CERAMIC ETHNOARCHAEOLOGY IN FIJI: THE ROLE OF SOCIAL PROCESSES IN CERAMIC DIVERSITY

by

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Abstract

Ceramics are a significant part of the archaeological record used to infer chronology, culture change, ethnicity and patterns of social interaction. Attempts to associate variability in form and decorative style with kinship and post-marital residence patterns are referred to as “ceramic sociology”. These studies illustrate complex relationships between craft production and social processes. To contribute to this field, an ethnoarchaeological study of traditional pottery manufacture was undertaken in Nalotu Village, Kadavu Island, Fiji in 2010. This project documents manufacturing stages for regionally specialized kuro (cooking pot) with emphasis on the social and organizational structures underlying production. Issues being addressed include transmission through traditional history, learning structures, kinship/post-marital residence patterns, organization of production, variability/homogeneity in form and style, and continuity from the historic past into the present. These provide important considerations for future studies of Fijian ceramics specifically but with implications for the discipline of archaeology as a whole.

Keywords: Ceramic ethnoarchaeology; Fijian pottery; Oceanic prehistory; Yawe, Kadavu; potter collective; master potter
Vei kemuni kece na lewe ni vanua vakaturaga ko Yawe, ena vuku ni nomuni veitokoni ena noqu vakadidike, sa mai rawa kina na sasaga ni vuli qo. Vinaka vakalevu sara na nomuni wasea vei au na nomuni kila ni tuli kuro.

To the people of Yawe, without whom this thesis would not have been possible. Thank you for sharing your beautiful tradition of pottery manufacture with me.
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Chapter 1: Introduction

Fijian archaeology is dominated by ceramics. Ceramics have been part of Fijian life from the initial colonization of the islands in 3050 B.P. through to the historic period (Nunn et al. 2004) and, in some geographic locations, pottery production has continued into the present day (Rossitto 1992; Sorovi-Vunidilo and Vusoniwailala 1999). Archaeologists use Fijian ceramics to provide culture historical information, dating typologies and, among other things, information on trade and regional interaction. In particular, archaeologists are interested in the variability within pottery assemblages. Similarity of form is often assumed to be reflective of social interaction, while periods of stylistic and morphological change are interpreted as increased segregation of populations or the arrival of different ethnic groups (Burley and Clark 2003). Despite the importance of ceramics in the Fijian archaeological record, relatively little is known about the role that social processes play in creating ceramic diversity. It is clear that in order to better interpret social interaction in the archaeological past, social processes of ceramic manufacture must be analyzed (Clark 1999; Kirch 2000).

There have been several ethnographic studies focusing on ceramic production in Fiji (e.g. Roth 1935; Hunt 1979; Palmer and Shaw 1968; Palmer et al. 1968; Rossitto 1990a,b); none have focused directly on social issues. Rather, the studies in question have been primarily concerned with the basic steps of the manufacturing process. An understanding of pottery manufacture is essential for developing comparisons with archaeological assemblages (Palmer et al. 1968). It is equally important however to study...
the social processes responsible for ceramic diversity or homogeneity in the archaeological record. An understanding of the processes involved would allow archaeologists to better interpret regional interaction, isolation, migration and a myriad of other issues in the Fijian past.

To study the social processes involved in ceramic production and subsequent ceramic diversity, I conducted an ethnoarchaeological study of ceramic manufacture among female potters of Nalotu Village, Kadavu, Fiji (Fig. 1.1). The aims of this research were two-fold. The first was to address the role that social processes, including gender, post-marital residence and traditional values play in determining ceramic variability at the village level in Fiji and what the level of variability is. The second was to determine to what extent diversity within present-day Fijian pottery production is reflective of, or has the potential to interpret, variability or homogeneity of ceramics in the prehistoric Fijian past.

A Context for the Ethnoarchaeology of Fijian Ceramics

Archaeologists are interested in the level of diversity of ceramics because ceramic assemblages often make up a substantial amount of the archaeological record due to their durability (Kramer 1985). This is particularly the case in Fiji where ceramics, to a large extent, provide the basis for the study of Fijian culture history (Burley and Clark 2003). The study of this culture history has shown that Fijian ceramics have undergone significant stylistic and morphological change throughout the 3000 years of human occupation in the region. The prehistoric and historic periods of Fijian history are subdivided on the basis of this change (Frost 1979; Green 1963). Chronologically, these
Figure 1.1  Map of Fiji. The island of Kadavu is visible to the southwest.  
Map prepared by Dr. David Burley.

phases include Early Lapita, Late Lapita, Fijian Plainware, Navatu, Vuda and Ra Phases (Fig. 1.2). The earliest ceramics in Fiji were brought by initial colonizers between 2950 and 3050 BP (Nunn 2009; Sand 1997). These are Lapita wares, specifically defined by dentate stamp, incision, appliqué modelling and other techniques to apply a range of complex decorative motifs (Kirch 1997). Archaeologists refer to this style as Lapita, after an archaeological site in New Caledonia where excavations in 1950 by Gifford and Shutler (1956) defined the type site. The Lapita design system is now recognized as an important marker for first settlement across the Pacific from the west in the Bismarck Archipelago, to the east, as far as Tonga and Samoa; the colonizers are subsequently referred to as the Lapita People (Kirch 1997). The Lapita period in Fiji is separated into an early phase dated to 3050-2650 B.P. and a late phase corresponding to 2650-2450 B.P. (Burley 2003; Burley 2010). The late period is differentiated from the early period by the
Figure 1.2 Chronological phases of Fijian prehistory/history. Years are BP. Illustration prepared by Dr. David Burley.

presence of collared and notched rim jars as well as by the simplification and decrease in the presence of dentate stamped motifs (Burley and Dickinson 2004).

In Fiji the end of Lapita marks the beginning of the “mid-sequence” for culture history. This first includes a transition to the Fijian Plainware phase, corresponding approximately to the dates 2450-1500 BP (Burley and Clark 2003; Burley 2005). During
this phase there is little in the way of decorative applications applied to vessels. However, there is an array of ceramic vessel forms and ceramics are an important component of material culture. At the Sigatoka Sand Dunes site on Viti Levu in western Fiji, this phase is characterized by slightly everted to inverted subglobular jars, direct inverted and everted bowls, handled vessels, pottery discs, paddle impression and wiping with a coarse fibre predominantly on vessel necks (Burley 2005). The Fijian Plainware phase is followed by the Navatu phase which is differentiated from the former by distinctive well-made globular jars and trays. In complete contrast to Plainware, Navatu pots are decorated with incised and applied relief design (Burley 2005). Dates for the Navatu phase correspond to 1500-1000 BP (Best 2002; Burley 2010). Finally, the late prehistoric period is referred to as the Vuda phase and is recognized by ca. 1000 BP. This phase is a continuation out of Navatu but where regional differences in ceramic forms occur both in specialized vessel type and decorative application (Frost 1979; Burley 2010). The specialized Nalotu pot form examined in the following study was probably developed during this period. These patterns indicate the increasing complexity of Fijian social and political relations.

**Historic Ceramic Production in Fiji**

The historic period for indigenous Fijian archaeology is termed the Ra phase (Green 1963). This period begins with sustained European contact in the late 1700s and is marked by the development of local traditions of pottery form and style (Rossitto 1992). However, as the historic period progressed, and European ceramics and metal pots were imported, the utilitarian use of indigenous pottery forms decreased and the industry declined (Rossitto 1992).
The ethnohistoric literature of Fiji describes women as the sole manufacturers of pottery who produced it for utilitarian functions (i.e. cooking, drinking), important ceremonies, as gifts and tribute, and for exchange (Rossitto 1992; Thompson 1971; Williams 1982). Ethnohistoric accounts further describe a gendered division of labour which, in respect to ceramics, has been strenuously argued by Marshall (1985) to exist in the Lapita period as well. Despite traditional Fijian society being patrilocal (Ravuvu 1983), ceramic styles in the historic period often were centred within villages due to the “copyright” placed on them by women of the village (Rossitto 1990a:15). This led to a degree of conformity for female potters who moved to their husband’s village after marriage, and it also led to the continuation of regional styles.

In the late 1980s, ethnographer Rosa Rossitto (1990a,b) undertook a study to observe changes in pottery form and style from the historic period into the modern era. Her (1990a,b) research on pots from Nasilai Village on the Rewa River delta, the Lower Sigatoka Valley on Viti Levu, and Yanuya Island in the Mamanuca Group, off the west coast of Viti Levu indicate that, while there is still an emphasis on the manufacture of traditional local styles and forms, many potters are beginning to create new styles in response to the tourist industry (Rossitto 1992). These appear to be based on design elements inspired from the environment (i.e. turtles, leaves, bunches of fruit, etc.). Novel designs are often introduced by a single potter and then become diffused throughout the village and to other neighbouring pottery centres (Rossitto 1990a:16). This individualism in ceramic production seems contrary to the conservative nature of Fijian pottery.

Ethnographic and historic records of Fijian pottery production demonstrate a rapid decline of this craft as a result of the introduction of European cooking pots and ceramics.
A recent revival of the pottery tradition in the second half of the twentieth century has been subject to the influence of the tourist trade, which has ultimately impacted the transmission of traditional knowledge (Rossitto 1992). This decline in traditional production and knowledge calls for crucial documentation before it disappears completely (Palmer 1969; Kramer 1985; Clark 1999). Today there are very few ceramic production centres in Fiji and most manufacture is focused upon the tourist market. The main areas of production include the villages of Lawai, Nakabuta and Nayawa in the Lower Sigatoka Valley on the main island of Viti Levu, the village of Nasilai on the Rewa River delta on Viti Levu, and Nalotu Village in the Yawe District on the island of Kadavu (Balenaivalu pers. comm. 2011).

**Ethnographic Documentation of Fijian Ceramic Production**

The first attempt to document contemporary Fijian pottery production was made by Kingsley Roth in 1935. His research showcased the decrease in manufacture and use of pottery in the Raviravi district in the Ra province on the island of Viti Levu, and in the Bua province on the island of Vanua Levu (Fig. 1.3). Roth (1935:17), like all others after him, noted the strict gendered division of labour, with women being the sole producers of ceramics. Ethnographic and ethnohistoric studies in Oceania also document this division of labour generally. It appears that in coastal villages where men are usually focused on maritime activities (sailing, fishing), women are often involved in pottery production (Palmer 1969; Thompson 1971; May and Tuckson 1982; Rossitto 1990a).

During the time of Roth’s (1935) ethnographic study of Fijian ceramics, there were nine districts of manufacture in Fiji, albeit many were beginning to disappear. Following Roth, it was not until 1968 that the ethnographic study of Fijian pottery
production became active again. Palmer and others (1968) wished to add to Roth’s accounts through documentation of ceramic manufacture in the Lower Sigatoka Valley. At the time Palmer was Director of the Fiji Museum and actively engaged in archaeological research. He stressed the idea that in order to more fully understand archaeological material, a comparative study of similar present-day material culture must be carried out to determine behavioural correlates, especially in respect to manufacturing procedures. He (1968) along with others (Palmer and Shaw 1968; Palmer et al. 1968) ultimately studied several active pottery centres in Fiji, including Nasama Village, Yavulo Village, and Nayawa Village, all in the Lower Sigatoka Valley (Fig. 1.3), followed by an examination of pottery manufacture at Nakoro Village (Fig. 1.3), situated further north and eastwards along the Sigatoka Valley. Following this survey, and
encouraged by the Fiji Museum, revival of traditional ceramic practices began in many villages along the Sigatoka Valley.

Palmer’s (1969) call for increased ethnographic research surrounding pottery manufacturing led Hunt (1979) in 1976 to document the pottery manufacturing process in Ekita\(^1\) Village in the Yawe District on the island of Kadavu (Fig. 1.3). He (1979) observed the traditional manufacture of *kuro* (cooking pot) during a brief four-day visit. The next study was carried out by Geraghty (1995) in 1980 to document the pottery production process in Qomā (Fig. 1.3), a group of three small islands off the coast of Viti Levu in the province of Tailevu. Geraghty (1995) observed the traditional manufacturing process of *sedre* (bowls) and recorded information on other pots made in the village as well as information on transmission and gendered division of labour regarding the ceramic manufacturing process. Rossitto undertook the next study in the 1980s and 1990s. She (1990a,b) observed pots, and sometimes their production, throughout her stay at several pottery centres, including Nasilai Village on the Rewa River (Fig. 1.3), various production centres throughout the Lower Sigatoka Valley, and on the island of Yanuya in the Mamanuca Group (Fig. 1.3), off the west coast of Viti Levu. Rossitto’s emphasis was placed on stylistic attributes of pots rather than the manufacturing processes involved. Through her survey, and from the observations of pots from similar locations housed in the Fiji Museum, she (1990a,b) demonstrated change in decorative style through time. Rossitto’s (1990a,b) ethnographic study was also important for determining which centres continued to be active. Finally, the most recent ethnographic study of ceramic manufacture was that of Sorovi-Vunidilo and Vusoniwailala in Nalotu Village in the

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\(^1\) The village is spelled as “Ekita” throughout this thesis as opposed to the government map spelling of “Yakita” because it is the spelling used by locals.
Yawe District in 1997. Sorovi-Vunidilo and Vusoniwailala (1999) observed the process of *kuro* manufacture during a pottery revival project commissioned by the Fiji Arts Council. They (1999) documented basic manufacturing stages and traditions associated with the production process.

**Regional Variation**

The above ethnographic studies have informed Fijian researchers on variation in manufacturing processes and styles that exist between production centres in Fiji. Palmer et al. (1968) compare production traits from the centres they studied in the Sigatoka Valley to those studied by Roth (1935) in the province of Ra. This comparative analysis indicates a substantial difference in manufacturing technique between the two locales. In the Ra province, manufacture consists of the coiling technique in which clay is shaped into individual rings that are then formed together in a series and smoothed with the aid of a finger. The pots are then further smoothed through use of a wooden paddle and stone anvil (Palmer et al. 1968; Roth 1935). This is the same production method observed by Geraghty (1995) in Qomā in 1980. In contrast, the manufacturing technique of the Sigatoka Valley consists of the use of a paddle and anvil to form together flat slabs of clay. Due to the different shapes of the paddles employed and differences in final smoothing procedures, Ra pots appear to have a smoother finish than their Sigatoka counterparts (Palmer et al. 1968). Another difference lies in the number of forms produced in each centre, with more being attributed to the Ra province. In addition, Ra pots appear to be more highly decorated than those of Sigatoka (Palmer et al. 1968). These comparisons highlight the regionalization of pottery form and decoration throughout the last century and in later prehistory in Fiji (Palmer 1969).
In their study of pottery manufacture at Nakoro, northeast of Sigatoka, Palmer and Shaw (1968) made another brief comparison of the production process to that of the Lower Sigatoka Valley. Throughout their comparison, they stress the similarities in many technical aspects of the manufacturing process in both areas. Among these are the building up of the pot from flat slabs placed onto a temporary base, the hole cut into the side of the pot where the arm is inserted, and the application of a slab over the temporary body top which subsequently becomes the base. Notwithstanding, it appears as though the manufacturing process is more complicated in Nakoro, at least for *kuro* (cooking pot) making, as opposed to the process described for the Lower Sigatoka Valley. This leads Palmer and Shaw (1968) to conclude that the process in Nakoro must represent an older variant of that in the Lower Sigatoka Valley. While evidence for this claim is relatively weak, they do point out some interesting similarities and differences between the two production centres, further highlighting the range of variation at the regional level in Fiji.

Palmer (1969) sought data pertaining to manufacturing processes from other pottery centres for a comparative study in order to provide a more complete picture. Additional comparisons became available after Hunt’s (1979) study of pottery manufacture in Ekita Village and Geraghty’s brief study of pottery manufacture in Qomā discussed above. Hunt’s study indicates that the slab building method is the one used in Ekita Village to manufacture *kuro*. Clay slabs are paddled to a desired thickness and then joined together through the use of the paddle and anvil technique. The pottery manufacturing process described by Hunt (1979) is the same as that observed by Sorovivunidilo and Vusoniwailala (1999) in Nalotu Village in 1997. Ekita and Nalotu Village
belong to the Yawe District on Kadavu Island, indicating homogeneity of pottery production in this region, which is of importance to my research in this area.

Rossitto’s (1990a,b) analysis of pottery form and styles in the 1980s and 1990s documented a greater range of pottery manufacture within ten pottery villages across three districts. For Nasilai, Rossitto concluded that a very different style of pottery had more recently been added to other more ‘traditional’ forms. The new style consisted of more “environmentally inspired designs” and, in general, represented smaller forms of traditional variants (Rossitto 1990a:16). She believes this is likely due to western influence and the tourist trade (Rossitto 1990a:14-15). For the Lower Sigatoka Valley, Rossitto mentions eight pottery villages, five of which today are currently inactive (Balenaivalu pers. comm. 2011). Of importance to my research, she suggests it was through marriage patterns that different pottery forms spread throughout these villages in the 1950s, leading to a degree of similarity in pottery manufacture.

Rossitto (1990a) reports that the relatively newer vessel types have flatter bases, are darker in colour, and smaller in size; sometimes they represent miniature variations of traditional forms. She concludes that the exchange of formal elements of style must have been uncommon in the historic past due to limited contact and “a sort of copyright” which dissuaded potters of different villages from using each other’s designs (Rossitto 1990a:15). She (1990a:14) also notes that in predominantly fishing-based pottery villages, such as Nasilai and Yanuya, traditional forms appear to strengthen community identity, whereas in predominantly agricultural-based pottery villages, such as those along the Lower Sigatoka Valley, new ‘innovative’ stylistic forms have been more
openly accepted. Rossitto (1990a:14-16) attributes change in today’s pottery villages to economic need, the tourist trade, and an increase in contact between villages.

**Thesis Research and Chapter Progression**

As is obvious from the above discussion, ceramic production and vessel form variation exists at the regional level throughout Fiji. However, reasons for this have been speculative at best. Given that pottery production in Fiji has spanned approximately 3000 years from prehistory to the present day and ethnographic observation has provided evidence of regional diversity in vessel manufacture, the most obvious way of shedding light on prehistoric ceramic diversity in Fiji is to employ the direct historical method and extrapolate from the processes responsible for ceramic diversity in the ethnographic present. In order to do this I undertook a two-part ethnoarchaeological study. For the first part, I observed and recorded the processes involved in ceramic manufacture and interviewed potters from the Yawe District. The second part consists of a detailed analysis of qualitative and quantitative ceramic attributes of pots made by the villagers. My aim for this study is to demonstrate the range of variation, both in qualitative and quantitative attributes for the pots under study, and to identify the social processes that can be attributed to the resulting variation/homogeneity. This will then form an analogy to similar social processes related to ceramic variation/homogeneity in the past.

Having presented thesis content and goals in the present chapter, Chapter two outlines the theoretical models which this research builds on, paying particular attention to ceramic ethnoarchaeology and its role in archaeological interpretation. An evaluation of my original research design is then presented. Based on circumstances unknown prior to fieldwork a revised research model had to be adopted. In Chapter three I outline the
research project in Nalotu Village. Particular attention is paid to the gendered social organization of the district, kinship structure in reference to post-marital residence patterns, the ethnohistoric literature that describes pottery production in the area, the social structure and oral tradition surrounding pottery manufacture, and a limited archaeological survey in Yawe. This is followed by Chapter four, which outlines results of the ethnographic portion of this research, including the interview questions, structure of the interview process, and a description of the pottery production process of the Yawe District based on my observations in the village of Nalotu.

Chapter five presents the results of the ceramic analysis portion of the research study. This begins with a detailed description of the steps taken to measure the pots in the field in order to analyze the resulting variation of the pottery sample. The range of variation in pottery attributes and pottery dimensions are described for two sample populations; one consisting of pots produced in 2010 and the other representing pots made previous to 2010. This is followed by significance testing of the two populations in order to determine if ceramic variability has changed significantly throughout the past 60 years of pottery manufacture in Nalotu Village. The final chapter presents a discussion of the conclusions drawn from the study. Topics addressed include the organization of the production process, the role of tradition in retention of kuro morphology and technology, social processes leading to kuro specialization, and continuity in form from the historic past to the present. Finally, the relevance of the conclusions drawn to the interpretation of the archaeological past is discussed.
Chapter 2: Theoretical Models: Ethnoarchaeology and Research Design

This chapter outlines theoretical models put forth by ethnoarchaeologists to understand social processes underlying material culture diversity, especially with respect to ceramics. In addition, a brief discussion of analogy is included to give context for the use of ethnoarchaeology in furthering archaeological interpretive potential. Through a cross-cultural discussion of ceramic ethnoarchaeological models and theoretical interpretations, I set the context for the introduction of my research design. Finally, I discuss the re-designing of the original research program along with a discussion of the pots used for this study.

Ethnoarchaeology

Ethnoarchaeology refers to the ethnographic study of present-day cultures from an archaeological perspective in order to gain insight about material culture production and use in the archaeological past (Schiffer et al. 2005). In order to answer such questions, however, the gap between the dynamic ethnographic present and the static archaeological past must be bridged. Often referred to as the “middle-range”, ethnoarchaeologists provide analogues about past social processes from the processes they observe in the present (Binford 1967). While there are obvious restrictions to the predictive strength of analogical reasoning, Wylie (1985:107) argues that used under appropriate contexts, such reasoning is crucial for increasing archaeological interpretive potential.
In the past decade, ethnoarchaeology has focused on questions related to the transmission and manipulation of material culture. The field has expanded its focus to look at a greater variety of social processes leading to observed variation in the archaeological record, such as impacts of demography (Shennan 2000). Diane Gifford-Gonzalez (2010) has outlined five major ways in which contemporary ethnoarchaeology works towards a better understanding of archaeological research. The first is through the disproving of an archaeological generalization through the documentation of an ethnographic case study. The second is through the testing of a prediction that has been determined through consultation with appropriate theoretical models, which corresponds to my research design. The third is through an assessment of the validity of untested assumptions or analytic categories through ethnographic observation. The fourth is to build middle-range theory through the application of relational analogies at levels that are appropriate for archaeological evidence, again, corresponding to my research goals. Finally, the fifth emphasizes contemporary ethnoarchaeological research for recording the lifeways of a particular group that has inhabited a region for many years (Gifford-Gonzalez 2010). Taken together, these contemporary goals of ethnoarchaeology heighten the interpretive potential of archaeological research by deriving analogues not only related to the creation and deposition of material remains, but also analogues related to the social processes that structure material culture production and use. The latter corresponds to the aims of my research design.

**Ethnographic Analogy**

The majority of conclusions that archaeologists make about the past, whether conscious or unconscious, require the use of analogy (Hodder 1982b; Wylie 1985).
Analogy is the use of information from one context, the present in this case, to infer or explain phenomena/data in another context, including the past (Johnson 1999). The more similarities that can be argued for the two contexts being compared, the stronger the analogy will be (Wylie 1985). When observing the ethnographic present in order to create analogies for interpreting similar processes in the archaeological past, middle-range theory can be developed, bridging the gap between the present and the past (Johnson 1999).

Binford, the earliest proponent of middle-range theory, outlined two conditions that must be satisfied. First, middle range-theory must be independent of general theory in order to avoid circular arguments (Johnson 1999). If middle-range theory is based on another theory then it is impossible to test which theory holds true (Johnson 1999). The second condition for middle-range theory is that it must be based on uniformitarian principles, which assume that conditions in the past were similar to those in the present (Johnson 1999). This assumption is made more difficult when processes of human behaviour, as opposed to geological processes, are assumed to exist in the same way in the past. However, demonstrating historical continuity between the contemporary culture being studied and the archaeological material that is being compared can strengthen analogical arguments, as can increasing the number of links or similarities between the source and subject contexts (Wylie 1985).

Although analogy is extremely useful for interpreting past human behaviour, there are inevitable problems. One is that such arguments can be taken too far in “proving” that all aspects of the two cultures under inquiry are uniformly similar (Hodder 1982b:12). Hodder (1982b) discusses how the term “analogy” has received negative views due to its
misuse. He specifically describes two arguments against the use of analogy: (1) we cannot prove or check analogies because there are always equally valid explanations that can fit archaeological data, and (2) analogies prevent archaeologists from interpreting the past without influence from the limited processes that are observable in the present (Hodder 1982b:14). Hodder (1982b) acknowledges these limitations, but ultimately concludes that, through the proper use of analogy in appropriate contexts, much can be learned about human behaviour in the past. In this, analogical arguments are crucial for interpreting all aspects of archaeological data.

To strengthen analogical arguments, Hodder (1982b) and Wylie (1985) propose a distinction between analogues that are formal, and those that are relational. By formal analogies they refer to analogues where, if some aspects match, then others are assumed to be equivalent. The danger with formal analogies is that they may confuse accidental similarities with those that are independent and more reliable (Wylie 1985:94). By relational analogies, they are referring to those that aim to determine some natural or cultural link between the two situations being compared, and include consideration of relevance of the analogues being proposed. In relational analogies, links between the source and subject contexts are considered independent, as opposed to accidental, and are therefore considered stronger than links made in formal analogies. While there are certain limitations regarding the use of analogical arguments, Hodder (1982b) and Wylie (1985) have shown that the arguments can be strengthened and how crucial they are for most archaeological inquiry.

David and Kramer (2001) have outlined six general principles that ethnoarchaeologists should follow when applying analogical models. The first is that the
two cultures being compared should be similar with respect to variables that are likely to have impacted behaviours, materials, processes, or states that are being examined. The second assumes that cultures are conservative and that historic analogues have greater veracity than those that are not. The third follows that ethnoarchaeological research, in addition to other means of investigation (e.g. ethnohistoric sources), should be undertaken in order to increase the range that potential models have for archaeological data. The fourth is that many analogues, as opposed to a single analogue, should be sought among the sources. The fifth is that hypotheses that are proposed from analogue models need to be tested by various means, including archaeological excavation. Finally, citing Wylie (1985), they suggest the strength of analogical arguments be increased by refining the background knowledge and methodology required to seek out the analogues.

Ethnoarchaeology as a research strategy is defined by the search for formal analogies strengthened through the demonstration of relevance between the subject and source contexts (Wylie 1985). Once the strength of analogical arguments is determined, the interpretive potential of archaeological research can be maximized.

**Ceramic Ethnoarchaeology and Social Processes**

One type of material culture that is studied most frequently through ethnoarchaeological research is ceramics (David and Kramer 2001; Hegmon 2000; Kramer 1985). Archaeologists are interested in the meaning of ceramic diversity because ceramic assemblages often make up a substantial portion of the archaeological record due to their durability. In addition, ceramics are abundantly diverse and are present across many geographic locations and time periods. Due to the wide range of variability both in
the past and present, ceramics serve as an excellent topic of ethnoarchaeological investigation.

Research in this field has largely centred on the following two trends: (1) construction of social boundaries, and (2) modes of ceramic change (Hegmon 2000). Research on boundaries has demonstrated the ways in which material culture can actively establish, mark, and maintain social, political, and economic regions (Hegmon 2000). This research has led to the discovery of archaeological correlates and, more generally, contributes to the development of social theory through a greater understanding of material culture manufacture and use (Hegmon 2000). Long-term ethnoarchaeological projects such as the Kalinga Ethnoarchaeological Project in the Philippines (Longacre and Skibo 1994) and the Mandara Ethnoarchaeology Project in Cameroon (David et al. 1991) have been influential in understanding ceramic change over the course of decades. These projects have been able to document the “social impetus for innovation and change” (Hegmon 2000:133). Similar to these trends, my focus is on the interrelationships of social organization and the pottery manufacturing process.

Ceramic Sociology – Kinship and Post-marital Residence

Early models that sought to understand social behavioural patterns behind ceramic manufacture focused mainly on kinship and post-marital residence patterns (Hegmon 2000). These early studies were based on archaeological data derived from agricultural societies in North America. The ethnographic analogue assumed that pottery production was the role of women who learned the process from their mothers and remained in their natal village after marriage. The ultimate goal was to generate and validate a predictable cross-cultural pattern from which archaeological contexts could be given social meaning.
These early models were pioneered by Deetz (1960, 1965) who was the first to demonstrate a correlation between changes in post-marital residence patterns and variation in ceramic design attributes. Using data from the historic period of the American Plains region, he (1965) documented a change from a matrilocal residence pattern to one less rigid in matrilocality at the Medicine Crow site, an eighteenth century Arikara village. Deetz (1965) hypothesized that matrilocality leads to low within-group variation and high between-group variation, whereas patrilocality leads to an increase in within-group variation and a decrease in between-group variation. He tried to test this hypothesis by demonstrating a non-random distribution of stylistic attributes during the earliest occupation and then demonstrated that, through time, as society became less matrilocal, there was an increase in random sorting of the ceramic attributes under study (Deetz 1965). Deetz (1965:98) concluded “that the possibility of a functional and real connection between kinship change and pottery design is very high.”

Following from Deetz’s research, Longacre (1970) studied ceramic variation at the Carter Ranch site on the Colorado Plateau of east central Arizona to assess the relationship of ceramic types and kinship. His hypothesis was

Social demography and social organization are reflected in the material system. In a society practicing post-marital rules stressing matrilocality, social demography may be mirrored in the ceramic art of female potters; the smaller and more closely tied the social aggregate, the more details of design would be shared [Longacre 1970:28].

Longacre (1970) wanted to demonstrate that he could identify matrilineages from ceramic assemblages. He attempted to obtain sociological information by studying ceramic styles relative to their spatial distribution and frequency throughout the site. He
(1970:28) concluded that distributions of designs were non random and conformed to the prediction of the research hypothesis.

Hill (1970) was the third of the “ceramic sociologists” to add to this early debate. He did so by studying assemblages from Broken K Pueblo on the Colorado Plateau. He analyzed ceramics to determine the existence of uxorilocal (matrilocal) residence units. In this he (1970:72) demonstrated evidence that “makes it reasonably certain that uxorilocal residence groups existed at Broken K.”

From these early models, heterogeneity of ceramic style was predicted for patrilocal residence patterns and homogeneity for matrilocal residence. By homogeneity, these studies were referring to relatively discrete pottery styles within a matrilocal group/village, resulting in more diversity between groups (Longacre 1970). This pattern was expected as a result of women staying in their natal village and reproducing the same style without outside influence from other potters. For patrilocal residence, a different pattern was predicted in which there was expected to be high within and low between group/village diversity. This pattern was expected as a result of women moving between villages and taking their natal village styles with them, assuming they learned pottery production before marriage.

Recent Models of Ceramic Variability

During the 1980s, the focus of ceramic ethnoarchaeology shifted towards the study of processes, social, economic, and even political, that affect the production, manufacture, and use of pottery (Hegmon 2000; Kramer 1985). This broader focus has alerted ethnoarchaeologists to the amount of variability in modes of learning, post-marital
movement patterns, design transmission, and the social messages that ceramic designs encode (Kramer 1985). Throughout the last decade of the twentieth century, research in ceramic ethnoarchaeology developed to include detailed analyses of social boundaries that take into account multiple analytical variables (Hegmon 2000). Such studies are beginning to contribute to advancements in social theory.

Following the early claims by “ceramic sociologists”, research has aimed to determine if their patterns of predicted homogeneity and heterogeneity hold true for ceramic assemblages through ethnoarchaeological research. Such studies have indicated that patterns are much more complicated than those previously proposed. For example, Herbich’s (1987) work among the Luo people of Kenya demonstrates how ceramic ‘micro-styles’, signifying distinct communities, can be a result of post-marital relocation of women moving to their husband’s villages. Herbich (1987) noticed striking distinctions between the ceramic assemblages of each of the seven observed villages in Western Kenya. She (1987:196) employed the term ‘micro-style’ to refer to the combination of decoration, form, and technological aspects of ceramic manufacture that signal community identity. She has shown this pattern to result from strong pressure felt by wives to conform to their mother-in-law’s standards.

Conformity in ceramic homogeneity within patrilocal villages has also been demonstrated by Hodder’s ethnoarchaeological research in Kenya (1982a). This research indicates that the early model, in which matrilocal residence is assumed to lead to ceramic homogeneity and patrilocal residence leads to ceramic heterogeneity, is overly simplistic and cannot be applied cross-culturally. According to Eerkens and Lipo (2005), the strength of conformity can be impacted by the percentage of individuals who conform
to the average. In addition, prestige-biased transmission, in which attributes are copied disproportionately from prestigious members of the community, can act like conformity because both models work to reduce variation. This research has led Eerkens and Lipo (2005:325) to conclude that “many different biasing transmission processes will act to reduce variation over time.”

In contrast to Herbich’s (1987) and Hodder’s (1982a) ethnoarchaeological research, Bowser’s (2000) work in Conambo in the Ecuadorian Amazon suggests that pottery production in the domestic context also provides a way of signifying political affiliation through the manipulation of pottery designs. Her study area consisted of approximately 200 people, representing 25 households, who either align themselves politically and/or ethnically with the Achuar or Quichua in the small community of Conambo. In order to test the hypothesis that pottery bowls designate political affiliation more strongly than ethnicity, Bowser (2000) statistically analyzed variations in stylistic attributes of 40 pottery bowls to determine which attributes correlated with politics and which correlated with ethnicity. Of the variables analyzed, she determined that symmetry, interior framing lines, exterior framing lines, colour, and design elements correlated positively with political affiliation; only one, interior framing lines, correlated positively with ethnicity (2000:235-236). In addition, Bowser interviewed women to determine the strength of the political messages used in pottery design. Overall, women could interpret cues relating to political affiliation more successfully than those relating to ethnicity. Women were more successful in identifying pottery bowls relating to out-group political factions, indicating that the signalling of “otherness” was highly visible (Bowser 2000:239-241).
The above mentioned studies illustrate the danger in assuming that post-marital residence is the most important factor in determining ceramic heterogeneity or homogeneity, and also the danger in assuming that matrilocal lineages will always result in homogeneity of ceramic form and style. More recent studies have illuminated the complexity even further. Shennan (2000) has shown that population size affects cultural processes in a variety of ways. He notes that culture change can often be equated with population change in societies where vertical parent to child transmission is dominant. The size of interacting populations can also have a dramatic affect on cultural change because small populations will lead to the disappearance of some attributes through drift, while the others that remain will be fairly uniform (Shennan 2000:821). Again, referring to transmission theory, Neiman (1995:9) indicates that ceramic assemblage diversity scales with population size and innovation rate. The innovation rate, in turn, is controlled by the amount of intergroup transmission. This indicates that, theoretically, heterogeneity of assemblage diversity is a reflection of high intergroup transmission, while homogeneity is a reflection of low intergroup transmission (Neiman 1995:27).

In a study of Iranian textiles, Tehrani and Collard (2009) have shown that, in this patriarchal society where women learn weaving techniques and styles initially from their mothers, other members of the community influence textile design in later stages of life. Through interviews of 59 weavers, more than half indicated that they compared and exchanged textile designs with other women in their community, such as aunts, sisters-in-law, and friends (Tehrani and Collard 2009:289). This exchange does not, however, result in homogeneity of weaving designs between tribes. This is largely due to endogamous post-marital residence rules and social norms that prohibit women from travelling alone
This study indicates that transmission of material culture is not straightforward; vertical, horizontal, and oblique transmission processes can work together with other processes, to result in homogeneity or heterogeneity of style.

From the above studies, it is clear that more ethnoarchaeological research is required to better understand the reason for material culture variation in the present, in order to better interpret such variation in the archaeological past.

**Research Design and Hypothesis**

Given that the reasons for ceramic diversity vary cross-culturally, the most obvious way of shedding light on prehistoric ceramic diversity in Fiji is to employ the direct historical method and extrapolate from the social processes responsible for ceramic diversity in the ethnographic present. In order to do this I planned a two-part ethnoarchaeological study. For the first part, I intended to observe and record the social processes involved in ceramic manufacture by interviewing potters from the Yawe region on the island of Kadavu. The second part consisted of a detailed analysis of ceramic attributes on pots made by the villagers in order to determine the amount of variation within and between pottery attributes and dimensions.

From ethnographic and ethnohistoric information, women are known to be the only producers of pottery in Fiji and, traditionally, practice patrilocal residence where wives move to husbands’ villages (Ravuvu 1983). If the early social models of ceramic variability were to hold true, I would expect ceramic diversity to be high within but low between villages. However, as was indicated above, considering only post-marital movement patterns is too simplistic. When factors of within-group conformity, prestige
bias and transmission among villages are added to the factor of post-marital movement, many similar patterns can arise, assuming a pattern where individuals create their own pots (Table 2.1). The equifinality resulting from the combination of the above factors shows the importance of determining the frequency of their presence. It also highlights the importance of not relying on the single factor of post-marital residence to account for within and between village variation.

From the above models, I propose that the social processes observed from pottery production and from interviews with the potters will indicate a logical pattern of diversity. In Table 2.1, I project the various outcomes arising from a combination of factors influencing ceramic production. A comparison of the Yawe situation (observed outcome) with this table (expected outcomes) provides an explanatory measure. If observed and expected outcomes do not match, then methodological errors occurred, or other process relating to ceramic variation are taking place.

**Restructuring the Research Design**

After arriving in Nalotu Village and discussing the history of the pottery industry with the women, it soon became clear that pottery production and use was no longer an essential aspect of village life, as had been the case in the historic and likely prehistoric past. Meliki Nabulivou, however, identified two elderly women, Vani Koroloda from Nalotu Village and Ulamila Qoli from Naqalotu Village, who still possessed traditional knowledge of pottery manufacture and use. In addition, several women from Yawe had participated in the brief pottery workshop of 1997 held by the Fiji Arts Council, which was aimed at restoring traditional craft production in Fiji. Between that event and the present, pottery has not been produced in Yawe. When discussing the social organization
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Table 2.1 Factors leading to variation within and between villages. Patterns of variation highlighted with the same colour are equifinal.
of the pottery production process with Ulamila, the head potter, it became clear that potters worked to produce a single pot. Therefore, several of my original interview questions would not be applicable to many women since they assumed individual potter production. This obstacle was overcome by asking additional questions surrounding the production process to the head potter, Ulamila.

Pottery production has ceased completely in the villages of Naqalotu and Ekita with no plans for a revival of the traditional craft. This affected my original research design and required a change in strategy while in the field. In particular, I would be unable to carry out an intervillage comparative study of vessel diversity and the sample size of pots available for analysis limits understanding of homogeneity or variation further. Consequently, I decided to focus on the details of the pottery production process in Nalotu as well as interview details regarding the social processes at play. The original plan to record pottery attributes and measure the dimensions of all pots was retained for the smaller and more restricted sample size. This information provides basic descriptive statistics to understand the range of variation produced by Nalotu potters working under a predefined template.

The sample of Nalotu pots made during my study were supplemented with Nalotu pots made previous to 2010. These included five kuro which were present within Nalotu Village, one kuro from Galoa Village off the central coast of Kadavu which was identified as being manufactured originally in Nalotu Village approximately 60 years prior, and two kuro from the Fiji Museum, also identified as being manufactured in Nalotu Village approximately 30-40 years ago (Qoli pers comm. 2010). These kuro formed a second sample with which to compare with the sample from 2010 to determine
if the range of variation in attributes has changed significantly over 60 years. Understanding which attributes vary most provides further insight for analysis of prehistoric ceramics.

Chapter Summary

This chapter has set the theoretical framework for my research project in Nalotu Village, based on recent models of ceramic ethnoarchaeology. These models have alerted archaeologists to the variety of social processes that can act to produce variability or homogeneity in the archaeological record, such as conformity, politics, demography, and transmission. While such models cannot predict with absolute certainty which social factors contribute to the degree of variability of the static archaeological past, they are instrumental in providing reasonable analogies.

Ceramic ethnoarchaeological models are crucial for the development of sound research designs. Situations in the field, however, are often less than ideal. This chapter has outlined the steps taken to restructure my original research design once the reality of limited pottery production in the Yawe District was known. Through the use of a smaller pottery sample I was able to identify the social processes predicted through my original research design and assess the degree of variation, allowing an analogue to the Fijian archaeological past to be described.
Chapter 3: Ethnography and Social Organization of Pottery Production in the Yawe District

Throughout this chapter I discuss the specific context for an ethnoarchaeological project in Nalotu Village. Ethnographic accounts that highlight pottery production in the Yawe District are presented, with emphasis placed on the oral history and tradition surrounding the manufacturing process. This is followed by a brief discussion of archaeological survey in Nalotu. Finally, Yawe kinship structure as well as gendered social organization as concerns the pottery production process is discussed.

Geographical Context

The Fiji Islands are separated into fourteen different provinces, with the mountainous volcanic island of Kadavu representing one (Fig. 3.1). Kadavu is situated south of the main island of Viti Levu and at 408 km², over 50 km long and 12 km wide, is the fourth largest island of Fiji (Burley 2010; Nunn 1999). Formed through eruption of a number of volcanoes during the late Cenozoic to early Quarternay, Kadavu is comprised of an irregular mountain chain, with an axis running ESE-WNW (Nunn 1998; Terry 1999). The slopes of the mountains are intercepted with deep and broad ravines and fissures. The island has three volcanic peaks higher than 500 m, with the highest, Nabukelevu, reaching 807 m (Terry 1999:87). Along the hundreds of kilometres of shoreline and steep mountainous slopes, in a NE to SW direction, are found the nine districts of Ono, Nakasaleka, Yale, Naceva, Sanima, Tavuki, Ravitaki, Yawe, and Nabukelevu respectively.
The district of Yawe is the location for this ethnoarchaeological study. It consists of six villages, Natokalau, Korovou, Nalotu, Ekita, Naqalotu, and Tawara (Fig. 3.2). Nalotu is the principal village for this study and is the residence of the high chief, *Tui Yawe*. This district is situated along the northeastern region of the island, approximately 5 km from the government station at Vunisea. Villages in the region are nestled along the resource rich shoreline, and many extend away from the beachfront onto steep slopes. The beachfront of Yawe is sheltered by the Yawe Reef, stretching out approximately 2 km at the furthest tip from the shoreline. The Yawe District was chosen for this study because it is one of the few areas in Fiji where traditional pottery continues to be
produced. Yawe was also chosen due to its relative isolation with little potential for influence of a tourist trade.

Figure 3.2  Map showing the six villages of the Yawe District. Shaded areas are offshore reefs. Map by Vienna Chichi Lam.

**Yawe Ceramics: *Kuro***

From ethnohistoric and ethnographic literature, the only type of pottery manufactured in the district of Yawe is large cooking pots (*kuro*). In the historic and recent past, these large *kuro* were referred to simply as “Yawe pots” (Hunt 1979) and were considered some of the largest *kuro* produced in Fiji, 3 ft high and 2 ft in diameter (Tabualevu et al. 1997:51). The first study mentioning pottery making on the island of Kadavu was by the geographer J.P. Thompson in 1889 in which he (1999:23) indicated that women’s work “usually consists of fishing, mat, cloth, and pottery making, plantation weeding, the procuring of firewood, the carrying, cooking, and serving of
food, [and] the whole of the household duties…” The first ethnographic study mentioning the making of pots in Yawe was by Roth in 1935 (217) as he described, “pottery is to my knowledge still made…at Nalotu Village in the Yawe District on Kandavu.” Following this, Thompson’s ethnography of Lau in 1938 significantly indicates Yawe pots being traded to the southernmost islands of the Lau group for such goods as essential oil, barkcloth, digging sticks, and wooden kava and food bowls. Thompson (1938:112) also indicates that the Kadavu pots did not have a standard value, but “one large Kandavu pot was equivalent to about one wooden kava-bowl or to one sheet of barkcloth…(about three by three metres) and one container…of coconut-oil.”

The two most recent ceramic ethnographies concerning Yawe (Hunt 1979; Sorovi-Vunidilo and Vusoniwailala 1999) indicate that kuro are, in fact, the only pottery form still in production and the only form which villagers are still knowledgeable of. During his brief four-day ethnographic observation of pottery production in the village of Ekita in 1976, Hunt (1979) observed the production of large kuro. His observations are examined later in relation to my own documentation of pottery production stages. Sorovi-Vunidilo and Vusoniwailala (1999) undertook the other brief ethnographic study of Yawe pots in 1997. This study observed the process of manufacture that took place at a revival workshop commissioned by the Fiji Arts Council. During the workshop, twenty women were selected from the villages of Nalotu, Naqalotu, and Ekita by the Radini Tui Yawe to participate and were taught the basic manufacturing techniques from two elderly women who were most familiar with the process (Sorovi-Vunidilo and Vusoniwailala 1999). Although this ethnographic study did not observe pottery production within the closed village setting, it did briefly highlight the stages of the manufacturing process that were
once prominent throughout the Yawe District. Due to very similar observations of manufacturing technique, these two studies demonstrate a certain degree of homogeneity of pottery production that likely took place throughout Yawe in the historic, if not prehistoric, past. These two studies also stress the critical emphasis placed on traditional roles and methods that the potters follow. As Sorovi-Vunidilo and Vusoniwailala (1999:52) note, “traditions involve taboos – adhered to so that accidents would not occur during the manufacture of pots. The pots demand great respect, on par with that merited to chiefs and those of high social rank.” The emphasis placed on tradition and respect of pots can have great implications for understanding social processes in the historic and likely prehistoric past in Fiji.

**Oral History of Ceramic Production**

The oral tradition surrounding the history of pottery manufacture in Nalotu was told to me by Sivorosi Tulece, who is in his 60s and originally from Nalotu. Tulece remembers his mother cooking in large kuro when he was younger and was told the oral history of this traditional craft by the elders in the village. According to tradition, there was an elderly lady from the village of Mau in Namosi on Viti Levu who was chased away from the village. Her name was Bulou Levu, and the direct cause of why she had to leave is unknown. However, before she left Mau she brought her pottery clay and temper sand with her. She then crossed the ocean from Namosi to Kadavu and landed somewhere in the eastern portion of the island.

When Bulou Levu first arrived in Kadavu she was not welcomed and so she kept travelling west until she reached the village of Nalotu. Here she was welcomed and decided to stay. “When she came, she came with the clay and the sand.” When she first
arrived she took a bath in the galoa (pond), literally meaning “sunken place” (Geraghty pers. comm. 2010), and all the sand that she had brought with her was left there. She then began making the large pots that she was accustomed to making in Mau and taught the other women of Nalotu the craft. Soon, other women of Yawe heard of the pottery manufacture and wanted to learn for themselves, so they travelled to Nalotu to observe the process. These women took the new skills that they learned back to their villages and this is how pottery manufacture spread throughout the Yawe region.

Tulece further discussed the importance of tradition regarding the manufacture and use of kuro. His mother, from Nalotu, and his grandmother, from Rewa, both made pottery in the Yawe style and taught him how to cook in the pots. In the past “every lady knew how to make the pot.” The pots were made to cook xàxana zina (“true food”), which consists of root crops, as opposed to i lava (“not true food”), which consists of fish and vegetables. The importance of Yawe pots went beyond cooking purposes; the kuro were used as i yau, traditional goods presented as ceremonial items, representing the people and their cultural system (Tabualevu et al. 1997:68). The delivery of Yawe kuro follow the tradition whereby the pots are placed on the shoulder during transportation and are treated with great respect. When passing a chief with a Yawe pot, acknowledgement can occur, but the pot is not to be placed on the ground for fear that it will crack (Sorovi-Vunidilo and Vunsoniwailala 1999: 52; Tulece pers. comm. 2010). The pot is also at risk of cracking if, when delivered, the accepter thanks the presenter; “if someone says thank you, the same time, the pot will break” (Tulece pers. comm. 2010). It appears that Yawe pots were held in high esteem by the recipient. This is inferred through my consultation
with villagers from Galoa Village who indicated that, out of respect, they kept their Nalotu pot safe in their village during the most recent hurricane.

Tradition in Nalotu also requires that following the completion of pottery production, one pot must be given to the chief and one to the minister before the remaining pots can be used or sold. Tradition also states that when the manufacturing process is complete, or sometime during the process, the women of Nalotu prepare a feast for the Nayatusau mataqali, who own the land where the sand is collected, and for the Navuadrala mataqali, who own the land where the clay is found.

**Archaeology in Yawe**

Burley (2010, 2011) has undertaken a preliminary survey of archaeological sites on Kadavu. As part of this he examined the village of Tavuki in 2010 and then Natokalau, Ekita and Nalotu in 2011. In Nalotu numerous prehistoric pottery sherds were found at the back of the contemporary village, dating back to at least 1700-1600 years BP, as is characteristic of the Fijian mid-sequence. Several of these were paddle-impressed (Burley pers. comm. 2010). In the area upriver from the current village at the present day water tower, a dentate stamp Lapita sherd and other early appearing rim sherds extend occupation to at least 2600 B.P. Large fragments of the specialized Yawe pot were also notable in the present day village. Integrated with other late prehistoric ceramics, it would appear that specialization leading to exclusive production of the large kuro was late, perhaps even occurring as late as the early historic period in the 19th century AD. A more thorough investigation of the “old village” area upriver and inland of the present village could shed additional light on this situation. Despite the only brief attention paid to the archaeology of Nalotu, it is clear that long term continuity in village
occupation and pottery production exists here. This strengthens the use of contemporary analogy to infer social processes in the Nalotu past.

**Yawe Village Organization**

The nine districts of Kadavu are organized by the chiefly system, which forms the core of local government (Roberts 1997). Within this system lie *yavusa* and *mataqali*. *Yavusa* refers to an exogamous or endogamous group that acknowledges one founder, ancestor god, and chief (Geddes 2000:50). The *yavusa* in Nalotu is represented by the entire village itself (Tulece pers. comm. 2010). *Mataqali* are the land holding unit that represents social rank and role within the village system (Geddes 2000:50). In Nalotu, the chiefly village of Yawe, there exist seven *mataqali*, the largest number in the Yawe District, with each owning a separate piece of land (Table 3.1). In decreasing order of rank, these include: (1) *Valelevu*, (2) *Naduaitini*, (3) *Lomaiyawe*, (4) *Vodokana*, (5) *Navuadrala*, (6) *Salevutu*, and (7) *Nayatusau* (Tulece pers. comm. 2010). Everyone in the village belongs to a house, which represents a nuclear family, and houses belong to one of the seven *mataqali*. Despite the fact that each *mataqali* has a leader, *Tui Nalotu*, the chief, still possesses ultimate power over any village issues. In addition, the *Tui Nalotu* is also the *Tui Yawe*, which indicates that he has power over all issues related to the district of Yawe.

All villages in the district follow the ranked structure as given, varying only in terms of the number of *mataqali* that exist (Tulece pers. comm. 2010). The villages remain in close contact and must consult the *Tui Yawe* for all major decisions or problems (Tulece pers. comm. 2010). The villages of the district attend church together in Nalotu on the last Sunday of every month, indicating the importance of social interaction.
between villages. Village representatives meet four times a year for public administration and to discuss any issues or concerns, while district council representatives, elected to the Kadavu Provincial Council, meet biannually to organize activities and to coordinate with departments of the Fiji Government (Roberts 1997).

<table>
<thead>
<tr>
<th>Mataqali</th>
<th>Village Role</th>
<th>Houses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valelevu</td>
<td>Chiefly clan consisting of the chief and his relatives, including brothers, unmarried sisters, cousin brothers and their respective families.</td>
<td>4</td>
</tr>
<tr>
<td>Nduatini</td>
<td>Supports the Tui Yawe and takes his position if not available.</td>
<td>2</td>
</tr>
<tr>
<td>Lamaiyawe</td>
<td>Supports the Tui Yawe and takes his position if not available</td>
<td>10</td>
</tr>
<tr>
<td>Vodokana</td>
<td>Priestly clan representing the priest and his family. Traditional role is to consult on matters that require consultation.</td>
<td>1</td>
</tr>
<tr>
<td>Navuadrala</td>
<td>Spokesmen for the chief.</td>
<td>1</td>
</tr>
<tr>
<td>Salevutu</td>
<td>Spokesmen for the chief.</td>
<td>3</td>
</tr>
<tr>
<td>Nayatusau</td>
<td>Fishermen and women of the village</td>
<td>8</td>
</tr>
</tbody>
</table>

Table 3.1 List of mataqali in Nalotu Village, Kadavu Island, Fiji and the role of each clan within the village. Data provided by Sivorosi Tulece, July 2010.

Yawe Kinship Structure

The structure of kinship within the Yawe District also was described to me by Sivorosi Tulece. This information is important for my research to determine the traditional pattern of post-marital residence. The following discussion of Yawe kinship terminology presents Tulece’s explanation of this topic, along with some of my own observations. Relative abbreviations used are those presented by Parkin (1997:9). While this discussion refers to Yawe terminology in particular, Nayacakalou (1955:44) indicates that, “Fijian kinship terminology varies considerably with locality…[but] basic principles underlying the kinship structure vary in comparatively small degree.” This suggests that
the information presented here can generally be assumed to reflect western Fiji as a whole.

In Fiji, kinship is Dravidian; structured along patrilineal lines of descent with cross-parallel cousin distinctions in terminology made on the basis of relative sex (Hage and Harary 1996; Parkin 1997). Traditionally in Fiji, “descent is patrilineal, marriage patrilocal and the lineage group exogamous” and when a couple are married, the wife, and their subsequent children belong to the man’s mataqali (clan) (Nayacakalou 1955:47). The man’s mataqali consists of relatives from his patrilineage and their respective nuclear families (Tulece pers. comm. 2010). However, in present-day Yawe, and Fiji in general, a couple may choose to remain in either the woman’s or man’s natal village, depending on a variety of factors, such as financial opportunity and family support (Nayacakalou 1957:57; Tulece pers. comm 2010). Also, as I observed, a couple may both be from the same village and remain in the village after marriage. With the increase in globalization, many villagers now face pressure to earn a monetary income in order to provide children with education, medical care, and other essential commodities. This pressure has forced many villagers in Yawe to find work in Suva, Fiji’s capital city, and in a variety of tourist resorts, both on Kadavu and other islands.

In Yawe, within the nuclear family, sons and daughters are referred to by their parents as luvequ tagani and luvequ yalewa respectively; these are ganequ or tuakaqu (true brothers) and taciqu, tuakaqu, or ganaqu (true sisters), depending on the age of the individual being addressed in relation to ego (Table 3.2). Fijian kinship structures are classificatory with veitatacini (cousin-brothers/cousin-sisters). As Nayacakalou (1955:48) notes, “the most fundamental cleavage in the Fijian kinship structure [is]…the distinction
of sex within the sibling group.” Cousin-brothers refer to all sons belonging to paternal uncles (father’s brother’s sons: FBS) and maternal aunts (mother’s sister’s sons: MZS), while cousin-sisters refer to all daughters belonging to maternal aunts (mother’s sister’s daughters: MZD) and paternal uncles (father’s brother’s daughters: FBD), representing parallel cousins.

![Table 3.2 Sibling terms, dependent on sex and age, in the Yawe District, Kadavu, as identified by Sivorosi Tulece, July 2010.](image)

Cousin-brothers and cousin-sisters are treated the same as true brothers and sisters, in reference both to social interaction and inheritance matters. In contrast, *tavale* (cross-cousins, father’s sister’s children and mother’s brother’s children) represent the relationship of cousin and, traditionally in Fiji, are considered appropriate marriage partners (Hocart 1971:34; Nayacakalou 1955:49). At the second generational level, maternal aunts (MZ) are referred to as *nanalailai* (small-mothers), while paternal uncles (FB) are referred to as *tatalailai* (small-fathers) by ego. Small-mothers and small-fathers are treated as true mothers and fathers in situations of social interaction and inheritance.

In contrast to FB and MZ, *nei* (paternal aunts: FZ) and *momo* (maternal uncles: MB) refer to ego as nephew/niece, not as son/daughter. At the third level, brothers of a *tutu* (grandfather), on both the maternal (MFB) and paternal side (FFB), are referred to as
tutulailai (small grandfathers), while sisters of a bubu (grandmother), on both maternal (MMZ) and paternal sides (FMZ), are referred to as bubulailai (small grandmothers).

The kinship system in Yawe, and western Fiji structures gender divisions and post-marital residence norms. The Dravidian system, classified by “…configurations of four principles of opposition: distinction of generation, distinction of sex, distinction of kin…and distinction of age” (Dumont 1953:39) has been argued (Dumont 1953; Trautmann 1981) to unite and maintain society through cross-cousin marriage. Through cross/parallel distinctions, ego’s siblings are differentiated from cross-cousins and, therefore, marriage partners; “male cross cousins are differentiated from male siblings by alliance, while ego’s siblings are differentiated on the basis of relative age” (Ives 1990:81). In Fiji, this alliance is to the patrilineage (Nayacakalou 1955:47). Ego’s FB and FBC form the basis of ego’s patrilineage (before marriage if ego is female), while ego’s MBC or FZC represent marriageable partners. Thus, the Dravidian kinship system can be argued as a way of maintaining divisions of sex, age, generation, and post-marital residence within the Fijian village structure (Hage and Harary 1996:232).

Gendered Social Organization

The following discussion of the gendered division of labour within the Yawe District refers to my own observations recorded during fieldwork. This was recorded to better understand where the role of pottery production fits into the division of labour within Nalotu Village. The organization of daily tasks within Yawe takes place within a highly structured gendered framework. For women, daily and weekly activities consist of preparing and serving family meals, fishing for the family, cleaning, collecting firewood, fruit, weaving mats, bee-keeping, sewing family clothes, and taking care of the children
throughout the village. In addition, all women take turns preparing lunch for children from the village who attend the local school. Pottery manufacture was also traditionally the role of women. According to Tulece (pers. comm. 2010), the traditional role of *Radini Tui Yawe*, the Queen, in Yawe is to look after the chief and make sure his food is always prepared. The *Radini Tui Yawe* is also responsible for leading the women of the village during meetings and during times when a consensus must be reached concerning important village matters. The women’s work requires many hours of the day to complete, and is sometimes not finished until the early hours of the morning if fish are required, as this is the main source of protein that the people of Yawe consume. Women also prepare feasts when important occasions occur in the village. It is clear, as Jones O’Day (2004:158) argues, that “feeding and food sharing in the household is the primary means of conceiving and maintaining social relations and organizing domestic activity” in Fiji. It is the women who are largely responsible for this.

For men, daily and weekly activities consist of tending the gardens, making economic or political decisions, working at cash labour, and organizing and implementing the *yaqona* (kava: *Piper methysticum*) trade, Yawe’s principle cash crop for export. Crops specific to Yawe include *kumala* (sweet potato: *Ipomoea batatas*), *tavioca* (manioc: *Manihot utilissima*), *dalo* (taro: *Colocasia esculenta*), *uvi* (yam: *Dioscorea alata*), *vudi* (banana: *Musa acuminata*), *uto* (breadfruit: *Artocarpus altilis*), and *niu* (coconut: *Cocos nucifera*). During appropriate times of the year, men plant and harvest the crops. Men are also responsible for slaughter of domesticated animals during times of feasting. Domesticated animals roam freely throughout the village and include chicken (*Gallus domesticus*), pig (*Sus scrofa domesticus*), and cow (*Bos primigenius*). In
addition to agricultural maintenance, men also spend a large amount of time drinking *yaqona* and participating in important village ceremonies, which includes interaction with other villages.

In terms of monetary income for the village, profit comes from the work of both women and men. A large percentage of village profit comes from the selling of *yaqona* to the market in Vunisea and to the market in the Fijian capital of Suva. Other sources of income include copra (dried coconut meat), honey, and mats. While important as a source of income for the villagers, these commodities are also used as part of everyday life.

**Chapter Summary**

This chapter has outlined the context for research in the Yawe District from the geographical setting to the gendered division of labour. The ethnographic record along with oral tradition of *kuro* manufacture in the region has highlighted the use and importance of these pots since at least the beginning of the twentieth century. Archaeological survey in Yawe has extended the longevity of ceramic production in the region and provides credence for the use of the direct historical approach in this study.

A discussion of kinship has indicated that, traditionally, Fijian post-marital residence is patrilocal, descent patrilineal, and the *mataqali* (lineage group) exogamous. Pottery production, as the role of women, takes place within a highly gendered division of labour. This along with exogamous post-marital residence rules indicates that pottery manufacture is the work of women from different *mataqali* who, according to tradition, produce pots regardless of the location of their natal village. This has important implications for the social organization of the pottery production process.
Chapter 4: An Ethnoarchaeological Study of Nalotu Pottery Production

Pottery has not been produced in Nalotu since 1997. In 2010 the women were given a contract to produce traditional Yawe pots for Captain Cook Cruises©, a tourist resort and tour operator on Viti Levu. The pots were intended to be placed on cruise boats as symbols of Fijian culture. Although production of the pottery for this contract was not planned until October 2010, the women advanced their schedule to meet my needs. Tarisi Vunidilo, Secretary General of Pacific Islands Museums Association (PIMA), was instrumental in organizing my stay in Nalotu Village. While in Nalotu, I stayed in the chiefly residence of Ratu Jone Nabulivou, brother of the Tui Yawe. Some women in Nalotu Village speak English, but most speak Fijian only. For interviews with the women and general discussions of the pottery production process, I employed Meliki Nabulivou as my interpreter. Meliki is the wife of Ratu Jone and she leads the women of Nalotu in meetings and decision making. It was Meliki who convinced the women to begin the pottery making process in July, a schedule change supported by my offer to pay informants fees during the process. After this offer and a discussion of the general purpose of the project, all women gave verbal consent to the study².

² Permission was obtained from the Office of Research Ethics at Simon Fraser University to conduct ethnoarchaeological research in Yawe, Kadavu and verbal consent from each person who participated was obtained. This research was also conducted under permit from the Fiji Museum and Ministry of Immigration.
Organization of Production Process

My first objective was to observe and record in as detailed a way as possible, all stages of the pottery production process. Permission was acquired from individual potters to record their names, marital histories, and activities related to pottery manufacture. A standardized question list was employed (Appendix 1) as well as participant driven queries. For the latter, questions ranged from asking the Fijian names for tools, materials, and activities related to manufacture, to questions of organization and scheduling. Due to the absence of pottery manufacture since 1997, the most informative interviews were with the two elderly women Ulamila Qoli and Vani Koroloda who had learned pottery techniques at a young age and continued producing pottery vessels into middle age. For the remaining women, the standardized questionnaires could not be applied due to their lack of experience in ceramic manufacture. Their participation in this study, however, illuminates the rules surrounding gendered socialization in the village setting, as all women, regardless of whether they were originally from Nalotu or had previous pottery experience, were expected to participate in the pottery production process.

The organization of production for Nalotu ceramic manufacture is interesting for women do not individually make pots. Rather, it requires a communal effort of several women to create one large kuro. According to Vani Koroloda (for her interview on pottery manufacture see Appendix 1), this tradition of pottery production as a group activity existed in Nalotu since she first learned the process approximately 60-70 years ago. This organization results from the sheer size of the pots and the difficulty with which they are created. The organization of production also requires the expertise of a master potter. In this case, Ulamila Qoli filled this role. Ulamila is an 82-year-old woman who is
originally from Nalotu Village, but married into Naqalotu Village (see Appendix 1 for her interview). She began producing pottery at the age of 18, and is the most experienced potter in Yawe today. Ulamila’s presence in helping the manufacturing process was requested by the women of Nalotu, and she generously accepted. Similarly, Vani learned the pottery tradition as a young girl from her mother. Her advanced age prohibited her from fully demonstrating the process to the women, but she served in a consultation role.

During each new stage of the production process, from the gathering of sand to the firing of pots, the women follow the advice and example of the master potter. Each woman in the village is expected to participate, regardless if Nalotu is their natal village or the village they married into. Female potters, however, cannot be pregnant and must observe sexual abstinence during the period of production. Roth (1935:217) and Hunt (1979:32) also noted this in their observation of pottery manufacture in Naivuvuni Village, in the Ra Province of Viti Levu and Ekita Village respectively. Women, according to Tulece, are also required to wear their newest or best clothes during ceramic manufacture along with a drau ni niu (coconut leaf skirt). The latter is one aspect of tradition that was not adhered to in the present study.

Women are the sole producers of pottery vessels. The participation of men is to occasionally dig the clay. For example, men from Naqalotu Village helped the women from Nalotu dig the required clay that is found on land in Naqalotu, yet belongs to the Navuadrala mataqali from Nalotu. In return, the women prepared a large feast and kava ceremony for them. Children, both girls and boys observe and imitate the potters during the process, providing vertical and oblique transmission for the production process, since the elders that children imitate are not always their parents. Women take turns preparing
lunch for everyone involved in pottery manufacture and occasionally, at the end of a successful day’s work, will sing and dance to celebrate their success and efforts.

Near the end of the kuro production process, Ulamila suffered the death of a loved one and had to travel to Suva for the funeral. With the master potter absent, the women often looked to the example of Akanisi Nabanivalu, Ulamila’s niece, who had remembered the process well from the 1997 revival project. Akanisi was chosen because her skill in pottery manufacture made her the most suitable for the role.

**Interviews with Potters**

While observing the stages of pottery production, I began the process of informally interviewing the women about their learning process in regards to the pottery tradition in Nalotu (Appendix 1). Since the two elderly women, Ulamila and Vani, were the only ones to learn from a very young age, their interviews were the most informative. In addition, Vani informed me about how the pottery tradition was passed on to Meline Mue, a master potter from Nalotu who recently passed away. For Ulamila and Vani, I was able to receive answers for the majority of interview questions that I had intended to ask. However, for the remaining women who took part in the process, their knowledge of pottery manufacture was limited to either the 1997 Fiji Arts Council Revival Project, or none at all. In addition, considering that the women work together to create the kuro, many of my original questions were not applicable as they assumed individual potter production.
Interview with the Master Potter, Ulamila Qoli

Ulamila, who is 82 years old, was originally born in Nalotu and that is where she
learned the pottery tradition from her mother. Ulamila’s mother, Mereoni Kuru, was
originally from Busa and then moved to Nalotu after marriage. Her pottery skills were
learned after marriage but held in high esteem and she was considered a master potter
during her generation. Ulamila moved to Naqalotu when she married into this village. At
this time, approximately 50-60 years ago, Naqalotu was still active in the pottery
industry. Ulamila indicated that, after her move, she continued producing pots as she had
learned in Nalotu because the production process was identical in the two villages. The
reason she gave for this was that, in the past, the women of Nalotu taught the pottery
tradition to the women of Ekita and Naqalotu. Indeed, details from Charles Hunt’s
observations of pottery manufacture in Ekita in 1979 demonstrate a nearly identical
production process to that I observed in Nalotu. Answers from Ulamila’s interview
indicate that kuro is the only form of pottery that she is familiar with in Yawe. In
addition, she reconfirmed oral traditions indicating that the pottery tradition in Nalotu
originated from Mau, Namosi. She did not provide a clear answer about why the
particular temper and clay is used, only that it must be right. I asked Ulamila what she
thought to be the most important aspects to remember when forming a kuro. She
responded saying that the stage when the first three clay slabs are placed together to
create the temporary base is most crucial. Following this, it is important that a sulu, a
wrap typically worn by men and women, or cloth is placed around the temporary base
when it is drying. Further, it is important to try to make the thickness the same throughout
the pot’s body and to make sure the base is less wide than the middle of the pot. Finally,
she indicated that the shape of the top of the pot is important to ensure that a lid can be placed on top during cooking.

**Interview with Vani Koroloda**

Many of the answers from Vani’s interview are similar to those of Ulamila’s. Vani, who is in her mid-late 80s, remained in her natal village of Nalotu after marriage. This was because Vani’s husband was also from Nalotu. Like Ulamila, Vani learned how to make pottery from her mother, who was also from Nalotu. She learned this tradition before marriage, and continued it after marriage as well. She noted that all of the kuro that were made throughout Yawe were intended to be the same in reference to the 19 attributes I had chosen to formally record. For temper, the sand from the galoa in Nalotu was used by Ekita and Naqalotu for their pottery as well. Vani stated that in the past, approximately 50 years ago, there were three main women in Nalotu who were considered master potters. Their names were Mereoni Kuru (Ulamila’s mother), Meline Mue, and Susana Radinivugale. Meline was from Nalotu and learned the pottery tradition from her mother. Information on Susana was not obtained.

Vani’s interview provided information on pottery exchange. She discussed how kuro from Nalotu were traded to Tavuki, Nakasaleka, and Nabakalevu, which are all located on Kadavu. Tulece also indicated that in the past, when men would visit a village, they brought pots with them to exchange for other goods. Vani, along with other Nalotu women had in the past taken clay and made kuro in Suva for a wage. Vani importantly describes pottery production as a group activity in the past as occurs today.
Interview with the Potters Collective

Aside from Ulamila’s and Vani’s interviews, I informally asked the same questions to all of the women who participated in the pottery process during this study. Due to the similarity of their responses, I grouped together the answers of those who had first learned pottery production during the 1997 revival project and those whose first time producing pottery was during my study (Appendix 1). The women who first learned the techniques during 1997 included 20 women (Appendix 1). All of these women are married, but half were born in Nalotu and remained there after marriage (Table 4.1). The remaining women were born outside of Nalotu, but moved to this village after marriage because it is the village that their husbands were born in. Only one woman, Mereoni Kuru, does not reside in Nalotu. She is from Naqalotu, but was invited to participate in the production process in Nalotu because her mother was the master potter, Ulamila Qoli. They all learned to make pottery in 1997, regardless of their age or marital status. In 1997 they worked together to create kuro with the guidance of two elderly women, Susana Radinivugalai and Seini Vono, who were selected to act as teachers during the pottery session; this process was the same as present. During the 1997 revival, sand from the galoa and clay from the danuma (originally from Naqalotu) served as the temper and clay, respectively.

The second group of interviews are those with women who were introduced to pottery production for the first time during this study. There are four women in this category (Appendix 1) (Table 4.1). These women did not take part in the 1997 project because they were either too young at the time, or were not living in Nalotu then. Out of these four, only one, Koleta, is not yet married. Of the women that are married, their
Table 4.1 Post-marital residence information of women who participated in the ceramic manufacturing process in Nalotu, July 2010.

<table>
<thead>
<tr>
<th>Name</th>
<th>Natal Village</th>
<th>Husband’s Natal Village</th>
<th>Residence after Marriage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ulamila Qoli</td>
<td>Nalotu</td>
<td>Naqalotu</td>
<td>Naqalotu</td>
</tr>
<tr>
<td>Vani Koroloda</td>
<td>Nalotu</td>
<td>Nalotu</td>
<td>Nalotu</td>
</tr>
<tr>
<td>Ani Maria</td>
<td>Rewa</td>
<td>Nalotu</td>
<td>Nalotu</td>
</tr>
<tr>
<td>Camari Adidauna</td>
<td>Nalotu</td>
<td>Nalotu</td>
<td>Nalotu</td>
</tr>
<tr>
<td>Daiana Legalega</td>
<td>Lamati</td>
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<td>Nalotu</td>
</tr>
<tr>
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<td>Busa</td>
<td>Nalotu</td>
<td>Nalotu</td>
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<td>Nalotu</td>
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<tr>
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<td>Lisi Bogirua</td>
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<td>Nalotu</td>
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<td>Evia Toro</td>
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<td>Nalotu</td>
<td>Nalotu</td>
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<tr>
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<td>Naqalotu</td>
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<td>Meliki Nabulivou</td>
<td>Yasawa</td>
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<td>Nalotu</td>
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<tr>
<td>Vani Raluve</td>
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<tr>
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<tr>
<td>Vilisi Tuki</td>
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<td>Serua</td>
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<td>Ekita</td>
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<td>Rakiraki (Yale)</td>
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<td>Nalotu</td>
</tr>
<tr>
<td>Name</td>
<td>Village of Origin</td>
<td>Current Residence</td>
<td>Previous Residence</td>
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<td>Siteri Vuso</td>
<td>Rakiraki (Ra)</td>
<td>Nalotu</td>
<td>Nalotu</td>
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<tr>
<td>Paulini Bai</td>
<td>Nalotu</td>
<td>Nalotu</td>
<td>Nalotu</td>
</tr>
<tr>
<td>Iva Bera</td>
<td>Nalotu</td>
<td>Lau</td>
<td>Nalotu</td>
</tr>
<tr>
<td>Losalini Sela</td>
<td>Natokalau</td>
<td>Nalotu</td>
<td>Nalotu</td>
</tr>
<tr>
<td>Koleta Marama</td>
<td>Nalotu</td>
<td>n/a (not married)</td>
<td>Nalotu</td>
</tr>
<tr>
<td>Sereseini Tiko</td>
<td>Deuba</td>
<td>Ovalau (Pastor)</td>
<td>Nalotu</td>
</tr>
</tbody>
</table>

reasons for residing in Nalotu differ quite substantially. For Iva, she chose to remain in her natal village of Nalotu, despite the fact that her husband is from Lau. The reason for staying in Nalotu is unclear, but it was a decision that the couple made together. For Losalini, she moved from Natokalau to Nalotu because her husband is from this village. As for Sereseini, neither she nor her husband is from Nalotu, but moved here because her husband, as a pastor, was stationed to work in this village. The women learned all stages of the manufacturing process by following the advice and example set by Ulamila. Ulamila carefully observed their progress and helped them along the way in order to achieve the correct shape of the kuro. Despite the fact that half of these women were not from Nalotu, they were welcomed and encouraged to participate in the entire process. They are taught exactly like the other women and conform to the standard in the same way.

**Stages of Kuro Manufacture**

The following discussion centres on the step-by-step process of producing a kuro in Nalotu Village. All observations derive from my study in July 2010. Pottery
production may only commence during dry weather. If it begins to rain, then production ceases until the rain clears. I have divided the process into eight stages from collection of raw materials to firing.

**Stage 1: Collection of Sand**

The process begins with the collecting and drying of *nuku* (sand) from the *galoa*, a small pond located just behind the centre of Nalotu Village (Fig. 4.1). The term *galoa* literally means “sunken place” (Paul Geraghty pers comm. 2010). Since the *galoa* is on land belonging to the Nayatusau *mataqali*, women prepare a feast for this clan after production is finished. Informants noted that this is a naturally occurring pond and is the location where, according to oral tradition, Bulou Levu first took a bath and released the sand brought from Namosi. Tradition states that this is the only area within all of Yawe where sand for pottery is collected, despite vast amounts of sand along the shoreline. The women collect the sand two weeks prior to the beginning of production to let it dry. After drying, the sand is screened through a piece of ¼ inch mesh to exclude large stones and any other inclusions (Fig. 4.2). Ulamila indicated that in the past, mesh was not needed because sand from the *galoa* was clean. Only with the recent increase in floods have dirt and rocks been brought into the *galoa*.

**Stage 2: Collection and Preparation of Clay**

The clay is traditionally acquired from Naqalotu. This is *yate ni tete* (true clay). *Yate* literally means “liver” in the Kadavu dialect and is used in expressions to refer to a soft or central part of something (Paul Geraghty pers comm. 2010). The land in Naqalotu where the clay is found is owned by the Navuadrala *mataqali* from Nalotu. Clay from
Naqalotu was brought to Nalotu and buried in a *danuma* (buried pit) in 1997 for the pottery workshop. It was this buried clay that was to be used in construction of *kuro* in
2010. However, the 1997 danuma could not be located. In response to this, the women used an alternative clay source from Nalotu. The first kuro that was manufactured, collapsed. This was attributed to the wrong selection of clay. Following this, the women travelled to the traditional source location in Naqalotu. Here the men of Naqalotu dug the clay and the women of Nalotu brought it back to Nalotu where it was buried in a new danuma, separate from the danuma used in 1997. Along with this, clay was gathered from an area in eastern Nalotu and buried in the new danuma as well because it is also considered yate ni tete (Fig. 4.3). While this new clay was being buried, the women discovered the yate ni tete from 1997 which was subsequently used to manufacture all pots recorded in this study. This is a medium sandy loamy clay, greenish-grey with dark grey and orange-yellowish tan streaks throughout (2.5Y 5/2). The men of Naqalotu were presented with a feast and kava ceremony, prepared by the women, to thank them for their help in digging the clay.

It is not clear to the potters why the clay is buried, other than it is the correct thing to do. However, it is possible that the danuma functions to age or sour the clay. Ageing refers to the “storing of clay in a plastic state to improve workability” (Hamer and Hamer 2004:3). Souring is a form of ageing whereby the plasticity of the clay in increased through damp storage (Hamer and Hamer 2004:345). When stored in this way bacteria “break down organic matter releasing amino acids which flocculate the mineral particles. Flocculated particles are attracted to one another and this gives the clay strength” (Hamer and Hamer 2004:345). The longer the clay is stored, the stronger the attraction between particles becomes. This process can take months to years (Hamer and Hamer 2004:345).
Stage 3: Assembly of Tools

In the past all women had their own set of pottery tools, but now only a few women possess a set that has been passed down from the previous generation. In addition, the women also manufactured and shared new tools for this study. Susana, who was in possession of the majority of village tools, took the responsibility to manufacture new ones out of scrap wood (Fig. 4.4a,b). The tools were placed and carried in a vesavesa (coconut leaf basket). There are seven types of tools used throughout the pottery manufacturing process. These are also identified by Sorovi-Vunidilo and Vusoniawailala (1999:54) in their description of the pottery production process in Nalotu Village in 1997. The first tool is referred to as i tata (paddle) and is used to cut clay slabs (Fig. 4.5a). The second tool, i sabisabi (slapping tool), is used to beat the clay slabs until they are thin enough to be added to the body of the pot (Fig. 4.5b). The third tool is referred to uaua ni qele, literally “to beat the earth with a stick” (Geraghty pers. comm 2010), and is the first
paddle used to build the base and body of the pot (Fig. 4.5c). The fourth tool, *i uauacake*, literally “to pound with a stick” (Geraghty pers comm. 2010), is a ribbed paddle used for
structural purposes to stabilize the body of the pot and bond welds (Fig. 4.5d). The fifth tool, *i simasima ni kuro* (to smooth the *kuro*), is used for smoothing the body of the pot, while the sixth, *i simasima ni gusu* (to smooth the mouth), is used to build up and smooth the neck and rim of the pot (Fig. 4.5e and f). Finally, *i madramadrali* (smoothing stone) is used to smooth the inside and outside of the pot once it is finished (Fig. 4.5g). This
Stone is in contrast to those used as anvils when building the base and body of the pot (Fig. 4.5h). These tools are all for structural and finishing purposes, not for decoration.

**Stage 4: Building the Base**

The *kuro* is constructed with the slab-built method. The women begin by removing impurities in the clay by hand. The clay and temper are now ready to be mixed. As a rule, approximately three large handfuls of sand are added to a mean volume of 5640 cm$^3$ of clay, determined from a sample of 42 clay slabs. This is the total number of clay slabs used in the production of all pots made during this study. This is then kneaded together by the women, who often take turns with the same piece of clay. The kneading process takes approximately 10 minutes, depending on the skill level of the potter. The clay is traditionally tasted to see if it is the right mixture and, if not, more sand is added. The clay is then formed into circular slabs and left to dry from one day to one week, depending on the moisture in the clay. The slabs range from approximately 4.7 cm to 9.6 cm in thickness and 26 cm to 37 cm in diameter (Fig. 4.6a). After a sufficient level of dryness is achieved, a slab is placed on top of a rock anvil and is cut in half with *i tata* (wooden knife) (Fig. 4.6b). The halves are then cut into approximately five small balls (Fig. 4.6c). Each ball is flattened to 0.4 cm in thickness with *i sabisabi* (wooden paddle). Three of the flattened clay slabs are placed together to begin forming the temporary base of the pot. This base is placed inside a *toqi* (pot stand), which is a circular coil ring made from banana and coconut leaves tied together. As the pot expands, different sizes of *toqi* are required to hold the increasing weight of the pot. The potters progressively build the base upward through the paddle and anvil technique, using the tools described above. A single flat slab is then added to cover the opening, which eventually will become the real
base once this part of the pot is dry and can be flipped over. In order to make sure this section is the correct shape, the potter creates a hole in the pot, close to the toqi, and inserts her hand with the stone to paddle the clay into shape. This hole is then covered up with extra clay. The bottom part of this temporary form is then wrapped with a sulu and placed in the sun. This action is referred to as vāigani, which literally means, “to apply a covering” (Paul Geraghty pers. comm. 2010). The reason for the sulu is to ensure that the base becomes more dry than the top, because the top will need to be flexible when more clay slabs are added to build the body upward (Fig. 4.6d).
Stage 5: Building the Body

After approximately one hour of drying time, the pot is flipped over, the sulu taken off, and the body construction begins. The body of the pot is built upwards through the addition of flattened slabs and the use of a paddle and anvil to smooth and strengthen the adjoining pieces of clay (Fig. 4.7a,b). Flattened slabs of clay are continuously being made by a group of women. Other women help to join the clay pieces together, while others remove inclusions in the clay, or mix the clay and sand together. In this fashion, the production process resembles something of a production line. No single woman is confined to a certain task, but take turns in each step of the process through the careful guidance of the master potter. Therefore, each pot is produced through the efforts of several women and not just a single potter.

![Image](https://example.com/image1.png)

**Figure 4.7** Building the body: (a) flattened clay slabs are added to the body and (b) the clay slabs are joined together through the use of a paddle and anvil.

The paddle used to build up the pot has thick incised lines and is referred to by the women as *i uauacake*. The ribs help to weld the clay slabs together. In contrast, a thick smoothed faced paddle, *i simasima ni kuro*, is used to smooth the surface of the pot. The
paddles are often dipped in water before use to increase the malleability of the clay. After the pot has been built up to a height as determined by the master potter, the potters begin to fill in visible holes and cracks with extra pieces of clay.

**Stage 6: Building the Neck, Rim and Lip**

The neck is formed as an extension of the body, so as to narrow the opening of the pot (Fig. 4.8a). The rim, an extension of the neck, is formed in a direction away from the body so as to make the rim everted (Fig. 4.8b). This shape helps to hold the *i sogo ni kuro* (lid of the pot) in place. This process of rim manufacture begins with the use of a paddle, but continues with the use of the potters’ hands. The hands are dipped in water, similar to the paddle, and work to form the desired thickness and direction of the rim. The lip is formed using a string of fibre from the inside of a dried coconut to trim the lip edge, so as to make it flat and outward bevelled (Fig. 4.8c).

**Stage 7: Finishing and Decoration**

The now formed pot is inspected for any further cracks or areas that need to be smoothed. *I madramadrali* (smoothing stone) is dipped in water and placed inside the pot to smooth both the inner and outer surface (Fig. 4.9a). The outer surface of the pot is also smoothed with the potter’s hands, which are dipped in water. The final aspect of pottery production is decoration with either a *kaikoso* shell (*Anadara cornea*), the sharpened edge of a wooden paddle, or a twig/stick. These tools are used to create impressed or incised lines around the inner lip and rim of the vessel (Fig. 4.9b and 4.9c). Occasionally a different pattern is created, but all are impressed/incised into the same location with the use of one of the three tools mentioned above (see Chapter 5 for decorative elements).
Figure 4.8  Forming the neck, rim, and lip: (a) Ulamila forms the neck with a paddle and anvil, (b) Ulamila forms the rim with her hands, and (c) Akanisi trims the lip edge with a coconut fibre.
The women produced 17 pots in total (Fig. 4.9d). To create one kuro it requires approximately two of the large circular slabs made in the first stage of production, with a mean volume of 11,300 cm$^3$, calculated from the total sample of 42 clay slabs. The process took approximately three weeks to complete from the time of sand collection (last week of June until the first week of July, 2010) until the forming of the last pot (July 22, 2010).
Stage 8: Firing

The pots require approximately one to two months to dry completely before they can be fired, the time gauged by the master potter. While I was unable to witness the firing stage for the 17 vessels, the women demonstrated the firing process using three smaller kuro manufactured specifically for me. These required only one week to dry. A specific type of grass, cōgī (Imperata cylindrica), used as fuel, is collected a few days prior to the firing in order to allow it time to dry. The pots are traditionally fired outdoors in an open fire. Because it rained on the scheduled day of firing, the smaller kuro were fired indoors inside one of the local kitchens. For firing, grass and drau ni niu (coconut tree fronds) are arranged in layers. The first layer consists of basoso, a branch of the coconut tree. This is followed by bawara, another type of coconut tree branch, which is longer and flatter than those in the first layer (Fig. 4.10a). Then the pots are placed on top of the first two layers. The third and final layer is the cōgī grass, which is placed on top of the pots and between them (Fig. 4.10b). The fire is then lit and the pots are left until more fuel is needed. In this case, grass was added three times after the initial pile burned out. For the three small pots the firing time was approximately one hour. The pots were then removed and placed inside to cool. Traditionally, before the grass is lit, everyone must stand up straight and keep their hands to the side (Tulece pers comm. 2010). Once the fire is burning everyone can relax. This tradition was not followed during the demonstration for this study. After firing the pots are a mixture of different colours, depending on their angle, oxygen reduction, or other factors while in the fire. The women look for the pots to be an orangey-red colour. Once attained, they are “cooked” and can be used for cooking the following day (Fig. 4.10c).
The firing process described above can be compared to that witnessed by Sorovi-Vunidilo during the pottery revival of 1997, along with that observed in Ekita Village by Hunt in 1976. In 1997, the pots made by various women in Yawe were fired in Nalotu
Village. The pots were fired in groups of three or four with a space between each (Sorovi-Vunidilo pers comm. 2011). Soft coconut tree leaves and grass covered the pots, while longer *drau ni niu* (coconut fronds) were placed on the outer edge of the cluster as fuel and to keep the inner fire hot (Fig. 4.10d). The cluster was fired in the village green and was left to burn for approximately 30 minutes, making sure the fire reached all sides of the pots and adding extra grass and dry leaves as needed (Fig. 4.10e) (Sorovi-Vunidilo pers comm. 2011). From this description it is clear that the firing process employed the same materials as those observed during this study. The difference lies in the orientation of fuels, which led to a more efficient fire in 1997. A similar process was described by Hunt in Ekita Village. He (1979:32) notes that, “the fire was built at the foot of a low hill where it would receive breezes rising off the beach, while the sand would reflect the heat of the fire.” Interestingly, he (1979:32) also indicated that in the past pots were fired in the *danuma*, meaning this area served a double purpose. Coconut leaf “ribs” and grass were placed under and around the pots. Once lit, the fire was burned for approximately 25 minutes, after which time the pots were of the correct redness and were left in place to cool until evening (Hunt 1979:32). Hunt (1979:32) also states that the taboo of adhering to sexual abstinence during the pottery production process was required during the firing process, as it was feared that pots would crack if this were not the case. Similar to Tulece’s description of traditional practice, Hunt (1979:32) observed that villagers must remain very still while the fire is being lit, but may move freely afterward. Together, these descriptions indicate that the process of firing has remained fairly constant throughout the past 30 years in Yawe.
Cooking Practices with the Kuro

The women of Nalotu provided a traditional cooking demonstration with the kuro. The day before cooking could commence, hibiscus leaves were used to render the pot watertight. The leaves were first soaked in water (Fig. 4.11a) and then rubbed throughout the inside of the kuro to permeate any cracks (Fig. 4.11b). During this stage, the kuro rests on its side on top of a fire with a sogo ni kuro (banana and breadfruit leaf lid) used to seal in the heat (Fig. 4.11c). The pot is left on the fire for approximately 15 minutes and then is left overnight. The cooking demonstration commenced the following day and was carried out by Vani Koroloda who had learned the process from her mother when she was a young girl. Approximately 10 whole dalo (taro) were peeled and placed inside the kuro, filling it completely, along with two cups of water, which had come to a boil. The kuro was sealed with a sogo ni kuro to keep the heat inside (Fig. 4.11d). The dalo was left to cook for approximately two hours, with more water added as needed. The overall taste of the dalo from the kuro as opposed to a metal pot is drier and, by consensus opinion of Nalotu residents, more flavourful.
Cooking practices with the *kuro*: (a) hibiscus leaves soaked in water, (b) Susana adding hibiscus leaf mixture to the heated *kuro*, (c) *sogo ni kuro* placed on top of pot to keep heat in, and (d) Vani Koroloda cooking *dalo* in the *kuro*.

**Chapter Summary**

This chapter has introduced several key points relative to the role of social processes and Nalotu ceramic manufacture. Tradition structures the entire process of ceramic production from the collection of temper sand to the firing and use of pots. Material selection is not based on availability, but through tradition and historical precedent. Conformity to the expertise of the master potter plays a large role in
maintaining tradition. Taboos regarding sexuality and oral tradition surrounding respect for Yawe *kuro* indicate that these pots hold intrinsic value beyond utilitarian function, suggesting that *kuro* represent Yawe identity. This is reconfirmed by Hunt’s (1979) study in Ekita in 1976 and Sorovi-Vunidilo and Vusoniwailala’s study in Nalotu in 1997, indicating temporal continuity of the traditional structure of Yawe pottery manufacture.

Tradition and conformity structure transmission of pottery manufacture to next-generation potters in Nalotu. Vertical, horizontal, and oblique transmission processes are all at play as children observe and imitate all potters, regardless of expertise. It is clear that the specialized template of Yawe *kuro* is reproduced through careful observance of traditional social processes. These highlighted points in reference to ceramic variability will be elaborated on in the final discussion.
Chapter 5: Ceramic Analysis

This chapter presents the results of ceramic analysis performed on two sets of pottery data from Nalotu Village: (1) pots made directly for this project in July 2010 and (2) those made previous to 2010 by Nalotu potters. The aim of analysis is to determine the range of variation within and between the two pottery assemblages, and to describe the degree to which they differ in terms of the recorded attributes. Through interviews and ethnographic records, it is known that in the historic past pottery style and manufacturing technique did not vary between the villages of Nalotu, Ekita, and Naqalotu. This was affirmed for the present by the fact that the head potter for this study resides in Naqalotu, yet taught the pottery process to women in Nalotu. An important consequence of this, therefore, is an estimate of how much variation exists between individual ceramic vessels, where potters aim to emulate and copy the example and template of a master potter.

In order to assess ceramic diversity, I initially had decided to record attributes related to overall shape, decoration, and manufacturing techniques. This consisted of 19 qualitative attributes related to variation in vessel production, temper, clay, decoration, and surface modification of Nalotu kuro. However, given that material collection and the pottery production process is a collective effort, overseen by a master potter, qualitative attributes differ little if at all between pots, aside from variability in degree of eversion angle, lip/rim decorative elements/techniques, and lip shape. I also asked the potters to describe any other attributes that they were aware of that did not appear on the pots made
directly for this study, as well as the relative frequency with which they are employed. All responses to this question indicated there to be no other attributes that have been, or are normally, present on Yaye *kuro*.

Nine quantitative attributes were measured for each pot based on other Fijian archaeological studies (Appendix 2) (Birks 1973; Best 1984; Clark 1999; Cochrane 2004). These include, (1) height, (2) internal rim diameter, (3) external rim diameter, (4) maximum diameter, (5) height at maximum diameter, (6) internal orifice diameter, (7) external orifice diameter, (8) height at orifice diameter, and (9) lip thickness. Figures 5.1 and 5.2 illustrate and define each measurement. Two dimensions not recorded in previous studies are referred to here as internal and external orifice diameter. By internal orifice diameter I refer to the most narrow neck restriction point inside the pot, while external orifice diameter refers to the most narrow neck restriction point on the outside of the pot (Dales et al. 1996). These dimensions were chosen because the restriction of the neck is important for characterizing the shape of strongly everted rim vessels (Birks 1973:23).

Dimensions were recorded with the use of small and large callipers, a measuring tape, and a small spirit level. For lip thickness, small callipers were used. For the height, internal and external rim diameter, maximum diameter, and internal and external orifice diameter, large callipers were used. For the height at maximum diameter and height at orifice diameter, a measuring tape was placed alongside the height of the pot and then a small spirit level was used to align the height of the tape measure with the point on the pot where the diameters were recorded. Diameter measurements were also recorded for each pot at 2 cm intervals. These were taken to enable drawings of the pots in order to determine the rim orientation angle and, therefore, the angle of rim eversion (Best
1984:166; Clark 1999:60) (Fig. 5.2). Diameter measurements were taken with large callipers and the 2 cm intervals were determined by placing a measuring tape alongside the pot and then using a small spirit level to mark the point on the pot corresponding to the tape measure.

Figure 5.1  Pot labels. Pot #25 made by Meline Mue. Illustration by Vienna Chichi Lam.
Figure 5.2  Diagram of pot measurements in this study. Pot #25 made by Meline Mue. ERD refers to external rim diameter, IRD refers to internal rim diameter, IOD refers to internal orifice diameter, and EOD refers to external orifice diameter. Illustration by Vienna Chichi Lam.

**Qualitative Attributes of 2010 Nalotu Pots**

Qualitative attributes of 2010 pots which show some degree of variation are lip/rim decorative elements/techniques, lip shape, and eversion angle (Table 5.1, Appendix 2). Due to the fact that Nalotu *kuro* are not perfectly symmetrical, rim orientation angles were measured only as estimates of degree of eversion, and
<table>
<thead>
<tr>
<th>Pot #</th>
<th>Pot sample</th>
<th>Rim/lip decoration techniques</th>
<th>Rim/lip decorative elements</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Shell impressed (inside)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Tool impressed (inside with edge of tool)</td>
<td>I I I I</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Shell impressed (inside)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>Tool impressed (inside with edge of tool)</td>
<td>I I I I</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>Incised (inside with stick)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>1</td>
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</tr>
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</tr>
<tr>
<td>13</td>
<td>1</td>
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<td>14</td>
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<td>2</td>
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</tr>
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<td>2</td>
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<td></td>
</tr>
<tr>
<td>20</td>
<td>2</td>
<td>Tool impressed? (inside)</td>
<td>I I I I</td>
</tr>
<tr>
<td>21</td>
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</tr>
<tr>
<td>22</td>
<td>2</td>
<td>Tool impressed? (inside)</td>
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<td></td>
</tr>
<tr>
<td>25</td>
<td>2</td>
<td>Incised with stick? (inside)</td>
<td></td>
</tr>
</tbody>
</table>

Table 5.1 Table of qualitative attributes related to rim/lip decoration for pots 1-25. Pots 1-17 are pots made in Nalotu in 2010 and belong to sample 1, while pots 18-25 are Nalotu pots made previously and belong to sample 2.
consequently they are treated as a qualitative attribute (Appendix 2). All 2010 pots, aside from number 17, which is undecorated, have decorative elements on the inner lip/rim applied with shell/tool impression or incision with a stick (Table 5.1).

The majority (n = 13) were impressed with a kaikoso shell (*Anadara cornea*), while two were impressed with the edge of a paddle and one incised with a stick. The shell edge was preferred, but the other tools were used if this could not be found or was already in use. This is the only medium on the pot through which potter-intended variation occurs, although when asked, potters did not attribute significance to this. In this, traditional protocol and rigidity in design template appears to be relaxed.

Rim orientation was another qualitative attribute that varies. Best (1984:160, 164) separates eversion angles into three categories: (1) “weakly everted” refers to angles of 0-22.5\(^\circ\), (2) “medium everted” refers to angles of 22.5-45\(^\circ\), and (3) “strongly everted” refers to angles of 45-90\(^\circ\). This attribute, in the 2010 sample, varies slightly with the majority, 64.7 % (n = 11), of rim angles falling into the “medium everted” category, and the remainder into the “strongly everted” category.

The lip shape of pots varies both among pots and within a single pot. Six basic types outlined by Birks (1973:32-34) were defined. These include, (1) pointed, (2) rounded, (3) flat, (4) flat-rounded, (5) outward bevelled, and (6) inward bevelled (Fig 5.3). Variation occurs as a result of the exactness of the coconut fibre used to trim the lip edge. The lip shape is largely flat and outward bevelled in sections, with other areas rounded or pointed. This residual variation seems significant for archaeological analysis where lip shape is assumed an important indicator of stylistic or functional preference.
Qualitative Attributes of Nalotu Pots Made Previously

Eight additional kuro, originally made in Nalotu, were recorded. The exact dates of production are only known for two of the eight pots (1997 for pots # 20 and 21, Table 5.1, Appendix 2). While I was unable to observe the production process for these pots, it is possible to infer production technique and surface finishing from the paddle marks left on the vessels’ body. It is likely that the paddle and anvil technique was used to produce the pots and that a smoothing stone, along with the potter’s hands and water, was used to finish the surface of the pot, due to the lack of paddle impressions on several areas. This is also clear from the interview with the master potter, Ulamila, as she discussed how production in the recent past, approximately 60 years ago, was identical to that of the present day.

The earlier sample has variation in the same qualitative attributes as pots made in 2010. All but one kuro has impressed/incised decoration that begins on the inner lip and continues on to the inner rim. Five different elements are present, with three out of eight pots having the exact same decoration (Table 5.1). Only one element is also an element
present on pots made during July 2010. When the owners of these pots were questioned, they attributed no significance to design element selection. From design marks it was possible to infer the tool used. It appears that three pots were impressed with a side tool and four incised with a stick. This degree of variation reinforces earlier interpretation that rim decoration, while expected, is not rigidly defined as to type and is subject to individual expression.

All pots have everted rims with five being “medium everted”, two “weakly everted” and one “strongly everted” (Appendix 2). The two “weakly everted” pots are anomalous relative to the 2010 sample. In reference to lip shape, all pots are flat and outward bevelled in sections, except for one that also has rounded sections (Appendix 2).

**Variation in Quantitative Attributes**

To determine the degree of quantitative variability within and between assemblages, and to describe how the variability differs, I addressed the following questions. First, what is the range of quantitative variability and in which attributes does it occur? Two, are the dimensions in proportion to one another? Third, are the dimension means significantly different between the two samples?

In order to answer the first question, I computed descriptive statistics for each dimension, including the range, mean, and standard deviation for both pottery assemblages. While the range is useful for indicating a simple measure of dispersion, it only uses two cases, usually extreme values, and is therefore likely to vary widely (Shennan 1997:41). Standard deviation, which uses all information present in the data to determine dispersion, provides a more insightful number. The mean was used as a
measure of central tendency because, by using all data values, it gives a good indication of a typical value. During this, and all subsequent testing, pots numbers 15 through 17 were omitted because they were made substantially smaller for firing demonstrations and do not represent a traditional template for size.

Box plots were constructed to illustrate the degree of variation within the assemblages. Box plots visually compare the variation within dimensions for each separate assemblage by displaying the median, interquartile range and outliers. The median refers to the value in a data set where half of the values are greater than it and half are less (Shennan 1997:38), while the interquartile range is the difference between the first and third quartiles. The first quartile is the value which has 75 % of the values above and 25 % below it, while the third quartile is the value which has 25 % of the values above and 75 % below it (Shennan 1997:44). Box plots allow observations within a set of data to be compared alongside each other, enabling asymmetries and outliers to be easily observed, along with highlighting dimensions that show the most and least variation (Shennan 1997:45-46). Finally, the coefficient of variation was calculated. The coefficient of variation, as a percentage, is the standard deviation divided by the mean and multiplied by 100. This value gives a standardized measure of dispersion (Shennan 1997:44) and is thus a useful measure to compare variation (Clark 2007:293).

To answer the second question, are the dimensions in proportion to one another, scatter plots were created. These plots describe the shape, strength, and direction of relationships between dimensions (Shennan 1997:129-131). The dimensions plotted are those discussed by Clark (2009:313) to indicate vessel morphological patterns and proportions. These are, (1) height versus maximum diameter, (2) height versus vessel-
width index, (3) height versus internal rim diameter, and (4) height versus external rim
diameter. Also compared were, (5) height versus internal orifice diameter and (6) height
versus external orifice diameter, as these are important measures in kuro morphology.
The comparisons were determined separately for each pottery sample, but were plotted
on the same graph to give a visual indication of how the relationships differ. Given that
height is the dominant characteristic for distinguishing Yawe kuro from others in Fiji
(Tabualevu et al. 1997; Thompson 1938), relationships between dimensions and height
are important.

After plotting dimension variables in a scatter plot, a regression line was added in
order to describe the form of the relationship (i.e. negative, positive, linear, curved)
(Shennan 1997:131). The coefficient of determination (R^2) was computed on the scatter
plot to show the strength of the relationship. This value indicates the amount of variation
in one attribute that can be explained by the other. For example, an R^2 value of 0.50 for a
graph of height versus maximum diameter would indicate that 50 % of the variation in
height is explained by maximum diameter (Shennan 1997:131, 140). Pearson’s
correlation coefficient (r) of these dimension comparisons was then computed in order to
determine the significance of the relationship (Drennan 1996:216-218). If significant, the
distribution of dimension measurements can be assumed to represent a sample of pots
that are fairly consistent in proportion (Clark 2009:313). As Clark (2009:313) notes, such
comparisons between dimensions can reveal if potters place high emphasis on producing
vessels with similar proportions (shapes), despite any range in vessel size. Because the
use of Pearson’s coefficient requires the data to be normally distributed, the Kolmogorov-
Smirnov test was used to indicate if the two samples are statistically different from a
normal distribution. The test values are standardized and compared with a standard normal distribution (Shennan 1997:59-65). This test measures whether a sample distribution is significantly different from a normal distribution (George and Mallery 2008). In order to do this, the mean, standard deviation, and number of observations in the sample are determined. These values are then compared to the hypothesized distribution. The probability that the original sample is from a normal distribution is then determined through the Kolmogorov-Smirnov z score. The test statistic is determined based on the maximum difference between the hypothesized normal distribution and the sample distribution (Freund and Wilson 2003). If the significance value is greater than 0.05, the distribution can be assumed to be normal (George and Mallery 2008:236-237).

Finally, t-tests were used to answer the third question about the difference of dimension means. These tests are used to decide if the difference between two means is significantly different than zero (Shennan 1997:85). In this case, the null hypothesis being tested is that the mean dimension value from Sample One is not different from Sample Two. The statistical tests were run using IBM® SPSS Statistics software.

**Results**

Descriptive statistics, box plots and the coefficient of variation were used to answer the first question referring to the range and location of variability. For pots made in 2010, height, height at maximum diameter, and maximum diameter show the greatest range, while lip thickness and height at orifice diameter show the least (Table 5.2). All other dimensions exhibit fairly similar ranges. For pots made previous to 2010, the same variation exists (Table 5.3). That is, height, maximum diameter and height at maximum diameter show the greatest range, while height at orifice diameter and lip thickness show
### Descriptive Statistics

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<tr>
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<td>.99</td>
<td>.6993</td>
<td>.18792</td>
</tr>
</tbody>
</table>

Table 5.2  Descriptive statistics for Nalotu pots made in 2010.

### Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Range</th>
<th>Minimum</th>
<th>Maximum</th>
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<th>Std. deviation</th>
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<td>.40</td>
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<td>.8938</td>
<td>.29452</td>
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</table>

Table 5.3  Descriptive statistics for Nalotu pots made previous to 2010.
the least variation. Aside from lip thickness and maximum diameter, the range for dimensions of pots made in 2010 is larger than for pots made previously. However, this may be due to differences in sample size. Aside from external rim diameter, the mean values of pot dimensions made in 2010 are less than those for pots made previously, suggesting those made previously were all-around larger.

For pots made in 2010, standard deviations indicate that deviation from the mean is greatest for height, height at maximum diameter, and maximum diameter, while lip thickness and height at orifice diameter show the least deviation from the mean. For pots made previous to 2010 the same pattern emerges where standard deviation values for height, maximum diameter, and height at maximum diameter show the greatest deviation from the mean and lip thickness and height at orifice diameter show the least deviation from the mean. Between the two samples, standard deviations are generally larger (n = 6) for pots made in 2010 than those made previously (n = 3), indicating greater variance from the mean.

Box plots allow variation around the median to be easily visualized and compared between samples. For pots made in 2010, box plots (Fig. 5.4) support the inference that height, height at maximum diameter, and maximum diameter show the greatest variation, whereas lip thickness and height at orifice diameter show the least. Height and lip thickness show the greatest amount of outliers at three and two respectively, while maximum diameter and height at maximum diameter have one outlier value each. Pots number 13 and 14 are repeated outliers. Pot number 13 was made by two potters who were initiates in kuro production, while pot number 14 was the last pot made during this study when potters were more familiar with the production process. For pots made
Figure 5.4  Box plots of each dimension variable measured for Nalotu pots made in July 2010. Boxes represent the interquartile range comprising 50% of the values. The horizontal lines within the box represent the median, and the vertical lines extending from the top and bottom of the box represent the highest and lowest values respectively, excluding outliers. Circles represent outliers and asterisks represent extreme outliers. The numbers correspond to the pot number. ERD is external rim diameter, IRD is internal rim diameter, H@MaxDia is height at maximum diameter, IOD is internal orifice diameter, EOD is external orifice diameter, and H@OD is height at orifice diameter.

previous to 2010 (Fig. 5.5), a similar pattern is observed in the box plots where height, maximum diameter, and height at maximum diameter vary the most and lip thickness, internal orifice diameter, and height at orifice diameter vary the least. There exists only one outlier, pot number 19, which was made by the master potter Susana Radinivugalai in
1997. Overall, pots made previous to 2010 show less variation than those made during this study.

Figure 5.5  Box plots of each dimension variable measured for Nalotu pots made previous to July 2010. Boxes represent the interquartile range comprising 50% of the values. The horizontal lines within the box represent the median, and the vertical lines extending from the top and bottom of the box represent the highest and lowest values respectively, excluding outliers. Circles represent outliers and asterisks represent extreme outliers. The numbers correspond to the pot number. ERD is external rim diameter, IRD is internal rim diameter, H@MaxDia is height at maximum diameter, IOD is internal orifice diameter, EOD is external orifice diameter, and H@OD is height at orifice diameter.

Coefficients of variation were the last measures used to describe and locate variability. For pots made in 2010 (Table 5.4), coefficients of variation range from
10.35% (external rim diameter) to 39.12% (height at orifice diameter), with over half (n = 5) ranging from 10.35-14.95%. The two largest values are height at orifice diameter and lip thickness, while the two lowest values are external rim diameter and maximum diameter. For pots made previous to 2010 (Table 5.4), coefficients of variation range from 5.86% (internal orifice diameter) to 32.6% (lip thickness), with the majority (n = 7) ranging from 5.86-18.94%. The two largest values are lip thickness and height at orifice diameter, while the two lowest values are internal and external orifice diameter. Overall, with the exception of maximum diameter and lip thickness, coefficients of variation for pots made in 2010 are larger than those made previously, indicating greater variation in dimension values for pots made during this study.

<table>
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<tr>
<th>Dimension</th>
<th>Coefficient of Variation (%)</th>
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</thead>
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<td>Height</td>
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<td>Maximum diameter</td>
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<td>Internal orifice diameter</td>
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</tr>
<tr>
<td>Lip thickness</td>
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</tr>
</tbody>
</table>

Table 5.4 Coefficient of variation values, expressed as a percentage, for dimensions of Nalotu pots made in 2010 and those made previously.

Before any further analyses were undertaken, the Kolmogorov-Smirnov test was performed. The results indicate that dimension distributions do not differ significantly from a normal distribution (Table 5.5, 5.6). Thus, parametric statistical tests were used.
Tests of Normality

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Kolmogorov-Smirnov</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
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<td>Internal rim diameter</td>
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<td>Maximum diameter</td>
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<tr>
<td>Lip thickness</td>
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Table 5.5  Results of the Kolmogorov-Smirnov test for pots made in July 2010. Significance is determined at the 0.05 level indicating dimensions do not differ from a normal distribution.

Tests of Normality

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<tr>
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<td>External rim diameter</td>
<td>.180</td>
<td>8</td>
</tr>
<tr>
<td>Internal rim diameter</td>
<td>.191</td>
<td>8</td>
</tr>
<tr>
<td>Maximum diameter</td>
<td>.141</td>
<td>8</td>
</tr>
<tr>
<td>Height at maximum diameter</td>
<td>.242</td>
<td>8</td>
</tr>
<tr>
<td>Internal orifice diameter</td>
<td>.189</td>
<td>8</td>
</tr>
<tr>
<td>External orifice diameter</td>
<td>.253</td>
<td>8</td>
</tr>
<tr>
<td>Height at orifice diameter</td>
<td>.178</td>
<td>8</td>
</tr>
<tr>
<td>Lip thickness</td>
<td>.266</td>
<td>8</td>
</tr>
</tbody>
</table>

Table 5.6  Results of the Kolmogorov-Smirnov test for pots made previous to 2010. Significance is determined at the 0.05 level indicating dimensions do not differ from a normal distribution.
Scatter plots determine the shape, strength, and direction of dimension relationships. The shape and direction of all scatter plots are linear and positive respectively. Therefore, as one dimension increases, the others do as well. The strength of relationships vary as indicated by the coefficient of determination (R^2). For pots made in 2010, the strongest relationships are, (1) height and maximum diameter and (2) height and vessel width index (Fig. 5.6-5.11). The weakest relationship is between height and external orifice diameter. For pots made previous to 2010, the same pattern emerges (Fig. 5.6-5.11). The strongest relationships are, (1) height and vessel width index and (2) height and maximum diameter. The weakest relationship is between height and external orifice diameter. This indicates that the variation in height is explained better by the variation in maximum diameter and vessel width index than with any other dimensions. Overall, relationships between dimensions and vessel height are stronger for pots made previous to 2010 than for those made in 2010.

To indicate if the relationships between dimensions and vessel height are statistically significant, Pearson’s correlation coefficient (r) was computed and a correlation matrix constructed (Table 5.7, 5.8). For pots made in 2010, only maximum diameter and vessel width index have a significant relationship with vessel height, indicating they are in fairly constant proportion despite variability in size. In addition, all other relationships between the dimensions tested are significant. For pots made previous to 2010 all dimensions, aside from external orifice diameter, have a significant relationship to vessel height. Indicating that in the past, height was in greater proportion to the dimensions tested than it is now. For pots made previous to 2010 other relationships between the dimensions tested, aside from, (1) maximum diameter and
Figure 5.6 Scatter plots indicating the relationship between vessel height and maximum diameter for both pottery samples. Darkened line and circles represent Nalotu pots made in 2010, while lightened line and circles represent Nalotu pots made previously.

Figure 5.7 Scatter plots indicating the relationship between vessel height and internal rim diameter (IRD) for both pottery samples. Darkened line and circles represent Nalotu pots made in 2010, while lightened line and circles represent Nalotu pots made previously.
Figure 5.8 Scatter plots indicating the relationship between vessel height and external rim diameter (ERD) for both pottery samples. Darkened line and circles represent Nalotu pots made in 2010, while lightened line and circles represent Nalotu pots made previously.

Figure 5.9 Scatter plots indicating the relationship between vessel height and internal orifice diameter (IOD) for both pottery samples. Darkened line and circles represent Nalotu pots made in 2010, while lightened line and circles represent Nalotu pots made previously.
Figure 5.10  Scatter plots indicating the relationship between vessel height and external orifice diameter (EOD) for both pottery samples. Darkened line and circles represent Nalotu pots made in 2010, while lightened line and circles represent Nalotu pots made previously.

Figure 5.11  Scatter plots indicating the relationship between vessel height and vessel width index for both pottery samples. Darkened line and circles represent Nalotu pots made in 2010, while lightened line and circles represent Nalotu pots made previously.
<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>--</td>
<td>0.106</td>
<td>0.081</td>
<td>0.000*</td>
<td>0.106</td>
<td>0.203</td>
<td>0.005*</td>
</tr>
<tr>
<td>External rim diameter</td>
<td>--</td>
<td>--</td>
<td>0.000*</td>
<td>0.002*</td>
<td>0.000*</td>
<td>0.000*</td>
<td>0.000*</td>
</tr>
<tr>
<td>Internal rim diameter</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>0.003*</td>
<td>0.000*</td>
<td>0.000*</td>
<td>0.000*</td>
</tr>
<tr>
<td>Maximum diameter</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>0.005*</td>
<td>0.005*</td>
<td>0.000*</td>
</tr>
<tr>
<td>Internal orifice diameter</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>0.000*</td>
<td>0.000*</td>
</tr>
<tr>
<td>External orifice diameter</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>0.000*</td>
</tr>
<tr>
<td>Vessel width index</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

*p < 0.05

Table 5.7  Correlation matrix indicating the significance value for relationships between variables determined through Pearson’s correlation coefficient. Nalotu pots made in 2010.

Note: Significance is two-tailed and asterisk indicates significance at the 0.05 level.

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>--</td>
<td>0.016*</td>
<td>0.007*</td>
<td>0.001*</td>
<td>0.025*</td>
<td>0.060</td>
<td>0.000*</td>
</tr>
<tr>
<td>External rim diameter</td>
<td>--</td>
<td>--</td>
<td>0.000*</td>
<td>0.028*</td>
<td>0.006*</td>
<td>0.001*</td>
<td>0.003*</td>
</tr>
<tr>
<td>Internal rim diameter</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>0.026*</td>
<td>0.006*</td>
<td>0.011*</td>
<td>0.002*</td>
</tr>
<tr>
<td>Maximum diameter</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>0.105</td>
<td>0.066</td>
<td>0.000*</td>
</tr>
<tr>
<td>Internal orifice diameter</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>0.005*</td>
<td>0.028*</td>
</tr>
<tr>
<td>External orifice diameter</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>0.025*</td>
</tr>
<tr>
<td>Vessel width index</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

*p < 0.05

Table 5.8  Correlation matrix indicating the significance value for relationships between variables determined through Pearson’s correlation coefficient. Nalotu pots made previous to 2010.

Note: Significance is two-tailed and asterisk indicates significance at the 0.05 level.
external orifice diameter and (2) maximum diameter and internal orifice diameter, are significant.

In order to compare the two populations of Nalotu pots, t-tests were run to determine if the mean values for each dimension differ significantly (Table 5.9). The results indicate there are only two dimensions, vessel height and maximum diameter, for which the distribution differs significantly between Nalotu pots made in 2010 and those made previously. For all other dimensions including internal and external rim diameter, height at maximum diameter, internal and external orifice diameter, height at orifice diameter, and lip thickness, the distributions do not differ significantly between the two pottery samples. The variation, however, is important. The 2010 pots are quantitatively smaller than those in the earlier sample.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>T-test statistic</th>
<th>P-value</th>
<th>Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>- 2.25</td>
<td>0.036</td>
<td>Yes</td>
</tr>
<tr>
<td>External rim diameter</td>
<td>- 0.312</td>
<td>0.758</td>
<td>No</td>
</tr>
<tr>
<td>Internal rim diameter</td>
<td>0.036</td>
<td>0.971</td>
<td>No</td>
</tr>
<tr>
<td>Maximum diameter</td>
<td>- 4.839</td>
<td>0.000</td>
<td>Yes</td>
</tr>
<tr>
<td>Height at maximum diameter</td>
<td>- 1.230</td>
<td>0.233</td>
<td>No</td>
</tr>
<tr>
<td>Internal orifice diameter</td>
<td>- 1.261*</td>
<td>0.223*</td>
<td>No</td>
</tr>
<tr>
<td>External orifice diameter</td>
<td>- 1.009*</td>
<td>0.325*</td>
<td>No</td>
</tr>
<tr>
<td>Height at orifice diameter</td>
<td>- 1.437</td>
<td>0.166</td>
<td>No</td>
</tr>
<tr>
<td>Lip thickness</td>
<td>- 1.90</td>
<td>0.072</td>
<td>No</td>
</tr>
</tbody>
</table>

Table 5.9  T-test statistics and associated p-values to indicate if dimension means differ between the two pottery samples. Significance is determined at the 0.05 level.

Note: Asterisk indicates values were adjusted because variances were not equal.
What the Numbers Tell Us

The above results have indicated that there is minimal to no variation in qualitative attributes both within and between samples of Nalotu pots made in 2010 and those made previously. While there does exist variation within rim/lip decorative elements/techniques, angle of eversion, and lip shape, potters do not attribute significance to this. This indicates that potters have been following the same standardized template during approximately 60 years.

Angle of eversion and lip shape variation result from the production process, indicating that these attributes do not adhere to a strict template. Rim/lip decorative attributes/techniques, however, are important because they represent the only location on the pot where individualism is expressed. Here, potters are free to choose their tool, method of decoration and decorative element and, while several potters chose the same elements, all are free to choose otherwise. Variation in eversion angle is important for archaeological interpretation because it indicates that in one type of pot, the angle can vary from weakly to strongly everted. However, the medium everted category is predominant in both samples. Equally if not more important for archaeological interpretation is variation within lip form. Archaeologists often separate lip shapes into several different classes based on single lip/rim sherds (Birks 1973:32; Best 1984:162; Clark 1999:56). It is clear from this study, however, that several lip shapes can appear on a single vessel as the result of the exactness of the coconut fibre used to trim the lip edge.

Variation in quantitative attributes is present and differs between the two samples. Within both pottery samples, vessel height, height at maximum diameter and maximum diameter show the greatest range of variability, while lip thickness and height at orifice
diameter show the least. Between pottery samples, the range of variability is greater for pots made in 2010 than for those made previously. Also, pots made in 2010 are overall smaller than those made previously. Within both pottery samples, relationships between height and other dimensions are strongest for maximum diameter and vessel width index, and are weakest for external orifice diameter. The former indices are related to form, illustrating continuity from past to present. Between samples, relationships are overall stronger for pots made previous to 2010. While variation is present between samples, there is no significant difference between dimension means, aside from height and maximum diameter. The fact that maximum diameter and height dimension means differ between the two samples is likely the result of lack of experience of potters in 2010 from those in the historic past. Aside from this study, pottery has not been made in Nalotu Village since 1997. Most potters have only made pottery once before, and for four potters, this study was their first time learning the craft.

The standardized kuro template in Nalotu has been reproduced for at least the past 60 years and, undoubtedly, into the 19th century. Given the smaller degree of variation within dimensions, it is inferred that previous Nalotu potters followed the standardized template more closely and had a higher level of experience for producing larger kuro. Despite potter variation, in the most recent sample, conformity to the master potter and the tradition that surrounds the manufacturing process has enabled the template to be passed on through generations.
Chapter 6: Discussion and Conclusion

In my original research design I had intended to determine and compare ceramic diversity within and between three villages in the Yawe District of Kadavu Island. By assuming individual potter production, the goal was to identify social processes, including postmarital residence, gendered organization, and the transmission of pottery knowledge, which contribute to ceramic diversity or homogeneity. Once the social processes responsible for ceramic variability within and between villages was determined, the aim was to provide an analogue to explain ceramic diversity in the prehistoric Fijian past. Given that current pottery production only occurs in one village in the Yawe District and potters work collectively to produce vessels, the original goals and methodology of my research design were altered and new goals determined.

My revised research design has addressed four goals. The first goal was to document the organization of the production process, paying particular attention to gendered division of labour, tradition, transmission, and post-marital residence patterns. Second, I sought to understand the role that social processes play in creating ceramic diversity at the village level. Third, I assessed the amount of variability within and between samples of Nalotu pots to discern change over time and to assess production variability within a specialized pottery template. And finally, I wanted to determine the degree to which Nalotu pottery production can act as an analogue to the Fijian archaeological past. Relative to these goals, five topics are identified for discussion as a concluding chapter.
Tradition and Oral History of Kuro Manufacture

Tradition of the Nalotu pottery production process, passed down through generations by oral history, is a key factor in the retention of kuro technology and morphology. All stages of the manufacturing process, from the collection of clay and temper sand to the presentation of kuro as i yau (traditional wealth), are structured through cultural protocols which, in some cases, are ideologically supported in oral tradition.

In regards to raw materials, tradition defines resource boundaries across mataqali and between villages. In doing this, it integrates and reinforces the potter’s collective in Yawe. During this study, the first kuro that was manufactured, collapsed. Potters attributed this to the wrong choice of clay. In order to remedy the situation, potters followed traditional rules by travelling to the neighbouring village of Naqalotu where traditional clay sources are found. After use of this clay, kuro production was successful, reinforcing potter’s trust in this particular clay location. Feasts and kava ceremonies provided by the potters of Nalotu to the mataqali members who own land on which the clay is found, reinforces the use of traditional clay sources.

Similar to clay, temper sand location is enforced through tradition. Sand is abundant throughout the Yawe District but, for pottery production, it must be taken from the galoa (small pond) at the back of Nalotu Village. This is the location where, according to tradition, the first potter took a bath and the sand she had brought with her from Namosi, washed off of her and remained in the galoa. Whether this galoa sand is more technologically useful for kuro production is unknown. However, the fact that this is the only area where sand can be collected indicates the importance of tradition.
throughout the kuro manufacturing process. Tradition is also echoed in the practice of mixing only three handfuls of sand with the appropriate amount of clay and in the tasting of the clay/temper mixture to check for consistency. These traditions work to enforce uniformity in kuro technology and have their roots in oral tradition relating to the original potter who first brought sand and clay to Yawe and subsequently taught women how to manufacture kuro.

The importance of traditional practices for kuro production in Yawe is also highlighted in Hunt’s (1979) observations in Ekita Village and Sorovi-Vunidilo and Vusoniwailala’s (1999) account in Nalotu Village. Both studies indicate almost identical traditions to those observed during this study. However, there are subtleties in traditional practice that have since been lost in Nalotu Village. Sorovi-Vunidilo and Vusoniwailala (1999) discuss how in 1997, tradition required potters to wade into the galoa when collecting sand instead of kneeling at the pond bank. This tradition was not observed during my study and when asked, potters indicated no prior knowledge of this. Hunt’s (1979:30) study indicates that the galoa was “guarded by a female spirit.” This suggests that oral tradition about the first female potter from Namosi was also known in Ekita Village, reinforcing use of sand at this locale.

Palmer and others (1968) similarly illustrate the importance of tradition for pottery manufacture in Nasama Village in the Lower Sigatoka region of southwestern Viti Levu and also in Nakoro Village (Palmer and Shaw 1968) further inland in central Viti Levu. In Nasama village, clay was taken from a nearby source and then stored in a buried pit, adding water if necessary (Palmer et al. 1968:50-51). Potters do not attribute significance to this, but follow the guidelines of tradition (Palmer et al. 1968:50). In
Nasama, temper sand is chosen based on coarseness of the grain. Finer grained sand is preferred because, from experience, potters indicate that the finer the grain, the less chance that the pots will crack during firing (Palmer et al. 1968:51). Ethnographic studies of ceramic production in Papua New Guinea also demonstrate that clay and temper use is at least partially determined through cultural tradition (May and Tuckson 1982). May and Tuckson (1982:43-44) discuss that in regions where the coiling technique is used, untempered clay is preferred and in areas using the paddle and anvil technique, tempered clay is used. They have no technical explanation for this but, rather, attribute it to cultural preferences. Resources, thus, are structured by tradition to reinforce the retention of technology. This has important archaeological implications. Clark (2009:312) suggests that temper and clay acquisition are based solely on environmental constraints. This may have been the case originally. However this study indicates that temper and clay sources are determined not just by environment, as clay and sand is available elsewhere in the Yawe District. Rather traditional cultural preferences define specific locales and reinforce their use through traditional history.

The importance attached to the kuro production process in Nalotu is reinforced through exchange transactions. Yawe pots are traditionally used as i yau (ceremonial wealth), must be given great respect, and are to be carried on the shoulder and not put down while being transferred to another location (Sorovi-Vunidilo and Vusoniwailala 1999:52; Sivorosi pers. comm. 2010). In addition to ceremonial items, Yawe pots are mentioned in ethnographic accounts as early as 1938 as valuable trade items (Thompson 1938:112). The respect given to kuro suggests that the pots hold intrinsic value and are
more than cooking vessels. They are known throughout Kadavu and Fiji and represent symbols of Yawe identity.

Similar to Yawe kuro, Nakoro kuro production follows traditional techniques and their use is also required for ceremonial exchange. While observing the Nakoro kuro manufacturing technique, Palmer and Shaw (1968:87) witnessed a solevu ni vakamau (ceremonial exchange) for a wedding between Nakoro and Namosi. Potters from Nakoro prepared kuro, along with masi (barkcloth), to present to the people of Namosi. A comparison of Yawe kuro ceremonial use with that of Nakoro kuro, indicates the significance attributed to regionalized Fijian pottery in the present and historic past.

**Kuro Specialization and the Manufacturing Process**

In Nalotu, the master potter is instrumental in encouraging conformity of potters to the standardized kuro template. This position is filled by a potter whose experience and skill in kuro manufacture is unrivalled by others in the village. As was evident from interviews with the master potter during this study, experienced potters have existed in Yawe for at least the past 80 years. This probably extended throughout the historic period based on the fact that the current master potter’s mother was also a master potter who began producing pottery at the end of the 19th century. Earlier studies by Hunt (1979) at Ekita Village and Sorovi-Vunidilo and Vusoniwailala (1999) in Nalotu Village confirm the collective production method observed in 2010. Hunt (1979:30) states that, “there was a clear division of labour, with different women carrying out different parts of the manufacturing process under the general direction of one old lady, Yani Naivuga, who was the principle potter.” Similarly, Sorovi-Vunidilo and Vusoniwailala (1999:52) indicate that, “two elderly women, Susana Radinivugalai and Seini Vono, who were
introduced to pottery making at a young age, were identified…[as] the two tutors…”

Thus, it is reasonable to assume that master potters have been invaluable in instructing and leading Yawe potters on kuro manufacture well into the past.

Evidence of conformity to ceramic manufacture elsewhere in Fiji in the historic era is presented by Rossitto (1990a). Through her study of various ceramic producing villages on the Rewa River delta, the Lower Sigatoka Valley and Yanuya Island she (1990a:13) concluded that “the form…of a vessel is inherited from the past and considered fixed over the years.” Through interviews with potters, she (1990a:13) learned that they prefer to keep the traditional pottery forms inherited by their grandmothers because they “achieved a unique perfection which does not require further intervention.” Interesting for this study, Rossitto (1990a:15) discusses the existence of “a sort of copyright [in the past]” which discouraged potters from different islands and districts from copying each other’s pottery forms and styles. This “copyright” was the product of strong emphasis on tradition and community identity in Fiji (Rossitto 1990a:15), which likely played a role in maintaining regionalization of forms throughout the historic if not late prehistoric past.

Conformity to the master potter in Nalotu results in the standardization of specialized kuro. The reduction in variability within craft attributes provides the signature for a standardized product (Rice 1991). Specialization of ceramic form is characterized by Rice (1991) as typical of the production of a craft beyond basic household needs. More specifically, producer specialization can be defined as having,

two related implications: (1) restriction or the production of a good by a relatively small number of individuals…, and (2) skill or production by individuals who are, as a result of this selectivity and the routinization or
repetition of their tasks, particularly skilled in manufacture [Rice 1991: 263].

It is hypothesized that specialization is related to standardization because the production techniques used by specialists become more uniform over time, which leads to a decrease in variability within final products (Rice 1981). In Nalotu, the master potter and the role of tradition are key factors in the level of standardization for specialized kuro production. Through frequent demonstrations and encouragement, the master potter monitors the kuro manufacturing process, during which potters are eager to ask for advice and help. Conformity to the master potter reduces variation and thus Nalotu kuro represent a standardized well-known pot that has additional functions in ceremonial contexts. The large size of Nalotu kuro agrees with Clark’s (2007:295) suggestion that “large handmade ceramics indicates a high labour input and specialized vessel function.”

Ethnoarchaeological studies, elsewhere in the world, are beginning to shed light on the organization of the pottery production process, making it clear that archaeologists can no longer assume that one pot equals one potter (Kramer 1985; Costin 2000). In group situations a single pot can be produced through the work of “passersby, neighbors, visitors, specialists hired for the task, or purchasing vendors” (Kramer 1985:84). Group production has been recorded in the Teotihuacán Valley by Charlton (1976). He began his study of modern ceramic production in the town of San Sebastian, which, at the time, was the only pottery producing community in the Teotihuacán Valley, with most pots made for the tourist trade. Pottery making specialists occur in the village, however, there are often several people who take part in the production process, involving various family members (Charlton 1976). One case that Charlton (1976:141) observed involved the production of a pot by a specialist potter’s married daughter, followed by the decoration
of the pot by the potter, his young son, and an acquaintance who had stopped by. Carlton (1976) does not expand on the importance of this production process, nor does he indicate the level of variability produced within the group-made wares, but his study is useful for identifying cross-cultural complexities in the organization of pottery production.

The 1988 study of ceramic production in Vijayanagara, southern India by Sinopoli, provides an ethnographic example of potter collectives at the household level. Sinopoli (1988) aimed to study variation within and between potter workshops in order to provide an analogy for social organization of pottery production in the medieval era. According to Sinopoli (1988:590), pottery workshop organization is based on the nuclear or extended family, which together, represent the potter’s caste. As an example, Sinopoli (1988:590) describes a workshop consisting of two male potters, an adult son of a potter learning the trade, and related women and children. The male potters are responsible for pottery manufacture on the wheel, while the women and children help in other aspects, such as resource preparation, decoration, and firing. Through an analysis of various cooking vessel attributes of four pottery workshops, Sinopoli (1988:590) concludes that, “in each case, intraworkshop variation in vessel form is significantly less than interworkshop variation.” This suggests that even though several potters in each workshop contribute to the production of finished vessels, variation is still less than between households.

Mills (1995) provides another example of ceramic group production in her study at Zuni Pueblo. By using ethnohistoric, ethnographic, and contemporary museum collections, Mills (1995:149-150) aimed to describe change through time of the gendered
social organization of the pottery production process. In the late nineteenth century, 
pottery manufacture was the role of women. Through change in learning frameworks and 
an increased influence from the tourist trade, men and women both make pots today and 
often work together to produce a single pot. Production is structured along household 
units and children learn the craft either in public school or through relatives, including 
mothers, fathers, aunts, and grandmothers (Mills 1995). Interestingly, teachers are not 
always of Zuni descent, but rather, marry into the Zuni tribe. The household “authorship” 
of pots has increased homogeneity in production over time (Mills 1995:159). Mills 
(1995:159) states that “this pattern fits well with Sinopoli’s (1988) ethnoarchaeological 
observation in India; she found a high degree of standardization within small-scale, 
noncentralized workshops composed of nuclear or extended families.”

Evidence of cooperation in vessel manufacture has also been shown in specific 
regions of Papua New Guinea (May and Tuckson 1982). For example, at Aibom village 
in the central Sepik region of Papua New Guinea, women are largely responsible for 
forming vessels and some decorating while men are responsible for elaborate decoration 
of ceremonial vessels and storage jars (May and Tuckson 1982:237). Aibom pottery is 
traditionally a prestige item for exchange and as May and Tuckson (1982:231) discuss, 
women form the vessel and apply basic decorations, however, men “specialize in forming 
and decorating the faces and figures on the ridge sculptures, applied to vessels used in 
ceremonies and in modelling the faces on the large sago storage jars” (May and Tuckson 
1982:237). These figures represent cultural deities of the tribe, with totems representing 
different clans (May and Tuckson 1982:240). May and Tuckson (1982:218) provide 
another example of potter cooperation of vessel manufacture for the Kwoma and Nukuma
tribes, located along the Sepik river. Here, women manufacture utilitarian vessels and men manufacture ceremonial ones (May and Tuckson 1982:218). However, “cooperation is necessary if the woman is inexperienced and a large pot must be completed before the sun goes down” (May and Tuckson 1982:218). In this case, men will take over from the inexperienced woman to finish the pot, which may include decorating, rim forming, and finishing techniques (May and Tuckson 1982:218). Other adults and children often help a potter by rolling out coils to be added to the pot and a husband and wife have also been known to take turns manufacturing a single vessel (May and Tuckson 1982:218). While comparatively rare (May and Tuckson 1982), such instances of potter cooperation have important implications for archaeological interpretation.

Cumulatively the preceding studies indicate that the archaeological analysis of standardization and specialization of the pottery manufacturing process must consider various forms of production organization, including multiple authorship of single vessels. Nalotu kuro production is unique because it illustrates village level production as opposed to household level production, thus adding further complexity to the structure of organization for archaeologists when considering the diversity of pottery assemblages.

**Gender and Transmission During the Kuro Manufacturing Process**

The mechanisms through which ceramic technology is passed down through generations has become an important research area because, as Stark and colleagues (2008:1) state, “[it] lies at the heart of our discipline.” Studies of cultural transmission are crucial for understanding cultural change and stability (Stark et al. 2008). It is through ethnographic observation of transmission processes, according to Herbich and Dietler (2008: 224), that archaeological interpretation relies upon for inferring such processes in
the past. My study provides an opportunity to understand the mechanisms through which skills of \textit{kuro} manufacture are passed to the next generation of potters in Nalotu Village.

Forms of transmission are categorized into three categories, (1) horizontal, (2) vertical, and (3) oblique (Eerkens and Lipo 2005; Tehrani and Collard 2009). Horizontal transmission refers to transfer of information between people of the same generation, vertical transmission refers to the transfer of information between parent and child, and oblique transmission refers to information being passed from one generation to another, from an elder other than a parent (Tehrani and Collard 2009:286-287). Aside from these classifications, Eerkens and Lipo (2005:323) have identified other techniques, such as prestige-biased transmission, guided variation, conformist transmission, and indirectly biased transmission through which horizontal and/or oblique transmission operate. Of specific importance to the research here is prestige-biased transmission and conformist transmission. The latter refers to the situation in which “individuals conform to the \textit{average} value…from the entire previous generation, that of their parent” (Eerkens and Lipo 2005: 323, emphasis is original). In contrast, prestige-biased transmission refers to a situation in which there is a prestigious individual who has “a disproportionate probability of having traits copied” (Eerkens and Lipo 2005:325). The results from a simulation in which such a system was tested, indicate that prestige-biased transmission is very similar to that of conformity, with both transmission processes leading to a decrease in variation over time. This is because, in both models, individuals make choices based on a very limited repertoire.

In Nalotu, transmission of \textit{kuro} manufacture takes place through both conformist and prestige-biased mechanisms. This is because children are conforming to the example
set by their parents and other women in the village who, in turn, are conforming to the
template set by the master potter. The master potter is the prestigious individual whom all
other potters copy. In this, vertical, horizontal, and oblique mechanisms play a role.
Young children play amongst the potters in the production area. During this time they are
observing and imitating the actions of both their parents and other female members of the
community who they are not necessarily related to. Adult women, who have never
learned the pottery production process before, watch the actions of women within their
own generation, along with instructions set by the master potter. However, the actions
being imitated and observed are first and foremost, those encouraged by the master
potter. In this, prestige-biased and conformist transmission ensures long-term
homogeneity of form and style.

Transmission of the kuro production process in Nalotu suggests that early ceramic
sociology models which broadly assume that patterns of ceramic heterogeneity should
occur in patrilocal groups/villages where women are potters, are too simplistic (Deetz
1965; Hill 1970; Longacre 1970). Since kinship is Dravidian in Nalotu Village and post-
marital residence follows patrilocal rules, according to these early models, ceramics
should be heterogeneous if pottery organization was structured through patrilineal
groups. However, pottery production is organized at the village level in Nalotu. Ceramic
analysis indicates that kuro are homogenous, in terms of qualitative attributes. Variation
that occurs is largely a result of potter inexperience as opposed to conscious decisions on
the part of the potters to stray from the standardized template. Despite 12 out of 26
potters who participated in this study were not born in Nalotu, they were welcomed and
encouraged to participate in all aspects related to kuro manufacture. This indicates that
conformity of all women to pottery traditions, along with the presence of a master potter, work to reduce variation at the village level.

This situation of conformity is similar to the pattern observed in Kenya by Herbich in 1987. Her study focuses on post-marital design transfer patterns from mothers-in-law to their respective daughters-in-law within seven Luo pottery villages in western Kenya. Potter production in the villages is primarily for domestic purposes, however, market-style trade does occur (Herbich 1987:195). In this patrilineal society, women relocate to their husband’s village upon marriage. Learning patterns reflect this shift in movement and work to uphold and reaffirm the patrilineal system. Herbich (1987:200) discusses how mothers-in-law are usually the ones responsible for teaching ceramic production to their new daughters-in-law who, generally speaking, do not learn such skills from their mothers. In addition to being patrilineal, Luo society is also largely polygamous. After marriage, Luo women have to adapt to life with their co-wives, a situation which can lead to hostility (Herbich 1987:200). Within this complex system of interaction, women learn the local micro-styles passed down from their mother-in-law and adhere quite strictly to design patterns (Herbich 1987:200-201). While limited variation in design does occur, conformity is esteemed and represents respect for the mother-in-law and the new community (Herbich 1987:200-201). Patrilineal post-marital movement and mother-in-law/daughter-in-law learning patterns can result in similar ceramic patterns archaeologically as matrilineal post-marital patterns. Conformity as found at Nalotu has been shown to be an important social process that works to decrease ceramic variability in modern contexts and it is likely in the archaeological record, indicating that early ceramic sociology assumptions are overly simplistic.
Tied in with kinship and transmission is the gendered division of labour of the \textit{kuro} production process. Interviews with potters indicate that \textit{kuro} production has been part of the female domain since at least the nineteenth century. It is likely that women have been the sole producers of \textit{kuro} for much longer given female taboos associated with the production process. Taboos prohibit the participation of women who are pregnant or who have not observed sexual abstinence prior to, or during, production. The reason given for this is that women who do not follow the rules, will cause the pots to crack. Therefore, it is not the pots that are dangerous to the women, but the women that are dangerous to the pots. Given that there do not exist taboos referring to men’s participation in \textit{kuro} manufacture, it is likely that women have been the primary producers of \textit{kuro} for as long as such traditions have been practiced.

\textbf{Variability Within a Single Template}

Overall, the \textit{kuro} analyzed in this study show a relative degree of homogeneity in qualitative attributes, both within and between samples of pots made in 2010 and those made previously. This lack of variability indicates that potters have been reproducing the standardized template for at least the past 60 years and, undoubtedly, longer. However, of notable mention is variation within rim/lip decorative attributes, angle of eversion, and lip shape. While potters do not attribute significance to this variation, the archaeological implications are extremely important.

All \textit{kuro} in this study have everted rims. Variation within angle of eversion is present both within and between the two samples of Nalotu pots. For pots made in 2010, angles range from $27^0$ to $65^0$. These pots have eversion angles in the “strongly everted” and “medium everted” categories as defined earlier with the majority ($n = 11$) falling into
the latter. For pots made previous to 2010 angles range from $16^0$ to $48^0$ with all angle categories represented from weakly everted to strongly everted. For both samples, the majority of angles fall into the “medium everted” category and thus it is likely that this category represents the accepted standard that potters aim to achieve. Variation results from potter inexperience in *kuro* manufacture and through human error as the potter’s hands and eyesight are the only tools used to achieve the eversion of the rim. The potter does not make a conscious decision to vary the angle and, thus, the variability produced does not represent individualism. This has important archaeological implications because it indicates that specific angles and categories may be inappropriate for determining ceramic form as Best (1984:160, 166) suggests. For Nalotu *kuro* at least, rim form is best described in the broader classification system of everted, inverted, and straight (Birks 1973:30).

Lip shape variation also results from the production process and is determined by the exactness of the coconut fibre. The coconut fibre is used to produce a flat and outward bevelled shape, but variation does occur and results in the presence of several different shapes on a single pot in both pottery samples used in this study. Potters do not show a desire to perfect lip shape to a specific category such as “pointed”, “rounded”, and “flat” (Birks 1973:32). For archaeological purposes, this is extremely important because it indicates that lip shape categories often used to distinguish pottery forms (Birks 1973; Best 1984; Clark 1999), are much too simplistic and may be inappropriate.

The third and fourth qualitative attributes that show a degree of variation are rim/lip decorative elements and techniques. This variation represents the only part of the *kuro* where individual potter expression is visible. The tools used to create the design
elements are restricted to either the edge of a wooden paddle, a *kaikoso* shell, or a wooden stick. Despite the limited number of tools used, potters are free to choose amongst them, although most prefer the shell. Potters do not attach significance to the tools chosen. For archaeological interpretation, this indicates that flexibility in design execution can occur for a specific region of a pot.

The fact that design is only present on the lip/rim of the Yawe pot is important. Clark (2007:292) assumes that large Lapita pots from New Caledonia, with heights reaching 54 cm, should have greater decoration densities and greater overall height as opposed to Lapita pots found in the Sigatoka Valley which are assumed to have been made for utilitarian purposes. Clark (2007: 294) concludes that, “when the size of a ceramic vessel is enlarged to accommodate and expose greater amounts of decoration, potters have to invest more time on manufacture and embellishment, compared with utilitarian containers.” Nalotu *kuro* reach the same heights as these New Caledonia “specialized” pots, but contain much less decoration. Given that Nalotu *kuro* are used both for utilitarian and ceremonial purposes, Clark’s (2007) assumption may only apply to Lapita ceramics and not all ceramics in general. A small amount of decoration can occur on large standardized vessels used for both ceremonial and utilitarian purposes.

Perhaps the most important qualitative variable which shows a degree of variation are the applied decorative elements. There are eight elements on the 25 pots, with only one element used per pot. The elements are often chosen by individual potters, but are sometimes the product of multiple potters who, together, choose which element to use. The elements chosen do not have significance for the potters, but, on occasion, potters will inscribe their initials with a wooden stick. These elements represent the only
intentional variation on *kuro* by potters and potentially have important archaeological implications for understanding ceramic designs.

On Nalotu *kuro*, design elements do not signal information or have an identifiable function. At face value, this relates to neo-evolutionary selectionist ideas of style and function which frame function as characteristics that provide adaptive selection, and style as characteristics that do not increase the bearers’ fitness. The latter then are “subject only to drift” (Bettinger et al. 2003:33). While this may be true for this context, it is clear that ceramic designs in cross-cultural comparison can and do have specific meaning (Herbich 1987; David et al. 1988; Bowser 2000). Bettinger and others (2003:50-52), proponents of evolutionary archaeology, believe that the neo-evolutionary style-function dichotomy is too restrictive and not realistic in all cases. The processes of evolution are too complex to assume that function and style have “very different evolutionary properties” (Bettinger et al. 2003:51). Given that ceramic decorative application can signal political affiliation (Bowser 2000) and even tension among potters (Herbich 1987), it is clear that reasons for design are complex, and are perhaps best understood in specific space and time contexts (Sackett 1977:370). In the case of Nalotu, the individual elements of design vary, but their application and location do not. Decorative application, therefore, is part of the Yawe pot signature as much as size and form.

In contrast to qualitative attributes, quantitative attributes show greater variability. This general degree of heterogeneity is expressed most in the dimensions of height, height at maximum diameter, and maximum diameter. This is most likely due to potter inexperience. Production of large *kuro* is difficult to master which is reflected in the overall smaller size of Nalotu pots made in 2010, where several of the potters were
learning the manufacturing process for the first time, or had produced *kuro* only once before. For some of the pots made previous to 2010, it is assumed that *kuro* production was more frequent and potters had a greater chance to practice their skills.

Dimensions which show the least variation are lip thickness and height at orifice diameter. Both represent areas of the pot where potters can easily visualize the resemblance to the standardized template made initially by the master potter. Therefore, it is not surprising that the height at orifice diameter and lip thickness do not vary greatly.

Pots made previous to 2010 show less overall variation in dimension measurements and by definition may better represent the standardized *kuro* template. However, the fact that seven out of nine dimension means do not differ significantly between assemblages indicates that tradition of *kuro* manufacture and existence of a master potter, has enabled the standardized *kuro* template to be remembered and replicated throughout the historic if not prehistoric past. Continuity in form and strong relationships between (1) height and maximum diameter and (2) height and vessel width index, corroborate this hypothesis.

**Relevance to Fijian Archaeology**

This study has presented the organizational and social processes underlying production of a specialized utilitarian/ceremonial vessel produced in Fiji throughout at least the historic era. The main aim of ethnoarchaeological research is to relate the material correlates of human behaviour to the archaeological record of the past. Oceanic archaeologists implicitly assume that pottery manufacture was an individualist activity, an assumption grounded in ethnographic and historic observation (Palmer and Shaw
1968; Palmer et al. 1968; May and Tuckson 1982). May and Tuckson (1982) for example, in their extensive review of pottery manufacture from Papua New Guinea, including the Bismarck Archipelago, the D’Entrecasteaux Islands, the Louisiade Archipelago and the northern Soloman Islands, present evidence of largely individualistic potter organization. However, they (1982:237) do examine rare cases of cooperation during pottery manufacture as discussed previously. These examples along with the organization of Nalotu kuro production, indicate that the assumption of individual potter production may not be categorical for Fiji in particular and Oceania in general. The question remains, then, can we use the organization of potter collectives under the supervision of a master potter as an analogue for pottery production in Fiji’s prehistoric past?

The example from the Kwoma and Nukuma tribes in Papua New Guinea, along with pottery manufacture in Aibom village indicate that large and/or intricately decorated pots requiring specialized knowledge often necessitate the cooperation of several individuals, especially those who have a high level of experience (May and Tuckson 1982:218). In Nalotu, specialized knowledge is retained and reinforced through the actions of the master potter. This may have been true in the prehistoric past as well during production of specialized vessels. It is possible to conceive of two instances where specialized vessels requiring the knowledge of a master potter may have occurred, (1) Sigatoka Navatu salt trays and globular jars, and (3) New Caledonia early Lapita carinated vessels.

During the Navatu phase at the Sigatoka Sand Dunes site in southwestern Viti Levu, two vessel forms have been found which likely required specialized knowledge for
successful manufacture, salt trays and everted rim globular jars (Birks 1973: Burley 2005; Burley et al. 2011). The former, large roughly-formed and flat-based salt trays, have diameters ranging between 52-78 cm and reach weights up to 12.5 kg (Burley et al. 2011:192). Due to their large size and weight, it is likely that they were “formed, fired, and used in situ” (Burley 2005:333). Both Birks (1973:45) and Burley (2005:333) propose they were most likely used as evaporation trays for salt production, a hypothesis tested using a replicated tray (Burley 2005:333). These specialized ceramics were produced in the seventh century AD during the Navatu Phase of Fijian prehistory at specialized shoreline locations along the Sigatoka dune front (Burley et al. 2011:188). Clay for production was brought to the dunes from the Sigatoka delta, at least 1 km in distance (Burley 2009:18). After production, the salt trays needed to be carried to the firing hearth which was formed with preheated coral rock, pot sherds, and volcanic stone (Burley 2009:18). The coral also required transportation to the site (Burley 2009:18).

Associated with the salt trays is a distinctive globular jar illustrating great conformity in style and form (Burley 2005). These jars are the dominant diagnostic vessel for the Navatu phase at the Sigatoka Sand Dunes site and are characterized as well-fired, hard, thin-bodied vessels with rounded shoulders and everted rims (Burley 2005:328). Crenellation or side-tool notching occurs frequently on the vessel lip while the shoulder is often decorated with fingernail pinches, carved paddle impression, and incision, among other decorative applications (Burley 2005:328). These vessels are also shell tempered with the use of coral rock as a firing accelerant (Burley 2005:328).

The large size of the salt trays and the sophisticated firing practices associated with the globular jars indicate that potters had extensive knowledge regarding large
vessel manufacture as well as temper use and innovative firing techniques. In this context it is conceivable that potters who excelled at the craft, and perhaps were even considered master potters, passed such specialized knowledge to succeeding generations and organized the production process. Given a relative degree of conformity in form and style of both salt trays and globular jars during this phase, the idea of potter collectives conforming to the example of one or more master potters seems plausible. Whether or not individual vessels were produced through the work of multiple potters under the direction of a single master potter cannot be known for certain. However, as specialized Nalotu kuro production suggests, multiple potters may have contributed to the manufacture of a single vessel, especially during times of novice potter training.

Clark (2007) identifies Lapita ceramics which he speculates have a specialized function based on “their size, complexity and quantity of formal decoration.” Clark (2007) investigated the size and design density (number of decorative elements in a given area) of 10 carinated vessels from the WKO013A site in New Caledonia. Measurements of these early Lapita vessels were derived from research published by Sand and colleagues (see Sand 1999, 2001; Sand et al. 1998). Clark (2007:292) notes that “there is a strong linear correlation between vessel height and maximum body width ($r^2=0.96$), which is likely to indicate either vessel production by a small group of potters, or manufacture of a vessel type with defined proportions.” This indicates conformity to vessel form. Given the large size and artistic shape of the jars, great skill and high labour input would have been required (Clark 2007:292). This suggests that they had a specialized function and high visibility within the group. This study provides another example of vessels that may have required the specialized knowledge of a master potter.
to reinforce vessel manufacture technology to a group of potters who may or may not have worked together to create single vessels.

Regardless of whether potter collectives existed in the prehistoric Fijian past, this study brings up the question of conformist processes exerted by a master potter, which may help to explain widespread conformity at different times in Fijian prehistory. Evidence of master potters elsewhere in Fiji have been noted in ethnographic accounts (Recht 2009; Rossitto 1994; Palmer et al. 1968). Recht (2009:278) makes a brief mention of master potters in the villages of Nasilai on the Rewa River in southeast Viti Levu and Nakabuta near the Sigatoka River in southwestern Viti Levu. She (2009:278) notes that “Fijian potters traditionally ‘own’ their vessel shapes and surface designs.” The only evidence Recht (2009:287) gives for this is a single statement from Wati Taraivini, a master potter from Nasilai, regarding a pot design that she gave to Daiana Tuqea, a master potter from Nakabuta. Wati indicated that she had to receive permission from Daiana to reproduce this design again, even though the idea had originally been her own.

Rossitto (1994) also mentions the existence of master potters in Nasilai. She indicates that in this village potters are taught to make pottery by their mothers or other female members of their mataqali. The vessel forms traditionally show a degree of standardization (Rossitto 1994). Application of decorative elements however, varies from vessel to vessel and individualization in decorative application is praised (Rossitto 1994:45). Interestingly, very few potters create new design elements. This is because the decorative elements “must appear congruent both on the formal and technical level with the set of decorative units already in use. This requires competent creative capabilities which not all the potters have” (Rossitto 1994:46). If the novel design element is
produced by a potter whose work is held in high esteem, then it will gradually be copied by all other potters until the “decorative units are…more or less homogeneously distributed” throughout the village (Rossitto 1994:47). In this context, master potters do not actively direct a potter collective to reproduce standardized vessel designs. Through a prestigious position however, the master potter/s influences the use of design elements. This study indicates that prestige-biased transmission leads to homogeneity in vessel decoration over time.

In their study of pottery manufacture throughout villages in the Sigatoka region of southwestern Viti Levu, Palmer and colleagues (1968) mention individual potters who were experienced in vessel manufacture. In Yavulo village they (1968:55,69) identify specialist kuro potter Amele Nacewa who, in 1965, was one of three potters in the village. Amele had learned kuro manufacture from her mother-in-law when she moved to Yavulo village (Palmer et al 1968). They also note two potters from Nakoro, Makelesi Liku and Miriama Vualiku, who were the only women experienced in pottery manufacture during the time of study. They state that other young married women had attempted to learn the craft but were not able to master it. From their photos it is clear that other members of the village observed the pottery production process, although they do not mention the participation of other villagers anytime during manufacture. Finally, Palmer and others (1968:73) observed two potters at Nayawa village, Miriama Navue and her niece Karalaini Qauqau, who were both born in the village and learned the pottery production process from their mothers by “gradually taking a participant role in the proceedings under maternal guidance.” During a demonstration of vuluvulu (finger-bowl) manufacture, Miriama handed her bowl to Karalaini to check the correctness of the rim
and Karalaini subsequently thinned the body with the use of a paddle and anvil. These studies suggest that master potters are, or once were, present in villages throughout Fiji and their expertise was instrumental in instructing novice potters to reproduce traditional ceramic vessels.

At least for Yawe pots, the existence of a master potter can be viewed as a strategy for transmission where a high degree of uniformity is expected in specialized production and where patrilocal residence results in a constant influx of novice potters. In Nalotu all women regardless of the location of their natal village are expected to participate in kuro manufacture. In this, village and district identity are established. However, the large size of kuro requires expert knowledge and experience that novice potters cannot acquire easily. The role of the master potter addresses this issue. Women who marry into the village conform to the example set by the master potter. Conformity is strengthened by the organization of the production process in which all women work together to produce these specialized/utilitarian vessels. Conformist and prestige-biased transmission are at work to enforce standardization of kuro manufacture.

The question remains however, how can we identify the presence of master potters and/or potter collectives in the archaeological record? We may never be able to definitively know this. It is, therefore, speculative at best, but it serves as a cautionary tale to Oceanic and other archaeologists about assuming individual potter production in all contexts. Kramer (1985:97) and Hegmon (2000:129) acknowledge that identifying overly simplistic notions is an important contribution of ethnoarchaeological research. Hegmon (2000:131) states that ethnoarchaeology does not need to produce concrete correlates, it can also function as a way to understand the role that material culture plays.
within society and is important for advancing knowledge of social processes and thus social theory. Through the questioning of simplistic archaeological assumptions, ethnoarchaeology is “serving archaeology in a more general sense, by expanding anthropological understandings of culture and humanity” (Hegmon 2000:135).

The organization of Nalotu *kuro* production questions the assumption that Fijian pottery production is, and has been, exclusively an individualistic process. It also emphasizes the importance of a master potter in overseeing and teaching production techniques and template. While this by no means proves the existence of master potters or potter collective organization in the past, it provides a possible analogue for inferring the process through which specialized vessel forms may have been manufactured at different times in prehistory.

**Conclusion**

This project has aimed to demonstrate the social processes behind ceramic diversity and homogeneity in contemporary and historic pottery production in the Yawe District of Kadavu Island. It also seeks to develop an analogy through which ceramic variability in the Fijian archaeological past may be examined. Ceramic manufacture of specialized cooking pots referred to as *kuro*, was documented in detail in Nalotu Village. Ceramic analysis of these pots and those made previously in the village has indicated homogeneity of vessel form both in the present and throughout the historic past. Through interviews with potters and observation of the *kuro* production process, it was determined that post-marital residence does not influence vessel form both within Nalotu and the Yawe District as a whole. Overall, this project has indicated that expected conformity to a master potter is instrumental in maintaining traditional practices.
Ceramic ethnoarchaeology provides important insights for archaeological interpretation. Sound analogies are required to provide reasonable inferences for social interaction with material culture in the prehistoric past. While several studies surrounding ceramic manufacture have been carried out in Fiji, this is one of the first that has aimed to understand the social processes responsible for ceramic variability or homogeneity. Ceramic ethnoarchaeology in Nalotu demonstrates that potter collective conformity to a standardized vessel template set by the master potter, results in homogeneity of form. For Fijian and possibly Oceanic prehistory, this research has presented another way of interpreting social interaction leading to homogeneity of specialized vessel forms. In a broader context, this questions early ceramic sociology models which categorically assume post-marital residence as the underlying factor in ceramic variability or homogeneity.

Finally, this research has brought long held assumptions of individualistic ceramic production into question for Fiji. The dangers in assuming social processes related to ceramic variability have been highlighted. It is clear that if Oceanic archaeologists wish to understand variability in the archaeological record, they must understand the processes responsible for such diversity in the present. Only through more ethnoarchaeological and archaeological research focusing on similarities between past and present sources, can archaeologists hope to understand the relationships between people and their material culture in the past.
Appendix 1 – Interviews

Interview Questions:

1. What is your name?
2. Do you want your identity made public in my thesis?
3. What village were you born in?
4. Are you married? (If the answer is no, move to question 7)
5. Did you move to your husband’s family’s village after marriage?
6. If you stayed in the village you were born in, what was the reason for doing so? Did your husband move to your village?
7. If the village you live in now is not the village you were born in and not the village your husband was born in, what was the reason for moving here?
8. At what age did you learn to make pottery?
9. How did you learn the pottery process and who taught you?
10. If you do not live in the village you were born in, are there differences between the pottery made in the two villages you have lived in? What are those differences and is there any reason for the differences that you are aware of?
11. If there are differences between villages, can you recognize a village based on a piece of pottery or the type of pots that are made?
12. If you moved to a different village after marriage, were you allowed to make the pottery from the village you were born in, or did you learn a new style?
13. Are there one or more women whose pottery is considered the best? Do other women follow their technique?
14. Is there any trade of pottery between villages?
15. Do you use styles of pottery from different villages?
16. Are there some pottery styles in your village that came from other villages? How did they get here?
17. Where do you collect your temper? Why do you use that kind?
18. What happens to the pots after you make them? (i.e. do you trade them/sell them?)
19. Where do you collect your clay? Why do you use this kind?
20. What are the forms of pottery that you know how to make?
21. Would it be okay if you made some pieces of pottery for me? If you know how to make forms other than cooking pots, can you show me how you make those too?
22. For each of the 17 attributes outlined in my proposal I will ask the following question: Are there other variations of this manufacturing/decorating technique? If so, can you describe/draw them for me? How often are these other variations used?
Interview #1: Answers

1. Ulamila Qoli
2. Yes
3. Nalotu
4. Yes
5. Yes, Naqalotu
6. n/a
7. n/a
8. Approximately 18 years of age
9. She learned to make pottery from her mother, Mereoni Kuru, who was originally from Busa, but moved to Nalotu after marriage. Her mother was 123 years old when she passed away.
10. There is no difference in pottery style between Nalotu and Naqalotu because a long time ago the women of Nalotu taught the women of Ekita and Naqalotu how to make pottery
11. n/a
12. She made the same style of pottery in Naqalotu as she had learned in Nalotu
13. Yes, herself and Bubu are considered to have the most knowledge of the production process
14. No
15. The pottery tradition in Yawe originally came from the village of Mau in Namosi, Viti Levu
16. Oral tradition dictates that a woman who was a potter was kicked out of Mau and travelled to Nalotu, the only village that she was accepted in Kadavu
17. Pots were traditionally used for cooking true food and also for special occasions (ex. President’s visit in 2000), and for sale (ex. Nadi and Suva)
18. Sand from the galoa is used as temper
19. The clay comes from the danuma in Nalotu, which originally came from Iliesa’s land in Naqalotu
20. Kuro
21. She will help the women make a number of pots
22. There is just 1 form and 1 decorative technique, which is the incision on the inner rim/lip
23. Extra Question: What are the most important things to remember when forming the pot? Answer: The beginning, when the first 3 slabs are put together is very
important. Wrapping the *sulu* around the temporary base is important. The thickness throughout must always be the same. The bottom of the pot must always be smaller than the middle. The top of the pot must be the right shape to hold the lid while cooking.

**Interview #2: Answers**

1. Vani Koroloda
2. Yes
3. Nalotu
4. She was married, but her husband has since passed away
5. Both her and her husband were from Nalotu
6. Because her husband is from Nalotu also
7. n/a
8. She learned to make pottery at a very young age, before marriage, but she is not sure of the exact age
9. She learned to make pottery from her mother, who was also from Nalotu
10. n/a
11. All villages in Yawe make the same form and style of pot
12. n/a
13. Mereoni Kuru, Meline Mue, and Susana Radinivuagalei were the women whose pottery was considered the best approximately 50 years ago
14. In the past, pottery from Nalotu was traded to Tavuki, Nakasaleka, and Nabakalevu, all in Kadavu. In addition, Serai, Susana, Sainivonu, and Vani took clay from Nalotu and travelled to Suva to produce pots. They also got paid for this.
15. No
16. No, just the history of the women from Mau who brought the pottery tradition to Nalotu
17. See answer 14. As well, the *kuro* were traditionally used for cooking “true food”
18. They use sand from the *galoa*
19. From the *danuma*, but it is originally from Naqalotu
20. *Kuro*
21. She is no longer able to produce pottery, but she came to the production site everyday and helped the women as best she could
22. All the *kuro* were the same

**Interview #3:** Answers from the women were learned pottery production in 1997

1. Ani Maria, Camari Adidauna, Deana Legalega, Kelera Korolavesau, Akanisi Nabanivalu, Susana Tuleca, Lisi Bogirua, Evia Toro, Mereoni Kuru, Makerete Rauvi, Senimili Sekirewa, Meliki Nabulivou, Vani Raluve, Iva Qalivutu, Vilisi Tuki, Salote Nabati, Ruci Vasenai, Mereseini Tatibi, Siteri Vuso, Paulini Bai

2. Yes


4. The women who are not from Nalotu married into this village. The others from Nalotu are married as well

5. The women from Nalotu stayed here after marriage because their husband’s are from Nalotu as well. Those not from Nalotu, moved here because their husband’s are from here.

6. The women from Nalotu stayed here because their husbands are from here

7. n/a

8. All learned in 1997, regardless of age

9. In 1997, Susana Radinivugalai and Seini Vono were the two elderly women who taught the other women the pottery production process for the revival project

10. The women not from Nalotu did not make pottery before moving there

11. n/a

12. n/a

13. Ulamila

14. See Vani’s interview

15. No

16. Oral tradition states that the pottery tradition in Nalotu came from Mau, Namosi

17. It is not known where the pots from 1997 went, but the ones made during this study are to be sent to Akanisi’s brother for use on his boat for Captain Cook Cruises

18. Sand is used and collected from the *galoa*

19. The clay is collected from the *danuma* in Nalotu, but was originally from Iliesa’s land in Naqalotu
20. **Kuro**

21. They all helped to make the 17 pots observed and recorded in this study.

22. They only learned one style from the teachers in 1997 and continued to create the same style and form during this study.

**Interview #4:** Answers from women who learned to make pottery during this study

1. Iva Bera, Losalini Sela, Koleta Marama, Sereseini Tiko

2. Yes


4. Iva – Yes, Losalini – Yes, Koleta – No, Sereseini – Yes

5. Iva – No, her husband moved to her village, Losalini – Yes, Koleta – n/a, Sereseini – No, her husband is from Ovalau and she is from Deuba, but they moved to Nalotu because he was stationed there as the pastor

6. Iva – it is not quite clear why she and her husband chose to live in Nalotu, however the reason I can determine from our conversations is that she wanted to live closer to her family, however, she belongs to her husband’s * mataqali*, Losalini – n/a, Koleta – n/a, Sereseini – n/a

7. Iva – n/a, Losalini – n/a, Koleta – n/a, Sereseini – because her husband is a pastor and he needs to travel to where he is posted

8. For all but Koleta, they learned later in life after marriage

9. They all learned from Ulamila during this study

10. None of the women made pottery previously

11. n/a

12. They all learned the Nalotu (Yawe) style and were allowed to make it, regardless of if they were originally born in Nalotu or not

13. Ulamila

14. n/a

15. No, just the style that Ulamila demonstrates

16. Oral tradition suggests that the pottery tradition in Nalotu was brought by a woman from Mau, Namosi. For the women not from Nalotu, there was no pottery style in their natal village

17. The pots made during this study are to be sent to Captain Cook Cruises to be used as representation of traditional Fijian heritage

18. Sand is used for temper and is collected from the *galoa*

19. The clay comes from the *danuma*, which was originally brought from Iliesa’s land in Naqalotu
20. None before the summer 2010 production process began
21. All the above women participated in making the 17 pots made during this study
22. n/a
## Appendix 2 – Ceramic Attribute Charts

<table>
<thead>
<tr>
<th>Pot #</th>
<th>Pot sample</th>
<th>Eversion angle</th>
<th>Eversion category</th>
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<tbody>
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<td>1</td>
<td>38°</td>
<td>Medium everted</td>
</tr>
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<td>2</td>
<td>1</td>
<td>27°</td>
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</tr>
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<td>1</td>
<td>39°</td>
<td>Medium everted</td>
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<td>4</td>
<td>1</td>
<td>32°</td>
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<td>1</td>
<td>43.5°</td>
<td>Medium everted</td>
</tr>
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Table A2.1  Qualitative attributes for pots 1-25. Pots 1-17 are pots made in Nalotu in 2010 and belong to sample 1, while pots 18-25 are Nalotu pots made previously and belong to sample 2.
<table>
<thead>
<tr>
<th>Pot #</th>
<th>Pot sample</th>
<th>Lip shape (For illustrations see Fig. 5.3)</th>
</tr>
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<tbody>
<tr>
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<td>1</td>
<td>Flat, outward bevelled (rounded in some areas)</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Flat, outward bevelled (more in some areas than others)</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Flat, outward bevelled (rounded in some areas)</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>Flat, outward bevelled (rounded in some areas)</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>Flat to rounded, outward bevelled and straight in areas</td>
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<td>Flat to rounded, outward bevelled in sections</td>
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<td>Flat to rounded, outward bevelled in sections</td>
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<td>1</td>
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<td>1</td>
<td>Flat to pointed</td>
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<td>1</td>
<td>Flat to pointed, outward bevelled in sections</td>
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<td>Flat, outward bevelled</td>
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<tr>
<td>25</td>
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<td>Flat, outward bevelled (more in some areas than others)</td>
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</table>

Table A2.2 Qualitative attributes for pots 1-25. Pots 1-17 are pots made in Nalotu in 2010 and belong to sample 1, while pots 18-25 are Nalotu pots made previously and belong to sample 2.
<table>
<thead>
<tr>
<th>Pot #</th>
<th>Pot sample</th>
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<th>External rim diameter (cm)</th>
<th>Internal rim diameter (cm)</th>
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</table>

Table A2.3  Quantitative attributes for pots 1-25. Pots 1-17 are pots made in Nalotu in 2010 and belong to sample 1, while pots 18-25 are Nalotu pots made previously and belong to sample 2.
<table>
<thead>
<tr>
<th>Pot #</th>
<th>Pot sample</th>
<th>Maximum diameter (cm)</th>
<th>Height at maximum diameter (cm down from top)</th>
<th>Internal orifice diameter (cm)</th>
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<td>19.1</td>
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<td>34.9</td>
<td>20.1</td>
<td>16.65</td>
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<td>39.2</td>
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</table>

Table A2.4  Quantitative attributes for pots 1-25. Pots 1-17 are pots made in Nalotu in 2010 and belong to sample 1, while pots 18-25 are Nalotu pots made previously and belong to sample 2.
<table>
<thead>
<tr>
<th>Pot #</th>
<th>Pot sample</th>
<th>External orifice diameter (cm)</th>
<th>Height at orifice diameter (cm down from top)</th>
<th>Lip thickness (cm)</th>
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Table A2.5 Quantitative attributes for pots 1-25. Pots 1-17 are pots made in Nalotu in 2010 and belong to sample 1, while pots 18-25 are Nalotu pots made previously and belong to sample 2.
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