised line below rim
OR	1	40-50	96	11.94	9.14	7.84	8.49	1.4064	36.52	31.39	1.16343	Rim	N	N	N	N	Sand	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3		Straight	Rounded		
OR	1	40-50	97	21.21	10.42	6.95	8.685	2.4421	48.34	33.46	1.44471	Rim	N	N	N	Indent	Sand	Coarse	10r3/1	10r3/1	10r4/3	Oxidizing	3	Crenelated Rim	Straight	Rounded		
OR	1	40-50	98	21.75	12.14	10.25	11.195	1.9428	61.37	30.36	2.02141	Rim	N	N	N	N	Sand	Fine	2.5yr5/8	2.5yr4/2	2.5yr5/8	Oxidizing	3		Straight	Flat	L&S #3- Plate?	rim of plate?
OR	1	40-50	99	3.5	7.03	6.86	6.945	0.504	22.97	22.12	1.03843	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	5yr5/6	5yr4/3	5yr5/6	Oxidizing	3					trowel mark?
OR	1	40-50	100	2.03	5.93	5.52	5.725	0.3546	16.57	16.27	1.01844	Body	Y	N	N	N	Grit w/ Coral, Grog	Fine	2.5yr6/6	10r4/8	2.5yr6/6	Oxidizing	3					
OR	1	50-60	1	3.34	3.65	4.19	3.92	0.852	26.59	14.77	1.80027	Body	N	N	N	N	Grit w/ Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	50-60	2	3.71	3.87	3.19	3.53	1.051	29.17	24.39	1.19598	Body	N	N	N	N	Grit	Fine	10r6/8	2.5yr5/8	2.5yr6/8	Oxidizing	3					
OR	1	50-60	3	3.77	4.08	3.92	4	0.9425	27.98	23.74	1.1786	Body	Y	Y	N	N	Grit	Fine	10r5/8	10r4/6	10r3/4	Oxidizing	3					
OR	1	50-60	4	9.66	6.48	6.02	6.25	1.5456	41.57	31.53	1.31843	Body	N	N	N	N	Grit w/ Coral	Fine	7.5yr3/0	2.5yr3/4	2.5yr3/0	Reducing	3					
OR	1	50-60	5	3.46	4.98	2.77	3.875	0.8929	26.2	23.59	1.11064	Body	N	N	N	N	Grit w/ Coral	Fine	10r3/2	10r4/8	10r3/3	Oxidizing	3					
OR	1	50-60	6	2.53	5	4.73	4.865	0.52	24.1	12.01	2.00666	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	50-60	7	2.22	4.1	3.86	3.98	0.5578	21.09	11.75	1.79489	Body	N	N	N	N	Grit w/ Mica	Medium	7.5yr3/0	7.5yr4/4	7.5yr3/0	Reducing	3	Other Incise				
OR	1	50-60	8	2.03	4.89	3.95	4.42	0.4593	23.72	19.43	1.22079	Body	N	N	N	N	Grit w/ Coral	Fine	7.5yr5/8	7.5yr5/8	7.5yr3/2	Oxidizing	3					
OR	1	50-60	9	1.57	4.23	4.73	4.48	0.3504	16.55	14.83	1.11598	Body	N	N	N	N	Grit w/ Coral	Fine	10r5/8	10r4/8	10r5/8	Oxidizing	3					
OR	1	50-60	10	0.91	5.09	5.59	5.34	0.1704	13.7	10.76	1.27323	Body	N	N	N	N	Grit w/ Mica	Medium	7.5r5/6	7.5r5/6	7.5r5/6	Oxidizing	3					
OR	1	50-60	11	3.28	7.29	5.27	6.28	0.5223	25.97	20.12	1.29076	Body	N	N	N	N	Grit w/ Coral	Medium	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	50-60	12	1.36	6.17	6	6.085	0.2235	18.25	12.2	1.4959	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r3/2	10r4/8	Oxidizing	3					
OR	1	50-60	13	1.74	4.4	4.3	4.35	0.4	20.01	17.19	1.16405	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	50-60	14	10.7	10.44	8.01	9.225	1.1599	32.34	25.55	1.26575	Shoulder	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3		Everted	Damaged		
OR	1	50-60	15	13.63	7.27	6.45	6.86	1.9869	45.73	18.82	2.42986	Body	N	N	N	N	Grit w/ Coral	Fine	10r5/8	2.5yr4/2	2.5yr4/2	Oxidizing	3					
OR	1	50-60	16	10.76	7.29	5.47	6.38	1.6865	35.19	31.59	1.11396	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	50-60	17	7.66	11.52	11.16	11.34	0.6755	27.15	23.32	1.16424	Body	N	N	N	N	Grit w/ Coral	Coarse	10r3/4	10r5/8	7.5r3/4	Oxidizing	3					
OR	1	50-60	18	4.37	5.04	6.02	5.53	0.7902	27.35	18.48	1.47998	Body	N	N	N	N	Grit w/ Coral	Fine	10r3/4	10r3/4	10r4/8	Oxidizing	3					ext has broken off
OR	1	50-60	19	4.93	6.37	5.81	6.09	0.8095	29.42	19.81	1.48511	Neck	N	N	N	N	Grit w/ Grog	Varies	5yr6/6	5yr6/6	7.5yr6/4	Oxidizing	3					
OR	1	50-60	20	3.62	4.77	6.02	5.395	0.671	26.8	10.14	2.643	Body	N	N	N	N	Grit w/ Mica	Fine	10r4/6	10r4/6	10r3/1	Oxidizing	3					
OR	1	50-60	21	14.8	8.5	7.31	7.905	1.8722	49.31	14.6	3.3774	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	50-60	22	7.44	6.78	4.67	5.725	1.2996	40.25	32.53	1.23732	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr5/8	10r3/4	2.5yr5/8	Oxidizing	3					
OR	1	50-60	23	4.96	5.57	3.21	4.39	1.1298	39.64	25.47	1.55634	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/6	2.5yr3/2	2.5yr3/2	Oxidizing	3					firing clouds
OR	1	50-60	24	10.93	9.65	8.68	9.165	1.1926	45.85	21.53	2.12959	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr6/8	2.5yr5/8	2.5yr6/8	Oxidizing	3					
OR	1	50-60	25	3.01	4.6	4.11	4.355	0.6912	23.11	20.59	1.12239	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/4	2.5yr5/8	5yr4/3	Reducing	3					
OR	1	50-60	26	13.28	5.98	6.4	6.19	2.1454	41.85	19.89	2.10407	Body	Y	Y	N	N	Grit w/ Coral	Fine	10r4/4	2.5yr3/0	2.5yr3/0	Oxidizing	3					
OR	1	50-60	27	13.54	6.1	4.04	5.07	2.6706	45.3	42.05	1.07729	Neck	Y	Y	N	N	Grit	Fine	10yr7/4	10yr6/4	5yr7/8	Reducing	3					
OR	1	50-60	28	7.42	6.45	5.5	5.975	1.2418	25.61	32.18	0.79584	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r5/8	2.5yr4/6	2.5yr3/0	Oxidizing	3					firing clouds on ext
OR	1	50-60	29	16.01	14.2	9.09	11.645	1.3748	37.07	35.73	1.0375	Rim	N	N	N	N	Grit w/ Coral	Coarse	10r4/4	2.5yr3/0	10r4/6	Oxidizing	3		Everted	Flat		ridge rim?
OR	1	50-60	30	9.15	8.64	6.93	7.785	1.1753	31.08	18.18	1.70957	Neck	N	N	N	N	Grit w/ Grog	Coarse	10r3/4	10r5/8	10r4/2	Oxidizing	3					
OR	1	50-60	31	11.87	10.58	10.23	10.405	1.1408	38.86	27.05	1.4366	Body	N	N	N	N	Grit w/ Coral	Coarse	10r5/8	10r5/8	10r3/4	Oxidizing	3					
OR	1	50-60	32	3.14	4.41	3.51	3.96	0.7929	30	20.19	1.48588	Body	N	N	N	N	Grit	Medium	5yr6/6	7.5yr4/2	5yr6/6	Oxidizing	3					
OR	1	50-60	33	2.99	5.7	5.63	5.665	0.5278	25.19	19.53	1.28981	Body	N	N	N	N	Grit w/ Coral	Medium	10r4/8	10r3/6	2.5yr3/2	Oxidizing	3					
OR	1	50-60	34	9.49	8.79	9.13	8.96	1.0592	41.84	21.55	1.94153	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr4/8	2.5yr5/8	2.5yr5/6	Oxidizing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
OR	1	50-60	35	8.82	14.12	8.41	11.265	0.783	30.05	29.36	1.0235	Base	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	10r4/8	10r4/4	Oxidizing	3					
OR	1	50-60	36	4.14	7.05	6.79	6.92	0.5983	23.41	23.11	1.01298	Neck	Y	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	2.5yr2.5/2	2.5yr4/8	Oxidizing	3					
OR	1	50-60	37	4.06	7.75	7.43	7.59	0.5349	28.62	16.21	1.76558	Body	N	Y	N	N	Grit w/ Coral, Mica	Coarse	10r5/8	10r5/8	10r4/6	Oxidizing	3					
OR	1	50-60	38	1.31	3.75	3.43	3.59	0.3649	21.41	10.42	2.0547	Body	N	N	N	N	Grit w/ Mica	Fine	10r5/8	10r5/8	10r4/8	Oxidizing	3					
OR	1	50-60	39	4.31	4.41	4.42	4.415	0.9762	30.54	20.11	1.51865	Body	N	N	N	N	Grit	Fine	10r4/8	2.5yr3/0	10r4/8	Oxidizing	3					
OR	1	50-60	40	3.99	7.83	5.96	6.895	0.5787	24.42	16.18	1.50927	Body	N	N	N	N	Grit w/ Coral	Medium	10r4/8	10r5/8	10r4/8	Oxidizing	3					
OR	1	50-60	41	10.22	8.06	7.67	7.865	1.2994	35.47	26.6	1.33346	Body	N	N	N	N	Grit w/ Lava	Fine	2.5yr5/6	2.5yr6/6	2.5yr6/6	Oxidizing	3					
OR	1	50-60	42	3.71	5.24	5.49	5.365	0.6915	25.59	20.59	1.24284	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/8	10r4/8	10r5/8	Oxidizing	3					
OR	1	50-60	43	2.51	4.14	4.47	4.305	0.583	30.56	18.94	1.61352	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/8	10r3/4	10r5/8	Oxidizing	3					
OR	1	50-60	45	5	4.86	4.52	4.69	1.0661	34.29	30.27	1.1328	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	50-60	46	5.51	6.6	7.28	6.94	0.7939	30.39	23.74	1.28012	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	50-60	47	1.26	4.24	3.52	3.88	0.3247	20.54	16.91	1.21467	Body	N	Y	N	N	Grit w/ Coral	Coarse	2.5yr6/8	2.5yr6/8	10r4/8	Oxidizing	3					
OR	1	50-60	48	2.76	4.17	2.73	3.45	0.8	30.53	20.41	1.49584	Body	N	N	Charred	N	Grit w/ Mica	Fine	2.5yr4/8	2.5yr2.5/0	2.5yr4/4	Oxidizing	3					
OR	1	50-60	49	1.71	3.99	3.62	3.805	0.4494	24.38	18.06	1.34994	Body	N	Y	N	N	Grit w/ Coral	Coarse	2.5yr4/4	2.5yr4/4	10r3/2	Oxidizing	3					int broken off
OR	1	50-60	50	1.12	3.96	3.46	3.71	0.3019	16.37	13.15	1.24487	Body	N	N	N	N	Grit	Fine	2.5yr6/8	7.5yr6/4	2.5yr6/8	Oxidizing	3					
OR	1	50-60	51	1.28	4.21	4.31	4.26	0.3005	21.73	8.24	2.63714	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr4/0	2.5yr6/6	2.5yr3/4	Reducing	3					
OR	1	50-60	52	3.65	6.21	5.26	5.735	0.6364	27.26	24.47	1.11402	Body	N	Y	N	N	?Shell (foraminifera)	Fine	2.5yr4/8	2.5yr4/4	2.5yr4/8	Oxidizing	3					aerated, lots of missing temper. Trowel mark on ext.
OR	1	50-60	53	4.75	6.25	5.33	5.79	0.8204	33.3	23.14	1.43907	Body	N	N	N	N	Grit w/ Coral, Mica, Sand	Fine	10r5/8	10r5/8	10r4/3	Oxidizing	3					
OR	1	50-60	54	3.67	6.7	5.8	6.25	0.5872	26.15	18.13	1.44236	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	2.5yr3/0	2.5yr3/0	10r3/1	Reducing	3					
OR	1	50-60	55	3.37	6.73	4	5.365	0.6281	29.42	17.41	1.68983	Neck	N	N	N	N	Grit w/ Coral	Coarse	10r3/2	10r4/3	10r4/8	Oxidizing	3					
OR	1	50-60	56	4.56	7.61	7.79	7.7	0.5922	26.77	21.2	1.26274	Body	N	N	N	N	Grit w/ Coral, Grog, Lava	Coarse	10r5/8	10r5/8	10r3/1	Oxidizing	3					
OR	1	50-60	57	0.31	2.43	2.15	2.29	0.1354	11.44	9.55	1.19791	Body	N	N	N	N	Grit w/ Grog, Mica	Fine	5yr7/4	5yr7/4	5yr7/4	Oxidizing	3					
OR	1	50-60	58	1.01	4.17	4.09	4.13	0.2446	18.15	14.61	1.2423	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr5/8	2.5yr4/8	2.5yr5/8	Oxidizing	3					
OR	1	50-60	59	4.99	5.12	5.11	5.115	0.9756	35.73	27.21	1.31312	Rim	N	N	N	Incising	Grit w/ Coral, Mica	Coarse	7.5yr5/0	7.5yr4/0	2.5yr4/0	Reducing	3	Single Incise	Everted	Rounded		1 incised line below rim
OR	1	50-60	60	4.41	5.2	4.99	5.095	0.8656	32.67	22.48	1.45329	Body	N	N	N	N	grit w/ mica	Coarse	2.5yr5/8	5yr3/1	2.5yr4/8	Oxidizing	3					
OR	1	50-60	61	2.7	6.75	6.97	6.86	0.3936	25.24	16.39	1.53996	Body	N	N	N	N	Grit w/ Coral, Grog, Sand	Coarse	10r5/8	10r5/8	5yr6/4	Oxidizing	3					
OR	1	50-60	62	1.41	7.14	6.16	6.65	0.212	15.82	13.96	1.13324	Rim	N	N	N	N	Grit w/ Coral	Coarse	5yr7/8	10yr6/3	7.5yr4/2	Reducing	3		Everted	Rounded		
OR	1	50-60	63	1.7	3.79	3.31	3.55	0.4789	24.41	12.18	2.00411	Body	N	N	N	N	Grit	Fine	2.5yr3/0	2.5yr3/2	2.5yr3/0	Reducing	3					
OR	1	50-60	64	1.82	4.1	3.88	3.99	0.4561	21.93	17.83	1.22995	Neck	Y	Y	N	N	Grit w/ Grog	Fine	10r5/8	10r4/3	10r3/2	Oxidizing	3					bottle neck?
OR	1	50-60	65	2.43	6.83	6.57	6.7	0.3627	20.91	20.37	1.02651	Neck	N	Y	N	Pinch	Grit w/ Coral	Varies	10r5/8	10r4/8	10r5/8	Oxidizing	3	Other, pinch				
OR	1	50-60	66	9.43	7.33	4.14	5.735	1.6443	42.45	27.3	1.55495	Neck	Y	Y	N	Impress	Grit w/ Coral	Medium	10r5/8	10r5/8	10r5/8	Oxidizing	3	Impress on Body				
OR	1	50-60	67	9.74	4.6	7.12	5.86	1.6621	43.82	34.88	1.25631	Rim	Y	Y	N	N	Grit w/ Coral	Fine	10r5/8	10r4/6	10r4/8	Oxidizing	3		Everted	Flat		
OR	1	50-60	68	14.5	10.15	7.82	8.985	1.6138	37.52	37.05	1.01269	Neck	N	Y	N	N	Grit w/ Coral	Coarse	10r5/8	10r4/8	10r4/4	Oxidizing	3					
OR	1	50-60	69	4.4	5	3.87	4.435	0.9921	35.01	21.76	1.60892	Neck	N	N	N	Pinch	Grit w/ Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3	Other, pinch				
OR	1	50-60	70	10.88	6.4	5.3	5.85	1.8598	43.75	31.03	1.40993	Rim	N	N	N	Impress	Grit w/ Coral, Mica	Fine	2.5yr4/0	2.5yr4/6	2.5yr5/8	Reducing	3	Impress on Rim	Everted	Rounded		impress on rim. Part of neck, too
OR	1	50-60	71	19.72	10.64	6.93	8.785	2.2447	47.94	37.97	1.26258	Neck	N	N	N	N	Grit w/ Coral	Coarse	2.5yr4/6	2.5yr4/8	2.5yr5/8	Oxidizing	3					
OR	1	50-60	72	32.19	10.87	9.84	10.355	3.1086	49.51	43.46	1.13921	Rim	Y	N	N	N	Grit w/ Coral, Lava	Coarse	10r5/8	10r4/8	10r5/8	Oxidizing	3		Everted	Rounded		firing clouds on ext
OR	1	50-60	73	0.98	5.44	4.43	4.935	0.1986	14.92	14.67	1.01704	Body	N	N	N	Incising	Sand	Fine	2.5yr6/8	2.5yr6/8	2.5yr5/8	Oxidizing	3	Parallel Perpendicular				
OR	1	50-60	74	1.85	5.44	5.04	5.24	0.3531	22.46	17.73	1.26678	Neck	N	N	N	Incising	Sand	Fine	2.5yr5/0	10r5/8	5yr6/6	Reducing	3	Single Incise				
OR	1	50-60	75	1.95	4.39	4.59	4.49	0.4343	21.08	20.49	1.02879	Neck	N	N	N	Incising	Grit w/ Coral	Fine	5yr6/6	5yr7/4	5yr6/6	Oxidizing	3	Diagonal Hatch				
OR	1	50-60	76	1.08	4.41	4.07	4.24	0.2547	16.7	12.68	1.31703	Body	N	N	N	N	Grit w/ Mica	Fine	5yr4/1	5yr4/2	10r5/8	Reducing	3					
OR	1	50-60	77	2.35	5.46	4.65	5.055	0.4649	19.45	17.67	1.10074	Body	N	N	N	Fingernail	Grit w/ Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					manufacturing mark, fingernail impress
OR	1	50-60	78	2.75	3.65	2.54	3.095	0.8885	32.57	22.72	1.43354	Body	N	Y	N	Incising	Grit	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3	Other Incise				
OR	1	50-60	79	11.18	8.6	5.57	7.085	1.578	37.09	31.04	1.19491	Rim	N	N	N	Incising	Grit w/ Coral	Fine	10r5/8	10r5/8	2.5yr3/2	Oxidizing	3	Single Incise	Inverted	Rounded		
OR	1	50-60	80	7.17	6.82	6.96	6.89	1.0406	33.24	24.94	1.3328	Rim	N	N	N	N	Grit w/ Coral	Fine	10r5/8	10r4/8	10r4/8	Oxidizing	3		Straight	Rounded		
OR	1	50-60	81	1.68	3.24	2.81	3.025	0.5554	22.37	20.25	1.10469	Rim	N	N	N	Impress	Grit w/ Coral	Coarse	2.5yr4/0	5yr6/4	2.5yr5/8	Reducing	3	Impress on Rim	Everted	Rounded		
OR	1	50-60	82	1.62	5.2	4.19	4.695	0.345	21.64	15.86	1.36444	Rim	N	N	N	N	Grit w/ Coral, Mica, Sand	Fine	10r5/8	10r4/8	10r4/8	Oxidizing	3		Inverted	Flat		
OR	1	50-60	83	29.35	10.43	6.51	8.47	3.4652	56.75	45.47	1.24808	Rim	N	N	N	Excising	Grit w/ Coral, Grog	Coarse	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3	Crenelated Rim	Inverted	Rounded		pos. plate? Looks like rim has crennelations, like top of castle
OR	1	50-60	84	9.34	5.53	4.72	5.125	1.8224	40.15	33.85	1.18612	Neck	N	N	N	Incising	Grit w/ Coral	Fine	2.5yr6/8	5yr5.6	5yr5/4	Oxidizing	3	Other Incise				some trowel marks on ext
OR	1	50-60	85	3.64	3.68	4.1	3.89	0.9357	27.99	26.72	1.04753	Body	N	N	Incising	N	Grit w/ Coral, Mica	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3	Single Incise				1 incised line on int
OR	1	50-60	86	2.35	7.22	6.16	6.69	0.3513	20.01	18.1	1.10552	Rim	Y	Y	N	N	Sand	Fine	2.5yr4/0	10r5/8	2.5yr5/8	Reducing	3		Everted	Damaged		
OR	1	50-60	87	2.13	5.96	2.22	4.09	0.5208	21.42	15.54	1.37838	Rim	N	N	N	N	Grit	Fine	10r5/6	2.5yr3/4	10r5/8	Oxidizing	3		Straight	Rounded		
OR	1	50-60	88	1.21	4.6	4.47	4.535	0.2668	17.14	10.4	1.64808	Body	N	N	N	Incising	Sand	Fine	7.5yr4/0	7.5yr3/0	7.5yr5/4	Reducing	3	Other Incise				
OR	1	50-60	89	2.81	8.67	6.67	7.67	0.3664	19.39	17.06	1.13658	Rim	Y	Y	N	N	Grit w/ Mica	Medium	10r5/8	10r4/8	10r4/8	Oxidizing	3		Everted	Rounded		
OR	1	50-60	90	35.22	14	10.47	12.235	2.8786	53.19	46.27	1.14956	Neck	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	50-60	91	3.93	6.53	6.08	6.305	0.6233	30.86	20.87	1.47868	Body	N	Y	Impress	Incising	Grit w/ Mica	Medium	7.5yr5/6	10r5/8	2.5yr3/0	Oxidizing	3	Parallel Incise				2 II incesed lines on ext; chevrons
OR	1	50-60	92	8.79	5.02	4.34	4.68	1.8782	36.5	31.28	1.16688	Body	Y	Y	N	Impress	Grit w/ Coral	Fine	10r5/8	10r3/1	2.5yr4/4	Oxidizing	3	Impress on Body				
OR	1	50-60	93	7.97	8.67	7.73	8.2	0.972	31.95	23.08	1.38432	Rim	N	N	N	N	Grit w/ Coral, Mica, Sand	Fine	7.5yr4/0	5yr3/1	2.5yr5/8	Reducing	3		Everted	Rounded		
OR	1	50-60	95	9.05	8.94	7.17	8.055	1.1235	29.53	27.64	1.06838	Rim	N	N	N	Incising	grit w/ mica	Coarse	10r4/8	10r3/4	10r3/1	Reducing	3	Crenelated Rim	Inverted	Rounded		firing clouds int and ext
OR	1	50-60	96	2.62			0	#DIV/0!				Bits																7 fine bits, too fine to measue. Same tpe as #26 and #29.
OR	1	60-70	1	11.12	5.4	3.47	4.435	2.5073	47.76	42.54	1.12271	Body	Y	Y	N	N	Grit	Fine	10r5/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	60-70	2	12.65	5.61	5.79	5.7	2.2193	49.36	27.68	1.78324	Body	Y	Y	N	N	Grit w/ Coral	Fine	10r5/8	10r3/4	10r3/4	Oxidizing	3					
OR	1	60-70	3	6.43	5.81	2.45	4.13	1.5569	37.37	23.75	1.57347	Body	Y	N	N	N	Grit w/ Coral	Fine	10r5/8	10r4/3	10r5/8	Oxidizing	3					
OR	1	60-70	4	6.05	4.51	3.37	3.94	1.5355	46.43	30.91	1.5021	Body	N	N	N	N	Sand	Fine	2.5yr5/0	2.5yr5/8	2.5yr6/8	Reducing	3					
OR	1	60-70	5	1.05	3.69	3.65	3.67	0.2861	19.78	13.9	1.42302	Body	N	N	N	N	Sand	Fine	2.5yr4/0	10r5/8	10r5/8	Reducing	3					
OR	1	60-70	6	8.22	4.64	5.26	4.95	1.6606	38.39	34.23	1.12153	Body	N	N	N	N	Grit	Fine	2.5yr7/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	60-70	7	4.18	4.74	3.98	4.36	0.9587	32.69	25.79	1.26755	Body	N	N	N	N	Sand	Fine	2.5yr4/8	10r3/6	2.5yr4/8	Oxidizing	3					
OR	1	60-70	8	5.8	3.97	3.82	3.895	1.4891	38.33	30.69	1.24894	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr5/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	60-70	9	13.64	9.66	8.45	9.055	1.5064	41.92	25.03	1.67479	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr6/8	5yr6/6	7.5yr5/4	Oxidizing	3					
OR	1	60-70	10	14.31	7.57	5.23	6.4	2.2359	52.61	38.55	1.36472	Neck	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r3/2	10r4/8	Oxidizing	3					
OR	1	60-70	11	6.06	4.3	4.24	4.27	1.4192	35.62	32.98	1.08005	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr5/8	10r4/8	2.5yr4/8	Oxidizing	3					
OR	1	60-70	12	7.55	6.09	5.1	5.595	1.3494	34.04	18.93	1.7982	Body	Y	Y	N	N	Sand	Fine	10r4/6	10r3/2	10r4/3	Oxidizing	3					
OR	1	60-70	13	16.96	11.12	8.47	9.795	1.7315	43.57	32.79	1.32876	Neck	N	N	N	N	Grit w/ Coral, Sand	Coarse	5yr6/8	7.5yr5/4	5yr5/8	Oxidizing	3					
OR	1	60-70	14	10.76	8.71	7.7	8.205	1.3114	46.6	23.31	1.99914	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	1	60-70	15	2.25	3.9	3.37	3.635	0.619	23.44	9.58	2.44676	Body	N	Y	N	N	Grit w/ Coral, Mica, Sand	Fine	10r4/8	10r5/8	2.5yr4/8	Oxidizing	3					
OR	1	60-70	16	14.48	6.93	4.97	5.95	2.4336	52.13	38.21	1.3643	Neck	N	Y	N	N	Grit w/ Coral	Varies	2.5yr3/4	2.5yr5/8	5yr5/8	Oxidizing	3					
OR	1	60-70	17	33.04	17.73	8.06	12.895	2.5622	55.84	35.84	1.55804	Corner	N	N	N	N	Grit w/ Lava, Mica	Fine	2.5yr4/8	2.5yr4/8	2.5yr3/6	Oxidizing	3				Roofing Tile	roofing tile? Flat top w/ ~90 degree angle. Not round pot.

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
OR	1	60-70	18	4.44	4.49	3.81	4.15	1.0699	36.14	26.3	1.37414	Body	N	N	N	N	Grit w/ Grog, Lava, Mica,	Fine	10yr6/3	10yr6/3	2.5yr2.5/0	Reducing	3					
OR	1	60-70	19	27.03	16.1	11.17	13.635	1.9824	54.28	38.43	1.41244	Corner	N	N	N	N	Grit w/ Lava, Mica	Coarse	2.5yr5/8	10yr6/3	2.5yr5/8	Oxidizing	3				Roofing Tile	similar to #17
OR	1	60-70	20	9.75	6.21	6.27	6.24	1.5625	39.58	33.39	1.18538	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/8	10r3/2	10r4/8	Oxidizing	3					
OR	1	60-70	21	4.63	6.86	2.66	4.76	0.9727	33.21	22.96	1.44643	Neck	N	N	N	N	Grit w/ Mica	Fine	7.5yr4/0	7.5yr4/0	7.5r5/8	Reducing	3					
OR	1	60-70	22	23.14	12.62	8.61	10.615	2.1799	58.74	38.44	1.5281	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r3/4	10r4/8	Oxidizing	3					
OR	1	60-70	23	3.27	5.43	5.18	5.305	0.6164	31.33	19.75	1.58633	Body	N	N	N	N	Grit	Fine	10r5/8	10r3/2	10r4/8	Oxidizing	3					
OR	1	60-70	24	8.65	10.83	9.86	10.345	0.8362	30.81	21.05	1.46366	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	5yr5/6	10r3/2	Oxidizing	3					
OR	1	60-70	25	1.11	5.41	5.31	5.36	0.2071	16.08	12.77	1.2592	Body	N	N	N	N	Grit	Fine	7.5yr6/4	7.5yr6/4	2.5yr6/8	Reducing	3					
OR	1	60-70	26	3.75	4.82	5.26	5.04	0.744	28.19	21.16	1.33223	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	60-70	27	4.69	3.73	3.45	3.59	1.3064	36.58	32.35	1.13076	Body	N	N	N	N	Grit w/ Coral	Fine	10r5/8	5yr3/1	7.5yr3/0	Oxidizing	3					
OR	1	60-70	28	11.08	8.83	9.07	8.95	1.238	42.45	21.85	1.94279	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	60-70	29	9.08	9.78	8.3	9.04	1.0044	32.91	30.1	1.09336	Neck	N	N	N	N	Grit w/ Coral, Grog	Coarse	5yr6/8	10r3/6	2.5yr5/8	Oxidizing	3					
OR	1	60-70	30	5.8	6.81	6.51	6.66	0.8709	26.73	23.44	1.14036	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	5yr6/8	7.5yr5/6	2.5yr5/8	Oxidizing	3					
OR	1	60-70	31	12.56	6.7	5.45	6.075	2.0675	39.59	38.65	1.02432	Rim	N	N	N	Impress	Grit w/ Mica	Medium	5yr3/1	5yr3/3	5yr3/1	Reducing	3	Impress on Rim	Straight	Rounded	L&S #1- Globula	impress on rim
OR	1	60-70	32	10.54	7.74	5.84	6.79	1.5523	37.49	34.21	1.09588	Neck	N	N	N	N	Grit w/ Coral	Coarse	2.5yr5/8	2.5yr4/8	2.5yr5/8	Oxidizing	3					
OR	1	60-70	33	5.99	5.66	5.85	5.755	1.0408	30.39	27.13	1.12016	Neck	N	N	N	N	Grit w/ Coral	Medium	10r3/2	2.5yr3/0	10r3/2	Reducing	3					
OR	1	60-70	34	2.27	3.01	2.7	2.855	0.7951	32.44	23.09	1.40494	Body	N	N	N	N	Grit w/ Coral	Fine	10r3/6	10r3/6	10r3/1	Oxidizing	3					
OR	1	60-70	35	2.83	4.39	4.1	4.245	0.6667	30.48	17.73	1.71912	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/8	10r5/8	10r4/8	Oxidizing	3					
OR	1	60-70	36	1.79	4.72	3.06	3.89	0.4602	19.79	18.36	1.07789	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr4/6	2.5yr3/2	2.5yr4/6	Oxidizing	3					
OR	1	60-70	37	1.81	5.18	5.35	5.265	0.3438	19.35	19.14	1.01097	Body	N	N	N	N	Sand	Fine	2.5yr4/8	2.5yr4/8	2.5yr5/8	Oxidizing	3					
OR	1	60-70	38	2.83	6.42	5.11	5.765	0.4909	27.37	20.83	1.31397	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/8	7.5yr4/0	10r4/8	Oxidizing	3					firing clouds
OR	1	60-70	39	2.68	5.29	5.05	5.17	0.5184	21.56	20.02	1.07692	Body	N	N	N	N	Grit w/ Grog, Mica, Sand	Fine	7.5yr6/4	7.5yr6/4	7.5yr6/4	Oxidizing	3					
OR	1	60-70	40	6.41	6.81	6.03	6.42	0.9984	29.31	22.82	1.2844	Rim	N	N	N	N	Grit w/ Mica	Fine	10r6/8	10r6/8	2.5yr3/2	Oxidizing	3		Everted	Flat		
OR	1	60-70	41	17.32	9.36	8.97	9.165	1.8898	47.82	33.7	1.41899	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr3/2	2.5yr5/8	10r3/2	Oxidizing	3					
OR	1	60-70	42	1.46	3.69	2.62	3.155	0.4628	27.21	19.06	1.4276	Body	Y	Y	N	N	Grit	Fine	2.5yr5/0	10yr6/3	10r4/8	Reducing	3					
OR	1	60-70	43	2.1	6.47	6.22	6.345	0.331	18.59	14.84	1.2527	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/8	2.5yr6/8	10r4/6	Oxidizing	3					
OR	1	60-70	45	1.07	5.17	5.21	5.19	0.2062	15.53	12.81	1.21233	Body	N	N	N	N	Grit w/ Coral	Fine	10r5/8	5yr3/1	10r5/8	Oxidizing	3					
OR	1	60-70	46	12.84	10.5	9.14	9.82	1.3075	46.08	27.44	1.6793	Body	N	Y	N	N	Grit w/ Coral, Mica	Coarse	10r4/6	10r4/6	10r4/8	Oxidizing	3					
OR	1	60-70	47	1.71	4.38	3.71	4.045	0.4227	22.08	18.84	1.17197	Body	N	N	N	N	Grit w/ Mica	Fine	10r5/8	10r3/6	10r4/8	Oxidizing	3					
OR	1	60-70	48	2.22	5.1	4.08	4.59	0.4837	24.49	15.11	1.62078	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr5/8	10r3/1	10r3/6	Oxidizing	3					
OR	1	60-70	49	5.64	5.83	4	4.915	1.1475	35.09	27.99	1.25366	Rim	N	N	N	Impress	Grit w/ Coral	Fine	2.5yr6/8	2.5yr6/8	10r4/8	Oxidizing	3	Impress on Rim	Everted	Flat		impress on rim
OR	1	60-70	50	3	3.43	2.91	3.17	0.9464	27.59	24.36	1.13259	Body	N	N	N	N	Grit w/ Mica	Fine	10r5/8	2.5yr3/2	2.5yr4/8	Oxidizing	3					
OR	1	60-70	51	2.18	3.84	3.47	3.655	0.5964	23.18	22.03	1.0522	Body	N	Y	N	Incising	Grit w/ Coral, Mica	Fine	10r4/6	10r4/8	10r4/6	Oxidizing	3	Parallel Incise				
OR	1	60-70	52	2.2	4.31	4.5	4.405	0.4994	23.4	21.54	1.08635	Body	N	Y	N	N	Grit	Fine	5yr6/3	5yr6/3	5yr7/8	Reducing	3					
OR	1	60-70	53	5	7.06	6.47	6.765	0.7391	25.7	22.2	1.15766	Body	N	N	N	N	Sand	Fine	10r5/8	10r5/8	10r4/8	Oxidizing	3					
OR	1	60-70	54	1.93	4.01	4.28	4.145	0.4656	24.39	15.76	1.54759	Body	N	N	N	N	Sand w/ Coral	Fine	2.5yr4/0	2.5yr4/0	2.5yr3/0	Reducing	3					
OR	1	60-70	55	3.6	4.31	3.94	4.125	0.8727	32.66	23.01	1.41938	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr5/0	7.5yr5/4	5yr7/8	Oxidizing	3					
OR	1	60-70	56	3.16	6.69	4.36	5.525	0.5719	22.22	21.95	1.0123	Rim	N	N	N	N	Grit w/ Coral	Coarse	2.5yr4/8	2.5yr4/4	5yr3/2	Oxidizing	3		Straight	Flat		
OR	1	60-70	57	6.41	4.55	2.59	3.57	1.7955	36.17	31.3	1.15559	Rim	N	Y	N	N	Grit w/ Mica	Fine	5yr5/1	5yr6/8	10r4/8	Oxidizing	3		Evr/Inv	Round		
OR	1	60-70	58	1.87	3.72	3.25	3.485	0.5366	23.88	18.26	1.30778	Body	N	N	N	N	Grit w/ Coral	Fine	10r5/8	10r4/4	10r3/2	Oxidizing	3					
OR	1	60-70	59	2.69	5.78	5.04	5.41	0.4972	24.4	16.9	1.44379	Body	N	N	N	N	Grit w/ Coral	Coarse	10r5/8	7.5yr6/4	5yr3/2	Oxidizing	3					
OR	1	60-70	60	2.57	5.81	4.29	5.05	0.5089	27.05	15.06	1.79615	Rim	N	N	N	N	Grit w/ Coral	Fine	2.5yr3/2	10r3/2	10r3/6	Oxidizing	3		Everted	Round		
OR	1	60-70	61	2.44	4.19	3.95	4.07	0.5995	32.14	16.52	1.94552	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr4/8	2.5yr2.5/0	2.5yr3/6	Oxidizing	3					
OR	1	60-70	62	3.71	4.94	4.81	4.875	0.761	23.68	20.2	1.17228	Body	N	N	N	N	Grit w/ Coral	Varies	2.5yr5/8	2.5yr3/2	2.5yr3/0	Oxidizing	3					
OR	1	60-70	63	2.4	3.93	3.78	3.855	0.6226	22.63	21.35	1.05995	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/8	2.5yr3/6	10r3/4	Oxidizing	3					
OR	1	60-70	64	1.44	4.32	4.16	4.24	0.3396	18.01	14.22	1.26653	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr3/2	2.5yr3/2	2.5yr3/2	Oxidizing	3					
OR	1	60-70	65	1.04	4.28	3.19	3.735	0.2784	16.2	13.28	1.21988	Body	N	N	N	N	Sand	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	60-70	66	1.25	4.52	5.02	4.77	0.2621	16.26	13.55	1.2	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r3/4	10r4/6	Oxidizing	3					
OR	1	60-70	67	10.71	5.99	4.28	5.135	2.0857	41.31	34.7	1.19049	Rim	Y	Y	N	Impress, I	Grit w/ Coral, Lava	Fine	10r3/3	10r4/8	10r4/8	Oxidizing	3	Multiple Design El	Inverted	Round	L&S #1- Globula	3 II lines below rim, 2 rope? Impressions
OR	1	60-70	68	11.5	7.97	8.93	8.45	1.3609	49.05	21.35	2.29742	Base	N	N	N	N	Grit w/ Coral	Coarse	10r4/6	10r5/6	10r4/8	Oxidizing	3					
OR	1	60-70	69	11.23	8.36	5.71	7.035	1.5963	44.25	37.69	1.17405	Rim	Y	Y	N	Impress	Grit w/ Coral, Grog	Coarse	2.5yr4/0	2.5yyr6/6	10r4/8	Reducing	3	Impress on Body	Inverted	Damaged		top of rim is pink, like int, the rest is red
OR	1	60-70	70	12.77	8.09	6.17	7.13	1.791	51.08	29.71	1.71929	Rim	N	Y	N	Impress, I	Grit w/ Coral, Grog	Coarse	10r5/8	10r5/8	2.5yr4/2	Oxidizing	3	Impress/ Incise	Everted	Pointed		rim has scalloping, 2 II below rim
OR	1	60-70	71	14.7	13.16	9.55	11.355	1.2946	41.4	31.92	1.29699	Neck	N	N	N	Incising	Grit w/ Coral	Coarse	10r3/3	10r4/6	10r4/6	Oxidizing	3	Parallel Perpendicular				T incised, but likely 1 line II to rim, w/ perpendicular lines coming down
OR	1	60-70	72	1.88	3.8	4.25	4.025	0.4671	22.44	19.44	1.15432	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr5/8	2.5yr3/6	10r3/3	Oxidizing	3					
OR	1	60-70	73	1.25	4.47	5.32	4.895	0.2554	16.6	14.98	1.10814	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/6	10r4/6	10r3/4	Oxidizing	3					
OR	1	60-70	74	2.22	4.19	3.41	3.8	0.5842	27.39	24.92	1.09912	Body	N	N	N	N	?Shell (foraminifera)	Coarse	2.5yr5/0	7.5r5/6	10r6/4	Reducing	3					aerated, missing temper
OR	1	60-70	75	1.28	3.67	3.62	3.645	0.3512	21.09	10.94	1.92779	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					firing clouds
OR	1	60-70	76	0.72	3.32	2.84	3.08	0.2338	14.61	10.6	1.3783	Body	N	N	N	Incising	Grit w/ Coral	Coarse	2.5yr4/8	2.5yr3/0	2.5yr4/8	Oxidizing	3	Single Incise				
OR	1	60-70	77	0.6	5.07	5.14	5.105	0.1175	13.59	8.19	1.65934	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr5/0	7.5yr4/0	7.5yr6/4	Reducing	3					
OR	1	60-70	78	1	6.52	6.3	6.41	0.156	16.72	10.65	1.56995	Body	N	N	N	Incising	Grit w/ Mica	Fine	2.5yr5/8	2.5yr3/4	2.5yr3/0	Oxidizing	3	Single Incise				
OR	1	60-70	79	0.77	6.52	6.75	6.635	0.1161	17.12	11.3	1.51504	Body	Y	Y	N	N	Grit w/ Coral	Fine	10r3/6	10r3/6	10r3/1	Oxidizing	3					
OR	1	60-70	80	0.68	3.23	3.25	3.24	0.2099	15.48	10.37	1.49277	Body	N	N	N	N	Grit w/ Mica	Fine	10r4/8	10r4/8	10r2.5/1	Oxidizing	3					
OR	1	60-70	81	0.99	5.47	3.8	4.635	0.2136	15.07	13.63	1.10565	Rim	N	N	N	N	Grit w/ Coral	Medium	2.5yr5/8	2.5yr4/6	10r4/8	Oxidizing	3		Straight	Rounded		
OR	1	60-70	82	1.86	4.79	4.04	4.415	0.4213	20.58	16.02	1.28464	Body	N	N	N	Incising	Grit w/ Mica	Varies	2.5yr3/4	10r3/1	10r3/1	Oxidizing	3	Parallel Incise				3 II lines below rim, multiple curvilinear lines perpendicular below lines.
OR	1	60-70	83	5.27	7.78	5.14	6.46	0.8158	26.78	26.79	0.99963	Neck	N	N	N	Impress	Grit w/ Coral	Fine	2.5yr5/8	2.5yr3/6	2.5yr5/8	Oxidizing	3	Impress on Body				
OR	1	60-70	84	2.37	5.39	4.96	5.175	0.458	21.48	20.09	1.06919	Neck	N	N	N	Impress	Grit w/ Coral	Fine	10r4/8	10r3/6	10r4/8	Oxidizing	3	Impress on Body				
OR	1	60-70	85	1.17	4.62	5.54	5.08	0.2303	22.67	10.26	2.20955	Body	N	N	N	Incising	Grit w/ Coral	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3	Single Incise				
OR	1	60-70	86	5.4	8.71	6.56	7.635	0.7073	31.13	20.95	1.48592	Rim	N	N	N	N	Grit w/ Coral	Coarse	2.5yr5/8	2.5yr3/0	10r5/8	Oxidizing	3		Everted	Rounded	L&S #3- Plate	
OR	1	60-70	87	21.34	11.75	11.36	11.555	1.8468	42.38	31.3	1.35399	Body	N	N	N	Incising	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3	Diagonal Hatch				1 perpendicular line, zigzag to the right; zigzag on the left, lower.
OR	1	60-70	88	2.38	5.48	5.14	5.31	0.4482	19.38	19.09	1.01519	Body	N	N	N	Impress	Grit w/ Coral	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3	Impress on Body				multiple lines of pos. cord-wrapped
OR	1	60-70	89	13.52	11.75	6.58	9.165	1.4752	56.32	26.16	2.15291	Rim	N	N	N	N	Grit w/ Coral	Fine	10r3/3	10r4/8	10r4/8	Oxidizing	3		Straight	Rounded		
OR	1	60-70	90	9.4	5.41	3.65	4.53	2.0751	39.27	36.18	1.08541	Body	N	N	N	Incising	Grit w/ Coral, Mica	Fine	10yr6/1	7.5yr6/4	10yr6/4	Reducing	3	Other Incise				top line II to rim (?), perpendicular lines bisected by 2 diagonal lines
OR	1	60-70	91	2.01	5.33	3.74	4.535	0.4432	22.58	20.24	1.11561	Rim	N	N	N	N	Grit w/ Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3		Straight	Rounded		
OR	1	60-70	92	8.8	7.68	6.1	6.89	1.2772	34.21	28.04	1.22004	Rim	N	N	N	Incising	Grit w/ Coral, Mica	Fine	2.5yr4/0	10r4/8	10r4/8	Reducing	3	Parallel Incise	Everted	Flat		rim has punctate, neck has incising around
OR	1	60-70	93	27.2	10.56	6.46	8.51	3.1962	47.27	46.52	1.01612	Rim	N	N	N	Impress	Grit w/ Coral	Coarse	10r4/6	2.5yr5/8	2.5yr4/6	Oxidizing	3	Impress on Rim	Inverted	Rounded		punctate on rim
OR	1	60-70	95	5.15	7.98	6.33	7.155	0.7198	28.31	25.84	1.09559	Rim	Y	Y	N	Impress	Grit w/ Coral, Lava	Coarse	2.5yr5/0	5yr6/8	5yr6/8	Reducing	3	Impress on Body	Straight	Flat		impress right below rim
OR	1	60-70	96	8.59	9.46	9.75	9.605	0.8943	36.68	28.86	1.27096	Body	N	N	N	Incising	Grit w/ Coral, Mica	Fine	2.5yr3/4	10r4/8	10r4/8	Oxidizing	3					3 II lines
OR	1	60-70	97	37.08	9.82	7.61	8.715	4.2547	58.6	49.21	1.19081	Rim	N	N	N	Impress	Grit w/ Coral	Coarse	10r3/6	10r5/6	10r4/8	Oxidizing	3	Impress on Rim	Inverted	Pointed		rim is impressed and impressions going down the neck
OR	1	70-80	1	15.59	11.89	9.06	10.475	1.4883	35.77	31.76	1.12626	Rim	N	N	N	N	Grit w/ Lava	Fine	10r5/8	2.5yr2.5/0	2.5yr5/8	Oxidizing	3		Inverted	Rounded	L&S #3-Bowl	
OR	1	70-80	2	8.67	7.99	5.79	6.89	1.2583	38.15	24.36	1.56609	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr4/6	2.5yr5/8	2.5yr4/8	Oxidizing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
OR	1	70-80	3	2.03	6.06	5.55	5.805	0.3497	18.59	17.19	1.08144	Body	N	Y	N	N	Grit w/ Coral, Mica	Fine	2.5yr5/0	2.5yr5/8	5yr5/6	Reducing	3					
OR	1	70-80	4	5.31	5.04	4.41	4.725	1.1238	32.76	24.36	1.34483	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Fine	2.5yr4/6	5yr5/6	2.5yr4/6	Oxidizing	3					
OR	1	70-80	5	6.08	7.24	5.7	6.47	0.9397	30.58	25.85	1.18298	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr4/0	2.5yr3/2	2.5yr3/2	Reducing	3					
OR	1	70-80	6	3.21	6.03	5.16	5.595	0.5737	23.07	19.86	1.16163	Body	Y	Y	N	N	Grit w/ Lava, Mica	Fine	2.5yr5/0	5yr6/8	5yr6/8	Oxidizing	3					
OR	1	70-80	7	9.83	8.19	8.69	8.44	1.1647	37.23	26.34	1.41344	Body	N	N	Incising	Incising	Grit w/ Grog	Coarse	5yr3/3	5yr3/4	5yr3/4	Oxidizing	3	Single Incise				1 incised line on either side
OR	1	70-80	8	4.34	6.88	6.37	6.625	0.6551	29.06	20.5	1.41756	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	2.5yr4/8	2.5yr3/0	2.5yr4/6	Oxidizing	3					
OR	1	70-80	9	5.77	6.51	5.67	6.09	0.9475	33.19	30.3	1.09538	Neck	Y	Y	N	N	Grit w/ Coral, Lava, Mica	Varies	2.5yr4/4	5yr4/2	5yr6/6	Oxidizing	3					
OR	1	70-80	10	2.31	2.59	2.24	2.415	0.9565	33.65	22.76	1.47847	Body	Y	Y	N	N	Grit w/ Coral, Mica	Fine	2.5yr3/0	7.5yr4/2	7.5yr4/6	Reducing	3					
OR	1	70-80	11	11.7	10.64	9.65	10.145	1.1533	39.73	24.04	1.65266	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	1	70-80	12	1.12	3.05	2.96	3.005	0.3727	23.01	14.54	1.58253	Body	N	N	N	N	Sand	Fine	2.5yr5/0	2.5yr5/8	5yr6/8	Reducing	3					
OR	1	70-80	13	4.44	9.73	8.93	9.33	0.4759	25.31	19.24	1.31549	Body	N	N	N	N	Grit w/ Lava	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	70-80	14	1.23	3.59	3.28	3.435	0.3581	25.08	19.21	1.30557	Body	N	N	N	N	Sand	Fine	2.5yr4/0	2.5yr5/8	2.5yr5/8	Reducing	3					
OR	1	70-80	15	3.5	5.53	4.23	4.88	0.7172	25.33	16.77	1.51044	Body	Y	N	N	N	Grit w/ Coral, Grog, Mica	Fine	2.5yr5/8	2.5yr3/2	2.5yr5/8	Oxidizing	3					
OR	1	70-80	16	4.09	4.81	3.2	4.005	1.0212	27.89	25.92	1.076	Shoulder	N	N	N	N	Grit w/ Mica	Fine	5yr6/8	7.5yr6/6	5yr5/8	Oxidizing	3					
OR	1	70-80	17	1.79	4.5	4.28	4.39	0.4077	18.66	19.69	0.94769	Body	N	Y	N	N	Grit w/ Coral, Mica	Fine	7.5yr7/2	7.5yr7/2	5yr6/8	Reducing	3					
OR	1	70-80	18	5.4	5.27	5.51	5.39	1.0019	30.8	27.77	1.10911	Body	Y	Y	N	N	Grit w/ Mica	Fine	2.5yr3/4	2.5yr4/8	5yr4/6	Oxidizing	3					
OR	1	70-80	19	0.9	3.51	3.63	3.57	0.2521	16.7	12.09	1.38131	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r5/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	70-80	20	3.36	6.94	4.82	5.88	0.5714	26.94	16.42	1.64068	Rim	N	N	N	N	Grit w/ Coral, Grog	Coarse	2.5yr5/8	2.5yr5/8	2.5yr4/8	Oxidizing	3		Everted	Rounded		
OR	1	70-80	21	2.14	5.03	4.87	4.95	0.4323	18.3	17.21	1.06334	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr3/2	2.5yr3/4	10r5/8	Oxidizing	3					
OR	1	70-80	22	1.06	3.75	3.21	3.48	0.3046	20.67	12.56	1.6457	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr4/0	2.5yr5/8	2.5yr4/6	Reducing	3					
OR	1	70-80	23	0.47	2.86	2.35	2.605	0.1804	15.43	13.44	1.14807	Body	N	N	N	N	Sand	Fine	2.5yr5/0	7.5yr6/6	5yr5/6	Oxidizing	3					
OR	1	70-80	24	2.77	5.53	4.22	4.875	0.5682	29.2	24.54	1.18989	Body	N	N	N	N	?Shell (foraminifera)	Fine	2.5yr3/0	2.5yr3/0	2.5yr3/0	Reducing	3					aerated look, lots of missing temper
OR	1	70-80	25	3.1	5.62	5.21	5.415	0.5725	26.21	17.78	1.47413	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	7.5yr5/0	7.5yr5/4	2.5yr3/2	Reducing	3					
OR	1	70-80	26	0.65	4.08	4.09	4.085	0.1591	16.06	10.96	1.46533	Body	N	N	N	N	Sand	Fine	2.5yr5/0	2.5yr5/8	2.5yr5/8	Reducing	3					
OR	1	70-80	27	1.66	4.32	4.21	4.265	0.3892	20.54	16.57	1.23959	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/8	10r3/4	10r4/8	Oxidizing	3					
OR	1	70-80	28	1.19	2.82	2.82	2.82	0.422	18.98	15.84	1.19823	Body	Y	N	N	N	Grit w/ Mica	Fine	7.5yr5/0	7.5yr5/2	2.5yr4/8	Reducing	3					
OR	1	70-80	29	1.02	3.51	2.8	3.155	0.3233	16.74	13.71	1.22101	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/8	2.5yr5/8	2.5yr3/4	Oxidizing	3					
OR	1	70-80	30	0.72	3.35	3.42	3.385	0.2127	14.2	11.7	1.21368	Body	N	N	N	N	Sand	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	70-80	31	0.72	3.7	3.17	3.435	0.2096	17.87	9.46	1.88901	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr6/8	2.5yr3/2	2.5yr3/2	Oxidizing	3					
OR	1	70-80	32	3.68	5.21	3.96	4.585	0.8026	30.44	21.69	1.40341	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr5/0	2.5yr4/8	2.5yr4/6	Reducing	3					
OR	1	70-80	33	2.75	4.46	3.92	4.19	0.6563	24.69	21.42	1.15266	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr4/0	7.5yr5/4	2.5yr3/2	Reducing	3					
OR	1	70-80	34	3.92	5.37	3.59	4.48	0.875	27.82	20.64	1.34787	Body	N	N	N	N	Grit w/ Coral	Fine	10r3/2	10r3/2	10r3/2	Oxidizing	3					
OR	1	70-80	35	1.81	4.74	4.07	4.405	0.4109	22.01	16.92	1.30083	Body	N	N	N	N	Grit w/ Coral, Grog, Mica, Sand	Varies	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	70-80	36	2.31	4.99	4.81	4.9	0.4714	19.54	21.11	0.92563	Body	N	N	N	N	Grit w/ Coral, Grog, Mica, Sand	Varies	10r4/8	5yr2.5/1	2.5yr3/2	Oxidizing	3					
OR	1	70-80	37	3.01	6.19	6.07	6.13	0.491	20.14	18.92	1.06448	Body	N	Y	N	N	Grit w/ Coral	Coarse	5yr6/6	5yr6/6	2.5yr5/8	Oxidizing	3					
OR	1	70-80	38	1.82	4.7	3.78	4.24	0.4292	18.93	18.71	1.01176	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr5/0	2.5yr2.5/2	2.5yr3/4	Oxidizing	3					
OR	1	70-80	39	4.56	7.89	4.96	6.425	0.7097	28.59	22.54	1.26841	Body	N	N	N	N	Grit w/ Coral, Grog, Mica, Sand	Varies	10r4/8	2.5yr3/2	10r4/8	Oxidizing	3					
OR	1	70-80	40	3.88	6.91	6.02	6.465	0.6002	28.39	18.46	1.53792	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Varies	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	70-80	41	5.17	7.19	6.84	7.015	0.737	30.74	24.97	1.23108	Neck	N	N	Grooves	Grooves	Grit w/ Coral, Lava, Mica	Varies	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					grooves on the int and ext, probably mfg remains
OR	1	70-80	42	6.51	7.05	6.46	6.755	0.9637	27.98	24.58	1.13832	Neck	N	N	N	N	Grit w/ Coral, Grog, Sand	Varies	2.5yr5/8	2.5yr4/8	7.5yr6/4	Oxidizing	3					
OR	1	70-80	43	1.55	5.58	4.87	5.225	0.2967	20.61	10.7	1.92617	Body	Y	Y	N	N	Grit w/ Coral, Grog	Fine	2.5yr5/0	2.5yr5/8	10yr6/4	Reducing	3					
OR	1	70-80	45	2.53	4.98	4.6	4.79	0.5282	22.76	16.46	1.38275	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr5/8	2.5yr3/2	2.5yr4/6	Oxidizing	3					
OR	1	70-80	46	1.46	3.95	4.14	4.045	0.3609	17.27	16.57	1.04225	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr6/8	5yr5/6	2.5yr4/8	Oxidizing	3					
OR	1	70-80	47	0.9	4.7	4.44	4.57	0.1969	13.97	13.66	1.02269	Body	N	N	N	N	Grit w/ Mica	Fine	10r5/8	5yr2.5/1	10r4/8	Oxidizing	3					
OR	1	70-80	48	2.03	5.2	4.61	4.905	0.4139	23.3	14.17	1.64432	Body	N	N	N	N	Grit w/ Grog, Mica, Sand	Fine	7.5yr4/2	7.5yr4/2	7.5yr6/6	Reducing	3					
OR	1	70-80	49	0.66	3.7	3.59	3.645	0.1811	13.79	11.68	1.18065	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr3/2	10r4/3	2.5yr3/4	Oxidizing	3					
OR	1	70-80	50	0.85	4.3	4.34	4.32	0.1968	18.41	13.66	1.34773	Body	N	N	N	N	Sand	Fine	7.5yr7/2	7.5yr7/2	7.5yr5/4	Reducing	3					
OR	1	70-80	51	1.56	5.32	4.5	4.91	0.3177	18.1	16.15	1.12074	Body	N	N	N	N	Grit w/ Lava, Sand	Fine	2.5yr5/8	2.5yr4/8	2.5yr5/8	Oxidizing	3					
OR	1	70-80	52	1.49	3.69	3.16	3.425	0.435	24.71	14.76	1.67412	Body	Y	Y	N	N	Grit w/ Coral	Fine	2.5yr4/8	2.5yr4/6	2.5yr4/8	Oxidizing	3					
OR	1	70-80	53	4.74	6.85	6.82	6.835	0.6935	23.79	21.94	1.08432	Body	Y	Y	N	N	grit w/ mica	Coarse	2.5yr5/8	2.5yr4/8	10r6/8	Oxidizing	3					
OR	1	70-80	54	4.9	8.98	7.4	8.19	0.5983	30.51	19.51	1.56381	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr3/6	10r4/8	10r3/1	Oxidizing	3					
OR	1	70-80	55	4.02	5.2	5.36	5.28	0.7614	24.46	21.82	1.12099	Body	Y	Y	N	N	Grit	Fine	2.5yr5/8	2.5yr2.5/0	5yr6/4	Oxidizing	3					
OR	1	70-80	56	4.6	6.25	6.32	6.285	0.7319	32.07	27.88	1.15029	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r3/1	10r4/8	Oxidizing	3					
OR	1	70-80	57	6.6	7.17	6.31	6.74	0.9792	37.6	22.47	1.67334	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr3/4	2.5yr3/4	2.5yr4/2	Oxidizing	3					
OR	1	70-80	58	4.85	7.31	5.28	6.295	0.7705	29.56	22.68	1.30335	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr3/4	2.5yr3/4	2.5yr4/2	Oxidizing	3					
OR	1	70-80	59	6.01	4.98	4.73	4.855	1.2379	33.24	28.98	1.147	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/8	10r4/8	2.5yr3/4	Oxidizing	3					
OR	1	70-80	60	2.73	5.28	4.28	4.78	0.5711	21.42	21.02	1.01903	Body	N	N	N	N	Grit w/ Coral	Coarse	5yr3/1	5yr3/1	5yr3/1	Reducing	3					
OR	1	70-80	61	5.54	6.92	6.53	6.725	0.8238	26.71	26.26	1.01714	Body	N	N	N	N	Grit w/ Coral, Grog	Varies	2.5yr5/0	10r5/8	10r5/8	Reducing	3					
OR	1	70-80	62	3.99	4.07	4.57	4.32	0.9236	41.44	20.14	2.0576	Body	Y	Y	N	N	Grit w/ Coral, Grog	Varies	7.5yr4/6	2.5yr4/6	2.5yr3/4	Reducing	3					
OR	1	70-80	63	0.98	4.41	4.27	4.34	0.2258	16.35	14.35	1.13937	Rim	Y	Y	N	N	Grit w/ Lava	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3		Everted	Flat		
OR	1	70-80	64	0.68	4.45	3.77	4.11	0.1655	13.34	11.45	1.16507	Body	N	N	N	N	Sand	Fine	2.5yr5/0	2.5yr5/8	5yr6/6	Reducing	3					
OR	1	70-80	65	1.37	4.94	4.85	4.895	0.2799	20.79	13.39	1.55265	Body	N	N	N	N	Grit w/ Coral, Grog	Fine	5yr6/8	5yr4/2	10r5/4	Oxidizing	3	Impress on Body				
OR	1	70-80	66	0.65	3.43	2.87	3.15	0.2063	17.58	10.01	1.75624	Body	N	N	N	Incising	Grit w/ Coral, Grog	Coarse	5yr6/8	5yr6/8	5yr6/8	Oxidizing	3	Parallel Incise				
OR	1	70-80	67	8.18	10.49	9.51	10	0.818	32.53	24.06	1.35204	Body	N	N	N	Incising	Sand	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3	Diagonal Hatch				2 incised lines making ~60 degree angle. Pos zigzag, chevron?
OR	1	70-80	68	4.42	10.35	9.67	10.01	0.4416	28.03	16.09	1.74208	Neck	Y	Y	N	Incising	Grit w/ Coral, Grog	Varies	5yr4/3	10r4/6	5yr3/2	Reducing	3	Other Incise				
OR	1	70-80	69	9.2	9.06	9.45	9.255	0.9941	34.34	28.71	1.1961	Body	N	N	N	Incising	Grit w/ Coral, Grog, Lava	Varies	7.5yr6/6	7.5yr6/6	7.5yr5/4	Oxidizing	3	Diagonal Hatch				2 II lines below, multiple diagonal lines
OR	1	70-80	70	10.43	5.66	4.05	4.855	2.1483	52.91	35.45	1.49252	Neck	Y	Y	N	Impress	Grit w/ Coral, Lava	Fine	2.5yr5/0	2.5yr6/6	2.5yr2.5/0	Reducing	3	Impress on Body				II impressed lines on the neck
OR	1	70-80	71	4.82	7.05	4.86	5.955	0.8094	30.36	27.1	1.1203	Rim	Y	Y	N	Impress	Grit w/ Coral	Fine	10r3/4	10r5/8	10r5/8	Oxidizing	3	Impress on Rim	Everted	Pointed		impress on rim
OR	1	70-80	72	24.81	9.13	9.28	9.205	2.6953	67.35	38.47	1.75071	Rim	N	N	Impress	N	Grit w/ Coral	Coarse	2.5yr5/0	7.5yr4/2	7.5yr6/4	Oxidizing	3	impress	Straight	Flat		impress on int- probably surface treatment, not dec; impress on rim
OR	1	70-80	73	2.51	5.95	4.79	5.37	0.4674	24.32	18.24	1.33333	Body	N	N	N	Incising	Grit w/ Coral, Grog, Lava	Varies	2.5yr4/8	2.5yr4/8	2.5yr5/8	Oxidizing	3	Diagonal Hatch				1 line w/ diagonals
OR	1	70-80	74	6.35	10.4	8.65	9.525	0.6667	27.7	24.47	1.132	Rim	N	N	N	Impress	Grit w/ Coral, Lava, Mica	Fine	10r4/6	10r4/4	2.5yr3/2	Oxidizing	3	Impress on Rim	Everted	Flat		impress on rim

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
OR	1	70-80	75	6.95	8.1	5.1	6.6	1.053	31.7	26.48	1.19713	Neck	N	N	N	Punctate	Grit w/ Coral, Lava	Fine	5yr6/8	2.5yr4/6	2.5yr4/6	Oxidizing	3	Punctate				
OR	1	70-80	76	3.56	7.33	3.9	5.615	0.634	30.16	17.1	1.76374	Neck	Y	N	N	N	Grit w/ Coral	Coarse	7.5yr5/6	10r4/6	7.5yr5/6	Oxidizing	3					
OR	1	70-80	77	13.85	9.61	5.21	7.41	1.8691	44.26	41.38	1.0696	Neck	Y	Y	N	Incising	Grit w/ Coral, Grog	Coarse	2.5yr3/6	2.5yr3/0	2.5yr4/4	Oxidizing	3	Parallel Incise	Everted	Flat		2 II lines at shoulder, neck junction
OR	1	70-80	78	6.75	9.33	8.76	9.045	0.7463	35.45	20.68	1.71422	Rim	Y	Y	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/4	10r4/8	Oxidizing	3		Everted	Rounded		
OR	1	70-80	79	7.09	7.01	6.13	6.57	1.0791	37.39	23.15	1.61512	Shoulder	Y	Y	N	Incising	Grit w/ Coral, Lava, Mica	Varies	2.5yr5/0	2.5yr6/8	2.5yr6/6	Reducing	3	Single Incise				
OR	1	70-80	80	3.89	5.21	4.95	5.08	0.7657	33.09	21.21	1.56011	Body	N	N	N	Incising	Grit w/ Coral, Mica	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3	Other Incise				2 II lines, 3 lines II and perpendicular below; 2 curvilinear lines
OR	1	70-80	81	2.55	6.3	3.16	4.73	0.5391	24.34	23.02	1.05734	Rim	Y	Y	N	Impress	Grit w/ Coral	Coarse	2.5yr3/4	2.5yr3/2	2.5yr3/6	Oxidizing	3	Impress on Rim	Straight	Rounded		
OR	1	70-80	82	7.23	4.09	4.49	4.29	1.6853	36.12	26.43	1.36663	Rim	Y	Y	N	N	Grit w/ Coral, Grog	Coarse	2.5yr4/2	2.5yr3/4	2.5yr3/4	Reducing	3		Inverted	Flat		
OR	1	70-80	83	2	4.88	4.56	4.72	0.4237	21.22	16.41	1.29311	Rim	N	N	N	Impress	Grit w/ Coral	Coarse	2.5yr6/6	2.5yr6/6	2.5yr3/2	Oxidizing	3	Impress on Rim	Straight	Rounded		impress on rim
OR	1	70-80	84	17.6	8.09	6.47	7.28	2.4176	46.4	40.8	1.13725	Rim	N	N	N	Impress	Grit w/ Coral, Grog	Coarse	5yr6/6	5yr6/6	5yr6/6	Oxidizing	3	Impress on Rim	Everted	Flat		impress on rim
OR	1	70-80	85	2.21	6.13	2.99	4.56	0.4846	21.68	18.36	1.18083	Rim	Y	Y	N	N	Grit w/ Coral, Lava, Mica	Fine	2.5yr5/0	2.5yr6/8	5yr6/8	Reducing	3		Everted	Flat		
OR	1	70-80	86	2.64	4.06	3.18	3.62	0.7293	21.65	19.9	1.08794	Rim	N	N	N	N	Grit w/ Coral, Lava, Mica	Varies	2.5yr3/8	10r4/8	10r4/8	Oxidizing	3		Everted	Rounded		
OR	1	70-80	87	7.69	7.82	5.82	6.82	1.1276	34.42	29.85	1.1531	Rim	N	N	N	N	Grit w/ Lava, Mica	Fine	7.5yr6/8	7.5yr6/6	7.5yr6/6	Oxidizing	3		Everted	Rounded		
OR	1	70-80	88	2.73	5.4	3.78	4.59	0.5948	26.56	19.72	1.34686	Neck	N	N	N	Incising	Grit w/ Coral	Coarse	2.5yr5/8	7.5yr6/4	2.5yr6/8	Oxidizing	3	Single Incise				
OR	1	70-80	89	2.04	4.94	4.79	4.865	0.4193	21.5	20.22	1.0633	Body	N	N	N	Impress	Grit w/ Coral	Coarse	2.5yr3/2	2.5yr3/2	2.5yr3/2	Oxidizing	3	Impress on Body				
OR	1	70-80	90	3.88	6.19	3.01	4.6	0.8435	26.34	20.27	1.29946	Rim	Y	N	N	N	Grit w/ Coral	Coarse	10r4/8	5yr6/6	10r4/8	Oxidizing	3		Everted	Rounded		
OR	1	70-80	91	18.74	14.56	9.76	12.16	1.5411	44.83	26.84	1.67027	Rim	N	N	N	Incising	Grit w/ Grog, Sand, Shell	Fine	7.5yr7/0	2.5yr5/8	2.5yr5/8	Reducing	3	Parallel Incise	Everted	Pointed		
OR	1	70-80	92	22.94	9.56	8.14	8.85	2.5921	54	39.85	1.35508	Body	N	Y	N	Incising	Grit w/ Coral	Coarse	10r5/8	10r5/8	5yr6/4	Oxidizing	3	Single Incise				
OR	1	70-80	93	35.96	13.4	9.51	11.455	3.1392	60.04	46.88	1.28072	Rim	N	N	N	Incising	Grit w/ Coral	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3	Diagonal Hatch	Straight	Concave		
OR	1	70-80	95	5.48	7.22	6.84	7.03	0.7795	29.12	19.23	1.5143	Body	N	N	N	Incising	Grit w/ Lava, Mica	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3	Diagonal Hatch				5 radiating lines
OR	1	70-80	96	9.83	10.22	7.98	9.1	1.0802	25.77	25.54	1.00901	Rim	N	N	N	Incising	Grit w/ Lava, Mica	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3	Diagonal Hatch	Straight	Flat		
OR	1	70-80	97	4.3	5.08	3.63	4.355	0.9874	27.82	22.35	1.24474	Body	Y	Y	N	Incising	Grit w/ Mica	Fine	7.5yr7/0	7.5yr6/4	7.5yr7/4	Reducing	3	Single Incise				1 line w/ diagonal impressions
OR	1	80-90	1	38.56	8.61	6.32	7.465	5.1654	61.38	59.68	1.02849	Rim	N	N	N	N	Grit w/ Coral, Mica, Sand	Fine	10r4/8	10r4/8	10yr5/4	Oxidizing	3		Inverted	Flat	L&S #3-Bowl	
OR	1	80-90	2	9.84	7.3	4.1	5.7	1.7263	38.74	26.45	1.46465	Rim	Y	Y	N	N	Grit w/ Coral, Grog, Sand	Varies	2.5yr3/2	10r5/8	10r5/8	Oxidizing	3		Everted	Rounded		
OR	1	80-90	3	33.46	8.18	6.14	7.16	4.6732	87.08	41.91	2.07779	Body	N	N	N	N	Grit w/ Coral, Grog, Sand	Varies	2.5yr5/8	5yr5/8	10yr6/3	Oxidizing	3					
OR	1	80-90	4	4.16	4.66	3.59	4.125	1.0085	24.66	24.38	1.01148	Rim	Y	Y	N	N	Grit w/ Grog, Lava, Mica,	Varies	2.5yr6/8	2.5yr6/8	2.5yr5/8	Oxidizing	3		Everted	Rounded		
OR	1	80-90	5	2.38	6.53	4.92	5.725	0.4157	23.5	19.54	1.20266	Rim	N	N	N	N	Grit w/ Coral, Grog, Mica, Sand	Varies	7.5yr6/6	7.5yr6/6	7.5yr6/6	Oxidizing	3		Straight	Rounded		firing clouds
OR	1	80-90	6	18.3	6.84	5.8	6.32	2.8956	47.09	43.72	1.07708	Body	N	N	N	N	Grit w/ Coral, Grog, Mica, Sand	Varies	10r4/8	5yr3/3	5yr3/3	Oxidizing	3					
OR	1	80-90	7	11.49	8.13	6.5	7.315	1.5707	48.52	30.78	1.57635	Body	N	N	N	N	Grit w/ Coral, Grog, Mica, Sand	Varies	2.5yr5/8	5yr5/8	10r4/8	Oxidizing	3					
OR	1	80-90	8	18.01	8.65	7.65	8.15	2.2098	49.76	44.36	1.12173	Body	N	N	N	N	Grit w/ Coral	Coarse	5yr5/8	7.5yr4/6	7.5yr6/6	Oxidizing	3					
OR	1	80-90	9	9.13	5.47	4.89	5.18	1.7625	38.81	31.48	1.23285	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr5/8	10yr3/1	2.5yr3/4	Oxidizing	3					
OR	1	80-90	10	20.41	12.67	12.96	12.815	1.5927	43.83	30.35	1.44415	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr3/4	2.5yr4/6	2.5yr4/6	Oxidizing	3					
OR	1	80-90	11	9.36	4.52	4	4.26	2.1972	45.07	36.74	1.22673	Body	Y	N	N	N	Grit w/ Coral, Mica	Varies	10r5/8	10r5/6	2.5yr5/6	Oxidizing	3					
OR	1	80-90	12	6.47	6.33	4.96	5.645	1.1461	30.14	29.85	1.00972	Neck	N	N	N	N	Grit w/ Coral	Coarse	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	1	80-90	13	11.41	6.76	5.79	6.275	1.8183	39.01	35.89	1.08693	Body	N	N	N	N	Grit w/ Coral, Grog, Mica, Sand	Fine	10r5/8	5yr6/8	2.5yr5/8	Oxidizing	3					
OR	1	80-90	14	11.13	6.23	5.18	5.705	1.9509	40.06	39.15	1.02324	Body	N	N	N	N	Grit w/ Coral, Sand	Coarse	7.5yr4/2	7.5yr5/4	7.5yr4/2	Oxidizing	3					
OR	1	80-90	15	47.21	11.85	10.8	11.325	4.1687	60.26	52.01	1.15862	Body	N	Y	N	N	Grit w/ Coral	Coarse	2.5yr3/6	2.5yr3/6	10r4/8	Oxidizing	3					
OR	1	80-90	16	23.8	6.8	7.23	7.015	3.3927	54.91	44.32	1.23894	Body	Y	N	N	N	Grit w/ Coral, Grog, Mica, Sand	Varies	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	80-90	17	6.82	5.53	3.63	4.58	1.4891	38.27	26.88	1.42374	Body	N	N	N	N	Grit w/ Coral, Lava, Sand	Fine	2.5yr4/8	10r4/8	2.5yr4/8	Oxidizing	3					
OR	1	80-90	18	7.86	8.16	8.24	8.2	0.9585	35.81	29.32	1.22135	Neck	N	N	N	N	Grit w/ Coral, Grog	Varies	5yr5/8	5yr5/8	5yr5/8	Oxidizing	3					
OR	1	80-90	19	3.78	4.44	3.73	4.085	0.9253	31.35	22.76	1.37742	Body	N	N	N	N	Grit w/ Coral, Mica	Varies	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	80-90	20	5.03	5.63	4.56	5.095	0.9872	32.58	24.1	1.35187	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Varies	10r5/8	7.5yr4/2	10r5/8	Oxidizing	3					
OR	1	80-90	21	3.98	6.33	6.08	6.205	0.6414	23.44	21.18	1.1067	Body	N	N	N	Incising	Grit w/ Coral	Coarse	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3	Single Incise				
OR	1	80-90	22	10.87	7.12	6.63	6.875	1.5811	40.03	32.14	1.24549	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr5/8	2.5yr4/8	2.5yr6/8	Oxidizing	3					
OR	1	80-90	23	12.97	9.17	7.01	8.09	1.6032	43.97	27.8	1.58165	Rim	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	5yr6/8	5yr5/6	5yr4/6	Oxidizing	3		Straight	Flat		
OR	1	80-90	24	2.61	4.59	3.6	4.095	0.6374	28.45	18.57	1.53204	Body	N	N	N	N	grit w/ mica	Coarse	10yr6/3	10yr6/3	10yr6/3	Reducing	3					
OR	1	80-90	25	2	3.64	3.26	3.45	0.5797	22.65	20.67	1.09579	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr4/6	5yr4/4	2.5yr5/8	Oxidizing	3					
OR	1	80-90	26	1.1	3.43	3.11	3.27	0.3364	20.81	13.24	1.57175	Shoulder	N	N	N	N	Grit w/ Mica	Fine	7.5yr7/0	5yr7/8	5yr7/8	Reducing	3					
OR	1	80-90	27	1.72	5.56	3.74	4.65	0.3699	18.02	13.78	1.30769	Neck	N	N	N	N	Grit w/ Coral	Fine	2.5yr5/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	1	80-90	28	3.09	4.55	4.63	4.59	0.6732	25.94	21.2	1.22358	Neck	N	N	N	N	Grit w/ Coral	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	1	80-90	29	1.38	3.38	3.56	3.47	0.3977	19.4	16.54	1.17291	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Fine	10r4/8	10r4/8	2.5yr5/8	Oxidizing	3					
OR	1	80-90	30	1.79	4.54	3.38	3.96	0.452	21.36	16.68	1.28058	Rim	N	N	N	N	Grit w/ Mica	Fine	7.5yr6/6	7.5yr6/4	7.5yr4/2	Oxidizing	3		Inverted	Rounded		
OR	1	80-90	31	1.93	4.25	2.96	3.605	0.5354	21.79	20.15	1.08139	Shoulder	N	N	N	N	Grit w/ Coral, Grog, Mica	Varies	2.5yr6/6	2.5yr5/6	2.5yr6/6	Oxidizing	3					
OR	1	80-90	32	0.87	3.66	3.91	3.785	0.2299	14.54	12.79	1.13683	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Varies	2.5yr3/6	2.5yr4/8	2.5yr6/6	Oxidizing	3					
OR	1	80-90	33	2.95	4.32	4.1	4.21	0.7007	23.13	20.91	1.10617	Body	N	N	N	N	Grit w/ Grog	Fine	7.5yr7/0	7.5yr7/2	2.5yr6/6	Reducing	3					
OR	1	80-90	34	1.55	6.24	6.33	6.285	0.2466	18.79		#VALUE!	Body	N	Y	N	N	Grit w/ Coral	Coarse	2.5yr5/8	10yr3/1	10r4/6	Oxidizing	3					
OR	1	80-90	35	0.36	3.29	3.21	3.25	0.1108	11.42	9.77	1.16888	Body	N	N	N	N	Grit w/ Mica	Fine	10r4/8	2.5yr3/6	2.5yr3/6	Oxidizing	3					
OR	1	80-90	36	0.34	2.83	2.39	2.61	0.1303	13.36	7.49	1.78371	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr5/0	10r4/8	2.5yr4/8	Reducing	3					
OR	1	80-90	37	0.68	3.28	3.24	3.26	0.2086	14.3	11.47	1.24673	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr4/8	2.5yr4/6	2.5yr3/4	Oxidizing	3					
OR	1	80-90	38	0.75	4.06	4.12	4.09	0.1834	12.4	12.17	1.0189	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr4/6	2.5yr4/6	2.5yr6/8	Oxidizing	3					
OR	1	80-90	39	1.6	4.39	3.72	4.055	0.3946	20.75	15.07	1.37691	Body	N	N	N	N	Grit w/ Coral, Grog, Sand	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	1	80-90	40	0.6	3.01	3.04	3.025	0.1983	12.72	12.13	1.04864	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr5/8	2.5yr3/2	2.5yr4/8	Oxidizing	3					
OR	1	80-90	41	0.97	4.52	3.84	4.18	0.2321	15.67	15.38	1.01886	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr6/6	7.5yr7/4	2.5yr6/8	Oxidizing	3					
OR	1	80-90	42	1.11	4.65	3.71	4.18	0.2656	16.92	15.43	1.09657	Body	N	N	N	N	Grit w/ Lava, Mica	Fine	2.5yr5/8	2.5yr5/8	7.5yr3/2	Oxidizing	3					
OR	1	80-90	43	1.12	3.92	3.42	3.67	0.3052	16.84	15.33	1.0985	Body	N	N	N	N	Grit w/ Coral	Coarse	5yr6/8	2.5yr4/6	2.5yr3/4	Oxidizing	3					
OR	1	80-90	44	2.14	4.24	3.81	4.025	0.5317	26.27	20.24	1.29792	Rim	N	Y	N	N	Sand	Fine	2.5yr5/8	2.5yr5/8	5yr6/8	Oxidizing	3		Straight	Rounded		
OR	1	80-90	45	19.59	7.64	8.71	8.175	2.3963	55.69	28.55	1.95061	Body	Y	N	N	N	Grit w/ Lava, Mica	Coarse	7.5yr6/8	10r4/8	7.5yr6/8	Oxidizing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
OR	1	80-90	46	11.05	6.37	5.47	5.92	1.8666	43.44	32.46	1.33826	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Varies	2.5yr5/8	2.5yr3/2	2.5yr3/2	Oxidizing	3					
OR	1	80-90	47	2.72	4.13	3.55	3.84	0.7083	33.76	17.01	1.98471	Body	Y	Y	Incising	N	Grit w/ Coral	Fine	2.5yr5/8	5yr6/6	2.5yr4/8	Oxidizing	3	Other Incise				
OR	1	80-90	48	2.8	5.46	5.95	5.705	0.4908	18.95	18.64	1.01663	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r5/8	10r5/8	10r4/8	Oxidizing	3					
OR	1	80-90	49	3.67	7.17	7.12	7.145	0.5136	31.21	16.6	1.88012	Body	N	N	N	N	Grit w/ Coral	Coarse	10yr6/4	10yr6/4	2.5yr4/8	Oxidizing	3					
OR	1	80-90	50	2.68	4.76	4.56	4.66	0.5751	25.77	17.4	1.48103	Body	N	N	N	N	Grit w/ Coral, Mica, Sand	Fine	2.5yr4/4	2.5yr4/4	2.5yr5/8	Oxidizing	3					
OR	1	80-90	51	1.69	3.44	2.51	2.975	0.5681	21.93	18.54	1.18285	Body	N	N	N	N	Grit w/ Coral, Grog, Sand	Varies	10r4/8	5yr6/6	10r4/8	Oxidizing	3					
OR	1	80-90	52	2.52	4.48	4.59	4.535	0.5557	26.35	19.98	1.31882	Body	N	N	N	N	Grit w/ Coral, Grog, Sand	Varies	5yr5/6	7.5yr4/4	7.5yr6/8	Oxidizing	3					
OR	1	80-90	53	2.82	4.81	3.87	4.34	0.6498	28.41	14.87	1.91056	Neck	N	N	N	N	Grit w/ Coral, Mica, Sand	Fine	5yr6/8	2.5yr5/8	2.5yr3/2	Oxidizing	3					
OR	1	80-90	54	2.04	3.36	3.31	3.335	0.6117	23.18	22.13	1.04745	Body	N	N	N	N	Grit w/ Grog, Mica	Fine	7.5yr6/4	7.5yr4/4	7.5yr6/4	Oxidizing	3					
OR	1	80-90	55	1.64	3.27	2.88	3.075	0.5333	22.36	17.45	1.28138	Body	N	N	N	N	Grit w/ Grog, Mica	Fine	10r5/6	5yr5/4	5yr4/3	Oxidizing	3					
OR	1	80-90	56	8.54	7.61	5.27	6.44	1.3261	38.72	28.06	1.3799	Shoulder	Y	Y	N	Drilled	Grit w/ Coral, Mica, Sand	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3	Other, drilled hole			Other, Drilled Hole	
OR	1	80-90	57	1.64	4.84	3.9	4.37	0.3753	19.84	15.12	1.31217	Body	N	N	N	N	Grit w/ Coral, Mica, Sand	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	1	80-90	58	0.47	3.07	2.98	3.025	0.1554	11.52	10.36	1.11197	Body	N	N	N	Incising	Grit w/ Mica	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3	Single Incise				
OR	1	80-90	59	1.43	5.35	5.89	5.62	0.2544	17.02	12.71	1.3391	Body	N	N	N	Incising	Grit w/ Coral	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3	Parallel Incise				
OR	1	80-90	60	0.96	4.82	2.96	3.89	0.2468	12.32	12.43	0.99115	Base	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	1	80-90	61	1.77	5.14	5.4	5.27	0.3359	21.97	14.85	1.47946	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr6/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	80-90	62	1.22	3.76	3.59	3.675	0.332	19.13	14.04	1.36254	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	80-90	63	1.52	4.13	3.97	4.05	0.3753	21.2	12.64	1.67722	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/8	2.5yr5/8	2.5yr4/6	Oxidizing	3					
OR	1	80-90	64	0.5	3.6	3.36	3.48	0.1437	11.25	10.91	1.03116	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	1	80-90	65	1.35	4.71	4.68	4.695	0.2875	15.6	13.58	1.14875	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/8	2.5yr5/8	2.5yr4/8	Oxidizing	3					
OR	1	80-90	66	2.08	4.99	4.65	4.82	0.4315	24.01	16.14	1.48761	Body	N	N	N	N	Grit w/ Coral, Grog, Mica, Sand	Fine	2.5yr4/8	5yr4/6	2.5yr4/8	Oxidizing	3					
OR	1	80-90	67	3.02	9.36	9.28	9.32	0.324	19.01	15.43	1.23202	Neck	Y	Y	N	N	Grit w/ Coral, Grog, Mica, Sand	Varies	5yr6/4	5yr7/6	5yr7/6	Reducing	3					
OR	1	80-90	68	3.11	8.1	4.34	6.22	0.5	24.47	19.18	1.27581	Neck	Y	Y	N	Incising	Grit w/ Coral, Grog	Coarse	10r5/8	10r4/8	10r4/8	Oxidizing	3	Diagonal Hatch				
OR	1	80-90	69	17.3	8.74	6.36	7.55	2.2914	45.35	43.82	1.03492	Neck	N	N	N	Incising	Grit w/ Coral, Grog, Mica, Sand	Coarse	2.5yr4/9	2.5yr4/8	2.5yr5/8	Reducing	3	Other Incise				
OR	1	80-90	70	5.47	5.33	3.7	4.515	1.2115	42.09	22.88	1.8396	Rim	Y	Y	N	N	Grit w/ Coral, Sand	Coarse	7.5yr7/0	5yr7/8	5yr7/8	Reducing	3		Everted	Rounded		most of slip on ext was washed off
OR	1	80-90	71	8.54	7.42	3.88	5.65	1.5115	38.82	29.15	1.33173	Rim	Y	Y	N	N	Grit w/ Coral, Grog, Mica, Sand	Varies	10r5/6	10r5/6	10r5/6	Oxidizing	3		Everted	Rounded		plate? Shoulder is 90 degree angle to rim
OR	1	80-90	72	12.44	7.28	4.5	5.89	2.1121	48.14	27.99	1.7199	Rim	N	N	Impress	Impress	Grit w/ Coral, Grog, Lava	Varies	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3	Impress on Rim	Everted	Rounded		impress on int and ext of rim
OR	1	80-90	73	7.46	7.35	3.3	5.325	1.4009	32.47	29.1	1.11581	Rim	N	N	N	N	Grit w/ Coral, Mica, Sand	Fine	2.5yr4/8	5yr6/8	2.5yr5/8	Oxidizing	3		Everted	Rounded		
OR	1	80-90	74	12.84	10.22	13.19	11.705	1.097	35.66	24.26	1.46991	Corner	N	N	N	N	Grit w/ Coral, Grog, Mica, Sand	Coarse	2.5yr4/2	7.5yr4/2	7.5yr4/2	Oxidizing	3				Roofing Tile	90 degree angle.
OR	1	90-100	1	13.93	7.48	6.58	7.03	1.9815	43.64	39.85	1.09511	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	5yr5/8	5yr7/8	2.5yr4/8	Oxidizing	3					
OR	1	90-100	2	22.46	9.13	5.78	7.455	3.0127	65.49	38.11	1.71845	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr5/8	5yr4/1	2.5yr5/8	Oxidizing	3					
OR	1	90-100	3	17.33	10.01	7.62	8.815	1.966	42.72	42.54	1.00423	Body	Y	N	N	N	Grit w/ Coral, Grog	Coarse	2.5yr5/0	10r4/8	7.5yr4/6	Oxidizing	3					
OR	1	90-100	4	18.89	13.65	11.94	12.795	1.4764	51.95	31.34	1.65763	Rim	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	5yr5/8	5yr5/8	5yr5/6	Oxidizing	3		Inverted	Flat		
OR	1	90-100	5	7.79	6.89	5.02	5.955	1.3081	39.99	30.46	1.31287	Rim	N	N	N	N	Grit w/ Coral, Mica	Fine	10r5/8	2.5yr5/8	5yr6/8	Oxidizing	3		Everted	Rounded		
OR	1	90-100	6	4.41	6.99	6.45	6.72	0.6563	28.27	21.03	1.34427	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr5/8	5yr4/3	2.5yr3/2	Oxidizing	3					
OR	1	90-100	7	17.52	7.31	5.53	6.42	2.729	50.39	37.32	1.35021	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	5yr5/8	5yr5/8	7.5yr5/6	Oxidizing	3					
OR	1	90-100	8	14.91	8.06	7.65	7.855	1.8982	38.54	38.11	1.01128	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr3/6	2.5yr4/6	2.5yr4/8	Oxidizing	3					
OR	1	90-100	9	14.06	13.07	12	12.535	1.1217	41.74	24.86	1.679	Body	N	N	N	N	Grit w/ Lava	Coarse	7.5yr6/6	7.5yr6/6	7.5yr6/6	Oxidizing	3					
OR	1	90-100	10	5.31	6.95	7.02	6.985	0.7602	30.08	22.77	1.32104	Body	N	N	N	Incising	Grit w/ Coral, Lava, Mica	Coarse	5yr5/6	5yr5/6	5yr5/6	Oxidizing	3	Single Incise				
OR	1	90-100	11	9.61	9.13	9.69	9.41	1.0213	48.02	22.46	2.13802	Body	Y	N	N	N	Grit w/ Coral, Grog	Coarse	10r5/8	10r5/8	5yr6/8	Oxidizing	3					
OR	1	90-100	12	3.24	5.42	4.7	5.06	0.6403	25.83	22.18	1.16456	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	2.5yr5/8	2.5yr6/8	2.5yr5/8	Oxidizing	3					
OR	1	90-100	13	3.69	4.99	5.04	5.015	0.7358	25.27	22.01	1.14811	Body	N	N	N	N	Grit w/ Mica, Sand	Coarse	10yr6/4	10yr6/4	10yr6/4	Oxidizing	3					
OR	1	90-100	14	6.41	6.45	5.23	5.84	1.0976	28.31	27.51	1.02908	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	5yr5/6	5yr5/6	5yr6/8	Oxidizing	3					
OR	1	90-100	15	27.99	8.14	4.42	6.28	4.457	60.59	56.21	1.07792	Rim	N	N	N	Incising	Grit w/ Coral, Mica	Fine	5yr4/1	2.5yr3/6	2.5yr5/8	Reducing	3	Perpendicular Inci	Everted	Flat		some incising on shoulder
OR	1	90-100	16	5.48	6.5	5.19	5.845	0.9376	34.97	24.47	1.4291	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	90-100	17	11.57	5.56	3.85	4.705	2.4591	46.76	38.06	1.22859	Rim	Y	N	N	Impress	Grit w/ Coral, Grog, Mica	Coarse	10r5/8	10r4/8	2.5yr5/8	Oxidizing	3	Impress on Rim	Inverted	Rounded		impress on rim
OR	1	90-100	18	14.32	10.25	9	9.625	1.4878	38.26	38.17	1.00236	Neck	Y	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	5yr5/3	10r4/8	5yr6/6	Oxidizing	3					
OR	1	90-100	19	6.89	5.97	5.76	5.865	1.1748	33.56	29.18	1.1501	Body	Y	Y	N	N	Grit w/ Coral, Mica	Coarse	5yr6/8	5yr5/6	7.5yr5/4	Oxidizing	3					
OR	1	90-100	20	5.66	7.39	6.42	6.905	0.8197	27.77	26.69	1.04046	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	1	90-100	21	3.55	6.32	5.81	6.065	0.5853	26.56	17.88	1.48546	Rim	Y	N	N	N	Grit w/ Coral, Mica	Coarse	10r3/6	10r4/8	10r3/4	Oxidizing	3		Everted	Rounded		
OR	1	90-100	22	3.91	6.4	6.82	6.61	0.5915	25.2	23.53	1.07097	Body	Y	N	N	N	Grit w/ Coral, Mica	Coarse	5yr6/6	10r4/8	5yr6/6	Oxidizing	3					
OR	1	90-100	23	2.35	7.03	6.29	6.66	0.3529	22.04	12.76	1.72727	Body	Y	N	N	N	Grit w/ Lava, Mica	Varies	5yr6/4	10r4/8	5yr6/4	Oxidizing	3					
OR	1	90-100	24	5.37	8.26	5.02	6.64	0.8087	27.49	27.47	1.00073	Shoulder	Y	N	N	N	Grit w/ Coral, Mica	Fine	7.5yr6/6	10r4/6	7.5yr6/6	Oxidizing	3					
OR	1	90-100	25	1.21	4.53	4.63	4.58	0.2642	17.73	12.51	1.41727	Body	N	N	N	Incising	Grit w/ Mica	Fine	2.5yr5/8	7.5yr5/6	5yr5/4	Oxidizing	3	Single Incise				
OR	1	90-100	26	2.96	5.17	4.43	4.8	0.6167	23.01	20.41	1.12739	Body	N	N	Charred	N	grit w/ mica	Coarse	10r4/8	2.5yr3/0	2.5yr4/6	Oxidizing	3					
OR	1	90-100	27	4.19	5.54	5.2	5.37	0.7803	29.32	24.1	1.2166	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	5yr5/8	5yr4/2	5yr5/6	Reducing	3					
OR	1	90-100	28	0.51	2.78	2.46	2.62	0.1947	13.05	11.39	1.14574	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	90-100	29	1.92	5.76	5.4	5.58	0.3441	18.85	13.26	1.42157	Body	N	N	N	N	grit w/ mica	Coarse	2.5yr4/8	2.5yr3/0	10r4/8	Oxidizing	3					
OR	1	90-100	30	2.14	7.21	7.37	7.29	0.2936	17.32	17.27	1.0029	Body	N	N	N	N	Grit w/ Coral, Grog, Lava, Mica	Coarse	2.5yr4/8	2.5yr4/8	2.5yr3/4	Oxidizing	3					
OR	1	90-100	31	7.28	7.67	7.34	7.505	0.97	37.46	20.02	1.87113	Rim	Y	N	N	Incising	Grit w/ Coral, Lava	Coarse	7.5yr6/6	10r4/8	7.5yr6/6	Oxidizing	3	Perpendicular Inci	Unknown	Unknown		incised lines, perpendicular to rim; some red slip on ext?
OR	1	90-100	32	2.46	5.99	5.74	5.865	0.4194	21.99	18.33	1.19967	Body	N	N	N	Incising	Grit w/ Coral	Coarse	2.5yr4/8	2.5yr5/8	2.5yr4/6	Oxidizing	3	Parallel Perpendicular				1 line, 2 lines II but perpendicular to 1st line
OR	1	90-100	33	2.6	6.39	6.11	6.25	0.416	25.22	20.91	1.20612	Body	N	N	N	N	Grit w/ Coral, Lava, Sand	Coarse	7.5yr6/8	7.5yr6/8	7.5yr6/8	Oxidizing	3					
OR	1	90-100	34	7.22	5.36	3.82	4.59	1.573	40.28	29.37	1.37147	Neck	N	N	N	Incising	Grit w/ Coral, Grog, Mica, Sand	Fine	5yr6/8	5yr5/4	5yr6/8	Oxidizing	3	Parallel Perpendicular				1 line, 3 lines II but perpendicular to 1st line

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
OR	1	90-100	35	1.91	5.13	4.7	4.915	0.3886	21.13	17.19	1.2292	Body	N	N	N	N	Grit w/ Coral, Grog, Lava	Fine	5yr5/6	5yr5/6	5yr5/6	Oxidizing	3					
OR	1	90-100	36	30.3	12.85	10.41	11.63	2.6053	60.02	42.38	1.41623	Body	Y	N	N	Drilled	Grit w/ Coral, Grog	Coarse	10r5/8	10r4/8	5yr5/8	Oxidizing	3	Other, drilled hole			Other, Drilled Hol	int slip flaking off, looks like a hole was drilled for repair? Wider on ext than int
OR	1	90-100	37	2.17	5.66	4.43	5.045	0.4301	23.88	16.07	1.486	Body	N	N	Charred	N	Grit w/ Mica	Fine	2.5yr4/8	2.5yr3/0	2.5yr4/8	Oxidizing	3					
OR	1	90-100	38	1.62	4.42	4.52	4.47	0.3624	17.95	17.17	1.04543	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	2.5yr4/4	2.5yr5/6	2.5yr4/8	Oxidizing	3					
OR	1	90-100	39	0.62	4.56	4.14	4.35	0.1425	15.06	12.06	1.24876	Rim	N	N	N	Incising	Grit w/ Mica	Fine	5yr6/6	5yr6/6	5yr6/6	Oxidizing	3	Single Incise	Straight	Rounded		
OR	1	90-100	40	7.02	8.79	5.52	7.155	0.9811	27.27	23.48	1.16141	Rim	Y	N	N	Incising	Grit w/ Mica	Fine	5yr5/8	10r4/8	7.5yr5/6	Oxidizing	3	Diagonal Hatch	Everted	Rounded		diagonal, radiating lines from rim
OR	1	90-100	41	4.57	5.8	4.37	5.085	0.8987	32.23	22.7	1.41982	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/0	2.5yr2.5/0	7.5yr5/6	Reducing	3					
OR	1	90-100	42	4.24	5.74	3.74	4.74	0.8945	31.29	23.9	1.30921	Body	N	N	N	N	Grit w/ Mica, Sand	Medium	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	1	90-100	43	13.22	6.93	5.18	6.055	2.1833	49.16	35.48	1.38557	Body	N	N	N	Incising	Grit w/ Coral, Mica, Sand	Varies	7.5yr5/0	7.5yr6/4	7.5yr6/4	Reducing	3	Diagonal Hatch				
OR	1	90-100	44	3.15	6.85	5.28	6.065	0.5194	21.38	19.43	1.10036	Rim	N	N	N	N	Grit w/ Coral, Grog, Mica	Varies	5yr3/1	5yr5/6	5yr6/6	Reducing	3		Everted	Flat		
OR	1	90-100	45	31.63	9.52	4.87	7.195	4.3961	55.13	43.73	1.26069	Rim	Y	Y	N	Incising	Grit w/ Mica	Varies	7.5yr3/0	5yr5/8	5yr7/0	Reducing	3	Incise-Nested Squ	Inverted	Rounded	L&S #1- Globula	white, black, red; ext has nested rectangles, incised.
OR	1	90-100	46	12.55	9.04	6.13	7.585	1.6546	42.2	40	1.055	Rim	N	N	N	Incising	Grit w/ Coral, Mica	Coarse	5yr5/8	5yr3/1	5yr5/6	Oxidizing	3	Diagonal Hatch	Everted	Damaged		
OR	2	surface	1	39.71	14.45	7.94	11.195	3.5471	62.15	49.67	1.25126	Shoulder	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	5yr6/8	7.5yr6/6	Reducing	3					
OR	2	surface	2	4.1	10.11	4.43	7.27	0.564	30.02	23.12	1.29844	Base	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	5yr7/8	2.5yr6/6	Reducing	3					
OR	2	surface	3	2.35	5.59	4.19	4.89	0.4806	19.69	18.19	1.08246	Body	N	N	N	N	grit w/ mica	Coarse	2.5yr3/2	2.5yr3/2	2.5yr4/8	Oxidizing	3					
OR	2	surface	4	3.75	5.3	5	5.15	0.7282	26.99	21.82	1.23694	Body	N	N	N	N	Grit w/ Coral	Varies	2.5yr3/4	2.5yr3/2	2.5yr3/4	Oxidizing	3					
OR	2	surface	5	1.26	5.19	4.62	4.905	0.2569	17.92	15.1	1.18675	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/6	2.5yr6/8	2.5yr6/8	Oxidizing	3					
OR	2	surface	6	4.36	6.3	4.99	5.645	0.7724	28.04	20.36	1.37721	Rim	N	N	N	Incising	Grit w/ Coral, Grog, Mica, Sand	Varies	10r4/8	10r4/8	2.5yr4/8	Oxidizing	3	Impress on Rim	Everted	Flat		impress on rim
OR	2	surface	7	2.07	5.9	6.62	6.26	0.3307	19.53	17.79	1.09781	Body	N	N	N	N	Sand	Fine	2.5yr4/2	2.5yr4/2	10r5/8	Oxidizing	3					
OR	2	surface	8	2.02	8.04	7.38	7.71	0.262	18.83	15.18	1.24045	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr5/8	Reducing	3					
OR	2	surface	9	2.9	5.21	5.31	5.26	0.5513	20.57	19.28	1.06691	Body	N	N	N	N	Grit	Fine	2.5yr3/0	2.5yr3/0	2.5yr3/0	Oxidizing	3					
OR	2	surface	10	0.81	3.36	3.15	3.255	0.2488	18.1	16.68	1.08513	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/3	5yr4/1	5yr6/3	Reducing	3					
OR	2	surface	11	2.12	6.28	5.41	5.845	0.3627	23.23	13.36	1.73877	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr7/1	2.5yr3/0	5yr7/1	Reducing	3					
OR	2	0-10	1	20.03	9.19	7.55	8.37	2.3931	52.79	39.55	1.33477	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr6/1	2.5yr5/8	2.5yr5/8	Reducing	3					
OR	2	0-10	2	10.72	9.9	7.21	8.555	1.2531	36.13	27.61	1.30858	Rim	N	N	N	Incising	Grit w/ Coral	Coarse	10r4/6	2.5yr4/8	2.5r3/4	Oxidizing	3	Impress/ Incise	Everted	Rounded		v. hard, high fired, core is red, but (s) by grey in parts, ext is mostly red. High iron content? This one is a bit weird. Rim is impressed, 2 II lines beneath.
OR	2	0-10	3	8.34	6.1	6.3	6.2	1.3452	36.32	32.18	1.12865	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/0	10yr6/1	10yr6/1	Reducing	3					
OR	2	0-10	4	7.28	6.31	5.72	6.015	1.2103	40.32	28.6	1.40979	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r5/8	10r4/8	2.5yr3/4	Oxidizing	3					
OR	2	0-10	5	3.47	3.93	4.01	3.97	0.8741	34.67	24.05	1.44158	Body	N	N	N	N	Shell (foraminifera)	Fine	10r6/3	2.5yr5/8	5yr6/8	Oxidizing	3					core is both red and grey, so pink. Oxidizng and reducing atmosphere? Too thin-walled to keep out the O2?
OR	2	0-10	6	5.91	7.52	7.06	7.29	0.8107	37.94	21.54	1.76137	Body	N	N	N	N	Shell (foraminifera)	Coarse	10yr6/4	2.5yr6/6	2.5yr5/8	Reducing	3					aerated look, missing lots of temper
OR	2	0-10	7	2.46	3.62	3.89	3.755	0.6551	24.82	23.83	1.04154	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	5yr4/6	5yr6/8	Reducing	3					
OR	2	0-10	8	9.13	6.59	5.8	6.195	1.4738	41.68	35.76	1.16555	Body	N	N	N	N	Shell (foraminifera)	Coarse	7.5yr4/0	5yr5/8	5yr5/8	Reducing	3					
OR	2	0-10	9	3.88	5.11	4.15	4.63	0.838	32.87	30.13	1.09094	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr7/4	7.5yr5/4	Reducing	3					
OR	2	0-10	10	13.77	6.81	6.87	6.84	2.0132	47.52	33.51	1.41808	Body	Y	N	N	N	Grit w/ Mica	Fine	7.5yr3/0	7.5yr3/2	5yr3/4	Reducing	3					hard, high fired. Firing clouds
OR	2	0-10	11	5.22	6.59	5.73	6.16	0.8474	33.84	21.78	1.55372	Body	N	N	N	N	Grit w/ Mica	Fine	7.5yr3/2	7.5yr3/2	7.5yr3/0	Reducing	3					
OR	2	0-10	12	4.6	5.6	4.79	5.195	0.8855	29.9	22.09	1.35355	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Fine	10r4/8	10r5/6	10yr3/1	Oxidizing	3					
OR	2	0-10	13	4.03	6.46	5.35	5.905	0.6825	30.32	21.21	1.42951	Body	N	N	N	N	Grit w/ Coral, Grog, Sand	Varies	2.5yr4/8	2.5yr4/8	5yr6/8	Oxidizing	3					
OR	2	0-10	14	7.93	8.71	5.25	6.98	1.1361	30.9	28.43	1.08688	Shoulder	N	N	N	N	Grit w/ Lava, Mica	Fine	10r4/8	10r5/8	10r5/8	Oxidizing	3					
OR	2	0-10	15	7.16	6.8	6.33	6.565	1.0906	28.4	24.72	1.14887	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	7.5yr6/4	7.5yr6/4	7.5yr5/4	Oxidizing	3					
OR	2	0-10	16	2.59	5.23	4.34	4.785	0.5413	32.29	17.6	1.83466	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Fine	10r4/8	2.5yr4/6	10r4/8	Oxidizing	3					
OR	2	0-10	17	2.7	5.32	3.77	4.545	0.5941	26.99	22.37	1.20653	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/0	2.5yr6/8	2.5yr5/8	Reducing	3					
OR	2	0-10	18	3.12	5.21	3.82	4.515	0.691	26.19	25.9	1.0112	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	0-10	19	4.17	7.63	4.66	6.145	0.6786	26.11	22.57	1.15685	Shoulder	N	N	N	N	Grit w/ Mica	Fine	5yr6/6	10r3/4	5yr3/1	Oxidizing	3					
OR	2	0-10	20	9.38	11.23	9.09	10.16	0.9232	27.87	24.86	1.12108	Body	N	N	N	N	grit w/ mica	Coarse	2.5yr3/6	2.5yr3/6	2.5yr4/8	Oxidizing	3					
OR	2	0-10	21	11.37	11.71	7.33	9.52	1.1943	31.46	29.34	1.07226	Base	N	N	N	Incising	Grit w/ Coral, Grog, Mica	Coarse	2.5yr3/4	7.5yr4/2	10r3/2	Oxidizing	3	Other Incise				looks like a line encircling the base and diagonal lines going up from that
OR	2	0-10	22	4.09	6.77	6.7	6.735	0.6073	32.64	22.48	1.45196	Neck	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	5yr5/6	5yr7/8	Reducing	3					
OR	2	0-10	23	2.85	5.14	3.76	4.45	0.6404	32.86	24.03	1.36746	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/0	2.5yr6/8	2.5yr6/8	Reducing	3					
OR	2	0-10	24	5.33	7.32	7.11	7.215	0.7387	30.46	21.67	1.40563	Body	N	N	N	N	grit w/ mica	Coarse	10r4/8	2.5yr3/6	10r3/4	Oxidizing	3					
OR	2	0-10	25	4.4	5.91	5.3	5.605	0.785	25.55	21.59	1.18342	Body	N	N	N	N	Grit w/ Coral	Coarse	10r3/2	10r3/2	10r3/2	Oxidizing	3					
OR	2	0-10	26	5.8	8.09	7.68	7.885	0.7356	24.95	24.01	1.03915	Body	N	N	N	N	Grit w/ Shell	Fine	2.5yr5/0	7.5yr2.5/0	5yr3/1	Reducing	3					
OR	2	0-10	27	0.77	3.28	3.18	3.23	0.2384	16.97	13.17	1.28853	Body	N	N	N	N	Grit w/ Coral, Sand	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	2	0-10	28	3.02	6.34	5.1	5.72	0.528	27.72	19.5	1.42154	Body	N	N	N	N	Grit w/ Grog, Mica	Coarse	2.5yr4/6	5yr4/6	2.5yr4/6	Oxidizing	3					
OR	2	0-10	29	2.03	4.43	4.37	4.4	0.4614	21.47	19.44	1.10442	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	10yr5/2	2.5yr3/0	Reducing	3					aerated
OR	2	0-10	30	1.9	5.15	4.81	4.98	0.3815	19.38	17.25	1.12348	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/4	Oxidizing	3					
OR	2	0-10	31	1.93	5.75	5.32	5.535	0.3487	20.49	14.54	1.40922	Body	N	N	N	N	grit w/ mica	Coarse	10r4/8	10r5/8	10r4/8	Oxidizing	3					
OR	2	0-10	32	4.71	7.33	7.02	7.175	0.6564	33.74	19.09	1.76742	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr3/4	2.5yr5/8	Reducing	3					
OR	2	0-10	33	1.93	6.22	6.48	6.35	0.3039	20.58	14.86	1.38493	Body	N	N	N	N	Shell (foraminifera)	Coarse	5yr6/2	2.5yr6/8	2.5yr6/8	Reducing	3					
OR	2	0-10	34	3.54	6.53	4.88	5.705	0.6205	29.37	19.61	1.49771	Rim	N	N	N	Incising	Grit w/ Coral, Mica	Coarse	10r3/4	2.5yr3/2	10r3/4	Oxidizing	3	Diagonal Hatch	Inverted	Damaged		carinated
OR	2	0-10	35	1.86	4.64	4.9	4.77	0.3899	23.21	17.82	1.30247	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	10yr5/4	2.5yr5/0	Reducing	3					
OR	2	0-10	36	1.14	2.95	2.47	2.71	0.4207	19.6	18.5	1.05946	Body	N	N	N	N	Unknown	Fine	2.5yr6/6	2.5yr6/6	2.5yr6/6	Oxidizing	3					terra cotta? Different from other sherds.
OR	2	0-10	37	2.63	6.68	5.88	6.28	0.4188	24.38	18.12	1.34547	Body	N	N	N	N	Grit w/ Coral	Coarse	5yr3/1	2.5yr5/8	5yr2.5/1	Reducing	3					
OR	2	0-10	38	7.85	6.35	5.94	6.145	1.2775	36.49	28.28	1.29031	Rim	N	N	Incising	Impress	grit w/ mica	Coarse	7.5yr3/0	7.5yr3/0	7.5yr3/0	Reducing	3	Impress/ Incise	Everted	Flat		impress on rim, 2 II lines on rim
OR	2	0-10	39	2.02	6.19	4.77	5.48	0.3686	18.52	17.96	1.03118	Body	N	N	N	N	Grit w/ Coral	Fine	5yr6/8	7.5yr5/6	7.5yr6/6	Oxidizing	3					
OR	2	0-10	40	6.18	12.72	7.52	10.12	0.6107	25.83	25.41	1.01653	Body	N	N	N	N	grit w/ mica	Coarse	2.5yr3/4	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	2	0-10	41	4.6	7.73	8.18	7.955	0.5783	23.55	20.86	1.12895	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr3/6	7.5yr2.5/0	2.5yr5/6	Oxidizing	3					
OR	2	0-10	42	2.51	6.01	4.59	5.3	0.4736	21.84	16.85	1.29614	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	5yr6/6	5yr3/4	Reducing	3					aerated
OR	2	0-10	43	5.74	10.03	9.71	9.87	0.5816	25.55	18.38	1.3901	Rim	N	N	N	N	Grit w/ Coral, Sand	Fine	10yr3/1	10yr3/1	10yr3/2	Reducing	3		Straight	rounded		
OR	2	0-10	44	1.46	4.37	4.31	4.34	0.3364	19.59	17.99	1.08894	Body	Y	N	N	N	Shell (foraminifera)	Fine	2.5yr6/2	2.5yr4/2	2.5yr5/8	Reducing	3					
OR	2	0-10	45	2.81	6.97	6.4	6.685	0.4203	23.47	16.56	1.41727	Body	N	N	N	N	grit w/ mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	0-10	46	1.63	4.31	3.13	3.72	0.4382	23.18	19.92	1.16365	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr3/0	2.5yr3/0	Reducing	3					
OR	2	0-10	47	3.71	6.09	5.42	5.755	0.6447	31.15	17.48	1.78204	Body	N	N	N	N	Grit w/ Lava, Mica, Sand	Fine	5yr6/6	2.5yr3/0	5yr6/6	Oxidizing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
OR	2	0-10	48	4.97	6.12	5.78	5.95	0.8353	30.49	22.47	1.35692	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	2.5yr4/2	2.5yr6/6	5yr5/6	Reducing	3					
OR	2	0-10	49	6.41	7.04	10.22	8.63	0.7428	30.79	26.59	1.15795	Rim	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	2.5yr5/8	Reducing	3		Inverted	pointed		
OR	2	0-10	50	3.71	9	4.85	6.925	0.5357	24.79	16.34	1.51714	Rim	Y	Y	N	N	Grit w/ Coral, Mica	Coarse	10r3/6	10r3/6	10r3/6	Oxidizing	3		Straight	rounded		v. red, high iron content?
OR	2	0-10	51	3.29	4.5	5.28	4.89	0.6728	23.9	22.33	1.07031	Body	N	N	N	N	Grit w/ Grog, Mica	Fine	2.5yr6/8	2.5yr5/2	2.5yr6/8	Oxidizing	3					
OR	2	0-10	52	2.51	5.14	4.97	5.055	0.4965	22.56	19.29	1.16952	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	7.5yr5/4	7.5yr3/0	Reducing	3					aerated
OR	2	0-10	53	1.71	4.41	3.92	4.165	0.4106	20.69	20.59	1.00486	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/2	2.5yr4/6	2.5yr4/8	Reducing	3					aerated
OR	2	0-10	54	3.64	7.14	5.13	6.135	0.5933	27.42	16.53	1.6588	Rim	Y	N	N	Incising	Grit w/ Coral	Coarse	7.5yr5/4	10r4/8	10r4/8	Reducing	3	Diagonal Hatch	Straight	Rounded		may have had slip on ext that I washed off. Chevrons? Incised going down from rim.
OR	2	0-10	55	3.12	8.33	7.05	7.69	0.4057	23.91	20.04	1.19311	Body	N	N	N	N	Grit w/ Grog, Shell	Fine	7.5yr5/2	7.5yr5/6	7.5yr5/6	Reducing	3					
OR	2	0-10	56	4.04	6.86	6.48	6.67	0.6057	26.53	22.56	1.17598	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/4	2.5yr5/6	2.5yr5/8	Reducing	3					
OR	2	0-10	57	3.04	5.76	4.63	5.195	0.5852	26.57	20	1.3285	Body	N	N	N	N	Grit w/ Coral	Coarse	5yr4/3	5yr3/2	5yr3/2	Oxidizing	3					
OR	2	0-10	58	3.14	6.01	5.76	5.885	0.5336	22.35	19.55	1.14322	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	5yr3/1	5yr3/1	5yr3/3	Oxidizing	3					
OR	2	0-10	59	3.11	8.27	6.69	7.48	0.4158	20.77	17.82	1.16554	Rim	Y	Y	N	N	Grit w/ Mica	Fine	2.5yr3/0	7.5yr4/4	2.5yr4/6	Reducing	3		Straight	Rounded		
OR	2	0-10	60	8.29	10.36	5.41	7.885	1.0514	28	25.88	1.08192	Rim	Y	N	N	N	Grit w/ Mica	Fine	2.5yr6/6	10r4/8	2.5yr6/6	Oxidizing	3	Red Paint	Everted	Rounded		red line around top of rim on int and ext.
OR	2	0-10	61	8.71	8.32	5.14	6.73	1.2942	45.21	26.19	1.72623	Shoulder	N	N	N	N	Grit w/ Coral, Mica	Coarse	10yr4/1	2.5yr4/2	2.5yr4/2	Oxidizing	3					
OR	2	0-10	62	1.57	6.03	5.64	5.835	0.2691	18.1	16.87	1.07291	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	2.5yr6/8	2.5yr5/8	Reducing	3					
OR	2	0-10	63	1.89	5.55	5.97	5.76	0.3281	19.56	15.83	1.23563	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/4	7.5yr6/6	10r5/8	Reducing	3					
OR	2	0-10	64	0.7	5.77	5.47	5.62	0.1246	15.17	10.19	1.48871	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr4/0	5yr5/2	Reducing	3					
OR	2	0-10	65	1.65	4.44	3.88	4.16	0.3966	24.47	18.28	1.33862	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/1	2.5yr5/8	5yr4/2	Reducing	3					
OR	2	0-10	66	6.81	11.89	11.24	11.565	0.5888	25.57	20.35	1.25651	Body	N	N	N	N	Grit w/ Grog, Mica, Sand	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	2	0-10	67	1.04	4.03	3.77	3.9	0.2667	18.71	15.72	1.1902	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/0	5yr5/8	5yr5/3	Reducing	3					
OR	2	0-10	68	1.99	5.92	5.08	5.5	0.3618	20.67	18.97	1.08962	Body	N	N	N	N	Grit w/ Coral	Coarse	10r3/4	2.5yr3/0	2.5yr3/2	Oxidizing	3					
OR	2	0-10	69	1.94	5.32	5.29	5.305	0.3657	24.82	13.83	1.79465	Body	N	N	N	N	Grit w/ Coral, Grog, Sand	Coarse	7.5yr5/2	2.5yr5/8	10r4/8	Oxidizing	3					
OR	2	0-10	70	3.41	8.17	6.79	7.48	0.4559	23.79	22.25	1.06921	Rim	N	N	N	N	Grit w/ Coral, Grog, Sand	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3		Straight	Rounded		
OR	2	0-10	71	4.89	5.14	5.27	5.205	0.9395	31.47	30.23	1.04102	Body	N	N	N	Incising	Shell (foraminifera)	Fine	7.5yr3/0	2.5yr3/0	2.5yr5/8	Reducing	3	Diagonal Hatch				2 II lines w/ lines radiating from corner
OR	2	0-10	72	4.61	7.47	6.23	6.85	0.673	27.86	22.83	1.22032	Shoulder	N	Y	N	N	Grit w/ Coral, Mica, Sand	Fine	7.5yr4/0	7.5yr3/0	7.5yr4/2	Reducing	3					
OR	2	0-10	73	2.39	5.02	5.2	5.11	0.4677	19.79	16	1.23688	Body	N	N	N	N	Grit w/ Sand	Coarse	7.5yr6/6	7.5yr5/4	2.5yr4/8	Oxidizing	3					
OR	2	0-10	74	2.1	6.54	5.61	6.075	0.3457	17.41	16.72	1.04127	Body	N	N	N	N	Grit w/ Coral, Grog, Mica, Sand	Coarse	7.5yr5/4	2.5yr5/8	5yr5/8	Oxidizing	3					
OR	2	0-10	75	2.01	4.71	4.75	4.73	0.4249	20.65	14.45	1.42907	Body	N	N	N	N	Sand	Fine	5yr5/6	5yr5/6	7.ryr6/2	Oxidizing	3					
OR	2	0-10	76	2.07	7.4	7.5	7.45	0.2779	17.75	14.71	1.20666	Body	N	Y	N	N	Grit w/ Mica	Fine	10yr4/1	10yr4/1	2.5yr4/8	Oxidizing	3					
OR	2	0-10	77	0.53	3.72	4.17	3.945	0.1343	16.63	11.1	1.4982	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/1	5yr5/8	5yr5/3	Reducing	3					
OR	2	0-10	78	0.45	3.26	3.11	3.185	0.1413	17.1	13.01	1.31437	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	5yr6/8	5yr6/8	Reducing	3					
OR	2	0-10	79	0.99	4.48	4.35	4.415	0.2242	13.54	12.48	1.08494	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr6/6	7.5yr5/4	2.5yr3/4	Oxidizing	3					
OR	2	0-10	80	2.71	8.4	7.58	7.99	0.3392	25.91	15.67	1.65348	Rim	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr6/6	2.5yr4/8	2.5yr4/8	Reducing	3		Straight	pointed		
OR	2	0-10	81	1.05	5.2	4.7	4.95	0.2121	15.48	12.05	1.28465	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr4/8	7.5yr4/0	2.5yr3/6	Oxidizing	3					
OR	2	0-10	82	1.21	7.47	7.18	7.325	0.1652	16.07	11.47	1.40105	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/4	5yr6/8	5yr6/8	Reducing	3					
OR	2	0-10	83	2.21	7.85	5.91	6.88	0.3212	21.76	17.92	1.21429	Body	N	N	N	N	Grit w/ Coral	Coarse	5yr3/1	5yr3/1	5yr3/3	Oxidizing	3					
OR	2	0-10	84	1.44	3.64	3.43	3.535	0.4074	19.18	15.76	1.21701	Body	N	N	N	N	Grit w/ Mica	Fine	10r3/1	10r3/1	10r3/1	Oxidizing	3					
OR	2	0-10	85	2.67	7.02	6.34	6.68	0.3997	20.48	15.82	1.29456	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	2.5yr4/8	7.5yr3/0	Oxidizing	3					
OR	2	0-10	86	1.69	6.24	6.21	6.225	0.2715	15.55	14.62	1.06361	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	5yr6/3	7.5yr7/0	2.5yr5/8	Oxidizing	3					
OR	2	0-10	87	3.53	7.93	7.45	7.69	0.459	20.49	19.61	1.04488	Body	N	N	N	N	grit w/ mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	0-10	88	5.8	10.1	6.63	8.365	0.6934	25.88	23.79	1.08785	Rim	N	N	N	N	Grit w/ Mica, Sand	Fine	2.5yr5/8	2.5yr4/8	10yr6/4	Oxidizing	3		Straight	rounded		
OR	2	0-10	89	1.05	4.73	3.94	4.335	0.2422	18.54	16.2	1.14444	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/0	2.5yr5/8	2.5yr5/0	Reducing	3					
OR	2	0-10	90	0.86	4.9	4.42	4.66	0.1845	16.45	13.01	1.26441	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr4/0	2.5yr4/0	Reducing	3					
OR	2	0-10	91	2.16	6.76	6.53	6.645	0.3251	17.72	17.07	1.03808	Body	Y	Y	N	N	Grit w/ Coral, Mica	Coarse	2.5yr3/4	2.5yr3/2	2.5yr3/4	Oxidizing	3					
OR	2	0-10	92	1.74	5.59	4.86	5.225	0.333	24.03	15.3	1.57059	Rim	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr3/0	2.5yr6/8	Reducing	3		Inverted	Flat		
OR	2	0-10	93	1.46	4.52	4.23	4.375	0.3337	19.69	14.87	1.32414	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	5yr5/6	5yr3/3	7.5yr5/6	Oxidizing	3					
OR	2	0-10	94	1.38	4.72	4.43	4.575	0.3016	22.76	16.05	1.41807	Body	N	N	N	N	Grit w/ Grog, Shell	Fine	2.5yr4/0	2.5yr4/0	2.5yr4/0	Reducing	3					
OR	2	0-10	95	0.53	3.6	3.45	3.525	0.1504	11.91	10.96	1.08668	Body	N	N	N	N	Grit w/ Coral, Grog, Sand	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	2	10-20	1	9.44	12.39	11.16	11.775	0.8017	26.74	24.92	1.07303	Body	N	N	N	N	Sand	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	2	10-20	2	6.87	8.05	7.07	7.56	0.9087	35.43	27.32	1.29685	Rim	Y	N	N	Incising	Grit w/ Grog, Lava, Mica,	Coarse	2.5yr4/6	10r4/6	7.5yr4/6	Oxidizing	3	Other Incise	Everted	Flat		nested rectangles on ext, thick red slip on int
OR	2	10-20	3	8.25	9.32	7.16	8.24	1.0012	34.59	24.87	1.39083	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr6/8	2.5yr6/6	Reducing	3					
OR	2	10-20	4	1.73	4.68	3.48	4.08	0.424	25	15.97	1.56544	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/0	2.5yr5/8	2.5yr5/8	Reducing	3					
OR	2	10-20	5	5.22	6.52	5.91	6.215	0.8399	30.54	28.27	1.0803	Body	N	N	N	N	Shell (foraminifera)	Coarse	5yr6/4	5yr6/6	10r5/8	Reducing	3					
OR	2	10-20	6	4.37	7.49	7.67	7.58	0.5765	23.68	22.84	1.03678	Body	N	N	N	N	Sand	Fine	2.5yr4/8	10yr4/1	2.5yr3/4	Oxidizing	3					
OR	2	10-20	7	1.35	4.78	5.21	4.995	0.2703	19.49	15.85	1.22965	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/0	2.5yr5/8	2.5yr5/8	Reducing	3					
OR	2	10-20	8	3.95	7.44	6.46	6.95	0.5683	26.64	22.38	1.19035	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	10-20	9	5.41	9.38	10.63	10.005	0.5407	32.84	21.36	1.53745	Body	N	N	N	N	Grit w/ Mica, Sand	Coarse	2.5yr5/6	10yr3/1	2.5yr3/2	Oxidizing	3					
OR	2	10-20	10	4.01	6.22	5.43	5.825	0.6884	26.71	24.56	1.08754	Body	N	N	N	N	Sand	Fine	5yr6/6	7.5yr5/6	7.5yr6/4	Oxidizing	3					
OR	2	10-20	11	56.48	14.02	39.75	26.885	2.1008	49.4	34.73	1.4224	Pig Tond	N	N	N	Punctate	Grit w/ Coral	Coarse	2.5yr3/6	2.5yr4/8	2.5yr4/8	Oxidizing	3				L&S #8- Anglo	2 rows of 3 wedge impressions on ext of
OR	2	10-20	12	4.93	6.42	6.59	6.505	0.7579	31.3	30.32	1.03232	Body	N	N	N	N	Sand	Fine	10yr6/4	10yr6/2	10yr5/2	Reducing	3					
OR	2	10-20	13	4.7	4.71	4.86	4.785	0.9822	30.53	26.72	1.14259	Body	N	N	N	N	Grit w/ Coral, Grog, Sand	Fine	2.5yr5/0	2.5yr6/8	2.5yr6/6	Reducing	3					
OR	2	10-20	14	4.13	8.09	7.02	7.555	0.5467	26.87	21.76	1.23483	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr6/6	2.5yr5/8	Reducing	3					
OR	2	10-20	15	5.76	7.11	5.02	6.065	0.9497	32.35	23.93	1.35186	Shoulder	N	N	N	N	Grit w/ Coral, Sand	Fine	10r4/8	2.5yr4/8	7.5yr5/6	Oxidizing	3					
OR	2	10-20	16	3.11	6.5	7.23	6.865	0.453	26.58	21.56	1.23284	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	5yr6/6	2.5yr4/0	Reducing	3					
OR	2	10-20	17	5.27	9.06	6.67	7.865	0.6701	29.81	29.38	1.01464	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	2.5yr5/6	2.5yr5/8	Reducing	3					
OR	2	10-20	18	2.1	4.72	4.49	4.605	0.456	22.85	18.66	1.22454	Body	N	N	N	N	Sand	Fine	7.5yr6/6	7.5yr6/6	7.5yr6/6	Oxidizing	3					
OR	2	10-20	19	5.83	7.16	6.52	6.84	0.8523	28.52	25.01	1.14034	Body	Y	Y	N	N	Grit w/ Coral	Coarse	7.5yr4/2	7.5yr5/4	2.5yr4/4	Oxidizing	3					high fired
OR	2	10-20	20	2.32	4.55	5.06	4.805	0.4828	23.99	20.04	1.19711	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	2.5yr6/8	5yr6/6	Reducing	3					
OR	2	10-20	21	1.76	4.39	3.86	4.125	0.4267	25.17	22.7	1.10881	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	7.5yr6/6	2.5yr6/8	Reducing	3					
OR	2	10-20	22	3.21	7.86	7.5	7.68	0.418	22.01	16.34	1.347	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	2.5yr5/8	2.5yr6/6	Reducing	3					
OR	2	10-20	23	3.88	5.84	4.85	5.345	0.7259	29.3	21.42	1.36788	Body	N	N	N	N	Grit w/ Coral, Grog, Sand	Coarse	2.5yr5/4	2.5yr4/8	7.5yr6/6	Oxidizing	3					
OR	2	10-20	24	1.99	5.89	3.58	4.735	0.4203	25.45	19.98	1.27377	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr6/2	7.5yr4/0	Reducing	3					
OR	2	10-20	25	4.17	4.73	5.47	5.1	0.8176	29.57	24.01	1.23157	Body	Y	Y	N	Punctate	Grit w/ Coral, Mica	Coarse	2.5yr5/8	2.5yr4/6	5yr3/4	Oxidizing	3	Semi-circular stamp				
OR	2	10-20	26	3.17	7.35	7.51	7.43	0.4266	22.92	19.19	1.19437	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/2	2.5yr5/6	2.5yr5/8	Reducing	3					
OR	2	10-20	27	1.42	3.74	4.05	3.895	0.3646	17.76	17.55	1.01197	Body	N	N	N	N	Grit w/ Grog, Mica	Fine	2.5yr5/6	5yr6/6	10r4/8	Oxidizing	3					
OR	2	10-20	28	2.39	5.41	5.45	5.43	0.4401	20.47	17.58	1.16439	Rim	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3		Everted	Rounded		
OR	2	10-20	29	1.27	7.23	7.29	7.26	0.1749	21.37	14.7	1.45374	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/8	10r5/8	Reducing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
OR	2	10-20	30	0.93	3.89	4.38	4.135	0.2249	17.21	13.06	1.31776	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/0	5yr6/6	2.5yr5/8	Reducing	3					
OR	2	10-20	31	2.24	6.29	5.69	5.99	0.374	22.11	18.38	1.20294	Body	N	N	N	N	Grit w/ Coral, Sand	Fine	2.5yr4/8	2.5yr4/8	7.5yr4/4	Reducing	3					
OR	2	10-20	32	2.17	5.02	5.11	5.065	0.4284	28.31	14.71	1.92454	Shoulder	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	2.5yr6/8	5yr6/8	Reducing	3					
OR	2	10-20	33	0.53	3.57	3.12	3.345	0.1584	12.61	12.25	1.02939	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	5yr7/4	5yr6/6	7.5yr4/2	Oxidizing	3					
OR	2	10-20	34	2.79	6.06	5.95	6.005	0.4646	20.7	15.91	1.30107	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	7.5yr5/2	2.5yr4/8	2.5yr4/8	Reducing	3					
OR	2	10-20	35	2.09	4.15	3.96	4.055	0.5154	21.98	18.83	1.16729	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	2	10-20	36	0.69	2.94	3.34	3.14	0.2197	14.78	13.87	1.06561	Body	N	N	N	N	?Shell (foraminifera)	Fine	7.5yr3/0	7.5yr3/0	7.5yr4/0	Reducing	3					
OR	2	10-20	37	2.78	7.8	8.24	8.02	0.3466	21.28	18.85	1.12891	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	2.5yr3/4	2.5yr3/4	2.5yr4/6	Oxidizing	3					
OR	2	10-20	38	1.41	5.21	4.35	4.78	0.295	17.75	16.18	1.09703	Body	N	N	N	N	Grit w/ Mica, Sand	Fine	7.5yr6/6	7.5yr5/6	7.5yr5/6	Reducing	3					
OR	2	10-20	39	1.94	4.29	3.96	4.125	0.4703	19.36	18.13	1.06784	Body	N	N	N	N	Grit w/ Coral, Grog, Mica, Sand	Coarse	7.5yr6/4	2.5yr5/8	7.5yr6/6	Oxidizing	3					
OR	2	10-20	40	1.96	6.82	6.59	6.705	0.2923	21.01	11.37	1.84785	Body	N	N	N	N	?Shell (foraminifera)	Fine	7.5yr3/0	7.5yr3/0	7.5yr3/2	Reducing	3					
OR	2	10-20	41	0.98	4.07	3.77	3.92	0.25	16.61	12.82	1.29563	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r5/6	2.5yr5/6	10r5/6	Oxidizing	3					
OR	2	10-20	42	2.09	4.28	4.02	4.15	0.5036	21.42	16.15	1.32632	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	5yr6/1	2.5yr4/8	10yr6/4	Reducing	3					
OR	2	10-20	43	1.64	5.26	3.36	4.31	0.3805	25.18	16.25	1.54954	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr6/2	2.5yr3/0	Reducing	3					
OR	2	10-20	44	1.49	5.07	3.91	4.49	0.3318	21.54	15.44	1.39508	Body	N	N	N	N	Grit w/ Coral, Grog, Sand	Coarse	5yr5/2	5yr5/3	5yr6/4	Reducing	3					
OR	2	10-20	45	1.62	4	3.83	3.915	0.4138	19.58	18.41	1.06355	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr3/6	7.5yr4/2	7.5yr4/2	Reducing	3					
OR	2	10-20	46	2.42	6.36	5.8	6.08	0.398	23.24	15.34	1.51499	Rim	N	N	N	N	Grit w/ Coral, Sand	Fine	2.5yr3/0	2.5yr3/0	2.5yr6/8	Reducing	3		Everted	Rounded		
OR	2	10-20	47	1.58	4.75	4.88	4.815	0.3281	24.51	16.91	1.44944	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	2.5yr5/6	2.5yr5/8	Reducing	3					
OR	2	10-20	48	2.07	4.32	4.07	4.195	0.4934	28.12	15.47	1.81771	Body	N	N	N	N	Grit w/ Coral	Fine	5yr5/8	5yr5/6	2.5yr3/4	Oxidizing	3					
OR	2	10-20	49	1.66	5.92	5.63	5.775	0.2874	21.3	17.92	1.18862	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/4	2.5yr3/0	Reducing	3					
OR	2	10-20	50	1.23	5.53	5.93	5.73	0.2147	21	13.04	1.61043	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr7/8	5yr6/6	2.5yr3/0	Reducing	3					
OR	2	10-20	51	2.09	5.66	5.31	5.485	0.381	18.27	14.5	1.26	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	2	10-20	52	1.59	5.17	3.84	4.505	0.3529	19.59	17.03	1.15032	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					int has sloughed off
OR	2	10-20	53	1.01	6.12	5.97	6.045	0.1671	16.38	12.94	1.26584	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/4	2.5yr6/8	2.5yr6/8	Reducing	3					
OR	2	10-20	54	1.79	5.49	4.58	5.035	0.3555	22.25	18.65	1.19303	Neck	N	N	N	N	Grit w/ Coral, Grog	Fine	5yr5/8	5yr5/8	5yr5/8	Oxidizing	3					
OR	2	10-20	55	0.57	2.58	2.71	2.645	0.2155	14.5	13.91	1.04242	Body	N	N	N	N	Grit w/ Shell	Fine	5yr5/1	2.5yr6/6	2.5yr5/6	Reducing	3					
OR	2	10-20	56	1.08	4.31	4.22	4.265	0.2532	21.88	12.3	1.77886	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr6/6	10r5/8	Reducing	3					
OR	2	10-20	57	0.6	4.64	4.44	4.54	0.1322	12.83	12.66	1.01343	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr7/4	5yr7/3	10r5/8	Reducing	3					
OR	2	10-20	58	0.92	3.7	2.98	3.34	0.2754	16.55	14.7	1.12585	Body	N	N	N	N	Grit w/ Coral	Fine	7.5yr5/4	7.5yr5/2	7.5yr5/4	Reducing	3					
OR	2	10-20	59	1.43	4.63	4.83	4.73	0.3023	18.99	15.11	1.25678	Body	N	N	N	Incising	Grit w/ Mica	Fine	5yr4/3	5yr4/3	5yr4/3	Reducing	3	Single Incise				circular line incised
OR	2	10-20	60	1.01	4.67	4.57	4.62	0.2186	19.68	11.04	1.78261	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr7/6	7.5yr4/0	Reducing	3					
OR	2	10-20	61	1.55	6.37	6.25	6.31	0.2456	16.7	16.06	1.03985	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/6	5yr6/6	2.5yr5/8	Reducing	3					
OR	2	10-20	62	1.06	4.27	4.06	4.165	0.2545	17.55	13.38	1.31166	Body	N	N	N	N	Grit w/ Coral	Fine	5yr4/3	2.5yr4/6	5yr4/6	Reducing	3					
OR	2	10-20	63	1.45	3.19	3.11	3.15	0.4603	24.19	16.54	1.46252	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/8	5yr4/3	5yr3/2	Oxidizing	3					
OR	2	10-20	64	0.66	4.95	4.99	4.97	0.1328	15.75	12.94	1.21716	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	2.5yr5/8	Reducing	3					
OR	2	10-20	65	2.2	7.4	7.02	7.21	0.3051	18.16	11.64	1.56014	Body	N	N	N	Incising	Grit w/ Coral	Coarse	2.5yr2.5/4	10r4/8	10r4/8	Oxidizing	3	Parallel Incise				
OR	2	10-20	66	0.61	2.53	2.02	2.275	0.2681	15.8	14.4	1.09722	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr4/2	2.5yr4/2	2.5yr3/0	Reducing	3					
OR	2	10-20	67	0.33	2.92	2.76	2.84	0.1162	15.56	11.84	1.31419	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr7/6	2.5yr5/8	2.5yr5/8	Reducing	3					
OR	2	10-20	68	0.42	3.86	4.26	4.06	0.1034	12.85	12.32	1.04302	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr7/1	5yr7/3	5yr6/4	Reducing	3					
OR	2	10-20	69	1.08	4.41	4.34	4.375	0.2469	15.05	12.28	1.22557	Body	N	N	N	N	Grit w/ Mica	Fine	5yr4/4	5yr3/4	5yr3/3	Oxidizing	3					
OR	2	10-20	70	0.71	2.72	3.1	2.91	0.244	16.48	15.03	1.09647	Body	N	N	N	N	Grit w/ Mica	Fine	7.5yr7/4	7.5yr7/4	10r4/8	Reducing	3					
OR	2	10-20	71	1.52	5.06	5	5.03	0.3022	16.44	15.88	1.03526	Body	N	N	N	N	Grit w/ Mica	Fine	10r3/4	10r4/8	10r4/8	Oxidizing	3					
OR	2	10-20	72	0.65	4.14	4.05	4.095	0.1587	16.96	10.24	1.65625	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/6	2.5yr5/6	2.5yr4/4	Oxidizing	3					slip and core is red, but there is an outer layer of grey- 2.5yr4/0
OR	2	10-20	73	1.1	5.29	5.25	5.27	0.2087	17.99	10.56	1.7036	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	2	10-20	74	0.57	3.13	3.07	3.1	0.1839	16.95	13.41	1.26398	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr4/0	5yr5/6	Reducing	3					
OR	2	10-20	75	0.88	4.93	4.99	4.96	0.1774	14.22	13.57	1.0479	Body	N	N	N	N	Grit w/ Coral	Coarse	5yr5/8	7.5yr5/6	7.5yr5/6	Oxidizing	3					
OR	2	10-20	76	0.93	6.16	4.79	5.475	0.1699	14.75	13.62	1.08297	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	10-20	77	1.02	3.21	2.4	2.805	0.3636	18.53	17.69	1.04748	Body	N	N	N	N	Grit	Fine	2.5yr3/0	10r5/8	10r4/8	Reducing	3					firing clouds; 2 pcs glued together.
OR	2	10-20	78	0.81	4.95	3.71	4.33	0.1871	14.13	11.74	1.20358	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr4/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	2	10-20	79	0.33	2.64	2.47	2.555	0.1292	12.17	11.92	1.02097	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr5/4	5yr4/2	Reducing	3					
OR	2	10-20	80	0.53	3.21	3.3	3.255	0.1628	13.53	9.61	1.40791	Body	N	N	N	N	Sand	Fine	2.5yr4/0	2.5yr5/8	2.5yr5/8	Reducing	3					
OR	2	10-20	81	0.59	3.78	3.66	3.72	0.1586	14.89	8.83	1.6863	Body	N	N	N	N	Grit w/ Mica	Fine	5yr5/8	10r5/8	2.5yr3/6	Oxidizing	3					
OR	2	10-20	82	0.79	5.51	3.83	4.67	0.1692	14.17	12.62	1.12282	Body	N	N	N	N	Grit w/ Coral	Coarse	5yr6/4	2.5yr5/8	5yr5/8	Reducing	3					
OR	2	10-20	83	1.16	5.39	5.31	5.35	0.2168	15.84	11.83	1.33897	Body	N	N	N	N	grit w/ mica	Coarse	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	2	10-20	84	0.79	4.12	3.87	3.995	0.1977	18.38	9.72	1.89095	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	2	10-20	85	0.16	2.1	1.88	1.99	0.0804	9.35	7.85	1.19108	Body	N	N	N	N	Grit w/ Sand	Fine	2.5yr4/8	2.5yr4/8	5yr4/6	Oxidizing	3					
OR	2	20-30	1	93.83	17.07	8.92	12.995	7.2205	94.24	64.57	1.4595	Body	N	N	N	Incising	Grit w/ Coral, Mica	Coarse	2.5yr4/6	2.5yr4/8	2.5yr3/4	Oxidizing	3	Multiple Design Elements				deep incising on rim, some bits broken off, chevrons?
OR	2	20-30	2	25.04	7.93	9.26	8.595	2.9133	58.76	42.35	1.38749	Body	N	N	Impress	N	Grit w/ Coral, Mica	Fine	2.5yr5/8	2.5yr3/2	2.5yr3/2	Oxidizing	3	Impress on Body				shallow impressions on int from mfg
OR	2	20-30	3	42.8	10.78	7.99	9.385	4.5605	62.63	52.33	1.19683	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr4/8	2.5yr3/2	2.5yr4/6	Oxidizing	3					
OR	2	20-30	4	27.05	12.52	10.42	11.47	2.3583	50.73	48.38	1.04857	Rim	N	N	N	Incising	Grit w/ Coral, Mica	Coarse	10r4/6	2.5yr3/6	2.5yr4/6	Oxidizing	3	Impress/ Incise	Straight	Rounded		2 II lines below rim, impressions on rim
OR	2	20-30	5	28.67	15.88	7.38	11.63	2.4652	49.54	39.92	1.24098	Rim	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3		Straight	Rounded		chevrons, (s) by incised line w/ punctate b/w. Base?
OR	2	20-30	6	21.39	11.28	7.08	9.18	2.3301	51.03	47.5	1.07432	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	2	20-30	7	5.29	5.99	4.09	5.04	1.0496	31.19	29.44	1.05944	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	20-30	8	10.19	7.47	6.43	6.95	1.4662	35.85	35.61	1.00674	Rim	Y	Y	N	Incising	Grit w/ Coral	Coarse	10r4/8	10r4/6	10r4/6	Oxidizing	3	Single Incise	Straight	Rounded		
OR	2	20-30	9	8.31	7.67	6.24	6.955	1.1948	39.64	35.01	1.13225	Body	N	N	N	Incising	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr4/2	10yr5/2	Reducing	3	Single Incise				
OR	2	20-30	10	9.42	7.03	6.46	6.745	1.3966	34.56	33.19	1.04128	Rim	N	N	N	N	Grit w/ Coral	Coarse	5yr5/6	5yr4/1	5yr7/6	Oxidizing	3		Everted	Flat		
OR	2	20-30	11	4.43	5.16	4.07	4.615	0.9599	30.2	28.21	1.07054	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr5/8	10yr3/1	2.5yr4/4	Oxidizing	3					
OR	2	20-30	12	6.22	7.05	4.41	5.73	1.0855	26.73	24.72	1.08131	Rim	N	N	N	Impress	Grit w/ Coral	Coarse	2.5yr4/6	2.5yr5/8	2.5yr5/8	Oxidizing	3	Impress on Rim	Everted	Rounded		
OR	2	20-30	13	3.99	7.66	8.32	7.99	0.4994	36.63	16.93	2.16361	Rim	Y	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr5/2	2.5yr4/6	Reducing	3		Straight	Rounded		ridge rim
OR	2	20-30	14	3.59	7.36	6.08	6.72	0.5342	25.97	20.83	1.24676	Body	N	N	N	N	grit w/ mica	Coarse	10r4/8	10r5/6	10r4/8	Oxidizing	3					
OR	2	20-30	15	3.53	6.62	6.67	6.645	0.5312	26.7	17.87	1.49412	Body	Y	Y	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/6	10r4/6	Oxidizing	3					
OR	2	20-30	16	1.78	3.99	3.33	3.66	0.4863	22.08	21.65	1.01986	Body	N	N	Charred	N	Grit w/ Coral	Fine	7.5yr3/0	7.5yr3/0	10r4/6	Reducing	3					
OR	2	20-30	17	2.12	3.76	3.91	3.835	0.5528	24.48	16.07	1.52334	Body	N	N	N	N	Grit w/ Coral	Fine	7.5yr3/0	7.5yr3/0	5yr5/4	Reducing	3					
OR	2	20-30	18	2.56	5.04	4	4.52	0.5664	25.51	21.59	1.18157	Body	N	N	N	N	Grit w/ Coral	Fine	7.5yr5/0	5yr3/1	5yr3/1	Reducing	3					
OR	2	20-30	19	1.9	4.35	3.15	3.75	0.5067	22.23	19.62	1.13303	Rim	N	N	N	N	Grit w/ Coral, Sand	Fine	2.5yr5/8	7.5yr4/2	7.5yr6/6	Reducing	3		Everted	Flat		
OR	2	20-30	20	4.91	7.87	7.51	7.69	0.6385	25.76	19.76	1.30364	Body	N	N	N	N	Grit w/ Mica, Sand	Fine	2.5yr4/8	2.5yr3/2	10yr5/2	Reducing	3					
OR	2	20-30	21	1.91	4.55	4.14	4.345	0.4396	20.15	19.81	1.01716	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr4/8	10yr6/3	2.5yr4/8	Oxidizing	3					
OR	2	20-30	22	3.34	4.75	4.9	4.825	0.6922	24.15	20.55	1.17518	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr3/4	2.5yr4/6	2.5yr4/8	Oxidizing	3					firing clouds
OR	2	20-30	23	3.45	4.91	4.36	4.635	0.7443	24.04	23.37	1.02867	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	5yr6/6	2.5yr4/8	10yr5/2	Oxidizing	3					
OR	2	20-30	24	3.26	6.36	6.12	6.24	0.5224	28.11	20.46	1.3739	Body	N	N	N	N	Sand	Fine	5yr5/2	2.5yr3/0	2.5yr4/8	Reducing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
OR	2	20-30	25	3.57	6.99	6.26	6.625	0.5389	28.7	17.64	1.62698	Body	N	N	N	N	Grit w/ Coral	Fine	5yr4/2	2.5yr5/6	2.5yr4/8	Reducing	3					firing clouds
OR	2	20-30	26	8.35	5.24	3.7	4.47	1.868	45.61	34.58	1.31897	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	5yr5/4	5yr6/6	5yr4/2	Oxidizing	3					
OR	2	20-30	27	4.82	5.68	4.7	5.19	0.9287	28.01	26.56	0.18148	Rim	N	N	N	Impress	Grit w/ Coral, Mica	Fine	2.5yr4/8	7.5yr5/4	7.5yr5/4	Oxidizing	3	Impress on Rim	Everted	Pointed		punctate on neck, below rim
OR	2	20-30	28	1.53	5.24	5.57	5.405	0.2831	18.2	17.35	1.04899	Body	Y	N	N	N	Shell (foraminifera)	Fine	5yr7/1	5yr7/1	7.5yr3/0	Reducing	3					abundant temper
OR	2	20-30	29	3.15	6.73	7.14	6.935	0.4542	24.24	15.3	1.58431	Body	Y	Y	N	N	Grit w/ Coral	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	20-30	30	3.64	5.79	4.68	5.235	0.6953	29.48	22.12	1.33273	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	7.5yr6/4	Reducing	3					
OR	2	20-30	31	3.36	6.09	5.39	5.74	0.5854	22.7	16.9	1.3432	Body	Y	Y	N	N	Grit w/ Mica	Fine	5yr3/2	5yr2.5/2	5yr4/3	Oxidizing	3					
OR	2	20-30	32	2.23	4.04	3.89	3.965	0.5624	21.82	17.77	1.22791	Body	N	N	N	N	grit w/ mica	Coarse	10r3/6	10r3/6	10r3/6	Oxidizing	3					
OR	2	20-30	33	1.57	3.99	3.9	3.945	0.398	24.57	16.86	1.4573	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r3/4	2.5yr3/2	10r3/1	Oxidizing	3					
OR	2	20-30	34	3.9	5.74	6.25	5.995	0.6505	24.11	21.91	1.10041	Rim	Y	Y	N	Impress	grit w/ mica	Coarse	2.5yr3/2	10r3/6	2.5yr4/8	Oxidizing	3	Impress on Rim	Straight	Flat		impress on rim
OR	2	20-30	35	2.77	4.9	5.04	4.97	0.5573	27.46	19	1.44526	Body	N	N	N	N	Grit w/ Coral, Grog, Sand	Fine	7.5yr4/0	7.5yr4/0	2.5yr4/2	Reducing	3					int has sloughed off, sherd is erroding
OR	2	20-30	36	5.31	9.28	7.29	8.285	0.6409	24.2	20.24	1.19565	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr3/4	2.5yr4/8	7.5yr3/0	Oxidizing	3					
OR	2	20-30	37	1.88	4.72	4.4	4.56	0.4123	23.51	17.5	1.34343	Body	N	N	N	N	Grit w/ Coral, Sand	Coarse	2.5yr4/8	2.5yr4/8	2.5yr3/6	Oxidizing	3					
OR	2	20-30	38	2.62	5.94	6.58	6.26	0.4185	28.27	14.5	1.94966	Body	Y	Y	N	N	Grit w/ Coral, Sand	Fine	7.5yr4/0	2.5yr3/4	2.5yr4/8	Reducing	3					sherd is eroding
OR	2	20-30	39	3.6	6.82	4.66	5.74	0.6272	19.87	23.82	0.83417	Rim	Y	Y	N	Impress	Grit w/ Mica	Coarse	10r5/8	10r4/8	2.5yr4/8	Oxidizing	3	Impress on Rim	Everted	Rounded		impress on rim
OR	2	20-30	40	2.46	5.42	4.73	5.075	0.4847	21.79	20.68	1.05368	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	2.5yr5/8	Oxidizing	3					
OR	2	20-30	41	5.62	8.65	7.3	7.975	0.7047	26.05	23.83	1.09316	Rim	N	N	N	N	grit w/ mica	Coarse	2.5yr4/8	2.5yr3/0	2.5yr3/0	Oxidizing	3		Straight	Rounded		
OR	2	20-30	42	1.03	3.28	2.97	3.125	0.3296	22.4	17.1	1.30994	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/2	7.5yr4/0	5yr6/6	Reducing	3					
OR	2	20-30	43	1.57	4.95	3.61	4.28	0.3668	19.29	19.06	1.01207	Rim	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/6	10r4/6	2.5yr3/4	Oxidizing	3		Inverted	Flat		
OR	2	20-30	44	2.03	5.07	4.05	4.56	0.4452	21.2	16.39	1.29347	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr5/8	2.5yr3/4	10r3/4	Oxidizing	3					
OR	2	20-30	45	1.65	4.58	3.04	3.81	0.4331	21.59	17.76	1.21565	Body	N	N	N	N	Grit w/ Coral, Grog	Fine	5yr6/6	5yr5/6	5yr5/4	Oxidizing	3					
OR	2	20-30	46	2.4	5.41	5.7	5.555	0.432	20.38	14.25	1.43018	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr3/0	10r3/2	2.5yr3/4	Reducing	3					
OR	2	20-30	47	2.9	7.44	6.82	7.13	0.4067	21.97	14.4	1.52569	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	5yr5/6	5yr5/4	5yr7/3	Oxidizing	3					
OR	2	20-30	48	0.76	2.68	2.34	2.51	0.3028	19.52	13.48	1.44807	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	5yr6/6	5yr6/3	10r4/8	Oxidizing	3					
OR	2	20-30	49	2.03	4.72	4.97	4.845	0.419	20.55	17.03	1.20669	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	5yr6/6	5yr7/6	2.5yr4/8	Oxidizing	3					
OR	2	20-30	50	2.97	8.51	5.04	6.775	0.4384	21.52	16.14	1.33333	Neck	N	N	N	N	grit w/ mica	Coarse	10r3/3	10r4/8	10r4/8	Oxidizing	3					
OR	2	20-30	51	1.24	2.69	2.32	2.505	0.495	21.64	15.87	1.36358	Body	N	N	N	N	Grit w/ Lava, Mica	Fine	10r5/8	10r5/8	5yr4/2	Oxidizing	3					
OR	2	20-30	52	1.53	5.5	4.25	4.875	0.3138	19.02	15.97	1.19098	Body	N	N	N	N	Grit	Fine	7.5yr4/0	7.5yr2.5/0	5yr3/2	Reducing	3					
OR	2	20-30	53	1.69	6.62	5.26	5.94	0.2845	19.44	16.58	1.1725	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	20-30	54	2.83	4.85	3.24	4.045	0.6996	28.93	20.47	1.41329	Neck	N	N	N	Incising	Grit w/ Coral	Fine	2.5yr5/8	10r3/3	10r3/3	Oxidizing	3	Diagonal Hatch				3 II lines w/ diagonal line going up
OR	2	20-30	55	2.51	6.08	5.61	5.845	0.4294	21.34	17.41	1.22573	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr4/8	2.5yr3/0	2.5yr3/0	Oxidizing	3					
OR	2	20-30	56	1.57	4.88	4.27	4.575	0.3432	18.79	16.36	1.14853	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr2.5/0	2.5yr2.5/0	10r6/8	Reducing	3					
OR	2	20-30	57	2.5	6.14	6.2	6.17	0.4052	18.57	18.3	1.01475	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr3/2	2.5yr3/6	2.5yr3/2	Oxidizing	3					
OR	2	20-30	58	2.3	6.04	5.2	5.62	0.4093	22.21	15.92	1.3951	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r3/6	10r3/6	10r3/3	Oxidizing	3					int has sloughed off
OR	2	20-30	59	2.7	7.49	7.25	7.37	0.3664	21.71	15.71	1.38192	Body	Y	Y	N	N	Grit w/ Coral	Coarse	10r5/8	10r5/8	2.5yr5/8	Oxidizing	3					
OR	2	20-30	60	1.88	5.08	5.16	5.12	0.3672	22.7	14.03	1.61796	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr3/2	2.5yr3/2	2.5yr3/2	Oxidizing	3					
OR	2	20-30	61	2.33	5.91	5.29	5.6	0.4161	20.26	11.11	1.82358	Body	Y	Y	N	N	Grit w/ Coral, Grog, Mica	Varies	10r3/2	10r3/1	10r3/1	Oxidizing	3					
OR	2	20-30	62	1.55	5.36	5.03	5.195	0.2984	16.68	15.84	1.05303	Rim	N	Y	N	Incising	Grit w/ Coral, Mica	Fine	10r4/8	10r5/8	10r4/8	Oxidizing	3	Parallel Incise	Inverted	Rounded		
OR	2	20-30	63	0.98	3.37	3.64	3.505	0.2796	16.75	12.37	1.35408	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	20-30	64	1.51	6.3	5.92	6.11	0.2471	20.15	10.04	2.00697	Body	N	N	N	N	Grit w/ Coral	Fine	5yr7/3	5yr7/3	10r5/8	Reducing	3					
OR	2	20-30	65	1.19	3.78	3.47	3.625	0.3283	19.21	15.01	1.27981	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					yellow (10yr6/8) coating on int and ext
OR	2	20-30	66	1.37	7	6.97	6.985	0.1961	17.34	14.27	1.21514	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr5/2	2.5yr5/8	Reducing	3					black staining on ext
OR	2	20-30	67	2.63	7.63	6.23	6.93	0.3795	21.29	14.52	1.46625	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr4/6	2.5yr4/6	2.5yr4/6	Oxidizing	3					
OR	2	20-30	68	1.49	4.27	3.73	4	0.3725	18.72	14.36	1.30362	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr5/8	2.5yr3/6	10r4/8	Oxidizing	3					
OR	2	20-30	69	1.5	7.79	6.2	6.995	0.2144	17.15	13.09	1.31016	Body	N	N	N	Incising	Grit w/ Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3	Single Incise				
OR	2	20-30	70	1.72	6.02	6.52	6.27	0.2743	17.08	14.44	1.18283	Body	N	N	N	N	Grit w/ Mica	Fine	10r4/8	10r4/6	10r3/6	Oxidizing	3					
OR	2	20-30	71	1	4.57	4.1	4.335	0.2307	17.02	12.34	1.37925	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr5/8	2.5yr5/8	10r5/8	Oxidizing	3					
OR	2	20-30	72	1.08	3.68	3.78	3.73	0.2895	16.14	14.37	1.12317	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/8	5yr3/1	5yr3/1	Oxidizing	3					
OR	2	20-30	73	0.61	3.57	3.59	3.58	0.1704	13.21	11.55	1.14372	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	5yr4/2	10r4/8	Oxidizing	3					
OR	2	20-30	74	1.94	6.74	5.59	6.165	0.3147	20.43	13.36	1.52919	Body	N	N	N	N	Grit w/ Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	20-30	75	0.43	4.47	4.26	4.365	0.0985	13.3	11.63	1.14359	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/3	10r5/8	5yr4/2	Reducing	3					pink core
OR	2	20-30	76	1.19	5.69	3.07	4.38	0.2717	16.85	15.24	1.10564	Body	N	N	N	N	Grit w/ Mica	Fine	10r3/4	10r3/4	10r3/1	Oxidizing	3					
OR	2	20-30	77	0.7	4.23	4.3	4.265	0.1641	14.37	10.16	1.41437	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr3/0	7.5yr3/2	Reducing	3					
OR	2	20-30	78	0.97	3.76	3.7	3.73	0.2601	16.17	14.91	1.08451	Body	N	N	N	N	Grit w/ Mica	Fine	10r3/1	10r3/1	10r3/3	Oxidizing	3					
OR	2	20-30	79	1.62	5.69	6.01	5.85	0.2769	18.73	13.76	1.36119	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr5/8	10r4/8	10r4/6	Oxidizing	3					
OR	2	20-30	80	1.1	7.15	7.3	7.225	0.1522	14.44	13.57	1.06411	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr3/2	10r4/8	10r4/8	Oxidizing	3					
OR	2	20-30	81	2.22	7.56	6.95	7.255	0.306	22.74	12.49	1.82066	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr5/8	10r4/8	10r4/6	Oxidizing	3					
OR	2	20-30	82	1	3.79	3.73	3.76	0.266	17.78	15.71	1.13176	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/4	2.5yr4/8	2.5yr4/8	Reducing	3					
OR	2	20-30	83	0.48	3.07	2.9	2.985	0.1608	11.52	11.44	1.00699	Body	N	N	N	N	Grit w/ Mica	Fine	5yr3/1	5yr3/3	5yr3/1	Reducing	3					
OR	2	20-30	84	0.91	5.76	5.43	5.595	0.1626	16.12	10.16	1.58661	Body	N	N	N	N	Grit w/ Coral	Fine	5yr7/3	5yr7/3	5yr6/3	Reducing	3					
OR	2	20-30	85	1.17	4.58	4.08	4.33	0.2702	16.18	15.16	1.06728	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr4/6	2.5yr4/6	2.5yr3/2	Oxidizing	3					
OR	2	20-30	86	0.77	5.95	5.66	5.805	0.1326	11.72	11.49	1.02002	Rim	N	N	N	N	Grit w/ Coral	Fine	10r6/8	10r6/8	10r6/6	Oxidizing	3		Inverted	Rounded		
OR	2	20-30	87	1.7	7.17	3.91	5.54	0.3069	17.21	16.29	1.05648	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr4/6	5yr5/4	5yr4/3	Oxidizing	3					
OR	2	20-30	88	1.91	4.58	4.38	4.48	0.4263	21.99	18.11	1.21425	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	20-30	89	0.94	4.26	3.99	4.125	0.2279	16.07	14.61	1.09993	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr3/0	2.5yr5/2	2.5yr3/0	Reducing	3					
OR	2	20-30	90	0.93	5.37	5.18	5.275	0.1763	19.86	11.32	1.75442	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/0	7.5yr7/0	7.5yr7/0	Reducing	3					
OR	2	20-30	91	1.66	3.52	3.84	3.68	0.4511	20.37	15.08	1.3508	Body	N	N	N	N	Grit w/ Mica	Fine	10r5/8	2.5yr4/6	10r5/8	Reducing	3					
OR	2	20-30	92	2.69	5.71	6.23	5.97	0.4506	27.53	16.38	1.68071	Rim	N	N	N	Incising	Grit w/ Coral, Mica	Coarse	10r4/8	10r3/1	10r3/2	Oxidizing	3	Impress on Rim	Inverted	Flat		2 lines incised, impress on rim. Slight curve to lines,might be part of base w/ decoration?
OR	2	20-30	93	0.55	3.85	3.8	3.825	0.1438	14.27	10.85	1.31521	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	20-30	94	1.22	4.72	4.5	4.61	0.2646	15.78	11.19	1.41019	Body	N	N	N	N	Grit w/ Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	30-40	1	23.42	12.26	7.75	10.005	2.3408	57.52	43.16	1.33272	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	2.5yr6/6	7.5yr6/4	2.5yr5/8	Oxidizing	3					
OR	2	30-40	2	5.77	5.89	4.57	5.23	1.1033	32.29	27.67	1.16697	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	7.5yr4/0	7.5yr6/4	7.5yr5/4	Reducing	3					
OR	2	30-40	3	4.76	6.73	6.1	6.415	0.742	35.84	19.1	1.87644	Body	N	N	N	Incising	Grit w/ Coral, Lava, Mica	Coarse	2.5yr5/8	2.5yr3/6	2.5yr4/8	Oxidizing	3					I incised line; 1 punctate, probably from trowel
OR	2	30-40	4	13.43	8.9	7.92	8.41	1.5969	38.59	39.69	0.97229	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	5yr6/8	5yr6/8	7.5yr7/4	Oxidizing	3					
OR	2	30-40	5	8.65	7.07	6.17	6.62	1.3066	36.3	29.73	1.22099	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr3/2	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	2	30-40	6	3.58	4.26	4.32	4.29	0.8345	35.47	24.17	1.46752	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	7.5yr5/6	7.5yr6/6	2.5yr5/8	Oxidizing	3					
OR	2	30-40	7	20.11	10.4	9.18	9.79	2.0541	48.92	43.42	1.12667	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr4/8	2.5yr4/8	2.5yr3/4	Oxidizing	3					white coating on int
OR	2	30-40	8	13.71	9.68	10.52	10.1	1.3574	37.29	32.21	1.15771	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr6/8	10yr5/2	2.5yr6/8	Oxidizing	3					
OR	2	30-40	9	11.41	6.92	7.32	7.12	1.6025	36.34	30.7	1.18371	Neck	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	10r4/8	10r4/8	Reducing	3					so not slip). Washed 2x, so probably not dirt.
OR	2	30-40	10	10.4	7.37	7.67	7.52	1.383	42.08	30.87	1.36314	Body	N	N	N	N	Grit w/ Coral	Fine	5yr7/6	2.5yr3/0	5yr7/6	Oxidizing	3					v. flat. Maybe tile of some sort?
OR	2	30-40	11	8.4	7.9	5.13	6.515	1.2893	40.57	27.89	1.45464	Base	N	N	N	Punctate,	Grit w/ Coral, Mica	Fine	2.5yr3/6	2.5yr4/8	5yr5/6	Oxidizing	3	Multiple Design Elements				punctates-> straight line-> circular line
OR	2	30-40	12	7.17	5.76	4.74	5.25	1.3657	34.52	33.62	1.02677	Body	N	N	N	N	Grit w/ Mica	Fine	10r4/6	7.5yr5/4	2.5yr3/0	Oxidizing	3					firing clouds
OR	2	30-40	13	6.42	6.61	4.34	5.475	1.1726	44.33	23.5	1.88638	Body	Y	Y	N	N	Grit w/ Coral	Fine	2.5yr3/4	10r4/8	10r4/8	Oxidizing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
OR	2	30-40	14	4	4.62	4.24	4.43	0.9029	39.92	27.83	1.43442	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/2	7.5yr5/4	2.5yr4/0	Reducing	3					
OR	2	30-40	15	4.05	4.31	4.22	4.265	0.9496	30.4	27.4	1.10949	Rim	N	Y	Incising	N	Grit w/ Coral	Fine	2.5yr5/0	2.5yr4/2	7.5yr5/0	Reducing	3	Single Incise	Straight	Rounded		
OR	2	30-40	16	8.51	7.05	6.67	6.86	1.2405	38.51	24.44	1.5757	Body	Y	Y	N	N	Grit w/ Coral	Fine	10r4/8	10r4/8	10r3/4	Oxidizing	3					
OR	2	30-40	17	4.84	6.21	4.23	5.22	0.9272	34.96	28.72	1.21727	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	7.5yr7/0	10yr6/3	5yr5/6	Reducing	3					
OR	2	30-40	18	4.56	5.72	4.95	5.335	0.8547	33.39	21.47	1.55519	Body	N	N	N	N	Grit w/ Coral	Fine	10r3/2	7.5yr4/2	10r3/1	Oxidizing	3					
OR	2	30-40	19	6.82	7.6	7.74	7.67	0.8892	29.84	26.41	1.12988	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	30-40	20	4.33	4.29	4.51	4.4	0.9841	33.45	22.94	1.45815	Body	N	N	N	N	Grit w/ Coral, Mica, Sand	Fine	5yr6/8	7.5yr5/4	5yr6/8	Oxidizing	3					
OR	2	30-40	21	5.68	7.74	6.55	7.145	0.795	26.17	25.42	1.0295	Shoulder	N	N	N	N	Grit w/ Coral	Coarse	2.5yr5/8	2.5yr4/8	5yr4/6	Oxidizing	3					
OR	2	30-40	22	3.93	6.31	3.47	4.89	0.8037	28.96	20.98	1.38036	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr4/8	2.5yr5/6	2.5yr3/6	Oxidizing	3					
OR	2	30-40	23	5.6	6.96	5.6	6.28	0.8917	31.2	24.45	1.27607	Neck	N	N	N	N	Grit w/ Coral, Mica	Coarse	7.5yr7/2	7.5yr6/4	7.5yr5/6	Reducing	3					
OR	2	30-40	24	2.87	4.06	3.51	3.785	0.7583	24.07	19.57	1.22994	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	2.5yr4/8	10r4/8	Oxidizing	3					
OR	2	30-40	25	3.41	4.67	3.78	4.225	0.8071	26.26	24.82	1.05802	Body	N	N	N	N	Grit w/ Coral	Fine	5yr6/8	7.5yr5/6	7.5yr5/4	Oxidizing	3					
OR	2	30-40	26	2.74	4.62	4.05	4.335	0.6321	30.47	16.8	1.81369	Body	N	N	N	N	Grit	Fine	7.5yr6/4	7.5yr7/4	7.5yr6/4	Reducing	3					firing cloud on ext
OR	2	30-40	27	3.9	5.75	4.52	5.135	0.7595	33.05	21.36	1.54728	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/6	7.5yr5/6	7.5yr4/0	Oxidizing	3					
OR	2	30-40	28	4.4	7.1	6.26	6.68	0.6587	28.56	22.58	1.26484	Rim	N	N	N	Incising	Grit w/ Coral	Coarse	2.5yr6/8	7.5yr5/6	2.5yr4/8	Oxidizing	3	Other Incise	Inverted	Flat		curvilinear line
OR	2	30-40	29	2.74	7.77	5.87	6.82	0.4018	29.76	20.97	1.41917	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr6/8	2.5yr4/6	Reducing	3					
OR	2	30-40	30	2.6	5.42	5.03	5.225	0.4976	26.9	18.54	1.45092	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr6/8	2.5yr5/8	2.5yr4/6	Oxidizing	3					
OR	2	30-40	31	1.45	3.25	3.31	3.28	0.4421	20.37	20.51	0.99317	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr4/0	5yr4/3	5yr3/1	Reducing	3					
OR	2	30-40	32	4.67	5.75	4.78	5.265	0.887	32.89	23.68	1.38894	Rim	N	N	Impress	Impress	Grit w/ Mica	Fine	2.5yr6/6	2.5yr5/8	2.5yr6/6	Oxidizing	3	Impress on Body	Everted	Flat		impress line around rim on int and ext
OR	2	30-40	33	2.72	4.53	4.31	4.42	0.6154	21.78	19.84	1.09778	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr4/8	2.5yr3/0	2.5yr4/8	Oxidizing	3					
OR	2	30-40	34	1.99	5.95	5.45	5.7	0.3491	26.42	16.49	1.60218	Body	N	N	N	N	Grit w/ Coral, Sand	Fine	2.5yr4/0	2.5yr4/0	2.5yr4/8	Reducing	3					
OR	2	30-40	35	2.99	5.01	4.72	4.865	0.6146	23.05	18.58	1.24058	Body	N	N	N	N	Grit w/ Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	30-40	36	5.03	7.82	6.18	7	0.7186	21.71	26.38	0.82297	Rim	N	N	N	Incising	Grit w/ Mica	Fine	5yr4/4	5yr5/8	5yr5/6	Oxidizing	3	Diagonal Hatch	Inverted	Damaged		incised line below rim
OR	2	30-40	37	2.8	5.13	5.21	5.17	0.5416	25.07	15.97	1.56982	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	30-40	38	4.31	6.09	4.9	5.495	0.7843	29.95	23.66	1.26585	Body	N	N	N	N	grit w/ mica	Coarse	5yr5/8	7.5yr6/6	2.5yr5/8	Oxidizing	3					firing clouds on ext
OR	2	30-40	39	3.33	4.96	2.9	3.93	0.8473	24.46	17.99	1.35964	Rim	N	N	N	N	Grit w/ ?Grog, Mica	Fine	7.5yr4/0	5yr4/2	5yr4/2	Reducing	3		Straight	Rounded		
OR	2	30-40	40	4.56	6.75	6.71	6.73	0.6776	27.58	19.63	1.40499	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr4/8	2.5yr4/8	2.5yr4/4	Oxidizing	3					
OR	2	30-40	41	3.04	6.25	5.87	6.06	0.5017	20.3	20.11	1.00945	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr4/8	2.5yr3/0	2.5yr4/8	Oxidizing	3					
OR	2	30-40	42	1.88	7.79	6.88	7.335	0.2563	23.1	15.53	1.48744	Body	N	N	N	N	Grit w/ Coral	Fine	5yr6/8	2.5yr4/8	2.5yr6/6	Oxidizing	3					
OR	2	30-40	43	1.54	5.86	5.71	5.785	0.2662	18.72	13.09	1.4301	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr3/6	2.5yr3/2	2.5yr3/2	Oxidizing	3					
OR	2	30-40	44	1.59	3.3	2.93	3.115	0.5104	26.13	20.53	1.27277	Body	N	N	N	N	Grit w/ Coral, Sand	Fine	7.5yr5/0	5yr6/3	5yr7/1	Reducing	3					firing clouds on ext
OR	2	30-40	45	2.02	4.33	3.99	4.16	0.4856	21.01	19.22	1.09313	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr5/8	2.5yr3/2	5yr6/8	Oxidizing	3					
OR	2	30-40	46	2.37	6.21	6.54	6.375	0.3718	18.95	17.52	1.08162	Rim	Y	Y	N	N	Grit w/ Coral, Mica	Fine	10r5/8	10r4/8	2.5yr5/8	Reducing	3		Everted	Rounded		red slip
OR	2	30-40	47	2.59	5.33	5.42	5.375	0.4819	23.9	19.39	1.23259	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr3/6	2.5yr4/8	2.5yr3/6	Oxidizing	3					
OR	2	30-40	48	4.52	5.76	6.09	5.925	0.7629	27.92	22.51	1.24034	Neck	N	N	N	N	grit w/ mica	Coarse	2.5yr4/8	10r4/6	10r4/8	Oxidizing	3					
OR	2	30-40	49	2.51	7.19	6.84	7.015	0.3578	25.15	15.65	1.60703	Body	N	N	N	N	Grit w/ Coral	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	2	30-40	50	3.61	6.21	6	6.105	0.5913	27.9	17.21	1.62115	Body	N	N	N	N	Grit w/ Coral, Mica, Sand	Fine	5yr3/2	5yr3/1	5yr3/2	Reducing	3					
OR	2	30-40	51	3.24	8.8	7.13	7.965	0.4068	22.18	20.94	1.05922	Rim	N	N	N	Impress	Grit w/ Coral, Grog, Mica, Sand	Coarse	5yr4/1	5yr5/6	5yr5/6	Reducing	3	Impress on Rim	Straight	Rounded		2 II lines below rim, impress on rim
OR	2	30-40	52	3.74	5.78	5.74	5.76	0.6493	32.98	17.64	1.86961	Body	N	N	N	Incising	Grit w/ Coral, Mica	Coarse	5yr6/8	2.5yr5/8	5yr6/6	Oxidizing	3	Single Incise				
OR	2	30-40	53	3.58	7.05	6.56	6.805	0.5261	25.1	18.75	1.33867	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr5/8	7.5yr6/6	5yr7/8	Oxidizing	3					
OR	2	30-40	54	3.16	4.92	5.14	5.03	0.6282	25.83	25.5	1.01294	Body	N	N	N	Incising	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3	Other Incise				1 straight line, 2 curvilinear lines beneath
OR	2	30-40	55	2.96	5.91	5.57	5.74	0.5157	24.12	21.59	1.11718	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r4/8	2.5yr3/2	10r4/8	Oxidizing	3					
OR	2	30-40	56	2.25	5.15	5.23	5.19	0.4335	17.37	16.18	1.07355	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	30-40	57	5.41	9.78	6.95	8.365	0.6467	28.24	26.55	1.06365	Rim	Y	Y	N	N	Grit w/ Mica	Varies	2.5yr5/8	10r4/8	10r4/8	Oxidizing	3		Inverted	Rounded		
OR	2	30-40	58	2.96	7.74	8.18	7.96	0.3719	25.01	15.62	1.60115	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr4/8	5yr4/3	5yr6/8	Oxidizing	3					
OR	2	30-40	59	2.61	5.33	4.45	4.89	0.5337	30.87	17.76	1.73818	Body	N	Y	N	N	Grit w/ Coral	Fine	10r5/8	10r4/8	10r4/6	Oxidizing	3					
OR	2	30-40	60	2.64	3.97	3.42	3.695	0.7145	25.17	22.58	1.1147	Body	N	N	N	N	Grit w/ Coral	Fine	7.5yr4/0	7.5yr5/4	5yr3/2	Oxidizing	3					
OR	2	30-40	61	2.58	5.59	5.38	5.485	0.4704	23.15	16.56	1.39795	Body	N	N	N	N	Grit w/ Mica	Fine	7.5yr3/0	7.5yr3/0	7.5yr3/0	Reducing	3					
OR	2	30-40	62	3.08	5.34	5.09	5.215	0.5906	23.04	19.22	1.19875	Body	N	N	N	Incising	Grit w/ Coral, Mica	Fine	2.5yr4/8	2.5yr3/4	2.5yr4/8	Oxidizing	3	Single Incise				1 incised line
OR	2	30-40	63	2.39	6.45	5.06	5.755	0.4153	20.3	20.13	1.00845	Body	N	N	N	N	Grit w/ Coral, Grog, Mica, Sand	Coarse	2.5yr3/6	2.5yr3/6	2.5yr3/6	Oxidizing	3					
OR	2	30-40	64	1.98	4.78	4.11	4.445	0.4454	24.63	16.93	1.45481	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	7.5yr5/0	10r6/8	5yr6/3	Reducing	3					
OR	2	30-40	65	2.32	4.93	4.77	4.85	0.4784	20.59	18.42	1.11781	Neck	N	N	N	N	Grit w/ Coral	Coarse	7.5yr5/0	10r4/8	10r4/8	Reducing	3					
OR	2	30-40	66	2.55	5.46	4.55	5.005	0.5095	28.13	15.44	1.82189	Body	N	N	N	N	Grit w/ Coral, Sand	Coarse	5yr5/8	5yr5/8	5yr5/8	Oxidizing	3					
OR	2	30-40	67	3.53	5.73	5.9	5.815	0.6071	27.48	21.94	1.25251	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	7.5yr6/0	5yr7/4	7.5yr6/0	Reducing	3					
OR	2	30-40	68	1.6	4.23	4.43	4.33	0.3695	23.87	15.38	1.55202	Body	N	N	N	Incising	Grit w/ Coral, Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3	Other Incise				diagonal slashes
OR	2	30-40	69	1.6	5.94	5.85	5.895	0.2714	21.42	14.85	1.44242	Body	Y	N	N	N	Grit w/ Coral, Grog, Mica	Fine	10r5/8	10r4/6	5yr4/2	Oxidizing	3					
OR	2	30-40	70	5.14	4.3	5.39	19	0.2705	19.22	18.68	1.02891	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	2.5yr5/8	2.5yr4/6	Oxidizing	3					
OR	2	30-40	71	1.48	4.27	4.14	4.205	0.352	17.11	14.65	1.16792	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r4/8	5yr3/1	10r4/8	Oxidizing	3					
OR	2	30-40	72	0.69	3.68	3.22	3.45	0.2	15.61	11.79	1.324	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	7.5yr4/0	7.5yr7/2	10r3/3	Oxidizing	3					
OR	2	30-40	73	1.48	3.67	4.16	3.915	0.378	24.23	13.9	1.74317	Body	N	N	N	N	Grit w/ Mica	Fine	5yr6/8	5yr6/6	5yr5/6	Oxidizing	3					
OR	2	30-40	74	2.68	7.47	3.56	5.515	0.4859	21.71	21.04	1.03184	Rim	Y	N	N	N	Grit w/ Coral	Coarse	10r3/4	10r4/6	2.5yr4/8	Oxidizing	3		Everted	Rounded		
OR	2	30-40	75	1.76	4.34	4.2	4.27	0.4122	19.46	17.18	1.13271	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	2	30-40	76	1.19	3.06	3.2	3.13	0.3802	23.95	15.07	1.58925	Body	N	Y	N	N	Grit w/ Mica	Fine	2.5yr5/8	2.5yr3/0	2.5yr4/8	Oxidizing	3					
OR	2	30-40	77	1.43	3.97	3.06	3.515	0.4068	21.65	14.67	1.4758	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	5yr6/4	5yr6/4	5yr5/6	Oxidizing	3					
OR	2	30-40	78	2	7.51	7.91	7.71	0.2594	19.58	13.23	1.47997	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr4/8	2.5yr4/8	2.5yr3/2	Oxidizing	3					
OR	2	30-40	79	1.05	3.96	4.11	4.035	0.2602	18.64	14.3	1.3035	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	30-40	80	1.37	3.36	3.53	3.445	0.3977	20.37	13.73	1.48361	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	7.5yr3/0	7.5yr3/0	10r3/4	Oxidizing	3					
OR	2	30-40	81	0.79	2.54	2.48	2.51	0.3147	18.72	15.92	1.17588	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	30-40	82	2.69	6.18	5.71	5.945	0.4525	19.44	18.07	1.07582	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr5/8	2.5yr5/8	2.5yr4/6	Oxidizing	3					
OR	2	30-40	83	2.28	5.77	5.42	5.595	0.4075	20.57	16.46	1.2497	Body	N	N	N	N	Grit w/ Sand	Fine	2.5yr6/8	2.5yr6/8	2.5yr6/8	Oxidizing	3					coating around sherd, more than just dirt
OR	2	30-40	84	1.75	6.22	6.26	6.24	0.2804	18.82	13.65	1.37875	Body	N	N	N	N	Grit w/ Coral	Coarse	10r3/6	10r3/6	10r3/6	Oxidizing	3					
OR	2	30-40	85	0.73	3.2	3.15	3.175	0.2299	14.55	13.67	1.06437	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr3/4	2.5yr3/4	2.5yr3/6	Oxidizing	3					
OR	2	30-40	86	1.55	4.46	3.86	4.16	0.3726	19.17	17.68	1.08428	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/6	10r4/6	10r4/6	Oxidizing	3					
OR	2	30-40	87	0.79	3.04	3.33	3.185	0.248	16.16	12.52	1.29073	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	5yr6/1	5yr5/4	5yr5/4	Reducing	3					
OR	2	30-40	88	0.77	4.25	4.12	4.185	0.184	18.03	8.77	2.05587	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	10r4/8	2.5yr3/6	Oxidizing	3					
OR	2	30-40	89	1.15	5.52	5.25	5.385	0.2136	17.12	11.54	1.48354	Body	N	N	N	N	Grit w/ Coral, Sand	Coarse	2.5yr4/6	2.5yr4/6	2.5yr4/6	Oxidizing	3					
OR	2	30-40	90	1.33	4.33	4.31	4.32	0.3079	18.9	15.77	1.19848	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	10r4/8	2.5yr4/8	Oxidizing	3					
OR	2	30-40	91	1.73	4.71	4.22	4.465	0.3875	22.17	15.17	1.46144	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr5/8	5yr3/1	10r4/8	Oxidizing	3					
OR	2	30-40	92	0.88	3.02	3.2	3.11	0.283	18.49	17.17	1.07688	Body	N	N	N	Incising	Grit w/ Mica	Fine	5yr6/4	5yr6/4	5yr6/4	Reducing	3	Parallel Incise				
OR	2	30-40	93	2.86	5.09	4.41	4.75	0.6021	29.07	16.06	1.81009	Body	N	N	N	Incising	Grit w/ Grog, Mica	Fine	5yr6/1	5yr7/4	5yr7/4	Reducing	3	Diagonal Hatch				3 II lines, 2 diagonal lines going up

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
OR	2	30-40	94	2.69	4.85	5.43	5.14	0.5233	25.55	16.04	1.59289	Body	N	N	N	Incising	Grit w/ Coral, Mica	Fine	5yr6/4	5yr6/4	5yr4/1	Oxidizing	3	Other Incise				2 II lines, 2 diagonal lines going up
OR	2	30-40	95	2.06	5.91	4.98	5.445	0.3783	18.05	16.64	1.08474	Rim	Y	N	N	Incising	Grit w/ Coral, Sand	Fine	10r4/8	10r4/6	10r4/8	Oxidizing	3	Parallel Incise	Everted	Flat		
OR	2	30-40	96	0.75	4.29	3.94	4.115	0.1823	15.53	11.52	1.34809	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/8	2.5yr3/0	2.5yr4/6	Reducing	3					
OR	2	30-40	97	1.15	4.73	4.99	4.86	0.2366	15.37	11.13	1.38095	Body	N	N	N	Incising	Grit w/ Coral, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3	Single Incise				
OR	2	30-40	98	0.48	3.89	3.95	3.92	0.1224	12.42	11.94	1.0402	Body	N	Y	N	N	Grit	Fine	10r5/8	10r5/8	10r4/6	Oxidizing	3					
OR	2	30-40	99	0.46	5.61	5.76	5.685	0.0809	10.52	7.99	1.31665	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr3/2	10r4/6	10r4/6	Reducing	3					
OR	2	40-50	1	7.32	7.08	6.26	6.67	1.0975	34.45	27.77	1.24055	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r5/8	10r5/3	10r4/1	Oxidizing	3					
OR	2	40-50	2	8.86	7.31	5.72	6.515	1.3599	40.42	32.26	1.25294	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	7.5yr6/6	7.5yr6/6	7.5yr6/6	Oxidizing	3					
OR	2	40-50	3	6.41	4.51	4.26	4.385	1.4618	44.75	24.2	1.84917	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	2	40-50	4	11.79	6.1	6.75	6.425	1.835	41.49	32.27	1.28571	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r3/6	10r5/8	10r3/6	Oxidizing	3					
OR	2	40-50	5	14.12	8.4	6.83	7.615	1.8542	47.83	28.39	1.68475	Body	N	N	N	N	Grit w/ Mica	Fine	5yr4/4	10r4/8	10r4/8	Oxidizing	3					
OR	2	40-50	6	5.23	5.37	5.17	5.27	0.9924	36.79	26.59	1.3836	Body	N	N	N	N	Grit w/ Coral, Mica, Sand	Fine	5yr4/3	5yr4/3	5yr4/3	Reducing	3					
OR	2	40-50	7	17.62	13.81	12.84	13.325	1.3223	39.61	37.07	1.06852	Neck	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr3/4	2.4yr4/8	2.5yr4/6	Oxidizing	3					
OR	2	40-50	8	20.04	11.03	11.86	11.445	1.751	59.95	40.66	1.47442	Body	N	N	N	N	Grit w/ Coral, Mica, Sand	Coarse	7.5yr3/0	10r4/8	10r4/8	Reducing	3					
OR	2	40-50	9	3.49	6.2	5.75	5.975	0.5841	31.1	20.68	1.50387	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr3/2	2.5yr4/8	2.5yr3/4	Oxidizing	3					
OR	2	40-50	10	3.84	5.8	3.18	4.49	0.8552	33.66	30.7	1.09642	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr4/8	2.5yr3/2	2.5yr3/0	Oxidizing	3					
OR	2	40-50	11	3.07	7.16	3.55	5.355	0.5733	27.18	19.47	1.39599	Body	N	N	N	N	Grit w/ Coral, Mica, Sand	Fine	2.5yr5/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	40-50	12	2.66	5.82	3.64	4.73	0.5624	24.47	19.53	1.25294	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	40-50	13	2.89	6.9	7.21	7.055	0.4096	24.69	17.65	1.39887	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r3/2	10r3/6	Oxidizing	3					
OR	2	40-50	14	1.78	5.44	4.07	4.755	0.3743	23.16	15.61	1.48366	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	2	40-50	15	1.54	5.65	5.69	5.67	0.2716	18.71	16.21	1.15423	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	7.5yr6/8	7.5yr6/8	7.5yr6/8	Oxidizing	3					crumbly, soft texture, abundant temper.
OR	2	40-50	16	10.78	9.13	2.99	6.06	1.7789	47.83	33.57	1.42478	Body	N	Y	N	N	Grit w/ Coral, Mica	Coarse	2.5yr5/8	2.5yr4/4	10r4/6	Oxidizing	3					
OR	2	40-50	17	2.67	5.53	4.71	5.12	0.5215	28.39	17.86	1.58959	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr6/8	2.5yr5/6	2.5yr5/4	Oxidizing	3					
OR	2	40-50	18	2.26	4.53	4.46	4.495	0.5028	27.65	19.64	1.40784	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr6/6	7.5r5/6	7.5r3/8	Oxidizing	3					
OR	2	40-50	19	2.41	3.5	3.26	3.38	0.713	33.04	23.32	1.41681	Body	N	N	N	N	Grit w/ Coral	Fine	5yr5/8	5yr5/8	5yr5/8	Oxidizing	3					
OR	2	40-50	20	4.05	4.18	3.33	3.755	1.0786	21.23	26.99	0.78659	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	7.5yr5/4	7.5yr5/4	7.5yr5/4	Oxidizing	3					
OR	2	40-50	21	12.85	9.42	5.85	7.635	1.683	47.24	29.23	1.61615	Rim	Y	Y	N	N	Grit w/ Coral	Coarse	10r3/4	10r4/6	10r4/8	Oxidizing	3		Everted	Rounded	L&S #3-Bowl	
OR	2	40-50	22	5.34	4.72	5.19	4.955	1.0777	28.63	25.46	1.12451	Rim	N	N	N	N	Grit w/ Coral	Fine	10r4/8	10r3/6	10r3/6	Oxidizing	3		Everted	Rounded		
OR	2	40-50	23	4.13	6.7	4.03	5.365	0.7698	26.97	23.42	1.15158	Body	N	N	N	N	Grit w/ Coral, Grog, Sand	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	40-50	24	4.81	9.14	8.64	8.89	0.5411	25.79	18.79	1.37254	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	5yr7/8	5yr7/8	5yr7/8	Oxidizing	3					
OR	2	40-50	25	2.89	5.12	5.31	5.215	0.5542	28.11	18.02	1.55993	Body	N	N	N	N	Grit w/ Coral, Mica, Sand	Fine	7.5yr6/8	5yr5/6	5yr6/8	Oxidizing	3					
OR	2	40-50	26	1.94	3.01	3.37	3.19	0.6082	22.47	22.5	0.99867	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r5/8	7.5r3/0	10r4/6	Oxidizing	3					
OR	2	40-50	27	5.87	8.35	7.4	7.875	0.7454	24.77	23.21	1.06721	Body	N	N	N	N	Grit w/ Mica, Shell	Fine	7.5yr7/4	7.5yr6/6	7.5yr3/0	Reducing	3					
OR	2	40-50	28	3.31	5.65	4.15	4.9	0.6755	34.02	22.29	1.52624	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr5/8	5yr5/8	5yr4/4	Oxidizing	3					
OR	2	40-50	29	2.44	4.69	4.7	4.695	0.5197	24.22	18.32	1.32205	Body	N	N	N	N	grit w/ mica	Coarse	2.5yr3/2	5yr5/4	5yr3/4	Oxidizing	3					
OR	2	40-50	30	4.74	6.21	5.8	6.005	0.7893	26.79	26.37	1.01593	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	2	40-50	31	5.38	6.77	5.57	6.17	0.1881	28.6	22.63	1.26381	Rim	Y	N	N	N	Grit w/ Coral, Mica	Fine	5yr6/4	10r4/6	7.5yr5/4	Oxidizing	3		Everted	Rounded		
OR	2	40-50	32	14.1	12.33	8.34	10.335	1.3643	41.52	38.52	1.07788	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	2	40-50	33	16.59	9.46	8.21	8.835	1.8778	40.9	31.71	1.28981	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	7.5yr4/6	10r4/8	Oxidizing	3					
OR	2	40-50	34	8.56	3.37	8.52	5.945	1.4399	35.68	30.88	1.15544	Body	Y	Y	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/6	10r4/8	Oxidizing	3					
OR	2	40-50	35	11.2	8.09	9.91	9	1.2444	33.63	28.78	1.16852	Body	Y	Y	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/6	10r4/8	Oxidizing	3					
OR	2	40-50	36	24.47	9.96	9.27	9.615	2.545	54.94	37.82	1.45267	Rim	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r3/4	10r4/8	10r4/8	Oxidizing	3		Everted	Flat		
OR	2	40-50	37	4.26	6.73	4.57	5.65	0.754	32.64	21.14	1.54399	Body	N	N	N	N	Grit w/ Coral, Mica, Sand	Fine	10r5/8	2.5yr5/8	2.5yr4/6	Oxidizing	3					
OR	2	40-50	38	18.25	11.48	9.66	10.57	1.7266	46.6	26.51	1.75783	Body	N	Y	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r3/4	10r4/8	10r4/6	Oxidizing	3					
OR	2	40-50	39	4.21	5.78	4.87	5.325	0.7906	29.41	23.2	1.26767	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	5yr6/8	5yr6/8	5yr6/8	Oxidizing	3					
OR	2	40-50	40	3.31	5.13	4.31	4.72	0.7013	32.17	23.69	1.35796	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr3/0	10r4/8	10r4/6	Reducing	3					
OR	2	40-50	41	5.62	6.03	6.67	6.35	0.885	32.28	23.48	1.37479	Body	N	N	N	Incising	Grit w/ Coral, Grog, Mica	Coarse	2.5yr4/8	2.5yr4/6	2.5yr4/4	Oxidizing	3	Parallel Incise				
OR	2	40-50	42	2.63	5.78	3.8	4.79	0.5491	21.48	18.72	1.14744	Rim	N	N	N	N	Grit w/ Coral, Grog, Mica	Fine	5yr4/1	5yr4/6	2.5yr4/0	Reducing	3		Inverted	Rounded		impress on rim
OR	2	40-50	43	5.89	5.96	6.05	6.005	0.9808	32.73	26.43	1.23837	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	7.5yr3/2	7.5yr3/0	7.5yr3/4	Oxidizing	3					
OR	2	40-50	44	3.62	7.02	6.03	6.525	0.5548	22.6	19.88	1.13682	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r5/8	5yr5/6	2.5yr5/8	Oxidizing	3					
OR	2	40-50	45	1.99	5.48	4.89	5.185	0.3838	21.02	18.56	1.13254	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	10r3/4	10r4/3	Oxidizing	3					
OR	2	40-50	46	1.6	4.93	4.19	4.56	0.3509	20.53	14.77	1.38998	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	40-50	47	0.75	2.83	2.55	2.69	0.2788	16.1	15.63	1.03007	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/8	2.5yr3/0	2.5yr4/6	Reducing	3					dirt (?) coating all around
OR	2	40-50	48	1.22	3.65	3.43	3.54	0.3446	19.31	15.37	1.25634	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	40-50	49	17.77	9.09	4.79	6.94	2.5605	41.53	28.75	1.44452	Base	Y	N	N	Incising	Grit w/ Coral, Mica	Coarse	5yr5/3	10r5/8	10r4/6	Oxidizing	3	Other Incise				base is black; chevrons incised on side
OR	2	40-50	50	2.38	5.83	5.47	5.65	0.4212	24.58	18.64	1.31867	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	10r3/3	5yr5/6	Oxidizing	3					dirt (?) coating all around
OR	2	40-50	51	2.01	4.83	4.12	4.475	0.4492	22.07	16.29	1.35482	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	7.5yr7/2	10r4/8	10r5/8	Reducing	3					
OR	2	40-50	52	1.15	4.19	4.09	4.14	0.2778	17.17	14.97	1.14696	Body	N	N	N	N	Grit w/ Coral	Fine	5yr6/8	2.5yr5/6	2.5yr5/8	Oxidizing	3					
OR	2	40-50	53	2.82	8.15	8.05	8.1	0.3481	17.48	17.92	0.97545	Body	N	N	N	N	Grit w/ Coral	Varies	10r4/6	10r4/8	5yr3/4	Oxidizing	3					
OR	2	40-50	54	2.73	5.31	7.03	6.17	0.4425	23.16	20.64	1.12209	Rim	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3		Everted	Rounded		
OR	2	40-50	55	1.36	3.86	3.62	3.74	0.3636	20.34	18.54	1.09709	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	2.5yr3/0	10r4/8	Oxidizing	3					
OR	2	40-50	56	1.29	4.74	4.52	4.63	0.2786	16.56	16.32	1.01471	Body	N	N	N	N	Grit w/ Coral, Grog	Fine	2.5yr5/8	2.5yr4/0	10r3/6	Oxidizing	3					
OR	2	40-50	57	3.78	6.71	4.53	5.62	0.6726	27.62	21.65	1.27575	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r5/8/8	5yr3/1	5yr4/4	Oxidizing	3					
OR	2	40-50	58	2.86	5.68	4.74	5.21	0.5489	22.24	21.31	1.04364	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	10r4/6	10r4/8	Oxidizing	3					
OR	2	40-50	59	1.61	3.46	3.54	3.5	0.46	19.63	18.03	1.08874	Body	N	N	N	Incising	Grit w/ Coral, Mica	Fine	2.5yr4/8	2.5yr3/4	2.5yr4/6	Oxidizing	3	Single Incise				
OR	2	40-50	60	4.33	7.63	6.17	6.9	0.6275	31.68	15.99	1.98124	Rim	Y	Y	Impress	Impress	Grit w/ Coral, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3	Impress on Rim	Straight	Rounded		impress on rim
OR	2	40-50	61	1.26	3.71	3.48	3.595	0.3505	18.73	17.06	1.09789	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	40-50	62	1.77	5.25	4.89	5.07	0.3491	22.36	15.57	1.4361	Body	N	N	N	N	Grit w/ Coral, Sand	Coarse	2.5yr5/8	10r3/4	2.5yr4/8	Oxidizing	3					
OR	2	40-50	63	2.33	4.58	4.72	4.65	0.5011	21.25	20.44	1.03963	Body	N	N	N	N	Grit w/ Coral, Lava	Coarse	7.5yr4/2	2.5yr5/8	2.5yr4/6	Oxidizing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
OR	2	40-50	64	1.46	4.56	4.17	4.365	0.3345	19.13	16.99	1.12596	Rim	N	N	N	N	Grit w/ Coral, Mica, Sand	Fine	10r4/8	2.5yr3/2	2.5yr3/6	Oxidizing	3		Everted	Flat		
OR	2	40-50	65	1.42	4.41	3.07	3.74	0.3797	19.3	17.18	1.1234	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr5/8	2.5yr5/8	5yr5/6	Oxidizing	3					
OR	2	40-50	66	1.6	4.41	4.23	4.32	0.3704	22.33	13.14	1.69939	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	5yr7/6	2.5yr5/8	7.5yr6/8	Oxidizing	3					
OR	2	40-50	67	12.32	10.54	10.13	10.335	1.1921	30.83	30.7	1.00423	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					coating on ext
OR	2	40-50	68	0.8	3.89	3.76	3.825	0.2092	17.82	11.13	1.60108	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r3/1	10r3/1	10r4/6	Oxidizing	3					
OR	2	40-50	69	2.5	8.31	5.31	6.81	0.3671	20.18	13.27	1.52072	Shoulder	Y	Y	N	Incising	Grit w/ Coral	Coarse	2.5yr3/6	2.5yr4/6	10r5/8	Oxidizing	3	Single Incise				
OR	2	40-50	70	3.38	3.29	2.82	3.055	1.1064	29.41	28.22	1.04217	Body	N	N	N	Incising	Grit w/ Coral, Mica	Fine	2.5yr5/8	10r4/4	5yr3/3	Oxidizing	3	Single Incise				
OR	2	40-50	71	10.71	7.72	6.73	7.225	1.4824	53.09	24.58	2.15989	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r3/4	10r4/6	10r4/8	Oxidizing	3					coating all around, hard to wash off.
OR	2	40-50	72	3.22	7.84	8.37	8.105	0.3973	20.91	16.64	1.25661	Body	N	N	N	N	Grit w/ Mica, Shell	Fine	7.5yr3/0	10r4/6	7.5yr3/0	Reducing	3					coating all around, hard to wash off.
OR	2	40-50	73	1.04	4.65	4.55	4.6	0.2261	20.95	10.4	2.01442	Body	N	N	N	N	Grit w/ Coral	Fine	10r5/8	10r5/8	7.5yr4/2	Oxidizing	3					
OR	2	40-50	74	1.35	4.3	4.08	4.19	0.3222	21.24	13.21	1.60787	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	5yr3/1	10r3/6	Oxidizing	3					
OR	2	40-50	75	5.56	10.43	9.04	9.735	0.5711	25.38	20.06	1.2652	Rim	Y	N	N	Incising	Grit w/ Coral, Grog, Mica	Coarse	10r5/8	10r4/6	10r5/8	Oxidizing	3	Diagonal Hatch	Inverted	Flat		diagonal lines coming down from rim
OR	2	40-50	76	1.78	4.39	4.62	4.505	0.3951	17.82	17.2	1.03605	Body	N	N	N	N	Grit w/ Mica	Fine	10r5/8	7.5yr4/6	7.5yr4/4	Oxidizing	3					
OR	2	40-50	77	1.95	6.03	6.2	6.115	0.3189	20.9	14.73	1.41887	Body	N	N	N	N	Grit w/ Coral, Grog	Fine	7.5r5/8	7.5r3/4	7.5r4/6	Oxidizing	3					
OR	2	40-50	78	0.86	4.43	4.55	4.49	0.1915	18.26	13.52	1.35059	Body	N	N	N	N	Grit w/ Shell	Fine	10r4/2	10r3/4	10r3/4	Reducing	3					
OR	2	40-50	79	0.84	3.52	4.2	3.86	0.2176	15.66	10.9	1.4367	Rim	N	Y	N	Impress	Grit w/ Coral, Mica	Fine	10r4/8	10r3/1	10r4/6	Oxidizing	3	Impress on Rim	Straight	Flat		
OR	2	40-50	80	1.34	4.29	3.71	4	0.335	19.4	13.85	1.40072	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	10r4/6	7.5r3/2	Oxidizing	3					
OR	2	40-50	81	2.59	4.96	4.58	4.77	0.543	22.76	18.27	1.24576	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	5yr5/8	5yr5/8	5yr5/8	Oxidizing	3					
OR	2	40-50	82	0.88	3.82	3.75	3.785	0.2325	16.39	15.8	1.03734	Body	N	N	N	N	Grit w/ Coral, Sand	Fine	5yr6/8	2.5yr5/8	5yr6/8	Oxidizing	3					
OR	2	40-50	83	1.33	4.22	4.18	4.2	0.3167	19.79	13.5	1.46593	Body	N	Y	N	N	Grit w/ Coral, Mica	Fine	2.5yr6/8	7.5r3/0	10r5/8	Oxidizing	3					
OR	2	40-50	84	1.64	6.23	5.99	6.11	0.2684	13.94	13.42	1.03875	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr3/4	2.5yr4/2	2.5yr4/2	Oxidizing	3					
OR	2	40-50	85	3.77	10.74	11.14	10.94	0.3446	22.74	12.5	1.8192	Body	N	N	N	N	Grit w/ Coral, Lava	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	40-50	86	0.39	2.88	2.74	2.81	0.1388	15.31	8.15	1.87853	Body	N	N	N	N	Grit w/ Coral	Fine	10r3/6	10r3/6	10r4/8	Oxidizing	3					
OR	2	40-50	87	2.97	5.36	7.15	6.255	0.4748	24.73	23.43	1.05548	Body	N	N	N	Incising	Grit w/ Coral, Mica	Coarse	5yr5/8	5yr5/8	5yr5/8	Oxidizing	3	Parallel Incise				
OR	2	40-50	88	7.2	5.71	6.68	6.195	1.1622	34.74	29.27	1.18688	Body	Y	Y	N	Incising	Grit w/ Coral, Grog, Mica	Coarse	2.5yr5/8	10r6/8	5yr5/6	Oxidizing	3	Chevron + Stamp				diamond grid w/ punctate circles w/in each diamond
OR	2	40-50	89	6.34	5.6	5.79	5.695	1.1133	41.11	26.17	1.57088	Body	N	N	N	Incising	Grit w/ Coral, Mica	Coarse	2.5yr5/8	2.5yr4/6	2.5yr4/2	Oxidizing	3	Diagonal Hatch				5 shallow incised lines, don't look parallel, but not enough to see what design is
OR	2	40-50	90	2.59	4.21	3.52	3.865	0.6701	30.92	20.36	1.51866	Body	N	N	N	Incising	Grit w/ Coral, Grog, Mica	Coarse	5yr6/8	5yr6/8	2.5yr5/6	Oxidizing	3	Diagonal Hatch				4 II lines, diagonals going down
OR	2	40-50	91	7.47	3.84	3.92	3.88	1.9253	47.7	33.85	1.40916	Body	N	N	N	Incising	Grit w/ Coral, Grog, Mica	Coarse	5yr6/8	2.5yr5/8	2.5yr5/8	Oxidizing	3	Diagonal Hatch				lines coming down. Same design as OR.2.40-50.Erw.90. Probably same pot. Also posssibly the same as OR.2.40-50.Erw.89
OR	2	40-50	92	7.47	3.84	3.92	3.88	1.9253	29.05	19.67	1.47687	Body	N	N	N	Incising	Grit w/ Coral, Grog, Mica	Coarse	5yr6/8	2.5yr5/8	2.5yr5/8	Oxidizing	3	Diagonal Hatch				same as OR.2.40-50.91
OR	2	40-50	93	7.47	3.84	3.92	3.88	1.9253	22.34	12.78	1.74804	Body	N	N	N	Incising	Grit w/ Coral, Grog, Mica	Coarse	5yr6/8	2.5yr5/8	2.5yr5/8	Oxidizing	3	Diagonal Hatch				same as OR.2.40-50.91
OR	2	50-60	1	15.53	8.53	7.48	8.005	1.94	42.38	40.61	1.04359	Body	Y	N	N	Incising	Grit w/ Coral, Lava	Coarse	10r5/8	10r4/8	7.5yr6/8	Oxidizing	3	Parallel Incise				2 II lines
OR	2	50-60	2	29.06	18.83	7.29	13.06	2.2251	39.11	38.33	1.02035	Rim	Y	Y	N	N	Grit w/ Coral, Lava	Coarse	10r5/8	10r4/8	10r4/8	Oxidizing	3		Inverted	Flat		firing clouds on int
OR	2	50-60	3	7.8	7.81	7.7	7.755	1.0058	30.57	28.88	1.05852	Rim	Y	Y	N	N	Grit w/ Coral, Lava, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3		Everted	Rounded		
OR	2	50-60	4	28.27	14.12	10.19	12.155	2.3258	54.8	40.7	1.34644	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	7.5r5/0	5yr6/8	7.5yr5/6	Reducing	3					
OR	2	50-60	5	10.32	5.67	4.22	4.945	2.087	42.86	34.72	1.23445	Body	N	N	N	N	Grit w/ Mica	Fine	7.5yr3/0	7.5yr6/2	7.5yr3/0	Reducing	3					
OR	2	50-60	6	11.26	5.03	5.87	5.45	2.0661	40.95	39.34	1.04093	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Fine	2.5yr5/8	2.5yr4/2	2.5yr4/6	Oxidizing	3					
OR	2	50-60	7	3.69	5.52	5.17	5.345	0.6904	35.9	18.24	1.9682	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	10r4/8	10r3/6	Oxidizing	3					
OR	2	50-60	8	2.79	5.87	5.54	5.705	0.489	21.56	20.9	1.03158	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	50-60	9	4.2	6.98	6.81	6.895	0.6091	30.03	20.45	1.46846	Body	N	N	N	N	Grit w/ Coral, Sand	Coarse	10r4/8	10yr3/1	10yr5/4	Oxidizing	3					
OR	2	50-60	10	4.93	4.98	5.12	5.05	0.9762	31.83	25.62	1.24239	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	7.5yr6/6	2.5yr6/8	5yr6/6	Oxidizing	3					
OR	2	50-60	11	8.53	5.57	4.44	5.005	1.7043	39.88	39.17	1.01813	Body	N	N	N	Incising	Grit w/ Coral	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3	Diagonal Hatch				2 II lines w/ diagonals (triangles?) coming
OR	2	50-60	12	2.23	5.3	4.11	4.705	0.474	35.81	14.43	2.48164	Body	N	N	N	N	Grit w/ Coral, Mica, Sand	Coarse	5yr6/8	5yr6/8	5yr6/8	Oxidizing	3					
OR	2	50-60	13	3.66	6.14	5.67	5.905	0.6198	26.64	17.85	1.49244	Body	N	N	N	N	Grit w/ Coral, Mica, Sand	Fine	2.5yr4/8	5yr4/4	5yr5/4	Oxidizing	3					
OR	2	50-60	14	1.16	4.15	3.91	4.03	0.2878	18.61	14.01	1.32834	Body	N	N	N	N	Grit w/ Coral, Mica, Sand	Fine	10r4/8	7.5r3/0	10r4/8	Oxidizing	3					
OR	2	50-60	15	3.37	3.93	3.34	3.635	0.9271	32.02	22.69	1.41119	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	5yr5/8	5yr5/8	5yr4/4	Oxidizing	3					
OR	2	50-60	16	3.83	6.23	5.88	6.055	0.6325	35.03	14.83	2.3621	Body	N	N	N	Incising	Grit w/ Coral, Grog, Mica	Coarse	2.5yr6/8	2.5yr5/4	2.5yr4/2	Oxidizing	3	Diagonal Hatch				firing clouds on int
OR	2	50-60	17	8.28	6.5	6.04	6.27	1.3206	33.76	30.49	1.10725	Body	Y	N	N	N	Grit w/ Coral	Coarse	10r3/3	10r4/6	10r4/8	Oxidizing	3					firing clouds on ext
OR	2	50-60	18	6.46	4.23	4.45	4.34	1.4885	39.82	28.32	1.40607	Body	N	N	N	Incising	Grit w/ Coral, Mica	Coarse	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3	Single Incise				
OR	2	50-60	19	9.13	7.85	5.69	6.77	1.3486	46.92	35.46	1.32318	Body	Y	N	N	Incising	Grit w/ Coral, Mica	Fine	5yr7/3	10r4/6	2.5yr6/2	Reducing	3	Diagonal Hatch				4 radiating lines
OR	2	50-60	20	8.68	11.3	8.81	10.055	0.8633	35.06	32.84	1.0676	Body	Y	N	N	N	Grit w/ Coral	Varies	7.5yr5/0	10r4/6	5yr7/8	Reducing	3					
OR	2	50-60	21	4.74	3.74	2.97	3.355	1.4128	35.19	27.84	1.26401	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	7.5yr3/0	10yr4/3	10yr3/1	Reducing	3					
OR	2	50-60	22	4.31	6.29	5.59	5.94	0.7256	25.24	21.83	1.15621	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr4/8	2.5yr3/6	2.5yr4/8	Oxidizing	3					
OR	2	50-60	23	6.03	7.54	6.89	7.215	0.8358	26.34	25.28	1.04193	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	2	50-60	24	2.65	3.8	2.99	3.395	0.7806	27.89	26.14	1.06695	Body	N	N	N	Incising	Grit w/ Coral, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3	Diagonal Hatch				1 straight line w/ 4 nesting triangles beneath
OR	2	50-60	25	5.84	6.78	7.26	7.02	0.8319	35.7	21.05	1.69596	Body	Y	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	10r4/8	10r4/6	10r4/8	Oxidizing	3					
OR	2	50-60	26	3.37	5.03	4.22	4.625	0.7286	31.07	23.69	1.31152	Body	Y	N	N	N	Grit	Fine	2.5yr6/0	10r6/8	10yr7/3	Reducing	3					stoneware? Seems harder than others and a bit odd comparatively
OR	2	50-60	27	6.8	9.47	5.45	7.46	0.9115	30.2	27.12	1.11357	Body	N	N	N	N	Grit w/ Coral	Coarse	5yr6/6	5yr6/6	5yr6/8	Oxidizing	3					
OR	2	50-60	28	3.24	5.05	5.19	5.12	0.6328	28.64	19.24	1.48857	Body	N	N	N	N	Grit w/ Coral, Sand	Fine	10r4/8	5yr3/3	5yr3/3	Oxidizing	3					
OR	2	50-60	29	2.55	4.3	3.77	4.035	0.632	26.23	20.96	1.25143	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	5yr3/1	10r4/8	Oxidizing	3					
OR	2	50-60	30	2.08	3.95	3.81	3.88	0.5361	28.19	15.89	1.77407	Body	N	N	N	N	Grit w/ Coral, Mica, Sand	Coarse	10r4/8	10r4/8	10yr5/4	Oxidizing	3					
OR	2	50-60	31	3.22	5.49	5.94	5.715	0.5634	23.89	19.66	1.21516	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/6	10r4/8	Oxidizing	3					
OR	2	50-60	32	4.16	5.18	5.08	5.13	0.8109	26.79	21.83	1.22721	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr3/4	5yr2.5/2	2.5yr3/6	Oxidizing	3					
OR	2	50-60	33	4.5	8.77	9.12	8.945	0.5031	22.89	22.38	1.02279	Body	N	N	N	N	Grit w/ Coral, Grog, Sand	Fine	5yr5/1	5yr6/4	5yr6/4	Reducing	3					
OR	2	50-60	34	2.56	6.96	4.77	5.865	0.4365	24.43	15.74	1.5521	Rim	Y	Y	N	N	Grit w/ Coral, Lava	Coarse	10r4/8	10r4/6	10r4/6	Oxidizing	3		Everted	Rounded		
OR	2	50-60	35	2.03	4.75	5.23	4.99	0.4068	23.12	15.29	1.5121	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr5/8	2.5yr4/6	10r4/8	Oxidizing	3					
OR	2	50-60	36	1.04	4.25	4.53	4.39	0.2369	18.25	11.06	1.65009	Body	N	N	N	N	Grit w/ Coral	Coarse	10r5/8	10r4/8	2.5yr5/8	Oxidizing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
OR	2	50-60	37	1.68	5.39	5.18	5.285	0.3179	19.61	17.22	1.13879	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	2					abundant temper, crumbly texture
OR	2	50-60	38	1.83	6.57	4.69	5.63	0.325	20.79	16.72	1.24342	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	2					abundant temper, crumbly texture
OR	2	50-60	39	3.24	7.46	7.64	7.55	0.4291	23.11	18.95	1.21953	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	2					abundant temper, crumbly texture
OR	2	50-60	40	3.8	7.76	5.48	6.62	0.574	32.15	16.31	1.97118	Shoulder	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	5yr3/4	10r4/8	10r4/8	Oxidizing	2					abundant temper, crumbly texture. 2 bits glued together
OR	2	50-60	41	3.6	7.46	5.8	6.63	0.543	27	14.53	1.85822	Shoulder	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	5yr3/4	10r4/8	10r4/8	Oxidizing	2					abundant temper, crumbly texture. 2 bits glued together
OR	2	50-60	42	7.97	8.61	8.02	8.315	0.9585	32.12	26.49	1.21253	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	5yr3/4	10r4/8	10r4/8	Oxidizing	2					abundant temper, crumbly texture
OR	2	50-60	43	3.27	8.36	7.6	7.98	0.4098	23.63	16.11	1.46679	Rim	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	10r3/6	10r4/8	10r4/8	Oxidizing	2		Everted	Flat		abundant temper, crumbly texture
OR	2	50-60	44	0.98	4.64	4.71	4.675	0.2096	16.77	14.44	1.16136	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	10r3/6	10r4/8	10r4/8	Oxidizing	2					abundant temper, crumbly texture
OR	2	50-60	45	3.23	5.51	3.37	4.44	0.7275	25.87	20.58	1.25705	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	2.5yr4/6	2.5yr4/6	2.5yr4/6	Oxidizing	2					abundant temper, crumbly texture
OR	2	50-60	46	2.72	6.35	5.32	5.835	0.4662	18.67	20.47	0.91207	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	10r3/4	10r4/8	10r3/4	Oxidizing	2					abundant temper, crumbly texture
OR	2	50-60	47	1.43	4.86	3.58	4.22	0.3389	17.84	15.36	1.16146	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	10r3/4	10r5/6	10r3/4	Oxidizing	2					abundant temper, crumbly texture
OR	2	50-60	48	3.14	4.1	5.23	4.665	0.6731	23.42	21.41	1.09388	Shoulder	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	5yr5/8	10yr5/4	2.5yr3/0	Reducing	3					
OR	2	50-60	49	0.82	3.65	3.3	3.475	0.236	14.91	13.06	1.14165	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr6/6	2.5yr6/6	2.5yr6/6	Oxidizing	3					coating all around
OR	2	50-60	50	3.21	7.48	3.56	5.52	0.5815	30.34	25.07	1.21021	Body	Y	Y	N	N	Grit w/ Coral	Coarse	10r5/8	10r4/6	2.5yr5/8	Oxidizing	3					one end much thinker than the other, mungkin shoulder/ neck? Transition b/w thick part and thin part.
OR	2	50-60	51	2.04	4.73	3.73	4.23	0.4823	24.61	20.51	1.1999	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	2	50-60	52	3.59	5.92	5.83	5.875	0.6111	30.56	18.48	1.65368	Body	N	N	N	N	Grit w/ Grog, Mica, Sand	Fine	10r5/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	50-60	53	3.72	7.13	5.33	6.23	0.5971	25.08	19.74	1.27052	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/6	2.5yr3/0	10r4/8	Oxidizing	3					
OR	2	50-60	54	1.78	5.4	3.68	4.54	0.3921	24.82	16.98	1.46172	Body	N	N	N	Incising	Grit w/ Coral	Fine	10r5/8	2.5yr5/8	10r5/8	Oxidizing	3	Single Incise				
OR	2	50-60	55	1.52	6.35	5.42	5.885	0.2583	26.14	10.56	2.47538	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	2.5yr6/8	2.5yr6/8	2.5yr3/2	Oxidizing	3					
OR	2	50-60	56	2.25	5.69	5.14	5.415	0.4155	26.63	19.99	1.33217	Body	N	N	N	N	Grit w/ Coral, Grog, Sand	Fine	2.5yr6/8	2.5yr5/8	5yr6/6	Oxidizing	3					
OR	2	50-60	57	3.47	5.79	5.99	5.89	0.5891	31.73	19.74	1.6074	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Fine	2.5yr5/8	2.5yr3/2	2.5yr6/8	Oxidizing	3					
OR	2	50-60	58	2.87	5.01	4.95	4.98	0.5763	24.33	22.76	1.06898	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr4/8	2.5yr3/0	2.5yr3/2	Oxidizing	3					
OR	2	50-60	59	3.34	5.57	5.72	5.645	0.5917	24.79	21.6	1.14769	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr4/8	2.5yr4/8	2.5yr3/6	Oxidizing	3					
OR	2	50-60	60	2.27	5.59	5.13	5.36	0.4235	25.04	17.88	1.40045	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr4//8	5yr3/3	5yr4/6	Oxidizing	3					
OR	2	50-60	61	0.85	3.29	3.13	3.21	0.2648	14.96	14.09	1.06175	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	5yr6/6	5yr6/8	5yr6/6	Oxidizing	3					
OR	2	50-60	62	1.79	3.83	4.22	4.025	0.4447	30.6	15.86	1.92938	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Fine	5yr6/8	5yr6/6	5yr6/6	Oxidizing	3					
OR	2	50-60	63	2.62	5.05	4.59	4.82	0.5436	22.7	20.06	1.13161	Body	N	N	N	N	Grit w/ Mica	Fine	5yr6/6	5yr6/6	5yr6/8	Oxidizing	3					
OR	2	50-60	64	2.22	4.72	3.99	4.355	0.5098	20.42	19.58	1.0429	Body	N	N	N	N	Grit w/ Lava, Mica	Coarse	7.5yr5/8	7.5yr5/2	7.5yr5/8	Oxidizing	3					
OR	2	50-60	65	1.85	4.27	3.66	3.965	0.4666	21.49	17.17	1.2516	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	2	50-60	66	1.56	4.13	4.24	4.185	0.3728	27.13	16.08	1.68719	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	5yr6/8	5yr6/8	5yr6/8	Oxidizing	3					
OR	2	50-60	67	2.02	5.23	5.3	5.265	0.3837	18.49	18.46	1.00163	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	2.5yr5/4	2.5yr4/4	5yr4/3	Oxidizing	3					
OR	2	50-60	68	3.04	7.15	6.94	7.045	0.4315	23.69	17.96	1.31904	Body	N	N	N	N	Grit w/ Coral, Mica, Sand	Fine	5yr6/8	5yr3/2	2.5yr3/4	Oxidizing	3					
OR	2	50-60	69	2.58	5.03	5.53	5.28	0.4886	21.03	16.78	1.25328	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	2.5yr3/0	2.5yr3/0	2.5yr5/8	Reducing	3					
OR	2	50-60	70	1.84	3.75	3.49	3.62	0.5083	21.05	18.03	1.1675	Body	N	N	N	N	grit w/ mica	Coarse	2.5yr3/2	2.5yr4/8	2.5yr3/2	Oxidizing	3					
OR	2	50-60	71	1.47	3.99	4.12	4.055	0.3625	19.44	14.18	1.37094	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	2.5yr3/6	5yr3/3	10r3/4	Oxidizing	3					
OR	2	50-60	72	2.43	4.54	4.9	4.72	0.5148	19.43	18.86	1.03022	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r5/8	10r4/8	10r4/6	Oxidizing	3					
OR	2	50-60	73	4.21	7.17	6.26	6.715	0.627	21.92	21.27	1.03056	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r4/8	2.5yr4/6	10r4/8	Oxidizing	3					
OR	2	50-60	74	2.56	5.06	5.25	5.155	0.4966	21	20.54	1.0224	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	2					abundant temper, crumbly texture
OR	2	50-60	75	2.45	4.23	4.67	4.45	0.5506	21.36	17.15	1.24548	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	10r4/6	2.5yr5/8	Oxidizing	3					
OR	2	50-60	76	1.42	4.56	3.8	4.18	0.3397	21.27	15.18	1.40119	Rim	Y	Y	N	N	Grit w/ Coral	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3		Inverted	Rounded		
OR	2	50-60	77	1.17	4.66	4.56	4.61	0.2538	20.74	11.73	1.76812	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					coating all around
OR	2	50-60	78	1.16	4.02	3.54	3.78	0.3069	19.03	15.44	1.23251	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr5/8	2.5yr5/8	7.5yr6/8	Oxidizing	3					
OR	2	50-60	79	1.84	6.37	6.32	6.345	0.29	19.74	17.1	1.15439	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	5yr5/1	10r5/8	10r5/8	Reducing	3					crumbly, but different type than 37-42
OR	2	50-60	80	1.68	4.95	4.09	4.52	0.3717	20.3	13.36	1.51946	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr3/0	2.5yr3/0	2.5yr5/8	Reducing	3					
OR	2	50-60	81	3.3	4.78	3.92	4.35	0.7586	29.36	22.79	1.28828	Body	N	N	N	Incising	Grit w/ Lava, Mica	Fine	2.5yr3/0	2.5yr3/0	2.5yr5/8	Reducing	3	Single Incise				
OR	2	50-60	82	0.84	4	3.3	3.65	0.2301	14.55	12.66	1.14929	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr5/8	2.5yr5/8	2.5yr4/8	Oxidizing	3					
OR	2	50-60	83	0.61	4.5	4.27	4.385	0.1391	11.35	11.5	0.98696	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	5yr5/8	2.5yr3/0	5yr6/6	Oxidizing	3					
OR	2	50-60	84	1.05	3.4	3.37	3.385	0.3102	19.69	15.12	1.30225	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	2.5yr3/0	10r4/8	Oxidizing	3					
OR	2	50-60	85	4.31	5.8	4.77	5.285	0.8155	27.37	26.6	1.02895	Body	N	N	N	Incising	Grit w/ Coral, Mica	Coarse	5yr6/8	5yr6/8	5yr5/3	Oxidizing	3	Incise-Nested Squares				nested chevrons?
OR	2	50-60	86	0.61	2.41	2.31	2.36	0.2585	17.12	11.02	1.55354	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr4/8	2.5yr4/4	2.5yr4/8	Oxidizing	3					
OR	2	50-60	87	0.83	3.92	3.75	3.835	0.2164	16.73	11.17	1.49776	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	5yr4/4	5yr4/4	5yr4/4	Oxidizing	3					
OR	2	50-60	88	0.95	4.02	3.84	3.93	0.2417	18.12	12.3	1.47317	Body	N	N	N	N	Grit w/ Coral	Fine	7.5yr6/8	7.5yr6/8	7.5yr6/8	Oxidizing	3					
OR	2	50-60	89	1.33	5.41	5.31	5.36	0.2481	17.85	11.01	1.62125	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr3/0	2.5yr3/0	2.5yr3/0	Reducing	3					
OR	2	50-60	90	6.5	6.65	5.32	5.985	1.086	38.43	24.11	1.59394	Body	N	N	N	Incising	Grit w/ Coral, Grog, Mica	Coarse	7.5yr6/6	7.5yr6/6	7.5yr6/6	Oxidizing	3	Other Incise				leaves incised
OR	2	50-60	91	2.59	5.29	5.84	5.565	0.4654	25.18	17.18	1.46566	Body	N	N	N	Incising	Grit w/ Coral, Grog, Mica	Coarse	7.5yr6/6	7.5yr6/6	7.5yr6/6	Oxidizing	3	Diagonal Hatch				horiz line, chevron above. Same type as OR.2.50-60.90
OR	2	50-60	92	0.82	3.51	3.82	3.665	0.2237	16.61	11.93	1.39229	Body	N	N	N	N	Grit w/ Mica	Fine	5yr6/6	7.5yr6/4	2.5yr4/8	Oxidizing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
OR	2	50-60	93	1.26	3.4	2.92	3.16	0.3987	21.18	19.81	1.06916	Body	N	N	N	Incising	Grit w/ Coral	Coarse	5yr3/1	5yr5/6	10r4/8	Reducing	3	Parrallel Incise				2 II lines
OR	2	50-60	94	1.92	4.15	4.06	4.105	0.4677	20.7	18.42	1.12378	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	5yr6/8	5yr6/8	5yr6/8	Oxidizing	3					
OR	2	50-60	95	1.18	4.57	4.35	4.46	0.2646	14.9	13.62	1.09398	Body	N	Y	N	N	Grit w/ Coral, Mica	Fine	2.5yr3/0	10r4/8	10r4/8	Oxidizing	3					
OR	2	50-60	96	1.11	3.84	3.72	3.78	0.2937	17.87	17.27	1.03474	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr4/8	7.5yr4/4	10r4/8	Oxidizing	3					
OR	2	50-60	97	1.21	3.43	2.98	3.205	0.3775	17.51	16.42	1.06638	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10yr5/1	2.5yr3/0	10yr6/4	Reducing	3					
OR	2	50-60	98	0.93	3.13	2.96	3.045	0.3054	21.56	13.5	1.59704	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	7.5yr4/0	7.5yr4/2	2.5yr3/0	Reducing	3					
OR	2	50-60	99	0.52	3.97	4.07	4.02	0.1294	13.92	9.2	1.51304	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	5yr6/8	5yr6/8	5yr6/8	Oxidizing	3					
OR	2	50-60	100	0.57	3.22	3.17	3.195	0.1784	15.24	10.47	1.45559	Body	N	N	N	N	Grit	Fine	10yr5/3	10yr5/3	10yr5/3	Oxidizing	3					
OR	2	50-60	101	0.89	4.32	4.42	4.37	0.2037	18.07	10.72	1.68563	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	5yr6/8	5yr6/8	5yr6/8	Oxidizing	3					
OR	2	50-60	102	0.43	2.82	2.7	2.76	0.1558	15.15	8.7	1.74138	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr5/8	5yr5/8	7.5yr5/4	Oxidizing	3					
OR	2	50-60	103	1.83	8.04	6.73	7.385	0.2478	21.34	11.76	1.81463	Rim	N	N	Incising	Incising	Grit w/ Coral, Mica	Coarse	7.5yr7/0	10r5/8	10r5/8	Reducing	3	Parallel Incise	Straight	Rounded		2 II lines beneath rim on int and ext
OR	2	50-60	104	1.06	3.63	3.89	3.76	0.2819	15.66	13.02	1.20276	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr3/0	2.5yr3/0	2.5yr3/0	Reducing	3					coating all around
OR	2	50-60	105	1.67	5.07	5.16	5.115	0.3265	22.64	13.02	1.73886	Body	N	N	N	N	Grit w/ Mica	Fine	5yr6/8	10yr5/3	5yr5/4	Oxidizing	3					
OR	2	50-60	106	1.76	5.4	5.14	5.27	0.334	22.75	13.17	1.72741	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Fine	7.5yr6/6	7.5yr6/6	7.5yr6/6	Oxidizing	3					
OR	2	50-60	107	1.36	3.41	3.3	3.355	0.4054	18.69	17.37	1.07599	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r4/8	10r4/8	10r5/8	Oxidizing	3					
OR	2	50-60	108	0.58	2.88	2.8	2.84	0.2042	15.83	15.18	1.04282	Body	N	N	N	N	Grit w/ Coral	Fine	7.5yr5/4	7.5yr5/4	7.5yr5/4	Oxidizing	3					coating all around
OR	2	50-60	109	1.09	4.11	4.41	4.26	0.2559	16.77	13.4	1.25149	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	10r4/6	2.5yr3/0	10r4/8	Oxidizing	3					
OR	2	50-60	110	1.69	4.66	4.58	4.62	0.3658	18.91	16.34	1.15728	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	50-60	111	1.2	4.55	4.61	4.58	0.262	16.25	15.35	1.05863	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	10r4/6	2.5yr3/0	10r4/8	Oxidizing	3					same as 109
OR	2	50-60	112	0.64	3.47	3.11	3.29	0.1945	15.24	11.9	1.28067	Body	N	N	N	Incising	Grit w/ Coral, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3	Single Incise				
OR	2	50-60	113	0.46	2.08	2.1	2.09	0.2201	16.74	13.18	1.27011	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr4/6	2.5yr4/8	2.5yr3/0	Oxidizing	3					
OR	2	50-60	114	1.08	8.02	8.46	8.24	0.1311	12.92	11.77	1.09771	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr4/2	10r5/8	10r5/8	Reducing	3					
OR	2	50-60	115	1.17	6.11	6.21	6.16	0.1899	17.46	14.85	1.17576	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	2	50-60	116	0.5	4.21	4.26	4.235	0.1181	11.71	11.49	1.01915	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r5/8	Oxidizing	3					
OR	2	50-60	117	2.54								Bits																bits
OR	2	60-70	1	1.58	2.56	2.45	2.505	0.6307	27.1	19.55	1.38619	Body	N	N	N	N	Grit	Fine	10r4/4	2.5yr3/0	2.5yr4/6	Oxidizing	3					coating all around
OR	2	60-70	2	9.23	5.36	4.14	4.75	1.9432	36.54	34.78	1.0506	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r3/6	10r4/8	10r4/6	Oxidizing	3					
OR	2	60-70	3	0.7	2.87	2.46	2.665	0.2627	15.51	13.68	1.13377	Body	N	N	Charred	N	Grit w/ Coral	Fine	5yr4/6	10r3/6	2.5yr3/4	Oxidizing	3					
OR	2	60-70	4	1.56	3.42	2.97	3.195	0.4883	24.31	18.16	1.33866	Body	N	N	N	N	Grit w/ Coral	Fine	5yr6/8	5yr6/8	7.5yr5/4	Oxidizing	3					coating all around
OR	2	60-70	5	0.81	2.5	2.53	2.515	0.3221	19.05	16.36	1.16443	Body	N	N	N	Incising	Grit w/ Coral, Mica	Fine	2.5yr5/6	2.5yr5/6	7.5yr4/6	Oxidizing	3	Parallel Incise				firing clouds
OR	2	60-70	6	4.03	5.77	5.87	5.82	0.6924	33.67	23.91	1.4082	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	10yr6/3	2.5yr5/8	Oxidizing	3					
OR	2	60-70	7	2.7	10.78	12.14	11.46	0.2356	20.77	17.18	1.20896	Body	N	N	N	Incising	Grit w/ Coral	Coarse	2.5yr4/4	2.5yr3/2	2.5yr5/4	Oxidizing	3	Other Incise				very crumbly, thick
OR	2	60-70	8	1.12	4.54	4.48	4.51	0.2483	20.3	14.07	1.44279	Body	N	N	N	Incising	Grit w/ Coral, Mica	Fine	10r6/6	10r6/6	10r6/6	Oxidizing	3	Parallel Incise				2 II lines
OR	2	60-70	9	1.91	4.28	4.02	4.15	0.4602	24.56	19.75	1.24354	Shoulder	N	N	N	Incising	Grit w/ Mica	Fine	2.5yr5/6	2.5yr5/6	2.5yr5/6	Oxidizing	3	Single Incise				// lines
OR	2	60-70	10	2.67	4.65	4.06	4.355	0.6131	24.63	21.15	1.16454	Body	N	N	N	N	Grit w/ Coral	Coarse	10r3/2	5yr3/1	10r3/2	Oxidizing	3					ext half of sherd is oxi, int hald is reducing, meets in the middle
OR	2	60-70	11	5.8	5.63	5.79	5.71	1.0158	32.3	27.27	1.18445	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					coating all around, but mostly washed off on
OR	2	60-70	12	8.78	6	5.21	5.605	1.5665	36.3	33.32	1.08944	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	10r4/8	2.5yr3/4	Oxidizing	3					coating all around, but mostly washed off on
OR	2	60-70	13	5.34	5.84	5.89	5.865	0.9105	31.79	22.8	1.3943	Body	N	N	N	Incising	Grit w/ Coral, Grog, Mica	Coarse	10r5/6	10r5/6	10r5/6	Oxidizing	3	Chevron + Stamp				incised diamonds w/ punctate circles in the middle
OR	2	60-70	14	3.46	6.88	5.93	6.405	0.5402	21.35	20.42	1.04554	Rim	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3		Everted	Damaged		
OR	2	60-70	15	7.42	3.36	6.83	5.095	1.4563	31.63	29.02	1.08994	Rim	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3		Everted	Rounded		
OR	2	60-70	16	0.6	4.44	3.87	4.155	0.1444	15.16	12.09	1.25393	Body	N	N	N	Incising	Grit w/ Coral	Coarse	10r4/8	10r4/8	2.5yr5/4	Oxidizing	3	Diagonal Hatch				Crumbly, thick. Int is sloughed off, only core left; 2 II lines incised. Same as 17, 20
OR	2	60-70	17	2.2	4.83	5.04	4.935	0.4458	26.53	16.95	1.56519	Body	N	N	N	Incising	Grit w/ Coral	Coarse	2.5yr3/0	2.5yr4/6	2.5yr5/4	Reducing	3	Diagonal Hatch				Crumbly, thin. 1 straight line, 1 / line incised, same as 16, 20
OR	2	60-70	18	0.62	5.16	5.1	5.13	0.1209	13.57	12.17	1.11504	Body	N	N	N	N	Grit w/ Coral	Coarse	5yr4/4	5yr4/4	5yr4/2	Oxidizing	2					int is sloughed off, only core left
OR	2	60-70	19	1.46	7.29	5.58	6.435	0.2269	19.68	14.94	1.31727	Body	N	N	N	N	Grit w/ Coral	Coarse	5yr4/3	5yr4/3	5yr4/3	Oxidizing	2					int is sloughed off, only core left
OR	2	60-70	20	1.02	4.9	5.26	5.08	0.2008	13.58	13.53	1.0037	Body	N	N	N	Incising	Grit w/ Coral	Coarse	2.5yr3/0	2.5yr5/4	2.5yr5/4	Reducing	3	Parallel Incise				2 II lines incised. Same as 16, 17
OR	2	60-70	21	4.57	8.41	7.64	8.025	0.5695	31.87	21.17	1.50543	Neck	Y	Y	N	N	Grit w/ Coral, Mica	Coarse	2.5yr6/8	2.5yr6/6	2.5yr6/6	Oxidizing	3					
OR	2	60-70	22	3.69	4.17	5.09	4.63	0.797	26.83	24.56	1.09243	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	10yr3/1	10r4/8	Oxidizing	3					
OR	2	60-70	23	2.33	4.83	3.89	4.36	0.5344	23.92	19.77	1.20991	Body	Y	Y	N	N	Grit w/ Coral, Lava, Mica, Sand	Fine	10r4/8	10r4/8	2.5yr3/2	Oxidizing	3					feels high fired, but not harder than others…
OR	2	60-70	24	1.11	3.51	4.65	4.08	0.2721	17.37	15.44	1.125	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r5/8	10r4/3	10r5/8	Oxidizing	3					
OR	2	60-70	25	8.46	8.29	8.71	8.5	0.9953	33.93	29.37	1.15526	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	2	60-70	26	4.67	5.15	4.7	4.925	0.9482	34.6	21.25	1.62824	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Fine	2.5yr5/8	7.5yr7/8	2.5yr5/8	Oxidizing	3					
OR	2	60-70	27	8.12	7.35	7.4	7.375	1.101	41.48	25.57	1.62221	Body	N	N	N	Incising	Grit w/ Coral, Grog, Lava, Mica	Coarse	2.5yr5/4	2.5yr5/8	2.5yr5/4	Oxidizing	3	Parallel Incise				
OR	2	60-70	28	6.14	6.25	4.38	5.315	1.1552	34.47	32.21	1.07016	Body	N	N	N	Incising	Grit w/ Coral, Grog, Mica	Coarse	5yr3/1	5yr3/1	5yr3/1	Reducing	3	Other Incise				incised chevrons, firing clouds
OR	2	60-70	29	3.98	5.21	5.13	5.17	0.7698	32.22	20.73	1.55427	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr5/6	2.5yr5/6	7.5yr3/2	Oxidizing	3					firing clouds
OR	2	60-70	30	1.8	4.42	4.69	4.555	0.3952	21.67	17.43	1.24326	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Fine	10r4/8	2.5yr3/0	10r4/8	Oxidizing	3					
OR	2	60-70	31	2.36	5.47	4.46	4.965	0.4753	28.26	16.63	1.69934	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr6/6	2.5yr6/6	2.5yr5/6	Oxidizing	3					
OR	2	60-70	32	1.07	2.78	2.43	2.605	0.4107	20.33	17.46	1.16438	Body	N	N	Charred	N	Grit w/ Coral, Mica	Fine	10r5/8	2.5yr3/0	10r5/8	Oxidizing	3					coating all around, hard to see surface of
OR	2	60-70	33	2.01	5.88	5.15	5.515	0.3645	17.32	17.12	1.01168	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r5/8	10r3/2	10r5/8	Oxidizing	3					
OR	2	60-70	34	1.28	5.41	5.36	5.385	0.2377	16.28	15.49	1.051	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	5yr6/8	5yr6/8	5yr6/8	Oxidizing	3					
OR	2	60-70	35	1.36	3.36	2.8	3.08	0.4416	20.55	15.73	1.30642	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr6/8	2.5yr6/8	2.5yr6/8	Oxidizing	3					
OR	2	60-70	36	3.69	7.21	6.75	6.98	0.5287	24.79	18.57	1.33495	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	5yr5/6	5yr5/6	2.5yr4/0	Oxidizing	3					firing clouds
OR	2	60-70	37	2.37	5.45	4.52	4.985	0.4754	20.52	18.21	1.12685	Body	N	N	N	Incising	Grit w/ Coral, Mica	Coarse	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3	Parallel Incise				
OR	2	60-70	38	2.27	5.77	5.61	5.69	0.3989	19.25	19	1.01316	Body	N	N	N	N	Grit w/ Coral, Lava	Fine	2.5yr6/8	2.5yr3/0	2.5yr6/8	Oxidizing	3					
OR	2	60-70	39	0.75	3.37	3.44	3.405	0.2203	18.23	12.44	1.46543	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	5yr6/8	5yr6/8	5yr6/8	Oxidizing	3					
OR	2	60-70	40	2.72	5.04	4.84	4.94	0.5506	23.43	19.93	1.17561	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Fine	2.5yr5/6	2.5yr5/6	5yr4/3	Oxidizing	3					
OR	2	60-70	41	1.81	5.4	4.88	5.14	0.3521	17.56	15.64	1.12276	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r5/8	2.5yr3/0	10r5/8	Oxidizing	3					coating all around, hard to see surface
OR	2	60-70	42	2.57	5.12	4.4	4.76	0.5399	22.87	20.21	1.13162	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r5/8	5yr5/4	10r3/6	Oxidizing	3					firing clouds
OR	2	60-70	43	0.63	2.77	2.87	2.82	0.2234	13.38	13.22	1.0121	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	5yr6/8	5yr6/8	5yr6/8	Oxidizing	3					
OR	2	60-70	44	0.73	3.63	3.27	3.45	0.2116	19.92	10.49	1.89895	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
OR	2	60-70	45	1.07	3.22	3.47	3.345	0.3199	16.63	16.18	1.02781	Body	N	N	Charred	N	Grit w/ Mica, Sand	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
OR	2	60-70	46	0.91			0	#DIV/0!				Bits																
OR	2	70-80	1	6.85	5.77	4.92	5.345	1.2816	38.41	32.75	1.17282	Body	N	N	Charred	N	Grit w/ Coral, Mica	Coarse	10r4/8	2.5yr3/0	10r4/8	Oxidizing	3					firing clouds, dirt coating
OR	2	70-80	2	4.39	7.04	6.12	6.58	0.6672	24.19	24.15	1.00166	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	10r5/8	7.5yr4/0	10r5/8	Oxidizing	3					coating
OR	2	70-80	3	2.41	4.1	3.86	3.98	0.6055	24.81	18.16	1.36619	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr5/8	7.5yr5/4	2.5yr5/8	Oxidizing	3					
OR	2	70-80	4	3.5	3.55	4.02	3.785	0.9247	34.41	23.98	1.43495	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					broken in 2, glued together
OR	2	70-80	5	4.86	6.74	4.22	5.48	0.8869	35.72	28.87	1.23727	Body	N	N	N	Incising	Grit w/ Coral, Mica	Coarse	2.5yr5/6	2.5yr5/6	2.5yr5/6	Oxidizing	3	Diagonal Hatch				2 II, w/ / radiating from top
OR	2	70-80	6	1.4	3.12	3.38	3.25	0.4308	22.24	15.01	1.48168	Body	N	N	N	N	Grit w/ Mica	Fine	5yr5/8	7.5yr5/6	2.5yr3/2	Oxidizing	3					coating
OR	2	70-80	7	1.46	3.86	3.75	3.805	0.3837	21.65	16.14	1.34139	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr4/4	2.5yr3/2	2.5yr4/4	Oxidizing	3					
OR	2	70-80	8	1.4	4.6	4.07	4.335	0.323	21.47	13.51	1.58919	Body	N	N	N	Incising	Grit w/ Coral, Mica	Coarse	2.5yr4/6	2.5yr4/6	2.5yr4/6	Oxidizing	3	Diagonal Hatch				Crumbly, thin.
OR	2	70-80	9	0.23	3.02	3.39	3.205	0.0718	9.89	8.48	1.16627	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr4/2	2.5yr4/2	2.5yr4/2	Oxidizing	2					ext sloughed off
OR	2	70-80	10	0.58	3.87	4.25	4.06	0.0409	14.17	9.69	1.46233	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr4/2	2.5yr4/2	2.5yr4/2	Oxidizing	2					2 pcs glued together
OR	2	80-90	1	1.1	4.89	4.57	4.73	0.2326	19.88	11.88	1.6734	Body	N	N	N	N	Grit w/ Coral	Fine	10r3/6	2.5yr3/0	10r3/6	Oxidizing	3					aerated
OR	2	90-100	1	1.4	3.81	2.99	3.4	0.4118	22.76	15.09	1.50828	Body	N	N	N	N	Grit w/ Coral	Fine	10r3/6	2.5yr3/0	2.5yr3/0	Reducing	3					aerated
KB	2	90-100	14	28.98	15.02	5.94	10.48	2.7653	71.32	43.94	1.62312	Rim	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	10r4/8	10r4/3	Oxidizing	3		Everted	flat		
OR	3	0-10	1	82.06	20.46	7.86	14.16	5.7952	88.97	58.59	1.51852	Rim	N	N	N	Applique,	Grit w/ Coral	Coarse	5yr3/1	10r4/4	10r3/1	Reducing	3	Applique	Straight	Pointed		curvilinear applique + incising on applique, retangular cut-out beneath applice, lip on int.
OR	3	0-10	2	7.86	10.02	9.19	9.605	0.8183	25.48	24.49	1.04042	Body	N	N	N	N	Grit w/ Coral, Grog, Lava, Mica	Coarse	2.5yr4/8	2.5yr4/8	2.5yr4/6	Oxidizing	3					
OR	3	0-10	3	4.86	4.48	5.27	4.875	0.9969	33.36	31.67	1.05336	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/8	2.5yr4/2	2.5yr4/6	Oxidizing	3					high fired
OR	3	0-10	4	4.37	8.23	7.42	7.825	0.5585	26.2	24.59	1.06547	Neck	N	N	N	Punctate	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	2.5yr5/8	Reducing	3	Semi-Circular Stamp				curvlinear incising
OR	3	0-10	5	6.7	6.73	7.38	7.055	0.9497	37.39	23.57	1.58634	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/2	2.5yr6/2	2.5yr5/8	Reducing	3					
OR	3	0-10	6	2.93	7.11	6.85	6.98	0.4198	23.31	17.17	1.3576	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	10r5/6	10r6/8	Reducing	3					
OR	3	0-10	7	2.77	5.19	4.62	4.905	0.5647	25.46	17.29	1.47253	Body	N	N	N	N	Grit w/ Coral, Mica, Sand	Fine	5yr5/4	5yr5/4	7.5yr4/4	Oxidizing	3					
OR	3	0-10	8	1.93	6	5.11	5.555	0.3474	21.63	17.26	1.25319	Body	N	N	N	N	Grit w/ Grog, ?Shell	Varies	7.5yr5/4	10r5/8	10r5/8	Reducing	3					aerated
OR	3	0-10	9	3.17	5.22	4.28	4.75	0.6674	24.09	23.23	1.03702	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/6	2.5yr3/0	Reducing	3					firing clouds
OR	3	0-10	10	1.77	3.43	3.9	3.665	0.4829	22.62	19.28	1.17324	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Fine	2.5yr4/6	7.5yr5/4	10r3/4	Oxidizing	3					
OR	3	0-10	11	4.05	7.13	6.2	6.665	0.6077	31.46	17.68	1.77941	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr4/6	2.5yr4/6	2.5yr4/6	Oxidizing	3					firing clouds
OR	3	0-10	12	3.04	5.65	6.83	6.24	0.4872	20.92	17.97	1.16416	Body	N	N	N	N	Grit w/ Coral, Grog, Lava, Mica	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3					
OR	3	0-10	13	1.27	6.21	5.45	5.83	0.2178	20.84	10.71	1.94585	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	10r3/1	10r4/8	Oxidizing	3					
OR	3	0-10	14	1.13	3.81	3.62	3.715	0.3042	16.19	15.46	1.04722	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	2.5yr3/2	2.5yr3/4	Oxidizing	3					
OR	3	0-10	15	1.01	6.16	5.88	6.02	0.1678	14.04	12.35	1.13684	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr6/8	2.5yr6/8	10r4/6	Oxidizing	3					
OR	3	0-10	16	0.95	4.3	4.09	4.195	0.2265	13.54	13.48	1.00445	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/6	10r4/6	2.5yr4/6	Oxidizing	3					
OR	3	0-10	17	1.04	5.79	4.73	5.26	0.1977	17.4	9.71	1.79197	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	5yr5/4	5yr5/4	10r5/8	Oxidizing	3					
OR	3	0-10	18	0.57	2.92	3.22	3.07	0.1857	13.55	9.98	1.35772	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
OR	3	0-10	19	0.37	2.43	2.38	2.405	0.1538	12.53	9.84	1.27337	Body	N	N	N	N	Grit w/ Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	3	10-20	1	8.34	9.13	6.2	7.665	1.0881	43.78	29.26	1.49624	Neck	N	N	N	Incising	Shell (foraminifera)	Fine	7.5yr5/2	10r4/8	10r4/8	Reducing	3	Perpendicular Incise				carinated
OR	3	10-20	2	12.36	7.51	10.54	9.025	1.3695	39.7	28.23	1.40631	Rim	N	N	Incising	Impress	Grit w/ Lava, Mica	Coarse	5yr6/6	5yr6/6	5yr6/6	Oxidizing	3	Impress/ Incise	Inverted	Rounded		high fired? Thick and coarse. Impress on rim, incise on int.
OR	3	10-20	3	11.24	7.27	7.69	7.48	1.5027	39.42	33.87	1.16386	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr3/0	5yr3/1	Reducing	3					ext has worn off in some places
OR	3	10-20	4	7.84	7.62	5.48	6.55	1.1969	43.61	21.82	1.99863	Rim	N	N	N	Crenelated	Grit w/ Lava, Mica	Coarse	7.5yr5/6	7.5yr5/6	2.5yr4/8	Oxidizing	3	Crenelated Rim	Inverted	Flat		impress on rim
OR	3	10-20	5	14	10.22	9.35	9.785	1.4308	36.69	31.49	1.16513	Body	N	N	N	N	Grit w/ Lava, Mica	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					roofing tile? V. red. Huge chunks of unprocessed clay.
OR	3	10-20	6	6.38	6.05	5.78	5.915	1.0786	34.79	28.34	1.22759	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	5yr4/6	10yr3/2	7.5yr7/2	Oxidizing	3					
OR	3	10-20	7	7.11	8.99	9.79	9.39	0.7572	37.3	20.11	1.8548	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	10r5/8	5yr6/4	2.5yr4/6	Oxidizing	3					
OR	3	10-20	8	2.01	4.9	4.62	4.76	0.4223	29.39	13.96	2.1053	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr8/2	2.5yr5/8	10yr5/4	Reducing	3					
OR	3	10-20	9	4.39	8.09	5.56	6.825	0.6432	24.54	23.93	1.02549	Rim	N	N	N	N	Grit w/ Coral, Mica	Coarse	5yr6/4	5yr5/8	5yr6/8	Oxidizing	3		Everted	Pointed		
OR	3	10-20	10	4.5	6.17	5.27	5.72	0.7867	26.9	26.44	1.0174	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Fine	2.5yr4/8	2.5yr4/8	5yr4/4	Oxidizing	3					
OR	3	10-20	11	2.85	5.41	5.49	5.45	0.5229	25.41	18.53	1.37129	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/1	10yr6/3	10yr5/2	Reducing	3					
OR	3	10-20	12	4.61	5.85	6.08	5.965	0.7728	35.05	20.53	1.70726	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/6	2.5yr2.5/0	10r4/6	Oxidizing	3					
OR	3	10-20	13	3.22	5.86	5.36	5.61	0.574	31.62	16.67	1.89682	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr2.5/0	7.5yr3/0	2.5yr3/2	Reducing	3					
OR	3	10-20	14	5.57	7.02	6.63	6.825	0.8161	30.42	25.64	1.18643	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/0	2.5yr5/8	2.5yr5/8	Reducing	3					
OR	3	10-20	15	6.16	12.22	10.8	11.51	0.5352	25.58	22.56	1.13387	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	10r4/3	10r4/6	Reducing	3					
OR	3	10-20	16	5.07	8.01	7.96	7.985	0.6349	26.94	23.33	1.15474	Body	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr3/0	2.5yr3/6	7.5yr3/4	Reducing	3					high fired? Trowel mark.
OR	3	10-20	17	4.37	8.09	7.44	7.765	0.5628	25.99	19.14	1.35789	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	5yr4/1	10r5/3	10r5/3	Oxidizing	3					water worn
OR	3	10-20	18	4.24	6.32	6.01	6.165	0.6878	29.74	17.45	1.7043	Rim	N	N	N	N	Grit w/ Mica, Sand	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3		Straight	Flat		
OR	3	10-20	19	3.44	6.52	6.55	6.535	0.5264	20.89	16.48	1.2676	Body	N	N	N	N	Grit w/ Coral, Mica, Sand	Fine	10yr6/3	2.5yr2.5/0	10yr3/1	Oxidizing	3					
OR	3	10-20	20	2.67	5.87	6.07	5.97	0.4472	23.22	15.78	1.47148	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	10r4/8	2.5yr3/2	2.5yr3/2	Oxidizing	3					
OR	3	10-20	21	1.76	4.42	4.55	4.485	0.3924	21.7	18.4	1.17935	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/1	10r5/8	10r5/8	Reducing	3					
OR	3	10-20	22	1.41	4.81	3.52	4.165	0.3385	20.21	14.26	1.41725	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr4/8	2.5yr3/0	2.5yr4/8	Oxidizing	3					similar to 12, above.
OR	3	10-20	23	0.87	2.85	2.82	2.835	0.3069	16.87	16.94	0.99587	Body	N	Y	N	N	Grit w/ Mica	Fine	7.5yr6/6	7.5yr6/6	10r4/8	Oxidizing	3					
OR	3	10-20	24	4.46	12.92	11.94	12.43	0.3588	23.12	17.07	1.35442	Body	Y	Y	N	N	Shell (foraminifera)	Fine	5yr4/2	10r4/8	10r4/8	Reducing	3					
OR	3	10-20	25	2.46	6.49	6.15	6.32	0.3892	21.33	15.64	1.36381	Body	N	N	N	N	Grit w/ Mica, Sand	Coarse	2.5yr4/0	10r5/8	10r5/8	Reducing	3					similar to 18, above
OR	3	10-20	26	1.33	5.62	4.88	5.25	0.2533	13.85	13.36	1.03668	Body	N	N	N	N	Grit w/ Lava, Mica	Fine	10r4/8	10r4/8	10r4/6	Oxidizing	3					
OR	3	10-20	27	0.73	2.64	2.81	2.725	0.2679	14.91	13.47	1.1069	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr5/4	5yr5/6	Reducing	3					
OR	3	10-20	28	1.32	3.89	4.37	4.13	0.3196	19.37	14.37	1.34795	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					water worn
OR	3	10-20	29	0.76	4.3	4.52	4.41	0.1723	15.87	10.54	1.50569	Body	Y	Y	N	N	Grit w/ Lava, Mica	Fine	10r4/8	10r3/6	10r3/6	Oxidizing	3					
OR	3	10-20	30	1.56	4.1	3.41	3.755	0.4154	20.33	14.78	1.37551	Body	N	Y	N	N	Grit w/ Mica	Fine	10yr5/3	10yr5/2	10r4/6	Oxidizing	3					high fired
OR	3	10-20	31	1.01	2.98	2.79	2.885	0.3501	17.9	15.45	1.15858	Body	N	N	N	N	Grit w/ Coral	Fine	5yr6/6	2.5yr3/0	5yr6/6	Oxidizing	3					firing clouds
OR	3	10-20	32	1.1	3.64	3.79	3.715	0.2961	15.94	15.85	1.00568	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr3/2	10r4/8	10r3/2	Oxidizing	3					
OR	3	10-20	33	0.5	3.22	2.69	2.955	0.1692	13.41	12.45	1.07711	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	7.5yr5/8	7.5yr6/4	2.5yr4/6	Oxidizing	3					
OR	3	10-20	34	1.37	6.13	6.15	6.14	0.2231	19.09	11.96	1.59615	Body	N	N	N	N	Grit	Fine	10r4/8	10r4/6	10r4/8	Oxidizing	3					
OR	3	10-20	35	1.59	5.29	4.56	4.925	0.3228	18.34	12.99	1.41186	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
OR	3	10-20	36	0.65	3.54	3.25	3.395	0.1915	13.05	12.98	1.00539	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r5/8	10r5/8	10r4/6	Oxidizing	3					
OR	3	10-20	37	0.55	3.36	3.44	3.4	0.1618	12.92	11.41	1.13234	Body	Y	Y	N	N	Grit w/ Coral, Mica	Fine	5yr4/1	10r4/6	7.5r3/2	Reducing	3					
OR	3	10-20	38	0.67	3.05	2.93	2.99	0.2241	15.31	12.91	1.1859	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr5/6	5yr5/4	Reducing	3					
OR	3	10-20	39	0.66	3.69	3.37	3.53	0.187	15.63	11.88	1.31566	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	5yr7/2	5yr5/6	Reducing	3					
OR	3	10-20	40	0.98	5.73	4.38	5.055	0.1939	16.28	12.24	1.33007	Rim	N	Y	N	N	Grit w/ Coral, Mica	Fine	2.5yr5/6	10r5/8	10r4/8	Oxidizing	3		Inverted	Rounded		
OR	3	10-20	41	0.93	2.43	2.84	2.635	0.3529	17.1	15.11	1.1317	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10yr4/1	10r4/8	10r4/8	Reducing	3					water worn

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
OR	3	10-20	42	0.86	4.14	3.65	3.895	0.2208	13.92	13.68	1.01754	Body	N	Y	N	N	Grit w/ Coral, Mica	Coarse	7.5yr6/6	7.5yr6/6	10r3/6	Oxidizing	3					
OR	3	10-20	43	0.62	3.47	2.99	3.23	0.192	12.65	12.13	1.04287	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	7.5yr5/4	7.5yr5/4	10r3/1	Oxidizing	3					
OR	3	20-30	1	0.57	4.55	3.49	4.02	0.1418	17.66	9.1	1.94066	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/6	10r3/2	10r4/8	Oxidizing	3					
OR	3	20-30	2	1.05	4.15	4.03	4.09	0.2567	18.17	16.64	1.09195	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Fine	7.5yr6/8	7.5yr6/8	7.5yr6/8	Oxidizing	3					
OR	3	20-30	3	1.35	4.24	3.29	3.765	0.3586	23.6	14.93	1.58071	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr4/8	2.5yr4/8	2.5yr3/6	Oxidizing	3					
OR	3	20-30	4	1.81	3.96	3.74	3.85	0.4701	21.2	17.22	1.23113	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	5yr6/6	10r4/6	5yr6/6	Oxidizing	3					
OR	3	20-30	5	0.59	3.89	3.87	3.88	0.1521	16.4	10.33	1.58761	Body	N	N	N	N	Grit w/ Mica	Fine	7.5yr5/4	7.5yr5/4	10r4/6	Oxidizing	3					
OR	3	20-30	6	0.49	4.92	3.11	4.015	0.122	12.23	9.83	1.24415	Rim	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3		Inverted	Rounded		
OR	3	20-30	7	1.89	4.33	4.55	4.44	0.4257	21.41	16.89	1.26761	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	2.5yr3/0	10r4/8	Oxidizing	3					
OR	3	20-30	8	1.01	4.02	3.16	3.59	0.2813	17.89	14.96	1.19586	Body	N	N	N	Incising	Grit w/ Coral, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3	Parallel Incise				firing clouds on ext
OR	3	20-30	9	4.71	5.16	3.61	4.385	1.0741	29.02	26.59	1.09139	Body	N	Y	N	N	Grit w/ Coral, Grog	Fine	10r4/8	2.5yr4/2	10r4/8	Oxidizing	3					high fired. Firing clouds on ext.
OR	3	30-40	1	0.57	2.65	2.73	2.69	0.2119	16.87	12.55	1.34422	Body	N	Y	N	N	Grit w/ Coral, Mica	Fine	10r5/8	10r4/3	10r4/8	Oxidizing	3					
OR	3	30-40	2	1.37	3.43	3.81	3.62	0.3785	21.37	18.95	1.1277	Body	N	Y	N	N	Grit w/ Coral, Mica	Fine	10r3/1	10r3/1	10r4/6	Oxidizing	3					high fired
OR	3	30-40	3	6.2	5.65	7.23	6.44	0.9627	31.56	24.74	1.27567	Rim	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	2.5yr3/6	2.5yr3/4	2.5yr3/2	Oxidizing	3		Everted	Flat		
OR	3	30-40	4	1.52	3.73	3.66	3.695	0.4114	24.67	18.31	1.34735	Body	N	Y	N	N	Grit w/ Coral, Mica	Fine	2.5yr5/8	2.5yr5/8	10yr3/1	Oxidizing	3					
OR	3	30-40	5	0.98	3.26	3.78	3.52	0.2784	19.6	12.25	1.6	Body	N	Y	N	N	Grit w/ Mica	Fine	7.5yr6/6	7.5yr6/6	10r5/8	Oxidizing	3					
OR	3	40-50	1	3.08	5.79	6.34	6.065	0.5078	25.59	19.88	1.28722	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/4	2.5yr6/8	2.5yr6/8	Reducing	3					
GW	1	0-10	1	7.49	7.77	7.23	7.5	0.9987	43.67	29.58	1.47634	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/2	10r4/8	5yr3/3	Reducing	3					
GW	1	surface	1	3.97	5.35	3.94	4.645	0.8547	38.8	32.31	1.20087	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/8	2.5yr6/8	Reducing	3					
GW	1	0-10	2	23.86	10.92	11.03	10.975	2.174	51.04	40.97	1.24579	Body	N	N	N	N	Sand	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					roofing tile?
GW	1	surface	2	2.95	6.57	6.04	6.305	0.4679	26.18	22.54	1.16149	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr4/1	10r3/4	10r3/4	Reducing	3					
GW	1	0-10	3	16.66	9.38	7.43	8.405	1.9822	49.5	34.86	1.41997	Neck	N	N	N	Incising	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr5/6	Reducing	3	Diagonal Hatch				incised orang shell. incised double X's.
GW	1	0-10	4	7.12	6.2	5.71	5.955	1.1956	40.22	37.17	1.08206	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/3	10r4/8	2.5yr3/4	Reducing	3					same as 13.
GW	1	0-10	5	7.79	6.92	6.69	6.805	1.1447	54.16	29.41	1.84155	Body	N	N	Charred	N	Shell (foraminifera)	Fine	5yr5/1	2.5yr2.5/0	5yr5/3	Reducing	3					same as 6, 12, below.
GW	1	0-10	6	6.5	6.5	6.83	6.665	0.9752	49.7	25.55	1.94521	Body	N	N	Charred	N	Shell (foraminifera)	Fine	5yr5/1	2.5yr2.5/0	5yr5/3	Reducing	3					same as 5, 12.
GW	1	0-10	7	5.86	7.78	6.19	6.985	0.8389	37.45	28.31	1.32285	Neck	N	N	N	Incising	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr6/8	2.5yr6/8	Reducing	3	Diagonal Hatch				Incise orange shell. nested diamond w/ II lines inside. Same as 3
GW	1	0-10	8	10.96	8.65	6.31	7.48	1.4652	47.56	46.91	1.01386	Rim	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	7.5yr6/6	7.5yr6/6	Reducing	3		Inverted	Pointed		
GW	1	0-10	9	4.5	5.5	4.04	4.77	0.9434	38.64	31.03	1.24525	Body	N	N	N	Incising	Shell (foraminifera)	Fine	5yr4/1	5yr4/1	10yr5/2	Reducing	3	Single Incise				2 // lines, pos. surface treatment of brush smoothing at ?neck.
GW	1	0-10	10	2.49	5.84	6.2	6.02	0.4136	25.77	24.91	1.03452	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr7/2	10r3/6	5yr5/3	Reducing	3					
GW	1	0-10	11	3.9	3.77	3.62	3.695	1.0555	29.74	26.88	1.1064	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/6	2.5yr5/6	5yr4/2	Reducing	3					
GW	1	0-10	12	2.28	6.24	5.67	5.955	0.3829	29.77	29.69	1.00269	Body	N	N	Charred	N	Shell (foraminifera)	Fine	5yr5/1	2.5yr2.5/0	5yr5/3	Reducing	3					same as 5, 6, above
GW	1	0-10	13	2.12	6.28	6.51	6.395	0.3315	32.5	13.1	2.48092	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr3/1	10r4/8	2.5yr3/2	Reducing	3					same as GW.1.Sur.2, GW.1.0-10.4.
GW	1	0-10	14	9.42	4.97	5.22	5.095	1.8489	60.23	31.88	1.88927	Body	N	N	Charred	N	Shell (foraminifera)	Fine	7.5yr7/0	2.5yr3/0	5yr5/1	Reducing	3					2 pcs glued together. Some red staining on
GW	1	0-10	15	1.74	6.4	3.98	5.19	0.3353	29.57	14.87	1.98857	Body	Y	N	Charred	N	Shell (foraminifera)	Fine	5yr6/3	2.5yr2.5/0	10r3/4	Reducing	3					same as 5, 6, 12.
GW	1	0-10	16	1.62	3.95	3.34	3.645	0.4444	22.95	22.09	1.03893	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	5yr5/1	5yr6/8	Reducing	3					
GW	1	0-10	17	1.15	4.36	4.13	4.245	0.2709	24.31	15.96	1.52318	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/6	2.5yr6/8	7.5yr5/4	Both	3					core is both reducing and oxidizing
GW	1	0-10	18	5.12	5.83	4.64	5.235	0.978	35.98	22.11	1.62732	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/6	10r4/6	10r4/6	Oxidizing	3					water worn, looks like a beach worn pebble, but it's not.
GW	1	0-10	19	3.35	6.11	6.52	6.315	0.5305	26.58	19.62	1.35474	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr3/0	2.5yr3/0	2.5yr3/0	Reducing	3					
GW	1	0-10	20	1.61	3.98	3.66	3.82	0.4215	24.03	21.9	1.09726	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr3/0	7.5yr3/0	Reducing	3					
GW	1	0-10	21	0.69	3.5	3.6	3.55	0.1944	17.26	13.08	1.31957	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr3/0	7.5yr3/0	Reducing	3					
GW	1	0-10	22	1.2	3.38	3.41	3.395	0.3535	24.94	15.43	1.61633	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/1	5yr5/4	5yr5/4	Reducing	3					
GW	1	0-10	23	1.46	4.69	3.4	4.045	0.3609	24.08	16.15	1.49102	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr4/1	5yr5/4	5yr4/1	Reducing	3					
GW	1	0-10	24	2.13	6.38	6.12	6.25	0.3408	21.25	17.9	1.18715	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/4	2.5yr6/8	2.5yr6/8	Reducing	3					
GW	1	0-10	25	2.04	4.97	3.65	4.31	0.4733	20.4	18.2	1.12088	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr6/2	2.5yr6/6	10r5/6	Reducing	3					
GW	1	0-10	26	1.46	2.81	2.72	2.765	0.528	25.84	19.78	1.30637	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/2	5yr6/1	5yr5/1	Reducing	3					
GW	1	0-10	27	1.41	4.08	4.43	4.255	0.3314	22.24	16.16	1.37624	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/6	2.5yr6/8	7.5yr6/4	Reducing	3					
GW	1	0-10	28	3.09	7.26	7.07	7.165	0.4313	19.34	18.89	1.02382	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	5yr5/6	7.5yr6/4	5yr6/8	Oxidizing	3					
GW	1	0-10	29	0.92	2.92	2.99	2.955	0.3113	27.05	14.66	1.84516	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr7/4	5yr4/1	2.5yr5/6	Reducing	3					
GW	1	0-10	30	1.17	3.41	3.11	3.26	0.3589	24.87	20.41	1.21852	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/2	5yr6/6	5yr5/6	Reducing	3					
GW	1	0-10	31	0.78	3.89	3.76	3.825	0.2039	19.29	14.31	1.34801	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/4	5yr6/4	5yr6/4	Reducing	3					
GW	1	0-10	32	0.98	4.98	3.81	4.395	0.223	18.64	15.58	1.19641	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/3	5yr6/3	5yr6/4	Reducing	3					
GW	1	0-10	33	1.51	4.7	4.74	4.72	0.3199	20.74	15.18	1.36627	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/3	10r5/6	2.5yr6/8	Reducing	3					
GW	1	0-10	34	0.66	3.41	3.33	3.37	0.1958	17.8	13.52	1.31657	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	2.5yr5/8	2.5yr5/8	Reducing	3					
GW	1	0-10	35	1.23	5.93	6.56	6.245	0.197	19.68	12.97	1.51735	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	5yr5/6	2.5yr5/8	Reducing	3					
GW	1	0-10	36	0.29	2.93	2.83	2.88	0.1007	17.43	8.47	2.05785	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/4	5yr4/2	10r5/8	Reducing	3					
GW	1	0-10	37	1.04	4.81	4.08	4.445	0.234	18.44	14.15	1.30318	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	5yr5/4	5yr4/1	Reducing	3					
GW	1	0-10	38	1.26	6.65	5.88	6.265	0.2011	17.02	14.71	1.15704	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/3	5yr6/3	10yr6/1	Reducing	3					
GW	1	0-10	39	0.63	3.2	3.15	3.175	0.1984	17.83	14.28	1.2486	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/1	5yr6/6	5yr5/6	Reducing	3					
GW	1	0-10	40	0.6	3.37	3.01	3.19	0.1881	17.18	12.34	1.39222	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/8	5yr6/8	5yr7/8	Oxidizing	3					
GW	1	0-10	41	0.83	2.71	2.81	2.76	0.3007	18.79	13.49	1.39288	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r3/4	10r3/4	10r3/4	Oxidizing	3					watern worn
GW	1	0-10	42	0.83	4.76	4.88	4.82	0.1722	17.98	14.38	1.25035	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr7/3	5yr7/3	5yr7/6	Reducing	3					
GW	1	0-10	43	0.83	6.48	6.13	6.305	0.1316	14.28	13.81	1.03403	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/1	2.5yr3/0	5yr6/6	Reducing	3					
GW	1	0-10	44	0.72	4.03	3.94	3.985	0.1807	17.57	12.36	1.42152	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/2	5yr5/4	5yr5/2	Reducing	3					
GW	1	0-10	45	0.26	3.15	2.03	2.59	0.1004	13.19	12.47	1.05774	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/6	5yr6/6	10yr6/3	Oxidizing	3					aerated. Int sloughed off.
GW	1	0-10	46	0.43	2.2	2.17	2.185	0.1968	13.23	10.69	1.23761	Body	N	N	N	N	Grit w/ Grog	Fine	5yr6/1	5yr7/6	5yr7/6	Reducing	3					water worn
GW	1	0-10	47	0.33	3.38	3.26	3.32	0.0994	12.94	9.53	1.35782	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/4	5yr5/4	Reducing	3					
GW	1	0-10	48	0.3	4.52	4.56	4.54	0.0661	11.45	10.5	1.09048	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/8	5yr6/6	2.5yr5/6	Oxidizing	3					
GW	1	0-10	49	0.37	2.49	2.47	2.48	0.1492	13.12	9.38	1.39872	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/8	2.5yr6/8	2.5yr6/8	Oxidizing	3					
GW	1	0-10	50	0.17	2.21	1.9	2.055	0.0827	12.64	9.64	1.3112	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/6	5yr6/6	7.5yr6/2	Oxidizing	3					
GW	1	0-10	51	0.18	2.93	2.88	2.905	0.062	13.27	8.49	1.56302	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/6	5yr5/6	5yr6/4	Oxidizing	3					same as 39, 45, 52; int sloughed off.
GW	1	0-10	52	0.2	2.27	3.08	2.675	0.0748	15.58	7.68	2.02865	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/6	5yr5/6	5yr6/4	Oxidizing	3					same as 39, 45, 51; int sloughed off.
GW	1	0-10	53	0.26	3.32	3.41	3.365	0.0773	12.2	9.46	1.28964	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr6/2	5yr4/1	5yr4/1	Reducing	3					
GW	1	0-10	54	0.21	3.9	4.13	4.015	0.0523	10.14	9.15	1.1082	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	5yr4/6	5yr4/6	Reducing	3					
GW	1	0-10	55	0.54			0	#DIV/0!				Bits																ceramic bits. N=4
GW	1	10-20	1	2.16	4.24	3.86	4.05	0.5333	30.89	20.39	1.51496	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr6/1	7.5yr5/2	10yr6/1	Reducing	3					
GW	1	10-20	2	12.72	14.53	15	14.765	0.8615	32.6	22.57	1.4444	Body	Y	N	N	N	Grit w/ Coral, Grog	Coarse	10r5/8	2.5yr6/4	2.5yr6/2	Oxidizing	3					roofing tile? White-ish coating on ext, weathering around most of it, but a small chunk probably recently removed.
GW	1	10-20	3	19.69	11.97	12.85	12.41	1.5866	41.14	34.16	1.20433	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					roofing tile? White-ish coating on ext, weathering around most of it, but a small chunk probably recently removed.
GW	1	10-20	4	9.92	8.59	9.56	9.075	1.0931	45.96	24.52	1.87439	Body	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr4/6	10r4/8	2.5yr4/4	Oxidizing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
GW	1	10-20	5	9.42	4.22	4.31	4.265	2.2087	43.75	39.29	1.11351	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr3/6	2.5yr5/8	Oxidizing	3					whitish coating all around. Some washed off, but still there.
GW	1	10-20	6	7.51	5.49	4.92	5.205	1.4428	45.98	34.63	1.32775	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/6	5yr6/4	2.5yr6/8	Oxidizing	3					
GW	1	10-20	7	5.26	5.76	5.9	5.83	0.9022	42.06	31.92	1.31767	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5r4/0	10r5/8	10r5/8	Reducing	3					pos drill hole. White-ish coating on ext, black staining on int. aerated.
GW	1	10-20	8	10.02	5.62	6.31	5.965	1.6798	49.84	39.76	1.25352	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5r4/0	10r5/8	10r5/8	Reducing	3					same as 7. white-ish coating on ext, black stain on int. aerated.
GW	1	10-20	9	4.73	4.61	3.95	4.28	1.1051	45.74	27.76	1.64769	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	7.5yr5/4	Reducing	3					aerated.
GW	1	10-20	10	6.46	7.65	5.4	6.525	0.99	34.95	28.11	1.24333	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	5yr4/1	2.5yr5/6	Reducing	3					aerated, firing clouds on ext.
GW	1	10-20	11	26.72	9.8	6.43	8.115	3.2927	64.88	42.13	1.54	Base	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr5/6	7.5yr5/2	Reducing	3					2 pcs glues together
GW	1	10-20	12	5.93	6.85	7.19	7.02	0.8447	39	31.94	1.22104	Body	N	N	Charred	N	Shell (foraminifera)	Fine	7.5yr4/0	2.5yr2.5/0	5yr5/8	Reducing	3					same as 13, 14,
GW	1	10-20	13	2.52	7.48	7.52	7.5	0.336	28.88	23.62	1.22269	Body	N	N	Charred	N	Shell (foraminifera)	Fine	7.5yr4/0	2.5yr2.5/0	5yr5/8	Reducing	3					same as 12, 14,
GW	1	10-20	14	0.85	6.04	5.53	5.785	0.1469	30.41	12.8	2.37578	Body	N	N	Charred	N	Shell (foraminifera)	Fine	10yr5/3	2.5yr2.5/0	5yr5/8	Reducing	3					same as 12, 13,
GW	1	10-20	15	0.71	4.03	4.19	4.11	0.1727	12.87	12.29	1.04719	Body	N	N	Charred	N	Shell (foraminifera)	Fine	7.5yr5/4	2.5yr2.5/0	7.5yr5/4	Reducing	3					
GW	1	10-20	16	4.04	5.18	4.79	4.985	0.8104	34.81	31.67	1.09915	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	10yr6/3	Reducing	3					
GW	1	10-20	17	2.22	3.32	3.28	3.3	0.6727	30.81	22.5	1.36933	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/4	7.5yr6/6	7.5yr6/6	Reducing	3					
GW	1	10-20	18	1.08	3.47	2.89	3.18	0.3396	26.96	22.14	1.21771	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/6	5yr6/8	7.5yr6/4	Reducing	3					
GW	1	10-20	19	3.38	8.89	5.34	7.115	0.4751	31.88	20.46	1.55816	Rim	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr4/2	Reducing	3		Everted	Flat		
GW	1	10-20	20	4.78	6.51	5.57	6.04	0.7914	31.24	24.35	1.28296	Rim	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr5/8	5yr5/6	Reducing	3		Inverted	Flat		
GW	1	10-20	21	0.62	5.96	6.36	6.16	0.1006	20.41	12.38	1.64863	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/2	5yr4/2	10r4/6	Reducing	3					
GW	1	10-20	22	2.51	7.75	7.42	7.585	0.3309	26.9	19.06	1.41133	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/2	10r4/6	10r4/6	Reducing	3					
GW	1	10-20	23	2.72	6.51	6.34	6.425	0.4233	30.54	20.25	1.50815	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr4/1	10r3/6	5yr3/2	Reducing	3					
GW	1	10-20	24	4.43	4.75	4.77	4.76	0.9307	34.31	21.85	1.57025	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr3/0	2.5yr3/0	5yr4/3	Reducing	3					high fired
GW	1	10-20	25	4.58	5.28	4	4.64	0.9871	37.94	26.43	1.43549	Body	N	N	N	N	Grit w/ Coral	Fine	5yr5/1	5yr6/6	5yr5/1	Reducing	3					ext and int is sloughing off
GW	1	10-20	26	0.4	3.43	3.52	3.475	0.1151	15.95	11.35	1.40529	Body	N	N	Mortar?	N	Shell (foraminifera)	Fine	5yr6/1	5yr6/8	7.5yr7/6	Reducing	3					some sort of mortar-like coating on int.
GW	1	10-20	27	0.47	3.78	2.75	3.265	0.144	15.78	15.14	1.04227	Body	N	N	Mortar?	N	Shell (foraminifera)	Fine	5yr6/1	5yr6/8	7.5yr6/6	Reducing	3					some sort of mortar-like coating on int.
GW	1	10-20	28	0.39	2.67	2.59	2.63	0.1483	15.97	12.35	1.29312	Body	N	N	Mortar?	N	Shell (foraminifera)	Fine	5yr6/1	5yr6/8	7.5yr7/6	Reducing	3					some sort of mortar-like coating on int.
GW	1	10-20	29	0.37	3.4	2.94	3.17	0.1167	13.89	15.17	0.91562	Body	N	N	Mortar?	N	Shell (foraminifera)	Fine	5yr6/1	5yr6/8	7.5yr7/6	Reducing	3					some sort of mortar-like coating on int.
GW	1	10-20	30	0.33	2.98	2.87	2.925	0.1128	13.84	11.73	1.17988	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/4	2.5yr6/8	2.5yr6/8	Reducing	3					
GW	1	10-20	31	0.95	1.95	2.04	1.995	0.4762	25.52	16.85	1.51454	Body	N	Y	Finger Ind	N	Shell (foraminifera)	Fine	7.5yr5/8	7.5yr5/4	2.5yr5/6	Oxidizing	3					finger indentations
GW	1	10-20	32	1.36	1.95	3.6	2.775	0.4901	26.43	16.24	1.62746	Body	N	N	Finger Ind	N	Shell (foraminifera)	Fine	5yr4/4	5yr5/2	5yr4/1	Oxidizing	3					finger indentations
GW	1	10-20	33	2.24	3.8	3.36	3.58	0.6257	26.3	19.01	1.38348	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr6/1	5yr4/1	Reducing	3					
GW	1	10-20	34	2.37	3.93	3.84	3.885	0.61	24.46	23.9	1.02343	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	5yr4/3	7.5yr3/0	Reducing	3					
GW	1	10-20	35	1.57	5.77	5.91	5.84	0.2688	22.68	15.33	1.47945	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/6	2.5yr5/8	Reducing	3					
GW	1	10-20	36	0.68	3.79	4.65	4.22	0.1611	21.1	13.09	1.61192	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	5yr5/3	5yr5/6	Reducing	3					
GW	1	10-20	37	0.45	3.36	3.04	3.2	0.1406	16.58	13.03	1.27245	Body	N	N	Mortar?	N	Shell (foraminifera)	Fine	5yr6/1	5yr7/8	7.5yr7/6	Reducing	3					
GW	1	10-20	38	1.36	2.42	1.71	2.065	0.6586	21.43	20.15	1.06352	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/2	7.5yr6/2	5yr4/1	Reducing	3					
GW	1	10-20	39	1.18	4.42	4.63	4.525	0.2608	20.55	15.11	1.36003	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/2	10yr4/3	5yr5/3	Reducing	3					
GW	1	10-20	40	0.65	4.92	4.72	4.82	0.1349	20.66	10.68	1.93446	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr7/6	5yr6/2	5yr6/4	Reducing	3					
GW	1	10-20	41	1.12	7.39	7.43	7.41	0.1511	17.48	11.91	1.46767	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/6	2.5yr6/8	2.5yr6/8	Reducing	3					
GW	1	10-20	42	1.16	3.65	3.03	3.34	0.3473	24.38	14.49	1.68254	Body	N	Y	N	N	Shell (foraminifera)	Fine	10yr3/1	10yr3/1	7.5yr4/4	Reducing	3					
GW	1	10-20	43	1.24	4.32	4.48	4.4	0.2818	22.5	13.08	1.72018	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/3	5yr6/4	5yr6/6	Reducing	3					
GW	1	10-20	44	1.54	4.71	4.46	4.585	0.3359	18.98	17.79	1.06689	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr3/1	5yr3/1	7.5yr5/4	Reducing	3					
GW	1	10-20	45	0.82	3.95	3.73	3.84	0.2135	16.79	12.43	1.35076	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/2	5yr4/2	10r5/8	Reducing	3					
GW	1	10-20	46	1.68	5.13	5.05	5.09	0.3301	21.63	15.83	1.36639	Body	N	N	N	N	Grit	Fine	7.5yr5/2	5yr5/4	5yr3/1	Oxidizing	3					
GW	1	10-20	47	1.82	4.31	3.92	4.115	0.4423	20.79	19.05	1.09134	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/4	7.5yr6/2	5yr7/3	Reducing	3					
GW	1	10-20	48	0.73	3.97	2.89	3.43	0.2128	19.48	12.67	1.53749	Body	N	N	N	N	Shell (foraminifera)	Fine	10r4/8	10r4/8	10r4/4	Oxidizing	3					
GW	1	10-20	49	1.53	6.49	4.94	5.715	0.2677	23.01	15.32	1.50196	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	10r5/8	10r5/8	Reducing	3					
GW	1	10-20	50	0.74	4.04	3.89	3.965	0.1866	17.13	11.82	1.44924	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/6	7.5yr6/6	7.5yr7/6	Reducing	3					
GW	1	10-20	51	0.6	2.66	2.52	2.59	0.2317	16.56	13.39	1.23674	Body	N	Y	N	N	Shell (foraminifera)	Fine	5yr4/1	5yr4/1	10r5/6	Reducing	3					
GW	1	10-20	52	0.9	4.53	4.43	4.48	0.2009	15.7	15.39	1.02014	Body	N	N	Charred	N	Shell (foraminifera)	Fine	7.5yr5/4	7.5yr3/0	7.5yr5/4	Reducing	3					
GW	1	10-20	53	1.59	4.04	4.59	4.315	0.3685	22.47	13.15	1.70875	Body	N	Y	N	N	Grit w/ Mica	Fine	7.5yr3/0	7.5yr5/2	7.5yr6/4	Reducing	3					coating all around
GW	1	10-20	54	1.27	5.42	5.23	5.325	0.2385	20.17	15.32	1.31658	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr7/6	5yr7/6	5yr7/6	Reducing	3					
GW	1	10-20	55	0.74	3.43	2.87	3.15	0.2349	14.88	14.7	1.01224	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr4/0	2.5yr4/0	Reducing	3					
GW	1	10-20	56	0.68	3.28	3.21	3.245	0.2096	15.96	15.48	1.03101	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/4	5yr8/2	7.5yr6/4	Reducing	3					
GW	1	10-20	57	0.77	4.16	4.3	4.23	0.182	19.92	10.66	1.86867	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/8	2.5yr6/8	2.5yr6/8	Reducing	3					
GW	1	10-20	58	0.92	3.61	3.54	3.575	0.2573	19.55	14.13	1.38358	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr7/6	5yr7/6	5yr7/6	Reducing	3					
GW	1	10-20	59	1.51	5.76	6.89	6.325	0.2387	19.14	14.23	1.34505	Body	N	N	N	Incising	Shell (foraminifera)	Fine	2.5yr5/6	2.5yr5/6	10r5/6	Reducing	3	Single Incise				
GW	1	10-20	60	1.37	4.41	4.22	4.315	0.3175	20.66	18.35	1.12589	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/6	7.5yr6/4	10r6/8	Both	3					
GW	1	10-20	61	0.58	4.23	3.5	3.865	0.1501	14.74	13.65	1.07985	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
GW	1	10-20	62	1.18	4.27	3.95	4.11	0.2871	22.16	18.37	1.20631	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/4	5yr6/4	5yr6/6	Reducing	3					
GW	1	10-20	63	0.41	3.03	2.41	2.72	0.1507	14.37	9.82	1.46334	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/4	2.5yr5/6	2.5yr5/4	Reducing	3					
GW	1	10-20	64	1.24	5.2	4.89	5.045	0.2458	19.68	15.24	1.29134	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/2	7.5yr4/2	7.5yr7/6	Reducing	3					
GW	1	10-20	65	0.88	2.62	2.25	2.435	0.3614	18.71	16.18	1.15637	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/4	7.5yr5/4	2.5yr5/8	Reducing	3					
GW	1	10-20	66	0.88	4.17	2.67	3.42	0.2573	22.86	13.3	1.7188	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr4/2	5yr4/2	5yr4/2	Reducing	3					
GW	1	10-20	67	1.45	4.26	3.38	3.82	0.3796	21.36	16.05	1.33084	Body	N	N	N	Incising	Grit w/ Mica	Fine	7.5yr6/8	5yr5/6	10r4/8	Reducing	3	Parallel Incise				
GW	1	10-20	68	0.38	2.86	2.7	2.78	0.1367	15.56	9.97	1.56068	Body	N	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr6/8	2.5yr5/8	Oxidizing	3					
GW	1	10-20	69	0.99	8.58	6.92	7.75	0.1277	11.73	8.4	1.39643	Rim	N	N	N	N	Grit w/ Mica	Fine	2.5yr3/0	7.5yr3/2	7.5yr4/4	Reducing	3		Damaged	Rounded		
GW	1	10-20	70	0.54			0					Bits																ceramic bits, n=4
GW	1	20-30	1	5.08	4.98	5.19	5.085	0.999	33.8	32.87	1.02829	Base	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/6	7.5yr7/6	7.5yr7/6	Oxidizing	3					
GW	1	20-30	2	1.11	3.29	2.93	3.11	0.3569	21.33	18.14	1.17585	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr6/6	5yr6/2	Reducing	3					
GW	1	20-30	3	3.05	4.76	5.19	4.975	0.6131	29.08	22.89	1.27042	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	7.5yr6/4	7.5yr6/4	Reducing	3					
GW	1	20-30	4	1.14	4.06	3.52	3.79	0.3008	21.92	16.91	1.29627	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr5/2	5yr6/6	Reducing	3					
GW	1	20-30	5	1.06	3.94	4.2	4.07	0.2604	19.29	18.27	1.05583	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	2.5yr5/8	5yr5/6	Reducing	3					
GW	1	20-30	6	3.14	3.92	3.65	3.785	0.8296	31.56	26.33	1.19863	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/0	2.5yr5/6	Reducing	3					
GW	1	20-30	7	3.38	4.3	3.58	3.94	0.8579	30.42	20.73	1.46744	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/4	5yr6/6	5yr6/6	Reducing	3					
GW	1	20-30	8	3.56	4.54	4.35	4.445	0.8009	31.23	22.68	1.37698	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/2	2.5yr5/0	2.5yr4/6	Reducing	3					
GW	1	20-30	9	1.82	3.55	3.14	3.345	0.5441	27.42	16.95	1.6177	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/4	2.5yr6/8	2.5yr6/4	Reducing	3					
GW	1	20-30	10	1.09	3.5	3.67	3.585	0.304	20.22	14.86	1.3607	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	5yr5/6	Reducing	3					
GW	1	20-30	11	2.1	4.28	3.65	3.965	0.5296	21.92	19.27	1.13752	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	2.5yr5/8	Reducing	3					
GW	1	20-30	12	0.88	3.42	3.57	3.495	0.2518	16.6	14.11	1.17647	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr4/2	7.5yr5/4	Reducing	3					
GW	1	20-30	13	1.85	3.75	3.41	3.58	0.5168	24.04	17.39	1.3824	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr4/6	10yr6/3	Reducing	3					
GW	1	20-30	14	2.23	4.1	3.78	3.94	0.566	23.18	17.46	1.32761	Body	N	Y	N	N	Grit w/ Mica	Fine	7.5yr6/6	7.5yr5/4	10r3/4	Oxidizing	3					
GW	1	20-30	15	1.61	5.03	5.54	5.285	0.3046	22.77	16.74	1.36022	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
GW	1	20-30	16	1.31	4.64	3.28	3.96	0.3308	21.69	14.06	1.54267	Body	N	Y	N	N	Shell (foraminifera)	Fine	5yr5/6	5yr5/4	10r4/8	Oxidizing	3					
GW	1	20-30	17	1.23	3.53	3.26	3.395	0.3623	24.47	18.98	1.28925	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/2	5yr5/6	5yr5/6	Reducing	3					
GW	1	20-30	18	1.99	3.76	2.85	3.305	0.6021	23.5	17.46	1.34593	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/4	7.5yr7/4	7.5yr7/4	Oxidizing	3					
GW	1	20-30	19	1.55	3.5	2.95	3.225	0.4806	28.07	14.42	1.9466	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/8	2.5yr6/8	2.5yr6/8	Oxidizing	3					
GW	1	20-30	20	1.13	4.51	5.01	4.76	0.2374	23.25	11.25	2.06667	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/6	5yr5/6	5yr5/6	Oxidizing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
GW	1	20-30	21	1.58	4.56	3.86	4.21	0.3753	24.94	19.9	1.25327	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr5/0	5yr6/4	Reducing	3					
GW	1	20-30	22	1.8	3.88	3.05	3.465	0.5195	26.8	18.27	1.46689	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/6	2.5yr5/8	5yr5/6	Oxidizing	3					
GW	1	20-30	23	2.87	8.17	7.8	7.985	0.3594	20.87	18.96	1.10074	Body	N	N	N	N	Grit w/ Shell	Coarse	10r5/8	5yr7/6	7.5yr6/4	Oxidizing	3					
GW	1	20-30	24	1.45	3.36	3.05	3.205	0.4524	24.13	18.03	1.33833	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr4/0	2.5yr5/0	Reducing	3					
GW	1	20-30	25	0.78	3.65	3.76	3.705	0.2105	19.29	13.23	1.45805	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/4	5yr5/4	5yr6/4	Reducing	3					
GW	1	20-30	26	0.58	2.38	2.2	2.29	0.2533	18.69	16.91	1.10526	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	5yr5/2	5yr4/1	Reducing	3					
GW	1	20-30	27	1.49	4.47	4.84	4.655	0.3201	25.82	17.03	1.51615	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr6/2	7.5yr6/4	10yr5/2	Reducing	3					
GW	1	20-30	28	2.17	3.01	3.72	3.365	0.6449	30.53	16.02	1.90574	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/0	5yr6/6	2.5yr6/8	Reducing	3					
GW	1	20-30	29	2.25	3.46	2.65	3.055	0.7365	32.36	19.87	1.62859	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/0	7.5yr6/2	2.5yr6/8	Reducing	3					
GW	1	20-30	30	2.37	5.27	4.8	5.035	0.4707	25.83	20.88	1.23707	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr7/6	7.5yr6/4	Reducing	3					
GW	1	20-30	31	1.43	3.32	2.62	2.97	0.4815	26.29	16.01	1.6421	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/8	5yr6/6	10r4/8	Reducing	3					
GW	1	20-30	32	2.17	2.77	3.24	3.005	0.7221	29.64	23.69	1.25116	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/1	5yr6/6	5yr6/3	Reducing	3					
GW	1	20-30	33	4.41	6.95	4.63	5.79	0.7617	33.19	20.46	1.62219	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr7/6	7.5yr6/4	Reducing	3					
GW	1	20-30	34	1.35	3.36	3.31	3.335	0.4048	22.38	18.87	1.18601	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr6/1	10yr6/1	7.5yr5/4	Reducing	3					
GW	1	20-30	35	4.11	7.31	6.84	7.075	0.5809	31.37	19.11	1.64155	Body	Y	Y	N	N	Grit w/ Mica	Fine	2.5yr4/0	2.5yr2.5/2	10yr4/1	Reducing	3					
GW	1	20-30	36	2.19	6.07	6.32	6.195	0.3535	19.79	13.97	1.41661	Rim	N	N	N	N	Grit w/ Coral, Mica	Coarse	5yr3/3	5yr3/3	5yr3/3	Oxidizing	3		Straight	flat		
GW	1	20-30	37	0.75	4.08	4.32	4.2	0.1786	18.43	14.61	1.26146	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/0	7.5yr6/6	7.5yr7/6	Oxidizing	3					
GW	1	20-30	38	3.05	4.67	3.95	4.31	0.7077	31.32	20.71	1.51231	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	7.5yr6/2	7.5yr4/0	Reducing	3					2 pcs glued together
GW	1	20-30	39	1.75	4.68	4.45	4.565	0.3834	19.54	16.98	1.15077	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/6	5yr6/6	7.5yr6/2	Reducing	3					
GW	1	20-30	40	0.49	3.06	2.29	2.675	0.1832	18.14	11.97	1.51546	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/1	5yr5/6	5yr5/2	Reducing	3					
GW	1	20-30	41	0.45	4.1	3.92	4.01	0.1122	14.59	10.93	1.33486	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr6/1	7.5yr7/6	7.5yr7/6	Reducing	3					
GW	1	20-30	42	1.13	5.58	5.94	5.76	0.1962	17.04	12.3	1.38537	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/2	7.5yr7/2	2.5yr6/6	Reducing	3					
GW	1	20-30	43	0.41	4.32	4.16	4.24	0.0967	12.67	10.06	1.25944	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr4/0	2.5yr4/0	Reducing	3					
GW	1	20-30	44	0.78	4.76	5.09	4.925	0.1584	17.17	14.02	1.22468	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/0	7.5yr8/2	7.5yr6/2	Reducing	3					
GW	1	20-30	45	0.41	2.49	2.71	2.6	0.1577	15.92	10.18	1.56385	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr3/0	7.5yr5/2	2.5yr3/0	Reducing	3					
GW	1	20-30	46	0.88	3.64	3.82	3.73	0.2359	17.91	12.8	1.39922	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/4	2.5yr4/4	2.5yr4/4	Oxidizing	3					
GW	1	20-30	47	1.08	5.01	5.26	5.135	0.2103	17.72	11.69	1.51583	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
GW	1	20-30	48	0.71	2.84	3.18	3.01	0.2359	18.7	12.69	1.4736	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					water worn
GW	1	20-30	49	0.28	2.35	1.74	2.045	0.1369	17.88	9.63	1.8567	Body	N	Y	N	N	Shell (foraminifera)	Fine	5yr6/6	5yr6/6	5yr6/6	Oxidizing	3					
GW	1	20-30	50	0.71	2.94	2.68	2.81	0.2527	15.71	13.05	1.20383	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/6	5yr6/6	2.5yr6/8	Oxidizing	3					
GW	1	20-30	51	0.48	3.04	2.03	2.535	0.1893	19.15	10.09	1.89792	Body	N	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/8	7.5yr5/6	2.5yr5/8	Oxidizing	3					same as 49
GW	1	20-30	52	0.62	3.25	3.08	3.165	0.1959	18.73	11.96	1.56605	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr4/0	2.5yr5/6	Reducing	3					
GW	1	20-30	53	0.31	4.6	4.48	4.54	0.0683	13.29	8.35	1.59162	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/4	7.5yr6/4	7.5yr6/4	Oxidizing	3					
GW	1	20-30	54	0.31	3.2	3.36	3.28	0.0945	13.01	8.34	1.55995	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr3/1	5yr3/1	5yr3/1	Reducing	3					
GW	1	20-30	55	0.81	3.68	3.99	3.835	0.2112	14.47	12.23	1.18316	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/2	7.5yr6/6	7.5yr6/4	Reducing	3					
GW	1	20-30	56	0.57	2.4	2.06	2.23	0.2556	20.62	11.23	1.83615	Body	N	Y	N	N	Shell (foraminifera)	Fine	5yr6/8	7.5yr5/4	10r4/8	Oxidizing	3					same as 60
GW	1	20-30	57	0.5	4.08	4.02	4.05	0.1235	14.18	11.43	1.24059	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/6	2.5yr4/6	2.5yr4/6	Oxidizing	3					
GW	1	20-30	58	1.11	4.84	4.32	4.58	0.2424	20.2	13.88	1.45533	Body	N	N	N	N	Shell (foraminifera)	Fine	10r6/8	10r6/8	7.5yr5/6	Oxidizing	3					
GW	1	20-30	59	0.78	2.38	2.96	2.67	0.2921	19.84	11.34	1.74956	Body	Y	Y	N	N	Shell (foraminifera)	Fine	5yr5/8	5yr6/6	2.5yr5/8	Oxidizing	3					
GW	1	20-30	60	0.64	3.5	2.13	2.815	0.2274	16.19	12.47	1.29832	Body	N	Y	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr4/0	10r4/4	Reducing	3					same as 56
GW	1	20-30	61	1.16	3.35	3.2	3.275	0.3542	19.42	15.81	1.22834	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/8	5yr5/8	2.5yr4/2	Oxidizing	3					
GW	1	20-30	62	1.94	5.99	4.84	5.415	0.3583	22.24	13.01	1.70945	Body	N	N	N	N	Grit w/ Mica	Fine	10r5/6	5yr5/4	10r5/6	Oxidizing	3					
GW	1	20-30	63	0.23	2.47	2.29	2.38	0.0966	12.78	8.84	1.4457	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/3	5yr3/3	5yr5/3	Reducing	3					
GW	1	20-30	64	0.66	3	3.02	3.01	0.2193	15.94	13.46	1.18425	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/8	2.5yr6/8	5yr5/3	Oxidizing	3					
GW	1	20-30	65	0.54	3.93	3.84	3.885	0.139	13.24	11.86	1.11636	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/4	7.5yr3/2	7.5yr4/2	Reducing	3					
GW	1	20-30	66	0.52	2.84	2.96	2.9	0.1793	17.72	11.07	1.60072	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/0	5yr6/6	2.5yr5/8	Reducing	3					
GW	1	20-30	67	0.57	3.35	2.84	3.095	0.1842	13.94	12.97	1.07479	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr4/6	Oxidizing	3					
GW	1	20-30	68	0.66	3.77	3.72	3.745	0.1762	16.81	14.41	1.16655	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/6	2.5yr6/6	10r6/6	Oxidizing	3					
GW	1	20-30	69	2.92	4.29	2.55	3.42	0.8538	30.24	28	1.08	Body	N	Y	N	N	Shell (foraminifera)	Fine	7.5yr4/2	7.5yr4/2	10r4/6	Oxidizing	3					same as 56, 60
GW	1	20-30	70	3.93	7.35	5.79	6.57	0.5982	25.29	24.06	1.05112	Rim	Y	Y	N	N	Grit w/ Coral, Grog	Coarse	2.5yr5/8	10r4/6	10r4/6	Oxidizing	3		Everted	rounded		
GW	1	30-40	1	70.15	12.59	13.17	12.88	5.4464	81.18	54.4	1.49228	Corner	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r4/8	10r4/6	10r4/8	Oxidizing	3				Roofing Tile	
GW	1	30-40	2	20.03	9.48	10.03	9.755	2.0533	41.27	32.24	1.28009	Body	Y	Y	N	N	Grit w/ Grog	Fine	10r4/3	10r4/3	10r3/3	Oxidizing	5					high fired. Odd coating on ext. stoneware?
GW	1	30-40	3	8.58	13.37	10.42	11.895	0.7213	40.95	13.96	2.93338	Lid	Y	Y	N	N	Grit w/ Sand	Varies	10r4/8	10r4/6	10r4/6	Oxidizing	3				L&S #3- Lid	no temper. Arcuate, possibly a lid frag? High fired
GW	1	30-40	4	4.72	3.66	3.1	3.38	1.3964	32.87	30.5	1.0777	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr4/0	7.5yr3/0	Reducing	3					firing clouds on int and ext
GW	1	30-40	5	3.26	3.91	3.13	3.52	0.9261	32.42	21.16	1.53214	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr6/1	10yr6/1	10yr6/3	Reducing	3					
GW	1	30-40	6	2.96	3.54	3.07	3.305	0.8956	29.25	23.19	1.26132	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/4	5yr8/1	5yr5/6	Oxidizing	3					lime coating on int?
GW	1	30-40	7	4	6.37	5.04	5.705	0.7011	34.27	25.84	1.32624	Rim	N	N	N	N	Shell (foraminifera)	Fine	5yr6/2	5yr7/3	5yr6/2	Reducing	3		Straight	rounded		
GW	1	30-40	8	2.59	5.03	5.15	5.09	0.5088	31.68	17.87	1.7728	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/6	2.5yr6/6	2.5yr6/4	Oxidizing	3					
GW	1	30-40	9	1.77	3.8	3.55	3.675	0.4816	23.06	16.74	1.37754	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr4/1	5yr6/3	5yr4/1	Reducing	3					firing clouds
GW	1	30-40	10	1.11	2.49	2.53	2.51	0.4422	19.43	17.38	1.11795	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	5yr5/4	5yr5/4	5yr5/4	Oxidizing	3					
GW	1	30-40	11	1.69	6.49	5.9	6.195	0.2728	21.42	18.42	1.16287	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/2	7.5yr5/2	7.5yr6/4	Reducing	3					
GW	1	30-40	12	2.16	4.75	4.24	4.495	0.4805	23.47	16.46	1.42588	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr4/2	5yr4/2	5yr4/1	Reducing	3					
GW	1	30-40	13	1.84	3.51	4.21	3.86	0.4767	25.67	18.81	1.3647	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr3/0	7.5yr4/0	Reducing	3					
GW	1	30-40	14	1.68	3.67	3.27	3.47	0.4841	26.27	13.79	1.905	Body	N	N	Charred	N	Shell (foraminifera)	Fine	7.5yr5/4	7.5yr3/0	7.5yr4/0	Oxidizing	3					
GW	1	30-40	15	0.25	1.8	1.76	1.78	0.1404	15.77	10.71	1.47246	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
GW	1	30-40	16	0.94	3.05	3.39	3.22	0.2919	19.77	13.94	1.41822	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/6	2.5yr5/6	2.5yr5/4	Reducing	3					
GW	1	30-40	17	0.86	4.57	3.88	4.225	0.2036	14.49	14.08	1.02912	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	5yr6/4	5yr6/4	Reducing	3					
GW	1	30-40	18	0.54	5.13	4.68	4.905	0.1101	15.92	14.38	1.10709	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/4	7.5yr6/4	7.5yr6/4	Oxidizing	3					
GW	1	30-40	19	1.05	4.23	4.05	4.14	0.2536	15.97	15.57	1.02569	Body	N	N	N	Incising	Shell (foraminifera)	Fine	7.5yr6/2	2.5yr6/8	7.5yr6/2	Reducing	3	Other Incise				diagonal criss-crosses
GW	1	30-40	20	1.02	5.52	5.02	5.27	0.1935	21.59	14.46	1.49308	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/6	2.5yr6/8	2.5yr6/6	Oxidizing	3					
GW	1	30-40	21	1.07	3.41	3.74	3.575	0.2993	15.05	17.5	0.86	Body	N	Y	N	Impress	Grit w/ Mica	Fine	7.5yr6/6	5yr7/3	5yr6/4	Reducing	3	Impress on Body				
GW	1	30-40	22	0.59	4.06	3.34	3.7	0.1595	17.9	11.98	1.49416	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/2	10yr5/1	10yr5/2	Reducing	3					
GW	1	30-40	23	0.91	3.51	4.25	3.88	0.2345	18.93	16.38	1.15568	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/6	5yr4/2	5yr5/1	Oxidizing	3					
GW	1	30-40	24	0.51	3.69	3.11	3.4	0.15	16.31	12.99	1.25558	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/6	5yr5/6	5yr4/2	Oxidizing	3					
GW	1	30-40	25	0.68	3.1	2.47	2.785	0.2442	21.51	11.58	1.85751	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/8	2.5yr6/8	2.5yr5/8	Oxidizing	3					
GW	1	30-40	26	1	3.34	3.23	3.285	0.3044	20.9	17.38	1.20253	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/8	2.5yr4/6	2.5yr4/8	Oxidizing	3					2 pcs glued together
GW	1	30-40	27	1.39	5.07	3.5	4.285	0.3244	20.59	14.18	1.45205	Body	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/2	2.5yr5/8	2.5yr5/8	Reducing	3					
GW	1	30-40	28	1.27	2.9	2.31	2.605	0.4875	19.1	18.17	1.05118	Body	N	N	Coating	N	Shell (foraminifera)	Fine	7.5yr4/2	7.5yr7/6	5yr4/1	Oxidizing	3					lime? Coating on int. 2 pcs glued together
GW	1	30-40	29	0.66	3.73	2.95	3.34	0.1976	17.27	14.45	1.19516	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/6	2.5yr5/8	Reducing	3					
GW	1	30-40	30	1.37	4.52	5.16	4.84	0.2831	20.27	15.6	1.29936	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr3/0	7.5yr3/0	Reducing	3					
GW	1	30-40	31	1.46	5.99	5.87	5.93	0.2462	23.47	18.01	1.30316	Body	N	N	N	N	Grit	Fine	2.5yr6/8	2.5yr6/8	2.5yr6/8	Oxidizing	3					
GW	1	30-40	32	0.69	4.17	3.26	3.715	0.1857	15.07	11.23	1.34194	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	5yr6/3	10r5/8	Oxidizing	3					
GW	1	30-40	33	0.88	5.29	4.1	4.695	0.1874	18.19	12.51	1.45404	Body	N	N	N	Incising	Shell (foraminifera)	Fine	2.5yr5/4	2.5yr5/6	10yr6/1	Reducing	3	Single Incise				broke along incising, can't tell what it was
GW	1	30-40	34	0.31	1.71	2.31	2.01	0.1542	12.95	11.03	1.17407	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	5yr4/3	2.5yr4/0	5yr4/3	Oxidizing	3					
GW	1	30-40	35	0.85	3.47	2.64	3.055	0.2782	16.02	14.31	1.1195	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr4/8	2.5yr2.5/2	10r4/8	Oxidizing	3					
GW	1	30-40	36	0.54	3.27	3.09	3.18	0.1698	15.03	9.81	1.53211	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/4	5yr6/4	5yr6/4	Reducing	3					
GW	1	30-40	37	0.24	2.38	2.14	2.26	0.1062	12.43	10.61	1.17154	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/6	Oxidizing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
GW	1	30-40	38	2.07	3.93	3.06	3.495	0.098	21.12	21.02	1.00476	Body	N	N	N	N	Grit w/ Grog	Coarse	10r4/6	10r4/6	10r4/6	Oxidizing	3					water worn. This might actually be a rock…
GW	1	30-40	39	5.76	8.47	7.99	8.23	0.6999	30.92	24.22	1.27663	Body	Y	N	N	N	Grit w/ Mica	Fine	5yr7/8	5yr3/1	5yr7/8	Oxidizing	3					
GW	1	30-40	40	0.04								Bits																ceramic bits
GW	1	40-50	1	90.72	19.34	10.6	14.97	6.0601	68.4	59.94	1.14114	Rim	Y	Y	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r5/8	10r4/8	10r4/3	Oxidizing	3		Everted	Rounded	Roofing Tile	roofing tile or large amphora? High fired. Refit w. gw.1.5.70-80.erw.001
GW	1	40-50	2	2.21	5.81	4.62	5.215	0.4238	25.08	17.35	0.36667	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr7/6	5yr4/1	Reducing	3					
GW	1	40-50	3	8.7	4.75	3.77	4.26	2.0423	56.15	30.69	1.82959	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/0	5yr5/6	5yr6/4	Reducing	3					
GW	1	40-50	4	2.17	3.41	2.79	3.1	0.7	27.97	23.27	1.20198	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	5yr5/3	2.5yr4/2	Reducing	3					
GW	1	40-50	5	3.66	5.16	3.52	4.34	0.8433	30.38	30.05	1.01098	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r5/8	10r5/8	5yr3/3	Oxidizing	3					water worn
GW	1	40-50	6	3.08	4.1	4.47	4.285	0.7188	33.15	19.58	1.69305	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/6	2.5yr5/6	2.5yr5/6	Oxidizing	3					lots of temper
GW	1	40-50	7	2.27	3.65	3.04	3.345	0.6786	25.87	19.26	1.3432	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr5/2	5yr4/1	Oxidizing	3					
GW	1	40-50	8	1.16	3.57	3.85	3.71	0.3127	17.2	16.15	1.06502	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr8/2	7.5yr7/2	7.5yr6/6	Reducing	3					
GW	1	40-50	9	1.77	4.04	3.74	3.89	0.455	19.69	17	1.15824	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr4/1	5yr4/1	5yr5/4	Reducing	3					
GW	1	40-50	10	1.32	3.1	3.71	3.405	0.3877	24.78	16.85	1.47062	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr3/0	7.5yr3/0	Reducing	3					
GW	1	40-50	11	5.55	3.36	3.02	3.19	1.7398	38.8	35.4	1.09605	Body	N	N	N	N	Grit w/ Shell	Fine	7.5yr5/0	10yr5/1	5yr5/1	Reducing	3					
GW	1	40-50	12	5.94	3.64	2.74	3.19	1.8621	40.19	30.07	1.33655	Body	N	N	N	N	Grit w/ Shell	Fine	7.5yr5/0	10yr5/1	10yr5/2	Reducing	3					same as 11
GW	1	40-50	13	6.24	5.04	5.47	5.255	1.1874	33.84	27.72	1.22078	Body	Y	Y	N	N	Shell (foraminifera)	Fine	5yr6/4	10yr5/1	7.5yr4/0	Oxidizing	3					
GW	1	40-50	14	6.94	8.15	6.18	7.165	0.9686	31.06	26.39	1.17696	Rim	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr3/0	2.5yr3/0	10r4/4	Reducing	3		Everted	Rounded		
GW	1	40-50	15	2.08	4.75	3.9	4.325	0.4809	24.54	17.16	1.43007	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r4/6	10r4/6	10r4/6	Oxidizing	3					water worn
GW	1	40-50	16	0.6	2.58	2.64	2.61	0.2299	15.51	14.07	1.10235	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r4/4	10r4/4	10r4/6	Oxidizing	3					water worn
GW	1	40-50	17	0.93	2.04	2.2	2.12	0.4387	21.9	17.6	1.24432	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	2.5yr4/2	2.5yr4/0	2.5yr4/2	Oxidizing	3					water worn
GW	1	40-50	18	0.94	2.46	2.22	2.34	0.4017	21.78	17.13	1.27145	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	5yr5/2	10r4/4	Oxidizing	3					water worn
GW	1	40-50	19	0.97	2.9	2.55	2.725	0.356	20.67	15.4	1.34221	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	2.5yr4/6	2.5yr4/6	5yr4/4	Oxidizing	3					water worn
GW	1	40-50	20	0.7	2.16	2.23	2.195	0.3189	22.67	13.93	1.62742	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/8	2.5yr6/8	10r5/8	Oxidizing	3					
GW	1	40-50	21	0.99	4.26	3.05	3.655	0.2709	14.8	13.35	1.10861	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr3/0	2.5yr4/6	Reducing	3					
GW	1	40-50	22	2.57	8.11	6.21	7.16	0.3589	22.44	15.8	1.42025	Rim	Y	Y	N	Impress	Shell (foraminifera)	Fine	5yr5/2	5yr6/3	5yr5/2	Reducing	3	Impress on Rim	Everted	Rounded		impress on rim
GW	1	40-50	23	0.88	3.07	3.26	3.165	0.278	20.4	15.39	1.32554	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	7.5yr6/4	10r5/8	Oxidizing	3					
GW	1	40-50	24	1.17	3.51	3.44	3.475	0.3367	18.18	13.37	1.35976	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/2	2.5yr6/6	2.5yr5/6	Reducing	3					
GW	1	40-50	25	1.34	5.13	4.95	5.04	0.2659	20.11	14.9	1.34966	Body	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr4/8	2.5yr3/0	10r4/3	Reducing	3					
GW	1	40-50	26	0.42	2.95	3.64	3.295	0.1275	12.39	8.33	1.48739	Body	N	Y	N	N	Shell (foraminifera)	Fine	5yr3/1	5yr4/1	5yr5/6	Reducing	3					
GW	1	40-50	27	0.62	4.36	4.25	4.305	0.144	14.2	11.33	1.25331	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/2	7.5yr5/4	7.5yr5/4	Reducing	3					
GW	1	40-50	28	0.69	4.72	4.61	4.665	0.1479	15.42	10.5	1.46857	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/8	5yr6/8	5yr5/2	Oxidizing	3					
GW	1	40-50	29	0.67	2.62	2.56	2.59	0.2587	17.93	13.73	1.3059	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	7.5yr4/4	7.5yr4/4	7.5yr4/4	Oxidizing	3					
GW	1	40-50	30	0.25	1.85	1.71	1.78	0.1404	11.56	11.48	1.00697	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr5/1	5yr5/1	Reducing	3					
GW	1	40-50	31	0.93	3.99	3.45	3.72	0.25	17.23	13.01	1.32437	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	7.5yr6/4	2.5yr6/6	Reducing	3					
GW	1	40-50	32	1.15	4.17	3.98	4.075	0.2822	18.62	11.37	1.63764	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/2	5yr5/6	5yr5/3	Reducing	3					
GW	1	40-50	33	0.96	2.89	2.25	2.57	0.3735	22.58	15.28	1.47775	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/2	5yr6/2	5yr5/1	Reducing	3					
GW	1	40-50	34	0.89	3.26	3.15	3.205	0.2777	17.48	14.71	1.18831	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/6	5yr6/6	5yr6/4	Oxidizing	3					
GW	1	40-50	35	0.64	2.37	2.17	2.27	0.2819	14.6	13.44	1.08631	Body	N	Y	N	N	Grit w/ Coral	Fine	7.5yr5/4	7.5yr5/4	10r4/6	Oxidizing	3					
GW	1	40-50	36	1.39	9.39	7.69	8.54	0.1628	23.89	7.45	3.20671	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/2	7.5yr5/2	7.5yr5/2	Reducing	3					
GW	1	40-50	37	0.28	3.4	3.34	3.37	0.0831	12.43	8.51	1.46063	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr5/6	7.5yr5/4	Reducing	3					
GW	1	40-50	38	0.37	4.78	3.9	4.34	0.0853	12.14	7.94	1.52897	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/2	7.5yr4/2	7.5yr4/0	Reducing	3					
GW	1	40-50	39	0.13			0	#DIV/0!				Bits																
GW	1	50-60	1	12.96	9.31	5.43	7.37	1.7585	65.57	33.04	1.98456	Rim	N	N	N	N	Grit w/ Coral, Grog, Sand	Fine	10r5/6	10r5/6	10r5/6	Oxidizing	3		Everted	Pointed		
GW	1	50-60	2	0.88	3.33	2.33	2.83	0.311	19.94	15.07	1.32316	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr5/2	7.5yr4/2	Reducing	3					
GW	1	50-60	3	2.77	2.73	3.07	2.9	0.9552	32.62	27.9	1.16918	Body	N	Y	N	N	Grit w/ Coral	Fine	7.5yr4/0	7.5yr4/0	10r3/4	Reducing	3	red slipped				
GW	1	50-60	4	1.81	4.93	4.77	4.85	0.3732	22.82	15.45	1.47702	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r4/8	2.5yr5/4	10r4/8	Oxidizing	3					
GW	1	50-60	5	1.48	2.87	2.31	2.59	0.5714	21.55	20.84	1.03407	Body	N	Y	N	N	Grit w/ Coral	Fine	10r4/8	2.5yr3/2	10r4/6	Oxidizing	3	red slipped				same as 3
GW	1	50-60	6	0.89	2.06	2.56	2.31	0.3853	22.35	20.62	1.0839	Body	N	Y	N	N	Grit w/ Coral	Fine	7.5yr5/6	7.5yr5/4	10r4/6	Oxidizing	3	red slipped				same as 3, 5
GW	1	50-60	7	1.23	4.13	3.13	3.63	0.3388	24.02	17.49	1.37336	Body	N	Y	N	N	Grit w/ Coral	Fine	2.5yr4/2	2.5yr3/2	10r4/6	Reducing	3	red slipped				same 3, 5, 6
GW	1	50-60	8	2.4	3.25	3.06	3.155	0.7607	27.04	24.77	1.09164	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr4/1	10yr4/1	2.5yr3/0	Reducing	3					
GW	1	50-60	9	6.84	9.14	7.22	8.18	0.8362	28.96	26.46	1.09448	Rim	Y	Y	N	N	Grit	Fine	2.5yr4/0	2.5yr4/6	2.5yr4/6	Reducing	3	red slipped	Straight	rounded		
GW	1	50-60	10	1.17	5.57	4.91	5.24	0.2233	15.35	16.01	1.80887	Body	N	N	N	N	Grit	Fine	5yr5/8	5yr4/2	5yr4/2	Oxidizing	3					
GW	1	50-60	11	1.21	3.31	3.6	3.455	0.3502	18.25	17.46	1.04525	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr4/4	5yr5/4	5yr5/3	Oxidizing	3					
GW	1	50-60	12	1.14	3.27	3.17	3.22	0.354	26.25	11.62	2.25904	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr4/1	2.5yr4/0	Reducing	3					
GW	1	50-60	13	1.79	2.84	2.39	2.615	0.6845	27.92	19.39	1.43992	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr4/0	7.5yr4/0	Reducing	3					
GW	1	50-60	14	1.89	4.33	4.51	4.42	0.4276	33.21	15.24	2.17913	Body	N	N	N	Incising	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3	Other Incise				
GW	1	50-60	15	3.1	4.59	4.1	4.345	0.7135	31.54	23.66	1.33305	Body	N	N	N	Punctate	Grit w/ Coral, Grog, Mica	Coarse	5yr5/3	5yr5/3	5yr5/3	Oxidizing	3	Punctate				water worn, punctate
GW	1	50-60	16	2.56	3.77	3.87	3.82	0.6702	27.23	21.5	1.26651	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	5yr5/3	5yr5/3	5yr4/1	Oxidizing	3					
GW	1	50-60	17	0.83	3.56	3.4	3.48	0.2385	11.4	16.96	0.67217	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	5yr5/1	5yr6/6	5yr5/1	Reducing	3					
GW	1	50-60	18	1.21	5.61	5.58	5.595	0.2163	21.12	11.95	1.76736	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/8	5yr5/2	5yr5/3	Reducing	3					
GW	1	50-60	19	0.83	5.17	5.28	5.225	0.1589	14.64	10.97	1.33455	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/6	5yr5/8	2.5yr4/6	Oxidizing	3					
GW	1	50-60	20	1.94	3.92	4.1	4.01	0.4838	24.76	15.83	1.56412	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr4/4	2.5yr4/4	2.5yr4/8	Oxidizing	3					
GW	1	50-60	21	0.71	3.57	3.16	3.365	0.211	13.95	12.5	1.116	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/6	7.5yr5/2	7.5yr5/4	Oxidizing	3					
GW	1	50-60	22	0.47	2.4	3.05	2.725	0.1725	14.54	8.39	1.73302	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr4/6	Reducing	3					
GW	1	50-60	23	1	2.94	3.28	3.11	0.3215	18.87	15.66	1.20498	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r4/8	10r4/4	2.5yr5/4	Oxidizing	3					water worn
GW	1	50-60	24	4.14	7.1	5.69	6.395	0.6474	30.09	20.84	1.44386	Rim	N	N	N	Incising	Shell (foraminifera)	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3	Other Incise	Inverted	Pointed		lime coating all around
GW	1	50-60	25	1.51	3.82	3.56	3.69	0.4092	20.75	18.45	1.12466	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/2	7.5yr5/2	7.5yr6/6	Reducing	3					
GW	1	50-60	26	0.8	3.65	4.02	3.835	0.2086	13.19	12.96	1.01775	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	10yr5/1	Reducing	3					
GW	1	50-60	27	0.4	2.27	2.3	2.285	0.1751	12.55	11.03	1.13781	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/8	2.5yr4/8	2.5yr3/2	Oxidizing	3					
GW	1	50-60	28	2.23	6.23	5.04	5.635	0.3957	20.32	15.33	1.32551	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					water worn. Pos. rim frg.
GW	1	50-60	29	3.46	12.86	5.33	9.095	0.3804	22.04	18.05	1.22105	Rim	N	N	N	N	Shell (foraminifera)	Fine	10yr4/1	10yr4/1	10yr5/3	Reducing	2		Damaged	Flat		3 pcs glued together
GW	1	60-70	1	9.6	5.98	5.33	5.655	1.6976	40.51	33.98	1.19217	Body	Y	Y	N	N	Shell (foraminifera)	Fine	10yr4/1	10yr5/2	10yr5/2	Reducing	3					
GW	1	60-70	2	5.43	4.3	4.11	4.205	1.2913	41.24	27.52	1.49855	Body	N	N	Charred	N	Grit w/ Mica	Fine	7.5yr3/0	7.5yr3/0	7.5yr3/0	Reducing	3					high fired. some wiping marks on ext. Some residue on ext, mortar-like.

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
GW	1	60-70	3	8.7	5.82	6.87	6.345	1.3712	37.4	32.82	1.13955	Body	Y	Y	N	N	Grit w/ Coral, Mica	Coarse	10r5/8	7.5yr3/0	7.5yr3/0	Oxidizing	3					high fired, some wiping marks.
GW	1	60-70	4	4.97	3.89	4.09	3.99	1.2456	32.68	28.51	1.14626	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	5yr6/6	5yr5/4	Reducing	3					firing clouds
GW	1	60-70	5	2.53	5.48	5.99	5.735	0.4412	20.83	19.34	1.07704	Rim	N	N	N	Incising	Shell (foraminifera)	Fine	5yr5/3	5yr5/1	5yr6/3	Reducing	3	Parallel Incise	Everted	Damaged		2 curvilinear lines
GW	1	60-70	6	1.63	4.09	3.33	3.71	0.4394	19.04	18.65	1.02091	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	5yr4/1	5yr5/3	Reducing	3					
GW	1	60-70	7	1.85	3.71	5.02	4.365	0.4238	22.27	15.1	1.47483	Rim	N	N	N	N	Grit	Fine	2.5yr5/0	10yr5/1	10yr5/2	Reducing	3		Inverted	Flat		
GW	1	60-70	8	1.69	4.26	3.56	3.91	0.4322	23.35	19.33	1.20797	Body	N	N	N	N	Grit w/ Shell	Fine	2.5yr4/4	5yr5/2	10r4/8	Oxidizing	3					
GW	1	60-70	9	3.28	5.04	3.92	4.48	0.7321	29.04	22.46	1.29297	Body	Y	Y	N	N	Grit w/ Coral, Mica	Fine	5yr4/3	10yr5/3	10r4/6	Oxidizing	3	red slipped				
GW	1	60-70	10	2.27	7.21	6.12	6.665	0.3406	19.31	19.28	1.00156	Neck	N	Y	N	N	Shell (foraminifera)	Fine	5yr4/1	5yr5/6	5yr5/4	Reducing	3					
GW	1	60-70	11	1.58	3.65	3.44	3.545	0.4457	24.79	17.7	1.40056	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr3/3	5yr4/1	7.5r4/0	Oxidizing	3					
GW	1	60-70	12	0.99	4.1	3.63	3.865	0.2561	18.34	11.23	1.63313	Body	Y	Y	N	N	Shell (foraminifera)	Fine	10yr5/1	2.5yr6/6	5yr5/6	Reducing	3					
GW	1	60-70	13	0.85	3.88	3.78	3.83	0.2219	17.22	12.37	1.39208	Body	N	Y	N	N	Shell (foraminifera)	Fine	5yr5/6	10yr4/1	5yr5/6	Oxidizing	3					
GW	1	60-70	14	9.09	7.73	4.7	6.215	1.4626	45.91	26.67	1.72141	Neck	N	N	N	N	Grit w/ Coral, Grog, Lava, Mica	Coarse	5yr5/3	5yr5/3	5yr5/3	Oxidizing	3					water worn
GW	1	60-70	15	2.72	4.26	4.1	4.18	0.6507	39.53	18.11	2.18277	Body	N	Y	N	N	Grit w/ Coral, Grog, Lava, Mica	Coarse	7.5yr6/4	7.5yr6/4	10r4/6	Oxidizing	3					water worn
GW	1	60-70	16	2	5.49	4.34	4.915	0.4069	25.95	14.73	1.76171	Body	N	N	N	N	Grit w/ Coral, Grog, Lava, Mica	Coarse	7.5yr5/4	7.5yr5/4	7.5yr5/4	Oxidizing	3					water worn
GW	1	60-70	17	0.62	3.29	3.47	3.38	0.1834	16.96	11.42	1.48511	Body	N	N	N	N	Grit w/ Coral, Grog, Lava, Mica	Coarse	5yr5/4	5yr5/4	5yr5/4	Oxidizing	3					water worn
GW	1	60-70	18	2.06	3.59	3.83	3.71	0.5553	21.92	20.57	1.06563	Body	N	N	N	N	Grit w/ Grog, Mica, Sand	Coarse	2.5yr5/4	2.5yr5/4	2.5yr5/4	Oxidizing	3					water worn
GW	1	60-70	19	0.57	3.87	3.09	3.48	0.1638	13.17	11.04	1.19293	Body	N	N	N	N	Grit w/ Coral, Grog, Lava, Mica	Coarse	7.5yr5/4	7.5yr5/4	7.5yr5/4	Oxidizing	3					water worn
GW	1	60-70	20	0.42	2.64	2.71	2.675	0.157	16.08	9.82	1.63747	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr4/4	2.5yr4/4	2.5yr4/4	Oxidizing	3					water worn
GW	1	60-70	21	1.03	2.91	2.1	2.505	0.4112	21.2	15.33	1.38291	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r3/2	10r3/2	10r3/2	Oxidizing	3					water worn
GW	1	60-70	22	0.52	2.47	2.68	2.575	0.2019	13.68	11.59	1.18033	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10yr4/1	5yr4/2	10yr4/1	Oxidizing	3					water worn
GW	1	60-70	23	0.31	2.72	2.65	2.685	0.1155	10.31	9.03	1.14175	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r3/4	2.5yr3/0	10r3/4	Oxidizing	3					water worn
GW	1	60-70	24	0.58	4.99	4.86	4.925	0.1178	11.49	8.57	1.34072	Body	N	Y	N	N	Grit w/ Coral, Mica	Fine	5yr5/4	5yr5/4	2.5yr5/6	Oxidizing	3					water worn
GW	1	70-80	1	42.9	14.83	10.33	12.58	3.4102	87.41	41.54	2.10424	Handle	Y	Y	N	Hole	Grit w/ Grog, Mica	Fine	7.5yr4/4	7.5yr5/4	7.5yr5/4	Oxidizing	3				Other, Handle	handle w/ hole in it
GW	1	70-80	2	7.37	5.15	4.24	4.695	1.5698	40.48	33.28	1.21635	Rim	N	N	N	N	Grit w/ Coral	Fine	7.5yr5/0	5yr4/2	5yr4/2	Reducing	3		inverted	rounded		
GW	1	70-80	3	3.52	4.25	3.84	4.045	0.8702	29.33	25.85	1.13462	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/6	2.5yr4/4	10r4/6	Oxidizing	3					firing clouds on ext
GW	1	70-80	4	1.64	3.06	3.12	3.09	0.5307	26.54	16.5	1.60848	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r5/6	10r5/6	10r5/6	Oxidizing	3					
GW	1	70-80	5	4.68	4.73	3.3	4.015	1.1656	34.78	30.31	1.14748	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	5yr4/3	5yr4/3	5yr4/3	Oxidizing	3					
GW	1	70-80	6	2.86	4.23	4.92	4.575	0.6251	22.84	23.47	0.97316	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	2.5yr4/4	2.5yr3/0	2.5yr4/4	Oxidizing	3					firing clouds on ext
GW	1	70-80	7	1.98	5.6	6.15	5.875	0.337	23	15.43	1.4906	Rim	Y	Y	N	N	Grit w/ Coral, Grog	Coarse	5yr4/1	5yr4/1	10yr4/2	Reducing	3	red slipped	Everted	Rounded*		10r4/8 red slip on small parts, mostly worn
GW	1	70-80	8	3.97	7.1	3.81	5.455	0.7278	31.49	22.15	1.42167	Rim	Y	Y	N	N	Grit w/ Coral, Lava, Mica	Coarse	7.5yr5/6	7.5r5/6	7.5yr5/6	Oxidizing	3	red slipped	Everted	Rounded*		
GW	1	70-80	9	1.38	3.54	4.31	3.925	0.3516	17.7	16.37	1.08125	Body	N	Y	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r3/4	10r3/4	10r3/6	Oxidizing	3	red slipped				
GW	1	70-80	10	1.22	3.08	2.87	2.975	0.4101	22.37	14.14	1.58204	Body	N	Y	N	N	Grit w/ Coral, Grog, Mica	Coarse	2.5yr6/6	2.5yr6/6	10r4/6	Oxidizing	3	red slipped				
GW	1	70-80	11	2.65	3.99	3.36	3.675	0.7211	32.78	18.72	1.75107	Body	N	Y	N	N	Grit w/ Coral, Grog	Coarse	7.5yr5/4	7.5yr5/4	10r4/6	Oxidizing	3	red slipped				
GW	1	70-80	12	5.7	6.86	5.55	6.205	0.9186	35.14	24.05	1.46112	Rim	Y	Y	N	N	Grit w/ Coral	Fine	10r4/8	10r4/6	10r4/6	Oxidizing	3	red slipped	Everted	rounded		3 black hairs stuck in slip
GW	1	70-80	13	1.93	3.06	2.77	2.915	0.6621	28.58	21.64	1.3207	Body	N	Y	N	N	Grit w/ Coral	Fine	7.5yr6/6	7.5yr6/6	10r4/6	Oxidizing	3	red slipped				
GW	1	70-80	14	2.47	4.24	4.22	4.23	0.5839	30.91	21.27	1.45322	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r5/3	10r4/3	10r5/3	Oxidizing	3					
GW	1	70-80	15	3.7	4.27	4.12	4.195	0.882	28.15	26.02	1.08186	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	5yr4/3	7.5yr3/0	5yr4/3	Reducing	3					
GW	1	70-80	16	1.74	3.74	3.34	3.54	0.4915	26.56	14.82	1.79217	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r4/3	5yr4/1	10r4/3	Oxidizing	3					
GW	1	70-80	17	0.55	2.21	2.11	2.16	0.2546	15.34	11.7	1.31111	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr3/0	7.5yr5/4	7.5yr5/4	Reducing	3					
GW	1	70-80	18	0.52	2.78	2.59	2.685	0.1937	12.86	11.1	1.15856	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r3/4	Oxidizing	3					
GW	1	70-80	19	2.08	3.96	4.13	4.045	0.5142	22.05	16.48	1.33799	Body	N	Y	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr7/2	7.5yr4/0	Reducing	3					white coating all around
GW	1	70-80	20	0.92	2.97	2.54	2.755	0.3339	14.32	16.67	0.85903	Body	N	Y	N	N	Shell (foraminifera)	Fine	5yr6/3	5yr6/3	7.5yr6/4	Reducing	3					white coating all around
GW	1	70-80	21	2.16	6.19	4.36	5.275	0.4095	26.12	16.65	1.56877	Rim	N	N	N	N	Shell (foraminifera)	Fine	10r5/3	10r5/6	10r5/8	Reducing	3		Straight	rounded		
GW	1	70-80	22	1.34	3.38	3.04	3.21	0.4174	21.42	17.02	1.25852	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/2	2.5yr3/0	10r4/1	Reducing	3					
GW	1	70-80	23	0.62	2.71	2.74	2.725	0.2275	16.28	13.58	1.19882	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr3/0	7.5yr3/0	Reducing	3					
GW	1	70-80	24	0.91	2.86	3.65	3.255	0.2796	17.89	14.45	1.23806	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr3/0	7.5yr3/0	Reducing	3					
GW	1	80-90	1	18.16	6.61	5.07	5.84	3.1096	48.33	43.1	1.12135	Neck	Y	Y	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr5/5	7.5yr6/4	Reducing	3					
GW	1	80-90	2	1.07	3.84	3.47	3.655	0.2927	18.84	13.73	1.37218	Body	N	Y	N	N	Shell (foraminifera)	Fine	5yr4/4	5yr3/2	7.5yr5/4	Oxidizing	3					
GW	1	80-90	3	5.29	6.56	6.46	6.51	0.8126	33.35	23.43	1.42339	Body	Y	Y	N	N	Grit	Fine	7.5yr3/0	7.5yr3/0	7.5yr3/0	Reducing	3					
GW	1	80-90	4	2.11	3.58	2.71	3.145	0.6709	31.32	24.77	1.26443	Body	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr6/6	2.5yr6/6	10r5/8	Oxidizing	3					
GW	1	80-90	5	1.76	6.12	4.74	5.43	0.3241	23.99	11.53	2.08066	Body	N	Y	N	N	Grit	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
GW	1	80-90	6	4.58	8.33	5.04	6.685	0.6851	26.73	27.59	0.96883	Rim	N	N	N	N	Grit w/ Shell	Fine	10r3/6	7.5yr4/0	7.5yr6/2	Oxidizing	3		Everted	Rounded		white coating all around
GW	1	80-90	7	16.27	7.44	6.01	6.725	2.4193	54.92	41.81	1.31356	Body	N	Y	N	N	Grit w/ Mica	Fine	5yr4/6	5yr4/6	2.5yr3/2	Oxidizing	3					
GW	1	80-90	8	8.7	8.75	6.17	7.46	1.1662	36.04	32.93	1.09444	Body	N	N	N	N	Grit w/ Coral, Grog, Lava	Coarse	10r4/6	10r4/6	5yr4/2	Oxidizing	3					may be rim w/ impress, but too worn
GW	1	80-90	9	6.16	5.77	4.24	5.005	1.2308	32.86	29.1	1.12921	Rim	N	N	N	N	Grit w/ Coral, Grog, Lava	Coarse	7.5yr4/0	7.5yr5/4	7.5yr5/4	Reducing	3		Everted	Rounded		
GW	1	80-90	10	2.63	3.96	3.26	3.61	0.7285	30.71	22.64	1.35645	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	10r5/8	10r5/8	Reducing	3					
GW	1	80-90	11	6.1	9.37	7.17	8.27	0.7376	40.95	23.53	1.74033	Base	N	N	N	N	Grit w/ Coral	Coarse	10r5/8	10r4/1	7.5yr4/0	Oxidizing	3					
GW	1	80-90	12	0.96	3.31	3.17	3.24	0.2963	17.05	16.45	1.03647	Body	N	Y	N	N	Grit w/ Coral	Fine	5yr5/6	5yr5/6	10r4/8	Oxidizing	3	red slipped				
GW	1	80-90	13	1.5	3.7	3.23	3.465	0.4329	5.22	16.17	0.32282	Body	N	Y	N	N	Grit w/ Coral, Grog	Coarse	10r4/4	10r4/4	10r4/8	Oxidizing	3	red slipped				
GW	1	80-90	14	3.01	5.75	1.96	3.855	0.7808	31.38	20.31	1.54505	Rim	N	N	N	N	Grit w/ Coral, Grog	Fine	10r5/6	10r5/6	10r5/6	Oxidizing	3		Everted	Flat		
GW	1	80-90	15	1.42	2.55	2.04	2.295	0.6187	22.77	19.71	1.15525	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/4	10r4/4	10r4/4	Oxidizing	3					
GW	1	80-90	16	0.23	1.79	1.43	1.61	0.1429	12.29	10.9	1.12752	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	1	80-90	17	1.01	3.47	3.11	3.29	0.307	17.65	14.09	1.25266	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/3	5yr4/2	10r4/3	Oxidizing	3					
GW	1	80-90	18	1.26	3.34	2.2	2.77	0.4549	24.4	13.82	1.76556	Body	N	N	N	N	Grit w/ Coral, Lava	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	1	80-90	19	1.06	3.7	3.67	3.685	0.2877	17.05	16.76	1.0173	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	5yr5/3	5yr5/3	5yr5/3	Oxidizing	3					
GW	1	80-90	20	0.96	3.03	2.39	2.71	0.3542	18.06	17.17	1.05183	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	5yr5/4	5yr5/4	5yr4/4	Oxidizing	3					
GW	1	80-90	21	0.71	2.77	2.81	2.79	0.2545	15.27	12.97	1.17733	Body	N	N	N	N	Grit w/ Lava, Shell	Fine	7.5yr4/0	2.5yr3/6	2.5yr4/4	Reducing	3					
GW	1	80-90	22	2.39	4.1	3.24	3.67	0.6512	24.18	19.89	1.21569	Body	N	N	N	N	Grit w/ Coral, Grog, Lava, Mica	Fine	10r5/3	2.5yr5/4	10r5/3	Oxidizing	3					
GW	1	80-90	23	0.94	2.53	2.12	2.325	0.4043	23.55	15.05	1.56478	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr3/2	2.5yr3/2	2.5yr3/2	Oxidizing	3					
GW	1	80-90	24	1.55	3.45	2.23	2.84	0.5458	25.19	18.68	1.3485	Body	N	N	N	N	Grit w/ Lava	Coarse	7.5yr5/4	7.5yr5/4	7.5yr5/4	Oxidizing	3					
GW	1	80-90	25	0.25	2.66	3.28	2.97	0.0842	13.18	8.28	1.59179	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
GW	1	80-90	26	0.27	2.24	2.15	2.195	0.123	11	10.27	1.07108	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/4	10r4/4	10r4/4	Oxidizing	3					
GW	1	80-90	27	0.3	2.92	2.41	2.665	0.1126	10.24	9.07	1.129	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr5/4	7.5yr5/4	7.5yr5/4	Oxidizing	3					
GW	1	90-100	1	10.78	7.51	3.96	5.735	1.8797	40.55	43.14	0.93996	Rim	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	2.5yr4/0	2.5yr4/0	2.5yr4/0	Reducing	3		Everted	Rounded		may just be core with exterior worn away
GW	1	90-100	2	5.31	8.02	7.43	7.725	0.6874	28.41	20.65	1.37579	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	2.5yr4/6	2.5yr4/6	2.5yr4/2	Oxidizing	3					
GW	1	90-100	3	1.47	3	1.79	2.395	0.6138	30.43	22.79	1.33523	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr4/0	7.5yr4/0	7.5yr4/0	Reducing	3					may just be core with exterior worn away
GW	1	90-100	4	2.74	3.22	2.12	2.67	1.0262	35.88	25.63	1.39992	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5r5/6	2.5r5/6	2.5r5/6	Oxidizing	3					
GW	1	90-100	5	2.26	2.48	2.26	2.37	0.9536	28.4	26.69	1.06407	Body	N	Y	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r4/8	10r3/6	10r3/6	Oxidizing	3					
GW	1	90-100	6	4.6	7.11	5.1	6.105	0.7535	32.54	19.91	1.63435	Body	N	N	N	N	?Shell (foraminifera)	Fine	2.5yr4/0	2.5yr4/0	2.5yr4/0	Reducing	3					
GW	1	90-100	7	1.64	4.34	4.24	4.29	0.3823	25.05	14.85	1.68687	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	1	90-100	8	1.44	4.4	2.17	3.285	0.4384	25.59	13.71	1.86652	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3					
GW	1	90-100	9	1.3	2.87	2.78	2.825	0.4602	27.16	13.82	1.96527	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr5/0	7.5yr5/0	10r4/3	Reducing	3					
GW	1	90-100	10	0.88	2.99	3.08	3.035	0.29	17.93	14.03	1.27798	Body	N	N	N	N	Grit w/ Coral	Coarse	10r5/6	10r5/6	10r5/6	Oxidizing	3					
GW	1	90-100	11	1.62	5.99	6.22	6.105	0.2654	19.39	15.09	1.28496	Body	Y	N	N	N	Grit w/ Coral	Coarse	2.5yr4/2	10r4/6	10r4/8	Reducing	3					
GW	1	90-100	12	1.95	5.19	4.44	4.815	0.405	22.25	18.01	1.23542	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr4/2	2.5yr5/4	2.5yr4/2	Oxidizing	3					
GW	1	90-100	13	0.41	2.36	2.02	2.19	0.1872	14.65	11.15	1.3139	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/3	10r4/3	10r4/3	Oxidizing	3					
GW	1	90-100	14	0.37	2.65	2.64	2.645	0.1399	15.05	8.42	1.78741	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/4	10r4/4	10r4/4	Oxidizing	3					
GW	1	90-100	15	0.29	2.35	2.46	2.405	0.1206	10.54	10.26	1.02729	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/4	10r4/4	10r4/4	Oxidizing	3					
GW	1	90-100	16	0.7	4.49	3.73	4.11	0.1703	11.88	11.2	1.06071	Body	N	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr3/2	Oxidizing	3					mixed in? doesn't match other sherds in this level….
GW	1.5	0-10	1	9.93	7.55	6.1	6.825	1.4549	50.98	40.32	1.26438	Body	Y	Y	N	N	Shell (foraminifera)	Fine	7.5yr6/6	10r5/6	7.5yr4/2	Oxidizing	3					
GW	1.5	0-10	2	11.46	6.29	3.87	5.08	2.2559	50.99	43.92	1.16097	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr3/0	2.5yr4/0	10yr5/3	Reducing	3					
GW	1.5	0-10	3	7.3	5.48	3.47	4.475	1.6313	47.42	43.15	1.09896	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	5yr5/8	7.5yr4/2	Reducing	3					
GW	1.5	0-10	4	4.35	6.84	5.53	6.185	0.7033	29.16	23.09	1.26288	Rim	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr6/6	5yr6/6	Reducing	3		Everted	Flat		
GW	1.5	0-10	5	1.65	4.78	4.66	4.72	0.3496	24.5	16.5	1.48485	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	5yr5/2	10r5/8	Reducing	3					
GW	1.5	0-10	6	1.44	6.49	6.26	6.375	0.2259	21.51	15.93	1.35028	Body	Y	Y	N	N	Shell (foraminifera)	Fine	5yr4/4	10r4/6	10r4/4	Oxidizing	3					same as 8
GW	1.5	0-10	7	2.57	3.67	3.43	3.55	0.7239	27.74	19.94	1.39117	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	2.5yr3/0	10r4/8	Oxidizing	3					
GW	1.5	0-10	8	1.57	6.08	5.87	5.975	0.2628	23.42	16.65	1.40661	Body	Y	Y	N	N	Shell (foraminifera)	Fine	7.5yr5/2	10r4/8	7.5yr4/2	Oxidizing	3					same as 6
GW	1.5	0-10	9	3.02	5.62	5.06	5.34	0.5655	29.08	17.72	1.64108	Body	N	N	N	N	Grit w/ Mica	Fine	7.5yr5/6	5yr4/3	5yr4/2	Oxidizing	3					
GW	1.5	0-10	10	1.56	6.13	5.87	6	0.26	21.16	15.34	1.3794	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/4	10r5/8	10r5/8	Reducing	3					
GW	1.5	0-10	11	3.3	5.8	5.97	5.885	0.5607	29.28	19.13	1.53058	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	1.5	0-10	12	1.15	2.76	2.58	2.67	0.4307	20.36	17.2	1.18372	Body	N	N	N	N	Grit w/ Mica	Fine	7.5yr4/2	2.5yr4/6	7.5yr4/2	Oxidizing	3					
GW	1.5	0-10	13	0.66	3.04	2.96	3	0.22	14.38	12.43	1.15688	Body	N	N	N	N	Grit w/ Mica	Fine	10r4/3	10r4/3	5yr4/1	Oxidizing	3					
GW	1.5	0-10	14	0.7	2.85	2.58	2.715	0.2578	19.45	14.63	1.32946	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	2.5yr4/4	10r4/8	Oxidizing	3					
GW	1.5	0-10	15	0.42	5.4	5.23	5.315	0.079	15.84	9.01	1.75805	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/4	2.5yr5/6	2.5yr3/0	Oxidizing	3					
GW	1.5	0-10	16	0.36	4.87	4.93	4.9	0.0735	13.04	9.92	1.31452	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/4	2.5yr5/6	2.5yr5/8	Oxidizing	3					
GW	1.5	10-20	1	4.25	5.2	3.84	4.52	0.9403	36.47	28.71	1.27029	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	5yr5/6	7.5yr5/2	Reducing	3					
GW	1.5	10-20	2	3.48	4.62	3.57	4.095	0.8498	37.1	25.77	1.43966	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/2	10r5/8	10r4/8	Reducing	3					
GW	1.5	10-20	3	2.8	4.47	3.69	4.08	0.6863	26.79	23.98	1.11718	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/6	5yr6/2	10r5/8	Oxidizing	3					
GW	1.5	10-20	4	0.98	4.74	4.18	4.46	0.2197	22.44	19.12	1.17364	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/4	5yr6/4	5yr6/2	Oxidizing	3					
GW	1.5	10-20	5	0.65	4.83	3.74	4.285	0.1517	18.7	14.19	1.31783	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/2	7.5yr5/4	5yr5/6	Reducing	3					
GW	1.5	10-20	6	0.47	4.21	3.46	3.835	0.1226	18.22	8.71	2.09185	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr4/6	5yr4/2	Reducing	3					
GW	1.5	10-20	7	0.43	3.7	3.98	3.84	0.112	18.83	10.43	1.80537	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	5yr5/6	5yr4/2	Reducing	3					
GW	1.5	10-20	8	0.95	5.81	5.1	5.455	0.1742	14.78	15.03	0.98337	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	2.5yr5/8	7.5yr6/4	Reducing	3					
GW	1.5	10-20	9	0.81	3.97	4.2	4.085	0.1983	17.26	12.84	1.34424	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	5yr6/6	7.5yr6/4	Reducing	3					
GW	1.5	10-20	10	0.58	3.04	2.99	3.015	0.1924	14.88	11.68	1.27397	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	7.5yr6/6	7.5yr6/6	7.5yr6/6	Oxidizing	3					
GW	1.5	10-20	11	0.2	2.97	2.13	2.55	0.0784	12.84	8.5	1.51059	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
GW	1.5	20-30	1	6.47	8.06	8.36	8.21	0.7881	37.82	34.16	1.10714	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	10r5/8	10r5/8	Reducing	3					
GW	1.5	20-30	2	8.02	5.2	5.39	5.295	1.5146	36.78	27.74	1.32588	Body	N	N	N	N	Grit w/ Mica	Fine	7.5yr4/0	5yr5/3	5yr2.5/1	Reducing	3					very flat. Tile?
GW	1.5	20-30	3	5.38	9.18	8.59	8.885	0.6055	28.2	27.07	1.04174	Body	N	N	N	N	Shell (foraminifera)	Fine	10r4/8	10r4/8	5yr5/6	Oxidizing	3					white coating all around. Leaching shell?
GW	1.5	20-30	4	5.02	6.67	7.2	6.935	0.7239	36.72	27.9	1.31613	Rim	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/6	7.5yr6/4	2.5yr5/8	Oxidizing	3		Everted	Rounded		
GW	1.5	20-30	5	4.79	4.65	4.64	4.645	1.0312	42.74	24.3	1.75885	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/1	5yr4/1	2.5yr6/8	Reducing	3					3 pcs glued together
GW	1.5	20-30	6	2.15	5.67	5.24	5.455	0.3941	25.82	21.88	1.18007	Neck	N	N	N	Impress	Shell (foraminifera)	Fine	5yr5/6	5yr5/6	5yr5/6	Oxidizing	3	Impress on Body				?rope? Impress
GW	1.5	20-30	7	2.8	6.57	10.15	8.36	0.3349	20.43	19.93	1.02509	Rim	N	N	N	N	Shell (foraminifera)	Fine	5yr4/3	5yr4/3	5yr5/8	Reducing	2		Damaged	Rounded		
GW	1.5	20-30	8	2.07	5.44	4.25	4.845	0.4272	22.72	17.35	1.30951	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/8	2.5yr6/8	7.5yr5/4	Oxidizing	3					
GW	1.5	20-30	9	2.64	5.83	4.06	4.945	0.5339	23.41	22.3	1.04978	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/8	2.5yr6/8	5yr5/6	Oxidizing	3					
GW	1.5	20-30	10	1.98	5.49	5.6	5.545	0.3571	24.84	14.51	1.71192	Body	N	N	N	N	Grit w/ Mica	Fine	5yr5/8	5yr3/2	5yr5/4	Oxidizing	3					
GW	1.5	20-30	11	2.11	4.37	4.56	4.465	0.4726	19.27	18.84	1.02282	Rim	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	10r5/8	10r5/8	Reducing	3		Straight	rounded		
GW	1.5	20-30	12	1.72	3.75	2.92	3.335	0.5157	22.6	18.25	1.23836	Body	Y	Y	N	N	Grit w/ Coral	Fine	2.5yr4/4	2.5yr3/2	2.5yr3/4	Oxidizing	3					
GW	1.5	20-30	13	1.2	3.79	3.67	3.73	0.3217	23.7	15.86	1.49433	Body	N	N	N	N	Shell (foraminifera)	Fine	10r6/8	2.5yr6/6	10r6/8	Oxidizing	3					
GW	1.5	20-30	14	1.44	2.81	2.54	2.675	0.5383	23.85	19.58	1.21808	Body	N	N	N	N	Grit w/ Mica	Coarse	2.5yr4/2	7.5yr6/6	2.5yr5/8	Oxidizing	3					
GW	1.5	20-30	15	1.77	4.17	4.35	4.26	0.4155	24.27	13.84	1.75361	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/6	10yr6/2	7.5yr7/2	Oxidizing	3					
GW	1.5	20-30	16	2.54	5.84	5.66	5.75	0.4417	25.46	16.59	1.53466	Body	N	N	N	N	Grit w/ Lava	Fine	2.5yr5/8	2.5yr4/2	2.5yr5/8	Oxidizing	3					white coating all around
GW	1.5	20-30	17	2.16	5.37	5.03	5.2	0.4154	22.52	18.65	1.20751	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr4/2	2.5yr5/8	Oxidizing	3					white coating all around
GW	1.5	20-30	18	0.9	2.64	2.26	2.45	0.3673	17.07	15.94	1.07089	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/2	7.5yr5/2	7.5yr7/2	Reducing	3					white coating all around
GW	1.5	20-30	19	1.41	3.73	3.57	3.65	0.3863	19.19	20.38	0.94161	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr5/8	2.5yr5/8	2.5yr6/8	Oxidizing	3					white coating all around
GW	1.5	20-30	20	0.73	4.06	3.7	3.88	0.1881	19.43	14.25	1.36351	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/6	5yr5/6	7.5yr6/4	Oxidizing	3					
GW	1.5	20-30	21	0.58	3.14	3.03	3.085	0.188	21.93	10.71	2.04762	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/2	5yr5/6	5yr5/2	Reducing	3					
GW	1.5	20-30	22	0.94	3.51	3.47	3.49	0.2693	24.03	14.19	1.69345	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr4/6	Reducing	3					
GW	1.5	20-30	23	1.43	4.44	4.64	4.54	0.315	17.86	14.57	1.22581	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	10r5/8	5yr7/1	Oxidizing	3					white coating all around
GW	1.5	20-30	24	0.82	3.26	3.16	3.21	0.2555	19.01	17.25	1.10203	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/6	5yr6/6	5yr6/6	Oxidizing	3					
GW	1.5	20-30	25	0.68	4.56	4.32	4.44	0.1532	15.13	11.87	1.27464	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/3	5yr6/4	5yr6/4	Reducing	3					
GW	1.5	20-30	26	0.7	3.17	3.5	3.335	0.2099	17.07	12.24	1.39461	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
GW	1.5	20-30	27	0.37	2.44	2.3	2.37	0.1561	16.56	10.21	1.62194	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/4	5yr6/4	5yr6/6	Reducing	3					ext only, sloughed off at core
GW	1.5	20-30	28	0.73	3.57	3.47	3.52	0.2074	17.76	13.03	1.36301	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
GW	1.5	20-30	29	0.38	3.05	2.76	2.905	0.1308	17.31	8.81	1.96481	Body	N	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
GW	1.5	20-30	30	1.06	5.67	5.35	5.51	0.1924	19.65	11.82	1.66244	Body	N	Y	N	N	Grit w/ Coral	Fine	10r5/8	10r5/8	10r4/6	Oxidizing	3	red slipped				
GW	1.5	20-30	31	1.9	6.69	6.45	6.57	0.2892	17.47	15.21	1.14859	Rim	N	Y	N	N	Grit w/ Coral	Fine	10r5/8	10r5/8	10r4/6	Oxidizing	3	red slipped	Straight	pointed		
GW	1.5	20-30	32	1.25	3.99	5.76	4.875	0.2564	16.4	13.09	1.25286	Body	Y	N	N	N	Grit w/ Coral	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	1.5	20-30	33	0.59	3.16	2.67	2.915	0.2024	14.99	11.23	1.33482	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr4/2	7.5yr4/2	7.5yr4/2	Oxidizing	3					
GW	1.5	20-30	34	0.82	3.52	2.79	3.155	0.2599	17.51	12.35	1.41781	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/6	10r4/6	10r4/6	Oxidizing	3					
GW	1.5	20-30	35	0.43	1.97	2.22	2.095	0.2053	16.85	9.95	1.69347	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3					
GW	1.5	30-40	1	31.8	8.95	7.23	8.09	3.9308	53.92	50.52	1.0673	Rim	N	N	N	N	Grit w/ Coral, Grog	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3		Straight	Flat	L&S #7- Forna	forna
GW	1.5	30-40	2	14.03	4.79	5.39	5.09	2.7564	47.63	44.32	1.07468	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr3/0	10yr4/1	10yr5/2	Reducing	3					
GW	1.5	30-40	3	6.95	4.32	3.26	3.79	1.8338	40.51	35.51	1.14081	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/6	5yr7/3	2.5yr5/6	Oxidizing	3					white coating all around
GW	1.5	30-40	4	6.62	3.83	3.46	3.645	1.8162	56.92	27.15	2.0965	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/4	7.5yr5/6	7.5yr5/4	Reducing	3					
GW	1.5	30-40	5	3.31	2.56	2.32	2.44	1.3566	40.13	27.74	1.44665	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/8	2.5yr3/4	2.5yr3/4	Oxidizing	3					
GW	1.5	30-40	6	7.61	5.58	6.88	6.23	1.2215	46.97	33.07	1.42032	Rim	N	N	N	N	Shell (foraminifera)	Fine	5yr5/6	5yr5/6	5yr5/6	Oxidizing	3		Everted	Rounded		

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
GW	1.5	30-40	7	13.59	9.11	7.89	8.5	1.5988	48.89	33.47	1.46071	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	2.5yr5/8	2.5yr5/8	5yr5/6	Oxidizing	3					
GW	1.5	30-40	8	4.25	4.71	3.64	4.175	1.018	38.63	26.61	1.45171	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/6	5yr6/6	7.5yr7/2	Oxidizing	3					white coating all around
GW	1.5	30-40	9	6.1	7.28	8.86	8.07	0.7559	38.39	16.29	2.35666	Neck	N	Y	N	N	Grit w/ Coral	Fine	7.5yr4/0	7.5yr5/8	10r3/1	Oxidizing	3					
GW	1.5	30-40	10	3.67	3.5	3.95	3.725	0.9852	42.49	25.12	1.69148	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr6/6	5yr6/3	Reducing	3					
GW	1.5	30-40	11	16.13	11.45	7.39	9.42	1.7123	47.25	30.52	1.54817	Rim	N	N	N	Impress	Shell (foraminifera)	Fine	7.5yr6/6	7.5yr6/6	7.5yr6/6	Oxidizing	3	Impress on Rim	Everted	Pointed		impress on rim
GW	1.5	30-40	12	8.05	9.31	5.23	7.27	1.1073	33.34	31.18	1.06928	Rim	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/2	7.5yr7/6	7.5yr7/6	Reducing	3		Everted	Pointed		
GW	1.5	30-40	13	1.72	3.49	3.19	3.34	0.515	35.37	14.3	2.47343	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/6	2.5yr5/8	2.5yr4/8	Oxidizing	3					
GW	1.5	30-40	14	2.24	3.53	2.93	3.23	0.6935	28.01	18.68	1.49946	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/6	7.5yr5/6	7.5yr5/6	Oxidizing	3					
GW	1.5	30-40	15	3.48	3.5	2.84	3.17	1.0978	30.87	30.01	1.02866	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr3/0	7.5yr3/0	Reducing	3					
GW	1.5	30-40	16	3.43	4.27	3.31	3.79	0.905	28.6	28.1	1.01779	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/6	5yr5/6	5yr6/4	Oxidizing	3					
GW	1.5	30-40	17	3.09	5.25	5.56	5.405	0.5717	26.31	17.36	1.51555	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/8	7.5yr7/2	7.5yr6/4	Oxidizing	3					white coating all around
GW	1.5	30-40	18	3.45	4.23	4.13	4.18	0.8254	33.82	21.04	1.60741	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	2.5yr4/6	2.5yr4/2	2.5yr4/2	Oxidizing	3					
GW	1.5	30-40	19	4.69	8.04	6.06	7.05	0.6652	30.23	21.41	1.41196	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	7.5yr5/4	5yr4/1	7.5yr5/4	Oxidizing	3					
GW	1.5	30-40	20	2.26	5.7	6.18	5.94	0.3805	29.17	15.08	1.93435	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
GW	1.5	30-40	21	1.15	3.56	2.8	3.18	0.3616	18.4	16.69	1.10246	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr4/1	5yr4/1	5yr5/1	Reducing	3					
GW	1.5	30-40	22	1.2	3.37	2.76	3.065	0.3915	17.27	15.93	1.08412	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr3/1	5yr3/1	2.5yr3/4	Reducing	3					
GW	1.5	30-40	23	1.16	3.84	3.62	3.73	0.311	18.78	14.3	1.31329	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/6	2.5yr5/6	2.5yr5/6	Oxidizing	3					
GW	1.5	30-40	24	1.31	3.38	3.05	3.215	0.4075	17.8	15.5	1.14839	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/8	2.5yr5/8	2.5yr4/8	Oxidizing	3					
GW	1.5	30-40	25	0.59	3.32	3.27	3.295	0.1791	15.36	10.04	1.52988	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr4/6	Oxidizing	3					
GW	1.5	30-40	26	0.74	5.47	5.63	5.55	0.1333	13.56	10.97	1.2361	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr4/1	5yr5/6	5yr4/2	Reducing	2					
GW	1.5	40-50	1	3.99	6.89	5.74	6.315	0.6318	31.81	21.21	1.49976	Body	Y	Y	N	N	Grit	Fine	7.5yr5/4	7.5yr4/2	2.5yr3/2	Oxidizing	3					stoneware? Wheel-thrown
GW	1.5	40-50	1	16.83	7.14	7.75	7.445	2.2606	52.77	37.11	1.42199	Body	N	N	N	N	Grit w/ Grog, Lava	Coarse	5yr6/3	5yr4/2	5yr4/2	Reducing	3					
GW	1.5	40-50	2	10.23	6.53	5.22	5.875	1.7413	45.58	27.77	1.64134	Rim	N	N	N	N	Grit w/ Coral, Grog, Lava	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3		Everted	Rounded		
GW	1.5	40-50	3	5.92	2.51	3.01	2.76	2.1449	48.02	36.83	1.30383	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr4/4	5yr4/4	5yr4/3	Oxidizing	3					
GW	1.5	40-50	4	2.41	3.61	3.39	3.5	0.6886	25.33	20.74	1.22131	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/6	2.5yr3/9	10r4/6	Oxidizing	3					
GW	1.5	40-50	5	1.53	3.61	3.82	3.715	0.4118	28.66	18.06	1.58693	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	5yr5/4	2.5yr5/8	Reducing	3					
GW	1.5	40-50	6	1.94	4.52	3.44	3.98	0.4874	24.21	18.52	1.30724	Neck	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/4	7.5yr6/4	7.5yr6/4	Oxidizing	3					
GW	1.5	40-50	7	1.86	6.16	4.83	5.495	0.3385	24.48	19.27	1.27037	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/6	7.5r4/8	7.5yr5/6	Oxidizing	3					
GW	1.5	40-50	8	1.41	3.66	2.9	3.28	0.4299	25.19	14.98	1.68158	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/4	7.5yr5/4	7.5yr5/4	Oxidizing	3					
GW	1.5	40-50	9	1.27	4.37	3.85	4.11	0.309	21.48	15.19	1.41409	Body	N	N	N	N	Grit w/ Grog	Coarse	5yr4/2	5yr4/2	5yr4/2	Oxidizing	3					
GW	1.5	40-50	10	1.21	3.69	3.39	3.54	0.3418	16.88	15.58	1.08344	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/2	10yr5/1	10yr5/2	Reducing	3					
GW	1.5	40-50	11	0.4	1.96	1.97	1.965	0.2036	18.27	10.78	1.69481	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/6	2.5yr4/6	2.5yr4/6	Oxidizing	3					
GW	1.5	40-50	12	0.58	2.68	2.77	2.725	0.2128	15.98	11.64	1.37285	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/4	5yr4/2	2.5yr5/6	Oxidizing	3					
GW	1.5	40-50	13	0.67	3.51	2.72	3.115	0.2151	15.01	11.18	1.34258	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/4	2.5yr4/4	2.5yr4/6	Oxidizing	3					
GW	1.5	40-50	14	0.7	3.41	3.72	3.565	0.1964	15.37	11.18	1.37478	Body	N	N	N	N	Grit w/ Grog, Lava	Coarse	10r4/6	10r4/6	10r4/6	Oxidizing	3					
GW	1.5	40-50	15	0.76	3.94	3.5	3.72	0.2043	16.91	11.97	1.4127	Body	N	N	N	N	Grit w/ Coral, Mica, Sand	Coarse	10r4/8	2.5yr3/0	10r4/8	Oxidizing	3					
GW	1.5	50-60	1	18.45	9.36	6.4	7.88	2.3414	58.03	31.32	1.85281	Rim	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3		Everted	Rounded		
GW	1.5	50-60	2	10.89	4.77	4.79	4.78	2.2782	40.62	38.48	1.05561	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr4/6	7.5yr6/2	7.5yr6/4	Oxidizing	3					firing clouds on int, ext
GW	1.5	50-60	3	3.83	4.26	3.56	3.91	0.9795	31.61	23.04	1.37196	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/2	7.5yr7/2	7.5yr5/2	Reducing	3					
GW	1.5	50-60	4	3.16	3.28	3.32	3.3	0.9576	32.13	21.3	1.50845	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr5/4	10yr6/3	Reducing	3					
GW	1.5	50-60	5	2.98	5.35	4.11	4.73	0.63	33.56	24.73	1.35706	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr5/0	2.5yr5/6	Reducing	3					
GW	1.5	50-60	6	0.73	2.9	3.22	3.06	0.2386	22.89	12.18	1.87931	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr4/1	10yr4/1	10yr4/1	Reducing	3					
GW	1.5	50-60	7	0.77	2.38	2.41	2.395	0.3215	20.14	12.54	1.60606	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr4/1	5yr4/1	2.5yr3/0	Reducing	3					
GW	1.5	50-60	8	1	3.04	2.93	2.985	0.335	18.93	16.48	1.14867	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	1.5	50-60	9	1.25	3.31	1.91	2.61	0.4789	20.7	18.64	1.11052	Body	N	Y	N	N	Grit w/ Coral	Fine	7.5yr4/2	7.5yr4/2	10r4/6	Oxidizing	3					
GW	1.5	50-60	10	2.69	4.07	3.74	3.905	0.6889	24.44	23.68	1.03209	Body	N	N	N	N	Grit w/ Grog	Coarse	2.5yr4/6	10r4/2	2.5yr4/2	Oxidizing	3					
GW	1.5	50-60	11	0.84	2.98	2.39	2.685	0.3128	18.16	13.84	1.31214	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr5/2	7.5yr5/4	7.5yr6/6	Reducing	3					
GW	1.5	50-60	12	0.32	1.88	1.62	1.75	0.1829	14.65	11.11	1.31863	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/6	10r4/6	10r4/4	Oxidizing	3					
GW	1.5	60-70	1	12.84	8.24	5.72	6.98	1.8395	39.42	35.22	1.11925	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/6	10r4/6	10r5/8	Oxidizing	3					
GW	1.5	60-70	2	1.92	3.88	3.26	3.57	0.5378	27.67	14.78	1.87212	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr5/8	Reducing	3					
GW	1.5	60-70	3	1.15	2.83	2.67	2.75	0.4182	25.12	16.92	1.48463	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	7.5yr4/0	7.5yr6/2	Reducing	3					
GW	1.5	60-70	4	6.67	6.88	5.48	6.18	1.0793	33.41	24.83	1.34555	Body	N	N	N	N	Grit w/ Lava	Fine	2.5yr5/8	2.5yr5/8	2.5yr4/2	Oxidizing	3					
GW	1.5	60-70	5	2.27	2.88	4.32	3.6	0.6306	29.92	28.74	1.04106	Base	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr4/0	2.5yr4/2	Reducing	3					white coating all around
GW	1.5	60-70	6	1.33	3.83	3.58	3.705	0.359	17.73	16.22	1.09309	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/2	2.5yr4/8	2.5yr4/2	Oxidizing	3					
GW	1.5	60-70	7	2.94	4.56	4.37	4.465	0.6585	25.44	19.57	1.29995	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r4/8	2.5yr3/0	2.5yr3/2	Oxidizing	3					
GW	1.5	60-70	8	1.56	3.6	2.96	3.28	0.4756	24.13	15.45	1.56181	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/6	Oxidizing	3					
GW	1.5	60-70E	9	3.57	5.82	3.42	4.62	0.7727	23.01	18.31	1.25669	Handle	Y	Y	N	N	Grit w/ Coral	Fine	10r4/8	10r4/8	10r4/6	Oxidizing	3				L&S #7- Forna	
GW	1.5	60-70E	10	5.86	9.26	8.99	9.125	0.6422	24.02	23.27	1.03223	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r4/4	10r4/4	10r4/4	Oxidizing	3					
GW	1.5	60-70E	11	4.48	7.82	6.49	7.155	0.6261	28.6	21.04	1.35932	Rim	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3		Straight	rounded		white coating all around
GW	1.5	60-70E	12	1.44	4.21	4.18	4.195	0.3433	19.21	13.77	1.39506	Body	Y	Y	N	N	Grit	Fine	5yr4/6	5yr4/6	5yr3/1	Oxidizing	3					
GW	1.5	60-70E	13	1.36	2.78	3.32	3.05	0.4459	25.05	17.94	1.39632	Body	N	N	N	N	Grit w/ Coral, Lava	Coarse	7.5yr5/4	7.5yr5/4	7.5yr5/4	Oxidizing	3					
GW	1.5	60-70E	14	1.96	5.7	3.79	4.745	0.4131	19.21	17.59	1.0921	Neck	N	N	N	N	Grit w/ Coral, Grog	Coarse	7.5yr5/4	7.5yr5/4	7.5yr5/4	Oxidizing	3					
GW	1.5	60-70E	15	2.84	5.9	4.89	5.395	0.5264	25.35	19	1.33421	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r5/2	10r4/6	10r4/6	Reducing	3					
GW	1.5	60-70E	16	0.8	3.28	3.11	3.195	0.2504	20.34	11.97	1.69925	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/6	10r4/6	10r4/6	Oxidizing	3					
GW	1.5	60-70E	17	0.43	2.44	2.52	2.48	0.1734	13.09	12.59	1.03971	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr5/4	7.5yr5/4	7.5yr5/4	Reducing	3					
GW	1.5	70-80	1	78.93	20.34	10.37	15.355	5.1403	63.87	56.03	1.13993	Rim	Y	Y	N	N	Grit w/ Grog	Coarse	10r4/8	10r4/6	10r4/4	Oxidizing	3		Everted	Rounded	Roofing Tile	roofing tile? Or large amphorae? Refit with gw.1.40-50.erw.001
GW	1.5	70-80	2	3.57	9.34	9.48	9.41	0.3794	20.86	20.2	1.03267	Body	N	Y	N	N	Grit w/ Grog	Coarse	7.5yr4/0	7.5yr4/0	10yr7/6	Reducing	3					weird! Wheel-thrown. Ext has a shiny, obsidian-like layer under the slip- vitrified? Gray clay. Def. imported and not like the other sherd composition….
GW	1.5	70-80	3	1.18	3.2	2.38	2.79	0.4229	20.2	18.02	1.12098	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r5/8	10r5/8	2.5yr5/2	Oxidizing	3					
GW	1.5	70-80	4	2.11	4.15	4.09	4.12	0.5121	21.31	16.88	1.26244	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r4/3	10r4/4	10r4/3	Oxidizing	3					
GW	1.5	70-80	5	0.68	4.78	3.81	4.295	0.1583	12.93	10.99	1.17652	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr5/0	7.5yr5/0	7.5yr6/4	Reducing	3					
GW	1.5	70-80	6	0.48	2.16	2.2	2.18	0.2202	13.91	11.92	1.16695	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r4/3	10r4/3	10r4/3	Oxidizing	3					
GW	1.5	80-90	1	13.12	6.97	5.9	6.435	2.0389	49.45	40.73	1.21409	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/1	10yr6/1	10yr4/1	Reducing	3					
GW	1.5	80-90	2	4.46	4.17	3.95	4.06	1.0985	40.41	25.41	1.59032	Body	N	N	N	N	Grit w/ Coral	Fine	7.5yr6/4	7.5yr5/0	7.5yr6/4	Oxidizing	3					
GW	1.5	80-90	3	1.19	3.03	3.19	3.11	0.3826	23.31	16.01	1.45597	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr5/4	7.5yr5/4	10r4/6	Oxidizing	3					
GW	1.5	80-90	4	0.92	3.61	2.74	3.175	0.2898	22.87	12.27	1.8639	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r4/3	10r4/3	10r4/3	Oxidizing	3					
GW	1.5	80-90	5	6.46	11.5	6.19	8.845	0.7304	32.21	19.03	1.69259	Rim	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3		Everted	Rounded*		
GW	1.5	80-90	6	4.5	5.08	4.45	4.765	0.9444	34.66	24.03	1.44236	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	7.5yr5/4	2.5yr5/8	7.5yr5/4	Oxidizing	3					
GW	1.5	80-90	7	1.4	3.31	2.8	3.055	0.4583	26.75	15.79	1.69411	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	1.5	80-90	8	0.44	1.92	1.73	1.825	0.2411	15.52	13.39	1.15907	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
GW	1.5	80-90	9	0.31	2.95	2.47	2.71	0.1144	13.48	8.34	1.61631	Body	N	Y	N	N	Grit w/ Coral, Grog	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					red slip mostly worn off
GW	1.5	80-90	10	0.15	1.16	1.25	1.205	0.1245	11.68	9.06	1.28918	Body	N	N	N	N	Grit	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	1.5	90-100	1	18.8	19.27	15.15	17.21	1.0924	47.93	24.12	1.98715	Body	N	N	N	N	Grit w/ Grog, Sand	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					roofing tile frag?
GW	1.5	90-100	2	8.71	8.56	6.63	7.595	1.1468	40.99	23.89	1.71578	Neck	N	N	N	N	Grit w/ Coral, Grog	Coarse	2.5yr4/2	2.5yr4/6	10r4/8	Oxidizing	3					
GW	1.5	90-100	3	4.51	5.9	4.08	4.99	0.9038	34.34	21.72	1.58103	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	2.5yr4/4	2.5yr4/4	10r5/4	Oxidizing	3					
GW	1.5	90-100	4	2.12	2.75	3.03	2.89	0.7336	26.43	21.23	1.24494	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	1.5	90-100	5	1.71	3.54	2.59	3.065	0.5579	24.58	17.65	1.39263	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r5/8	10r4/1	10r4/4	Oxidizing	3					
GW	1.5	90-100	6	1.21	5.61	5.08	5.345	0.2264	19.8	12.65	1.56522	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	2.5yr5/4	2.5yr5/4	2.5yr5/4	Oxidizing	3					
GW	1.5	90-100	7	0.4	1.44	1.87	1.655	0.2417	15.33	11.58	1.32383	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r4/6	10r4/6	10r4/6	Oxidizing	3					
GW	1.5	90-100	8	0.29	2.14	2.21	2.175	0.1333	12.46	10.01	1.24476	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	1.5	90-100	9	0.22	1.54	1.49	1.515	0.1452	11.04	10.41	1.06052	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	7.5yr6/6	7.5yr6/6	7.5yr5/4	Oxidizing	3					
GW	1.5	90-100	10	0.38	3.21	3.17	3.19	0.1191	13.51	8.31	1.62575	Body	N	N	N	N	Grit	Fine	2.5yr3/0	2.5yr3/0	10r4/8	Reducing	3					
GW	1.5	90-100	11	0.52	2.79	2.61	2.7	0.1926	15.95	9.91	1.60949	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10yr5/2	10yr5/2	10yr5/2	Oxidizing	3					
GW	1.5	90-100	12	0.69	3.54	3.45	3.495	0.1974	17.78	10.95	1.62374	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	10yr6/3	10yr6/3	Oxidizing	3					
GW	2	0-10	1	20.49	7.63	6.64	7.135	2.8718	49.08	42.05	1.16718	Rim	N	N	N	Incising	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/0	10r5/8	Reducing	3	Diagonal Hatch	Everted	Rounded		
GW	2	0-10	2	10.46	6.79	4.59	5.69	1.8383	48.34	37.86	1.27681	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr3/0	2.5yr3/0	7.5yr6/2	Reducing	3					
GW	2	0-10	3	14.19	9.38	5.25	7.315	1.9398	41.2	39.13	1.0529	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	10r5/6	7.5yr5/2	Reducing	3					carinated
GW	2	0-10	4	14.88	9.1	7.66	8.38	1.7757	54.72	33.17	1.64968	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	5yr4/4	5yr4/4	Reducing	3					
GW	2	0-10	5	22.97	13.09	7.25	10.17	2.2586	53.34	24.62	2.16653	Rim	N	N	N	N	Shell (foraminifera)	Fine	5yr4/2	2.5yr4/0	7.5yr3/0	Reducing	3		Inverted	Flat		
GW	2	0-10	6	6.46	6.38	5.32	5.85	1.1043	33.18	32.99	1.00576	Body	N	N	N	Incising	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	5yr5/6	Reducing	3	Diagonal Hatch				high fired
GW	2	0-10	7	11	7.87	11.04	9.455	1.1634	43.96	21.85	2.0119	Neck	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr3/0	2.5yr6/8	2.5yr6/8	Reducing	3					
GW	2	0-10	8	6.23	4.34	3.95	4.145	1.503	31.91	31.7	1.00662	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/8	2.5yr5/8	2.5yr5/6	Reducing	3					
GW	2	0-10	9	14.03	7.76	5.92	6.84	2.0512	51.58	34.21	1.50775	Body	N	N	N	N	Grit w/ Lava	Fine	2.5yr3/0	5yr5/6	2.5yr5/6	Oxidizing	3					firing clouds on int and ext
GW	2	0-10	10	11.39	7.99	4.6	6.295	1.8094	45.56	30.83	1.47778	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr5/2	2.5yr3/0	Reducing	3					
GW	2	0-10	11	7.1	5.32	6.15	5.735	1.238	47.59	23.79	2.00042	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr6/4	7.5yr5/2	Reducing	3					
GW	2	0-10	12	10.79	6.78	6.09	6.435	1.6768	35.91	29.87	1.20221	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr5/2	5yr5/4	Reducing	3					
GW	2	0-10	13	3.32	5.52	4.44	4.98	0.6667	37.58	15.5	2.42452	Body	N	N	N	Incising	Shell (foraminifera)	Fine	7.5yr6/2	7.5yr6/2	10r5/8	Reducing	3	Diagonal Hatch				
GW	2	0-10	14	5.93	6.51	5.68	6.095	0.9729	33.12	19.05	1.73858	Neck	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr6/4	7.5yr6/4	Reducing	3					
GW	2	0-10	15	7.23	4.66	4.26	4.46	1.6211	43.91	32.32	1.3586	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	5yr5/1	2.5yr4/8	Reducing	3					
GW	2	0-10	16	4.67	5.23	6.98	6.105	0.7649	28.25	22.91	1.23309	Rim	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	10r5/8	10r5/8	Reducing	3		Everted	Pointed		
GW	2	0-10	17	4.43	6.46	5.1	5.78	0.7664	30.28	20.92	1.44742	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	5yr4/1	2.5yr4/8	Reducing	3					
GW	2	0-10	18	9.03	5.37	5.48	5.425	1.6645	42.57	33.08	1.28688	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr3/0	5yr3/1	5yr4/1	Reducing	3					
GW	2	0-10	19	6.32	5.36	3.79	4.575	1.3814	35.71	27.83	1.28315	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr6/8	2.5yr5/6	Reducing	3					feels/ sounds high fired
GW	2	0-10	20	9.99	6.2	6.05	6.125	1.631	40.08	32.33	1.23972	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr5/4	10yr6/2	Reducing	3					
GW	2	0-10	21	4.19	4.06	3.82	3.94	1.0635	31.97	26.22	1.2193	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	5yr5/4	Oxidizing	3					
GW	2	0-10	22	7.27	6.98	6.38	6.68	1.0883	42.41	26.43	1.60462	Rim	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/0	5yr5/8	5yr5/6	Reducing	3		Straight	Rounded		
GW	2	0-10	23	2.8	3.16	3.66	3.41	0.8211	29.02	21.17	1.37081	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/6	10r5/8	10yr4/1	Reducing	3					
GW	2	0-10	24	3.26	3.98	3.18	3.58	0.9106	28.42	26.73	1.06322	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr6/8	Reducing	3					
GW	2	0-10	25	4.94	4.56	4.77	4.665	1.0589	36.63	25.36	1.4444	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr6/4	7.5yr6/2	Reducing	3					
GW	2	0-10	26	6.19	5.87	5.28	5.575	1.1103	32.17	30.27	1.06277	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr3/0	2.5yr3/0	2.5yr4/2	Reducing	3					
GW	2	0-10	27	6.53	10.75	6.47	8.61	0.7584	26.55	25.09	1.05819	Rim	Y	N	N	N	Grit w/ Mica	Fine	7.5yr5/6	7.5yr5/4	10r4/6	Oxidizing	3		Straight	Rounded		
GW	2	0-10	28	6.11	5.57	4.96	5.265	1.1605	30.15	29.39	1.02586	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/2	7.5yr3/0	7.5yr4/0	Reducing	3					
GW	2	0-10	29	6.48	8.32	7.7	8.01	0.809	29.15	25.3	1.15217	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr3/0	2.5yr5/6	Oxidizing	3					
GW	2	0-10	30	5.48	6.72	6.96	6.84	0.8012	27	25.96	1.04006	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/6	2.5yr4/6	2.5yr5/6	Reducing	3					
GW	2	0-10	31	4.46	6.62	5.82	6.22	0.717	28.25	21.71	1.30124	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr3/0	2.5yr5/6	2.5yr3/0	Reducing	3					
GW	2	0-10	32	2.69	5.19	5.3	5.245	0.5129	29.61	13.67	2.16606	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
GW	2	0-10	33	2.73	5.83	3.85	4.84	0.564	22.82	20.4	1.11863	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/2	7.5yr5/4	7.5yr5/4	Reducing	3					
GW	2	0-10	34	3.86	5.23	4.31	4.77	0.8092	32.6	23.85	1.36688	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr6/1	10yr6/1	7.5yr7/4	Reducing	3					
GW	2	0-10	35	2.43	3.37	3.28	3.325	0.7308	30.48	22.64	1.34629	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	5yr6/8	7.5yr6/4	Reducing	3					
GW	2	0-10	36	3.69	5.37	3.05	4.21	0.8765	27.75	20.32	1.36565	Body	Y	Y	N	N	Grit w/ Lava	Fine	2.5yr5/8	2.5yr5/8	2.5yr4/8	Oxidizing	3					
GW	2	0-10	37	5.07	8.26	6.05	7.155	0.7086	31.02	26.99	1.14931	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	2.5yr6/6	2.5yr6/6	Reducing	3					
GW	2	0-10	38	3.99	5.13	4.24	4.685	0.8517	27.64	24.8	1.11452	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/4	5yr6/4	5yr6/6	Reducing	3					
GW	2	0-10	39	3.92	5.89	4.96	5.425	0.7226	24.11	23.47	1.02727	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr5/4	10yr7/2	Reducing	3					
GW	2	0-10	40	2.85	4.07	3.49	3.78	0.754	29.72	25.71	1.15597	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/6	2.5yr5/8	Reducing	3					
GW	2	0-10	41	1.99	5.15	4.96	5.055	0.3937	25.27	18.7	1.35134	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr5/4	7.5yr5/6	Reducing	3					
GW	2	0-10	42	5.49	8.71	9.06	8.885	0.6179	27.29	23.19	1.1768	Body	Y	Y	N	N	Shell (foraminifera)	Fine	5yr5/2	7.5yr4/4	10r4/6	Reducing	3					ext worn away
GW	2	0-10	43	4.04	8.86	9.49	9.175	0.4403	20.86	20.38	1.02355	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	5yr5/6	5yr5/8	Reducing	3					v. rounded, as if ground?
GW	2	0-10	44	4.3	10.26	8.62	9.44	0.4555	20.09	17.18	1.16938	Neck	Y	Y	N	N	Grit	Fine	10r6/6	5yr3/1	2.5yr3/2	Oxidizing	3					
GW	2	0-10	45	2.83	4.79	3.46	4.125	0.6861	30.62	16.77	1.82588	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr3/0	7.5yr4/2	Reducing	3					
GW	2	0-10	46	1.86	4.21	2.5	3.355	0.5544	30.91	13.8	2.23986	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/6	7.5yr6/6	2.5yr6/8	Reducing	3					
GW	2	0-10	47	4.15	4.62	4.21	4.415	0.94	30.67	25.68	1.19431	Body	N	N	N	Charred	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr6/4	2.5yr5/6	Reducing	3					
GW	2	0-10	48	3.16	4.92	4.44	4.68	0.6752	23.6	22.41	1.0531	Body	N	N	Charred	N	Shell (foraminifera)	Fine	2.5yr3/0	2.5yr3/0	5yr5/1	Reducing	3					
GW	2	0-10	49	3.4	8.74	7.73	8.235	0.4129	22.31	20.54	1.08617	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr3/0	2.5yr6/8	5yr6/6	Reducing	3					
GW	2	0-10	50	3.9	5.39	5.12	5.255	0.7422	24.31	21.12	1.15104	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr3/0	7.5yr3/0	Reducing	3					
GW	2	0-10	51	1.86	4.04	2.74	3.39	0.5487	20.15	19.13	1.05332	Base	N	N	N	N	Shell (foraminifera) w/ Grog	Fine	7.5yr5/0	5yr5/6	5yr5/6	Reducing	3					
GW	2	0-10	52	2.89	6.61	5.8	6.205	0.4658	24.62	19.74	1.24721	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/6	5yr5/8	7.5yr6/4	Oxidizing	3					
GW	2	0-10	53	2.08	3.29	3.88	3.585	0.5802	26.16	17.48	1.49657	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/6	5yr5/6	5yr3/1	Oxidizing	3					
GW	2	0-10	54	2.88	5.79	5.65	5.72	0.5035	24.78	19.05	1.30079	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr4/1	5yr4/2	5yr5/4	Oxidizing	3					
GW	2	0-10	55	2.79	6.56	5.39	5.975	0.4669	26.04	15.56	1.67352	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/6	2.5yr6/8	5yr5/6	Oxidizing	3					
GW	2	0-10	56	2.75	5.79	5.39	5.59	0.4919	24.88	18.9	1.3164	Body	N	Y	N	N	Shell (foraminifera)	Fine	5yr3/1	5yr3/1	10r3/1	Reducing	3					foraminifera?
GW	2	0-10	57	2.81	6.76	6.67	6.715	0.4185	25.45	16.99	1.49794	Body	Y	Y	N	N	Shell (foraminifera)	Fine	5yr5/4	2.5yr3/4	2.5yr4/6	Oxidizing	3					foraminifera?
GW	2	0-10	58	2.2	4.23	4.11	4.17	0.5276	20.55	20.62	0.99661	Body	N	Y	N	N	Shell (foraminifera)	Fine	2.5yr6/0	5yr6/6	5yr7/1	Reducing	3					
GW	2	0-10	59	1.81	3.96	4.13	4.045	0.4475	19.62	18.86	1.0403	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	2.5yr5/8	10r5/8	Oxidizing	3					
GW	2	0-10	60	2.17	6.04	4.23	5.135	0.4226	24.94	20.72	1.20367	Body	N	N	N	N	Shell (foraminifera) w/ Grog	Fine	2.5yr5/8	2.5yr5/8	2.5yr4/6	Oxidizing	3					
GW	2	0-10	61	1.94	5.62	3.68	4.65	0.4172	22.12	16.17	1.36797	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
GW	2	0-10	62	2.2	4.87	5.32	5.095	0.4318	29.51	15.06	1.9595	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
GW	2	0-10	63	2.42	3.5	4.31	3.905	0.6914	23.35	22.4	1.04241	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr6/6	7.5yr6/6	Reducing	3					
GW	2	0-10	64	2	4.25	3.05	3.65	0.5479	26	16.59	1.56721	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr5/2	7.5yr4/2	Reducing	3					
GW	2	0-10	65	2.68	7.92	7.64	7.78	0.3445	25.96	13.14	1.97565	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr3/0	7.5yr5/4	Reducing	3					
GW	2	0-10	66	3.67	6.78	5.49	6.135	0.5982	27.04	18.98	1.42466	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/2	7.5yr3/0	7.5yr5/2	Reducing	3					
GW	2	0-10	67	2.28	5.79	5.82	5.805	0.3928	25.88	13.41	1.9299	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/4	2.5yr5/6	2.5yr5/6	Reducing	3					
GW	2	0-10	68	1.92	4.27	2.86	3.565	0.5386	27.17	20.93	1.29814	Body	N	N	N	Incising	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/6	2.5yr5/8	Reducing	3	Single Incise				
GW	2	0-10	69	2.18	6.42	6.52	6.47	0.3369	19.19	14.99	1.28019	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr4/6	5yr5/6	Reducing	3					
GW	2	0-10	70	0.7	3.31	2.66	2.985	0.2345	19.54	11.47	1.70357	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	7.5yr6/4	7.5yr6/6	Reducing	3					
GW	2	0-10	71	1.09	4.02	3.07	3.545	0.3075	20.2	15.79	1.27929	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	7.5yr6/6	5yr5/6	Reducing	3					
GW	2	0-10	72	1.75	5.14	4.99	5.065	0.3455	17.22	16.71	1.03052	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/2	2.5yr4/2	2.5yr4/2	Reducing	3					
GW	2	0-10	73	1.09	3.77	3.39	3.58	0.3045	21.17	10.53	2.01045	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/4	2.5yr5/6	5yr5/2	Oxidizing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
GW	2	0-10	74	3.04	5.51	4.73	5.12	0.5938	22.22	19.86	1.11883	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/2	2.5yr5/0	2.5yr5/8	Reducing	3					black staining on ext
GW	2	0-10	75	1.96	3.42	2.53	2.975	0.6588	23.2	18.5	1.25405	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr5/4	5yr5/6	Reducing	3					
GW	2	0-10	76	3.37	7.42	7.66	7.54	0.4469	26.75	17.84	1.49944	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr5/6	7.5yr5/4	Reducing	3					
GW	2	0-10	77	3.01	7.1	5.82	6.46	0.4659	24.72	20.63	1.19825	Neck	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	10r5/8	10r6/2	Reducing	3					
GW	2	0-10	78	1.78	3.4	3.51	3.455	0.5152	24.49	17.49	1.40023	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr5/4	7.5yr3/0	Reducing	3					
GW	2	0-10	79	3.72	6.98	3.73	5.355	0.6947	27.61	20.2	1.36683	Base	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr6/4	2.5yr5/8	Reducing	3					
GW	2	0-10	80	1.2	3.11	3.17	3.14	0.3822	16.86	15.34	1.09909	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	5yr5/3	5yr5/1	Reducing	3					
GW	2	0-10	81	3.28	6.75	6.71	6.73	0.4874	29.07	15.89	1.82945	Neck	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr6/2	10r5/8	10r5/8	Reducing	3					
GW	2	0-10	82	1.78	3.44	3.58	3.51	0.5071	28.38	13.51	2.10067	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr5/4	7.5yr5/4	Reducing	3					
GW	2	0-10	83	1.24	3.87	3.78	3.825	0.3242	22.21	14.21	1.56298	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr3/1	5yr3/1	2.5yr5/6	Reducing	3					
GW	2	0-10	84	4.36	7.93	7.28	7.605	0.5733	25.64	18.33	1.3988	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr5/4	7.5yr5/4	Reducing	3					
GW	2	0-10	85	1.27	3.55	3.33	3.44	0.3692	20.79	17.97	1.15693	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/2	7.5yr6/4	7.5yr7/2	Reducing	3					brown staining on ext
GW	2	0-10	86	3.15	6.31	5.64	5.975	0.5272	28.6	20.98	1.3632	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	7.5yr6/2	7.5yr6/2	Reducing	3					
GW	2	0-10	87	2.49	6.05	4.54	5.295	0.4703	22.39	18.5	1.21027	Base	N	N	N	N	Shell (foraminifera)	Fine	5yr5/4	5yr5/4	2.5yr4/2	Reducing	3					
GW	2	0-10	88	1.14	4.01	3.83	3.92	0.2908	15.51	15.17	1.02241	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr3/1	5yr3/1	5yr3/1	Reducing	3					
GW	2	0-10	89	1.54	6.12	3.86	4.99	0.3086	18.06	15.53	1.16291	Body	N	N	N	N	Grit w/ Sand	Fine	5yr6/6	5yr6/6	5yr6/4	Oxidizing	3					v. eroded, but not water-worn
GW	2	0-10	90	2.04	6.7	5.66	6.18	0.3301	19.82	19.65	1.00865	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr5/1	5yr5/6	Reducing	3					
GW	2	0-10	91	2.65	6.72	6.56	6.64	0.3991	22.57	15.22	1.48292	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5r4/0	5yr4/2	5yr4/3	Reducing	3					
GW	2	0-10	92	1.11	7.02	5.37	6.195	0.1792	19.32	14.22	1.35865	Body	N	N	N	N	Grit w/ Sand	Fine	5yr5/1	5yr6/6	5yr6/8	Reducing	3					
GW	2	0-10	93	0.84	4.92	4.07	4.495	0.1869	15.2	11.75	1.29362	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr4/1	5yr4/4	5yr5/6	Reducing	3					
GW	2	0-10	94	1.23	4.77	3.49	4.13	0.2978	18.13	13.61	1.33211	Body	N	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/0	5yr8/2	5yr5/4	Reducing	3					
GW	2	0-10	95	4.54	3.7	3.89	3.795	1.1963	46.95	22.37	2.09879	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	7.5yr6/6	2.5yr5/0	Reducing	3					
GW	2	10-20	1	28.22	7.45	2.64	5.045	5.5937	67.22	58.09	1.15717	Rim	N	N	N	Incising	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr5/4	7.5yr5/4	Reducing	3	Other Incise	Everted	Rounded	L&S #1- Globula	shallow incised branches (?). High fired.
GW	2	10-20	2	21.08	7.92	3.7	5.81	3.6282	57.79	38.1	1.5168	Rim	N	N	N	Incising	Shell (foraminifera)	Fine	5yr5/2	5yr5/6	10r5/8	Reducing	3	Diagonal Hatch	Everted	Rounded	L&S #1- Globula	incised chevrons. Firing clouds on ext.
GW	2	10-20	3	26.76	17.47	7.25	12.36	2.165	44.83	43.29	1.03557	Rim	Y	Y	N	Punctate	Shell (foraminifera) w/ Grog	Fine	5yr4/2	5yr4/3	10r4/8	Reducing	3	Punctate	Inverted	Rounded		punctated lines on rim
GW	2	10-20	4	18.68	9.73	7.82	8.775	2.1288	46.71	42.41	1.10139	Rim	Y	Y	N	N	Grit w/ Mica, Sand	Fine	2.5yr4/8	10r4/6	10r4/6	Oxidizing	3		Straight	Rounded		
GW	2	10-20	5	13.32	9.22	5.76	7.49	1.7784	42.02	34.81	1.20712	Rim	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr5/8	Reducing	3		Straight	rounded		
GW	2	10-20	6	6.95	7.17	6.47	6.82	1.0191	37.84	23.13	1.63597	Rim	N	N	N	N	Shell (foraminifera)	Fine	5yr5/4	5yr6/8	5yr5/6	Oxidizing	3		Straight	rounded		
GW	2	10-20	7	11.69	8.43	6.97	7.7	1.5182	44.91	34.07	1.31817	Body	Y	Y	N	N	Shell (foraminifera)	Fine	10r5/6	10r5/8	10r5/8	Oxidizing	3					foraminifera? Firing clouds on ext.
GW	2	10-20	8	1.73	5.33	2.82	4.075	0.4245	26.69	18.59	1.43572	Body	N	N	N	Incising	Shell (foraminifera)	Fine	7.5yr3/0	5yr3/1	7.5yr3/0	Reducing	3	Chevron + Stamp				radiating incised lines, punctated circles
GW	2	10-20	9	4.43	9.6	6.49	8.045	0.5507	37.08	19.49	1.90251	Rim	N	N	N	Impress	Shell (foraminifera) w/ Grog	Fine	7.5yr6/2	5yr5/8	5yr5/8	Reducing	3	Impress on Rim	Everted	Rounded		impress on rim
GW	2	10-20	10	3.13	4.48	4.36	4.42	0.7081	28.98	23.28	1.24485	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	10r5/8	10r5/8	Reducing	3					high fired. White coating all around.
GW	2	10-20	11	21.64	6.36	6.05	6.205	3.4875	57.5	48.27	1.19122	Body	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/2	10r4/6	10r4/6	Oxidizing	3	red slipped				foraminifera?
GW	2	10-20	12	11.33	9.57	11.43	10.5	1.079	33.15	27.47	1.20677	Rim	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	10r5/8	10r5/8	Oxidizing	3		Everted	Flat		
GW	2	10-20	13	10.97	6.65	5.17	5.91	1.8562	46.09	33.92	1.35879	Body	N	N	N	Incising	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	5yr4/4	Reducing	3	Diagonal Hatch				high fired? Leaf? Incised, too fragmented to really tell.
GW	2	10-20	14	12.51	8.83	5.04	6.935	1.8039	40.67	35.79	1.13635	Base	N	N	Charred	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr5/2	7.5yr5/2	Reducing	3					
GW	2	10-20	15	2.09	2.99	2.92	2.955	0.7073	24.09	22.62	1.06499	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	5yr5/6	5yr4/1	Reducing	3					
GW	2	10-20	16	3.64	11.66	7.53	9.595	0.3794	24.19	14.58	1.65912	Rim	N	N	N	N	Grit w/ Coral, Grog	Coarse	2.5yr4/8	2.5yr4/8	7.5yr4/4	Oxidizing	3		Everted	Flat		
GW	2	10-20	17	5.73	10.31	7.16	8.735	0.656	26.43	18.77	1.4081	Rim	N	N	Paint	Paint	Grit w/ Lava	Fine	7.5yr6/4	7.5yr6/4	7.5yr6/4	Oxidizing	3	Red Paint	Everted	Rounded		paint is 10r4/8.
GW	2	10-20	18	3.91	6.83	3.08	4.955	0.7891	29.82	24.09	1.23786	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr4/1	5yr6/6	10yr4/1	Reducing	3					
GW	2	10-20	19	12.91	12.21	9.83	11.02	1.1715	33.8	31.67	1.06726	Rim	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	10r5/8	10r5/8	Reducing	3		Everted	Pointed		
GW	2	10-20	20	13.4	7.65	5.34	6.495	2.0631	44.73	37.88	1.18083	Body	N	N	N	N	Shell (foraminifera) w/ Grog	Fine	10yr5/1	10yr5/1	10r5/8	Reducing	3					high fired
GW	2	10-20	21	7.72	5.97	6.22	6.095	1.2666	31.88	29.67	1.07449	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr3/1	10yr3/1	10yr3/1	Reducing	3					high fired, firing clouds on ext
GW	2	10-20	22	9.45	6.79	4.64	5.715	1.6535	39.1	29.12	1.34272	Body	N	N	Charred	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr4/6	10r5/8	Reducing	3					
GW	2	10-20	23	4.47	5.77	6.09	5.93	0.7538	39.96	15.69	2.54685	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/2	2.5yr4/0	2.5yr4/2	Reducing	3					
GW	2	10-20	24	8.11	7.56	5.77	6.665	1.2168	42.63	28.96	1.47203	Body	N	N	N	Incising	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr4/8	2.5yr5/8	Reducing	3	Diagonal Hatch				
GW	2	10-20	25	4.7	5.98	3.85	4.915	0.9563	32.25	23.62	1.36537	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr3/0	7.5yr3/0	Reducing	3					
GW	2	10-20	26	4.68	4.47	4.52	4.495	1.0412	34.11	23.09	1.47726	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr3/0	10r5/8	10yr4/1	Reducing	3					
GW	2	10-20	27	5.71	5.29	3.69	4.49	1.2717	35.02	33.21	1.0545	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr6/8	5yr5/3	Reducing	3					firing clouds on ext
GW	2	10-20	28	4.54	5.18	5.12	5.15	0.8816	31.78	30.34	1.04746	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr7/4	7.5yr7/4	Reducing	3					
GW	2	10-20	29	3.95	6.95	5.26	6.105	0.647	29.86	22.25	1.34202	Neck	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr6/2	10r6/8	Reducing	3					joined w/ 45
GW	2	10-20	30	1.95	3.84	3.81	3.825	0.5098	29.39	18.1	1.62376	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Reducing	3					
GW	2	10-20	31	5.2	5.97	6.27	6.12	0.8497	28.25	26.45	1.06805	Body	N	N	N	N	Grit w/ Lava	Fine	10r5/4	2.5yr5/8	5yr4/2	Oxidizing	3					
GW	2	10-20	32	2.94	4.01	3.79	3.9	0.7538	31.95	21.73	1.47032	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr7/6	10yr5/1	Reducing	3					
GW	2	10-20	33	7	10.98	5.45	8.215	0.8521	34.09	29.76	1.1455	Rim	Y	N	N	Punctate	Grit w/ Coral	Fine	7.5yr4/6	10r4/8	10yr3/1	Oxidizing	3	Punctate	Inverted	Rounded		~10mm long diagonal punctates
GW	2	10-20	34	6.63	7.24	5.89	6.565	1.0099	33.22	25.99	1.27818	Body	N	N	Paint	N	Grit w/ Lava	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3	Red Paint				2 ll red paint lines
GW	2	10-20	35	6.46	8.22	7.41	7.815	0.8266	32.59	24.71	1.3189	Body	Y	Y	N	N	Shell (foraminifera)	Fine	7.5yr5/4	10r3/1	10r4/4	Oxidizing	3					foraminifera?
GW	2	10-20	36	2.06	2.42	1.75	2.085	0.988	32.15	28.94	1.11092	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/1	10yr6/2	5yr4/1	Reducing	3					
GW	2	10-20	37	3.71	5.08	3.94	4.51	0.8226	30.98	24.98	1.24019	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr6/8	Reducing	3					
GW	2	10-20	38	9.76	9.54	9.37	9.455	1.0323	35.22	30.38	1.15932	Body	N	N	Charred	N	Shell (foraminifera)	Fine	10r5/8	2.5yr3/0	2.5yr5/8	Oxidizing	3					
GW	2	10-20	39	2.59	3.64	2.78	3.21	0.8069	39.17	23.57	1.66186	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr4/0	10r5/8	Reducing	3					
GW	2	10-20	40	2.12	5.04	3.92	4.48	0.4732	30.43	24.54	1.24002	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/4	7.5yr6/4	7.5yr6/4	Oxidizing	3					
GW	2	10-20	41	4.37	5.26	4.52	4.89	0.8937	27.34	23.23	1.17693	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr5/6	5yr4/2	Reducing	3					
GW	2	10-20	42	6.3	6.97	6.21	6.59	0.956	31.35	22.58	1.3884	Body	N	N	N	N	Grit w/ Lava	Fine	10yr3/1	5yr3/1	10yr3/1	Reducing	3					high fired
GW	2	10-20	43	5.28	5.71	5.34	5.525	0.9557	28.62	27.73	1.0321	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	10yr3/1	10yr3/2	Reducing	3					
GW	2	10-20	44	7.01	5.86	6.19	6.025	1.1635	31.54	24.53	1.28577	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr5/4	7.5yr4/0	Reducing	3					
GW	2	10-20	45	3.52	5.47	7.85	6.66	0.5285	32.89	22.17	1.48354	Neck	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr6/4	10r6/8	Reducing	3					joined w/ 29
GW	2	10-20	46	1.96	5.67	6.1	5.885	0.3331	22.57	22.17	1.01804	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr6/4	10r6/8	Reducing	3					same as 29, 45
GW	2	10-20	47	3.27	4.74	4.67	4.705	0.695	25.44	20.88	1.21839	Body	N	N	Charred	N	Shell (foraminifera)	Fine	7.5yr5/0	2.5yr3/0	7.5yr5/4	Reducing	3					
GW	2	10-20	48	2.33	3.16	2.57	2.865	0.8133	27.88	27.38	1.01826	Body	N	Y	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr5/4	10r4/4	Reducing	3					
GW	2	10-20	49	2.98	5.7	5.64	5.67	0.5256	28.67	21.79	1.31574	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/1	5yr5/6	5yr5/1	Reducing	3					
GW	2	10-20	50	3.8	6.25	5.84	6.045	0.6286	28.17	22.95	1.22745	Body	N	N	Charred	N	Shell (foraminifera)	Fine	7.5yr5/0	2.5yr3/0	7.5yr5/2	Reducing	3					
GW	2	10-20	51	2.96	6.07	5.86	5.965	0.4962	23.28	23.57	0.9877	Rim	N	N	N	Paint	Grit w/ Lava	Coarse	7.5yr6/4	7.5yr6/4	10r4/8	Oxidizing	3	Red Paint	Straight	Pointed		
GW	2	10-20	52	2.28	3.78	3.31	3.545	0.6432	26.55	23.73	1.11884	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr6/6	7.5yr4/0	Reducing	3					
GW	2	10-20	53	3.78	13.2	9.54	11.37	0.3325	22.39	14.57	1.53672	Rim	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	10r5/8	10r5/8	Reducing	3		Everted	Rounded		
GW	2	10-20	54	2.62	4.13	4.33	4.23	0.6194	30.1	18.44	1.63232	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	5yr7/4	5yr6/4	Reducing	3					
GW	2	10-20	55	2.7	4.03	4.1	4.065	0.6642	28.07	21.08	1.33159	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	10r5/8	7.5yr6/6	Oxidizing	3					white coating on ext
GW	2	10-20	56	3.12	4.92	4.47	4.695	0.6645	23.27	21.68	1.07334	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr4/1	5yr3/3	7.5yr5/4	Reducing	3					white coating on ext
GW	2	10-20	57	2.36	5.18	3.98	4.58	0.5153	28.05	19.93	1.40743	Body	N	N	N	N	Shell (foraminifera) w/ Grog	Fine	2.5yr4/0	2.5yr5/8	7.5yr4/2	Reducing	3					
GW	2	10-20	58	3.39	5.78	5.41	5.595	0.6059	21.71	20.17	1.07635	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr5/2	2.5yr5/8	Reducing	3					white coating on ext
GW	2	10-20	59	2.67	3.94	4.36	4.15	0.6434	24.09	21.91	1.0995	Body	Y	N	N	Charred	Grit w/ Mica	Coarse	10r5/8	10r4/6	7.5yr3/0	Oxidizing	3	red slipped				
GW	2	10-20	60	1.96	3.72	5.47	21.53	0.091	22.66	20.4	1.11078	Body	N	N	N	Incising	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/6	2.5yr5/6	Reducing	3	Single Incise				
GW	2	10-20	61	1.89	4.14	3.41	3.775	0.5007	20.98	20.7	1.01353	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/2	2.5yr5/6	2.5yr4/2	Reducing	3					
GW	2	10-20	62	1.6	4.52	3.79	4.155	0.3851	19.33	15.54	1.24389	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/3	5yr6/4	5yr5/6	Reducing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
GW	2	10-20	63	1.59	4.22	4.54	4.38	0.363	18.64	17.29	1.07808	Body	N	N	N	N	Shell (foraminifera)	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	2	10-20	64	1.86	3.72	3.84	3.78	0.4921	18.55	17.5	1.06	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr4/2	5yr4/2	5yr4/6	Reducing	3					
GW	2	10-20	65	1.32	4.03	3.96	3.995	0.3304	20.34	14.48	1.4047	Body	N	Y	N	N	Grit w/ Mica	Fine	5yr5/6	5yr5/6	10r4/8	Oxidizing	3					
GW	2	10-20	66	1.23	3.17	3.01	3.09	0.3981	19.85	16.6	1.19578	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	5yr5/6	5yr4/1	Reducing	3					
GW	2	10-20	67	1.07	3.65	3.54	3.595	0.2976	21.97	14.13	1.55485	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	10r6/8	10r5/8	Oxidizing	3					white coating on ext
GW	2	10-20	68	1.45	6.15	5.21	5.68	0.2553	25.62	13.51	1.89637	Body	N	Y	N	N	Shell (foraminifera)	Fine	5yr5/6	5yr5/6	2.5yr6/0	Oxidizing	3					
GW	2	10-20	69	1.27	4.96	5.56	5.26	0.2414	19.35	14.21	1.36172	Body	N	N	N	N	Shell (foraminifera)	Fine	10r6/8	10r6/8	10r6/8	Oxidizing	3					
GW	2	10-20	70	1.2	5.05	2.87	3.96	0.303	19.32	14.8	1.30541	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/6	2.5yr5/6	2.5yr5/8	Oxidizing	3					
GW	2	10-20	71	1.28	4.79	4.15	4.47	0.2864	20.04	11.34	1.7672	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/6	5yr5/6	5yr5/4	Oxidizing	3					
GW	2	10-20	72	2.86	5.11	4.63	4.87	0.5873	26.19	21.39	1.2244	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	5yr5/6	5yr3/1	Reducing	3					
GW	2	10-20	73	3.64	6.65	6.59	6.62	0.5498	31.47	17.24	1.82541	Body	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/8	10r4/8	10r4/8	Oxidizing	3					foraminifera?
GW	2	10-20	74	1.98	4.67	4.19	4.43	0.447	22.08	18.88	1.16949	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	10r5/8	2.5yr4/4	Reducing	3					
GW	2	10-20	75	1.58	3.95	3.93	3.94	0.401	20.43	19.02	1.07413	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr4/1	2.5yr5/8	Reducing	3					
GW	2	10-20	76	1.93	3.85	3.72	3.785	0.5099	20.23	20.12	1.00547	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/2	2.5yr3/0	5yr5/3	Reducing	3					
GW	2	10-20	77	1.39	4.02	3.69	3.855	0.3606	21.25	16	1.32813	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr4/1	5yr6/6	5yr4/1	Reducing	3					
GW	2	10-20	78	2.63	5.57	4.54	5.055	0.5203	23.85	20.27	1.17662	Body	N	charred	N	N	Shell (foraminifera)	Fine	5yr5/6	5yr5/6	7.5yr4/0	Oxidizing	3					
GW	2	10-20	79	3.3	5.63	5.57	5.6	0.5893	24.53	21.14	1.16036	Body	N	N	N	N	Shell (foraminifera) w/ Lava	Fine	5yr6/3	7.5yr5/4	2.5yr5/8	Reducing	3					
GW	2	10-20	80	2.31	3.33	3.11	3.22	0.7174	24.82	19.59	1.26697	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/6	5yr5/6	5yr4/3	Oxidizing	3					
GW	2	10-20	81	1.83	5.16	4.41	4.785	0.3824	21.36	15.92	1.34171	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr3/0	2.5yr3/0	Reducing	3					
GW	2	10-20	82	1.46	3.33	3.65	3.49	0.4183	22.37	18.29	1.22307	Body	N	N	N	N	Shell w/ Coral	Fine	7.5yr4/0	5yr6/6	5yr8/2	Reducing	3					white coating on ext
GW	2	10-20	83	1.43	5.63	5.13	5.38	0.2658	21.27	11.7	1.81795	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/4	2.5yr4/8	2.5yr4/6	Oxidizing	3					
GW	2	10-20	84	3.47	5.74	6.31	6.025	0.5759	25.87	22.07	1.17218	Rim	N	N	N	Incising	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr4/0	7.5yr4/0	Reducing	3	Single Incise	Straight	Damaged		
GW	2	10-20	85	1.09	5.2	4.6	4.9	0.2224	18.75	13.9	1.34892	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/8	2.5yr6/8	10r5/8	Oxidizing	3					
GW	2	10-20	86	1.07	4.84	3.87	4.355	0.2457	18.55	12.5	1.484	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	7.5yr6/2	7.5yr8/2	Reducing	3					
GW	2	10-20	87	1.25	5.3	5.11	5.205	0.2402	18.48	14.15	1.30601	Body	Y	Y	N	N	Shell (foraminifera)	Fine	10r5/8	10r4/8	10r4/8	Oxidizing	3					foraminifera?
GW	2	10-20	88	0.92	3.34	2.72	3.03	0.3036	22.13	12.42	1.7818	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr5/6	5yr5/1	Reducing	3					2 pcs glued together
GW	2	10-20	89	0.98	2.77	3.08	2.925	0.335	24.84	13.88	1.78963	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/4	7.5yr5/4	10r5/8	Reducing	3					2 pcs glued together
GW	2	10-20	90	0.63	3.84	3.61	3.725	0.1691	17.1	10.41	1.64265	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/8	5yr6/8	5yr6/8	Oxidizing	3					
GW	2	10-20	91	1.26	4.47	4.15	4.31	0.2923	20.35	13.05	1.55939	Body	N	N	N	N	Shell (foraminifera)	Fine	10r4/8	10r4/8	5yr5/1	Oxidizing	3					
GW	2	10-20	92	1.4	6.06	5.9	5.98	0.2341	18.13	15.09	1.20146	Body	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	2.5yr5/8	Reducing	3					
GW	2	10-20	93	0.76	4.36	3.99	4.175	0.182	18.13	12.32	1.47159	Body	Y	N	N	N	Grit w/ Coral	Fine	2.5yr4/6	10r4/6	10yr4/1	Oxidizing	3					
GW	2	10-20	94	0.74	3.52	3.24	3.38	0.2189	17.99	11.39	1.57946	Body	N	N	N	Charred	Shell (foraminifera)	Fine	5yr4/2	5yr4/2	2.5yr2.5/0	Reducing	3					
GW	2	10-20	95	0.76	4.08	4.35	4.215	0.1803	15.55	9.3	1.67204	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	5yr4/2	5yr3/1	Reducing	3					
GW	2	10-20	96	1.27	5.96	5.82	5.89	0.2156	15.59	13.97	1.11596	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr4/2	7.5yr4/2	Reducing	3					
GW	2	10-20	97	0.63	2.88	3.01	2.945	0.2139	15.37	11.53	1.33304	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/6	5yr4/2	2.5yr3/0	Oxidizing	3					
GW	2	10-20	98	0.84	3.54	3.44	3.49	0.2407	16.92	13.32	1.27027	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/2	Oxidizing	3					
GW	2	10-20	99	0.98	3.59	3.22	3.405	0.2878	17.34	15.04	1.15293	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr4/6	2.5yr4/6	2.5yr4/6	Oxidizing	3					2 pcs glued together
GW	2	20-30	1	44.41	6.51	2.68	4.595	9.6649	95.02	57.04	1.66585	Rim	N	N	N	Incising	Shell (foraminifera)	Fine	7.5yr5/0	5yr5/6	5yr5/8	Reducing	3	Diagonal Hatch	Everted	Rounded	L&S #1- Globular	pcs glued together. Firing clouds and sooting on ext.
GW	2	20-30	2	21.04	6.92	6.57	6.745	3.1193	51.34	49.86	1.02968	Body	N	N	N	N	Grit w/ Grog, Lava	Coarse	10r4/8	5yr3/2	5yr4/1	Oxidizing	3					high fired, hard, flat.
GW	2	20-30	3	8.48	5.78	6.04	5.91	1.4349	39.2	31.1	1.26045	Body	Y	Y	N	N	Shell (foraminifera)	Coarse	2.5yr5/8	2.5yr5/8	10r4/8	Oxidizing	3					slip mostly worn off, but not water worn
GW	2	20-30	4	14.29	8.73	6.94	7.835	1.8239	42.16	33.45	1.26039	Body	N	N	N	N	Grit w/ Mica, Sand	Fine	7.5yr4/0	7.5yr4/6	10yr4/1	Oxidizing	3					
GW	2	20-30	5	21.86	13.96	8.3	11.13	1.9641	49.06	32.36	1.51607	Rim	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	5yr4/2	5yr4/4	Reducing	3		Straight	Flat		
GW	2	20-30	6	6.59	6.79	4.3	5.545	1.1885	33.62	30.38	1.10665	Body	N	N	N	Charred	Shell (foraminifera)	Fine	10yr3/1	5yr3/1	2.5yr5/8	Reducing	3					
GW	2	20-30	7	4.34	6.9	6.53	6.715	0.6463	32.35	17.99	1.79822	Rim	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	2.5yr4/6	10r5/8	Reducing	3		Straight	pointed		
GW	2	20-30	8	6.9	7.07	6.84	6.955	0.9921	30.58	26.72	1.14446	Body	N	N	N	N	Shell (foraminifera)	Coarse	7.5yr4/0	7.5yr4/2	7.5yr5/6	Reducing	3					
GW	2	20-30	9	3.84	7.66	5.73	6.695	0.5736	23.59	23.36	1.00985	Body	N	N	N	N	Grit w/ Coral, Grog, Lava, Mica	Coarse	5yr5/4	5yr5/4	5yr5/4	Oxidizing	3					water worn on 2 sides, fresher breaks on other 2 sides
GW	2	20-30	10	2.19	5.16	4.85	5.005	0.4376	23.44	19.25	1.21766	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/2	7.5yr5/4	7.5yr5/2	Reducing	3					
GW	2	20-30	11	2.32	4.36	4.46	4.41	0.5261	24.63	19.06	1.29224	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr4/1	5yr4/1	5yr3/1	Reducing	3					
GW	2	20-30	12	2.95	3.58	4.53	4.055	0.7275	33.14	16.62	1.99398	Body	N	N	N	Incising	Shell (foraminifera)	Fine	7.5yr5/0	5yr5/4	5yr5/6	Reducing	3	Diagonal Hatch				incised Vs?
GW	2	20-30	13	1.64	5.17	5.52	5.345	0.3068	22.91	13.55	1.69077	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/6	7.5yr5/6	7.5yr5/6	Oxidizing	3					
GW	2	20-30	14	2.75	6.68	7.08	6.88	0.3997	19.79	16.85	1.17448	Body	N	N	N	N	Grit w/ Lava	Fine	2.5yr5/8	2.5yr5/8	10r4/8	Oxidizing	3					
GW	2	20-30	15	2.34	3.36	3.01	3.185	0.7347	26.2	19.95	1.31328	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	5yr3/3	5yr3/1	Reducing	3					
GW	2	20-30	16	1.31	2.81	2.63	2.72	0.4816	26.5	20.27	1.30735	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	5yr5/6	7.5yr5/2	Reducing	3					
GW	2	20-30	17	2.49	3.75	4.07	3.91	0.6368	31.52	17.87	1.76385	Body	Y	N	N	Charred	Grit w/ Mica	Fine	2.5yr5/8	10r4/8	2.5yr2.5/0	Reducing	3					
GW	2	20-30	18	1.33	3.41	3.33	3.37	0.3947	19.32	15.71	1.22979	Body	N	N	N	Charred	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr5/4	2.5yr2.5/0	Reducing	3					high fired
GW	2	20-30	19	1.54	3.93	3.47	3.7	0.4162	26.37	16.98	1.553	Body	N	Y	N	N	Grit w/ Sand	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	2	20-30	20	2.01	6.25	6.19	6.22	0.3232	18.17	13.9	1.30719	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr5/8	Reducing	3					
GW	2	20-30	21	0.87	3.68	3.75	3.715	0.2342	17.76	15.6	1.13846	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/8	2.5yr4/2	2.5yr4/8	Oxidizing	3					
GW	2	20-30	22	0.99	4.31	3.62	3.965	0.2497	16.07	12.92	1.24381	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	5yr5/1	2.5yr5/8	Reducing	3					
GW	2	20-30	23	0.71	4.12	4.26	4.19	0.1695	13.76	12.94	1.06337	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/8	2.5yr6/8	2.5yr6/8	Oxidizing	3					
GW	2	20-30	24	0.62	3.25	2.92	3.085	0.201	16.99	10.78	1.57607	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr5/4	7.5yr3/0	Reducing	3					
GW	2	20-30	25	1.14	5.03	4.59	4.81	0.237	14.9	14.4	1.03472	Body	N	Y	N	N	Grit w/ Coral	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	2	20-30	26	0.43	2.49	2.71	2.6	0.1654	11.33	10.78	1.05102	Body	N	N	N	N	Shell (foraminifera)	Fine	10r6/8	10r6/8	5yr6/6	Oxidizing	3					
GW	2	20-30	27	0.55	2.51	2.64	2.575	0.2136	13.85	13.15	1.05323	Body	N	N	N	N	Grit w/ Coral, Grog	Fine	5yr4/6	5yr4/6	5yr4/6	Oxidizing	3					
GW	2	30-40	1	1.69	3.91	1.95	2.93	0.5768	23.13	18.4	1.25707	Body	N	Y	N	N	Grit w/ Grog	Fine	10yr5/3	10yr5/3	10r4/6	Reducing	3					
GW	2	30-40	2	0.93	2.7	1.93	2.315	0.4017	24.07	14.05	1.71317	Body	N	N	N	N	Grit w/ Coral, Grog	Fine	5yr5/4	5yr5/4	7.5yr5/4	Oxidizing	3					
GW	2	30-40	3	1.18	3.26	2.49	2.875	0.4104	24	14.32	1.67598	Body	N	N	N	N	Grit w/ Coral, Grog	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	2	30-40	4	0.93	4.62	3.99	4.305	0.216	14.57	13.02	1.11905	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	5yr5/6	5yr5/6	Reducing	3					
GW	2	40-50	1	2.53	4.24	4.04	4.14	0.6111	28.83	17.73	1.62606	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr4/0	7.5yr5/4	7.5yr4/2	Oxidizing	3					
GW	2	40-50	2	0.77	3.87	3.71	3.79	0.2032	13.98	13.29	1.05192	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr5/6	7.5yr5/6	Reducing	3					
GW	2	40-50	3	0.92	5.79	5.5	5.645	0.163	17.1	11.48	1.48955	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Fine	7.5yr6/6	5yr4/1	7.5yr6/6	Oxidizing	3					
GW	2	60-70	1	1.81	3.11	3.04	3.075	0.5886	25.24	18.3	1.37923	Body	N	Y	N	N	Grit w/ Coral	Fine	2.5yr3/4	7.5yr3/0	10r3/3	Oxidizing	3					
GW	2	60-70	2	1.75	3.69	3.3	3.495	0.5007	23.05	19.25	1.1974	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr4/0	7.5yr6/6	7.5yr6/6	Reducing	3					mostly just core left
GW	2	60-70	3	0.46	2.65	2.06	2.355	0.1953	15.7	11.5	1.36522	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/8	10r4/6	10r4/8	Oxidizing	3					
GW	2	60-70	4	0.77	2.28	2.17	2.225	0.3461	19.19	12.49	1.53643	Body	N	N	N	N	Grit w/ Coral	Fine	10r6/8	10r6/8	5yr6/6	Oxidizing	3					
GW	2	70-80	1	19.78	8.4	3.61	6.005	3.2939	51.42	33.74	1.52401	Rim	N	N	N	Charred	Grit w/ Coral	Coarse	5yr5/4	2.5yr4/6	2.5yr4/6	Oxidizing	3		Everted	Rounded	L&S #1- Globular	Jar
GW	2	70-80	2	4.23	4.99	4.51	4.75	0.8905	29.98	25.84	1.16022	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/6	10r4/6	10r4/6	Oxidizing	3					
GW	2	70-80	3	6.4	5.83	5.19	5.51	1.1615	32.79	25.76	1.2729	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr4/0	2.5yr4/6	2.5yr4/2	Reducing	3					
GW	2	70-80	4	4.25	5.67	4.35	5.01	0.8483	35.15	21.15	1.66194	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r4/4	10r4/4	10r4/4	Oxidizing	3					
GW	2	70-80	5	0.44	2.05	2.34	2.195	0.2005	13.19	12.23	1.0785	Body	N	Y	N	N	Grit w/ Coral, Grog	Fine	10r4/8	10r4/8	10r4/6	Oxidizing	3					
GW	2	70-80	6	0.5	1.8	2.4	2.1	0.2381	20.75	12.61	1.64552	Body	N	N	N	N	Grit w/ Coral	Fine	7.5yr5/4	7.5yr5/4	7.5yr5/4	Oxidizing	3					3 pcs glued together. Sherd breaking apart due to washing. :-(
GW	2	80-90	1	2.54	3.2	3.5	3.35	0.7582	27.6	19.69	1.40173	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr6/2	7.5yr8/4	7.5yr6/6	Reducing	3					
GW	2	80-90	2	0.95	3.54	2.82	3.18	0.2987	22.1	14	1.57857	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr4/0	5yr5/3	5yr5/3	Reducing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
GW	2	80-90	3	0.6	1.94	2.06	2	0.3	15.84	15.65	1.01214	Body	N	N	N	N	Grit w/ Coral, Grog, Lava	Coarse	10r4/6	10r4/6	10r4/6	Oxidizing	3					
GW	2	80-90	4	0.8	3.11	2.87	2.99	0.2676	15.75	13.08	1.20413	Body	N	N	N	N	Grit w/ Coral, Grog, Lava	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	2	80-90	5	2.15	4.81	5.06	4.935	0.4357	23.91	14.29	1.6732	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/6	10r4/6	10r3/3	Oxidizing	3					
GW	2	80-90	6	1.32	4.47	4.7	4.585	0.2879	22.96	18.09	1.26921	Body	N	N	N	N	Grit w/ Lava	Fine	5yr5/6	5yr5/6	5yr5/6	Oxidizing	3					
GW	2	80-90	7	0.56	2.57	2.31	2.44	0.2295	18.77	14.18	1.3237	Body	N	N	N	N	Grit w/ Coral	Fine	7.5yr4/0	7.5yr4/0	10r3/1	Reducing	3					
GW	2	80-90	8	1.95	4.92	4.53	4.725	0.4127	20.63	18.03	1.1442	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r3/4	Oxidizing	3					
GW	2	80-90	9	1.46	4.1	3.56	3.83	0.3812	17.34	18.7	0.92727	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr5/0	10r5/8	10r4/8	Reducing	3					
GW	2	80-90	10	1.21	2.91	1.36	2.135	0.5667	23.54	19.81	1.18829	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	2	80-90	11	0.23	2.04	1.5	1.77	0.1299	12.89	9.49	1.35827	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr6/2	7.5yr6/2	7.5yr6/4	Reducing	3					
GW	2	80-90	12	0.39	1.91	2.25	2.08	0.1875	11.88	11.64	1.02062	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr6/6	7.5yr6/6	10r4/8	Oxidizing	3					
GW	2	90-100	1	12.18	9.55	4.79	7.17	1.6987	54.5	48.47	1.12441	Base	Y	Y	N	N	Grit w/ Coral	Coarse	7.5yr4/0	2.5yr5/6	5yr6/6	Reducing	3				L&S #5- Ring-foo	red slipped?
GW	2	90-100	2	5.32	5.19	6.07	5.63	0.9449	34.66	24.32	1.42516	Rim	N	N	N	N	Grit w/ Coral	Coarse	2.5yr5/2	2.5yr4/6	2.5yr4/6	Reducing	3		Straight	Rounded		
GW	2	90-100	3	19.3	6.59	3.84	5.215	3.7009	51.8	40.21	1.28824	Rim	N	N	N	N	Grit w/ Coral	Coarse	10r4/6	10r4/6	10r4/6	Oxidizing	3		Everted	Rounded		
GW	2	90-100	4	21.13	7.34	4.73	6.035	3.5012	49.04	40.33	1.21597	Rim	N	N	N	N	Grit w/ Coral	Coarse	2.5yr5/2	10r4/4	10r4/4	Reducing	3		Everted	Rounded		
GW	2	90-100	5	5.42	5.03	4.39	4.71	1.1507	33.84	24.42	1.38575	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr4/0	10r4/6	10r4/8	Reducing	3					
GW	2	90-100	6	2.35	3.08	2.98	3.03	0.7756	23.98	23.15	1.03585	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr4/0	7.5yr4/0	7.5yr4/2	Reducing	3					
GW	2	90-100	7	1.83	2.73	1.97	2.35	0.7787	28.65	25.4	1.12795	Body	N	N	N	N	Grit w/ Coral	Coarse	10yr4/1	10yr4/1	10yr4/1	Reducing	3					pretty much just core left
GW	2	90-100	8	5.24	7.76	6.53	7.145	0.7334	40.81	15.36	2.6569	Body	N	N	N	N	Grit w/ Coral	Coarse	10r3/6	10r3/6	10r3/6	Oxidizing	3					
GW	2	90-100	9	3.43	3.24	2.29	2.765	1.2405	36.7	32.86	1.11686	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/4	5yr4/2	5yr4/2	Oxidizing	3					
GW	2	90-100	10	2.93	4.03	3.96	3.995	0.7334	29.29	19.32	1.51605	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	7.5yr5/0	5yr4/6	5yr5/6	Reducing	3					
GW	2	90-100	11	2.7	4.78	3.52	4.15	0.6506	37.05	16.38	2.2619	Neck	N	Y	N	N	Grit w/ Coral, Grog	Coarse	10r5/6	10r5/6	10r3/4	Oxidizing	3					
GW	2	90-100	12	3.17	5.71	3.98	4.845	0.6543	22.9	19.62	1.16718	Neck	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r4/6	10r4/4	10r4/4	Oxidizing	3					
GW	2	90-100	13	1.87	2.98	2.7	2.84	0.6585	22.67	22.53	1.00621	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r4/8	10r4/8	10r3/6	Oxidizing	3					
GW	2	90-100	14	2.9	4.33	4.17	4.25	0.6824	25.42	18.63	1.36447	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr4/0	7.5yr5/2	2.5yr4/0	Reducing	3					pretty much just core. Surface eroded away.
GW	2	90-100	15	0.74	2.42	2.25	2.335	0.3169	16.53	13.42	1.23174	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/6	Oxidizing	3					
GW	2	90-100	16	3.57	4.76	3.72	4.24	0.842	29.87	20.94	1.42646	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	2.5yr4/0	5yr5/3	5yr4/3	Reducing	3					
GW	2	90-100	17	1.71	4.35	3.58	3.965	0.4313	24.62	15.66	1.57216	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	2.5yr3/0	2.5yr4/4	2.5yr4/4	Oxidizing	3					
GW	2	90-100	18	1.03	2.37	1.65	2.01	0.5124	21.14	15.46	1.3674	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r3/4	10r3/4	10r3/4	Oxidizing	3					
GW	2	90-100	19	1.11	2.7	2.47	2.585	0.4294	24.09	15.5	1.55419	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	7.5yr4/0	7.5yr4/0	10r5/6	Oxidizing	3					
GW	2	90-100	20	4.38	5.49	4.24	4.865	0.9003	24.65	22.87	1.07783	Body	Y	Y	N	N	Grit w/ Coral, Grog	Coarse	10r3/4	10r3/6	10r3/6	Oxidizing	3					
GW	2	90-100	21	1.94	6.06	5.59	5.825	0.333	19.45	14.27	1.363	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	7.5yr5/0	7.5yr5/4	2.5yr4/4	Oxidizing	3					
GW	2	90-100	22	2.4	4.02	3.53	3.775	0.6358	25.61	19.33	1.32488	Body	Y	Y	N	N	Grit w/ Coral	Fine	10r3/6	10r4/6	10r4/6	Oxidizing	3	red slipped				
GW	2	90-100	23	4.51	3.64	3.56	3.6	1.2528	43.6	25.21	1.72947	Body	N	Y	N	N	Grit w/ Coral	Coarse	2.5yr4/6	2.5yr4/6	10r3/6	Oxidizing	3					
GW	2	90-100	24	3.13	2.93	1.94	2.435	1.2854	38.49	32.15	1.1972	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	2.5yr3/6	2.5yr3/6	2.5yr3/6	Oxidizing	3					
GW	2	90-100	25	2.62	3.3	2.59	2.945	0.8896	30.8	20.24	1.52174	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r3/3	10r3/3	10r3/4	Oxidizing	3					
GW	2	90-100	26	1.41	3.28	2.72	3	0.47	27.28	14.46	1.88658	Body	N	Y	N	N	Grit w/ Coral	Coarse	10r4/8	10r3/1	10r3/6	Oxidizing	3					
GW	2	90-100	27	6.72	7.61	6.4	7.005	0.9593	31.82	30.29	1.05051	Body	Y	Y	N	N	Grit w/ Coral, Grog	Coarse	2.5yr4/0	5yr5/4	5yr4/3	Oxidizing	3	red slipped				slip= 10r4/6, but mostly worn off.
GW	2	90-100	28	1.74	3.59	3.44	3.515	0.495	24.49	20.29	1.207	Body	N	Y	N	Charred	Grit	Fine	10r3/4	10r3/4	2.5yr3/0	Oxidizing	3					
GW	2	90-100	29	2.49	3.87	4.52	4.195	0.5936	29.09	18.4	1.58098	Neck	N	Y	N	N	Grit w/ Coral, Grog	Coarse	10r5/6	10r5/6	10r3/6	Oxidizing	3					
GW	2	90-100	30	1.86	3.65	3.29	3.47	0.536	26.15	16.2	1.6142	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	7.5yr5/4	7.5yr5/4	7.5yr5/4	Reducing	3					all core?
GW	2	90-100	31	5.26	7.2	4.67	5.935	0.8863	30.23	25.38	1.1911	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	2.5yr5/6	2.5yr5/6	7.5yr3/0	Oxidizing	3					
GW	2	90-100	32	1.41	2.96	2.72	2.84	0.4965	23.52	16.95	1.38761	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r4/6	10r3/4	10r4/6	Oxidizing	3					all core?
GW	2	90-100	33	1.25	3.14	3.22	3.18	0.3931	22.16	14.46	1.5325	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr5/6	2.5yr5/6	2.5yr5/6	Oxidizing	3					
GW	2	90-100	34	1.37	2.54	2.35	2.445	0.5603	19.52	18.62	1.04834	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/6	10r4/6	10r4/6	Oxidizing	3					all core?
GW	2	90-100	35	1.34	3.03	2.6	2.815	0.476	23.42	19.61	1.19429	Body	N	Y	N	N	Grit w/ Coral, Sand	Fine	10r4/8	10r4/8	10r4/6	Oxidizing	3	red slipped				
GW	2	90-100	36	0.76	2.54	2.46	2.5	0.304	19.73	14.56	1.35508	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	7.5yr6/4	7.5yr6/4	7.5yr6/4	Reducing	3					all core?
GW	2	90-100	37	1.02	2.68	2.65	2.665	0.3827	23.72	13.43	1.7662	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr4/0	7.5yr5/0	Reducing	3					foraminifera?
GW	2	90-100	38	1.51	4.63	4.31	4.47	0.3378	17.91	14.01	1.27837	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	2.5yr3/0	2.5yr3/0	10r3/3	Reducing	3					
GW	2	90-100	39	1.53	3.41	2.8	3.105	0.4928	27.18	18	1.51	Body	Y	Y	N	N	Grit w/ Coral, Lava	Coarse	10r5/8	10r3/6	10r4/8	Oxidizing	3					
GW	2	90-100	40	1.06	3.02	3.28	3.15	0.3365	20.28	13.87	1.46215	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	2.5yr5/2	2.5yr5/8	2.5yr5/6	Oxidizing	3					
GW	2	90-100	41	1.2	2.81	3.02	2.915	0.4117	21.92	18.52	1.18359	Body	N	N	N	N	Grit w/ Coral, Sand	Coarse	5yr5/6	5yr5/6	5yr5/2	Oxidizing	3					all core?
GW	2	90-100	42	0.89	2.8	2.4	2.6	0.3423	21.06	11.89	1.77124	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	7.5yr4/0	7.5yr5/4	7.5yr3/0	Oxidizing	3					
GW	2	90-100	43	1.02	3.24	2.66	2.95	0.3458	21.89	14.83	1.47606	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	2.5yr5/4	2.5yr5/4	2.5yr5/4	Oxidizing	3					
GW	2	90-100	44	1.17	4.3	3.45	3.875	0.3019	19.36	14.6	1.32603	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r3/4	10r3/4	10r3/4	Oxidizing	3					all core?
GW	2	90-100	45	0.61	1.9	1.88	1.89	0.3228	16.76	15.47	1.08339	Body	N	N	N	N	Grit w/ Coral, Lava	Coarse	2.5yr5/4	2.5yr5/4	2.5yr5/4	Oxidizing	3					all core?
GW	2	90-100	46	0.85	3.82	3.59	3.705	0.2294	20.21	11.34	1.78219	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r5/6	10r4/8	10r5/6	Oxidizing	3					all core?
GW	2	90-100	47	21.26	10.95	6.29	8.62	2.4664	48.3	42.98	1.12378	Body	Y	Y	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	10r3/4	10r3/4	Oxidizing	3				L&S #7- Forna	
GW	2	90-100	48	8.11	4.31	9.06	6.685	1.2132	41.19	30.41	1.35449	Rim	N	Y	N	N	Grit w/ Coral	Coarse	7.5yr3/0	7.5yr3/0	10yr3/1	Reducing	3		Inverted	Pointed		
GW	2	90-100	49	6.59	7.76	6.54	7.15	0.9217	33.72	20.25	1.66519	Body	N	N	N	Paint	Grit w/ Coral, Grog	Coarse	10r4/8	10r3/2	10r4/8	Reducing	3	Red and Black Paint				1 line of brown (10yr3/1) paint on ext
GW	2	90-100	50	3.98	7.45	5.83	6.64	0.5994	29.42	20.07	1.46587	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	2	90-100	51	1.85	6.21	5.83	6.02	0.3073	17.8	17.01	1.04644	Body	N	Y	N	N	Grit w/ Coral, Sand	Coarse	10r4/8	10r4/8	10r3/6	Oxidizing	3					
GW	2	90-100	52	0.71	3.45	3.17	3.31	0.2145	18.79	12.17	1.54396	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r4/6	10r4/6	10r4/6	Oxidizing	3					
GW	2	90-100	53	0.53	2.21	2.11	2.16	0.2454	16.37	13.01	1.25826	Body	N	Y	N	N	Grit w/ Coral, Grog	Coarse	10r5/6	10r5/6	10r4/6	Oxidizing	3	red slipped				
GW	2	90-100	54	0.65	3.62	3.26	3.44	0.189	15.65	10.59	1.47781	Body	N	Y	N	N	Grit w/ Coral, Grog	Coarse	10r4/6	10r3/1	10r3/1	Oxidizing	3					
GW	2	90-100	55	0.39	2.52	2.09	2.305	0.1692	14.98	12.18	1.22989	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r5/8	2.5yr5/4	10r5/8	Oxidizing	3					
GW	2	90-100	56	0.47	2.58	2.71	2.645	0.1777	14.17	10.55	1.34313	Body	N	N	N	N	Grit w/ Coral	Coarse	5yr4/6	5yr4/6	2.5yr3/0	Reducing	3					
GW	2	90-100	57	0.79	3.05	2.9	2.975	0.2655	16.85	15.64	1.07737	Body	N	Y	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r3/6	Reducing	3					
GW	2	90-100	58	0.83	4.75	3.81	4.28	0.1939	15.52	10.82	1.43438	Body	N	Y	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/6	Oxidizing	3					
GW	2	90-100	59	0.87	3.23	2.97	3.1	0.2806	17	13.54	1.25554	Body	N	Y	N	N	Grit w/ Coral	Coarse	10r4/6	10r3/6	10r4/6	Oxidizing	3					
GW	2	90-100	60	0.95	3.74	3.66	3.7	0.2568	15.65	14.78	1.05886	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/4	10r3/1	10r4/4	Oxidizing	3					
GW	2	90-100	61	0.67	2.64	2.13	2.385	0.2809	16.75	13.1	1.27863	Body	N	Y	N	N	Grit w/ Coral, Grog	Fine	2.5yr6/6	2.5yr6/6	10r4/6	Oxidizing	3	red slipped				
GW	2	90-100	62	0.61	3.08	2.24	2.66	0.2293	14.68	13.71	1.07075	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	5yr5/4	5yr5/4	5yr5/4	Reducing	3					all core?
GW	2	90-100	63	1.34	5.02	4.87	4.945	0.271	19.57	14.15	1.38304	Body	N	N	N	N	Grit w/ Sand	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	2	90-100	64	0.38	2.76	2.67	2.715	0.14	13.87	11.07	1.25294	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10yr4/4	10yr4/4	10yr4/4	Oxidizing	3					all core?
GW	2	90-100	65	0.71	3.25	3.63	3.44	0.2064	16.89	11.15	1.5148	Body	N	Y	N	N	Grit w/ Coral	Fine	7.5yr4/8	7.5yr3/0	7.5yr3/0	Oxidizing	3					
GW	3	0-10	1	7.75	9.21	6.58	7.895	0.9816	33.09	22.6	1.46416	Neck	N	N	N	N	Grit w/ Shell	Coarse	7.5yr6/4	5yr6/3	2.5yr5/8	Oxidizing	3					foraminifera?
GW	3	0-10	2	1.75	4.79	4.93	4.86	0.3601	21.93	15.32	1.43146	Body	N	N	N	N	Grit w/ Grog	Coarse	2.5yr5/8	2.5yr5/6	2.5yr5/8	Oxidizing	3					
GW	3	0-10	3	0.8	3.27	3.4	3.335	0.2399	16.68	13.15	1.26844	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	3	0-10	4	0.59	4.88	4.8	4.84	0.1219	20.36	9.36	2.17521	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/2	2.5yr5/8	2.5yr5/8	Reducing	3					
GW	3	0-10	5	4.71	5.73	6.01	5.87	0.8024	27.32	19.9	1.37286	Body	N	N	N	N	Grit w/ Lava	Fine	7.5yr6/4	7.5yr6/2	7.5yr6/4	Reducing	3					
GW	3	0-10	6	0.67	3.95	3.73	3.84	0.1745	15.37	11.19	1.37355	Body	N	N	N	N	Grit w/ Mica, Sand	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
GW	3	0-10	7	0.45	4.17	4.12	4.145	0.1086	15.06	10.95	1.37534	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/6	2.5yr5/8	2.5yr4/8	Reducing	3					
GW	3	0-10	8	1.04	5.65	4.72	5.185	0.2006	20.75	8.96	2.31585	Body	N	N	N	N	Grit w/ Sand	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
GW	3	0-10	9	1.57	4.94	4.92	4.93	0.3185	20.28	18.18	1.11551	Body	N	N	N	N	Grit w/ Grog, Lava	Coarse	7.5yr6/2	2.5yr5/8	2.5yr5/8	Reducing	3					
GW	3	0-10	10	1	4.51	4.34	4.425	0.226	19.36	12.07	1.60398	Body	N	N	N	N	Grit w/ Coral, Grog, Sand	Varies	10r5/8	10r5/8	10r4/8	Oxidizing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
GW	3	0-10	11	1.05	3.73	3.51	3.62	0.2901	19.48	13.28	1.46687	Body	N	N	N	N	Grit w/ Coral, Grog, Sand	Varies	7.5yr5/2	2.5yr3/0	2.5yr5/8	Reducing	3					
GW	3	0-10	12	1.1	3.48	3.74	3.61	0.3047	22.22	13.55	1.63985	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr4/8	10r4/8	2.5yr4/8	Oxidizing	3					
GW	3	0-10	13	1.76	4.11	4.46	4.285	0.4107	26.48	15.89	1.66646	Body	N	N	N	N	Shell (foraminifera)	Coarse	5yr4/1	7.5yr6/6	7.5yr6/4	Reducing	3					water wrn on 2 sides, fresh break on other 2
GW	3	0-10	14	13.5	14.19	13.19	13.69	0.9861	33.53	30.36	1.10441	Rim	N	N	N	N	Shell (foraminifera)	Coarse	7.5yr5/2	10r4/8	10r5/8	Reducing	3		Straight	Flat		
GW	3	0-10	15	1.32	4.52	3.54	4.03	0.3275	22.1	17.79	1.24227	Body	N	N	N	N	Shell (foraminifera) w/ Sand	Fine	7.5yr5/2	7.5yr6/4	2.5yr6/8	Reducing	3					
GW	3	0-10	16	10.84	14.63	13.81	14.22	0.7623	31.29	24.36	1.28448	Body	N	N	N	N	Grit w/ Sand	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	3	0-10	17	1.79	5.93	5.81	5.87	0.3049	29.23	14.57	2.00618	Body	N	N	N	Impress	Shell (foraminifera)	Fine	5yr6/2	2.5yr4/8	7.5yr5/4	Reducing	2	Impress on Body				
GW	3	0-10	18	2.76	5.08	5.38	5.23	0.5277	29.52	22.37	1.31962	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	10r5/8	10r5/6	Reducing	3					
GW	3	0-10	19	0.68	4.48	4.17	4.325	0.1572	14.65	13.66	1.07247	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	2.5yr6/8	2.5yr4/8	Reducing	3					
GW	3	0-10	20	1.52	5.39	4.25	4.82	0.3154	19.45	15.5	1.25484	Body	N	N	Charred	N	Grit w/ Coral	Fine	7.5yr4/2	7.5yr3/0	7.5yr4/2	Reducing	3					
GW	3	0-10	21	2.04	6.91	5.87	6.39	0.3192	20.12	17	1.18353	Body	N	Y	N	N	Grit w/ Shell	Coarse	7.5yr6/4	7.5yr6/4	10r5/6	Reducing	3					
GW	3	0-10	22	1.6	4.61	4.55	4.58	0.3493	26.28	20.77	1.26529	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/6	2.5yr5/2	Oxidizing	3					
GW	3	0-10	23	0.86	3.47	3.61	3.54	0.2429	14.5	14.44	1.00416	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr3/0	5yr6/4	5yr4/2	Reducing	3					
GW	3	0-10	24	2.24	6.77	7.06	6.915	0.3239	21.44	14.46	1.48271	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	3	0-10	25	1.19	8.19	3.46	5.825	0.2043	21.26	17.01	1.24985	Body	N	N	N	N	Grit	Varies	2.5yr6/8	2.5yr6/8	2.5yr6/8	Oxidizing	3					
GW	3	0-10	26	2.24	4.95	4.41	4.68	0.4786	22.88	16.77	1.36434	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	2.5yr5/6	5yr5/2	Reducing	3					
GW	3	0-10	27	2.27	4.6	4.23	4.415	0.5142	23.81	23.32	1.02101	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	5yr5/8	5yr4/2	Reducing	3					
GW	3	0-10	28	0.92	3.79	2.87	3.33	0.2763	18.51	13.15	1.4076	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/6	10r4/6	10r4/6	Oxidizing	3					yellow coating all around. 10yr5/4
GW	3	0-10	29	1.06	5.63	5.07	5.35	0.1981	17.55	14.38	1.22045	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/6	10yr5/1	7.5yr6/4	Reducing	3					
GW	3	0-10	30	1.4	5.05	5.41	5.23	0.2677	17.26	14.54	1.18707	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr4/2	7.5yr3/0	5yr4/2	Reducing	3					
GW	3	0-10	31	1.07	4.64	4.68	4.66	0.2296	16	12.62	1.26783	Body	N	N	N	N	Grit w/ Mica	Fine	10r3/6	10r4/8	10r3/6	Oxidizing	3					
GW	3	0-10	32	0.81	5.06	5.03	5.045	0.1606	14.17	12.04	1.17691	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/8	10r5/8	10r5/8	Oxidizing	3					
GW	3	10-20	1	6.26	9.32	7.12	8.22	0.7616	32.62	20.06	1.62612	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr3/0	7.5yr3/0	7.5yr3/0	Reducing	3					
GW	3	10-20	2	9.23	7.82	6.74	7.28	1.2679	72.06	24.53	2.93763	Rim	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/8	10r5/8	Reducing	3		Everted	Rounded		
GW	3	10-20	3	7.5	10.93	6.12	8.525	0.8798	35.08	19.33	1.8148	Body	N	N	N	N	Grit	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	3	10-20	4	3.68	4.6	3.63	4.115	0.8943	36.13	28.05	1.28806	Body	N	N	N	N	Shell (foraminifera)	Coarse	7.5yr5/2	5yr6/6	2.5yr6/8	Reducing	3					
GW	3	10-20	5	7.75	7.68	4.07	5.875	1.3191	37.14	36.97	1.0046	Body	N	N	N	N	Shell (foraminifera)	Coarse	7.5yr5/0	5yr5/6	2.5yr5/8	Reducing	3					
GW	3	10-20	6	2.33	4.41	3.44	3.925	0.5936	35.72	22.59	1.58123	Body	N	N	N	N	Grit w/ Coral	Coarse	10r3/4	10r3/4	10r3/4	Reducing	3					yellow coating all around. 10yr6/4
GW	3	10-20	7	4.6	5.75	5.19	5.47	0.841	36.62	26.27	1.39399	Body	N	N	N	N	Grit w/ Sand	Fine	7.5yr4/0	5yr5/8	5yr6/6	Reducing	3					
GW	3	10-20	8	4.4	8.76	6.54	7.65	0.5752	23.36	23.33	1.00129	Neck	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	5yr7/8	5yr7/8	Reducing	3					
GW	3	10-20	9	8.22	10.73	9.11	9.92	0.8286	30.12	32.99	0.913	Rim	N	N	N	N	Grit w/ Coral	Coarse	5yr4/1	2.5yr5/8	2.5yr5/8	Reducing	3		Straight	rounded		
GW	3	10-20	10	5.82	7.68	6.42	7.05	0.8255	29.78	27.04	1.10133	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/6	2.5yr5/8	2.5yr5/8	Oxidizing	3					
GW	3	10-20	11	2.12	3.72	3.26	3.49	0.6074	20.79	20.48	1.01514	Body	N	N	N	N	Grit w/ Mica	Fine	10yr4/3	10yr4/3	10yr4/3	Reducing	3					yellow coating all around.10yr5/4
GW	3	10-20	12	1.01	4.55	2.8	3.675	0.2748	18.76	16.66	1.12605	Rim	N	N	N	N	Shell (foraminifera)	Fine	5yr3/1	5yr5/4	5yr3/1	Reducing	3		Everted	Rounded		
GW	3	10-20	13	4.23	11.3	10.46	10.88	0.3888	24.96	18.76	1.33049	Rim	Y	Y	N	N	Grit	Varies	10r4/6	10r4/8	10r4/6	Oxidizing	3		Inverted	Rounded	Roofing Tile	
GW	3	10-20	14	1.67	6.27	6.25	6.26	0.2668	24.1	13.9	1.73381	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	5yr5/4	5yr5/6	Reducing	3					
GW	3	10-20	15	2.77	5.58	5.05	5.315	0.5212	29.29	22.08	1.32654	Body	N	N	N	N	Shell (foraminifera)	Coarse	5yr5/1	5yr6/6	2.5yr5/8	Reducing	3					
GW	3	10-20	16	3.32	6.83	5.65	6.24	0.5321	25.35	23.8	1.06513	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
GW	3	10-20	17	1.67	5.17	4.94	5.055	0.3304	21.45	16.72	1.28289	Body	N	N	N	N	Grit w/ Mica, Sand	Fine	5yr5/4	2.5yr4/8	10r4/8	Oxidizing	3					
GW	3	10-20	18	2.32	7.46	5.19	6.325	0.3668	22.15	18.55	1.19407	Neck	N	N	N	N	Grit w/ Mica, Shell	Fine	5yr6/1	5yr5/6	7.5yr5/2	Reducing	3					
GW	3	10-20	19	2.06	4.88	4.53	4.705	0.4378	20.14	19.63	1.02598	Body	N	N	N	N	Grit w/ Grog, Mica, Shell	Fine	2.5yr5/0	5yr5/4	5yr6/4	Reducing	3					firing clouds on ext
GW	3	10-20	20	0.94	5.89	3.83	4.86	0.1934	22.25	13.04	1.70629	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	7.5yr6/2	2.5yr5/8	Reducing	3					
GW	3	10-20	21	1.22	4.89	4.69	4.79	0.2547	23.55	11.1	2.12162	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr3/0	10r4/8	10r4/8	Reducing	3					yellow coating. Fresh break?
GW	3	10-20	22	1.67	6.73	5.78	6.255	0.267	20.02	15.03	1.332	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr6/6	7.5yr6/6	Reducing	3					
GW	3	10-20	23	1.58	4.24	4.3	4.27	0.37	23.67	18.72	1.26442	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/0	7.5yr6/4	7.5yr6/4	Reducing	3					yellow coating
GW	3	10-20	24	0.49	3.93	3.3	3.615	0.1355	15.72	11.22	1.40107	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr7/2	7.5yr7/4	Reducing	3					
GW	3	10-20	25	1.52	3.85	3.46	3.655	0.4159	23.94	17.02	1.40658	Body	N	N	N	Charred	Grit w/ Mica	Fine	2.5yr5/8	5yr5/4	7.5yr3/0	Oxidizing	3					
GW	3	10-20	26	1.24	6.05	6.29	6.17	0.201	19.33	13.66	1.41508	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	5yr6/6	5yr5/6	Reducing	3					
GW	3	10-20	27	0.76	3.85	3.32	3.585	0.212	19.28	11.79	1.63528	Body	N	N	N	N	Shell (foraminifera) w/ Sand	Fine	2.5yr4/0	2.5yr4/0	2.5yr6/8	Reducing	3					
GW	3	10-20	28	0.9	3.78	2.69	3.235	0.2782	20.79	14.16	1.46822	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr6/6	7.5yr5/4	Reducing	3					
GW	3	10-20	29	0.32	4.22	4.06	4.14	0.0773	13.85	10.11	1.36993	Body	N	N	N	N	Shell (foraminifera)	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	3	10-20	30	0.82	4.07	3.84	3.955	0.2073	15.31	14.61	1.04791	Body	N	N	Charred	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr3/0	7.5yr3/0	Reducing	3					yellow coating.
GW	3	10-20	31	1	4.64	4.47	4.555	0.2195	16.11	14.68	1.09741	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr5/4	7.5yr5/2	Reducing	3					
GW	3	10-20	32	1.36	4.05	3.98	4.015	0.3387	19.21	18.89	1.01694	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/6	2.5yr5/6	Reducing	3					
GW	3	10-20	33	3.46	6.48	5.84	6.16	0.5617	23.56	25.27	0.93233	Rim	Y	Y	N	Incising	Shell (foraminifera)	Fine	7.5yr4/0	5yr5/6	7.5yr4/0	Reducing	3	Diagonal Hatch	Straight	Rounded		yellow coating
GW	3	10-20	34	2.16	4.46	4.62	4.54	0.4758	22.19	16.54	1.3416	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	7.5yr4/0	10r4/8	Oxidizing	3					
GW	3	10-20	35	0.77	4.22	4.46	4.34	0.1774	15.9	11.9	1.33613	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	7.5yr5/2	7.5yr5/6	Reducing	3					
GW	3	10-20	36	1	5.01	4.69	4.85	0.2062	17.73	14.14	1.25389	Rim	N	N	N	Impress	Grit w/ Coral	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3	Impress on Rim	Straight	Rounded		impress on rim
GW	3	10-20	37	0.59	3.25	3.42	3.335	0.1769	13.48	12.55	1.0741	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	3	10-20	38	1.46	5.33	5.41	5.37	0.2719	16.45	17.62	0.9336	Body	N	N	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	3	10-20	39	1.83	4.31	4.52	4.415	0.4145	26.88	16.28	1.65111	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr4/0	7.5yr4/0	Reducing	3					
GW	3	10-20	40	0.47	2.8	2.75	2.775	0.1694	13.59	10.62	1.27966	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Fine	10r4/8	2.5yr4/4	10r4/8	Oxidizing	3					yellow coating
GW	3	10-20	41	0.93	3.39	3.41	3.4	0.2735	19.12	13.48	1.4184	Body	N	N	N	N	Shell (foraminifera) w/ Lava	Fine	5yr6/8	2.5yr5/8	7.5yr5/4	Oxidizing	3					
GW	3	10-20	42	0.78	5.31	5.16	5.235	0.149	17.85	16.65	1.07207	Neck	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	2.5yr5/8	Reducing	3					
GW	3	20-30	1	8.52	8.78	9.9	9.34	0.9122	29.46	22.85	1.28928	Neck	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
GW	3	20-30	2	23.63	8.4	7.37	7.885	2.9968	53.81	43.83	1.2277	Body	Y	Y	N	N	Grit w/ Coral, Grog	Fine	2.5yr6/6	10r4/8	10r4/8	Oxidizing	3					
GW	3	20-30	3	6.65	7.97	6.44	7.205	0.923	37.12	25.41	1.46084	Rim	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr5/8	Reducing	3		Everted	Flat		
GW	3	20-30	4	4.14	5.21	4.33	4.77	0.8679	34.21	33.69	1.01543	Body	N	N	Charred	N	Shell (foraminifera)	Fine	7.5yr4/2	7.5yr3/0	10yr4/2	Reducing	3					
GW	3	20-30	5	8.59	5.51	5.12	5.315	1.6162	62.19	32.84	1.89373	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr5/6	7.5yr5/4	Reducing	3					
GW	3	20-30	6	10.83	5.7	4.58	5.14	2.107	49.39	49.24	1.00305	Body	N	N	Charred	N	Shell (foraminifera)	Fine	7.5yr7/0	10r5/3	10r5/6	Reducing	3					
GW	3	20-30	7	8.51	4.83	4.25	4.54	1.8744	62.15	36.62	1.69716	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/1	10yr6/1	10yr5/1	Reducing	3					
GW	3	20-30	8	7.16	5.45	3.47	4.46	1.6054	48.61	43.67	1.11312	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr3/0	10yr6/3	Reducing	3					
GW	3	20-30	9	14.41	11.29	5.63	8.46	1.7033	46.02	45.63	1.00855	Rim	Y	Y	N	N	Grit w/ Shell	Fine	7.5yr5/0	10r5/8	2.5yr6/8	Reducing	3		Everted	rounded		glued to 19
GW	3	20-30	10	5.69	4.87	4.19	4.53	1.2561	46.02	34.47	1.33507	Body	N	N	N	N	Shell (foraminifera) w/ Sand	Fine	7.5yr5/2	2.5yr5/8	2.5yr4/6	Reducing	3					
GW	3	20-30	11	5.8	5.55	4.8	5.175	1.1208	37.07	33.91	1.09319	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	10r5/8	10r5/8	Reducing	3					
GW	3	20-30	12	5.21	5.81	4.51	5.16	1.0097	36.16	26.09	1.38597	Rim	Y	Y	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3	red slipped	Everted	rounded		
GW	3	20-30	13	6.61	7.73	4.64	6.185	1.0687	35.33	32.66	1.08175	Body	N	N	N	N	Shell (foraminifera) w/ Sand	Fine	7.5yr3/0	7.5yr6/6	7.5yr6/6	Reducing	3					
GW	3	20-30	14	3.51	4.26	4.99	4.625	0.7589	37.15	25.16	1.47655	Body	N	N	N	N	Grit w/ Grog, Lava, Shell	Fine	5yr6/8	5yr6/8	2.5yr5/6	Oxidizing	3					more like shell temp than grit temp, but has some other bits in it.

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
GW	3	20-30	15	4.99	5.68	3.85	4.765	1.0472	42.16	31.27	1.34826	Body	N	N	Charred	N	Shell (foraminifera)	Fine	7.5yr6/2	2.5yr5/8	7.5yr4/2	Reducing	3					
GW	3	20-30	16	3.67	5.73	5.1	5.415	0.6777	33.68	32.68	1.0306	Body	N	N	Charred	N	Shell (foraminifera)	Fine	10yr5/1	7.5yr3/0	10yr5/1	Reducing	3					
GW	3	20-30	17	4.66	5.4	4.1	4.75	0.9811	33.81	28.18	1.19979	Body	N	N	N	N	Shell (foraminifera) w/ Sand	Fine	7.5yr6/2	2.5yr6/6	2.5yr6/6	Reducing	3					
GW	3	20-30	18	2.33	4.43	4.6	4.515	0.5161	26.12	22.76	1.14763	Body	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	7.5yr5/4	Reducing	3					
GW	3	20-30	19	5.23	13.24	6.6	9.92	0.5272	30.84	24.85	1.24105	Rim	Y	Y	N	N	Grit w/ Shell	Fine	7.5yr5/0	10r5/8	2.5yr6/8	Reducing	3		Everted	rounded		glued to 9, but old break- dirt on both edges.
GW	3	20-30	20	2.53	4.66	3.69	4.175	0.606	27.97	24.27	1.15245	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr4/2	7.5yr5/4	Reducing	3					
GW	3	20-30	21	2.42	4.9	4.55	4.725	0.5122	29.77	20.13	1.47889	Body	N	N	N	N	Shell (foraminifera) w/ Sand	Fine	2.5yr6/0	2.5yr6/6	2.5yr6/6	Reducing	3					
GW	3	20-30	22	3.52	5.01	4.57	4.79	0.7349	31.6	23.59	1.33955	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr3/0	5yr6/6	Reducing	3					2 pcs glued together
GW	3	20-30	23	6.32	7.89	7.12	7.505	0.8421	36.48	23.06	1.58196	Body	Y	Y	N	N	Shell (foraminifera) w/ Sand	Fine	2.5yr5/0	10r5/8	10r5/8	Reducing	3					
GW	3	20-30	24	2.67	4.72	5.49	5.105	0.523	30.91	28.93	1.06844	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	2.5yr6/8	2.5yr6/6	Reducing	3					
GW	3	20-30	25	3.22	4.23	4.41	4.32	0.7454	36.54	23.26	1.57094	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	10yr5/1	10yr4/1	Reducing	3					
GW	3	20-30	26	9.16	12.45	6.94	9.695	0.9448	35.63	30.09	1.18411	Rim	Y	Y	N	Punctate	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr5/8	Reducing	2	Semi-Circular Stal	Inverted	Flat	L&S #1- Globular Jar	
GW	3	20-30	27	1.59	4.27	4.19	4.23	0.3759	30.23	12.75	2.37098	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/0	5yr6/3	2.5yr6/8	Reducing	3					
GW	3	20-30	28	1.97	3.86	3.27	3.565	0.5526	30.16	23.25	1.2972	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr6/2	10yr6/2	7.5yr6/4	Reducing	3					
GW	3	20-30	29	2.3	4.45	4.93	4.69	0.4904	26.96	19.71	1.36783	Rim	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	5yr5/4	5yr5/6	Reducing	3		Everted	Rounded		
GW	3	20-30	30	4.87	11.02	10.6	10.81	0.4505	27.34	18.21	1.50137	Rim	Y	Y	N	Impress	Shell (foraminifera)	Fine	5yr5/6	10r4/8	10r6/8	Oxidizing	3	Impress on Body	Inverted	Rounded		
GW	3	20-30	31	2.42	5.2	3.94	4.57	0.5295	28.14	23.81	1.18186	Body	Y	N	N	Charred	Shell (foraminifera)	Fine	2.5yr5/0	10r6/8	10r6/8	Reducing	3					
GW	3	20-30	32	1.93	4.76	3.53	4.145	0.4656	26.74	22.1	1.20995	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/2	7.5yr5/2	7.5yr5/2	Reducing	3					
GW	3	20-30	33	2.29	4.54	4.64	4.59	0.4989	26.12	19.2	1.36042	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	5yr6/4	5yr6/6	Reducing	3					
GW	3	20-30	34	1.74	4.11	3.67	3.89	0.4473	29.01	19.05	1.52283	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr4/2	7.5yr5/2	Reducing	3					
GW	3	20-30	35	1.81	3.88	3.35	3.615	0.5007	24.35	20.06	1.21386	Body	N	N	N	Charred	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr6/8	10r6/6	Reducing	3					
GW	3	20-30	36	1.62	4.41	4.14	4.275	0.3789	20.56	17.21	1.19465	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/6	2.5yr6/8	2.5yr6/6	Reducing	3					
GW	3	20-30	37	1.53	4.78	3.65	4.215	0.363	22.58	17.5	1.29029	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	5yr7/1	5yr6/1	Reducing	3					
GW	3	20-30	38	2.58	5.07	4.3	4.685	0.5507	27.67	20.59	1.34386	Body	N	N	N	N	Shell (foraminifera) w/ Sand	Fine	7.5yr7/0	7.5yr6/4	5yr5/6	Reducing	3					
GW	3	20-30	39	1.47	5.03	4.24	4.635	0.3172	27.42	16.39	1.67297	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/6	10yr4/1	10yr4/1	Oxidizing	3					
GW	3	20-30	40	3.6	6.21	5.94	6.075	0.5926	29.68	17.98	1.65072	Body	N	N	Charred	N	Shell (foraminifera)	Fine	2.5yr4/0	2.4yr3/0	5yr5/4	Reducing	3					
GW	3	20-30	41	1.53	3.36	2.94	3.15	0.4857	26.79	17.55	1.5265	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr5/2	7.5yr4/2	Reducing	3					
GW	3	20-30	42	1.48	4.73	4.48	4.605	0.3214	24.74	17.7	1.39774	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	2.5yr5/8	2.5yr6/8	Reducing	3					
GW	3	20-30	43	1.04	4.12	3.98	4.05	0.2568	25.52	14.99	1.70247	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	2.5yr6/8	2.5yr5/8	Reducing	3					
GW	3	20-30	44	2.11	4.72	4.73	4.725	0.4466	23.73	15.96	1.48684	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr4/0	7.5yr4/0	Reducing	3					
GW	3	20-30	45	1.51	3.62	4.6	4.11	0.3674	22.66	20.68	1.09574	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr6/2	7.5yr3/0	Reducing	3					
GW	3	20-30	46	1.64	5.22	4.86	5.04	0.3254	21.83	18.65	1.17051	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	5yr4/1	10yr5/2	Reducing	3					
GW	3	20-30	47	1.05	3.75	3.27	3.51	0.2991	25.57	12.65	2.02134	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	5yr6/6	5yr6/6	Reducing	3					
GW	3	20-30	48	1.29	4.81	3.55	4.18	0.3086	21.6	17.41	1.24067	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr3/0	7.5yr3/0	Reducing	3					
GW	3	20-30	49	1.52	5.35	4.35	4.85	0.3134	19.75	15.76	1.25317	Rim	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/0	7.5yr6/4	7.5yr6/6	Reducing	3		Inverted	Flat		
GW	3	20-30	50	0.92	4.29	3.57	3.93	0.2341	15.96	14.65	1.08942	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/6	2.5yr6/6	2.5yr6/6	Oxidizing	3					
GW	3	20-30	51	1.76	4.22	4.39	4.305	0.4088	21	19.35	1.08527	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	5yr6/6	2.5yr5/0	Reducing	3					
GW	3	20-30	52	0.62	4.04	3.91	3.975	0.156	23.45	10.69	2.19364	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/6	2.5yr6/6	2.5yr6/6	Oxidizing	3					
GW	3	20-30	53	1.04	4.79	4.98	4.885	0.2129	21.33	16.54	1.2896	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	5yr6/6	2.5yr6/8	Reducing	3					
GW	3	20-30	54	1.15	3.82	3.26	3.54	0.3249	18.05	16.02	1.12672	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/4	7.5yr6/4	7.5yr6/4	Oxidizing	3					
GW	3	20-30	55	2.83	3.89	4.92	4.405	0.6425	31.79	20.62	1.54171	Neck	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	5yr6/8	7.5yr6/6	Reducing	3					2 pcs glued together
GW	3	20-30	56	4.99	7.86	7.82	7.84	0.6365	21.65	20.2	1.07178	Body	N	N	Charred	N	Grit w/ Mica	Fine	2.5yr3/0	2.5yr3/0	5yr4/2	Reducing	3					
GW	3	20-30	57	1.41	5.15	4.94	5.045	0.2795	18.45	18.14	1.01709	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	5yr6/6	5yr6/6	Reducing	3					
GW	3	20-30	58	1.37	5.66	5.51	5.585	0.2453	21.7	20.94	1.03629	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr7/1	5yr5/6	5yr6/6	Reducing	3					
GW	3	20-30	59	1.21	3.83	3.49	3.66	0.3306	16.77	16.66	1.0066	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr7/2	5yr5/6	Reducing	3					
GW	3	20-30	60	1.2	5.85	5.7	5.775	0.2078	21.8	11.17	1.95166	Body	N	N	N	N	Grit w/ Coral, Lava	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	3	20-30	61	1.9	4.91	2.73	3.82	0.4974	24.2	18.81	1.28655	Neck	N	N	Coating	Incising	Shell (foraminifera)	Fine	7.5yr6/6	7.5yr6/6	7.5yr6/6	Oxidizing	2	Parallel Incise				4 II lines on neck
GW	3	20-30	62	1.08	3.64	3.77	3.705	0.2915	18.74	18.51	1.01243	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	5yr6/6	2.5yr6/6	Reducing	3					
GW	3	20-30	63	0.94	3.79	3.43	3.61	0.2604	25	13.24	1.88822	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	5yr6/8	5yr6/8	Reducing	3					
GW	3	20-30	64	1.35	4.32	4.72	4.52	0.2987	23.39	16.24	1.44027	Body	Y	Y	N	N	Shell (foraminifera)	Fine	7.5yr7/0	2.5yr5/8	5yr5/8	Reducing	3					
GW	3	20-30	65	1.63	6.38	5.39	5.885	0.277	17.94	14.45	1.24152	Body	N	N	N	N	Grit w/ Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	3	20-30	66	1.09	3.73	3.93	3.83	0.2846	22.01	13.62	1.61601	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	2.5yr6/8	7.5yr6/4	Reducing	3					
GW	3	20-30	67	1.42	4.04	4.61	4.325	0.3283	20.17	16.54	1.21947	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr5/4	7.5yr5/4	Reducing	3					
GW	3	20-30	68	1.24	2.46	2.22	2.34	0.5299	31.2	13.29	2.34763	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/6	5yr6/6	5yr6/6	Oxidizing	3					4 pcs glued together, recent break.
GW	3	20-30	69	1.3	4.75	4.69	4.72	0.2754	20.16	19.85	1.01562	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr3/0	7.5yr3/0	Reducing	3					
GW	3	20-30	70	1.32	4.06	3.38	3.72	0.3548	20.14	19.57	1.02913	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
GW	3	20-30	71	1.23	4.47	3.59	4.03	0.3052	20.11	14.68	1.36989	Body	Y	Y	Charred	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr3/0	10r5/8	Reducing	3					
GW	3	20-30	72	1.7	7.37	5.93	6.65	0.2556	18.98	17.67	1.07414	Body	N	N	N	Incising	Shell (foraminifera)	Fine	2.5yr4/0	7.5yr5/4	7.5yr5/4	Reducing	2	Parallel Incise				
GW	3	20-30	73	2.45	6.58	6.1	6.34	0.3864	19.02	14.63	1.30007	Body	N	N	Charred	N	Grit w/ Mica	Fine	7.5yr3/0	7.5yr2/0	5yr4/2	Reducing	3					
GW	3	20-30	74	0.68	3.61	3.31	3.46	0.1965	16.03	15.12	1.06019	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr5/6	7.5yr6/6	Reducing	3					
GW	3	20-30	75	0.64	4.16	4.05	4.105	0.1559	19.64	12.69	1.54768	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	7.5yr5/4	2.5yr6/8	Reducing	3					
GW	3	20-30	76	0.89	6.21	5.52	5.865	0.1517	17.55	12.92	1.35836	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	7.5yr5/4	7.5yr5/2	Reducing	3					
GW	3	20-30	77	1.13	4.67	4.59	4.63	0.2441	16.06	14.16	1.13418	Body	N	N	Charred	N	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr3/0	7.5yr6/6	Reducing	3					
GW	3	20-30	78	0.74	5.71	5.83	5.77	0.1282	12.36	11.28	1.09574	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr3/0	2.5yr3/0	2.5yr5/6	Reducing	3					
GW	3	20-30	79	0.56	3.72	3.86	3.79	0.1478	18.5	10.96	1.68796	Body	Y	Y	N	N	Shell (foraminifera)	Fine	5yr5/1	2.5yr5/8	5yr6/6	Reducing	3					
GW	3	20-30	80	0.77	3.52	3.68	3.6	0.2139	19.8	12.72	1.5566	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/2	7.5yr5/2	2.5yr3/0	Reducing	3					
GW	3	20-30	81	0.99	6.2	5.36	5.78	0.1713	18.04	13.95	1.29319	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr6/1	5yr6/8	5yr6/8	Reducing	3					
GW	3	20-30	82	0.94	4.85	5.47	5.16	0.1822	19.01	12.89	1.47479	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/1	10yr6/3	5yr6/4	Reducing	3					
GW	3	20-30	83	0.42	3.28	3.38	3.33	0.1261	15.77	12.51	1.26059	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/6	2.5yr6/8	7.5yr6/6	Reducing	3					
GW	3	20-30	84	0.46	3.83	4.22	4.025	0.1143	14.17	11.22	1.26292	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr5/4	7.5yr6/4	Reducing	3					
GW	3	20-30	85	5.47			0	#DIV/0!				Bits																
GW	3	30-40	1	10.26	14.88	7.88	11.38	0.9016	35.7	31.18	1.14496	Rim	N	N	N	Impress	Grit w/ Shell	Fine	5yr3/1	5yr3/1	2.5yr6/8	Reducing	3	Impress on Body	Everted			impress on rim. 3 pcs glued together
GW	3	30-40	2	7.4	8.44	9.07	8.755	0.8452	36.97	25.7	1.43852	Body	Y	Y	N	Excising	Shell (foraminifera)	Fine	7.5yr4/2	2.5yr5/8	2.5yr5/8	Reducing	3	Other, Excise				possible cut-out?
GW	3	30-40	3	1.34	4.14	4.48	4.31	0.3109	24.76	20.21	1.22514	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/8	2.5yr6/8	5yr6/4	Oxidizing	3					
GW	3	30-40	4	1.36	3.69	3.85	3.77	0.3607	20.24	18.59	1.08876	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr5/4	7.5yr5/4	Reducing	3					
GW	3	30-40	5	3.38	4.57	4.42	4.495	0.7519	26.04	19.05	1.36693	Neck	N	N	N	N	Shell (foraminifera)	Fine	10r4/6	10r4/6	10r4/6	Oxidizing	3					yellow coating all around
GW	3	30-40	6	3.48	6.18	4.51	5.345	0.6511	28.4	20.31	1.39833	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr6/6	7.5yr6/4	Reducing	3					
GW	3	30-40	7	1.28	4.68	4.42	4.55	0.2813	17.58	16.65	1.05586	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/1	5yr5/8	5yr5/4	Reducing	3					
GW	3	30-40	8	1.4	3.47	3.26	3.365	0.416	25.11	17.38	1.44476	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/2	7.5yr5/2	7.5yr5/2	Reducing	3					
GW	3	30-40	9	0.81	5.15	4.65	4.9	0.1653	19.56	16.13	1.21265	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/2	7.5yr5/2	7.5yr5/2	Reducing	3					
GW	3	30-40	10	1.17	3.8	3.9	3.85	0.3039	17.48	17.43	1.00287	Body	N	N	Charred	N	Grit w/ Coral	Coarse	2.5yr5/8	2.5yr5/8	7.5yr6/6	Oxidizing	3					coating all around
GW	3	30-40	11	1.86	5.22	4.94	5.08	0.3661	23.18	18.26	1.26944	Body	N	N	N	N	Grit w/ Grog, Shell	Fine	5yr5/6	5yr5/6	5yr5/6	Oxidizing	3					
GW	3	30-40	12	0.76	4.31	3.5	3.905	0.1946	15.58	11.67	1.33505	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr3/0	2.5yr3/0	Reducing	3					
GW	3	30-40	13	1.7	4.82	4.99	4.905	0.3466	26.85	15.92	1.68656	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	5yr5/4	5yr5/4	Reducing	3					
GW	3	30-40	14	1.23	4.05	4.22	4.135	0.2975	23.43	17.33	1.35199	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	5yr5/6	7.5yr4/2	Reducing	3					5 pcs glued together

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
GW	3	30-40	15	0.59	3.54	3.74	3.64	0.1621	17.85	12.85	1.38911	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr5/6	7.5yr5/2	Reducing	3					
GW	3	30-40	16	0.51	3.79	3.81	3.8	0.1342	17.77	9.58	1.85491	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/6	5yr6/6	7.5yr6/4	Oxidizing	3					
GW	3	30-40	17	0.91	4.29	4.44	4.365	0.2085	18.89	12.36	1.52832	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr5/4	7.5yr5/2	Reducing	3					
GW	3	30-40	18	1.17	3.59	3.44	3.515	0.3329	18.71	13.83	1.35286	Body	N	N	N	N	Grit w/ Lava, Mica	Fine	5yr6/6	5yr6/6	2.5yr4/4	Oxidizing	3					
GW	3	30-40	19	1.97	12.19	8.94	10.565	0.1865	18.14	14.14	1.28289	Body	Y	Y	N	N	Shell (foraminifera)	Fine	5yr4/2	10r5/8	10r5/8	Reducing	3					
GW	3	30-40	20	0.82			0	#DIV/0!				Bits																
GW	3	40-50	1	13.18	6	5.55	5.775	2.2823	53.26	42.43	1.25524	Body	Y	N	N	N	Grit w/ Coral	Coarse	2.5yr3/0	2.5yr4/4	5yr3/2	Reducing	3					firing clouds int and ext
GW	3	40-50	2	7.66	8.41	5.19	6.8	1.1265	38.92	36.82	1.05703	Neck	N	Y	N	N	Grit w/ Grog	Fine	2.5yr6/6	2.5yr6/6	10r4/8	Oxidizing	3	red slipped				glued to #4,5; old break.
GW	3	40-50	3	3.88	4.49	4.44	4.465	0.869	28.05	25.71	1.09102	Body	Y	Y	N	N	Grit w/ Coral	Fine	5yr6/6	5yr6/6	10r4/6	Oxidizing	3					brush marks in the slip
GW	3	40-50	4	3.76	6.1	5.22	5.66	0.6643	27.39	20.58	1.3309	Neck	N	Y	N	N	Grit w/ Grog	Fine	2.5yr6/6	2.5yr6/6	10r4/8	Oxidizing	3	red slipped				glued to #2,5; old break.
GW	3	40-50	5	1.2	5.3	4.28	4.79	0.2505	17.76	15.07	1.1785	Body	N	Y	N	N	Grit w/ Grog	Fine	2.5yr6/6	2.5yr6/6	10r4/8	Oxidizing	3	red slipped				glued to #2,4; old break.
GW	3	40-50	6	6.55	10.93	9.75	10.34	0.6335	36.62	19.07	1.92029	Rim	Y	Y	N	Impress	Shell (foraminifera)	Fine	7.5yr4/0	5yr7/4	5yr7/4	Reducing	3	Impress on Body	Inverted	Flat		impress below rim
GW	3	40-50	7	3.3	4.01	3.16	3.585	0.9205	39.9	24.53	1.62658	Body	N	Y	N	N	Grit w/ Mica	Fine	2.5yr6/6	2.5yr6/6	10r4/6	Oxidizing	3					brush marks in the slip; same as#10, 11
GW	3	40-50	8	2.6	5.58	4.41	4.995	0.5205	33.18	17.08	1.94262	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/6	2.5yr6/6	Reducing	3					
GW	3	40-50	9	1.85	6.03	5.42	5.725	0.3231	22.88	16.17	1.41497	Body	N	N	N	Incising	Shell (foraminifera)	Fine	7.5r5/0	5yr5/8	5yr6/6	Reducing	2	Single Incise				
GW	3	40-50	10	1.2	4.23	4.36	4.295	0.2794	20.24	12.5	1.6192	Body	N	Y	N	N	Grit w/ Mica	Fine	5yr5/6	5yr5/6	10r4/8	Oxidizing	3					brush marks in slip; same as #7, 11
GW	3	40-50	11	0.75	3.47	3.63	3.55	0.2113	15.07	11.91	1.26532	Body	N	Y	N	N	Grit w/ Mica	Fine	5yr5/6	5yr5/6	10r4/8	Oxidizing	3					brush marks in slip; same as #7, 10
GW	3	40-50	12	0.95	4.58	4.7	4.64	0.2047	18.57	14.94	1.24297	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	5yr6/4	5yr6/6	Reducing	3					
GW	3	40-50	13	0.45	3.58	2.93	3.255	0.1382	14	12.86	1.08865	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/6	5yr5/6	5yr4/1	Oxidizing	3					
GW	3	40-50	14	0.72	4.16	3.57	3.865	0.1863	17.93	10.86	1.65101	Body	Y	N	N	N	Grit w/ Coral, Grog, Mica	Fine	5yr5/6	10r4/8	5yr5/6	Oxidizing	3					
GW	3	40-50	15	0.48	2.7	2.3	2.5	0.192	14.48	10.91	1.32722	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	7.5yr5/6	7.5yr6/2	7.5yr6/4	Oxidizing	3					
GW	3	40-50	16	0.29	2.72	3.09	2.905	0.0998	12.3	10.85	1.13364	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr5/6	5yr5/6	Reducing	3					
GW	3	40-50	17	0.17	1.9	1.87	1.885	0.0902	9.47	9.04	1.04757	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr3/1	5yr5/6	5yr3/1	Reducing	3					
GW	3	50-60	1	20.67	10.45	5.83	8.14	2.5393	53.67	39.57	1.35633	Rim	Y	N	N	Impress	Grit w/ Coral	Coarse	5yr3/4	10r4/8	10yr3/2	Reducing	3	Impress on Rim	Inverted	Rounded		
GW	3	50-60	2	13.73	4.41	9.4	6.905	1.9884	55.75	39.67	1.40534	Base	N	Y	N	N	Grit w/ Grog	Fine	2.5yr6/6	2.5yr6/6	2.5yr6/6	Oxidizing	3					wheel-thrown. Same as 2,4,5,above. Slip mostly worn off.
GW	3	50-60	3	4.85	7.21	6.31	6.76	0.7175	30.61	21.65	1.41386	Body	N	N	N	N	Grit w/ Coral, Lava	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
GW	3	50-60	4	3.05	4.64	3.99	4.315	0.7068	39.89	19.7	2.02487	Body	N	Y	N	N	Grit w/ Coral	Fine	7.5yr5/6	7.5yr5/6	10r4/6	Oxidizing	3					same as 3, 7, above. Brush marks in slip.
GW	3	50-60	5	2.2	4.22	3.84	4.03	0.5459	22.19	19.14	1.15935	Body	N	Y	N	N	Grit w/ Grog	Fine	2.5yr6/6	2.5yr6/6	10r4/6	Oxidizing	3	red slipped				same as #2.
GW	3	50-60	6	1.37	3.69	3.34	3.515	0.3898	22.23	15.73	1.41322	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	2.5yr4/6	2.5yr4/6	2.5yr4/6	Oxidizing	3					
GW	3	50-60	7	1.5	5.29	5.21	5.25	0.2857	18.52	18.12	1.02208	Body	N	N	N	N	Grit	Fine	10yr8/3	10yr8/3	10yr8/3	Reducing	3					
GW	3	50-60	8	0.86	5.75	5.04	5.395	0.1594	19.34	11	1.75818	Body	N	N	N	N	Grit w/ Coral, Grog		2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
GW	3	50-60	9	0.56	2.72	2.88	2.8	0.2	16.37	11.03	1.48413	Body	N	Y	N	N	Grit w/ Coral	Fine	2.5yr5/6	2.5yr5/6	10r4/8	Oxidizing	3					
GW	3	50-60	10	0.51	3.5	2.64	3.07	0.1661	14.43	8.73	1.65292	Body	N	Y	N	N	Grit	Fine	2.5yr6/6	2.5yr6/6	10r4/6	Oxidizing	3					
GW	3	50-60	11	0.91	3.32	2.62	2.97	0.3064	16.28	14.07	1.15707	Body	Y	Y	N	N	Grit w/ Coral	Fine	5yr5/6	5yr5/6	5yr5/6	Oxidizing	3					
GW	3	50-60	12	0.19	2.32	2.26	2.29	0.083	13.86	8	1.7325	Body	N	N	N	N	Grit w/ Coral	Fine	10r5/8	10r5/8	10r4/6	Oxidizing	3					
GW	3	60-70	1	1.92	5.35	3.71	4.53	0.4238	25.17	14.91	1.68813	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	7.5yr5/6	7.5yr5/6	7.5yr5/6	Oxidizing	3					
GW	3	60-70	2	2.67	3.49	3.63	3.56	0.75	31.4	19.04	1.64916	Body	N	Y	N	N	Grit w/ Coral	Coarse	10r4/8	10r4/8	5yr3/1	Oxidizing	3					
GW	3	60-70	3	6.29	7.01	6.59	6.8	0.925	32.64	26.97	1.21023	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	7.5yr5/4	7.5yr5/4	7.5yr5/4	Oxidizing	3					
GW	3	60-70	4	0.54	2.99	2.63	2.81	0.1922	17.17	12.75	1.34667	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	3	60-70	5	0.87	3.67	3.03	3.35	0.2597	15.91	14.89	1.0685	Body	N	Y	N	N	Grit w/ Coral, Grog	Coarse	2.5yr5/8	2.5yr4/6	10r4/6	Oxidizing	3					
GW	3	60-70	6	0.92	2.63	2.84	2.735	0.3364	18.29	17.51	1.04455	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	5yr5/6	5yr5/6	5yr4/3	Oxidizing	3					
GW	3	60-70	7	0.29	2.81	3.02	2.915	0.0995	14.74	6.25	2.3584	Body	Y	Y	N	N	Grit w/ Coral	Fine	2.5yr4/6	10r4/8	10r4/8	Oxidizing	3					same as 4 above
GW	3	70-80	1	1.16	5.41	5.34	5.375	0.2158	15.38	12.79	1.2025	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	7.5yr6/6	7.5yr6/4	10yr5/1	Oxidizing	3					
GW	3	70-80	2	0.88	2.47	2.6	2.535	0.3471	21.36	13.26	1.61086	Body	N	Y	N	N	Grit w/ Coral, Grog	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
GW	3	70-80	3	1	4.42	3.65	4.035	0.2478	18.28	13.12	1.39329	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					coating all around
GW	3	70-80	4	0.39	1.89	1.61	1.75	0.2229	16.17	12.21	1.32432	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	7.5yr6/4	7.5yr6/4	7.5yr6/4	Reducing	3					
GW	3	70-80	5	0.41	2.42	3.21	2.815	0.1456	14.28	11.04	1.29348	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	2.5yr5/4	2.5yr5/4	2.5yr5/4	Oxidizing	3					
GW	3	80-90	1	3.75	4.52	4.76	4.64	0.8082	30.15	24.96	1.20793	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr4/0	2.5yr4/0	7.5yr4/0	Reducing	3					
GW	3	80-90	2	2.76	3.3	3.4	3.35	0.8239	25.42	24.22	1.04955	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	2.5yr3/6	2.5yr3/6	2.5yr3/6	Oxidizing	3					
GW	3	80-90	3	1.48	4.36	3.61	3.985	0.3714	22.38	17	1.31647	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	7.5yr5/4	7.5yr5/4	10yr5/1	Oxidizing	3					
GW	3	80-90	4	0.82	2.22	2.14	2.18	0.3761	24.92	12.15	2.05103	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
GW	3	80-90	5	0.33	1.86	1.56	1.71	0.193	15.2	10.02	1.51697	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr5/6	7.5yr5/6	7.5yr5/6	Oxidizing	3					
GW	3	90-100	1	8.98	7.66	3.46	5.56	1.6151	41.72	30.16	1.38329	Rim	N	N	N	N	Grit w/ Coral	Coarse	5yr3/4	5yr3/4	5yr3/1	Reducing	3		Straight	rounded		
GW	3	90-100	2	12.39	8.79	8.23	8.51	1.4559	44.61	39.35	1.13367	Rim	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	2.5yr4/4	2.5yr4/6	10r4/8	Oxidizing	3		Everted	Flat		
GW	3	90-100	3	6.29	4.12	4.42	4.27	1.4731	46.73	31.53	1.48208	Rim	Y	Y	N	N	Grit w/ Coral	Fine	2.5yr5/6	10r4/6	10r4/6	Oxidizing	3		Everted	rounded		
GW	3	90-100	4	5.31	4.13	2.17	3.15	1.6857	38.01	27.53	1.38068	Body	N	Y	N	N	Grit w/ Coral, Grog	Coarse	7.5yr6/6	7.5yr6/6	2.5yr3/0	Reducing	3					
GW	3	90-100	5	0.91	2.18	1.69	1.935	0.4703	22.09	15.86	1.39281	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	5yr4/1	5yr4/1	2.5yr4/0	Reducing	3					
GW	3	90-100	6	2.34	7.62	4.57	6.095	0.3839	19.95	19.7	1.01269	Neck	Y	Y	N	N	Grit w/ Coral, Grog	Coarse	10r4/6	10r4/6	10r4/6	Oxidizing	3					
GW	3	90-100	7	0.42	2.57	2.27	2.42	0.1736	16.82	8.72	1.9289	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr4/8	2.5yr4/2	2.5yr4/8	Oxidizing	3					
GW	3	90-100	8	0.6	3.68	3.92	3.8	0.1579	17.23	9.73	1.77081	Body	N	Y	N	N	Grit w/ Coral	Coarse	2.5yr5/6	2.5yr5/6	10r4/6	Oxidizing	3					
GW	3	90-100	9	2.02	4.54	4.1	4.32	0.4676	22.08	18.49	1.19416	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr4/2	7.5yr4/2	7.5yr4/2	Reducing	3					
GW	3	90-100	10	0.66	5.02	4.46	4.74	0.1392	15.45	9.21	1.67752	Body	N	N	N	N	Grit w/ Coral	Coarse	10r5/6	7.5yr4/0	7.5yr4/0	Oxidizing	3					
GW	3	90-100	11	2.05	3.72	3.22	3.47	0.5908	23.11	22.17	1.0424	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr5/4	7.5yr5/4	7.5yr5/4	Oxidizing	3					
GW	3	90-100	12	1.35	3.02	2.93	2.975	0.4538	22.21	16.74	1.32676	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	5yr6/4	5yr6/4	5yr6/4	Oxidizing	3					
GW	3	90-100	13	2.19	6.1	5.01	5.555	0.3942	21.05	14.78	1.42422	Rim	N	Y	N	N	Grit w/ Coral	Coarse	10r5/6	10r5/6	10r4/6	Oxidizing	3		Straight	rounded		
GW	3	90-100	14	1.79	3.19	3.04	3.115	0.5746	23.06	20.86	1.10547	Body	N	Y	N	N	Grit w/ Coral	Coarse	2.5yr4/6	7.5yr3/0	5yr3/3	Oxidizing	3					
GW	3	90-100	15	0.55	2.21	1.84	2.025	0.2716	17.89	11.85	1.5097	Body	N	Y	N	N	Grit w/ Coral	Coarse	5yr5/6	5yr5/6	10r4/8	Oxidizing	3					
GW	3	90-100	16	1.01	3.49	3.34	3.415	0.2958	25.85	12.32	2.09821	Body	N	Y	N	N	Grit w/ Coral	Coarse	10r4/8	5yr3/1	10r3/6	Oxidizing	3					
GW	3	90-100	17	1.08	1.98	2.51	2.245	0.4811	20.06	18.29	1.09677	Body	N	N	N	N	Grit w/ Coral	Coarse	5yr4/3	5yr4/3	5yr4/3	Oxidizing	3					
GW	4	0-10	1	18.12	12.97	7.94	10.455	1.7331	45.59	25.17	1.81128	Rim	Y	Y	N	N	Grit w/ Mica	Fine	2.5yr3/6	10r4/8	7.5yr6/4	Oxidizing	3		Everted	Rounded		
GW	4	0-10	2	24.82	11.05	11.12	11.085	2.2391	43.22	41.56	1.03994	Rim	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	2.5yr4/8	2.5yr3/6	2.5yr3/6	Oxidizing	3		Everted	Rounded	Roofing Tile	
GW	4	0-10	3	3.18	4.97	4.58	4.775	0.666	22.71	22.05	1.02993	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	2.5yr4/6	7.5yr3/0	7.5yr3/0	Oxidizing	3					water worn on 2 edges, but not on other 2; exterior is water worn
GW	4	0-10	4	4.98	7.09	4.14	5.615	0.8869	32.18	27.57	1.16721	Body	N	N	N	N	Grit w/ Shell	Coarse	7.5yr4/0	5yr5/6	5yr5/6	Reducing	3					
GW	4	0-10	5	5.29	3.99	4.04	4.015	1.3176	36.7	33.26	1.10343	Body	Y	Y	N	N	Shell (foraminifera)	Fine	7.5yr3/0	2.5yr4/4	2.5yr4/4	Reducing	3					5 pcs glued together, fresh breaks
GW	4	0-10	6	6.37	10.45	9.5	9.975	0.6386	24.68	23.05	1.07072	Body	N	N	N	Punctate	Shell (foraminifera)	Coarse	7.5yr5/4	2.5yr5/8	2.5yr6/8	Reducing	3	Semi-Circular Stamp				2 impress marks
GW	4	0-10	7	2.9	5.44	3.93	4.685	0.619	28.76	18.12	1.5872	Body	N	N	N	N	Grit w/ Grog, Mica	Fine	7.5yr6/6	7.5yr6/6	7.5yr6/6	Oxidizing	3					
GW	4	0-10	8	3.32	6.78	7.8	7.29	0.4554	33.89	16.82	2.01486	Body	Y	Y	N	N	Shell (foraminifera)	Fine	7.5yr5/4	10r4/6	7.5yr4/2	Oxidizing	3					
GW	4	0-10	9	2.39	3.61	3.44	3.525	0.678	24.14	23.73	1.01728	Body	N	N	N	N	Grit w/ Grog, Mica, Shell	Fine	2.5yr5/0	7.5yr5/0	2.5yr5/6	Reducing	3					
GW	4	0-10	10	1.24	4.17	3.98	4.075	0.3043	18.36	13.42	1.36811	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/4	7.5yr6/4	7.5yr5/4	Reducing	3					
GW	4	0-10	11	1.86	4.24	3.8	4.02	0.4627	21.86	17.35	1.25994	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/6	7.5yr5/2	Reducing	3					
GW	4	0-10	12	1.77	5.74	4.36	5.05	0.3505	19.5	15.44	1.26295	Body	N	N	N	N	Grit w/ Mica	Coarse	2.5yr3/6	7.5yr3/0	5yr3/1	Oxidizing	3					high fired

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
GW	4	0-10	13	0.75	4.57	4.37	4.47	0.1678	16.8	13.1	1.28244	Body	N	N	N	N	Grit w/ Grog	Fine	7.5yr6/6	7.5yr6/6	7.5yr6/6	Oxidizing	3					
GW	4	10-20	1	23.98	12.22	9.58	10.9	2.2	46.23	47.72	0.96878	Rim	N	N	N	N	Grit w/ Grog, Mica, Sand	Coarse	2.5yr5/8	2.5yr6/8	2.5yr6/8	Oxidizing	3		Everted	Rounded	Roofing Tile	roofing tile?
GW	4	10-20	2	19.45	13.3	13.02	13.16	1.478	45.26	37.02	1.22258	Body	N	N	N	N	Grit w/ Grog, Shell	Varies	2.5yr4/8	2.5yr3/6	2.5yr3/6	Oxidizing	3					
GW	4	10-20	3	5.48	8.5	8.09	8.295	0.6606	29.86	28.16	1.06037	Body	Y	Y	N	N	Shell (foraminifera)	Fine	7.5yr4/2	10r3/4	10yr3/1	Reducing	3					
GW	4	10-20	4	4.79	8.48	8.08	8.28	0.5785	27.72	19.32	1.43478	Body	N	N	N	N	Grit w/ Shell	Coarse	2.5yr4/0	5yr6/4	5yr6/6	Reducing	3					same as GW.4.0-10.4
GW	4	10-20	5	1.43	4.9	3.66	4.28	0.3341	24.16	15.88	1.52141	Body	Y	Y	N	N	Shell (foraminifera)	Fine	5yr5/4	10r4/8	10r4/6	Oxidizing	3					
GW	4	10-20	6	1.24	3.22	3.16	3.19	0.3887	18.97	17.29	1.09717	Body	N	N	N	N	Grit w/ Coral	Coarse	2.5yr5/0	2.5yr5/0	2.5yr5/6	Reducing	3					
GW	4	10-20	7	2.24	3.61	4.18	3.895	0.5751	27.74	19.97	1.38908	Body	Y	Y	N	N	Shell (foraminifera)	Fine	5yr5/6	7.5yr5/4	2.5yr2.5/0	Oxidizing	3					
GW	4	10-20	8	0.92	5.24	4.58	4.91	0.1874	16.03	14.54	1.10248	Body	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/4	10r5/6	10r4/3	Oxidizing	3					
GW	4	10-20	9	0.34	2.85	1.64	2.245	0.1514	11.69	11.6	1.00776	Body	N	N	N	N	Grit w/ Grog	Fine	2.5yr6/8	2.5yr6/8	2.5yr6/8	Oxidizing	3				Roofing Tile	chip of roofing tile?
GW	4	10-20	10	0.56	3.12	3.03	3.075	0.1821	16.22	14.26	1.13745	Body	N	N	N	N	Grit	Fine	5yr7/1	5yr7/1	5yr7/1	Reducing	3					
GW	4	10-20	11	0.95	5.33	5.66	5.495	0.1729	16.09	12.56	1.28105	Body	N	N	N	N	Grit w/ Mica	Fine	7.5yr5/0	7.5yr5/4	7.5yr5/4	Reducing	3					
GW	4	10-20	12	0.8	2.54	2.42	2.48	0.3226	20.3	14.43	1.40679	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr4/8	2.5yr4/8	10yr3/1	Oxidizing	3					
GW	4	10-20	13	12.65	7.42	6.32	6.87	1.8413	59.93	33.23	1.80349	Body	N	N	N	N	Grit w/ Grog, Mica, Sand, Shell	Coarse	7.5yr7/2	7.5yr7/2	7.5yr7/2	Reducing	3				Roofing Tile	
GW	4	10-20	14	2.8	4.39	3.63	4.01	0.6983	29.14	18.01	1.61799	Body	N	N	N	N	Grit w/ Grog, Mica, Sand, Shell	Coarse	7.5yr7/2	7.5yr7/2	7.5yr7/2	Reducing	3				Mortar	
GW	4	20-30	1	30.44	7.58	6.3	6.94	4.3862	85.5	50.56	0.60206	Body	Y	Y	N	Charred	Shell (foraminifera)	Fine	5yr5/6	2.5yr2.5/0	10r5/8	Oxidizing	3					charred, but black coating. Not a pot, but what?
GW	4	20-30	2	11.54	5.47	5.58	5.525	2.0887	47.29	41.99	1.12622	Body	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/2	10r5/8	10r5/6	Reducing	3					same as gw.4.10-20.08
GW	4	20-30	3	0.63	3.99	3.68	3.835	0.1643	12.74	11.41	1.11656	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/4	7.5yr5/4	7.5yr5/4	Reducing	3					
GW	4	20-30	4	1.3	5.77	5.81	5.79	0.2245	17.97	15.4	1.16688	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr6/4	7.5yr5/2	Reducing	3					
GW	4	20-30	5	2.89	6.4	5.62	6.01	0.4809	21.71	16.05	1.35265	Body	N	N	N	N	Grit w/ Grog	Varies	7.5yr6/6	7.5yr6/6	7.5yr6/6	Oxidizing	3					high fired
GW	4	20-30	6	1.49	5.18	4.69	4.935	0.3019	20.6	14.65	1.40614	Body	N	N	N	Incising	Grit w/ Coral, Mica	Coarse	2.5yr5/8	7.5yr4/2	2.5yr5/8	Oxidizing	3	Other Incise				
GW	4	20-30	7	3.08	10.87	9.09	9.98	0.3086	25.72	13.84	1.85838	Body	N	N	N	N	Grit w/ Grog, Mica, Sand	Coarse	2.5yr6/8	2.5yr6/8	2.5yr6/8	Oxidizing	3				Roofing Tile	
GW	4	30-40	1	85.76	12.26	10.06	11.16	7.6846	91.02	71.74	1.26875	Rim	N	N	N	N	Grit w/ Grog, Mica, Sand	Coarse	2.5yr6/8	2.5yr6/8	2.5yr6/8	Oxidizing	3		Everted	Flat	Roofing Tile	
GW	4	30-40	2	5.51	5.23	4.92	5.075	1.0857	39.1	27.47	1.42337	Body	Y	Y	N	N	Shell (foraminifera)	Fine	7.5yr5/0	5yr5/8	5yr5/6	Reducing	3					
GW	4	30-40	3	4.09	5.57	6.28	5.925	0.6903	29.01	23.65	1.22664	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr6/6	5yr5/6	Reducing	3					
GW	4	30-40	4	4.79	6.86	5.6	6.23	0.7689	28.35	17.2	1.64826	Body	N	N	N	N	Shell (foraminifera)	Coarse	7.5yr6/2	2.5yr4/2	2.5yr5/6	Reducing	3					
GW	4	30-40	5	1.71	4.84	3.11	3.975	0.4302	24.19	22.11	1.09408	Body	N	N	N	N	Grit w/ Grog, Mica, Sand	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3				Roofing Tile	
GW	4	30-40	6	2.2	3.83	4.32	4.075	0.5399	25.71	16.96	1.51592	Body	N	N	N	N	Shell (foraminifera)	Coarse	5yr6/6	5yr6/6	7.5yr6/6	Oxidizing	3					
GW	4	30-40	7	1.65	6.24	5.56	5.9	0.2797	19.68	13.05	1.50805	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	2.5yr4/6	Reducing	3					
GW	4	30-40	8	1.8	4.91	4.11	4.51	0.3991	23.49	15.87	1.48015	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	10r4/8	10r4/8	7.5yr3/0	Oxidizing	3					
GW	4	30-40	9	2.99	6.33	7.41	6.87	0.4352	26.68	13.72	1.94461	Body	Y	Y	N	N	Grit w/ Grog	Fine	5yr7/4	10r4/8	10r4/8	Reducing	3					
GW	4	30-40	10	2.14	7.62	7.45	7.535	0.284	16.54	15.2	1.08816	Body	N	N	N	Coating	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr6/8	5yr8/1	Reducing	3					white coating on ext. same as XX below.
GW	4	30-40	11	0.69	4.06	4.19	4.125	0.1673	15.84	10.88	1.45588	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/8	5yr6/8	5yr6/8	Oxidizing	3					
GW	4	30-40	12	1.11	4.49	4.9	4.695	0.2364	17.99	14.87	1.20982	Body	N	N	Charred	N	Shell (foraminifera)	Fine	7.5yr5/0	2.5yr2.5/0	5yr5/3	Reducing	3					
GW	4	30-40	13	0.96	3.24	2.18	2.71	0.3542	20.34	16.41	1.23949	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	5yr6/6	7.5yr5/4	Reducing	3					
GW	4	30-40	14	0.61	3.65	3.77	3.71	0.1644	14.44	11.98	1.20534	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/6	5yr6/6	10r6/8	Oxidizing	3					
GW	4	30-40	15	0.6	3.83	3.14	3.485	0.1722	15.75	11.08	1.42148	Body	N	N	N	N	Grit w/ Grog, Sand	Fine	7.5yr5/0	5yr5/6	5yr5/6	Oxidizing	3					
GW	4	30-40	16	0.62	3.53	3.37	3.45	0.1797	15.33	12.94	1.1847	Body	N	N	N	N	Grit w/ Grog, Mica, Sand, Shell	Coarse	7.5yr7/2	7.5yr7/2	7.5yr7/2	Reducing	2				Mortar	
GW	4	40-50	1	56.42	13.28	4.5	8.89	6.3465	101.94	44.46	2.29285	Rim	N	N	N	Incising	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr7/0	2.5yr5/8	Reducing	3	Perpendicular Incs	Inverted	Rounded	L&S #1- Globula	2 sets of 2 ll lines coming down from rim; firing clouds on int and ext
GW	4	40-50	2	24.69	4.92	6.52	5.72	4.3164	65.81	67.57	0.97395	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	5yr6/6	2.5yr6/8	Reducing	3					glued to 3, below; same as GW.4.30-40.10,
GW	4	40-50	3	37.09	5.57	6.45	6.01	6.1714	96.98	47.48	2.04254	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	5yr6/6	2.5yr6/8	Reducing	3					glued to 2, above ; same as GW.4.30-40.10, above.
GW	4	40-50	4	6.08	6.89	5.1	5.995	1.0142	34.57	20.44	1.69129	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/8	2.5yr6/8	2.5yr4/6	Oxidizing	3					
GW	4	40-50	5	1.69	3.84	4.43	4.135	0.4087	21.42	20.89	1.02537	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/6	2.5yr5/6	Reducing	3					
GW	4	40-50	6	3.22	6.89	6.37	6.63	0.4857	21.12	19.06	1.10808	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/8	2.5yr6/8	Reducing	3					
GW	4	40-50	7	6.36	5.96	6.27	6.115	1.0401	32.64	31.66	1.03095	Body	N	N	N	N	Grit w/ Shell	Fine	7.5yr7/2	7.5yr7/2	5yr5/2	Reducing	3					high fired
GW	4	40-50	8	5.77	6.68	6.75	6.715	0.8593	35.43	20.73	1.70912	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	7.5yr3/2	7.5yr3/2	7.5yr3/2	Oxidizing	3					
GW	4	40-50	9	1.8	5.31	5.36	5.335	0.3374	19.65	16.14	1.21747	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/2	7.5yr5/2	2.5yr5/8	Reducing	3					
GW	4	40-50	10	2.09	8.06	7.61	7.835	0.2668	17.33	15.41	1.12459	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr6/8	2.5yr5/8	Reducing	3					
GW	4	40-50	11	1.35	5.15	4.79	4.97	0.2716	19.65	17.88	1.09899	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	10yr6/2	2.5yr5/6	Oxidizing	3					
GW	4	40-50	12	2.33	9.02	7.29	8.155	0.2857	20.45	17.53	1.16657	Rim	N	N	N	Impress	Shell (foraminifera)	Fine	7.5yr4/0	5yr6/6	5yr6/6	Reducing	3	Impress on Rim	Inverted	Damaged		impress on rim
GW	4	40-50	13	1.25	6.29	6.08	6.185	0.2021	17.21	15.23	1.13001	Body	Y	Y	N	N	Shell (foraminifera)	Fine	5yr4/2	10r4/6	10r4/6	Reducing	3					
GW	4	40-50	14	0.61	2.16	2.05	2.105	0.2898	15.87	12.88	1.23214	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/2	7.5yr6/4	7.5yr6/6	Reducing	3					
GW	4	40-50	15	0.3	2.7	2.53	2.615	0.1147	10.05	9.97	1.00802	Body	N	N	N	N	Grit	Fine	10r4/8	10r4/8	10r4/6	Oxidizing	3					
GW	4	40-50	16	5.55	9.04	5.56	7.3	0.7603	26.55	23.3	1.13948	Body	N	N	N	N	Grit w/ Sand, Shell	Coarse	7.5yr7/2	7.5yr7/2	7.5yr7/2	Reducing	2				Mortar	
GW	4	50-60	1	3.53	4.76	5.03	4.895	0.7211	28.7	24.47	1.17286	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
GW	4	50-60	2	1.96	6.46	6.2	6.33	0.3096	19.75	16.82	1.1742	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	7.5yr4/0	10r3/4	10r4/8	Reducing	3					
GW	4	50-60	3	1.16	4.44	4.46	4.45	0.2607	17.55	14.4	1.21875	Body	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/8	10r4/6	10r4/6	Reducing	3					
GW	4	60-70	1	6.62	9.68	6.97	8.325	0.7952	36.27	19.28	1.88122	Rim	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3		Straight	rounded		
GW	4	60-70	2	6.67	6.52	8	7.26	0.9187	29.61	26.37	1.12287	Body	N	Y	N	N	Grit w/ Grog, Mica	Fine	7.5yr7/4	7.5yr7/4	10r4/6	Oxidizing	3					little temper, same as 3,4; refit with 4
GW	4	60-70	3	3.67	6.03	6.09	6.06	0.6056	35.24	18.54	1.90076	Body	N	Y	N	N	Grit w/ Grog, Mica	Fine	7.5yr7/4	7.5yr7/4	10r4/6	Oxidizing	3					same as 2, 4
GW	4	60-70	4	4.08	11.19	8.73	9.96	0.4096	29.08	23.29	1.2486	Body	N	Y	N	N	Grit w/ Grog, Mica	Fine	7.5yr7/4	7.5yr7/4	10r4/6	Oxidizing	3					same as 3, 4, refit with 2
GW	4	60-70	5	2.57	3.93	3.65	3.79	0.6781	28.06	22.87	1.22693	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r4/6	10r4/6	10r4/6	Oxidizing	3					
GW	4	60-70	6	3.27	8.62	7.04	7.83	0.4176	30.26	17.21	1.75828	Rim	N	N	N	N	Shell (foraminifera)	Fine	5yr3/1	5yr5/6	5yr5/6	Reducing	3		Everted	Flat		disintegrating. Multiple pieces glued
GW	4	60-70	7	1.68	5.07	4.67	4.87	0.345	24.83	15.51	1.6009	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr4/1	5yr5/6	Reducing	3					
GW	4	60-70	8	1.03	4.46	4.23	4.345	0.2371	16.28	15.82	1.02908	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	5yr5/6	5yr6/8	Reducing	3					
GW	4	60-70	9	2.13	5.46	4.45	4.955	0.4299	22.55	18.72	1.20459	Body	Y	Y	N	N	Grit w/ Grog, Mica	Fine	7.5yr5/4	10r4/6	10r4/6	Reducing	3					slip mostly worn off
GW	4	60-70	10	1.38	4.4	3.95	4.175	0.3305	17.81	17.3	1.02948	Body	Y	Y	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r5/8	10r3/6	10r3/6	Oxidizing	3					slip mostly worn off
GW	4	60-70	11	1.33	4.72	3.43	4.075	0.3264	18.45	12.18	1.51478	Rim	N	N	N	N	Grit	Fine	10yr7/4	10yr4/2	10yr4/2	Reducing	3		Everted	Flat		v. fragile. Broke into 8 pcs while washing. V. little temper. Weird little sherd….
GW	4	60-70	12	0.51	4.43	3.3	3.865	0.132	17.12	9.42	1.81741	Body	N	N	N	N	Grit w/ Grog, Mica, Sand	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3				Roofing Tile	roofing tile?
GW	4	60-70	13	0.68	4.26	5.15	4.705	0.1445	15.51	9.3	1.66774	Rim	N	N	N	N	Shell (foraminifera)	Fine	5yr3/1	5yr5/6	5yr5/6	Reducing	3		Straight	Damaged		disintegrating. Same as 6 above, but can't make it fit together.
GW	4	60-70	14	0.11			0	#DIV/0!				Bits																
GW	4	70-80	1	1.47	5.62	3.37	4.495	0.327	22.8	13.3	1.71429	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/2	2.5yr5/8	2.5yr5/8	Reducing	3					disintegrating. Crack glued to maintain

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
GW	4	70-80	2	2.01			0	#DIV/0!			#DIV/0!	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/2	2.5yr5/8	2.5yr5/8	Reducing	3					disintegrating. Was a whole sherd when excv, broke apart when washed.
GW	4	80-90	1	4.53	4.71	4.42	4.565	0.9923	38.74	28.65	1.35218	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/4	7.5yr3/0	10yr5/2	Reducing	3					
GW	4	80-90	2	3.12	4.63	3.73	4.18	0.7464	31.72	20.5	1.54732	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr4/0	2.5yr5/8	Reducing	3					
GW	4	80-90	3	3.72	5.59	4.52	5.055	0.7359	27.78	19.96	1.39178	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	7.5yr4/0	7.5yr6/6	7.5yr6/6	Reducing	3					
GW	4	80-90	4	2.33	4.52	4.32	4.42	0.5271	25.38	15.82	1.6043	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	7.5yr5/2	7.5yr4/4	7.5yr5/2	Reducing	3					high fired
GW	4	80-90	5	2.54	7.06	10.72	8.89	0.2857	22.52	18.41	1.22325	Rim	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/6	2.5yr6/6	Reducing	3		Straight	rounded		
GW	4	80-90	6	1.82	6.03	5.75	5.89	0.309	17.23	17.12	1.00643	Body	N	N	N	N	Grit w/ Coral	Coarse	7.5yr4/4	7.5yr4/4	7.5yr4/4	Oxidizing	3					disintegrating. 2 pcs glued together
GW	4	80-90	7	0.46	2.73	2.64	2.685	0.1713	15.55	14.48	1.0739	Body	N	N	N	N	Shell (foraminifera)	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
GW	4	80-90	8	0.58	3.51	3.7	3.605	0.1609	12.32	11.42	1.07881	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/1	5yr6/4	5yr6/6	Reducing	3					
GW	4	80-90	9	0.26	2.87	3.04	2.955	0.088	14.9	10.83	1.37581	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr6/3	2.5yr6/6	7.5yr6/2	Reducing	3					
GW	4	80-90	10	1.1	5.57	5.68	5.625	0.1956	14.03	12.17	1.15283	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr4/4	2.5yr3/2	7.5yr5/4	Oxidizing	3					
GW	4	90-100	1	27.72	9.48	8.23	8.855	3.1304	54.76	53.18	1.02971	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r4/6	10r4/6	10r4/6	Oxidizing	3					
GW	4	90-100	2	26.75	8.65	9.73	9.19	2.9108	50.59	50.07	1.01039	Rim	Y	Y	N	N	Grit	Fine	2.5yr4/0	2.5yr3/4	2.5yr4/6	Reducing	3		Straight	flat		
GW	4	90-100	3	10.05	11.12	7.92	9.52	1.0557	44.69	24.38	1.83306	Base	Y	Y	N	N	Grit w/ Lava	Fine	10r5/8	10r4/6	10r4/8	Oxidizing	3					
GW	4	90-100	4	7.54	8.65	5.92	7.285	1.035	33.89	24.74	1.36985	Body	N	N	N	Applique	Grit	Fine	10yr5/2	10yr4/2	7.5yr4/0	Reducing	3	Applique				2 lines of applique on ext, appear to run T to remants of smoothing/ molding on int. Is this earthenware?? Is this a lid or something?
GW	4	90-100	5	8.3	9.69	8.31	9	0.9222	31	23.91	1.29653	Body	N	N	N	N	Grit w/ Lava, Sand	Fine	7.5yr5/0	7.5yr6/4	7.5yr6/6	Reducing	3					high fired
GW	4	90-100	6	1.47	3.02	3.11	3.065	0.4796	22.53	21.45	1.05035	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	5yr5/6	7.5yr5/0	Reducing	3					high fired
GW	4	90-100	7	2.01	4.56	4.35	4.455	0.4512	22.56	21.79	1.03534	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	5yr6/6	5yr4/2	Reducing	3					
GW	4	90-100	8	2.92	5.38	4.99	5.185	0.5632	24.32	21.36	1.13858	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr4/0	7.5yr5/2	Reducing	3					
GW	4	90-100	9	4.3	7.52	3.96	5.74	0.7491	29.72	19.91	1.49272	Body	N	N	Charred	N	Grit	Fine	2.5yr2.5/0	2.5yr2.5/0	2.5yr2.5/0	Reducing	3					
GW	4	90-100	10	2.55	7.11	7.31	7.21	0.3537	26.06	14.45	1.80346	Body	N	N	N	N	Grit w/ Lava	Fine	5yr5/6	5yr5/6	7.5yr4/2	Oxidizing	3					
GW	4	90-100	11	0.64	2.69	2.34	2.515	0.2545	23.68	15.9	1.48931	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/6	2.5yr5/6	2.5yr40	Oxidizing	3					high fired; firing clouds
GW	4	90-100	12	1.18	4.07	4.14	4.105	0.2875	21.83	16.3	1.33926	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	5yr6/4	5yr7/6	Reducing	3					high fired
GW	4	90-100	13	1.57	4.48	4.31	4.395	0.3572	23.15	15.67	1.47735	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	5yr6/6	5yr5/6	Reducing	3					
GW	4	90-100	14	1.11	4.44	4.54	4.49	0.2472	19.32	14.72	1.3125	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	5yr5/8	2.5yr5/6	Reducing	3					
GW	4	90-100	15	0.65	3.06	2.82	2.94	0.2211	22.63	11.67	1.93916	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	7.5yr6/2	7.5yr5/6	Reducing	3					
GW	4	90-100	16	1.1	4.06	4.11	4.085	0.2693	17.63	13.85	1.27292	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/0	5yr6/6	10yr51	Reducing	3					
GW	4	90-100	17	0.99	2.67	3.17	2.92	0.339	21.58	17.26	1.25029	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr4/1	10yr4/1	10yr4/1	Reducing	3					
GW	4	90-100	18	0.63	6.77	6.21	6.49	0.0971	21.08	6.94	3.03746	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
GW	4	90-100	19	0.51	4.1	3.89	3.995	0.1277	15.19	11.17	1.35989	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr4/0	7.5yr4/2	Reducing	3					
GW	4	90-100	20	0.4	2.84	2.97	2.905	0.1377	13.3	12.06	1.10282	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr4/2	7.5yr5/4	Reducing	3					
GW	4	90-100	21	1.32	10.51	7.14	8.825	0.1496	14.85	12.82	1.15835	Rim	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr6/6	2.5yr6/6	Reducing	3		Straight	rounded		
GW	4	90-100	22	0.72	3.93	3.89	3.91	0.1841	15.03	14.41	1.04303	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	5yr6/6	5yr4/2	Reducing	3					
GW	4	90-100	23	0.62	3.55	3.12	3.335	0.1859	14.93	12.27	1.21679	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr54	2.5yr4/8	Reducing	3					
GW	4	90-100	24	0.45	3.82	2.9	3.36	0.1339	12.26	9.56	1.28243	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr6/4	7.5yr6/4	Reducing	3					
GW	4	90-100	25	0.61	4.81	3.49	4.15	0.147	18.65	11.53	1.61752	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	5yr6/6	5yr6/6	Reducing	3					
GW	4	90-100	26	0.29	2.77	2.25	2.51	0.1155	13.24	11.22	1.18004	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	5yr5/6	5yr6/6	Reducing	3					
GW	4	90-100	27	0.2	3.19	3.15	3.17	0.0631	9.38	8.63	1.08691	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	10r48	Reducing	3					
GW	4	90-100	28	0.26	3.11	2.79	2.95	0.0881	11.71	10.58	1.10681	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	5yr5/8	5yr6/8	Reducing	3					
GW	4	90-100	29	0.28	3.25	3.05	3.15	0.0889	9.92	8.61	1.15215	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Fine	2.5yr58	2.5yr58	2.5yr58	Oxidizing	3					
GW	4	90-100	30	1.52	5.76	3.61	4.685	0.3244	17.75	14.21	1.24912	Body	Y	Y	N	N	Grit	Fine	7.5yr6/4	2.5yr3/2	2.5yr4/4	Oxidizing	3					
KB	1	10-20	1	15.62	13.3	6.67	9.985	1.5643	40.09	34.47	1.16304	Rim	Y	Y	N	N	Grit w/ Lava	Fine	10r5/8	10r4/6	10r4/6	Oxidizing	3		Inverted	rounded		
KB	1	10-20	2	8.35	8.55	3.7	6.125	1.3633	39.47	29.89	1.32051	Neck	N	Y	Coating	Paint, Inci	Grit w/ Mica	Fine	5yr6/6	7.5yr4/0	5yr6/3	Oxidizing	3	Multiple Design Elements				insiced lines on ext, ll red painted lines somewhat following insiced lines. Unique type thus far.
KB	1	10-20	3	1.4	3.71	3.43	3.57	0.3922	25.32	12.64	2.00316	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
KB	1	10-20	4	8.01	6.12	6.03	6.075	1.3185	47.41	24.48	1.93668	Body	N	N	Charred	N	Shell (foraminifera)	Fine	7.5yr5/0	2.5yr2.5/0	2.5yr5/6	Reducing	3					
KB	1	10-20	5	2.57	6.08	3.85	4.965	0.5176	24.21	19.8	1.22273	Body	Y	Y	N	N	Grit w/ Grog	Fine	7.5yr5/4	7.5yr6/4	2.5yr3/4	Oxidizing	3					
KB	1	10-20	6	5.18	6.53	6.93	6.73	0.7697	33.47	23.57	1.42003	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr7/4	7.5yr6/4	Reducing	3					
KB	1	10-20	7	2.26	3.78	3.89	3.835	0.5893	24.8	20.43	1.2139	Body	N	N	Coating	Coating	Grit w/ Coral, Lava	Coarse	10r3/4	10r3/4	10r3/4	Oxidizing	3					water-worn, but the 2 pointy edges are not. Looks kida like an awl, but probably isnt. Does have white coating on some of the faces, but not all around.
KB	1	10-20	8	1.63	4.98	4.48	4.73	0.3446	18.27	14.53	1.2574	Body	N	Y	N	N	Grit w/ Shell	Coarse	2.5yr5/0	2.5yr5/8	2.5yr6/8	Reducing	3					
KB	1	10-20	9	1.77	5.03	4.98	5.005	0.3536	22.05	14.34	1.53766	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	10r5/3	10r5/8	Reducing	3					high fired
KB	1	20-30	1	42.79	7.66	5.29	6.475	6.6085	90.45	63.59	1.42239	Body	N	N	N	Coating	Grit w/ Shell	Varies	2.5yr5/9	2.5yr5/6	10r5/8	Reducing	3					some white coating on ext.
KB	1	20-30	2	1.43	4.91	6.02	5.465	0.2617	22.09	10.79	2.04727	Body	Y	Y	N	N	Grit w/ Shell	Fine	7.5yr5/0	7.5yr6/6	2.5yr5/8	Reducing	3					
KB	1	30-40	1	3.68	3.63	4.12	3.875	0.9497	35.55	20.8	1.70913	Body	Y	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/6	10yr4/1	Reducing	3					
KB	1	30-40	2	6.23	5.26	6.32	5.79	1.076	38.94	23.38	1.66553	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/6	7.5yr3/2	Reducing	3					black staining on ext?
KB	1	40-50	1	48.01	11.97	10.42	11.195	4.2885	86.9	38.69	2.24606	Rim	N	N	N	Incising	Shell (foraminifera)	Fine	2.5yr5/0	7.5yr7/2	7.5yr7/4	Reducing	3	Diagonal Hatch	Everted	Rounded		
KB	1	40-50	2	3.32	3.32	2.05	2.685	1.2365	31.07	24.72	1.25688	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/8	7.5yr6/4	Reducing	3					
KB	1	40-50	3	2.8	4.74	3.95	4.345	0.6444	28.51	19.9	1.43266	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr5/2	7.5yr4/0	Reducing	3					high fired
KB	1	40-50	4	1.61	5.18	3.54	4.36	0.3693	21.48	16.34	1.31457	Body	N	Y	N	N	Grit w/ Shell	Coarse	2..5yr5/0	2..5yr5/0	2.5yr5/6	Reducing	3					
KB	1	40-50	5	1.32	3.98	3.72	3.85	0.3429	18.17	14.45	1.25744	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/6	2.5yr5/8	Reducing	3					
KB	1	40-50	6	0.56	3.1	2.89	2.995	0.187	11.69	11.82	0.989	Body	N	N	N	N	Grit w/ Lava	Coarse	2.5yr6/8	2.5yr6/8	2.5yr4/8	Oxidizing	3					
KB	1	40-50	7	1.97	6.67	6.86	6.765	0.2912	19.48	13.66	1.42606	Body	N	N	N	N	Grit w/ Lava	Coarse	7.5yr6/6	2.5yr3/0	10r5/8	Oxidizing	3					
KB	1	40-50	8	2.4	5.71	4.83	5.27	0.4554	30.71	13.76	2.23183	Body	N	N	Charred	N	Grit w/ Shell	Fine	2.5yr4/0	2.5yr2.5/0	2.5yr4/0	Reducing	3					
KB	1	50-60	1	1.99	5.08	4.15	4.615	0.4312	24.62	17.7	1.39096	Neck	N	N	N	Incising	Shell (foraminifera)	Fine	7.5yr5/0	10r5/8	10r5/8	Reducing	3	Diagonal Hatch				curvilinear design incised
KB	1	50-60	2	15.73	5.77	4.32	5.045	3.1179	53.65	50.83	1.05548	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr4/6	2.5yr4/8	Oxidizing	3					
KB	1	50-60	3	15.15	8.74	7.02	7.88	1.9226	48.02	28.91	1.66102	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	5yr5/6	5yr6/4	Reducing	3					
KB	1	50-60	4	1.63	2.91	3.08	2.995	0.5442	20.29	19.01	1.06733	Body	N	N	N	N	Grit w/ Coral, Lava	Coarse	10yr6/6	10yr7/8	7.5yr3/0	Oxidizing	3					
KB	1	50-60	5	4.1	5.12	5.37	5.245	0.7817	27.26	23.44	1.16297	Body	N	N	N	N	Shell (foraminifera)	Coarse	10yr5/1	2.5yr5/8	2.5yr5/8	Reducing	3					
KB	1	50-60	6	2.68	5.01	4.42	4.715	0.5684	22.51	19.64	1.14613	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr4/0	2.5yr4/0	Reducing	3					
KB	1	60-70	1	3.12	6.02	4.23	5.125	0.6088	25.2	19.27	1.30773	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/6	2.5yr5/6	Reducing	3					
KB	1	60-70	2	3.25	7.9	7.85	7.875	0.4127	23.3	18.5	1.25946	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/6	7.5yr3/0	2.5yr5/6	Reducing	3					
KB	1	60-70	3	14.18	11.31	7.43	9.37	1.5133	31.72	31.95	0.9928	Rim	N	N	N	Punctate	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr5/4	5yr5/6	Reducing	3	Semi-Circular Stat	Inverted	Flat	L&S #1- Globular Jar	
KB	1	60-70	4	37.8	13.86	7.83	10.845	3.4855	75.55	37.19	2.03146	Rim	N	N	N	Punctate	Shell (foraminifera)	Fine	2.5yr5/6	10yr5/2	2.5yr4/0	Reducing	3	Semi-Circular Stat	Everted	Flat	L&S #1- Globular Jar	
KB	2	0-10	1	3.77	6.01	5.4	5.705	0.6608	32.25	20.2	1.59653	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/0	2.5yr5/8	Reducing	3					
KB	2	0-10	2	3.46	6.78	8.5	7.64	0.4529	25.38	16.76	1.51432	Base	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	10r5/8	2.5yr5/8	Reducing	3					
KB	2	0-10	3	1.79	4.62	4.77	4.695	0.3813	18.6	16.66	1.11645	Body	N	N	N	N	Grit w/ Coral, Lava	Coarse	10r4/8	5yr3/1	10r4/8	Oxidizing	3					
KB	2	0-10	4	4.16	6.64	6.07	6.355	0.6546	36.25	22.64	1.60115	Body	Y	Y	N	N	Shell (foraminifera)	Fine	5yr5/6	10r4/8	10r4/8	Oxidizing	3					foraminifera
KB	2	0-10	5	9.54	5.37	4.91	5.14	1.856	47.78	42.09	1.13519	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/6	2.5yr5/6	10yr5/2	Oxidizing	3					2 pcs glued together

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
KB	2	0-10	6	3.89	4.61	5.04	4.825	0.8062	28.64	22.84	1.25394	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr3/0	5yr5/4	10yr4/1	Reducing	3					
KB	2	0-10	7	15.8	9.66	7.18	8.42	1.8765	40.28	33.79	1.19207	Body	N	N	N	N	Grit w/ Sand	Coarse	10r4/3	10yr4/1	7.5yr6/2	Oxidizing	3				Roofing Tile	
KB	2	0-10	8	15.36	9.22	8.61	8.915	1.7229	36.83	33.6	1.09613	Rim	N	N	N	N	Grit w/ Sand	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3		Straight	Rounded	Roofing Tile	
KB	2	0-10	9	11.78	5.57	5.33	5.45	2.1615	43.22	34.09	1.26782	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/3	5yr5/2	5yr5/1	Reducing	3					
KB	2	0-10	10	12.41	5.62	4.82	5.22	2.3774	48.01	37.49	1.28061	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/6	7.5yr5/4	Reducing	3					
KB	2	0-10	11	11.15	5.15	4.21	4.68	2.3825	44.03	34.59	1.27291	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/6	5yr5/3	Reducing	3					
KB	2	0-10	12	2.15	6.22	6.47	6.345	0.3388	22.95	17.39	1.31972	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	5yr4/2	2.5yr4/0	Reducing	3					
KB	2	0-10	13	3.06	4.67	3.51	4.09	0.7482	27.53	24.81	1.10963	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/6	5yr6/6	10r4/6	Oxidizing	3					
KB	2	0-10	14	4.97	4.91	5.49	5.2	0.9558	39.89	26.4	1.51098	Rim	N	N	N	Incising	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/0	2.5yr5/6	Reducing	3	Parallel Incise	Everted	Rounded		
KB	2	0-10	15	1.67	3.41	2.74	3.075	0.5431	27.2	17.23	1.57864	Body	N	N	N	N	Grit	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					lines on int from mfcing
KB	2	0-10	16	1.68	3.77	4.09	3.93	0.4275	23.64	18.3	1.2918	Body	N	N	N	N	Grit w/ Mica, Sand	Fine	5yr5/6	5yr6/3	5yr6/3	Oxidizing	3					
KB	2	0-10	17	4.78	7.01	5.76	6.385	0.7486	34.96	26.68	1.31034	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	10yr5/1	Reducing	3					
KB	2	0-10	18	6.02	5.57	5.96	5.765	1.0442	28.82	27.11	1.06308	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	5yr5/4	5yr4/1	Reducing	3					
KB	2	0-10	19	2.44	6.06	5.62	5.84	0.4178	25.94	17.17	1.51077	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr4/4	10yr5/1	Reducing	3					
KB	2	0-10	20	2.15	3.83	3.3	3.565	0.6031	24.94	21.13	1.18031	Body	N	Y	N	N	Shell (foraminifera)	Fine	7.5yr7/4	7.5yr7/4	10r4/6	Oxidizing	3					
KB	2	0-10	21	1.39	3.64	3.23	3.435	0.4047	17.49	17.24	1.0145	Body	N	Y	N	N	Grit w/ Mica	Fine	2.5yr4/6	7.5yr5/2	10r4/6	Oxidizing	3					
KB	2	0-10	22	0.75	2.93	2.21	2.57	0.2918	19.77	10.68	1.85112	Body	N	N	N	N	Grit w/ Coral	Fine	10r4/8	2.5yr5/6	10r4/8	Oxidizing	3					
KB	2	0-10	23	0.73	3.66	3.82	3.74	0.1952	16.99	13.98	1.21531	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/4	5yr6/4	10r5/8	Reducing	3					2 pcsglued together
KB	2	0-10	24	0.42	3.57	3.05	3.31	0.1269	14.18	8.38	1.69212	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
KB	2	10-20	1	55.13	14.19	9.57	11.88	4.6406	49.17	45.71	1.07569	Base	N	N	N	N	Grit w/ Mica, Shell	Coarse	2.5yr6/8	5yr5/6	7.5yr3/0	Oxidizing	3				L&S #7- Forna	
KB	2	10-20	2	50.18	12.98	5.27	9.125	5.4992	78.55	52.99	1.48236	Rim	N	N	N	Punctate	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/6	5yr5/4	Reducing	3	Semi-Circular Sta	Inverted	Flat	L&S #1- Globular	half circle punctate below rim
KB	2	10-20	3	20.47	12.43	7.31	9.87	2.074	51.83	31.94	1.62273	Rim	N	N	N	Punctate	Shell (foraminifera)	Fine	7.5yr3/0	7.5yr6/4	10yr4/1	Reducing	3	Semi-Circular Sta	Inverted	Flat	L&S #1- Globular	Jar
KB	2	10-20	4	14.25	7.27	3.22	5.245	2.7169	57.52	46.01	1.25016	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr4/8	2.5yr5/8	Reducing	3					
KB	2	10-20	5	16.83	5.47	2.86	4.165	4.0408	57.41	52.08	1.10234	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr5/4	7.5yr6/2	Reducing	3					
KB	2	10-20	6	7.01	4.67	4.74	4.705	1.4899	50.91	30.25	1.68298	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/2	2.5yr5/8	2.5yr5/8	Reducing	3					
KB	2	10-20	7	7.01	5.42	5.24	5.33	1.3152	37	29.55	1.25212	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/8	2.5yr6/8	Reducing	3					
KB	2	10-20	8	6.16	5.99	4.85	5.42	1.1365	38.11	30.29	1.25817	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	2.5yr5/6	Reducing	3					
KB	2	10-20	9	4.43	3.9	3.33	3.615	1.2254	33.2	30.58	1.08568	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	2.5yr5/0	Reducing	3					
KB	2	10-20	10	9.28	5.62	4.93	5.275	1.7592	48.91	31.03	1.57622	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
KB	2	10-20	11	4.19	3.64	3.32	3.48	1.204	35.74	27.72	1.28932	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr4/0	2.5yr5/8	Reducing	3					
KB	2	10-20	12	4.54	4.3	3.5	3.9	1.1641	42.32	29.04	1.4573	Body	N	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/6	2.5yr4/0	2.5yr5/6	Reducing	3					
KB	2	10-20	13	4.86	4.45	3.83	4.14	1.1739	31.98	25.56	1.25117	Body	N	N	N	N	Shell (foraminifera)	Fine	4.5yr4/0	5yr5/6	10yr5/2	Reducing	3					
KB	2	10-20	14	9.28	10.79	6.09	8.44	1.0995	35.06	31.2	1.12372	Rim	N	N	N	N	Grit w/ Grog, Shell	Coarse	7.5yr4/0	7.5yr5/6	7.5yr5/6	Reducing	3		Everted	Rounded		
KB	2	10-20	15	6.97	7.32	3.94	5.63	1.238	45.53	26.68	1.70652	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr5/8	Reducing	3					
KB	2	10-20	16	5.95	5.81	5.58	5.695	1.0448	38.6	21.11	1.82852	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr6/6	2.5yr6/8	Reducing	3					
KB	2	10-20	17	8.47	8.54	5.65	7.095	1.1938	41.32	28.71	1.43922	Body	N	N	N	N	Grit w/ Grog, Shell	Fine	5yr5/1	5yr6/4	5yr6/1	Reducing	3					
KB	2	10-20	18	15.87	11.92	12.08	12	1.3225	44.81	33.87	1.323	Body	N	N	N	N	Grit w/ Sand	Coarse	5yr3/1	5yr4/2	10yr3/1	Oxidizing	3					roofing tile?
KB	2	10-20	19	6.69	4.62	3.48	4.05	1.6519	42.45	29.89	1.42021	Body	N	N	N	N	Shell (foraminifera)	Coarse	7.5yr4/0	10yr3/1	10yr4/1	Reducing	3					
KB	2	10-20	20	7.62	6.26	4.96	5.61	1.3583	39.39	31.54	1.24889	Body	N	Y	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/4	7.5yr5/4	Reducing	3					
KB	2	10-20	21	3.86	4.09	3.34	3.715	1.039	36.34	31.55	1.15182	Body	Y	Y	N	N	Shell (foraminifera)	Fine	7.5yr5/4	7.5yr4/2	10r3/6	Oxidizing	3					
KB	2	10-20	22	3.92	3.9	3.95	3.925	0.9987	31.75	29.47	1.07737	Body	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/8	7.5yr6/4	5yr5/6	Reducing	3					
KB	2	10-20	23	4.7	6.19	5.66	5.925	0.7932	29.31	23.9	1.22636	Rim	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr4/8	2.5yr5/6	Oxidizing	3		Everted	Flat		
KB	2	10-20	24	4.15	4.48	4.07	4.275	0.9708	35.15	23.93	1.46887	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/0	2.5yr5/8	2.5yr5/8	Reducing	3					
KB	2	10-20	25	2.74	2.85	2.48	2.665	1.0281	31.4	26.84	1.1699	Body	N	Y	N	N	Grit w/ Coral, Mica	Fine	7.5yr5/2	5yr4/1	10r4/8	Oxidizing	3					
KB	2	10-20	26	9.83	8.57	6.85	7.71	1.275	36.29	32.1	1.13053	Body	N	N	N	N	Grit w/ Sand	Fine	5yr5/8	5yr4/2	7.5yr5/4	Oxidizing	3					
KB	2	10-20	27	4.52	6.01	5.15	5.58	0.81	29.05	23.81	1.22008	Body	N	N	N	N	Shell (foraminifera)	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3					
KB	2	10-20	28	3.95	4.34	3.86	4.1	0.9634	31.76	29.72	1.06864	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/8	5yr5/6	5yr4/1	Oxidizing	3					
KB	2	10-20	29	2.25	3.46	3.77	3.615	0.6224	34.38	16.1	2.1354	Body	N	N	N	N	Shell (foraminifera)	Coarse	7.5yr4/0	5yr5/6	5yr6/8	Reducing	3					
KB	2	10-20	30	2.92	4.6	3.11	3.855	0.7575	29.88	26.16	1.1422	Body	N	N	N	N	Shell (foraminifera)	Coarse	10yr5/1	10yr5/1	7.5yr5/2	Reducing	3					
KB	2	10-20	31	5.35	5.94	4.58	5.26	1.0171	34.79	26.21	1.32736	Body	N	N	N	N	Shell (foraminifera)	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3					
KB	2	10-20	32	3.21	4.47	3.88	4.175	0.7689	32.09	20.99	1.52882	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/0	5yr6/6	2.5yr6/8	Oxidizing	3					
KB	2	10-20	33	1.72	2.42	2.68	2.55	0.6745	31.03	19.29	1.60861	Body	N	N	N	N	Grit w/ Mica	Fine	7.5yr4/0	5yr4/1	10r4/8	Reducing	3					
KB	2	10-20	34	5.81	8.47	8.03	8.25	0.7042	33.88	23.57	1.43742	Neck	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr4/8	2.5yr5/8	Reducing	3					
KB	2	10-20	35	7.19	10.91	5.9	8.405	0.8554	30.81	26.24	1.17416	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/6	2.5yr4/8	7.5yr5/4	Reducing	3					
KB	2	10-20	36	3.76	4.32	3.19	3.755	1.0013	35	24.94	1.40337	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/6	2.5yr5/8	7.5yr5/2	Oxidizing	3					
KB	2	10-20	37	8.7	9.73	10.17	9.95	0.8744	33.38	30.52	1.09371	Rim	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr6/6	2.5yr5/8	2.5yr5/8	Oxidizing	3		Everted	Pointed		
KB	2	10-20	38	3.99	4.37	3.96	4.165	0.958	29.99	27.49	1.09094	Body	N	Y	N	N	Shell (foraminifera)	Fine	5yr5/6	10yr4/1	10r3/6	Oxidizing	3					
KB	2	10-20	39	3.16	4.51	5.05	4.78	0.6611	26.79	25.08	1.06818	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
KB	2	10-20	40	3.81	5.87	4.92	5.395	0.7062	27.54	22.27	1.23664	Body	N	N	N	N	Shell (foraminifera)	Coarse	10yr5/1	10yr5/1	2.5yr6/8	Reducing	3					
KB	2	10-20	41	2.41	4.18	3.55	3.865	0.6235	26.43	21.5	1.2293	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	2.5yr4/0	Reducing	3					
KB	2	10-20	42	3.46	5.29	3.08	4.185	0.8268	25.7	24.17	1.0633	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/6	2.5yr4/8	2.5yr5/8	Reducing	3					
KB	2	10-20	43	4.08	3.74	4.69	4.215	0.968	33.51	27.98	1.19764	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					3 pcs glued together
KB	2	10-20	45	0.91	2.43	1.69	2.06	0.4417	22.71	15.74	1.44282	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/4	5yr5/3	5yr4/3	Oxidizing	3					foraminifera?
KB	2	10-20	46	1.87	3.47	3.1	3.285	0.5693	24.26	21.79	1.11335	Body	N	N	N	Coating	Shell (foraminifera)	Coarse	2.5yr5/0	2.5yr5/4	10r5/8	Reducing	3					some white coating on ext, but not all over
KB	2	10-20	47	3.8	5.38	5.16	5.27	0.7211	28.74	18.8	1.52872	Body	N	N	N	N	Grit w/ Lava	Fine	2.5yr6/8	2.5yr6/8	2.5yr6/8	Oxidizing	3					
KB	2	10-20	48	5.03	6.47	4.79	5.63	0.8934	33.86	26.18	1.29335	Body	N	N	N	Incising	Shell (foraminifera)	Fine	2.5yr4/0	10r5/8	5yr5/1	Reducing	3	Single Incise				carinated
KB	2	10-20	49	1.72	3.45	2.85	3.15	0.546	23.27	20.07	1.15944	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/0	5yr6/6	2.5yr6/8	Reducing	3					
KB	2	10-20	50	2.56	4.15	3.65	3.9	0.6564	22.99	22.1	1.04027	Body	N	N	N	N	Grit w/ Mica, Sand		10r5/8	5yr3/1	10r4/6	Oxidizing	3					
KB	2	10-20	51	2.11	4.47	4.23	4.35	0.4851	24.22	17.04	1.42136	Body	N	N	N	N	Shell (foraminifera)	Coarse	5yr5/3	7.5yr5/2	2.5yr5/8	Oxidizing	3					
KB	2	10-20	52	1.69	3.77	3.86	3.815	0.443	23.99	21.69	1.10604	Body	N	N	N	N	Shell (foraminifera)	Coarse	5yr6/6	5yr3/1	5yr4/2	Oxidizing	3					
KB	2	10-20	53	1.38	3.01	2.16	2.585	0.5338	22.89	19.51	1.17324	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/8	10r5/8	2.5yr4/8	Oxidizing	3					
KB	2	10-20	54	1.52	3.68	3.51	3.595	0.4228	22.38	19.8	1.1303	Body	N	N	N	N	Shell (foraminifera)	Coarse	7.5yr7/2	2.5yr4/0	2.5yr5/8	Reducing	3					
KB	2	10-20	55	1.8	3.07	2.48	2.775	0.6486	25.54	22.36	1.14222	Body	N	N	N	N	Shell (foraminifera)	Coarse	10r5/8	2.5yr4/2	10r5/8	Oxidizing	3					
KB	2	10-20	56	3.55	4.76	4.64	4.7	0.7553	31.16	22.47	1.38674	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/6	2.5yr5/6	Reducing	3					
KB	2	10-20	57	2.5	4.53	4.37	4.45	0.5618	25.33	17.05	1.48563	Body	Y	Y	N	N	Grit w/ Mica	Fine	7.5yr5/6	10r4/8	10r4/8	Oxidizing	3					
KB	2	10-20	58	1.54	4	3.29	3.645	0.4225	22.42	21.92	1.02281	Body	N	Y	N	N	Grit w/ Coral	Fine	2.5yr4/8	2.5yr4/8	10r4/6	Oxidizing	3					
KB	2	10-20	59	1.92	5.03	4.2	4.615	0.416	24.98	18.65	1.33941	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/8	2.5yr5/8	2.5yr4/6	Oxidizing	3					
KB	2	10-20	60	1.32	2.88	3.03	2.955	0.4467	26.89	13.39	2.00822	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/0	5yr6/6	2.5yr5/8	Reducing	3					
KB	2	10-20	61	1.91	4.6	3.39	3.995	0.4781	20.95	19.3	1.08549	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr6/1	10yr4/1	2.5yr4/6	Reducing	3					
KB	2	10-20	62	3.23	5.74	5.15	5.445	0.5932	34.86	16.25	2.14523	Body	N	N	Coating	Coating	Grit w/ Coral, Mica	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					gray coating (10yr5/1) on int and ext, but not all over
KB	2	10-20	63	2.33	4.39	4.21	4.3	0.5419	26.52	17.1	1.55088	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	10yr3/1	10yr4/1	Reducing	3					
KB	2	10-20	64	4.92	7.04	5.55	6.295	0.7816	30.57	22.47	1.36048	Body	Y	Y	N	N	Grit w/ Coral, Grog, Mica	Varies	7.5yr6/6	10r4/8	10r4/8	Oxidizing	3					
KB	2	10-20	65	2.25	3.67	3.59	3.63	0.6198	28.57	18.13	1.57584	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/6	5yr6/6	5yr5/2	Oxidizing	3					
KB	2	10-20	66	1.08	2.06	2.02	2.04	0.5294	28.17	19.75	1.42633	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/8	2.5yr4/0	2.5yr4/2	Reducing	3					
KB	2	10-20	67	4.11	5.12	5.66	5.39	0.7625	25.14	22.53	1.11585	Body	N	N	N	N	Grit w/ Mica	Coarse	2.5yr4/8	7.5yr4/0	2.5yr4/8	Oxidizing	3					
KB	2	10-20	68	2.17	5.18	3.11	4.145	0.5235	24.06	19.56	1.23006	Neck	N	Y	N	N	Shell (foraminifera)	Fine	10yr5/1	10yr5/2	10r4/8	Reducing	3					
KB	2	10-20	69	1.62	3.33	2.96	3.145	0.5151	23.26	18.41	1.26344	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/4	7.5yr6/4	7.5yr6/4	Oxidizing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
KB	2	10-20	70	1.67	3.73	4.11	3.92	0.426	20.47	19.63	1.04279	Body	N	N	N	N	Shell (foraminifera)	Coarse	5yr5/4	5yr5/4	5yr4/2	Oxidizing	3					
KB	2	10-20	71	1.47	3.32	3.96	3.64	0.4038	22.77	20.34	1.11947	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr4/1	5yr5/6	10yr5/1	Reducing	3					
KB	2	10-20	72	2.5	4.4	4.19	4.295	0.5821	25.72	23.24	1.10671	Body	N	N	N	Incising	Shell (foraminifera)	Coarse	2.5yr4/0	5yr6/4	5yr5/4	Reducing	3	Other Incise				
KB	2	10-20	73	1.4	4.15	4.43	4.29	0.3263	21.04	17.91	1.17476	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	2.5yr5/8	Reducing	3					
KB	2	10-20	74	1.25	3.29	3.49	3.39	0.3687	21.8	14.99	1.4543	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	5yr5/6	2.5yr5/8	5yr5/6	Oxidizing	3					
KB	2	10-20	75	2.18	5.1	5.14	5.12	0.4258	22.47	18.44	1.21855	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	2.5yr5/8	2.5yr6/8	Reducing	3					
KB	2	10-20	76	1.4	3.41	3.19	3.3	0.4242	24.66	15.5	1.59097	Body	N	Y	N	N	Grit w/ Grog, Lava, Mica,	Coarse	5yr5/6	5yr5/6	10r4/6	Oxidizing	3					
KB	2	10-20	77	2.22	6.73	3.53	5.13	0.4327	23.86	18.75	1.27253	Rim	N	N	N	N	Grit w/ Mica, Sand	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3		Inverted	Rounded		
KB	2	10-20	78	2.49	4.34	4.24	4.29	0.5804	27.42	21.35	1.28431	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	2.5yr5/8	Reducing	3					
KB	2	10-20	79	1.23	4.15	3.07	3.61	0.3407	17.27	15.86	1.0889	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/8	2.5yr6/8	2.5yr6/8	Oxidizing	3					
KB	2	10-20	80	5.07	5.23	5.29	5.26	0.9639	35.09	20.91	1.67814	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr3/0	2.5yr3/0	2.5yr3/0	Reducing	3					
KB	2	10-20	81	1.77	3.69	3.86	3.775	0.4689	25.01	16.74	1.49403	Body	N	N	N	N	Grit w/ Coral	Fine	2.5yr6/6	2.5yr6/6	10r4/8	Oxidizing	3					
KB	2	10-20	82	2.15	4.63	4.3	4.465	0.4815	20.9	19.18	1.08968	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr5/6	2.5yr6/6	2.5yr2.5/4	Oxidizing	3					
KB	2	10-20	83	0.57	2.83	2.39	2.61	0.2184	16.22	11.82	1.37225	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr4/6	Reducing	3					
KB	2	10-20	84	1.12	4.48	4.99	4.735	0.2365	18.92	14.53	1.30213	Body	N	N	N	N	Shell (foraminifera)	Coarse	7.5yr5/4	7.5yr6/2	7.5yr6/4	Oxidizing	3					
KB	2	10-20	85	1.44	5.53	5.34	5.435	0.2649	17.43	14.49	1.2029	Body	Y	N	N	N	Shell (foraminifera)	Fine	2.5yr6/8	10r4/8	7.5yr4/2	Oxidizing	3					
KB	2	10-20	86	5.85	13.99	13.19	13.59	0.4305	25.19	15.56	1.61889	Rim	N	N	N	N	Shell (foraminifera)	Varies	2.5yr3/0	10r5/8	10r5/8	Reducing	3		Damaged	Flat		v. crumbly, same as 87
KB	2	10-20	87	2.08	8.79	6.1	7.445	0.2794	21.69	14.22	1.52532	Rim	N	N	N	N	Shell (foraminifera)	Varies	2.5yr3/0	2.5yr5/8	2.5yr5/8	Reducing	3		Damaged	Flat		v. crumbly, same as 86. 2 pcs glued together, ext sloughed off.
KB	2	10-20	88	0.81	4.65	4.44	4.545	0.1782	15.74	12.78	1.23161	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
KB	2	10-20	89	1.08	3.01	2.28	2.645	0.4083	19.91	17.05	1.16774	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr4/8	Oxidizing	3					
KB	2	10-20	90	0.76	2.91	2.77	2.84	0.2676	20.67	16.12	1.28226	Body	N	Y	N	N	Grit w/ Coral	Fine	5yr5/6	5yr5/6	7.5yr5/2	Oxidizing	3					
KB	2	10-20	91	2.04	4.39	4.06	4.225	0.4828	20.83	17.29	1.20474	Body	N	Y	N	N	Grit w/ Mica	Fine	10r4/8	2.5yr3/2	10r5/8	Oxidizing	3					
KB	2	10-20	92	1.66	5.39	4.82	5.105	0.3252	23.54	17.03	1.38227	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr5/4	2.5yr3/0	Reducing	3					
KB	2	10-20	93	1.07	4.98	4.5	4.74	0.2257	18.43	15.15	1.2165	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					crumbly. 2 pcs glued together.
KB	2	10-20	94	1.19	3.6	3.83	3.715	0.3203	21.74	15.85	1.37161	Body	N	Y	N	N	Grit w/ Grog, Mica	Fine	2.5yr4/8	2.5yr5/8	10r4/6	Oxidizing	3					
KB	2	10-20	95	1.38	4.58	4.28	4.43	0.3115	18.39	14.62	1.25787	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr5/8	Reducing	3					
KB	2	10-20	96	1.44	5.28	5.44	5.36	0.2687	20.37	17.09	1.19193	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr6/4	2.5yr6/8	Reducing	3					
KB	2	10-20	97	1.17	5.59	5.47	5.53	0.2116	17.24	11.18	1.54204	Body	N	N	N	N	Grit w/ Mica	Fine	7.5yr6/6	7.5yr6/6	7.5yr6/6	Oxidizing	3					
KB	2	10-20	98	0.79	3.69	3.62	3.655	0.2161	19.91	9.49	2.098	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/6	7.5yr7/6	7.5yr7/6	Reducing	3					
KB	2	10-20	99	1.38	6.12	4.2	5.16	0.2674	20.9	14.97	1.39613	Body	N	N	N	N	Shell (foraminifera)	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3					
KB	2	10-20	100	1.16	6.24	5.57	5.905	0.1964	16.62	13.04	1.27454	Body	N	N	N	N	Shell (foraminifera)	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3					
KB	2	10-20	101	0.42	3.69	3.78	3.735	0.1124	12.42	8.22	1.51095	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
KB	2	10-20	102	0.58	3.48	3.16	3.32	0.1747	13.89	11.56	1.20156	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
KB	2	10-20	103	0.41	2.76	2.93	2.845	0.1441	15.49	10.95	1.41461	Body	N	N	N	N	Grit w/ Coral, Mica, Sand	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
KB	2	10-20	104	0.64	3.65	3.45	3.55	0.1803	18.03	9.99	1.8048	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/6	7.5yr5/4	Reducing	3					
KB	2	10-20	105	0.92	5.56	5.27	5.415	0.1699	14.53	11.21	1.29616	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
KB	2	10-20	106	0.39	3.08	2.41	2.745	0.1421	17.83	8.63	2.06605	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
KB	2	10-20	107	1.84	13.07	8.77	10.92	0.1685	13.23	13.13	1.00762	Rim	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr6/6	2.5yr4/2	Reducing	3		Damaged	Flat		v. crumbly, same as 86, 87.
KB	2	10-20	108	0.4	2.24	2.41	2.325	0.172	18.67	8.24	2.26578	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
KB	2	10-20	109	0.5	3.61	3.26	3.435	0.1456	13.39	8.71	1.53731	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/4	5yr6/4	5yr6/4	Oxidizing	3					
KB	2	10-20	110	1.03			0	#DIV/0!				Bits																
KB	2	20-30	1	50.44	10.97	5.36	8.165	6.1776	69.64	45.01	1.54721	Rim	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr4/0	10yr6/1	2.5yr5/8	Reducing	3		Everted	pointed		
KB	2	20-30	2	35.23	12.59	6.24	9.415	3.7419	56.69	50.71	1.11793	Rim	Y	Y	N	Punctate	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	2.5yr5/8	Reducing	3	Semi-Circular Stat	Inverted	Flat		half circle punctate below rim. Could be over lapping?
KB	2	20-30	3	13.14	6.36	4.25	5.305	2.4769	49.3	23.37	2.10954	Rim	N	N	N	Incising	Shell (foraminifera)	Coarse	5yr5/1	7.5yr6/2	5yr5/1	Reducing	3	Diagonal Hatch	Everted	pointed		incised double chevrons
KB	2	20-30	4	23.84	12.26	9.5	10.88	2.1912	82.46	29.07	2.8366	Rim	Y	Y	N	N	Shell (foraminifera)	Coarse	10yr5/1	5yr6/4	7.5yr6/2	Reducing	3		Everted	pointed		
KB	2	20-30	5	18.83	7.67	8.34	8.005	2.3523	64.99	27.78	2.33945	Rim	Y	Y	N	N	Shell (foraminifera)	Fine	10yr6/1	10r5/8	10r5/8	Reducing	3		Everted	pointed		
KB	2	20-30	6	54.92	11.87	6.68	9.275	5.9213	90.06	46.74	1.92683	Rim	Y	Y	N	Incising	Shell (foraminifera)	Coarse	10yr5/1	2.5yr5/8	2.5yr6/8	Reducing	3	Perpendicular Inc	Inverted	Flat	L&S #1- Globula	2 pcs glued together.
KB	2	20-30	7	16.19	6.7	3.6	5.15	3.1437	61.61	35.5	1.73549	Base	N	N	N	Paint	Shell (foraminifera)	Fine	7.5yr6/4	7.5yr6/4	7.6yr4/2	Oxidizing	3	Red Paint				wheel marks?
KB	2	20-30	8	13.85	8.56	5.64	7.1	1.9507	52.32	30.61	1.70925	Rim	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3		Everted	Rounded		
KB	2	20-30	9	5.94	8.09	6.54	7.315	0.9083	29.12	25.53	1.14062	Rim	N	N	N	Punctate	Shell (foraminifera)	Fine	2.5yr4/0	10r5/8	5yr6/6	Reducing	3	Semi-Circular Stat	Everted	Pointed	L&S #1- Globula	half circle punctate w/ red paint
KB	2	20-30	10	7.81	5.23	6.51	5.87	1.3305	54.8	22.75	2.40879	Neck	N	N	N	Punctate	Shell (foraminifera)	Fine	2.5yr5/0	5yr6/4	5yr6/4	Reducing	3	Semi-Circular Stat	Inverted	Flat	L&S #1- Globula	half circle punctate
KB	2	20-30	11	10.96	9.31	7.11	8.21	1.335	33.4	43.25	0.77225	Rim	N	N	N	Impress	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/8	2.5yr6/8	Reducing	3	Impress on Body	Everted	Pointed		impress in rim
KB	2	20-30	12	44.45	10.48	6.31	8.395	5.2948	81.18	38.59	2.10365	Rim	N	N	N	N	Shell (foraminifera) w/ Grog	Varies	10yr5/1	2.5yr5/8	2.5yr5/8	Reducing	3		Everted	pointed		2 pcs glued together
KB	2	20-30	13	36.67	4.28	6.93	5.605	6.5424	88.65	53.65	1.65238	Body	N	Y	N	Incising	Shell (foraminifera)	Coarse	2.5yr5/0	7.5yr5/4	2.5yr5/8	Reducing	3	Incise-links				1 chevron, overlapping sideways S's.
KB	2	20-30	14	23.87	13.21	9.87	11.54	2.0685	37.07	38.86	0.95394	Rim	N	N	N	N	Grit w/ Mica, Shell	Varies	2.5yr5/8	10r4/8	10r4/8	Oxidizing	3		Straight	Flat	L&S #7- Forna	firing clouds
KB	2	20-30	15	36.59	14.99	8.44	11.715	3.1233	47.22	35.79	1.31936	Corner	N	N	N	N	Grit w/ Mica, Shell	Varies	2.5yr5/8	10yr5/1	10r4/8	Oxidizing	3				L&S #7- Forna	firing clouds. 2 pcs glued together.
KB	2	20-30	16	17.05	7.19	4.27	5.73	2.9756	65.77	44.88	1.46546	Rim	N	Y	Black Stai	N	Shell (foraminifera)	Coarse	2.5yr5/6	2.5yr3/0	10r4/6	Oxidizing	3				L&S #3-Bowl	firing clounds on ext slip, slip thick and mostly chipping off. Same as 19, 24,
KB	2	20-30	17	34.22	8.69	5.99	7.34	4.6621	90.84	42.76	2.12442	lid	N	N	N	N	Shell (foraminifera)	Varies	2.5yr5/0	5yr6/6	5yr6/6	Reducing	2				L&S #3- Lid	2 pcs glued together
KB	2	20-30	18	26.59	7.45	6.1	6.775	3.9247	61.84	56.9	1.08682	Body	N	N	Black Stai	N	Shell (foraminifera)	Coarse	10r5/6	2.5yr3/0	10r5/6	Oxidizing	3					very flat. No curve. Sounds high fired.
KB	2	20-30	19	13.54	4.38	3.39	3.885	3.4852	70.42	43.15	1.63198	Body	N	Y	Paint	N	Shell (foraminifera)	Fine	2.5yr5/6	5yr4/2	10r4/6	Oxidizing	3				L&S #3-Bowl	2 pcs glued together. red paint on int, firing clouds. same as 16, 24
KB	2	20-30	20	7.92	6.73	4.6	5.665	1.3981	40.63	34.67	1.17191	Body	N	N	N	Incising	Shell (foraminifera)	Coarse	7.5yr4/0	7.5yr6/6	7.5yr5/2	Reducing	3	Diagonal Hatch				
KB	2	20-30	21	2.26	3.37	2.76	3.065	0.7374	29.84	17.82	1.67452	Body	Y	Y	N	Incising	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	10r4/8	Reducing	3	Diagonal Hatch				firing clouds on ext
KB	2	20-30	22	15.42	6.26	5.66	5.96	2.5872	54.96	39.45	1.39316	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/0	2.5yr6/8	2.5yr6/8	Reducing	3					
KB	2	20-30	23	15.24	6.7	4.28	5.49	2.776	66.16	48.94	1.35186	Body	N	N	N	N	Grit w/ Coral, Sand, Shell	Coarse	2.5yr5/0	2.5yr5/8	5yr6/1	Reducing	3					
KB	2	20-30	24	22.78	8.21	4.06	6.135	3.7131	71.49	60.55	1.18068	Rim	N	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/6	5yr4/2	10r4/6	Oxidizing	3				L&S #3-Bowl	same as 16, 19
KB	2	20-30	25	16.97	7.41	5.41	6.41	2.6474	53.59	41.59	1.28853	Body	N	N	N	N	Grit w/ Coral, Sand, Shell	Coarse	10yr6/1	10yr5/2	7.5yr5/4	Reducing	3					
KB	2	20-30	26	13.18	4.75	4.08	4.415	2.9853	56.79	49.7	1.14266	Body	Y	Y	N	N	Shell (foraminifera)	Varies	2.5yr4/0	2.5yr5/8	10yr6/3	Reducing	3					
KB	2	20-30	27	9.92	4.9	4.49	4.695	2.1129	56.65	34.4	1.6468	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
KB	2	20-30	28	6.29	5.21	5.09	5.15	1.2214	34	28.04	1.21255	Body	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr4/0	7.5yr6/6	2.5yr5/8	Reducing	3					
KB	2	20-30	29	2.87	6.79	5.29	6.04	0.4752	22.86	14.84	1.54043	Rim	N	N	N	N	Grit w/ Mica	Fine	10yr5/1	10yr5/2	10yr5/2	Reducing	3		Straight	Flat		
KB	2	20-30	30	16.25	7.82	7.35	7.585	2.1424	41.25	39.66	1.04009	Body	N	N	N	N	Shell (foraminifera)	Varies	7.5yr5/0	7.5yr6/6	2.5yr5/8	Reducing	3					
KB	2	20-30	31	6.63	4.42	3.09	3.755	1.7656	48.85	31.58	1.54687	Body	Y	Y	N	N	Shell (foraminifera)	Coarse	7.5yr5/2	5yr5/6	5yr5/8	Reducing	3					
KB	2	20-30	32	6.8	4.62	3.4	4.01	1.6958	63.83	25.15	2.53797	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr4/0	2.5yr5/8	Reducing	3					firing clouds on ext
KB	2	20-30	33	19.41	6.38	5.21	5.795	3.3494	78.89	47.82	1.64973	Base	Y	Y	Paint	N	Shell (foraminifera)	Varies	10yr5/1	10yr5/2	10r4/6	Reducing	3				L&S #3-Bowl	3 pcs glued together, broken in antiquity. Same as 24. ~ 12mm thick red line painted on int, possible chevron.
KB	2	20-30	34	10.93	6.18	4.31	5.245	2.0839	54.03	44.1	1.22517	Base	Y	Y	Paint	N	Shell (foraminifera)	Varies	10yr5/1	7.5yr4/2	10r3/1	Reducing	3				L&S #3-Bowl	firing clouds on ext. same as 24, 33,
KB	2	20-30	35	7.77	7.45	7.51	7.48	1.0388	33.57	30.29	1.10829	Rim	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr3/2	2.5yr3/2	Reducing	3				L&S #3-Bowl	firing clouds on int and ext. same as 24, 33,
KB	2	20-30	36	7.79	3.99	3.49	3.74	2.0829	63.41	34.86	1.81899	Body	N	Y	Black Stai	N	Shell (foraminifera)	Fine	10yr5/1	7.5yr5/4	10r3/6	Reducing	3				L&S #3-Bowl	same as 24, 33

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
KB	2	20-30	37	5.83	3.56	4.1	3.83	1.5222	54.6	34.13	1.59977	Body	N	Y	N	N	Shell (foraminifera)	Fine	10yr5/3	10yr4/1	10r4/6	Reducing	3				L&S #3-Bowl	same as 24, 33
KB	2	20-30	38	7.06	5.76	5.83	5.795	1.2183	45.62	28.62	1.59399	Body	Y	Y	N	N	Shell (foraminifera)	Fine	10yr6/2	10r4/6	10r4/6	Reducing	3				L&S #3-Bowl	same as 24, 33
KB	2	20-30	39	3.12	3.87	3.97	3.92	0.7959	34.59	22.75	1.52044	Body	N	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/4	10yr3/1	10r3/1	Oxidizing	3				L&S #3-Bowl	same as 24, 33
KB	2	20-30	40	2.29	3.9	3.34	3.62	0.6326	29.98	25.78	1.16292	Body	N	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/4	10yr5/2	10r4/6	Oxidizing	3				L&S #3-Bowl	same as 24, 33
KB	2	20-30	41	5.05	3.95	6.11	5.03	1.004	40.47	27.42	1.47593	Body	Y	Y	Paint	N	Shell (foraminifera)	Varies	10yr5/1	10yr5/2	10r4/6	Reducing	3				L&S #3-Bowl	firing clouds on ext, red paint on int.same as 19, 24, 33
KB	2	20-30	42	5.74	7.07	4.98	6.025	0.9527	36.58	25.59	1.42946	Body	Y	Y	N	N	Shell (foraminifera)	Fine	10yr5/1	10yr5/2	10r4/6	Reducing	3				L&S #3-Bowl	black staining on int. black line of paint/ slip on ext. same as 19, 24, 33
KB	2	20-30	43	3.07	3.9	3.65	3.775	0.8132	32.63	25.74	1.26768	Body	Y	Y	N	N	Shell (foraminifera)	Fine	10yr5/1	10yr4/1	10r4/6	Reducing	3				L&S #3-Bowl	same as 24, 33
KB	2	20-30	44	5.16	4.24	3.95	4.095	1.2601	37.87	31.55	1.20032	Body	Y	Y	N	N	Shell (foraminifera)	Fine	10yr5/1	5yr4/1	10r4/6	Reducing	3				L&S #3-Bowl	same as 24, 33
KB	2	20-30	45	9.24	5.89	4.65	5.27	1.7533	52.81	43	1.22814	Base	Y	Y	Paint	N	Shell (foraminifera)	Fine	2.5yr5/0	5yr4/1	10r4/6	Reducing	3				L&S #3-Bowl	same as 24, 33. thick line of red paint on int. 2 pcs glued together
KB	2	20-30	46	1.74	3.36	4.09	3.725	0.4671	27.47	21.75	1.26299	Body	Y	Y	N	N	Shell (foraminifera)	Fine	10r6/8	7.5yr5/4	10r4/6	Oxidizing	3				L&S #3-Bowl	same as 24, 33
KB	2	20-30	47	2.93	5.46	4.16	4.81	0.6091	30.3	25.74	1.17716	Body	Y	Y	N	N	Shell (foraminifera)	Fine	10yr5/1	10yr4/1	10r4/3	Reducing	3				L&S #3-Bowl	same as 24, 33
KB	2	20-30	48	7.81	7.34	6.3	6.82	1.1452	36.06	32.69	1.10309	Rim	Y	Y	N	N	Grit w/ Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3	red slipped	Everted	rounded		
KB	2	20-30	49	13.86	6.34	6.42	6.38	2.1724	49.48	40.1	1.23392	Body	N	N	Black Stai	N	Shell (foraminifera)	Coarse	2.5yr5/0	2.5yr3/0	10r5/8	Reducing	3					
KB	2	20-30	50	8.98	9.29	7.4	8.345	1.0761	36.62	21.23	1.72492	Neck	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/6	2.5yr5/8	Reducing	3					
KB	2	20-30	51	4.84	4.32	3.79	4.055	1.1936	44.57	22.74	1.95998	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/0	2.5yr5/6	2.5yr4/2	Reducing	3					
KB	2	20-30	52	12.69	5.56	4.94	5.25	2.4171	58.02	42.65	1.36038	Body	Y	Y	N	N	Shell (foraminifera)	Coarse	2.5yr5/2	2.5yr5/8	2.5yr5/8	Reducing	3					
KB	2	20-30	53	8.1	6.65	3.83	5.24	1.5458	51.48	39.94	1.28893	Body	N	N	N	Coating	Shell (foraminifera)	Coarse	7.5yr5/2	10r5/8	10yr5/3	Reducing	3					
KB	2	20-30	54	6.34	4.16	3.95	4.055	1.5635	41.27	29.66	1.39144	Body	N	N	N	Coating	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	2.5yr5/8	Reducing	3					
KB	2	20-30	55	4.84	4.98	4.88	4.93	0.9817	35.77	30.95	1.15574	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr4/8	2.5yr5/8	Reducing	3					
KB	2	20-30	56	16.92	8.24	9.65	8.945	1.8916	40.96	32.65	1.25452	Rim	Y	Y	N	N	Grit w/ Lava, Mica	Coarse	2.5yr5/6	2.5yr5/6	2.5yr5/6	Oxidizing	3	Red Paint	straight	rounded		same as 57, 58, 59, 60. v. crumbly
KB	2	20-30	57	26.13	11.57	7.32	9.445	2.7665	51.93	45.06	1.15246	Rim	Y	Y	Paint	N	Grit w/ Lava, Mica	Coarse	2.5yr5/6	2.5yr5/6	2.5yr5/6	Oxidizing	3	Red Paint	straight	rounded		same as 56, 58, 59, 60. 3 horizontal red lines painted on int. crumbly, multiple pcs glued together, some disintegrated, tho.
KB	2	20-30	58	9.1	8.6	8.09	8.345	1.0905	30.12	24.79	1.21501	Body	Y	Y	N	N	Grit w/ Lava, Mica	Coarse	2.5yr5/6	2.5yr5/6	2.5yr5/6	Oxidizing	3					same as 56, 57, 59, 60. v. crumbly
KB	2	20-30	59	1.17	4.26	4.1	4.18	0.2799	16.78	13.88	1.20893	Body	Y	Y	N	N	Grit w/ Lava, Mica	Coarse	2.5yr5/6	2.5yr5/6	5yr6/6	Oxidizing	3					same as 56, 57, 58, 60. v. crumbly
KB	2	20-30	60	0.74	7.03	3.31	5.17	0.1431	13.5	10.36	1.30309	Body	Y	Y	N	N	Grit w/ Lava, Mica	Coarse	2.5yr5/6	2.5yr5/6	2.5yr5/6	Oxidizing	3					same as 56, 57, 58, 59. v. crumbly
KB	2	20-30	61	9.37	7.57	7.62	7.595	1.2337	44.18	27.42	1.61123	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/0	10r6/8	7.5yr6/4	Oxidizing	3					
KB	2	20-30	62	1.86	4.43	4.22	4.325	0.4301	23.1	21.06	1.09687	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	7.5yr6/4	10r5/8	Reducing	3					
KB	2	20-30	63	4.32	5.51	6.52	6.015	0.7182	26.32	23.34	1.12768	Body	Y	Y	N	N	Grit w/ Shell	Varies	10r5/8	10r5/8	10r5/8	Oxidizing	3					
KB	2	20-30	64	5.29	4.9	4.2	4.55	1.1626	41.05	27.75	1.47928	Body	N	N	N	N	Shell (foraminifera)	Coarse	7.5yr4/0	10r5/8	7.5yr4/0	Reducing	3					
KB	2	20-30	65	6.73	6.01	5.44	5.725	1.1755	31.82	30.58	1.04055	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/2	2.5yr4/0	2.5yr4/2	Reducing	3					
KB	2	20-30	66	4.69	5.33	4.35	4.84	0.969	35.35	23.37	1.51262	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	7.5yr6/2	10r5/8	Reducing	3					
KB	2	20-30	67	6.98	6.06	4.96	5.51	1.2668	32.92	30.6	1.07582	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	7.5yr6/4	2.5yr5/6	Reducing	3					
KB	2	20-30	68	3.62	3.29	3.69	3.49	1.0372	41.25	24.65	1.67343	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr4/8	2.5yr4/8	Reducing	3					
KB	2	20-30	69	9.23	8.16	7.63	7.895	1.1691	35.89	31.75	1.13039	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	10r4/8	10r4/8	2.5yr4/6	Oxidizing	3					
KB	2	20-30	70	3.04	4.09	2.92	3.505	0.8673	32.41	25.44	1.27398	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	7.5yr5/2	2.5yr4/2	Reducing	3					
KB	2	20-30	71	3.36	4.7	5.37	5.035	0.6673	30.88	20.77	1.48676	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr6/6	2.5yr4/0	Reducing	3					
KB	2	20-30	72	2.75	4.72	3.3	4.01	0.6858	33.58	22.05	1.5229	Body	N	Y	N	N	Shell (foraminifera)	Fine	10yr5/1	10yr5/2	2.5yr5/8	Reducing	3					
KB	2	20-30	73	2.99	4.41	3.75	4.08	0.7328	27.51	20.68	1.33027	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr6/4	2.5yr4/0	Reducing	3					
KB	2	20-30	74	2.09	3.84	4.31	4.075	0.5129	25.61	20.45	1.25232	Body	N	N	N	N	Grit w/ Shell	Coarse	2.5yr4/0	2.5yr5/6	2.5yr3/2	Reducing	3					
KB	2	20-30	75	1.73	3.49	3.35	3.42	0.5058	25.1	19.08	1.31551	Body	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr4/8	7.5yr5/4	Oxidizing	3					
KB	2	20-30	76	1.2	3.49	2.79	3.14	0.3822	19.93	20.64	0.9656	Body	N	N	N	N	Shell (foraminifera)	Coarse	5yr5/3	7.5yr5/2	7.5yr4/2	Oxidizing	3					
KB	2	20-30	77	1.08	3.56	3.47	3.515	0.3073	16.12	15.83	1.01832	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr4/0	2.5yr5/6	Reducing	3					
KB	2	20-30	78	2.17	5.5	3.12	4.31	0.5035	28.34	19.64	1.44297	Body	N	N	N	Incising	Shell (foraminifera)	Coarse	7.5yr4/0	7.5yr5/4	2.5yr3/0	Reducing	3	Diagonal Hatch				can't really tell the incised design due to size
KB	2	20-30	79	0.62	3.46	2.74	3.1	0.2	15.65	12.34	1.26823	Body	N	N	N	Incising	Shell (foraminifera)	Coarse	7.5yr4/0	7.5yr5/2	2.5yr3/0	Reducing	3	Single Incise				sim to above (78), but doesn't refit.
KB	2	20-30	80	1.69	3.77	3.48	3.625	0.4662	22.25	20.14	1.10477	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	2.5yr5/8	Reducing	3					
KB	2	20-30	81	3.44	7.01	5.53	6.27	0.5486	24.26	22.01	1.10223	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr5/4	2.5yr4/0	Reducing	3					
KB	2	20-30	82	2	4.25	3.62	3.935	0.5083	26.21	21.64	1.21118	Body	N	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/0	2.5yr6/8	Reducing	3					
KB	2	20-30	83	2.46	4.38	6.01	5.195	0.4735	23.42	18.63	1.25711	Body	N	Y	N	N	Shell (foraminifera)	Fine	2.5yr4/0	7.5yr6/4	10r3/1	Reducing	3				L&S #3-Bowl	same as 16, 24
KB	2	20-30	84	1.89	3.9	3.21	3.555	0.5316	21.58	18.87	1.14361	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/8	2.5yr4/8	7.5yr4/0	Oxidizing	3					
KB	2	20-30	85	1.56	2.42	2.63	2.525	0.6178	26.52	20.33	1.30448	Body	N	Y	N	N	Grit w/ Coral, Lava	Fine	10r5/6	10r5/6	10r4/6	Oxidizing	3					
KB	2	20-30	88	1.32	4.28	4.46	4.37	0.3021	17.29	14.11	1.22537	Body	N	N	N	N	Shell (foraminifera)	Coarse	10r5/8	10r5/8	10r5/6	Oxidizing	3					
KB	2	20-30	89	0.74	3.39	3.45	3.42	0.2164	19.6	11.68	1.67808	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr7/2	10r5/8	10r5/8	Reducing	3					
KB	2	20-30	90	2.32	4.58	4.55	4.565	0.5082	21.98	18.49	1.18875	Body	N	N	Black Stai	N	Shell (foraminifera)	Fine	2.5yr5/4	2.5yr3/0	10yr4/1	Oxidizing	3					
KB	2	20-30	91	1.66	3.14	2.23	2.685	0.6182	24.1	18.33	1.31478	Body	N	Y	N	N	Grit w/ Coral, Mica	Fine	2.5yr6/6	2.5yr6/6	10r4/6	Oxidizing	3					
KB	2	20-30	92	1.67	4.73	4.32	4.525	0.3691	20.32	16.11	1.26133	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/6	2.5yr6/6	10r5/8	Oxidizing	3					
KB	2	20-30	93	1.77	5.68	4.56	5.12	0.3457	22.25	18.24	1.21985	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/6	2.5yr5/6	2.5yr5/8	Reducing	3					
KB	2	20-30	94	1.57	5.04	5.13	5.085	0.3088	19.25	13.61	1.4144	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	2.5yr5/8	2.5yr5/8	Reducing	3					
KB	2	20-30	95	0.91	4.08	3.86	3.97	0.2292	20.11	12.94	1.5541	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/2	2.5yr5/6	2.5yr3/0	Reducing	3					
KB	2	20-30	96	1.3	3.99	3.96	3.975	0.327	18.92	15.49	1.22143	Body	N	N	N	N	Shell (foraminifera)	Coarse	7.5yr5/4	2.5yr4/8	2.5yr4/6	Reducing	3					
KB	2	20-30	97	1.27	4.09	3.41	3.75	0.3387	17.27	17.18	1.00524	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/6	2.5yr5/6	2.5yr4/6	Oxidizing	3					
KB	2	20-30	98	1.06	4.75	4.2	4.475	0.2369	19.06	14.25	1.33754	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	10r5/8	7.5yr6/4	Reducing	3					
KB	2	20-30	99	0.98	4.49	4.33	4.41	0.2222	18.62	13.43	1.38645	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	10yr5/1	2.5yr4/2	Reducing	3					
KB	2	20-30	100	2.13	4.8	4.77	4.785	0.4451	24.34	19.08	1.27568	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/2	7.5yr5/2	2.5yr4/2	Reducing	3					
KB	2	20-30	101	1.26	3.39	3.27	3.33	0.3784	19.16	16.72	1.14593	Body	N	Y	N	N	Grit w/ Mica	Fine	10r5/4	10r5/4	10r3/6	Oxidizing	3					
KB	2	20-30	102	1.83	4.85	6.02	5.435	0.3367	21.72	15.77	1.3773	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/4	7.5yr6/4	10r5/8	Oxidizing	3					
KB	2	20-30	103	1.9	4.98	4.49	4.735	0.4013	17.6	19.2	0.91667	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	10r5/8	7.5yr5/2	Oxidizing	3					
KB	2	20-30	104	1.18	4.07	3.72	3.895	0.303	24.13	13.76	1.75363	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	2.5yr3/0	Oxidizing	3					
KB	2	20-30	105	0.93	5.01	4.63	4.82	0.1929	21.13	12.14	1.74053	Body	N	N	N	N	Grit w/ Mica, Shell	Fine	2.5yr5/8	2.5yr5/8	2.5yr3/0	Oxidizing	3					ext has sloughed off
KB	2	20-30	106	1.22	3.25	3.32	3.285	0.3714	25.32	15.62	1.621	Body	Y	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr5/6	10r4/6	2.5yr5/6	Oxidizing	3					
KB	2	20-30	107	1.13	3.18	3.11	3.145	0.3593	20.01	15.22	1.31472	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/6	2.5yr4/2	Reducing	3					
KB	2	20-30	108	0.9	2.43	2.21	2.32	0.3879	19.69	17.59	1.11939	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr4/8	2.5yr4/8	2.5yr3/2	Oxidizing	3					
KB	2	20-30	109	1.05	3.45	3.42	3.435	0.3057	17.51	13.53	1.29416	Body	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/0	10r5/2	10r5/8	Reducing	3					
KB	2	20-30	110	0.64	2.91	2.54	2.725	0.2349	19.84	12.34	1.60778	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	10yr5/3	10yr5/2	Reducing	3					
KB	2	20-30	111	0.66	3.6	3.32	3.46	0.1908	16.4	11.94	1.37353	Body	N	Y	N	N	Grit w/ Grog, Lava	Fine	10r5/4	10r5/4	10r4/6	Oxidizing	3					
KB	2	20-30	112	3.9	4.84	5.42	5.13	0.7602	31.82	24.82	1.28203	Body	N	N	N	Black Stai	Shell (foraminifera)	Fine	2.5yr3/0	10yr4/2	10yr5/2	Reducing	3					2 pcs glued together
KB	2	20-30	113	0.62	2.63	2.81	2.72	0.2279	14.71	11.87	1.23926	Body	N	N	N	Black Stai	Shell (foraminifera)	Fine	2.5yr6/6	2.5yr6/6	2.5yr6/6	Oxidizing	3					
KB	2	20-30	114	0.65	3.87	3.34	3.605	0.1803	16.06	11.23	1.4301	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr5/2	7.5yr5/2	Reducing	3					
KB	2	20-30	115	1.06	4.05	3.59	3.82	0.2775	21.53	12.02	1.79118	Body	N	N	N	N	Shell (foraminifera)	Coarse	7.5yr3/0	7.5yr5/4	7.5yr5/2	Reducing	3	Diagonal Hatch				
KB	2	20-30	116	1.02	3.8	3.05	3.425	0.2978	16.85	15.92	1.05842	Body	N	N	N	N	Shell (foraminifera)	Coarse	7.5yr3/0	7.5yr5/4	7.5yr5/4	Reducing	3					same as 114, above
KB	2	20-30	117	0.81	2.87	3.07	2.97	0.2727	17.75	14.45	1.22837	Body	N	Y	N	N	Shell (foraminifera)	Fine	2.5yr4/6	2.5yr3/2	2.5yr2.5/4	Oxidizing	3					
KB	2	20-30	118	1.63	5.13	4.58	4.855	0.3357	17.55	16.72	1.04964	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/6	7.5yr6/4	2.5yr4/0	Oxidizing	3					
KB	2	20-30	119	0.79	3.58	3.33	3.455	0.2287	17.48	12.66	1.38073	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
KB	2	20-30	120	0.63	2.78	3	2.89	0.218	18.16	13.61	1.33431	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
KB	2	20-30	121	0.5	3.71	2.24	2.975	0.1681	14.57	11.25	1.29511	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/2	10r5/8	10r5/8	Reducing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
KB	2	20-30	122	0.59	4.7	4.29	4.495	0.1313	15.42	9.19	1.67791	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/6	2.5yr5/6	2.5yr5/6	Reducing	3					
KB	2	20-30	123	22.52	10.87	7.28	9.075	2.4815	58.64	48.93	1.19845	Body	Y	Y	N	N	Shell (foraminifera)	Coarse	2.5yr6/6	10r5/8	10r5/8	Oxidizing	3					very flat.
KB	2	20-30	124	34.41	15.26	9.66	12.46	2.7616	62.86	42.6	1.47559	Rim	N	N	N	N	Grit w/ Mica, Shell	Varies	2.5yr5/8	2.5yr4/6	2.5yr4/6	Oxidizing	3		Straight		L&S #7- Forna	firing clouds
KB	2	20-30	125	4.72	3.64	4.02	3.83	1.2324	43.62	19.05	2.28976	Body	N	N	N	Coating	Shell (foraminifera)	Fine	2.5yr5/0	7.5yr5/2	5yr5/3	Reducing	3					white coating on ext
KB	2	20-30	126	4.14	4.32	3.89	4.105	1.0085	39.47	21.27	1.85567	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr6/4	2..5yr5/8	Reducing	3					
KB	2	20-30	127	11.47	7.14	8.15	7.645	1.5003	40.38	31.99	1.26227	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	10r5/8	10r5/8	Reducing	3					triangular shaped, with one corner broken off and not water-worn.
KB	2	20-30	128	7.45	7.25	7.03	7.14	1.0434	29.39	27.29	1.07695	Body	N	N	N	N	Shell (foraminifera)	Coarse	5yr6/4	10r5/8	10r5/6	Reducing	3					
KB	2	20-30	129	10.85	7.25	6.31	6.78	1.6003	59.57	37.37	1.59406	Body	N	N	Charred	N	Shell (foraminifera)	Coarse	2.5yr5/0	2.5yr3/0	2.5yr5/8	Reducing	3					
KB	2	20-30	130	9.52	8.28	7.75	8.015	1.1878	39.85	26.99	1.47647	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr6/6	2.5yr6/8	Reducing	3					
KB	2	20-30	131	3.43	4.52	3.54	4.03	0.8511	36.22	24.99	1.44938	Body	N	N	N	Coating	Shell (foraminifera)	Fine	7.5yr6/2	10r5/8	10r5/8	Reducing	3					
KB	2	20-30	132	4.11	5.03	3.44	4.235	0.9705	34.75	27.18	1.27851	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
KB	2	20-30	133	8.3	8.54	5.75	7.145	1.1617	32.14	25.76	1.24767	Body	N	N	N	N	Grit w/ Grog, Lava, Mica,	Coarse	10r5/8	2.5yr5/6	2.5yr4/2	Oxidizing	3					roofing tile? Same as 56
KB	2	20-30	134	4.3	5.7	4.58	5.14	0.8366	34.55	19.01	1.81746	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	7.5yr6/4	10r5/8	Reducing	3					
KB	2	20-30	135	3.91	4.52	3.75	4.135	0.9456	34.53	26.81	1.28795	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	2.5yr4/8	Reducing	3					2 pcs glued together, one pc appears to be missing, but it's a recent break.
KB	2	20-30	136	5.87	5.41	3.98	4.695	1.2503	50.21	28.25	1.77735	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	10yr5/1	10yr6/3	Reducing	3					
KB	2	20-30	137	3.56	3.7	4.01	3.855	0.9235	32.79	24.89	1.3174	Body	Y	Y	N	N	Shell (foraminifera)	Fine	10yr5/1	5yr4/1	10r4/6	Reducing	3				L&S #3-Bowl	match with 44, 43
KB	2	20-30	138	4.87	4.26	5.76	5.01	0.9721	37.03	31.42	1.17855	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/6	2.5yr5/6	2.5yr3/0	Reducing	3					3 pcs glued together
KB	2	20-30	139	3.17	5.25	4.78	5.015	0.6321	30.42	23.7	1.28354	Body	N	N	N	Paint	Shell (foraminifera)	Fine	7.5yr6/4	7.5yr6/4	7.5yr6/4	Oxidizing	3	Red and Black Paint				gray, red, and peach paint on ext, mostly worn away, can't tell design.
KB	2	20-30	140	3.7	6.52	6	6.26	0.5911	27.97	24.51	1.14117	Body	N	N	N	N	Shell (foraminifera)	Fine	10r6/6	5yr6/6	10r5/8	Oxidizing	3					
KB	2	20-30	141	2.64	6.97	7.06	7.015	0.3763	22.86	16.84	1.35748	Rim	N	N	Paint	N	Grit w/ Lava	Fine	7.5yr6/6	7.5yr6/6	7.5yr6/6	Oxidizing	3	Red and Black Paint				very crumbly, same as 142. red paint on int, but mostly worn off.
KB	2	20-30	142	2.69	6.3	7.21	6.755	0.3982	25.68	16.51	1.55542	Body	N	N	N	N	Grit w/ Lava	Fine	7.5yr6/6	7.5yr6/6	7.5yr6/6	Oxidizing	3					very crumbly, same as 141, 3 pcs glued
KB	2	20-30	143	1.33	4.94	4.13	4.535	0.2933	17.34	15.89	1.09125	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	7.5yr5/6	7.5yr5/2	Reducing	3					
KB	2	20-30	144	2.04	3.49	3.28	3.385	0.6027	32.02	17.76	1.80293	Body	Y	Y	N	N	Shell (foraminifera)	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
KB	2	20-30	145	1.57	4.21	3.67	3.94	0.3985	20.9	18.81	1.11111	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/6	2.5yr5/8	Reducing	3					
KB	2	20-30	146	1.78	4.9	4.66	4.78	0.3724	22.79	14.67	1.55351	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
KB	2	20-30	147	3.28	4.29	3.47	3.88	0.8454	27.67	20.77	1.33221	Body	N	N	N	Coating	Shell (foraminifera)	Fine	5yr6/3	5yr5/6	5yr5/3	Reducing	3					
KB	2	20-30	148	2.54	5.84	5.32	5.58	0.4552	20.84	16.59	1.25618	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	10yr4/1	2.5yr3/0	Reducing	3					
KB	2	20-30	149	2.94	7.67	7.34	7.505	0.3917	21.16	19.3	1.09637	Body	N	N	N	N	Grit w/ Shell	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
KB	2	20-30	150	4.52	5.71	4.42	5.065	0.8924	36.27	29.54	1.22783	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/0	2.5yr5/6	5yr4/1	Reducing	3					
KB	2	20-30	151	4.53	4.28	5	4.64	0.9763	31.51	29.08	1.08356	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/1	5yr6/4	7.5yr6/4	Reducing	3					
KB	2	20-30	152	1.88	4.56	4.39	4.475	0.4201	19.09	17.06	1.11899	Body	Y	Y	N	N	Shell (foraminifera)	Fine	5yr5/6	5yr5/8	5yr5/6	Oxidizing	3					
KB	2	20-30	153	3.35	4.16	3.95	4.055	0.8261	28.74	24.48	1.17402	Body	N	Y	N	N	Shell (foraminifera)	Fine	2.5yr4/0	5yr5/8	7.5yr7/0	Reducing	3					
KB	2	20-30	154	2.21	4.16	3.94	4.05	0.5457	24.62	21.47	1.14672	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/6	2.5yr5/8	7.5yr5/6	Oxidizing	3					white coating on 2 edges, but not surface.
KB	2	20-30	155	1.41	3.17	3.04	3.105	0.4541	25.09	19.63	1.27815	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
KB	2	20-30	156	4.73	5.99	4.21	5.1	0.9275	41.06	27.85	1.47433	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr5/4	2.5yr5/8	Reducing	3					
KB	2	20-30	157	5.84	3.69	3.52	3.605	1.62	34.23	32.82	1.04296	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	10yr5/1	2.5yr5/8	Reducing	3					
KB	2	20-30	158	7.79	5.74	5.77	5.755	1.3536	31.93	31.9	1.00094	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/6	2.5yr6/6	10r6/8	Oxidizing	3					
KB	2	20-30	159	1.84	3.77	3.31	3.54	0.5198	22.85	18.85	1.2122	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr4/1	10r5/8	10yr4/3	Reducing	3					
KB	2	20-30	160	5.39	4.13	3.03	3.58	1.5056	39.2	30.96	1.26615	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	7.5yr6/2	2.5yr5/8	Reducing	3					
KB	2	20-30	161	3.09	6.12	5.04	5.58	0.5538	22.77	19.71	1.15525	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
KB	2	20-30	162	3.86	3.08	3.15	3.115	1.2392	32.33	30.45	1.06174	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/6	2.5yr3/0	2.5yr5/6	Oxidizing	3					2 pcs glued together
KB	2	20-30	163	8.81	3.53	5.24	4.385	2.0091	52.41	30.73	1.7055	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/2	7.5yr7/2	7.5yr6/4	Reducing	3					
KB	2	30-40	1	57.4	4.92	3.79	4.355	13.18	106.85	98.67	1.0829	Shoulder	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/0	10yr5/2	7.5yr6/4	Reducing	3					broke into 6 pcs after photo. Glued back together. :-(
KB	2	30-40	2	11.84	6.73	4.37	5.55	2.1333	64.34	34.84	1.84673	Body	N	Y	N	Incising	Shell (foraminifera)	Coarse	2.5yr5/0	7.5yr5/4	2.5yr5/8	Reducing	3	Incise-links				same as KB.2.20-30.13 (same decoration, probably same pot.)
KB	2	30-40	3	52.53	7.76	8.95	8.355	6.2873	116.24	46.76	2.48589	Rim	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	2.5yr5/8	Reducing	3		Everted	rounded	L&S #1- Globula	refit w/ below
KB	2	30-40	4	20.64	8.33	6.26	7.295	2.8293	65.81	36.94	1.78154	Shoulder	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	2.5yr5/8	Reducing	3		Everted	rounded	L&S #1- Globula	refit w/ above
KB	2	30-40	5	7.17	7.82	6.97	7.395	0.9696	41.25	21.69	1.9018	Shoulder	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	7.5yr6/4	Reducing	3		Everted	rounded	L&S #1- Globula	refit w/ above
KB	2	30-40	6	11.54	8.42	7.94	8.18	1.4108	41	26.79	1.53042	Rim	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	7.5yr6/4	Reducing	3		Everted	rounded	L&S #1- Globula	refit w/ above
KB	2	30-40	7	7.1	6.86	7.06	6.96	1.0201	36.12	23.1	1.56364	Shoulder	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	7.5yr6/4	Reducing	3		Everted	rounded	L&S #1- Globula	refit w/ above
KB	2	30-40	8	13.81	8.71	4.79	6.75	2.0459	47.25	40.55	1.16523	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	7.5yr6/4	Reducing	3		Everted	rounded	L&S #1- Globula	refit w/ 4, 7
KB	2	30-40	9	7.84	5.33	5.79	5.56	1.4101	43.07	32.87	1.31031	Body	N	N	N	Black Stai	Grit w/ Coral, Sand, Shell	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					same as KB.2.20-30.23
KB	2	30-40	10	8.93	5.67	5.57	5.62	1.589	43.03	30.01	1.43386	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/0	2.5yr5/4	10yr4/1	Reducing	3					refit w/ below
KB	2	30-40	11	9.86	5.81	5.79	5.8	1.7	44.47	33.33	1.33423	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/0	2.5yr5/4	10yr4/1	Reducing	3					refit w/ above
KB	2	30-40	12	39.76	13.21	5.81	9.51	4.1809	83.86	42.12	1.99098	Rim	N	N	N	Punctate	Shell (foraminifera)	Fine	2.5yr5/0	5yr6/4	5yr6/4	Reducing	3	Semi-Circular Stai	Inverted	Flat	L&S #1- Globula	refit w/ Kb.2.20-30.10. semi-circle punctate.
KB	2	30-40	13	92.9	13.94	21.99	17.965	5.1712	72.8	80.31	0.90649	Rim	N	N	N	Coating	Shell (foraminifera) w/ Grog	Varies	2.5yr5/0	5yr7/4	2.5yr5/8	Reducing	3		Everted	pointed		
KB	2	30-40	14	57.29	15.05	7.51	11.28	5.0789	87.26	44.81	1.94733	Rim	N	N	N	Punctate	Shell (foraminifera)	Fine	10yr6/1	7.5yr6/4	7.5yr6/4	Reducing	3	Semi-Circular Stai	Inverted	Flat	L&S #1- Globula	half-circle punctates
KB	2	30-40	15	16.18	8.71	10.06	9.385	1.724	60.9	29.76	2.04637	Rim	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	7.5yr4/2	Reducing	3		Everted	pointed		
KB	2	30-40	16	9.4	10.1	9.32	9.71	0.9681	29.55	28.05	1.05348	Rim	N	N	N	N	Shell (foraminifera)	Coarse	10r5/8	10r5/8	10r5/8	Oxidizing	3		Everted	rounded		
KB	2	30-40	17	12.26	9.33	7.75	8.54	1.4356	51.87	31.8	1.63113	Rim	N	N	N	N	Shell (foraminifera)	Coarse	7.5yr5/0	10r5/8	10r5/8	Reducing	3		Everted	pointed		
KB	2	30-40	18	8.61	8.23	7.54	7.885	1.0919	39.53	27.88	1.41786	Rim	Y	Y	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	2.5yr4/6	Reducing	3		Everted	pointed		
KB	2	30-40	19	11.99	5.84	4.64	5.24	2.2882	50.51	39.61	1.27518	Body	N	Y	N	N	Shell (foraminifera)	Coarse	5yr6/4	5yr6/4	10r4/4	Oxidizing	3				L&S #1- Globula	same as 20
KB	2	30-40	20	6.85	5.63	4.85	5.24	1.3073	47.4	30.52	1.55308	Body	N	Y	N	N	Shell (foraminifera)	Coarse	5yr6/4	5yr6/4	10r4/4	Oxidizing	3				L&S #1- Globula	same as 19
KB	2	30-40	21	8.77	4.57	4.46	4.515	1.9424	65.58	36.74	1.78498	Body	N	Y	N	N	Shell (foraminifera)	Coarse	5yr6/4	5yr6/4	10r4/4	Oxidizing	3				L&S #1- Globula	same as 19, 20
KB	2	30-40	22	2.11	5.19	5.35	5.27	0.4004	22.33	18.64	1.19796	Body	N	Y	N	N	Shell (foraminifera)	Coarse	5yr6/4	5yr6/4	10r4/4	Oxidizing	3				L&S #1- Globula	same as 19, 20, 21
KB	2	30-40	23	2.19	5.56	5.45	5.505	0.3978	24.11	18.9	1.27566	Body	N	Y	N	N	Shell (foraminifera)	Coarse	5yr6/4	5yr6/4	10r4/4	Oxidizing	3				L&S #1- Globula	same as 19, 20, 21, 22
KB	2	30-40	24	1.85	4.73	4.14	4.435	0.4171	28.83	21.92	1.31524	Body	N	Y	N	N	Shell (foraminifera)	Coarse	5yr6/4	5yr6/4	10r4/4	Oxidizing	3				L&S #1- Globula	same as 19, 20, 21, 22, 23
KB	2	30-40	25	4.72	9.04	9.14	9.09	0.5193	29.91	21.34	1.40159	Body	Y	Y	N	N	Shell (foraminifera)	Coarse	2.5yr6/6	10r4/8	10r4/6	Oxidizing	3				L&S #1- Globula	same as 26, 27, 28
KB	2	30-40	26	5.02	7.63	7.91	7.77	0.6461	36.49	18.61	1.96077	Body	Y	Y	N	N	Shell (foraminifera)	Coarse	2.5yr6/6	10r4/8	10r4/6	Oxidizing	3				L&S #1- Globula	same as 25, 27, 28
KB	2	30-40	27	1.31	7.97	7.79	7.88	0.1662	16.21	13.13	1.23458	Body	Y	Y	N	N	Shell (foraminifera)	Coarse	2.5yr6/6	10r4/8	10r4/6	Oxidizing	3				L&S #1- Globula	same as 25, 26, 27
KB	2	30-40	28	9.43	4.75	4.07	4.41	2.1383	42.3	43.15	0.9803	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr5/4	10yr5/2	Reducing	3				L&S #1- Globula	refit w/ 29
KB	2	30-40	29	4.77	3.57	3.63	3.6	1.325	36.07	30.43	1.18534	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr5/4	10yr5/2	Reducing	3				L&S #1- Globula	refit w/ 28
KB	2	30-40	30	4.19	5.19	5.43	5.31	0.7891	32.77	25.73	1.27361	Body	N	Y	N	N	Shell (foraminifera)	Coarse	5yr6/4	5yr6/4	10r4/4	Oxidizing	3				L&S #1- Globula	same as 19, 20, 21, 22, 23, 24
KB	2	30-40	31	3.1	6.25	5.16	5.705	0.5434	27.92	18.14	1.53914	Shoulder	N	N	N	N	Shell (foraminifera)	Coarse	7.5yr4/0	7.5yr6/4	7.5yr4/4	Reducing	3				L&S #1- Globula	refit w/ 32, 33
KB	2	30-40	32	3.88	5.71	4.1	4.905	0.791	27.4	19.55	1.40153	Shoulder	N	N	N	N	Shell (foraminifera)	Coarse	7.5yr4/0	7.5yr6/4	7.5yr4/4	Reducing	3				L&S #1- Globula	refit w/ 31, 33
KB	2	30-40	33	5.83	5.57	3.97	4.77	1.2222	41.76	27.43	1.52242	Body	N	N	N	N	Shell (foraminifera)	Coarse	7.5yr4/0	7.5yr6/4	7.5yr4/4	Reducing	3				L&S #1- Globula	refit w/ 31, 32
KB	2	30-40	34	4.51	4	2.27	3.135	1.4386	35.58	41.45	0.85838	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	2.5yr5/8	Reducing	3				L&S #1- Globula	refit w/ 35
KB	2	30-40	35	2.25	3.28	3.99	3.635	0.619	33.92	14.91	2.27498	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	2.5yr4/0	Reducing	3				L&S #1- Globula	refit w/ 34
KB	2	30-40	36	10.07	5.21	5.21	5.21	1.9328	44.71	31.58	1.41577	Body	N	N	Charred	N	Grit	Coarse	2.5yr4/4	2.5yr3/0	2.5yr3/0	Oxidizing	3					in a baggie b/c shedding charring.
KB	2	30-40	37	7.75	4.37	4.19	4.28	1.8107	41.72	37.06	1.12574	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	10r5/8	5yr5/6	Reducing	3				L&S #1- Globula	refit w/ 38

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
KB	2	30-40	38	3.2	4.57	4.89	4.73	0.6765	33.88	24.02	1.41049	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	10r5/8	5yr5/6	Reducing	3				L&S #1- Globula	refit w/ 37
KB	2	30-40	39	5.96	4.1	3.36	3.73	1.5979	36.42	36.14	1.00775	Body	Y	Y	N	N	Grit w/ Coral	Fine	10r4/6	10r4/6	2.5yr3/2	Oxidizing	3					2 pcs glued together
KB	2	30-40	40	6.84	7.46	4.81	6.135	1.1149	30.08	39.54	0.76075	Shoulder	N	N	N	Incising	Shell (foraminifera)	Coarse	2.5yr5/0	2.5yr5/8	7.5yr5/4	Reducing	3	Parallel Incise				
KB	2	30-40	41	12.11	4.54	4.99	4.765	2.5414	48.31	37.41	1.29137	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	10r5/8	Reducing	3					
KB	2	30-40	42	7.14	3.72	4.36	4.04	1.7673	52.6	37.14	1.41626	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
KB	2	30-40	43	5.43	11.33	6.32	8.825	0.6153	23.99	22.39	1.07146	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr7/2	10r5/8	Reducing	3					
KB	2	30-40	44	5.22	5.96	4.39	5.175	1.0087	36.94	29.64	1.24629	Rim	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/4	2.5yr5/4	Reducing	3		Inverted	Rounded		
KB	2	30-40	45	1.94	4.98	4.61	4.795	0.4046	29.27	15.67	1.8679	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr3/0	Reducing	3					refit w/ Kb.2.30-40.08
KB	2	30-40	46	3.68	4.69	5.35	5.02	0.7331	33.18	18.68	1.77623	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	10r5/8	10r5/8	Reducing	3					
KB	2	30-40	47	8.14	2.94	4.01	3.475	2.3424	46.01	38.66	1.19012	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/8	5yr5/8	7.5yr4/2	Oxidizing	3					
KB	2	30-40	48	5.81	4.66	4.14	4.4	1.3205	36.23	27.65	1.31031	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	7.5yr6/4	5yr4/2	Reducing	3					
KB	2	30-40	49	5.68	5.21	3.69	4.45	1.2764	41.04	29.78	1.37811	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	5yr5/4	7.5yr5/6	Reducing	3					
KB	2	30-40	50	2.81	3.91	3.63	3.77	0.7454	30.61	24.96	1.22636	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					refit w/ 51
KB	2	30-40	51	1.79	4.2	3.9	4.05	0.442	24.96	15.72	1.58779	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					refit w/ 50
KB	2	30-40	52	3.58	4.36	2.64	3.5	1.0229	33.89	25.56	1.3259	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	7.5yr5/2	Oxidizing	3					
KB	2	30-40	53	2.44	3.85	3.12	3.485	0.7001	32.87	19.76	1.66346	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr4/2	2.5yr4/0	Reducing	3					
KB	2	30-40	54	5.61	6.11	5.28	5.695	0.9851	28.63	26.71	1.07188	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	2.5yr6/4	2.5yr6/4	2.5yr4/2	Oxidizing	3					
KB	2	30-40	55	8.72	5.96	4.64	5.3	1.6453	41.08	34.76	1.18182	Body	N	N	N	N	Shell (foraminifera)	Fine	10r6/8	10r6/8	10r6/8	Oxidizing	3					
KB	2	30-40	56	6.39	5.07	5.32	5.195	1.23	33.74	33.66	1.00238	Body	Y	N	N	N	Grit w/ Coral, Mica	Coarse	5yr4/6	10r4/8	5yr4/6	Oxidizing	3					
KB	2	30-40	57	5.92	5.18	4.91	5.045	1.1734	38.1	28.28	1.34724	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr6/4	2.5yr5/6	2.5yr6/6	Oxidizing	3					
KB	2	30-40	58	5.49	6.15	3.87	5.01	1.0958	37.41	27.41	1.36483	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	7.5yr5/4	2.5yr4/8	Reducing	3					
KB	2	30-40	59	3.02	3.09	2.96	3.025	0.9983	38.17	26.87	1.42054	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
KB	2	30-40	60	3.11	3.78	3.15	3.465	0.8975	33.92	25.06	1.35355	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
KB	2	30-40	61	5.89	7.92	6.73	7.325	0.8041	29.85	24.71	1.20801	Body	N	N	N	N	Shell (foraminifera)	Coarse	7.5yr6/2	2.5yr5/8	2.5yr5/8	Reducing	3					
KB	2	30-40	62	6.44	3.8	4.61	4.205	1.5315	37.64	29.46	1.27766	Body	Y	Y	N	N	Grit w/ Coral, Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3	red slipped				
KB	2	30-40	63	3.36	5.31	4.89	5.1	0.6588	28.35	20.89	1.35711	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr4/0	5yr5/6	7.5yr6/6	Reducing	3					
KB	2	30-40	64	8.09	6.1	4.5	5.3	1.5264	38.71	34.07	1.13619	Body	Y	Y	N	N	Shell (foraminifera)	Coarse	7.5yr6/2	2.5yr5/8	2.5yr5/0	Oxidizing	3					
KB	2	30-40	65	5.61	3.29	2.31	2.8	2.0036	45.23	32.78	1.3798	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	10yr5/1	Reducing	3					
KB	2	30-40	66	1.64	4.97	4.42	4.695	0.3493	20.98	13.64	1.53812	Body	N	Y	N	N	Grit w/ Mica	Fine	10r4/8	10r4/8	10r4/6	Oxidizing	3					
KB	2	30-40	67	1.69	4.57	4.39	4.48	0.3772	24.84	12.4	2.00323	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/8	2.5yr6/8	Reducing	3					
KB	2	30-40	68	1.32	2.85	2.41	2.63	0.5019	19.35	18.92	1.02273	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/6	5yr6/6	2.5yr5/8	Reducing	3					
KB	2	30-40	69	5.65	8.55	7.37	7.96	0.7098	26.56	25.51	1.04116	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	10r5/8	5yr6/1	Reducing	3					
KB	2	30-40	70	3.76	7.31	4.72	6.015	0.6251	26.71	19.41	1.37609	Body	N	Y	N	N	Grit w/ Mica	Fine	10r4/8	2.5yr3/0	10r3/6	Oxidizing	3					
KB	2	30-40	71	2.55	4.57	4.33	4.45	0.573	26.17	24.9	1.051	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/2	2.5yr5/8	7.5yr4/2	Reducing	3					
KB	2	30-40	72	2.45	5.51	4.08	4.795	0.5109	26.22	25.28	1.03718	lid	N	N	N	N	Grit w/ Grog	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3				L&S #3- Lid	terra cotta lid?
KB	2	30-40	73	6.49	4.83	4.27	4.55	1.4264	43.86	26.66	1.64516	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/6	10r4/8	10r5/8	Oxidizing	3					
KB	2	30-40	74	2.85	3.81	2.95	3.38	0.8432	37.75	19.35	1.9509	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/2	2.5yr5/6	2.5yr4/6	Reducing	3					
KB	2	30-40	75	4.01	5.14	3.48	4.31	0.9304	33.19	26.44	1.2553	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr5/0	7.5yr5/0	Reducing	3					
KB	2	30-40	76	3.38	4.22	4.4	4.31	0.7842	35.78	18.88	1.89513	Body	N	N	N	N	Grit w/ Mica	Fine	7.5yr5/4	7.5yr5/4	7.5yr5/4	Oxidizing	3					
KB	2	30-40	77	1.69	6	5.27	5.635	0.2999	25.04	12.73	1.96701	Body	N	N	N	Incising	Shell (foraminifera)	Fine	2.5yr5/6	2.5yr4/8	2.5yr4/8	Oxidizing	3	Single Incise				
KB	2	30-40	78	1.41	3.45	3.51	3.48	0.4052	28.44	14.11	2.01559	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	7.5yr3/2	10r4/8	10r4/1	Reducing	3					
KB	2	30-40	79	1.47	4.31	3.71	4.01	0.3666	21.33	15.07	1.41539	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/6	2.5yr5/8	2.5yr4/6	Oxidizing	3					
KB	2	30-40	80	2.8	4.6	2.82	3.71	0.7547	26.73	19.3	1.38497	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r4/8	2.5yr3/0	10r4/8	Oxidizing	3					
KB	2	30-40	81	1.77	5.2	3.52	4.36	0.406	26.39	18.53	1.42418	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	5yr6/6	2.5yr4/8	Reducing	3					
KB	2	30-40	82	2.85	4.88	5	4.94	0.5769	26.53	17.57	1.50996	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	2.5yr5/8	Reducing	3					firing cloud
KB	2	30-40	83	4.37	4.92	4.52	4.72	0.9258	26.23	24.19	1.08433	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/0	5yr5/4	10yr5/1	Reducing	3					
KB	2	30-40	84	2.3	5.66	4.7	5.18	0.444	25.33	17.6	1.4392	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr5/2	7.5yr4/4	Reducing	3					
KB	2	30-40	87	3.98	6.02	5.99	6.005	0.6628	29.47	19.6	1.50357	Body	N	N	N	N	Shell (foraminifera) w/ Grog	Fine	2.5yr5/0	2.5yr5/8	2.5yr5/8	Reducing	3					
KB	2	30-40	88	2.02	3.99	4.07	4.03	0.5012	20.42	18.3	1.11585	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/8	2.5yr5/8	Reducing	3					
KB	2	30-40	89	0.79	3.54	3.64	3.59	0.2201	21.02	11.83	1.77684	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr4/0	2.5yr6/6	Reducing	3					
KB	2	30-40	90	1.66	4.91	4.8	4.855	0.3419	23.44	16.48	1.42233	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/6	2.5yr6/6	2.5yr6/8	Oxidizing	3					
KB	2	30-40	91	3.82	5.15	4.92	5.035	0.7587	29.52	24.75	1.19273	Body	N	Y	N	N	Shell (foraminifera)	Coarse	2.5yr3/0	2.5yr3/0	2.5yr3/2	Reducing	3					
KB	2	30-40	92	1.1	3.16	3.45	3.305	0.3328	17.7	15.66	1.13027	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr3/0	2.5yr3/0	2.5yr3/0	Reducing	3					
KB	2	30-40	93	1.34	3.54	2.1	2.82	0.4752	25.79	23.57	1.09419	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr6/4	7.5yr5/2	Reducing	3					
KB	2	30-40	94	1.14	2.63	2.62	2.625	0.4343	24.44	16.75	1.4591	Body	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
KB	2	30-40	95	1.03	3.2	3.38	3.29	0.3131	19.06	16.04	1.18828	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/8	5yr5/8	5yr5/8	Oxidizing	3					
KB	2	30-40	96	1.04	4.99	5.02	5.005	0.2078	17.19	12.6	1.36429	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	10r5/8	10r5/8	Reducing	3					
KB	2	30-40	97	0.91	2.93	3.12	3.025	0.3008	15.75	15.27	1.03143	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/6	7.5yr4/2	10r4/6	Oxidizing	3					
KB	2	30-40	98	0.57	3.8	3.92	3.86	0.1477	12.62	9.6	1.31458	Body	Y	Y	N	N	Grit w/ Coral	Fine	10r4/8	10r4/6	10r4/6	Oxidizing	3					
KB	2	30-40	99	0.39	2.46	2.44	2.45	0.1592	11.45	10.18	1.12475	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
KB	2	30-40	100	1.41	5.21	5.96	5.585	0.2525	15.81	11.83	1.33643	Body	N	N	N	Incising	Shell (foraminifera)	Fine	2.5yr4/0	10r5/8	10r5/8	Reducing	3	Single Incise				
KB	2	40-50	1	38.24	8.35	5.83	7.09	5.3935	80.88	65.48	1.23519	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	2.5yr4/0	Reducing	3		Everted	rounded	L&S #1- Globula	refits with kb.2.30-40.4, 3, 8
KB	2	40-50	2	12.85	4.91	4.82	4.865	2.6413	56.49	47.71	1.18403	Body	Y	Y	N	N	Shell (foraminifera)	Fine	5yr6/6	5yr6/4	2.5yr4/4	Oxidizing	3				L&S #1- Globula	refit w/ 3
KB	2	40-50	3	17.22	5.13	5.47	5.3	3.2491	57.23	52.28	1.09468	Body	Y	Y	N	N	Shell (foraminifera)	Fine	5yr6/6	5yr6/4	2.5yr4/4	Oxidizing	3				L&S #1- Globula	refit w/ 2
KB	2	40-50	4	15.7	5.76	5.43	5.595	2.8061	61.96	44.36	1.39675	Body	Y	Y	N	N	Shell (foraminifera)	Fine	5yr6/6	5yr6/4	2.5yr4/4	Oxidizing	3				L&S #1- Globula	refit w/ 2
KB	2	40-50	5	44.28	10.36	7.9	9.13	4.8499	66.52	54.44	1.2219	Rim	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/0	2.5yr6/6	2.5yr5/8	Reducing	3		Inverted	rounded		
KB	2	40-50	6	27.1	11.99	7.14	9.565	2.8332	61.55	51.07	1.20521	Rim	Y	Y	N	N	Shell (foraminifera)	Fine	7.5yr6/4	10r4/6	10r5/8	Oxidizing	3		Everted	rounded		
KB	2	40-50	7	7.27	11.08	8.67	9.875	0.7362	33.37	19.69	1.69477	Shoulder	Y	Y	N	N	Shell (foraminifera)	Fine	7.5yr6/4	10r4/6	10r5/8	Oxidizing	3					
KB	2	40-50	8	5.44	6.84	7.12	6.98	0.7794	29.93	26.71	1.12055	Body	Y	Y	N	N	Shell (foraminifera)	Fine	5yr6/4	10r4/6	10r5/8	Oxidizing	3					
KB	2	40-50	9	2.77	4.64	4.47	4.555	0.6081	30.96	19.42	1.59423	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/6	5yr6/4	10r4/6	Oxidizing	3					
KB	2	40-50	10	5.69	10.23	8.19	9.21	0.6178	32.17	22.84	1.40849	Shoulder	Y	Y	N	N	Shell (foraminifera)	Fine	5yr5/1	10r4/8	10r4/8	Reducing	3					
KB	2	40-50	11	3.97	7.25	7.61	7.43	0.5343	25.02	23.86	1.04862	Body	Y	Y	N	N	Shell (foraminifera)	Fine	10r5/6	10r4/8	10r4/8	Oxidizing	3					
KB	2	40-50	12	3.94	6.72	5.2	5.96	0.6611	23.55	21.32	1.1046	Rim	Y	Y	N	N	Grit w/ Mica	Fine	7.5yr6/4	10r4/8	10r4/8	Oxidizing	3	red slipped	Inverted	Rounded		
KB	2	40-50	13	2.16	5.83	5.02	5.425	0.3982	21.29	21.11	1.00853	Body	Y	Y	N	N	Grit w/ Mica	Fine	10r5/4	10r3/4	10r4/8	Oxidizing	3					
KB	2	40-50	14	1.52	9.16	9.61	9.385	0.162	18.65	13.21	1.41181	Body	Y	Y	N	N	Shell (foraminifera)	Fine	10r5/6	10r4/6	10r4/8	Oxidizing	3					
KB	2	40-50	15	1.31	7.22	7.09	7.155	0.1831	20.73	10.53	1.96866	Body	Y	Y	N	N	Shell (foraminifera)	Fine	10r5/6	10r4/8	10r4/8	Oxidizing	3					
KB	2	40-50	16	42.28	15.22	14.31	14.765	2.8635	54.02	43.43	1.24384	Corner	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/8	2.5yr4/4	2.5yr4/4	Oxidizing	3				L&S #7- Forna	refit w/ 17
KB	2	40-50	17	9.92	10.41	7.34	8.875	1.1177	31.76	27.83	1.14121	Rim	N	N	N	N	Grit w/ Mica	Fine	2.5yr5/8	2.5yr4/4	2.5yr4/4	Oxidizing	3		Straight		L&S #7- Forna	refit w/ 16
KB	2	40-50	18	4.46	8.35	8.56	8.455	0.5275	24.69	24.49	1.00817	Body	N	N	Paint	N	Grit w/ Grog, Mica	Varies	2.5yr6/8	2.5yr6/8	2.5yr6/8	Oxidizing	3	Red Paint				same as KB.2.20-30.57
KB	2	40-50	19	13.78	10.48	8.74	9.61	1.4339	38.28	26.34	1.4533	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/8	2.5yr5/0	Reducing	3					
KB	2	40-50	20	13.32	7.81	6.57	7.19	1.8526	45.91	33.17	1.38408	Body	N	N	N	N	Shell (foraminifera) w/ Grog	Varies	2.5yr5/0	2.5yr5/8	2.5yr4/0	Reducing	3					
KB	2	40-50	21	6.74	4.24	6.25	5.245	1.285	32.2	31.64	1.0177	Shoulder	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/0	2.5yr5/6	2.5yr4/0	Reducing	3					
KB	2	40-50	22	4.37	5.67	6.1	5.885	0.7426	24.04	20.78	1.15688	Shoulder	N	N	N	N	Grit w/ Grog, Mica	Coarse	2.5yr4/8	2.5yr4/8	2.5yr4/8	Oxidizing	3					
KB	2	40-50	23	5.1	8.61	7.25	7.93	0.6431	27.24	22.71	1.19947	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	2.5yr5/0	2.5yr4/8	7.5yr6/6	Oxidizing	3					
KB	2	40-50	24	2.36	3.44	3.71	3.575	0.6601	28.44	18.61	1.52821	Body	N	N	N	N	Grit w/ Mica	Coarse	2.5yr4/6	2.5yr3/2	2.5yr3/0	Oxidizing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
KB	2	40-50	25	2.12	4.56	3.33	3.945	0.5374	23.04	21.77	1.05834	Body	N	Y	N	N	Shell (foraminifera)	Varies	2.5yr4/0	2.5yr5/8	2.5yr6/8	Reducing	3					weird gray slip on ext. sim to one KB.2. 20-
KB	2	40-50	26	2.89	4.31	3.42	3.865	0.7477	30.66	22.44	1.36631	Body	N	Y	N	N	Shell (foraminifera)	Coarse	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
KB	2	40-50	27	1.06	3.37	2.75	3.06	0.3464	17.22	15.92	1.08166	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr6/8	Oxidizing	3					
KB	2	40-50	28	1.06	6.7	6.16	6.43	0.1649	14.68	11.67	1.25793	Rim	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/6	2.5yr5/6	2.5yr5/6	Oxidizing	3		Inverted	Pointed		
KB	2	40-50	29	2.27	3.81	3.78	3.795	0.5982	23.43	20.77	1.12807	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	5yr5/6	2.5yr4/2	Reducing	3					
KB	2	40-50	30	3.7	4.29	3.82	4.055	0.9125	40.38	27.38	1.4748	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/6	5yr6/6	Reducing	3					
KB	2	40-50	31	8.62	8.78	6.62	7.7	1.1195	32.55	29.69	1.09633	Body	N	N	N	N	Grit w/ Mica	Fine	7.5yr7/4	7.5yr7/4	7.5yr7/4	Oxidizing	3					
KB	2	40-50	32	2.49	5.15	5.03	5.09	0.4892	27.07	21.46	1.26142	Rim	Y	N	Paint	N	Shell (foraminifera)	Fine	2.5yr5/0	10r5/8	10r5/8	Reducing	3	Red Paint	Inverted	Rounded		
KB	2	40-50	33	2.03	4.16	3.12	3.64	0.5577	22.8	19.92	1.14458	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/0	10yr6/2	2.5yr5/8	Reducing	3					
KB	2	40-50	34	1.36	3.88	2.58	3.23	0.4211	19.92	17.53	1.13634	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr5/8	2.5yr5/8	2.5yr3/2	Oxidizing	3					
KB	2	40-50	35	3.18	3.47	3.65	3.56	0.8933	34.03	19.68	1.72917	Body	Y	Y	N	N	Grit w/ Mica	Fine	5yr5/6	2.5yr4/2	2.5yr3/2	Oxidizing	3					
KB	2	40-50	36	8.07	4.54	5.23	4.885	1.652	42.41	36.56	1.16001	Shoulder	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	5yr6/4	Reducing	3					
KB	2	40-50	37	6.81	4.82	4.79	4.805	1.4173	36.12	27.24	1.32599	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/0	2.5yr5/6	2.5yr4/6	Reducing	3					
KB	2	40-50	38	6.57	5.62	5.5	5.56	1.1817	37.99	31.62	1.20145	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/4	5yr6/4	2.5yr5/0	Oxidizing	3					
KB	2	40-50	39	2.96	4.84	3.72	4.28	0.6916	32.28	17.97	1.79633	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	2.5yr5/8	7.5yr4/4	Oxidizing	3					
KB	2	40-50	40	5.27	4.95	4.84	4.895	1.0766	36.3	26.46	1.37188	Body	N	N	Coating		Shell (foraminifera)	Fine	7.5yr5/0	10yr6/1	7.5yr5/2	Reducing	3					
KB	2	40-50	41	4	8	4.99	6.495	0.6159	24.87	23.61	1.05337	Rim	N	N	N	N	Shell (foraminifera)	Coarse	10yr5/1	10yr5/1	2.5yr4/2	Reducing	3		Everted	Damaged		
KB	2	40-50	42	0.96	3.51	3.73	3.62	0.2652	19.56	12.24	1.59804	Body	N	Y	N	N	Grit w/ Mica	Fine	10r5/8	10r5/8	10r4/6	Oxidizing	3					
KB	2	40-50	43	3.23	4.91	4.18	4.545	0.7107	32.07	21.07	1.52207	Body	N	Y	N	N	Grit w/ Coral, Mica	Fine	5yr6/6	5yr6/6	10r4/6	Oxidizing	3					
KB	2	40-50	44	5.01	4.47	3.15	3.81	1.315	35.14	26.98	1.30245	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/6	2.5yr5/8	2.5yr5/8	Oxidizing	3					
KB	2	40-50	45	3.59	4.24	3.47	3.855	0.9313	29.79	24.31	1.22542	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	7.5yr6/4	2.5yr5/6	Oxidizing	3					
KB	2	40-50	46	4.69	5.05	4.77	4.91	0.9552	33.88	27.63	1.2262	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/8	2.5yr6/8	Reducing	3					
KB	2	40-50	47	1.82	3.95	3.43	3.69	0.4932	29.12	15.34	1.89831	Body	N	N	N	N	Shell (foraminifera)	Coarse	7.5yr4/0	7.5yr6/4	7.5yr5/4	Reducing	3					
KB	2	40-50	48	4.41	6.37	6.04	6.205	0.7107	26.7	24.55	1.08758	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/4	2.5yr5/8	7.5yr5/2	Reducing	3					
KB	2	40-50	49	4.85	6.72	4.33	5.525	0.8778	27.73	24.88	1.11455	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/6	Oxidizing	3					
KB	2	40-50	50	2.3	5	4.91	4.955	0.4642	23.01	19.93	1.15454	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/2	2.5yr6/8	2.5yr5/4	Reducing	3					
KB	2	40-50	51	11.44	9.46	7.01	8.235	1.3892	39.72	28.83	1.37773	Shoulder	Y	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr3/0	2.5yr6/0	Reducing	3					orange int w/ black staining
KB	2	40-50	52	3.39	4.75	3.84	4.295	0.7893	30.03	22.79	1.31768	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
KB	2	40-50	53	7.63	8.61	5.34	6.975	1.0939	33.46	28.47	1.17527	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	2.5yr5/8	Reducing	3					
KB	2	40-50	54	2.68	4.98	5.24	5.11	0.5245	30.15	18.37	1.64126	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	10yr4/1	Reducing	3					
KB	2	40-50	55	8.77	10.79	5.87	8.33	1.0528	40.14	25.04	1.60304	Rim	Y	Y	N	N	Grit w/ Mica	Fine	5yr6/4	10r4/8	10r4/8	Oxidizing	3		Everted	Pointed		
KB	2	40-50	56	4.43	3.24	3.89	3.565	1.2426	37.52	24.8	1.5129	Body	N	N	N	N	Shell (foraminifera)	Coarse	7.5yr5/2	7.5yr5/2	7.5yr5/2	Reducing	3					
KB	2	40-50	57	0.86	8.44	6.68	7.56	0.1138	19.49	5.5	3.54364	Body	N	N	N	N	Grit w/ Shell	Coarse	2.5yr5/6	2.5yr5/6	2.5yr5/6	Oxidizing	3					
KB	2	40-50	58	0.61	3.93	3.84	3.885	0.157	13.66	9.94	1.37425	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/8	10r4/8	2.5yr5/6	Oxidizing	3					
KB	2	40-50	59	0.49	3.57	3.77	3.67	0.1335	15.67	10.04	1.56076	Body	N	N	N	N	Shell (foraminifera)	Fine	10r6/8	10r6/8	10r6/8	Oxidizing	3					
KB	2	40-50	60	0.63	3.26	3.45	3.355	0.1878	17.51	9.61	1.82206	Body	N	Y	N	N	Grit w/ Coral	Coarse	10r5/6	10r5/6	10r4/6	Oxidizing	3					
KB	2	50-60	1	9.96	8.6	4.87	6.735	1.4788	36.13	31.4	1.15064	Rim	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3		Everted	pointed		
KB	2	50-60	2	47.76	11.19	9.75	10.47	4.5616	66.04	57.72	1.14414	Rim	N	N	N	N	Grit w/ Grog, Mica	Varies	2.5yr5/6	2.5yr5/6	2.5yr5/6	Oxidizing	3		Inverted	Rounded	Roofing Tile	roofing tile?
KB	2	50-60	3	13.43	5.07	3.06	4.065	3.3038	71.14	48.43	1.46892	Body	Y	Y	N	N	Shell (foraminifera)	Fine	5yr6/6	5yr6/4	2.5yr4/4	Oxidizing	3					same as KB.2.40-50.2,3,4 but does not refit
KB	2	50-60	4	19.53	10.2	9.83	10.015	1.9501	58.94	33.79	1.7443	Body	N	N	N	N	Grit w/ Grog, Mica	Varies	2.5yr5/6	2.5yr5/6	2.5yr5/6	Oxidizing	3				Roofing Tile	roofing tile?
KB	2	50-60	5	1.23	5.12	4.6	4.86	0.2531	21.2	11.79	1.79813	Body	N	N	Black Stai	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr3/0	2.5yr5/8	Reducing	3					same interior as kb.2.40-50.51
KB	2	50-60	6	3.35	4.09	4.3	4.195	0.7986	27.85	24.58	1.13303	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/6	2.5yr4/2	Reducing	3					
KB	2	50-60	7	4.96	4.47	3.96	4.215	1.1767	31.92	28.88	1.10526	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
KB	2	50-60	8	4.26	3.9	2.9	3.4	1.2529	33.29	25.06	1.32841	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	2.5yr3/0	Reducing	3					
KB	2	50-60	9	4.83	7.27	4.65	5.96	0.8104	33.41	24.77	1.34881	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/0	10r5/8	10yr3/1	Reducing	3					
KB	2	50-60	10	3.65	6.64	4.43	5.535	0.6594	29.83	20.01	1.49075	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/4	2.5yr5/8	2.5yr5/8	Reducing	3					
KB	2	50-60	11	3.22	4.6	3.97	4.285	0.7515	24.36	22.74	1.07124	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/8	2.5yr6/8	7.5yr5/0	Oxidizing	3					
KB	2	50-60	12	4.64	5.56	5.22	5.39	0.8609	28.16	26.63	1.05745	Body	N	N	N	N	Grit w/ Grog, Mica	Coarse	7.5yr5/2	7.5yr5/6	7.5yr6/4	Reducing	3					
KB	2	50-60	13	4.1	4.52	3.65	4.085	1.0037	29.69	29.62	1.00236	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/0	2.5yr5/6	2.5yr4/6	Reducing	3					refit w/ KB.2.40-50.37
KB	2	50-60	14	1.82	3.96	2.91	3.435	0.5298	29.16	19.43	1.50077	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
KB	2	50-60	15	3.91	4.91	4.82	4.865	0.8037	32.61	25.15	1.29662	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr4/8	2.5yr4/8	Reducing	3					
KB	2	50-60	16	1	3.21	3.28	3.245	0.3082	20.91	17.54	1.19213	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr6/8	2.5yr6/8	2.5yr6/4	Oxidizing	3					
KB	2	50-60	17	0.94	3.97	3.47	3.72	0.2527	21.41	13.14	1.62938	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/2	2.5yr6/6	2.5yr6/6	Reducing	3					
KB	2	50-60	18	1.19	3.91	4.02	3.965	0.3001	22.03	12.39	1.77805	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
KB	2	50-60	19	0.85	4.33	3.57	3.95	0.2152	15.38	15.2	1.01184	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
KB	2	50-60	20	0.76	3.44	3.02	3.23	0.2353	18.87	9.34	2.02034	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	5yr5/6	Reducing	3					
KB	2	50-60	21	1.34	5.29	5.16	5.225	0.2565	16.68	12.21	1.36609	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr3/0	7.5yr4/0	Reducing	3					
KB	2	60-70	1	6.2	5.02	4.69	4.855	1.277	36.81	33.57	1.09651	Body	N	N	N	Coating	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	2.5yr5/2	Reducing	3				L&S #1- Globula	refit w/ 2
KB	2	60-70	2	1.85	5.55	5.17	5.36	0.3451	23.67	12.55	1.88606	Body	N	N	N	Coating	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	2.5yr5/2	Reducing	3				L&S #1- Globula	refit w/ 1,2
KB	2	60-70	3	3.58	5.16	5.68	5.42	0.6605	29.4	18.95	1.55145	Body	N	N	N	Coating	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	2.5yr5/2	Reducing	3				L&S #1- Globula	refit w/ 4,2
KB	2	60-70	4	4.22	5.49	4.32	4.905	0.8603	36.64	22.51	1.62772	Body	N	N	N	Coating	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	2.5yr5/2	Reducing	3				L&S #1- Globula	refit w/ 3,1
KB	2	60-70	5	2.34	5.99	5.45	14.805	0.1581	24.16	14	1.72571	Body	N	N	N	Coating	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	2.5yr5/2	Reducing	3				L&S #1- Globula	refit w/2
KB	2	60-70	6	5.15	6.14	5.7	5.92	0.8699	27.19	25.28	1.07555	Body	N	N	N	Coating	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	2.5yr5/2	Reducing	3				L&S #1- Globula	same as 1-5, but no refit (yet)
KB	2	60-70	7	11.27	6.06	5.77	5.915	1.9053	52.19	33.85	1.5418	Body	N	N	N	Coating	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	2.5yr5/2	Reducing	3				L&S #1- Globula	same as 1-5, but no refit (yet)
KB	2	60-70	8	6.61	6.31	5.48	5.895	1.1213	31.01	27.76	1.11707	Body	N	N	N	Coating	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	2.5yr5/2	Reducing	3				L&S #1- Globula	same as 1-5, but no refit (yet)
KB	2	60-70	9	11.65	5.94	6.82	6.38	1.826	45.65	33.08	1.37999	Body	N	N	N	Coating	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	2.5yr5/2	Reducing	3				L&S #1- Globula	same as 1-5, but no refit (yet)
KB	2	60-70	10	4.21	5.77	5.88	5.825	0.7227	34.03	18.81	1.80914	Body	N	N	N	Coating	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	2.5yr5/2	Reducing	3				L&S #1- Globula	same as 1-5, but no refit (yet)
KB	2	60-70	11	26.02	6.32	6.14	6.23	4.1766	61.01	48.68	1.25329	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/0	5yr6/6	2.5yr6/8	Reducing	3				L&S #1- Globula	refit w/ 12
KB	2	60-70	12	9.25	7.32	5.68	6.5	1.4231	48.34	20.58	2.34888	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/0	5yr6/6	2.5yr6/8	Reducing	3				L&S #1- Globula	refit w/ 11
KB	2	60-70	13	0.84	2.38	2.51	2.445	0.3436	16.61	16.5	1.00667	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr3/0	2.5yr4/2	Oxidizing	3					
KB	2	60-70	14	7.77	6.7	6.49	6.595	1.1782	38.82	28.66	1.3545	Body	N	N	N	N	Shell (foraminifera)	Coarse	10yr5/1	2.5yr3/0	10yr5/2	Reducing	3				L&S #1- Globula	refit w/ 15
KB	2	60-70	15	14.35	6.63	4.54	5.585	2.5694	47.58	44	1.08136	Body	N	N	N	N	Shell (foraminifera)	Coarse	10yr5/1	2.5yr3/0	10yr5/2	Reducing	3				L&S #1- Globula	refit w/ 14
KB	2	60-70	16	12.23	5.17	5.95	5.56	2.1996	58.83	45.29	1.29896	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr5/6	7.5yr6/6	Reducing	3					
KB	2	60-70	17	15.22	7.72	4.95	6.335	2.4025	63.48	41.2	1.54078	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/8	7.5yr6/6	Reducing	3				L&S #1- Globula	same as 18, but no refit
KB	2	60-70	18	19.58	6.55	3.55	5.05	3.8772	71.88	47.25	1.52127	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/8	7.5yr6/6	Reducing	3				L&S #1- Globula	same as 17, but no refit
KB	2	60-70	19	5.44	4.58	5.16	4.87	1.117	38.04	30.02	1.26716	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr4/0	2.5yr5/8	Reducing	3					
KB	2	60-70	20	3.88	4.01	3.91	3.96	0.9798	32.94	24.38	1.35111	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
KB	2	60-70	21	19.66	4.57	3.6	4.085	4.8127	72.86	56.63	1.2866	Body	N	N	Black Stai	Punctate	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/8	2.5yr6/8	Reducing	3	Semi-Circular Stat	Inverted	Flat	L&S #1- Globula	on int. some white dribbling on ext.refit w/ 31, 32
KB	2	60-70	22	29.65	5.41	4.42	4.915	6.0326	92.42	65.7	1.4067	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr5/0	Reducing	3					firing clouds on ext
KB	2	60-70	23	12.43	7.34	6.52	6.93	1.7937	47.22	33.59	1.40578	Body	N	N	N	N	Shell (foraminifera)	Coarse	7.5yr5/0	5yr6/6	7.5yr6/4	Reducing	3					
KB	2	60-70	24	7.49	8.2	6.8	7.5	0.9987	36.74	24.42	1.5045	Body	Y	Y	Paint	N	Grit w/ Lava, Mica	Coarse	2.5yr5/6	2.5yr5/6	2.5yr5/6	Oxidizing	3					horizontal red lines painted on int. crumbly, multiple pcs glued together, some disintegrated, tho.
KB	2	60-70	25	7.03	6.94	7.44	7.19	0.9777	28.38	27.38	1.03652	Body	N	N	N	N	Shell (foraminifera)	Fine	10r6/6	10r6/6	10r6/6	Oxidizing	3					
KB	2	60-70	26	6.92	3.59	3.4	3.495	1.98	41.17	38.38	1.07269	Shoulder	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr4/0	Reducing	3					refit w/ 27
KB	2	60-70	27	5.44	3.32	4.17	3.745	1.4526	35.27	33.14	1.06427	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr4/0	Reducing	3					refit w/ 26
KB	2	60-70	28	4.77	4.25	3.37	3.81	1.252	39.85	29.01	1.37366	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/0	2.5yr5/8	10yr5/1	Reducing	3					
KB	2	60-70	29	8.24	7.3	5.18	6.24	1.3205	39.64	34.11	1.16212	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	2.5yr3/0	Reducing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
KB	2	60-70	30	7.72	6.17	4.75	5.46	1.4139	33.32	30.88	1.07902	Rim	Y	Y	N	N	Grit w/ Mica	Fine	10r4/8	10r4/8	10r3/4	Oxidizing	3		Everted	Pointed		
KB	2	60-70	31	82.31	12.17	4.66	8.415	9.7813	107.23	64.02	1.67495	Rim	N	N	N	Punctate	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/8	7.5yr5/0	Reducing	3	Semi-Circular Stat	Inverted	Flat	L&S #1- Globula	refit w/ 32, 21
KB	2	60-70	32	26.83	8.67	4.32	6.495	4.1309	104.63	42.26	2.47586	Body	N	N	N	Punctate	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/8	10r6/8	Reducing	3	Semi-Circular Stat	Inverted	Flat	L&S #1- Globula	refit w/ 31
KB	2	60-70	33	4.17	6.09	5.96	6.025	0.6921	35.07	19.92	1.76054	Body	Y	Y	N	N	Shell (foraminifera)	Fine	10r5/3	10r4/8	10r4/8	Oxidizing	3					
KB	2	60-70	34	3.3	3.96	3.74	3.85	0.8571	37.3	21.19	1.76026	Body	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/6	5yr4/2	10r4/6	Oxidizing	3					same as KB.2.20-30.19
KB	2	60-70	35	2.89	6.24	5.41	5.825	0.4961	32.43	17.95	1.80669	Body	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr3/0	10r5/8	Reducing	3					
KB	2	60-70	36	2.4	5.24	5.29	5.265	0.4558	28.17	17.62	1.59875	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/8	10r6/8	Reducing	3					
KB	2	60-70	37	2.28	4.74	5.51	5.125	0.4449	21.85	15.39	1.41975	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	10r5/8	10r5/8	Reducing	3					
KB	2	60-70	38	1.06	3.84	3.59	3.715	0.2853	20.51	15.05	1.36279	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr7/2	2.5yr5/6	7.5yr4/0	Reducing	3					
KB	2	60-70	39	3.67	4.63	3.51	4.07	0.9017	34.3	25.9	1.32432	Body	N	N	N	N	Shell (foraminifera)	Coarse	7.5yr4/0	2.5yr3/0	5yt6/3	Reducing	3					
KB	2	60-70	40	2.2	4.51	4.38	4.445	0.4949	26.14	17.69	1.47767	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	7.5yr6/4	7.5yr6/4	7.5yr6/4	Oxidizing	3					
KB	2	60-70	41	3.3	4.53	3.32	3.925	0.8408	30.37	21.16	1.43526	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	5yr5/6	7.5yr4/2	Reducing	3					
KB	2	60-70	42	5.58	8.02	6.26	7.14	0.7815	30.16	30.04	1.00399	Rim	N	N	N	N	Grit w/ Mica, Shell	Fine	2.5yr5/0	2.5yr5/8	7.5yr6/4	Reducing	3		Straight	Crenalated, flat		
KB	2	60-70	43	3.95	4.17	3.7	3.935	1.0038	30.06	28.69	1.04775	Body	N	Y	N	N	Grit w/ Coral, Mica	Fine	10r4/8	10r4/8	2.5yr4/4	Oxidizing	3					
KB	2	60-70	44	4.97	4.95	4.42	4.685	1.0608	28.33	27.17	1.04269	Body	N	N	N	N	Shell (foraminifera)	Coarse	7.5yr5/0	10yr4/1	7.5yr4/0	Reducing	3					
KB	2	60-70	45	3.74	5.28	4.62	4.95	0.7556	27.74	24.86	1.11585	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/8	7.5yr5/2	Reducing	3					
KB	2	60-70	47	3.76	5.47	4.51	4.99	0.7535	30.43	22.22	1.36949	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr6/1	7.5yr6/4	7.5yr5/2	Reducing	3					
KB	2	60-70	48	1.63	5.57	3.99	4.78	0.341	24.61	17.35	1.41844	Body	N	N	N	N	Grit w/ Lava	Fine	2.5yr4/8	2.5yr4/8	2.5yr4/6	Oxidizing	3					
KB	2	60-70	49	2.23	3.89	2.29	3.09	0.7217	28.69	19.93	1.43954	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/6	2.5yr5/6	2.5yr5/6	Oxidizing	3					
KB	2	60-70	50	1.3	4.73	4.34	4.535	0.2867	19.33	13.71	1.40992	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/2	2.5yr5/6	2.5yr4/6	Reducing	3					
KB	2	60-70	51	1.36	4.47	2.92	17.985	0.0756	19.56	16.41	1.19196	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
KB	2	60-70	52	1.14	2.95	2.91	2.93	0.3891	19.53	14.6	1.33767	Body	N	N	N	N	Grit w/ Mica	Fine	2.5yr4/2	2.5yr4/2	2.5yr4/4	Oxidizing	3					
KB	2	60-70	53	1.39	2.68	2.58	2.63	0.5285	22.4	16.79	1.33413	Body	N	N	N	N	Grit w/ Grog	Coarse	5yr6/6	5yr6/6	5yr6/6	Oxidizing	3					
KB	2	70-80	1	65.05	9.06	4.64	6.85	9.4964	95.07	86.78	1.09553	Rim	N	N	N	Incising	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	7.5yr6/6	Reducing	3	Incise-Star	Everted		L&S #1- Globula	double incised triangle; refit w/ 2, 3
KB	2	70-80	2	44.94	9.3	5.56	7.43	6.0485	101.78	45.55	2.23447	Rim	N	N	N	N	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	7.5yr6/6	Reducing	3	Incise-Star	Everted		L&S #1- Globula	refit w/ 1
KB	2	70-80	3	18.37	6.9	3.9	5.4	3.4019	79.76	46.29	1.72305	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	7.5yr6/6	Reducing	3	Incise-Star			L&S #1- Globula	refit w/ 1,2
KB	2	70-80	4	35.39	6.43	4.36	5.395	6.5598	89.44	69.12	1.29398	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	7.5yr6/6	Reducing	3	Incise-Star			L&S #1- Globula	refit w/ 2
KB	2	70-80	5	3.54	6.51	6.03	6.27	0.5646	22.86	24.64	0.92776	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	7.5yr6/6	Reducing	3	Incise-Star			L&S #1- Globula	refit w/ 4,2
KB	2	70-80	6	10.2	4.41	4.03	4.22	2.4171	61.85	58.31	1.06071	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	7.5yr6/6	Reducing	3	Incise-Star			L&S #1- Globula	refit w/ 3,4
KB	2	70-80	7	3.5	4.51	3.4	3.955	0.885	39.32	29.56	1.33018	Body	N	N	N	Incising	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	7.5yr6/6	Reducing	3	Incise-Star			L&S #1- Globula	incised asterisk; 2 pcs glued together, refit
KB	2	70-80	8	10.9	4.4	2.46	3.43	3.1778	21.26	59.04	0.36009	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	7.5yr6/6	Reducing	3	Incise-Star			L&S #1- Globula	refit w/ 7, 1
KB	2	70-80	9	25.24	7.87	5.05	6.46	3.9071	68.73	50.12	1.37131	Body	N	N	N	Incising	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr5/6	Reducing	3	Perpendicular Inci	Inverted	Flat	L&S #1- Globula	refit w/ 10, 11
KB	2	70-80	10	4.02	7.53	6.4	6.965	0.5772	22.58	20.67	1.0924	Body	N	N	N	Incising	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr5/6	Reducing	3	Perpendicular Inci	Inverted	Flat	L&S #1- Globula	refit w/ 9, 11
KB	2	70-80	11	68.57	15.45	7.78	11.615	5.9036	76.98	54.2	1.4203	Rim	N	N	N	Incising	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr5/6	Reducing	3	Perpendicular Inci	Inverted	Flat	L&S #1- Globula	refit w/ 9, 12
KB	2	70-80	12	6.9	6.71	3.79	21.46	0.3215	39.13	22.54	1.73602	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr5/6	Reducing	3		Inverted	Flat	L&S #1- Globula	refit w/ 11
KB	2	70-80	13	3.34	10.33	7.47	8.9	0.3753	24.02	17.1	1.40468	Body	N	N	N	Incising	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr5/6	Reducing	3	Perpendicular Inci	Inverted	Flat	L&S #1- Globula	refit w/
KB	2	70-80	14	31.57	15.4	7.94	11.67	2.7052	61.31	44.76	1.36975	Rim	N	N	N	Incising	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr5/6	Reducing	3	Perpendicular Inci	Inverted	Flat	L&S #1- Globula	refit w/
KB	2	70-80	15	64.85	14.71	9.94	12.325	5.2617	110.55	29.3	3.77304	Rim	N	N	N	Punctate	Shell (foraminifera)	Fine	7.5yr5/2	10r6/8	10r6/8	Reducing	3	Semi-Circular Stat	Inverted	Flat	L&S #1- Globula	refit w/ 16, 17
KB	2	70-80	16	21.57	10.5	6.68	8.59	2.5111	42.89	40.71	1.05355	Body	N	N	N	Punctate	Shell (foraminifera)	Fine	7.5yr5/2	10r6/8	10r6/8	Reducing	3	Semi-Circular Stat	Inverted	Flat	L&S #1- Globula	refit w/ 15,17
KB	2	70-80	17	31.9	5.79	10.14	7.965	4.005	71.76	39.6	1.81212	Body	N	N	N	Punctate	Shell (foraminifera)	Fine	7.5yr5/2	10r6/8	10r6/8	Reducing	3	Semi-Circular Stat	Inverted	Flat	L&S #1- Globula	refit w/ 15, 16
KB	2	70-80	18	13.09	8.65	8.52	8.585	1.5248	42.05	33.22	1.2658	Body	N	N	N	N	Grit w/ Lava	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	4					roofing tile?
KB	2	70-80	19	45.44	9.49	5.94	7.715	5.8898	93.16	34.29	2.71683	Rim	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/6	2.5yr5/6	Reducing	3		Everted	pointed		
KB	2	70-80	20	59.22	11.52	5.21	8.365	7.0795	96.59	70.39	1.37221	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	10r6/8	10r6/8	Reducing	3					
KB	2	70-80	21	34.54	8.13	7.89	8.01	4.3121	73.62	62.56	1.17679	Body	Y	Y	N	N	Shell (foraminifera)	Fine	7.5yr6/2	10r3/6	10r4/6	Reducing	3					
KB	2	70-80	22	24.98	17.61	5.14	11.375	2.196	61.63	41.03	1.50207	Rim	Y	Y	N	Impress	Shell (foraminifera)	Fine	7.5yr6/2	10r4/8	10r4/8	Reducing	3	Impress on Rim	Everted	Rounded		
KB	2	70-80	23	21.92	5.14	5.61	5.375	4.0781	77.97	55.19	1.41276	Body	Y	Y	N	N	Shell (foraminifera)	Fine	5yr6/4	5yr6/4	10r4/6	Oxidizing	3					
KB	2	70-80	24	25.96	15.12	9.04	12.08	2.149	47.39	33.13	1.43043	Rim	Y	Y	N	N	Shell (foraminifera)	Fine	7.5yr4/0	10r4/6	10r4/6	Reducing	3		Inverted	rounded		
KB	2	70-80	25	5.93	7.25	6.69	6.97	0.8508	29.92	23.69	1.26298	Body	Y	Y	N	N	Shell (foraminifera)	Fine	7.5yr5/0	10r4/6	10r4/8	Reducing	3					
KB	2	70-80	26	8.92	8.61	7.14	7.875	1.1327	34.3	29.38	1.16746	Body	Y	Y	N	N	Shell (foraminifera)	Fine	7.5yr4/0	10r4/6	5yr5/6	Reducing	3					
KB	2	70-80	27	4.02	3.05	3.77	3.41	1.1789	38.98	28.78	1.35441	Body	Y	N	N	N	Grit w/ Coral, Mica	Fine	10r4/6	2.5yr3/0	10r4/6	Oxidizing	3					
KB	2	70-80	28	11.43	6.38	6.16	6.27	1.823	63.63	35.78	1.77837	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr6/2	2.5yr5/8	2.5yr5/8	Reducing	3					
KB	2	70-80	29	5.02	3.36	3.17	3.265	1.5375	44.93	35.4	1.26921	Body	N	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/4	2.5yr4/2	2.5yr2.5/2	Oxidizing	3					
KB	2	70-80	30	3.54	7.47	6.52	6.995	0.5061	23.96	21.99	1.08959	Base	N	N	N	N	Shell (foraminifera)	Fine	7.5yr4/0	7.5yr6/2	5yr6/6	Reducing	3					carinated base?
KB	2	70-80	31	2.56	5.1	4.76	4.93	0.5193	30.52	20.3	1.50345	Body	N	N	N	N	Grit w/ Coral, Grog	Coarse	7.5yr5/2	7.5yr5/2	7.5yr5/2	Reducing	3					
KB	2	70-80	32	14.08	6.72	3.68	5.2	2.7077	52.82	48.62	1.08638	Body	N	N	N	N	Shell (foraminifera)	Coarse	7.5yr5/2	2.5yr5/8	2.5yr5/8	Reducing	3					
KB	2	70-80	33	3.69	4.49	3.99	4.24	0.8703	30.39	25.56	1.18897	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	2.5yr4/0	2.5yr4/6	10r4/8	Reducing	3					
KB	2	70-80	34	8.51	5.41	4.73	5.07	1.6785	44.15	39.39	1.12084	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	2.5yr6/8	Reducing	3					
KB	2	70-80	35	4.42	5.97	5.76	5.865	0.7536	30.47	25.46	1.19678	Body	N	N	N	Coating	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	2.5yr5/2	Reducing	3					same as KB.2.60-70.1-5, but no refit (yet)
KB	2	70-80	36	2.81	5.93	5.91	5.92	0.4747	22.35	19.89	1.12368	Body	N	N	N	Coating	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	2.5yr5/2	Reducing	3					same as KB.2.60-70.1-5, but no refit (yet)
KB	2	70-80	37	2.8	6.29	5.75	6.02	0.4651	24.94	17.84	1.39798	Body	N	N	N	Coating	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	2.5yr5/2	Reducing	3					same as KB.2.60-70.1-5, but no refit (yet)
KB	2	70-80	38	12.07	5.03	5.24	5.135	2.3505	58.8	29.2	2.0137	Body	Y	Y	Black Stai	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	10yr5/1	Reducing	3					
KB	2	70-80	39	2.13	4.45	4.31	4.38	0.4863	28.44	20.31	1.4003	Body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
KB	2	70-80	40	1	3.71	3.48	3.595	0.2782	18.33	18.1	1.01271	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	7.5yr6/6	Reducing	3	Incise-Star			L&S #1- Globula	refit w/ 1, 41
KB	2	70-80	41	1.17	3.57	3.22	3.395	0.3446	23.26	16.84	1.38124	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	7.5yr6/6	Reducing	3	Incise-Star			L&S #1- Globula	refit w/ 40, 3
KB	2	70-80	42	0.93	3.41	2.8	3.105	0.2995	19.67	17.92	1.09766	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	7.5yr6/6	Reducing	3	Incise-Star			L&S #1- Globula	refit w/ 6, 41
KB	2	70-80	43	0.93	3.63	3.05	3.34	0.2784	24.49	13.21	1.8539	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	7.5yr6/6	Reducing	3	Incise-Star			L&S #1- Globula	same as 1-7, & 40-45
KB	2	70-80	44	1.13	3.39	2.81	3.1	0.3645	23.34	17.61	1.32538	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	7.5yr6/6	Reducing	3	Incise-Star			L&S #1- Globula	same as 1-7, & 40-45
KB	2	70-80	45	0.59	3.12	3.26	3.19	0.185	17.66	11.68	1.51199	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr5/1	10yr5/1	7.5yr6/6	Reducing	3	Incise-Star			L&S #1- Globula	same as 1-7, & 40-45
KB	2	70-80	46	9.11	6.28	4.73	5.505	1.6549	42.23	41.45	1.01882	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr6/2	10r5/8	10r5/8	Reducing	3					
KB	2	70-80	47	3.56	5	5.1	5.05	0.705	32.64	18.64	1.75107	Body	N	N	Black Stai	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr4/8	10yr5/1	Reducing	3					
KB	2	70-80	48	2.18	3.27	3.55	3.41	0.6393	25.11	21.95	1.14396	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/6	2.5yr3/0	Reducing	3					
KB	2	70-80	49	4.48	5.01	5.35	5.18	0.8649	33.47	19.93	1.67938	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr5/8	Oxidizing	3					
KB	2	70-80	50	3.29	6.1	5.38	5.74	0.5732	32.72	17.59	1.86015	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr6/2	10r5/8	10r5/8	Reducing	3					
KB	2	70-80	51	1.91	4.15	4.4	4.275	0.4468	22.02	19.65	1.12061	Body	N	N	N	Paint	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/0	2.5yr6/8	Reducing	3	Red and White Paint				
KB	2	70-80	52	2.13	3.08	3.51	3.295	0.6464	31.47	22.31	1.41058	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr4/6	2.5yr4/2	Reducing	3					
KB	2	70-80	53	2.66	5.87	3	4.435	0.5998	25.15	19.67	1.2786	Shoulder	Y	Y	N	N	Grit w/ Mica	Fine	10r4/6	10r4/6	10r4/6	Oxidizing	3					
KB	2	70-80	54	1.35	4.42	3.99	4.205	0.321	16.95	16.13	1.05084	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
KB	2	70-80	55	3.17	3.96	3.1	3.53	0.898	27.49	26.06	1.05487	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	2.5yr5/6	Reducing	3					
KB	2	70-80	56	2.7	4.18	3.82	4	0.675	31.12	18.65	1.66863	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	2.5yr5/8	Reducing	3					refit w/ 32
KB	2	70-80	57	2.72	4.48	4.71	4.595	0.5919	28.88	21.92	1.31752	Body	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/2	2.5yr3/0	10r3/2	Reducing	3					
KB	2	70-80	58	1.82	4.1	4.04	4.07	0.4472	23.7	20.89	1.13451	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/1	5yr5/6	5yr5/6	Reducing	3					
KB	2	70-80	59	0.96	2.9	2.55	2.725	0.3523	23.79	13.35	1.78202	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
KB	2	70-80	60	0.99	3.24	3.79	3.515	0.2817	21.54	16.61	1.29681	Body	N	Y	N	N	Grit w/ Mica	Fine	10r4/6	10r4/6	10r4/6	Oxidizing	3					
KB	2	70-80	61	1.46	4.13	3.86	3.995	0.3655	23.04	15.37	1.49902	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/2	2.5yr5/0	10r5/8	Oxidizing	3					
KB	2	70-80	62	1.13	4.11	4.53	4.32	0.2616	21.53	14.23	1.513	Body	N	N	N	N	Shell (foraminifera)	Varies	10r5/8	10r5/8	10r5/8	Oxidizing	3					
KB	2	70-80	63	0.71	3.77	3.17	3.47	0.2046	17.05	15.76	1.08185	Body	N	N	N	N	Shell (foraminifera)	Fine	10r5/8	10r5/8	10r5/8	Oxidizing	3					
KB	2	70-80	64	0.91	3.06	4.48	3.77	0.2414	24.38	11.87	2.05392	Body	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/4	10r4/4	10r4/6	Oxidizing	3					

Site	Unit	Level (cm)	Sherd #	Weight (g)	Thick 1 (mm)	Thick 2 (mm)	Av. Thick (mm)	g/mm	Max (mm) length	Min (mm) width	Max/Min (mm)	Vessel Part	Interior Slip (Y/N)	Exterior Slip (Y/N)	Int. Surface Trtment	Ext. Surface Trtment	Temper Type	Temper Size	Core Color-munsell	Interior Color-munsell	Exterior Color-munsell	Core	Moh's Hardness	Typology	Rim	Lip	Form	Comments
KB	2	70-80	65	35.91	4.82	3.91	4.365	8.2268	76.44	76.17	1.00354	Shoulder	N	Y	N	Paint	Shell (foraminifera)	Coarse	7.5yr4/0	10yr5/1	7.5yr7/2	Reducing	3	Red and White Paint				red paint on white background. Lots of
KB	2	70-80	66	1.17	2.79	2.44	2.615	0.4474	22.45	19.27	1.16502	Body	N	Y	N	Paint	Shell (foraminifera)	Coarse	2.5yr5/0	10yr5/1	7.5yr7/2	Reducing	3	Red and White Paint				red paint on white background. Lots of
KB	2	70-80	67	3.1	3.77	2.32	3.045	1.0181	31.77	31.63	1.00443	Body	N	Y	N	Paint	Shell (foraminifera)	Coarse	7.5yr4/0	10yr5/1	7.5yr7/2	Reducing	3	Red and White Paint				red paint on white background. Lots of
KB	2	70-80	68	9.83	8.78	4.72	6.75	1.4563	50.42	35.26	1.42995	Shoulder	N	Y	N	Paint	Shell (foraminifera)	Coarse	7.5yr4/0	10yr5/1	7.5yr7/2	Reducing	3	Red and White Paint				red paint on white background. Lots of
KB	2	70-80	69	10.25	11.05	5.32	8.185	1.2523	49.99	27.71	1.80404	Base	N	Y	N	Paint	Shell (foraminifera)	Coarse	7.5yr4/0	10yr5/1	7.5yr7/2	Reducing	3	Red and White Paint			L&S #5- Ring-foo	red paint on white background. Lots of
KB	2	70-80	70	4.53	3.2	2.77	2.985	1.5176	42.7	27.07	1.57739	Body	N	Y	N	Paint	Shell (foraminifera)	Coarse	7.5yr4/0	10yr5/1	7.5yr7/2	Reducing	3	Red and White Paint				red paint on white background. Lots of
KB	2	70-80	71	3.01	4.24	3.43	3.835	0.7849	41.11	16.32	2.519	Body	N	Y	N	Paint	Shell (foraminifera)	Coarse	7.5yr4/0	10yr5/1	7.5yr7/2	Reducing	3	Red and White Paint				red paint on white background. Lots of
KB	2	70-80	72	0.82	3.47	3.62	3.545	0.2313	16.94	15.74	1.07624	Body	N	Y	N	Paint	Shell (foraminifera)	Coarse	7.5yr4/0	10yr5/1	7.5yr7/2	Reducing	3	Red and White Paint				red paint on white background. Lots of
KB	2	70-80	73	1.71	5.14	4.18	4.66	0.367	21.73	20.92	1.03872	Body	N	Y	N	Paint	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr6/6	2.5yr5/8	Reducing	3	Red and White Paint				red paint on white background. Lots of
KB	2	70-80	74	1.7	3.92	3.3	3.61	0.4709	24.1	17.5	1.37714	Body	N	Y	N	Paint	Shell (foraminifera)	Coarse	2.5yr6/8	2.5yr6/8	2.5yr5/6	Reducing	3	Red and White Paint				red paint on white background. Lots of
KB	2	70-80	75	0.42			0					Bits																
KB	2	80-90	1	73.89	5.53	3.46	4.495	16.438	116.33	139.7	0.83271	Body	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/0	10r4/8	10r4/8	Reducing	3					same as KB.2.20-30.24, etc
KB	2	80-90	2	66.72	10.27	3.99	7.13	9.3576	108.53	66.9	1.62227	Rim	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	7.5yr5/2	Reducing	3		Everted	Flat	L&S #1- Globula	firing clouds. Refit w/ 2
KB	2	80-90	3	13.8	8.55	5.6	7.075	1.9505	55.32	30.12	1.83665	Rim	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	7.5yr5/2	Reducing	3		Everted	Flat	L&S #1- Globula	refit w/ 1
KB	2	80-90	4	8.27	5.1	5.78	5.44	1.5202	44.21	30.57	1.44619	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	7.5yr5/2	Reducing	3		Everted	Flat	L&S #1- Globula	refit w/3
KB	2	80-90	5	6.24	5.8	5.04	5.42	1.1513	38.65	29.43	1.31329	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	7.5yr5/2	Reducing	3		Everted	Flat	L&S #1- Globula	refit w/ 3
KB	2	80-90	6	2.09	5.56	5.14	5.35	0.3907	23.67	19.5	1.21385	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	7.5yr5/2	Reducing	3		Everted	Flat	L&S #1- Globula	refit w/ 4, 5
KB	2	80-90	7	1.9	4.77	4.56	4.665	0.4073	18.8	17.61	1.06758	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	7.5yr5/2	Reducing	3		Everted	Flat	L&S #1- Globula	refit w/ 6
KB	2	80-90	8	4.29	5.78	5.38	5.58	0.7688	35.04	21.21	1.65205	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	7.5yr5/2	Reducing	3		Everted	Flat	L&S #1- Globula	refit w/ 5,6,7
KB	2	80-90	9	38.41	16.84	5.51	11.175	3.4371	75.88	70.86	1.07084	Rim	Y	Y	N	N	Shell (foraminifera)	Fine	7.5yr6/2	5yr4/3	10r4/6	Oxidizing	3		Everted	Flat		
KB	2	80-90	10	1.34	3.57	3.27	3.42	0.3918	31.58	16.28	1.9398	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	7.5yr5/2	Reducing	3		Everted	Flat	L&S #1- Globula	refit w/ 2. 3 tiny pcs glued together
KB	2	80-90	11	20.11	6.46	5.78	6.12	3.2859	81.48	35.18	2.31609	Body	N	N	N	N	Shell (foraminifera)	Coarse	10yr5/1	10r5/8	7.5yr4/0	Reducing	3					
KB	2	80-90	12	17.37	7.58	4.19	5.885	2.9516	49	47.58	1.02984	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr6/1	5yr3/1	10yr5/2	Reducing	3					
KB	2	80-90	13	18	8.79	5.3	7.045	2.555	58.03	35.03	1.65658	Base	Y	Y	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	5yr5/3	Reducing	3					
KB	2	80-90	14	4.98	5.53	3.73	4.63	1.0756	38.94	28.81	1.35161	Shoulder	N	N	N	N	Shell (foraminifera)	Coarse	10yr5/1	5yr5/6	5yr5/8	Reducing	3					
KB	2	80-90	15	17.95	8.71	6.83	7.77	2.3102	52.19	42.17	1.23761	Body	N	N	N	N	Shell (foraminifera)	Fine	10yr6/2	5yr6/2	10yr6/2	Reducing	3					very flat
KB	2	80-90	16	7.47	4.81	2.84	3.825	1.9529	41.41	34	1.21794	Body	Y	Y	N	N	Shell (foraminifera)	Fine	2.5yr5/8	2.5yr5/8	2.5yr4/8	Reducing	3					
KB	2	80-90	17	2.86	4.76	4.05	4.405	0.6493	34.08	22.19	1.53583	Body	N	N	N	N	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr6/4	7.5yr6/4	Reducing	3					
KB	2	80-90	18	2.7	5.34	5.2	5.27	0.5123	23.45	18.71	1.25334	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/4	5yr5/6	5yr6/6	Oxidizing	3					
KB	2	80-90	19	2.76	6.06	6.09	6.075	0.4543	25.57	20.71	1.23467	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr5/0	2.5yr5/8	2.5yr5/8	Reducing	3					
KB	2	80-90	20	2.87	4.36	4.02	4.19	0.685	23.72	23.17	1.02374	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	2.5yr4/8	2.5yr4/6	2.5yr4/6	Oxidizing	3					
KB	2	80-90	21	1.56	3.11	3.47	3.29	0.4742	27.32	18.53	1.47437	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/6	2.5yr6/8	Reducing	3					
KB	2	80-90	22	1.81	4.6	3.92	4.26	0.4249	21.33	19.87	1.07348	Body	Y	Y	N	Paint	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/6	2.5yr6/6	Oxidizing	3	Red Paint				red paint on ext. too small to tell design
KB	2	80-90	23	0.98	3.33	3.16	3.245	0.302	21.17	13.08	1.6185	Body	Y	Y	N	Paint	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr6/6	2.5yr6/6	Oxidizing	3	Red Paint				red paint on ext. too small to tell design
KB	2	80-90	24	0.8	5.84	5.08	5.46	0.1465	13.34	13.15	1.01445	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr5/0	2.5yr5/8	2.5yr5/8	Reducing	3					
KB	2	80-90	25	1.2	3.88	3.29	3.585	0.3347	18.4	14.09	1.30589	Body	N	Y	N	N	Grit w/ Coral, Mica	Fine	10r4/8	10r4/3	10r3/6	Oxidizing	3					
KB	2	80-90	26	1.41	6.26	7.08	6.67	0.2114	17.54	14.88	1.17876	Body	Y	Y	N	N	Grit w/ Lava	Fine	7.5yr5/2	10r3/6	10r4/8	Reducing	3					white coating around exposed edges and int, but not ext.
KB	2	80-90	27	0.7	3.87	3.93	3.9	0.1795	13.37	12.37	1.08084	Body	Y	Y	N	N	Grit w/ Coral	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
KB	2	80-90	28	1.03	3.29	3.22	3.255	0.3164	15.95	14.2	1.12324	Body	N	N	N	N	Grit w/ Coral, Mica	Fine	10r4/8	10r4/8	10r4/8	Oxidizing	3					
KB	2	80-90	29	1.55	5.55	6.3	5.925	0.2616	15.37	12.72	1.20833	Body	N	N	N	Incising	Shell (foraminifera)	Fine	7.5yr5/0	7.5yr6/4	10r5/8	Reducing	3	Single Incise				
KB	2	80-90	30	0.59	2.08	2.25	2.165	0.2725	21.19	12.47	1.69928	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
KB	2	90-100	1	14.71	9.45	7.21	8.33	1.7659	53.15	22.88	2.32299	Rim	Y	Y	N	Paint	Shell (foraminifera)	Fine	2.5yr6/6	10yr6/4	10yr6/4	Oxidizing	3	Red Paint	Everted	Rounded		
KB	2	90-100	2	7.86	7.73	7.47	7.6	1.0342	33.78	23.69	1.42592	Rim	Y	Y	N	N	Shell (foraminifera)	Varies	2.5yr5/0	2.5yr5/8	2.5yr5/8	Reducing	3		Straight	pointed		
KB	2	90-100	3	3.96	5.25	4.9	5.075	0.7803	27.81	26.79	1.03807	Body	N	N	N	N	Shell (foraminifera)	Coarse	2.5yr4/0	2.5yr5/8	10yr6/2	Reducing	3					
KB	2	90-100	4	1.61	5.06	4.94	5	0.322	18.75	16.24	1.15456	Body	N	N	N	N	Shell (foraminifera)	Coarse	10r5/6	10r5/8	2.5yr5/2	Oxidizing	3					
KB	2	90-100	5	1.09	3.79	3.33	3.56	0.3062	22.48	22.07	1.01858	Body	N	N	N	N	Shell (foraminifera)	Fine	5yr5/2	5yr5/2	10r5/8	Oxidizing	3					
KB	2	90-100	6	0.63	5.36	5.18	5.27	0.1195	15.65	10.07	1.55412	Body	N	N	N	N	Shell (foraminifera)	Fine	2.5yr4/0	2.5yr5/8	2.5yr5/6	Reducing	3					
KB	2	90-100	7	1.43	3.32	3.43	3.375	0.4237	27.32	16.59	1.64678	Body	Y	Y	N	N	Grit w/ Coral, Mica	Fine	10r4/8	2.5yr4/6	10r4/8	Oxidizing	3					
KB	2	90-100	8	0.59	1.83	1.74	1.785	0.3305	17.41	16.23	1.0727	Body	Y	Y	N	N	Grit w/ Coral	Fine	10r4/8	5yr4/4	10r4/8	Oxidizing	3					
KB	2	90-100	9	0.94	3.91	3.39	3.65	0.2575	15.04	13.09	1.14897	Body	N	Y	N	N	Grit w/ Coral, Mica	Fine	10r5/6	10r5/6	10r4/6	Oxidizing	3					
KB	2	90-100	10	2.21	3.17	2.67	2.92	0.7568	23.59	22.95	1.02789	Body	N	Y	N	N	Grit w/ Coral	Coarse	2.5yr4/8	2.5yr4/2	10r4/8	Oxidizing	3					
KB	2	90-100	11	1.43	3.19	3.11	3.15	0.454	23.68	17.24	1.37355	Body	N	N	N	N	Grit w/ Coral, Lava, Mica	Coarse	2.5yr4/6	2.5yr5/4	2.5yr4/6	Oxidizing	3					
KB	2	90-100	12	3.6	5.78	4.82	5.3	0.6792	29.5	21.16	1.39414	Body	N	N	N	N	Grit w/ Coral, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					
KB	2	90-100	13	1.72	3	2.46	2.73	0.63	25.52	19.26	1.32503	body	N	N	N	N	Grit w/ Coral, Grog, Mica	Coarse	10r4/8	10r4/8	10r4/8	Oxidizing	3					

Appendix C

Tradeware Analysis

Site	Unit	Level	Sherd #	Vessel part	Vessel Style	Int. Surface Trtment	Ext. Surface Trtment	Typological Designation	Euro/ Asian	date	comments
OR	1	Sur	1	body	plate?	hand paint	n		E		print? blue flowers. Crazing on int and ext
OR	1	Sur	2	rim	plate	hand paint	n		A		over glaze ~55cm thick. Abstract band around edge, possible medallion in middle
OR	1	Sur	3	rim	bowl	hand paint	hand paint		A		over glaze ~35mm thick. Rim painted blue on int and ext. band on int w/ thin blue bottom border and abstract S b/w rim and bottom. Unid'd abstract design on ext, blue w/ some green.
OR	1	Sur	4	rim	unk	hand paint	hand paint		A		"pink" core. Hand painted. Blue on rim. Designs on int and ext, too small to discern.
OR	1	0-10	1	rim	plate?	hand paint		English pearlw	E	1770-1830	green drip on rim. English pearlware
OR	1	0-10	2	rim	bowl?	hand paint			A		hand paint blue on int, top of rim
OR	1	0-10	3	body	bowl	n	n		Unk		no dec
OR	1	0-10	4	body	unk	hand paint			A		hand paint blue on int
OR	1	0-10	5	rim	unk	n	hand paint	batavia ware?	C	1700-1780	brown edge on rim
OR	1	0-10	6	body	unk	n	hand paint		A		blue hand paint design
OR	1	0-10	7	body	unk	n	n		Unk		too small to tell what it is
OR	1	0-10	8	body	unk	n	n		Unk		too small to tell what it is
OR	1	10-20 P	1	rim	plate?	hand paint	n		A- Thai?		over glaze paint, possibly green? Pink core in spots. Crazing. Thai or
OR	1	10-20 P	2	rim	bowl?	hand paint	hand paint		A		blue leaf (?) on ext
OR	1	10-20	1	rim/base	bowl	n	n		A		small bowl (?) with rim for lid (?) apothecary?
OR	1	10-20	2	rim/base	bowl	n	incising		A		small bowl (?) with rim for lid (?) apothecary? 3 diagonal lines on each side of ext
OR	1	10-20	3	rim	unk	n	n		A		firing clouds? Blue and white
OR	1	10-20	4	rim	unk	hand paint	n		A		blue line below rim, 1 perp. Line coming down. Scalloped edge?
OR	1	10-20	5	rim	unk	hand paint	n		A		blue line on rim
OR	1	10-20	6	body	unk	hand paint	n		A		faint blue line
OR	1	10-20	7	body	unk	n	n		E		no dec. crazed.
OR	1	10-20	8	body	unk	hand paint	n		A		small blue hand paint, can't tell what it is
OR	1	10-20	9	body	unk	red transfe	red transfe	Red Transfer	E	1830-	red transfer, but too small to tell what it is
OR	1	20-30	1	body	bowl?	n	n		A		no dec
OR	1	20-30	2	body	unk	n	n		A		no dec
OR	1	20-30	3	body	unk	n	hand paint		E		blue under glaze. Too small to tell what it is. Crazed.
OR	1	20-30	4	body	unk	hand paint	n		A		small blue line on edge of sherd
OR	1	20-30	5	body	unk	n	n		A		
OR	1	30-40	1	body	unk	n	hand paint	Rouge-de-fer	A	1710-1739	red lattice, hand paint, over glaze. Green (copper?) ?glaze over the red. Interior wavy.
OR	2	Sur	1	body	unk	hand paint	n		A		blue hand paint. Too small to tell what it is
OR	2	0-10	1	body	unk	n	hand paint		A		multiple II brush strokes of 3 II lines, some offest but overlapping. Same design as 2.
OR	2	0-10	2	body	unk	n	hand paint		A		multiple II brush strokes of 3 II lines, some offest but overlapping. Same design as 1.
OR	2	0-10	3	body	unk	n	hand paint		A		blue paint. Too small to tell design.
OR	2	0-10	4	body	unk	hand paint	n		A		blue paint. Too small to tell design.
OR	2	0-10	5	rim	unk	hand paint	hand paint		A?		blue paint. Too small to tell design.
OR	2	0-10	6	body	unk	hand paint	n		A?		can't tell if it's int or ext, just one side of it.
OR	2	0-10	7	body	bowl?	n	n		A?		
OR	2	0-10	8	body	unk	n	n		E		crazed
OR	2	0-10	9	body	unk	n	n		E		crazed
OR	2	0-10	10	body	unk	n	n		E		crazed
OR	2	0-10	11	body	unk	n	n		E		crazed
OR	2	0-10	12	body	unk	n	n		E		crazed
OR	2	0-10	13	rim	unk	n	n		E		refit w/ 14. crazing
OR	2	0-10	14	rim	unk	n	n		E		refit w/ 13. crazing
OR	2	0-10	15	shoulder	unk	n	n	stoneware	E?		
OR	2	0-10	16	body	unk	n	hand paint	stoneware (gla	A- Thai?		tiny bit of faint blue paint underglaze on ext.
OR	2	10-20	1	base	plate?	n	MM stamp		E	1836	"REGOUT MAASTRICHT Ao 1836" stamped in black on the base
OR	2	10-20	2	base	plate?	n	MM stamp		E		Y (?) stamp on base
OR	2	10-20	3	base	unk	n	n		E?		crazed
OR	2	10-20	4	base	unk	n	n		E?		crazed
OR	2	10-20	5	base	unk	hand paint	MM stamp		E		blue paint underglaze on int. small stamp of anchor on ext.some writing I can't make out above anchor. Anchor is flanked by a ?4, and an 0.
OR	2	10-20	6	body	unk	n	hand paint		E		green hand paint. Over glaze?
OR	2	10-20	7	body	unk	hand paint	n		A		blue ?flowers.
OR	2	10-20	8	base	plate?	hand paint	n		E?		2 brown humps and brown lattice. Outlines around base and design.
OR	2	10-20	9	body	unk	n	n		E?		no dec
OR	2	10-20	10	body	unk	n	n		A		
OR	2	10-20	11	rim	unk	hand paint	n		E		lavender hand paint or print, geometric.
OR	2	10-20	12	rim	unk	red transfe	n	Red Transfer	E	1830-	red transfer
OR	2	10-20	13	rim	unk	hand paint	hand paint		A		1 thin blue line on int, 2 II blue lines on ext beneath rim, a blue blow of something. Same type (pot?) as 14.
OR	2	10-20	14	rim	unk	hand paint	hand paint		A		1 thin blue line on int, 2 II blue lines on ext beneath rim, a blue blow of something. Same type (pot?) as 13.
OR	2	10-20	15	body	unk	n	hand paint	stoneware (gla	A- Thai?		thin green lines
OR	2	20-30	1	body	unk	n	hand paint		E		blue on white. Can't tell design. Crazed.
OR	2	20-30	2	body	unk	n	n		E		crazed
OR	2	20-30	3	rim	unk	n	n		A		
OR	2	20-30	4	body	unk	hand paint	hand paint		A		blue, too small to tell what it is.
OR	2	20-30	5	body	unk	n	n		E		crazed
OR	2	20-30	6	body	unk	n	n		E		crazed
OR	3	surf	1	body	unk	n	n		A		curved,but don't know what it is. Has remains of a print on it- flower and leaf.
OR	3	0-10	1	rim	unk	n	n		A		no dec.
OR	3	0-10	2	body	unk	n	n		A		no dec.

Site	Unit	Level	Sherd #	Vessel part	Vessel Style	Int. Surface Trtment	Ext. Surface Trtment	Typological Designation	Euro/ Asian	date	comments
OR	3	0-10	3	body	unk	n	n		E		crazed
OR	3	0-10	4	body	unk	n	n		E		crazed
OR	3	0-10	5	body	unk	n	n		A		
OR	3	10-20	1	body	unk	print	n		A		orange print (not transfer). Recent.
OR	3	10-20	2	base	plate	print	n		A		orange flowers. Some paint worn off. 2 ridges on base + plate base. Same as OR.3.Sur.1?
OR	3	10-20	3	body	cup	n	print		A		flower print. Paint worn off, but lines still visible.
OR	3	10-20	4	rim	unk	hand paint	hand paint		E		majolica-like. Red stripe on ext outlined w/ black. Green? Below on ext. black line on int below rim.
OR	3	10-20	5	rim	unk	print	n		E?		blue print. Geometric designs, like argyle.
OR	3	10-20	6	base	cup	n	n		A?		no dec. cup base?
OR	3	10-20	7	body	unk	n	n		A?		no dec.
OR	3	10-20	8	base	unk	n	n		A?		dimpling on bottom, like an orange peel.
OR	3	10-20	9	body	unk	hole	hole		A?		hole drilled in sherd, probably at manufacture
OR	3	10-20	10	body	unk	n	n		A?		no dec.
OR	3	10-20	11	rim	?bowl	n	n		E		crazing. Bowl?
OR	3	10-20	12	base	unk	n	n		A?		1 small ridge on base. Plate?
OR	3	10-20	13	base	unk	n	n		A?		2 small ridges on base. Plate?
OR	3	10-20	14	rim	unk	n	n		A?		no dec.
OR	3	10-20	15	body	unk	n	n		A?		no dec.
OR	3	10-20	16	body	unk	n	n		A?		no dec.
OR	3	10-20	17	body	unk	n	n		E?		crazing
OR	3	10-20	18	body	unk	hand paint	n		E		blue on blue. Crazing on ext. Print?
OR	3	10-20	19	body	?plate	hand paint	n		A		blue geometric border. Hand paint.
OR	3	10-20	20	body	unk	n	n		E		crazing
OR	3	10-20	21	body	unk	n	n		E		gray crazing
OR	3	10-20	22	body	unk	n	hand paint		A?		blue on white. Crazing. Slip mostly worn off. Not from China? Water worn.
OR	3	10-20	23	body	unk	n	hand paint		A?		blue on white. Crazing. Slip mostly worn off. Not from China? Water worn.
OR	3	20-30	1	rim	unk	n	n		A?		no dec.
OR	3	20-30	2	rim	unk	n	n		A?		no dec.
OR	3	20-30	3	body	unk	n	n		E		crazing
OR	3	20-30	4	body	?bowl	n	n		E		crazing
OR	3	20-30	5	body	unk	n	n		E		crazing
OR	3	20-30	6	body	unk	hand paint	n		A		blue hand painted flower, ?poppy?
OR	3	20-30	7	rim	unk	hand paint	hand paint		A		blue hand painted flower on both sides.
OR	3	30-40	1	rim	unk	n	n		A?		no dec.
OR	3	40-50	1	rim	?bowl	n	n		A		scalloping on rim
GW	1	0-10	1	base	unk	n	n				
GW	1	0-10	2	rim	unk	n	n				
GW	1	0-10	3	base	unk	n	print		C		green "N CHI" probably "made in china"
GW	1	0-10	4	base	unk	hand paint	n				blue hand paint. Too small to tell.
GW	1	0-10	5	body	unk	n	n				light green on int.
GW	1	0-10	6	rim	unk	hand paint	n		C		blue hand paint. Too small to tell.
GW	1	0-10	7	rim	unk	hand paint	hand paint		C		blue hand paint. 2 II lines on int; 2 II lines on ext w/ swirls
GW	1	0-10	8	body	unk	hand paint	n		C		blue hand paint. Too small to tell.
GW	1	10-20	1	base	unk	n	n				3 ridges on base. Raised print- "IN" milk glass?
GW	1	10-20	2	body	unk	n	n				crazing
GW	1	10-20	3	body	unk	hand paint	hand paint		C		blue hand paint lines on int and ext. crazing.
GW	1	10-20	4	rim	cup	n	hand paint		C		blue line below rim, plus unk design on body
GW	1	10-20	5	rim	unk	n	n				
GW	1	20-30	1	rim	unk	hand paint	hand paint				blue hand paint on int and ext, flower deisgns. Possible bowl. Scalloped rim.
GW	1	20-30	2	rim	unk	hand paint	hand paint				blue hand paint. Curly designs on int rim. European style house on ect.
GW	1	20-30	3	body	unk	hand paint	hand paint				blue hand paint. Too small to tell.
GW	1	30-40	1	rim	unk	hand paint	n				blue hand paint. Too small to tell.
GW	1	30-40	2	body	unk	n	n		O		pink core.
GW	1	50-60	1	body	unk	n	hand paint				blue hand paint. Flowers.
GW	1	50-60	2	rim	unk	hand paint	n				green hand paint. Line below rim, possible fowers.
GW	1	50-60	3	rim	unk	hand paint	hand paint				blue hand paint. Line below rim on int and ext. blue flower on int.
GW	1	70-80	1	body	unk	n	n	stoneware			brown glaze on int
GW	1.5	0-10	1	rim	unk	hand paint	n				blue hand paint. Thin line below rim. Circles with dots on background, some curvlinear designs- flowers?
GW	1.5	10-20	1	rim	unk	hand paint	hand paint				blue hand paint. Thin line below rim on int and ext.
GW	1.5	10-20	2	rim	unk	hand paint	hand paint				blue hand paint. Thin line below rim on int and ext. other design, too small to tell.
GW	1.5	20-30	1	body	unk	print	n				brown(?) print, mostly worn off. Radiating lines?
GW	1.5	20-30	2	rim	?plate	hand paint	hand paint				blue hand paint. Thin line below rim int and ext. swirl (s) by radiating lines- flower?
GW	1.5	30-40	1	base	unk	hand paint	n				blue hand paint. Chinese character ? Or sailboat?
GW	1.5	30-40	2	body	unk	hand paint	n				brown paint. 2 lines.
GW	1.5	70-80	1	body	unk	hand paint	hand paint				blue hand paint. Too small to tell.
GW	1.5	80-90	1	body	unk	n	n				
GW	2	0-10	1	rim	unk	n	n				scalloped design on rim
GW	2	0-10	2	body	unk	n	n				
GW	2	0-10	3	body	unk	n	n				crazing
GW	2	0-10	4	body	unk	hand paint	n				blue hand paint. Too smalll to tell.

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GW	2	0-10	5	body	?bowl	n	hand paint				green hand paint.
GW	2	0-10	6	base	unk	n	n				
GW	2	0-10	7	rim	unk	n	n				
GW	2	0-10	8	rim	unk	hand paint	hand paint				blue hand paint. Can't tell design. But some chinese characters.
GW	2	0-10	9	body	unk	hand paint	hand paint				blue hand paint, geometric designs
GW	2	0-10	10	body	unk	n	n				
GW	2	0-10	11	rim	unk	n	n				
GW	2	0-10	12	body	unk	n	n				crazing
GW	2	0-10	13	rim	unk	hand paint	n				green line below rim
GW	2	0-10	14	body	unk	hand paint	n				blue hand paint. Too smalll to tell.
GW	2	10-20	1	base	bowl	n	n				
GW	2	10-20	2	base	unk	n	n				
GW	2	10-20	3	base	unk	n	n				crazing
GW	2	10-20	4	body	unk	n	n				crazing
GW	2	10-20	5	rim	unk	hand paint	n				hand paint blue. Geometric designs.
GW	2	10-20	6	base	unk	hand paint	n				hand paint blue. Can't tell design. Pink core.
GW	2	10-20	7	rim	unk	hand paint	hand paint				blue line on int. blue-red-blue on ext. majolca?
GW	2	10-20	8	rim	cup	hand paint	n				green hand paint, nested diamonds.
GW	2	10-20	9	rim	unk	n	n				
GW	2	10-20	10	body	unk	n	n				
GW	2	10-20	11	body	unk	n	hand paint				blue hand paint. Too small to tell.
GW	2	10-20	12	rim	unk	print	n				orange print- line below rim
GW	2	10-20	13	rim	unk	hand paint	n				blue hand paint. Too small to tell.
GW	2	10-20	14	body	unk	n	hand paint				blue line and red. Majolca?
GW	2	10-20	15	rim	unk	n	n				pink and grey core
GW	2	10-20	16	rim	unk	n	n				
GW	2	10-20	17	body	unk	n	n				
GW	2	10-20	18	body	unk	n	hand paint				most of paint worn off, can't tell design possibly orange. Some green (copper?) paint, too.
GW	2	10-20	19	body	plate	hand paint	n				blue geometric + flowers design on plate rim.
GW	2	10-20	20	body	plate	transfer	MM stamp	Blue transfer	E	1750-	"ORTATION ANGL" maker's mark. Blue flower transfer.
GW	2	10-20	21	base	?plate	hand paint	hand paint				looks like 2 circles on base, and flowers on int. handpaint blue.
GW	2	10-20	22	body	unk	n	n	stoneware			
GW	2	20-30	1	body	unk	n	n				
GW	2	20-30	2	body	unk	n	n				
GW	2	20-30	3	body	unk	n	n	stoneware			
GW	2	30-40	1	body	unk	n	n				most of glaze worn away. Sorta green.
GW	2	90-100	1	body	unk	n	n				brown glaze on int. pink core.
GW	3	0-10	1	body	unk	n	n				
GW	3	0-10	2	body	unk	n	n				possible rim or base. Odd shape.
GW	3	0-10	3	lip	unk	n	n	stoneware	E		top of a bottle. Brown glaze.
GW	3	0-10	4	body	unk	n	n	stoneware	E		brown glaze on ext, no glaze on int.
GW	3	0-10	5	body	unk	n	n				
GW	3	0-10	6	base	unk	n	n				
GW	3	0-10	7	base	unk	hand paint	n				blue hand paint. Line.
GW	3	0-10	8	base	unk	n	n				
GW	3	0-10	9	base	unk	n	n				
GW	3	0-10	10	base	unk	n	n				
GW	3	0-10	11	body	unk	n	n	stoneware			glaze mostly worn off, just core
GW	3	0-10	12	rim	unk	n	n				
GW	3	0-10	13	body	unk	hand paint	hand paint				hand paint blue.
GW	3	10-20	1	body	unk	hand paint	n				hand paint blue. Part of willow pattern? Top of pagoda and some tree.
GW	3	10-20	2	rim	?cup	hand paint	hand paint				blue line below rim on int and ext. Green leaves.
GW	3	10-20	3	rim	?cup	n	hand paint				blue lines outlined with handpainted circles.
GW	3	10-20	4	body	unk	n	hand paint				blue hand paint. Sun or flower
GW	3	10-20	5	body	unk	n	incise	stoneware			green-grey slip with incising; incising not glazed.
GW	3	10-20	6	body	unk	n	n	stoneware			
GW	3	10-20	7	body	unk	hand paint	n	batavia ware?	C	1700-1780	brown glaze on ext. thick blue line, hand paint.
GW	3	10-20	8	body	unk	n	n				
GW	3	20-30	1	body	unk	hand paint	n	Kangxi Kraak	C	1680-1750	refit w/ 2, 3. flower or fruit within delineated windows on plate (?) rim.
GW	3	20-30	2	body	unk	hand paint	n	Kangxi Kraak	C	1680-1750	refit w/ 1, 3. flower or fruit within delineated windows on plate (?) rim.
GW	3	20-30	3	body	unk	hand paint	n	Kangxi Kraak	C	1680-1750	refit w/ 1, 2. flower or fruit within delineated windows on plate (?) rim.
GW	3	20-30	4	rim	unk	print	n				paint worn off, possible sun or flower design.
GW	3	20-30	5	body	unk	hand paint	n	Kangxi Kraak	C	1680-1750	refit w/ 1, 2, 3.
GW	3	20-30	6	body	unk	hand paint	n				blue hand paint, too small to tell.
GW	3	20-30	7	rim	bowl	hand paint	hand paint				geometric below rim; some chinese characters, sunflower design on base. Lines below rim and base on int. kitchen Ching. 18th-19th C. handpaint, but cheap.
GW	3	20-30	8	base	unk	n	n	stoneware			no glaze on int. probably wheel thrown. Blue glaze on ext. core is gray and beige. Unglazed bottom is a marker of Ming-ness.
GW	3	20-30	9	base	unk	n	n	stoneware			white glaze, none on ext. unglazed basse, wheel made, tan coarse, glaze. ~pre-ching?
GW	3	20-30	10	rim	unk	hand paint	n				blue hand paint, too small to tell.
GW	3	20-30	11	base	unk	hand paint	hand paint				blue hand paint, too small to tell.
GW	3	20-30	12	base	unk	hand paint	n				blue hand paint, too small to tell.

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GW	3	20-30	13	base	unk	hand paint	n				blue hand paint, too small to tell.
GW	3	20-30	14	base	unk	n	hand paint				hand paint blue lines below rim; red triangles w/in blue lines
GW	3	20-30	15	body	unk	n	n				
GW	3	20-30	16	body	unk	n	n				
GW	3	20-30	17	body	unk	n	n				
GW	3	20-30	18	rim	unk	hand paint	brown	batavia ware?	C	1700-1780	brown glaze on ext. blue handpaint below rim.
GW	3	20-30	19	body	unk		brown	batavia ware?	C	1700-1780	brown glaze on ext; no dec on int. batavia ware? Cup? 17th C. made in china for indonesia.
GW	3	20-30	20	body	unk	hand paint	n				blue hand paint, too small to tell.
GW	3	20-30	21	rim	unk	hand paint	n				blue hand paint, too small to tell.
GW	3	20-30	22	rim	unk	hand paint	n				blue hand paint, line below rim, possible fish or flower.
GW	3	20-30	23	body	unk	n	hand paint				blue hand paint, too small to tell.
GW	3	20-30	24	body	unk	n	hand paint				possible maker's mark? Swirlies.
GW	3	20-30	25	body	unk	hand paint	n				blue hand paint, too small to tell.
GW	3	20-30	26	body	unk	n	n				
GW	3	20-30	27	body	unk	hand paint	n				blue hand paint, too small to tell.
GW	3	20-30	28	body	unk	n	n				
GW	3	20-30	29	body	unk	hand paint	n				blue hand paint, too small to tell.
GW	3	20-30	30	body	unk	hand paint	n				blue hand paint, too small to tell.
GW	3	20-30	31	stem	pipe	n	impress		E		outside diameter: 7.61; inside diameter:2.08-2.15mm. Little circles around the stem.
GW	3	20-30	32	stem	pipe	n	n		E		inside diameter 2.06- 2.15 mm
GW	3	30-40	1	base	unk	n	n				
GW	3	30-40	2	rim	?plate	n	hand paint	English pearlw	E	1770-1830	blue hand paint, scalloped edges, some impress.
GW	3	30-40	3	rim	?plate	hand paint	hand paint	Kangxi Kraak	C	1680-1750	blue hand paint on int and ext, brown on rim. Design on ext is a flowy line. Int is geometric, negative (?) swastika-like in band across top, plus another abstract band below that.
GW	3	30-40	4	rim	unk	hand paint	n				blue hand paint band below rim.
GW	3	30-40	5	rim	unk	n	n				
GW	3	30-40	6	rim	unk	hand paint	n				blue hand paint, too small to tell.
GW	3	40-50	1	rim	unk	hand paint	n				blue hand paint, too small to tell.
GW	3	50-60	1	rim	unk	hand paint	hand paint				blue hand paint, too small to tell.
GW	3	50-60	2	body	?bowl	hand paint	hand paint				blue hand paint, too small to tell.
GW	3	50-60	3	body	unk	n	hand paint				blue hand paint, too small to tell.
GW	3	60-70	1	body	unk	hand paint	n				blue hand paint, too small to tell.
GW	4	0-10	1	rim	unk	n	n				
GW	4	0-10	2	base	unk	n	n				
GW	4	0-10	3	base	unk	print	n				color worn off. Leaf pattern.
GW	4	0-10	4	body	unk	n	n				
GW	4	0-10	5	body	unk	n	n				
GW	4	0-10	6	body	unk	n	n				
GW	4	0-10	7	body	unk	n	n				
GW	4	10-20	1	base	bowl	n	n				
GW	4	10-20	2	body	unk	n	n				
GW	4	10-20	3	base	unk	n	n				
GW	4	10-20	4	base	unk	n	n				
GW	4	10-20	5	rim	unk	hand paint	n				blue hand paint.
GW	4	20-30	1	base	?plate	n	n				
GW	4	20-30	2	shoulder	unk	n	n				
GW	4	20-30	3	rim	unk	n	n				
GW	4	20-30	4	rim	unk	n	hand paint				blue hand paint. Too small to tell.
GW	4	30-40	1	body	unk	n	n	stoneware			brown glaze wih some(?) sort of coating
GW	4	30-40	2	rim	?plate	hand paint	hand paint				blue hand paint line below rim on int and ext
GW	4	30-40	3	body	unk	n	hand paint				
GW	4	30-40	4	body	unk	n	hand paint				
GW	4	70-80	1	body	unk	n	hand paint				blue hand paint. Too small to tell.
GW	4	90-100	1	body	cup	n	hand paint				blur hand paint. Little fields and structures.
GW	4	90-100	2	body	unk	hand paint	protrusions				green hand paint on int. pink core. Little bumps on ext- from making it?
GW	4	90-100	3	body	unk	n	n	stoneware			salt glaze?brown glaze on int and ext
KB	1	10-20	1	body	jug	n	applique ha	stoneware			brown glaze on ext, none on int (small splash of glaze in int.). Possibly thai.
KB	1	40-50	1	rim	unk	hand paint	n		C	1700-1800	some defects in ext glaze. Blue hand paint, scroll varient on rim.
KB	1	40-50	2	rim	unk	paint	n				line below rim; most of paint worn off.
KB	1	40-50	3	rim	unk	paint	n				
KB	1	50-60	1	body	unk	hand paint	n				
KB	1	50-60	2	body	unk	n	n				
KB	1	50-60	3	body	unk	n	n	stoneware			brown glaze on int and ext
KB	1	60-70	1	body	unk	n	n				
KB	2	0-10	1	rim	?bowl	transfer	transfer	Red Transfer	E	1830-	red transfer on int and ext. flowers and trees.
KB	2	0-10	2	body	unk	n	n				
KB	2	0-10	3	body	unk	n	n				crazing
KB	2	0-10	4	body	unk	n	hand paint				small blue handpaint spot on edge. Too small to tell.
KB	2	0-10	5	body	unk	n	n				
KB	2	0-10	6	body	unk	n	n				
KB	2	0-10	7	body	unk	hand paint	hand paint				blue hand paint. Too small to tell.

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KB	2	0-10	8	rim	unk	n	n				
KB	2	0-10	9	body	unk	n	n				
KB	2	0-10	10	body	unk	n	n				
KB	2	0-10	11	body	unk	n	n				
KB	2	0-10	12	rim	unk	n	n				
KB	2	0-10	13	rim	unk	n	n				
KB	2	0-10	14	body	unk	n	n				
KB	2	0-10	15	body	unk	n	n				
KB	2	0-10	16	body	unk	hand paint	n				blue hand paint, flower.
KB	2	10-20	1	body	unk	n	applique h	stoneware			greenish glaze on ext.
KB	2	10-20	2	base	?bowl	n	maker's mark	stamp		E	"P. REGOUT -26- [..]ICHT" stamped on base.
KB	2	10-20	3	rim	?bowl	n	n				refit w/ 4
KB	2	10-20	4	body	?bowl	n	n				refit w/ 3
KB	2	10-20	5	base	?bowl	n	n				
KB	2	10-20	6	body	?bowl	n	n				
KB	2	10-20	7	rim	unk	n	n				
KB	2	10-20	8	body	unk	n	n				
KB	2	10-20	9	rim	unk	hand paint	n	English pearlw	E	1770-1830	green hand paint along rim.
KB	2	10-20	10	body	?plate	hand paint	n				probably the flare of a plate. Blue hand plaint. Tiny flowers connected w/ lattice.
KB	2	10-20	11	rim	unk	hand paint	hand paint				blue hand paint flowers on int and possible landscape scene on ext.
KB	2	10-20	12	rim	unk	hand paint	n	blue flow?			blue hand paint flower on int.
KB	2	10-20	13	rim	bowl	transfer	transfer	Japanese Imar	A		dk blue or black transfer. Flowers on int, Asian person in robes w/ willow (?) tree on ext. Orange line on top of rim.
KB	2	10-20	14	body	unk	transfer	n	Blue transfer	E	1750-	blue transfer. Probably flowers.
KB	2	10-20	15	rim	unk	n	n				not true porcelain. Green glaze on ext. lead-based. Sung-Yuan. But probably churned up.
KB	2	10-20	16	body	unk	n	n				not true porcelain, white glaze, pink core.
KB	2	10-20	17	body	unk	hand paint	n				blue hand paint, too small to tell.
KB	2	10-20	18	rim	unk	transfer	n	Purple transfe	E	1830-	purple transfer, flowers w/ dots as a background. Refit w/ KB.2.20-30.22
KB	2	10-20	19	rim	unk	hand paint	n				blue hand paint. Line below rim, and something else.
KB	2	10-20	20	body	unk	hand paint	n				green hand paint nesting diamonds. Same as at GW.
KB	2	10-20	21	rim	unk	hand paint	n	English pearlware		1770-1830	blue hand paint along rim. Scalloped edge.
KB	2	10-20	22	body	unk	n	hand paint	maiolica			yellow paint with thin green line above and faint blue line above that.
KB	2	10-20	23	body	unk	n	n				
KB	2	10-20	24	body	unk	n	n				
KB	2	10-20	25	body	unk	n	n				
KB	2	10-20	26	body	unk	hand paint	n				blue hand paint. Flowers?
KB	2	10-20	27	body	unk	n	n				
KB	2	10-20	28	body	unk	n	n				
KB	2	10-20	29	body	unk	n	n				
KB	2	10-20	30	body	unk	n	n				brown on int, white on ext. not true porc, but not stoneware
KB	2	10-20	31	body	unk	n	n				yellow brown, not true porc. Not stoneware
KB	2	10-20	32	rim	unk	hand paint	n				blue hand paint geometric design below rim
KB	2	10-20	33	handle	unk	n	hand paint				blue hand paint flowers on handle. Tea cup handle?
KB	2	20-30	1	rim	bowl	hand paint	n				rim to base. Blue hand paint at base on int. brown glaze on rim edge.
KB	2	20-30	2	base	?bowl	n	n				base + beginning of bottom. Bluish glaze
KB	2	20-30	3	base	?plate	transfer	transfer	Blue Camel	E	1750-	blue transfer. Camel and building on int. remains of a marker's mark on base, but too fragmented
KB	2	20-30	4	body	unk	n	n				
KB	2	20-30	5	rim	bowl	transfer	n	Blue transfer	E	1750-	blue transfer. Flowers on a dot background. Refit w/ 6,7
KB	2	20-30	6	base	bowl	transfer	n	Blue transfer	E	1750-	blue transfer. Flowers on a dot background. Refit w/ 5,7
KB	2	20-30	7	rim	bowl	transfer	n	Blue transfer	E	1750-	blue transfer. Flowers on a dot background. Refit w/ 5,6
KB	2	20-30	8	rim	?plate	transfer	n	Blue transfer	E	1750-	blue transfer, geometric designs and flowers.
KB	2	20-30	9	rim	?plate	transfer	n	Blue transfer	E	1750-	blue transfer, geometric designs.
KB	2	20-30	10	body	unk	transfer	n	Blue transfer	E	1750-	blue transfer, geometric designs and flowers.
KB	2	20-30	11	rim	unk	hand paint	hand paint				hand paint blue band below rim, geometric on int. thin line below rim and possible flowers on ext. dlightly blue tint to glaze.
KB	2	20-30	12	body	?plate	hand paint	n				hand paint blue, deisgn to small to tell. Possible water.
KB	2	20-30	13	rim	unk	hand paint	n				blue hand plaint, geometric designs below rim
KB	2	20-30	14	rim	unk	n	n				
KB	2	20-30	15	base	?plate	n	MM stamp				possible maastricht maker's mark. Black.
KB	2	20-30	16	rim	unk	hand paint	hand paint				blue hand paint (bamboo leaves?) on int, flowers (?) on ext. Rim is also painted blue.everted rim.
KB	2	20-30	17	base	unk	n	n				
KB	2	20-30	18	base	unk	hand paint	n				blue hand paint on int. core is pink. Probably not true porcelain.
KB	2	20-30	19	body	unk	n	n				probably not tru porcelain. Core is pink,
KB	2	20-30	20	base	unk	n	n				
KB	2	20-30	21	base	unk	transfer	n	Blue transfer	E	1750-	blue transferware, flowers and shrubbery,
KB	2	20-30	22	base	unk	transfer	n	Purple transfe	E	1830-	purple transferware, flowers. Refit with 23. Refit w/ KB.2.10-20.18
KB	2	20-30	23	body	unk	transfer	n	Purple transfe	E	1830-	purple transferware, flowers. Refit with 22.
KB	2	20-30	24	base	?bowl	n	n				
KB	2	20-30	25	base	?cup	n	n				
KB	2	20-30	26	pipe bowl	pipe	n	impress		E		marker's mark on base, a bit small to tell.
KB	2	30-40	1	rim	?lid	n	n	?stoneware			not tru porcelain. Weird shape.
KB	2	30-40	2	shoulder	jar	n	stamp	stoneware	E		brown glaze on ext, gray on int. Some writing on ext- "IGE[R?]" medallion on shoulder; "[...]OR" below on body

Site	Unit	Level	Sherd #	Vessel part	Vessel Style	Int. Surface Trtment	Ext. Surface Trtment	Typological Designation	Euro/ Asian	date	comments
KB	2	30-40	3	shoulder	unk	n	n	?stoneware			not true porc. Brown ext glaze. Weird shape, looks kinda like a nut.
KB	2	30-40	4	base	bowl	hand paint	hand paint				same type as KB.2.20-30.Por.1, and below. Blue hand paint, blue tint to glaze. Round medallion on base int, blue line above base on int, some blue hand paint on ext, juga.
KB	2	30-40	5	rim	bowl	hand paint	hand paint				same type as KB.2.20-30.Por.1, and above. Blue abstract designs on ext, brown on rim.
KB	2	30-40	6	body	unk	n	n	?stoneware			v. thick. From amphora or something? Unglazed on int.
KB	2	30-40	7	rim	plate	transfer	n	Blue Willow	E	1750-	blue transfer, probably willow pattern. Scalloped edge to plate.
KB	2	30-40	8	base	plate	transfer	n	Blue Willow	E	1750-	blue transfer. Willow pattern. Bit of willow tree, pagoda and possibly bird wing
KB	2	30-40	9	rim	unk	hand paint	n				blue hand paint. Too small.
KB	2	30-40	10	body	unk	n	n				
KB	2	30-40	11	rim	unk	hand paint	n	English pearlware		1770-1830	blue hand paint on rim, dripping down
KB	2	30-40	12	body	tile	n	n				
KB	2	30-40	13	body	unk	n	n				
KB	2	30-40	14	rim	?plate	hand paint	hand paint				blue hand paint in band below rim on int; thin blue line below rim on ext
KB	2	30-40	15	body	unk	hand paint	n				blue hand paint. Band around rim?
KB	2	40-50	1	rim	?plate	hand paint	n	English pearlw	E	1770-1830	blur hand paint, dripping down from rim.
KB	2	40-50	2	rim	?bowl	transfer	n	Blue transfer	E	1750-	blue transfer, probably a scene, but just decorative flowers around rim
KB	2	40-50	3	rim	unk	hand paint	n				blue hand paint flowers. Looks like it was drawn on and then bled? Whole sherd has blue tinge to it.
KB	2	40-50	4	body	unk	hand paint	n				blue hand paint scene. Trees and clouds?
KB	2	40-50	5	shoulder	?plate	transfer	n	Blue Camel	E	1750-	blue transferware, similar to above w/ camel. Looks like an arabian-type scene w/ minaret-like architecture. People riding horses?
KB	2	40-50	6	rim	?plate	transfer	n	Blue transfer	E	1830-	v. dark blue transfer. Flowers/
KB	2	40-50	7	body	unk	hand paint	hand paint				greenish hand paint. Thick lines. Abstract?
KB	2	40-50	8	body	unk	hand paint	hand paint				blue hand paint. Flower?
KB	2	40-50	9	body	unk	n	n	stoneware			brown ext glaze, no int glaze.
KB	2	40-50	10	body	unk	n	n	?euro?			possibly molded? Has a ridge. V. thin.
KB	2	40-50	11	body	unk	n	n	?euro?			possibly molded? Has a ridge. Brown int glaze, none on ext.
KB	2	40-50	12	body	unk	n	n	?euro?			brown glaze on ext. v thin.
KB	2	50-60	1	rim	unk	hand paint	hand paint	?asian			not true porcelain. Gray not white. Some remants of handpaint designs? Flower on ext and abstract on int rim?
KB	2	50-60	2	rim	unk	hand paint	hand paint				hand paint blue. Leaf/ grass design right below rim on int, abstract or Chinese characters on ext.
KB	2	50-60	3	base	?plate	transfer	n	Blue transfer	E	1750-	blue transfer, decidious trees/ forest scene.
KB	2	50-60	4	rim	unk	n	n				
KB	2	50-60	5	body	unk	n	hand paint				hand paint, light blue/ green. Leaves?
KB	2	50-60	6	rim	unk	n	hand paint				hand paint red and green over glaze. Green is clumpy, possibly copper?
KB	2	50-60	7	body	unk	n	n	?stoneware			brown glaze on int and ext. wheel thrown. Euro?
KB	2	50-60	8	body	unk	n	n	?euro?			possible molded? Has ridge. Brown glaze on int. none on ext. v. thin.
KB	2	50-60	9	body	unk	n	n	?euro?			Brown glaze on int. none on ext. v. thin.
KB	2	60-70	1	rim	plate	transfer	n	Blue Camel	E	1750-	blue transfer. Flowers around rim, Arabian-inspired scene on base. Refit w/ #2 below
KB	2	60-70	2	rim	plate	transfer	n	Blue Camel	E	1750-	blue transfer. Flowers around rim, Arabian-inspired scene on base. Refit w/ #1 above. People riding horses.
KB	2	60-70	3	body	unk	transfer	n	Purple transfer	E	1830-	light purple transfer. Flower or leaf w/ II lines. Possible writing.
KB	2	60-70	4	rim	unk	hand paint	n				blur hand paint, flowers.
KB	2	60-70	5	body	unk	hand paint	n				not true porcelain. Pink core. Blue hand paint line.
KB	2	60-70	6	rim	unk	hand paint	n				blur hand paint, dripping down from rim. Also, impress.
KB	2	60-70	7	rim	?sm jar	n	hand paint				apothecary jar? Red line around rim on ext.
KB	2	60-70	8	stem	pipe	n	n		E		inside diamter 2.26. thin and nore is large.
KB	2	60-70	9	stem	pipe	n	n		E		
KB	2	70-80	1	rim	plate	transfer	n	Blue Willow	E	1780-	willow pattern.
KB	2	70-80	2	rim	unk	n	n	?asian?			same as KB.2.50-60.01. not true por.
KB	2	70-80	3	body	unk	n	hand paint				blue hand paint.
KB	2	70-80	4	rim	unk	hand paint	n				blue hand paint, floral.
KB	2	70-80	5	stem	pipe	n	maker's mark stamp		E		marker's mark stamp- star w/ moon
KB	2	80-90	1	rim	plate	transfer	n	Blue Camel	E	1750-	Same as KB.2.60-70.02, flowers on rim, Arabian-style scene. Blue transfer.
KB	2	80-90	2	body	tile	n	n				flat white tile, sim to KB.2.30-40.12
KB	2	80-90	3	shoulder	plate	transfer	n	Purple transfer	E	1830-	purple transfer, flowers and dots.
KB	2	80-90	4	base	unk	hand paint	hand paint				blue hand paint at bottom, abstract? Thin blue line around interior of base on ext.
KB	2	80-90	5	shoulder	?plate	transfer	n	Blue transfer	E	1750-	blue transfer. Flowers on lined background.
KB	2	80-90	6	body	unk	n	hand paint				blue hand paint on ext, too small to tell.
KB	2	80-90	7	rim	unk	hand paint	n				blue hand paint flowers. Looks like it was drawn on and then bled? Whole sherd has blue tinge to it. Same as KB.2.40-50.3
KB	2	80-90	8	body	unk	n	n	stoneware			brown glaze on ext, none on int.
KB	2	90-100	1	rim	unk	n	hand paint	?asian?			green hand paint. Not tru porcelain. Asian? Green-gray tint to glaze, core is neutral.
KB	2	90-100	2	shoulder	unk	n	n	?asian?			not true porcelain. Greenish gray tint to glaze. Core is neutral. Glaze is very thick. Sherd is thick. Platter? Celadon-y? pre-blue and white ware? Southern sung?
KB	2	90-100	3	body	unk	n	n	?european			core is dark red/ purple. Ext glaze has a patina like on glass. Blackish glaze. Similar to KB.2.30-40.06
KB	2	90-100	4	base	bowl	hand paint	hand paint				blue hand paint on int. radiating sun (?) w/ abstract sqiuggles. Line above base on ext.
KB	2	90-100	5	rim	plate	transfer	n	Blue transfer	E	1750-	blue transfer. Flowers on lined background.
KB	2	90-100	6	body	unk	hand paint	hand paint				blue hand paint. Too small to tell.
KB	2	90-100	7	rim	unk	hand paint	hand paint				blue hand paint, abstract squiggles on int, 2 II lines below rim on ext.
KB	2	90-100	8	rim	unk	transfer	n	Red Transfer	E	1830-	red transfer, leaves on a red-dot background
KB	2	90-100	9	rim	unk	n	hand paint				blue hand paint, small line on ext. below rim
KB	3	0-10	1	shoulder	?plate	n	n				
KB	3	0-10	2	rim	plate	n	n				
KB	3	0-10	3	body	unk	n	n				
KB	3	0-10	4	body	unk	n	hand paint				blue hand paint, too small to tell.
KB	3	0-10	5	rim	unk	n	n				

Site	Unit	Level	Sherd #	Vessel part	Vessel Style	Int. Surface Trtment	Ext. Surface Trtment	Typological Designation	Euro/ Asian	date	comments
KB	3	10-20	1	base	plate	transfer	n	Blue Willow	E	1780-	blue transfer willow pattern. Refit w/ 2,3
KB	3	10-20	2	base	plate	transfer	n	Blue Willow	E	1780-	blue transfer willow pattern. Refit w/ 1,3
KB	3	10-20	3	base	plate	transfer	maker's ma	Blue Willow	E	1780-	blue transfer willow pattern. Refit w/ 1,2. maker's mark stamp w/ ?rampant lion, "TRICHT" on bottom and "QUE" on top.
KB	3	10-20	4	rim	plate	transfer	n	Blue Willow	E	1780-	blue willow pattern; same as 1-7
KB	3	10-20	5	base	plate	transfer	n	Blue Willow	E	1780-	blue willow pattern; same as 1-7
KB	3	10-20	6	base	plate	transfer	n	Blue Willow	E	1780-	blue willow pattern; same as 1-7
KB	3	10-20	7	rim	plate	transfer	n	Blue Willow	E	1780-	blue willow pattern; same as 1-7
KB	3	10-20	8	rim	unk	hand paint	n				green hand paint dripping down from rim
KB	3	10-20	9	rim	unk	hand paint	n				green hand paint dripping down from rim
KB	3	10-20	10	body	unk	hand paint	hand paint				blue squiggles
KB	3	10-20	11	base	unk	n	n				
KB	3	10-20	12	body	unk	n	n				
KB	3	10-20	13	body	unk	transfer	n	Red Transfer	E	1830-	red transfer, geometric design
KB	3	10-20	14	body	unk	n	n	?euro?			orange glaze on ext, none on int.
KB	3	20-30	1	body	plate	transfer	n	Blue Willow	E	1780-	blue willow pattern; same as 1-7. refit w/ 3, above
KB	3	20-30	2	shoulder	unk	n	n				
KB	3	20-30	3	body	unk	transfer	n	Red Transfer	E	1750-	blue transfer
KB	3	20-30	4	body	unk	n	n				
KB	3	20-30	5	rim	unk	n	n				
KB	3	20-30	6	body	unk	n	n				

Appendix D
Faunal Analysis

Ordatang Unit 1

Faunal

Site	Unit	Level	Number	Weight	Species	Size	Element	Side	Notes
OR	1	0-10	1	0.25	fish		cranium	unk	
OR	1	0-10	2	0.61	fish		maxilla	right	parrot-fish?
OR	1	0-10	3	0.1	fish		unk	unk	
OR	1	0-10	4	0.06	fish		unk	unk	
OR	1	0-10	5	0.29	fish		unk	unk	cut marks
OR	1	0-10	6	0.85	fish		vert	n/a	
OR	1	0-10	7	0.18	fish		vert	n/a	
OR	1	10-20	1	0.02	mammal	med	LBF?	unk	med mammal?
OR	1	10-20	2	0.08	mammal	med	LBF?	unk	med mammal?
OR	1	10-20	3	0.09	mammal	med	LBF?	unk	med mammal?
OR	1	10-20	4	0.89	mammal	med	rib	unk	med mammal?
OR	1	10-20	5	0.76	mammal	lrg	LBF?	unk	lrg mammal
OR	1	30-40	1	0.64	fish		cranium	n/a	
OR	1	30-40	2	0.08	fish		unk	unk	
OR	1	40-50	1	0.14	fish		fin	unk	

Ordatang Unit 2

Faunal

Site	Unit	Level	Number	Weight	Species	Size	Element	Side	Notes
OR	2	0-10	1	0.07	bird		rib?	unk	
OR	2	10-20	1	0.33	fish		cranium	unk	
OR	2	10-20	2	0.38	mammal	lrg	LBF?	unk	lrg mammal; burned black.
OR	2	20-30	1	1.01	bird		rib	unk	
OR	2	20-30	2	0.22	bird		pelvis	unk	pelvis frag.

Site	Unit	Level	Number	Weight	Species	Size	Element	Side	Notes
OR	3	0-10	1	2.7	mammal	lrg	frag-rib		
OR	3	0-10	1	2.9	mammal	lrg	rib	unk	
OR	3	0-10	2	0.41	fish		vert	unk	
OR	3	0-10	2	0.4	fish		vert		
OR	3	0-10	3	0.13	fish		fin	unk	
OR	3	0-10	3	0.14	fish		rib		
OR	3	0-10	4	0.18	unid'able bits		unid'able bits		
OR	3	0-10	4	0.23	unid'able bits		unid'able bits		mix of fish and mammal, probably
OR	3	10-20	1	1.49	mammal	med	tibia	unk	ephiphyses are missing. 53.76 mm. med mammal. Cut marks.
OR	3	10-20	2	0.93	mammal	med	fibula?	unk	ephiphyses are missing. 47.39 mm. med mammal. Cut marks.
OR	3	10-20	3	1.68	mammal	med	pelvis?	unk	med mammal?
OR	3	10-20	4	3.08	mammal	med	astralagus	unk	med mammal- goat?
OR	3	10-20	5	0.49	mammal	med	astralagus	unk	med mammal- goat?
OR	3	10-20	6	0.41	mammal	med	rib	unk	med mammal?
OR	3	10-20	7	0.21	mammal	med	FBF	unk	ext cortical bone?
OR	3	10-20	8	0.28	mammal	med	ulna	unk	proximal epihysis
OR	3	10-20	9	0.06	mammal	med	rib	unk	axial articular surface. Sm mammal.
OR	3	10-20	10	0.14	mammal	med	FBF/ vert	unk	
OR	3	10-20	11	0.18	mammal	med	rib	unk	
OR	3	10-20	12	0.42	mammal	med	rib	unk	
OR	3	10-20	13	0.1	mammal	med	rib?	unk	
OR	3	10-20	14	0.45	mammal	med	LBF?	unk	ext cortical bone?
OR	3	10-20	15	0.66	mammal	med	fibula?	unk	
OR	3	10-20	16	0.37	bird	med	tibia/fibula	right	distal end of tibio-fibula- probably chicken
OR	3	10-20	17	0.33	mammal	med	fibula?	unk	
OR	3	10-20	18	0.15	mammal	med	pelvis	unk	
OR	3	10-20	19	0.38	mammal	med	vert	n/a	mammals= 11.69 g
OR	3	10-20	20	2.78	bird	chicken	humerus	unk	bird= 3.66 g
OR	3	10-20	21	0.88	bird	chicken	cranium	unk	"occipital"
OR	3	10-20	22	0.29	fish		vert	unk	
OR	3	10-20	23	0.29	fish		vert	unk	
OR	3	10-20	24	0.59	fish		vert	unk	
OR	3	10-20	25	0.19	fish		vert	unk	
OR	3	10-20	26	0.51	fish		vert	unk	
OR	3	10-20	27	0.59	fish		vert	unk	
OR	3	10-20	28	0.28	fish		vert	unk	
OR	3	10-20	29	0.25	fish		vert	unk	
OR	3	10-20	30	0.23	fish		vert	unk	
OR	3	10-20	31	0.3	fish		vert	unk	
OR	3	10-20	32	0.19	fish		vert	unk	
OR	3	10-20	33	0.2	fish		vert	unk	
OR	3	10-20	34	0.51	fish		vert	unk	
OR	3	10-20	35	0.23	fish		vert	unk	
OR	3	10-20	36	0.42	fish		vert	unk	
OR	3	10-20	37	0.41	fish		vert	unk	
OR	3	10-20	38	0.31	fish		vert	unk	
OR	3	10-20	39	0.31	fish		vert	unk	
OR	3	10-20	40	0.49	fish		vert	unk	
OR	3	10-20	41	0.21	fish		vert	unk	
OR	3	10-20	42	0.18	fish		vert	unk	
OR	3	10-20	43	0.41	fish		vert	unk	
OR	3	10-20	44	0.5	fish		vert	unk	
OR	3	10-20	45	0.24	fish		vert	unk	
OR	3	10-20	46	0.16	fish		vert	unk	
OR	3	10-20	47	0.17	fish		vert	unk	
OR	3	10-20	48	0.11	fish		vert	unk	
OR	3	10-20	49	0.26	fish		vert	unk	
OR	3	10-20	50	0.03	fish		vert	unk	
OR	3	10-20	51	0.07	fish		vert	unk	
OR	3	10-20	52	0.18	fish		vert	unk	
OR	3	10-20	53	0.27	fish		vert	unk	
OR	3	10-20	54	0.21	fish		vert	unk	
OR	3	10-20	55	0.16	fish		vert	unk	
OR	3	10-20	56	0.22	fish		vert	unk	
OR	3	10-20	57	0.21	fish		vert	unk	
OR	3	10-20	58	0.06	fish		vert	unk	
OR	3	10-20	59	0.11	fish		vert	unk	
OR	3	10-20	60	0.06	fish		vert	unk	
OR	3	10-20	61	0.02	fish		vert	unk	
OR	3	10-20	62	0.01	fish		vert	unk	
OR	3	10-20	63	0.08	fish		vert	unk	
OR	3	10-20	64	0.05	fish		vert	unk	
OR	3	10-20	65	0.09	fish		vert	unk	
OR	3	10-20	66	0.08	fish		vert	unk	
OR	3	10-20	67	0.01	fish		vert	unk	
OR	3	10-20	68	0.01	fish		vert	unk	
OR	3	10-20	69	0.25	fish		max/ mand	unk	mouth grinding surface
OR	3	10-20	70	0.1	fish		max/ mand	unk	mouth grinding surface
OR	3	10-20	71	0.3	fish		cranium	unk	
OR	3	10-20	72	0.48	fish		cranium	unk	
OR	3	10-20	73	0.35	fish		cranium	unk	
OR	3	10-20	74	0.06	fish		cranium	unk	
OR	3	10-20	75	0.4	fish		fin	unk	
OR	3	10-20	76	0.13	fish		fin	unk	
OR	3	10-20	77	0.06	fish		fin	unk	
OR	3	10-20	78	0.74	turtle?		carapace?	unk	spongy, flat bone, light in weight.
OR	3	10-20	79	1.23	turtle?		carapace?	unk	spongy, flat bone, light in weight.
OR	3	10-20	80	0.26	turtle?		carapace?	unk	spongy, flat bone, light in weight.
OR	3	10-20	81	0.36	turtle?		carapace?	unk	spongy, flat bone, light in weight.

Site	Unit	Level	Number	Weight	Species	Size	Element	Side	Notes
OR	3	10-20	82	0.44	turtle?		carapace?	unk	spongy, flat bone, light in weight.
OR	3	10-20	83	1.54	unid'able bits		unid'able bits	unk	
OR	3	20-30	1	0.72	mammal	lrg	LBF?	unk	
OR	3	20-30	2	0.55	mammal	lrg	LBF?	unk	
OR	3	20-30	3	0.19	mammal	lrg	vert	unk	
OR	3	20-30	4	0.26	mammal	small	mandible	right	
OR	3	20-30	5	0.21	fish		vert	unk	
OR	3	20-30	6	0.83	fish		fin	unk	
OR	3	20-30	7	0.06	fish		fin	unk	
OR	3	20-30	8	0.03	fish		fin	unk	
OR	3	20-30	9	0.48	bird		rib/ LBF bits	unk	
OR	3	30-40	1	0.48	mammal	med	scapula	left	dog
OR	3	30-40	2	1.71	mammal	med	humerus	left	
OR	3	30-40	3	1.72	mammal	med	humerus	right	
OR	3	30-40	4	2.04	mammal	med	femur	right	
OR	3	30-40	5	1.83	mammal	med	femur	left	
OR	3	30-40	6	2.26	mammal	med	tibia	left	2 pcs
OR	3	30-40	7	1.47	mammal	med	tibia	right	proximal half.
OR	3	30-40	8	1.57	mammal	med	long bone	unk	
OR	3	30-40	9	1.48	mammal	med	long bone	unk	
OR	3	30-40	10	0.89	mammal	med	long bone	unk	distal articular surface
OR	3	30-40	11	0.08	mammal	med	caudal vert	n/a	
OR	3	30-40	12	0.6	mammal	med	metatarsal	unk	
OR	3	30-40	13	1.03	mammal	med	metatarsal	unk	
OR	3	30-40	14	0.56	mammal	med	metatarsal	unk	
OR	3	30-40	15	0.01	mammal	med	rib	unk	
OR	3	30-40	16	0.03	mammal	med	rib	unk	
OR	3	30-40	17	0.15	mammal	med	frag- metatarsal?	unk	
OR	3	30-40	18	0.11	mammal	med	frag- metatarsal?	unk	
OR	3	30-40	19	0.18	mammal	med	frag- vert?	unk	articular surface w/ foramen.
OR	3	30-40	20	0.26	mammal	med	frag- metatarsal?	unk	
OR	3	30-40	21	0.18	mammal	med	frag- metatarsal?	unk	
OR	3	30-40	22	0.24	mammal	med	frag- metatarsal?	unk	
OR	3	30-40	23	0.12	mammal	med	frag- metatarsal?	unk	
OR	3	30-40	24	0.13	mammal	med	frag-pelvis	unk	
OR	3	30-40	25	0.3	mammal	med	tarsal	unk	
OR	3	30-40	26	0.33	mammal	med	tarsal	unk	
OR	3	30-40	27	0.26	mammal	med	tarsal	unk	
OR	3	30-40	28	0.04	mammal	med	tarsal	unk	
OR	3	30-40	29	0.16	mammal	med	phalanx	unk	
OR	3	30-40	30	0.16	mammal	med	phalanx	unk	
OR	3	30-40	31	0.18	mammal	med	phalanx	unk	
OR	3	30-40	32	0.08	mammal	med	frag-phalanx	unk	
OR	3	30-40	33	0.07	mammal	med	frag-phalanx	unk	
OR	3	30-40	34	0.11	mammal	med	frag-pelvis	unk	
OR	3	30-40	35	0.14	mammal	med	frag-femur?	unk	articular surface, possibe femur epiphysis
OR	3	30-40	36	0.12	mammal	med	frag-phalanx?	unk	
OR	3	30-40	37	0.23	mammal	med	frag-cranium	n/a	3 pcs, thin bones, sinus?
OR	3	30-40	38	0.68	mammal	med	frag-cranium		auditory bula?
OR	3	30-40	39	2.35	mammal	med	teeth		11 goat teeth, mostly molar frags, 1 incisor.
OR	3	30-40	40	0.4	fish		vert		
OR	3	30-40	41	0.29	fish		vert		
OR	3	30-40	42	3.17	mammal	med	unid'able bits		bits and pieces too small to ID, mostly bits of the mammal
OR	3	40-50	1	0.21	mammal	med	frag-scapula		
OR	3	40-50	2	0.13	mammal	med	frag-pelvis?		pelvis frag? Epiphysis.

Site	Unit	Level	Number	Weight	Species	Size	Element	Side	Notes
GW	1	0-10	1	3.03	mammal	med	frag- flat bone		cranium? Possible suture lines
GW	1	0-10	2	0.37	mammal	med	frag- flat bone		cranium?
GW	1	0-10	3	0.45	mammal	med	tooth		tooth root- goat?
GW	1	0-10	4	0.01	fish	small	maxilla?		
GW	1	0-10	5	0.25	fish		unk		
GW	1	0-10	6	0.03	fish		unk		
GW	1	0-10	7	0.08	fish		unk		
GW	1	0-10	8	0.06	fish		unk		
GW	1.5	0-10	1	0.27	mammal	lrg/ med	frag-?rib		
GW	1	10-20	1	10.14	mammal	med	frag-long bone		medial malleolus? Or calcanous. With cut marks.
GW	1	10-20	2	0.64	mammal	med	frag-long bone		sliver of LB or tarsal, etc frag. Darkened- burned?
GW	1	10-20	3	0.23	mammal	med	LBF?		sliver of bone; not burned.
GW	1	10-20	4	0.12	fish		unk		
GW	1.5	10-20	1	15.26	mammal	med	scapula		matches lrg mammal in GW-1 80-90 cm.
GW	1.5	10-20	2	0.31	mammal	med	LBF?		possible water-worn
GW	1	20-30	1	0.18	mammal	lrg	frag-long bone		sliver of bone.
GW	1	20-30	2	0.36	mammal	med	?tooth?		possibly goat tooth frag.
GW	1	20-30	3	0.06	mammal	lrg	unk		some spongy int bone
GW	1	20-30	4	0.04	mammal		unk		
GW	1	20-30	5	0.05	mammal	med	frag-tarsal?		articular surfaces.
GW	1	20-30	6	0.02	mammal	med	frag-tarsal?		articular surfaces.
GW	1	20-30	7	0.02	fish		vert		
GW	1	20-30	8	0.06	fish		unk		possibly heat-altered.
GW	1	20-30	9	0.07	fish		unk		possibly heat-altered.
GW	1	20-30	10	0.12	fish		unk		possibly heat-altered.
GW	1	20-30	11	0.03	fish		unk		
GW	1	20-30	12	0.01	fish		unk		
GW	1	20-30	13	0.02	fish		unid'able bits		
GW	1.5	20-30	1	1.69	mammal	lrg	frag- rib		cut marks
GW	1.5	20-30	2	1.27	mammal	lrg	frag- flat bone		possibly skull frag, but no spongy bone. Interior topography but not cancellous bone.
GW	1.5	20-30	3	0.14	mammal	lrg	LBF?		bone sliver
GW	1.5	20-30	4	0.15	mammal	lrg	LBF?		bone sliver
GW	1.5	20-30	5	0.42	mammal	med	epipysis		
GW	1.5	20-30	6	0.04	fish		vert		
GW	1	30-40	1	0.49	fish		unk		
GW	1	30-40	2	0.37	fish		unk		
GW	1	30-40	3	0.15	fish		unk		
GW	1	30-40	4	0.03	fish		unk		
GW	1	30-40	5	0.05	fish		unk		
GW	1	30-40	6	0.05	fish		unk		
GW	1	30-40	7	0.02	fish		unk		
GW	1	30-40	8	0.01	fish		unid'able bits		
GW	1	30-40	9	0.01	fish		unid'able bits		
GW	1.5	30-40	1	1.24	mammal	lrg	rib		
GW	1.5	30-40	2	1.05	mammal	lrg	?rib		calcined
GW	1.5	30-40	3	0.45	mammal	lrg	LBF?		calcined
GW	1.5	30-40	4	0.25	mammal	lrg	LBF?		calcined
GW	1.5	30-40	5	0.43	mammal	lrg	LBF?		calcined
GW	1.5	30-40	6	0.01	mammal		unid'able bits		
GW	1.5	30-40	7	0.03	mammal	small	long bone		
GW	1.5	30-40	8	0.11	fish		unk		
GW	1.5	30-40	9	0.17	fish		unk		
GW	1.5	30-40	10	0.04	fish		unk		
GW	1.5	30-40	11	0.06	fish		unk		
GW	1.5	40-50	1	4.06	mammal	lrg	tarsal	4.06	5 pcs glued together
GW	1.5	40-50	2	0.25	mammal	lrg	tarsal	0.25	
GW	1.5	40-50	3	0.11	mammal	lrg	tarsal	0.11	
GW	1.5	40-50	4	0.13	mammal	lrg	tarsal	0.13	
GW	1.5	40-50	5	0.31	mammal	lrg	?phalanx		
GW	1.5	40-50	6	0.22	mammal	lrg	?phalanx		
GW	1.5	40-50	7	0.14	fish		unk		
GW	1	40-50	1	27.16	mammal	lrg	tibia		3 pcs glued together. Triangular cross-section. Mid-shaft. Cow? Cut marks on front & back.
GW	1	40-50	2	1.5	mammal	lrg	frag- LB		
GW	1	40-50	3	0.27	mammal	med	frag-rib		
GW	1	40-50	4	0.63	mammal	lrg	phalanx		
GW	1	40-50	5	0.22	mammal	med	carpal/ tarsal		dog?
GW	1	40-50	6	0.13	mammal	med	carpal/ tarsal		dog?
GW	1	40-50	7	0.14	mammal	med	carpal/ tarsal		dog?
GW	1	40-50	8	0.49	fish	lrg	vert		
GW	1	40-50	9	0.05	fish		rib		heat treated?
GW	1	40-50	10	0.08	fish		unk		
GW	1	40-50	11	1.63	mammal	lrg	LBF		LBF slivers
GW	1	50-60	1	0.37	mammal	med	caudal vert		dog?
GW	1	50-60	2	1.1	mammal	med	epipysis- distal femur?		2 pcs glued together
GW	1	50-60	3	0.35	fish		vert		
GW	1	50-60	4	0.05	fish		unk		
GW	1	50-60	5	0.06	fish		unk		
GW	1	50-60	6	0.01	fish		unk		
GW	1	60-70	1	0.06	?avian?		unk		
GW	1	60-70	2	0.03	?avian?		unk		
GW	1	60-70	3	0.01	?avian?		unk		
GW	1	60-70	4	0.61	fish		maxilla		heat treated.
GW	1	60-70	5	0.29	fish		vert		
GW	1	60-70	6	0.06	fish		vert		
GW	1	60-70	7	0.09	fish		unid'able bits		
GW	1	70-80	1	2.53	mammal	lrg	rib		broken and pitted. Cut marks. Digested by dog?
GW	1	70-80	2	0.01	fish		vert		
GW	1	70-80	3	0.09	fish		vert		
GW	1	70-80	4	0.3	fish		unid'able bits		not greasy. Possibly water-worn.
GW	1.5	70-80	1	2.4	mammal	med	metatarsal		refit w/ GW 1 90-100cm
GW	1	80-90	1	3.77	mammal	med	scapula		heat treated. Scapula frag. Refits w/ pc in GW 1.5 10-20 cm.
GW	1	80-90	2	1.28	avian		long bone		probably chicken, possibly tibia. Cutmarks.
GW	1	80-90	3	0.44	avian		unid'able bits		
GW	1.5	80-90	1	0.08	fish		vert		water worn.
GW	1.5	80-90	2	0.26	fish		unid'able bits		8 pcs. Water worn.
GW	1	90-100	1	5.54	mammal	med	metatarsal		goat? Juvenile- missing epiphysis. 2 pcs glued together. Epiphysis in Unit 1.5, 70-80 cm.
GW	1	90-100	2	1.45	mammal	lrg	frag- vert?		spinous process?
GW	1	90-100	3	0.15	mammal	lrg	unid'able bits		
GW	1.5	90-100	1	0.16	fish	small	unid'able bits		water worn.

Groot Waling Unit 2
Faunal

Site	Unit	Level	Number	Weight	Species	Size	Element	Side	Notes
GW	2	0-10	1	0.38	fish		vert		
GW	2	0-10	2	0.15	fish		spine		
GW	2	0-10	3	0.03	fish		spine		
GW	2	0-10	4	0.12	fish		unk		
GW	2	10-20	1	13.27	mammal	med	pelvis frag		cut marks. Goat?
GW	2	10-20	2	1.59	mammal	med	tarsal		
GW	2	10-20	3	2.03	mammal	med	tarsal		burned. Cuboid? 2 pcs glued together.
GW	2	10-20	4	1.03	mammal	lrg	unk		cranium?
GW	2	10-20	5	1.34	mammal	lrg	LBF?		cut marks.
GW	2	10-20	6	0.78	mammal	med	?rib		cut marks.
GW	2	10-20	7	1.29	mammal	lrg	unid'able bits		
GW	2	10-20	8	0.74	mammal	med	hoof/ horn		
GW	2	10-20	9	0.95	avian		LBF?		
GW	2	10-20	10	1.38	fish		unid'able bits		6 pcs, spines, cranium bits
GW	2	70-80	1	0.35	mammal		unid'able bits		water worn

Groot Waling Unit 3
Faunal

Site	Unit	Level	Number	Weight	Species	Size	Element	Side	Notes
GW	3	0-10	1	0.03	mammal	med	unid'able bits		
GW	3	20-30	1	0.64	mammal	med	frag		Vert?
GW	3	20-30	2	0.55	mammal	med	frag		Rib?
GW	3	20-30	3	0.37	mammal	med	unid'able bits		
GW	3	20-30	4	0.02	fish		unk		
GW	3	30-40	1	0.6	mammal	med	?metaT/ phalanx		calcined
GW	3	30-40	2	0.54	mammal	med	unid'able bits		long bone fragment slivers?
GW	3	40-50	1	0.56	mammal	med	unk		burned. Cross section is rectangulat w/ indentations on 2 sides.
GW	3	80-90	1	0.62	fish		unk		water worn. There are 3.
GW	3	90-100	1	0.01	fish	small	vert		water worn.
GW	3	90-100	2	0.44	fish		unk		water worn.

Site	Unit	Level	number	weight	species	size	element	side	notes
GW	4	0-10	1	0.51	mammal	med	cranium- orbital		
GW	4	0-10	2	0.24	mammal	med	phalanx		
GW	4	0-10	3	0.04	mammal		unid'able bits		2 pcs
GW	4	0-10	4	0.44	fish		vert		
GW	4	10-20	1	0.66	mammal	med	vert		atlas
GW	4	10-20	2	0.43	mammal	med	vert		atlas
GW	4	10-20	3	0.65	mammal	med	vert		cervial
GW	4	10-20	4	0.15	mammal	med	vert		axis
GW	4	10-20	5	0.17	mammal	med	vert		
GW	4	10-20	6	0.22	mammal	med	vert		
GW	4	10-20	7	0.24	mammal	med	vert		
GW	4	10-20	8	0.1	mammal	med	vert		
GW	4	10-20	9	0.09	mammal	med	vert		
GW	4	10-20	10	0.09	mammal	med	vert		
GW	4	10-20	11	0.71	mammal	med	frag-cranium		
GW	4	10-20	12	0.13	mammal	med	frag-cranium		
GW	4	10-20	13	0.15	mammal	med	frag-cranium		
GW	4	10-20	14	0.14	mammal	med	frag-cranium		
GW	4	10-20	16	2.25	mammal	med	frag-cranium		burned- blackened on one end.
GW	4	10-20	15	0.2	mammal	med	LBF?		
GW	4	10-20	17	1.33	mammal	med	calcaneous		
GW	4	10-20	18	0.12	mammal		unid'able bits		
GW	4	10-20	19	0.49	fish		vert		
GW	4	10-20	20	0.67	fish		vert		
GW	4	10-20	21	0.11	fish		vert		
GW	4	10-20	22	0.33	fish		vert		
GW	4	10-20	23	0.4	fish		vert		
GW	4	10-20	24	0.08	fish		vert		
GW	4	10-20	25	0.51	fish		vert		
GW	4	10-20	26	0.3	fish		vert		
GW	4	10-20	27	0.7	fish		frag- cranium		
GW	4	10-20	29	0.38	fish		frag-cranium		
GW	4	10-20	28	0.82	fish		spine		
GW	4	10-20	30	0.11	fish		spine		
GW	4	10-20	31	0.11	fish		fin?		
GW	4	10-20	32	0.13	fish		unid'able bits		
GW	4	20-30	1	14.58	mammal	med	vert		Dog
GW	4	20-30	2	3.07	mammal	med	scapula		5 pcs. Dog
GW	4	20-30	3	2.29	mammal	med	frag-cranium		Dog
GW	4	20-30	4	23.04	mammal	med	tibia		4 tibia: 2R, 2L. Dog
GW	4	20-30	5	5.3	mammal	med	femur	right	Dog
GW	4	20-30	6	2.71	mammal	med	fibula		lots of bits, R, L and shafts. Dog
GW	4	20-30	7	11.02	mammal	med	humerus		1 R, 1L. Dog
GW	4	20-30	8	7.21	mammal	med	ulna		1 R, 1L. Dog
GW	4	20-30	9	5.15	mammal	med	radius		1 R, 1L. Dog
GW	4	20-30	10	7.44	mammal	med	ribs		Dog
GW	4	20-30	11	7.85	mammal	med	phalanx		Dog
GW	4	20-30	12	4.45	mammal	med	tarsal		Dog
GW	4	20-30	13	4.34	mammal	med	teeth		goat
GW	4	20-30	14	10.78	mammal		unid'able bits		
GW	4	20-30	15	0.27	fish		vert		
GW	4	20-30	16	0.12	fish		vert		
GW	4	20-30	17	0.11	fish		vert		
GW	4	20-30	18	0.15	fish		vert		
GW	4	20-30	22	0.28	fish		vert		
GW	4	20-30	23	0.06	fish		vert		
GW	4	20-30	19	1	fish		cranium		
GW	4	20-30	20	0.49	fish		cranium		
GW	4	20-30	21	0.49	fish		cranium		
GW	4	20-30	24	1.46	fish		unid'able bits		
GW	4	30-40	1	21.64	mammal	med	femur		dog. 1 r, 2 L.
GW	4	30-40	2	11.22	mammal	med	humerus		dog 1R, 1L
GW	4	30-40	3	5.23	mammal	med	ulna		dog 1R, 1L
GW	4	30-40	4	4.22	mammal	med	radius		dog R, 1L
GW	4	30-40	5	0.94	mammal	med	scapula		
GW	4	30-40	6	17.34	mammal	med	vert		dog
GW	4	30-40	7	5.83	mammal	med	pelvis frag		dog

Site	Unit	Level	number	weight	species	size	element	side	notes
GW	4	30-40	8	6.59	mammal	med	ribs		dog
GW	4	30-40	9	3.61	mammal	med	phalanx		dog
GW	4	30-40	12	3.03	mammal	lrg	rib		cow or pig?
GW	4	30-40	11	12.63	mammal	lrg	phalanx		cow?
GW	4	30-40	10	5.65	mammal		unid'able bits		
GW	4	40-50	1	0.38	mammal	lrg	LBF?		
GW	4	40-50	2	0.18	mammal	med	tibia		distal
GW	4	40-50	3	0.26	fish		unid'able bits		
GW	4	50-60	1	15.95	mammal	med	teeth		goat teeth frags
GW	4	50-60	2	1.75	mammal	lrg	LBF?		
GW	4	50-60	3	3.2	mammal	lrg	?phalanx		
GW	4	60-70	1	5.05	mammal	med	frag-cranium		auditory bulla. Water-worn
GW	4	60-70	2	1.09	mammal	lrg/ med	unid'able bits		water-worn
GW	4	60-70	3	0.09	fish		vert		water-worn
GW	4	60-70	4	0.16	fish		vert		water-worn
GW	4	60-70	5	0.09	fish		vert		water-worn
GW	4	60-70	6	0.38	fish		unid'able bits		water-worn
GW	4	60-70	7	0.04	mammal	small	femur	right	water-worn
GW	4	60-70	8	0.77	unk		unid'able bits		water-worn
GW	4	90-100	1	0.14	fish		unid'able bits		

Komber Unit 1

Faunal

Site	Unit	Level	Number	Weight	Species	Size	Element	Side	Notes
KB	1	0-10	1	0.16	fish		spine		
KB	1	0-10	2	0.28	fish		frag-cranium		
KB	1	0-10	3	0.48	mammal		LBF?		
KB	1	20-30	1	0.67	fish		maxilla		
KB	1	20-30	2	0.16	fish		maxilla		
KB	1	30-40	1	1.02	mammal	lrg	molar		human tooth
KB	1	30-40	2	0.07	fish		vert		
KB	1	30-40	3	0.04	fish		vert		
KB	1	30-40	4	0.13	mammal	small	LBF?		
KB	1	30-40	5	0.01	mammal	small			
KB	1	40-50	1	0.25	fish		vert		
KB	1	40-50	2	0.1	fish		vert		
KB	1	40-50	3	0.08	fish		vert		
KB	1	40-50	4	0.08	fish		vert		
KB	1	40-50	5	0.01	fish		vert		
KB	1	40-50	6	0.06	fish		vert		
KB	1	40-50	7	0.5	fish		mandible		
KB	1	40-50	8	0.36	fish		frag-cranium		
KB	1	40-50	9	0.16	fish		fin?		
KB	1	40-50	10	0.13	fish		maxilla		
KB	1	40-50	11	0.75	fish		unid'able bits		
KB	1	50-60	1	1.29	mammal	med	femur	right	cat
KB	1	50-60	2	0.49	mammal	med	femur	left	cat. Proximal
KB	1	50-60	3	0.29	mammal	med	femur		femoral heads. N=3
KB	1	50-60	4	0.71	mammal	med	femur		distal femur epiphyses
KB	1	50-60	5	0.79	mammal	med	tibia		L and R tibia
KB	1	50-60	6	0.14	mammal	med	femur		trochanter epiphysis
KB	1	50-60	7	1.14	mammal	med	pelvis frag		3 pcs.
KB	1	50-60	8	0.27	mammal	med	tibia		epiphyses
KB	1	50-60	9	0.36	mammal	med	tibia		distal end
KB	1	50-60	10	0.83	mammal	med	vert		
KB	1	50-60	11	0.82	mammal	med	Metatarsal		7 meta-tarsals
KB	1	50-60	12	0.76	mammal	med	calcaneous		1 R, 1 L
KB	1	50-60	13	4.11	mammal	med	phalanx		phalanges and metaTs, LBF
KB	1	50-60	14	0.68	fish		vert		
KB	1	50-60	15	0.58	fish		vert		
KB	1	50-60	16	1.5	fish		unid'able bits		
KB	1	50-60	17	6.16	unk		unid'able bits		
KB	1	60-70	1	1.6	avian		humerus		cutmarks
KB	1	60-70	2	1.54	fish		maxilla		
KB	1	60-70	3	0.17	fish		vert		
KB	1	60-70	4	0.13	fish		spine		
KB	1	60-70	5	0.05	mammal		epiphysis		

Komber Unit 2
Faunal

Site	Unit	Level	Number	Weight	Species	Size	Element	Side	Notes
KB	2	0-10	1	16.77	mammal	lrg	phalanx		cow or pig.
KB	2	0-10	2	0.44	mammal	med	rib		
KB	2	0-10	3	0.31	fish		maxilla		heat treated
KB	2	0-10	4	0.04	fish		spine		heat treated
KB	2	0-10	5	0.02	fish		unk		
KB	2	10-20	1	12.92	fish		unk		
KB	2	10-20	2	1.17	mammal		unid'able bits		
KB	2	20-30	1	12.17	mammal	med	cranium		
KB	2	20-30	2	2.36	mammal	med	tooth		goat (?) incisor, root frag
KB	2	20-30	3	1.2	mammal	med	unk		phalanges (?) and LBF
KB	2	20-30	4	2.31	avian		LBF?		
KB	2	20-30	5	1.27	fish		vert		
KB	2	20-30	6	0.4	fish		mouth plate		
KB	2	20-30	7	4.27	fish		cranium		
KB	2	20-30	8	12.36	fish		unk		
KB	2	20-30	9	2.98	fish		unid'able bits		
KB	2	30-40	1	57.51	mammal	lrg	teeth		cow- 5 teeth- very worn. Molar and pre-molars
KB	2	30-40	2	42.1	mammal	lrg	mandible		frags of mandible
KB	2	30-40	3	0.16	mammal	med	vert frags		caudal vert
KB	2	30-40	4	5.77	mammal	lrg	rib frags		
KB	2	30-40	5	1.17	avian		LBF?		
KB	2	30-40	6	8.88	fish		various unk		
KB	2	30-40	7	4.9	unk		unid'able bits		
KB	2	40-50	1	85.7	mammal	med	humerus		distal. Multiple frags glued together. Goat? Cut marks
KB	2	40-50	2	4.66	mammal	med	unid'able bits		cancelous bone frags
KB	2	40-50	3	3.26	avian		LBF?		
KB	2	40-50	4	1.62	fish		vert		
KB	2	40-50	5	2.58	fish		spine		
KB	2	40-50	6	6.74	fish		cranium		
KB	2	40-50	7	3.23	unk		unid'able bits		
KB	2	50-60	1	7.68	mammal	lrg/ med	calcaneous		epiphyses, cancelous bone.
KB	2	50-60	2	28.74	mammal	lrg/ med	flat bone frags		pelvis
KB	2	50-60	3	1.74	avian		femur		
KB	2	50-60	4	0.83	fish		vert		
KB	2	50-60	5	3.94	fish		cranium		
KB	2	50-60	6	1.98	fish		spine		
KB	2	50-60	7	2.14	unk		unid'able bits		
KB	2	60-70	1	4.53	mammal	med	rib		
KB	2	60-70	2	0.35	fish		vert		
KB	2	60-70	3	1.05	fish		mandible		w/ teeth
KB	2	60-70	4	1.8	fish		other		
KB	2	70-80	1	2.16	avian		LBF?		N=2
KB	2	70-80	2	1.52	mammal	small	humerus		distal. Not cat or dog. Bat? Cuscus? Pretty short and stubby.
KB	2	70-80	3	0.78	mammal	med	vert		N=1
KB	2	70-80	4	15.24	mammal	lrg	cranium		N=8
KB	2	70-80	5	10.77	mammal	lrg	flat bone frags		rib? N=4
KB	2	70-80	6	0.6	fish		vert		N=2
KB	2	70-80	7	4.81	fish		other		N=24
KB	2	70-80	8	3.44	unk		unid'able bits		
KB	2	80-90	1	0.62	mammal	small	maxilla		maxilla + 2 teeth- phalanger?
KB	2	80-90	2	0.13	mammal	small	caudal vert		
KB	2	80-90	3	2.21	mammal	med	tooth		incisor. Goat?
KB	2	80-90	4	2.91	mammal	med	cranium		
KB	2	80-90	5	0.17	fish		vert		
KB	2	80-90	6	0.52	fish		other		
KB	2	80-90	7	0.4	unk		unid'able bits		

Appendix E

Starch Grain Analysis

Species	Length
C. esculenta	2.63
C. esculenta	2.86
C. esculenta	2.91
C. esculenta	3.13
C. esculenta	3.31
C. esculenta	3.32
C. esculenta	3.44
C. esculenta	3.45
C. esculenta	3.46
C. esculenta	3.5
C. esculenta	3.53
C. esculenta	3.54
C. esculenta	3.68
C. esculenta	3.78
C. esculenta	3.81
C. esculenta	3.82
C. esculenta	3.91
C. esculenta	3.91
C. esculenta	3.95
C. esculenta	3.95
C. esculenta	3.95
C. esculenta	3.96
C. esculenta	4.01
C. esculenta	4.01
C. esculenta	4.01
C. esculenta	4.07
C. esculenta	4.07
C. esculenta	4.08
C. esculenta	4.1
C. esculenta	4.14
C. esculenta	4.15
C. esculenta	4.24
C. esculenta	4.26
C. esculenta	4.27
C. esculenta	4.27
C. esculenta	4.27
C. esculenta	4.31
C. esculenta	4.32
C. esculenta	4.33
C. esculenta	4.33
C. esculenta	4.36
C. esculenta	4.36
C. esculenta	4.38
C. esculenta	4.47
C. esculenta	4.54
C. esculenta	4.55

Species	Length
C. esculenta	4.55
C. esculenta	4.59
C. esculenta	4.59
C. esculenta	4.6
C. esculenta	4.67
C. esculenta	4.67
C. esculenta	4.69
C. esculenta	4.7
C. esculenta	4.79
C. esculenta	4.8
C. esculenta	4.83
C. esculenta	4.84
C. esculenta	4.87
C. esculenta	4.87
C. esculenta	4.88
C. esculenta	4.93
C. esculenta	4.99
C. esculenta	5.03
C. esculenta	5.04
C. esculenta	5.11
C. esculenta	5.13
C. esculenta	5.18
C. esculenta	5.22
C. esculenta	5.22
C. esculenta	5.26
C. esculenta	5.3
C. esculenta	5.4
C. esculenta	5.47
C. esculenta	5.5
C. esculenta	5.51
C. esculenta	5.58
C. esculenta	5.59
C. esculenta	5.68
C. esculenta	5.78
C. esculenta	5.85
C. esculenta	5.86
C. esculenta	5.88
C. esculenta	5.95
C. esculenta	5.95
C. esculenta	5.97
C. esculenta	5.99
C. esculenta	6
C. esculenta	6.04
C. esculenta	6.06
C. esculenta	6.06
C. esculenta	6.13

Species	Length
C. esculenta	6.15
C. esculenta	6.15
C. esculenta	6.18
C. esculenta	6.19
C. esculenta	6.41
C. esculenta	6.85
C. esculenta	7.73
C. esculenta	7.81
C. esculenta	7.86
C. esculenta	8.18
C. esculenta	9.37
D. esculenta	1.68
D. esculenta	1.77
D. esculenta	2.1
D. esculenta	2.18
D. esculenta	2.28
D. esculenta	2.29
D. esculenta	2.37
D. esculenta	2.42
D. esculenta	2.43
D. esculenta	2.48
D. esculenta	2.5
D. esculenta	2.5
D. esculenta	2.55
D. esculenta	2.6
D. esculenta	2.65
D. esculenta	2.73
D. esculenta	2.73
D. esculenta	2.74
D. esculenta	2.79
D. esculenta	2.79
D. esculenta	2.8
D. esculenta	2.8
D. esculenta	2.8
D. esculenta	2.82
D. esculenta	2.82
D. esculenta	2.83
D. esculenta	2.86
D. esculenta	2.87
D. esculenta	2.89
D. esculenta	2.89
D. esculenta	2.89
D. esculenta	2.91
D. esculenta	2.93
D. esculenta	2.93
D. esculenta	2.93

Species	Length
D. esculenta	2.94
D. esculenta	2.94
D. esculenta	2.95
D. esculenta	3
D. esculenta	3.01
D. esculenta	3.02
D. esculenta	3.16
D. esculenta	3.16
D. esculenta	3.23
D. esculenta	3.23
D. esculenta	3.24
D. esculenta	3.25
D. esculenta	3.26
D. esculenta	3.3
D. esculenta	3.3
D. esculenta	3.3
D. esculenta	3.3
D. esculenta	3.31
D. esculenta	3.31
D. esculenta	3.33
D. esculenta	3.33
D. esculenta	3.4
D. esculenta	3.41
D. esculenta	3.43
D. esculenta	3.43
D. esculenta	3.44
D. esculenta	3.45
D. esculenta	3.45
D. esculenta	3.45
D. esculenta	3.45
D. esculenta	3.48
D. esculenta	3.49
D. esculenta	3.53
D. esculenta	3.53
D. esculenta	3.53
D. esculenta	3.55
D. esculenta	3.58
D. esculenta	3.62
D. esculenta	3.64
D. esculenta	3.64
D. esculenta	3.69
D. esculenta	3.72
D. esculenta	3.74
D. esculenta	3.76
D. esculenta	3.78
D. esculenta	3.83

Species	Length
D. esculenta	3.88
D. esculenta	3.91
D. esculenta	3.95
D. esculenta	3.98
D. esculenta	4.01
D. esculenta	4.06
D. esculenta	4.06
D. esculenta	4.09
D. esculenta	4.18
D. esculenta	4.19
D. esculenta	4.21
D. esculenta	4.24
D. esculenta	4.37
D. esculenta	4.41
D. esculenta	4.44
D. esculenta	4.54
D. esculenta	4.61
D. esculenta	4.63
D. esculenta	4.84
D. esculenta	4.97
D. esculenta	5.09
I. batatas	7.11
I. batatas	8.11
I. batatas	8.33
I. batatas	8.49
I. batatas	8.58
I. batatas	8.64
I. batatas	8.67
I. batatas	9.05
I. batatas	9.34
I. batatas	9.9
I. batatas	10.22
I. batatas	10.3
I. batatas	10.47
I. batatas	10.5
I. batatas	10.58
I. batatas	10.62
I. batatas	10.64
I. batatas	10.78
I. batatas	10.83
I. batatas	10.91
I. batatas	11
I. batatas	11.07
I. batatas	11.09
I. batatas	11.15
I. batatas	11.16

Species	Length
I. batatas	11.22
I. batatas	11.32
I. batatas	11.49
I. batatas	11.58
I. batatas	11.67
I. batatas	11.7
I. batatas	11.72
I. batatas	11.76
I. batatas	11.87
I. batatas	12.45
I. batatas	12.51
I. batatas	12.85
I. batatas	12.98
I. batatas	12.99
I. batatas	13.22
I. batatas	13.27
I. batatas	13.29
I. batatas	13.43
I. batatas	13.57
I. batatas	13.76
I. batatas	13.85
I. batatas	14.01
I. batatas	14.17
I. batatas	14.2
I. batatas	14.21
I. batatas	14.24
I. batatas	14.35
I. batatas	14.38
I. batatas	14.49
I. batatas	14.65
I. batatas	14.73
I. batatas	15.06
I. batatas	15.24
I. batatas	15.58
I. batatas	15.66
I. batatas	16.12
I. batatas	16.13
I. batatas	16.23
I. batatas	16.31
I. batatas	16.47
I. batatas	16.65
I. batatas	17.05
I. batatas	17.11
I. batatas	17.2
I. batatas	17.37
I. batatas	17.41

Species	Length
I. batatas	17.48
I. batatas	17.51
I. batatas	17.64
I. batatas	18.28
I. batatas	18.4
I. batatas	18.67
I. batatas	18.9
I. batatas	19.68
I. batatas	19.78
I. batatas	20.61
I. batatas	21.09
I. batatas	21.6
I. batatas	21.75
I. batatas	21.84
I. batatas	22.09
I. batatas	22.11
I. batatas	22.38
I. batatas	22.44
I. batatas	22.68
I. batatas	23.32
I. batatas	23.36
I. batatas	23.81
I. batatas	25.33
I. batatas	26.41
I. batatas	27.22
I. batatas	27.42
I. batatas	28.01
I. batatas	29.96
I. batatas	29.97
I. batatas	30.39
I. batatas	33.12
M. sagu	24.14
M. sagu	25.43
M. sagu	27.99
M. sagu	28.75
M. sagu	32.69
M. sagu	32.98
M. sagu	33.79
M. sagu	34.23
M. sagu	35.92
M. sagu	36.16
M. sagu	36.34
M. sagu	36.6
M. sagu	37.29
M. sagu	37.52
M. sagu	37.6

Species	Length
M. sagu	37.88
M. sagu	38.44
M. sagu	38.67
M. sagu	38.69
M. sagu	39.33
M. sagu	39.59
M. sagu	39.8
M. sagu	39.84
M. sagu	40.18
M. sagu	40.2
M. sagu	40.31
M. sagu	41.12
M. sagu	41.87
M. sagu	41.92
M. sagu	42.03
M. sagu	42.15
M. sagu	42.28
M. sagu	42.46
M. sagu	42.5
M. sagu	42.62
M. sagu	43.55
M. sagu	43.55
M. sagu	43.69
M. sagu	43.73
M. sagu	44.04
M. sagu	44.13
M. sagu	44.17
M. sagu	44.23
M. sagu	44.58
M. sagu	44.64
M. sagu	44.66
M. sagu	44.7
M. sagu	44.72
M. sagu	44.75
M. sagu	44.89
M. sagu	45.05
M. sagu	45.06
M. sagu	45.08
M. sagu	45.26
M. sagu	45.29
M. sagu	45.35
M. sagu	45.45
M. sagu	45.94
M. sagu	46.01
M. sagu	46.09
M. sagu	46.13

Species	Length
M. sagu	46.24
M. sagu	46.3
M. sagu	46.36
M. sagu	46.4
M. sagu	46.83
M. sagu	47.19
M. sagu	47.25
M. sagu	47.39
M. sagu	47.5
M. sagu	47.78
M. sagu	47.88
M. sagu	48.04
M. sagu	49.16
M. sagu	49.37
M. sagu	49.47
M. sagu	49.71
M. sagu	49.89
M. sagu	50.12
M. sagu	50.16
M. sagu	50.31
M. sagu	50.71
M. sagu	50.87
M. sagu	51.68
M. sagu	51.98
M. sagu	52.63
M. sagu	52.68
M. sagu	52.76
M. sagu	53.36
M. sagu	54.7
M. sagu	54.81
M. sagu	54.91
M. sagu	57.97
M. sagu	58.48
M. sagu	58.59
M. sagu	59.57
M. sagu	60.39
M. sagu	60.77
M. sagu	61.14
M. sagu	65.05
M. sagu	73.47
M.esculenta (cassava)	3.86
M.esculenta (cassava)	4.79
M.esculenta (cassava)	4.9
M.esculenta (cassava)	4.97
M.esculenta (cassava)	5.62
M.esculenta (cassava)	5.95

Species	Length
M.esculenta (cassava)	6.08
M.esculenta (cassava)	6.4
M.esculenta (cassava)	6.43
M.esculenta (cassava)	6.48
M.esculenta (cassava)	6.54
M.esculenta (cassava)	6.57
M.esculenta (cassava)	6.77
M.esculenta (cassava)	7
M.esculenta (cassava)	7.07
M.esculenta (cassava)	7.08
M.esculenta (cassava)	7.13
M.esculenta (cassava)	7.36
M.esculenta (cassava)	7.45
M.esculenta (cassava)	7.6
M.esculenta (cassava)	7.78
M.esculenta (cassava)	8.08
M.esculenta (cassava)	8.32
M.esculenta (cassava)	8.39
M.esculenta (cassava)	8.49
M.esculenta (cassava)	8.55
M.esculenta (cassava)	8.81
M.esculenta (cassava)	8.86
M.esculenta (cassava)	9.01
M.esculenta (cassava)	9.04
M.esculenta (cassava)	9.15
M.esculenta (cassava)	9.24
M.esculenta (cassava)	9.37
M.esculenta (cassava)	9.37
M.esculenta (cassava)	9.41
M.esculenta (cassava)	9.57
M.esculenta (cassava)	9.68
M.esculenta (cassava)	9.71
M.esculenta (cassava)	9.91
M.esculenta (cassava)	10
M.esculenta (cassava)	10.04
M.esculenta (cassava)	10.05
M.esculenta (cassava)	10.11
M.esculenta (cassava)	10.19
M.esculenta (cassava)	10.42
M.esculenta (cassava)	10.42
M.esculenta (cassava)	10.52
M.esculenta (cassava)	10.61
M.esculenta (cassava)	10.61
M.esculenta (cassava)	10.75
M.esculenta (cassava)	10.76
M.esculenta (cassava)	10.83

Species	Length
M.esculenta (cassava)	10.93
M.esculenta (cassava)	10.94
M.esculenta (cassava)	11.01
M.esculenta (cassava)	11.22
M.esculenta (cassava)	11.24
M.esculenta (cassava)	11.24
M.esculenta (cassava)	11.31
M.esculenta (cassava)	11.33
M.esculenta (cassava)	11.34
M.esculenta (cassava)	11.35
M.esculenta (cassava)	11.37
M.esculenta (cassava)	11.52
M.esculenta (cassava)	11.77
M.esculenta (cassava)	11.9
M.esculenta (cassava)	11.91
M.esculenta (cassava)	11.94
M.esculenta (cassava)	12.16
M.esculenta (cassava)	12.29
M.esculenta (cassava)	12.3
M.esculenta (cassava)	12.68
M.esculenta (cassava)	12.73
M.esculenta (cassava)	12.81
M.esculenta (cassava)	12.89
M.esculenta (cassava)	13.1
M.esculenta (cassava)	13.33
M.esculenta (cassava)	13.39
M.esculenta (cassava)	13.41
M.esculenta (cassava)	13.53
M.esculenta (cassava)	13.6
M.esculenta (cassava)	13.61
M.esculenta (cassava)	13.68
M.esculenta (cassava)	13.79
M.esculenta (cassava)	13.98
M.esculenta (cassava)	13.98
M.esculenta (cassava)	14
M.esculenta (cassava)	14.37
M.esculenta (cassava)	14.52
M.esculenta (cassava)	14.79
M.esculenta (cassava)	14.92
M.esculenta (cassava)	14.97
M.esculenta (cassava)	14.98
M.esculenta (cassava)	15.03
M.esculenta (cassava)	15.14
M.esculenta (cassava)	15.19
M.esculenta (cassava)	15.25
M.esculenta (cassava)	15.26

Species	Length
M.esculenta (cassava)	15.54
M.esculenta (cassava)	15.67
M.esculenta (cassava)	15.72
M.esculenta (cassava)	15.75
M.esculenta (cassava)	15.84
M.esculenta (cassava)	15.94
M.esculenta (cassava)	16.14
M.esculenta (cassava)	16.23
M.esculenta (cassava)	16.37
M.esculenta (cassava)	16.38
M.esculenta (cassava)	16.43
M.esculenta (cassava)	16.68
M.esculenta (cassava)	16.86
M.esculenta (cassava)	16.87
M.esculenta (cassava)	16.87
M.esculenta (cassava)	16.88
M.esculenta (cassava)	17.37
M.esculenta (cassava)	17.42
M.esculenta (cassava)	17.8
M.esculenta (cassava)	18.57
M.esculenta (cassava)	18.85
M.esculenta (cassava)	19.08
M.esculenta (cassava)	19.5
M.esculenta (cassava)	19.77
M.esculenta (cassava)	20.56
M.fragrans	3.69
M.fragrans	4.06
M.fragrans	4.28
M.fragrans	4.35
M.fragrans	4.53
M.fragrans	4.53
M.fragrans	4.54
M.fragrans	4.65
M.fragrans	4.69
M.fragrans	4.71
M.fragrans	4.76
M.fragrans	4.78
M.fragrans	4.83
M.fragrans	4.84
M.fragrans	4.86
M.fragrans	5.01
M.fragrans	5.06
M.fragrans	5.3
M.fragrans	5.31
M.fragrans	5.32
M.fragrans	5.32

Species	Length
M.fragrans	5.39
M.fragrans	5.44
M.fragrans	5.47
M.fragrans	5.49
M.fragrans	5.53
M.fragrans	5.67
M.fragrans	5.73
M.fragrans	5.74
M.fragrans	5.8
M.fragrans	5.86
M.fragrans	5.92
M.fragrans	5.92
M.fragrans	5.95
M.fragrans	5.95
M.fragrans	5.95
M.fragrans	6.03
M.fragrans	6.05
M.fragrans	6.05
M.fragrans	6.2
M.fragrans	6.24
M.fragrans	6.28
M.fragrans	6.32
M.fragrans	6.37
M.fragrans	6.41
M.fragrans	6.47
M.fragrans	6.52
M.fragrans	6.54
M.fragrans	6.6
M.fragrans	6.61
M.fragrans	6.74
M.fragrans	6.78
M.fragrans	6.83
M.fragrans	6.85
M.fragrans	6.89
M.fragrans	6.91
M.fragrans	6.92
M.fragrans	6.97
M.fragrans	7.14
M.fragrans	7.29
M.fragrans	7.3
M.fragrans	7.36
M.fragrans	7.4
M.fragrans	7.42
M.fragrans	7.43
M.fragrans	7.55
M.fragrans	7.65

Species	Length
M.fragrans	7.68
M.fragrans	7.8
M.fragrans	7.95
M.fragrans	7.96
M.fragrans	7.98
M.fragrans	7.99
M.fragrans	7.99
M.fragrans	8.02
M.fragrans	8.1
M.fragrans	8.15
M.fragrans	8.18
M.fragrans	8.41
M.fragrans	8.41
M.fragrans	8.56
M.fragrans	8.63
M.fragrans	8.7
M.fragrans	8.7
M.fragrans	8.74
M.fragrans	8.87
M.fragrans	8.97
M.fragrans	9.25
M.fragrans	9.35
M.fragrans	9.35
M.fragrans	9.42
M.fragrans	9.59
M.fragrans	9.8
M.fragrans	10.28
M.fragrans	10.89
M.fragrans	11.24
M.fragrans	11.29
M.fragrans	11.31
M.fragrans	11.42
M.fragrans	11.77
M.fragrans	11.85
M.fragrans	12.17
M.fragrans	12.33
M.fragrans	12.86
M.fragrans	13.94
M.fragrans	14.45
M.peekeli	3.43
M.peekeli	3.76
M.peekeli	3.79
M.peekeli	3.86
M.peekeli	3.96
M.peekeli	3.98
M.peekeli	3.99

Species	Length
M.peekeli	3.99
M.peekeli	4.04
M.peekeli	4.06
M.peekeli	4.12
M.peekeli	4.17
M.peekeli	4.19
M.peekeli	4.26
M.peekeli	4.29
M.peekeli	4.29
M.peekeli	4.33
M.peekeli	4.33
M.peekeli	4.36
M.peekeli	4.38
M.peekeli	4.42
M.peekeli	4.46
M.peekeli	4.49
M.peekeli	4.54
M.peekeli	4.59
M.peekeli	4.63
M.peekeli	4.65
M.peekeli	4.76
M.peekeli	4.77
M.peekeli	4.83
M.peekeli	4.9
M.peekeli	4.91
M.peekeli	4.95
M.peekeli	4.99
M.peekeli	5.03
M.peekeli	5.15
M.peekeli	5.16
M.peekeli	5.17
M.peekeli	5.22
M.peekeli	5.29
M.peekeli	5.32
M.peekeli	5.32
M.peekeli	5.34
M.peekeli	5.36
M.peekeli	5.37
M.peekeli	5.47
M.peekeli	5.48
M.peekeli	5.49
M.peekeli	5.5
M.peekeli	5.63
M.peekeli	5.73
M.peekeli	5.75
M.peekeli	5.77

Species	Length
M.peekeli	5.81
M.peekeli	5.83
M.peekeli	5.86
M.peekeli	5.9
M.peekeli	5.94
M.peekeli	5.98
M.peekeli	5.99
M.peekeli	6
M.peekeli	6.01
M.peekeli	6.1
M.peekeli	6.15
M.peekeli	6.19
M.peekeli	6.27
M.peekeli	6.4
M.peekeli	6.42
M.peekeli	6.46
M.peekeli	6.63
M.peekeli	6.65
M.peekeli	6.66
M.peekeli	6.75
M.peekeli	6.77
M.peekeli	6.84
M.peekeli	6.98
M.peekeli	7.18
M.peekeli	7.21
M.peekeli	7.27
M.peekeli	7.48
M.peekeli	7.49
M.peekeli	7.59
M.peekeli	7.78
M.peekeli	7.85
M.peekeli	8.14
M.peekeli	9.02
M.peekeli	9.05
M.peekeli	9.3
M.peekeli	9.31
M.peekeli	9.42
M.peekeli	10.16
M.peekeli	10.17
M.peekeli	10.25
M.peekeli	10.4
M.peekeli	11
M.peekeli	11.07
M.peekeli	11.67
M.peekeli	11.87
M.peekeli	12.18

Species	Length
M.peekeli	12.19
M.peekeli	12.22
M.peekeli	12.4
Myristica spp.	4.1
Myristica spp.	4.67
Myristica spp.	4.95
Myristica spp.	4.97
Myristica spp.	4.97
Myristica spp.	5.03
Myristica spp.	5.04
Myristica spp.	5.25
Myristica spp.	5.28
Myristica spp.	5.51
Myristica spp.	5.51
Myristica spp.	5.51
Myristica spp.	5.53
Myristica spp.	5.71
Myristica spp.	5.84
Myristica spp.	5.85
Myristica spp.	5.88
Myristica spp.	5.9
Myristica spp.	5.92
Myristica spp.	6.03
Myristica spp.	6.03
Myristica spp.	6.07
Myristica spp.	6.08
Myristica spp.	6.14
Myristica spp.	6.15
Myristica spp.	6.15
Myristica spp.	6.25
Myristica spp.	6.28
Myristica spp.	6.28
Myristica spp.	6.29
Myristica spp.	6.3
Myristica spp.	6.31
Myristica spp.	6.35
Myristica spp.	6.41
Myristica spp.	6.44
Myristica spp.	6.44
Myristica spp.	6.46
Myristica spp.	6.54
Myristica spp.	6.56
Myristica spp.	6.6
Myristica spp.	6.64
Myristica spp.	6.69
Myristica spp.	6.84

Species	Length
Myristica spp.	6.91
Myristica spp.	6.93
Myristica spp.	7.09
Myristica spp.	7.09
Myristica spp.	7.11
Myristica spp.	7.16
Myristica spp.	7.17
Myristica spp.	7.22
Myristica spp.	7.25
Myristica spp.	7.29
Myristica spp.	7.32
Myristica spp.	7.32
Myristica spp.	7.33
Myristica spp.	7.35
Myristica spp.	7.39
Myristica spp.	7.39
Myristica spp.	7.4
Myristica spp.	7.49
Myristica spp.	7.5
Myristica spp.	7.5
Myristica spp.	7.63
Myristica spp.	7.63
Myristica spp.	7.7
Myristica spp.	7.83
Myristica spp.	7.92
Myristica spp.	8.02
Myristica spp.	8.03
Myristica spp.	8.13
Myristica spp.	8.14
Myristica spp.	8.18
Myristica spp.	8.19
Myristica spp.	8.19
Myristica spp.	8.31
Myristica spp.	8.32
Myristica spp.	8.39
Myristica spp.	8.44
Myristica spp.	8.56
Myristica spp.	8.56
Myristica spp.	8.6
Myristica spp.	8.6
Myristica spp.	8.61
Myristica spp.	8.74
Myristica spp.	8.74
Myristica spp.	8.75
Myristica spp.	8.75
Myristica spp.	8.83

Species	Length
Myristica spp.	8.83
Myristica spp.	8.83
Myristica spp.	8.85
Myristica spp.	9.2
Myristica spp.	9.27
Myristica spp.	9.5
Myristica spp.	9.7
Myristica spp.	9.86
Myristica spp.	10.22
Myristica spp.	11.14
Myristica spp.	11.15
Myristica spp.	11.48
Myristica spp.	11.52
Myristica spp.	11.63
Myristica spp.	11.63
Myristica spp.	11.67
Myristica spp.	11.67
Myristica spp.	13.54
Myristica spp.	14.05
O.sativa japonica (shor	4.46
O.sativa japonica (shor	5.09
O.sativa japonica (shor	5.16
O.sativa japonica (shor	5.16
O.sativa japonica (shor	5.21
O.sativa japonica (shor	5.22
O.sativa japonica (shor	5.51
O.sativa japonica (shor	5.65
O.sativa japonica (shor	5.72
O.sativa japonica (shor	5.75
O.sativa japonica (shor	5.79
O.sativa japonica (shor	5.82
O.sativa japonica (shor	5.85
O.sativa japonica (shor	5.87
O.sativa japonica (shor	5.9
O.sativa japonica (shor	5.91
O.sativa japonica (shor	5.92
O.sativa japonica (shor	5.95
O.sativa japonica (shor	6.14
O.sativa japonica (shor	6.15
O.sativa japonica (shor	6.25
O.sativa japonica (shor	6.25
O.sativa japonica (shor	6.28
O.sativa japonica (shor	6.28
O.sativa japonica (shor	6.38
O.sativa japonica (shor	6.38
O.sativa japonica (shor	6.44

Species	Length
O.sativa japonica (shor	6.52
O.sativa japonica (shor	6.54
O.sativa japonica (shor	6.6
O.sativa japonica (shor	6.64
O.sativa japonica (shor	6.69
O.sativa japonica (shor	6.77
O.sativa japonica (shor	6.88
O.sativa japonica (shor	6.88
O.sativa japonica (shor	6.89
O.sativa japonica (shor	6.91
O.sativa japonica (shor	6.92
O.sativa japonica (shor	6.93
O.sativa japonica (shor	6.96
O.sativa japonica (shor	6.98
O.sativa japonica (shor	6.99
O.sativa japonica (shor	7
O.sativa japonica (shor	7.06
O.sativa japonica (shor	7.07
O.sativa japonica (shor	7.18
O.sativa japonica (shor	7.26
O.sativa japonica (shor	7.39
O.sativa japonica (shor	7.48
O.sativa japonica (shor	7.5
O.sativa japonica (shor	7.52
O.sativa japonica (shor	7.52
O.sativa japonica (shor	7.58
O.sativa japonica (shor	7.59
O.sativa japonica (shor	7.73
O.sativa japonica (shor	7.86
O.sativa japonica (shor	7.87
O.sativa japonica (shor	7.89
O.sativa japonica (shor	7.9
O.sativa japonica (shor	7.95
O.sativa japonica (shor	7.95
O.sativa japonica (shor	7.97
O.sativa japonica (shor	7.99
O.sativa japonica (shor	7.99
O.sativa japonica (shor	8.01
O.sativa japonica (shor	8.02
O.sativa japonica (shor	8.07
O.sativa japonica (shor	8.07
O.sativa japonica (shor	8.07
O.sativa japonica (shor	8.09
O.sativa japonica (shor	8.09
O.sativa japonica (shor	8.34
O.sativa japonica (shor	8.35

Species	Length
O.sativa japonica (shor	8.46
O.sativa japonica (shor	8.51
O.sativa japonica (shor	8.58
O.sativa japonica (shor	8.63
O.sativa japonica (shor	8.74
O.sativa japonica (shor	8.85
O.sativa japonica (shor	9.11
O.sativa japonica (shor	9.11
O.sativa japonica (shor	9.18
O.sativa japonica (shor	9.25
O.sativa japonica (shor	9.26
O.sativa japonica (shor	9.39
O.sativa japonica (shor	9.4
O.sativa japonica (shor	9.45
O.sativa japonica (shor	9.5
O.sativa japonica (shor	9.56
O.sativa japonica (shor	9.67
O.sativa japonica (shor	9.69
O.sativa japonica (shor	9.7
O.sativa japonica (shor	9.79
O.sativa japonica (shor	9.86
O.sativa japonica (shor	10.04
O.sativa japonica (shor	10.18
O.sativa japonica (shor	10.26
O.sativa japonica (shor	10.29
O.sativa japonica (shor	10.83
O.sativa japonica (shor	11.06
O.sativa japonica (shor	11.7
O.sativa-1 (white long)	2.95
O.sativa-1 (white long)	3.36
O.sativa-1 (white long)	3.63
O.sativa-1 (white long)	3.76
O.sativa-1 (white long)	3.76
O.sativa-1 (white long)	3.84
O.sativa-1 (white long)	3.95
O.sativa-1 (white long)	4
O.sativa-1 (white long)	4.21
O.sativa-1 (white long)	4.41
O.sativa-1 (white long)	4.55
O.sativa-1 (white long)	4.63
O.sativa-1 (white long)	4.63
O.sativa-1 (white long)	4.65
O.sativa-1 (white long)	4.69
O.sativa-1 (white long)	4.78
O.sativa-1 (white long)	4.79
O.sativa-1 (white long)	4.8

Species	Length
O.sativa-1 (white long)	4.81
O.sativa-1 (white long)	4.83
O.sativa-1 (white long)	4.87
O.sativa-1 (white long)	4.91
O.sativa-1 (white long)	4.91
O.sativa-1 (white long)	4.97
O.sativa-1 (white long)	4.99
O.sativa-1 (white long)	5
O.sativa-1 (white long)	5.04
O.sativa-1 (white long)	5.1
O.sativa-1 (white long)	5.23
O.sativa-1 (white long)	5.25
O.sativa-1 (white long)	5.26
O.sativa-1 (white long)	5.36
O.sativa-1 (white long)	5.44
O.sativa-1 (white long)	5.44
O.sativa-1 (white long)	5.44
O.sativa-1 (white long)	5.45
O.sativa-1 (white long)	5.48
O.sativa-1 (white long)	5.58
O.sativa-1 (white long)	5.59
O.sativa-1 (white long)	5.61
O.sativa-1 (white long)	5.63
O.sativa-1 (white long)	5.66
O.sativa-1 (white long)	5.75
O.sativa-1 (white long)	5.81
O.sativa-1 (white long)	5.81
O.sativa-1 (white long)	5.83
O.sativa-1 (white long)	5.85
O.sativa-1 (white long)	5.99
O.sativa-1 (white long)	6.03
O.sativa-1 (white long)	6.06
O.sativa-1 (white long)	6.1
O.sativa-1 (white long)	6.17
O.sativa-1 (white long)	6.24
O.sativa-1 (white long)	6.24
O.sativa-1 (white long)	6.25
O.sativa-1 (white long)	6.32
O.sativa-1 (white long)	6.33
O.sativa-1 (white long)	6.34
O.sativa-1 (white long)	6.38
O.sativa-1 (white long)	6.38
O.sativa-1 (white long)	6.4
O.sativa-1 (white long)	6.54
O.sativa-1 (white long)	6.55
O.sativa-1 (white long)	6.57

Species	Length
O.sativa-1 (white long)	6.65
O.sativa-1 (white long)	6.72
O.sativa-1 (white long)	6.74
O.sativa-1 (white long)	6.76
O.sativa-1 (white long)	6.78
O.sativa-1 (white long)	6.8
O.sativa-1 (white long)	6.83
O.sativa-1 (white long)	6.91
O.sativa-1 (white long)	6.92
O.sativa-1 (white long)	6.93
O.sativa-1 (white long)	7.16
O.sativa-1 (white long)	7.18
O.sativa-1 (white long)	7.2
O.sativa-1 (white long)	7.25
O.sativa-1 (white long)	7.29
O.sativa-1 (white long)	7.41
O.sativa-1 (white long)	7.43
O.sativa-1 (white long)	7.52
O.sativa-1 (white long)	7.58
O.sativa-1 (white long)	7.67
O.sativa-1 (white long)	7.82
O.sativa-1 (white long)	7.93
O.sativa-1 (white long)	8.03
O.sativa-1 (white long)	8.13
O.sativa-1 (white long)	8.26
O.sativa-1 (white long)	8.33
O.sativa-1 (white long)	8.52
O.sativa-1 (white long)	8.55
O.sativa-1 (white long)	8.57
O.sativa-1 (white long)	8.92
O.sativa-1 (white long)	9.25
O.sativa-1 (white long)	9.27
O.sativa-1 (white long)	9.43
O.sativa-1 (white long)	9.58
O.sativa-1 (white long)	9.73
O.sativa-2 (brown long	3.48
O.sativa-2 (brown long	3.49
O.sativa-2 (brown long	3.72
O.sativa-2 (brown long	3.74
O.sativa-2 (brown long	3.94
O.sativa-2 (brown long	4.06
O.sativa-2 (brown long	4.06
O.sativa-2 (brown long	4.17
O.sativa-2 (brown long	4.35
O.sativa-2 (brown long	4.37
O.sativa-2 (brown long	4.37

Species	Length
O.sativa-2 (brown long	4.43
O.sativa-2 (brown long	4.43
O.sativa-2 (brown long	4.6
O.sativa-2 (brown long	4.79
O.sativa-2 (brown long	4.79
O.sativa-2 (brown long	4.83
O.sativa-2 (brown long	4.93
O.sativa-2 (brown long	4.95
O.sativa-2 (brown long	4.99
O.sativa-2 (brown long	5.01
O.sativa-2 (brown long	5.1
O.sativa-2 (brown long	5.11
O.sativa-2 (brown long	5.14
O.sativa-2 (brown long	5.17
O.sativa-2 (brown long	5.18
O.sativa-2 (brown long	5.19
O.sativa-2 (brown long	5.23
O.sativa-2 (brown long	5.24
O.sativa-2 (brown long	5.25
O.sativa-2 (brown long	5.26
O.sativa-2 (brown long	5.3
O.sativa-2 (brown long	5.31
O.sativa-2 (brown long	5.34
O.sativa-2 (brown long	5.42
O.sativa-2 (brown long	5.45
O.sativa-2 (brown long	5.47
O.sativa-2 (brown long	5.47
O.sativa-2 (brown long	5.51
O.sativa-2 (brown long	5.54
O.sativa-2 (brown long	5.58
O.sativa-2 (brown long	5.61
O.sativa-2 (brown long	5.66
O.sativa-2 (brown long	5.72
O.sativa-2 (brown long	5.74
O.sativa-2 (brown long	5.75
O.sativa-2 (brown long	5.78
O.sativa-2 (brown long	5.85
O.sativa-2 (brown long	5.88
O.sativa-2 (brown long	5.95
O.sativa-2 (brown long	5.95
O.sativa-2 (brown long	5.98
O.sativa-2 (brown long	6.03
O.sativa-2 (brown long	6.05
O.sativa-2 (brown long	6.07
O.sativa-2 (brown long	6.08
O.sativa-2 (brown long	6.1

Species	Length
O.sativa-2 (brown long	6.1
O.sativa-2 (brown long	6.15
O.sativa-2 (brown long	6.15
O.sativa-2 (brown long	6.19
O.sativa-2 (brown long	6.23
O.sativa-2 (brown long	6.24
O.sativa-2 (brown long	6.34
O.sativa-2 (brown long	6.37
O.sativa-2 (brown long	6.39
O.sativa-2 (brown long	6.4
O.sativa-2 (brown long	6.4
O.sativa-2 (brown long	6.46
O.sativa-2 (brown long	6.54
O.sativa-2 (brown long	6.6
O.sativa-2 (brown long	6.68
O.sativa-2 (brown long	6.75
O.sativa-2 (brown long	6.75
O.sativa-2 (brown long	6.81
O.sativa-2 (brown long	6.85
O.sativa-2 (brown long	6.86
O.sativa-2 (brown long	6.93
O.sativa-2 (brown long	6.97
O.sativa-2 (brown long	7.01
O.sativa-2 (brown long	7.06
O.sativa-2 (brown long	7.08
O.sativa-2 (brown long	7.14
O.sativa-2 (brown long	7.38
O.sativa-2 (brown long	7.39
O.sativa-2 (brown long	7.51
O.sativa-2 (brown long	7.54
O.sativa-2 (brown long	7.56
O.sativa-2 (brown long	7.57
O.sativa-2 (brown long	7.7
O.sativa-2 (brown long	7.77
O.sativa-2 (brown long	7.98
O.sativa-2 (brown long	8.01
O.sativa-2 (brown long	8.04
O.sativa-2 (brown long	8.11
O.sativa-2 (brown long	8.21
O.sativa-2 (brown long	8.27
O.sativa-2 (brown long	8.4
O.sativa-2 (brown long	8.82
O.sativa-2 (brown long	9.95
O.sativa-2 (brown long	10.04
O.sativa-2 (brown long	10.19
O.sativa-2 (brown long	10.59

Species	Length
O.sativa-2 (brown long	11.31
S. tuberosum	3.92
S. tuberosum	6.78
S. tuberosum	7.25
S. tuberosum	8.3
S. tuberosum	8.42
S. tuberosum	8.99
S. tuberosum	9.57
S. tuberosum	10.07
S. tuberosum	10.16
S. tuberosum	10.49
S. tuberosum	10.54
S. tuberosum	10.73
S. tuberosum	11.24
S. tuberosum	11.43
S. tuberosum	11.68
S. tuberosum	11.9
S. tuberosum	12.63
S. tuberosum	13.03
S. tuberosum	13.07
S. tuberosum	13.34
S. tuberosum	13.4
S. tuberosum	13.66
S. tuberosum	13.81
S. tuberosum	13.83
S. tuberosum	14
S. tuberosum	14.12
S. tuberosum	14.2
S. tuberosum	14.34
S. tuberosum	14.69
S. tuberosum	14.82
S. tuberosum	15.22
S. tuberosum	15.3
S. tuberosum	15.57
S. tuberosum	15.68
S. tuberosum	15.76
S. tuberosum	15.96
S. tuberosum	16.07
S. tuberosum	16.28
S. tuberosum	16.3
S. tuberosum	16.53
S. tuberosum	16.65
S. tuberosum	16.65
S. tuberosum	16.66
S. tuberosum	16.68
S. tuberosum	16.74

Species	Length
S. tuberosum	17.13
S. tuberosum	17.63
S. tuberosum	17.67
S. tuberosum	18
S. tuberosum	18.29
S. tuberosum	18.51
S. tuberosum	19.04
S. tuberosum	19.55
S. tuberosum	19.87
S. tuberosum	20.06
S. tuberosum	20.31
S. tuberosum	20.37
S. tuberosum	20.77
S. tuberosum	21.13
S. tuberosum	21.27
S. tuberosum	21.42
S. tuberosum	21.77
S. tuberosum	22.28
S. tuberosum	22.36
S. tuberosum	23.13
S. tuberosum	23.59
S. tuberosum	24.13
S. tuberosum	24.71
S. tuberosum	24.89
S. tuberosum	25.82
S. tuberosum	26.28
S. tuberosum	26.54
S. tuberosum	26.58
S. tuberosum	27.19
S. tuberosum	28.31
S. tuberosum	28.71
S. tuberosum	29.18
S. tuberosum	30.28
S. tuberosum	30.28
S. tuberosum	30.82
S. tuberosum	30.99
S. tuberosum	31.11
S. tuberosum	32.23
S. tuberosum	32.64
S. tuberosum	33.76
S. tuberosum	34.25
S. tuberosum	34.32
S. tuberosum	36.27
S. tuberosum	36.36
S. tuberosum	39.19
S. tuberosum	39.38

Species	Length
S. tuberosum	40
S. tuberosum	40.26
S. tuberosum	41.83
S. tuberosum	43.54
S. tuberosum	48.12
S. tuberosum	51.9
S. tuberosum	52.35
S. tuberosum	59.51
S. tuberosum	63.11
S. tuberosum	63.83
S. tuberosum	67.8
Z. mays	3.81
Z. mays	4.34
Z. mays	4.43
Z. mays	4.44
Z. mays	4.61
Z. mays	4.74
Z. mays	4.78
Z. mays	4.79
Z. mays	5.11
Z. mays	5.19
Z. mays	5.2
Z. mays	5.22
Z. mays	5.29
Z. mays	5.36
Z. mays	5.4
Z. mays	5.44
Z. mays	5.44
Z. mays	5.49
Z. mays	5.53
Z. mays	5.59
Z. mays	5.66
Z. mays	5.71
Z. mays	5.73
Z. mays	5.74
Z. mays	5.79
Z. mays	5.79
Z. mays	5.8
Z. mays	6
Z. mays	6.03
Z. mays	6.03
Z. mays	6.05
Z. mays	6.07
Z. mays	6.15
Z. mays	6.2
Z. mays	6.24

Species	Length
Z. mays	6.29
Z. mays	6.38
Z. mays	6.44
Z. mays	6.46
Z. mays	6.46
Z. mays	6.55
Z. mays	6.55
Z. mays	6.57
Z. mays	6.61
Z. mays	6.65
Z. mays	6.67
Z. mays	6.68
Z. mays	6.68
Z. mays	6.77
Z. mays	6.83
Z. mays	6.88
Z. mays	6.91
Z. mays	7
Z. mays	7.09
Z. mays	7.14
Z. mays	7.16
Z. mays	7.17
Z. mays	7.17
Z. mays	7.26
Z. mays	7.28
Z. mays	7.28
Z. mays	7.34
Z. mays	7.35
Z. mays	7.38
Z. mays	7.44
Z. mays	7.48
Z. mays	7.49
Z. mays	7.5
Z. mays	7.54
Z. mays	7.54
Z. mays	7.73
Z. mays	7.73
Z. mays	7.76
Z. mays	7.85
Z. mays	7.93
Z. mays	8
Z. mays	8.11
Z. mays	8.14
Z. mays	8.18
Z. mays	8.27
Z. mays	8.3

Species	Length
Z. mays	8.31
Z. mays	8.33
Z. mays	8.33
Z. mays	8.33
Z. mays	8.37
Z. mays	8.45
Z. mays	8.54
Z. mays	8.69
Z. mays	8.73
Z. mays	8.77
Z. mays	8.85
Z. mays	8.94
Z. mays	8.96
Z. mays	9.04
Z. mays	9.14
Z. mays	9.17
Z. mays	9.19
Z. mays	9.4
Z. mays	9.57
Z. mays	9.73
Z. mays	9.86
Z. mays	9.96
Z. mays	10.04
Z. mays	10.3
Z. mays	10.44
Z. mays	10.46
Z. mays	10.49
Z. mays	10.88
Z. mays	11.02
Z. mays	11.37
Z. mays	14.62

Site	Unit	Level	Sample #	Slide #	letter/ numl	microns	form	hilum	Nageli 1858 Ty	comments 2
GW	1	0-10 cm	1	14	a	11.719	round	centric	Type 1	
GW	1	0-10 cm	1	17	a	11.56	ovoid	centric	Type 2	
GW	1	0-10 cm	1	32	a	15.587	subround	centric	Type 1	
GW	1	10-20 cm	1	9	a	15.065	ovoid	eccentric	Type 6	
GW	1	10-20 cm	1	9	b	11.538	round	centric	Type 1	
GW	1	10-20 cm	1	13	a	18.495	round	centric	Type 1	
GW	1	10-20 cm	1	19	a	20.904	subovoid	centric	Type 2	w/ fissure
GW	1	10-20 cm	2	1	4a	6.68	compound	centric	Type 16	rice
GW	1	10-20 cm	2	1	4b	6.67	compound	centric	Type 16	rice
GW	1	10-20 cm	2	1	4c	6.5	compound	centric	Type 16	rice
GW	1	10-20 cm	2	1	4d	9.12	compound	centric	Type 16	rice
GW	1	10-20 cm	2	1	4e	5.97	compound	centric	Type 16	rice
GW	1	10-20 cm	2	1	4f	9.97	compound	centric	Type 16	rice
GW	1	10-20 cm	2	1	4g	6.25	compound	centric	Type 16	rice
GW	1	10-20 cm	2	2	a	14.587	subround	centric	Type 2	
GW	1	10-20 cm	2	4	a	21.306	subround	centric	Type 2	
GW	1	10-20 cm	2	6	a	9.519	subround	centric	Type 2	
GW	1	10-20 cm	2	10	a	10.311	subround	xde	Type 2	
GW	1	10-20 cm	2	10	b	10.034	ovoid	centric	Type 2	exploded?
GW	1	10-20 cm	2	10	c	14.902	subround	centric	Type 2	exploded?
GW	1	10-20 cm	2	10	d	29.764	subround	centric	Type 2	exploded?
GW	1	10-20 cm	2	13	a	10.397	compound	centric	Type 16	rice
GW	1	10-20 cm	2	13	b	6.031	compound	centric	Type 16	rice
GW	1	10-20 cm	2	13	c	23.316	round	centric	Type 1	with hole
GW	1	10-20 cm	2	15	a	23.14	round	centric	Type 1	fissure
GW	1	20-30 cm	1	6	a	16.293	round	centric	Type 1	
GW	1	20-30 cm	1	14	a	16.461	round	centric	Type 1	
GW	1	20-30 cm	1	15	a	13.998	subround	centric	Type 2	
GW	1	20-30 cm	1	16	a	22.326	subround	centric	Type 2	fissure
GW	1	20-30 cm	1	18	a	20.659	subround	centric	Type 2	
GW	1	20-30 cm	1	19	a	15.122	subround	centric	Type 1	
GW	1	20-30 cm	1	19	b	27.262	subround	centric	Type 2	
GW	1	20-30 cm	1	19	c	13.703	round	centric	Type 1	
GW	1	20-30 cm	1	20	a	12.348	round	centric	Type 1	
GW	1	20-30 cm	1	24	a	23.226	subround	centric	Type 2	
GW	1	30-40 cm	1	5	a	19.855	subround	centric	Type 2	
GW	1	30-40 cm	1	23	a	16.973	subround	centric	Type 1	pitted
GW	1	30-40 cm	1	23	b	17.374	subround	centric	Type 1	pitted
GW	1	30-40 cm	1	24	a	21.861	round	centric	Type 1	
GW	1	30-40 cm	1	26	a	13.885	subround	centric	Type 2	
GW	1	30-40 cm	1	30	a	22.692	subround	centric	Type 2	w/ fissure
GW	1	40-50 cm	1	7	a	17.834	subround	centric	Type 1	
GW	1	40-50 cm	1	11	a	13.686	ovoid	centric	Type 2	
GW	1	50-60 cm	2	2 Aussie	2	21.38	subovoid	centric	Type 2	pitted
GW	1	50-60 cm	2	2 Aussie	3	18.28	subovoid	centric	Type 2	fissure
GW	1	50-60 cm	2	2 Aussie	1a	12.46	subovoid	centric	Type 2	
GW	1	50-60 cm	2	2 Aussie	1b	11.62	subovoid	centric	Type 2	
GW	1	50-60 cm	1A	2	a	12.841	subround	centric	Type 1	
GW	1	50-60 cm	1A	3	a	22.967	round	centric	Type 2	
GW	1	50-60 cm	1A	3	b	39.716	subround	centric	Type 2	damaged. Pitted, exploded
GW	1	50-60 cm	1A	4	a	16.817	subround	centric	Type 1	
GW	1	50-60 cm	1A	6	a	9.71	subround	centric	Type 1	
GW	1	50-60 cm	1A	6	b	30.19	round	centric	Type 1	
GW	1	50-60 cm	1A	7	a	40.066	subovoid	centric	Type 3	
GW	1	50-60 cm	1A	7	b	13.19	round	centric	Type 1	
GW	1	50-60 cm	1A	11	a	16.801	subround	centric	Type 2	
GW	1	50-60 cm	1B	11	a	10.408	subround	centric	Type 1	
GW	1	50-60 cm	1B	13	a	15.444	subround	centric	Type 2	
GW	1	50-60 cm	1B	13	b	27.428	ovoid	centric	Type 2	
GW	2	0-10 cm	1	12	a	17.367	round	centric	Type 2	
GW	2	0-10 cm	1	13	a	15.635	round	centric	Type 1	
GW	2	0-10 cm	1	23	a	17.68	subround	centric	Type 2	
GW	2	0-10 cm	1	25	a	18.917	subround	centric	Type 2	fissure
GW	2	10-20 cm	1	7	a	21.07389	subround	centric	Type 1	
GW	2	10-20 cm	1	9	a	13.00338	subround	centric	Type 2	
GW	2	10-20 cm	1	22	a	20.8332	subround	centric	Type 2	
GW	2	10-20 cm	1	26	a	31.12278	subround	centric	Type 2	
GW	2	20-30 cm	1	1	1	21.35	subround	centric	Type 2	hole
GW	2	20-30 cm	1	8	a	17.784	subround	centric	Type 2	
GW	2	20-30 cm	1	8	b	16.28	subround	centric	Type 2	
GW	2	20-30 cm	1	8	c	18.36	subround	centric	Type 2	
GW	2	20-30 cm	1	11	a	17.353	subround	centric	Type 2	
GW	2	20-30 cm	1	11	b	18.2	round	centric	Type 1	
GW	2	20-30 cm	1	13	a	16.139	round	centric	Type 1	
GW	2	20-30 cm	1	15	a	23.121	subround	centric	Type 1	
GW	2	20-30 cm	1	24	a	49.355	subround	centric	Type 2	w/ fissure
GW	2	20-30 cm	1	27	a	9.108	round	centric	Type 1	
GW	2	20-30 cm	2	3	a	17.77153	subround	centric	Type 2	
GW	2	20-30 cm	2	15	a	20.84794	ovoid	centric	Type 3	
GW	2	20-30 cm	2	17	a	16.02877	subround	centric	Type 2	

Site	Unit	Level	Sample #	Slide #	letter/ numl	microns	form	hilum	Nageli 1858 Ty	comments 2
GW	2	20-30 cm	2	22	a	16.24768	subround	centric	Type 2	
GW	2	20-30 cm	2	28	a	20.7007	round	centric	Type 1	
GW	2	20-30 cm	2	29	a	19.59918	subround	centric	Type 2	
GW	2	20-30 cm	2	31	a	19.3224	subround	centric	Type 2	
GW	2	90-100 cm	1	3	a	24.4177	subround	centric	Type 2	
GW	2	90-100 cm	1	7	a	27.55765	subround	centric	Type 2	
GW	2	90-100 cm	1	10	a	21.1877	subround	centric	Type 2	
GW	2	90-100 cm	1	11	a	16.97886	round	centric	Type 1	
GW	2	90-100 cm	1	11	b	23.75987	subovoid	centric	Type 2	
GW	2	90-100 cm	1	12	a	17.9457	round	centric	Type 1	
GW	2	90-100 cm	1	12	b	18.09415	round	centric	Type 2	
GW	3	0-10 cm	1	9	a	21.92	subovoid-lanceo	centric	Type 3	
GW	3	0-10 cm	1	21	a	21.901	subovoid	centric	Type 2	
GW	3	0-10 cm	1	21	b	11.549	round	centric	Type 1	
GW	3	10-20 cm	1	1	1a	16.11	subround	centric	Type 2	
GW	3	10-20 cm	1	2	a	17.319	round	centric	Type 1	
GW	3	10-20 cm	1	2	b	19.954	subround	centric	Type 2	
GW	3	10-20 cm	1	3	a	17.969	ovoid	centric	Type 2	sweet potato?
GW	3	10-20 cm	1	6	a	17.732	round	centric	Type 1	
GW	3	10-20 cm	1	15	a	14.69	round	centric	Type 2	
GW	3	10-20 cm	1	15	b	17.988	subround	centric	Type 2	
GW	3	10-20 cm	1	15	c	23.46	ovoid	centric	Type 2	sweet potato?
GW	3	10-20 cm	1	18	a	25.628	subround	centric	Type 2	
GW	3	10-20 cm	1	18	b	22.819	ovoid	centric	Type 2	
GW	3	10-20 cm	1	18	c	12.99	round	centric	Type 2	
GW	3	10-20 cm	1	18	d	20.52	round	centric	Type 1	
GW	3	10-20 cm	1	20	a	5.792	round	centric	Type 1	
GW	3	10-20 cm	1	22	a	20.573	round	centric	Type 2	
GW	3	10-20 cm	1	23	a	35.077	subovoid	centric	Type 1	damaged, exploded
GW	3	10-20 cm	1	23	b	17.816	subround	centric	Type 2	
GW	3	10-20 cm	1	24	a	6.253	round	centric	Type 1	
GW	3	10-20 cm	1	25	a	9.44	ovoid	centric	Type 2	
GW	3	10-20 cm	1	26	a	20.004	subround	centric	Type 2	
GW	3	10-20 cm	1	26	b	14.051	round	centric	Type 2	
GW	3	10-20 cm	1	29	a	19.785	subround	centric	Type 2	
GW	3	10-20 cm	1	31	a	22.531	subround	centric	Type 2	
GW	3	10-20 cm	1	33	a	14.531	round	centric	Type 1	
GW	3	30-40 cm	1	8	a	20.158	subround	centric	Type 2	
GW	3	30-40 cm	1	10	a	19.821	subround	centric	Type 2	
GW	3	30-40 cm	1	12	a	15.324	subround	centric	Type 1	
GW	3	30-40 cm	1	12	b	14.272	subround	centric	Type 1	
GW	3	30-40 cm	1	14	a	10.008	round	centric	Type 2	
GW	3	30-40 cm	1	18	a	23.4379	subovoid	centric	Type 2	
GW	3	30-40 cm	1	20	a	21.702	subovoid	centric	Type 2	
GW	3	50-60 cm	1	5	a	17.143	subround	centric	Type 1	
GW	3	90-100 cm	1	2	a	24.653	subovoid	centric	Type 2	
GW	4	10-20 cm	1	4	a	21.26074	subround	centric	Type 2	
GW	4	10-20 cm	1	6	a	20.38603	round	centric	Type 2	
GW	4	10-20 cm	2	4	a	21.0435	subround	centric	Type 2	
GW	4	10-20 cm	2	5	a	18.10193	subround	centric	Type 1	
GW	4	10-20 cm	2	6	a	9.24221	subround	centric	Type 1	
GW	4	10-20 cm	2	13	a	7.342588	subround	centric	Type 2	
GW	4	10-20 cm	2	14	a	36.10509	ovoid-laneolate	centric	Type 3	
GW	4	10-20 cm	2	18	a	9.472486	round	centric	Type 1	
GW	4	10-20 cm	2	24	a	32.82224	round	centric	Type 1	damaged, broken
GW	4	10-20 cm	2	26	a	18.82364	subround	centric	Type 2	
GW	4	30-40 cm	1	2	a	20.99905	subround	centric	Type 2	
GW	4	30-40 cm	1	2	b	17.38928	subround	centric	Type 1	
GW	4	30-40 cm	2	9	a	16.19402	subround	centric	Type 2	
GW	4	30-40 cm	2	9	b	21.60237	subround	centric	Type 2	
GW	4	30-40 cm	2	10	a	11.60965	subround	centric	Type 2	
GW	4	30-40 cm	2	10	b	16.57371	subround	centric	Type 2	
GW	4	40-50 cm	1	5	a	20.3521	subround	centric	Type 2	
GW	4	40-50 cm	2	4	a	16.29331	round	centric	Type 1	
GW	4	90-100 cm	1	1	a	8.79	round	centric	Type 1	
GW	4	90-100 cm	1	1	b	10.26	round	centric	Type 1	
GW	4	90-100 cm	1	1	c	8.73	round	centric	Type 1	
GW	4	90-100 cm	1	2	a	13.653	subround	centric	Type 2	
GW	4	90-100 cm	1	3	a	17.487	subround	centric	Type 2	
GW	4	90-100 cm	1	5	a	14.343	subround	centric	Type 2	
GW	4	90-100 cm	1	26	a	14.058	round	centric	Type 1	
GW	4	90-100 cm	1	30	a	22.319	subround	centric	Type 2	
GW	4	90-100 cm	1	44	a	18.012	round	centric	Type 1	
GW	4	90-100 cm	1	45	a	20.178	subround	centric	Type 2	
GW	4	90-100 cm	1	49	a	17.057	round	centric	Type 1	
KB	1	50-60 cm	1	10	a	19.69755	subround	centric	Type 2	small sago?? Subround with nubbin
KB	1	50-60 cm	1	18	a	13.32351	subround	centric	Type 2	
KB	1	50-60 cm	1	20	a	18.10335	round	centric	Type 2	hole, fissure
KB	1	50-60 cm	1	22	a	17.9457	round	centric	Type 2	fissure
KB	1	50-60 cm	1	22	b	17.1946	round	centric	Type 2	

Site	Unit	Level	Sample #	Slide #	letter/ numl	microns	form	hilum	Nageli 1858 Ty	comments 2
KB	2	0-10 cm		2	8 a	31.10961	subround	centric	Type 2	
KB	2	0-10 cm		2	15 a	20.84672	subovoid	centric	Type 2	
KB	2	0-10 cm		2	15 b	25.77788	subovoid	centric	Type 1	
KB	2	0-10 cm		2	22 a	16.40839	subround	centric	Type 2	
KB	2	0-10 cm		2	25 a	18.4007	subovoid	centric	Type 3	
KB	2	0-10 cm	P1		2 a	18.029	subround	centric	Type 1	
KB	2	0-10 cm	P1		4 a	13.842	subround	centric	Type 2	
KB	2	0-10 cm	P1		6 a	19.234	subovoid	centric	Type 2	
KB	2	0-10 cm	P1		6 b	15.525	subround	centric	Type 1	
KB	2	0-10 cm	P1		11 a	20.8	subround	centric	Type 1	
KB	2	0-10 cm	P2		4 a	11.501	round	centric	Type 1	
KB	2	0-10 cm	P2		4 b	19.869	subovoid	centric	Type 3	
KB	2	0-10 cm	P2		6 a	19.1001	subround	centric	Type 1	
KB	2	0-10 cm	P2		6 b	14.898	subround	centric	Type 2	
KB	2	0-10 cm	P2		6 c	18.204	subovoid	centric	Type 2	
KB	2	0-10 cm	P2		7 a	7.234	subround	centric	Type 2	
KB	2	0-10 cm	P2		7 b	4.584	subround	centric	Type 2	
KB	2	0-10 cm	P2		7 c	14.562	round	centric	Type 2	
KB	2	0-10 cm	P2		8 a	16.799	subround	centric	Type 1	
KB	2	0-10 cm	P2		8 b	8.551	round	centric	Type 1	
KB	2	0-10 cm	P2		10 a	28.908	subround	centric	Type 2	fissure
KB	2	10-20 cm		1	28 a	19.044	subround	centric	Type 2	
KB	2	10-20 cm		2	1 1	20.55	subround	centric	Type 2	
KB	2	10-20 cm		2	2 a	24.984	subround	centric	Type 1	
KB	2	10-20 cm	P1		3 a	15.058	subround	centric	Type 1	
KB	2	10-20 cm	P1		4 a	18.948	subround	centric	Type 1	
KB	2	10-20 cm	P1		5 a	20.191	subround	centric	Type 2	fissure
KB	2	10-20 cm	P1		5 b	15.162	subround	centric	Type 1	
KB	2	10-20 cm	P1		12 a	22.23	ovoid	centric	Type 3	
KB	2	20-30 cm		1	1 1	20.48	subround	centric	Type 2	
KB	2	20-30 cm		1	2 a	22.977	subround	centric	Type 2	
KB	2	20-30 cm		1	4 a	13.653	ovoid-lanceolate	centric	Type 3	
KB	2	20-30 cm		1	8 a	16.591	subround	centric	Type 1	
KB	2	20-30 cm		1	10 a	18.983	ovoid-lanceolate	centric	Type 3	
KB	2	20-30 cm		1	10 b	9.601	round	centric	Type 1	
KB	2	20-30 cm		1	10 c	13.231	subround	centric	Type 2	
KB	2	20-30 cm		1	13 a	19.694	subround	centric	Type 1	
KB	2	20-30 cm		1	17 a	15.785	subround	centric	Type 1	
KB	2	20-30 cm	P1		2 a	23.437	subround	centric	Type 2	
KB	2	20-30 cm	P1		2 b	19.481	subround	centric	Type 2	
KB	2	20-30 cm	P1		2 c	21.03	round	centric	Type 1	
KB	2	20-30 cm	P1		4 a	25.535	subround	centric	Type 2	
KB	2	20-30 cm	P1		4 b	21.86	subround	centric	Type 2	
KB	2	20-30 cm	P1		4 c	18.38	subround	centric	Type 1	
KB	2	20-30 cm	P1		10 a	20.12	subround	centric	Type 2	
KB	2	20-30 cm	P1		11 a	20.069	subround	centric	Type 1	
KB	2	20-30 cm	P1		11 b	23.274	subround	centric	Type 2	
KB	2	20-30 cm	P1		12 a	15.339	subround	centric	Type 1	
KB	2	20-30 cm	P2		2 a	20.143	subround	centric	Type 1	
KB	2	20-30 cm	P2		2 b	22.557	subovoid	centric	Type 2	
KB	2	20-30 cm	P2		2 c	18.862	subround	centric	Type 1	
KB	2	20-30 cm	P2		3 a	5.381	round	centric	Type 1	
KB	2	20-30 cm	P2		3 b	29.935	subovoid	centric	Type 1	
KB	2	20-30 cm	P2		3 c	22.286	subround	centric	Type 1	
KB	2	20-30 cm	P2		4 a	14.171	subround	centric	Type 1	
KB	2	20-30 cm	P2		4 b	13.846	subtriangular	eccentric	Type 6	
KB	2	20-30 cm	P2		4 c	12.137	subovoid	centric	Type 2	
KB	2	20-30 cm	P2		6 a	15.54	round	centric	Type 1	
KB	2	20-30 cm	P2		7 a	21.058	round	centric	Type 1	fissure
KB	2	20-30 cm	P2		11 a	18.354	polygonal	centric	Type 2	
KB	2	20-30 cm	P2		11 b	16.308	subround	centric	Type 2	
KB	2	30-40 cm		1	2 a	32.537	subtriangular	eccentric	Type 6	
KB	2	30-40 cm		1	3 a	17.969	subovoid	centric	Type 2	
KB	2	30-40 cm		1	4 a	11.471	ovoid	centric	Type 1	
KB	2	30-40 cm		1	4 b	23.503	round	centric	Type 2	
KB	2	30-40 cm		1	4 c	16.28	subround	centric	Type 2	
KB	2	30-40 cm		1	5 a	23.076	subround	centric	Type 2	pitted
KB	2	30-40 cm		1	6 a	30.7	round	centric	Type 1	
KB	2	30-40 cm		1	6 b	22.967	ovoid	centric	Type 2	fissure
KB	2	30-40 cm		1	10 a	11.652	round	centric	Type 1	
KB	2	30-40 cm		1	20 a	23.612	ovoid	centric	Type 2	
KB	2	30-40 cm		1	27 a	14.906	subround	centric	Type 2	
KB	2	30-40 cm	P1		10 a	16.57	polygonal	centric	Type 1	
KB	2	30-40 cm	P1		11 a	15.531	subround	centric	Type 1	
KB	2	30-40 cm	P1		11 b	17.082	subround	centric	Type 2	
KB	2	30-40 cm	P1		23 a	13.918	subpolygonal	centric	Type 2	
KB	2	30-40 cm	P2		2 a	15.749	subovoid	centric	Type 2	
KB	2	30-40 cm	P2		4 a	20.558	subround	eccentric	Type 6	
KB	2	30-40 cm	P2		5 a	8.831	round	centric	Type 1	clumped together
KB	2	30-40 cm	P2		5 b	6.653	round	centric	Type 1	clumped together

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KB	2	30-40 cm	P2		5	c	5.225	round	centric	Type 1	clumped together	
KB	2	30-40 cm	P2		5	d	5.092	round	centric	Type 1	clumped together	
KB	2	30-40 cm	P2		5	e	4.163	round	centric	Type 1	clumped together	
KB	2	30-40 cm	P2		5	f	4.677	round	centric	Type 1	clumped together	
KB	2	30-40 cm	P2		5	g	4.029	round	centric	Type 1	clumped together	
KB	2	30-40 cm	P2		5	h	3.973	round	centric	Type 1	clumped together	
KB	2	30-40 cm	P2		5	i	4.13	round	centric	Type 1	clumped together	
KB	2	30-40 cm	P2		5	j	4.039	round	centric	Type 1	clumped together	
KB	2	30-40 cm	P2		5	k	5.48	round	centric	Type 1	clumped together	
KB	2	30-40 cm	P2		5	l	2.891	round	centric	Type 1	clumped together	
KB	2	30-40 cm	P2		5	m	3.568	round	centric	Type 1	clumped together	
KB	2	30-40 cm	P2		5	n	2.442	round	centric	Type 1	clumped together	
KB	2	30-40 cm	P2		5	o	4.083	round	centric	Type 1	clumped together	
KB	2	30-40 cm	P2		5	p	6.448	round	centric	Type 1	clumped together	
KB	2	30-40 cm	P2		5	q	5.202	round	centric	Type 1	clumped together	
KB	2	30-40 cm	P2		5	r	19.304	round	centric	Type 1	pitted	
KB	2	30-40 cm	P2		6	a	20.493	subovoid	centric	Type 3		
KB	2	30-40 cm	P2		8	a	19.34	subround	centric	Type 2		
KB	2	30-40 cm	P2		8	b	28.911	subrectangular	centric	Type 3		
KB	2	30-40 cm	P2		8	c	21.168	subovoid	centric	Type 2		
KB	2	30-40 cm	P2		9	a	13.206	subround	centric	Type 1		
KB	2	40-50 cm		1	2	a	17.24589	ovoid	centric	Type 2		
KB	2	40-50 cm		1	2	b	19.3289	subround	centric	Type 2		
KB	2	40-50 cm		1	3	a	13.58493	round	centric	Type 1		
KB	2	40-50 cm		1	6	a	16.86767	subround	centric	Type 2		
KB	2	40-50 cm		1	12	a	18.72615	subround	centric	Type 2		
KB	2	40-50 cm		1	14	a	24.22825	subround	centric	Type 2		
KB	2	40-50 cm		1	19	a	18.17603	subround	centric	Type 2		
KB	2	40-50 cm		1	19	b	12.95308	subround	centric	Type 2		
KB	2	40-50 cm		1	19	c	19.7553	subpolygonal	centric	Type 3		
KB	2	40-50 cm		1	20	a	15.16206	round	centric	Type 1		
KB	2	50-60 cm		1	7	a	21.193	subround	centric	Type 2		
KB	2	50-60 cm		1	10	a	14.789	round	centric	Type 2		
KB	2	50-60 cm		1	12	a	21.225	subovoid	centric	Type 2		
KB	2	50-60 cm		1	14	a	11.525	subround	centric	Type 2		
KB	2	60-70 cm		1	40	a	23.416	round	centric	Type 1	w/ fissure	
KB	2	70-80 cm		1	1		1 8.93	subround	centric	Type 2	fissure	
KB	2	70-80 cm		1	4	a	16.014	subround	centric	Type 2	w/ fissure	
KB	2	70-80 cm		1	12	a	17.229	subovoid	centric	Type 2		
KB	2	70-80 cm		1	12	b	21.625	subovoid	centric	Type 2		
KB	2	70-80 cm		1	27	a	17.909	subround	centric	Type 2		
KB	2	70-80 cm		1	29	a	18.894	subround	centric	Type 2		
KB	2	80-90 cm		1	4	a	18.469	subround	centric	Type 1		
KB	2	80-90 cm		1	5	a	25.456	subovoid	centric	Type 3		
KB	2	80-90 cm		1	8	a	16.3377	subovoid	centric	Type 2		
KB	2	80-90 cm		1	8	b	12.923	round	centric	Type 1		
KB	2	80-90 cm		1	8	c	13.339	round	centric	Type 2		
KB	2	80-90 cm		1	15	a	16.714	subround	centric	Type 2		
KB	2	80-90 cm	P1		4	a	23.473	subround	centric	Type 2		
KB	2	80-90 cm	P1		9	a	26.66	subround	centric	Type 1		
KB	2	80-90 cm	P1		10	a	22.081	subovoid	centric	Type 1	pitted	
KB	2	80-90 cm	P2		1		1 16.26	subround	centric	Type 2		
KB	2	80-90 cm	P2		3	a	17.506	ovoid	centric	Type 2		
KB	2	80-90 cm	P2		4	a	16.98	subovoid	centric	Type 3		
KB	2	80-90 cm	P2		8	a	17.569	round	centric	Type 2		
KB	2	80-90 cm	P2		9	a	18.07	subovoid	centric	Type 3		
KB	2	80-90 cm	P2		11	a	19.369	subround	centric	Type 2		
KB	2	80-90 cm	P2		12	a	21.113	subround	centric	Type 2		
KB	2	90-100 cm		1	24	a	16.948	round	centric	Type 1		
KB	2	90-100 cm		1	29	a	20.61	round	centric	Type 1		
KB	2	90-100 cm		1	39	a	18.006	subround	centric	Type 2		
KB	2	90-100 cm		2	2	a	18.749	subround	centric	Type 2		
KB	2	90-100 cm		2	9	a	18.444	subround	centric	Type 2		
KB	2	90-100 cm		2	10	a	16.666	subround	centric	Type 2		
KB	2	90-100 cm		2	11	a	24.962	round	centric	Type 1		
KB	2	90-100 cm		2	12	a	12.636	subround	centric	Type 2		
KB	2	90-100 cm		2	12	b	7.879	subovoid	centric	Type 2		
KB	2	90-100 cm		2	12	c	26.604	subround	centric	Type 2	fissure	damaged, swollen?
KB	2	90-100 cm		2	13	a	18.262	subovoid	centric	Type 2		
OR	1	0-10 cm		1	2	a	21.85977	subround	centric	Type 2		
OR	1	0-10 cm		1	6	a	19.34082	round	centric	Type 2		
OR	1	0-10 cm		1	6	b	56.0377	ovoid	eccentric	Type 6		
OR	1	0-10 cm		1	7	a	13.52991	ovoid-laneolate	centric	Type 3		
OR	1	0-10 cm		1	7	b	7.785936	round	centric	Type 2		
OR	1	0-10 cm		1	10	a	21.14968	subround	centric	Type 2	fissure	
OR	1	0-10 cm		1	11	a	16.55749	subround	centric	Type 2		
OR	1	0-10 cm		1	13	a	29.89047	subround	eccentric	Type 6		
OR	1	0-10 cm		1	14	a	17.74197	subround	eccentric	Type 6		
OR	1	0-10 cm		1	16	a	20.581	round	centric	Type 1		
OR	1	0-10 cm		1	18	a	20.59592	subround	centric	Type 2	fissure	

Site	Unit	Level	Sample #	Slide #	letter/ numl	microns	form	hilum	Nageli 1858 Ty	comments 2	
OR	1	0-10 cm	2	13	a	16	subround	centric	Type 2		
OR	1	0-10 cm	2	20	a	24.8953	subround	centric	Type 2	fissure	
OR	1	0-10 cm	2	22	a	21.12969	round	centric	Type 1	fissure	
OR	1	0-10 cm	2	32	a	18.67345	subround	centric	Type 2	fissure	
OR	1	10-20 cm	3	9	a	28.893	ovoid	centric	Type 2		
OR	1	10-20 cm	3	17	a	23.128	round	centric	Type 2		
OR	1	10-20 cm	3	20	a	16.323	subround	centric	Type 2		
OR	1	10-20 cm	3	20	b	48.445	subovoid	centric	Type 2	damaged, rough edges	
OR	1	10-20 cm	3	21	a	7.733	compound	centric	Type 16	rice	
OR	1	10-20 cm	3	21	b	8.469	compound	centric	Type 16	rice	
OR	1	10-20 cm	3	21	c	6.951	compound	centric	Type 16	rice	
OR	1	10-20 cm	3	21	d	14.223	compound	centric	Type 16	rice	
OR	1	10-20 cm	3	21	e	17.117	subround	eccentric	Type 6		
OR	1	10-20 cm	3	22	a	18.919	subround	centric	Type 2	pitted	
OR	1	10-20 cm	3	25	a	18.646	subround	centric	Type 2		
OR	1	20-30 cm	1	1	1	12.77	ovoid-laneolate	centric	Type 3		
OR	1	20-30 cm	1	1	2	14.31	subovoid	centric	Type 3		
OR	1	20-30 cm	1	1	3	31.01	subround	centric	Type 2	damaged, swollen	
OR	1	20-30 cm	1	12	a	19.09304	subround	centric	Type 2		
OR	1	20-30 cm	2	1	1	20.92	subround	centric	Type 1	not measured	
OR	1	20-30 cm	2	2	a	21.77999	subround	centric	Type 2	fissure	
OR	1	20-30 cm	2	2	b	15.09437	round	centric	Type 1		
OR	1	20-30 cm	2	2	c	14.05816	round	centric	Type 1		
OR	1	20-30 cm	2	2	d	16.24296	round	centric	Type 1		
OR	1	20-30 cm	2	2	e	13.92827	subround	centric	Type 2		
OR	1	20-30 cm	2	3	f	19.89669	subround	centric	Type 1	pitted	
OR	1	20-30 cm	2	2	g	21.6893	subround	centric	Type 1		
OR	1	20-30 cm	2	2	h	12.59435	subround	centric	Type 2		
OR	1	20-30 cm	2	3	a	22.45707	subround	centric	Type 2	damaged?	
OR	1	20-30 cm	2	3	b	10.57575	round	centric	Type 2		
OR	1	20-30 cm	2	3	c	14.15344	subround	centric	Type 2		
OR	1	20-30 cm	2	3	d	18.08	round	centric	Type 2		
OR	1	20-30 cm	2	3	e	14.37954	subovoid	centric	Type 2		
OR	1	20-30 cm	2	3	f	12.16105	round	centric	Type 1		
OR	1	20-30 cm	2	3	g	17.45247	subround	centric	Type 2		
OR	1	20-30 cm	2	3	h	24.25729	subround	centric	Type 2		
OR	1	20-30 cm	2	3	i	11.84973	round	centric	Type 1		
OR	1	20-30 cm	2	3	j	17.12299	round	centric	Type 2		
OR	1	20-30 cm	2	3	k	11.23423	subround	centric	Type 1		
OR	1	20-30 cm	2	3	l	21.83985	subround	centric	Type 2	fissure	damaged, swollen
OR	1	20-30 cm	2	3	m	18.2386	subovoid	centric	Type 2	fissure	
OR	1	20-30 cm	2	3	n	20.45811	subround	centric	Type 2	fissure	
OR	1	20-30 cm	2	3	o	21.60948	subround	centric	Type 2	fissure	
OR	1	20-30 cm	2	4	a	23.38683	subround	centric	Type 2	fissure	
OR	1	20-30 cm	2	4	aa	26.12707	round	centric	Type 1		
OR	1	20-30 cm	2	4	b	19.83613	subround	centric	Type 2	fissure	
OR	1	20-30 cm	2	4	bb	17.96566	subround	centric	Type 2		
OR	1	20-30 cm	2	4	c1	14.24809	round	centric	Type 1		
OR	1	20-30 cm	2	4	c2	20.19362	subround	centric	Type 2		
OR	1	20-30 cm	2	4	cc	14.24719	subround	centric	Type 2		
OR	1	20-30 cm	2	4	d	18.72068	round	centric	Type 2		
OR	1	20-30 cm	2	4	dd	10.60596	round	centric	Type 1		
OR	1	20-30 cm	2	4	e	17.10205	subround	centric	Type 2		
OR	1	20-30 cm	2	4	ee	10.44421	round	centric	Type 1		
OR	1	20-30 cm	2	4	f	16.96679	ovoid-laneolate	centric	Type 3	fissure	
OR	1	20-30 cm	2	4	ff	13.28096	subround	centric	Type 2	fissure	
OR	1	20-30 cm	2	4	g1	17.84341	subround	centric	Type 2		
OR	1	20-30 cm	2	4	g2	15.13248	subround	centric	Type 2		
OR	1	20-30 cm	2	4	h	19.04269	round	centric	Type 2		
OR	1	20-30 cm	2	4	i	17.10205	round	centric	Type 1	fissure	
OR	1	20-30 cm	2	4	j	15.01018	subround	centric	Type 2		
OR	1	20-30 cm	2	4	k	24.16159	ovoid-laneolate	centric	Type 3	fissure	
OR	1	20-30 cm	2	4	l	13.13538	subovoid	centric	Type 2		
OR	1	20-30 cm	2	4	m	21.65741	subround	centric	Type 2		
OR	1	20-30 cm	2	4	n	19.23464	subround	centric	Type 1		
OR	1	20-30 cm	2	4	o	16.72976	round	centric	Type 1		
OR	1	20-30 cm	2	4	p	15.21347	subround	centric	Type 2	fissure	
OR	1	20-30 cm	2	4	q	22.21347	ovoid-laneolate	centric	Type 3		
OR	1	20-30 cm	2	4	r	11.74557	subround	centric	Type 1		
OR	1	20-30 cm	2	4	s	8.493574	subround	centric	Type 1		
OR	1	20-30 cm	2	4	t	17.82834	subround	centric	Type 2		
OR	1	20-30 cm	2	4	u	11.9444	subround	centric	Type 2		
OR	1	20-30 cm	2	4	v	14.40444	round	centric	Type 1		
OR	1	20-30 cm	2	4	w	17.82403	subround	centric	Type 2		
OR	1	20-30 cm	2	4	x	18.33798	subround	centric	Type 2		
OR	1	20-30 cm	2	4	y	23.3452	subround	centric	Type 2		
OR	1	20-30 cm	2	4	z	15.17556	round	centric	Type 1		
OR	1	20-30 cm	2	5	a	14.51157	subround	centric	Type 2		
OR	1	20-30 cm	2	5	b	18.51719	subround	centric	Type 2		
OR	1	20-30 cm	2	5	c	19.2353	subround	centric	Type 2		

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OR	1	20-30 cm	2	5	d	19.70795	subround	centric	Type 2	
OR	1	20-30 cm	2	5	e	16.99393	subround	centric	Type 2	
OR	1	20-30 cm	2	5	f1	20.96427	polygonal	centric	Type 2	
OR	1	20-30 cm	2	5	f2	12.61567	polygonal	centric	Type 2	
OR	1	20-30 cm	2	5	g	17.81253	subovoid	centric	Type 2	
OR	1	20-30 cm	2	5	h	10.7629	subround	centric	Type 1	damaged edges
OR	1	20-30 cm	2	5	i	23.21379	subround	centric	Type 2	
OR	1	20-30 cm	2	5	j	16.38341	subround	centric	Type 2	
OR	1	20-30 cm	2	5	k	14.26245	subround	centric	Type 2	
OR	1	20-30 cm	2	5	l	20.04794	subovoid	centric	Type 2	
OR	1	20-30 cm	2	6	a1	19.86321	subround	centric	Type 2	
OR	1	20-30 cm	2	6	a2	13.15508	subround	centric	Type 1	
OR	1	20-30 cm	2	6	b	13.74304	subround	centric	Type 2	
OR	1	20-30 cm	2	6	c1	17.60436	subround	centric	Type 2	
OR	1	20-30 cm	2	6	c2	13.62351	subround	centric	Type 2	
OR	1	20-30 cm	2	6	d	17.30665	subround	centric	Type 2	
OR	1	20-30 cm	2	6	e	13.9347	subround	centric	Type 2	
OR	1	20-30 cm	2	6	f	17.44857	subround	centric	Type 2	
OR	1	20-30 cm	2	6	g	17.29851	subround	centric	Type 2	
OR	1	20-30 cm	2	6	h1	14.7382	subround	centric	Type 2	damaged, swollen
OR	1	20-30 cm	2	6	h2	13.25781	subround	centric	Type 2	damaged, swollen
OR	1	20-30 cm	2	6	i	18.01688	subround	centric	Type 2	
OR	1	20-30 cm	2	6	j	18.72068	subround	centric	Type 2	
OR	1	20-30 cm	2	6	k	14.20039	subround	centric	Type 2	fissure
OR	1	20-30 cm	2	6	l	18.93281	subovoid	centric	Type 3	
OR	1	20-30 cm	2	6	m	19.75854	subround	centric	Type 2	fissure
OR	1	20-30 cm	2	6	n	15.62767	round	centric	Type 1	
OR	1	20-30 cm	2	6	o	17.08482	subround	centric	Type 2	fissure
OR	1	20-30 cm	2	7	a	15.42154	subround	centric	Type 2	
OR	1	20-30 cm	2	7	b	19.07224	subround	centric	Type 2	
OR	1	20-30 cm	2	7	c	13.64604	subround	centric	Type 2	
OR	1	20-30 cm	2	7	d	22.61667	subround	centric	Type 2	fissure
OR	1	20-30 cm	2	7	e1	21.43343	subovoid	centric	Type 2	fissure
OR	1	20-30 cm	2	7	e2	11.70627	subround	centric	Type 2	
OR	1	20-30 cm	2	7	f	11.56436	subround	centric	Type 2	
OR	1	20-30 cm	2	7	g	22.11128	subround	centric	Type 2	
OR	1	20-30 cm	2	7	h	19.96075	subround	centric	Type 2	fissure
OR	1	20-30 cm	2	7	i	17.22733	subround	centric	Type 2	fissure
OR	1	20-30 cm	2	7	j	20.17016	subround	centric	Type 2	fissure
OR	1	20-30 cm	2	7	k	16.59687	subround	centric	Type 2	
OR	1	20-30 cm	2	7	l	15.50102	round	centric	Type 1	
OR	1	20-30 cm	2	7	m	25.16277	subround	centric	Type 2	fissure
OR	1	20-30 cm	2	7	n	16.85781	round	centric	Type 1	
OR	1	20-30 cm	2	7	o	24.79742	round	centric	Type 1	
OR	1	20-30 cm	2	7	p	19.59722	subround	centric	Type 2	fissure
OR	1	20-30 cm	2	7	q	11.77169	subovoid	centric	Type 2	
OR	1	20-30 cm	2	8	a	16.97056	round	centric	Type 1	
OR	1	20-30 cm	2	8	b	18.73094	subround	centric	Type 2	
OR	1	20-30 cm	2	8	c	19.19066	subround	centric	Type 2	fissure
OR	1	20-30 cm	2	8	d	17.9457	subround	centric	Type 2	
OR	1	20-30 cm	2	8	e	21.18596	subovoid	centric	Type 2	
OR	1	20-30 cm	2	8	f	17.46054	subround	centric	Type 2	fissure
OR	1	20-30 cm	2	8	g	15.61866	subround	centric	Type 2	fissure
OR	1	20-30 cm	2	8	h	22.64155	ovoid-lanceolate	centric	Type 3	fissure
OR	1	20-30 cm	2	8	i	15.88761	subround	centric	Type 2	
OR	1	20-30 cm	2	8	j	27.29255	subround	eccentric	Type 6	fissure
OR	1	20-30 cm	2	8	k	12.41934	subovoid	centric	Type 2	
OR	1	20-30 cm	2	8	l	24.09846	subround	centric	Type 2	fissure
OR	1	20-30 cm	2	10	a	11.30918	subround	centric	Type 1	
OR	1	20-30 cm	2	10	b1	14.88086	subround	centric	Type 2	
OR	1	20-30 cm	2	10	b2	7.499547	subround	centric	Type 2	
OR	1	20-30 cm	2	10	c	17.31848	subround	centric	Type 2	
OR	1	20-30 cm	2	10	d	16.29488	subround	centric	Type 2	
OR	1	20-30 cm	2	10	e	16.11241	subovoid	centric	Type 3	
OR	1	20-30 cm	2	10	f	23.7631	subround	centric	Type 2	
OR	1	20-30 cm	2	10	g	16.5544	round	centric	Type 1	
OR	1	20-30 cm	2	10	h	17.5738	subovoid	centric	Type 2	
OR	1	20-30 cm	2	10	i	13.48659	round	centric	Type 1	
OR	1	20-30 cm	2	10	j	14.09908	subround	centric	Type 2	
OR	1	20-30 cm	2	10	k	16.41229	subround	centric	Type 2	
OR	1	20-30 cm	2	10	l	16.33254	subround	centric	Type 2	
OR	1	20-30 cm	2	10	m	15.18736	subround	centric	Type 2	
OR	1	20-30 cm	2	10	n1	17.70225	subround	centric	Type 2	damaged, swollen
OR	1	20-30 cm	2	10	n2	9.686279	subround	centric	Type 2	
OR	1	20-30 cm	2	10	o	18.17603	subovoid	centric	Type 2	
OR	1	20-30 cm	2	10	p	22.23597	subround	centric	Type 1	
OR	1	20-30 cm	2	10	q	16.55517	subround	centric	Type 2	
OR	1	20-30 cm	2	10	r	23.64809	subround	centric	Type 1	
OR	1	20-30 cm	2	10	s	17.58909	subround	centric	Type 2	
OR	1	20-30 cm	2	10	t	18.68236	subround	centric	Type 2	fissure

Site	Unit	Level	Sample #	Slide #	letter/ numl	microns	form	hilum	Nageli 1858 Ty	comments 2
OR	1	20-30 cm	2	10	u	18.10547	subovoid	centric	Type 2	
OR	1	20-30 cm	2	10	v	24.63221	subround	centric	Type 2	
OR	1	20-30 cm	2	10	w	19.43918	subround	centric	Type 2	fissure
OR	1	20-30 cm	2	10	x	13.87671	subround	centric	Type 2	
OR	1	20-30 cm	2	11	a	16.81751	round	centric	Type 1	
OR	1	20-30 cm	2	11	b	20.91843	subround	centric	Type 2	fissure
OR	1	20-30 cm	2	11	c	14.54505	subround	centric	Type 2	
OR	1	20-30 cm	2	11	d	15.17556	subround	centric	Type 2	
OR	1	20-30 cm	2	11	e	18.32681	subround	centric	Type 2	
OR	1	20-30 cm	2	11	f	18.0183	subround	centric	Type 2	
OR	1	20-30 cm	2	11	g	17.35392	subround	centric	Type 2	
OR	1	20-30 cm	2	11	h	13.36359	round	centric	Type 1	
OR	1	20-30 cm	2	11	i	23.045	subround	centric	Type 2	fissure
OR	1	20-30 cm	2	11	j	15.5406	round	centric	Type 1	
OR	1	20-30 cm	2	11	k	19.19267	subround	centric	Type 2	
OR	1	20-30 cm	2	11	l	20.89639	subround	centric	Type 2	fissure
OR	1	20-30 cm	2	11	m	16.46835	subround	centric	Type 2	
OR	1	20-30 cm	2	11	n	11.29219	subround	centric	Type 2	
OR	1	20-30 cm	2	11	o	16.7397	subround	centric	Type 2	
OR	1	20-30 cm	2	11	p	15.61948	subovoid	centric	Type 2	
OR	1	20-30 cm	2	11	q	12.92836	subovoid	centric	Type 2	
OR	1	20-30 cm	2	11	r	26.9874	subovoid	centric	Type 2	
OR	1	20-30 cm	2	11	s	12.4605	round	centric	Type 1	
OR	1	20-30 cm	3	2	a	17.42899	subround	centric	Type 1	
OR	1	20-30 cm	3	2	b	13.81663	subround	centric	Type 1	
OR	1	20-30 cm	3	3	a	14.46032	subround	centric	Type 2	
OR	1	20-30 cm	3	4	a	26.61825	subround	centric	Type 2	
OR	1	20-30 cm	3	4	b	15.73216	subround	centric	Type 1	
OR	1	20-30 cm	3	4	c	15.06806	subround	centric	Type 2	
OR	1	20-30 cm	3	5	a	19.6904	subround	centric	Type 2	
OR	1	20-30 cm	3	5	b	24.85156	subround	centric	Type 1	
OR	1	20-30 cm	3	6	a	18.42503	subround	centric	Type 2	
OR	1	20-30 cm	3	6	b	18.48398	round	centric	Type 1	fissure
OR	1	20-30 cm	3	7	a	19.60702	subround	centric	Type 2	fissure
OR	1	20-30 cm	3	7	b	17.21023	subround	centric	Type 2	
OR	1	20-30 cm	3	7	c	22.86377	subround	centric	Type 2	fissure
OR	1	20-30 cm	3	8	a	14.01896	subround	centric	Type 2	
OR	1	20-30 cm	3	8	b	16.06467	round	centric	Type 1	
OR	1	20-30 cm	3	8	c	21.44537	ovoid-laneolate	centric	Type 3	
OR	1	20-30 cm	3	8	d	16.34821	subround	centric	Type 1	
OR	1	20-30 cm	3	10	a	22.53092	subround	eccentric	Type 6	
OR	1	20-30 cm	3	10	b	15.87955	subovoid	centric	Type 3	fissure
OR	1	20-30 cm	3	11	a	14.408	subround	centric	Type 2	
OR	1	20-30 cm	3	12	a	16.64692	subround	centric	Type 1	
OR	1	20-30 cm	3	12	b	16.54279	subround	centric	Type 2	
OR	1	20-30 cm	3	12	c	24.04316	subround	centric	Type 2	fissure
OR	1	20-30 cm	3	12	d	20.01599	subround	centric	Type 2	
OR	1	20-30 cm	3	13	a	21.89137	ovoid-laneolate	centric	Type 3	
OR	1	20-30 cm	3	13	b	18.47775	subround	centric	Type 1	
OR	1	20-30 cm	3	13	c	24.32474	subround	centric	Type 1	
OR	1	20-30 cm	3	15	a	15.46795	subround	centric	Type 2	
OR	1	20-30 cm	3	15	b	18.35821	ovoid-laneolate	centric	Type 3	
OR	1	20-30 cm	3	16	a	17.53953	subround	centric	Type 1	fissure
OR	1	20-30 cm	3	16	b	23.42184	ovoid-laneolate	centric	Type 3	
OR	1	20-30 cm	3	16	c	16.64692	ovoid	centric	Type 3	
OR	1	20-30 cm	3	16	d	17.1946	polygonal	centric	Type 2	
OR	1	20-30 cm	3	18	a	33.31844	round	centric	Type 1	
OR	1	20-30 cm	3	18	b	17.02478	subround	centric	Type 2	
OR	1	20-30 cm	3	18	c	15.73623	subround	centric	Type 1	
OR	1	20-30 cm	3	19	a	18.55448	subovoid-lanceo	centric	Type 3	
OR	1	20-30 cm	3	19	b	20.59219	subovoid-lanceo	centric	Type 3	
OR	1	20-30 cm	3	20	a	20.36216	subovoid	centric	Type 2	
OR	1	20-30 cm	3	20	b	23.48024	subovoid-lanceo	centric	Type 3	
OR	1	20-30 cm	3	20	c	15.67837	subround	centric	Type 2	
OR	1	20-30 cm	3	20	d	22.24921	subround	centric	Type 2	
OR	1	20-30 cm	3	20	e	16.51956	polygonal	centric	Type 2	
OR	1	20-30 cm	3	21	a	26.0584	subround	centric	Type 2	
OR	1	20-30 cm	3	21	b	19.87223	subround	centric	Type 2	
OR	1	20-30 cm	3	21	c	16.97584	subround	centric	Type 1	
OR	1	30-40 cm	2	6	a	19.6142	ovoid	centric	Type 3	
OR	1	30-40 cm	2	9	a	14.63716	round	centric	Type 1	
OR	1	30-40 cm	2	9	b	14.38399	ovoid	centric	Type 3	
OR	1	30-40 cm	2	9	c	20.13967	subround	centric	Type 2	fissure
OR	1	30-40 cm	2	9	d	10.18234	polygonal	centric	Type 2	
OR	1	30-40 cm	2	11	a	19.07224	subround	centric	Type 2	fissure
OR	1	30-40 cm	2	2 Aussie	1	41.15	subovoid	centric	Type 3	
OR	1	40-50 cm	1	1	3	3.6	ovoid	centric	Type 2	
OR	1	40-50 cm	1	1	4	22.24	subovoid	centric	Type 3	damaged, swollen
OR	1	40-50 cm	1	2 Aussie	1	16.66	subround	centric	Type 2	
OR	1	40-50 cm	1	2 Aussie	2	14.86	subovoid	centric	Type 2	

Site	Unit	Level	Sample #	Slide #	letter/ numl	microns	form	hilum	Nageli 1858 Ty	comments 2
OR	1	40-50 cm	1	2 Aussie	3	19.33	subround	centric	Type 2	
OR	1	50-60 cm	1	1	1	31.13	subround	centric	Type 2	
OR	1	50-60 cm	1	1	2	5.31	subround	centric	Type 2	
OR	1	50-60 cm	1	1	3	29.66	subround	centric	Type 2	
OR	1	50-60 cm	1	2 Aussie	1	19.04	subround	centric	Type 2	
OR	1	50-60 cm	1	2 Aussie	2	16.97	subround	centric	Type 2	
OR	1	50-60 cm	1	2 Aussie	3	20.12	subround	centric	Type 2	fissure
OR	1	50-60 cm	1	2 Aussie	4	12.87	subround	centric	Type 2	
OR	1	50-60 cm	2	1	1	29.72	subround	centric	Type 2	
OR	1	50-60 cm	2	2 Aussie	1	24.19	subround	centric	Type 2	fissure
OR	1	50-60 cm	2	3 Aussie	1	17.57	subround	centric	Type 2	fissure
OR	1	50-60 cm	2	3 Aussie	2	13.09	round	centric	Type 1	
OR	1	50-60 cm	2	3 Aussie	3	17.28	subround	centric	Type 2	fissure
OR	1	50-60 cm	2	3 Aussie	4	16.35	subround	centric	Type 2	fissure
OR	1	50-60 cm	2	3 Aussie	5	17.64	subround	centric	Type 2	fissure
OR	1	50-60 cm	2	3 Aussie	6	14.13	subround	centric	Type 2	fissure
OR	1	50-60 cm	2	3 Aussie	7	16.41	subovoid	centric	Type 2	
OR	1	50-60 cm	2	3 Aussie	8	5	subround	centric	Type 2	
OR	1	50-60 cm	2	3 Aussie	9	21.41	polygonal	centric	Type 2	
OR	1	50-60 cm	3	4 a		6.449806	subround	centric	Type 2	
OR	1	60-70 cm	1	1 5,6		7.11	subovoid	eccentric	Type 6	
OR	1	60-70 cm	1	1 a		19.28	subround	centric	Type 2	
OR	1	60-70 cm	1	1 b		8.17	round	centric	Type 1	
OR	1	60-70 cm	1	2 Aussie	1	21.52	subround	centric	Type 2	
OR	1	60-70 cm	1	2 Aussie	2	11.53	subround	centric	Type 2	
OR	1	60-70 cm	1	2 Aussie	3	14.43	round	centric	Type 1	
OR	1	60-70 cm	1	2 Aussie	4	17.34	subround	centric	Type 2	
OR	1	60-70 cm	1	2 Aussie	5	20.18	subround	centric	Type 2	fissure
OR	1	60-70 cm	1	2 Aussie	6	16.99	subround	centric	Type 2	
OR	1	60-70 cm	1	2 Aussie	7	13.85	subround	centric	Type 2	
OR	1	60-70 cm	1	2 Aussie	8	14.92	subovoid	centric	Type 3	
OR	1	60-70 cm	2	2 Aussie	2	2.95	round	centric	Type 1	
OR	1	70-80 cm	1	3 a		15.09437	round	centric	Type 2	
OR	1	70-80 cm	1	4 a		13.89331	subround	centric	Type 2	fissure
OR	1	70-80 cm	1	4 b		15.14263	round	centric	Type 1	
OR	1	70-80 cm	1	5 a		21.6952	subround	centric	Type 2	fissure
OR	1	80-90 cm	1	2 a		14.59425	subround	centric	Type 2	
OR	1	80-90 cm	1	2 b		20.938	subovoid	centric	Type 3	
OR	1	80-90 cm	1	2 c		15.68082	subround	centric	Type 2	
OR	1	80-90 cm	1	4 a		13.66853	subround	centric	Type 2	
OR	1	80-90 cm	2	1 1a		19.22	subround	centric	Type 2	
OR	1	80-90 cm	2	1 1b		7.63	round	centric	Type 2	
OR	1	80-90 cm	2	1 1c		13.26	round	centric	Type 2	
OR	1	80-90 cm	2	3 a		12.797	subround	centric	Type 2	
OR	1	90-100 cm	1	3 a		14.55297	subovoid	centric	Type 3	
OR	1	90-100 cm	1	4 a		16.35213	subround	centric	Type 2	
OR	1	90-100 cm	1	6 a		20.21136	subovoid	eccentric	Type 6	
OR	1	90-100 cm	1	6 b		20.0275	polygonal	centric	Type 2	fissure
OR	1	90-100 cm	1	6 c		11.43189	round	centric	Type 1	
OR	1	90-100 cm	2	3 a		15.52742	subovoid-lanceo	centric	Type 3	
OR	1	90-100 cm	2	6 a		18.53377	subround	centric	Type 2	
OR	1	90-100 cm	2	7 a		5.775623	subround	centric	Type 2	
OR	1	90-100 cm	2	7 b		8.840344	ovoid	centric	Type 2	
OR	2	0-10 cm	p1	1 a		6.4	round	centric	Type 1	
OR	2	0-10 cm	p1	1 b		6.98	round	centric	Type 1	
OR	2	0-10 cm	p1	1 c		2.15	round	centric	Type 1	
OR	2	0-10 cm	p1	1 d		2.22	round	centric	Type 1	
OR	2	0-10 cm	p1	1 e		3.77	subround	centric	Type 2	
OR	2	0-10 cm	p1	1 f		4	subround	centric	Type 2	
OR	2	0-10 cm	p1	1 g		3.78	subround	centric	Type 2	
OR	2	0-10 cm	p1	1 i-1		5.16	compound	centric	Type 16	rice
OR	2	0-10 cm	p1	1 i-2		5.9	compound	centric	Type 16	rice
OR	2	0-10 cm	p1	1 i-3		6.56	compound	centric	Type 16	rice
OR	2	0-10 cm	p1	1 i-4		6.71	compound	centric	Type 16	rice
OR	2	0-10 cm	p1	2 Aussie a		17.93	subround	centric	Type 2	
OR	2	0-10 cm	p1	3 Aussie a		17.15	subround	centric	Type 2	
OR	2	0-10 cm	p1	3 Aussie b		17.26	subround	centric	Type 2	
OR	2	0-10 cm	p1	3 Aussie c		25.81	subovoid	centric	Type 3	
OR	2	0-10 cm	p2	1 1,2		5.97	subround	centric	Type 2	
OR	2	0-10 cm	P2	2 a		13.81	round	centric	Type 2	
OR	2	0-10 cm	P2	7 a		67.214	subround	eccentric	Type 6	potato?
OR	2	10-20 cm	1	18 a		29.354	subround	eccentric	Type 2	
OR	2	10-20 cm	1	20 a		12.37	subround	eccentric	Type 2	
OR	2	10-20 cm	1	26 a		22.9	subround	eccentric	Type 2	fissure
OR	2	10-20 cm	p1	2 Aussie a		23.72	polygonal	centric	Type 2	damaged, swollen
OR	2	10-20 cm	p1	2 Aussie b		28.68	ovoid	centric	Type 3	
OR	2	10-20 cm	p1	2 Aussie c		14.05	ovoid	centric	Type 2	
OR	2	10-20 cm	p1	3 Aussie a		19.4	polygonal	centric	Type 2	
OR	2	10-20 cm	p1	3 Aussie b		16.69	subovoid	centric	Type 3	
OR	2	10-20 cm	p2	1 a		9.26	ovoid	centric	Type 3	

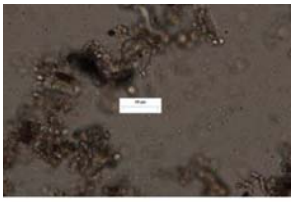
Site	Unit	Level	Sample #	Slide #		letter/ numl	microns	form	hilum	Nageli 1858 Ty	comments 2
OR	2	10-20 cm	p2		1	b	6.99	compound	centric	Type 16	rice
OR	2	10-20 cm	p2		1	c	6.35	compound	centric	Type 16	rice
OR	2	10-20 cm	p2		1	d	5.16	compound	centric	Type 16	rice
OR	2	10-20 cm	p2		1	e	7.74	compound	centric	Type 16	rice
OR	2	10-20 cm	p2	2 Aussie		a	12.52	round	centric	Type 2	
OR	2	10-20 cm	p2	2 Aussie		b	11.88	subround	centric	Type 2	
OR	2	10-20 cm	p2	4 Aussie		a	18.62	subround	centric	Type 2	
OR	2	10-20 cm	p2	4 Aussie		b	6.93	polygonal	centric	Type 2	
OR	2	10-20 cm	p2	4 Aussie		c	32.12	subround	centric	Type 2	
OR	2	10-20 cm	p2	5 Aussie		a	23.58	subovoid	centric	Type 2	
OR	2	20-30 cm		1	2	a	7.879	round	centric	Type 1	
OR	2	20-30 cm		1	5	a	10.133	subround	centric	Type 2	
OR	2	20-30 cm		1	5	b	10.448	subround	centric	Type 2	
OR	2	20-30 cm		1	5	c	11.363	subround	centric	Type 2	
OR	2	20-30 cm		1	22	a	22.176	subround	centric	Type 1	
OR	2	20-30 cm		1	28	a	19.12	subovoid	centric	Type 2	
OR	2	20-30 cm		1	32	a	31.336	round	centric	Type 2	with hole, damaged?
OR	2	20-30 cm		1	39	a	13.268	round	centric	Type 1	fissure
OR	2	30-40 cm		1	7	a	22.927	subovoid	centric	Type 2	
OR	2	30-40 cm		1	16	a	15.923	subovoid	centric	Type 3	
OR	2	30-40 cm		1	19	a	18.007	subround	centric	Type 1	
OR	2	40-50 cm		1	1	1	22.71	subround	centric	Type 1	fissure
OR	2	40-50 cm		1	3	a	20.514	subround	centric	Type 2	
OR	2	40-50 cm		1	4	a	14.814	subround	centric	Type 2	
OR	2	40-50 cm		1	4	b	17.65	round	centric	Type 2	
OR	2	40-50 cm		1	5	a	19.61	round	centric	Type 1	
OR	2	40-50 cm		1	5	b	34.811	subovoid-lanceo	eccentric	Type 6	
OR	2	40-50 cm		1	5	c	34.969	subround	centric	Type 2	
OR	2	40-50 cm		1	5	d	23.31	subround	centric	Type 2	
OR	2	40-50 cm		1	6	a	17.492	subround	centric	Type 2	
OR	2	40-50 cm		1	6	b	16.122	subround	centric	Type 2	
OR	2	40-50 cm		1	6	c	16.96	subround	centric	Type 2	
OR	2	40-50 cm		1	6	d	15.5	subround	centric	Type 2	
OR	2	40-50 cm		1	7	a	20.161	round	centric	Type 1	
OR	2	40-50 cm		1	7	b	21.159	subround	centric	Type 2	
OR	2	40-50 cm		1	7	c	25.997	subround	centric	Type 2	
OR	2	40-50 cm		1	8	a	16.954	round	centric	Type 2	
OR	2	40-50 cm		1	8	b	14.545	round	centric	Type 1	
OR	2	40-50 cm		1	8	c	14.315	round	centric	Type 1	
OR	2	40-50 cm		1	8	d	14.928	round	centric	Type 1	
OR	2	40-50 cm		1	8	e	12.203	subround	centric	Type 1	
OR	2	40-50 cm		1	8	f	18.763	subround	centric	Type 2	
OR	2	40-50 cm		1	8	g	17.316	subovoid	centric	Type 2	
OR	2	40-50 cm		1	9	a	22.097	subround	centric	Type 1	damaged, swollen
OR	2	40-50 cm		1	9	b	19.799	ovoid	centric	Type 3	
OR	2	40-50 cm		1	9	c	16.496	polygonal	centric	Type 2	
OR	2	40-50 cm		1	9	d	16.444	round	centric	Type 1	
OR	2	40-50 cm		1	9	e	16.944	subround	centric	Type 2	damaged, swollen
OR	2	40-50 cm		1	9	f	18.529	subround	centric	Type 2	
OR	2	40-50 cm		1	9	g	17.079	subround	centric	Type 2	
OR	2	40-50 cm		1	9	h	18.822	subround	centric	Type 2	
OR	2	40-50 cm		1	10	a	16.148	subround	centric	Type 2	
OR	2	40-50 cm		1	11	a	19.291	subround	centric	Type 2	
OR	2	40-50 cm		1	11	b	15.331	round	centric	Type 1	
OR	2	40-50 cm		1	11	c	12.098	subround	centric	Type 1	
OR	2	40-50 cm		1	11	d	5.868	round	centric	Type 1	
OR	2	40-50 cm		1	12	a	20.376	subround	centric	Type 2	
OR	2	40-50 cm		1	13	a	22.481	subround	centric	Type 1	
OR	2	40-50 cm		1	13	b	20.132	subround	centric	Type 1	
OR	2	40-50 cm		1	14	a	17.52	round	centric	Type 1	
OR	2	40-50 cm		1	14	b	14.545	round	centric	Type 1	
OR	2	40-50 cm		1	15	a	18.676	subround	centric	Type 2	
OR	2	40-50 cm		1	15	b	13.925	round	centric	Type 1	
OR	2	40-50 cm		1	16	a	20.352	subround	centric	Type 2	
OR	2	40-50 cm		1	16	b	16.489	subround	centric	Type 2	
OR	2	40-50 cm		1	17	a	16.557	subround	centric	Type 2	
OR	2	40-50 cm		1	17	b	18.244	subround	centric	Type 2	
OR	2	40-50 cm		1	17	c	18.965	subround	centric	Type 2	
OR	2	40-50 cm		1	17	d	20.881	subround	centric	Type 2	
OR	2	40-50 cm		1	17	e	14.771	polygonal	centric	Type 2	
OR	2	40-50 cm		1	17	f	16.4	round	centric	Type 1	
OR	2	40-50 cm		1	17	g	19.021	subround	centric	Type 1	
OR	2	40-50 cm		1	18	a	21.546	polygonal	centric	Type 2	
OR	2	40-50 cm		1	18	b	13.91	round	centric	Type 1	
OR	2	40-50 cm		1	18	c	20.192	subovoid	centric	Type 2	damaged, swollen
OR	2	40-50 cm		1	18	d	16.849	subround	centric	Type 2	
OR	2	40-50 cm		1	18	e	21.57	subround	centric	Type 2	
OR	2	40-50 cm		1	18	f	16.857	round	centric	Type 1	
OR	2	40-50 cm		1	18	g	21.719	subround	centric	Type 2	
OR	2	40-50 cm		1	18	h	14.765	polygonal	centric	Type 2	

Site	Unit	Level	Sample #	Slide #	letter/ numl	microns	form	hilum	Nageli 1858 Ty	comments 2
OR	2	40-50 cm	1	18	i	16.349	ovoid	centric	Type 3	
OR	2	40-50 cm	1	18	j	16.37	subround	centric	Type 2	
OR	2	40-50 cm	1	18	k	11.017	subround	centric	Type 2	
OR	2	40-50 cm	1	18	l	20.027	subround	centric	Type 2	
OR	2	40-50 cm	1	19	a	24.967	polygonal	centric	Type 2	
OR	2	40-50 cm	1	19	b	15.807	subround	centric	Type 2	
OR	2	40-50 cm	1	19	c	18.051	round	centric	Type 1	
OR	2	40-50 cm	1	19	d	20.68	round	centric	Type 1	
OR	2	40-50 cm	1	19	e	20.486	round	centric	Type 1	pit
OR	2	40-50 cm	1	20	a	22.361	polygonal	centric	Type 2	
OR	2	40-50 cm	1	21	a	19.756	polygonal	centric	Type 2	
OR	2	40-50 cm	1	21	b	26.209	polygonal	centric	Type 2	
OR	2	40-50 cm	1	21	c	19.682	subround	centric	Type 2	
OR	2	40-50 cm	1	21	d	15.922	subround	centric	Type 2	
OR	2	50-60 cm	2	3	a	18.11324	subround	centric	Type 1	
OR	2	50-60 cm	2	5	a	20.14349	round	centric	Type 1	
OR	2	50-60 cm	2	6	a	13.62351	subovoid	centric	Type 2	
OR	2	50-60 cm	2	8	a	10.19239	round	centric	Type 1	
OR	2	50-60 cm	2	8	b	8.823242	round	centric	Type 1	
OR	2	50-60 cm	2	8	c	12.4605	subovoid	centric	Type 2	
OR	2	50-60 cm	2	18	a	20.58535	round	centric	Type 2	
OR	2	50-60 cm	2	19	a	24.55153	subround	centric	Type 2	
OR	2	60-70 cm	1	2	a	30.395	subround	centric	Type 2	fissure
OR	2	60-70 cm	1	3	a	2.8	round	centric	Type 1	
OR	2	60-70 cm	1	20	a	19.366	ovoid	centric	Type 2	
OR	2	60-70 cm	1	27	a	37.583	subround	centric	Type 2	fissure
OR	2	60-70 cm	1	33	a	19.506	ovoid	centric	Type 2	
OR	2	60-70 cm	1	35	a	18.571	subround	centric	Type 2	
OR	2	60-70 cm	1	41	a	64.726	subovoid	centric	Type 2	damaged, swollen
OR	3	0-10 cm	1	3	a	15.18736	polygonal	centric	Type 2	
OR	3	0-10 cm	1	3	b	12.64	subround	centric	Type 2	
OR	3	0-10 cm	1	4	a	23.11211	subround	centric	Type 2	
OR	3	0-10 cm	1	4	b	26.4252	round	centric	Type 2	
OR	3	0-10 cm	1	5	a	27.65085	subround	centric	Type 2	
OR	3	0-10 cm	1	5	b	15.75817	polygonal	centric	Type 2	
OR	3	0-10 cm	1	6	a	21.38681	round	centric	Type 2	
OR	3	0-10 cm	1	8	a	14.2409	subround	centric	Type 2	
OR	3	0-10 cm	1	8	b	13.7274	subround	centric	Type 2	
OR	3	10-20 cm	1	6	a	17.44073	subovoid	eccentric	Type 6	
OR	3	10-20 cm	1	6	b	15.69306	subround	centric	Type 2	
OR	3	10-20 cm	1	7	a	16.51956	subround	centric	Type 2	
OR	3	10-20 cm	1	7	b	14.23281	subround	centric	Type 2	
OR	3	10-20 cm	1	12	a	11.82052	subround	centric	Type 2	
OR	3	10-20 cm	2	2	a	22.75209	subround	centric	Type 2	fissure
OR	3	10-20 cm	2	3	a	17.82618	round	centric	Type 1	
OR	3	10-20 cm	2	5	a	16.67765	subround	centric	Type 2	
OR	3	10-20 cm	2	6	a	21.76059	subround	centric	Type 2	
OR	3	10-20 cm	2	6	b	22.10839	subround	centric	Type 1	
OR	3	10-20 cm	2	6	c	13.6259	subround	centric	Type 2	
OR	3	10-20 cm	2	9	a	12.54547	subround	centric	Type 2	
OR	3	10-20 cm	2	11	a	19.10443	subround	centric	Type 1	
OR	3	10-20 cm	2	12	a	19.17665	subround	centric	Type 2	damaged, swollen
OR	3	10-20 cm	p3	5	a	21.47817	round	centric	Type 1	
OR	3	10-20 cm	p3	5	b	15.34082	round	centric	Type 1	

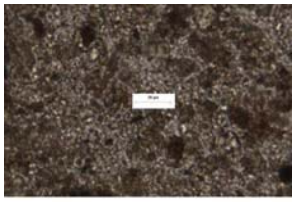
Ordatang

Unit 1

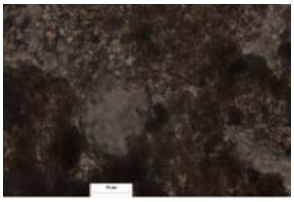

_1_90-100_2_7b of 8_starch x

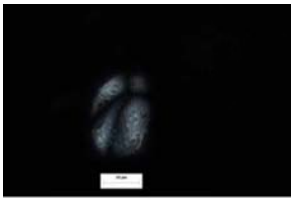

R_1_0-10_1_2 of 23_starch m

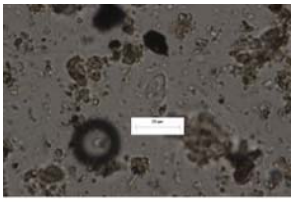

R_1_0-10_1_2 of 23_starch xp


R_1_0-10_1_6 of 23_starch m


R_1_0-10_1_6 of 23_starch xp


R_1_0-10_1_6b of 23_starch n

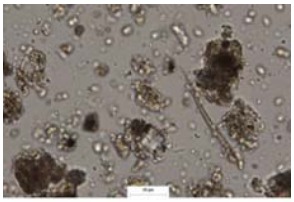

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R_1_0-10_1_7 of 23_starch m

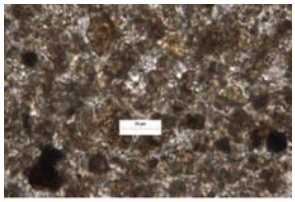

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R_1_0-10_1_7b of 23_starch n

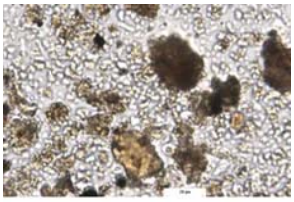

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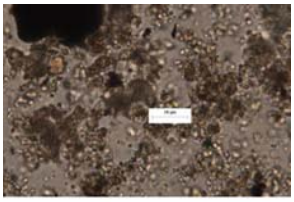

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R_1_0-10_1_11 of 23_starch n

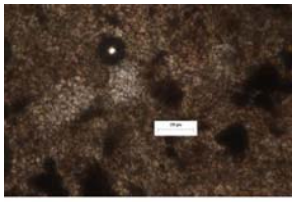

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R_1_0-10_1_13 of 23_starch n

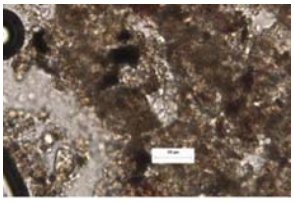

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R_1_0-10_2_13 of 32_starch n

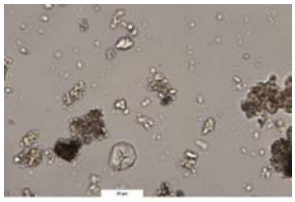

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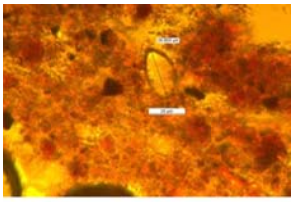

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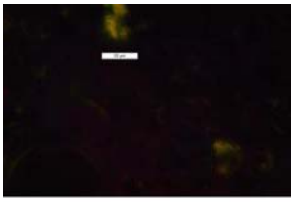

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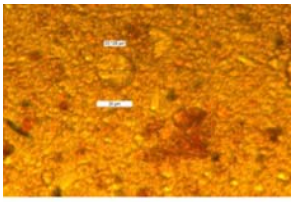

R_1_0-10_2_22 of 32_starch x


R_1_0-10_2_32 of 32_starch r

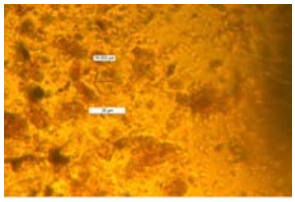

R_1_0-10_2_32 of 32_starch x


R_1_10-20_3_9 of 39_starch n

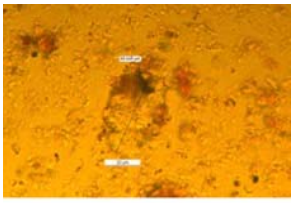

R_1_10-20_3_9 of 39_starch x

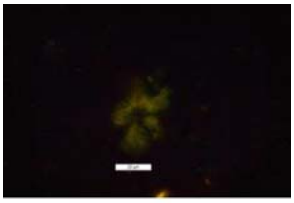

1_10-20_3_17 of 39_a_starch

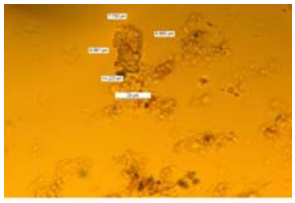

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1_10-20_3_20 of 39_a_starch

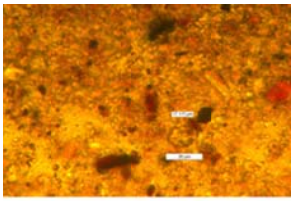

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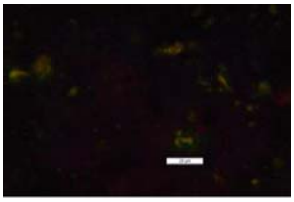

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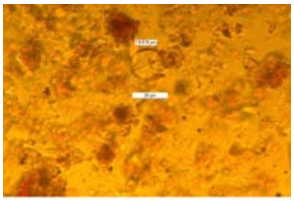

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10-20_3_21 of 39_a_starch m

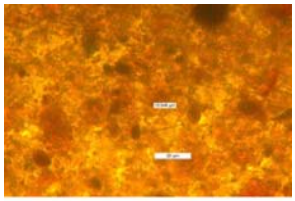

10-20_3_21 of 39_a_starch xp

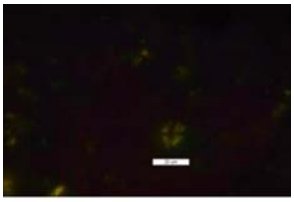

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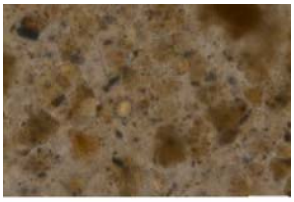

1_10-20_3_21 of 39_e_starch

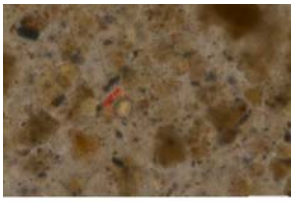

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_1_10-20_3_22 of 39_starch x

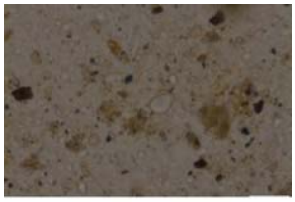

_1_10-20_3_25 of 34_starch r

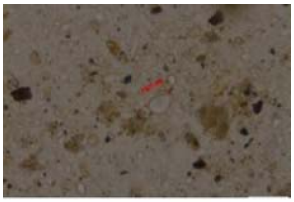

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OR_1_20-30_1_01_starch

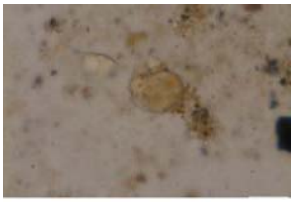

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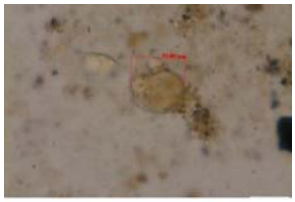

)R_1_20-30_1_01_starch_xpo


OR_1_20-30_1_02_starch


)R_1_20-30_1_02_starch_ms


)R_1_20-30_1_2_starch_xpo

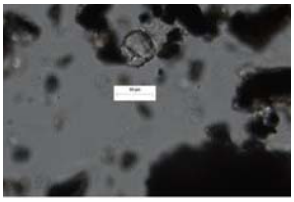

OR_1_20-30_1_03_starch


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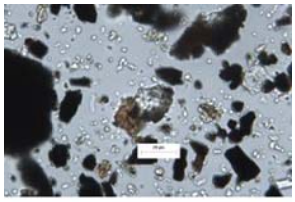

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_1_20-30_1_12 of 16_starch r

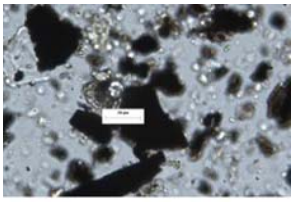

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_1_20-30_2_2a of 11_starch r

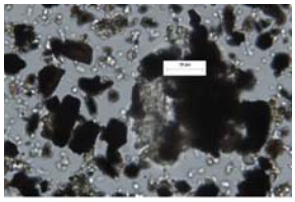

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_1_20-30_2_3a of 11_starch r

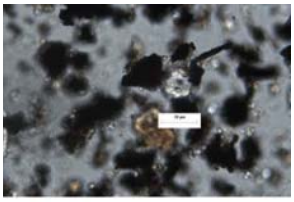

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_1_20-30_2_3b of 11_starch r

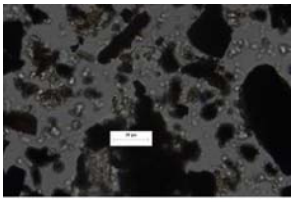

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_1_20-30_2_3c of 11_starch r

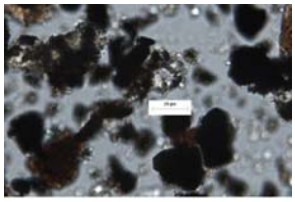

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_1_20-30_2_3d of 11_starch r

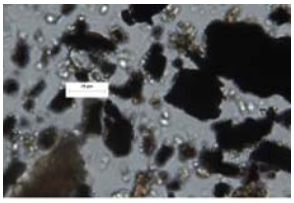

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_1_20-30_2_3e of 11_starch r

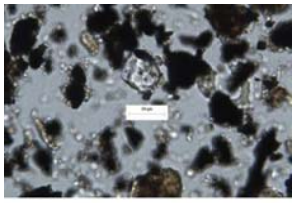

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_1_20-30_2_3f of 11_starch r

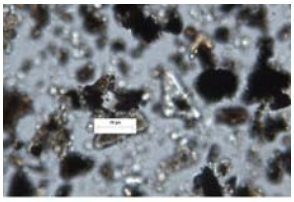

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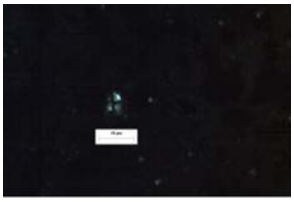

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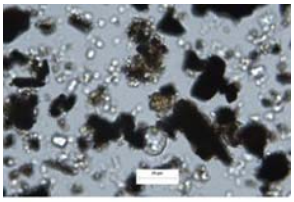

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_1_20-30_2_3h of 11_starch r

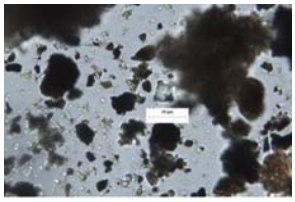

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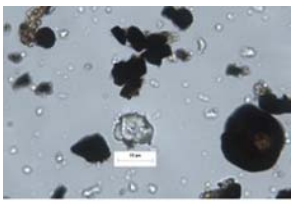

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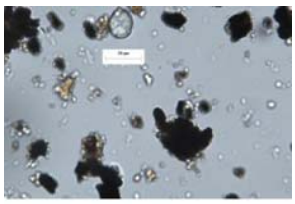

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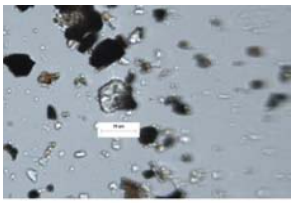

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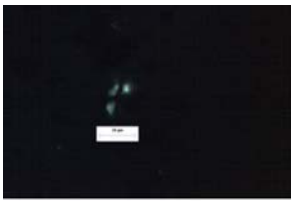

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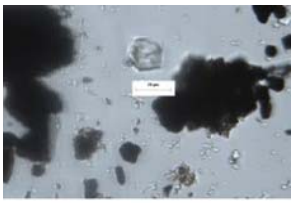

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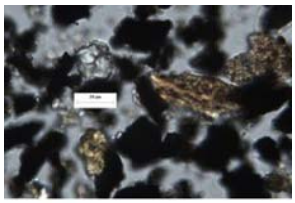

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_1_20-30_2_3n of 11_starch r

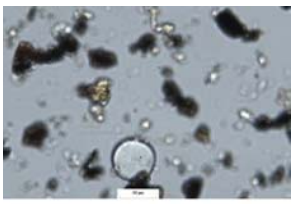

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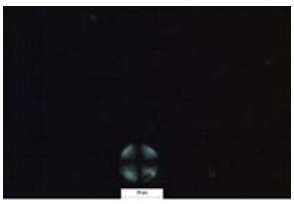

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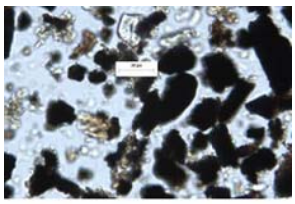

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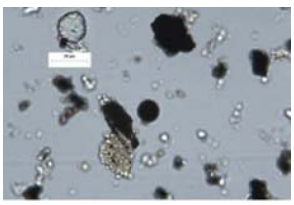

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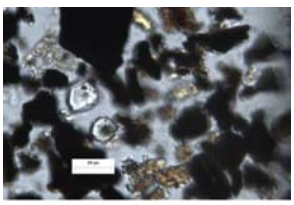

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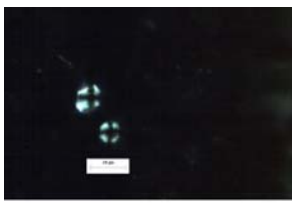

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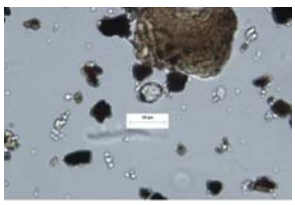

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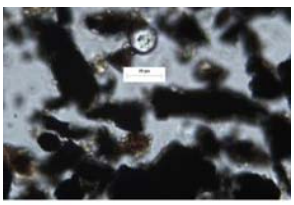

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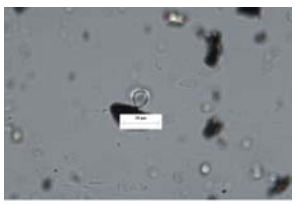

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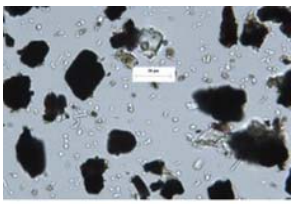

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_1_20-30_2_4d of 11_starch r

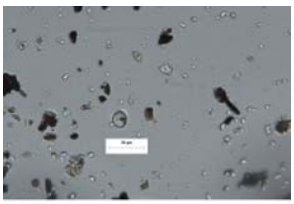

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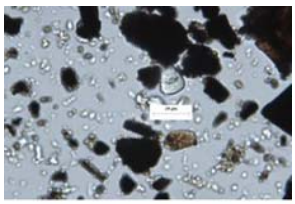

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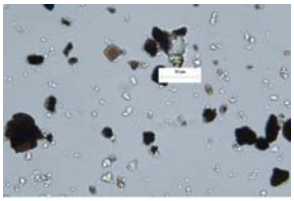

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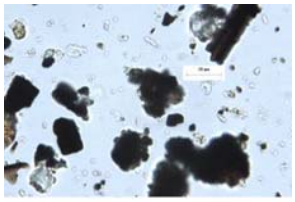

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_1_20-30_2_4f of 11_starch r

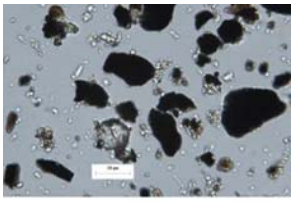

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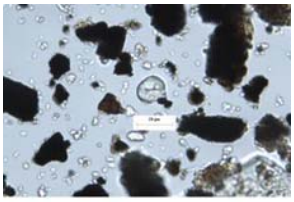

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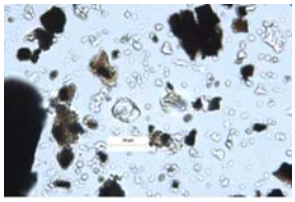

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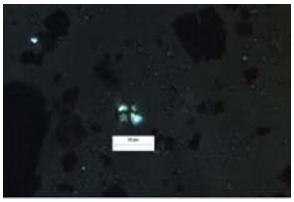

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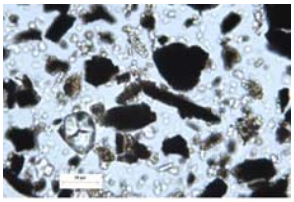

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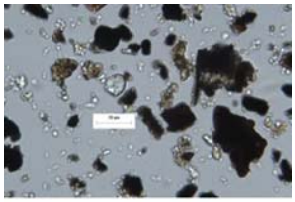

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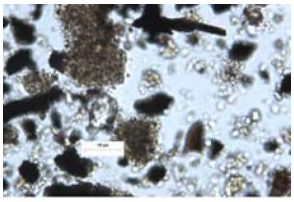

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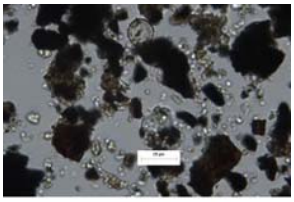

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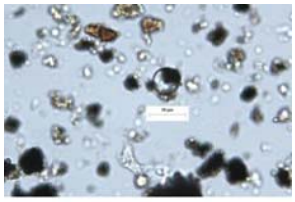

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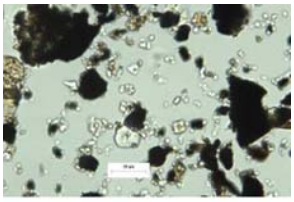

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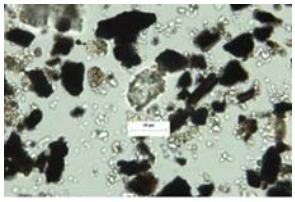

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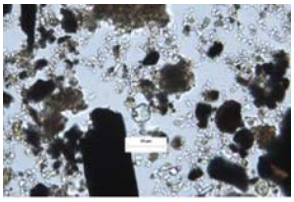

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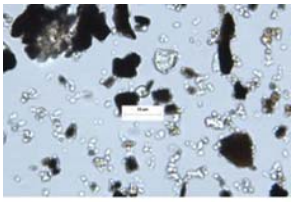

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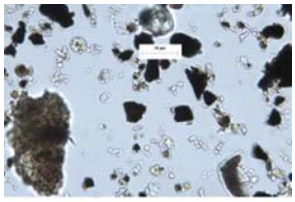

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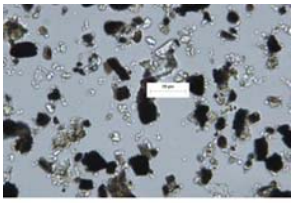

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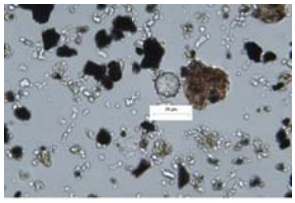

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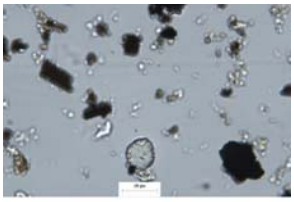

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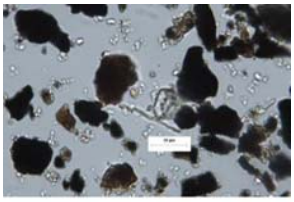

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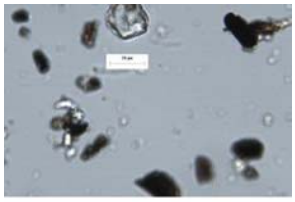

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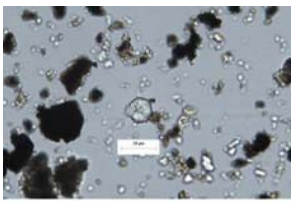

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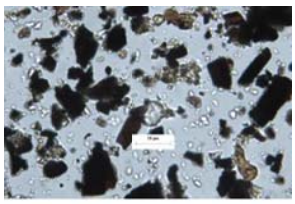

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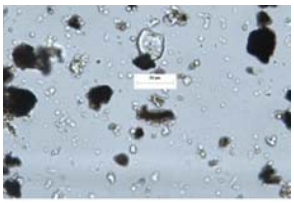

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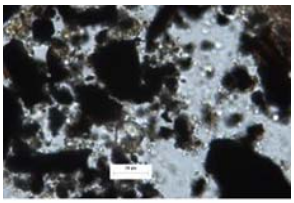

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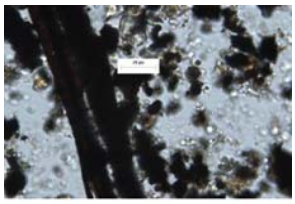

R_1_20-30_2_5 of 11_starch x


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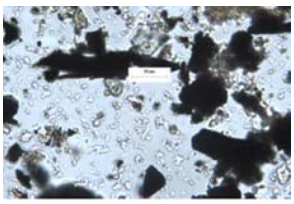

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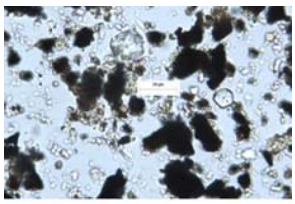

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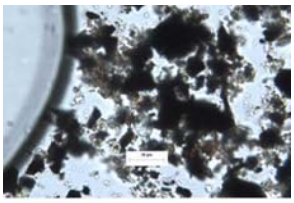

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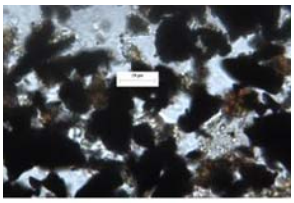

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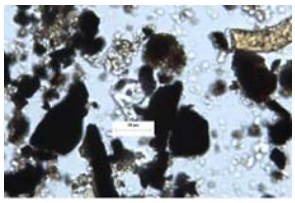

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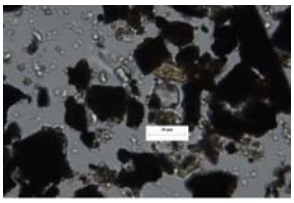

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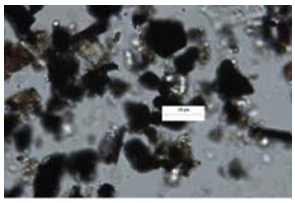

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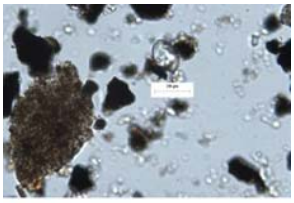

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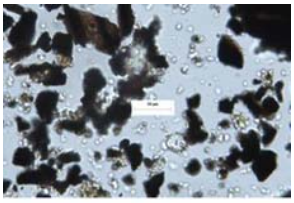

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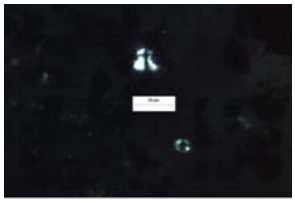

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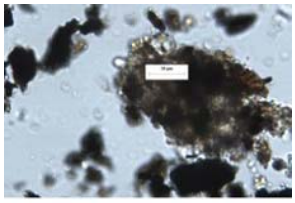

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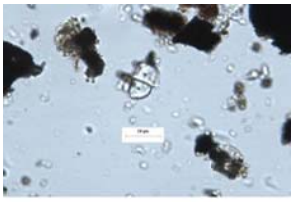

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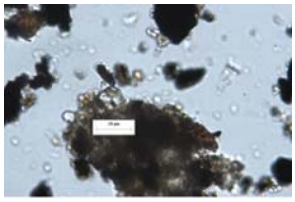

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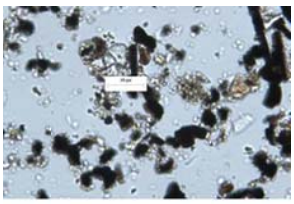

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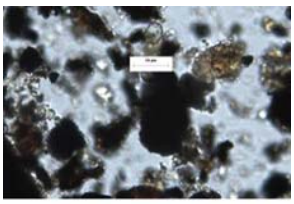

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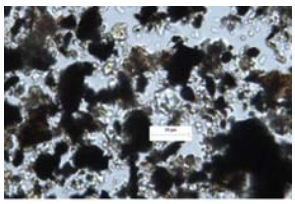

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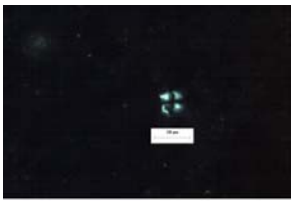

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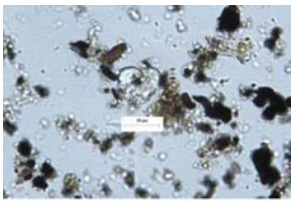

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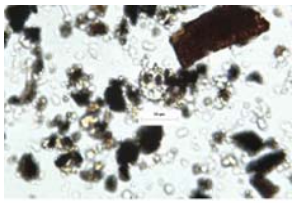

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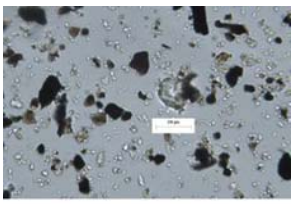

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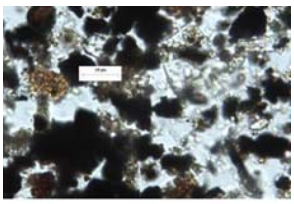

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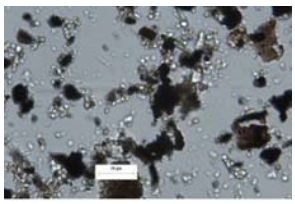

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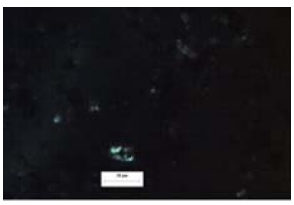

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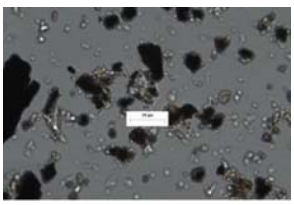

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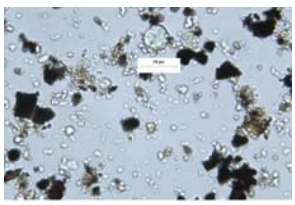

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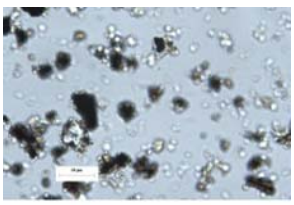

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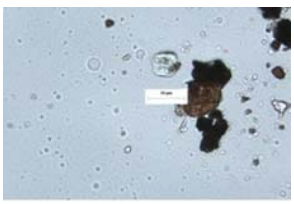

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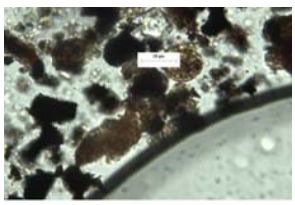

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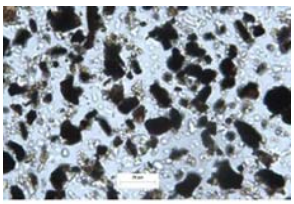

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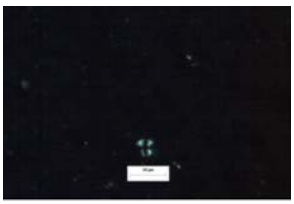

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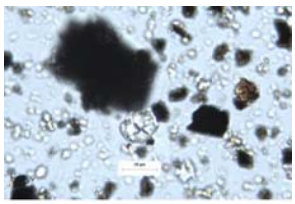

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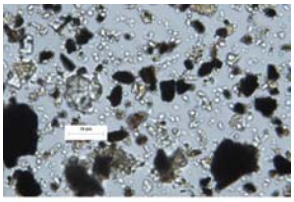

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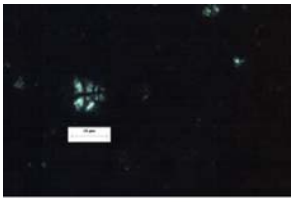

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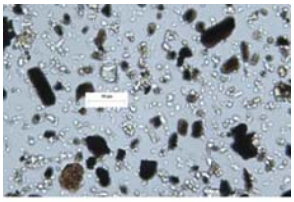

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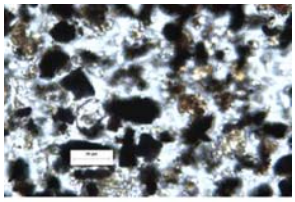

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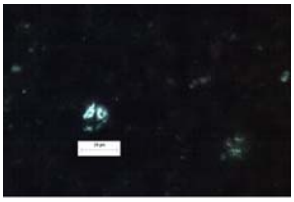

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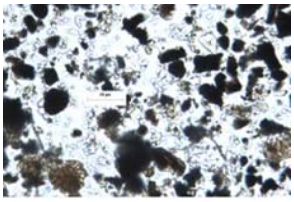

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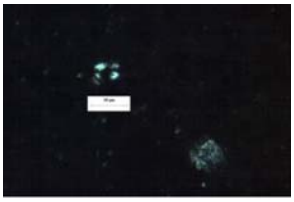

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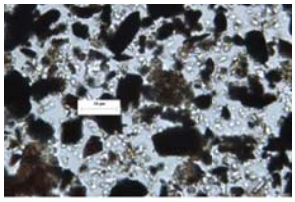

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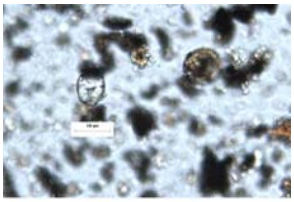

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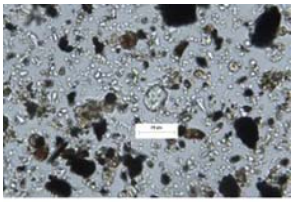

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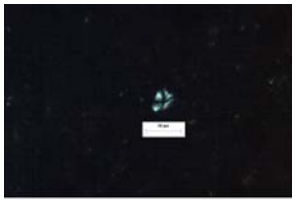

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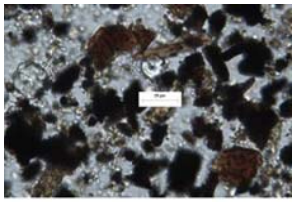

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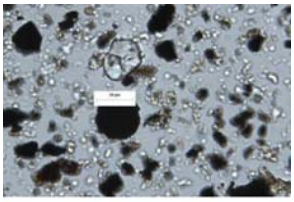

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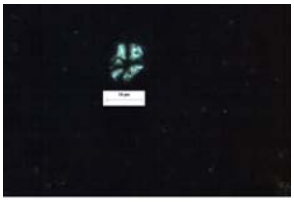

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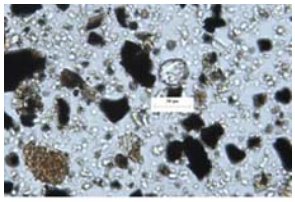

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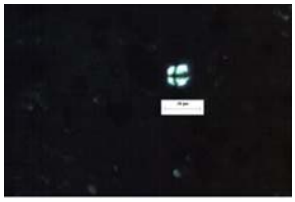

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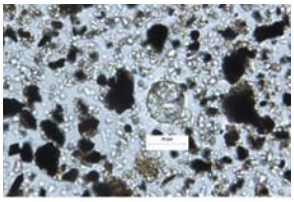

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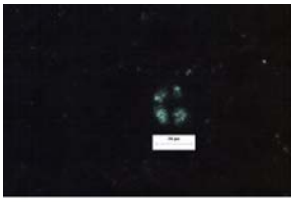

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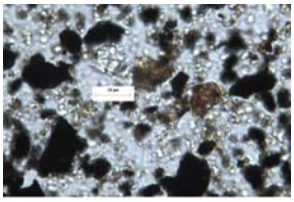

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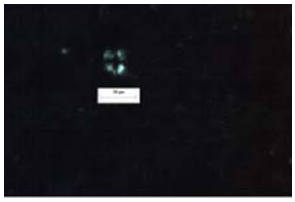

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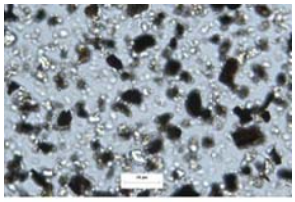

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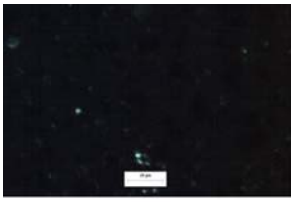

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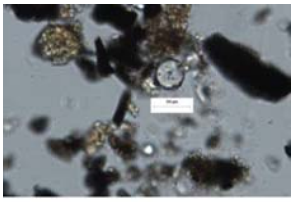

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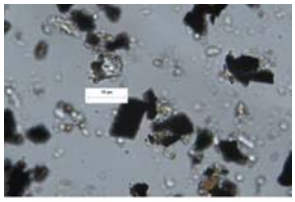

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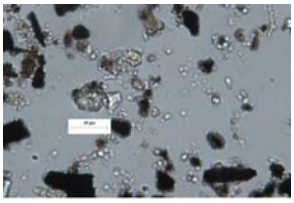

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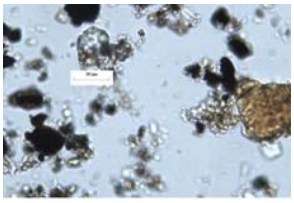

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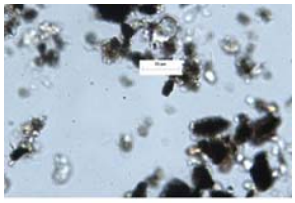

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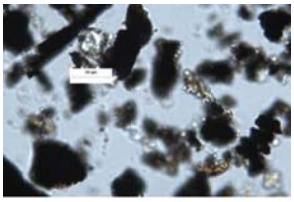

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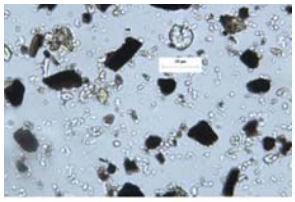

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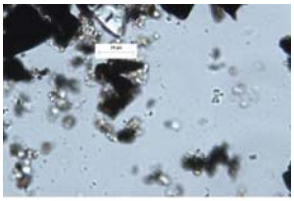

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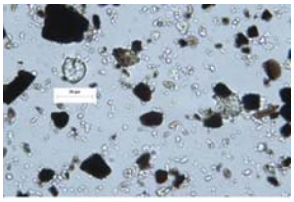

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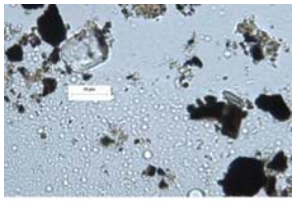

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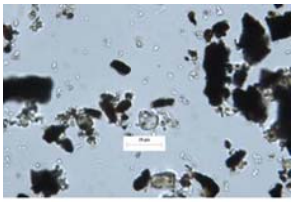

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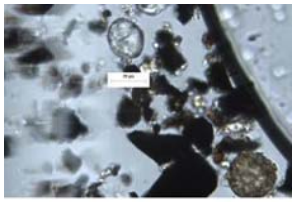

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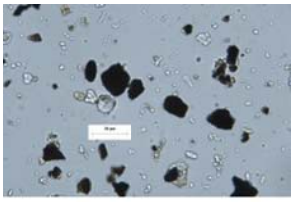

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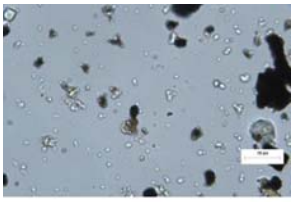

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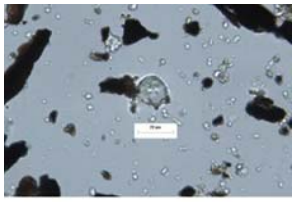

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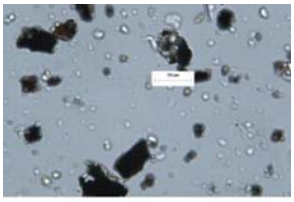

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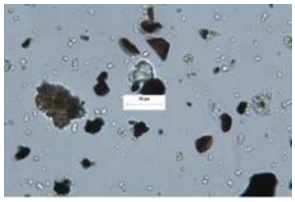

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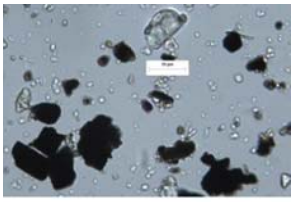

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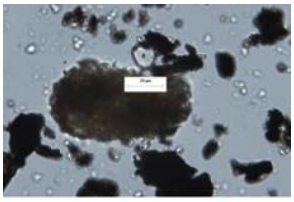

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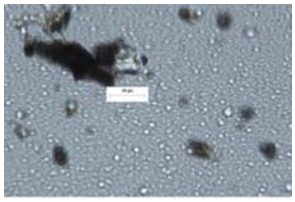

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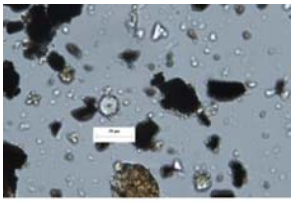

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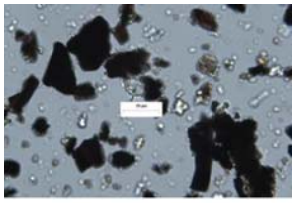

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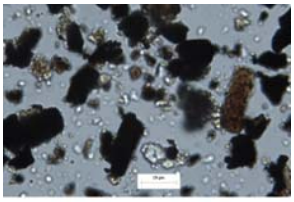

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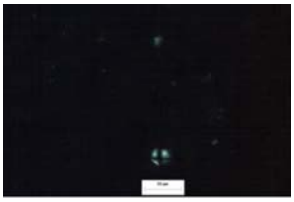

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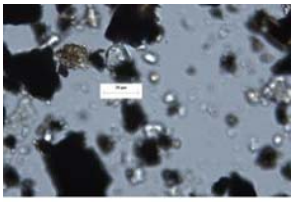

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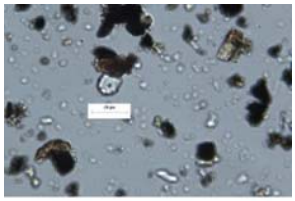

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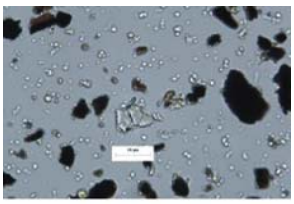

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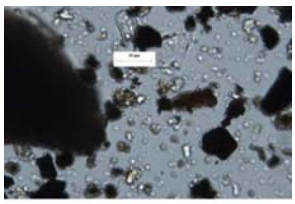

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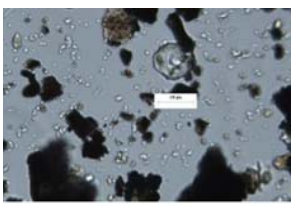

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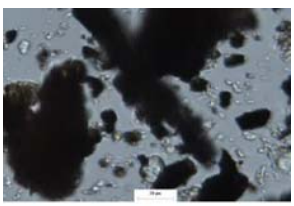

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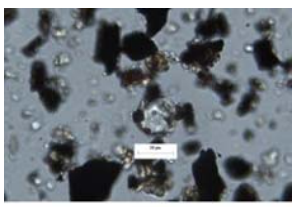

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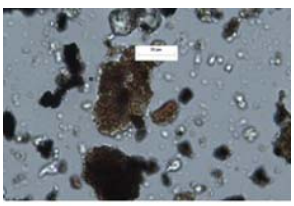

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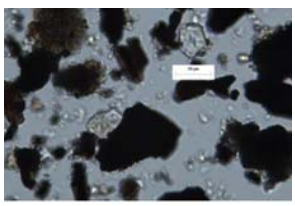

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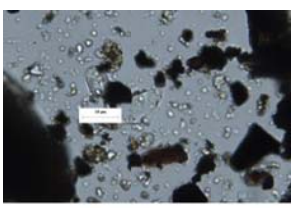

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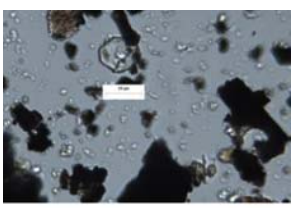

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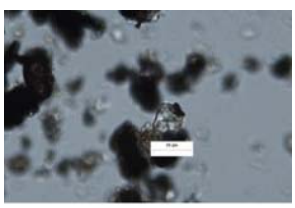

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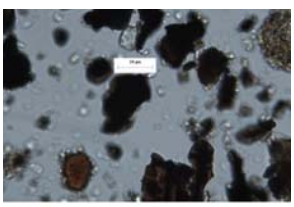

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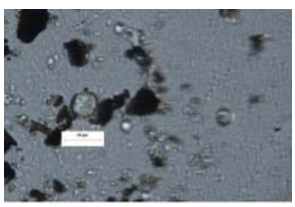

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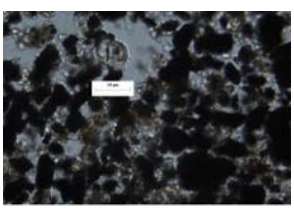

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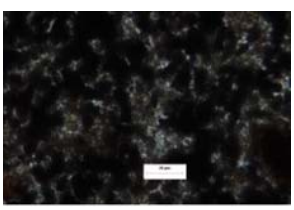

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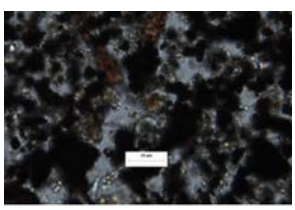

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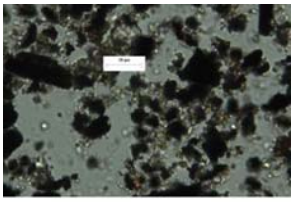

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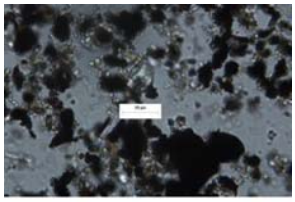

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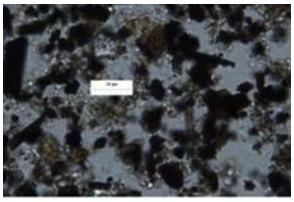

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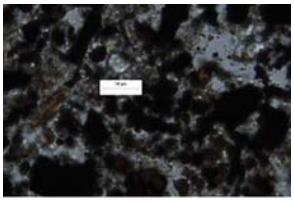

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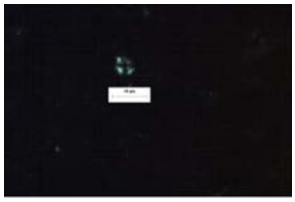

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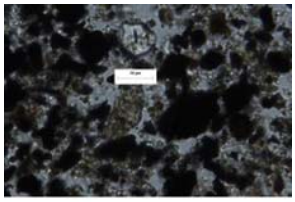

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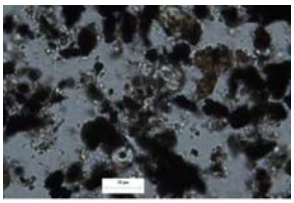

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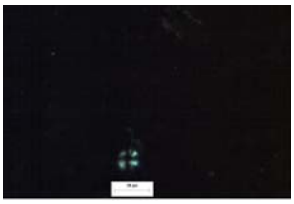

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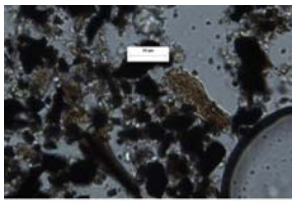

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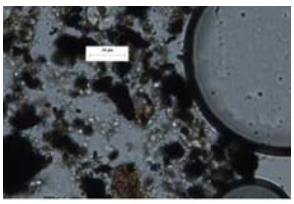

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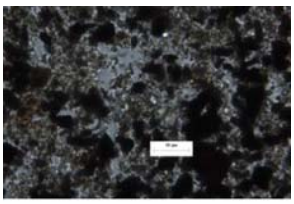

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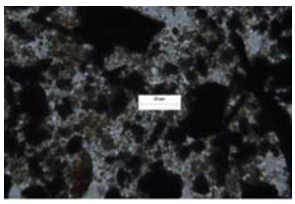

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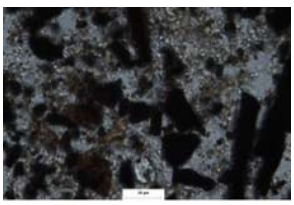

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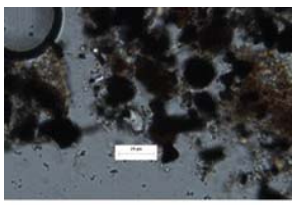

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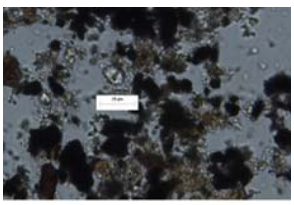

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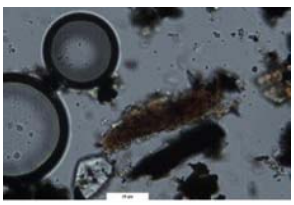

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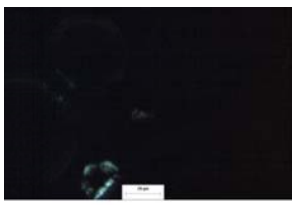

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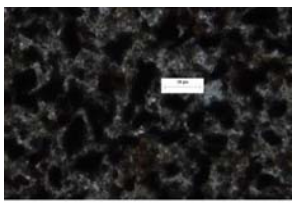

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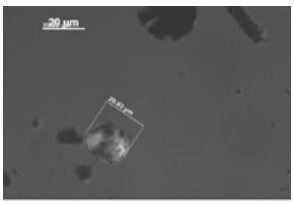

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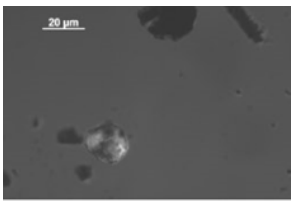

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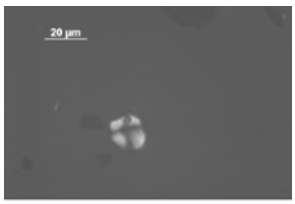

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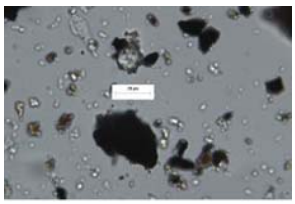
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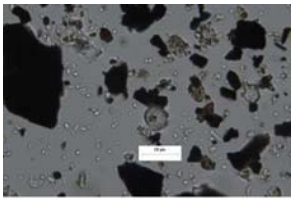
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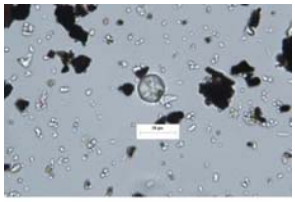
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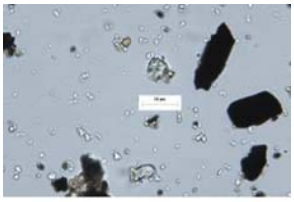

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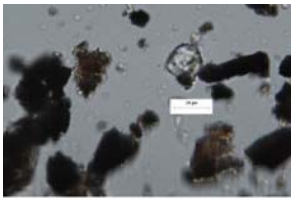

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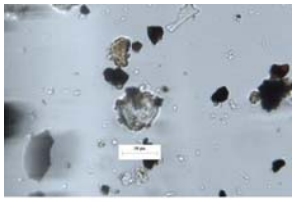

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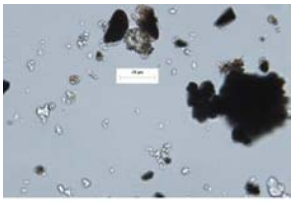

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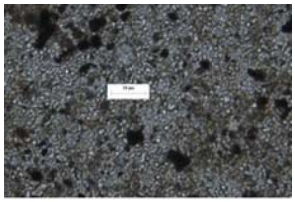

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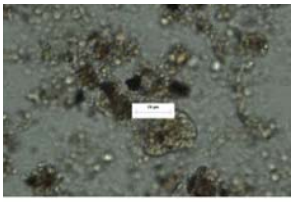

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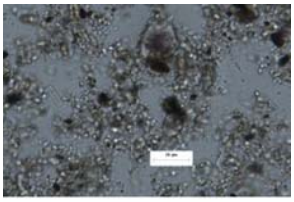

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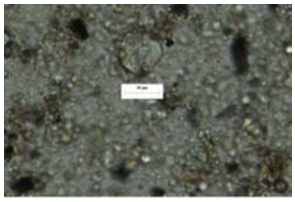

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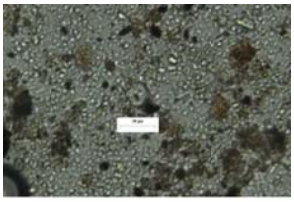

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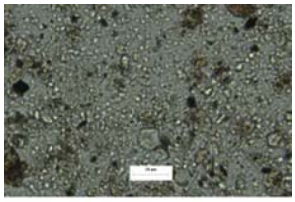

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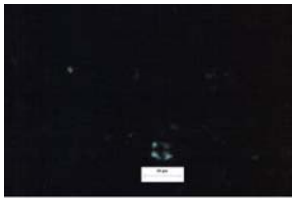

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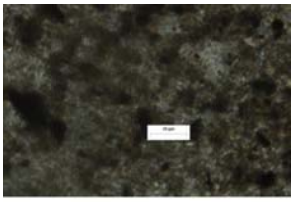

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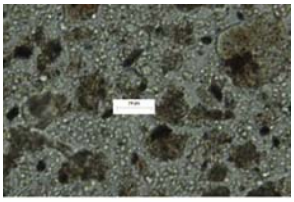

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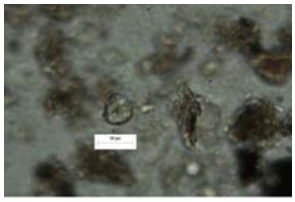

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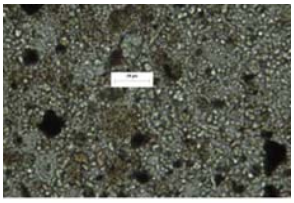

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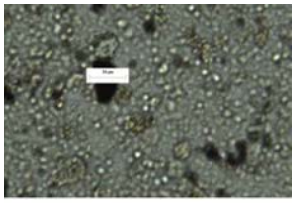

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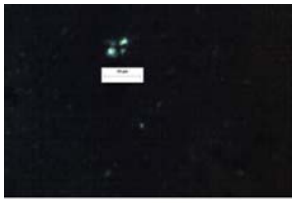

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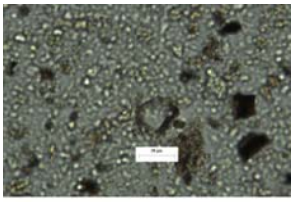

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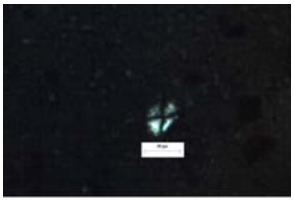

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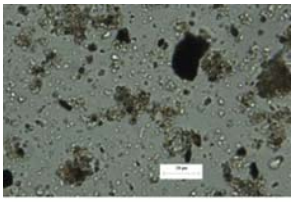

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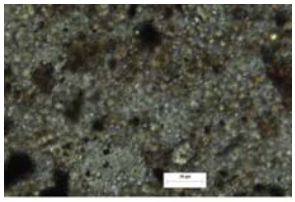

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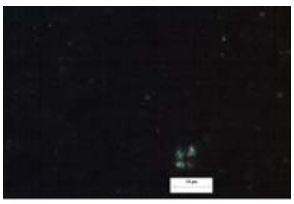

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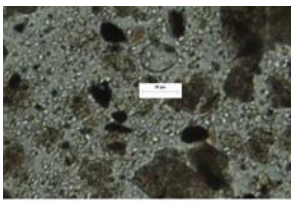

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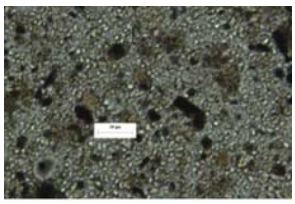

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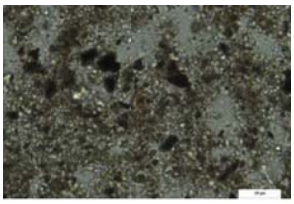

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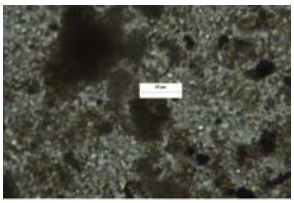

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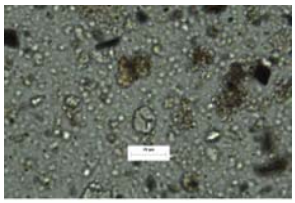

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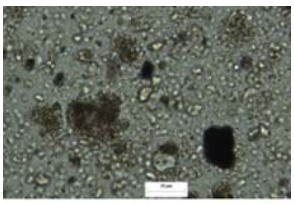

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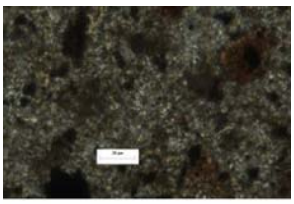

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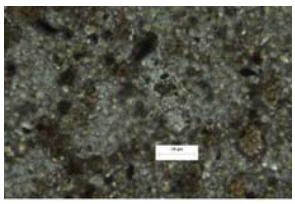

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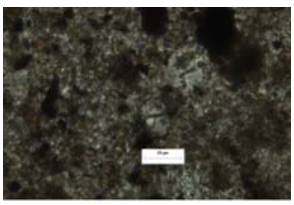

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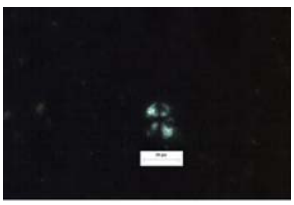

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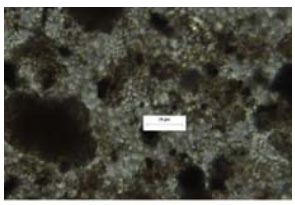

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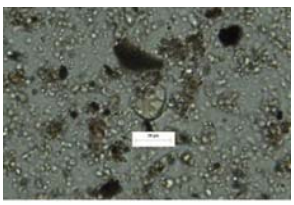

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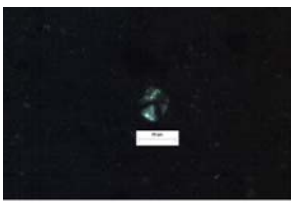

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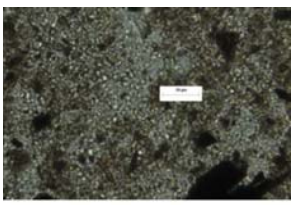

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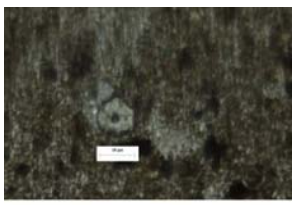

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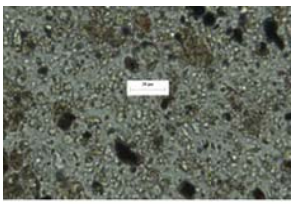

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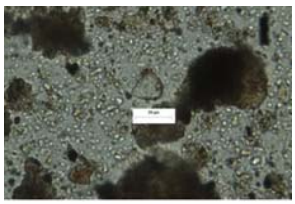

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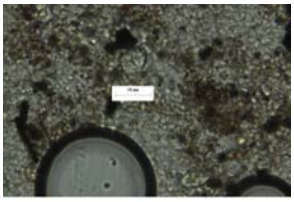

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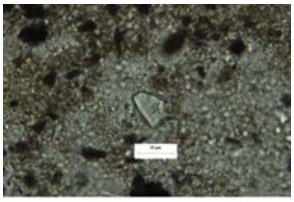

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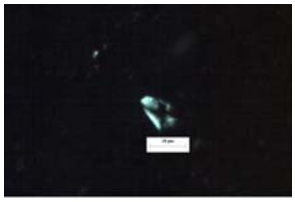

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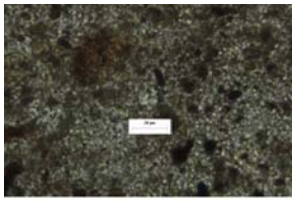

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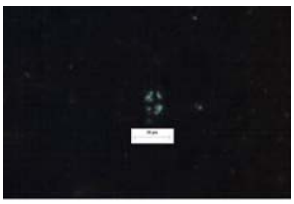

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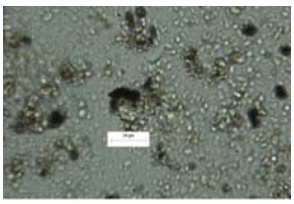

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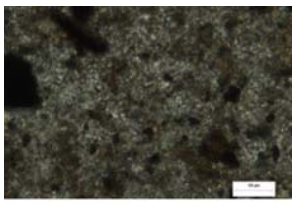

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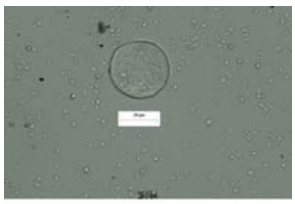

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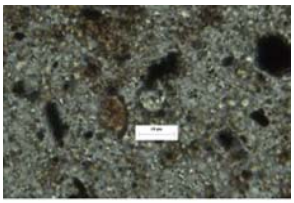

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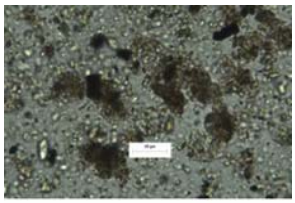

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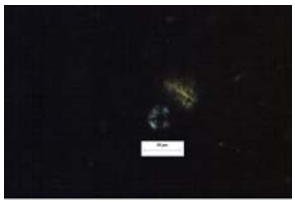

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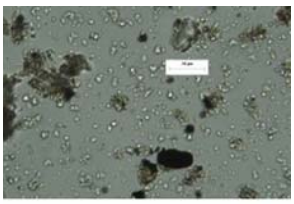

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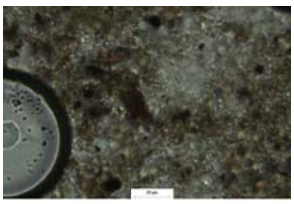

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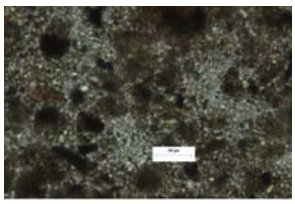

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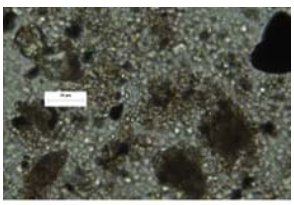

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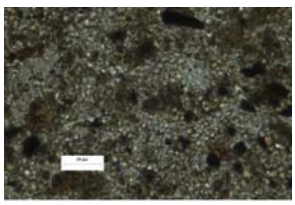

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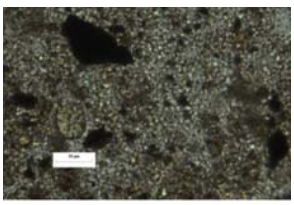

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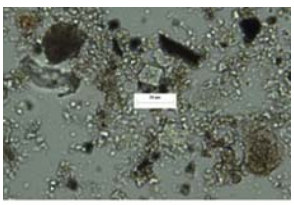

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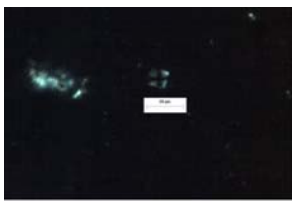

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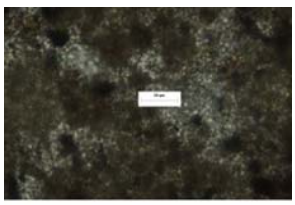

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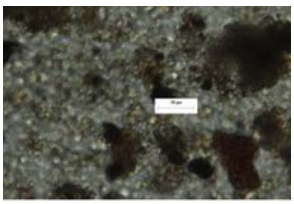

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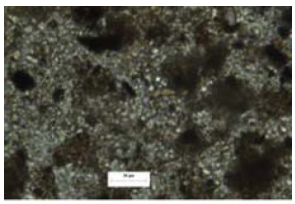

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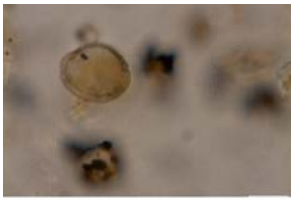

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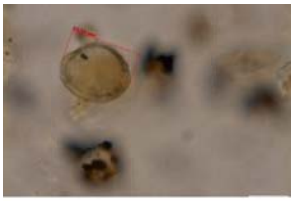

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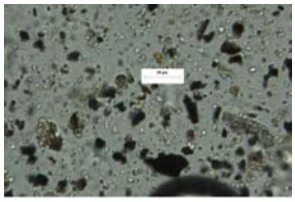

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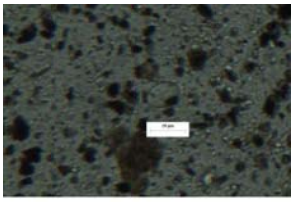

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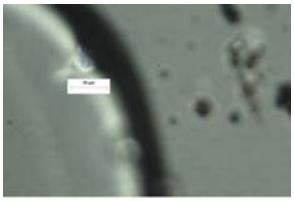

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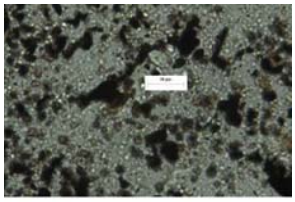

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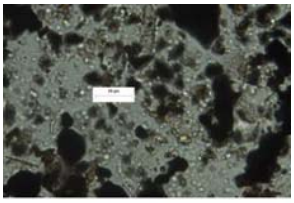

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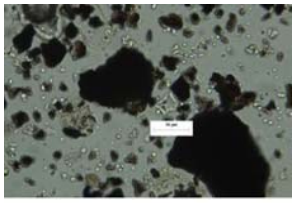

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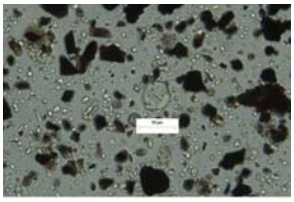

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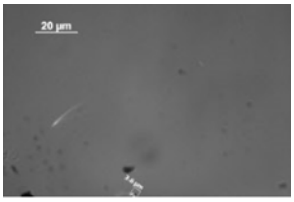

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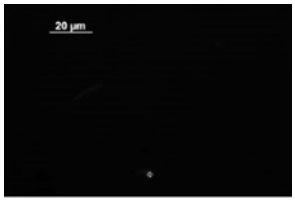

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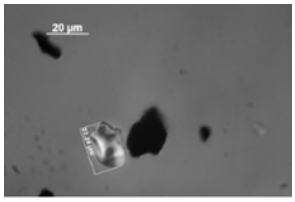

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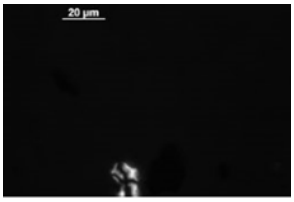
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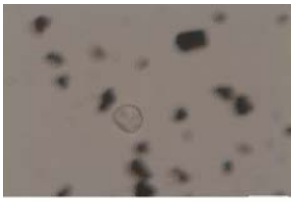
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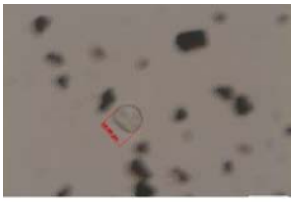


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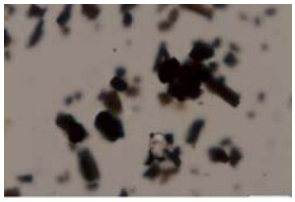


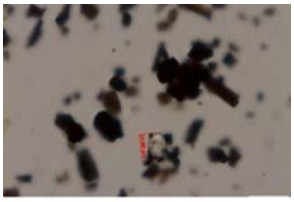
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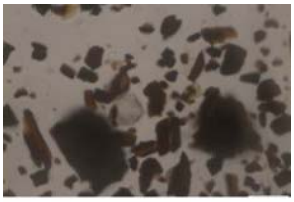

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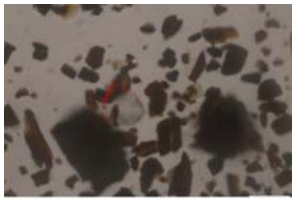

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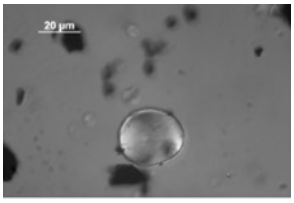

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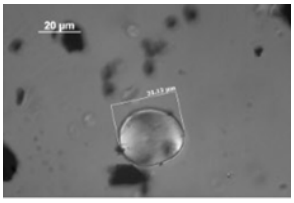

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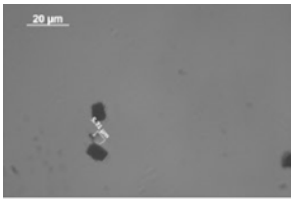

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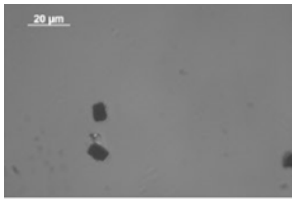
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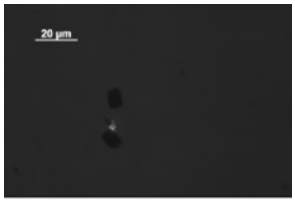
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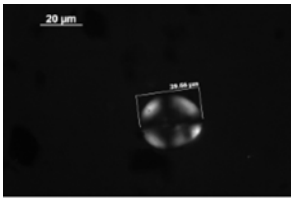
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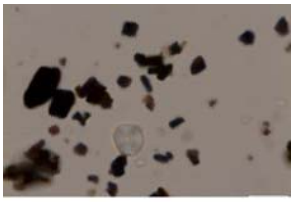
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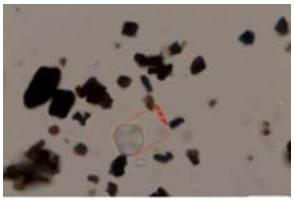


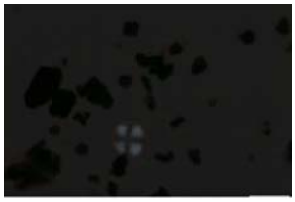
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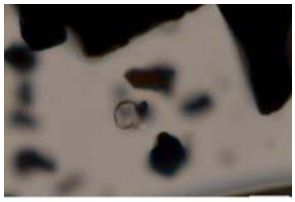


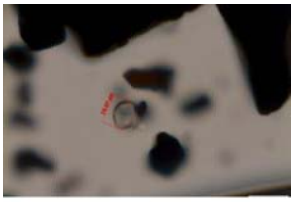
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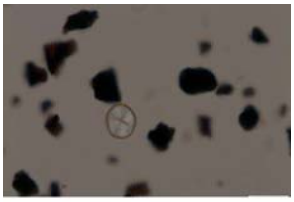

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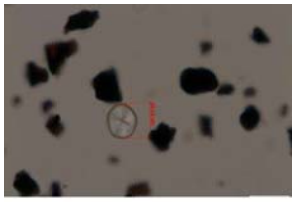

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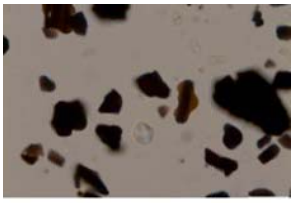

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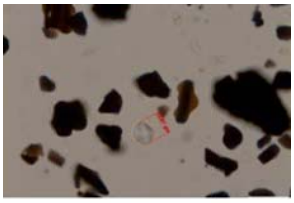

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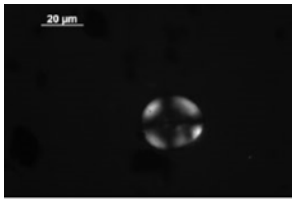

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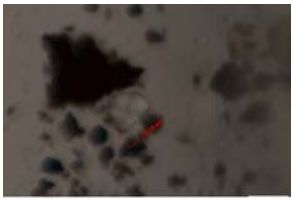

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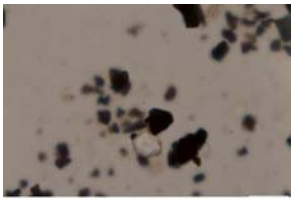


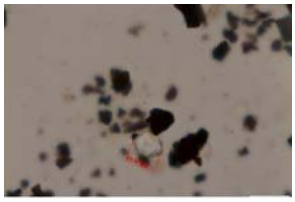
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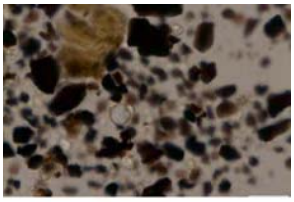

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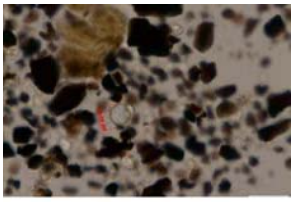

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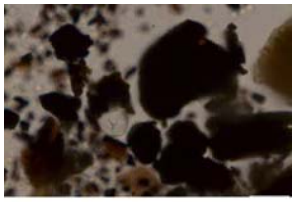

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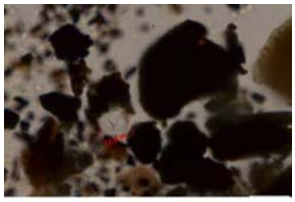

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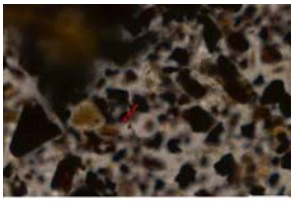

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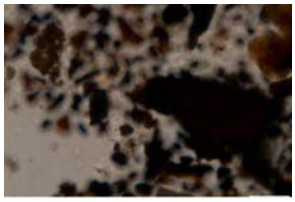

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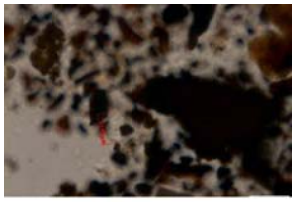

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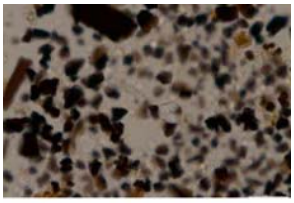

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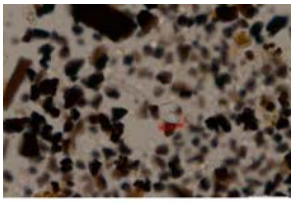

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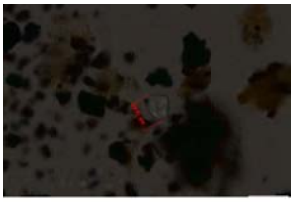

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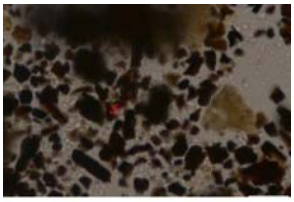

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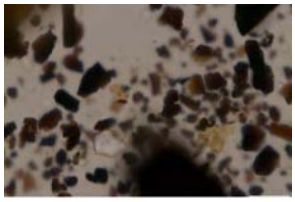

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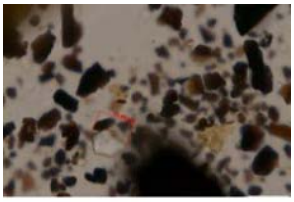

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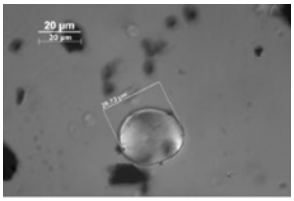

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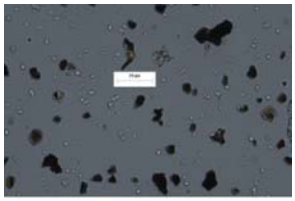

OR_1_50-60_2_3.3_09_starch


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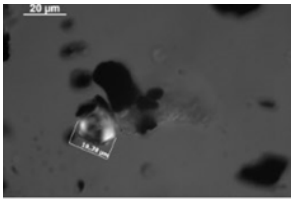

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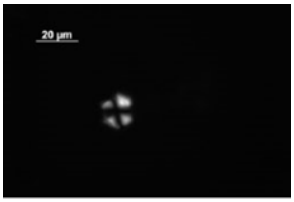
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R_1_50-60_3_4 of 4_starch m

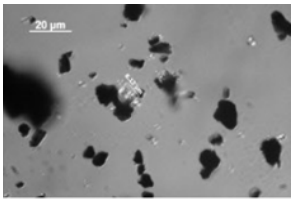

R_1_50-60_3_4 of 4_starch xp



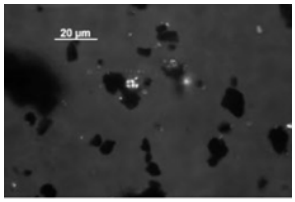
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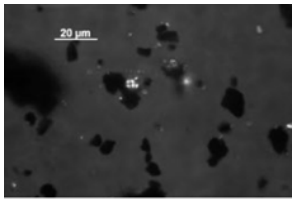
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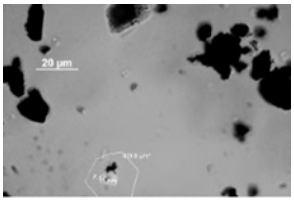
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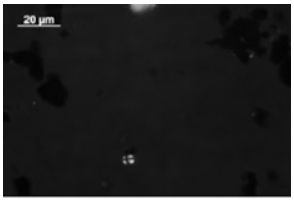
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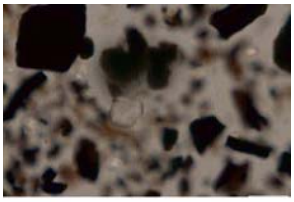
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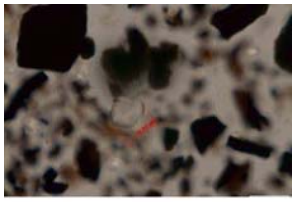


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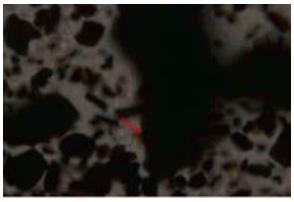
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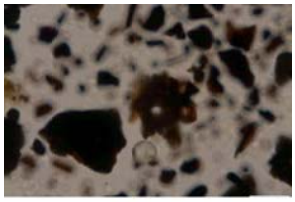

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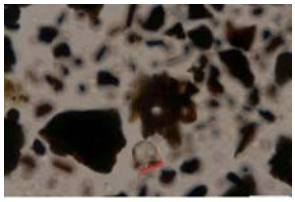

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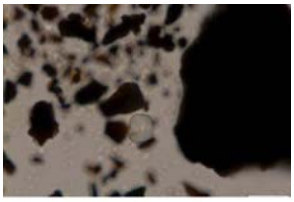

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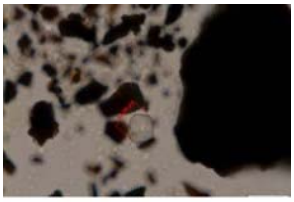

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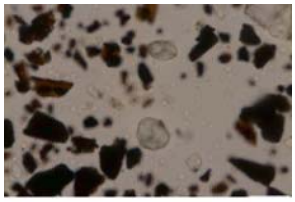

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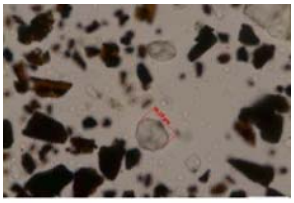

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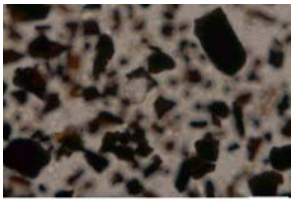

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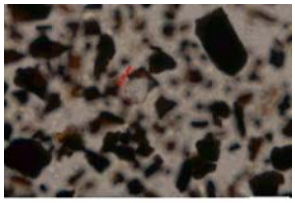

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R_1_60-70_1_2 of 2_05_starc

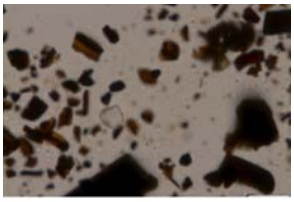

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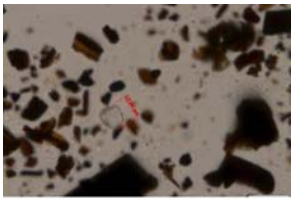

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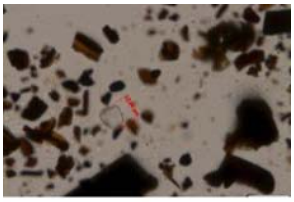

R_1_60-70_1_2 of 2_06_starc


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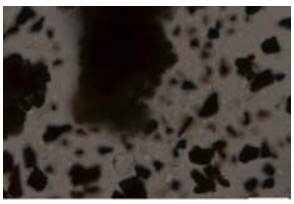

R_1_60-70_1_2 of 2_07_starc

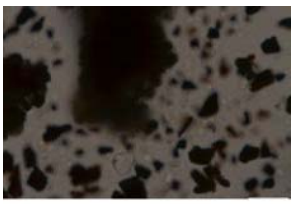

60-70_1_2 of 2_07_starch_ms

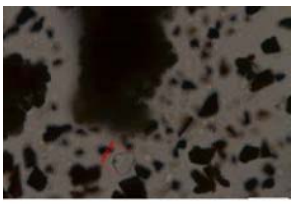

1_60-70_1_2 of 2_07_starch_


1_60-70_1_2 of 2_07_starch_


_60-70_1_2 of 2_07_starch_x

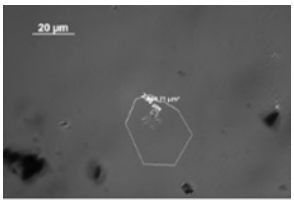

R_1_60-70_1_2 of 2_08_starc


_1_60-70_1_2 of 2_08_starch


1_60-70_1_2 of 2_08_starch_


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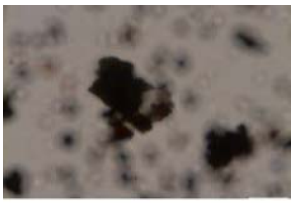

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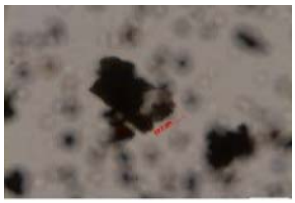


_1_60-70_2_1 of 2_a_starch

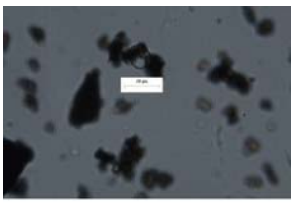


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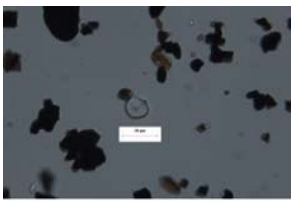

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_1_60-70_2_2 of 2_a_starch_

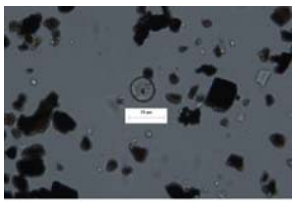

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R_1_70-80_1_3 of 6_starch m

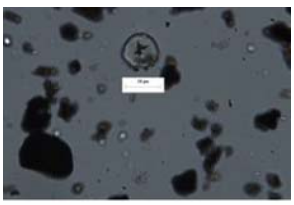

R_1_70-80_1_3 of 6_starch xp


R_1_70-80_1_4 of 6_starch m

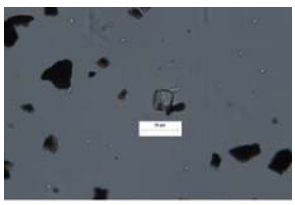

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R_1_70-80_1_4b of 6_starch n

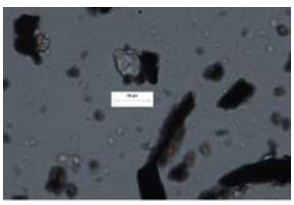

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R_1_70-80_1_5 of 6_starch m

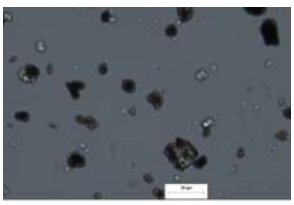

R_1_70-80_1_5 of 6_starch xp

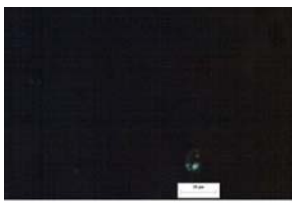

R_1_80-90_1_2 of 7_starch m

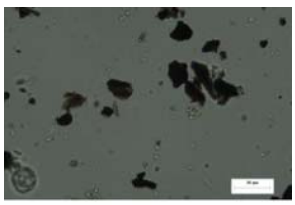

R_1_80-90_1_2 of 7_starch xp

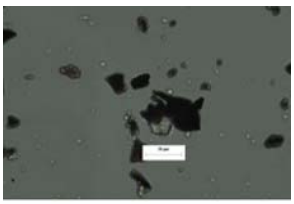

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_1_80-90_1_2b of 7_starch x

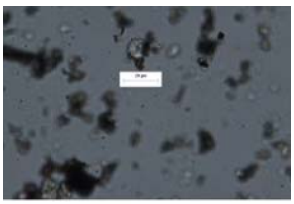

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_1_80-90_1_2c of 7_starch x

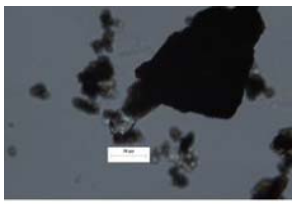

R_1_80-90_1_3 of 7_no starc


R_1_80-90_1_4 of 7_starch m

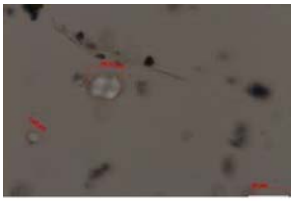

R_1_80-90_1_4 of 7_starch xp


_1_80-90_1_5a of 7_starch n


_1_80-90_1_5a of 7_starch x

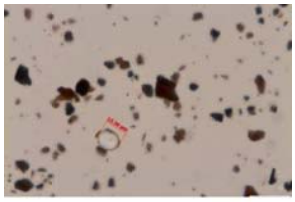

R_1_80-90_1_7 of 7_starch m

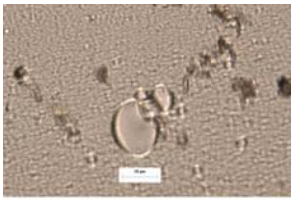

R_1_80-90_1_7 of 7_starch xp

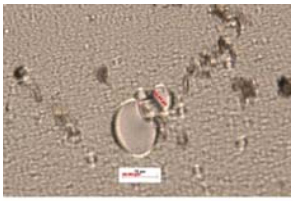

R_1_80-90_2_1 of 4_a,b_star


1_80-90_2_1 of 4_a,b_starch_


_1_80-90_2_1 of 4_c_starch r

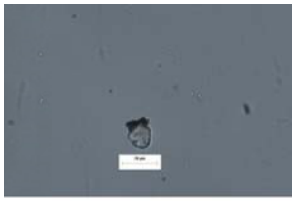

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OR_1_80-90_2_3 of 4_ starch

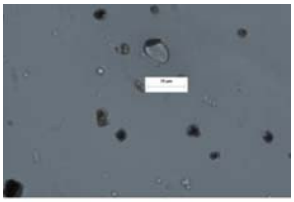

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R_1_80-90_2_3 of 4_starch xp

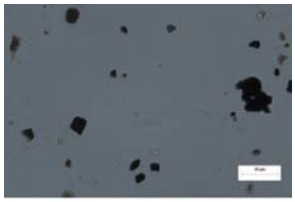

OR_1_80-90_2_3 of 4_xpol

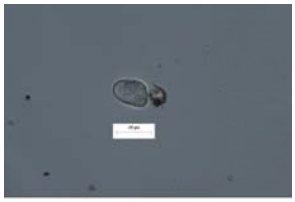

R_1_90-100_1_3 of 6_starch n


_1_90-100_1_3 of 6_starch x


R_1_90-100_1_4 of 6_starch n


_1_90-100_1_4 of 6_starch x

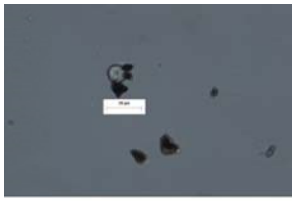

R_1_90-100_1_5 of 6_no star


R_1_90-100_1_6 of 6_starch n

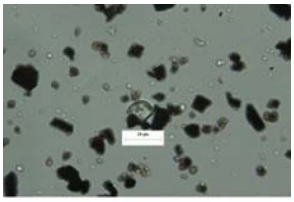

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_1_90-100_1_6b of 6_starch r

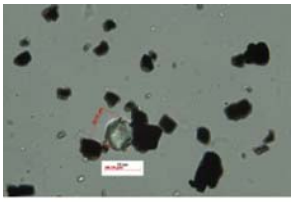

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_1_90-100_1_6c of 6_starch r


_1_90-100_1_6c of 6_starch x


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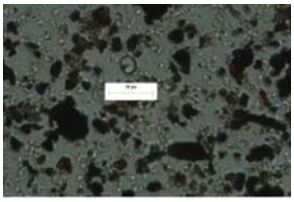

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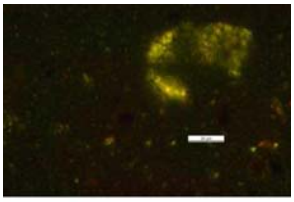

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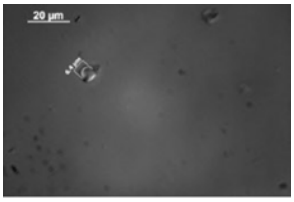

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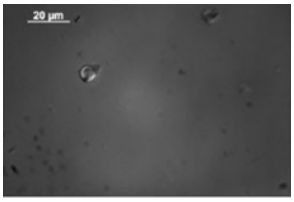
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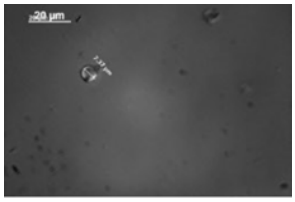

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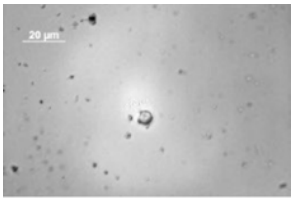
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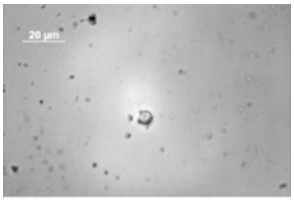


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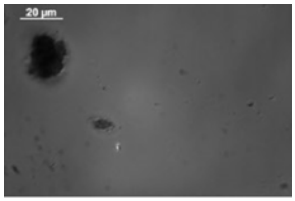


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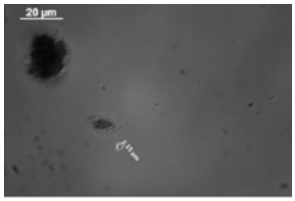

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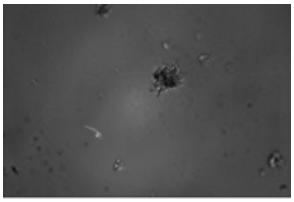
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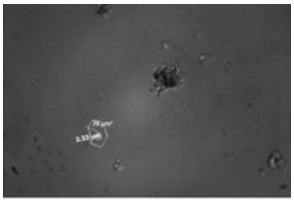


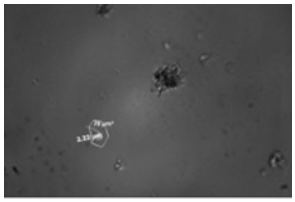
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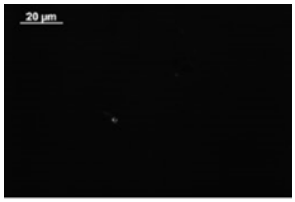


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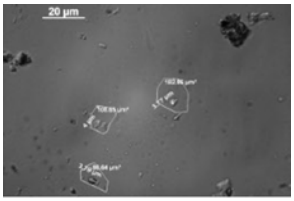

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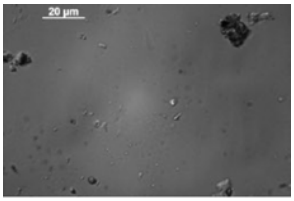

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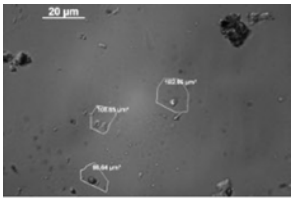
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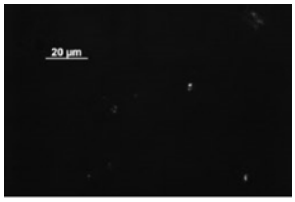
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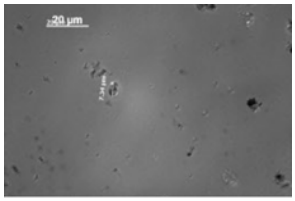
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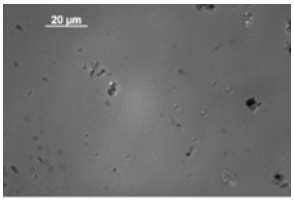
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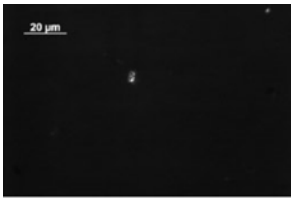
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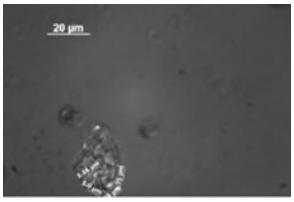
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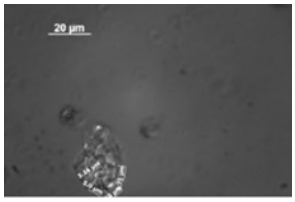
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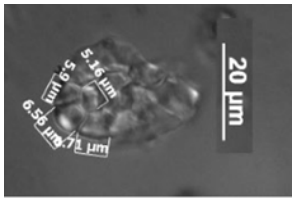
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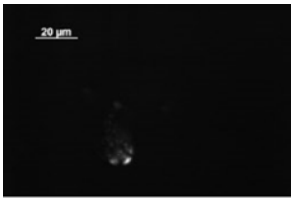
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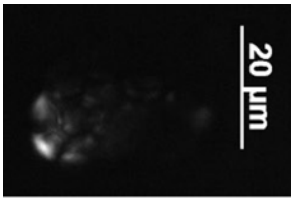
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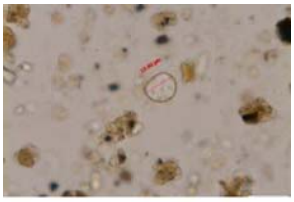
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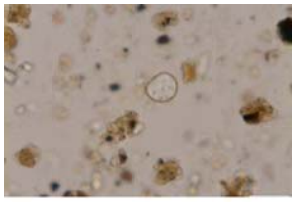


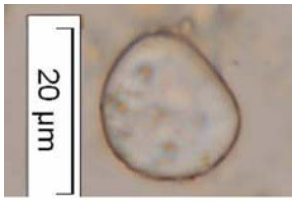
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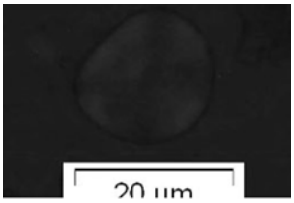

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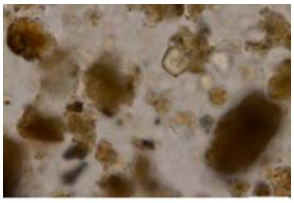


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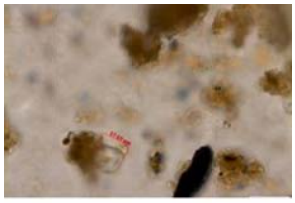

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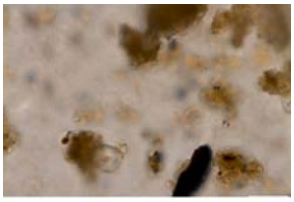


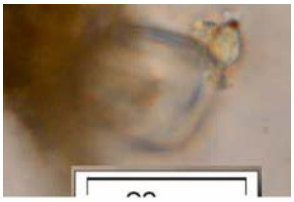
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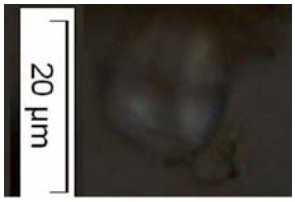

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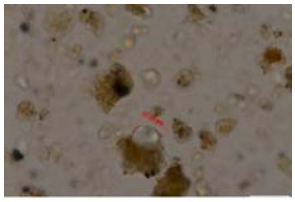

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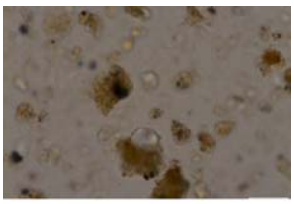

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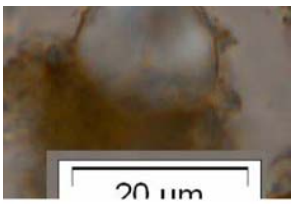

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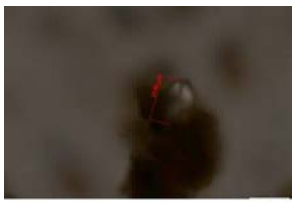


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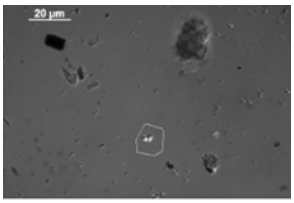

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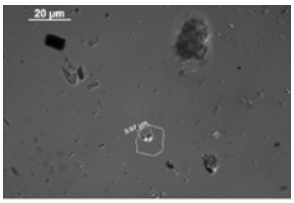
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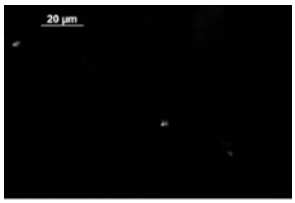

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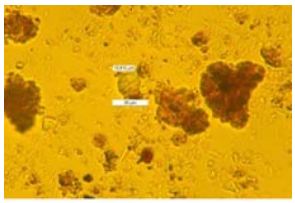
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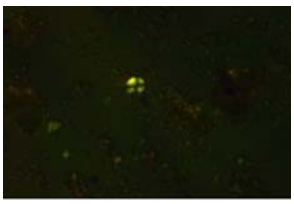


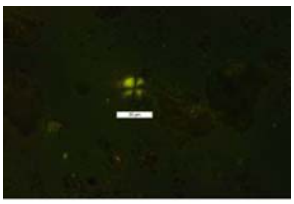
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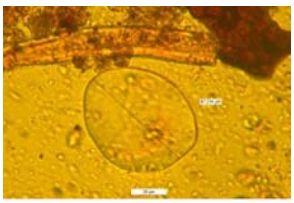


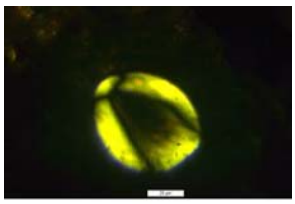
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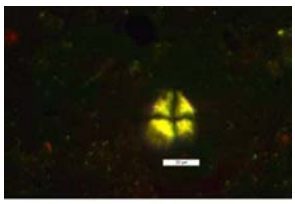

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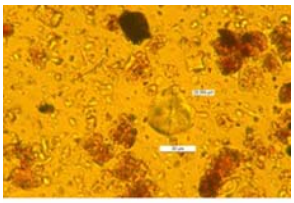

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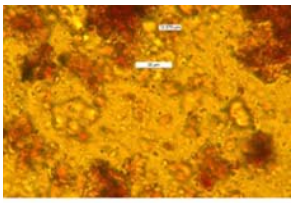

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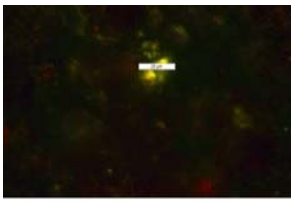

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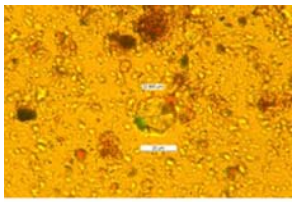

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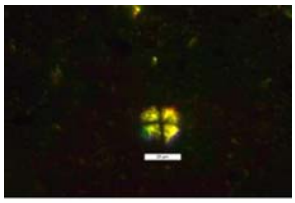

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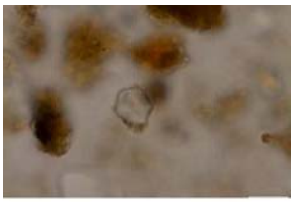

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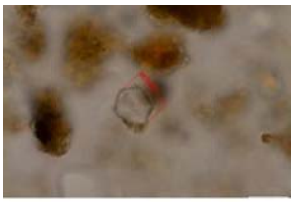

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_2_10-20_1_20 of 26_starch x

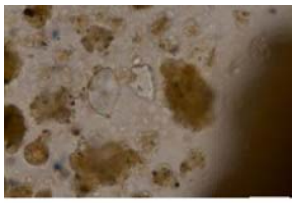

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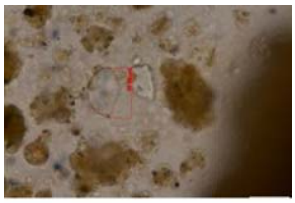

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R_2_10-20_P1_2 of 3_a_starc

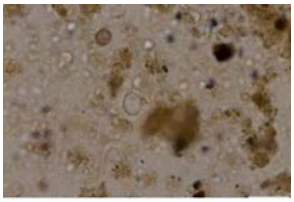

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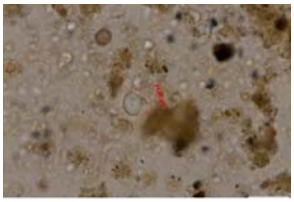

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R_2_10-20_P1_2 of 3_b_starc

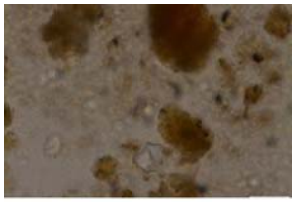

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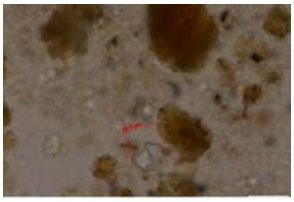

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R_2_10-20_P1_2 of 3_c_starc

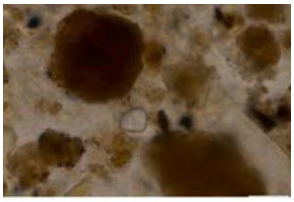

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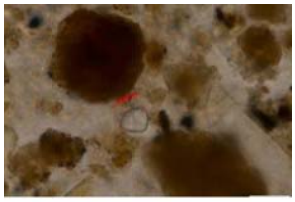

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R_2_10-20_P1_3 of 3_a_starc

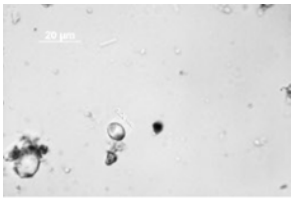

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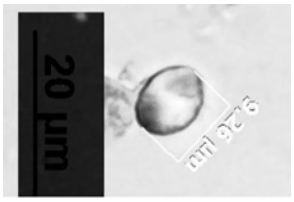

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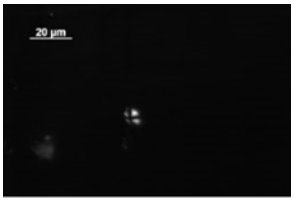

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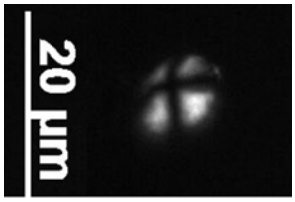

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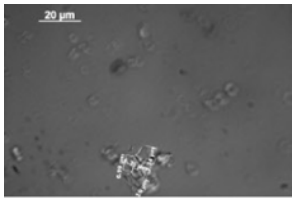

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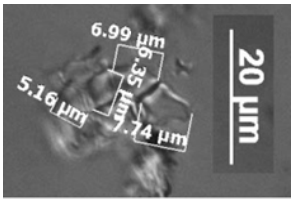

_2_10-20_p2_1 of 5_a_starch

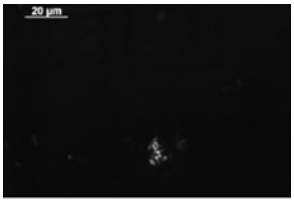

20 µm
9.26 µm
I0-20_p2_1 of 5_a_starch msr


20 µm
_2_10-20_p2_1 of 5_a_starch

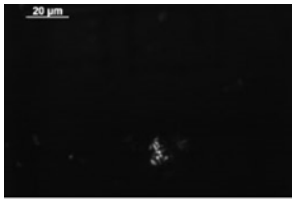

20 µm
I0-20_p2_1 of 5_a_starch xpo

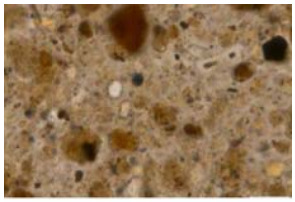

20 µm
_2_10-20_p2_1 of 5_b_starch

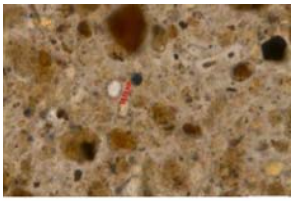

6.99 µm
6.35 µm
5.16 µm
7.74 µm
20 µm
I0-20_p2_1 of 5_b_starch msr

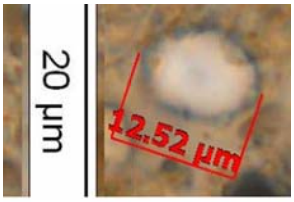

20 µm
_10-20_p2_1 of 5_b_starch xp


20 µm
20_p2_1 of 5_b_starch xpol c

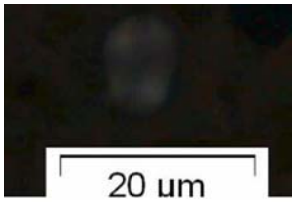

20 µm
2_10-20_p2_1 of 5_b_starch_

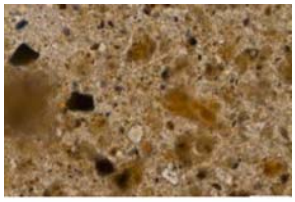

R_2_10-20_P2_2 of 5_a_starc

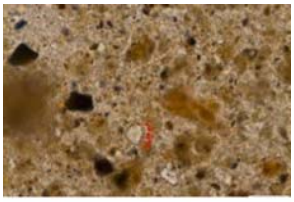

2_10-20_P2_2 of 5_a_starch_


20 µm
12.52 µm
0-20_P2_2 of 5_a_starch_ms

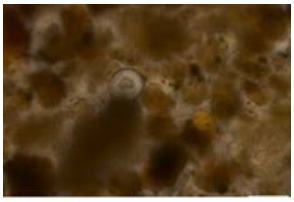

2_10-20_P2_2 of 5_a_starch_


20 um
0-20_P2_2 of 5_a_starch_xpc

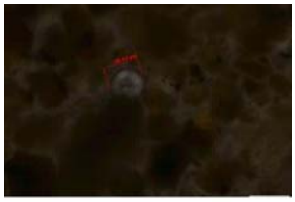

R_2_10-20_P2_2 of 5_b_starc

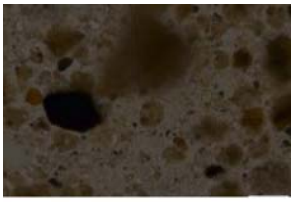

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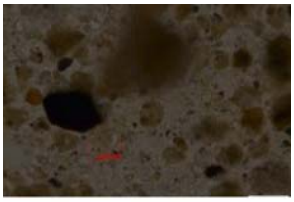

2_10-20_P2_2 of 5_b_starch_


R_2_10-20_P2_3 of 5_not_star

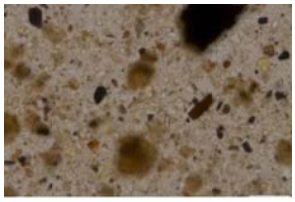

_10-20_P2_3 of 5_not_starch

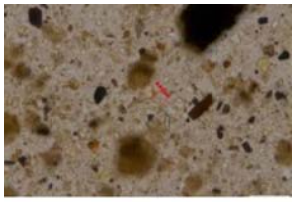

0-20_P2_3 of 5_not_starch_x


R_2_10-20_P2_4 of 5_a_starc

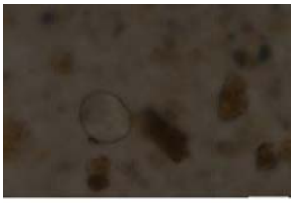

2_10-20_P2_4 of 5_a_starch_

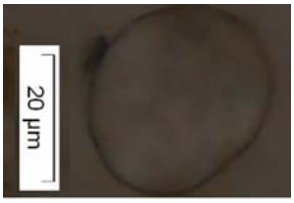

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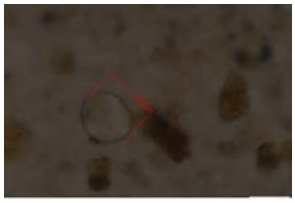

R_2_10-20_P2_4 of 5_b_starc


2_10-20_P2_4 of 5_b_starch_

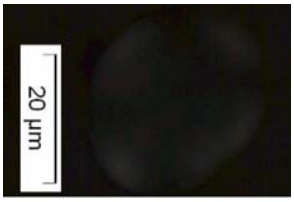

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R_2_10-20_P2_4 of 5_c_starc

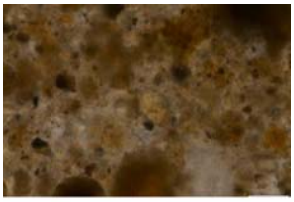

20 µm
_10-20_P2_4 of 5_c_starch_e

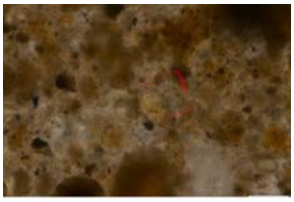

2_10-20_P2_4 of 5_c_starch_


_10-20_P2_4 of 5_c_starch_

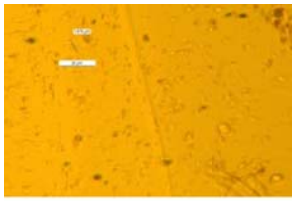


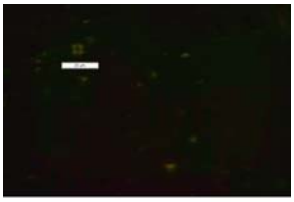
)-20_P2_4 of 5_c_starch_XPC

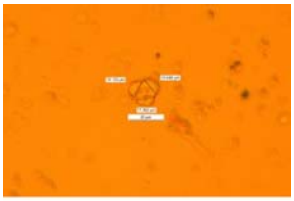

R_2_10-20_P2_5 of 5_a_starc

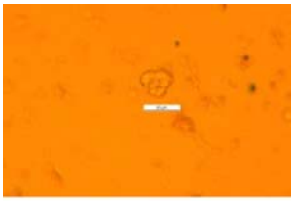

2_10-20_P2_5 of 5_a_starch_


2_10-20_P2_5 of 5_a_starch_

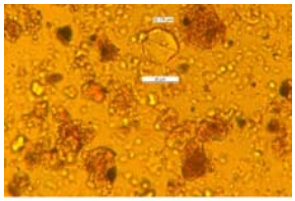

R_2_20-30_1_2 of 41_starch n

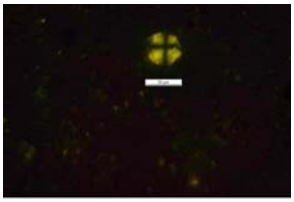

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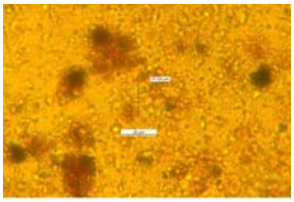

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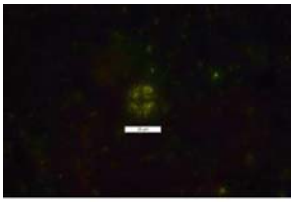

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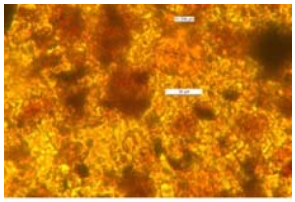

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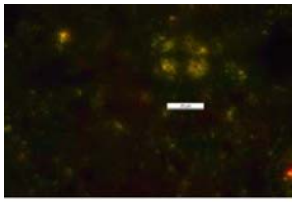

_2_20-30_1_22 of 41_starch r


_2_20-30_1_22 of 41_starch x


_2_20-30_1_28 of 41_starch r

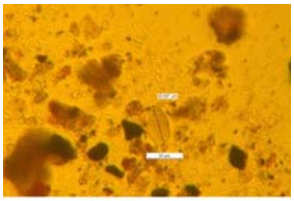

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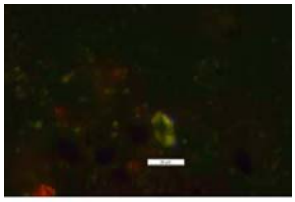

_2_20-30_1_32 of 41_starch r

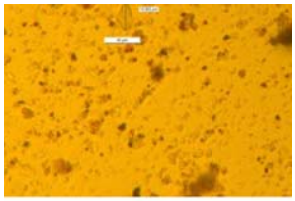

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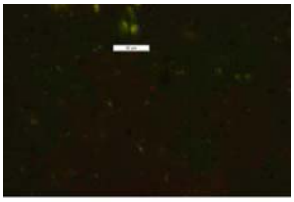

_2_20-30_1_39 of 41_starch r

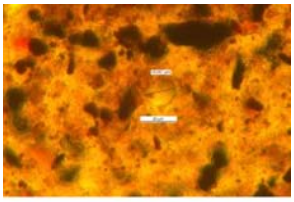

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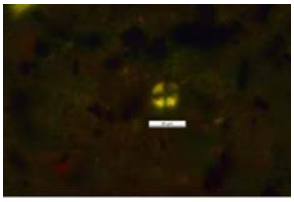

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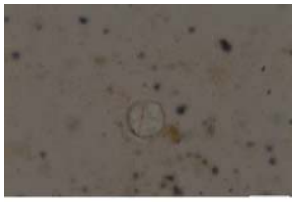

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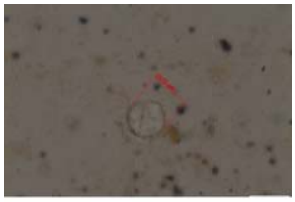

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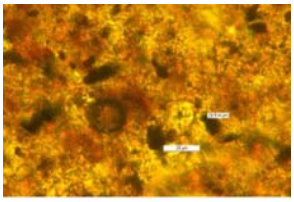

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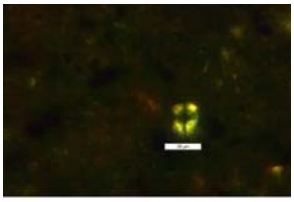

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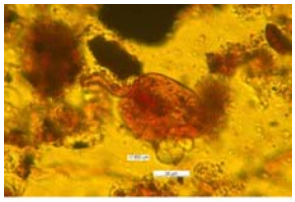

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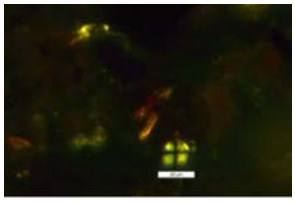

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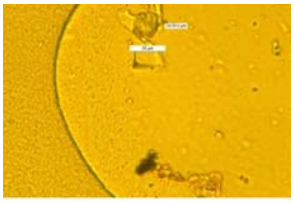

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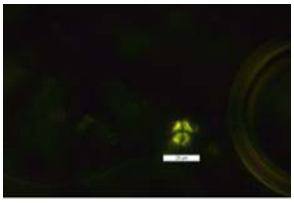

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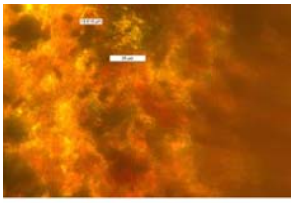

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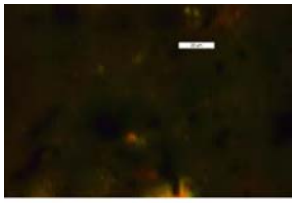

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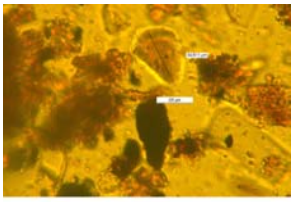

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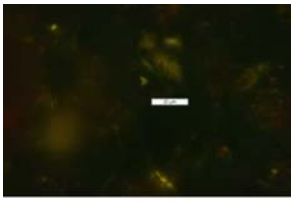

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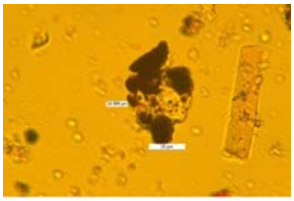

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_2_40-50_1_5 of 21_a_starch

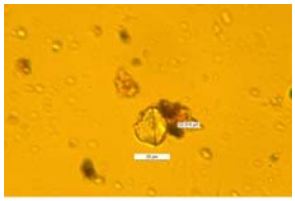

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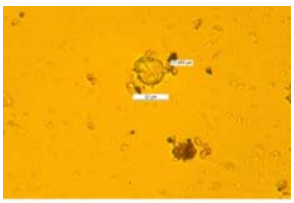

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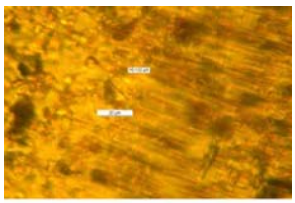

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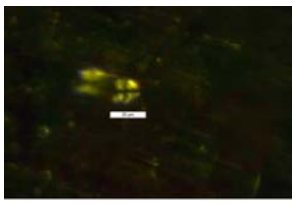

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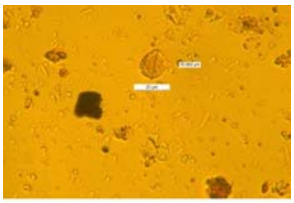

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DR_2_40-50_1_6 of 21_a_ms

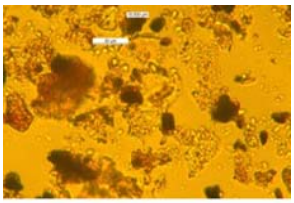

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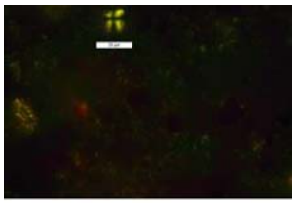

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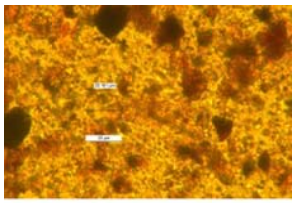

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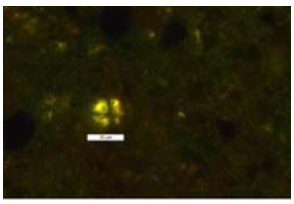

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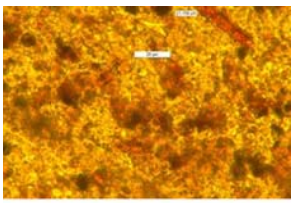

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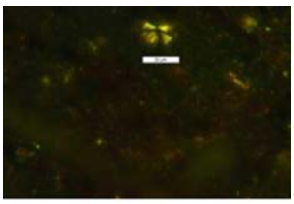

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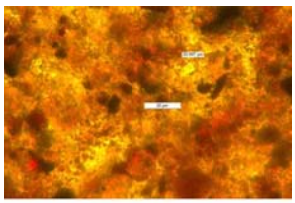

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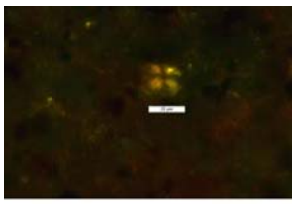

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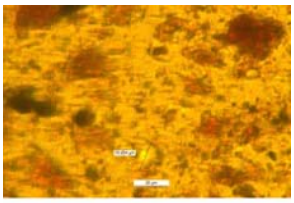

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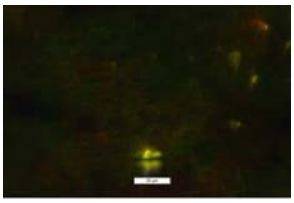

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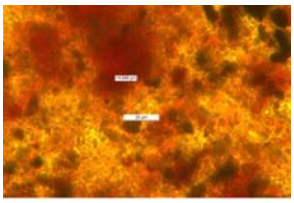

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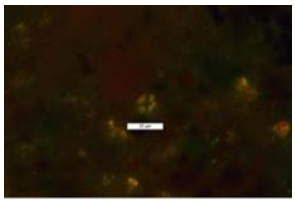

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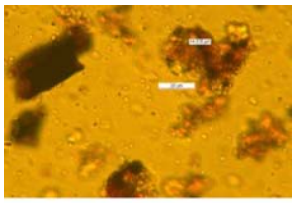

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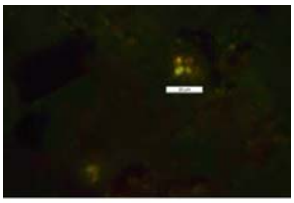

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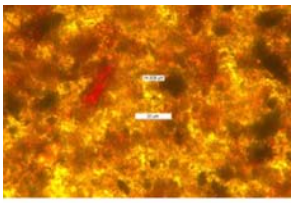

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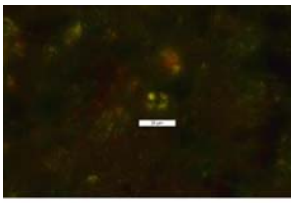

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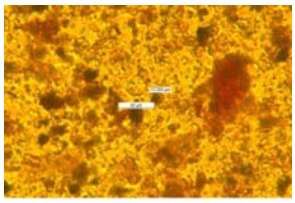

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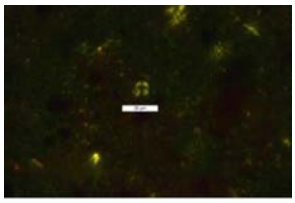

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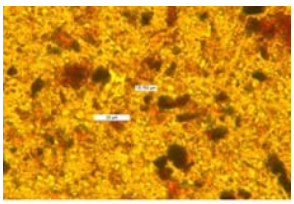

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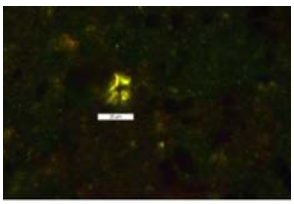

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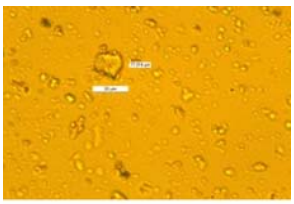

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DR_2_40-50_1_8 of 21_e_ms

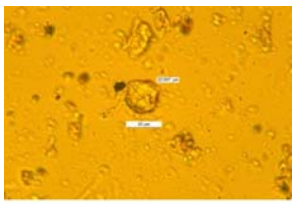

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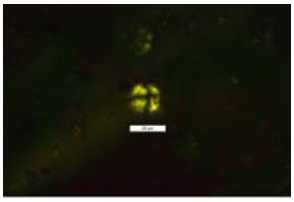

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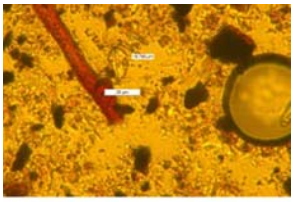

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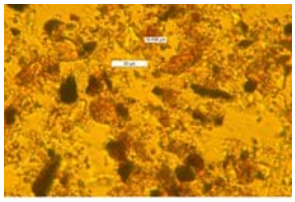

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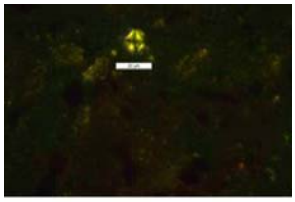

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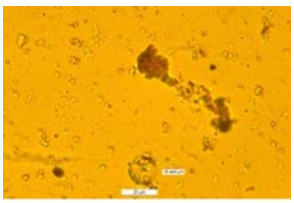

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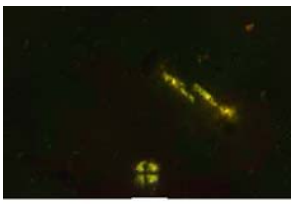

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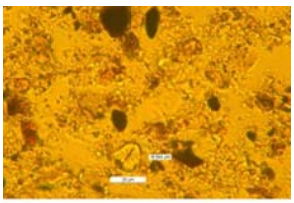

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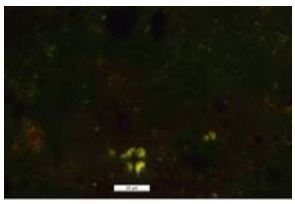

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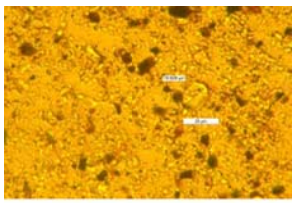

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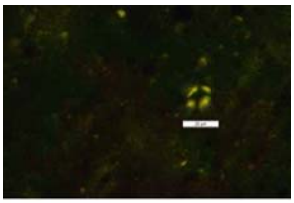

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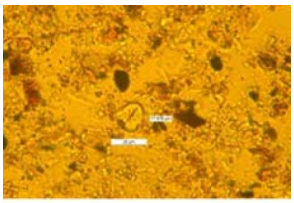

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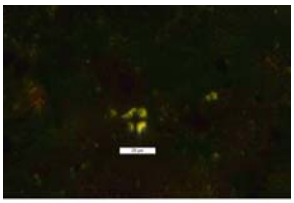

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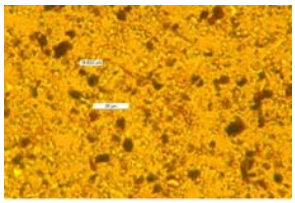

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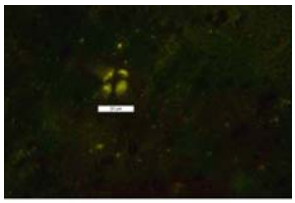

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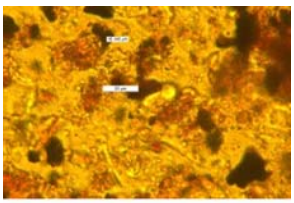

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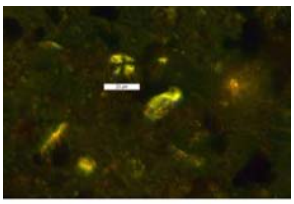

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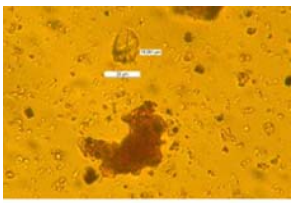

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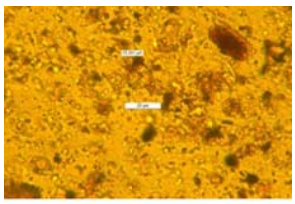

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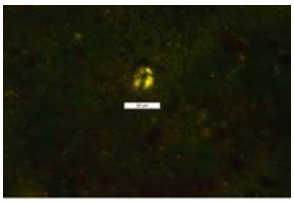

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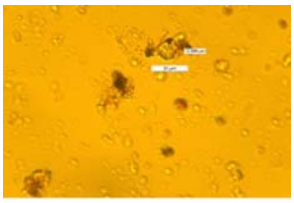

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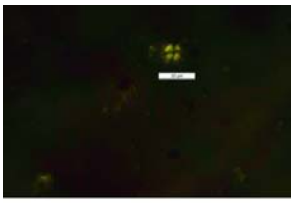

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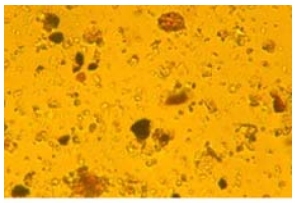

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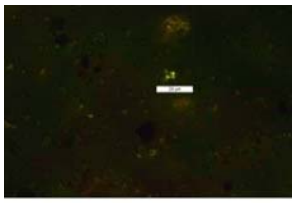

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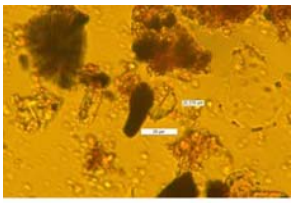

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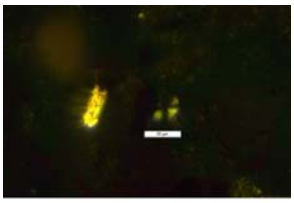

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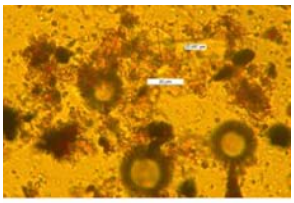

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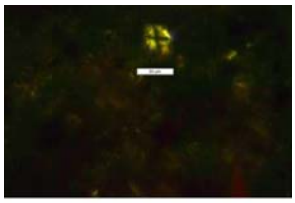

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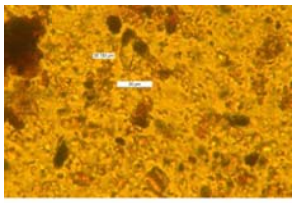

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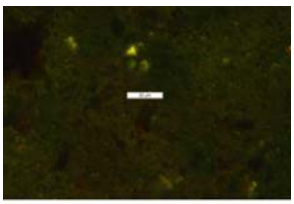

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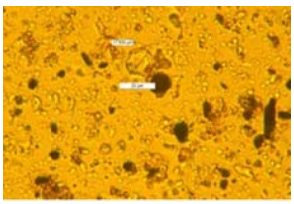

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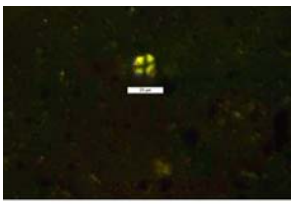

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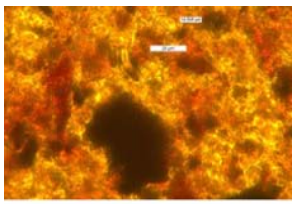

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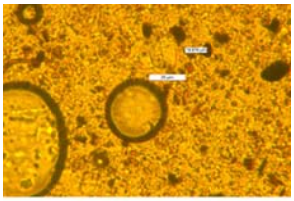

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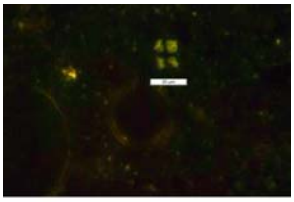

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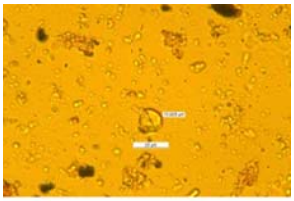

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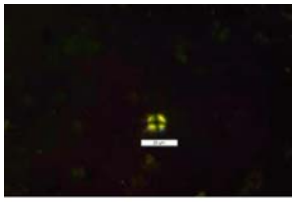

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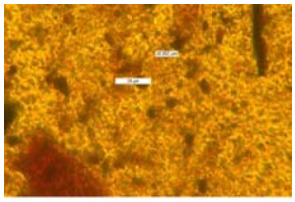

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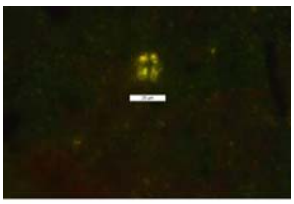

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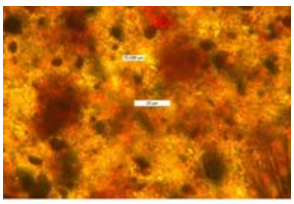

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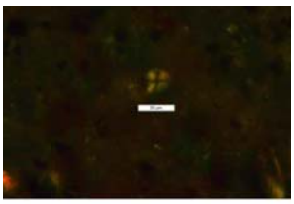

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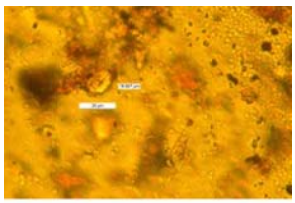

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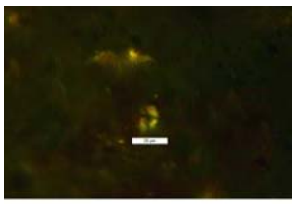

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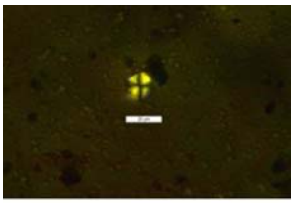

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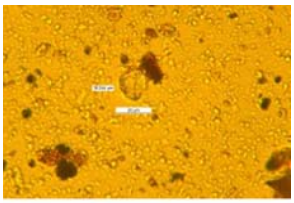

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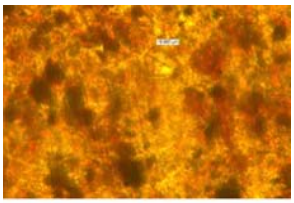

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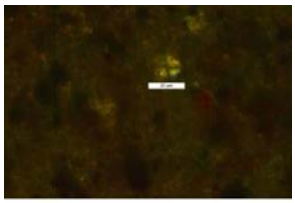

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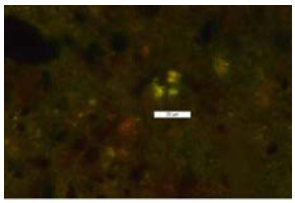

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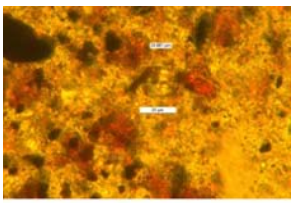

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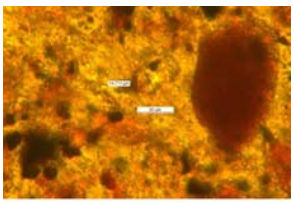

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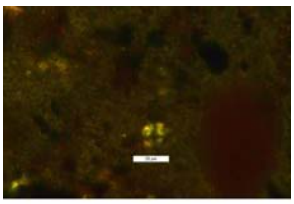

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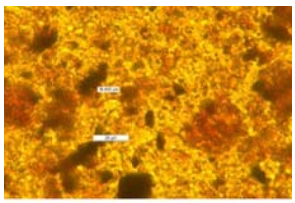

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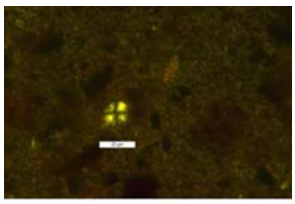

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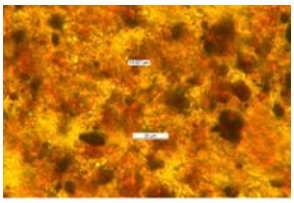

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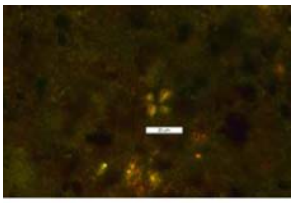

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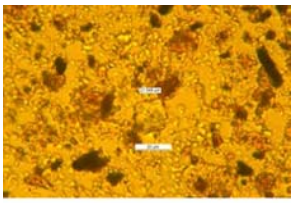

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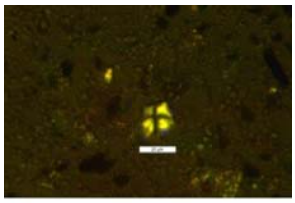

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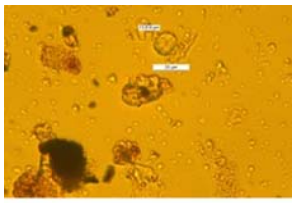

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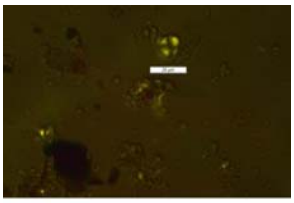

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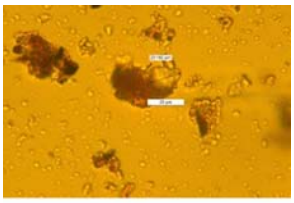

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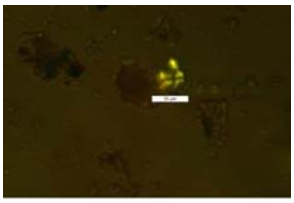

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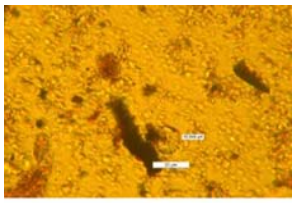

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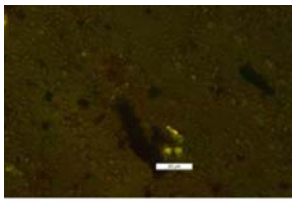

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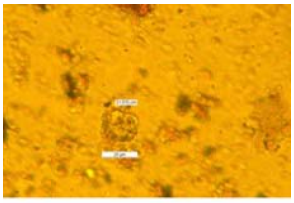

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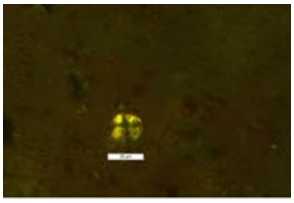

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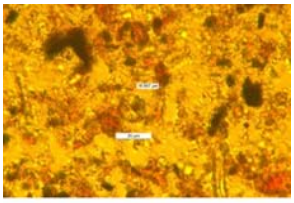

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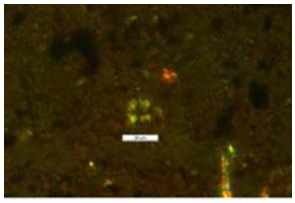

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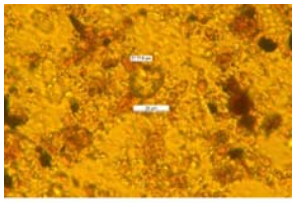

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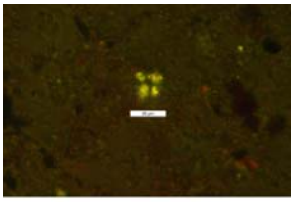

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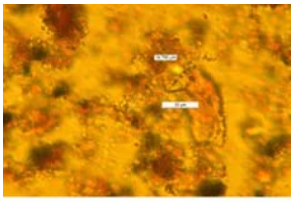

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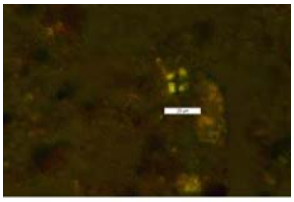

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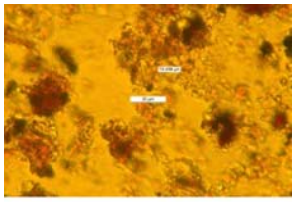

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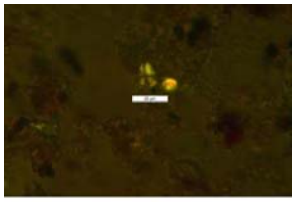

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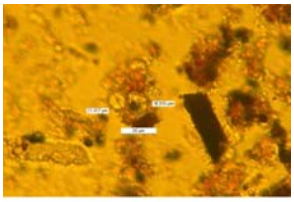

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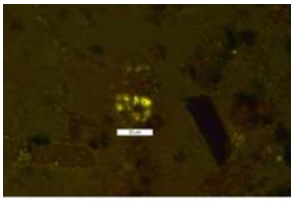

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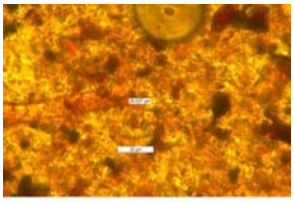

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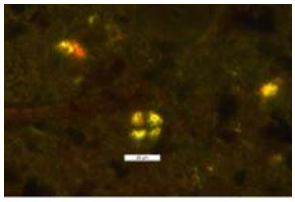

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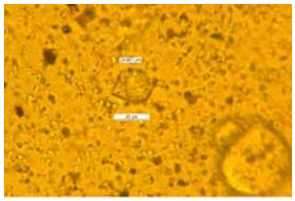

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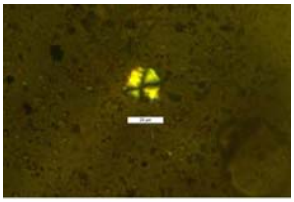

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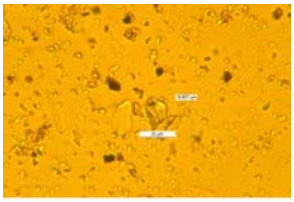

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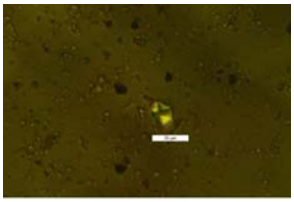

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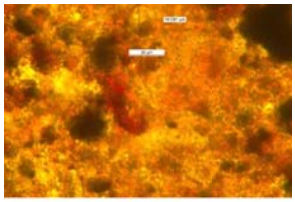

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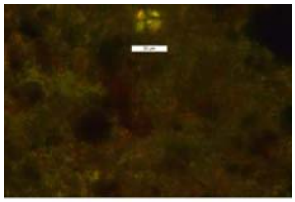

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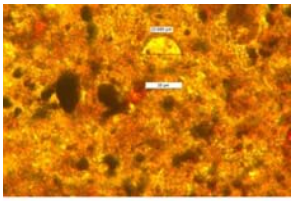

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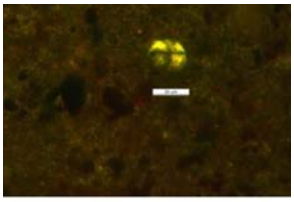

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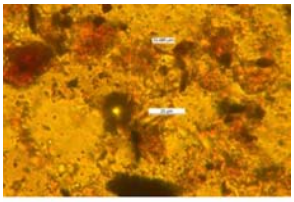

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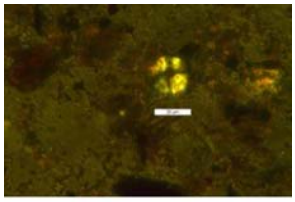

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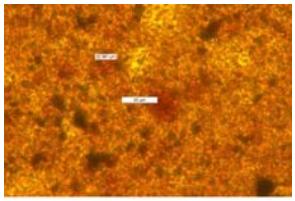

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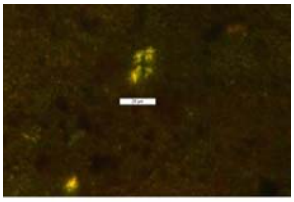

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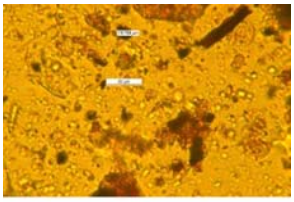

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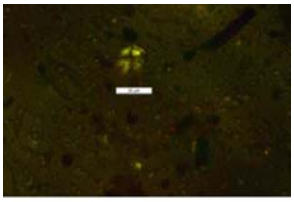

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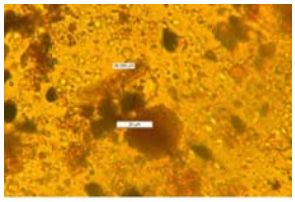

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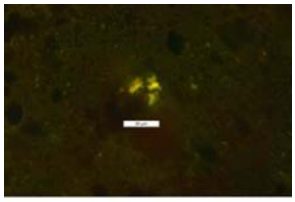

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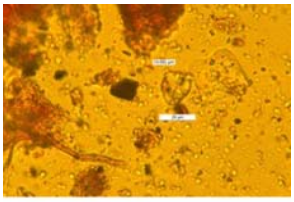

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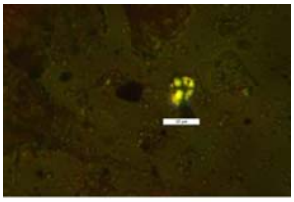

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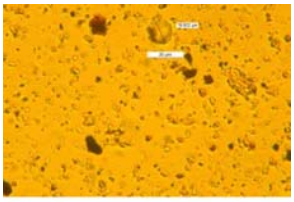

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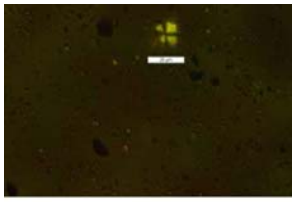

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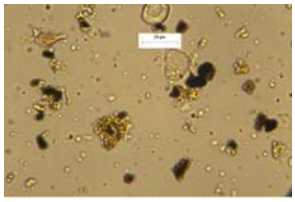

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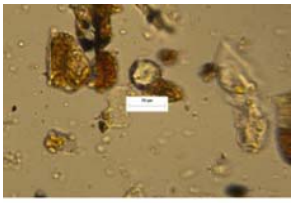

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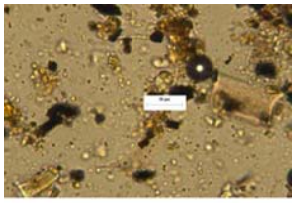

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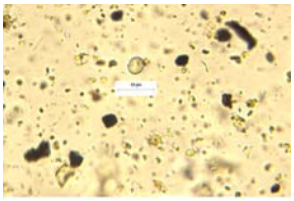

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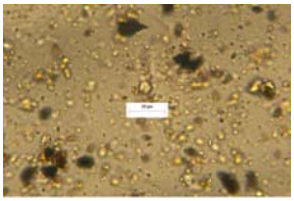

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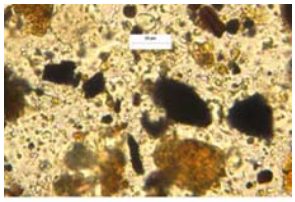
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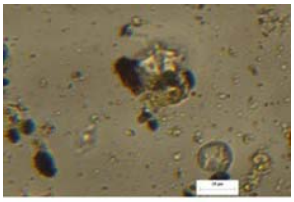
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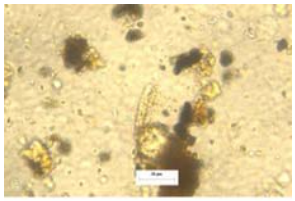
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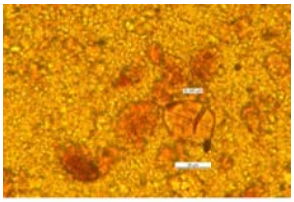
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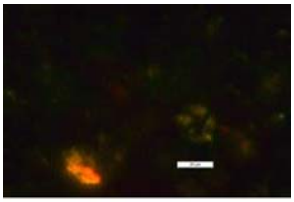
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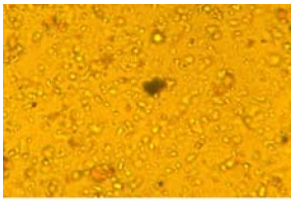
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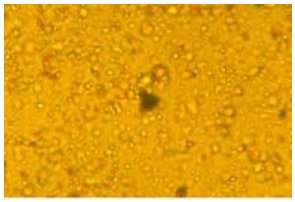
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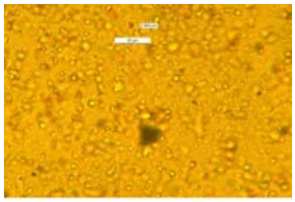
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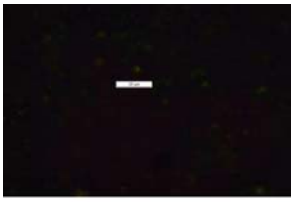
R_2_60-70_1_3 of 41_starch n



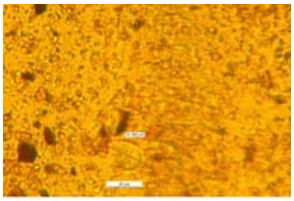
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2_60-70_1_3 of 41_starch msr



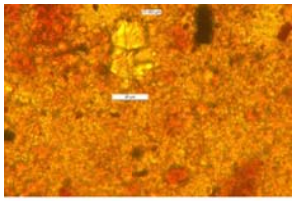
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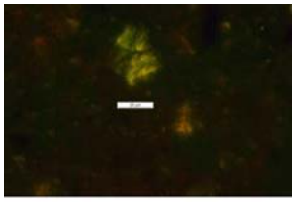
_2_60-70_1_20 of 41_starch r



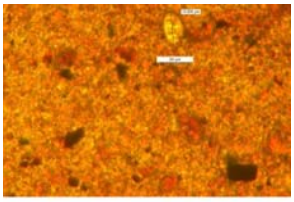
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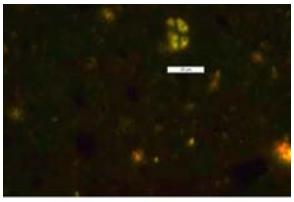
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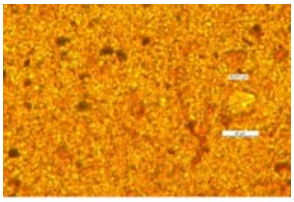
_2_60-70_1_27 of 41_starch x



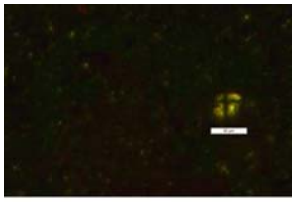
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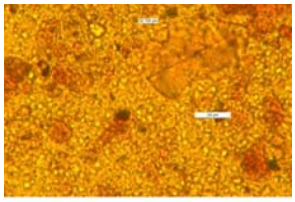
_2_60-70_1_33 of 41_starch x



_2_60-70_1_35 of 41_starch r



_2_60-70_1_35 of 41_starch x

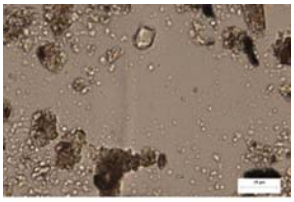


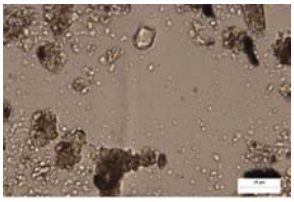
_2_60-70_1_41 of 41_starch r

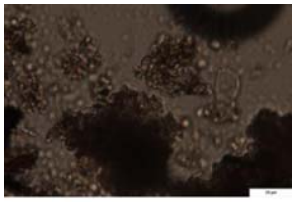
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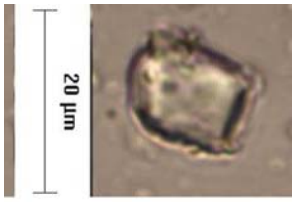
Unit 3


_3_10-20_p3_5 of 6b_starch x


_3_0-10_1_3 of 8_starch msr


R_3_0-10_1_3 of 8_starch ms

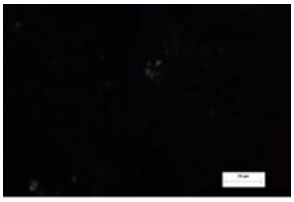

R_3_0-10_1_3 of 8_starch msr

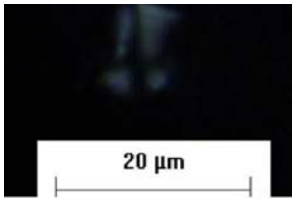


3_0-10_1_3 of 8_starch msr_e

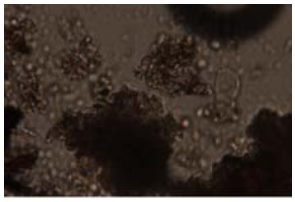

_3_0-10_1_3 of 8_starch xpol


R_3_0-10_1_3 of 8_starch xp

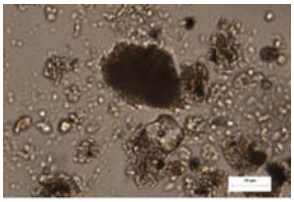

_3_0-10_1_3 of 8_starch xpo



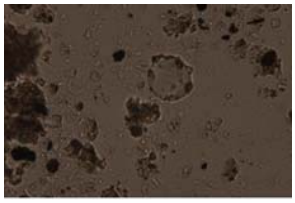
3_0-10_1_3 of 8_starch xpol_e


R_3_0-10_1_3 of 8b_starch m

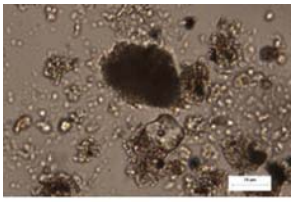

R_3_0-10_1_3 of 8b_starch xp


R_3_0-10_1_4 of 8_starch ms

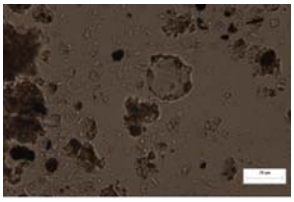

R_3_0-10_1_4 of 8_starch xp

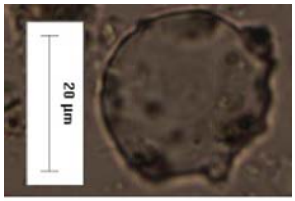

R_3_0-10_1_4 of 8b_starch m


R_3_0-10_1_4 of 8b_starch xp

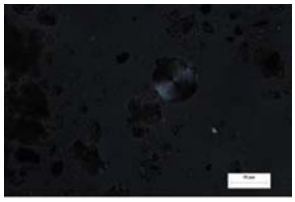

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_3_0-10_1_4a of 8_starch xpo


R_3_0-10_1_4b of 8_starch m

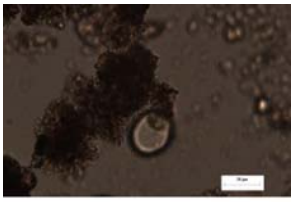


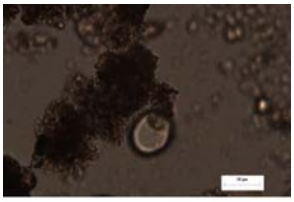
_0-10_1_4b of 8_starch msr_

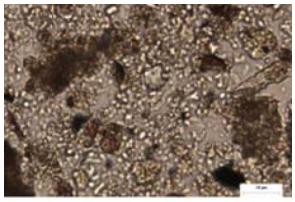

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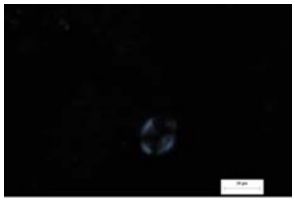


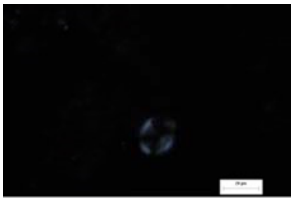
_0-10_1_4b of 8_starch xpol_


_3_0-10_1_5 of 8_starch msr

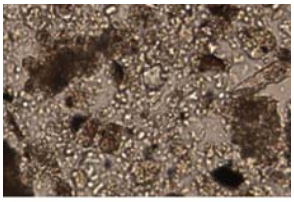

R_3_0-10_1_5 of 8_starch ms


R_3_0-10_1_5 of 8_starch msr

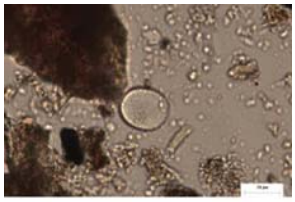

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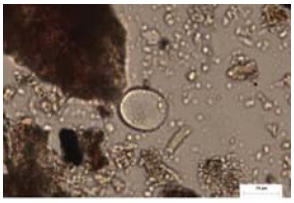

R_3_0-10_1_5 of 8_starch xp


_3_0-10_1_5 of 8_starch xpo


R_3_0-10_1_5 of 8b_starch m

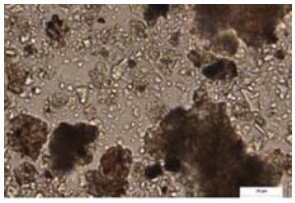

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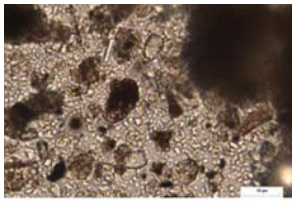

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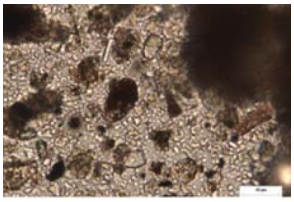

R_3_0-10_1_6 of 8_starch ms


_3_0-10_1_6 of 8_starch xpol


R_3_0-10_1_6 of 8_starch xp

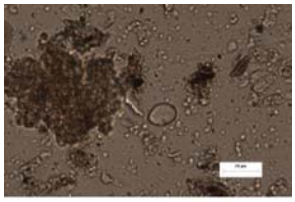

DR_3_0-10_1_7 of 8_no starcl

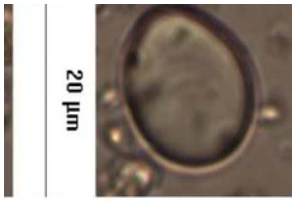

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R_3_0-10_1_8 of 8_starch ms


_3_0-10_1_8 of 8_starch xpol

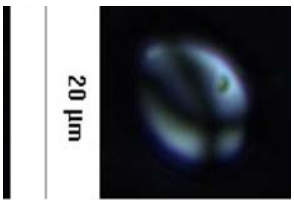

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_3_10-20_1_6 of 13_starch n

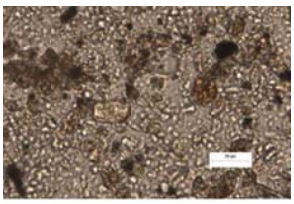


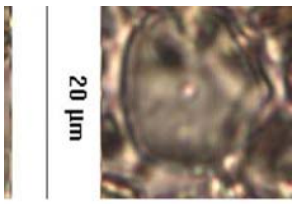
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_3_10-20_1_6 of 13_starch x



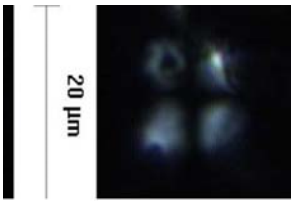
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_3_10-20_1_6 of 13b_starch r

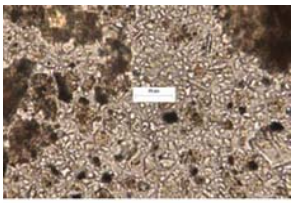


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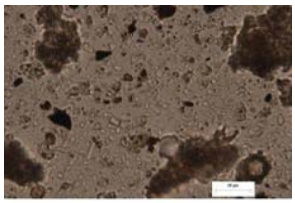

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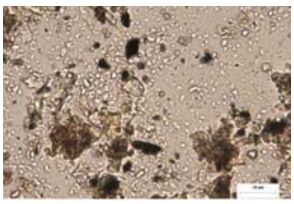
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_3_10-20_1_7 of 13_starch n

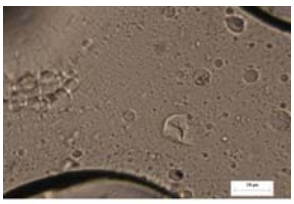

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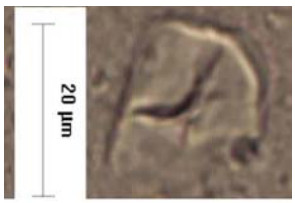

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_3_10-20_1_7 of 13b_starch x


_3_10-20_1_12 of 13_starch r

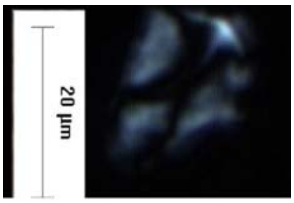

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_3_10-20_2_2 of 15_starch n

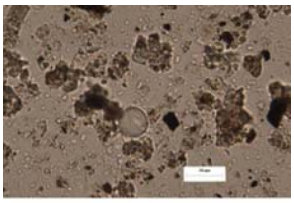


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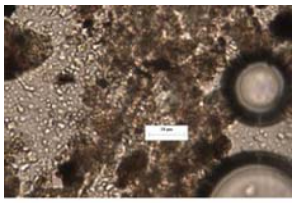

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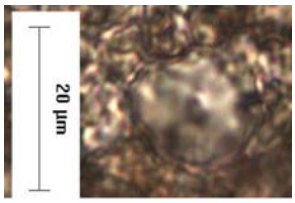


_10-20_2_2 of 15_starch xpol_


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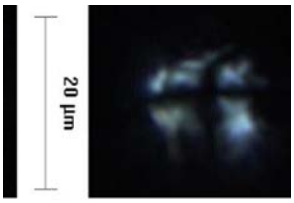

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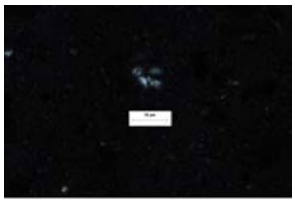
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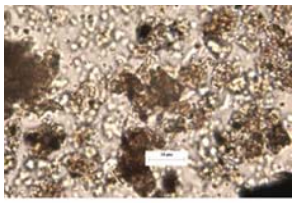

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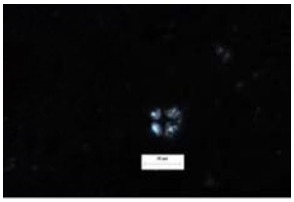


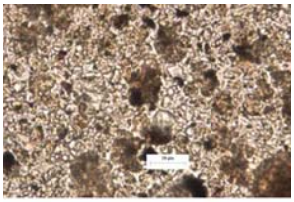
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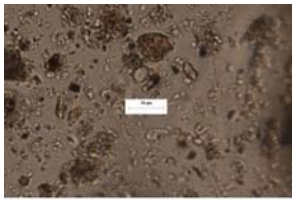

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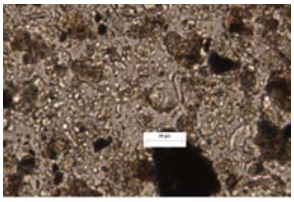

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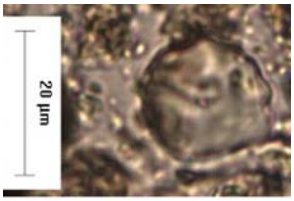

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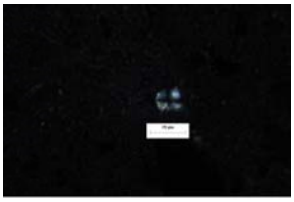

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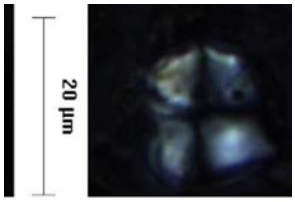
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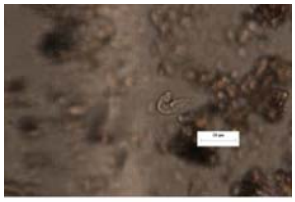
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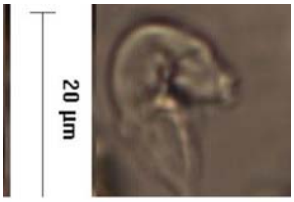
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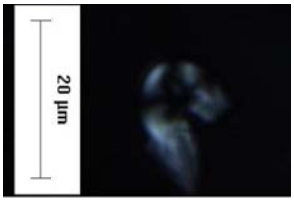
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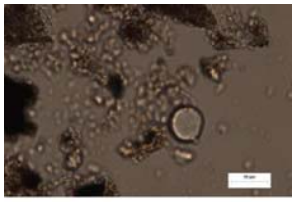
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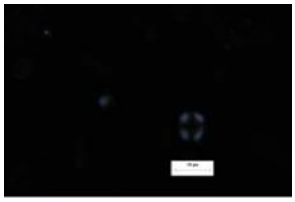
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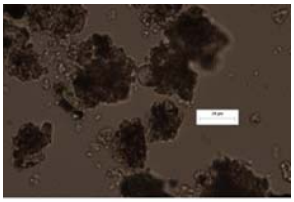
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R_3_10-20_p3_5 of 6_starch n



L_3_10-20_p3_5 of 6_starch x

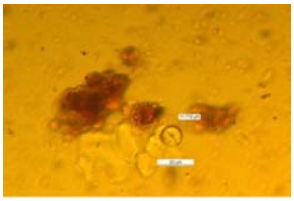


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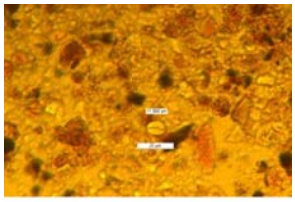
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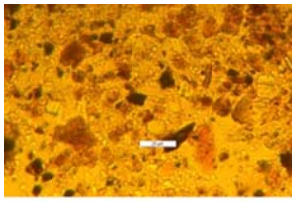
Unit 1


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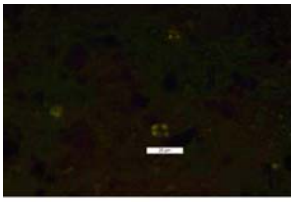

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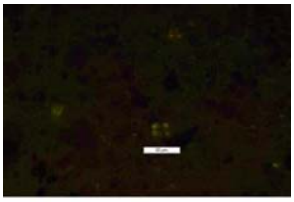

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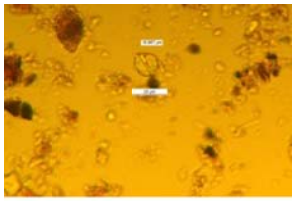

V_1_0-10_1_17 of 33_starch r


'_1_0-10_1_17 of 33_starch m

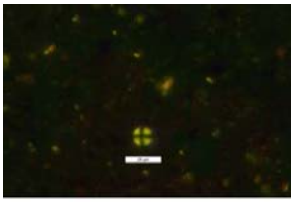

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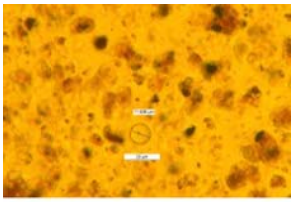

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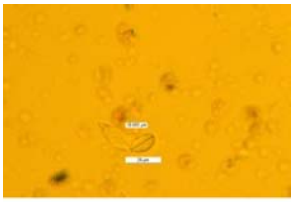

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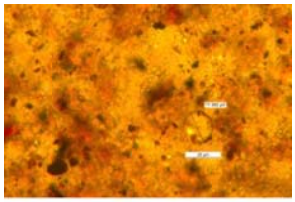

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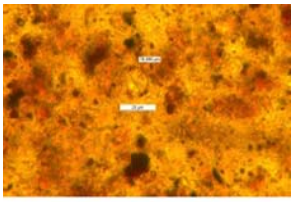

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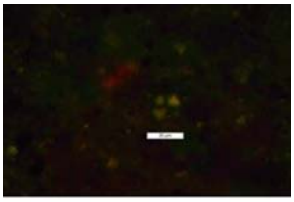

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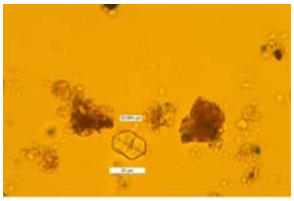

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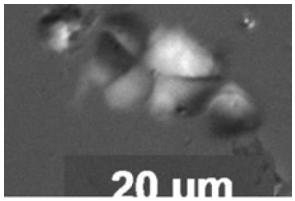

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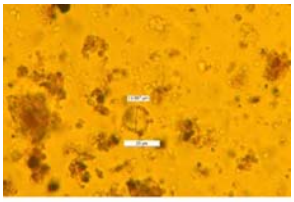

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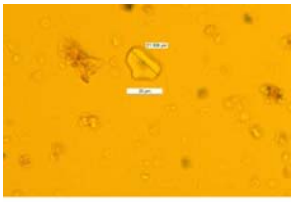

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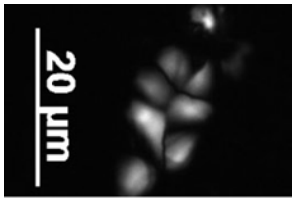
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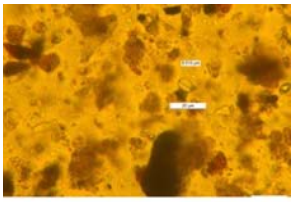

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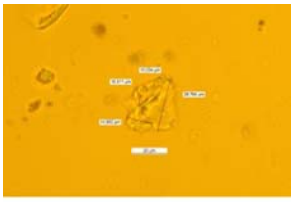

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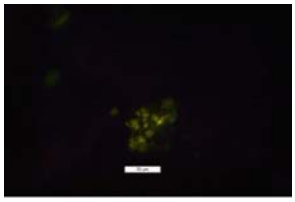


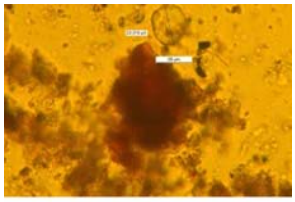
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V_1_10-20_2_6 of 15_starch r

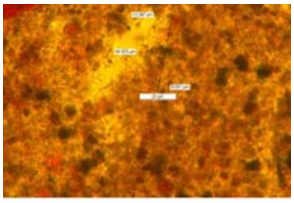

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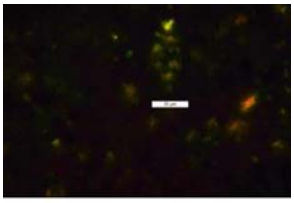

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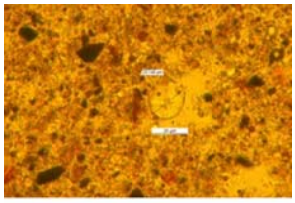

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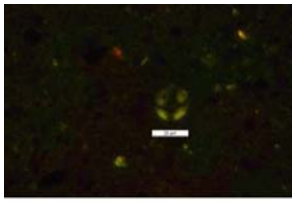

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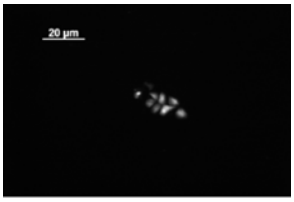

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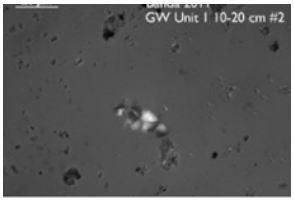

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1_10-20_2_15 of 15_a_starch

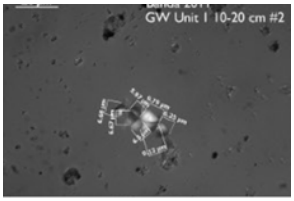

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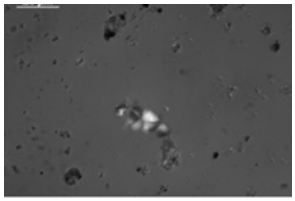
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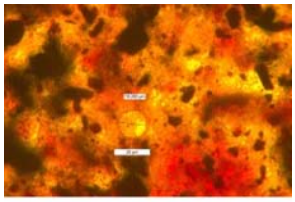


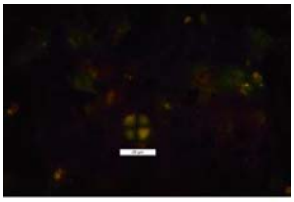
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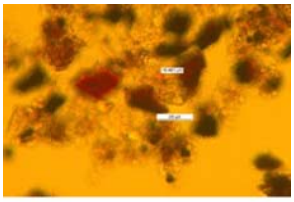


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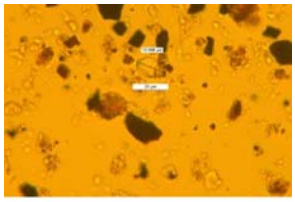

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V_1_20-30_1_6 of 25_starch r

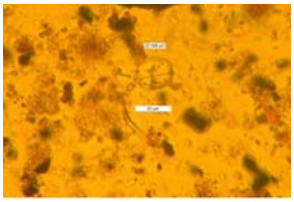

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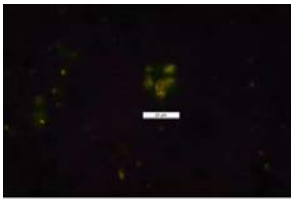

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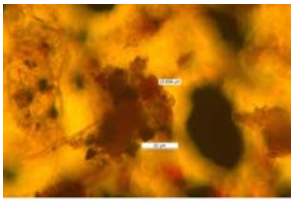

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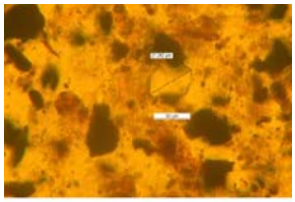

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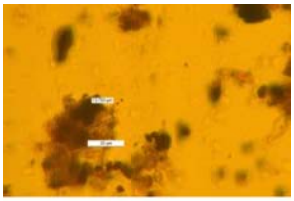

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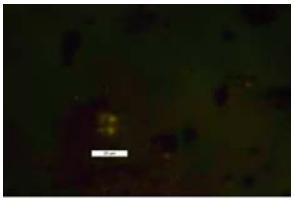

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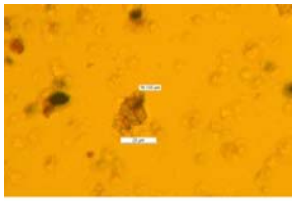

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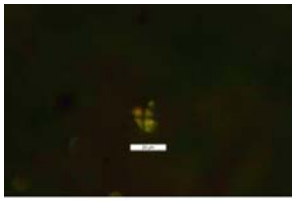

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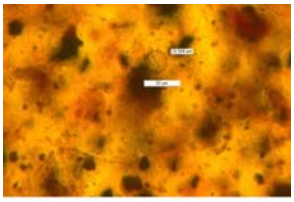

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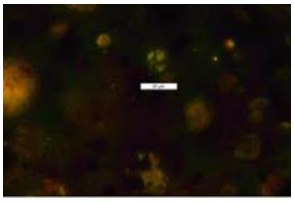

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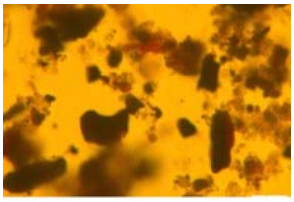

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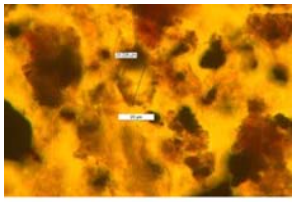

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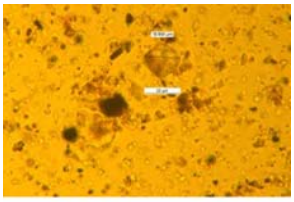

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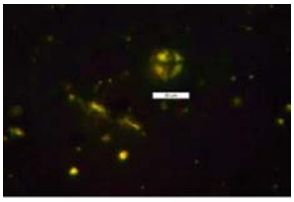

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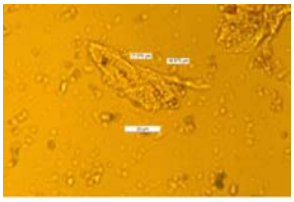

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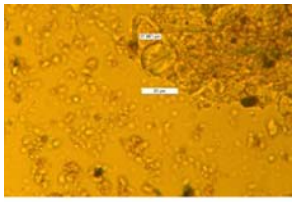

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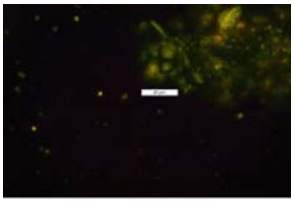

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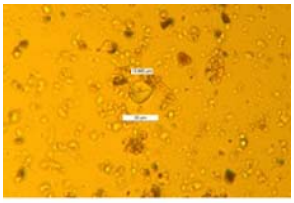

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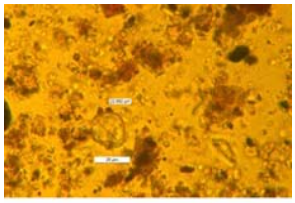

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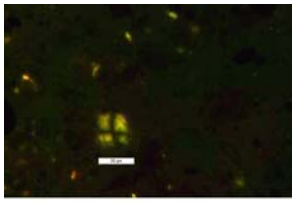

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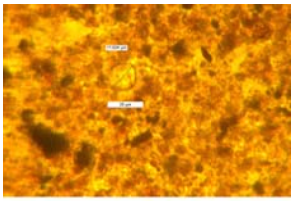

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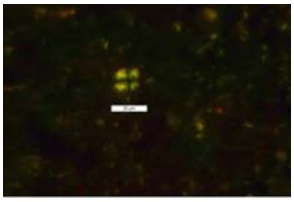

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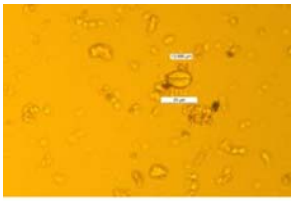

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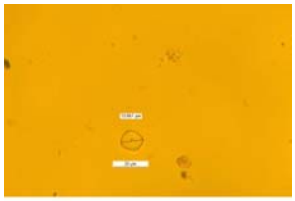

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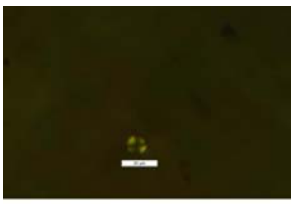

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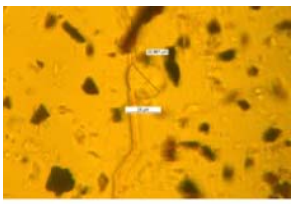

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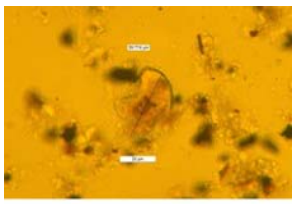

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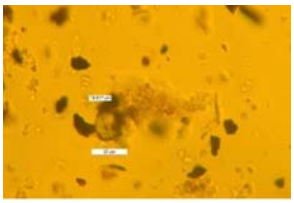

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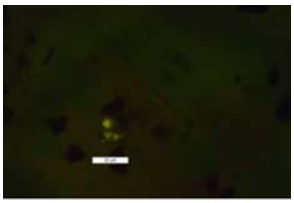

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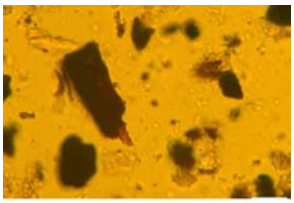

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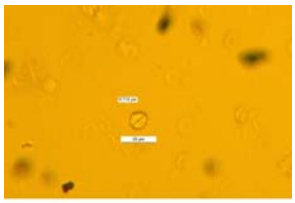

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1_50-60_1A_3 of 14_b_starch

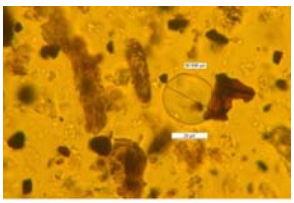

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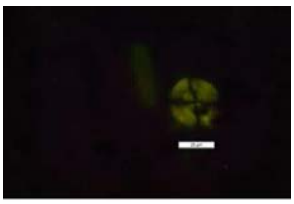

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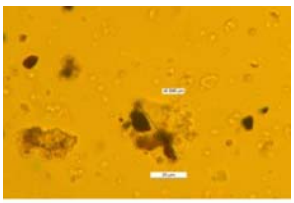

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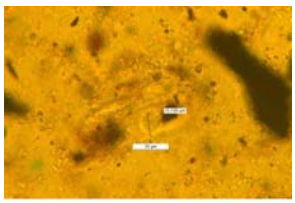

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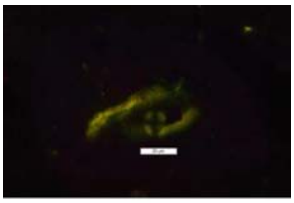

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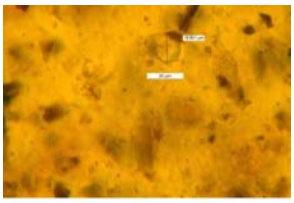

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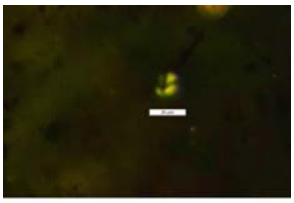

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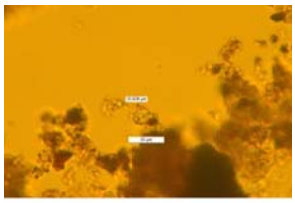

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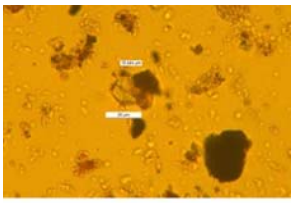

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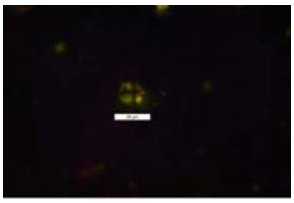

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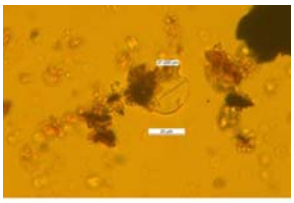

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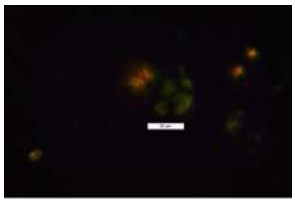

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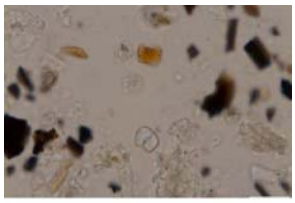

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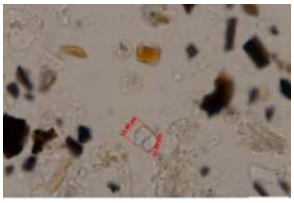

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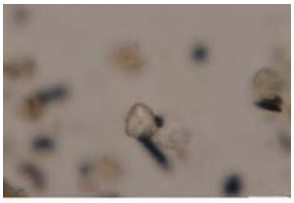

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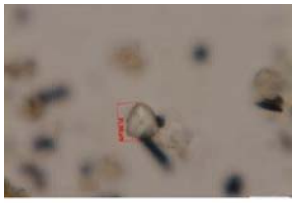

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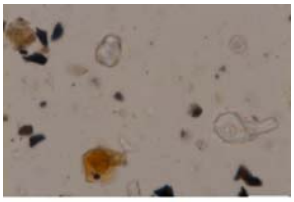

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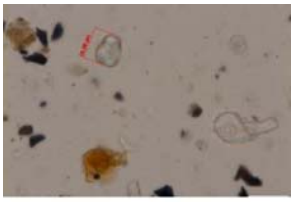

GW_1_50-60_2_2.2_02_starch


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_1_50-60_2_2.2_02_starch_x



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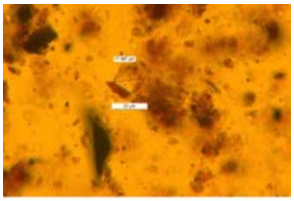


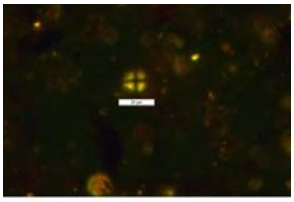
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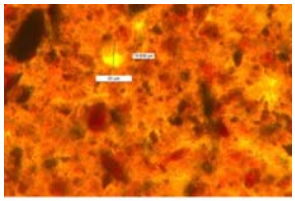
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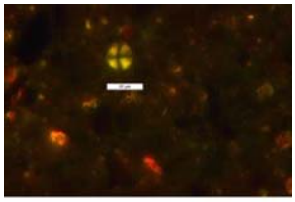
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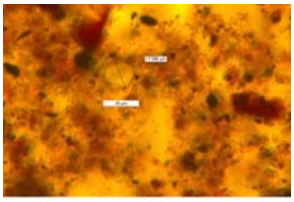

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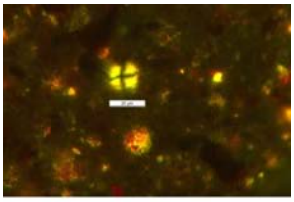

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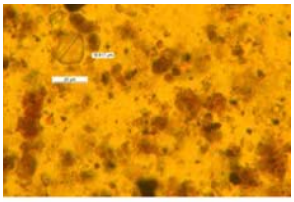

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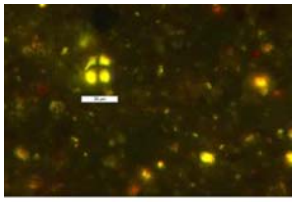

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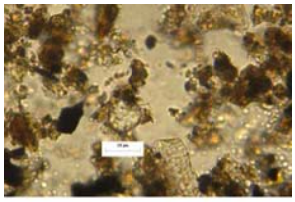

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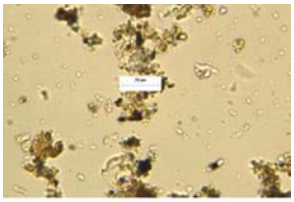

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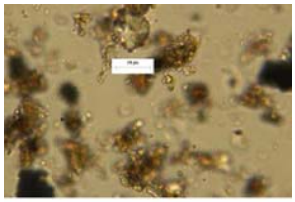

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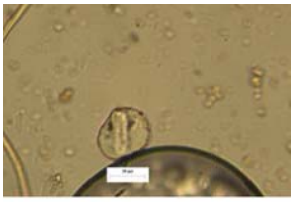

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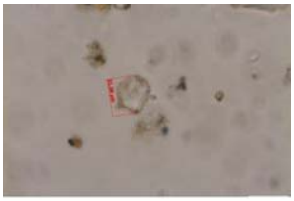

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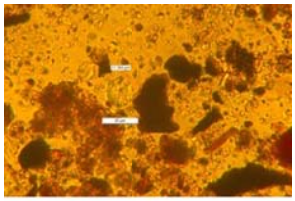

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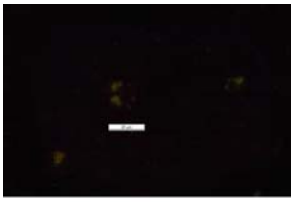

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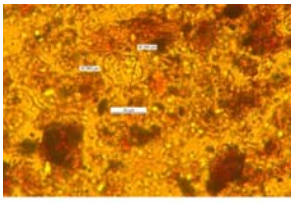

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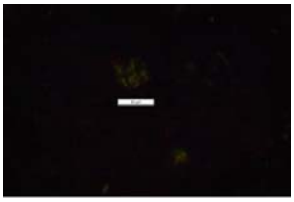

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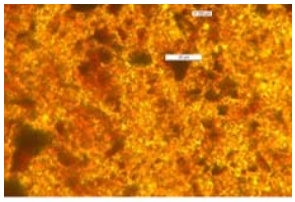

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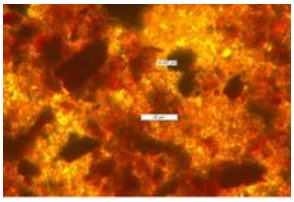

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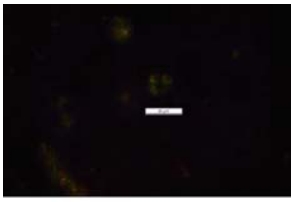

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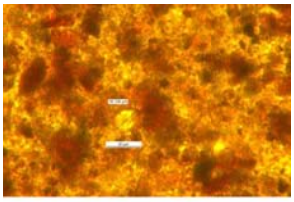

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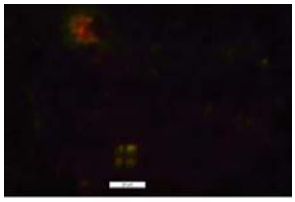

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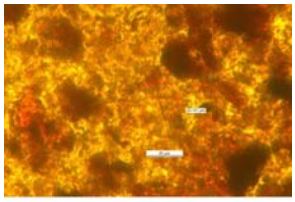

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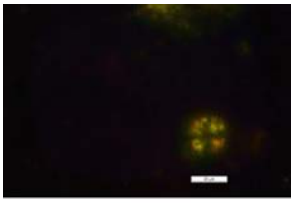

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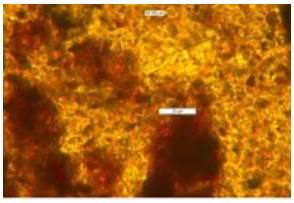

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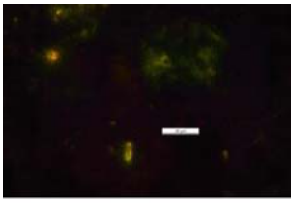

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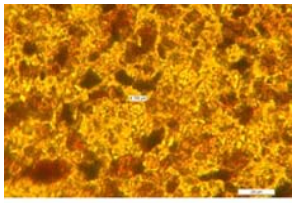

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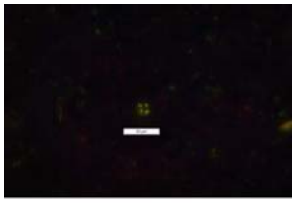

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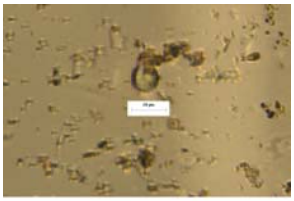

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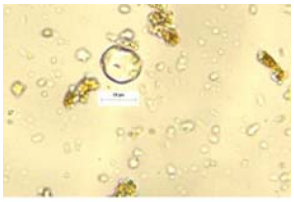

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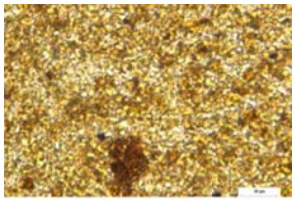

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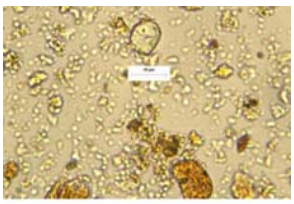

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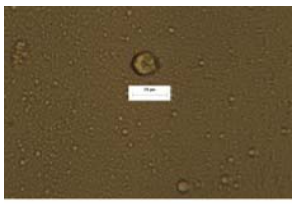

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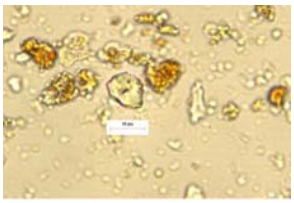

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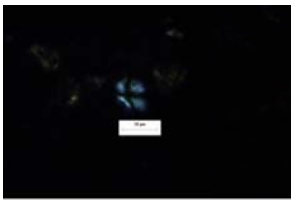

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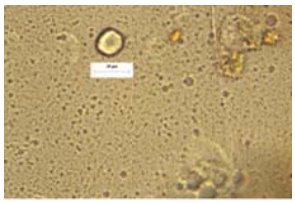

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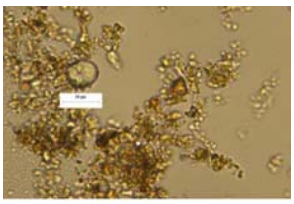

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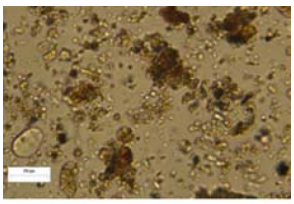

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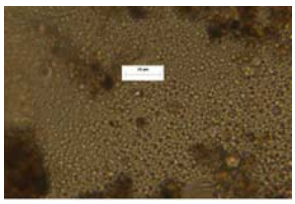

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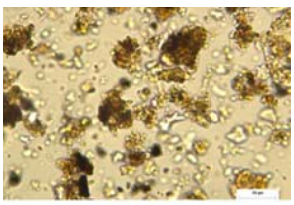

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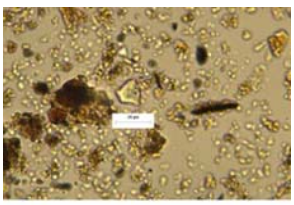

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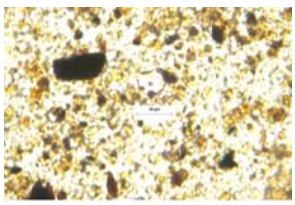

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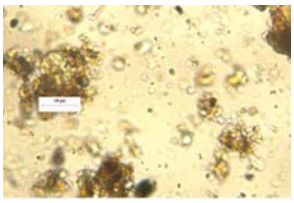

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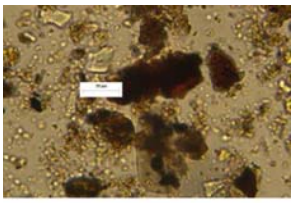

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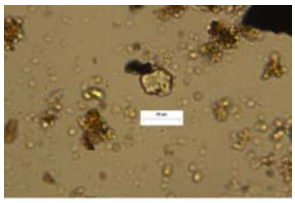

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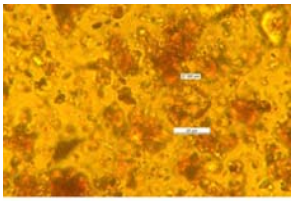

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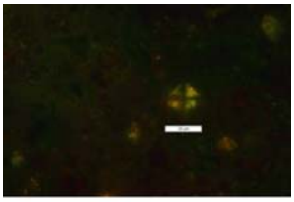

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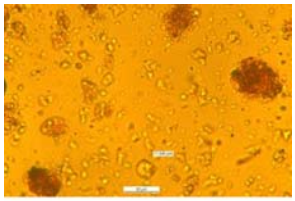
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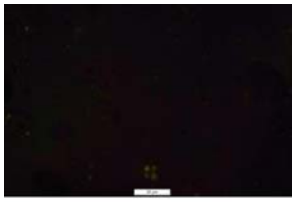
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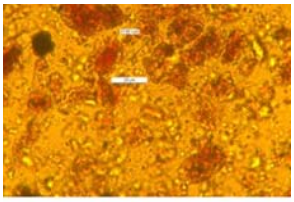

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V_3_0-10_1_9 of 28_starch xp

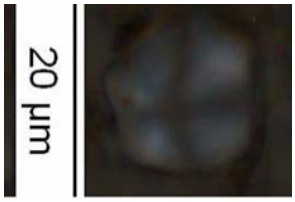

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_3_0-10_1_21 of 28_b_starch

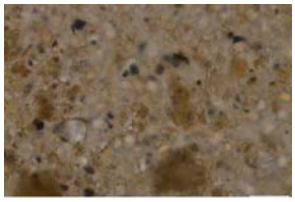

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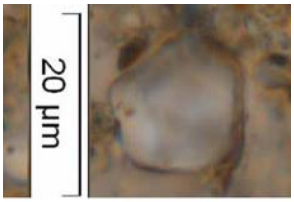

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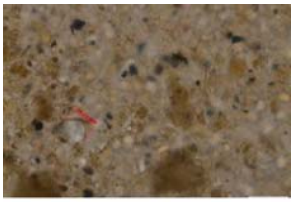


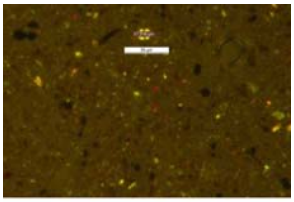
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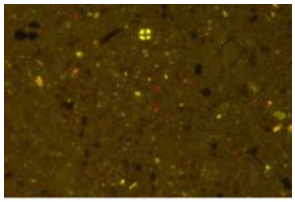

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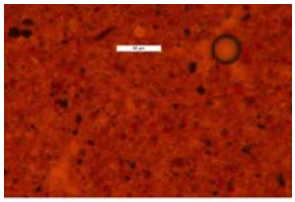


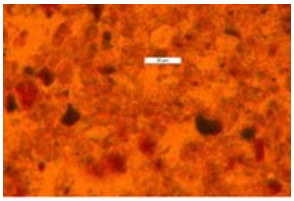
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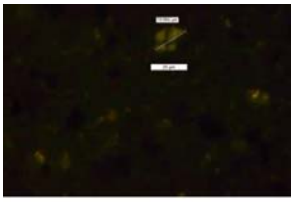

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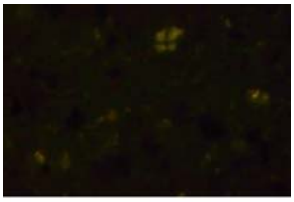

10-20_1_2 of 35_1_starch xpc

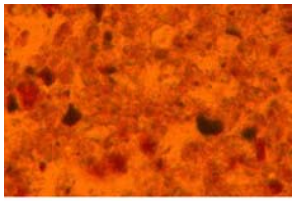

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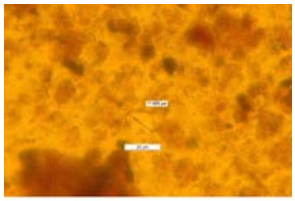

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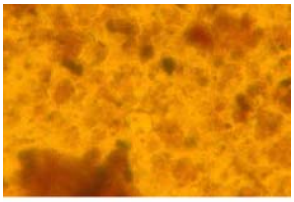

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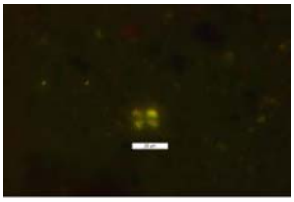

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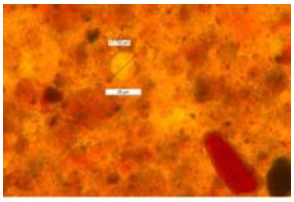

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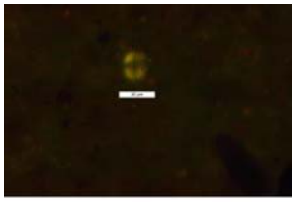

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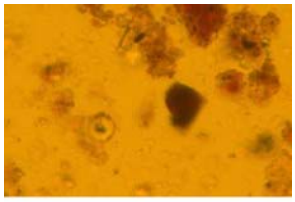

10-20_1_3 of 35_a_starch ms

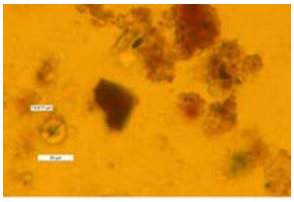

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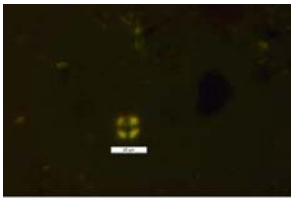

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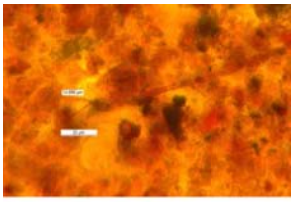

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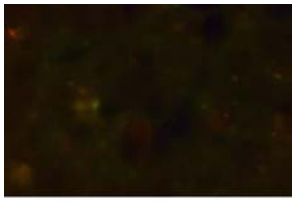

GW_3_10-20_1_6 of 35_a_xpc


_3_10-20_1_9 of 35_a_starch

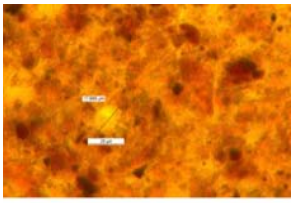

_10-20_1_9 of 35_a_starch m

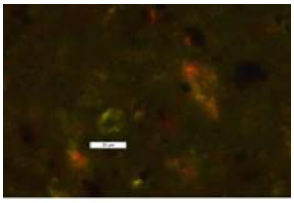

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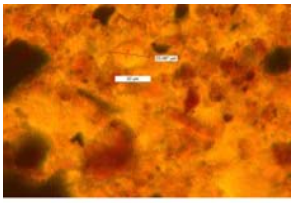

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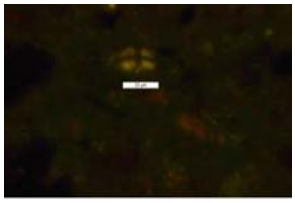

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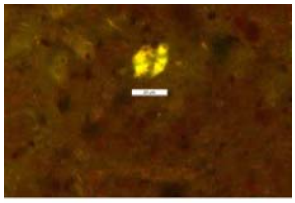

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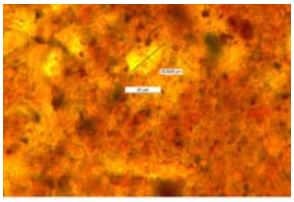

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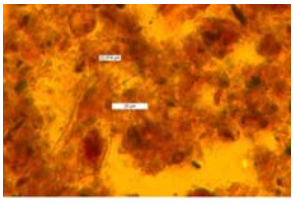

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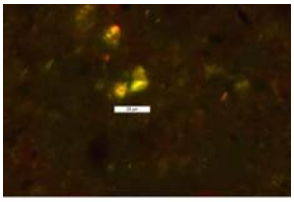

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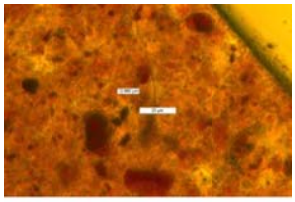

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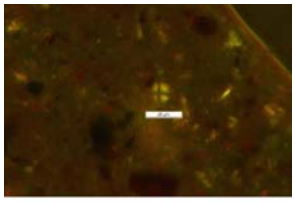

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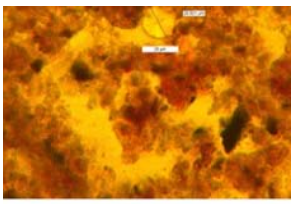

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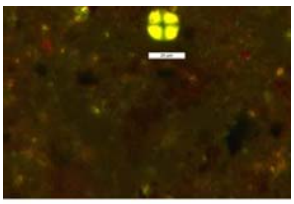

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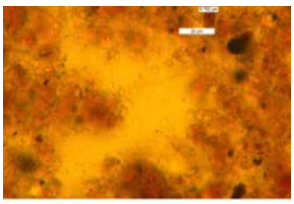

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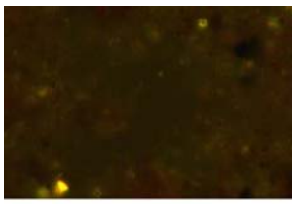

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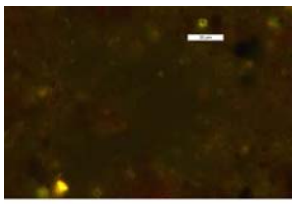

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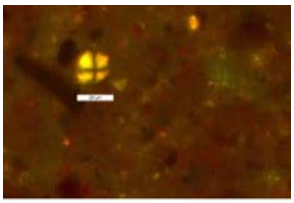

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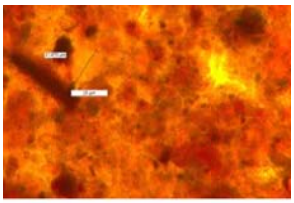

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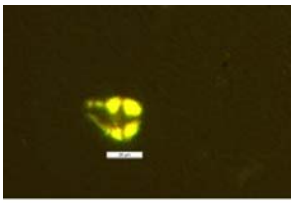

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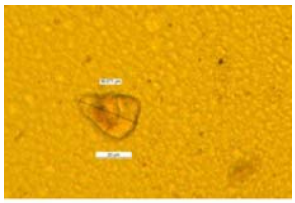

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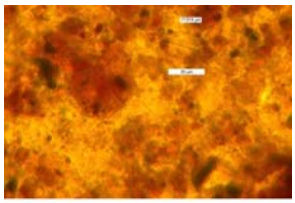

10-20_1_20 of 35_a_starch xp

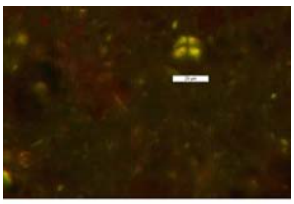

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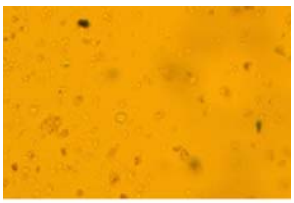

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V_3_10-20_1_23 of 35_a_star

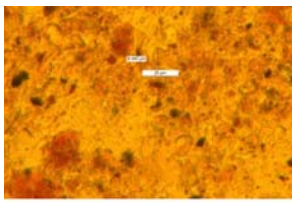

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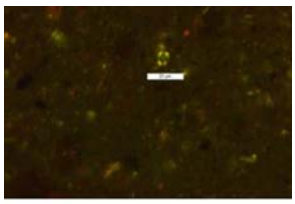

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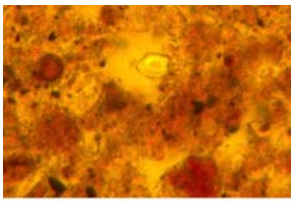

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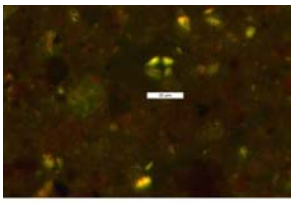

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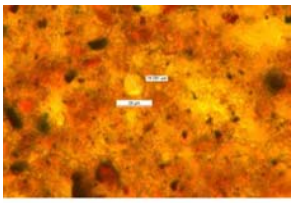

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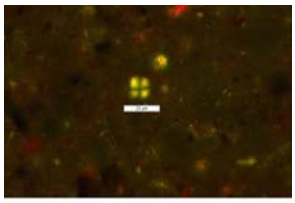

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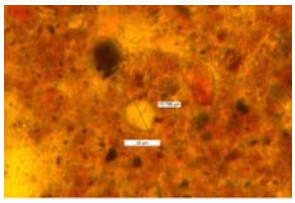

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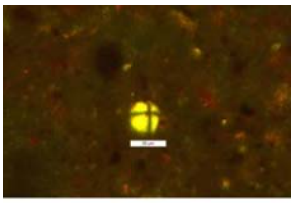

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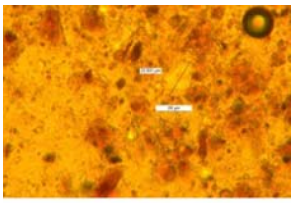

W_3_10-20_1_26 of 35_a_xp

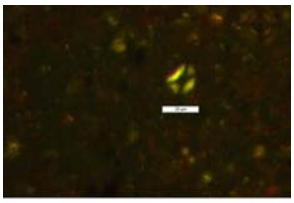

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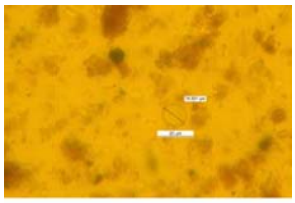

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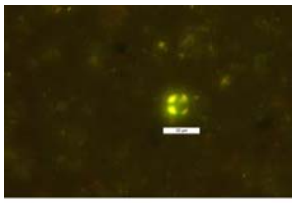

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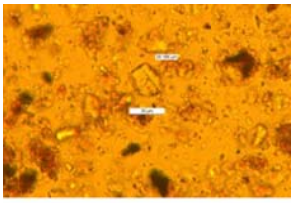

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W_3_10-20_1_31 of 35_a_ms

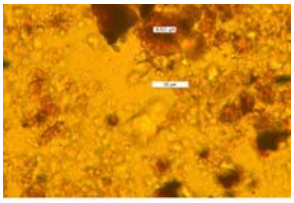

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W_3_10-20_1_33 of 35_a_ms

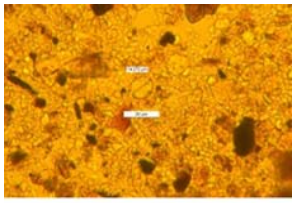

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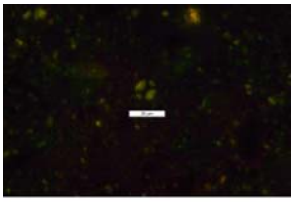

V_3_30-40_1_8 of 20_starch r


/_3_30-40_1_8 of 20_starch x

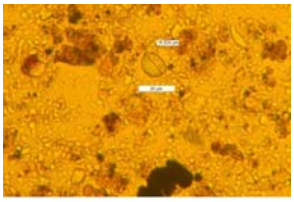

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_3_30-40_1_10 of 20_starch :

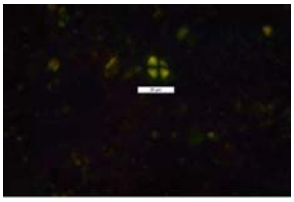

3_30-40_1_12 of 20_b_starch



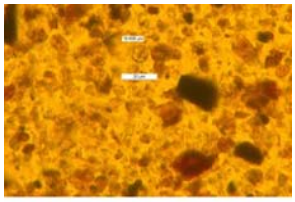
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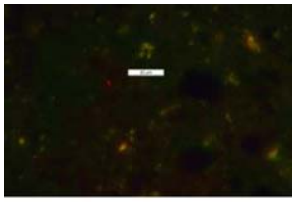
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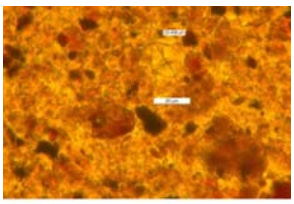
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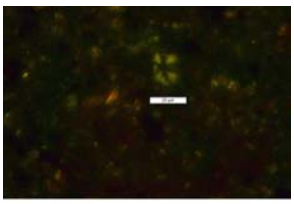
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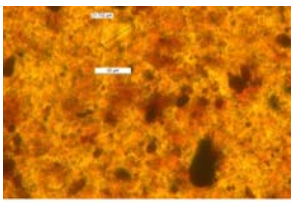
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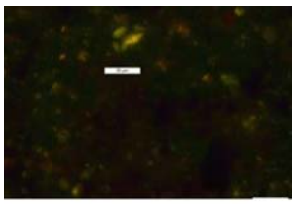
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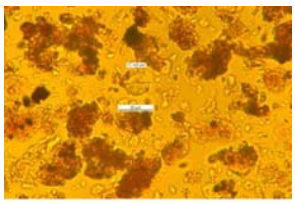
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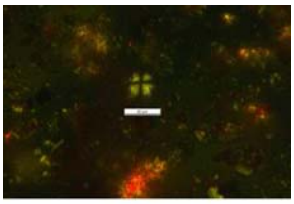
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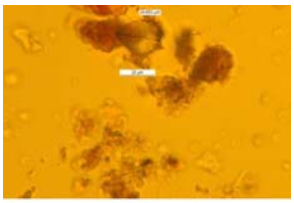
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V_3_50-60_1_5 of _9_starch r



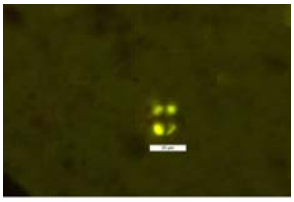
/_3_50-60_1_5 of _9_starch x

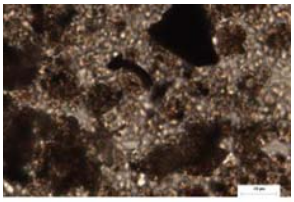


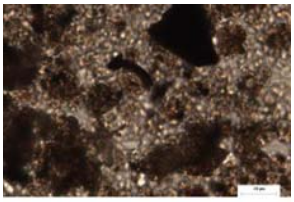
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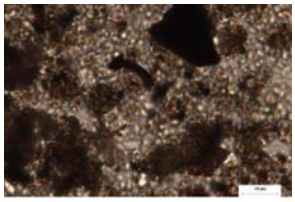
Groot Waling

Unit 4


-4_90-100_1_30 of 57_starch


_4_10-20_1_4 of 6_40x_starcl

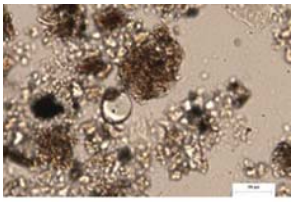

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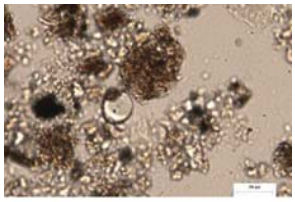

V_4_10-20_1_4 of 6_40x_star

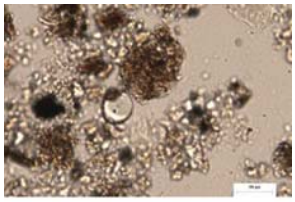

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_10-20_1_4 of 6_40x_starch_x


4_10-20_1_4 of 6_40x_starch


_4_10-20_1_6 of 6_40x_starcl

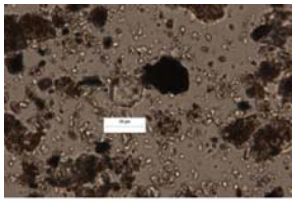

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V_4_10-20_1_6 of 6_40x_star

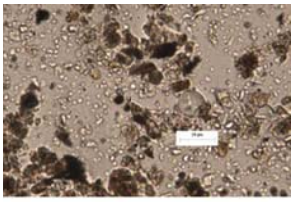

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_10-20_1_6 of 6_40x_starch_x

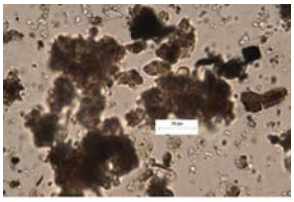

4_10-20_1_6 of 6_40x_starch


V_4_10-20_2_4 of 32_starch r

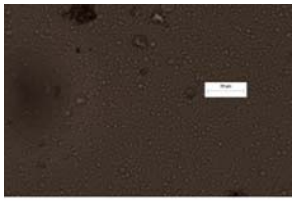

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V_4_10-20_2_5 of 32_starch r

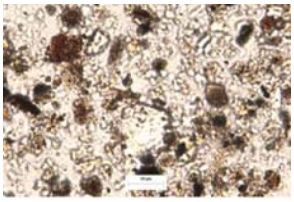

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V_4_10-20_2_6 of 32_starch r

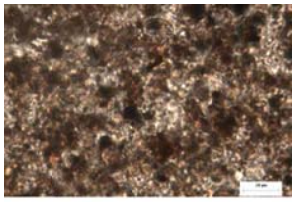

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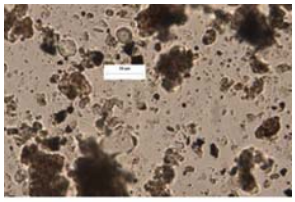

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_4_10-20_2_13 of 32_starch :

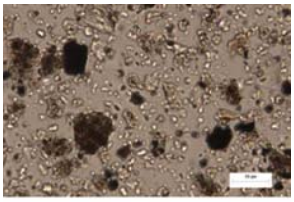

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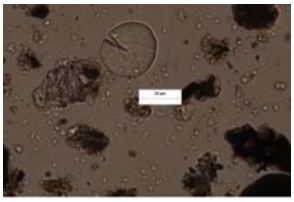

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V_4_10-20_2_16 of 32_no sta


_4_10-20_2_18 of 32_starch

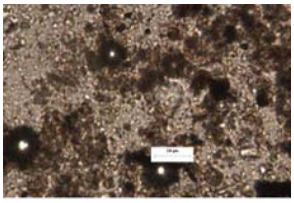

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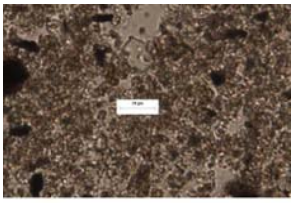

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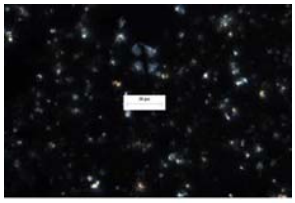

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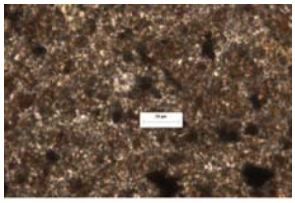

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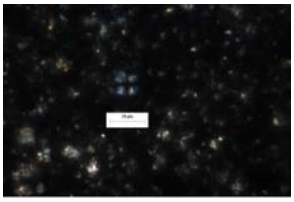

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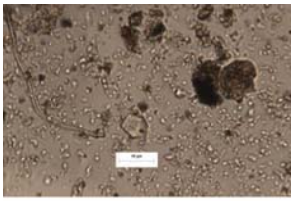

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V_4_30-40_1_2 of 10_starch r

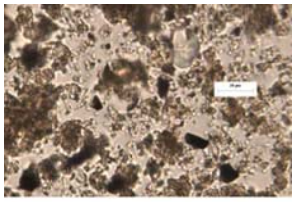

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_4_30-40_1_2 of 10b_starch

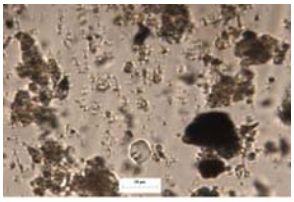

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_4_30-40_2_9 of 10_starch_

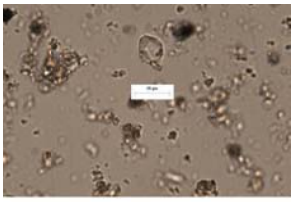

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_4_30-40_2_9 of 10b_starch_

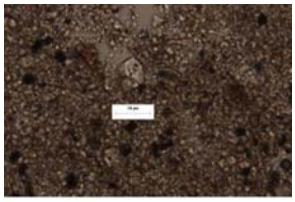

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_4_30-40_2_10 of 10_starch_

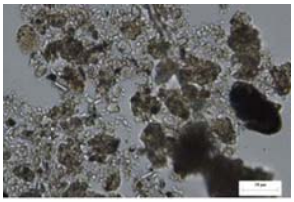

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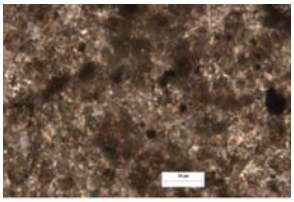

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4_30-40_2_10 of 10b_starch_

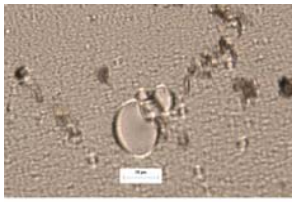

V_4_40-50_1_5 of 8_starch m


V_4_40-50_1_5 of 8_starch xp


GW_4_40-50_1_8 of 8a


V_4_40-50_2_4 of 8_starch m

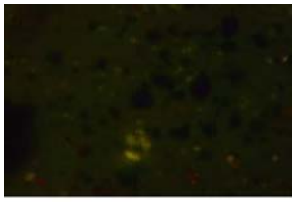

V_4_40-50_2_4 of 8_starch xp

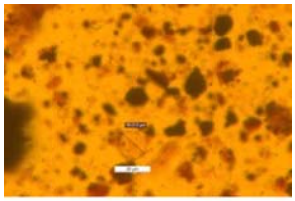

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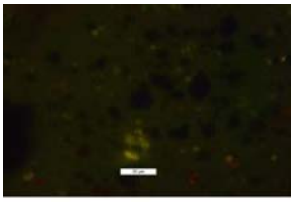

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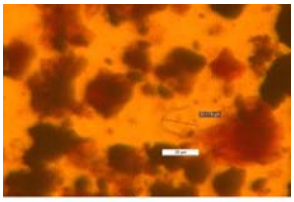

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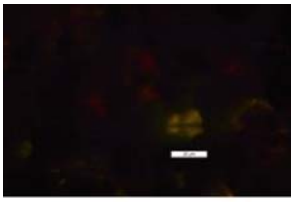

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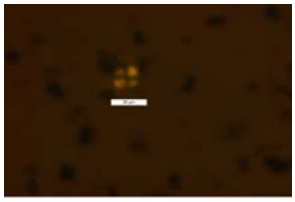

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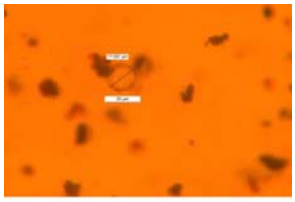

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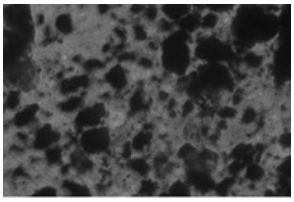

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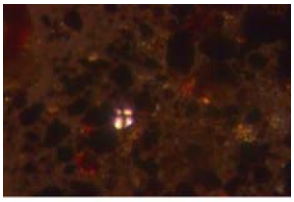

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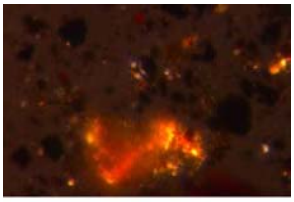

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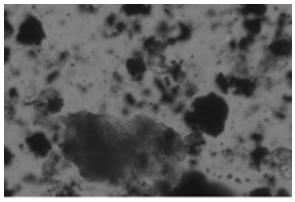

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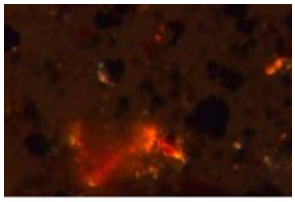

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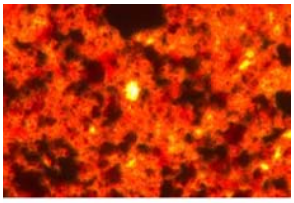

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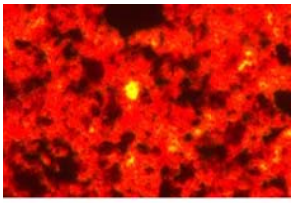

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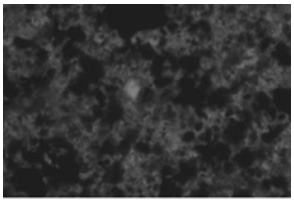

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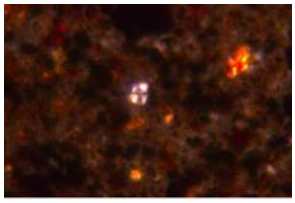

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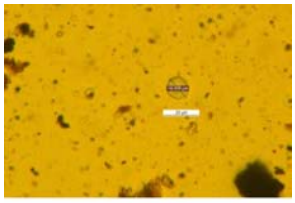

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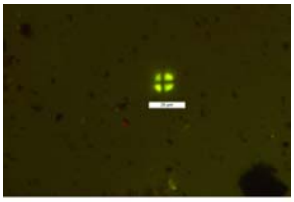

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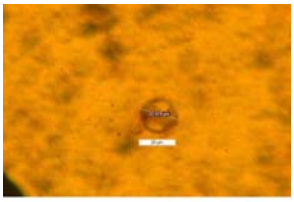

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-4_90-100_1_26 of 57_starch



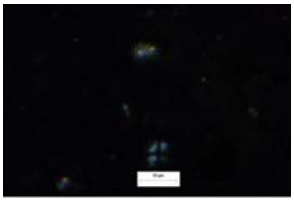
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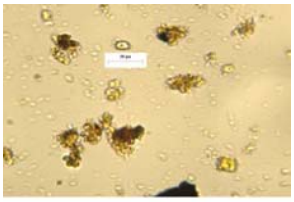
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Unit 1



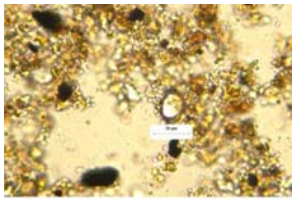
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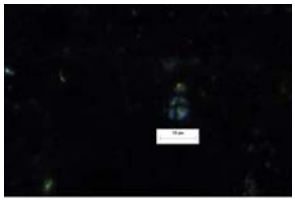
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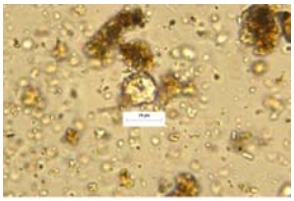
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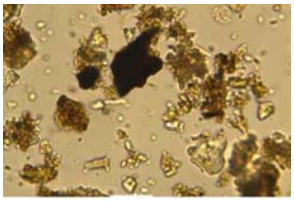
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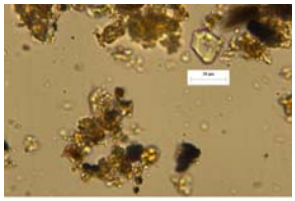
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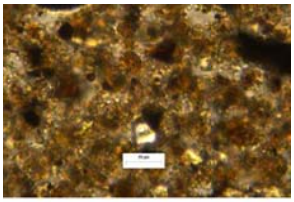
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_1_50-60_1_10a of 28_starch



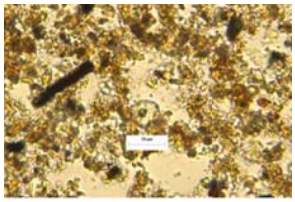
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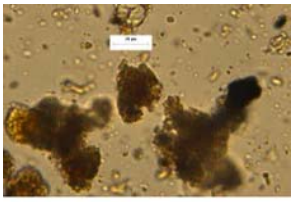
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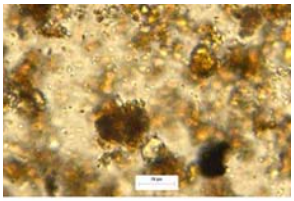
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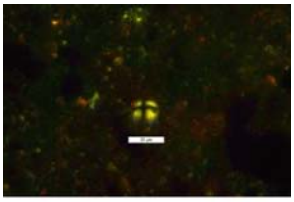
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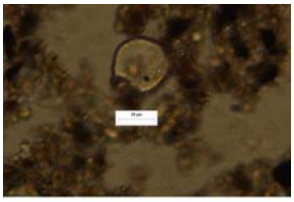


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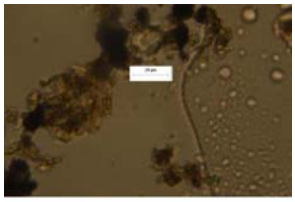
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Unit 2

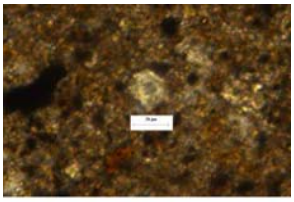

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_2_0-10_2_8a of 25_starch m

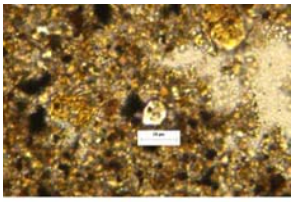

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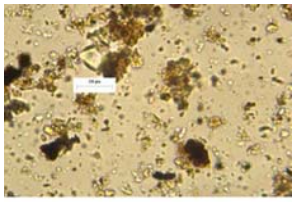

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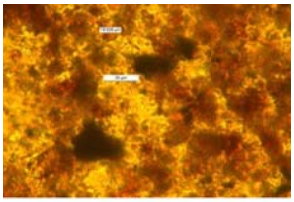

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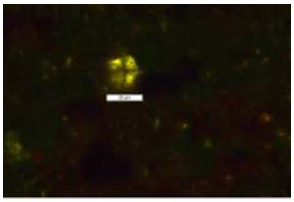

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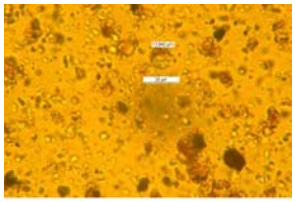

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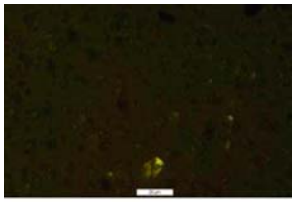

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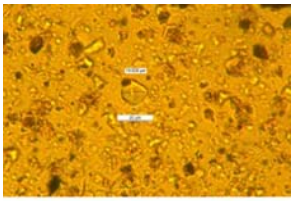

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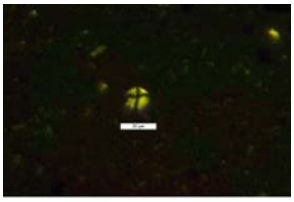

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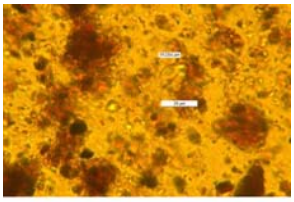

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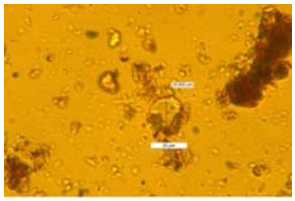

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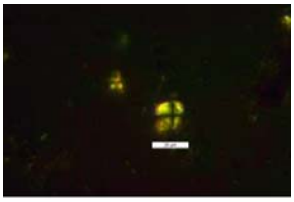

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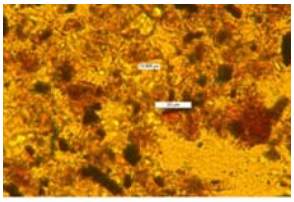

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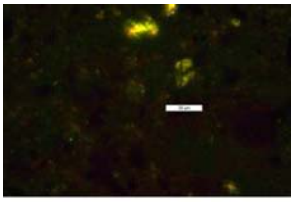

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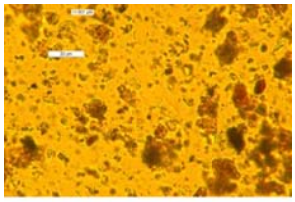

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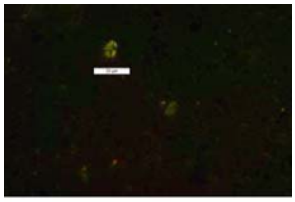

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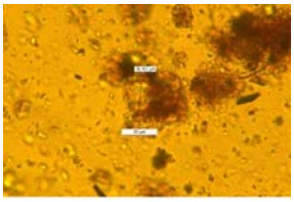

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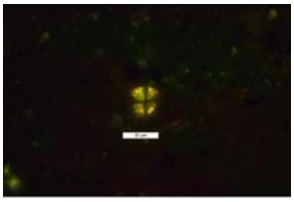

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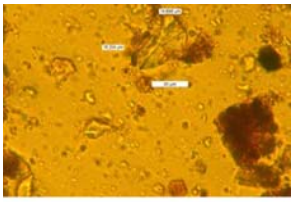

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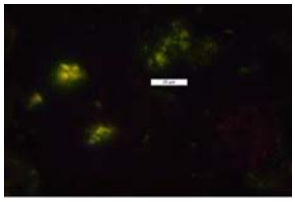

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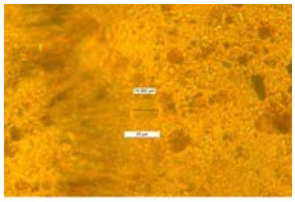

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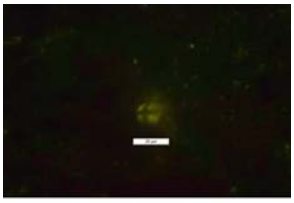

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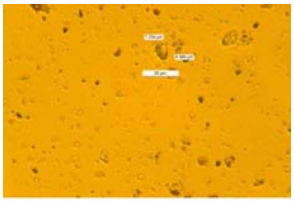

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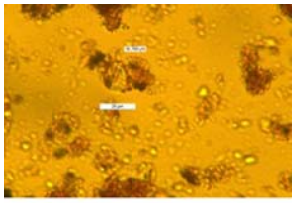

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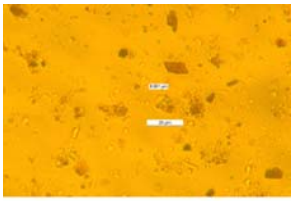

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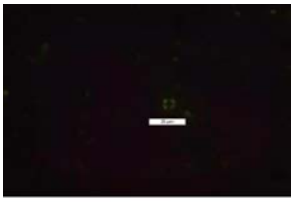

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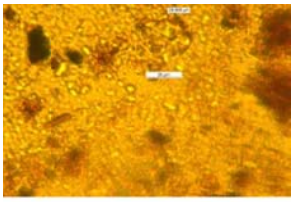

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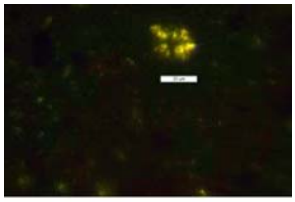

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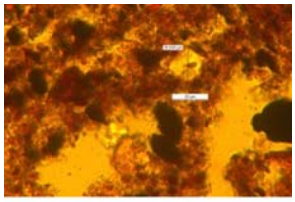

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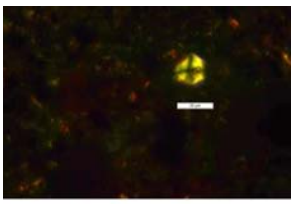

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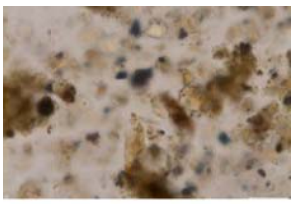

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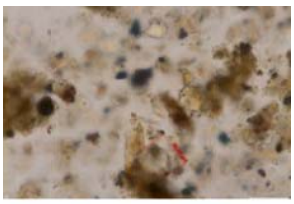

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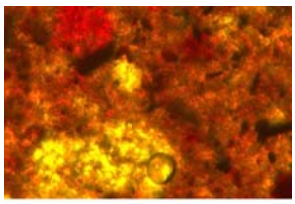

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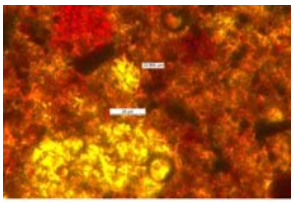

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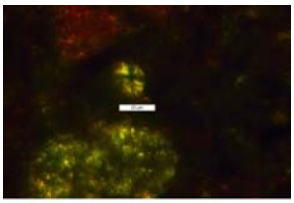

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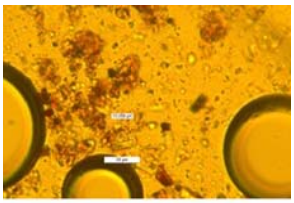

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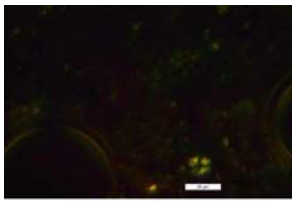

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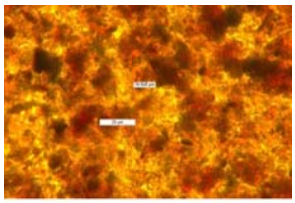

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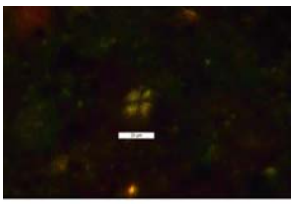

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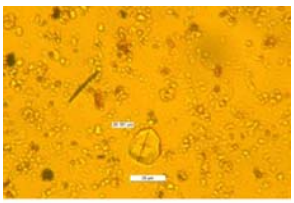

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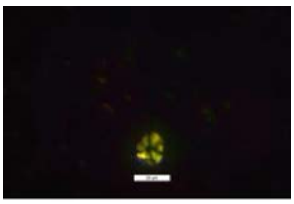

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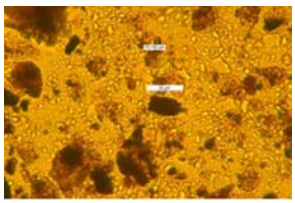

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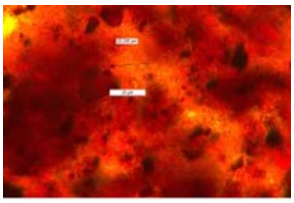

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_10-20_P1_5 of 18_a_ starch


_10-20_P1_5 of 18_a_starch_

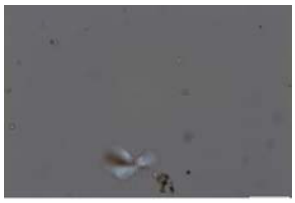

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_10-20_P1_5 of 18_b_ starch

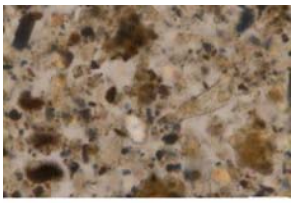

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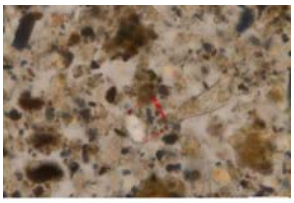

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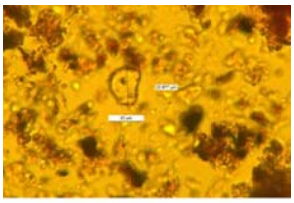

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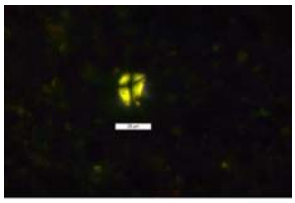

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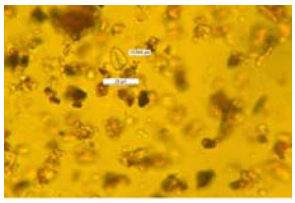

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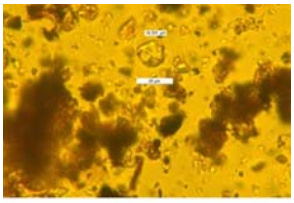

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KB_2_20-30_1_2 of 24_a_msr

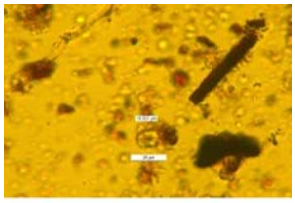

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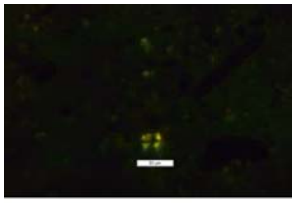

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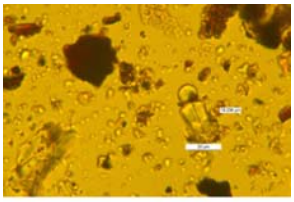

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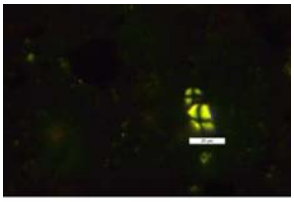

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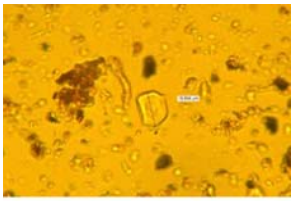

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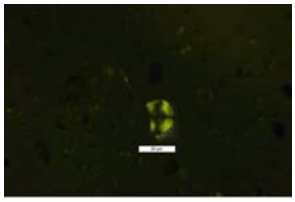

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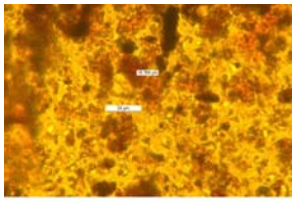

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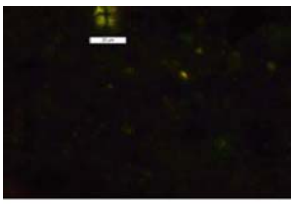

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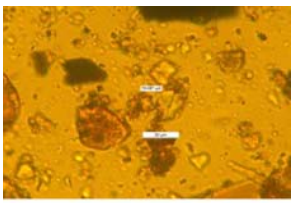

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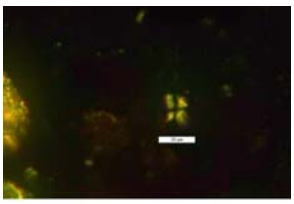

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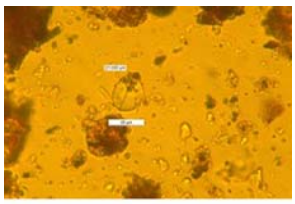

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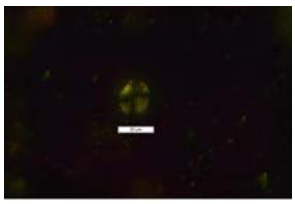

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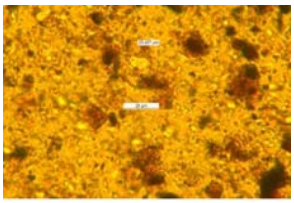

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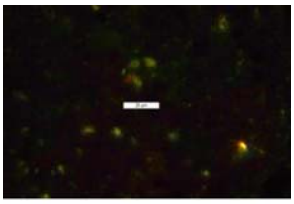

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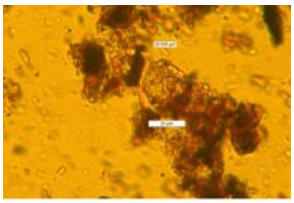

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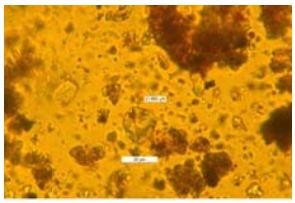

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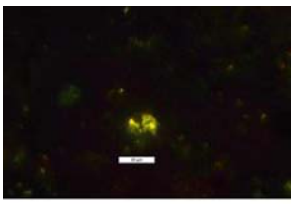

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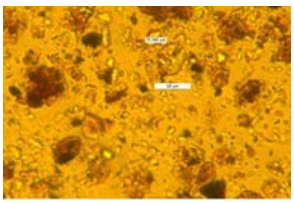

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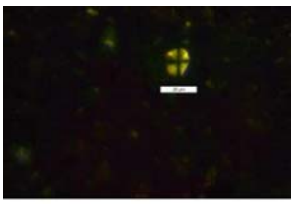

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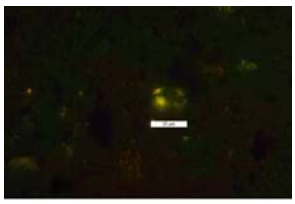

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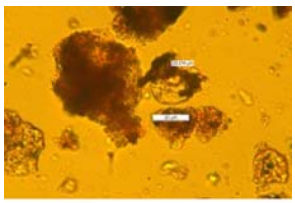

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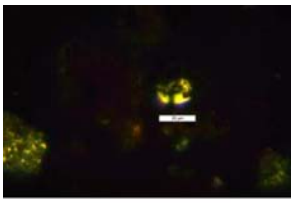

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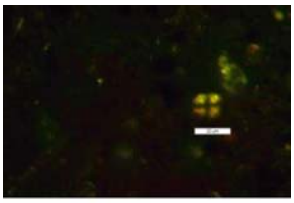

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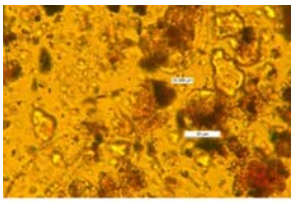

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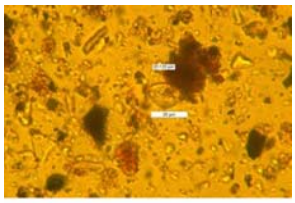

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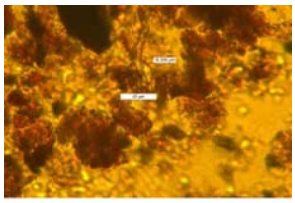

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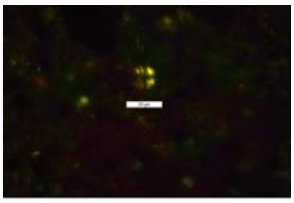

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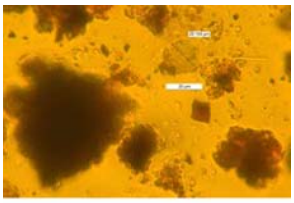

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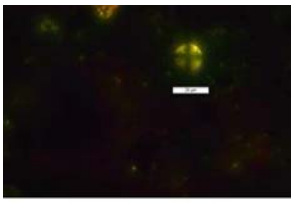

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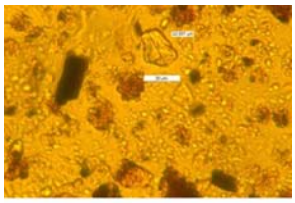

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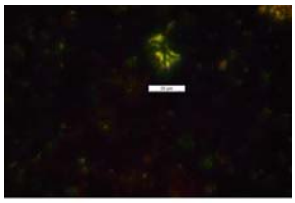

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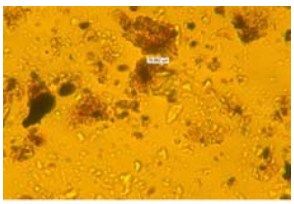

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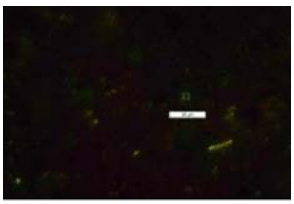

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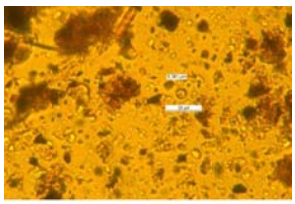

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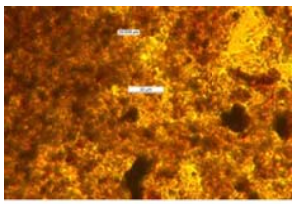

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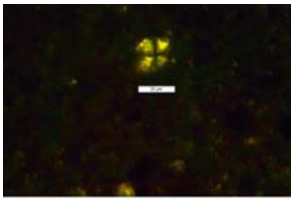

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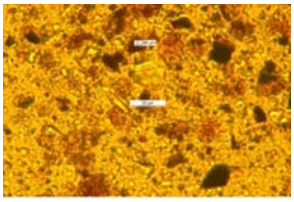

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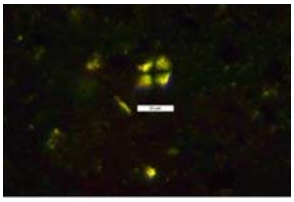

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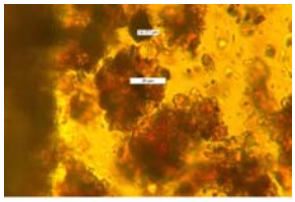

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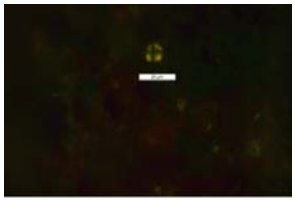

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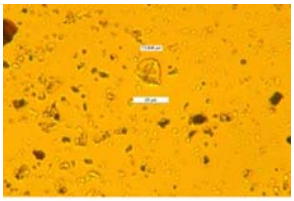

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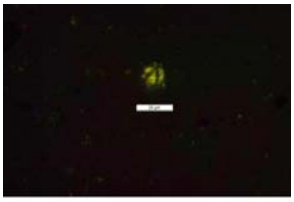

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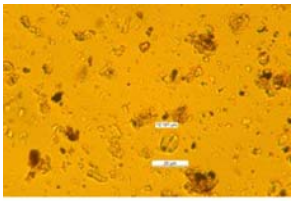

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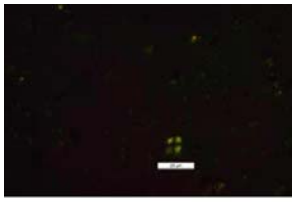

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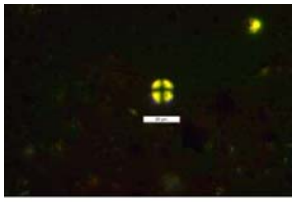

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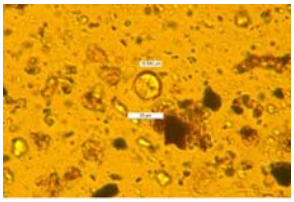

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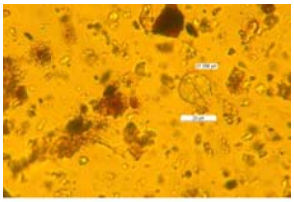

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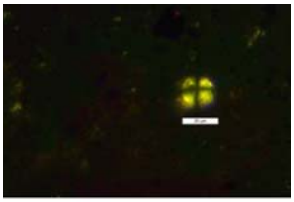

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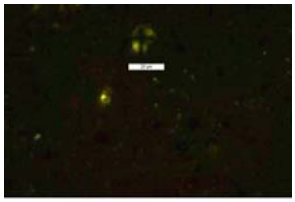

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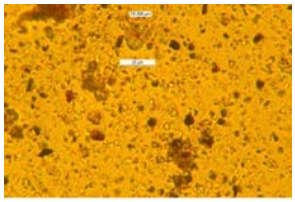

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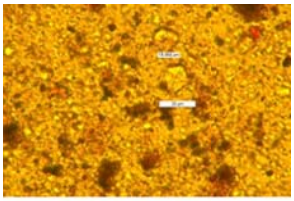

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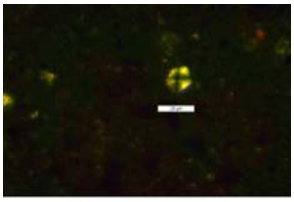

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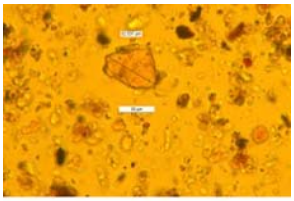

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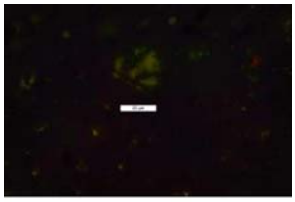

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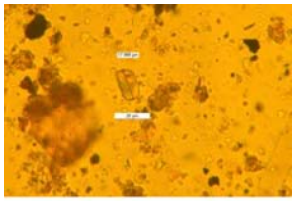

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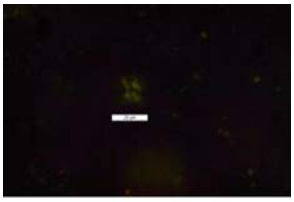

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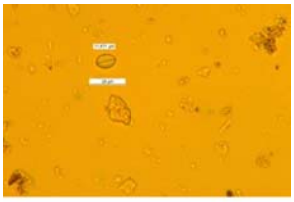

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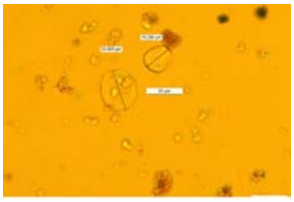

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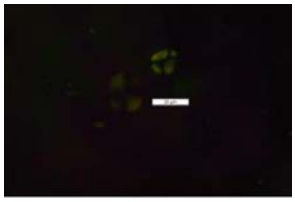

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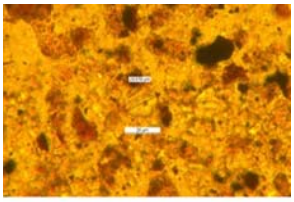

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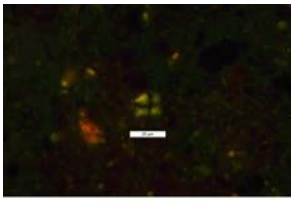

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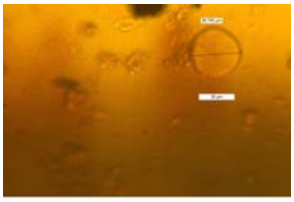

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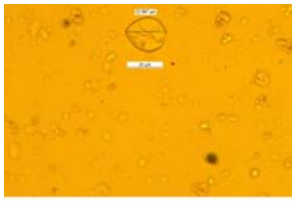

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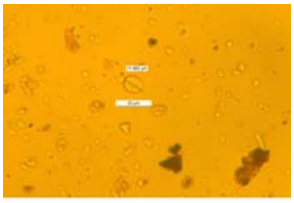

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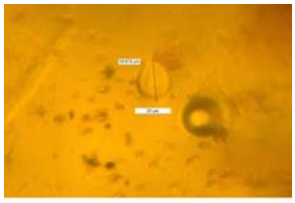

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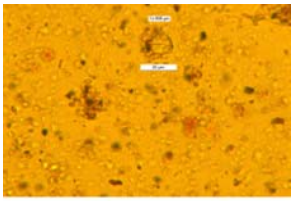

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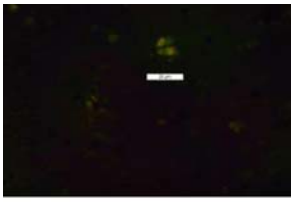

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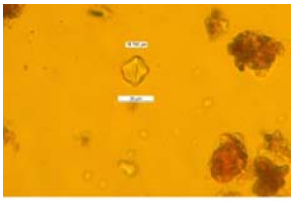

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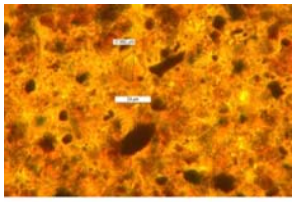

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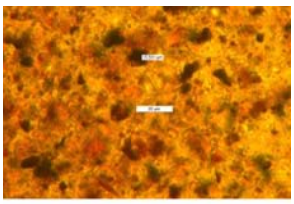

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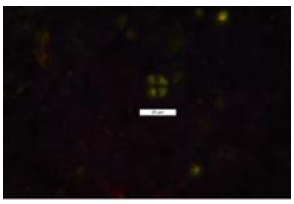

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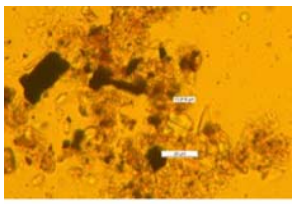

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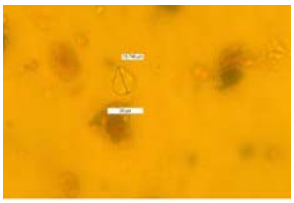

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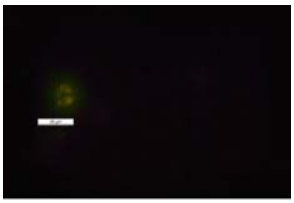

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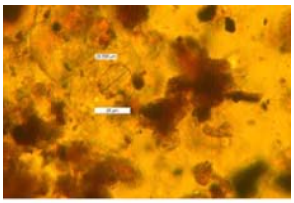

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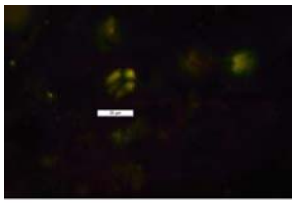

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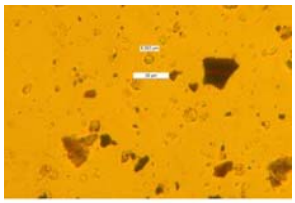

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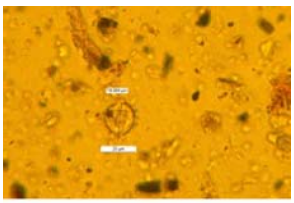

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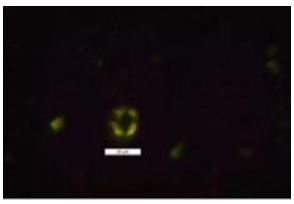

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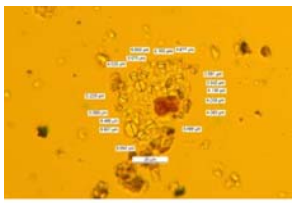

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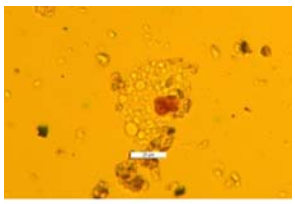

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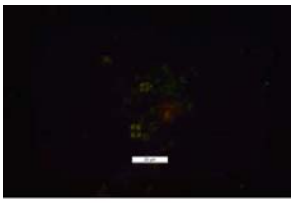

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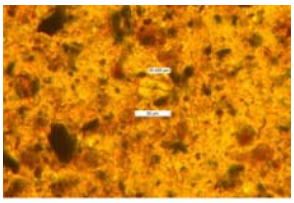

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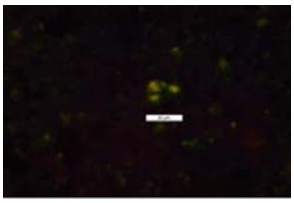

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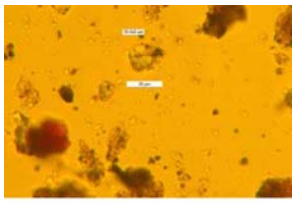

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2_30-40_P2_5 of 9_starch_no

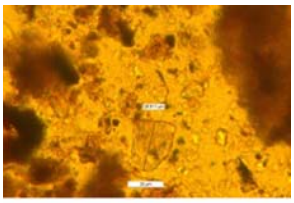

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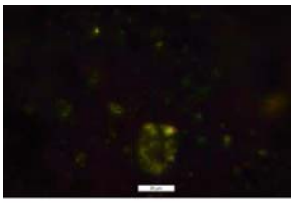

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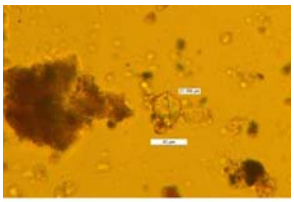

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2_30-40_P2_8 of 9_a_starch

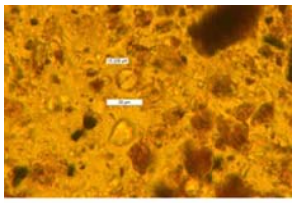

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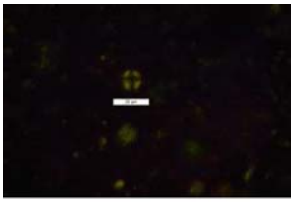

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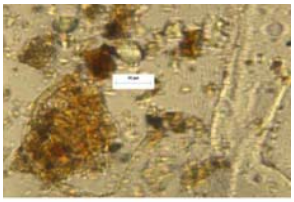

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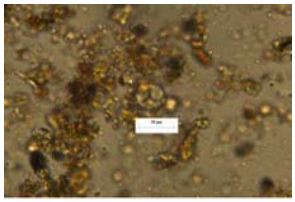

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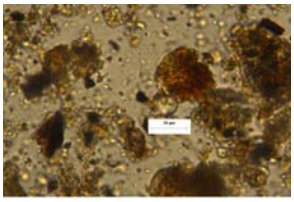

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_2_40-50_1_2 of 21_starch m

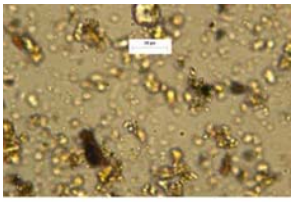

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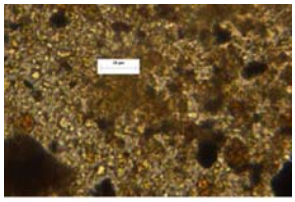

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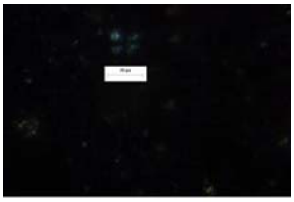

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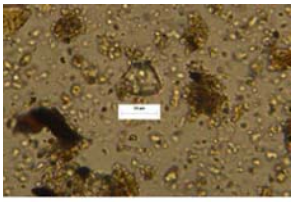

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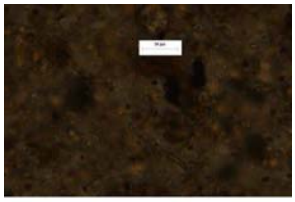

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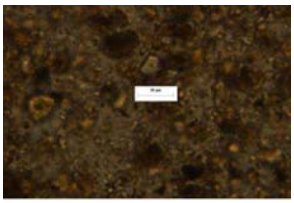

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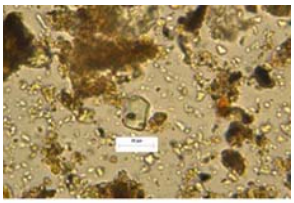

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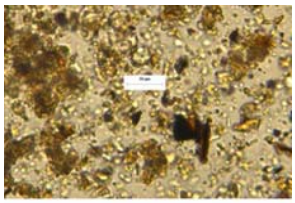

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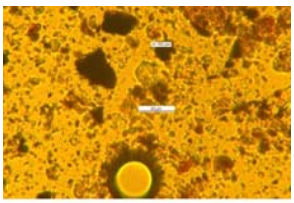

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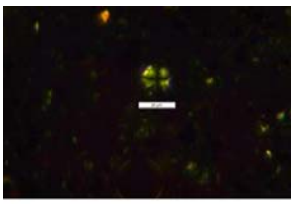

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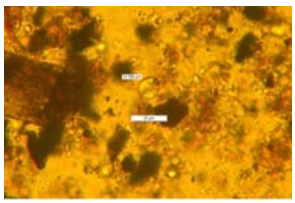

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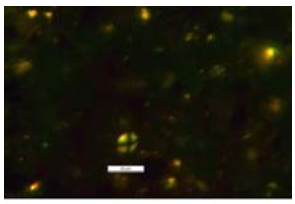

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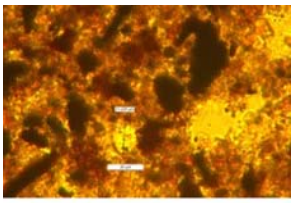

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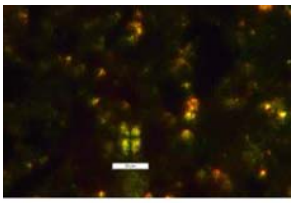

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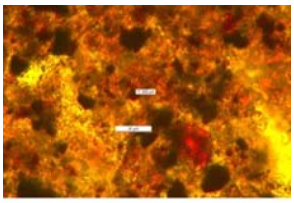

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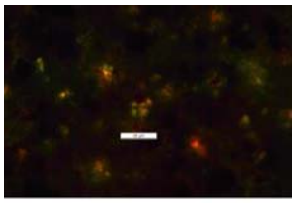

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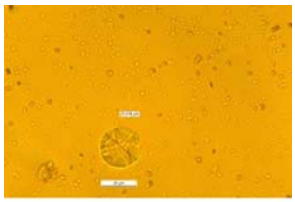

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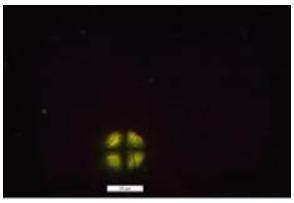

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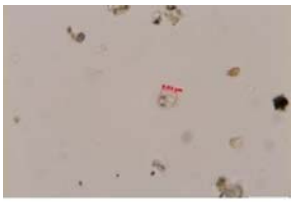

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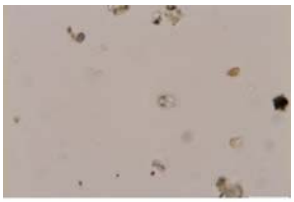

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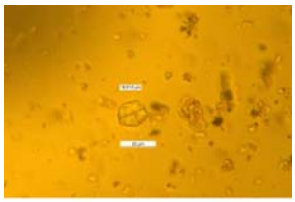

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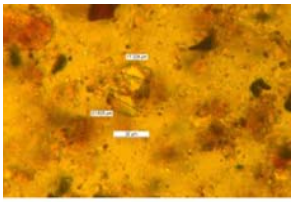

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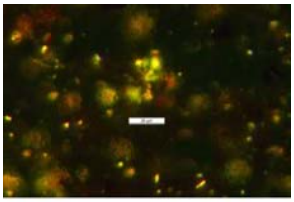

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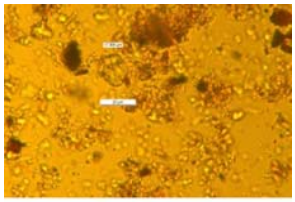

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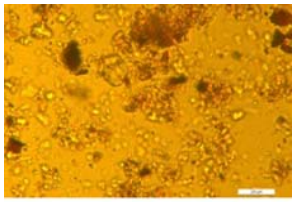

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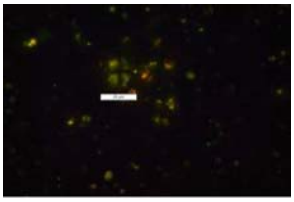

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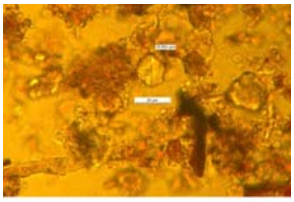

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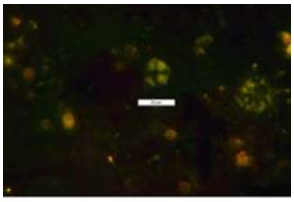

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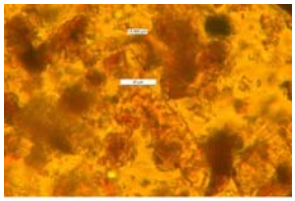

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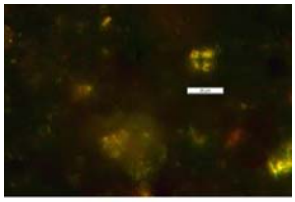

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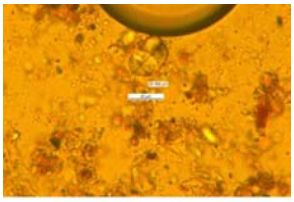

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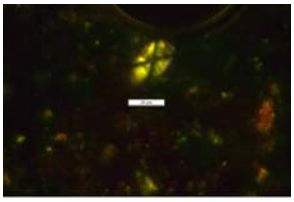

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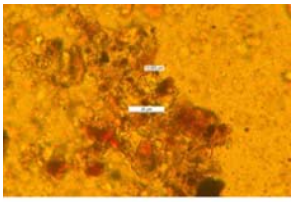

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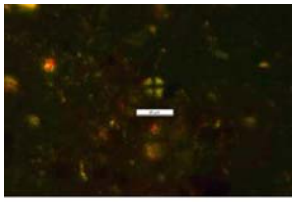

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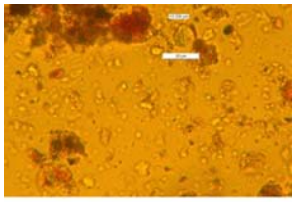

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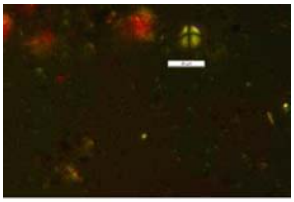

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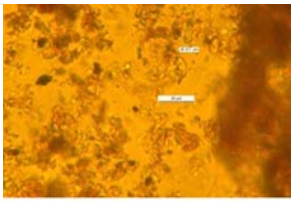

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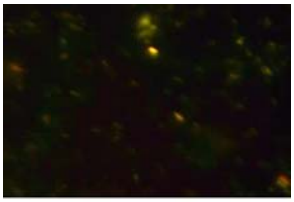

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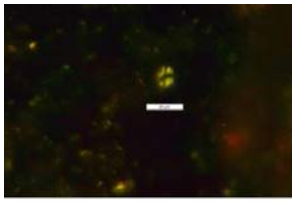

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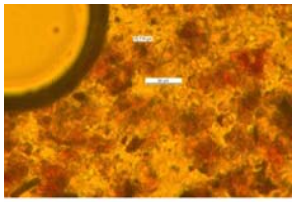

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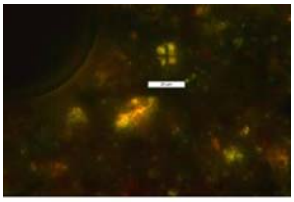

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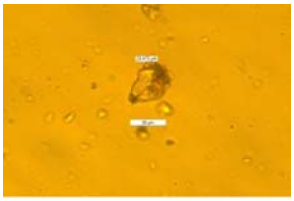

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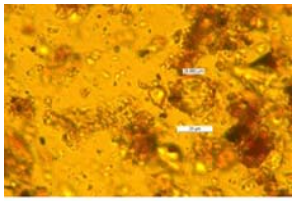

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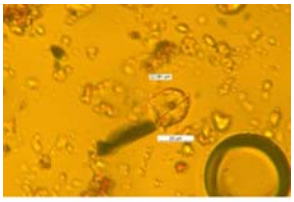

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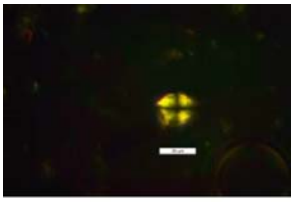

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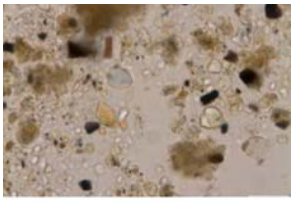

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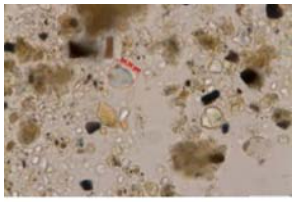

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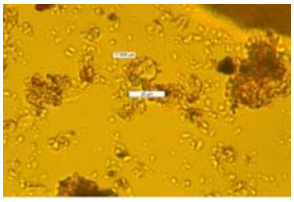

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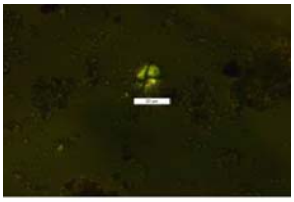

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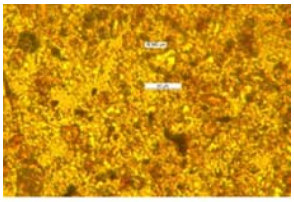

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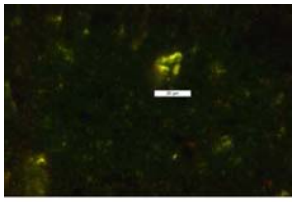

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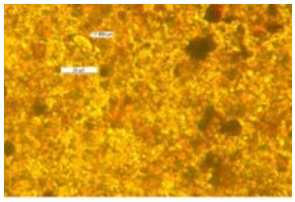

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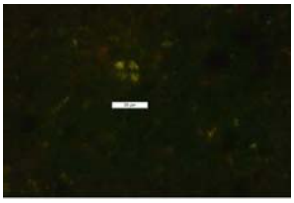

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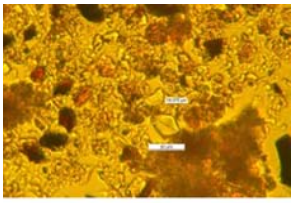

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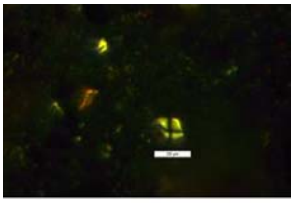

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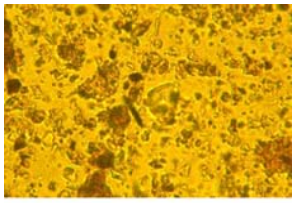

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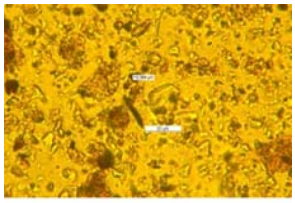

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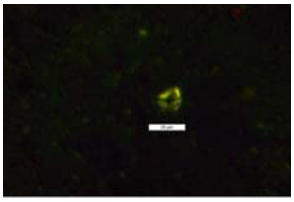

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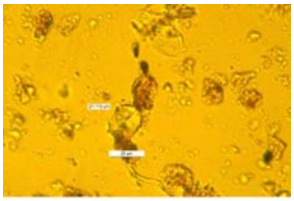

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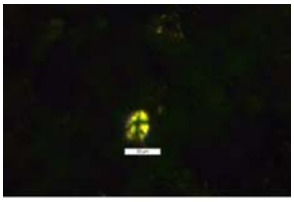

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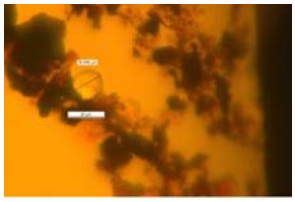

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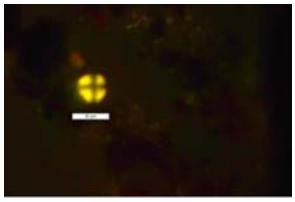

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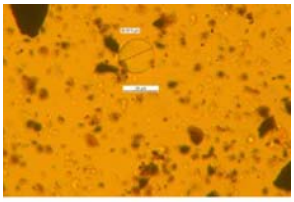

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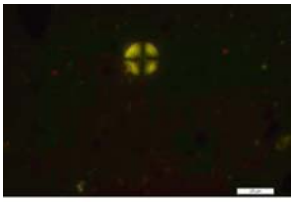

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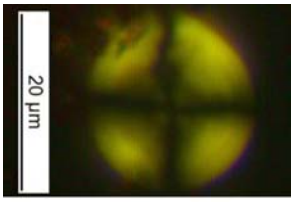

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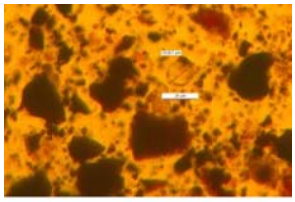

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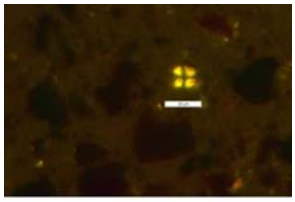

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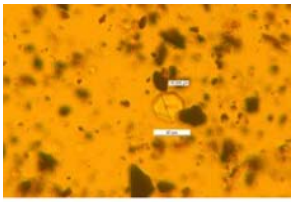

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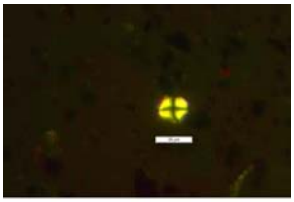


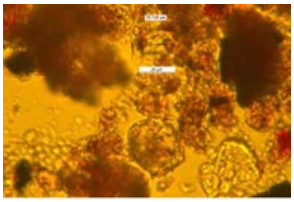
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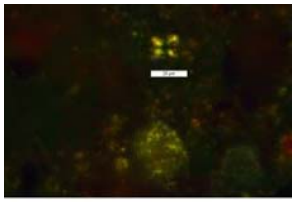

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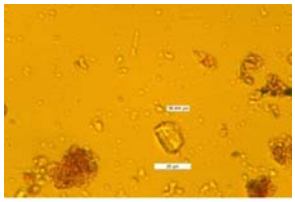

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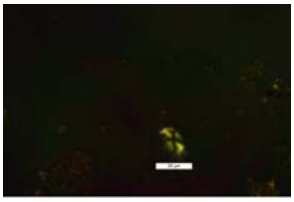

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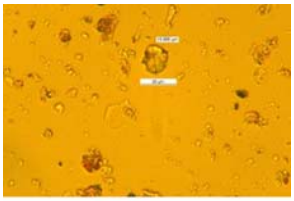

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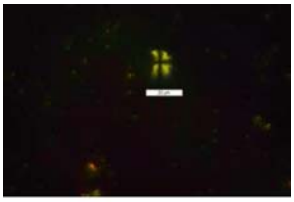

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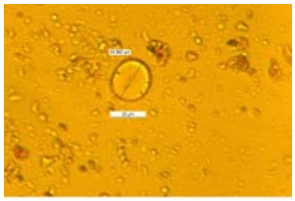

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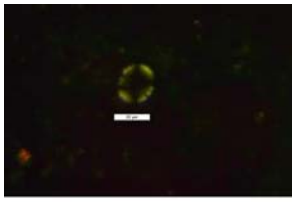

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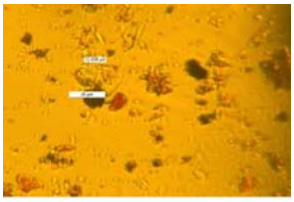

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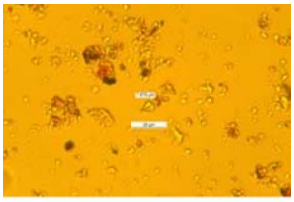

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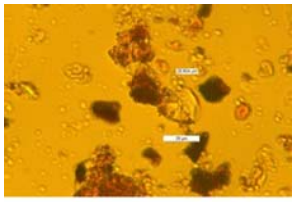

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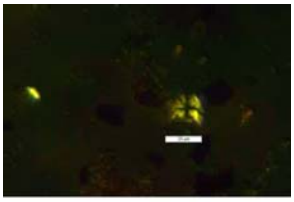

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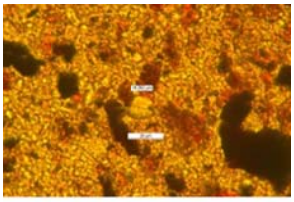

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_90-100_2_12 of 13_c_starch


_2_90-100_2_13 of 13_starch