CONTACT AND CONFLICT IN THE BANDA ISLANDS, EASTERN INDONESIA

11TH -17TH CENTURIES

BY

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Dedicated to my grandmother

Josephine Ellery Bragner, 1907-1997

who planted the seeds of my interest in islands in the Pacific,

and who knew how to tell a good story

Biographical statement

I was born in Concord, New Hampshire on February 14, 1963, and grew up in New Hampshire and Massachusetts. I received a BA in Physics from the University of New Hampshire in 1985. In 1992, I began the MA program in Museum Studies at San Francisco State University. During this program, I was fortunate enough to take a course in archaeology with Dr. Edward Luby, and I was subsequently hired by Dr. Luby at the Hearst Museum of Anthropology at UC Berkeley, where I worked on NAGPRA compliance with the archaeological collections. This led to my MA Thesis on archaeological collections policy and cultural resource management practices in California, and also to my desire to conduct my own archaeological research. In 1994, I entered the Ph.D. program at the Department of Anthropology at Brown University.

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CHAPTER 1

Introduction and theoretical approach

Introduction

The Banda Islands were the site of some of the fiercest struggles for trade and colonial dominance in the early modern era. These 11 tiny volcanic islands were the world's sole source of nutmeg and mace, the "fragrant gold" that helped finance the riches of 17th century Holland. While historically important as the first foothold of what became the Dutch colonial empire in the East Indies, the pre-colonial history of these islands has remained mysterious. We know little of the trajectory of Bandanese history until it collided with that of an expanding Europe in 1512 AD, when the first Portuguese ships dropped anchor under the smoking Gunung Api volcano. Just over a century later, society in Banda was irrevocably changed. The colonial era began abruptly in April of 1621, when Dutch East India Company (VOC) forces, aided by Japanese mercenaries, massacred, enslaved or banished some 90% of Banda's population, and the islands were subsequently repopulated by Dutch farmers and their Asian slaves.

Because of the paucity of written documents about the Bandas pre-dating 1512, I have directed an archaeological research program in the islands since 1997 with the aim of understanding pre-colonial social and political development in the islands. The archaeological data gathered is used here to illuminate changing settlement patterns, trade networks, and ethnic and religious identity with a focus on the period between 1000 - 1621 AD. This time period straddles the historic-prehistoric boundary. For the historic period, which begins in the 14th century with Javanese and Chinese ethnohistorical descriptions of the islands, documentary research has also been undertaken. The aim of this research has been to both re-evaluate the primary sources about Banda with a "Bandacentric" view towards internal social processes, and to generate questions for the archaeological data.

While set in a specific place in time, this dissertation also addresses questions of general anthropological interest. It is an examination of culture contact, and the cultural changes associated with

interactions between 'natives' and 'foreigners'. It is also a study of ways of combining disparate sources of information, from archaeological data covering broad time scales, to records of historical events and people. The objective of this dissertation is a re-telling of Banda's history, which until now has been told from a European perspective, guided as it was solely by European historical documents. This new history will be centered on the forces at work within these small islands, as well as links between these internal dynamics and the outside world.

The Banda Islands in the Historical Imagination

Despite their small size, the Banda Islands have played a large role in the world history. Nutmeg was known by the Chinese and Classical civilizations at least 2000 years ago. At first it was probably traded via numerous short distance transactions, and was one of the commodities that moved along the Silk Route from China to Europe. With the development of Arab navigation in the 8th-9th centuries, which cut out many middlemen and decreased transport costs, more spices form the East Indies, including nutmeg from Banda and cloves, which grew on the Molucca Islands just north of Banda, began to make their way to South Asia, the Middle East and Europe. As Europe emerged from economic dormancy in the 14th and 15th centuries, and European shipbuilding and navigation began to approach the technological heights of Arab maritime culture, there was increasing pressure to find a route to the Spice Islands. This route, if discovered, would not only bring great profits, it would do so at the expense of the Muslim world, which in Portugal and Spain was seen as a recently expelled invader. Much of the "Age of Discovery" of the 15th-16th century, including Columbus's voyages, was a long quest to find the "Indies," especially the Banda Islands and the Moluccas. This quest had many motives, but the two primary ones were a desire for wealth, and the need to complete the *reconquista* by conquering the Muslim world, not necessarily in that order.

In 1511, little over a decade after rounding Africa and finding the sea route to India, a Portuguese force discovered and quickly conquered the port city of Malacca (see Fig. 1.1, map of Southeast Asia). Muslim-ruled Malacca had risen in the 15th century to become the most important trade emporium in Southeast Asia, which was a natural entrepôt between China, India, the Spice Islands and the Arab world. Shortly after taking the city, the Portuguese organized a small exploratory fleet, and with the help of a

Malay navigator and a copied Malay map, headed east to find Banda. The Portuguese missed the tiny islands on the first pass, and had to wait for the monsoon winds to change in the swamps of Seram, 100 miles east of Banda, before they backtracked and finally sighted Banda's Gunung Api volcano. In early 1512, for the first time, Europeans bought nutmeg directly from the Bandanese people, at what must have been very attractive prices. Merchants could earn profits of 1000% or more on Bandanese nutmeg, if they survived the voyage back to Lisbon or Amsterdam. In Europe, nutmeg and other spices were luxury goods in demand by an increasingly wealthy populace, who desired these rare substances to mask the odor of their rotting meat, flavor their beer, cure the plague, or simply signify their access to rare and exotic items.

In many ways, Banda was the final goal of a remarkable period of Portuguese exploration, and Portuguese explorers did not venture much further east than Banda after 1512. It was the ultimate source of valuable spices, and it was also at the edge of the Muslim world and therefore the boundary of the battleground of the global *reconquista*. Islam had only recently been adopted in the Indies. The Bandanese told the 1512 explorers (in answer to what was probably their first question) that they had been "Moorish" for only 30 years.

For people in Banda, the arrival of the Portuguese began a new era of conflict with foreigners that would have tragic consequences. For the next 90 years, there is little information about Portuguese-Bandanese relations that has survived in the records. The Portuguese never established a colonial presence on the islands, a surprising fact considering the efforts expended to find them, perhaps because of Bandanese resistance to colonial control. The Moluccas to the north became the center of Portuguese administration instead

In 1599, new players entered the spice-trading game. Holland, which was beginning an economic, and cultural revolution having emerged from under Spanish political control, organized a small fleet to find the spiceries. They were guided by the atlas and travel accounts of Linschoten, who, as a Dutchman working for the Portuguese in Asia, finally broke the Portuguese royal ban on publishing details about exact location of the islands. Three Dutch ships entered Banda's harbor, and with no Portuguese fort to harass them, quickly filled their holds with the Banda's fragrant gold. Beating incredible odds, the entire fleet made it back to Amsterdam, reaping tremendous profits for the investors, and igniting a feverish race to not only participate in the spice trade, but monopolize it. It quickly became apparent to the Dutch, who

organized themselves into a corporation called the Vereenigde Oostindische Compagnie, or United East India Company (VOC), that this meant stopping other traders from buying nutmeg in Banda, and controlling the production and prices they paid to the Bandanese. In just 20 years, they largely achieved those goals, but at tremendous costs, both to the VOC, which eventually went bankrupt, and the Bandanese people.

At first, though, relations between the Dutch and the Bandanese were relatively peaceful, and the Dutch bought their nutmeg alongside the melange of traders from China, Java, the Malay world, India and the Middle East. But soon another group entered the scene, which made the Dutch especially nervous. English merchants had formed their own East India Company. Although never as well financed or organized as their Dutch competitors, they managed to outfit ships and buy nutmeg in Banda, which undermined the Dutch plan for monopoly trade. This encouraged both parties to draft "agreements" with various groups Bandanese leaders (who were never united above the village level), which committed the Bandanese to sell all of their nutmeg to one or the other of the Companies. While several agreements were signed, they were soon broken, as there were plenty of other traders to turn to (who usually brought more appropriate and desirable Asian trade goods than the Europeans). The violation of these written agreements provoked the Dutch, who had the most to lose, and also gave them moral justification to begin to control the islands through military might.

The tense situation in Banda was made more so in 1609, when Dutch Admiral Verhoeven landed a large army on Banda Naira Island to begin building Fort Nassau. His men had numerous small skirmishes with resistant Bandanese, who were quite well armed, having traded nutmeg for weapons for centuries. Some Bandanese leaders finally called for negotiations, and invited Verhoeven to their traditional meeting place in the forest. The meeting was a trick, though, and Verhoeven and most of his staff were ambushed and killed, in what must have been a few short minutes of mayhem that changed the course of history.

The next decade was one of battles, shifting alliances, and international negotiations. In 1621, one of Verhoeven's junior officers who survived the 1609 ambush, Jan Pieterszoon Coen, was promoted to the highest-ranking position in the VOC, and he exacted his revenge. With a force of thirteen large ships, three messenger craft, thirty six barges, and an army of nearly 2000 men, including 80-100 Japanese mercenaries, Coen invaded and systematically captured every village in the islands, cutting off food

imports, massacring most of the traditional leaders, and enslaving any survivors, who were shipped to other Dutch colonies in Asia.

Thereafter, Banda became a strange outpost of rural Holland. The now vacant land was divided into plots called *pereks* (park or plantation), which were given to Dutch settlers to manage (though not to own, beginning a struggle for land rights in Banda which continues today), along with an allowance of slaves and supplies. In exchange, the settlers, called *perekeniers*, agreed to sell their entire nutmeg production to the VOC at set prices. A new society evolved, made up of Dutch landowners, slaves from different parts of Asia, and a few surviving, embittered Bandanese. For the Dutch, Banda was the violent birthplace of the Dutch colonial world, which can be traced officially to a VOC treaty signed in 1609, in which a few Bandanese leaders gave the trading company its first piece of colonial real estate. This small acquisition would eventually grow into the vast Dutch East Indies, which in 1945 became the newly independent nation of Indonesia, now the world's fourth most populous country.

Re-thinking Banda's history

The brutal conquest of Banda in 1621 lives in the historical imagination as a tragic, but inevitable result of the larger forces at work in the corporate headquarters in Amsterdam and London (Hanna 1978; Loth 1995a; Loth 1995b). In stories of the conquest, pre-colonial Bandanese society is typically represented as homogenous and culturally static (Hanna 1978; Masselman 1963; Meilink-Roelofsz 1962). In the popular historical literature, the islands are romantic, fragrant "Edens" populated by naïve natives, transformed only by contact with the heroes and villains of the European age of exploration (Corn 1998, Milton 1999). Even those who attempt to write a Banda-centric view of history are limited by a documentary record that is almost entirely written by European visitors to the islands (Villiers 1981; Villiers 1990). None of these stories is populated by Bandanese people who were active agents of their own destiny.

This dissertation is an attempt to re-think the imagined Banda with a focus on the people who lived there, using both documentary and archaeological data. While archaeology cannot bring these people back to life, it can gain access to a record of change extending into the pre-European past that is largely missing from the historical documents. It can also illuminate a potentially heterogeneous and dynamic

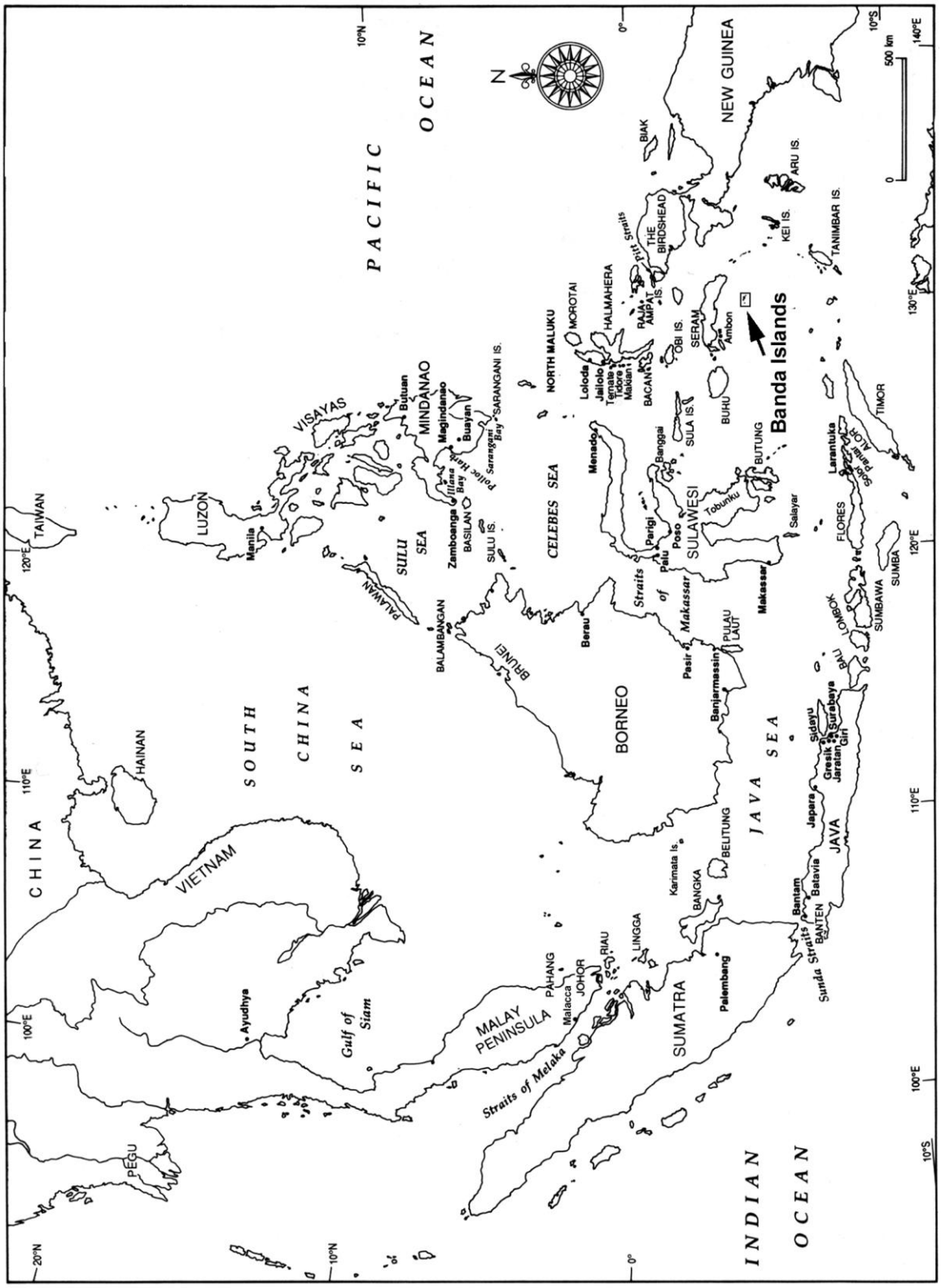

Figure 1.1. Map of Southeast Asia, showing 15th-17th century place names referenced in text (adapted from Andaya 1993: 1)

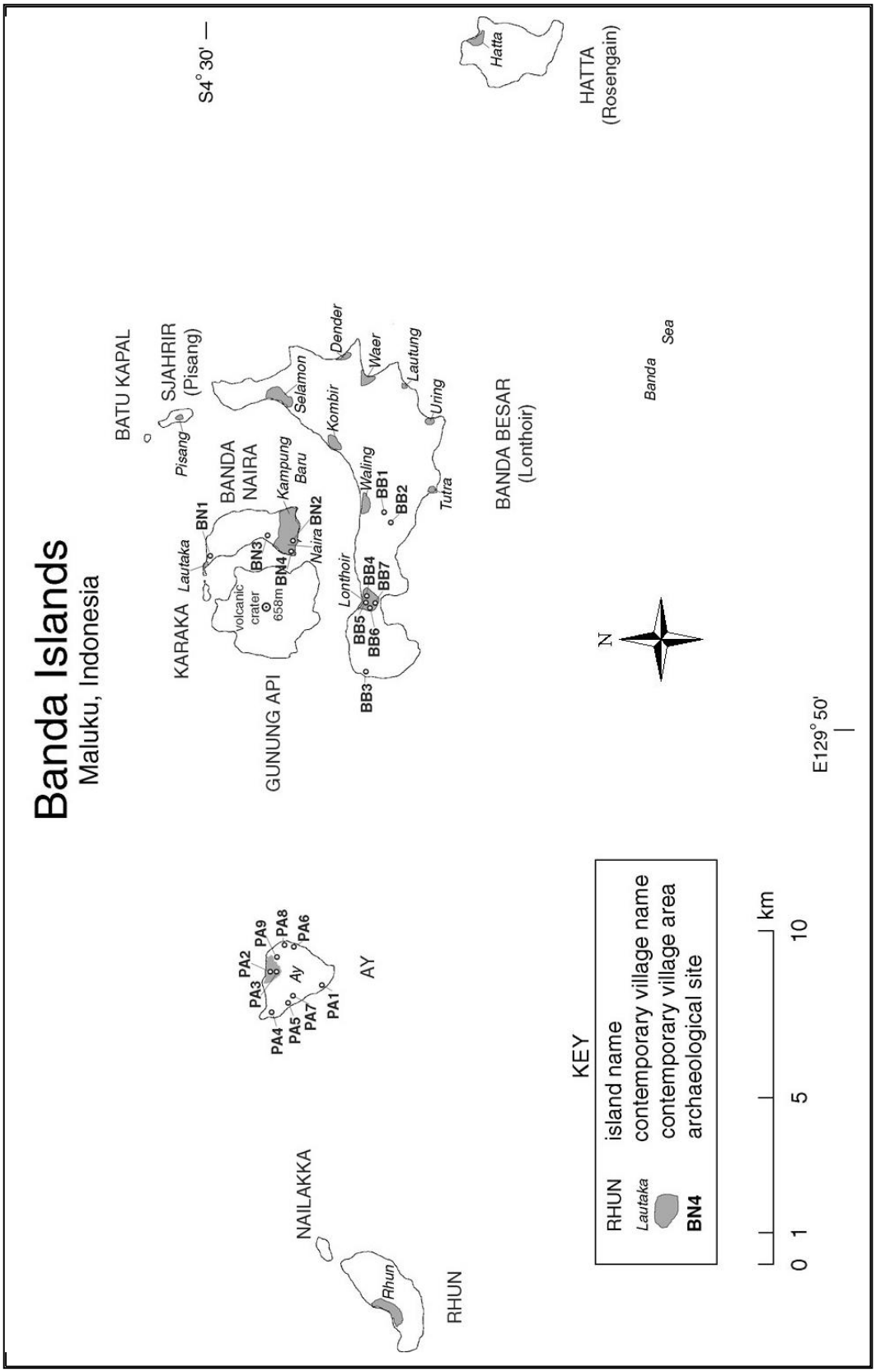

Figure 1.2. Map of the Banda Islands, showing archaeological sites and contemporary settlements.

social landscape on a local scale, highlighting internal social structures and tensions that influenced the course of events leading up to the 1621 conquest, and the echoes of that event that continue to influence society in Banda and the Maluku region.

Research problems

This research aims to address questions about changes in social organization in Banda during the 11th - 17th centuries. It is an attempt to develop explanatory links between internal changes, such as settlement patterns and religious change, and external forces, such as colonialism, globalization of trade networks and the spread of world religions. A focus on settlement patterns, trade networks and religious identity can be investigated by both archaeological and historical data. It is the combination of these two separate lines of evidence that allow a rethinking of Banda's history beyond (both temporally and cognitively) the histories written from documents alone.

My thesis is that the arrival of Muslim traders in Banda in the centuries before the first Europeans arrived began a process of social transformation. This process incorporated not only shifts in religious belief, but fundamental changes in the political economy of the islands. These changes, like any social change, did not happen smoothly, or all at once. Rather, they introduced new tensions and conflict into the islands' society that resulted in a factionalization of settlement. New Muslim-oriented settlements drew population, wealth and political control away from older settlements. The new settlements had different geographical requirements. They needed easy access to protected harbors, whereas the older settlements needed protection from attack. The new settlements were also strategically situated to capture trade from the Muslim world to the west, while the older settlements were oriented toward trade with local regions, and with China to the north. These tensions and conflicts were not resolved when the first Europeans arrived in the 16th century. Instead, these internal divisions impeded Bandanese resistance to European intrusions, and ultimately sabotaged Banda's struggle for autonomy.

In order to prove or disprove this thesis, the following specific questions guided the archaeological and documentary research:

1. *Who was trading with the Bandanese?* Was nutmeg making its way out of the islands via hundreds of short distance exchanges, or were long distance traders visiting the islands? When did direct

contact with Chinese happen (if ever) and when did contact with Muslim Arabs, Indian or Malay traders begin?

2. *When did the Bandanese begin to convert to Islam?* Did the entire population convert all at once, or was the process a longer one? Were there internal tensions or conflict as a result of this religious change? What were the links between political and economic power and religious identity?

3. *What were the patterns of settlement in late pre-colonial Banda?* In particular, where did people live in Banda? Did different settlements have distinctive characteristics that might represent differences in group behavior and identity? What social and/or physical factors affected their choice, and how did this change from the 11^{th} -17^{th} centuries, as well as after the 1621 conquest?

These questions are oriented towards a very specific place in time. However, by contextualizing social processes seen in Banda with larger changes, such as intensifying world trade, Islamization, Christian-Muslim conflict, and European colonialism, I hope to provide a study of general anthropological interest. I attempt to do so by focusing on ten tiny volcanic islands at the outer periphery of a global trading system. It is improbable that a few thousand Bandanese altered the course of world history, however the patterns we can see in Banda's experience may alter our understanding of culture contact and colonialism in other parts of the world.

In order to address the higher order questions discussed above, many lower level questions have had to be addressed, particularly in the archaeological portion of the research. This dissertation project was the first archaeological research undertaken in the Banda Islands, which are in turn situated in a region that has also seen relatively little attention from archaeologists. For example, there was no existing local pottery sequence worked out, no previous geological or biological studies, only a preliminary understanding of initial human settlement on the islands, or of major cultural changes. Working in this unexplored territory was exciting, but in some cases, the lack of a body of previous research was frustrating and difficult. As the first archaeologist to work in Banda, I feel a responsibility to present more background data than I might have working in a more established region, because future archaeologists may need to refer to this dissertation, regardless of their temporal or theoretical focus. My experience working with historical scholarship has also colored the way documentary data is presented here. I have chosen to present some

information in a relatively "undigested" form and follow this with an analysis. Many times, I encountered a historian's "reading" of a historical document with no way to analyze its reliability, or to mine it for my own uses. The original documents, mostly unpublished, are scattered in archives across Europe. Thus, there is a general attempt in this dissertation toward opening the analytical process to the reader, in terms of data and research methods. This is done in hopes that it both stimulates and aids others who would like to work in this fascinating and understudied part of the world.

Theoretical approach

As a production center for valuable spices, Banda was a magnet for traders from other places. This makes Banda a particularly useful case study for research into the effects of cross cultural trade, culture contact and interaction. The central questions that structure this dissertation are based on Banda's unique attraction to outsiders. What was the nature of contact and interaction between Bandanese and outsiders in the 11-17th centuries? How did this contact affect both the internal development of Bandanese society, and subsequent relations with the array of "foreign" social groups that landed on its shores? This chapter will focus on their relevance to general anthropological theory, and reviewing how other anthropologists and historians have tried to answer similar questions in different locales.

Settlement pattern studies

I use the term settlement pattern here to mean the spatial relationships between human habitations. Typically, settlements are marked by archaeological features related to human occupation, or represented on historic maps. Habitation is used to mean domestic space, but could include more ephemeral uses of land, such as processing areas, markets, ritual or religious uses, and monuments and sacred sites, which may not be marked by concentrations of artifacts. The challenge for settlement archaeologists, and particularly for this study, is to find way to conceptualize theories that incorporate local, regional and global processes, environmental and cultural factors. Boundaries (of sites, of groups of people, and of networks) are also a critical concept. Below I review those theoretical models and methodological advances I see as most relevant to my research questions.

There is a long history of the study of human land use by archaeologists, which, particularly since the 1950s (Willey 1953), has shifted the traditional archaeological focus from the artifact and site to include

the relationship between sites and the larger landscape. As with archaeology in general, models and theories drawn from other disciplines have influenced settlement archaeology. These borrowed models have also extended the application of settlement archaeology to studies of trade and exchange, colonialism, and power relations and politics. For example, the biological sciences have been the source of ecosystemic approaches in settlement archaeology. While early attempts at site catchment analysis, for example, had difficulties measuring the relevant variables (Flannery 1976), the consideration of humans as part of larger ecosystems has been useful for settlement archaeology (Kirch 1983) as well as historical studies (Cronon 1983, Crosby 1986). Most productive are those studies that avoid environmental determinism and reconcile ecosystemic change with human invention and agency (e.g. Gummerman 1991).

Geography has provided new ways of thinking about human-land interactions that avoid simple determinism. Central Place Theory, for example, has been used by archaeologists to integrate cultural and geographical factors (Johnson 1972). Ellen (1979, 1987, 1990) has applied this theory to eastern Indonesia as a framework for understanding why certain places (the Banda Islands among them) remain "central" or important (for trade, mostly) through a long history of extreme cultural change. In Ellen's analysis, these central places are geographically well suited for centrality. More interesting, however, is the way certain places link the past and the present through periods of change in ways that conserve cultural systems, despite the replacement of individuals or even entire ethnic or linguistic groups. In this way, geographical factors that link places (like monsoon winds, mountain passes or ocean currents) stimulate social connections to grow into networks, but once established, these social networks reproduce themselves in unexpected and non-deterministic ways.

Finding causal links between economic shifts and settlement pattern shifts has proved to be a useful way to link global and local processes. Studies with this approach often use the terminology and models of world systems, especially the center-periphery concept, developed by Wallerstain (1974). For example, Paynter (1982) linked settlement pattern change in the Connecticut River valley of New England in the 19th century to developments in the "British world-system," and connected global processes to local, archaeologically detectable changes. In the deeper past, Dincauze and Hasenstab (1989) used the center-periphery concept to explain the tribalization of the Iroquois (which has some intriguing parallels with political development in Banda) as a result of both pre-contact historical dynamics in a wide region

including the Mississippi valley, and geographical factors in the local landscape that constrained local political developments. These are two of the more successful applications of center-periphery models to regions and/or eras outside of Wallerstein's original study (see also Champion 1989, Rowlands, et al. 1987). However, world systems models, which developed from economic models derived from post-19th century Euro-American industrial society, are still of questionable applicability to many societies of archaeological interest. Other critiques abound, particularly the dichotomization of the core and periphery, which minimizes the effect local (peripheral) systems have on global (core) ones (Rice 1998).

Boundaries and identity

Anyone who studies settlement is soon confronted with the problem of boundaries. What is the boundary of an archaeological site or a complex of sites? Things get substantially more complicated when one tries to interpret how settlement patterns seen archaeologically related to past patterns of human social grouping. The possibility of defining the boundaries of human social groups in measurable qualities remains an open question in anthropology. Group identity is best seen as a social strategy, used by individual actors in various social situations. It can be contradictory, and members can claim or express membership in crosscutting, seemingly exclusive groups. In some situations, people may not signal social group membership at all. Some have argued that individual "cultures" do not exist, except in anthropologists' imaginations (Mann 1986). A more optimistic reading of the ethnographic literature would be that humans often identify with certain groups, these groups often have a geographical coherence, and people often signal their group identity, consciously or not, with material items (Pollard 1994: 79). However, humans frequently do not behave according to this model. Any study of human social groups must maintain an awareness of the inherent messiness of human grouping behavior.

The central problem is how to allow for internal group heterogeneity while maintaining some homogeneous definition of group boundaries. Ethnographic and archaeological evidence suggests that within traditionally conceived social units, such as ethnic or linguistic groups, subsets and cross-cutting categories may be important agents of change, conflict and innovation. Defining frontiers as the "edges of relatively homogenous colonial populations," for example, does not adequately allow for the study of interactions between all the various individuals involved (Lightfoot & Martinez 1995: 474). Likewise,

groups generally thought of as homogenous (such as "colonizers" and "colonized") are often internally fragmented; other social categories (such as class, gender and/or political factions) may play a larger role in cultural transformation over time (Stoler 1989).

The overriding problem is to understand the complexities of human behavior using a simplified abstract model. While models and abstractions are the way we make sense of the world and communicate our understanding to others, they can also limit understanding if used inappropriately. Anthropologists have noted the limitations of using "closed" models for what are inherently "open" systems of human social relationships for some time (Juteson & Hampson 1985). These days, most of us would agree that social groups are "not continuous integrated bounded entities that can be stopped in their space-time tracks as traditional ethnography has led us to believe" (Conkey 1990:12). Nevertheless, anthropologists have difficulties letting go of traditional ethnographic models and their convenient categories. For example, while Lightfoot and Martinez claim frontiers are "zones of cross-cutting social networks," in the same paragraph they state their approach allows archaeologists to examine "colonial and indigenous peoples" and their "encounters" (Lightfoot & Martinez 1995: 474). Wolf claims it is "difficult to view any given culture as a bounded system" (1982: 19) but finds himself talking about "the Iberians", "the Metis" or "the Zulu" as though they were. It turns out to be extraordinarily difficult to maintain semantic openness once a category is given a name. It is quite difficult to imagine "the Metis" as a contingent, contested, invented category with little real coherence.

This is not a trivial problem for one who would like to write about the past in a way that maintains some of the complexity and unpredictability of real life. This problem is only magnified when telling the history of places visited by people from dozens of widely separated homelands, whose parents may have each been born on different continents, who traveled widely, spoke more than one language, who changed religions, perhaps more than once in their lifetime. How do we invent a theoretical language that makes sense of this situation, but not too much sense?

The limitations of archaeological and documentary data provide one way out. Of the tens of thousands of people who lived in and visited Banda from the 11^{th} -17^{th} centuries, there remain the echoes of just a few thousand words, two dozen names, a few fleeting images of faces. Most of this story operates in a time scale beyond that of a person's life. The most precisely dated archaeological material is still plus or

minus 40 years, which covers the vast history of two or three generations. The material objects I have excavated are a logical step removed from the ways people related to one another, and even at that logical distance, can only illuminate certain aspects of the way people organize and express their social lives. In many ways, evidence about the messiness of people's lives is unavailable to us. However, it is still possible to maintain a theoretical orientation that is not overly deterministic. By examining how real group identity is created and reproduced, it may be possible to interpret the documentary and archaeological evidence in a way that allows for messiness.

A network model focuses on connections and interactions rather than boundaries and group identity. The edges of networks, if they exist at all, are fuzzy and open, tending toward expansion. A network model assumes the interconnectedness of its elements, and emphasizes that membership is something gained through interaction, rather than an inherent quality.

I suggest that the following factors must be accounted for in any archaeological study of social networks, including boundary creation, maintenance and group interaction:

1. Social networks do not necessarily have a fixed or exclusive membership. Individuals can identify themselves with an ever-shifting variety of overlapping social networks, some of which may even appear to be contradictory (Green & Perlman 1985; Juteson & Hampson 1985; Stoler 1989).
2. Social networks do not necessarily have a fixed spatial presence. They may cut across geographical, linguistic or technological boundaries, and may be expressed simultaneously at a variety of scales, within households, settlements and across large geographical areas (Welsch & Terrell 1998, Brumfiel, 1994 #249).
3. Social processes unrelated to social grouping and boundary expression also create a spatial variation in the archaeological record. For example, a single social group may have different uses for different parts of the landscape, such as activity areas, mortuary grounds, etc. (Hitchcock & Bartram 1998).

Groups only exist through the (inter)actions of people. A network approach emphasizes connections between individuals, rather than membership boundaries based on shared traits or lines drawn

on a map. With its emphasis on behavior, a network model allows for the use of the archaeological record (which contains the residues of human behavior) to draw connections between people and places, without requiring the inference of boundaries. This is particularly useful in situations of culture contact, which are characterized by rapid movements of people across landscapes, and rapid transformations of social identity.

Culture contact and factionalization: Transforming social networks

Culture contact has long been a central theme of anthropological and archaeological research. Traditionally, culture contact studies have assumed a process whereby two homogenous and distinctive groups of people come into contact with each other. These groups were usually defined as bounded entities with specific membership, rather than as open, situational foci of identity as discussed above. Since the Columbus Quincentenary in 1992, there has been an increased focus by historians and archaeologists on interactions between the supposedly distinctive cultures of "natives" and "colonists" (Cusick 1998b; Deagan 1998; Falk 1991; Fitzhugh 1985; Kirch & Sahlins 1992; Lightfoot 1995; Rogers & Wilson 1993). This new activity has inspired discussion of some fundamental anthropological questions. These questions include 1) how do we understand and explain "culture contact" if group identity is contingent and situational? 2) How do the processes of interaction between people create new definitions of difference along with new modes of understanding? 3) How can archaeological data be used to reconstruct these complex and dynamic processes? More generally, if we acknowledge the complicated and sometimes contradictory ways that humans organize themselves into groups and/or networks, where does that leave the concept of "culture contact"?

In the late 19th and early 20th century, archaeologists often invoked "external" forces to explain changes seen in the archaeological record. This focus on external change was part of a paradigm that saw culture, particularly indigenous culture in colonial situations, as static and lacking the initiative to develop on its own. In this paradigm, migration or diffusion was invoked to explain changing archaeological sequences. In a shift away from the highly speculative theories of hyperdiffusionism in the mid-20th century, internal factors became the object of archaeologists' attention. This movement gained momentum

with New Archaeology's focus on the relationship between human societies and their environment (Trigger 1989).

Some archaeologists maintained an interest in the "external" processes of culture contact throughout this period, despite the environmental focus of American archaeology (Caldwell 1964). For most of the 20th century, an acculturation framework guided these externally oriented archaeological studies of contact, particularly in Native American sites. Since the 1970's, however, acculturation has been increasingly criticized for a variety of reasons. Primary among them was the latent imperialism of acculturation studies, which have tended to frame Native American societies as passive receivers of European culture, and the assumed unidirectionality of influence. Other problems were that acculturation studies tended to equate changes in material culture with changes in behavior, world view and identity, and that power relations were not accounted for (Cusick 1998a). This traditional method of tracing European-inspired change in Native American societies was also limited in the ways it could address modern cultural identity in those societies, which have continued to maintain a distinctive identity despite centuries of interaction with others (Deagan 1998).

Since the 1970s, new theoretical frameworks have been proposed that attempt to overcome the problems with acculturation. A basic division of contact situations into types, such as directed and non-directed, has been suggested as a way of incorporating power differentials into models of contact. Directed contact situations are those where one group has more power to define economic and political structures, whereas in non-directed contact situations the two groups have equivalent power. A three-part categorization is posed by Alexander, who divides contact situations into colonization, entanglement and symmetrical exchange (Alexander 1998). This scheme attempts to parse more carefully the various types of power relations he sees in contact situations, including equality, as well as to account for the duration and intensity of contact.

However, do these new theoretical frameworks account for the creative, situational, yet habitual nature of human group identity? I suggest that while they often do not, culture contact is still worth retaining as an organizational framework for understanding certain historical situations. I will use the term culture contact to mean situations when people with very different conceptions of group identity meet and

interact. Situations of culture contact have the potential for sparking radical social transformation, as people encounter and invent new social networks, modes of understanding, materials, languages and lifeways.

One transformation that often coincides with culture contact is factionalization, as new forces cause existing social networks to fracture and re-organize along new lines. Researchers have noticed the important role competition between factions plays in social transformation. I use the definition of factions provided by Brumfiel, as "structurally and functionally similar groups which, by virtue of their similarity, compete for resources and positions of power or prestige" (Brumfiel 1994b: 4).

The importance of factions has often been underestimated by archaeologists. By definition, culture contact involves groups that are structurally and functionally dissimilar (Fitzhugh 1985). However, factions seem to be particularly prominent in the juncture between local and regional, national or international politics. Many ethnographic studies, for example, have focussed on factional competition in tribal groups under the dominance of state level powers (Brumfiel 1994b: 5). The implications for the archaeological study of factions are that they may exist at a scale of analysis beyond the site or even the local region. Further complicating the task of factional analysis for archaeologists is the similar archaeological signature different factions may leave behind. Factions may not be made up of people with distinctive behaviors that facilitate other kinds of group analyses. However, factional competition may stimulate the development of more distinctive group behaviors, including ethnicity (Brumfiel 1994a; Pollard 1994).

The primary obstacle for the archaeological study of factions is their lack of initial distinctiveness. The more convincing studies of factions in the pre-colonial New World, for example, rely on documentary data (or less convincingly, ethnographic analogies) to support inferences from the archaeological record (Anderson 1994, Helms 1994). However, factions are worth considering because they provide an explanation for conflict between groups of people without requiring some essential difference in group identity or functionality. In pluralistic social situations where many social groups co-existed (such as in many trade ports, for example), factions may have cross cut these traditionally defined groups. Considering them allows us to look for other kinds of conflict and cooperation beyond that determined by ethnic, religious or racial lines.

Summary

In this section, I have attempted to situate settlement pattern studies in the broad context of social identity, and develop links between settlement and social transformation. The view taken here is that broadly conceived, settlement patterns can provide information about behavioral connections between people that are the basis, the "stuff" of social networks. In situations of culture contact, settlement studies, based on a network model of social identity formation can provide useful information about why people choose to live where they do, and how their choices structure the process of social identity re-invention. A common aspect of social network change is factionalization. While difficult to detect archaeologically in its early stages, factionalization may lead to ethnogenesis and the development of entirely new modes of identity expression.

In Island Southeast Asia, the introduction and widespread adoption of Islam presents an opportunity for the application of these ideas. This is discussed in more detail below

Islamization

One of the consequences of long term culture contact in island Southeast Asian was the growing numbers of people in the region who identified themselves as Muslims from at least the 14th century onwards. This process of Islamization has been the subject of study by historians of island Southeast Asia, as well as other parts of the world that experienced shifts toward Muslim belief after the 7th century AD. Islam plays a central role in the time period I am studying in Banda. The adoption of Islam by people in Banda during the early modern era was perhaps the most important consequence of Banda's attraction to long distance trade.

The Islamization process embodies many of the themes of social networks, culture contact and factionalization discussed above. Early scholars tended to characterize Islamization as a cultural trait imposed by Arabs or South Asians on Southeast Asians, and one that happened all at once (e.g. Soedjatmoko 1965). More recently, Islamization has been viewed as a long-term process which is ongoing today (Ricklefs 1979). Scholars see increasing evidence that rather than being simply imposed by foreigners, Islam was used by Southeast Asians on their own terms (Milner 1983). As Hindu-period historians shifted toward concepts of indigenous development, Islamic historians began to focus on the

sources of Islamic influence and the mechanisms by which it was transmitted to Island Southeast Asia (Hall 1977). Sufism, a mystical arm of Islamic thought, carried by traveling Sufi mystics, was thought to be the chief method of transmittal, as Sufi thought was amenable to pre-existing animist religions (Ricklefs 1979). For many people in Southeast Asia, Islam provided an important ideological framework for resisting European cultural influence and political control, and for unifying otherwise divergent political entities (Andaya 1993: 147; Reid 1993b). Islam was a political tool used by leaders to both consolidate their power in monarchial forms favored in Islamic doctrine, and to demonize their opponents and their attempts to usurp economic and political power (Johns 1995; Reid 1995; Ricklefs 1979).

Contributing to a more nuanced historical vision in the past two decades have been ethnographic studies of contemporary Indonesian Islam. These studies have brought into focus the many different ways individual actors utilized and manipulated available religious dogma in strategic ways, including fundamentalist Islam, Hindu-Buddhist thought, ancestor worship and animism (Geertz 1960, Anderson 1990). Islamic historians began to rethink history in terms of these kinds of processes. Johns (1995), for example, has reevaluated the role of the Sufi mystic, particularly in spreading a text-centered religion like Islam through the largely non-literate world of 13th-17th century Island Southeast Asia. While mystics like *ulama,* who performed marriages and funerals in villages may have played an important role, especially in the 16th and 17th centuries, Johns emphasizes the role of the sultan and raja, especially during the early period of rapid Islamization in the 14th and 15th centuries. Sultanates were first established in the Middle East in the 11th century, and spread rapidly eastward, with Aceh in western Sumatra establishing its first sultanate in the 14th century.

This political model for Islamization (as opposed to a grassroots conversion by traveling mystics) seems to be a better explanation for Islamic religious-political change in the archipelago. Powerful people (particularly reformers who control trade in some way) use a new cosmological scheme (introduced by traders) to both legitimize and expand their power. They also concurrently solidify their relationship to foreign traders who share their belief system, which further boosts their control of trade, often expanding it to adjoining regions (Reid 1993b; c.f. models for earlier Hindu-Buddhist polities in Hall 1985). This model is also intriguingly similar to the "shipshape society" that Manguin (1984) describes as a common element

among the (primarily Islamic) maritime trade societies of Island Southeast Asia, as well as the development of chiefdoms of Polynesia theorized by Kirch (1983).

What motivated individual people to convert to Islam? It may have been genuine shift in belief, as Muslim and other religious scholars generally purport. It may have been attractive for its apparent power in magic and ritual, and the prestige associated with possessing those powers. It may have been its benefits for trade and administration, such as providing security and comfort for visiting Islamic traders, and simplified administration using written Arabic language and a fixed calendar using the lunar cycle. Insoll proposes that it held particular appeal for town dwellers in urban, multiethnic population centers. It also appealed to nomads (like long distance traders) because of its lack of a hierarchical priestly system. It may have had less appeal for sedentary agriculturists, as it did not fit as well with a farmer's life that revolves around crops, for which animism supplied better answers (Insoll 1996: 90-92). Reid, summarizing Horton, O'Connor and Hoskins, adds that for the maritime traders in Southeast Asia, Islam was attractive because it was "portable." It did not require reference to permanent landmarks in a home landscape, but made sense anywhere, and furthermore did not subject the traveler to unknown spirits manipulated by his enemies (Reid 1993a: 159). In any case, it is clear that for Southeast Asia, any study of Islamization must incorporate political economic factors, as the Islamization process was interconnected to trade and commerce in myriad ways.

Archaeology of the Southeast Asian "Age of Commerce", 10th-17th centuries

Archaeological research oriented toward the 10th-17th centuries in Southeast Asia is still in the preliminary stages, and research about this period in history has been dominated by historians. Archaeological data is largely fragmentary, and limited to earlier periods. Most archaeological research throughout the 20th century in Indonesia, for example, was concerned with identifying influences from South Asia through the study of the monumental architecture of Java and Bali (Tanudirjo 1995). Since Indonesian independence in 1945, government archaeology programs have dedicated their limited resources to studying and preserving these large temple complexes, while places that lacked monumental architecture were largely ignored. Partly as a result of this focus, Indonesian archaeologists have generally

taken an art-historical approach to the past, which has resulted in a focus on sites containing imagery or epigraphs, with an aim toward reconstructing culture-history (Miksic 1995).

The formation and development of the early maritime states of Mainland and Island Southeast Asia in the first millennium AD have been one area where archaeological research has made an impact on previous understandings from textual evidence. Here again, settlement studies, especially those incorporating trade and exchange, have been the most productive. In some cases these studies have influenced state formation theory in other parts of the world, by a demonstration of the possibility for non-urbanized states (Wisseman-Christie 1995, Bronson 1977, Miksic 1991, Higham 1989).

The second millennium AD has seen substantially less attention from archaeologists. Research has been dominated by regional studies of trade, particularly with China, perhaps reflecting the dominance of Chinese ceramics in archaeological assemblages from this period (e.g. Joseph 1973). However, this narrow focus may be changing, evidenced by recent studies which link fragmented archaeological data to address anthropological questions, such as the role of disease in urban ancient Indonesia (Miksic 1999) and economic control of craft production in late pre-colonial central Philippines (Bacus 1999). Both Bulbeck (Bulbeck 1992; Bulbeck & Prasetyo (1999) and Allen (1999) have utilized texts and archaeological settlement survey to trace and explain the development of pre-colonial kingdoms in South Sulawesi and coastal Malaysia, respectively. However, Southeast Asia has yet to see archaeological investigations of questions of European colonialism, and this period is still largely the domain of those working with textual sources (Abdurachman 1978; Andaya 1991; Andaya 1993; Chaudhuri 1990; Curtin 1984; Loth 1995b; Masselman 1963; Meilink-Roelofsz 1962; Steenbrink 1993; Villiers 1981; Villiers 1990).

Previous archaeological research in Maluku

The Maluku region remains one of the least studied regions of the world, archaeologically speaking, with the first scientific excavations occurring in the region only since 1990 (Spriggs 1998b: 49). This is a surprising fact, considering the importance of the region in world history, and the explanation for it lies in the history of archaeological research in Southeast Asia, and Indonesia in particular. Maluku has often been viewed as an archaeological backwater. It lacks monumental architecture, and sites containing imagery or epigraphs are relatively less numerous in Maluku. The Maluku region also suffers from a lack

of well-defined research questions, corrected somewhat by Spriggs (1998b), major bureaucratic obstacles blocking research permission for archaeologists, particularly non-Indonesians, and a lack of published regional studies synthesizing the fragmented knowledge of the region.

The primary force behind archaeological research in Maluku in the last decade has come from Australian archaeologists, who have looked to the region to address questions about the initial colonization of Australia and New Guinea (Bellwood 1997). Several of the possible migration routes used by the first human colonizers to cross from Southeast Asia to New Guinea and Australia between 40,000 and 60,000 years ago lie in Maluku (Spriggs 1998b: 51). Research has been directed towards dating this initial migration more precisely. Because the Pleistocene shoreline of Australia is now under water, some islands in Maluku, such as Aru, were formerly near the northwestern coast of the Sahul continent (Pleistocene Australia/New Guinea), and other islands may have been stepping stones for voyagers migrating from Asia. Researchers have now dated the earliest evidence of human presence in Maluku (at Gebe Island) to at least 32,000 BP (Bellwood 1997: 87). Earlier dates are expected as research continues, as there is some evidence for human presence in Australia some 60,000 years ago or more.

A second period that has generated interest in Maluku archaeology is the so-called Neolithic (though ground stone artifacts are rare in the region), dating to 4500-3500 BP. During this time, new technologies, and possibly a new population, reached Maluku from a Taiwanese epicenter or homeland, and subsequently spread though Melanesia and Polynesia. These introductions (or local innovations) included pottery making, the introduction of domestic animals like the pig, and the Austronesian language family (Bellwood 1997: 201-57; Bellwood *et al*. 1995; Spriggs 1998b)[1]. As Maluku lies along the theorized path of this expansion, on its way into Melanesia and Polynesia, it has been considered an important link for those concerned with the origins of culture to the east, and with the ongoing debates about the Lapita archaeological complex and its possible correlation with human populations.

A third time of interest, though it has generated less focused research in Maluku than the above earlier periods, is the period beginning at about 2000 BP, which Bellwood terms the "early metal phase" (Bellwood 1997: 268-307; Spriggs & Miller 1988). The earliest metal objects found in eastern Indonesia

[1] Solheim has also carried out archaeological excavations related to the Austronesian expansion in Ternate and Halmahera, but results are not yet published (Stark & Latinis 1992).

dates to this period and Bellwood (1997) theorizes that Asian traders participating in the nascent spice trade may have carried these artifacts and metal working technology to Maluku.

Periods that are more recent have seen little comprehensive archaeological research. The published record is made up primarily of scattered site reports (Ballard 1987; Schmitt 1947; Spriggs & Miller 1988). Some attention has been paid to pottery making, both its contemporary expression and relationship to earthenware pottery found in archaeological contexts (Ellen & Glover 1974; Mahirta 1996; Spriggs 1990; Spriggs & Miller 1979; Stejskal 1988). Ethnoarchaeological research was also carried out on stone tool use in Seram (Glover & Ellen 1975). Research aimed at addressing questions of more broad anthropological or historical interest is not yet highly developed. Stark and Latinis have used archaeological evidence combined with ethnographic research to address questions of economic adaptations resulting from increased trade in spices in Ambon and Seram (Latinis 1996; Stark & Latinis 1992; Stark & Latinis 1996). Spriggs, Veth and O'Connor have initiated research in the Aru Islands with a broad temporal scope, part of which is concerned with more recent periods, such as the introduction of Islam (Spriggs 1998b; Spriggs *et al*. 1998; Veth *et al*. 1996). However, this research is still in the preliminary stages, and depends on further work, the future of which is uncertain due to social unrest in Maluku.

Both Bellwood and Spriggs have defined what they see as the most important questions remaining to be answered in the region, and for the nearby region of the Bird's Head peninsula of New Guinea (Bellwood 1997: 308-314; Bellwood 1998b; Spriggs 1998a; Spriggs 1998b). Among other concerns, both scholars assert that the history of the spice trade, purported to have begun circa 2000 BP, is a central question of importance, relevant to both the region's place in the economy and culture of the wider Asian world, and also to the early days of European colonialism. The research project described in this dissertation is the first comprehensive archaeological study of the spice trade and its social effects in Maluku. Furthermore, it is the first in Maluku (and among the first in Indonesia) to combine archaeological evidence with documentary evidence to address focused questions of anthropological and historical relevance in the late pre-colonial era.

Research design

This section describes how research activities were designed to produce the kinds of data that could address my research questions about settlement patterns, trade and Islamization. I will also discuss the potential limitations of that data, and the justification for my choice of temporal and spatial boundaries for this study. Certain specific points of my research design and methods used will be discussed in the introduction to the various parts of the project, such as historical, archaeological and ethnographic research, in the relevant chapters below.

Settlement patterns

This research has been designed to look for archaeological *patterns of difference* over time and across the landscape of Banda. I have looked for specific material markers of changes in trade links and social identity, particularly of religious identity, in each archaeological site. These include changes in foodways, trade goods, burials, settlement structure and settlement locations in geographical space. The linkages between these various changes, and with local and global forces seen in documentary sources will provide the most powerful evidence for the mechanisms of social transformation that are postulated below.

The specific approach taken in this dissertation has been to search for a sample of archaeological sites in each of the different landscape zones in Banda, using information from historic maps and pedestrian surveys of the contemporary landscape. A representative number of sites found were tested to define site boundaries, and a number of excavation units were dug across the extent of the site. Artifact assemblages, made up of the group of artifacts from stratigraphically coherent levels, were compared with other units within the site, and with other sites. These sites and assemblages were mapped to show idealized "snap shots" of the archaeological variability over time and space. Within specific time periods, they reveal how different sites (all of which appear to be habitation areas or settlements) had differing uses of material culture. Within specific locales, they show how material culture changed over time. This body of data is used to develop settlement chronologies, which describe the assemblage characteristics and landscape of each place over time. These chronologies are contextualized using regional archaeological and documentary data (specific methodology will be discussed in more detail in Chapter 4).

In the analysis of settlement chronologies, particular attention will be paid to evidence of factional, ethnic and or religious distinctiveness. In some cases, the archaeological evidence is corroborated by documentary or mythical data, and in some cases, it contradicts this data. In general, the approach taken in this study has been to search for heterogeneity in the society that inhabited Banda before the colonial conquest of 1621. Where evidence of internal heterogeneity is found, I attempt to situate it in the broader context of historical trajectories and systems of human networks that linked people in Banda to the rest of the world.

Trade and foreign contact

The first task in evaluating the makeup of trade networks is to identify who was traveling to Banda, and from where. Only written documents can tell us with any certainty (though documents can lie too) the homelands of visitors and immigrants to Banda. These documents include tribute lists, shipping records, ship journals, and travel accounts. Archaeological evidence of the presence of "foreign" people can only be inferred from the presence of exotic materials, or exotic styles of manufacturing, settlement and ways of life. Any such inference is open to alternatives; "exotic" ways of life may just be new inventions by local people, exotic materials may have arrived at a place as the result simply of a chain of nearest neighbor trading. A Thai plate does not necessarily require a Thai person to carry it all the way to its final resting-place in a Banda trash heap. Exotic plants and animals can migrate themselves or be transported by non-human carriers, such as birds or ocean currents (Guppy 1906: 403). As the reader will see, the strength of arguments for "foreign" presence are strongest when more than one line of evidence is used to support them. This research has been designed to search for independent corroboration of evidence whenever possible.

Islamization and Muslim identity

A significant portion of this study will seek to investigate the role Muslim identity and behavior played in social transformation in Banda during the period of focus. Religious identity and behavior are fertile ground for exploring contradictions between textual and archaeological evidence. The European written texts from the period are a complex mix of opposition, fear and curiosity about Islamic ideology.

Europeans were sometimes enemies, and sometimes partners with Muslim traders. On the one hand, they sought to communicate to their audience in Europe the richness of the Muslim-oriented trade network they encountered by emphasizing its strength and extent. At the same time, Europeans wrote about the potential profits to be gained by conquering or destroying the Muslim network, by emphasizing its weakness. The archaeological evidence can provide a counterpoint to these documents, exposing exaggerations, simplifications or at times supporting their representations.

However, this task is complicated by the flexibility of Muslim identity. Particularly in the period of rapid, even revolutionary, "conversion" in island Southeast Asia in the late 16th century, Muslim behavior was far from universalized or regular, and was combined with a rich mix of older beliefs and behaviors (Reid 1993a; Reid 1995). This may be a characteristic of an interim stage of Islamization of a region. Insoll, discussing Africa, proposes a three-part process. 1) *Quarantine*: Muslim clerics or traders enter an area, a few local people are converted. 2) *Mixing*: indigenous population increasingly converts, but they tend to combine pre-Islamic beliefs with more fundamental Islam. 3) *Reform*: after a few centuries, a return to a conservative fundamentalist Islam (Insoll 1996: 96). The period of rapid conversion, identified by Reid as lasting from 1550-1650, may constitute stage two in Insoll's scheme (Reid 1993a). The long-term nature of the archaeological data, and the inclusion of what were likely pre-Islamic periods in this study, can help in this case, exposing changes that occurred before the first documentary records.

Islamic codes of behavior in the Koran from the basis of Muslim identity, and is often the first aspect of religious identity adopted by new converts (Insoll 1999, Reid 1995). Historical documents from 16th-17th century Southeast Asia often describe simplistic understandings of Islam among new Muslims converts, particularly the vast majority who could not read Arabic texts. However, outward symbols, such as circumcision, abandonment of pig eating, adoption of Islamic burial practices, and public Islamic prayer were almost universally adopted (Reid 1995). Pig eating will be a particularly useful marker of behavior in this study. Pigs were one of the most common sources of animal protein in the diets of people across Southeast Asia and the Pacific, and remain so where people have not adopted Islam (Groves 1981, 1995).

The presence or absence of pig remains is not, of course, direct proof of the presence or absence of people who identified themselves as Muslims. Two alternate possibilities exist. Some Muslims may have eaten pigs, and/or some non-Muslims may have not eaten pigs. Islamic prohibitions on pig eating have not

been universally observed (Insoll 1999). In some remote Muslim communities in China, for example, pigs are commonly eaten, although this behavior has been explained as adaptive for a small minority community within a dominant pig-eating majority. The people in this community simply call the pig meat "goat" meat (Insoll 1999: 134-8). In 16th century Southeast Asia, however, the abandonment of pig eating may have been an especially important outward symbol of conversion associated with prestige and wealth, and communicated and reified by regular contact with visiting traders (Reid 1995). While there may have been pig eating "Muslims" in 11th - 17th century Banda, it was unlikely to have been common or public practice. The second possibility, that non-Muslims also gave up pig eating, cannot be ruled out. Pigs may have been over hunted or disease may have wiped out domesticated animals, two factors which small island ecosystems are particularly vulnerable to. However, in the case of Banda, local trade with larger islands such as Seram and New Guinea would have made pigs easily available in the event of the collapse of local populations.

Burial practices form a second archaeologically detectable emblem of Muslim identity. Typically, Muslim burials are primary inhumations, with the head or face oriented toward Mecca. The body is usually wrapped in cloth. Pre-Islamic burial practices in eastern Indonesia are diverse, and the shortage of extensive archaeological data means that we know very little about the range of practices. However, cremations and jar burials, as well as primary inhumations with rich grave goods, are all possible non-Islamic practices recorded in the region (Bulbeck 1992, Higham 1989, Reid 1993a).

Relationship between archaeological and documentary data

Part of this dissertation is concerned with how Banda's social, political and economic structure was transformed by its encounter with Europeans from 1512 to 1621. The shortness of this time period is a limitation for the application of archaeological evidence used alone. However, when used in conjunction with the body of documentary evidence from the period, as well as oral history and myth, it becomes possible to contextualize and situate much of the evidence in a useful way. This segment of the project is

more properly "historical archaeology,"[2] and I have adopted the approach used by many historical archaeologists in combining the different lines of evidence. This approach uses documents and archaeological evidence as independent lines, each subject to bias, but when used to both formulate questions and answer them in a back-and-forth manner, can help expose biases and new information (Deagan 1988). The sum of the parts is greater than the two parts independently (Kirch & Sahlins 1992; Knaap 1992). However, despite their equal weighting, the two lines of evidence are very different from each other, and require quite different methodological and analytical approaches.

The one overlying difference between archaeological and historical data is their record of time and temporality. This makes it difficult or impossible to directly compare and contrast the two lines of evidence, because they usually refer to very different amounts of time. In the last decade, several theorists have argued that a categorization of temporality along the lines proposed by Braudel and the Annales school of historians allows for archaeological and historical data to be combined in a more useful way than has been done previously (Bintliff 1991; Knaap 1992). Braudel first proposed three basic types of time operating in history: events or short-term happenings; *conjonctures*, or medium term happenings, which Braudel further broke down into medium (wars, wage and price cycles) and long-term (rise and fall of states, long term demographic movements); and the *longue durée*, the centuries-long, almost unchanging processes such as environmental change (Smith 1992). Last argues that this Braudelian temporality provides a better way to combine different lines of evidence for historical archaeology. He and others suggest that archaeology can provide information about the *longue durée* while documentary data can provide evidence for shorter time periods, where the archaeological record has significant "drop outs" due to depositional or taphonomic effects (Last 1995: 144). The archaeological record of Banda extends back in time over 3000 years, and does illuminate the longer-term changes that have happened on the islands.

However, many, including myself, see this role for archaeology as too limited. While archaeological evidence about events is rare (in Pompeii, or perhaps for other catastrophic events such as tidal waves or fires), archaeological data can in some cases highlight changes on the order of centuries, or even decades. More importantly, as Braudel and other Annalists have shown, the different scales of

[2] The term "historical archaeology" can be ambiguous and misleading, however, and I have tended to avoid using it in this dissertation (Andrèn 1998, Deagan 1988; Lightfoot 1995; Young 1988).

temporality do not exist in isolation, but each affects the others. A metaphor for this would be waves on the ocean. Short-term events correspond with local waves and small chop. Shorter-term *conjonctures* would be oceanic swell, while longer-term *conjonctures* would be the daily waves of the tides. The *longue durée* would be sea level change. All types of waves interact with each other. Sometimes, catastrophic events, such as hurricanes or tsunamis (local waves but on a huge scale which affect swells and tides) merge all types of waves into change. At any time, an analysis of changes in chop can show the influence of the bigger, longer wavelength waves. Thus many aspects of the *longue durée* affect, and are affected by, shorter-term processes.

Another problem with relegating archaeology to the domain of the *longue durée* is that it excludes archaeological data from the domain of narrative history, which is primarily a story of linked events populated by human actors. Without human actors, stories about the past lack the element of human agency and tend to sound inevitable, their outcomes determined solely by forces larger than individual people. Although this representation violates what most people consider "real life" to be like, archaeologists (especially those working without historical documents) have found it very difficult to introduce human agency into explanations. As a result, much so called prehistoric archaeology either sounds like environmental determinism, or is populated by human-sounding groups of artifacts, such as "beaker folk" or "Lapita people" (Last 1995). One component of agency that archaeological data can address is the assertion of identity, and this in fact forms a major component of the analysis in this dissertation. The archaeological record of identity extends back into the unwritten past, as well as suggesting alternative explanations for the documents in the written past.

In this dissertation, the results of my historical research are presented first. This structure was chosen to help the reader picture Banda's history, and as a corrective for "Banda in the historical imagination" described above. My re-reading of the original archival documents casts doubts on many generally accepted notions of Banda's past. At the end of that chapter, the project research questions are reviewed to incorporate the new information, and are re-cast against the archaeological data presented in the subsequent chapter.

A note on practicalities and limitations

The realities of the practice of research make a large impact on the nature of the data that can be collected, and by extension the types of research questions that can be addressed. There were many such practical limitations affecting this project. Working as a foreign researcher in Indonesia is not simple; the bureaucratic barriers to working there came close to stopping the project before it began, and remained a major drain on time and money throughout the project. Out of the 15 months I was in Indonesia, approximately 4 months were spent off site arranging permission for the project and visas for the scientific staff. Even during the time I was actually in Banda, permission to dig had to be negotiated for every excavation site beforehand with an array of governmental and traditional leaders. At times these negotiations illuminated fascinating details of history and contemporary politics, and were even enjoyable. At other times, they involved endless hours of sweating in small rooms drinking sugary tea. These socio-cultural hurdles, combined with the usual problems of monsoon rains, extreme heat, unreliable transportation, and managing an international team of generally untrained assistants, all affected the nature and amount of work completed. In several cases, I was not allowed to excavate in areas that I would have liked to. In other cases, while not specifically prohibited, I was aware that places had ritual importance, and to dig there would require lengthy negotiations, and in the end, I might well have been prohibited anyway. Therefore, the ideal research design was altered by the realities of contemporary life. While the details of these realities are not directly related to the core arguments of this dissertation, they do provide some context for my methodological choices. I have included several cautionary tales of my experiences in the field in boxed asides, in hopes they provide useful lessons (and entertainment value) to those who choose to conduct research in Banda in the future.

Temporal and spatial boundaries of this study

The period of focus on in this study is the 500 years, more or less, between the 11th and 17th centuries AD. This period has been chosen for a variety of theoretical and methodological reasons. My personal research interests lie in the application of archaeological and documentary research to understanding encounters between an expanding Europe and the rest of the world, which began in the 15th

century. In my opinion, these encounters can be best understood if they are framed in terms of long term processes operating in the societies of all the social groups involved in the encounter (Lightfoot 1995). In Banda, first contact with Europeans occurred in the early 16th century. A century of increasing conflict with Europeans culminated in the violent conquest of Banda in 1621 by Dutch-led forces. This conquest marks the end date of this study, despite the fact that a surviving Bandanese society maintained its identity well into the Dutch colonial period, and elements survive today, both in Banda and in the various refugee communities on other islands in the region (Hanna 1978; Loth 1998). However, this post conquest period is worthy of a study of its own, as it relates to somewhat different questions of ethnogenesis, colonialism and resistance. Indeed, I hope that such a study is attempted some day, and that the data I have collected for this earlier time is useful for the subsequent period.

The decision to extend this study back in time to the 11th century is based on two factors. First is an attempt to give Banda equal historical footing with Europe in the analysis of their encounter. This requires looking back in time to give the Bandanese some historical depth. If we are to understand Bandanese-European interactions, than we must understand the long-term processes as well as the short-term events that structure their conjuncture (Sahlins 1985). Banda in the 16th century was, like Europe, a dynamic place undergoing continuous changes caused by internal tensions as well as external influences (Wolf 1982). The extensive body of research on the forces behind the European expansion and European society in the early modern era contrasts sharply with our much more sparse knowledge of Southeast Asian societies in the same time period, or even more so with the virtually blank record of Bandanese society.

A second factor requires a deeper look into Banda's pre-conquest past. Culture contact was not a new experience for people living in Banda. The fact that Banda was the world's primary source of nutmeg and mace meant that long distance traders had visited the island for several hundred years, if not two thousand, before the first Portuguese caravel reached its shores. These earlier experiences of contact undoubtedly shaped subsequent ones, and I attempt to use the archaeological data to understand some of the forces behind those encounters and reactions to them, Islamization being the prime example. The choice of the 11th century as the starting point for this study is based on documentary and archaeological evidence that this was the beginning of a period of sustained contact with traders from mainland Asia.

These earlier contact experiences make the study of this time period in Banda a valuable case study. It is possible to compare the effects of contact on the same small place in two different situations: the first one involving Asian traders, the second involving Europeans. For these reasons, it allows us to address the question as to whether culture contact is a "process that victimizes populations" (Schortman & Urban 1998: 104-105), or if this is just a feature of contact with Europeans during the "age of discovery".

Some of the archaeological remains found in Banda pre-date the 11th century (as old as 3000 BP) as some sites turned out to be surprisingly ancient. However, there is not enough data from an array of these early sites to allow the comparative analysis used for the later material. While not as directly relevant to the research questions as more recently occupied sites, they are important for understanding truly long-term processes, not to mention Banda's place in regional archaeology. These earlier times, being further removed temporally from the 16th century, probably had somewhat less direct impact on the European encounter than did later ones. While more details on the specific archaeological evidence is provided in later chapters, it is worthwhile reviewing these earlier periods briefly here.

Sporadic contacts with people traveling from mainland Asia probably occurred in the fifth century AD, and possibly somewhat earlier. Contacts with people from regions to the east, such as New Guinea and Melanesia, may have also occurred quite early on (Bellwood & Koon 1989; Swadling 1996). An earlier period of abrupt culture change, possibly resulting from migrations of new populations from Southern China, occurred in the region between 3500-3000 BP. This period is labeled by some as the Island Southeast Asian Neolithic (although polished and ground stone tools are rare in archaeological assemblages). It is characterized by the introduction of pottery, domestic plants and animals, such as millet, taro, pigs and chickens, and a new language family, Austronesian (Bellwood 1997; Bellwood 1998a; Bellwood *et al*. 1995; Spriggs 1998b). A pre-pottery phase was not detected in Banda, though it may well be there, because the research was not designed to search for it. It is significant, though, that pottery-bearing strata date to 3100 BP (and it is probable that there is even older pottery there, as yet undated), which is among the oldest pottery found to date in the Maluku region.

Historians have labeled the period that includes first European presence in Southeast Asia in various ways. The "early modern era" is a label applied by various scholars to the period between the 14th and the 19th centuries. This period is thought to have temporal coherence, and is distinct from an earlier

period that ended sometime in the 13th or 14th century (Andaya & Andaya 1995; Ricklefs 1993). Some have criticized this nomenclature because it defines the period in Southeast Asia in terms of events happening in Europe, namely the beginnings of modernity. I have found Anthony Reid's label more useful. He calls the time between 1450 and 1680 in Southeast Asia the "age of commerce" (Reid 1988; Reid 1993b). Indeed, the increasing importance and volume of commerce in Southeast Asia was a dominant characteristic of this time. As Reid has elegantly demonstrated, commerce influenced many spheres of life in the region, including politics, religion, foods, games, the organization of cities and towns, and many other aspects of daily life of Southeast Asians. This period was characterized by unprecedented wealth in Southeast Asia and the direct control of trade by Southeast Asian polities. The end of the period, brought about by the interference of European trading companies and colonialism, was also the beginning of a period of relative poverty in Southeast Asia, which has only lately shown signs of easing. Reid's choice of 1450 as the beginning of the period is based primarily on the availability of documentary data, which is significantly less before 1400 than after. However, there is archaeological evidence to suggest that the expansion of commerce predated 1450 by several hundred years, and had its origins in trade and exchange systems that had been in existence for hundreds or thousands of years before that. Thus, Reid's term the "age of commerce" will be employed to describe the period of this study, as it highlights a central feature of the time, especially for Banda: the prevailing influence of trade in many aspects of Southeast Asian and European society.

Banda was part of a social network covering a large geographical area; at one time, it was an important link in a truly global trading system, as well as being an important regional trade center. The Banda Islands, like many islands, were the opposite of insular (Ellen 1987; Ellen 1990; Sahlins 1985; Terrell 1997). The ecological variability of the Maluku region, noted by A.R. Wallace (Wallace 1986), has probably contributed to inter-island communication and trade. This provides a challenge in limiting the spatial boundaries of this study, and integrating local and global processes in explanations. For practical reasons (discussed below in Chapter 2), archaeological work was limited to three of the eleven Banda Islands, and within those three islands, only certain areas were surveyed, and a very small area was actually excavated. Problems of sampling error have been minimized by working in a cross section of geographic zones in Banda. For instance, sites were chosen from both inner and outer islands, uplifted limestone and

volcanic areas, coastal and inland sites, central villages and peripheral settlements, etc. Documentary data used in this study was written almost entirely by Europeans. However, oral histories, myths and stories come from Banda as well as other islands in the Maluku region, and I also rely on the work of fellow archaeologists and anthropologists who have worked in the region to help incorporate various scales of analysis.

Summary

This chapter has provided an introduction to the history of the Banda Islands, and their place in global history. The islands have been presented as a meeting place for very different people for at least two millennia. This history makes the islands an ideal place to study how people from different homelands come to exchange objects and ideas, and how they develop a pluralistic society, a social system that sometimes highlights and sometimes obscures difference. The specific questions that have guided this investigation into Banda's past have been defined, and those questions have been situated in a selected body of relevant theory from the discipline of anthropological archaeology. Finally, the research design has been described, including how information relevant to those research questions will be gathered, the potential limitations of that data, and how the temporal and spatial boundaries of investigation were arrived at. Now, I will turn to presenting and synthesizing that data so that a new story can be told of exploration, interaction, treachery and human achievement, set in the fragrant forests, beaches and towns of the nutmeg islands.

CHAPTER 2

Environmental background and ecological relationships

Introduction

This chapter contains a summary description of the physical environment of the Banda Islands, and information about environmental factors that are relevant to questions of human settlement and other social factors during the 10^{th}-17^{th} centuries. The information presented here provides a source of inferences about Banda's past social and settlement organization, as well as information about links between social change and the physical environment of the islands. Ecological relationships are of particular importance on small islands. Small islands tend to have lower species diversity, and smaller resources from which to recover from human impacts. Likewise, humans may be affected by fluctuations in food or water availability on islands, and climate and weather conditions may limit options involving sea travel to other areas. These various factors are considered below, and many of the themes presented here will be revisited in later chapters in conjunction with archaeological and documentary data.

The physical environment of the Banda Islands

The Banda Islands ($4^{o}30'$ S, $129^{o}50'$ E) lie at the eastern terminus of the inner Sunda-Banda volcanic arc that extends through southeast Maluku, Nusa Tenggara, Bali, Java and Sumatra, formed by the subduction of the Indo-Australian plate beneath the southern boundary of Indonesia. While the geological history of the Sunda-Banda arc is the subject of some disagreement, it is assumed that Banda is the youngest landmass in the arc, dating to the Quarternary era. It is typical of a young oceanic volcanic island, composed of volcanic rock and ash, and ringed by reef limestone or other sedimentary material (Monk *et al*. 1997: 25). The Sunda-Banda arc is one of the most geologically active regions in the world. During the recent earthquakes in Flores, for example, there were isolated areas that experienced uplift or subsidence of

1.5 meters (Monk *et al*. 1997: 47-48). The inner Banda Islands are believed to be the remnants of a single large volcanic cone which exploded, over time producing smaller volcanic cones in concentric ring around the currently active cone of Gunung Api[3] (Vulkanologi 1988). This active cone last erupted in 1988, and there are frequent earthquakes in the islands today. Historically recorded natural disasters, including volcanic eruptions, earthquakes and tsunamis are listed below in Table 2.1. Periodic eruptions of the Gunung Api volcano have deposited layers of volcanic ash and pumice in Banda's soils. In some cases, these layers can be linked to historically recorded eruptions, which aid in reconstructing archaeological chronologies. These will be discussed in greater detail in Chapter 4, but this data is presented here to show the frequency and intensity of volcanic and tidal wave activity in the islands.

Table 2.1. Natural disasters in Banda, 17th-19th centuries[4]

1615	eruption, boulders rain on Fort Belgica as it is being constructed
1629	August--tidal wave, 9 ft. high in Naira, 13 ft. high in Lonthoir, wrecked hospital, several houses
1632	eruptions for 5 months (April, May, June, July, December)
1691-96	five years of repeated eruptions, "hot clinging ashes", 771 slaves die of epidemic in 1693
1778	tidal wave, earthquake and hurricane, all at same time, April 2
1820	eruptions for 2 months (June - August), boulders, ash, many nutmeg trees killed by "sand"
1841	tidal wave, 9 ft. high in Naira
1852	26 consecutive tidal waves, 13 ft. high in Naira, 60 killed
1856	fire in Naira destroys many buildings

The Banda Islands can be divided into two basic geologically distinct zones. The inner islands of Banda Besar, Banda Naira, Gunung Api, Pulau Karaka, Pulau Pisang and Batu Kapal have primarily volcanic soils and steep, hilly terrain. The highlands of these inner islands (max. elevation 658 m) produce microclimatic variation that generally makes them wetter than the outer islands, according to observation and anecdotal evidence. These inner islands also have accessible fresh groundwater sources. The outer islands of Pulau Hatta, Pulau Ay, Pulau Rhun, Pulau Nailakka and Pulau Manukan have primarily

[3] Gunung Api is a general term in Malay for volcano ("fire mountain"). There is another volcanic island called Gunung Api in Maluku about 400 km southwest of Banda (also called Pulau Gunungapi). To avoid confusion, Gunung Api in this text always refers to the volcano in Banda (which is called Gunung Api Banda in some other texts and maps), unless otherwise specified.

[4] Data summarized from (Hanna 1978: 84-85; Vulkanologi 1988: 44-46).

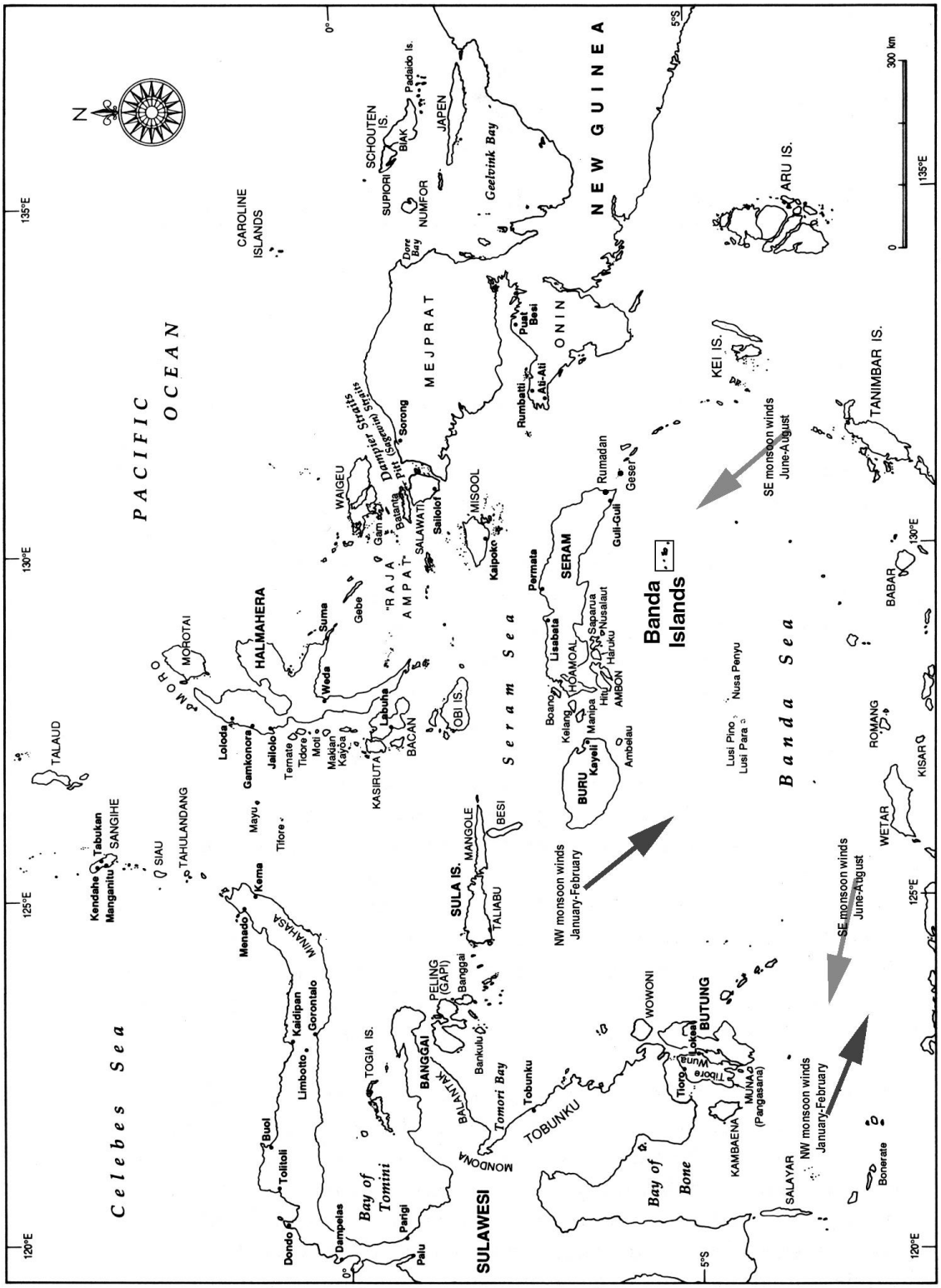

Figure 2.1. Map of Eastern Indonesia, showing monsoon winds (adapted from Andaya 1993: 48)

limestone soils and flat terrain, being formed by uplifted reef limestone. They tend to receive relatively less rainfall, and do not have accessible groundwater sources, except in Pulau Hatta, which has a somewhat brackish supply.

The Bandas have an equatorial monsoon climate, characterized by four seasons (see Fig. 2.1, map of eastern Indonesia, and Table 2.1, Banda weather data). The "wet monsoon" is in December-February. Winds are generally from the W-NW and there is frequent rainfall. The "dry monsoon" from June - August has winds from the E-SE. The driest months are typically August-September. The intervening periods have moderate rainfall, with variable but generally calm wind and sea conditions. Typhoons are rare at this latitude, but intense local storms can produce high winds and rough seas. High temperatures average 28-31^{o} C, with lows seldom falling below 20^{o} C. Climate data has only been gathered in Banda since the construction of the airport in 1986, and only for the airport weather station in Banda Naira. These records show highly variable weather conditions. Despite annual rainfall averages of 2091 mm for the period 1986-97, the islands can experience periods of severe drought, which have an increased impact on residents of the outer islands, who rely on collected rainfall for drinking water. In 1997, for example, the global El Niño phenomenon has been deemed partly responsible for the severe drought that affected Southeast Asia, causing extensive forest fires across much of Indonesia. Three months without any rainfall were recorded in 1997 in Banda, and the total rainfall for the year was less than 50% of the annual average since 1986. During this period, the islands had numerous forest fires, including one that burned most of the slopes of Gunung Api, and residents on the outer islands experienced a severe water shortage. People from Pulau Ay, for example, had to make regular trips to Banda Naira to collect drinking water from wells, and there was some salt-water intrusion into wells near the shore in Naira. Increased stress (also associated with the Asian financial crisis and the political upheaval in Indonesia) was probably responsible for increased levels of health problems, such as communicable diseases, as several villages in Banda had typhus outbreaks.

Wind and sea conditions have a major effect on access to the coast by small boats. During the dry monsoon, villages on the southwest coast of Banda Besar, which lack protected harbors, are exposed to large surf, making boat transportation difficult. During this period, residents of these villages are often forced to walk over the central ridge of Banda Besar to get to the markets in Banda Naira, via the protected inner harbor. Pulau Hatta can also be isolated during this season. Before the days of powerboats, it is

Table 2.2. Weather data from Banda Naira, 1994-97 (from Stasiun-Meteorologi 1998).

Year	Month	average max temp °C	average min temp °C	total rainfall mm	dominant wind direction	max wind speed knots	total annual rainfall mm
	January	30	23	241	E	18	
	February	30	23	214	variable	12	
	March	30	22	430	variable	8	
	April	30	23	467	variable	17	
1	May	29	23	611	SE	21	
9	June	29	23	66	E	17	
9	July	28	22	18	SE	17	
4	August	28	22	63	SE	20	
	September	29	22	1	variable	12	
	October	31	22	29	variable	10	
	November	31	22	38	variable	7	
	December	31	22	427	variable	12	2602
	January	31	22	235	W	20	
	February	30	22	174	variable	13	
	March	30	23	319	variable	20	
	April	31	22	150	variable	18	
1	May	30	23	348	variable	17	
9	June	29	23	110	E	18	
9	July	28	22	105	S	16	
5	August	27	22	58	S	20	
	September	29	27	114	variable	15	
	October	31	23	95	variable	9	
	November	31	23	276	variable	11	
	December	31	23	319	variable	20	2303
	January	31	23	175	variable	25	
	February	30	23	286	W	20	
	March	31	23	62	variable	15	
	April	31	23	206	variable	30	
1	May	30	23	182	variable	24	
9	June	29	23	271	variable	28	
9	July	29	23	35	SE	19	
6	August	29	23	96	SE	28	
	September	30	23	20	variable	16	
	October	30	23	428	variable	21	
	November	31	23	53	variable	18	
	December	31	23	365	W	40	2179
	January	31	23	112	variable	25	
	February	30	23	235	W	41	
	March	31	23	109	variable	43	
	April	31	23	210	variable	27	
1	May	30	23	49	variable	17	
9	June	30	23	39	SE	26	
9	July	27	22	95	SE	28	
7	August	28	21	nil	SE	17	
	September	29	22	nil	variable	25	
	October	31	22	nil	variable	11	
	November	31	24	71	variable	10	
	December	31	23	68	variable	28	998

possible that large waves and high winds would have also isolated Pulau Ay and Pulau Rhun. During my fieldwork, the regular passenger boat to Pulau Ay, a 10 meter outboard-powered wooden boat, was almost always able to make the daily trip. According to local lore, this was true even in the days before motorized craft in the Bandas, and boatmen from Pulau Ay were reputed to be particularly fearless in battling the waves. However, a protected harbor is clearly an advantage. It is one of the factors that have made the town of Naira, with its harbor protected year round, the largest settlement in the Bandas today and its center of trade and government.

Climate history in the Southwest Pacific, and its articulation with global climate patterns, remains poorly understood. A study of climate history in O'ahu in the Hawaiian Islands suggests that during the Little Climatic Optimum, a period of higher than average global temperatures (AD 750-1300), conditions in the tropical Pacific appear to have been drier than average, with fewer storms, increased westerly winds and higher sea levels. The Little Ice Age (AD 1300-1900) appears to have been a time of wetter and stormier than average conditions, causing increased erosion, which Allen suggests was responsible for a cessation of inter-island voyaging in the Pacific around AD 1300 (Allen 1997: 242-4). The data to conduct a similar study in Maluku has not yet been gathered. While pollen sequences have been recovered from the Banda Sea floor, and in the adjacent western New Guinea highlands, they do not have sufficient temporal resolution to show changing conditions in the period of interest for this study (Hope & Tulip 1994; van der Kaars 1991).

Newly emerging data about El Niño-La Niña cycles and their effects on climate and weather in Southeast Asia could potentially have some bearing on social processes discussed in this study. For Thailand, periods of heavier rainfall appear to have been associated with La Niña cycles, which in turn correspond to periods of easier traveling conditions on rivers, and greater economic activity. During the early 16th-mid 17th century there were more El Niño cycles, which corresponded with a decline in economic activity, while from the mid 17th century through the mid 18th century, more La Niña years produced more rainfall, better traveling conditions and increased economic activity (Bishop *et al*. 1996). This research is still in its preliminary stages, and has not been correlated with climactic activity in Maluku. However, drought weather conditions in 1997 in Maluku, an El Niño year, suggest that the Thailand data may apply here, although its social effects would have been somewhat different. Less rainfall in Banda, for example,

would have made the outer islands less habitable and decreased the viability of agriculture in general. Both of these factors may have stimulated settlement in the inner island, trade-oriented villages, which had both more reliable ground water supplies, and better access to imported foods. This will be considered in more detail in the analysis in Chapter 5.

Nutmeg

The nutmeg tree (*Myrstica fragrans*) made the Banda Islands famous. This small tree (3-15 m) produces a fruit that contains a pit that is the nutmeg spice. Surrounding the pit is a reddish fibrous material that is the spice mace. Mace was usually much more valuable than nutmeg, because it is produced in much smaller quantities. The fruit is also edible, and is used throughout the Malay world for preserves and as a flavoring for drinks. In the historical literature, Banda is widely thought to be the original sole source of *Myristica fragrans*. However, this has not been proven, and it is probable that the species grew on other islands in central or southeast Maluku (Monk *et al.* 1997: 738). The plant is considered a domesticated species, but no wild progenitors have been identified. There are at least three and possibly six species of *Myristica* which produce similar fruits, several of which are cultivated for the nut and mace. These occur

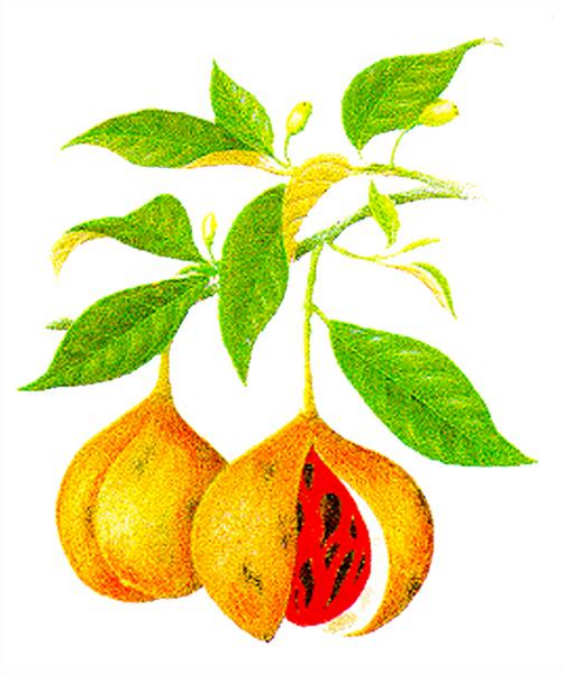

Figure 2.2. Nutmeg, showing the fruit, inner nut, and red mace

today as far to the east as Fiji, and possibly as far west as South Asia. *Myristica fragrans*, however, produces the most desirable and valuable spice, and is the choice of commercial scale cultivators. In the local region, the so-called "long nutmeg" is obtained from a *Mryistica* species on Seram and New Guinea, and is sometimes used to adulterate genuine nutmeg (Monk *et al.* 1997: 738-741).

Nutmeg trees require specific growing conditions which limit their range. They require shelter from direct sunlight, and in Banda are grown in conjunction with *kenari* trees (*Canarium indicum*) which are much taller and provide shelter, in addition to a valuable crop of edible nuts and valuable lumber. They are pollinated by insects, and the seeds are spread naturally by the nutmeg pigeon, which eat the entire nutmeg fruit and pass the seed undigested. During the colonial period, Dutch planters developed a system of nutmeg plantations that were designed to maximize production of the valuable crop. Nearly every square meter of land was cultivated (Loth 1998). Banda Besar Island, which is the largest island in the group, was also the biggest nutmeg producer, followed by Pulau Ay, Pulau Rhun, Banda Naira and Pulau Hatta. Since World War II, nutmeg has declined somewhat in importance, due to declining prices, high transportation costs from Banda, and increased competition from other nutmeg producing regions, such as Greneda in the Caribbean, which now produces the majority of the world's nutmeg crop. Some of the nutmeg forest in Banda has been cut down to plant food crops, and the future of Banda's nutmeg agroforestry is a contentious issue in Banda today. It is linked with environmental and economic concerns, particularly the unresolved issue of land ownership in the islands, where land title is held primarily by the Indonesian government (see forthcoming publications by Phillip Winn and Stefan Stubenvoll for a in depth review of these issues).

Nutmeg and mace are used today as food flavorings and additives. It may be an ingredient in the secret recipe for Coca-Cola. Nutmeg oil is an excellent odor-masking chemical, and is often used in industrial cleaning products, as well as in manufactured foods. In the past, it had a wide variety of uses. It was in demand in Europe as a flavoring and odor-masking additive (such as for rancid meats, in pre-refrigeration days). It may have also been considered a preventative and/or cure for the plague, which may explain the sudden rise in nutmeg imports in the 14^{th}-15^{th} centuries in Europe (Reid 1993a: 14; Milton 1998: 18). It had many other uses as well. Rumphius describes a recipe for increasing the potency of

opium, which is primarily nutmeg (Beekman, personal communication). Books of herbal remedies also attribute the power to cure ailments of digestion, particularly excess gas, to nutmeg. The oil has psychotropic qualities as well, and when ingested in sufficient quantities, produces hallucinations, and is poisonous in large doses.

Other plants

Nutmeg may be Banda's most historically famous crop, but other plants have an extremely important role in the human settlement of the islands. Other economically important crops grown in Banda include coconuts *(Cocos nucifera)*, bananas (*Musa acuminata*), cassava (*Manihot* spp.), an introduced species form the New World and *kenari* nuts (*Canarium indicum)*. Rumphius reported wild breadfruit (*Artocarpus* spp.) in Banda in the 17th century, but they may have been old cultivated stands (Monk *et al*. 1997: 233). Taro (*Colocasia* sp.) is grown in some areas, although it is particularly prone to pig predation. Pandanus (*Pandanus* sp.) grows near the coast and is an important building material. Pandanus nuts are not generally eaten in Banda, although informants reported historic use when other foods were scarce. In recent years, particularly since the Asian economic crisis hit in 1997, people have been clearing additional forest areas and planting gardens for food crops, particularly cassava, in anticipation of higher prices for imported food staples such as rice.

It is likely that before the colonial period, Banda's forests were more diverse than today. This issue is considered below in more detail in Chapter 4, with an analysis of plant remains from archaeological sites. During 1997-98, the parts of the islands that were too rugged to support agroforestry still had considerable species diversity, and informants were able to point out many other plants and trees which produced edible foods, medicines and other useful materials. Unfortunately, no comprehensive survey of Banda's flora has been carried out to date, and I was unable to identify the species pointed out to me by Bandanese informants. Banda's climate and soils have made it impossible to grow two important food crops, rice and sago. Sago (*Metroxylon* spp.*)*, an important staple food in Banda and throughout Maluku, does not grow in Banda except in isolated small stands on Banda Besar. Banda's porous soils and irregular rainfall do not support rice agriculture. The lack of these two foods in Banda may have been an important factor in

stimulating trade in the islands, as local food resources may have been inadequate to support a large population (Ellen 1984).

Animals

The Bandas do not support high land animal species diversity. Mammals are limited to several species of bats, the common *cuscus* (*Phalanger orientalis)*, feral pigs (*Sus* sp.), deer, rats, domestic dogs, cats and goats, all of which are human introductions excepting bats (Flannery 1995; Groves 1995; Monk *et al*. 1997). The islands support a number of bird species, of which the Blue-tailed Imperial Pigeon, also know as the nutmeg pigeon (*Ducula concinna*) and the Orange-footed Megapode (*Megapodius reinwardt*) and its eggs are eaten by humans. Reptiles include large monitor lizards and pythons, which though not eaten now may have once been considered food resources. The surrounding seas are some of the most biologically rich and diverse in the world. Fishing has now become the most lucrative economic activity in Banda, surpassing farming and tourism, and fish provide the primary source of protein for people in Banda. No studies of subsistence are available for Banda, although see (Latinis 1996; Latinis 1998) for studies from the central Maluku region. A table comparing the food values for different foods available in Banda is below (Table 2.3).

Fish are abundant in the seas surrounding the Bandas. The islands today support both an inshore fishery, which is exploited by individual fishermen or small groups using dugout canoes or other small boats. Hook and line and netting are the primary methods used. Fishing with bombs and poisons, which cause serious damage to coral reefs and fish habitat, is not widely reported in Banda, and the coral is still quite healthy there, especially compared with other parts of Southeast Asia where coral is in serious decline. Offshore fishing for species such as tuna is becoming more important, particularly as large fish buying ships have begun to visit Banda regularly. Other recent factors contributing to the growth of this fishery are the increasing use of engines in boats, and rising prices for the fish in local currency. However, offshore fishing has been done on a smaller scale for many years before, using large *orembai* boats that were paddled by crews of 10-15 men. Shellfish and other reef dwelling creatures are also gathered when the reefs are exposed at low tide, or by skindivers.

While fish are the primary source of protein in Banda today, land animals provide a supplementary resource. Goats are widely grown, although their consumption is limited primarily to special occasions, such as Islamic religious holidays. *Cuscus* (a small, tree-dwelling marsupial similar to the possum) are hunted by some people, and in other parts of Maluku, *cuscus* are an important food resource. There are varying interpretations as to whether *cuscus* are *halal* under Islamic doctrine; as there are no *cuscus* in the Middle East, they are not specifically identified in Islamic texts.

Table 2.3. Ranks of selected food resources based on nutritional value (From (Latinis 1998), who notes that this table does not account for caloric "cost" expended to find, harvest and process these foods.)

Food Resource (nutritional values per 100 g)	**calories**	**rank**	**protein** (g)	**rank**	**fat** (g)	**rank**	**cal+ pro+ fat**	**rank**
Artocarpus altilis								
Flesh	55-110	20	0.8-4.3	16	0.3-1.5	17	53	20
Seeds	150	13	6.0	13	0.5	19	45	16
Bruguiera sp.	75	22	2.5	19	0.3	22	63	23
Canarium spp.	644	2	14.2	9	68.5	1	12	2
Inocarpus edulis	240	8	4.5	15	4.5	14	37	12
Macaranga spp.	601	3	18.9	5	60.4	3	11	1
Pandanus spp.	683	1	11.9	11	66.0	2	14	3
Colocasia esculenta	100-165	11	1.4-2.0	21	0.2-0.5	20	52	19
Cocos nucifera								
Mature Meat	351-500	4	4.0-4.7	14	33.0-53.4	4	22	6
Immature Flesh	30-180	10	0.7-4.0	18	1.0-15.0	7	35	11
Mature Nut Milk	311-346	7	2.5-4.3	17	34.0-35.0	6	30	9
Dioscorea spp.	95-161	12	1.0-2.5	20	0.05-0.2	23	55	22
Musa spp.	85-142	14	1.0-1.3	22	0.1-0.5	18	54	21
Metroxylon spp.	285-362	6	0.1-0.5	23	0.0-0.3	21	50	18
Bat (rabbit)	134	17	20.0	2	6.0	11	30	10
Bird (general fowl)	139	15	19.0	4	7.0	9	28	8
Cuscus (rabbit)	134	16	20.0	1	6.0	10	27	7
Fish	132	19	18.8	7	5.7	12	38	14
Prawns	94	21	18.0	8	1.5	16	45	15
Reptile/Snake (fish)	132	18	18.8	6	5.7	13	37	13
Shellfish (unspecified mollusks)	70	23	10.0	12	2.0	15	50	17
Deer	202	9	19.0	3	14.0	8	20	5
Pork	453	5	12.0	10	45.0	5	20	4

Pigs, first introduced to Maluku during the Neolithic period, have long been an important food source in Island Southeast Asia and the Pacific (Groves 1981; Groves 1995). However, my own observations in Banda, and discussions with other anthropologists who have worked there support the idea that pigs are universally avoided by Bandanese Muslims today. In Banda, pigs, now limited to just Banda Besar Island, are hunted and eaten by Christians, primarily those of Chinese ancestry. On largely Muslim Banda Besar, wild or feral pigs are major pests that cause significant damage to agricultural crops. Farmers have to build and maintain elaborate fences to protect their fields, and often have to resort to calling in the police to shoot pigs (who then sell the meat to Christians on Banda Naira). Interestingly, one small Christian community living in the old *perek* Spancibi, does not have pig problems, because apparently the pigs have learned to fear the inhabitants, who actively hunt the animals for food. This community is even able to grow taro, a favorite food of pigs, which is impractical to grow on the rest of Banda Besar. This suggests that humans and pigs are part of a larger ecological system, and changes in their relationship may have an impact on other ecologically linked systems on the islands. This will be considered in more detail in Chapter 5, in discussions of Islamization on the island.

In summary, despite limited fresh water on the outer islands, the Bandas are well suited to human settlement, with sufficient and diverse food resources. The chief limitation to population expansion is the limited land area of the islands. Other potential environmental factors affecting settlement include climate and weather conditions that can affect the accessibility of some port areas, inter island communication, and possibly the viability of settlement on the outer islands that lack groundwater supplies. Finally, humans living on Banda are part of an ecological system. Changes in human behavior, such as changing foodways, probably affect other ecological relationships, which in turn may have influenced the development of social organization and settlement on the islands. These possibilities will be considered in more detail below, as actual data about the 11^{th}-17^{th} centuries in Banda is reviewed.

CHAPTER 3

Banda's history re-visited: Accounts, maps and memories

Introduction

This chapter contains an analysis of the primary documentary sources that have informed previous historical interpretations of settlement, trade and Islamization in 11th-17th century Banda. The aim of this chapter is to revisit Banda in the historical imagination, as presented in Chapter 1. Previous historical scholarship about Banda has generally de-emphasized Bandanese actors and agency (e.g. Hanna 1978, Loth 1995a, Loth 1995b), even when explicitly oriented to "people without history" (e.g Wolf 1980: 237-241). The evidence is read and analyzed below with a shift in emphasis. There is less concern here with conflict between the various European powers, such as the "spice wars" between Holland and England in early 17th century. Instead, the documents are sifted for information about internal Bandanese social processes. The aims here are to interrogate the historical documents for evidence of settlement patterns, religious belief and behavior, and trade, particularly trade networks in the local region. In many cases, this reading will generate questions that cannot be answered with the available documentary evidence, and these will be cast against the archaeological data in subsequent chapters.

Types of historical data

Historical documents pertaining to this research fall into two basic categories: written documents, including reports, ships logs, letters, diaries, treaties and agreements, and pictorial representations, including maps, engravings, paintings, plans and views. Other historical information is in the form of secondary histories, that is documents written about "the past" in an explicit way. This category includes scholarly and popular histories written by contemporary historians. It also includes some 17th and 18th century "compilers" who used historical documents (many of which have since been lost) to describe places

and people. The authorial voice is difficult to disentangle from the voices of those who wrote the original documents from which these compilers drew. The works of Purchas and Valentijn are the prime examples of these kinds of texts, and the scholarship of others is required to filter and analyze these types of sources.

Another type of historical data considered briefly here are the oral traditions about the pre-conquest period of contemporary inhabitants of Banda, and those of the various Banda "refugee" communities scattered around Maluku. The role of oral history in archaeological scholarship is the subject of some debate (Andrèn 1998). While considered by some as inherently unreliable, others believe that the reliability of oral traditions can be assessed by, in part, the distance in time between the events described and the storyteller (Vansina 1965). More recently, oral traditions have been viewed as the result of considerably more complex processes and development than previously considered. Oral traditions may draw on previously existing modes of story telling and shared knowledge, but can also radically transform these modes to reflect contemporary concerns (Andrèn 1998: 82). While the actual "data" or contents of these stories and myths have likely changed over time, their structure or "grammar" may be similar to that used in the past. That grammar can contain insights into how history is used in both contemporary society and past societies, particularly those that do not use writing (Andaya 1993: 47-82; Ellen 1993; Ellen 1997, White 1987).

Oral traditions have been seen as a source of models of the past that can be tested archaeologically (Schmidt 1990). However, this oversimplifies the relationship between the two bodies of evidence. Stories about the past (which often contain allegorical, metaphorical or magical elements) cannot usually be labeled simply "true" or "false." Rarely is archaeological evidence complete (and nuanced) enough to completely confirm or contradict a history. As with the relationship between written documents and archaeological data, it is the tension between the two bodies of evidence that produces the most interesting conclusions. In this dissertation, then, the oral traditions are used primarily to generate questions for the archaeological data, which answers with new questions.

This chapter begins with an analysis of written documents and illustrations, followed by maps, and ending with oral histories. Readers may find it helpful to refer to the map of 16^{th}-17^{th} century place names in Southeast Asia (Fig. 1.1) and the guide to 16^{th} - 17^{th} century island and villages names used in Banda (Fig. 3.1).

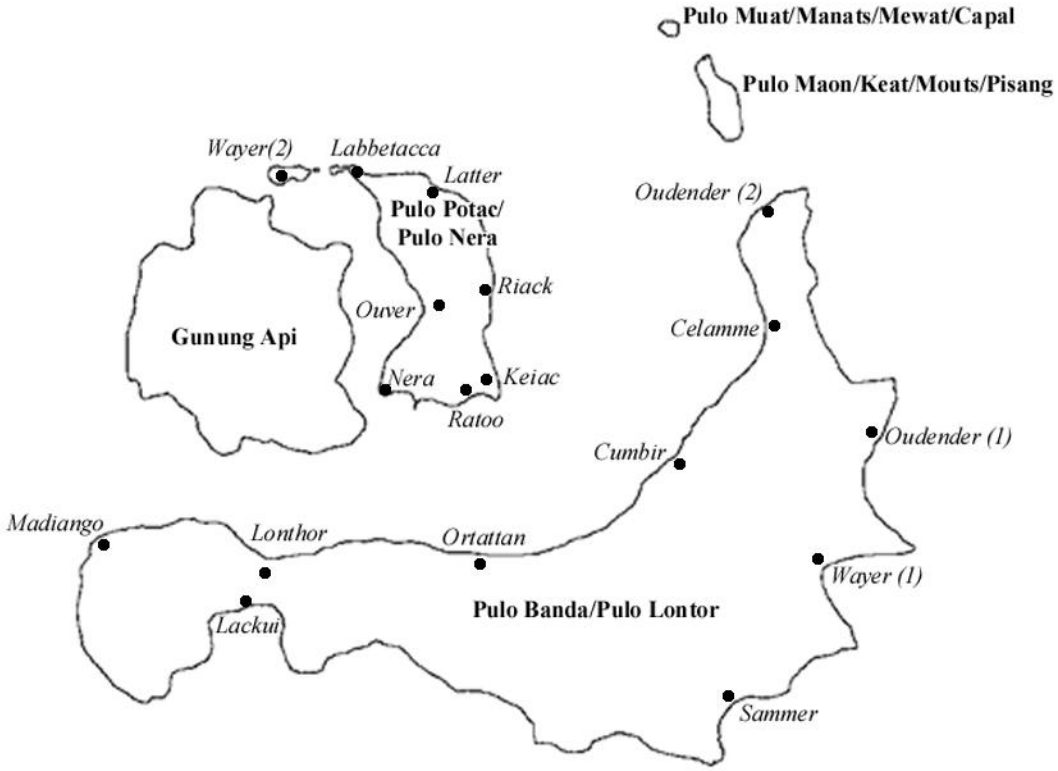

Figure 3.1. Composite guide to the various historic island and village names of the inner Banda Islands used in European documents, 1512-1621. Note: *Wayer* and *Oudender* have more than one possible location, *Wayer (2)* may be an island name. Spellings and exact locations vary between documents. See maps below for actual representations.

Written Documents

Accounts and descriptions of Banda written in the pre-colonial period are relatively rare, and there are some long gaps of time from which we have no written information whatsoever. The inhabitants of the Banda Islands did not produce written documents (that have survived, anyway) before the arrival of Europeans. Even after 1512, their voice is limited to a few letters, which were most likely dictated and written down by Europeans in Portuguese, Dutch or English language rather than Bandanese or Malay. Thus, the documentary record is primarily a collection of the impressions of foreigners, visitors who generally only spent a short time in Banda, probably about one to six months. Some of these descriptions can be considered "ethnographic", although interpreting them is a delicate task considering that the writers came from various diverse homelands and traditions of descriptive writing, dating back to the 14th century.

Below, each account is contextualized in the realm of its time period, literary tradition and cultural milieu of its writer and intended audience. The documents have been grouped into cultural and temporal bundles, where this is appropriate for analysis. For each case, the document will be

Archival Experiences

During my second field season in Banda in 1998, I was awarded an NSF Dissertation Improvement Grant to conduct two months of archival research in Europe, which I did in September and October 1998. In planning the research trip, I chose to visit the three European nations that had had colonial presence in Banda: Portugal, England and Holland. There I found many useful sources, particularly unpublished manuscripts, maps, views and published secondary materials in languages other than English. However, this was my first experience conducting archival research, and I soon learned that the process often turns up more leads than actual documents, and limitations in time and funding mean that choices have to be made on which leads to pursue and which to put aside.

I found that many sources on Banda were stored in libraries outside the three countries I chose to visit. While I did not have the funds or time to hunt them down, future researchers would benefit by visiting the Bibliotéque Nationale in Paris, which acquired much of the Portuguese and some of the Dutch material during the Napoleonic wars in the beginning to the 19th century. Libraries and archives in Spain, Germany and Italy also have material on Banda, due to the particularities of the ways historical documents come to be acquired by these institutions, often via individual collectors. In Holland and particularly Portugal, the smaller regional archives may have items of interest, but tracking them all down requires more time and money than I had at my disposal. Likewise, I did not have the resources or language skills necessary to exploit archives in Asia. In the future, I believe we will see more historical research based on archival material coming from these non-European countries, particularly China, but also other Asian countries that have some archival tradition.

Luck and timing play a larger role in archival research than I had previously imagined. Browsing shelves often turned up unexpected sources that I missed (or were mislabeled) in the catalogues. Sometimes luck turned against me. I happened to time my visit to the British Library just after it moved to a new building. Many manuscript sources, some of which I positively lusted after on the basis of their catalogue entries,

analyzed in relation to the central research questions of how Banda was linked to the outside world, how "foreigners" were integrated into "Bandanese" society, and how this changed over time leading up to the conquest of 1621. When possible, this will be cast against the archaeological record, and the questions generated by excavations.

were in the process of being moved, and would not be available for as long as a year. More positively, friends and colleagues often came across material and kindly passed it on to me. My web site, for example, brought in several far-flung correspondents; one in Japan sent me copies of old maps of Banda he had purchased on a trip to Singapore. My in-laws found an important Banda map in a flea market in Buenos Aires. As with archaeology, historical research is in many ways a stab in the dark, which sometimes brings up unexpected treasure.

Classical documents

While nutmeg, mace and cloves were known to the classical world, classical authors had little idea from where these spices originated. The earliest mention of these spices is by Theophrastus (372-288 BC), who described an aromatic nut called *comacum*, and says it did not come from India, but rather from Arabia. It is possible he was referring to the nut of another species of *Myristica*, *malabarica*, which grows in northern Malabar, and which produces a fruit which in later times occasionally used to adulterate genuine *Myristica fragrans* nutmeg from Banda. Pliny (ca AD 50) believed that nutmeg came from Syria, which may have been the place where it was processed into oil (Miller 1969:58-60). In general, these documents support the idea that spices from eastern Indonesia made their way to the Middle East and the Mediterranean via a long series of short-distance trades, and that direct contact between the regions at that time was extremely rare if it happened at all.

Arab documents

Seafarers from the Arab world were pioneers in the art and science of maritime navigation, and had explored the Indian Ocean centuries before the first European ships rounded the Cape of Good Hope. However, despite the fluorescence of Arabic travel and navigational literature in the 9th-11th centuries, there is no definitive evidence that far eastern Island Southeast Asia was visited by Middle Eastern traders until the 15th century (Tibbetts 1979). Two texts from this later period do mention Banda. The first, dated 1462, is by Ahmad ibn Majid (who supposedly piloted Vasco da Gama from Malindi to India). The second is by

Sulaiman b. Ahmad al-Mahri, dated 1511. Both correctly place Banda (*Bandan*) geographically, link the islands to nutmeg and mace production, and also mention the islands of Maluku (Ternate, Tidore, Moti, Makian, Bacan) and *Jilolo* (Halmahera). Unfortunately, these texts are primarily sailing directions and do not contain descriptions of towns or people (Tibbetts 1979: 14-15). It is intriguing that the Ahmad ibn Majid text dates to the same approximate time that Banda became "Moorish", according to what the first Portuguese were told in 1512.

Earlier texts mention nutmeg and cloves, but are vague about the place of origin for these products. For example, Ibn al-Faqih (AD 903) says that nutmeg, cloves, sandalwood and camphor come from "Zabaj, a country in the extreme south in the neighborhood of China, from a country called Fansur" (Tibbetts 1979: 31). Masudi (ca AD 956) also mentions the land of Zabaj, which is ruled by the "Maharaja, king of the isles," and which exports numerous products, including cloves and nutmeg (Tibbetts 1979: 38). "Zabaj" is mentioned by many other Arab chroniclers, and probably originally applied to the Saliendra kingdom in Java, which later evolved into the Srivijaya empire in Sumatra (Tibbetts 1979: 100-118). "Fansur" appears to have been located in Sumatra, and was also mentioned by Marco Polo (Tibbetts 1979: 140-141).

Four early Muslim writers refer to the "Islands of Spices" which are probably Maluku. Ibn Khurdadhbih (ca AD 850) says the islands of spice are fifteen days sail from the islands of Jaba (Java?), Salahit and Harang (Tibbetts 1979:29). Mukhtasar al-'Aja'ib (ca AD 1000) also says that the "Island of perfume" is fifteen days sail from the region of Java (Tibbetts 1979: 180). Marwazi (ca AD 1120) wrote of an island which is a "clove mine" where a process of silent bartering occurs. In the evening, maritime traders anchor their ships, row to shore and spread out leather sheets, placing their purses with "dinars" (money), then return to their ships for the night. In the morning, they return to find the money taken and a heap of cloves placed in return. If the trader is unhappy with the bargain, he leaves the cloves, and the next morning the money will be replaced. No traders dare enter the island at night, as they hear great uproars, and anyone who enters disappears without a trace (Tibbetts 1979: 180). Sidi Celebi (ca AD 1554) describes the islands of cloves and calls them Maluku, and quotes an earlier story about how the inhabitants of the place only gather the cloves that have fallen off the trees and been washed down streams (Tibbetts 1979: 180-181). Tibbets states that several earlier authors were clear about the botany of the clove tree, so it is

quite possible that they had first hand knowledge of it, but no detailed description of the islands or their inhabitants has survived.

In general, the Arab documents suggest indirect trade with Banda from before the 9th century, and possible direct trading contact as well, though it was probably an infrequent occurrence. More frequent and well-documented contact does not appear to happen until the beginning in the 15th century, just before the arrival of the first European visitors. As with the Chinese accounts, cloves seem to be more important than nutmeg, although it is quite likely that voyages to the clove islands of north Maluku passed through Banda, which may have been an entrepôt for cloves.

Chinese documents

There are some relatively early Chinese references to cloves and place names in Maluku dating from the first century BC (Abdurachman 1978: 163; Andaya 1991: 79). However, the earliest document that refers specifically to Banda is the Chinese text (*Dade Nanhai zhi),* which dates to AD 1304 (Ptak 1992b: 29). This text apparently just records Banda as a place name. The earliest description of Banda in any detail (from any source) is from the encyclopedic description of 99 foreign lands by Wang Dayuan called *Daoyi zhilüe* ("A Synoptical Account of Islands and Barbarians"). The entry for Banda (*Wên-tan*) describes the geography, products, trade goods and customs of the people in a short passage of just a few hundred words. Most scholars believe that Wang actually visited the places he describes in the text (Ptak 1998: 130), though there is some disagreement, see (Rockhill 1915). He was born in 1311 and went on two long voyages, between 1330-1334 and between 1337-1339. The *Daoyi zhilüe* was first published in 1349 as an appendix to a history of the trading center of Quanzhou, and was very influential on later Chinese descriptions of foreign lands (Ptak 1998: 89). The only English version available is a 1915 translation by Rockhill, and I quote the Banda entry in full below:

> The P'o-shan (volcano?) is high. The water of the stream which flows around it is fresh. The soil is poor. The people make their food for the most of sago and cocoa-nuts.
>
> The climate is extremely hot. The usages are licentious. Men and women do up their hair in a coil; the upper part of their body is bare; they wrap around them a piece of bark cloth [or possibly blue muslin] but in the day time when the heat is terrible, they do not even use this cloth.

> When the month for sowing comes and is bad for tilling and hoeing they fish and hunt, gather fuel and bring water. There is no danger for snakes or tigers in the hills. The dwellings have nothing to fear from robbers.
>
> They boil seawater to make salt, and ferment the juice of the cocoa-nut to make spirits.
>
> The women weave cotton as their occupation. They have a ruler. The native products include nutmegs, little black slaves, mace, and small clove bark. The goods used in trading are watered damasks, muslin, cotton prints, black jars, musical instruments, blue porcelain-ware, and such like (Rockhill 1915:256-7)[5].

Like any ethnographic description, the *Daoyi zhilüe* reveals much more when its historical context and potential biases are explored. Ptak situates this document in the context of Taoist and Confucian values of 14th century China (Ptak 1995; Ptak 1998). The overall structure of this document conforms to a Taoist world geography, which divides the world into a complex subsystem of geographical units and spatial segmentation, derived from the ancient mythological concept of "nine divisions," and conforming to Taoist numerology. Wang Dayuan also writes from a Confucian worldview, which emphasized the superiority of Chinese civilization over "barbarians," and its role as center and moral authority. It is particularly interesting that this attitude existed during the late Yuan dynasty writings of Wang Dayuan despite the reality that China was ruled by "foreign" Mongols at the time (Ptak 1995: 53). The *Daoyi zhilüe* then should be read as a somewhat formulaic expression of Chinese worldview; an attempt to order the vast "foreign" world in terms of accepted values of the period. The ethnographic descriptions themselves were meant to convey how the foreign customs (*fengsu*) of each place compared with the Confucian ideals of Chinese civilization. "Chaste" sexual and marriage practices, including covering the body (particularly women's bodies), were valued above all other cultural traits, and notes on this were included in nearly every geographic entry. Thus, Banda and its nearly nude inhabitants were examples of some of the worst of inferior foreign customs; the local customs in Banda are judged as "obscene" (*yin*; read by Rockhill as "licentious") (Ptak 1995: 67). Other seemingly odd details ("they boil seawater for salt") occur in nearly every entry, and might be a narrative device that separates the ethnographic portion from the trade information portion of the entry.

Wang Dayuan does not tell us about the religion of the people of Banda. He was aware of religions like Islam and Buddhism, and notes Muslim practices in Java, for example (Rockhill 1915: 242).

He does not mention religion in some cases where it seems it would have been of central interest, in his description of Calicut, for instance (Ptak 1998), so there remains the possibility that there were Muslims in Banda in the early 14th century. He tells us that the people of Banda "have a ruler," and have "nothing to fear from robbers" which are good *fengsu*, but not very informative about Bandanese social structure. The information about cloth suggests that bark cloth was an important industry in Banda at the time; perhaps it soon died out as imports of cotton cloth from the west increased (c.f. possible bark cloth found at site BN1 Unit 4, Fig. 3.17c).

Daoyi zhilüe is the only description of Banda before the earliest Portuguese documents that I have found, and it presents more questions than answers. There is a bit more to be mined from the body of early Chinese literature, though. Cloves were a more important commodity in China than nutmeg and mace. Because cloves were endemic to the northern Maluku islands of Halmahera, Ternate, Tidore, and other nearby islands[6], historical information regarding the trade in cloves can shed light on Chinese-Bandanese interactions by association. In particular, this information can highlight changes in the intensity of maritime trade from China, the demand for spices, and the location of trade routes. This material has been comprehensively reviewed by Ptak (Ptak 1992a; Ptak 1992b; Ptak 1993; Ptak 1999; Ptak & Rothermund 1991), and will be discussed in more detail in the conclusion to this chapter.

Southeast Asian Documents

There is only one surviving Southeast Asian-written document from the early modern era that contains any mention of Banda that I know of. It is the epic poem *Desawarnana* ("Description of the Country") by Mpu Prapañca, written in 1365 in Central Java (Prapañca & Robson 1995). The reference to Banda is in a listing of the various places that were subjects of the Majapahit kingdom of Java (13th-early 16th century). Among them is a list of the various islands to the east of Java that "remember their duty". These include *Wandan* (Banda), *Ambwan* (modern Ambon, or possibly the Hoamoal Peninsula on Seram

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[5] Ptak (1995) criticizes Rockhill's translation (of the entire text) as containing many errors, but a more accurate one has not yet been published.

[6] Some early sources, such as Marco Polo, mistakenly list the source of cloves as Tibet, Java, the Nicobar Islands, even Africa (Ptak 1993:2). However, cloves were not grown outside of Maluku until after the 18th century.

(Sollewijn Gelpke 1995: 87)), *Maloko* (Maluku in the old sense, that is the clove islands including Ternate), *Wanin* (on New Guinea), *Seran* (Seram) and *Timur* (Timor) (Prapañca & Robson 1995: 34).

What the "duty" was for these places remains unclear. It is likely that Majapahit sovereignty over these rather distant places was largely nominal or symbolic (Prapañca & Robson 1995: 107). Perhaps there was a tradition of tribute. However, the economic and social links between Java and these places were real. Nutmeg and mace are mentioned as trade goods available in the Javanese port cities such as Tuban, Gresik and Jepara by 14th century Chinese documents (Nastiti 1995). The connections between these ports and Banda continued long after the eclipse of Hindu-Buddhist Majapahit by rising Muslim trading empires in the 15th-16th centuries. The *Desawarnana* suggests that links of trade and exchange had political overtones, and perhaps more importantly, that Banda was an important part of Majapahit political ideology of *nusantara*, the integration of the island world. It is the primary confirmation of what some later chroniclers maintained, that Java, particularly the coastal port cities, were important trading partners with Banda and this partnership dated to at least the 14th century.

Portuguese Documents

In 1511, shortly after Alfonso de Albuquerque and his fleet conquered the important trading city of Malacca, he assembled a squadron of three ships to find the spiceries of Banda and the Moluccas, which were one of the central goals of the Portuguese expansion. These ships left Malacca in November of 1511, under the command of Antonio de Abreu, and included as a crew member the young Ferdinand Magellan and the pilot and mapmaker Francisco Rodrigues. One of the ships, under Captain Francisco Serrão, was shipwrecked in a storm off Madura. The other two were blown past the Bandas on a strong westerly monsoon, and had to wait for a change of weather for three months in the village of *Gullegulle* in southeast Seram. In early 1512, they finally reached Banda, where they loaded their ships with nutmeg and mace, and also bought a junk to replace the one Serrão had lost. They then returned to Malacca, rather than continuing on to the clove islands as originally instructed by Albuquerque. On the way back to Malacca, they delivered Serrão his replacement ship in Madura, which he then sailed to north Maluku. Disaster struck the unlucky

Serrão again, though, as he shipwrecked in the tiny Lupicara Islands, in the Banda Sea southwest of Banda, on his way to Ternate. He was able to outsmart a group of local pirates intent on salvaging his ship, and instead commandeered *their* ship to Hitu, on Ambon Island. Here he got involved in local battles, where his cannon made a big impression, and eventually he attracted the attention of the sultan of Ternate, who sent a fleet of *kora kora* war boats to bring Serrão and his guns to Ternate[7]. Thus began the Portuguese century in eastern Indonesia. Serrão would spend the rest of his life in Ternate, only to be mysteriously poisoned in 1521, at the same time Magellan, just short of a global round trip and a reunion with his former shipmate, was murdered in the Philippines, but his influence would last half a century longer. Because of these various historical and maritime accidents, the clove island of Ternate became the center of Portuguese colonial administration and trade during the 16th century rather than Banda.

The de Abreu voyage to Banda was the culmination of 25 years of revolutionary exploration and discovery by Iberian navigators. Their knowledge of the world in 1515 was vastly enlarged from that of 1490. By 1515, the extent of the New Worlds of North and South America were beginning to be sketched out, trading posts and forts were established in Africa and Asia, from Guinea to New Guinea. The forces that stimulated this incredible period of expansion were complex, but two primary motivations underlie them. One was ideological, to advance Christianity and complete the conquest of the "Moors", a war that had begun with the expulsion of the moors from Portugal, and was now being pursued to the ends of the earth. The second motivation was trade, and while at times this second motive conflicted with the first (the most important trading partners of the Portuguese were often Muslims), it was often synchronized with the ideological war. Portuguese traders were intent on capturing the trade routes, markets and entrêpots that had developed from centuries of Arab trade. Portuguese merchants wanted not only to supply European markets with Asian goods obtained from markets in India, but also to find the production centers for these products and buy them directly (and cheaply) from the source. By doing this they could bypass hundreds of intermediaries, and reap tremendous profits (Boxer 1969; Meilink-Roelofsz 1962).

[7] The route of the 1511-12 voyage is a matter of some debate. No first hand account has survived, and most information comes from Antonio Galvão, who wrote an account many years later, in 1555 (Galvão 1862). For an in-depth analysis and convincing reconstruction of the route of the voyage, from which I have drawn here, see (Sollewijn Gelpke 1995).

The twin obsessions of Muslims and trade dominate discourse and description in the Portuguese documents from the 16th century. Tome Pires dedicated his *Suma Oriental* to the king of Portugal who "does not cease to fight against the name of Mohammed" (Pires & Rodrigues 1944: 2). As was the case for the Dutch a century later, the earliest accounts tend to contain a mixture of disapproval and admiration of Muslims. Once established as powers, the accounts are much less tolerant, and this loss of tolerance tends to make the descriptions much less detailed and useful (Steenbrink 1993: 28).

In 1504, the Portuguese King Manuel I decreed that complete secrecy had to be observed regarding new discoveries, with violations punishable by death (Andaya 1993: 9). This had the effect of stopping the publication of accounts of the Indies, and the 18th century earthquake and fires that destroyed Lisbon were probably responsible for destroying much of the archived, unpublished material. The material that has survived includes a relatively rich ethnographic description of Banda by Tomé Pires, which was not published until 1944 (Pires & Rodrigues 1944: 205-212). After that, there is relatively little detail in the documents about Banda, especially when compared to the volumes about the clove islands of north Maluku. However, the surviving Portuguese literature on Banda is a quantum leap in volume and detail when compared with earlier Asian or Arab documents. In addition to Pires' *Suma Oriental* (Pires & Rodrigues 1944), the less detailed 1518 account by Duarte Barbosa (Barbosa 1921) and Galvão's two summary accounts from the mid-16th century (Galvão 1862; Jacobs 1970), I have relied primarily on the documents collected by Sá (Sá 1954b; Sá 1954a), and the work of various historians of the Portuguese colonial world. Tomé Pires will be analyzed separately below, followed by a synthesis of the fragmentary information about Banda from the subsequent hundred years of Portuguese presence in the region.

The Suma Oriental of Tomé Pires is the most important and detailed description of Banda and eastern Indonesia from the early modern period, and the earliest written by a European (Pires & Rodrigues 1944).[8] Pires arrived in India from Portugal in 1511, and lived in Malacca from late 1512 to about 1515,

[8] There is an account and description of Banda by the Italian merchant-explorer Ludovico di Varthema dating from 1510 (Varthema *et al*. 1863). He claims to have visited Banda in May 1505, and correctly describes the nutmeg tree. However, his description of Banda's landscape (as single flat island 100 miles in circumference) is quite different from reality. His itinerary, giving 13 days to sail from Sumatra to Banda, and seven more from Banda to the clove islands, sounds overly optimistic, particularly during May, between the monsoons. His credibility is the subject of debate, but the majority of scholars believe he probably did not travel east of Java (see Temple 1928).

where he wrote the *Suma Oriental*. While there is no evidence that he actually visited Banda, in his job as accountant, scribe and "controller of the drugs" (spices) for the king of Portugal, he was well positioned to hear the accounts of returning voyages from the eastern islands (Cortesão 1944: xviii-xxvi). Not until the description of Banda by the Dutch van Neck expedition in 1599 ("Tweede" 1601) was such a detailed account of the people, economy and geography of Banda written. Because of this, the *Suma Oriental* has been extremely influential on historical conceptions about pre-colonial Banda, perhaps overly so. The *Suma Oriental* is best regarded as a reliable but biased second-hand account of early 16th century Banda. Its intended audience was the Portuguese king, and the growing trade bureaucracy of the *Casa da India*. Pires is careful to note that his account should be "for reading and not for navigation" (Pires & Rodrigues 1944: 211).

The account begins with a geographical description of the islands. He names six islands, the largest being named *Pulo Banda* (Banda Besar), which had four ports, named *Calamom* (Selamon), *Olutatam* (*Ortatam*), *Bomtar* (Lonthoir) and *Comber* (Kumbir). Another island was named *Neira* (Banda Naira), and had a port, called *Porto Neyra* (Naira) "where the Javanese anchor". This is the earliest indication that *Nera* was an ethnic enclave. Other islands include *Pulo Aee* (Pulau Ay), *Pulo Rud* (Pulau Rhun) and *Pulo Bomcagy* (Pulau Rozengain or Hatta?). These islands produced nutmeg and mace, but did not have harbors in which to anchor, so the people of these islands bring their products to the island of *Banda* (Banda Besar). The island of *Fogo* (presumably Gunung Api) and *Lanacaqe* did not trade, although the latter was said to produce sago (Pires & Rodrigues 1944: 205-206). *Lanacaqe* is usually translated as Pulau Nailakka, the sandy islet off Pulau Rhun, but it is unlikely that this tiny island ever grew sago, which requires substantial moisture.

About half of Pires' account of Banda is concerned with matters of trade, such as prices, systems of weights, preferable trade goods, etc. In this account, cloth, mostly from South Asia, is by far the most important item for trading for spices, followed by "Java cashes" (Pires & Rodrigues 1944: 206). He complains that in the past, Javanese and Malays used to trade inferior cloth from Sumbawa (still today an important *ikat* cloth producer), along with "old pots, trinkets and beads" and that these items were such a novelty for the Bandanese that the Javanese and Malays could name their price, and they were "adored" by the Bandanese (Pires & Rodrigues 1944: 207). Now, despite the fact that the Portuguese brought "gold and

rich things" to trade (such as superior quality South Asian cloth), the Bandanese were "discontented" with the Portuguese (Pires & Rodrigues 1944: 207). Perhaps this is a sign that already, after just three years of contact, there was social tension between the Portuguese and the people of Banda. Banda used the weight system of Malacca, and had other goods available in addition to nutmeg and mace. Cloves were available, shipped down from north Maluku via Ambon, as were gold and elephant tusks (possibly dugong tusks?) brought from unnamed other islands. Birds and feathers were another good sold in Banda, birds of paradise were said to come from Aru, and parrots from Papua (Pires & Rodrigues 1944: 209). Finally, Pires mentions that people from nearby islands came to Banda to buy cloth in exchange for food, as Banda had "hardly any foodstuffs" (Pires & Rodrigues 1944: 208). The primary food was sago, which is also used as money, brought in from unnamed islands near Banda which were populated by "heathen" (Pires & Rodrigues 1944: 209).

Religion is not much discussed in this account. Pires seems to note Islamic practice only when it deviates from what he considers orthodox (Steenbrink 1993: 28). He does note that it is "thirty years since they began to be Moors in the Banda Islands", and that "along the sea coast there are Moorish merchants," while there were also a "few heathen inside the country." Otherwise, people were described as having straight black hair (possibly in contrast to more dominant curly or frizzy hair of Malukuan people), numbering between 2500 and 3000 in population. Politically, the islands had "villages" and had no king, being ruled by "*cabilas* and by the elders"[9] (Pires & Rodrigues 1944: 206). On the subject of rule, though, it would appear that visiting Malay and Javanese merchants also had some power. Not only did the people "adore" them, they must have also at times feared them. Pires writes that Banda was "at the mercy of any passing junk, Malay or Javanese, and they had a place in the mountains where they hid if there is any danger on the sea coast" (Pires & Rodrigues 1944: 211).

In summary, this account addresses several important points that have relevance to this study. They include 1) a date for conversion to Islam in Banda (1480), 2) continued presence of non-Muslims, 3) Nera as a Javanese ethnic enclave, 4) the various trade goods, local and long distance, present in Banda's

[9] *Cabila* is a Portuguese word derived from the Arabic *qabila*, meaning tribe and also age or generation. It is used in Portuguese to designate some of the North African nomadic tribes. In Banda, perhaps it referred to non-hierarchical Muslim political order, but this is unclear from the text. Thanks to Isabel Rodrigues for this information.

markets, and 5) contradictory messages about Bandanese both "adoring" foreign Malays and Javanese, and also fearing them enough to hide in the mountains when their junks passed by.

After Pires' account from 1515, the next description of Banda is from a brief account by Duarte Barbosa, written after 1518 (Barbosa 1921). He did not travel to Banda, but relied on accounts of returning traders, much as Pires did, though perhaps with less privileged access. As it was based on similar information, it can be considered contemporaneous with Pires, and perhaps somewhat less reliable. His description of Banda runs for two paragraphs. He adds to (or contradicts) Pires' account in several ways. He agrees that the population is made up of both "Moors and heathen", and that they have no king, but that they "sometimes submit to the King of Maluquo" (probably Ternate) (Barbosa 1921: 197-98). He adds to the list of trade goods popular in Banda. In addition to South Asian cloth, materials such as copper, quicksilver, vermilion, tin and lead were in demand, as were large bells (Javanese gongs?) and "certain hairy caps from the levant" (Barbosa 1921: 198).

In 1529, a new description of "Maluquo and Banda" is written by a Marty Correia, who was an *alcayde mor*, or sub-captain of a fortress in either Ternate or Banda, probably Ternate (Sá 1954b: 15-18)[10]. He lists the islands and villages and their respective output of spices. On Banda Besar (called simply *Banda*) there is *Leitatam* (*Ortatam*), where there is a *padrão* (Portuguese marker stone, possibly the one in the Muzium Nasional in Jakarta), *Lontor* (Lonthoir), *Pambel* (Kombir?), Borite (?), Tamar (?), and *Vaer* (Wayer?). Then there are the islands of *Neirão* "with all its villages" (Banda Naira), *Rocamguy* (Pulau Rozengain, or Hatta), *Pulliay* (Pulau Ay) and *Polo-Rom* (Pulau Rhun). Correia states that the Bandanese have many *jumquos* (junks, trading ships) which they take to Java and Malacca, although "nowadays they do not want to go to Mallaca, due to the company they find on the way", possibly a reference to Portuguese attempts to control non-crown regulated trade in nutmeg by the Bandanese.

While mainly concerned with trade and sailing directions, Correia makes a brief description of the human society on Banda. He states that each island had its own language, an observation not made before or since. He says that they had no kings, but were governed according to who is oldest, and that they were all Moors, and had been for the past seventy years. This is an important difference from earlier

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[10] Translated from Portuguese by Isabel Rodrigues.

descriptions, which usually indicate that there were also non-Muslims in Banda. Then the description becomes contradictory. According to Correia, the three biggest islands (unnamed, but probably Banda Besar, Banda Naira, and possibly Pulau Ay, which is the second biggest nutmeg producer in his list) have "Moorish kings who little by little have made themselves lords of the land (*asenhorear*)". The process of how this rule was attained is described as "they had the strength to step up and resist against the natives of those lands, who sought refuge in the mountains from where they launched war; however, now they are on conversing terms with the Moors" (Sá 1954b: 17-18).

This would seem to imply several things. There is a separation between "natives of the land" and "Moorish kings" though it is not clear how this categorization is cross cut by ethnic or religious categories. He seems to imply that Muslims are foreigners, and native Bandanese are non-Muslims, but it is difficult to disentangle these meanings from 16th century Portuguese documents, in which "Moor" means simply "Muslim", though sometimes with ethnic overtones. If the natives are now on "conversing terms" with the Moors, it implies that non-Muslims continue to live in Banda, despite the previous statement that they are all Muslim. Finally, it also implies that Islamization in Banda was not a peaceful process, but rather one marked by power differentials, and the eventual defeat of non-Muslim natives.

In 1531, there is an interesting letter to the king of Portugal informing him that Nuno da Cunha, governor of the Ternate fortress, had "given" the island of Banda to the *Kechil Doroez*, a Ternatean leader, in compensation for his services to the Portuguese (Sá 1954b: 19). Whether the Bandanese themselves were ever notified of this, let alone respected their new ruler, is not recorded, though it is highly unlikely that this gift had any real value, although it may be the source of the idea that Banda was under Ternatean rule in the later 16th century (Villiers 1981).

Banda is mentioned, though only in passing, in *A Treatise on the Moluccas*, probably written by António Galvão in c. 1544 (Jacobs 1970). Galvão was the Captain of the Moluccas in 1536-1539, and lived in Ternate during the period. In this account, there is much less information about Banda than about of the Moluccas proper (the northern Maluku islands of Ternate, Tidore and others). This raises the question, which is never resolved throughout the Portuguese period of the 16th century in Maluku, of why the Portuguese did not have a bigger presence in Banda. There are clues as to why this was the case, the earliest of which are in Galvão's *Treatise*. Galvão implies that Banda had become a refuge for Portuguese

traders operating outside of the King's monopoly, and that on at least one occasion, punitive expeditions had been sent to control this illegal trade, which battled with illegal traders residing there (Jacobs 1970: 275). In another passage on the various weapons available in Ternate, Galvão mentions that many swords, knives, muskets, shields and lances are imported from Malacca, Java and Banda (Jacobs 1970: 165). In 1540, Fernão de Sousa, a private trader who had royal authorization to conduct trade in Banda, was killed either by the Bandanese, or more probably by unauthorized Portuguese traders living there (Jacobs 1970: 267; Schurhammer 1962: 58). This provoked a punitive mission from Ternate, which was also interested in stopping the arms trade centered in Banda, and the Portuguese managed to capture a Bandanese war ship, captained by a man named Maima (Jacobs 1970: 303).

Portugal's power in Maluku began a long decline in the second half of the 16th century. After the murder of Sultan Hairun of Ternate by the Portuguese in 1570, and the loss of the Ternate fortress in 1576, the Portuguese retreated to Tidore and to a new fortress in Ambon (Jacobs 1985). By the end of the century, the newly emerging Dutch maritime empire easily took control of most of the Portuguese strongholds in Maluku within two decades of the first VOC visits to the region. Some historians theorize that Portuguese forces attempted to build a fortress on Banda Naira in 1529 (Hanna 1978: 9). However, there is no evidence that it was ever completed or occupied. There may have been small *feitorias* (Portuguese trading posts) in Banda at times during the 16th century (Sá 1954a: 178-9), although Villiers believes otherwise (1981: 745). In at least one document, there is a specific statement that there was no fortress in Banda, and therefore it was not possible to send a priest to the islands (Sá 1954b: 372). At least one *padrão* (a stone marker demarcating the territory of the crown of Portugal) was erected on Banda Besar around 1522, probably in response to Portuguese paranoia about recent Spanish incursions into Maluku following the arrival of Magellan's expedition in 1521 (Sá 1954a:132-48). One *padrão* from Banda Besar, possibly the one mentioned by Antonio de Brito, survives in the collection of the Muzium Nasional in Jakarta (Soebagio *et al*. 1993: 209-10). Traders operating outside of the royal monopoly apparently did not write about their activities, and they were not, of course, discussed in the missives to the king from genuine officials, which make up most of the documentary record of the period. There are, however, enlightening fragments scattered in the records that suggest that Banda was regularly visited by "private" Portuguese traders from

Malacca and Ternate, who managed to circumvent crown duties and enhance their own private fortune in Asia (Danvers 1894: 383; Sá 1954b: 230-32; Villiers 1981: 746-48).

Another theme that emerges from the Portuguese record of Banda after the 1520s is of increasingly acrimonious relations between Portuguese and Bandanese. Banda appears to have been a locus of resistance to official Portuguese interference in trade and in religious affairs. The Bandanese were unique in Maluku in that they piloted their own trading ships to Java and the Malay Peninsula, and their entrepôt and shipping economy was more dependant on free trade than Ternate, which was merely a spice producer. The Portuguese capture of Malacca in 1511, which appeared to have been the most important market for Bandanese nutmeg and mace, upset trading patterns throughout the archipelago, and temporarily reduced the volume of spice trade throughout Asia (Reid 1993b: 272). Non-European trade, including Banda's share, was subsequently shifted to a half-dozen regional centers, all of which became great enemies of the Portuguese, and were the sites of numerous battles and sieges that were framed by the Portuguese chroniclers as anti-Muslim wars. This conquest of Malacca may have earned the Portuguese the long-term hatred of Bandanese traders, as may already be evident in Pires' complaints that the Bandanese do not appreciate Portuguese traders, even though they bring superior goods.

After the Portuguese fall from grace in Ternate in the 1570's, the newly independant Ternate sultans became more closely allied with Banda, calling for their help in numerous battles against the Portuguese (Andaya 1993: 56; Bohigian 1994: 119; Henley 1993; Sá 1954b: 260-1, 330-3, 435-8, 451-2). Some historians have concluded that Banda lost its position as a trade center by the end of the 16th century, and came under Ternate's sovereignty (Abdurachman 1978: 165). However, the situation was probably closer to Villiers' conclusion that obedience to Ternate was "sporadic and largely nominal" (Astley 1746: 505; Villiers 1981: 730). In an analogous situation, the nearby trading center in Southeast Seram, which was said to have come under Tidore's sovereignty in the same period, probably was "never more than precariously, temporarily, within the effective orbit of Tidore" (Ellen 1993: 34).

In 1574, Banda itself was the site of a battle between a large armed junk from Malay Peninsular city of *Jor* (Johore) and a Portuguese *não* (naval ship) captained by Sancho de Vasconcellos. The Portuguese were soundly defeated by the "Moors" (the Johores and their Bandanese allies). This account also mentions a "fortress" on the island of Pulau Ay, perhaps a feature like the possible defensive wall

features discovered at sites BN1 and BN2 (Sá 1954b: 260-1). There is no further mention of Banda in the Portuguese documents after the mid-1570s, and it would appear that the Portuguese position as a power in Maluku was increasingly precarious, limited to a small fortress in Ambon until 1605 (Jacobs 1985).

Sixteenth century relations between people in Banda and Portuguese traders could be summarized in this way. Earliest relations in the beginning of the century were already tense, due perhaps to the Portuguese conquest of Malacca and interference in the wider Muslim trade network, though there is no particular evidence for interference specifically in Banda. For at least the first 30-40 years following the first visit in 1512, there were regular official trading ships sent to Banda from Malacca, however, no permanent official Portuguese trading post or fortress was ever established (Villiers 1981). There were probably unofficial private Portuguese traders operating on the islands, and perhaps even residing there during certain periods (Sá 1954a: 104-5). Relations continued to deteriorate during this period, and after Ternate broke with the Portuguese in the 1570s, new alliances between Banda, Ternate and other Muslim communities took the upper hand. However, non-Muslims continue to form a part of Bandanese society throughout this period, and continue to be noted by Dutch observers into the 17th century.

Dutch documents

After a gap of nearly 25 years in the documentary record of Banda, the next information about the islands is contained in the published descriptions contained in Linschoten's account of the East Indies, where he was employed by the Portuguese from 1579-1592. His account, which was the first widely available information in Holland about the region, helped inspire subsequent expeditions, and marks the beginning of the rise of Dutch and English power there. While Linschoten never visited Banda (he lived in Goa), he was privy to returning traders' tales. His brief account describes the "untrustworthiness" of the Bandanese. He recommends that visiting traders stay on their ships, recounting a cautionary tale about a Portuguese captain who was attacked in Banda, his ship taken and crew imprisoned for two years in terrible conditions (Linschoten 1885: 115).

Undoubtedly guided by Linscoten's maps and information, voyage of a Dutch exploratory and trading fleet under the command of Cornelius van Neck went to the East Indies in 1598-99 This expedition,

consisting of a fleet of eight ships, left the Dutch port of Texel on May 1, 1598. The fleet was split in two by storms, and after rejoining in Bantam in Java, four ships under the command of Warwick continued on to the spice islands, using navigational information gathered from a renegade Portuguese sailor. At Ambon, the fleet again split, and two ships under the command of Jacob van Heemskerk went south to Banda, where they stayed from March 15 - July 2, 1599, while the other two ships went north to Ternate and Tidore in search of cloves. Heemskerk's ships, with a full load of spices, successfully returned to Amsterdam in May 1600, and that success (and profit) was a key factor in the beginnings of the Dutch seaborne empire in Asia (Masselman 1963: 110-117). The maps (considered separately below), illustrations and descriptions of the islands and people remain the most detailed account of pre-colonial Banda. This analysis uses a 1601 English translation ("Journal" 1601) of the original, which was first published in Dutch in 1600 or 1601 ("Tweede" 1601). Also consulted were this Dutch version and French language version ("Second" 1609), and there are some, mostly minor, discrepancies between the different versions. The illustrations reproduced here are from the French version, using the captions from the non-illustrated English version.

Of chief interest in the text is the observation of battles between two alliances of villages that the Dutch observed.[11] They describe the towns of Banda, numbering five or six by their count, as divided into two factions. On one side were *Nera, Lontor, Polleway* and *Polleruyn*, and they are opposed to *Labbetack, Comber* and *Waer*. The reason for the division is described thus:

> This enimitie hath continued long (many yeeres in this land) for they of Labetack (a town situated some little leage from Nera, the principalle towne of the whole land) heretofore cut downe, or overthrew certaine trees within the circuit or liberties of Nera: from hence they say, such mortall hate, and bloodie warres hath so long since taken such deepe roote in the hartes of those people, that never since they could be reconciled, but without all mercie, or sparing one another, or keeping of any quarter, upon all advantages and strategems, they murder and kill one another like Dogs, as wee in the time of our beeing there have often and sundry times seene ("Journal" 1601: 32).

This text includes two accounts of such battles between the two alliances. The first, observed on June 5, 1599, happened when a war boat from *Labetack* came to *Nera* and killed some men of *Nera* in hand-to-hand combat on the streets just in front of the Dutch trading house ("Journal" 1601: 30). On June 17th (or June 6th, as stated later in the text), there was a response from *Nera*, which with support from their

allies "Lontoer and Pollerbay", went to "a little island called Wayter" where they killed most of the inhabitants and brought back their heads, along with two women prisoners, to *Nera* with great fanfare, (see above pp. 195-210 for discussion of the actual location of this island and/or village). One of these prisoners was made the slave of the *Nera syahbandar*, while the second was executed, "cut in the midle in two pieces with a Sable or Cutlas, whereby wee might see that they were a most bloody and tyrannical nation" ("Journal" 1601: 31-33).

Figure 3.2. Illustration of the implements of war used by the Bandanese in 1599 ("Second" 1609).

The captured heads were buried in an elaborate ceremony, where they were carried, tied onto a staff, to the house of the *syahbandar*, where they were placed on a large stone for public viewing. Then the heads were wrapped in "Calicute" cotton cloth, placed on platters and carried to the burial ground, where they were wrapped and buried with burning incense. This manner is similar to that of other deaths, and the funerals are conducted in typical Muslim fashion, with procession, wrapping the body in white cloth, night vigil with incense and the construction of a small structure above the grave.

[11] This account is also reproduced (unattributed) in Purchas (1626: 607).

This text notes that most inhabitants of Banda were "heathens, of Mahomets religion or belief" ("Journal" 1601: 31), but does not elaborate about non-Muslims[12]. A Spanish history written in 1609, which

Figure 3.3. A pre-battle banquet held in *Nera*. Participants eat sago or rice on a banana leaf, and are entertained by a war dance. Dutch observers are pictured at the far left. Note also the surrounding walls, with walls even surrounding passages leading to other buildings (top of illustration), a feature which may be related to the stone wall remains in archaeological site BN2 ("Second" 1609).

draws heavily from the Warwick account, but also includes information from the Spanish archives, calls non-Muslims in Banda "Idolators" (Andaya 1993: 19; Argensola 1708: 161). The Dutch are struck by the devotion of the Bandanese in religious affairs, which appear to be as one with politics. General meetings or feasts take place both within the mosques and sometimes in the woods, during which times general affairs have public discussion and war dances are held. Whether both alliances of villages hold these meetings is not clear, but the example described, and the illustration above (Fig. 3.3) is of a banquet held in *Nera.*

This text includes other observations of Bandanese social structure. In the town of *Nera* lived "foreigners" including people from Java, Malacca, North Maluku, China, "Turks", and neighboring islands. Slaves were prevalent, owned by foreigners as well as local nobility. The *coracorras*, or war boats, were rowed by slaves ("Journal" 1601: 32). The document describes a system by which foreign men pooled their

Figure 3.4. Social classes of Banda, 1599. "A: a little Turk named Goeytyen, of whom we bought much wares, and received great friendship. B: A Gentleman, as he goeth in the streetes with a slave after him, commonly appareled after their manner, whereof they are very proud. C: A woman of Banda, as she goeth in the streetes with a woman slave (commonly) waighting on her, which carryeth a hatte for her Mistresse to keepe her from Sunne burning when she putteth off her tire." Caption text from ("Journal" 1601), illustration from ("Second" 1609).

resources to buy a woman slave to cook for them and "do their businesse". She remained under their command for as long as they are in Banda, but was free when they were away. Some of the Dutch sailors used this system as well ("Journal" 1601: 31).

[12] Steenbrink notes that it is unusual for Warwick to describe "heathens" as Islamic. Normally he makes a clear distinction between pagans and Muslims (Steenbrink 1993: 32). Perhaps the distinction was less clear in Banda.

The above illustration (Fig. 3.4) while ostensibly depicting the social classes of Banda, also reveals the importance of interpreters and cultural brokers for the Dutch at this time. The "little Turk" who takes the center stage in the illustration above is also the eyes and ears through which the Dutch experienced Banda. He was probably a man named Kojah Rayoan, who may have been from Cairo, who had been to Venice and spoke Italian, who had helped the Dutch in Bantam (Reid 1993b: 116). During the first Dutch voyage to the East Indies in 1596, they relied on many such interpreters in Bantam, including those of mixed Portuguese-native descent ("Description" 1598: 20).

The Dutch version of the caption calls the "Gentleman" of Banda by his actual title of *orang kaya*, though, curiously, this is the first appearance of the title in the documents for Banda. Early in the 16th century, the Portuguese preferred to translate these "native" titles into Portuguese, of which some, such as *capitan*, came into local use (and are still in use today in parts of Maluku) (Ellen 1986). In the Dutch documents, however, the term *orang kaya* is prominent. It is a Malay term, used in Peninsular Malaysia and Sumatra in various ways, but generally meaning a level of leadership just below the *sultan* (Ellen 1986: 51). The widespread use of Malay as a lingua franca throughout island Southeast Asia was probably responsible for the application of the term, its meaning transformed, in Banda.

The meaning of the term varied from place to place in Maluku throughout the 17th-18th century. Generally it was a title applied to men with ascribed leadership status, who "attained authority by the manipulation of resources in indigenously approved ways, local merchants who acquired influence by virtue of being middlemen in the commodity trade, and foreign merchants" or combinations of these reasons (Ellen 1986: 50). In Banda, the term is often identified with the unusual political structure that operated in the islands. Unlike other Islamized societies in Maluku, such as Ternate and Tidore, Banda was ruled by councils of elders from each village, rather than by a single king, raja or sultan. This system was noted by Pires and other Portuguese observers throughout the 16th century, who labeled them *cabilas* or *asenhorear* (see above). There is no reference to a Bandanese language term for this title.

The meanings of these terms of status are important in this dissertation because they have the potential to illuminate the process of Islamization and the shifting relationships between trade, wealth, power as more foreign merchants entered Banda's society. It is not clear from the documents how this worked in Banda, but the evidence certainly suggests that foreigners held significant positions of power in

the late 16th century (c.f. role of *orang kaya* in 17th century Ambon, (Ellen 1986: 50). However, the social boundaries between "indigenous" and "foreign" were shifting, complex and frequently transcended (Reid 1993b: 115-123).

Figure 3.5. Negotiating at Ortattan. "Signifying the order led by the Admiral in his landing, to make agreement with them for trade, where he was very gladly and friendly entertained with great honour and reverence, bringing him into a tent made of Sayles, placed under the trees, and fastened from one tree to another: under which they sate. A. is the Governour of the Land, a very old man. B. is the King of Ternati his brother. C. is the Vice Admiral, with an interpreter standing behind him, which interpreted all matters unto them. D. Are Gentlemen, sitting in companie under the tent. E. is the Admiral of Sea there, standing apart in the side of the tent with his servantes. F. Is the Governour, his house. G. is the common people, sitting with them in the side of the tent, to heare what was sayd. H. Are Hollanders with their Trumpets,appoynted now and then to sound, wherein the Nobles and the rest tooke great pleasure & delight, wondring greatly thereat." Caption text from ("Journal" 1601: 34-35), illustration from ("Second" 1609).

Heemskerk departed Banda with a full load of spices, leaving twenty-two men behind in Nera and Lonthoir, along with a store of trade goods so that they could accumulate spices in preparation for the arrival of the next fleet from Holland. However, these new traders were viewed with suspicion, especially by the Portuguese and Banda's Muslim allies in Java, who relied on the nutmeg trade themselves (Hanna

1978: 18). Over the next several years, many more Dutch ships would enter Banda's harbor, along with the newest power in the east, the English. However, while Banda was frequented by Europeans in the next two decades, some of whom established permanent residency on the islands, no other comprehensive description of the society of Banda was written. Information about the non-European residents of Bandahas to be sifted out of ever longer descriptions of battles and intrigue between the English and the Dutch, a conflict that did not end until the Treaty of Breda in 1667, when the last English possession in Banda, Pulau Rhun, was exchanged for the last Dutch possession in North America, Manhattan Island. However, some enlightening details can be mined from the texts written over the first two decades of the 17th century, leading up to the final attack and conquest of Banda in 1621.

Dutch and English conflict in Banda, 1602-1621

The struggle for colonial control of Banda's nutmeg production and trade in the early 17th century is the focus of most scholarly interest in the islands. While this dissertation is not explicitly concerned with that conflict, the documents from the period often provide insights into internal Bandanese social processes that shaped Bandanese-European interaction. Of particular interest here are the treaties and agreements made between various Bandanese leaders and European powers, as well as the particular way in which those agreements were "broken."

In February 1602, several Dutch ships under the command of Admiral Wolpert Hermanzoon arrived in Banda (see discussion of the maps drawn on the *Gelderland* below). Hermanzoon's mission was to pressure the Bandanese leaders to sign an agreement granting a monopoly on spice trade to the Dutch, in exchange for protection from their enemies, the Portuguese, Javanese or anyone else (Hanna 1978: 19). What Hanna leaves out of his account is that the actual documents show that the agreement was made only with a few villages in Banda, the actual text reading "those of labatacke salame in the names of the four kings and their common allies to wit labatacke wider salame oudeneer and the island rossegyen".[13] This is interesting, as it shows the alliance of *Labatacca* to include other villages not mentioned in Warwick. "Wider" might be "*Waer*" or "*Wayter*" mentioned by Warwick, "salame" must be *Celamma* (Selamon), and

[13] From *Het Gelderlandt Journaal 1601-1603*, ARA 135, Algemeen Rijksarchief, The Hague. Translated from the original by Adriaan C. de Jong.

"Oudender" might be "Ouver" shown on the Gelderland maps, or more likely the *Owendender* seen on some maps on Banda Besar. The island "rossegyen" would be Pulau Rozengain or Hatta. *Comber*, which was an ally of *Labbetacca* mentioned in Warwick is not on this list. None of the *Nera* faction villages is listed here, although a separate agreement was made between Hermanzoon and those of "poelewey on the campon of ourat". This is the earliest mention of a village name on Pulau Ay, but is not shown on the Gelderland maps. The meaning of the name is not known, but "ourat" may be related to the Malay term for west, *barat*. If so, it would balance one of the other Ay villages listed on a later Dutch map, "campon timoor" or "east town"[14].

Both of these agreements make specific reference to religion, stating that no attempts will be made to forcibly Christianize any Bandanese, and likewise will not accept any attempts on the part of the Bandanese to coerce the Dutch factors into Islam, although conversion is allowed on either side if it is on their own free will. This theme is seen in several later documents, and clearly religion, and particularly conversion, was a sensitive topic for both Europeans and Bandanese. However, despite archaeological evidence from site BN1 indicating that the settlement *Labbetacca* was inhabited by non-Muslims into the 16th century, this agreement suggests that the inhabitants must have largely converted to Islam by 1602.

The *Gelderland* and her sister ships departed Banda in June 1602, leaving behind 33 men (10 according to Hanna 1978: 20) to conduct trade in *Celamma* and Pulau Ay. However, by the time the next Dutch fleet made it to Banda, three years later, all had disappeared. Some accounts maintain that several of the men had converted to Islam and married local women, and were subsequently murdered by their scandalized mates, some of whom were in turn were killed by angry Bandanese. The survivors may have escaped in a small boat to Makassar, where they were rescued in 1604 when their ship sank in a storm (Hanna 1978: 22-23).

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[14] A "campon awrat" is mentioned in 1609 in an account by the English Captain Keeling (its *syahbandar* was killed by the Dutch), but no location is given for the village (Purchas & Hakluyt 1625, vol. 1: 200). The meaning of "awrat" may be "west". A clue is in a 1605 English description of the nutmeg harvesting seasons in Banda. They describe three seasons February is “Messon Java” ("messon" = monsoon or *musim* in Malay = "season"; reference to Java perhaps meaning Javanese are in residence, having arrived on the NW monsoon); July is “Payty” (possibly reference to *air putih*, a natural phenomenon occurring in July around Banda in which the sea is discolored white and cloudy (Rumpf & Beekman 1999: 242-250), called elsewhere "Monson Arepootee" (Astley 1746: 441); December is “Ara", perhaps meaning "west" for the

Over the next two decades, relations between the Dutch and the people of Banda grew increasingly tense. The Dutch convinced the *orang kaya* of most other villages to sign trade agreements in 1605, and subsequently tried to enforce them with military force. In April 1609, a large Dutch force comprised of fourteen ships landed on Banda Naira and started the construction of Fort Nassau, against the

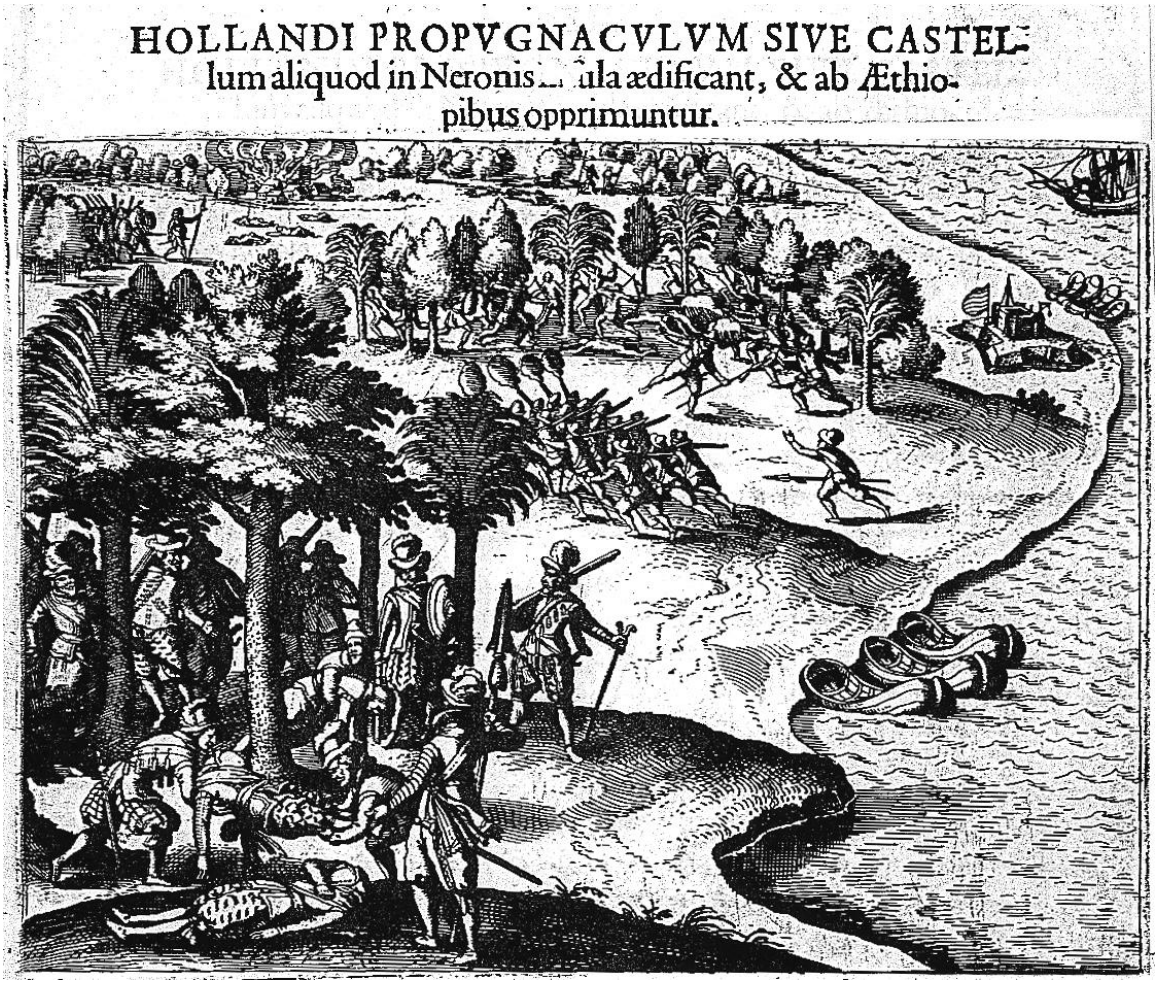

Figure 3.6. The ambush and beheading of Admiral Verhoeven and his staff, 1609, showing the newly constructed Fort Nassau, upper right (Arthus 1628).

strenuous objections of the local residents. After several weeks of low-level warfare, on the pretext of bartering for peace, a group of people from Banda Naira lured the Dutch admiral Verhoeven and his staff into the woods for a meeting. The meeting turned out to be an ambush, and Verhoeven and 26 Dutchmen were killed on the spot, their severed heads tied to staffs in the traditional manner.

(north)west monsoon (west in Malay = *barat*). The December and February seasons had smaller harvests

The ambush was a brutal shock to the surviving Dutch, who laid low in their ships for almost a month. However, the aftermath exposed internal divisions in Banda as well. *Ortatta* and *Celamma* proclaimed separation from *Nera* and innocence in the ambush, offering to protect the Dutch. Verhoeven's replacement Admiral Hoen was soon emboldened and began retaliatory attacks, including setting up a naval blockade of the coast which prevented crucial foodstuffs from landing. Eventually, some *orang kaya* sued for peace, and signed a new agreement, again giving monopoly trade rights to the Dutch, but with much stricter regulations on local shipping.

These events were observed and recorded by an English trader who was in Banda at the time, Capt. Keeling, who provides a complimentary account. Keeling played a dangerous game during these few months, on the one hand defying the Dutch monopoly by buying nutmeg wherever he could, but on the other finding the Dutch to be more natural allies during the immediate post-massacre days, even offering them assistance and shelter. However, his primary aims were to keep the trade open, at least, or even better, convince the Bandanese to sign monopoly agreements with the English East India Company instead.

He writes that the ambush was committed by "Black-moores, Bandanese and Oran-kayas" (Purchas & Hakluyt 1625: 202-203). This statement suggests that these are three mutually exclusive social categories, perhaps representing foreign traders, indigenous people, and elite of mixed indigenous-foreign ancestry respectively, but the documents are not clear here. Keeling sent scouting parties to various villages on Banda Besar, Banda Naira and Pulau Ay, testing the political waters and buying nutmeg. Some were productive, but in *Labbetacca*, he found "such small doings, as was not fit to keepe people thereabout", and he recalled a factor stationed there (Purchas & Hakluyt 1625: 199), evidence perhaps that this once important settlement was in decline. Two months after the ambush of Verhoeven, the Dutch "with all their strength" send a war party to *Labbetacca*, which they destroyed (along with the English trading post, which the Dutch later paid for), killing twenty people and taking all of their "pots and pans" (Purchas & Hakluyt 1625: 201).

In an attack on *Celamma* on July 1, 1609, the Dutch were defeated, losing six soldiers. Hoen immediately suspected that Keeling had supplied the people there with guns and ammunition, and threatened to attack Keeling himself, though Keeling denied the charge and avoided attack (Purchas &

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than the July season (Birdwood & Foster 1893: 74).

Hakluyt 1625: 201). But Keeling's luck was running out, as one by one, the leaders of more villages capitulated to signing the Dutch agreements, and reluctantly stopped selling to Keeling's factors, and he left Banda (though with a full load of nutmeg) on August 10, 1609 (Purchas & Hakluyt 1625: 203).

The ambush of Verhoeven set in motion the chain of events which would result in the great invasion and massacre of Banda by Dutch-led forces twelve years later, in 1621. The 1609 agreements signed over the island of Banda Naira to Dutch sovereignty, becoming the first piece of colonial real estate in what would become the colonial empire of the Dutch East Indies (Hanna 1978: 29-30; Masselman 1963).

Figure 3.7. Dutch retaliatory attack on Labbetacca village. Clearly, the engraver had no concept of the actual geography of Banda (Arthus 1628).

However, the monopoly restrictions were generally ignored at every opportunity by the Bandanese and their traditional trading partners, not to mention new interlopers like the English, who gave them plenty of opportunities to violate them. The agreement itself was of questionable authority, as it was written in a

foreign language, and only signed by a small minority of the *orang kaya* of Banda. However, the continued infractions gave the VOC a morally clear excuse to land soldiers and build more forts. The various events leading up to the 1621 conquest are well covered in other publications (Hanna 1978; Masselman 1963), and will not be reviewed them here, as they provide only limited insights into the nature of pre-colonial society in Banda. The documents from this period tend to represent people in Banda as minor actors in their own tragic demise, as the battle over Banda becomes an international dispute between the trading companies of Holland and England (Loth 1995a). However, some passages from this period provide insight into the role of religious identity in cultural relations that are relevant to this dissertation, so they are reviewed briefly below.

Religion and cross-cultural relations in Banda, 1600-1621

The cultural distance between Islam and Christianity provides a running theme in the conflict between the people of Banda and Europeans. While some historians have argued that in comparison with the Portuguese colonial efforts, the Dutch and English colonial administrators put a higher priority on trade than Christianization, religion remained a central concern, at least in early 17th century Banda. People in Banda often complained about the behavior of Europeans as offensive to their religion. In a letter dating to 1615 from “the Governour and all the principal states of the Ilands Banda called Puluway Puluroone and Nera" sent to "generall Keelinge and the principall factor of the English at Bantam” (the same Keeling that witnessed the ambush of Verhoeven in 1609) states that “all of us of the Islands of Banda doe utterly hate the very sight of theis Hollanders, sonnes of Whores, because they exceed in lying and villany…” because they want to "conquer the country, overthrow our religion and committ offence with our women" (Birdwood & Foster 1893: 492).

The Dutch and English also framed conflict with people in Banda in religious terms. When three *orang kaya* from Pulau Ay promised to sell nutmeg only to the English in 1609, Keeling mistrusted them, writing, "they are wicked and faithless Moores, Neither know I what to do" (Purchas & Hakluyt 1625: 199). The Dutch were constantly combating desertion by their sailors, who in many cases had married local women. In a 1613 letter from English sailor Richard Weldon to Peter Williamson Floris about conditions in

Banda, he writes that several Dutch soldiers had had enough of the harsh discipline meted out by the Dutch General Peter De Bot. In one case, Bot had two Dutch soldiers hanged for falling asleep on watch. This inspired ten to "turn Moores, and, what meanes soever they of the castle used, yett they coulde nott gett theym into their handes again". This made the Dutch situation in Banda more precarious, and Weldon writes that "they be commanders of the sea, butt on lande they dare not give a bad woord to the Bandanesians, neyther maye they once prate [speak] oute of the castle" (Astley 1746: 441; Moreland 1934: 89). Despite the intense animosity between the Dutch and English in Banda, their common religion was sometimes used in calls for peace and cooperation, such as in a 1617 letter from Dutch Captain Laurens Real (written from Fort Nassau) to the English commander Nathaniel Couthrope, which recommends that they recognize ancient alliance between kings of England and Holland and fight instead “the infidel moors their enemies” (Sainsbury 1870: 8).

Despite the mistrust expressed in these documents, both the English and the Dutch attached much importance to the various treaties that they were able to convince some leaders on Banda to sign. These documents also provide some insight into political structures on the islands, although some caution is necessary, as Europeans often imposed their own conceptions of politics on others (Andaya 1993). In a document preserved only as related by Purchas, for example, these leaders are named in two treaties between them and the English from 1620, which was a last desperate attempt by the English to halt the VOC claim on the place. The "surrenders" of Pulau Ay and Pulau Rhun to England were signed by the following people: "Emmon Poolowaye, Sabandar Pooloway, Sabandar Wratt, Sabandar Poolorun, Sabandar Lamecoe, Nahoda Coa, Hattib Ittam, Hattib Pootee, Sabandar Treat, Emmon Lancecoe, and Sabandar Locon." The surrender of Pulau Rosengain and "Wayre" (Wayer?) was signed by the "King of Wayre, Sabandar of Wayre, Emmon of Wayre, Sabandar of Rosinging, Emmon of Rosinging, Hattib of Rosinging" (Purchas & Hakluyt 1625: 702-3). "Emmon" is most likely *Imam*, a Muslim priest. "Sabandar" is *Syahbandar*, or harbormaster (literally "shah of the port"), who was typically a foreigner (Ellen 1986; Meilink-Roelofsz 1962: 7). "Nahoda" is *nakhoda*, a Muslim ship owner, and this one may be "Nakoda Goa", who also appears in Keeling's account of 1609 along with a "Nakoda China" (Purchas & Hakluyt 1625: 198, 200). The titles Hattib Ittam and Hattib Pootee (black *hattib* and white *hattib*) are possibly

Malayized Malukan titles of nobility. The other names may represent villages on Ay or Rhun, although they do not correspond with any known villages on the islands.

All parties were fearful of losing people to conversion, perhaps because it undermined the very foundations of their identity. But many did convert, and the accounts of conversion recorded in the documents represent the acts as based on strategic or practical matters rather than theological ones. Many Europeans converted so that they could marry local women, but local women were often hurriedly baptized to legitimate liaisons with Europeans (Hanna 1978: 20). One story, dating to the year after the 1621 conquest, shows both the ease with which people moved between religious identities, and also the social consequences of these acts.

In 1622, a man from Pulau Rhun committed a crime punishable by death under Islamic law (the crime is not described), so he escaped by boat to Pulau Rosengain (Hatta) and converted to Christianity. However, he soon realized that conversion would not make him safe from punishment, so he slipped back to Pulau Rhun and hid for a few days before he came up with an alternate plan. He hijacked a boat and sailed to *Nera*, and reported to the Dutch at the fort that the *orang kaya* of Rhun were conspiring to massacre the Dutch factors stationed there and on Pulau Ay with the help of people of *Seran*, who were sending 30 *kora kora* war canoes. Not only did this probable lie save the life of the Rhun man, it gave the Dutch reason to invade both Pulau Ay and Pulau Rhun and rid the islands of their native population; the *orang kaya* were tortured in an attempt to gain a confession, none was forthcoming, and all but two died of the torture. This did not stop the Dutch from executing 162 Ay and Rhun people, and shipping the surviving women and children to other Dutch-controlled areas of the East Indies. After it was cleared of people, all the nutmeg trees on Pulau Rhun were cut down, as the island was still claimed by the English (Purchas *et al*. 1905: 519; Sainsbury 1878: 400).

The brutal conquest of the Banda in 1621 was the subject of international outrage at the time (at least on the part of the English), and remains one of the more infamous events of the colonial era in Indonesia (see Hanna 1978: 46-58 for a blow-by-blow account of the invasion). The leader of the VOC forces that conduced the conquest was Governor-general Jan Pieterzoon Coen, who succeeded against the well-armed, if factionalized, Bandanese resistance through his "determination, ruthlessness and efficiency" (Hanna 1978: 48). Some Coen scholars have suggested that there were other reasons behind his actions in

Banda than just those an efficient administrator carrying out orders from the VOC administration (which had been urging military conquest of Banda for at least a decade).

Coen was a young bachelor when he first arrived in the east Indies in 1613, and he saw considerable service in Banda before he was promoted to the upper ranks of the VOC. In a letter to the VOC written when he was 26 years old, he writes:

> "The Moors abhor us and therefore the Ternateans and Bandanese do not permit anyone from their families to marry any of us for any reason whatsoever. If sexual intercourse occurs, they terminate the pregnancy (they say) and ultimately destroy the fruit and the creature that is born so that the mother will not produce pagan offspring. Your Honour employs men, and not angels, here" (Steenbrink 1993: 60-62); original Dutch text in Coen & Colenbrander (1919: 470)

Coen's later letters to the VOC administration repeatedly request that women be sent from Holland, and his vision for post-conquest Banda was one of settlement by Dutch families rather than Asians. Could he have had a personal experience as a young man on Banda that caused him to seek revenge? I will not speculate further, but do suggest in conclusion that religious differences were real social divisions in late pre-colonial Banda, and however frequently individuals crossed these boundaries, the consequences were often far-reaching.

Figure 3.8. Jan Pieterzoon Coen.

Maps

Maps are documents of central importance for this study, as they provide information about the names, locations and in some cases the relative sizes of settlements in Banda. Maps also provide a glimpse into how the mapmaker saw his world (and all the maps considered here appear to have been authored by men). Because maps are abstractions of real geographic space, they depict only a few selected aspects of that space. The choices made by the mapmaker, either consciously or subconsciously, can be analyzed to understand general attitudes about that geographic space (and about the people who live in it) held by the mapmaker. Like other historical documents, historic maps must be analyzed in their historical context, and fortunately there are several excellent studies on which I have relied to better understand how maps of Banda are situated in the larger traditions of mapmaking in Europe during the 16th and 17th centuries.

The maps reviewed here provide insights into not only which villages existed, but also which villages were "seen" or considered noteworthy enough to be included by mapmakers. They have also provided insights into the economic and political aims of the institutions or states that funded their production. These maps provide us with the location of named settlements that aids the interpretation of historic documents that mention place names Finally, maps have aided in the interpretation of the formation processes of archaeological sites. Even maps from the 19th or 20th centuries can be helpful in identifying more recent uses of sites, which have helped explain stratigraphic disturbances and geomorphologic changes in the landscape resulting from human or geological activity, such as shoreline shifts. At the end of this section, a series of summary maps are presented which show changing settlements from the 1599-1602 period.

16th-17th century maps in context

The motivations behind the making of maps were (and still are) multiple and sometimes conflicting. At a basic level, maps were made to help future travelers find their way. For traders, the names and locations of principal market or trading towns was crucial. However, maps also served political purposes, and for these purposes, the information on maps may have been deliberately misleading. Trading companies may have hid the location of potentially profitable trading locations to gain an advantage over

competitors. As these companies were entangled in national interests, they may have altered the geographical location of places to bring them under their political realm to confirm to existing treaties. Treaties made with native groups may have also influenced map making. Groups or villages that refused to sign over monopoly privileges may have been excluded from maps to make it seem as though there was unanimous consent for such treaties. Islands that resisted foreign control, or allied with an enemy may have been shown as empty, devoid of settlement.

Apart from such intentional misrepresentations, there are other ways maps can distort reality. Mapmakers of course drew what they imagined physical space to be. Birds eye views were abstractions of data gathered from the ground, before the 20th century era of aerial photography and satellite imagery. This could introduce errors in size of geographical units like islands. For example, the Bandas are almost uniformly larger than scale in pre 19th century maps of island Southeast Asia, most likely because of their political importance, and the fact they were so much more well-known than the thousands of other islands in the region. Detailed maps of the Bandas generally show the inner islands (which Europeans thought were more important) as much larger then the less important outlying islands like Hatta, Ay and Rhun.

Other biases creep into the text on maps, such as place names and other information. The transcription of unfamiliar languages into European phonology has interesting effects; unpronounceable names may have been changed or left out all together. Because maps of Banda were often made after rather short visits to the islands, misunderstandings, incomplete knowledge and confusions may have altered the place names we now see on old maps. Places in Banda probably had multiple names in the past as they do today, such as sacred names and names for everyday use. Language change on Banda itself, particularly as increasing numbers of foreigners settled there, may have altered place names over time. The fact that Europeans often relied on non-indigenous intermediaries for information, such as Turks, Malays or Javanese, all of whom spoke different languages than the native Bandanese, probably altered the toponyms that have been recorded on maps.

There are dozens of potential biases that could have altered maps from a "true" representation of the physical space of Banda. However, these biases do not simply make the maps less accurate. By contextualizing and comparing them with other maps and the documentary and archaeological record, they can help us understand the mindset of European visitors to Banda, and cultural process at work there. What

mapmakers saw and how they conceived of the geographical space of Banda was, in part, determined by and determinant of the cultural encounter between the various European and Asian groups present in Banda. These biases, if untangled, are important sources of understanding for the contact and conflict period in Banda's past.

Rodrigues map[15]

This map was drawn by Francisco Rodrigues, who was a pilot on the first Portuguese expedition to Banda in 1512, and it is the earliest map in existence today that shows the Bandas. There is some confusion as to when this particular copy was drawn; many scholars believe it was made between 1524-1530, but traced from an original made somewhat earlier, possibly prior to the departure of the de Abreau expedition to the Moluccas in 1512 (Cortesão & Mota 1987). It may in fact have been copied from maps drawn by the Javanese and Malay pilots that the de Abreau expedition hired or conscripted to guide them to Banda (Nakamura 1963: 28-32). There is strong evidence that it is based on earlier Javanese and/or Chinese knowledge, particularly as the coastal profiles are a major advance over contemporary Portuguese cartography (Sollewijn Gelpke 1995). In any case, it proves that Banda was well known by Asian traders in the early 16th century; European-made maps did not approach this level of accuracy for another century.

This map, which depicts much of the present day province of Maluku, is not drawn in enough detail to show human settlement in Banda, and individual villages are not depicted. However, the islands are portrayed relatively accurately, and of particular interest is the regional view. A large island to the north of Banda is labeled "gullegulle" and the numerous small islands to the southeast probably represent the area of Southeast Seram, Geser and the islands of Gorong (*Goram*). Guli Guli, today a small village on southeastern Seram, retains many symbolic connections with Banda. Several of its *keramats* (sacred sites) specifically relate to Banda or Bandanese Islam, and it remains an important stopover point for travelers from Banda to the region. These sago-producing areas were important trade partners with Banda, and still are today. Navigation in these reef-strewn islands is particularly difficult, and these islands were notorious during the Dutch colonial period as pirate hangouts. During the early 17th century, British ships occasionally retreated from Banda to Southeast Seram to evade Dutch aggression.

[15] This copy of this famous map was made from *Portugaliae Monumenta Cartographica*, pl 22.

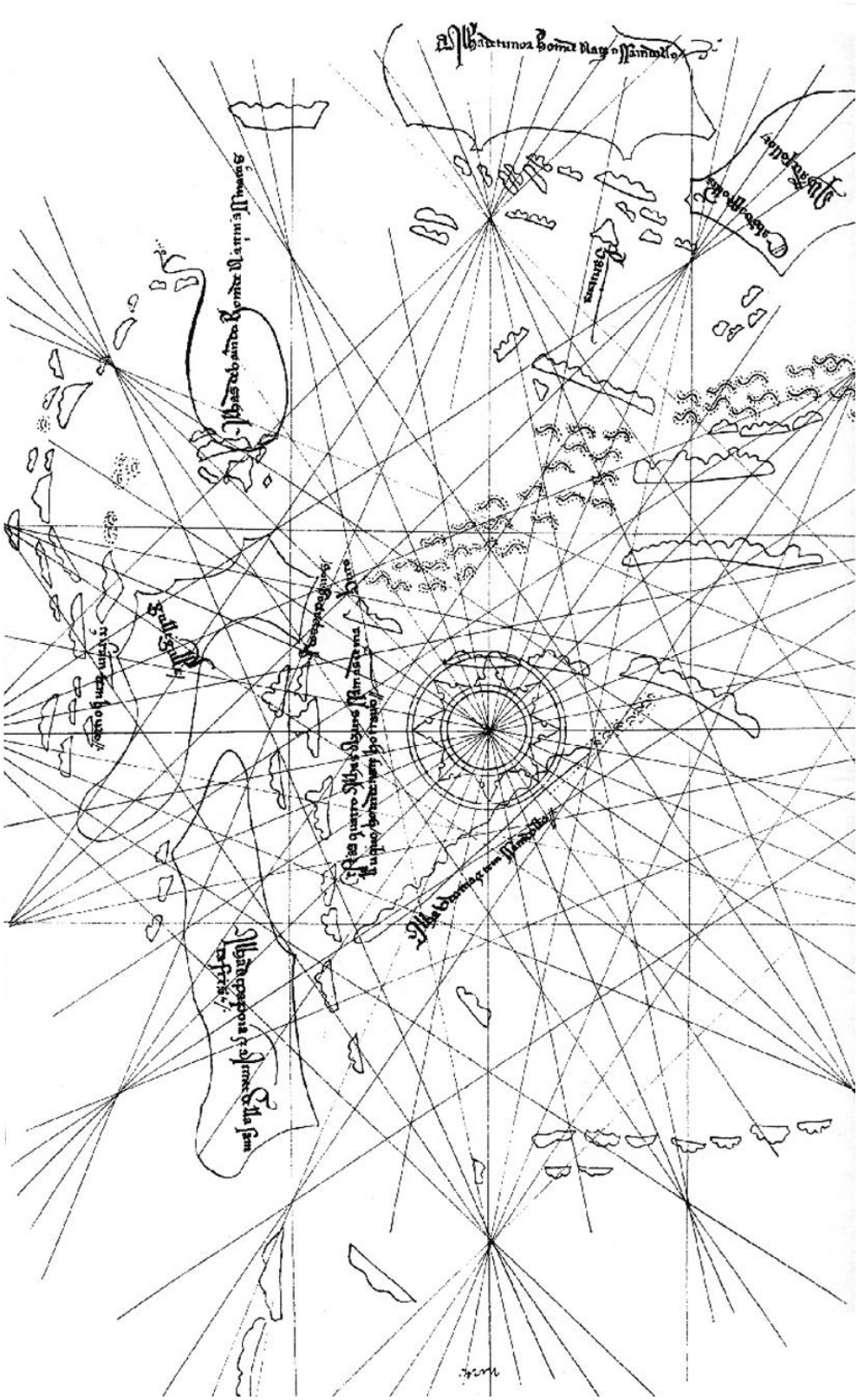

Figure 3.9. Rodrigues map

Anonymous Portuguese map[16]

This map, labeled "Demonstracão das Ilhas de Amboino", shows Ambon and nearby islands (probably the Lease group) as well as several of the Banda Islands. The original manuscript from which this map comes (Bibliothéque Nationale, Paris: MSS Fonds Portugais no. 1) is dated 1636, and titled *Relacion de India por Pedro Barreto*, which would appear to be the famous Portuguese map maker Pedro Barreto de Resende, who worked in that period. However, the authors of *Portugaliae Monumenta Cartographica* conclude that this particular work is quite different stylistically from Resende's other works, and must be the work of some other unknown mapmaker (Cortesão & Mota 1987: 65-67). This is of interest because the accepted date for this map is 1636, well after the Portuguese had lost their possessions in Ambon, and fifteen years after the Dutch had assumed total control of Banda. It is more likely that the map represents the situation between 1569-1605, when the Portuguese maintained a succession of fortresses on Ambon Island (Jacobs 1985: 604).

This map shows five of the Banda Islands, including Banda Besar (labeled "Banda"), Pulau Ay ("Ilha Ai"), Gunung Api ("Ilha de fogo"), Banda Naira ("Neira") and a fifth island which has an unreadable label, located in the position of Pulau Pisang, though much larger than scale than the real Pulau Pisang. On Banda Besar are two other labels, presumably village names, "Luta" (probably Lonthoir) on the left or west side, and "Lanquin" on the right or east side, where the historic village of *Celamme* is situated in most other pre-colonial maps. Also shown on Banda Besar is a drawing of a structure that is identical to a structure labeled "forteleza" (fortress) on the Ambon Island map (labeled "Amboino"). While it is possible that there was a Portuguese fortress or fortified trading post on Banda, there is no documentary reference to the construction or staffing of such a structure in the records. More likely, it represents wishful thinking, as with the rare Portuguese charts of Maluku which show a Portuguese flag on Banda Besar (e.g. charts dating from 1570-71 shown in (Cortesão & Mota 1987) pl 271, 285).

[16] Copy from *Portugaliae Monumenta Cartographica*, pl 65.

In general, this map does not shed much light on pre-colonial Bandanese settlement structures. Perhaps it was intended to overstate historic Portuguese colonial possessions in the region as Portugal struggled to maintain its dwindling empire in Island Southeast Asia at the end of the 16th century.

Figure 3.10. Anonymous Portuguese map.

van Neck map, and later versions[17]

This map was first published in 1600, immediately after the Dutch expedition commanded by Cornelius van Neck returned from Banda and the East Indies. This particular map was probably the first detailed map of the Bandas published in Europe, and it became extremely influential on subsequent mapmaking and European ideas about the configuration of the islands. It was copied and republished in various atlases and other accounts of the East Indies in Holland, England and France well into the mid 18th century, despite the fact that much more detailed and accurate maps were available by the 1620's. Later versions include the Schley map of post 1621 (reproduced here as Fig. 3.12), the Vicenzo Mario Cornelli map of 1706, and the Prevost map of 1746. I was not able to locate the original manuscript drawing for this map.

The van Neck map is extremely interesting for several reasons, most importantly because it shows the locations of various places in the account of the van Neck visit to Banda in 1599 discussed above. This is the earliest detailed account of the Bandas and gives a glimpse into European conception of the society of the islands. The maps show the islands of Gunung Api, Banda Naira and Banda Besar in the greatest detail, while Rhun, Ay, Pisang and Batu Kapal are shown in less detail, with no settlements depicted. Hatta Island is not depicted at all. Several villages are shown as groups of houses, including Lonthor, Ortattan, Combeer, and the vicinity of Selamon (unlabeled) on Banda Besar, while on Banda Naira, settlements called Nera and Labetack are depicted. A group of houses near present-day Tanah Rata is unlabeled. Gunung Api shows no villages. Ships are shown anchored on the Banda Besar coast between Ortattan and Combeer.

[17] A copy of this map was obtained from the French language illustrated account of the van Neck voyage held in the British Library: *Le second livre, Journal ov comptoir, contenant le vray discovrs et narration historique, du voyage fait par les huit navires Amsterdam, au mois de Mars Jan 1598, sous la conduite de l'Admiral Jaques Cornille Nec, & du Vice-Admiral Wibrant de Warwi*c. Amsterdam 1609. I also reviewed an English language version of this account, published in London in 1601, and the Dutch language version, which was reprinted by the Linschoten Society in 1942. The Schley map was obtained at the Universiteitsbibliotheek (Leiden University Library, Netherlands) Collectie Bodel Nijenhuis cat # P.59 N.143. The Prevost map was given to me by my parents-in-law, Tom and Caroline Spang, who purchased it at a flea market in Buenos Aires, Argentina. Herb Yeates of Japan sent a copy of the Cornelli map to me from his private collection, and helped me identify my copy of the Prevost map.

A puzzling feature of this map is the small island shown just to the northeast of Banda Naira Island, labeled Wayer. This does not correspond to any contemporary island in place or name. There is a contemporary village called Waer located on the southeast coast of Banda Besar Island (c.f. Fig. 3.1, historic Banda place names map). The Wayer on this map is interesting because in the accompanying account, people from Wayer ally themselves with the people of Labbetack in a battle with people from Nera. This will also be discussed in detail below. The island on this map may be a misplaced version of the island now named Karaka, located at the entrance to the Naira harbor. This small island, while lacking a water source, may have supported a small settlement. Another possibility is that the people from Wayer actually came from a village on Banda Besar, and Dutch chroniclers, who did not note (or visit) any villages on the outer coast of Banda Besar, invented an island for them near Labbetack.

This map seems to be drawn from the perspective of someone on one of the ships shown lying at anchor. From this perspective, the islands of Ay and Rhun look much as they do in this map, small and sitting on the horizon. The island of Hatta is invisible from this perspective, as it is hidden from view by the high ridge of Banda Besar Island, as is the island of Karaka (hidden behind the hills of Banda Naira and Gunung Api). It is possible that the mapmaker rarely or never left the ship (as was recommended in Linschoten's account, which this voyage almost certainly used as a guide). According to the van Neck chronicle, the expedition only visited inner harbor towns. This would suggest that these inner villages were the primary places of contact and trade with the world to the west.

Inscribed on this map is a tantalizing clue about the defensive posture of the village of Nera; the map shows a wall running along the seaward boundary of the settlement. While walled cities were uncommon in island Southeast Asia before the 16th century, by the early 17th century walls were built on the seaward sides of most of the trading ports in Java, Bali and Sulawesi as defense against European attack (Reid 1993b: 87-88). Perhaps this wall was built as protection against Portuguese attacks, which may have occurred in the late 16th century. According to Reid (Reid 1993b: 89), the purpose of these walls was not to protect the city as an entity per se, but to repel an enemy attack from the sea. If attackers were successful in breaching these sea walls, the usual strategy was to gather valuables and run for the forest. This strategy is alluded to several times in historical accounts, myths and toponyms in Banda (e.g. (Pires & Rodrigues 1944: 211). For example *Gunung Kota Perempuan* ("women's fortress mountain") on Pulau Ay is a

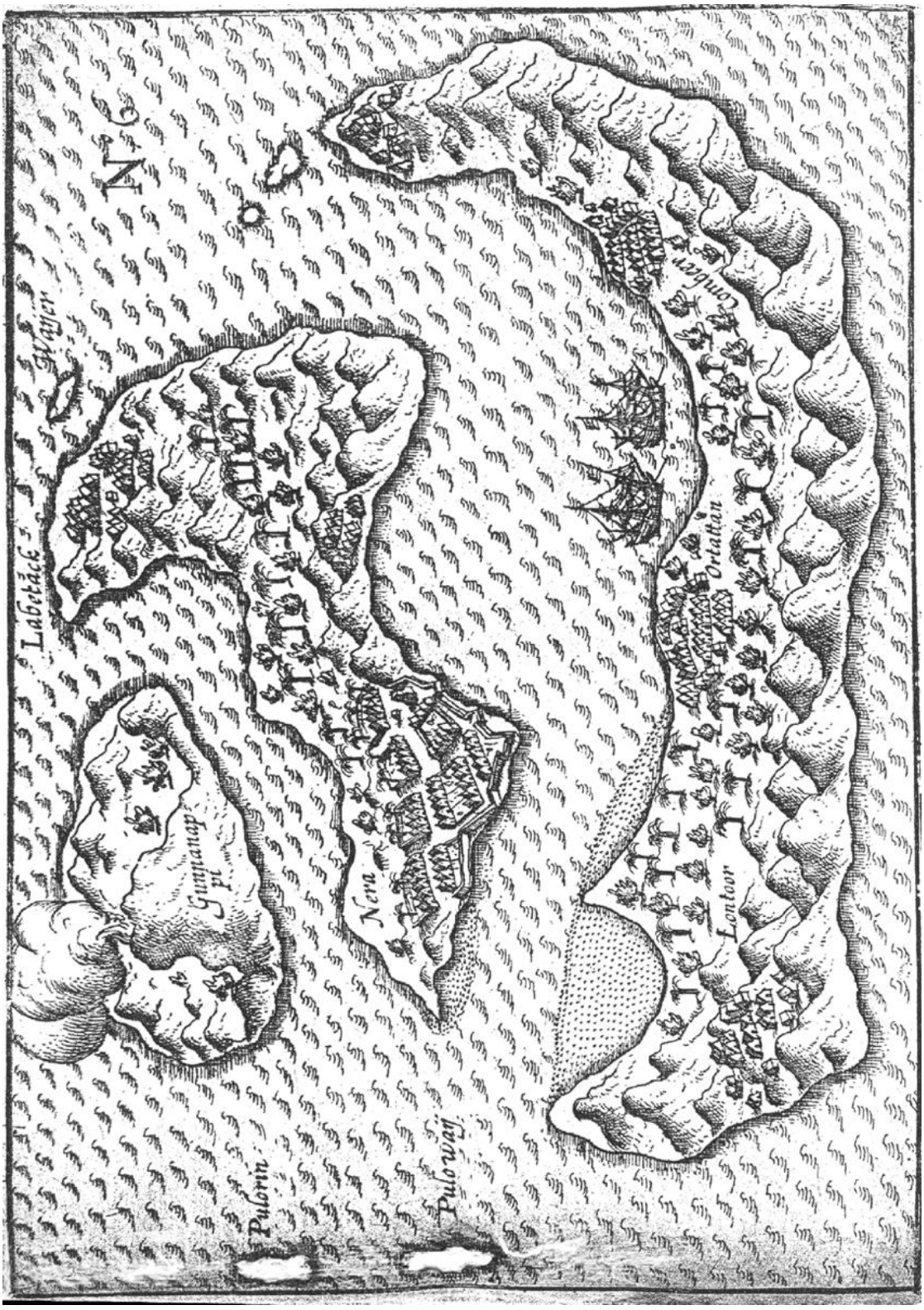

Figure 3.11. van Neck map.

mythical safe haven for women during attacks on the island. This wall could also have been a vestige of the "Portuguese fort", the ruins on which the Dutch builders of Fort Nassau said they laid their foundation stones in 1609. I have not found any record of a fort in Banda in the Portuguese documents. It is possible that what the Dutch thought was a ruined Portuguese fort was in fact a native Bandanese (or Malay or Javanese) built structure. The Schley version of this map (Fig. 3.12), to which have been added the Dutch forts Belgica, Revenge and Hollandia, label this same wall "Fort Nassau". This inclusion of Fort Hollandia dates the Schley version to post 1621 (the archive catalogue labels it "mid 17th century"). However, the original van Neck map was drawn a decade before Nassau was constructed in 1609, and must refer to a pre-Dutch structure. The depiction of the walled compounds, unique to Nera, is also suggestive that this settlement was the site of foreigner enclaves. In other Southeast Asian ports, foreign traders often occupied defended compounds, some of which were like self-contained cities themselves, complete with a mosque (Reid 1993b: 86).

Later editions of this map, while adhering to the basic design of the 1600 original, make certain additions and corrections. In addition to the European forts discussed above, the Schley map (Fig. 3.12) adds three islands, I. Rosingyn (Hatta) and I. Des Femmes (Karaka) and I. Nylacke (Nailakka). It adds labels to several previously unlabeled features, such as the village of Celamme (Selamon), P. Piesang (Pulau Pisang or Syahrir), and three straits or passes, Sonnegat (Sonegat), Lonthoir and Celamme. The strange island of Wayer is renamed P. Kapal, however there is also an added unlabeled island shown in the more correct location of the current island of Batu Kapal. A final addition is a stairway or ladder shown leading from the shore to Fort Hollandia in Lonthor. This map is probably the result of an attempt to fix the inaccuracies of the original van Neck map without going to the trouble of redrawing the entire base map. However, the stairs in Lonthor may depict an expansion of the village up the steep slope south of an original shorefront settlement.

Other versions such as the Cornelli map of 1706 and the Prevost map of 1746 are almost identical to the original van Neck map, without the changes made in the Schley map. The Cornelli map is much less finely drawn, and makes minor spelling changes in feature names. The French Prevost map leaves out the triumphant Dutch ships shown anchored in the harbor.

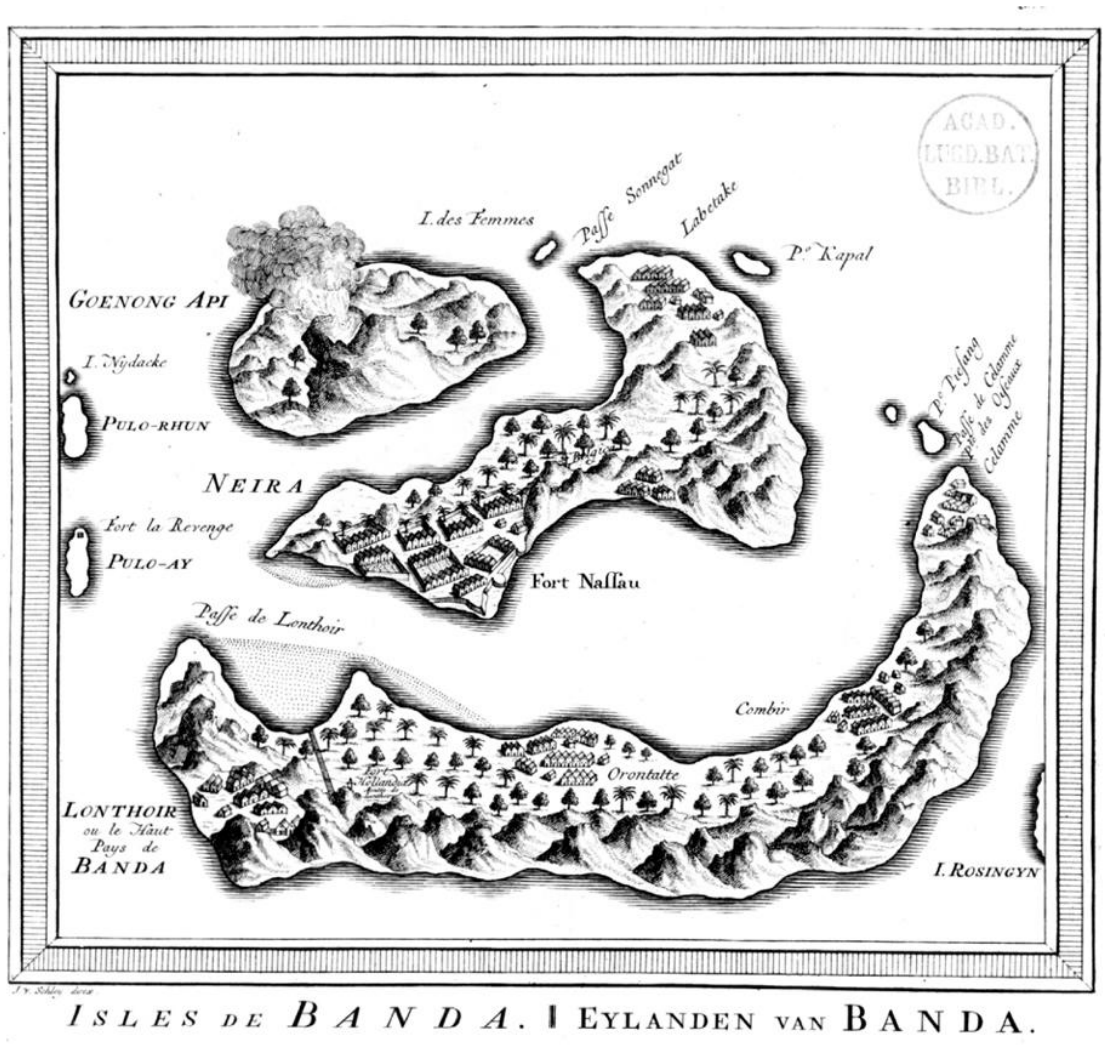

Figure 3.12. Schley map

Eridia map[18]

This map is the most detailed description of settlements in Banda from the Portuguese viewpoint. In 1601, Jacob van Heemskerk (the commander of the first Dutch fleet under van Neck that reached Banda in 1599) departed Holland for a second voyage to the East Indies, but this time he turned privateer en route. In 1602, off the north coast of Java near Gresik, he captured a small Portuguese vessel returning from Ambon which was carrying this map of Banda, as well as other documents relating to a supposed trade contract between the Portuguese and the Bandanese (Leupe 1876). The "capture" of this map demonstrates the importance of maps and the relationship of the Dutch to the Portuguese in this period, when the Portuguese were still dominant in the area (though not for much longer).

What is notable about this map is that (as with the van Neck map) only the main trading settlements are shown: Nera, Labataca, and Lontor. This suggests either that the Portuguese were unfamiliar with the smaller, less trade-oriented settlements, or they thought these smaller settlements unimportant. Less likely is the possibility that these were in fact the only settlements on Banda at the time. This is an ongoing question with the map data that will be cast against the archaeological data in this dissertation. The map gives an indication of the relative size or importance of the three villages. The village of Lontor is named as the capital of the islands, and the anchorage is shown adjacent to it. In most subsequent maps, Nera is shown as the principal settlement, or largest town. This may represent a shift in trade networks, as the Muslim ethnic enclave in Nera captured an increasing proportion of trade by the end of the 16th century.

An interesting comparison can be made between this and the contemporaneous van Neck map. The Eridia map shows the outer islands of Rhun, Ay and Hatta as close to their true size relative to Banda Besar and Banda Naira. This might suggest that Portuguese merchants had more familiarity with these outer islands, and may have been welcomed in these hinterlands, farther from an anti-Portuguese center in Nera.

[18] Copy obtained at the Algemeen Rijksarchief, The Hague, microfilm cat # 4.VEL.245.

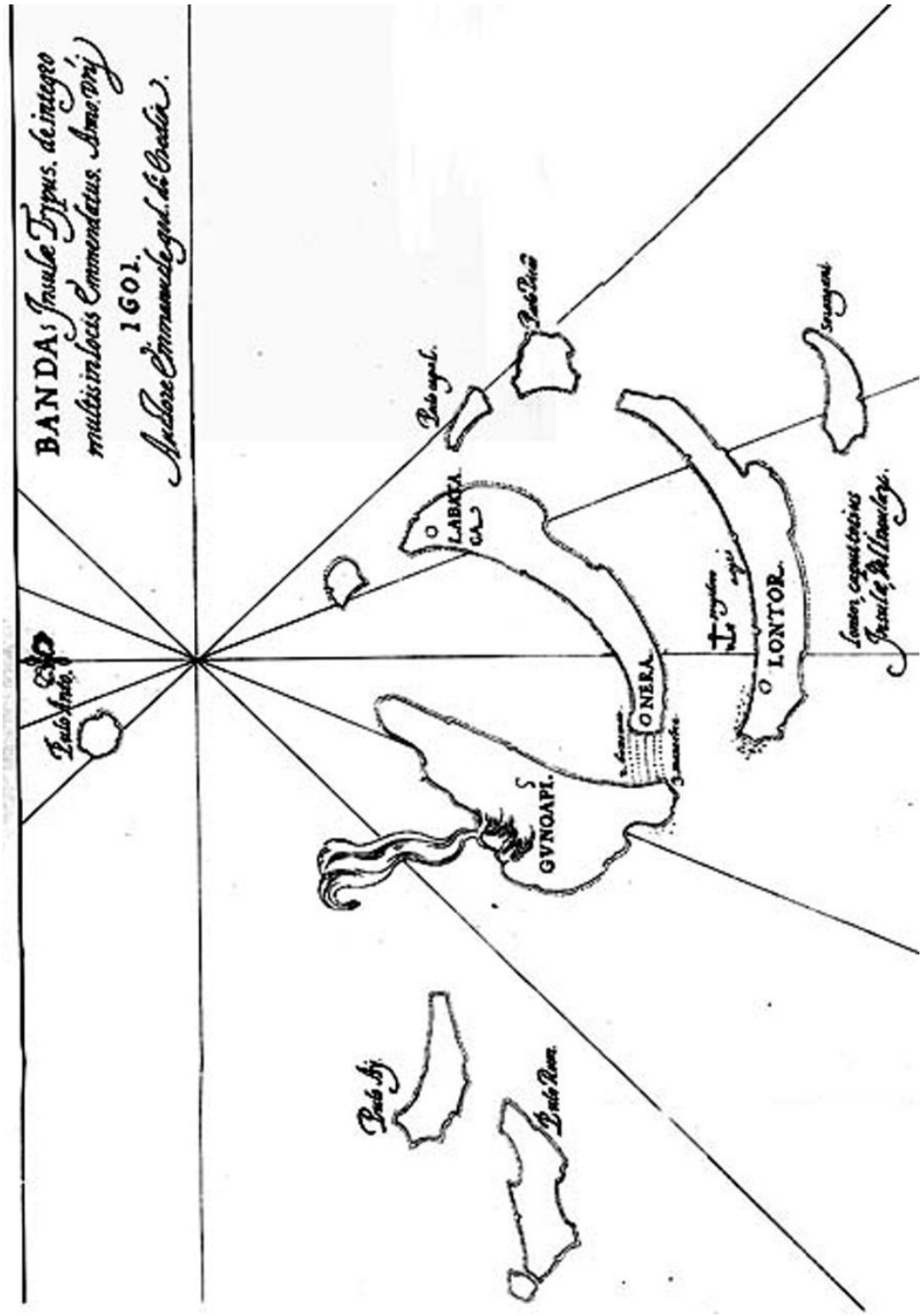

Figure 3.13. Eridia map

Gelderland maps[19]

These maps are manuscript maps from the logbooks of the Dutch ship *Gelderland*. The *Gelderland* was the flagship of the fleet under Wolfert Harmenszoon of 1601-3, which was in Banda from April until June 1602 on that voyage. Probably two different mapmakers drew these maps, but only Gelderland map 2 is signed, by Jooris Joostensz., the admiral's personal assistant. Below is a translation of the map inscriptions:

Gelderland map 1 inscriptions:

Top left: This island is located about 6 miles from Cilamo N.W. and from the point pictured with the letter T NW by W about 5 miles

Left, written inside the island: This island is altogether a mountain called goan appi

Bottom left: Thus is the lay out of the harbor of Banda as one can see here. It is at the latitude of 4 1/3 degrees South/a S.W. by *S.* moon gives high tide/The high tide comes from the East/and the low tide is West and the island Banda is after my guessing 1 ½ miles long and half a mile wide at the greatest width

Top right:
A. The Roadsted
B. The town Lontor
C. The town orlatten
D. The town Comber
E. The town Cilamo
F. the island called Banda
G. the island Pulo potac
H. the island goan appi
I. the island pulo ay
K. the island pulo ron
L. the island pulo satan
M. the town Nero
N. the town labbetac
O. a village called Keiac
P. a village called Latter
Q. a village called ouver
R. an island pulo muat (?)
S. an island pulo menatz

bottom right: This island pictured with the letter V. is from the corner of Cilamo S.E. two miles

[19] From *Het Gelderlandt Journaal 1601-1603*, ARA 135, Algemneen Rijksarchief, The Hague, Netherlands. Adriaan C. de Jong transcribed and translated the inscriptions on these maps. Nick Burningham of the Duyfken Foundation kindly passed these copies on to me.

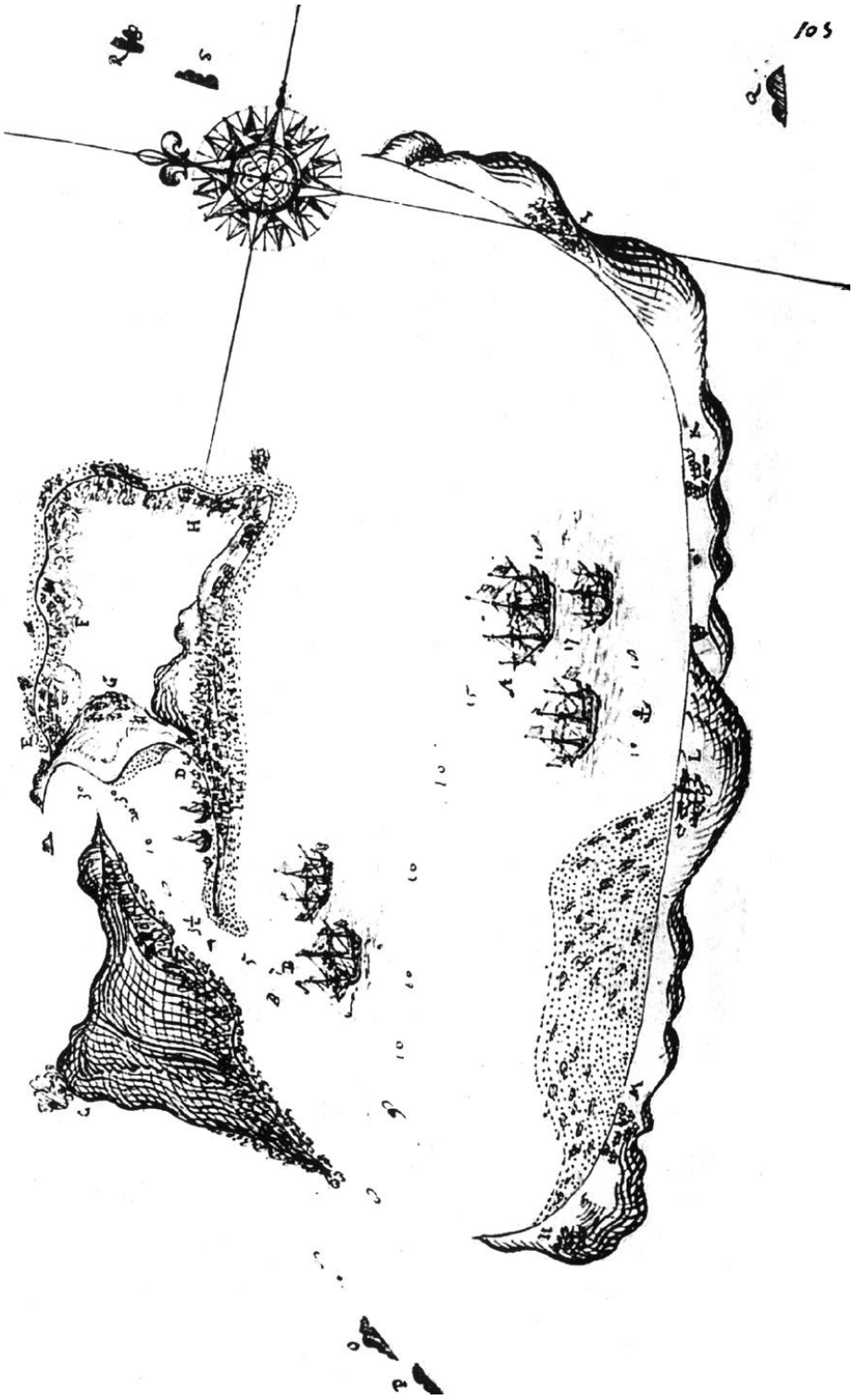

Figure 3.14. Gelderland map 1

Gelderland map 2 inscriptions:

A. The Roadsted where the ships are
B. The Roadsted where we first were
C. The Burning mountain called "goanappy"
D. The Town of Nero
E. The Town of Labbetac
F. a village called Latter
G. a village up high called Ouver
H. a small town called Keinc
I. the Town of Cilamo, or Salamo
K. a small town called Combeer
L. a small town ortatton called the general country meetings are held
M. a town called Lontoor
N. a hamlet
O. the island pulo ay
P. the island pulo ron
Q. the island Rossingey(n)
R. pulo manats
S. Pulo mou..ts

These maps are particularly important for this analysis because they were drawn during an actual visit to Banda, so there are no errors added by later engravers or publishers. The maps depict an unusual view of the islands, combining both profile and "birds eye" views. As with the maps discussed above, the three central islands of Naira, Banda Besar and Gunung Api are shown in the most detail. This suggests (as does the account of this voyage) that the fleet did not visit other islands, nor the outer coast of Banda Besar. However, unlike the maps described above, this map is the earliest one to show smaller villages and hamlets on Banda Naira and Banda Besar. Other clues abound in the inscriptions. While not explicitly ranked by size, settlements are nonetheless given different names that may correspond to their relative size or importance. The most important or biggest settlements are probably those called "towns" ("*stadt*" in Dutch) including Lontor, Orlatten ("small town" or "*stedeken*" on Map 2), Comber (listed as a "small town" on Map 2), Cilamo, Nero and Labbetac. A second tier in size or importance would include "villages" ("*dorp*" in Dutch) including Latter, Ouver, and Keinc (listed as a "small town" or "*stedeken*" on Map 2). Finally, there is an unnamed "hamlet" (*vleck* in Dutch) listed on the western end of Banda Besar (this may correspond to the village of *Mandiango* listed on some later maps described below).

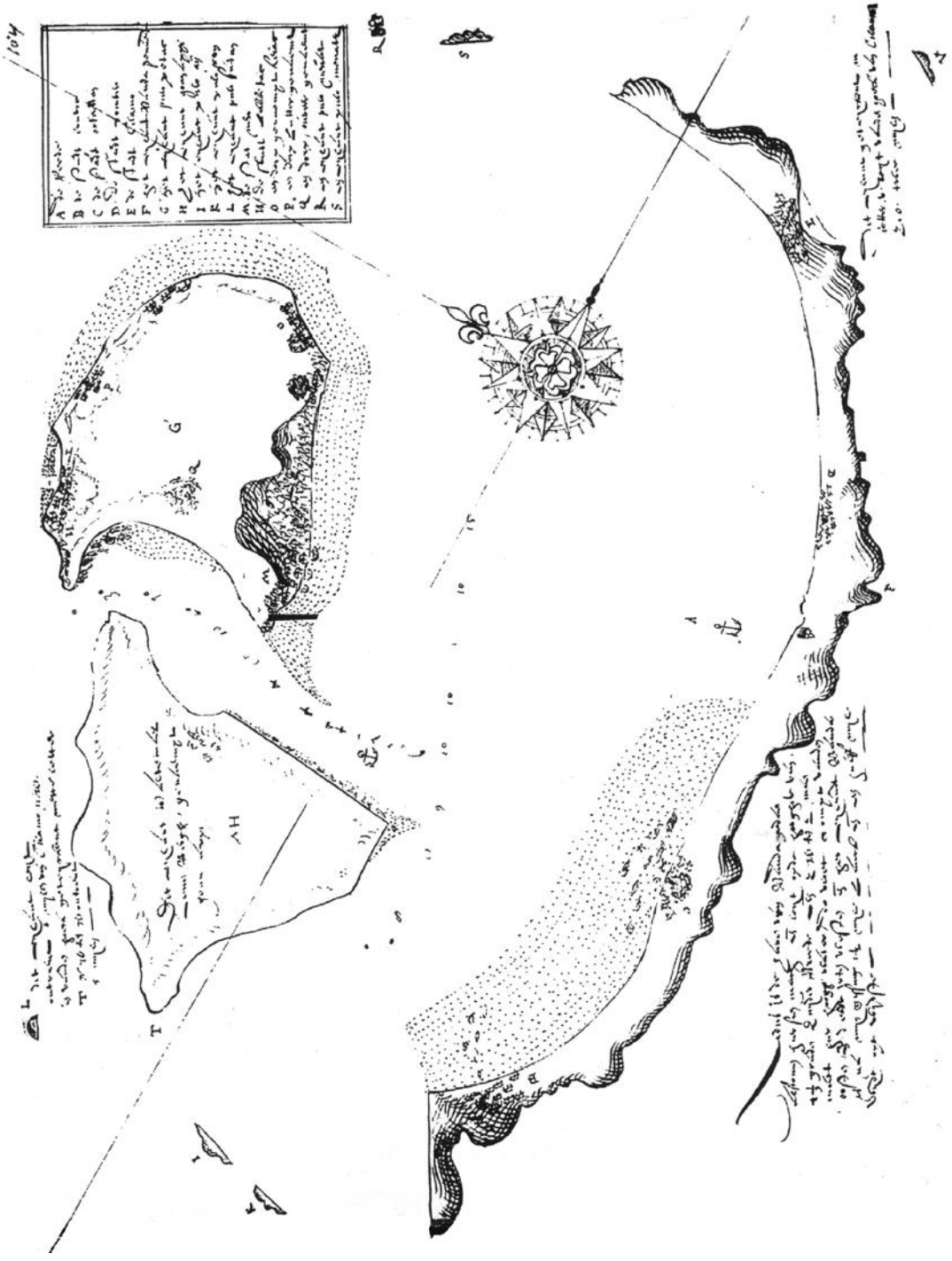

Figure 3.15. Gelderland map 2

In addition to naming and locating some of the smaller settlements on the inner islands, this map describes an important political function, which is corroborated by other written accounts, of the village of Ortatton (also *Orlatten, Ortattan*, or *Ortatta* which may have been "Malayized" from the original Bandanese into Orangdatang, the name of the Dutch *perek* on the ridge above the probable site of the village of *Ortattan*).[20] Map 2 describes "a small town Ortatton where the general county meetings are held". This gives a definite location for an important aspect of political structure in pre-colonial Banda. This was the place where the *orang kayas* of the various independent villages would gather to discuss intervillage issues. It was also an important trading site, with a resident *syahbandar* or harbormaster.

These maps also give some place names that later disappear from the records, and may have been older Bandanese language names that went out of common usage or were translated into Malay. At some point in the late 16th century, the islands of Banda Besar and Banda Naira took on the names of their largest settlements, replacing earlier names for the islands. Banda Besar is labeled simply Banda in map 1 and is unlabeled in map 2. In the 17th century, the island was more commonly known as Lontor or some variation, after the town on its northeastern end. Banda Naira is labeled Pulo Potac in map 1, and is unlabeled in map 2. Later it becomes Nera or Banda Naira. The islands of Pulau Pisang and Batu Kapal also have different names in the Gelderland maps. Here, to add to the confusion, the two maps seem to have mixed up the two islands, and it is unclear which is correct. Pisang is called Mou..ts in map 1, Manats in map 2. Batu Kapal is called Manats in map 1 and Muat in map 2. Two later maps discussed below also give different names for Pisang. The Jansosnius map (Fig. 3.18) calls Pisang "P. Maon", while the Pontanus (Fig. 3.16) calls Pisang "Keat" and Batu Kapal "Mewat"!

As discussed above, the Hermanszoon expedition was the first to draw up a written treaty or contract between certain village leaders and the VOC guaranteeing the Dutch exclusive trade and the Bandanese protection from their "enemies", including the Portuguese. These maps can be considered a

[20] Orangdatang, which means "people come" or perhaps "newcomer", is still used for the now abandoned *perek* on Banda Besar. One informant told me that this *perek* was where the VOC and later incarnations of the Dutch nutmeg companies first brought new slaves or contract workers for training, before they were sent out to work in the other *pereks*. The original name may have also had the meaning "people come" as it applied to a gathering or meeting place. It was also the name of the ship on which I traveled to the Banda refugee communities in Southeast Seram (see below).

crucial part of these documents, though their importance may not have been fully appreciated by the people who actually drew these maps. One possible scenario is that certain villages and/or islands that did not agree to sign the treaty were simply left off of the map, so that it would appear to officials in Amsterdam (or protesting English ambassadors) that the Bandanese were unanimous in their approval of it. Indeed, the fact that Pulau Rhun is never shown to have settlements on Dutch maps from the era when the English were well ensconced on that island may say something about the kinds of information deliberately withheld from these strategic documents.

In summary, these maps show a large increase in the number of settlements on the inner islands from maps made just 2 or 3 years earlier. Again, the question is whether this is because new settlements were actually established in that short time. Or is it rather that earlier mapmakers did not see these (smaller?) settlements, or considered them irrelevant to their interests.

Pontanus map[21]

This map shows some similarity to the van Neck maps, though is clearly a different engraving, unlike the many van Neck derivatives. It is unclear when it was engraved, but was probably before 1603. Pontanus must have had access to other geographical information about Banda, as he names the two islands northwest of Banda Besar (likely Pisang and Batu Kapal, which are unnamed in van Neck) Keat and Mewat. Banda Naira here is named Poelepetacke and Banda Besar is named Banda. Possibly he had access to both the van Neck maps and the Gelderland maps, the latter of which has similar island names. As with other maps described above, no settlements are shown on Gunung Api, Ay, Rhun, or the outer coast of Banda Besar, and Hatta is not depicted at all. The ever mysterious "Wayer" island is now shown lying just off the northeast coast of Banda Besar, near the position of the contemporary Banda Besar village of Waer. It could, I suppose, represent Pulau Hatta in this case, but more likely is the product of a confused engraver who had to put it somewhere.

Settlements on this map are depicted in a similar manner to the van Neck map, as groups of houses. Nera is drawn as the biggest settlement, followed closely by Lontor and Labbetack. Nera does not have the surrounding wall shown in van Neck maps.

[21] This map is from the book *Rerum Et Urbis Amstelodamensium Historia,* by Johannes Isaac Pontanus, published in 1611 by Hondius in Amsterdam. Benjamin Wright, who engraved many other maps in the period 1596-1603, signed the map itself. Copy obtained from the American Geophysical Society Collection, Golda Mier Library, University of Wisconsin, Milwaukee. Thanks to AGS librarian Patti Day for bibliographic information.

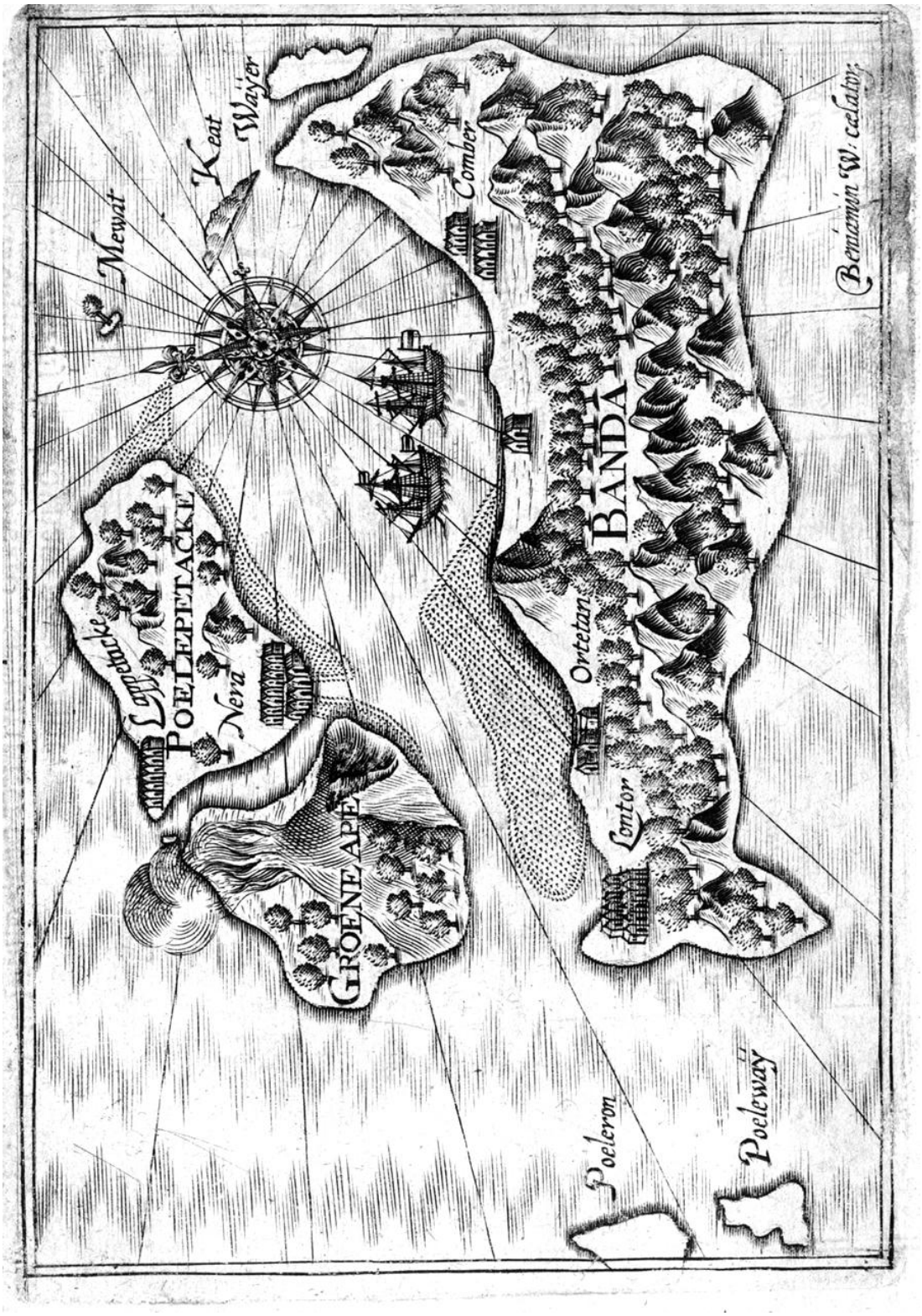

Figure 3.16. Pontanus map

Gerritsz map[22]

The reliability of early maps is always open to question. However, beginning in the early 17th century, new policies were initiated in Holland which allowed increasingly accurate maps. After 1602, the VOC was able to recruit from an increasing number of trained mathematicians and engineers, and mapmaking itself was institutionalized in the company. VOC directors realized the necessity for the continuous updating and improving of maps and navigational knowledge in the pursuit of trade profits in remote locations (Zandvliet 1998). In 1616, Hessel Gerritsz was hired by the VOC as its primary map supplier, and he initiated new policies whereby logbooks from returning voyages were collected and the information contained in them was used to produce improved maps for subsequent voyages. These logbooks and new maps were stored in the VOC chambers in Amsterdam, and the information they contained was treated as top secret. This was a change in policy from earlier practices, which allowed maps like the van Neck maps to be widely published. This new secrecy policy limited the circulation of improved and updated maps during this period of increased competition for spices from other European powers like England.

This Gerritsz map of Banda was drawn about 1617. This is the earliest map that lists settlements on the outer islands of Pulau Ay and the outer southern coast of Banda Besar. The poor condition of this particular specimen of this map means that some crucial information has been lost, particularly the names of settlements on Banda Naira and northern Banda Besar. On Pulau Ay, there are listed (though locations are not delineated) stadt Campon Timoor, stedecken Campon Ditsa and others unreadable. The forts Nassau and Belgica are listed on Banda Naira, which dates the maps to the post 1611 era (the date of the start of construction of Fort Belgica under Pieter Both). Villages shown on the outer coast of Banda Besar include Sammar, Lackui and Madiango. This map is remarkably accurate in the relative sizes, shapes and locations of the islands, clearly the result of careful surveying. As this map was the likely model for the Janssonius map, which is much better preserved, it will be discussed in more detail in the Jansonnius section below.

[22] Copied from Zandvliet *Mapping for Money*, p. 90, pl 5.2. Original in Public Records Office, London, Cat. # MPF 188.

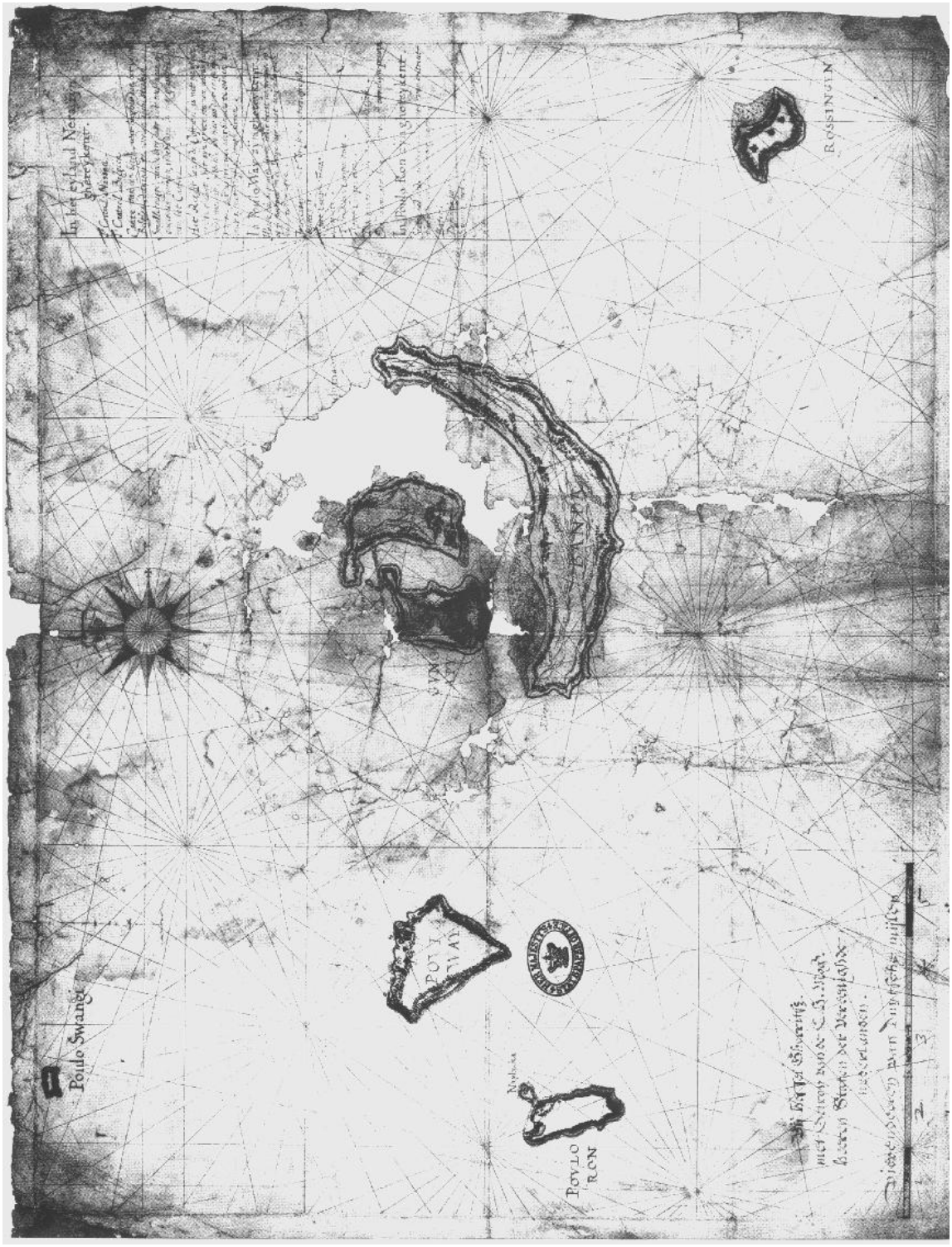

Figure 3.17. Gerritz map

Jansonnius map and later versions[23]

There are many similarities between this map and the Gerritsz map discussed above, and it seems likely that Jansonnius had access to the Gerritsz map in some form. This is remarkable considering that Gerritzs was a protege of the famous atlas engraver Blaeu, both of whom were in fierce competition with Janssonius during the 1620s and 30s (Zandvliet 1998: 98). It is possible that Janssonius was able to obtain manuscript maps of Banda made by Gerritsz, via the VOC. Not until January 1618 was Gerritsz able to obtain "letter of privilege" which prohibited any copying of Gerritsz's maps under the penalty of 300 guilders (Zandvliet 1998: 95).

In any case, this map provides the most detailed view of the pre-conquest Bandas in existance. Despite the fact that this map was not published until 1633 at the earliest (as a result of the VOC ban on publishing?), the absence of Fort Revenge on Pulau Ay (captured by the Dutch from the English and rebuilt in 1616) dates its source information to the mid 16-teens. Alternative names are given in addition to common names for some islands. Pulau Rhun is called "the English Island" (*Engelse Eylant*), Pulau Hatta, which is the least visible in the historical records is intriguingly called "the bandit island" (*Banditen Eyland*), and Pisang (called Pulau Maon on this map, a pre-conquest name) is also named "women's island" (*Vrouwen Eyland*). No villages are shown on Pulau Rhun, Hatta or Gunung Api. However, many settlements are shown on Banda Besar, Banda Naira and Pulau Ay. On Banda Besar, these include Combar, Selamon, Owendender, Wayer (as a village on the outer coast--not as an island near Labbetacca), Sammer, Leckovy and Madiango. Interestingly, Lonthoir village is shown (as a group of houses) but not named, although Banda Besar Island is named Lontor. Similarly, Naira village is not named, though the Island of Banda Naira is named Nera. This is a shift from island names on the Gelderland map 1 (Fig. 3.15), which names Banda Besar simply "Banda" and Banda Naira "Pulo Potac". It appears that the names of these two islands had taken on the names of their two respective trading towns, perhaps signifying the increasing

[23] The Jansonnius map is from Janssons's Atlas, published in the mid 17th century, probably after 1633 (Zandvliet 1998: 98). Copy obtained from Universiteitsbibliotheek (Leiden University Library) Collectie

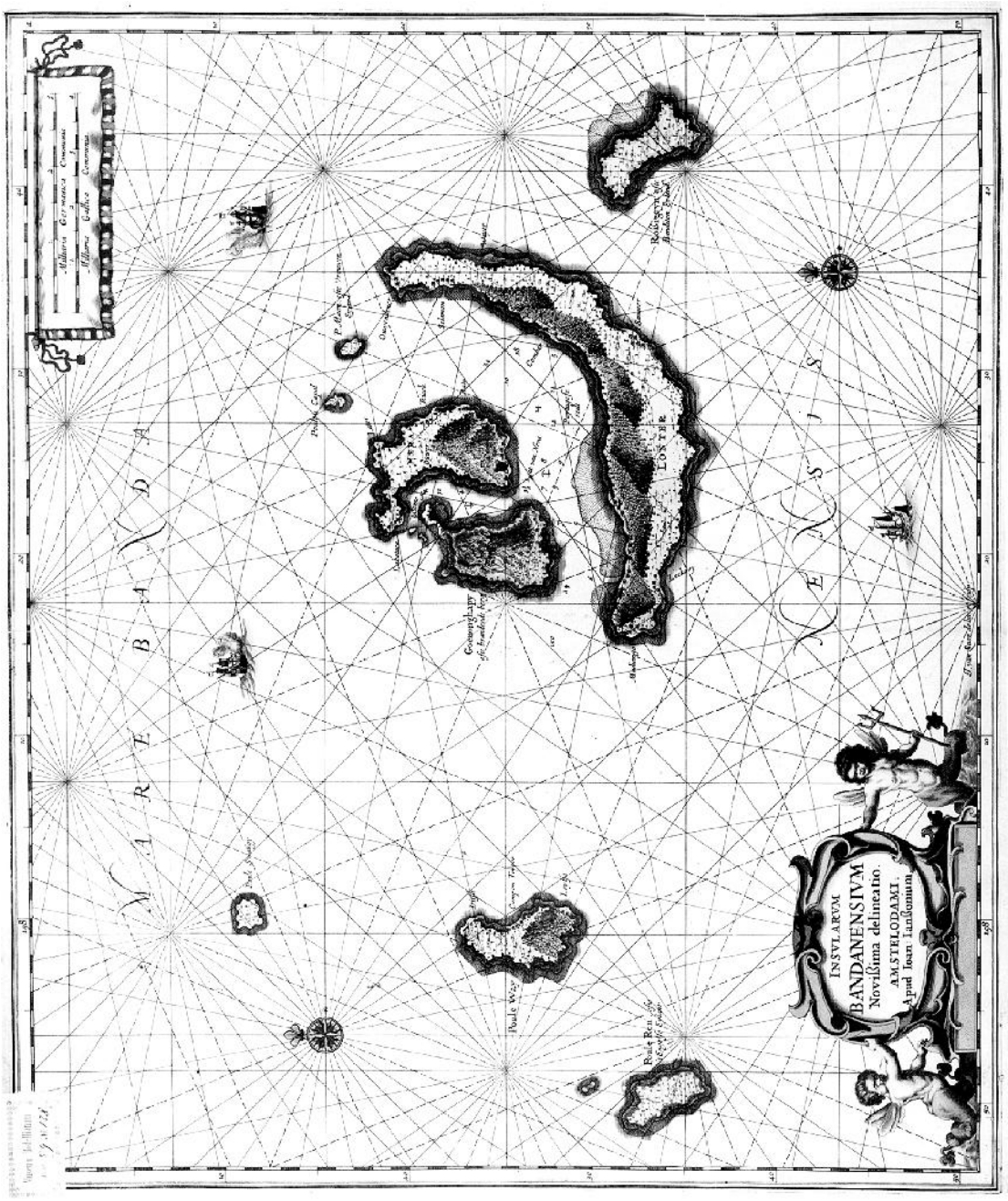

Figure 3.18. Jansonnius map

Bodel Nijenhuis, P. 59 N. 138. An identical map was published by Shenk and Valk, and is in the same collection in Leiden catalogued P.59 N.139.

political dominance of these two towns, or perhaps a loss of indigenous identity to Javanese or Malay dominance. Another interesting feature of this map is the three villages shown on Pulau Ay: Ditsa, Campong Timur and Leytsa (see Fig. 3.19. detail of Pulau Ay). This is the only map found (other than the Gerritsz) that shows more than one village on Pulau Ay. All post-conquest maps (except the later map by van der Aa, discussed below) show only one village around the Dutch Fort Revenge, while other pre-conquest maps indicate no villages at all. The curious thing about this map is the fact that the Dutch supposedly spent little time on Ay until the defeat of British-supported Bandanese forces on the island in April 1616, at which time the English fort was enlarged and strengthened and renamed Fort Revenge (Hanna 1978: 41). Yet, this map shows several villages and no fort. This would suggest that the Dutch had significant knowledge of Pulau Ay's settlement structure before they conquered the island, perhaps gained from Bandanese defectors or during previous unsuccessful Dutch attacks on the island.

The names of the villages provide some possible clues about settlement patterns, while raising new questions. *Campong Timor* comes from the Malay words meaning "eastern town." The meaning of *timor* ("east") is puzzling here. The village appears to be situated on the site of the present day village of Ay judging from landscape clues, such as the mountain in the southern end on the map, which is likely the hill now known as Gunung Kota Perempuan ("women's fortress mountain"), though for this to be coherent with contemporary maps, the orientation of the island in the map would have to be turned 90 degrees counterclockwise. The present day village of Ay is on the *north* coast of the island. This coast has the best access to the sea for larger boats and year-round monsoon protection, though there are no harbors on Ay, which is surrounded by either fringing reefs or high cliffs, usually a combination of both. The east coast of the island faces Banda Naira, but the coastline along this stretch is the most inaccessible on the island. The use of the Malay term *Campong* indicates that this may have been an ethnic enclave, inhabited by Malay speaking foreigners (Reid 1993b). The other two settlements, *Leytsa* and *Ditsa*, do not appear to be Malay words, and may be from the Bandanese language (*Leytsa* might be related to an Ambonese word for peninsula "lei"). They are situated on strategic points on the coast, the eastern and western capes of the island (if we rotate the island to its "correct" orientation), which are well situated to view shipping coming in and out of the central Bandas and Pulau Rhun respectively. All three of these toponyms disappear from the record following the massacre of 1621. It is likely, given the relatively flat terrain and small size of

Pulau Ay that Dutch forces completely wiped out previous settlements and re-inscribed the landscape according to colonial plans, an interpretation supported by the written records discussed above.

On Banda Besar, the villages of Mandiango, Leckovy and Sammer, on the southern coast, also eventually disappear from later maps, although they survive longer than the villages of Pulau Ay. Mandiango appears on maps until the mid-17th century before disappearing from the written records. It is probably Mandi Angin, a name now used in oral traditions for a beach and area of sacred sites on the eastern headlands of Banda Besar. The name Lackovy also survives to this day as the name of bay (as Lakuy), and is shown as a village on the Nessells and Valentijn maps of the later 17th century. Sammer disappears from maps as a village, but reappears on a mid 19th century Dutch map as an old name for the area around its previous location (*oud land Sammer*). It is also mentioned in Valentijn's late 17th century account of Banda as a trading partner with the Tanimbar Islands, though Valentijn may be referring to pre-conquest history (Valentijn 1858: 29).

Despite questions of accuracy in regions outside of firm Dutch control (such as Pulau Ay and Rhun), this map gives us the most detailed view of the settlements of the islands prior to the conquest of 1621. The fact that many of the smaller villages listed here disappear from maps just a few years later provides strong evidence as to the effects of the Dutch conquest on the social landscape of the islands.

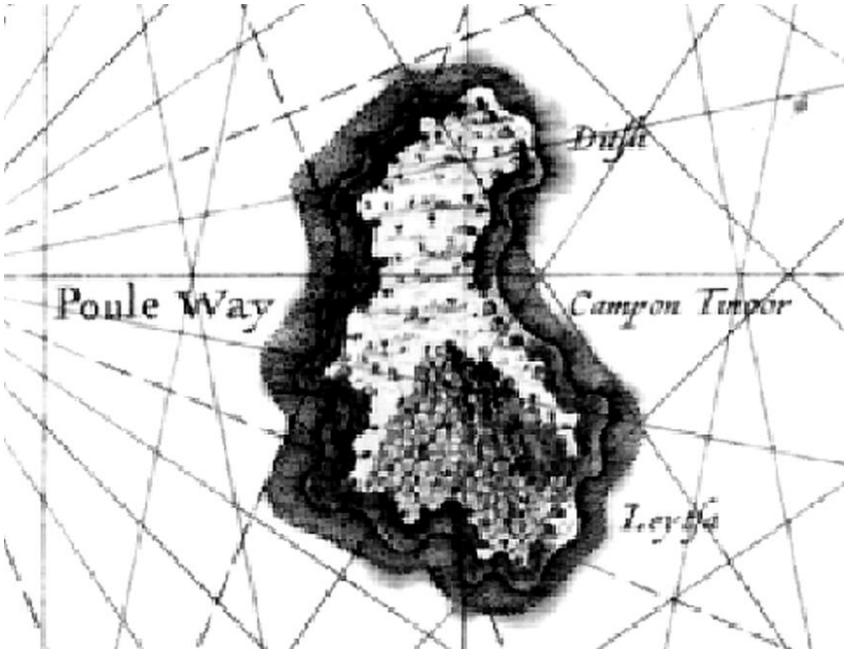

Figure 3.19. Detail of Pulau Ay, Jansonnius map

Anonymous 1623 Dutch map[24]

The conquest of Banda in 1621 was the beginning of a near total revision of Banda's social landscape into a Dutch controlled colony. This anonymous map is dated 1623, which makes it the earliest surviving depiction of this new, post-conquest Banda. It is probably a VOC survey map, drawn by the recently victorious Dutch of their newly acquired (and ethnically cleansed) territory in Southeast Asia. The landforms are accurately portrayed, considerably improved from the Gerritsz and Janssonius maps of just a few years earlier.

What is most striking on this map is the disappearance of many settlements. While the Dutch clearly now had the access necessary for accurate survey, it seems as though there were no longer small settlements in the hinterlands that they felt were worth noting. It is possible that there were pockets of Bandanese resistance that Dutch surveyors either did not see because they were well hidden in the forests or mountains. Perhaps the Dutch refused to grace such rebel camps with the dignity of inclusion on an official VOC map. Most likely is that the map shows the radical depopulation of the islands as a result of the Dutch conquest. Pulau Ay is empty save an unnamed "fort". Banda Naira is also cleared of its many smaller villages, leaving only Neira, and its two forts Nassau and Belgica. Banda Besar, on the other hand, retains many of its villages, including Lontor, Ortattan, Selamon, Owendender, Wayer, Lackoey and Mandiango. Banda Besar, it would appear, was the least altered of all the Banda Islands by the events of 1621, perhaps because it had a relatively large population that was scattered over a mountainous landscape. Many of the surviving villages are located on the south coast of the island that is difficult to access from the sea during the monsoons.

Particularly striking here is the absence of Labbetacca, which appears on all previous maps, and was clearly an important village before the 1621 conquest. The fate of Labbetacca during and after the conquest is a question which will be addressed with the archaeological evidence from the village site below.

[24] Copy obtained from the Algemeen Rijksarchief, The Hague, microfilm cat # 4.VEL.1355.

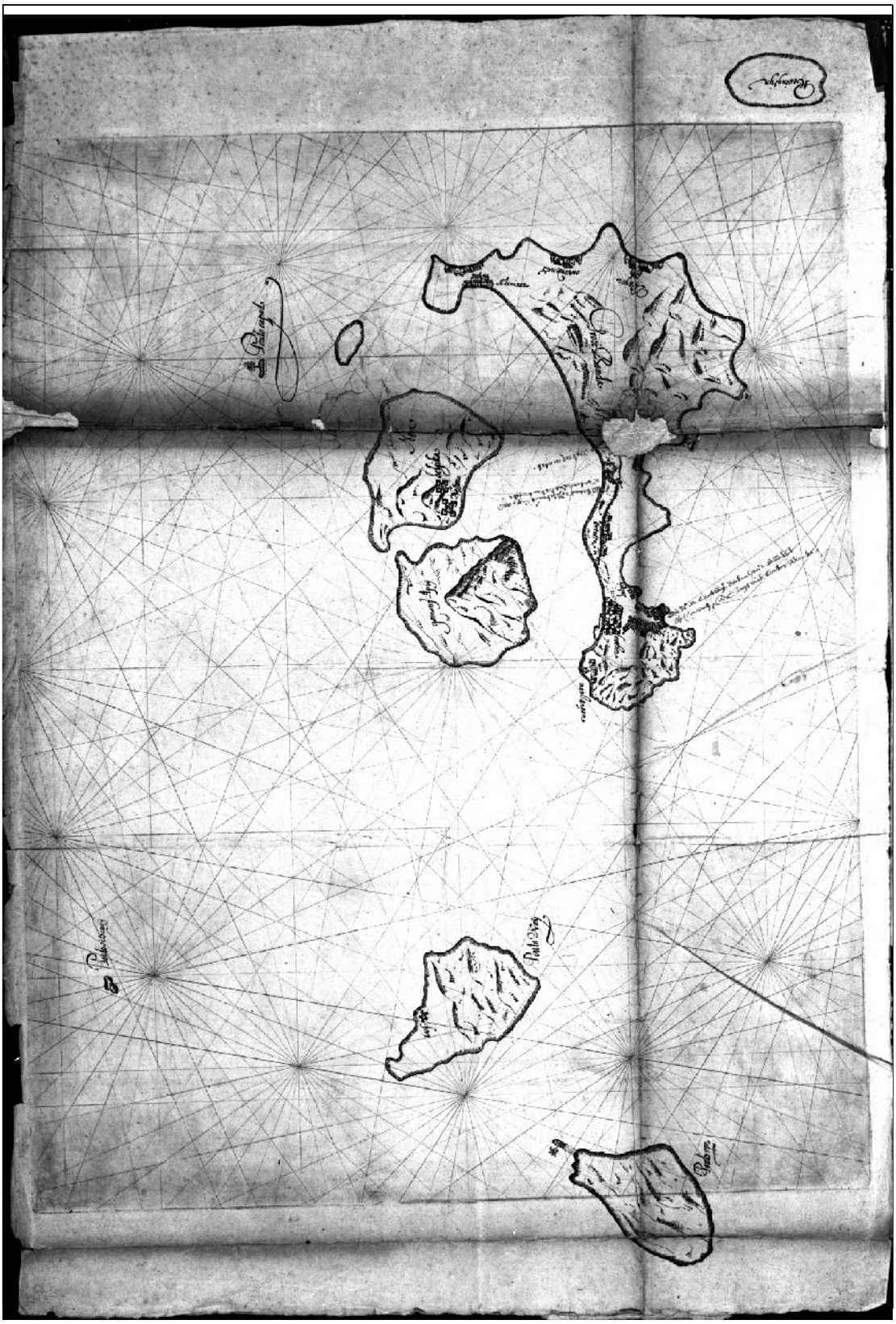

Figure 3.20. Anonymous 1623 Dutch map

Valentijn Map[25]

This map is included here because it is one of the most detailed of the post conquest 17th century maps available, and gives a clear picture of the post conquest colonial situation in Banda. François Valentijn was a VOC pastor who lived in Banda in 1687-88. This map accompanied his five-volume account of the East Indies, which was not published until 1724 (Valentijn 1724). Valentijn has been much criticized for his scholarship. He combined fact and fiction into gossipy and defamatory narratives, often plagiarizing others in the process, but his maps and views were well drawn and accurate (Beekman 1996: 119-144). This map shows the many *pereks* (plantations) built by the VOC. The central Bandas are shown in the most detail. Pulau Ay, Rhun and Hatta are depicted as lacking named settlements, despite the fact that on Pulau Ay, at least, there were at least two *pereks* operating by the 1680s (his map does depict small buildings on those islands).

This map is of interest primarily because it shows that while the social and political situation on the islands has radically changed from that of 70 years earlier, much of the pre-conquest settlement pattern has been reproduced. The names and locations of pre-conquest villages have, in many cases, been adopted by the new Dutch *pereks*, with perhaps some minor shifts, such as Labbetacca becoming Lautaka. This suggests both that a surviving population of native Bandanese people were able to keep alive traditions of places and names, and also that the physical landscape limits the places where human settlement and trade can happen.

[25] Copy obtained from the National Maritime Museum Greenwich, England, neg. # D9674 B/W.

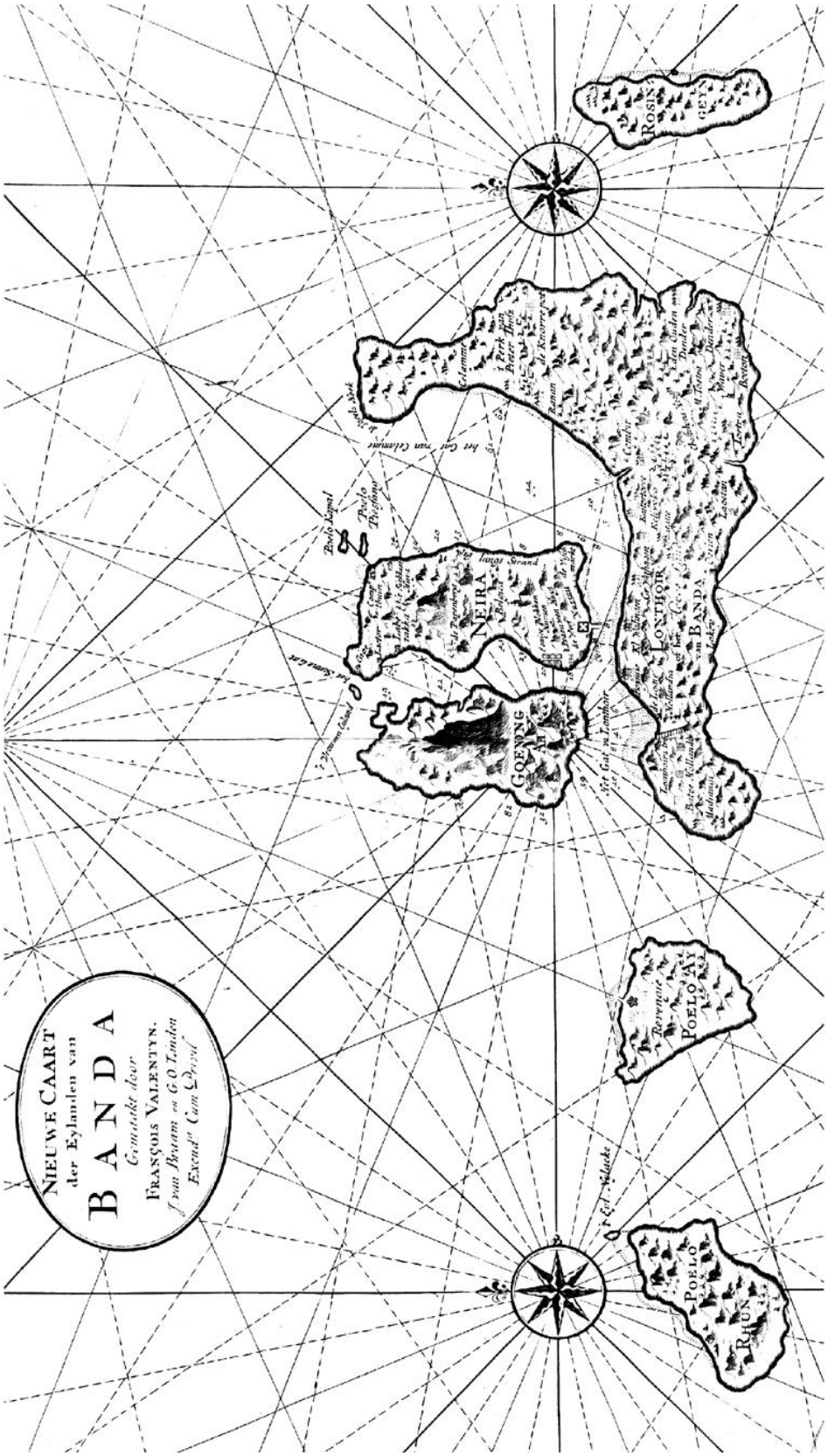

Figure 3.21. Valentijn map

Other maps

There are several other post-conquest 17th century maps of interest, which warrant a short discussion here. The Nessels map[26] dates from 1651, according to the catalogue entry at the copy obtained at the Algemeen Rijksarchief (Dutch Royal Archives). It is of interest primarily because it formed the basis of a map by van der Aa[27] in his atlas published in 1714. Van der Aa used the landforms of this 1651 Nessels map, and overlaid the village and island names from the pre-conquest Janssonius map. Van der Aa solves the problem of the odd orientation of Pulau Ay on the Janssonius map, discussed above, by using the Nessels orientation (see Fig. 3.22. Detail of Pulau Ay from van der Aa map). This puts the three villages of Ditsa, Campong Timoor and Leytsa on the east coast of Ay (which makes the Campong Timoor name more sensible). He locates Fort Revenge correctly on the north coast, in a place where there were no villages shown, despite the fact that this north coast would seem to be the most suitable for settlement. Puzzling indeed, but perhaps van der Aa has it right. The question of village locations on Pulau Ay will be addressed in Chapter 4 with archaeological evidence.

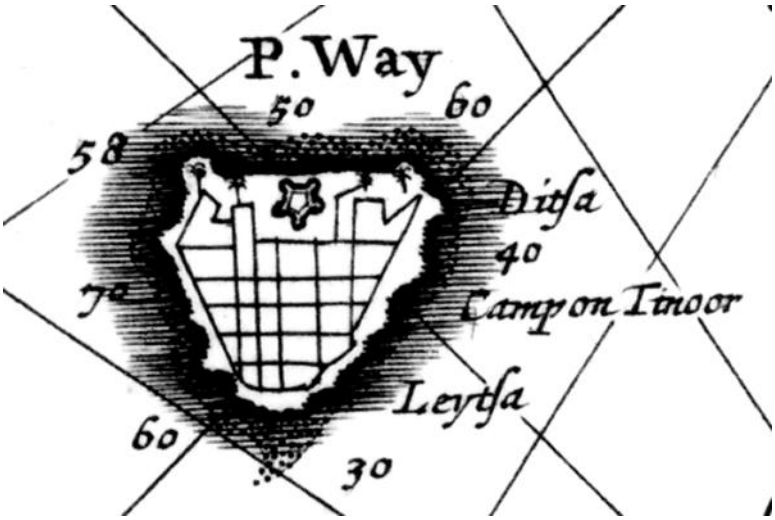

Figure 3.22. Detail of Pulau Ay from van der Aa map

[26] Copy obtained from the Algemeen Rijksarchief (Dutch Royal Archives), The Hague, microfilm cat # 4.VEL.1356.
[27] Copy obtained from the National Maritime Museum Greenwich, England, neg. # D9673 B/W.

The Gijsels collection of maps consists of two types of maps. Gijsels was a VOC governor in Ambon from 1631-1634. One map[28] appears to be a general map of the Banda Islands just after conquest. It provides a picture of an emerging Dutch Bandanese landscape, but with some Bandanese features intact. Of particular interest are feature names on Pulau Ay (see Fig. 3.23. Detail of Pulau Ay from Gisjels map). Several features have Bandanese or Malay names, such as Parige (possibly *perigi*, Malay for "well"), and Rassan (a village name?). Other features are Dutch, such as de Boers boek ("the farmers book"?), Baton ("battery") and Huyborts boeck.

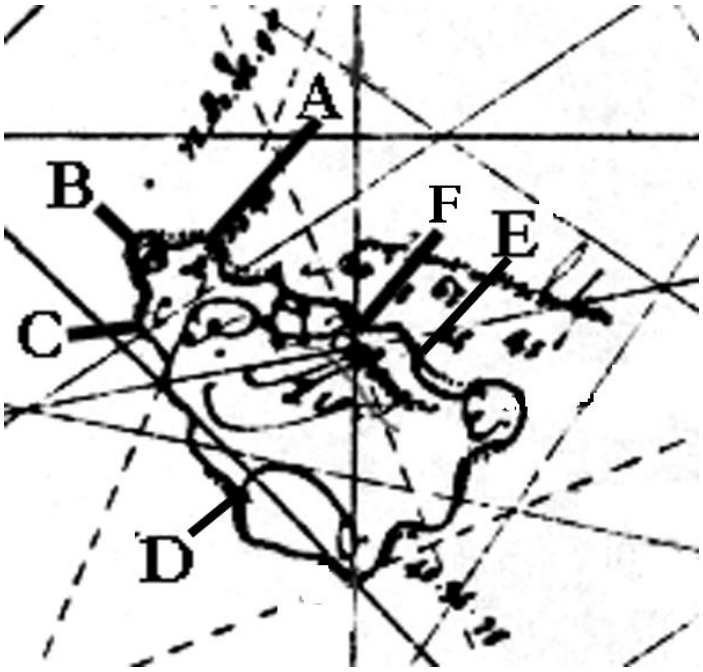

Figure 3.23. Detail of Pulau Ay from Gisjels map.
A: Huyborts Boeck
B: Baton
C: de Boers Boeck
D: Rassan
E: Parige
F: Fort Revenge

[28] Copy obtained from the Algemeen Rijksarchief, The Hague, cat# F 70 11.

Also in the Gijsels collection is a set of maps[29] that lay out the plots of the *pereks* or plantations. The land is carved up according to a formula by which each landowner is given a plot sufficient for the number of their slaves (listed as *zielen* "souls" on the maps). Each slave was expected to work an area of 50 square rods (Zandvliet 1998: 154-5). These maps generally do not list village names, perhaps to emphasize that the land was empty and ready for colonization. This is especially interesting when one compares these maps to the general Gijsels map discussed above, which shows a landscape still occupied by Bandanese villages. While this is beyond the scope of this dissertation, it would provide many clues about the beginnings of a new Bandanese society that evolved out of the 1621 conquest and subsequent Dutch colonial efforts.

There are several other maps from the 17th - 20th century that were used to help interpret site formation processes. These maps, while not particularly useful for understanding pre-conquest Bandanese settlement per se, are very useful in understanding how particular places were used after 1621, and have helped me to understand the archaeological remains discovered in certain areas. These maps have been discussed in more detail in the section on archaeological data below.

[29] Copy obtained from the Algemeen Rijksarchief (Dutch Royal Archives), The Hague, cat # XL16-19.

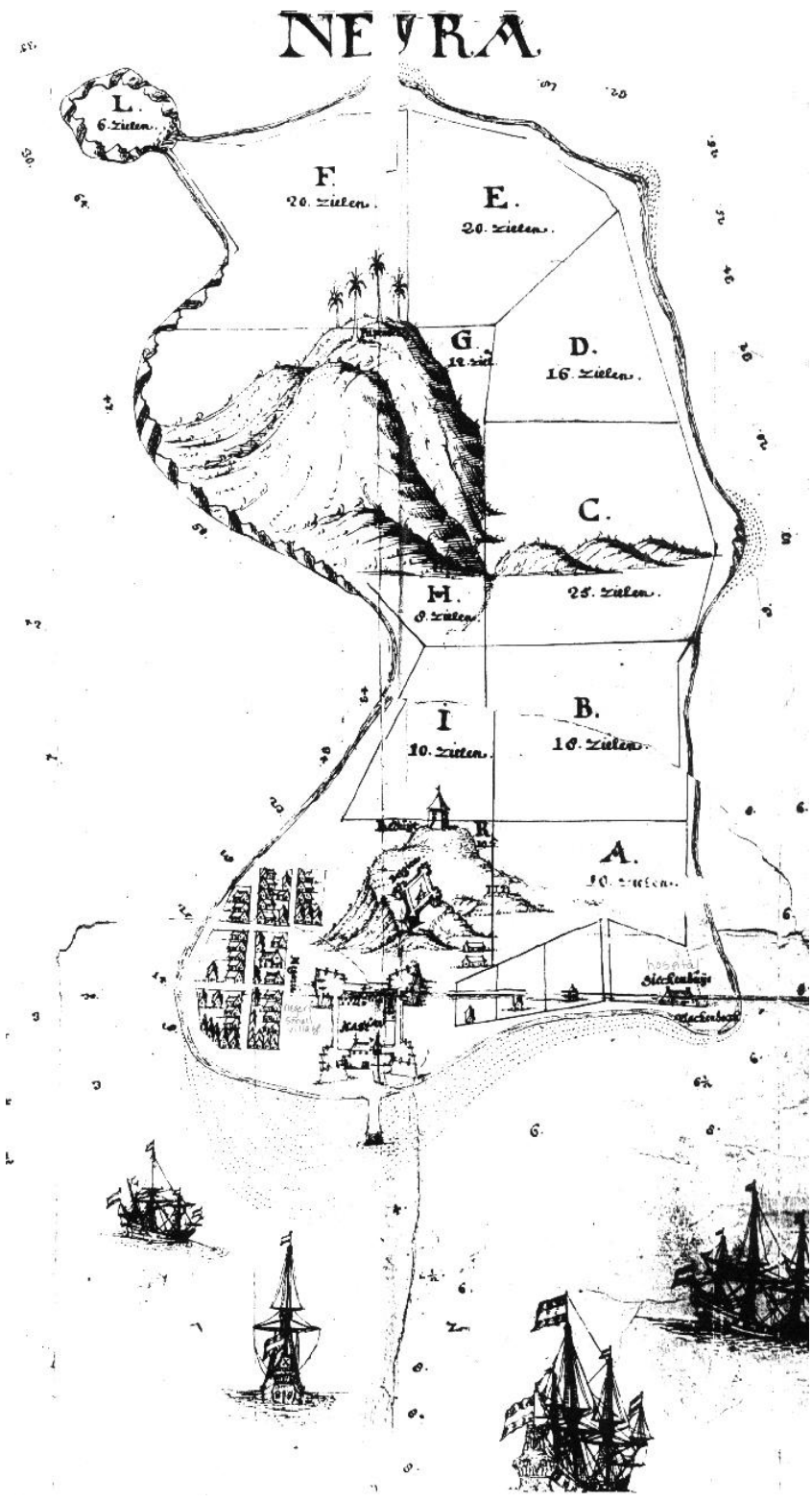

Figure 3.24. Gisjels *perek* plot map of Banda Neira, showing the number of *zielen* (souls or slaves) needed to work each plot.

Conclusions and new questions from historic maps

Reading historic maps is not a simple or straightforward process. Each map has its own set of biases that are based in the historical context of their drawing, publication and distribution. Many of these biases are difficult or impossible to understand completely. However, it is possible to draw some general conclusions about pre-colonial Bandanese settlement from the maps, and to compare the map data with the archaeological record.

The general picture drawn by this set of data is that the earliest European maps of Banda from the 16th century show a small number of villages only on the central Bandas: *Labbetacca* and *Nera* on Banda Naira, and *Lontor*, *Ortattan*, *Combir* and *Selamon* on Banda Besar. No settlements are depicted on the outer islands of Rhun, Ay and Hatta, or on the smaller islands of Pisang, Nailakka, Karaka or Manukan. From 1602 - 1617, the maps show many additional settlements in these areas, including on Pulau Ay, the outer coast of Banda Besar and the interior of Banda Naira. These villages are, however, generally represented as smaller and less important than the villages in the central Bandas (see Figs. 3.25 - 3.29 below for a map of changing maps over time).

How do we interpret this change? There are two options: 1) these newly mapped villages are in fact new settlements. Perhaps they represent a local response to European or other foreign influence, as they appear during a period of increasing tensions in Banda. Between 1609-1616, for example, Dutch and English forces built at least three new forts, the Verhoeven ambush took place, numerous treaties were signed and defied. People in Banda could have been migrating to parts of the islands less subject to European control. Indeed, the "new" villages are located in areas out of sight of the forts and on coasts that are less accessible to boats. 2) These villages may have existed all along, and were either not seen by the earlier European mapmakers, or considered unimportant by them. The primary European anchorages were in the protected waters of the inner Bandas, out of sight of the outer coasts and outer islands. The earlier European expeditions tended to stay in Banda for relatively shorter periods, and before mapmaking became a more institutionalized scientific endeavor in the hands of the VOC, maps were not improved from voyage to voyage. The newer maps may simply represent better mapmaking, rather than changing society in Banda. This is a question that archaeological data can address, and it will be considered below.

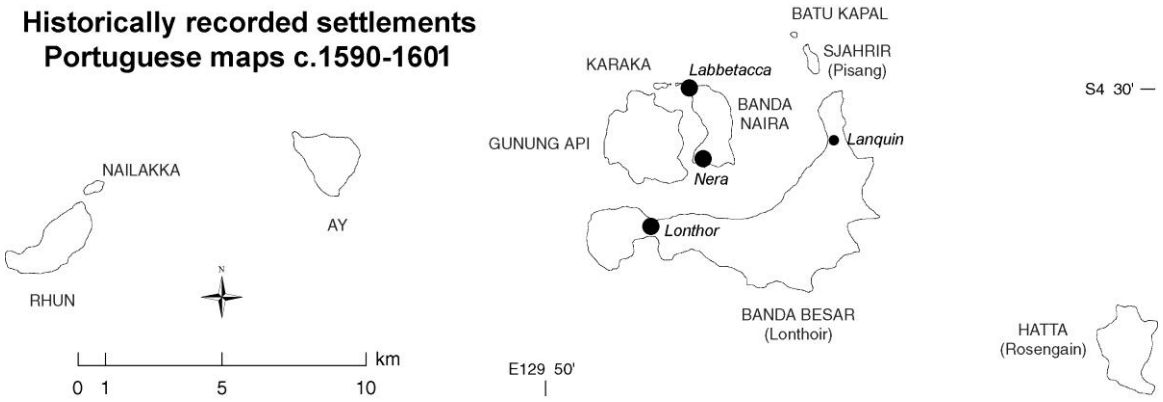

Figure 3.25. Recorded settlements, c. 1590-1601, in Portuguese maps. Dot size indicates relative size/importance of settlements as drawn on Eridia map and anonymous Portuguese map. Lonthor called the "capital" on Banda on Eridia map. Lanquin not listed on Eridia map. Note absence of settlements on outer islands, and on the outer coast of Banda Besar.

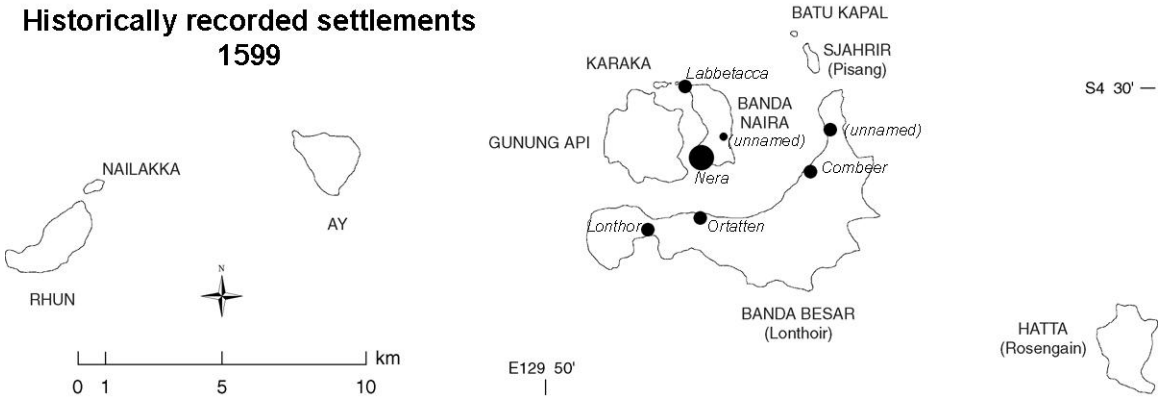

Figure 3.26. Recorded settlements, 1599. Dot size indicates relative settlement size as pictured on the van Neck and Pontanus maps. Ortatten appears for the first time, described as seat of government, and meeting place. Note absence of settlements on outer islands, and on the outer coast of Banda Besar.

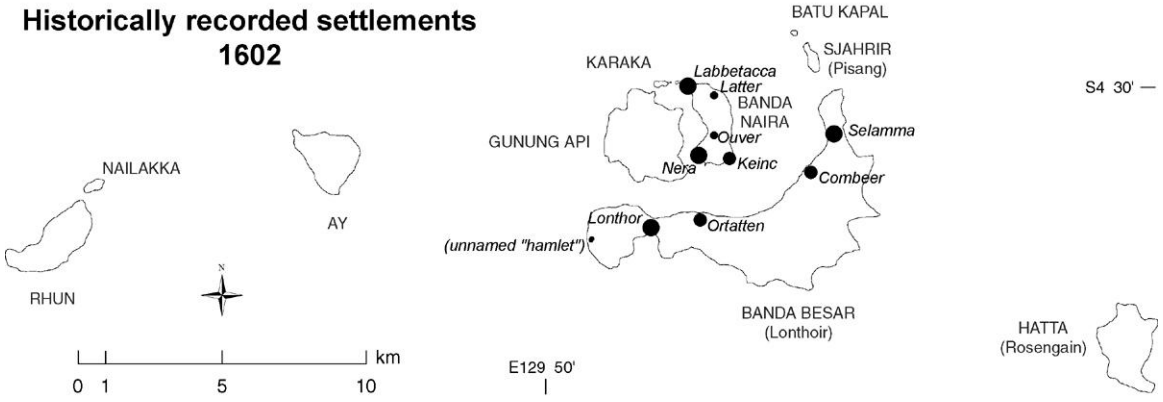

Figure 3.27. Recorded settlements, 1602. Dot size indicates relative settlement size as recorded on Gelderland maps, which categorize them into "town", "small town", "village", and "hamlet". Note two additional villages on Banda Naira, and an additional hamlet on Banda Besar, compared with 1599 data. Still no settlements recorded on the outer islands or outer coastal Banda Besar.

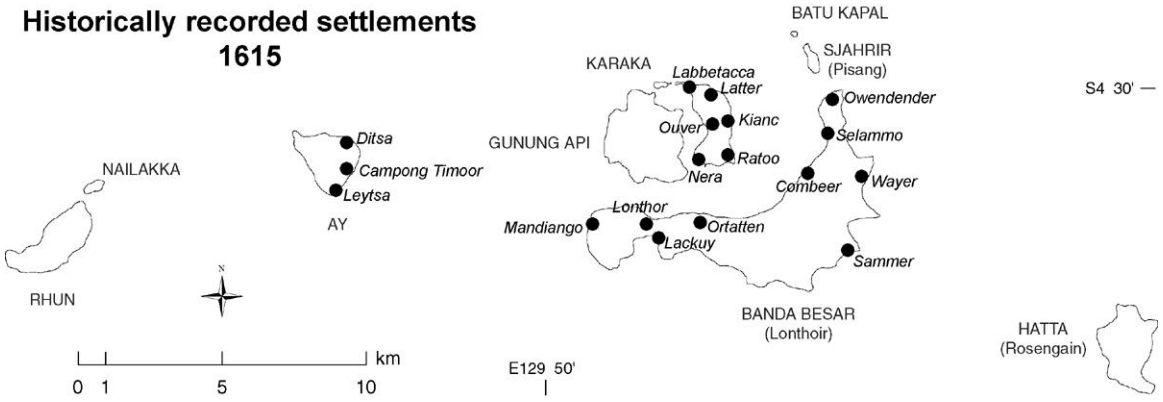

Figure 3.28. Recorded settlements, c 1615. Settlements not differentiated by size on orginal Jansonnius map. Note profusion of previously unrecorded settlements, including on Pulau Ay and on the outer coast of Banda Besar, as well as two new settlements on Banda Naira.

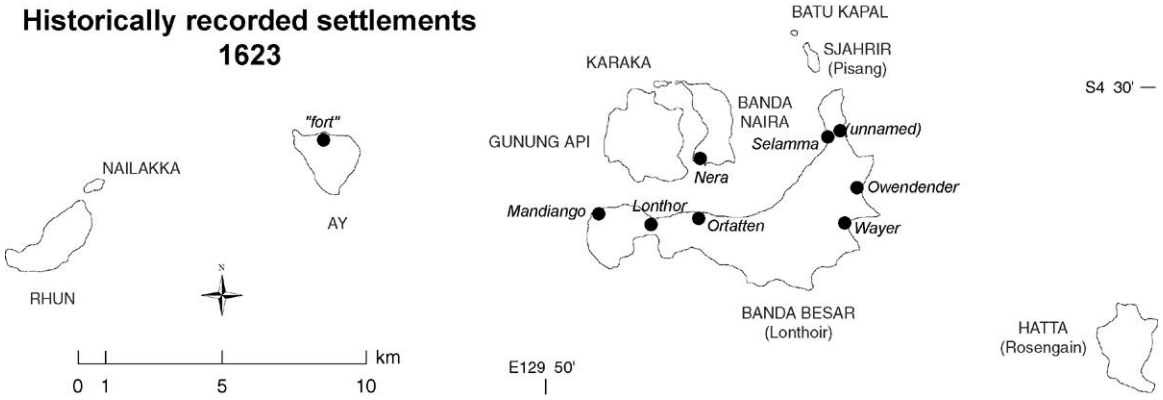

Figure 3.29. Recorded settlements, 1623 (post conquest). Settlements not differentiated by size on orginal 1623 anonymous Dutch map. Note the dissappearance of many settlements compared with the 1615 map above, particularly on Banda Naira. *Labbetacca*, a major town on all previous maps, is gone, as is *Combeer*, and all settlements on Pulau Ay (except for a "fort"). However, most of the outer coastal Banda Besar settlements still exist, as does *Mandiango* on the western point of the island.

After the 1621 conquest, different questions arise. Why do many villages disappear from maps, some immediately (*Labbetacca*), others fading away over a century (*Mandiango*). In addition, why do others survive (*Nera, Lonthoir, Selamon, Combir, Wayer*), or are re-born centuries later, at least in name (*Lackuy*). Clearly, the Dutch must have appropriated some pre-conquest names for their new plantations and towns (though altered in many cases, such as Lautaka and Orangdatang). Nevertheless, some villages never reappear in any form, such as the three pre-conquest villages of Pulau Ay, and the interior villages of Banda Naira. The fate of these missing villages will also be addressed by the archaeological data in subsequent chapters.

Oral history in contemporary Maluku: Echoes of exodus

When the VOC forces made their final conquest of Banda in 1621, many people in Banda were killed or taken prisoner and transported to other VOC strongholds, such as Batavia.[30] Many others escaped in their own ships in an exodus to more friendly islands throughout Maluku. The actual numbers of people are difficult to ascertain. The only pre-conquest population estimate is from Pires in 1515, who counts 2500-3000 people in Banda, although Hanna provides an unsubstantiated figure of 15,000 just prior to the 1621 conquest (Hanna 1978: 55). After the conquest was complete, the Dutch conducted a census in 1622, counting 2500 "souls of ours", (Sainsbury 1878: 65), a population size that slowly grew over the centuries to approximately 15,000 today.

Figure 3.30. Depiction of the massacre of 44 *orang kaya* of Banda by Japanese mercenaries, 1621. Contemporary painting (1985) in the Muzium Rumah Budaya, Banda Naira.

[30] The Bandanese continued to resist Dutch control after the conquest, even in distant outposts like Batavia, as is apparent from this letter to the Governor General (probably Coen) from The Hague dated April 14, 1622. "Look sharp to the large numbers of Bandanese in Batavia and that their thirst for revenge does no where cause you difficulties or damage. Savage dogs must not be teased and still less trusted." Excerpt from a handwritten translation of the original, held in the India Office, British Library.

Those that escaped to freedom in other places either established new "Bandanese" communities or were assimilated into their hosts' society. In the Kai Islands, which lie about 300 km southeast of Banda, there still exist several communities which claim to be descended from Bandanese refugees. These fascinating communities have not yet been the subjects of in-depth research into their history, although there has been recently published linguistic research, which supports the idea that they originated in Banda. The language spoken by these communities is distinct from their neighbors, and is more closely related to the languages of Southeast Seram then other Kai languages (Collins & Kaartinen 1998).

I had hoped to visit these villages in late 1997, but travel complications and illness prevented me from making it closer than the neighboring island of Kai Kecil. However, In July 1998, I happened to meet two young men from the village of Banda Ely while we were traveling on the PELNI ship which goes from Tual in Kai to Banda and then to Ambon. Banda Ely, according to people in Banda, has the strongest traditions of the several Banda communities in Kai. The men told me a bit about the social structure of the Banda Ely community, which is divided into *marga*, a word for clan typically used in Sumatra. The *marga* are named according to the home village of the original refugee ancestor, and are also ranked. The *marga* names and ranks are as follows:

Selamon--*imam* (Muslim priest)
Ratu--*raja*
Lawataka--*orang kaya*

Rosengain
Lonthor
Lattar
Uar
Reny
Rumra
Borut
Timo
} commoners

Interestingly, the first six of the *marga* names are recognizable historic village names from Banda, one of which, *Lattar*, was only listed on pre-conquest maps. Additionally, 'Rumra' may correspond with Pulau Rhun, and "Timo" with *Campong Timoor*, a pre-conquest village on Pulau Ay. A second division of society was called *kasta* (caste?), of which there were two, *bawa* and *atas* (lower and upper). According to

these informants, marriage is allowed between two members of different *marga* but not different *kasta*. They said that the *kasta* system was "Buddhist" from deep, pre-Islamic history. According to these men, the ancestors of the Banda Ely people came to Tual (the largest town in the Kai islands, on Kai Kecil island) from Banda during the time of the Portuguese, and received permission from the local leaders to settle on vacant land. The 1621 massacre was not given as a reason for the exodus by these informants, contradicting western historical scholarship which names the Dutch conquest as the reason for the migration.

With a few important exceptions, most people in Banda today do not to identify themselves as true Bandanese (*orang Banda asli*), but rather as immigrants from other places, such as Java or Sulawesi. I was told by many Bandanese that the only *orang Banda asli* live in the Kai islands. I was told stories in Banda about how when Banda Ely people would visit Banda, they could find old water sources, long forgotten, by digging with their hands. Similar metaphors occur in some of the rituals practiced in Banda today, such as the *cuci perigi* (cleaning of the well) ritual of Lonthoir[31]. Banda Ely people would also trade their distinctive pottery for old clothes, refusing money, which is suggestive of the old trading patterns in which cloth and pottery were mediums of exchange between Banda and other islands (see Stejskal (1988) for a study of pottery making in Banda Ely).

In Valentijn's description of Banda (Valentijn 1858), there also are some intriguing connections made between certain villages in Banda and Kai, as well as other islands in Maluku. These connections were based in trade. The villages of *Celamme*, *Wayer* and *Oudendenner* and people of *Ay* obtained boats from the Kai and Aru Islands, which they re-sold in Banda to other villages (Selamon is the highest ranking *marga* of Banda Ely, and *Wayer* and *Oudender* were allies of *Labbetacca*, Lawataka being the third highest ranked *marga* in Banda Ely). People from *Rosingein* sailed to Kai and Goram (an island southeast of Seram) for sago. According to Valentijn, people of *Rosengein* "used to bake all sorts of earthenware pots for Ceram, Goram, Key, Aroe, Banda and Ambon, etc. as for that purpose they had beautiful earth, also for making tiles"[32]. *Ay* people traded socks (?) and mats with *Amboina* for sago, while people from Rhun also

[31] Readers are referred to the forthcoming Ph.D. dissertation by Philip Winn, Research School of Pacific and Asian Studies, The Australian National University, for a study of identity and ritual in contemporary Banda.

[32] During a short visit to Pulau Rozengain (Hatta), a large heap of earthenware sherds was found behind a beach on the northwest coast of the island, but I was never able to excavate on the island. I was able to

bought sago from *Amboina*, in exchange for coconut oil. *Hammet*, *Sammar* and *Orantatte* traded coconut oil from Banda for turtles, slaves, rice and beans with the Tanimbar Islands; (Valentijn 1858: 29). In describing these trade links, Valentijn appears to be speaking of the (pre-conquest?) past ("used to bake", "the old village of Hammett") rather than of the time he lived in Banda in 1686-87, though this is not entirely clear.

While I was not able to study the intriguing stories and social structures of Banda Ely in more depth (and such a study is certainly long overdue), I was able to visit other communities which also connect their identity to an exodus from Banda. In May 1998, I visited the less well-known Banda refugee villages scattered along the coast and offshore islands of southeastern Seram. My transportation of choice was a type of traditional sailing vessel known as a *perahu lambo*. These are 30-50 foot long wooden sloops, originating from the island of Buton off Southern Sulawesi. There are many Butonese immigrants in Banda now, and they continue to build this kind of boat, which are called *perahu bot* in Banda. I was joined by my

Figure 3.31. Captain La Adi and his ship the *Orang Datang*, off the coast of Southeast Seram, April 1998. Photo by Andy Lawless.

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obtain several samples of clay from two clay sources on Pulau Hatta, for future sourcing tests. The clay is used now for cooking and house building. Other clay sources exist on Pulau Ay and near Lonthoir village

wife Charlotte Spang fellow project staff members Andy Lawless and Kathy Batt on the *Orang Datang*, a *perhau bot* from the village of Biauw on Banda Besar island. The boat was crewed by three, and our captain was Pak La Adi, a Banda-born Butonese sailor in his late 60's who operated the tiller for 18-hour stretches while singing and smoking *kretek* clove cigarettes.

Our boat and crew were (luckily) well-chosen, as they regularly engaged in coastal trading in eastern Seram and the islands off its southeastern tip. They follow the same trade networks that have been in place since pre-colonial days, trading manufactured goods for forest products like lumber, *atap* roof thatch and sago, a palm starch staple food that can't be grown in Banda, and is thus in great demand there. Pak La Adi is a well-known figure in the small sago growing villages in eastern Seram. Often he is the only contact these villages have with the world of plastic buckets, laundry detergent and *kretek* cigarettes, and his boat's arrival in the lagoon is welcomed.

In the 17th century, these shores were not so welcoming to travelers from Banda. In 1609, the English Captain Henry Middleton traveled to this coast in search of another English pinnace that had been lost on its way to Banda. He had hired Bandanese to help him, but they were afraid to land on Seram, telling Middleton that any Christian who was captured by the Seramese would be roasted alive and eaten in retaliation for the wrongs the Portuguese had done to them (Sainsbury 1878: 358). As with the Banda Ely informants, the villains in the oral histories in Seram were always the Portuguese rather than the Dutch. Whether this is simply an adaptation to 350 years of Dutch rule, I cannot speculate, although history is used throughout Maluku (and everywhere, for that matter) in politically and socially strategic ways (Ellen 1997).

Over the course of seven days, the Orang Datang called at three villages that had some kind of mythological connection to Banda: Guli Guli, a small hamlet on the south coast of Seram (probably the *gullegulle* visited by de Abreau on his way to Banda in 1512), Geser, a small coral atoll which has become the trading and administrative center for the region, and Rumadan, a small village at the mouth of the Keta River on the north coast of Seram. The village of Rumadan seemed to have the strongest tradition of Banda heritage. The name of the village is said to be from *Rumah Andan* (house of *Andan*), *Andan* being the ancient name of Banda. *Andan* or *Wandan* appears in textual sources from the Majapahit kingdom in central Java from the 14th century (Prapañca & Robson 1995). All three villages had *keramat* that connected them to Banda, and the *keramat* were reputed to have particularly strong powers because of their

association with Banda in name or story of their existence. Many of the spatial or narrative connections were associated with Islam. One story in Rumadan was about how Banda was the first place to be Muslim in the world, after Mecca. The most important *keramat* in Rumadan was a small circle of coral stones on the intertidal flats in front of the village. The sand that collected in it was said to have been brought by the original refugees from Banda, from a specific beach on Gunung Api called Pantai Sembayan, or "Praying Beach."

Unfortunately, I did not have the time or the linguistic skills in the local languages of the region to investigate these traditions in any depth, which are worthy of a separate study in their own right. However, they suggest to me that it is possible that the exodus from Banda began long before the 1621 massacre, during the 16th century conflicts with Portuguese traders, much of which was framed as a religious conflict. There may have even been an earlier exodus resulting from conflicts between non-Muslim Bandanese and Muslim leaders who were asserting local control. It would be informative to conduct archaeological investigations in some of these refugee settlements to determine the initial date of their occupation, as it is unlikely that documentary records will reveal much about this part of history. In Banda, I will consider below the possibility that the islands had an earlier experience of out-migration, before the 1621 Dutch conquest. Archaeological data may be able to provide insights into this by demonstrating actual changes in settlement size, or even abandonment.

The documentary record of Banda: preliminary conclusions and archaeological questions

The historical documents analyzed here do not tell a coherent story about the pre-colonial past of Banda. There are many gaps in time from which there are no records, particularly from the last quarter of the 16th century, and the records pre-dating the first Portuguese contact with the islands are sparse. Maps and images that show the islands in any detail date only to the last twenty years before the colonial conquest of the islands, and even those vary considerably in detail. Oral history and myth provide some suggestive details, but have not been studied in sufficient depth to constitute a separate line of evidence. However, it is possible to draw some preliminary conclusions from this body of data that are relevant to the central research questions of this dissertation.

These preliminary conclusions raise some additional questions about the nature of settlement, trade and religious identity in Banda, 11th - 17th centuries. There are fundamental questions about the reliability of the historical data. Did European observers know about smaller settlements, non-Muslim identity and the nature of local trade networks and their links to specific settlements in Banda? In many cases, as has been mentioned above, archaeological data can address these questions. Below is a list of summary conclusions plus specific questions to be addressed in the following chapter using the available archaeological data:

1. Hidden settlements

Historical evidence: There are several smaller villages or hamlets which only appear on later maps, most of which disappear after the conquest of 1621. Pulau Ay may have had as many as four separate villages. European contact with areas outside of Banda Naira and the inner, northern coast of Banda Besar was limited, and was often mediated through other foreign traders, such as the "Turk" relied on by the van neck/Warwick expedition.

Archaeological questions: Were there other settlements in Banda apart from *Nera, Labbetacca* and *Lonthoir* prior to the 1590s? If so, what was the nature of these unrecorded settlements, i.e. how do they compare (geographic location, occupation history, evidence of trade, religious identity) with "known settlements" and how do we explain their exclusion from historic maps of the period? Do the maps from the

later pre-colonial period (after 1602) which show many new villages represent the establishment of new settlements, or the first European recognition of long existing settlements?

2. Village alliances

Historical evidence: There were at least two factions in Banda in existence in the first decade of the 17th century, which were split along village lines. One consists of the major trading villages of *Nera, Lonthoir, Ortatta,* Pulau Ay and Pulau Rhun. The other consisted of what appears to be the more marginalized, less trade-oriented villages of *Labbetacca, Wayer* or *Wayter*, and possibly *Cumber* and *Oudender*. The conflict between them was based on competition for nutmeg trees, and was fought in ritualized, violent battles. Unlike some other Muslim islands in Maluku, such as Ternate and Tidore, there is no supra-village level centralized authority, the highest level consisting of councils of *orang kaya* for each village.

Archaeological questions: Do the two village alliances have an archaeological correlate? Can we explain the reason for the alliance, and the conflict between them, in terms of long-term process visible archaeologically?

3. Islamization

Historical evidence: While never explicit or particularly detailed, the documentary record suggests that non-Muslims as well as Muslims lived in Banda throughout the late pre-colonial period. While no Muslims are recorded by the Chinese records from the mid 14th century, by the early 16th century the Portuguese describe the islands as mostly Muslim, but having "converted" only since the late 15th century. The non-Muslim presence becomes less obvious in the documents later in time, and quite possibly non-Muslims are very small minority by the last decade of the pre-colonial era, 1610-1620.

The process of Islamization is never described in these documents. However, some texts suggest that it was a political process, involving the establishment of new types of authority, which was resisted at first by a non-Muslim indigenous population. The use of Malay titles for political leaders, such as *orang kaya* and *syahbandar*, and the absence of indigenous title names also supports this idea. Age may have been a factor in the selection of *orang kaya*, whereas "foreignness" and Islamic identity seems to have been

a factor in the selection of the *syahbandar*. Conflict between "official" Portuguese and people in Banda becomes increasingly common after 1570, and are framed as religious battles. The increasingly frequent conflicts between people in Banda and the VOC, 1609-1621, often had religious overtones, and treaties and contracts usually specified non-interference by either party in the other's religious affairs, pledging not to make efforts to convert people. However, individuals often transgressed religious/ethnic boundaries, though with grave consequences. The final violent subjugation of Banda led by Jan Pieterzoon Coen may have been sparked by Coen's earlier experiences with Muslim-Christian conflict.

Archaeological questions: Can we see an archaeological correlate of conversion to Islam? If so, did the Bandanese convert to Islam all at once, or was the process clinal? Can a period of conversion be dated? Is there a chronological link between changing religious identity, settlement and trade links?

4. Trade networks

Historical evidence: Nutmeg was making it from Banda, or nearby islands, to China and Europe at least 2000 years ago. However, reliable descriptions of Banda only date to the mid 14th century (Chinese) or early 15th century (Arab), though somewhat earlier mentions may indicate sporadic contact dating to the 9th century. By the 16th century, the Bandanese were transporting nutmeg in their own ships to Malacca, where they were assigned a *syahbandar*. In the local region, Banda was an entrepôt for products from Maluku and New Guinea. There may have been traditional trade links between specific villages in Banda and specific places in the local region (such as Kei and Ambon).

Archaeological questions: When did Bandanese first have contact with long distance traders? Which trading partners linked them with the global trade network that distributed nutmeg as far as China and Europe prior to direct visits from European traders? What evidence is there for local trade networks?

5. Conquest and migration

Historical evidence: Contemporary myths and oral history maintained by people who identify themselves as descendants of Bandanese refugees often say that the migration happened during Portuguese times, rather than as a result of the 1621 conquest by the Dutch. Muslim identity is a strong element in

these refugee communities, and Banda itself remains a central symbol of Islam. Social structure in the Banda Ely community appears to be derived from pre-conquest village names.

Archaeological questions: Which settlements were depopulated by the 1621 conquest? Are there any links between those villages and oral traditions (such as the *marga* system) in Bandanese "refugee" villages in Seram and Kei? In particular, is there an association between pre-conquest village religious and/or trade identity and contemporary social systems in refugee villages?

CHAPTER 4

An archaeological picture of the Banda Islands

Introduction

The objectives of this chapter are to provide an alternate line of evidence to cast against the questions raised in the previous chapter. The first part of the chapter contains a description of the archaeological research methodology used in this dissertation, and a summary of previous archaeological work done in the region. This is followed by excavation and analysis reports for the five primary sites that provide data for this dissertation: BN1, BN2, BN4, PA1, and PA2. Summary reports for the fifteen other sites that were tested in Banda are also presented. For each site, there is a discussion of specific research activities undertaken, physical and geological features of the site, a site map, section drawings of excavation units and test pits, and the results of artifact analyses. Where relevant, photographs and drawings of the site layout and artifacts are also included. The results of laboratory analyses such as materials sourcing and faunal and phytolith analysis are also included in this chapter. The final section of the chapter summarizes how the archaeological data can be used to address the questions raised from the historical analysis.

Archaeological nomenclature and terminology

In this discussion, **sites** refer to distinct areas of archaeological remains, and not necessarily to coherent "use areas" of past peoples. The term is used primarily for the convenience of organizing research data. In some cases, these archaeological sites may indeed correspond with ancient settlements, but because very small areas were actually excavated, there is usually insufficient data to define past settlement boundaries. Sites were assigned codes to aid in data management. Each site was assigned a letter-number combination that refers to the island on which it lies, and the order in which they were discovered. Thus site

BN1 was the first site discovered on Banda Naira Island, PA7 was the seventh site discovered on Pulau Ay, BB2 was the second site discovered on Banda Besar, and so on.

Readers should also note the meaning of archaeological terms as used in this discussion. **Levels** refer to arbitrary or artificial excavation layers or spits (e.g. level 20-30 cm). **Units** refer to excavation pits dug with trowels (not to stratigraphic units), and were numbered sequentially as they were excavated (e.g. BN1 Unit 2 is the second unit excavated at site BN1). **Test pits** refer to pits dug for rapid assessment of subsurface remains, usually with shovels, also numbered sequentially (e.g. BN4 TP3). S**trata** refer to archaeological stratigraphic layers, which were formed by human or natural processes, and are labeled with roman numerals, beginning with I at the ground surface (e.g. BN2 Unit 2 Stratum IV).

Archaeological fieldwork methodology

The Banda Islands present some challenges to the field archaeologist. Situated in the humid tropics, the islands are covered in thick vegetation. They are geologically dynamic, subject to frequent earthquakes and periodic volcanic eruptions and tidal waves. Volcanic ash and pumice produced by the regular eruptions of Gunung Api have caused rapid soil accretion in some areas, depending on distance from the crater and prevailing winds. Related geological events such as tidal waves have affected some coastal settlements. The islands have been intensely used by people for thousands of years, and there is constant construction, farming and re-use of building materials from older structures, all of which tend to create disturbed environments for archaeological sites. In the wet climate, organic materials quickly decompose, and in some areas soils erode quickly. These conditions have required specific strategies to maximize useable data in the limited time and funding available for the project. Below I will outline site discovery and excavation strategies.

Site discovery

Before investigations into past societies using archaeological remains can begin, places that contain human debris must be located. The initial research design for this project was oriented toward a settlement survey. This was meant to be an analysis of how the entire landscape of the Banda Islands was

used by humans during the late pre-colonial period, and required a total coverage survey for use areas or sites on a number of the islands (Fish & Kowalewski 1990). After the first month of fieldwork in 1997, it became clear that this approach was unrealistic. The chief problem was that pre-colonial remains were deeply buried, and generally invisible from the surface. In the few cases where pre-colonial artifacts were present on the ground surface, such as on the outer island of Pulau Ay, they had been highly disturbed, and visibility of the remains on the ground surface, and mobility through it for pedestrian surveys, was severely impaired by the thick vegetation covering most of the island. Areas that had been recently plowed for gardens were the only places where traditional surface survey was practical and productive.

During the first month of fieldwork on Banda Naira in 1997, a pilot study was made of the relationship of surface to subsurface remains. Site BN1 was initially discovered because it had large amounts of Ming era tradeware on the adjacent Malole Beach eroding out of the beach berm. A pedestrian survey of the flat valley floor, most of which was planted with cassava, was conducted, including mapping and collecting all surface artifacts, along with surface features such as vegetation changes and topography (see site BN1 map, Fig 3.2). Excavation units 1 and 2 were then situated at one of the major concentrations of surface artifacts, which consisted of undated earthenware pottery sherds, 18^{th}-19^{th} century glazed ceramics sherds and a possible Ming era sherd. However, these excavation units did not turn out to be particularly rich in subsurface remains, and were sterile below 130-140 cm in depth, despite probing to 180 cm. The deepest levels contained artifacts dating to the mid 14^{th} century. My Indonesian counterparts, who were conducting a soil survey of the same area, dug a pit to expose soil profiles closer to the beach (BN1 TP1). They encountered a particularly dense deposit of earthenware and imported pottery at about 110 cm, which extended to the bottom of their excavation at 160 cm. I also monitored soil augering carried out by the Indonesian team. They augered to a depth of about 1 m following a transect running south from the beach, with auger stations at 50 m. Their augers also brought up artifacts, and again showed a more dense concentration closer to the beach.

The following year we returned to site BN1 and excavated two units close to the beach (units 3 and 4), which turned out to produce the longest sequences in the entire site. The resulting conclusion drawn from this study was that surface remains were not a reliable indicator of subsurface remains. On Banda Naira Island, the reasons for this became apparent as section profiles from a number of excavation sites

were compared. At all four sites investigated on the island, as well as in numerous sections observed in road cuts, well holes and construction activities, layers of culturally sterile volcanic ash covered the entire island as a result of an eruption or series of eruptions that have been tentatively dated to the late 17th century. In some places, this layer of ash is over 50 cm thick. Thus, the pre-colonial remains of the entire island have been blanketed with a thick insulating layer, one that is now out of reach of the churning action of farming activities (which generally only affect the top 50 cm of soil, according to observations of planting and harvesting of cassava farming in Banda). This situation complicated site discovery. Short of covering the island in a grid and digging dozens or hundreds of test pits over 1 meter deep, other ways of discovering areas of pre-colonial occupation on the islands had to be used.

On Pulau Ay, pre-colonial remains were often visible on the ground surface (even the quite ancient remains at site PA1). Nevertheless, the nature of those surface remains, and the relationship of surface remains to subsurface remains, was complicated by Banda's particular history. For example, with the onset of WWII and the invasion of Indonesia by Japan, Dutch nationals either left or were captured and interred by the Japanese forces. In Banda, this created a situation where many of the wealthier landowning residents abruptly left their homes and many of their possessions behind in Banda. Most of them never returned after the war, as Indonesia entered a new era of independence. According to informants in Banda who lived through this period, the houses and possessions of the wealthy landowners were locked up and guarded for a while, but inevitably they were opened up and used by the workers who stayed behind. In the later part of the war, when Allied forces began their push though eastern Indonesia towards the Philippines, these workers abandoned the plantation compounds and moved into the forests, because they feared the plantations would be targets of Allied bombs. They took pottery with them, including some of that owned by the plantation owners, some of which were heirloom pieces from the Ming era. During the "forest" period, some of this pottery was broken and deposited on the ground. This has made for a confusing array of artifacts for the pedestrian surveyor. We encountered small amounts of Ming era pottery mixed with later Chinese and European manufactured ceramics and later period earthenwares in several sites where surface surveys were attempted on Pulau Ay.

Eventually, the research questions and research design were modified in light of survey conditions and site visibility. Rather than searching for all possible pre-colonial settlements on the islands, a smaller

number of settlements would be excavated more extensively, although we continued to attempt to test a variety of settlement types and locations, with the aim of sampling at least four settlements on at least two different islands. Excavations would be conducted to explore variability in dates of occupation and abandonment, markers of foreign trade and social identity, and variability over both time and space in the natural environment between the different settlements.

I had hoped to locate both small and large settlements, including small settlements that may have existed outside the gaze of European chroniclers and mapmakers. Large pre-colonial sites were relatively easy to locate, as most of these were the sites of colonial period towns that continue to exist today. The chief problem here was finding a place to excavate within densely populated areas that were not too disturbed. Smaller settlements were more difficult to locate, and searching for them was an exercise in random testing, "stabs in the dark". On Banda Besar, in an attempt to increase the chances of finding sites, test pits were dug in areas that appeared to be advantageous for human settlement, such as on high bluffs, near protected beaches, and in areas near one of the few fresh water springs. On the

Permisi

It was a perfect Banda morning during *musim panas*, the hot season in between the monsoons, and after my morning coffee, I searched out my friend Ayup down at the market and we hopped on his boat for the 20-minute ride over to Lautaka village. I wanted to put a test pit in the center of this village to find out when people first started living there, and whether the old stories about the Portuguese creating this village by filling in a shallow seaway between Banda Naira and a small adjacent islet were true. To do this, I first needed local permission.

We arrived and scrambled over the slippery rocks on the village edge, watching out for the little piles of human shit that dotted the intertidal zone. After two field seasons of work nearby, most people here knew me, and I recognized many familiar faces in this somewhat downtrodden little hamlet. Ayup and I headed for the Tuan Tanah's house (*tuan tanah* means literally "lord of the land," a title often held by the eldest person in a place). Now that the RT, (*Rukun Tetangga*, a leader a level below *kepala desa*, for small hamlets or neighborhoods), was in jail for stealing tourist's money from the beach on Pulau Karaka, the old man had taken over as de facto leader.

We had a curious history, the old man and I. In the first field season, before I knew the intricacies of Lautaka politics, I approached him for permission to dig in the fields west of the village, which became site BN1. My usual strategy when asking permission in a new place was to go there and ask the first person I saw to take me to the *kepala desa*, or village head. In Lautaka, the first person I saw was the old man, and he said, "I am the *kepala desa*." After three days of the usual tea in his sweltering house, considerable hemming and hawing, and a donation of 5000 rupiah ($2) per day of work to the village generator gas fund, we got his permission. The following morning, I brought my group of Earthwatch volunteers and staff and we began surveying the fields. After several hot sweaty hours, I noticed one of the Earthwatch volunteers waving her arms in incomprehension at an angry-looking, muscular, shirtless man who was waving back with a very long and sharp machete. When I went over to see what was up, he demanded to know what we

outer island of Pulau Ay, which was not covered in the thick 17th century ash layer, pedestrian survey covering about 80% of the island's surface that was under cultivation were conducted, excluding low visibility forested areas. Test pits were then dug in areas of high surface artifact concentration.

In cases where an attempt was made to locate historically recorded small settlements (rather than settlements not listed on maps), the success rate was mixed, probably because the historic maps were not particularly accurate. On Banda Besar, for example, I attempted to locate the settlement of *Mandiango* by following clues from local oral history and the sacred landscape, letting ritual leaders guide test pit locations. Despite high hopes, and a fascinating ethnographic experience, this was the least successful of all techniques tried. Similarly, an attempt to find the settlement of *Ouver* on Banda Naira was unsuccessful, probably because it was destroyed during the construction of the airstrip in the 1980s. However, the settlement of *Labbetacca* was successfully located at site BN1. All together, twenty locations were excavated on three islands, many of which were not productive enough to warrant further excavation. Five sites on two islands were excavated more intensively: PA1, PA2, BN1, BN2

were doing. He went on to proclaim that he was the RT of Lautaka, and no one had asked him for permission for all of this, that Lautaka didn't have a *kepala desa*, and what's more, that the old man was senile and delusional.

After a lot of explaining and smoothing of ruffled feathers, I got this new leader's go ahead, but several days later, new problems arose due to the disposition of my initial payment of 5000 rupiah to the old man, which went to buy gas for his *own* generator. After some shuttle diplomacy, that was straightened out and we worked in peace for the rest of the year. When I decided to do some more excavations at BN1 the second year, I bypassed the old man and went directly to the RT for permission, and was quite pleased with myself at how smoothly it went, though I felt a little strange as we trooped by the Tuan Tanah's house with our shovels and screens every morning. It got even stranger when the RT was arrested for theft. I saw him one day being paraded around town tied to the back of a *polisi* motorcycle. Now, the old man, senile or not, had moved to occupy the power vacuum, and he really was in charge of permission.

Ayup and I found the old man at home, and I presented my case to him and the dozens of villagers who crowded into his front door. I told him that wanted to come over the next day and put a shovel test pit in some open space at the center of the hamlet, which occupies the crumbling gardens of the old Lautaka *perek*. I promised it would take no more than 2 days, and we would fill in the holes when we were done. The *Tuan Tanah* thought for a moment, then denied my request with an apologetic smile. When I asked him why, he replied that we were welcome to dig outside the old Dutch walls, but it was too dangerous to dig inside, because there were several *keramat* (sacred places) around the place. He knew where some of them were, but others he wasn't so sure. He thought it would be too dangerous for us to dig, as we might disturb one of these hidden *keramat*, and unleash bad forces on the Lautakans and us.

This was my first outright refusal. Ayup argued valiantly for me, asking the old man why he couldn't just do a ceremony (as they did in Ayup's home village of Lonthoir a few months later) asking the spirits for permission. But he was not

and BN4, and form the basis for this dissertation. Two other sites, BB5 and PA9, contained late pre-colonial remains, and if time had allowed, would have been worthy of further work. The remainder of the testing locales did not produce adequate deposits of late pre-colonial materials[33]. Despite the fact that a comprehensive settlement survey was not possible, there was an adequate sample of sites to address the research questions of this project. In hindsight, it would have been more productive to focus even more on just the five sites that I excavated more intensively, rather than attempt to obtain a larger sample of sites. A table of sites, local names, locations and site attributes is included in Appendix 1.

Excavation strategies

As with site survey and discovery strategies, excavation strategies used in this project were a compromise between time and labor available, local conditions, permissions and the need for data to address research questions (see *Permisi*, right). Excavation work was carried out primarily by locally hired assistants, and Earthwatch volunteers, who helped the project for

to be swayed with any argument, and eventually Ayup and I gave up and motored home in defeat. On the boat ride back to Naira harbor, I thought about the Dutch accounts from the early 17th century about the fierce battles between Labbetacca and Nera, the predecessors to the current villages of Lautaka and Naira. The Dutch were amazed that two small villages so close together could fight so fiercely. Ayup and I talked over the morning's events as we glided under the green cone of Gunung Api, roosters' crows drifting over the flat green water of the Sonnegat. Ayup thought it was silly to be afraid of disturbing the *keramat*. He felt that the *Tuan Tanah* should have known better where they were, and furthermore should have known how to conduct the proper ceremonies to get spiritual permission, In Ayup's opinion, the old man was an incompetent, and was not fulfilling his ritual role well.

This point of view was echoed by my neighbor, Mama Rak, who hooted with laughter when Ayup and I told her what had happened that morning. She had known the old man since they were kids, in fact they had grown up together on the *perek* Spancibi on Banda Besar. He had only recently moved to Lautaka, and, in her opinion, had no right calling himself *Tuan Tanah,* let alone deciding whether or not I could dig there.

But perhaps there was more going on than any of us realized. Lautaka itself was having serious problems. First was the disgrace of having their RT arrested and jailed, in a particularly humiliating public ceremony. The village itself was made up largely of Butonese refugees who moved there after their villages on Gunung Api were destroyed in the 1989 eruption. Now, there were rumors that Des Alwi, a prominent local businessman with high government connections, wanted to move them all to a transmigration camp on Seram, and restore the *perek* as a tourist hotel, as part of his "Nutmeg Reforestation Project". Lautaka did have an ideal location for a hotel, next to the nicest beaches on Banda Naira Island, with great views.

At first, I thought that by refusing permission, the

[33] It is indicative of the history of intensive use of the islands that no locale was completely sterile; every place contained at least a few fragments of earthenware pottery. I suspect that much of this pottery was distributed during the colonial period by plantation workers who may have used pottery vessels to carry drinking water during work in the forests, although this theory remains untested.

two-week periods, leaving inadequate time for extensive training. As mentioned above, two types of excavations were used in this project. **Test pits** were used for the rapid assessment of the subsurface remains in possible sites. They were dug using shovels, roughly 1 meter square, in 25 or 50 cm levels, and only representative samples of artifacts were collected. Sections were drawn of the north pit wall only, and photographs taken of level floors and sections. **Units** were dug with trowels, in 10 cm levels or following natural stratigraphy. Artifacts were not point provenienced, but collected in level or stratum bags, roughly sorted on site by faunal, lithic and ceramic categories.

Arbitrary or artificial levels were employed throughout this project. While the original research design called for the utilization of natural stratigraphy when apparent, this proved to be impractical in most cases for this project. Small unit sizes of 1 x 1, 1 x 2 and 2 x 2 meters meant that there was little room for error in detecting natural stratigraphic boundaries. The principles of digging artificial levels proved easier to teach and supervise with the generally unskilled labor used for excavations. The advantages were better data control and more area excavated in a shorter time. The choice of 10 cm levels was a compromise between speed and precision. In cases where natural stratigraphy was obvious (such as in some levels of BN2), it was followed and artifacts were bagged by stratum. Stratigraphy on Pulau Ay was particularly indistinct due to the considerably less influence of volcanic eruptions on that outer island, and artificial 10 cm levels were used throughout. The disadvantages of using artificial levels are well known (Harris 1989). Indeed, in some

old man was asserting his authority in the new village political order, or maybe getting back at me for the previous mix-ups. But maybe it had broader implications. He may have connected me with Des Alwi's plans, perhaps thinking that I was some kind of advance team getting the *perek* ready for the clean out. Or he may have worried that if I cast doubt on the accepted history of Lautaka (such as showing the village to be a relatively recent settlement, rather than the original capital of Banda as some legends say), I would undermine his strategy of connection to a mythically-important past to counteract Des's plans. Des himself often used ritual and mythical rhetoric to increase his own authority and promote his own plans in the Banda scene, casting himself as the supreme ritual leader of Banda, and promoting his own version and interpretations of historical myths (often by invoking Dutch historical documents, which other Bandanese do not have access to).

After reflecting on the situation, my impression now is that he was truly afraid of the possibly spiritual implications of my digging in the village, and this fear was amplified by the profoundly unsettled status of the village and his own political and ritual authority, both in Lautaka and throughout Banda. Considering all that was happening, he may have felt he could not risk taking responsibility for my actions, considering all the potentially bad reactions it might cause. As I talked with many of my Bandanese friends over the days following this incident, most of them encouraged me to pursue getting permission at higher levels of authority, going over the *Tuan Tanah's* head. However, I decided in this case to respect his decision, and put off digging in Lautaka for another time.

cases, natural stratigraphic relationships were lost in artifact bagging, and therefore in assemblage graphs. This was the case when intrusive pits were dug from upper levels into lower ones (such as BN1 Unit 3), or when natural stratigraphy was sloped. Fortunately, most of the time, this did not directly affect the results of units or time periods that are the focus of this study. For example, the intrusive pit in BN1 Unit 3 was dug in the colonial era, but did not cut into pre-colonial levels.

Unit sections were drawn at the conclusion of the excavation, and were later compared with pit floor drawings and photographs (made at every level), and section photographs (made at the end of the excavation). Strata for each unit were numbered independently, but where possible, they have been re-numbered in the section drawings included here so that correlated strata from unit to unit within sites are apparent to the reader.

Collections storage and curation

Under current Indonesian law (Indonesia 1996; Indonesia 1997), artifacts collected by archaeologists in Indonesia generally come under the control of the Indonesian federal government, and final placement of collections is under the jurisdiction of the Department of Education and Culture (Departemen Pendidikan dan Kebudayaan, or DepDikBud). Individual archaeologists can recommend storage of collections in their choice of institutions subject to DepDikBud approval, and if no institution is specified, collections are curated by the local DepDikBud office nearest the collection locale.

For Banda, the available options were to 1) ship the collection to a government-run Provincial Museum (Muzium Siwa Lima in Ambon, on another island about 100 miles away), 2) ship it to the National Archaeology Research Center (Pusat Penelitian Arkeologi Nasional or PPAN) in Jakarta, or 3) keep the collection in Banda at the local DepDikBud office in Naira. The latter option was chosen for a variety of practical and ideological reasons. Packing and shipping this large collection would have been costly, as well as potentially damaging to the artifacts. The items would have had to have been shipped in June 1998, a period of major political upheaval in Indonesia when the continued existence of big federal institutions was in doubt, and transportation was uncertain. I felt that local people would be the best caretakers of the collection, and could perhaps benefit most from it staying in Banda. The DepDikBud

national office in Jakarta approved this decision, and at the completion of fieldwork, the collection was moved from the field lab to a secure storage room in the Naira office, which was equipped with shelves and related documentation (this building is visible on the BN2 site map, Fig. 4.24). In addition, several radiocarbon samples were stored in the Soil Science Laboratory at Universitas Pattimura in Ambon, to expedite later shipping of samples to a radiocarbon lab. Soil samples from the first field season were also stored here in expectation that sediment analysis would be carried out by students at the university. A small number of artifacts were exported to Brown University in the US for further analysis. These artifacts were returned to the PPAN office in Jakarta upon termination of the loan in February 1999, where they will most likely be kept indefinitely. Several artifacts from the Banda collection are currently on display in the Muzium Rumah Budaya in Banda Naira, in an exhibit that I produced with the help of twelve high school students from Banda. They will be returned to the Banda DepDikBud storage facility when the exhibit is dismantled.

Artifact analysis strategies

After bagging into roughly sorted level bags at the excavation site, recovered materials were brought back to the field lab for processing and preliminary analysis. Artifacts were dried in the open air and loose soil was removed by brushing or scraping. Except in some rare cases, no artifacts were washed, in order to preserve any adhering material (such as food remains) that might be detectable in later analysis. Artifacts and faunal material were then sorted into categories, and weighed and counted before being bagged by category, level, unit and site. A selection of artifacts were also photographed and sketched.

Artifact categories evolved as research proceeded. They were primarily morphological categories due to a lack of regional typologies (such as for locally produced earthenwares). Over time, the categories were refined, and a few basic types were established. Imported Asian tradeware ceramics were sorted into glaze color and body material types. We did not attempt to identify specific kiln or regional sources in the field, although some sherds were more definitely identified later.

In total, over 25,000 artifacts were recovered, of which roughly 80% were earthenware sherds. This collection of earthenware could form the basis of a study in itself. Unfortunately, however, the vast

majority of the sherds were quite small, making the recording of vessel shapes and types impossible, and making the analysis of decorative themes difficult. This analysis is restricted, therefore, to the determination of basic decorative techniques, such as incised lines, impressed marks, appliques, paints and slips, etc., rather than larger scale decorative motifs. In some cases, such as for the sculpted earthenware tradition, overall sherd shape defined a category.

Faunal material was identified and sorted in the field lab. Again the extremely fragmentary nature of the faunal material made identification of much of the post-cranial skeletal material impossible, and species were identified in most cases by teeth alone. Identifications were made with locally procured reference collections and published sources, and later with the help of faunal experts. Samples of organic materials suitable for radiocarbon dating were collected whenever possible, and nine radiocarbon dates were obtained, as listed in Table 4.1. Soil samples were collected from each stratum level from each unit. Soil samples from two sites, BN1 and PA2, were analyzed for pollen remains and phytoliths, the results of which are reported at the conclusion of the individual site reports below.

A more comprehensive artifact analysis was limited by the restrictions on exporting archaeological materials by the Indonesian government. Permission was obtained to export only a small portion of the collection, and the period of the loan was quite short, only three months, although this was subsequently extended for two additional three-month periods. Therefore, difficult choices had to be made as to how much time to spend analyzing materials in the field, and which materials to export for further analysis. The choice was made to export many of the Asian tradeware samples, as they could be more precisely identified with the help of museum collections, ceramic specialists and published sources unavailable in Banda. Some faunal remains were exported for the same reason.

However, as post fieldwork analysis continued, it became apparent that some materials that had been left behind in Banda and Ambon required re-analysis. Unfortunately, a planned return trip to Ambon and Banda in 1999 or early 2000 proved to be impossible, due to increasing civil unrest and violence in the Maluku province beginning in January 1999, and continuing as I write this in early 2000. Banda has remained relatively peaceful, but several days of rioting in April 1999 caused four deaths, and many buildings were destroyed, although there are no reports that the collection was damaged. The media has reported extensive damage to Universitas Pattimura in Ambon, and the university was closed in June 1999.

The condition of samples stored in Ambon is unknown, as I have been unable to contact the staff at the lab. Hopefully, conditions will soon improve, and future research can take place on the islands, but for the time being, no further access is possible.

Artifact Analysis

The data presented below consists in part of artifact assemblage characterizations. For each excavation unit, and in some cases for test pits, there is a chart showing the relative amounts of various artifact and faunal classes by level and stratum. In many cases, precise boundaries between strata were lost do to artificial level excavation, but it is still possible to see characteristic assemblages by stratum in the charts in most cases. Artifact categories were quantified by both weight and piece count during analysis in Banda, but I have used weight alone in these charts to represent amount. Much of the material was quite fragmented but some artifact classes, notably the sculpted earthenware tradition, were much less broken up. Therefore, weight provides a more accurate representation of relative quantities of artifact classes. For this analysis, the presence or absence of certain classes of objects is more important than their precise quantities, so the aim of the charts is to provide a qualitative representation of level assemblages. Complete quantitative data for level assemblages is presented in Appendix 2.

Certain artifact categories are considered diagnostic for establishing site use intensity, site chronology and as markers of human behavior, such as human burial practices and foodways. They have been derived from research questions about social group identity and settlement pattern change over time, discussed in Chapter 1. Generally, relative quantities of undecorated earthenware pottery, which was the dominant class of artifact in nearly every stratum of every site in Banda, provide an indication of overall intensity of site habitation. While the extremely fragmented nature of this pottery made it impossible to reconstruct vessel forms and possible uses, it seems reasonably secure to assume that this class of pottery was used for cooking, food and water storage, based on ethnographic studies in the region and elsewhere (Ellen & Glover 1974; Spriggs & Miller 1979). Certain objects are considered to have emblematic qualities. Food remains constitute the majority of these classes, most notably pig remains, which are important in establishing religious identity and behavior (Insoll 1999; Reid 1995). Other artifact classes are

used primarily to date strata within sites, and establish settlement chronologies, particularly initial occupation and abandonment, and to date changes in behavior reflected in other site features. These are primarily glazed ceramics from mainland Asia, and chronologies are derived from the extensive literature on the manufacturing and trading history of these wares (Adhyatman 1987; Brown 1989; Brown 1988; Bulbeck 1992; Guy 1980; Guy 1986; Guy 1989; Harrisson 1986; Harrisson & Guy 1995; Joseph 1973). Of course, absolute dates from radiocarbon samples are also used to determine chronologies, and are an important check on ceramic dates, because it is possible that pottery deposited in archaeological strata was already old, and this may have been particularly true in Southeast Asia where these wares were valuable heirlooms.

Artifact and faunal classification was made on site. Materials that could not be adequately identified were photographed, and in some cases, samples were brought to Singapore and the US for consultation with experts. I am indebted to Dr. John Miksic at Singapore National University, Dr. Chumei Ho at the Field Museum in Chicago and John Farm for assistance in identifying glazed tradewares from mainland Asia. Dr. Douglas Long of the Department of Ornithology and Mammalogy at the California Academy of Sciences, San Francisco, kindly helped me to identify faunal remains, as did several informants in Banda. Roger Heady at the Research School of Biological Sciences, The Australian National University, identified a wood sample from an artifact in site BN4.

Artifact classes as used in the following charts and discussion are defined below:

Plain earthenware: Relatively soft, low fired pottery, with no glaze, and no identifiable decoration, generally reddish in color. Provides a representative "baseline" for use intensity of site.

Decorated earthenware: As above, but with decorations including incised lines, paints, slips, appliques, etc. Used to analyze changing pottery traditions at site PA1 only.

Sculpted earthenware: Thick (> 1cm) earthenware pottery in the shape of animals or abstract shapes. Most of this ware was not clearly part of a container, though it may have been attached to one. Present in site BN1 only. May be part of a regional tradition, as similar artifacts found by Bellwood at the Sabatai Tua site on Moratai in North Maluku (Bellwood 1993: 28, Fig.7), and by Latinis on Ambon (Latinis, personal communication).

Blue and white wares: Glazed stoneware or porcelain with cobalt blue underglaze decoration, used here generally as a chronological marker of post 13th century contests (Yuan Dynasty or later).

Overglaze enamel: Glazed stoneware or porcelain with paint applied on top of the glaze, often red or green, and identified as Swatow ware, and generally used as a chronological marker (post 16th century).

Monochrome tradewares: Stoneware with single colored or white glaze. Typically more abundant in pre-Yuan dynasty assemblages, after which time blue and white quickly became the dominant tradeware class.

Dark brown glaze: Stoneware with dark brown glaze and typically gray body. Not chronologically diagnostic as it was manufactured from the earliest period of high fired wares in China through the present. However, signifies an exotic (mainland Asia) artifact in pre-16th century contexts.

Kaolin pipes: European manufactured clay tobacco pipes, used here to denote a post-1600 context. Pipes were first manufactured in the late 16th century, and are abundant in colonial period assemblages Banda.

Pig bone and teeth: Used as evidence for non-Muslim behavior.

Human bone and teeth: Burial context used as behavior identifier, with cremation burials indicating non-Muslim behavior

Chert: Generally brown to pinkish-red in color. Used as a chronological marker, to indicate pre-metal age contexts, although chert is still used in the region for strike-a-lights (Glover & Ellen 1975). Plentiful in nearby Southeast Seram, no source discovered in Banda, although it may well exist.

Table 4.1. Radiocarbon dates from the Banda Islands

*Catalogue #	**Lab #	description of sample	comments	C13/C12 ratio	C14 age BP uncalibrated 1 sigma	***date BC/AD calibrated 2 sigma
BN1-3-110a	AA-33115	bone-animal	insufficient C			
BN1-3-110b	AA-34335	bone-animal	insufficient C			
BN1-3-195	AA-33114	bone-animal		-20.8	1,370 +/-60	AD 562 - 775
BN1-4-178	AA-34334	wood or bone--burned		-27.4	630 +/-45	AD 1292 - 1402
BN1-4-254	Beta-115986	wood-burned		-27.0	880+/-40	AD 1035 - 1250
BN2-2-210	AA-34333	shell-marine		0.8	800 +/-45	AD 1160 - 1290
BN4-1-240	AA-33118	shell-marine		2.8	900 +/-65	AD 1022 - 1249
BN4-2-246	AA-33119	wood--with FeO2	from wood barrel feature	-25.1	435 +/- 45	AD 1409 - 1625
PA1-1-50	AA-33117	bone-animal		-22.5	3150 +/-180	1871 - 927 BC
PA1-1-130	AA-33116	bone-animal		-19.1	2870 +/-60	1257 - 899 BC
PA2-2-125	AA-33120	wood-burned		-27.0	410 +/-45	AD 1423 - 1632

* Catalogue number code refers to (site number)-(unit number)-(depth in core)
**AA: NSF-University of Arizona AMS Facility; Beta: Beta Analytic
***Calibrated using Univ. of Washington Quarternary Isotope Lab Calib 4.1.2 (1999z0

Banda Naira

Introductory notes

Banda Naira is today the commercial and population center of the Bandas. Most government offices, the wharf, markets and stores are located in the main town of Naira, on the southern end of the island. There are several other smaller villages on the island, as well as the airport, which was constructed in 1986. Naira was the base of operations during archaeological fieldwork in both 1997 and 1998, and was the location of the field lab and collections storage area.

The island is largely deforested today, although small stands of the colonial period nutmeg plantations still survive in the northern end of the island. Otherwise, land is used either for houses or for cassava fields. Banda Naira has a reliable groundwater supply, and wells did not go dry here even during the 1997 drought. During the drought, residents of the outer islands were forced to travel to Banda Naira to collect drinking water. People from Pulau Ay have traditional rights to use the well *perigi dua*, on the central west coast of the island, below the airstrip (and near site BN3).

The island has volcanic soils, and the central hill of Gunung Papenberg was probably part of the rim of the exploded ancient volcano that formed the islands. During the 1988 eruption of Gunung Api, Banda Naira was evacuated, although damage was minimal, in part because prevailing winds carried ash away from the island (Pulau Ay was downwind at the time, and suffered some damage from this eruption).

Historically, Banda Naira has been the center of trade for some time, although as discussed above, this may have been a late development, associated with increased trade from the Muslim world to the west. Archaeological research on the island was thus oriented towards determining the chronology of development of the island as a trade and population center, with particular focus on the town of Naira, known before the 17th century as *Nera*. Two sites were excavated in the town, BN2 and BN4. *Nera* was one of many settlements on the island by the 17th century, however, so attempts were made to locate *Labbetacca*, which was noted on early maps and descriptions, as well in oral tradition. Site BN1was excavated in this locale. A third, smaller settlement of *Ouver* was not successfully located, despite testing at site BN3.

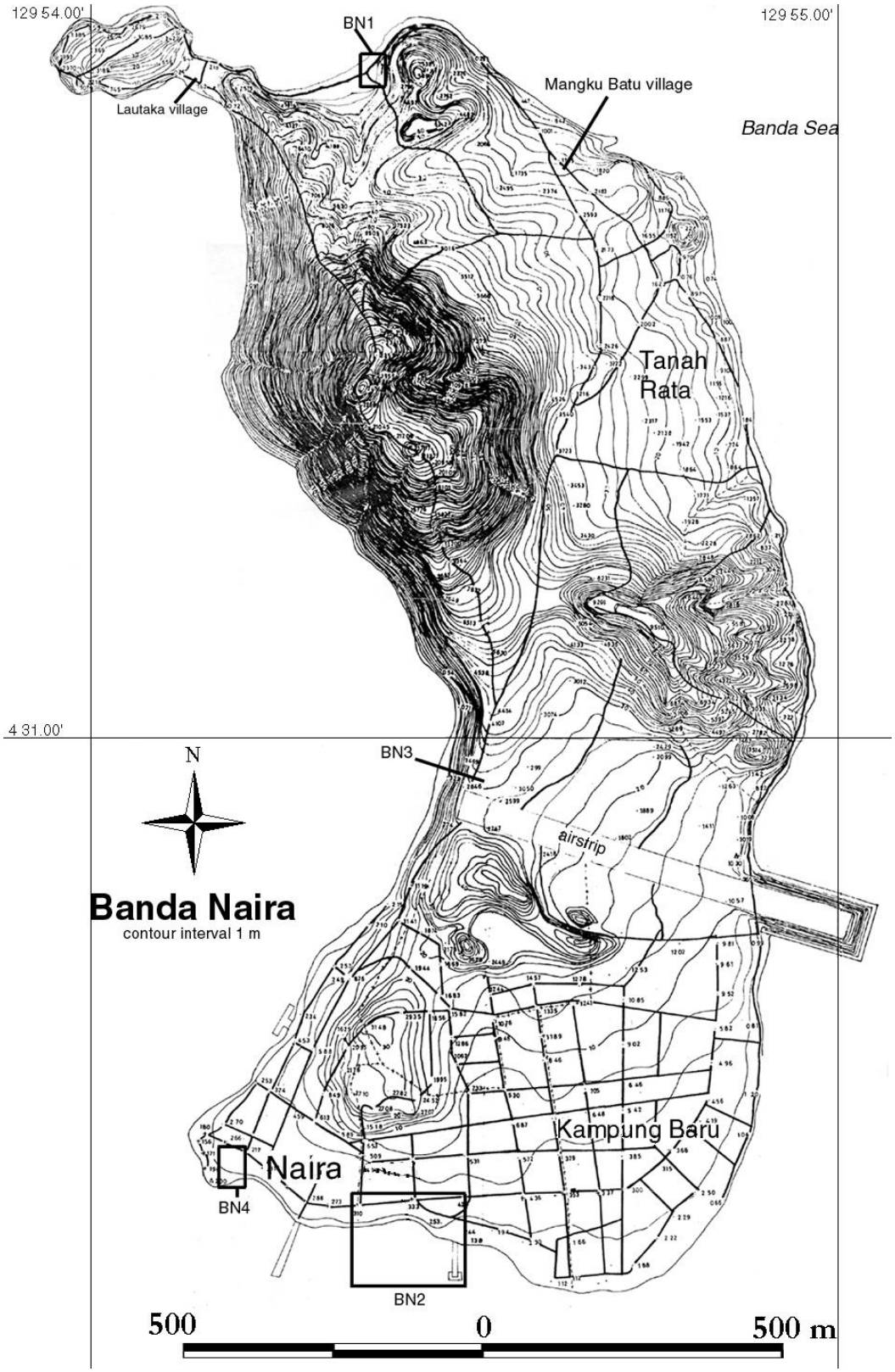


Figure 4.1. Topographical map of Banda Naira, showing archaeological site map coverage (adapted from Indonesian geographical survey basemap, 1997)

Site BN1

Summary of archaeological work completed

This site was first discovered during an exploratory trip to Banda in July 1995. While walking in the vicinity of the hamlet of Lautaka, which seemed a likely locale for the historic village of Labbetacca, I noticed that the adjacent Malole Beach was littered with Ming era ceramic sherds. In the first field season in January 1997, an intensive surface survey was conducted of the flat areas of the enclosed valley that makes up the probable boundaries of the original settlement. During this surface survey, all surface finds were located with the transit and collected, and a scatter map was produced (see Fig. 4.2, BN1 site map). The first excavation units at the site, Units 1 and 2 (excavated Feb. - March 1997), were situated on an area of high surface artifact concentrations (composed of undated earthenware and 18^{th}-20^{th} century glazed ceramics, and an isolated Ming dynasty sherd), as it was expected that this area represented the area of most intense use.

During this time, the project's Indonesian sponsor, Conradus Ufie, was also in Banda conducting a soil science survey with four students from Pattimura University. He agreed to do a soil survey of the BN1 valley so that we could share data. His students excavated a shovel pit to expose soil profiles, which I monitored. Their pit, which has been labeled BN1 TP1, revealed a concentration of unusual earthenware pottery below 110 cm, which was not present in units 1 and 2. A second test pit (BN1 TP2) was later excavated at a point midway between TP1 and Units 1 and 2. This test pit also revealed a concentration of artifacts between 100-150 cm, with artifacts present in all layers down to the bottom of the pit at 220 cm. The information gathered from these test pits suggested that the surface artifacts were not reliable indicators of the location of pre-colonial settlements.

In the second field season in February 1998, two additional units (Units 3 and 4) were excaveted. Unit 3 was situated near BN1 TP1, and Unit 4 was situated on the top of a small low ridge which ran parallel to and just south of Malole beach. A closer examination of this ridge or berm, the seaward edge of which was eroding into the beach, showed that it was the probable source of the ceramics found on the beach. As discussed below, these two units had dense concentrations of highly decorated and sculpted earthenware ceramics in levels below 110 cm, as well as other features of interest.

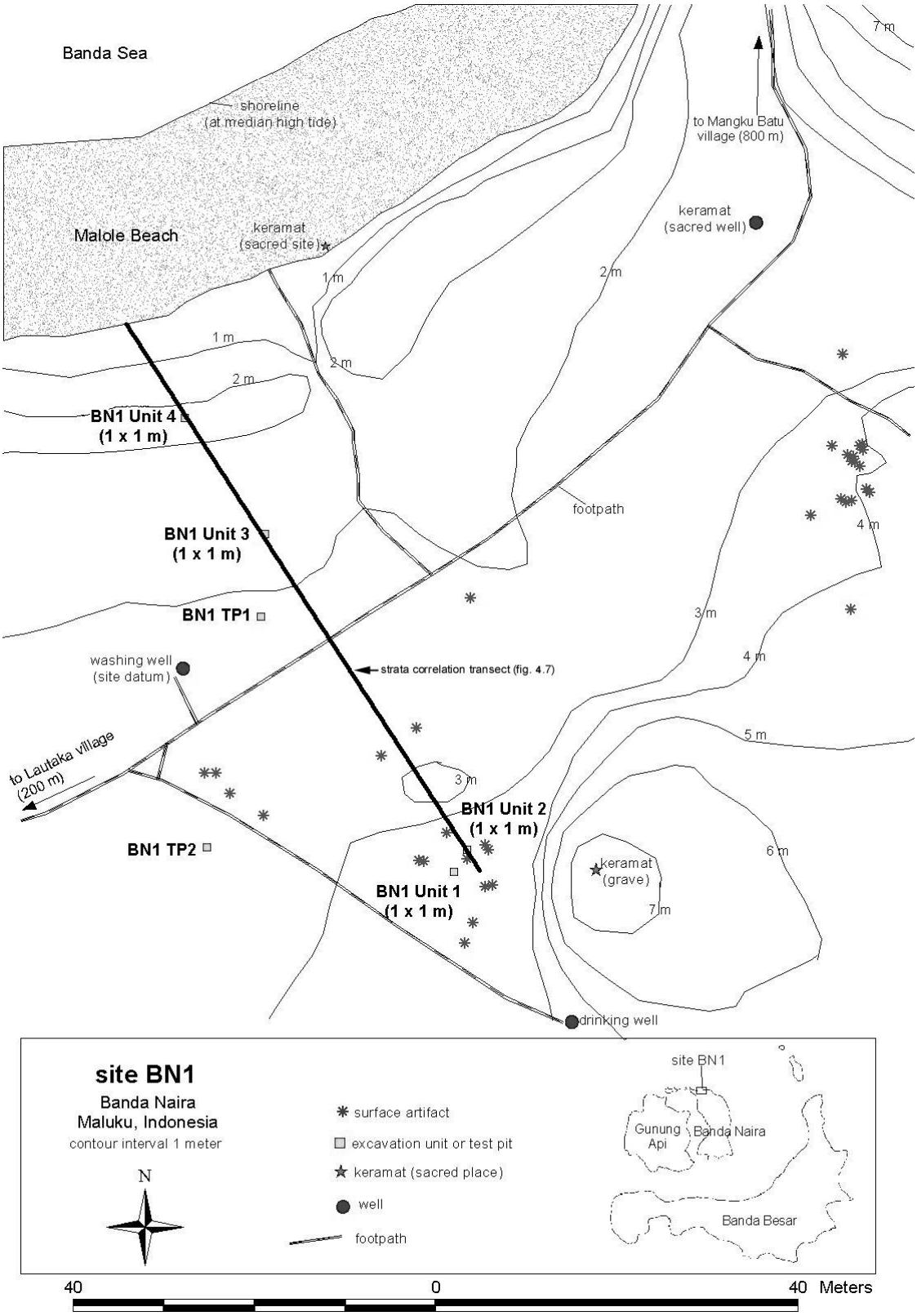


Figure 4.2: BN1 site map

Figure 4.3. Aerial photo of northern Banda Naira and site BN1, looking SW, December 1997 (photo by Jez O'Hare)

BN1 stratigraphy

Strata appear to correlate across all excavations at site BN1, and strata numbers are labeled as such in the diagrams below. Strata descriptions are as follows:

Stratum I: Mixed topsoil, organic matter, roots, disturbed by farming activity. In Unit 3, a pit originating in this stratum intrudes into strata II, III and IV in the south end of the unit. In Unit 4, this strata is interspersed with sand and coral lenses.

Stratum II: Culturally sterile, black volcanic ash, which was striated with layers of lighter colored ash and pumice. This layer varied in thickness depending on the locale of the section, but ranged from 25 to 80 cm in thickness. The top of this layer ranged in depth from 20 to 75 cm below the soil surface. It was both

thicker and more deeply buried in TP2 and Units 1 and 2, which were closer to the back of the enclosing valley, further from the beach.

Stratum III: Brown gravely loam containing artifacts, including many Asian tradewares dating between the 14th - 17th centuries.

Stratum IV: Culturally sterile gray-black volcanic ash.

Stratum IVa: Coral and basaltic rocks in an ashy/sandy matrix, in Unit 4 only. Rocks ranged in size from approximately 10 cm to 50 cm in diameter. No mortar was encountered. This stratum also contained artifacts such as Asian tradewares, sculpted and plain earthenwares and coins, dating between the 10th - 14th century.

Stratum V: Densely-packed gravely loam containing the sculpted earthenware tradition, some imported tradeware and faunal remains. In Unit 4 and TP2, there are two subdivisions, Va and Vb, with slightly different soil color and texture. Unit 2 not excavated into this stratum.

Stratum VI: Black beach sand, marine shell, coral rocks and worn, rounded tradeware and earthenware pottery sherds, in Unit 4 only. Not excavated further because of danger of wall collapse.

Stratum VII: Hard gravely red clay soil that was culturally sterile. In TP2 and Unit 3, this stratum was reached at 190-200 cm depth, and continued deeper than the 270 cm deep probe excavated in the north end of Unit 3.

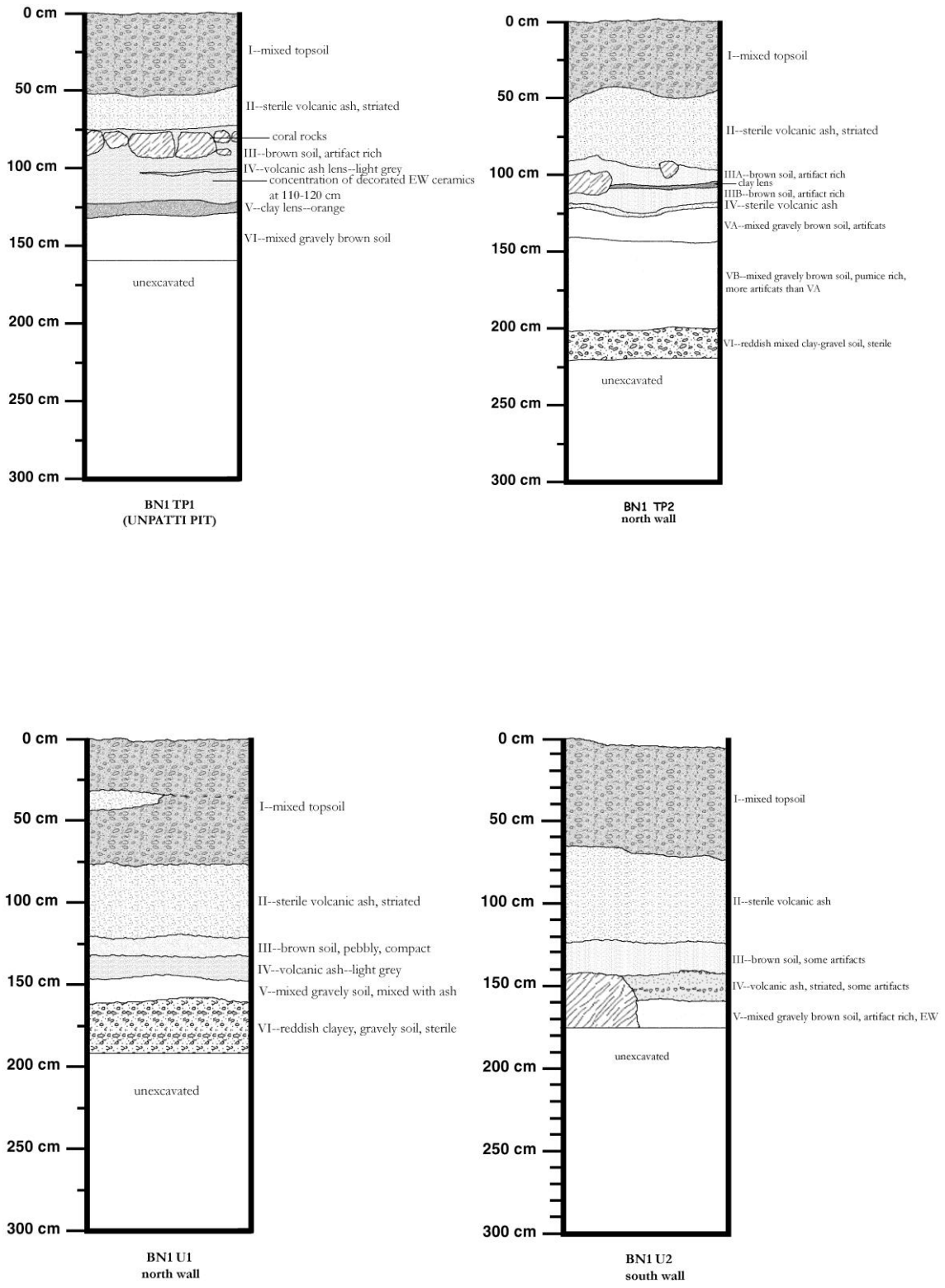


Figure 4.4. BN1 TP1, TP2, Unit 1, and Unit 2 sections

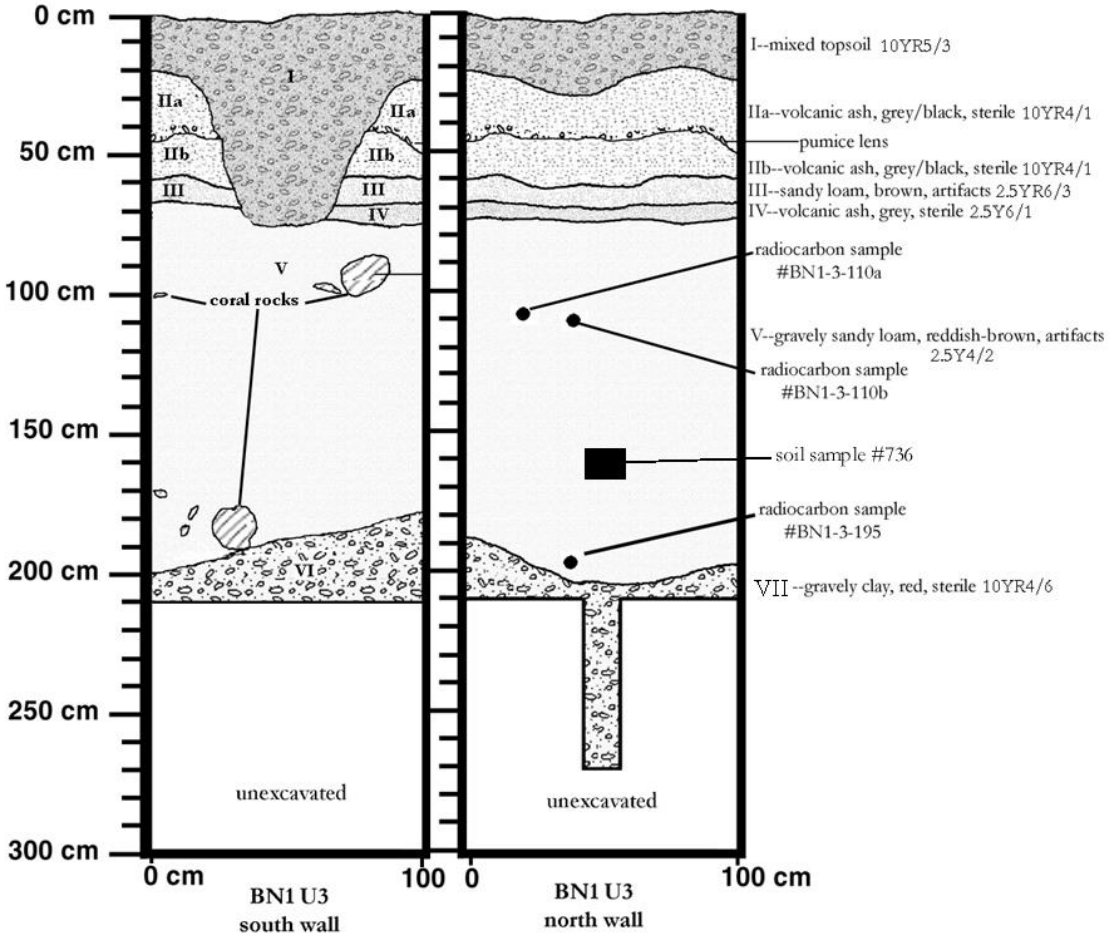


Figure 4.5. BN1 Unit 3 north and south sections

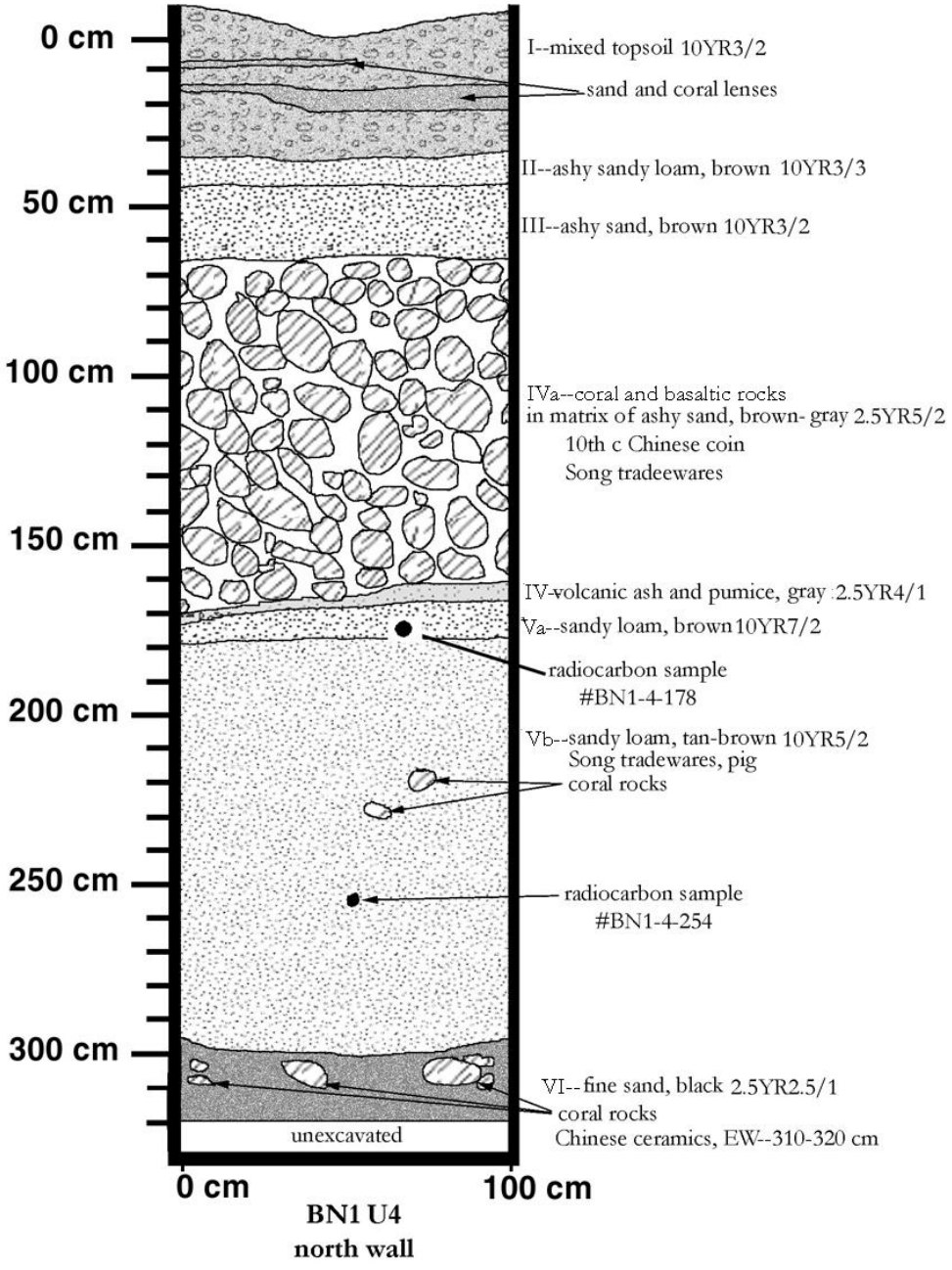


Figure 4.6. BN1 Unit 4 north section

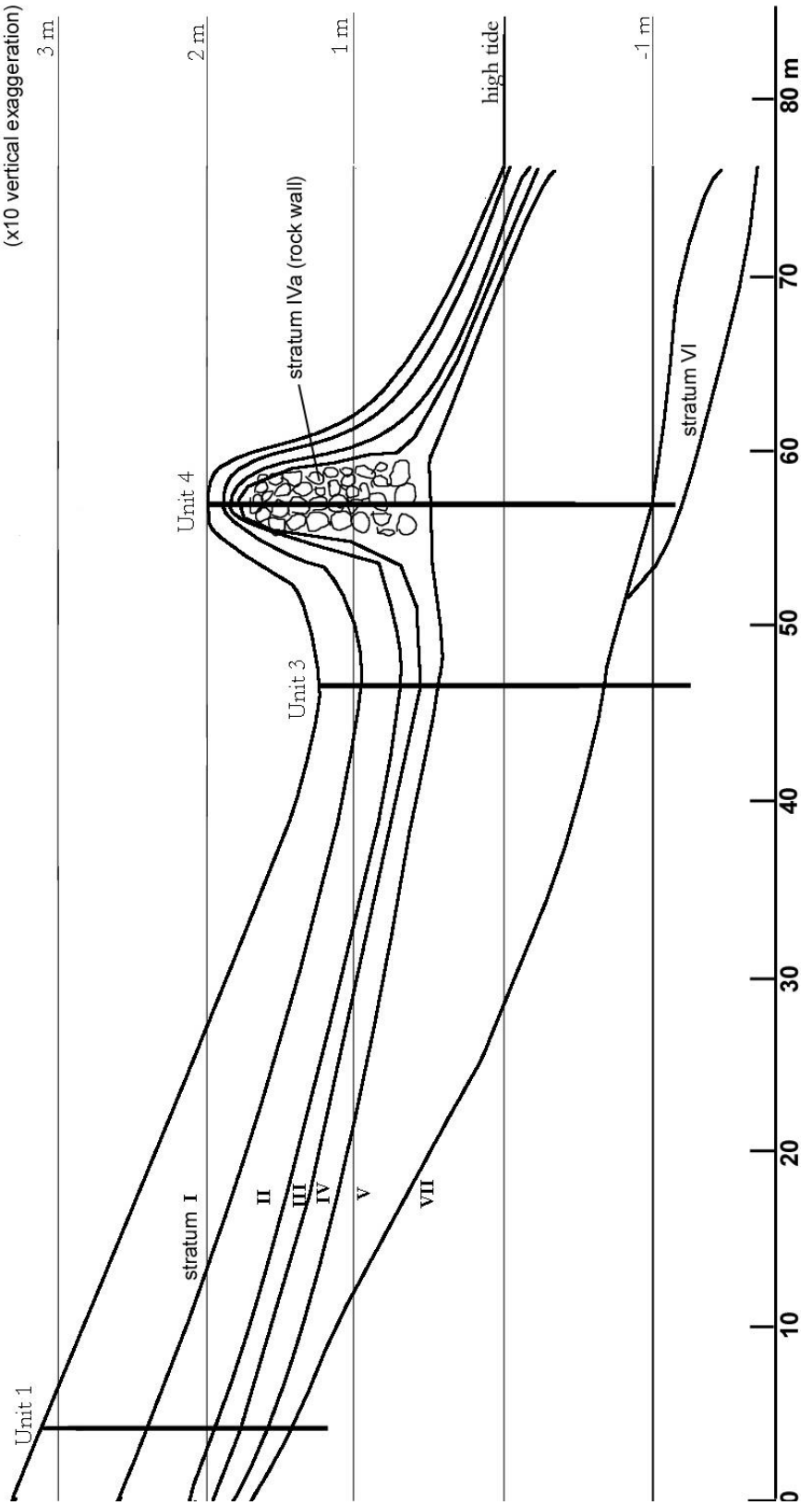


Figure 4.7. Strata correlation diagram for site BN1 (vertical scale exaggerated x10)

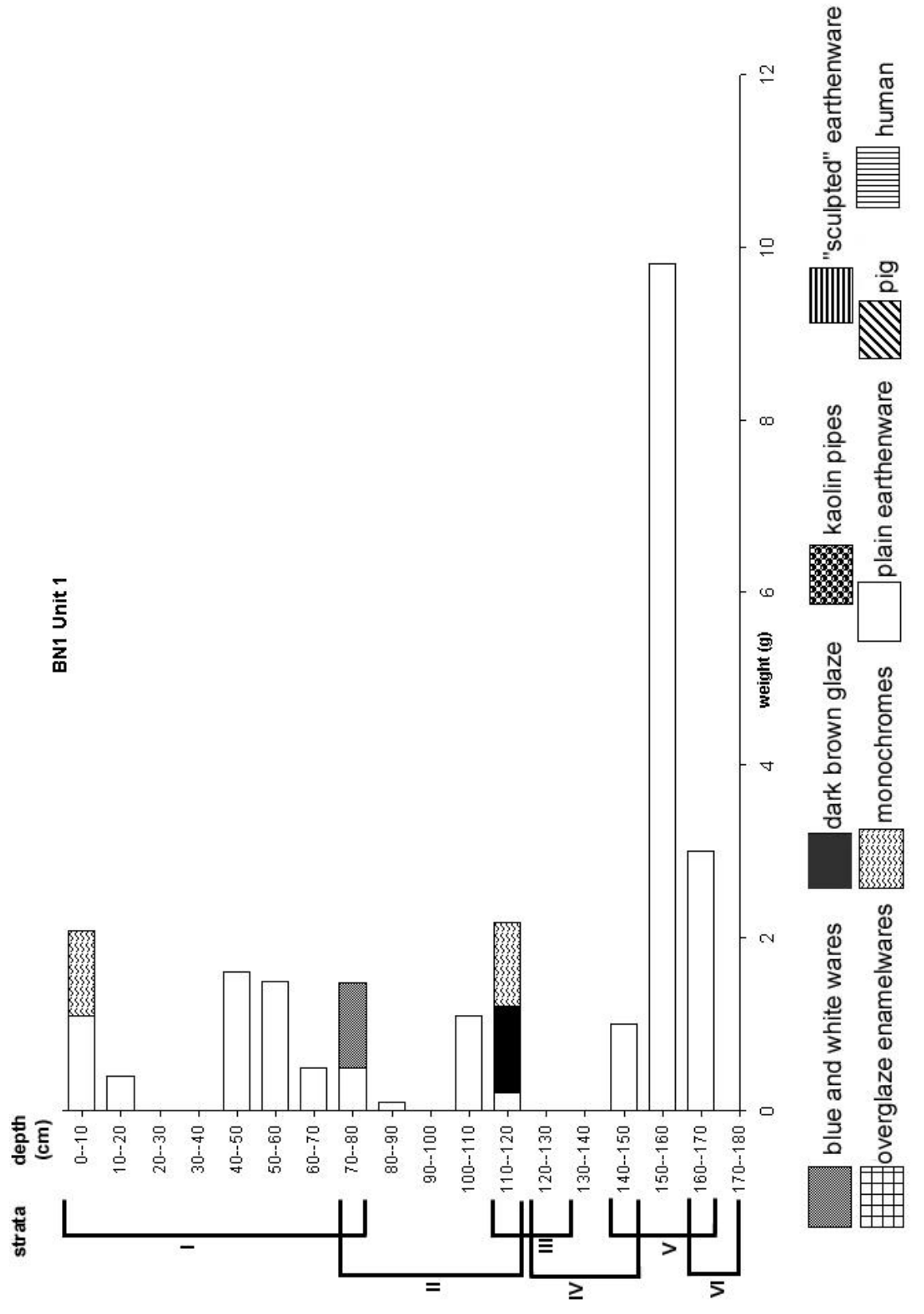


Figure 4.8. BN1 Unit 1 level assemblages

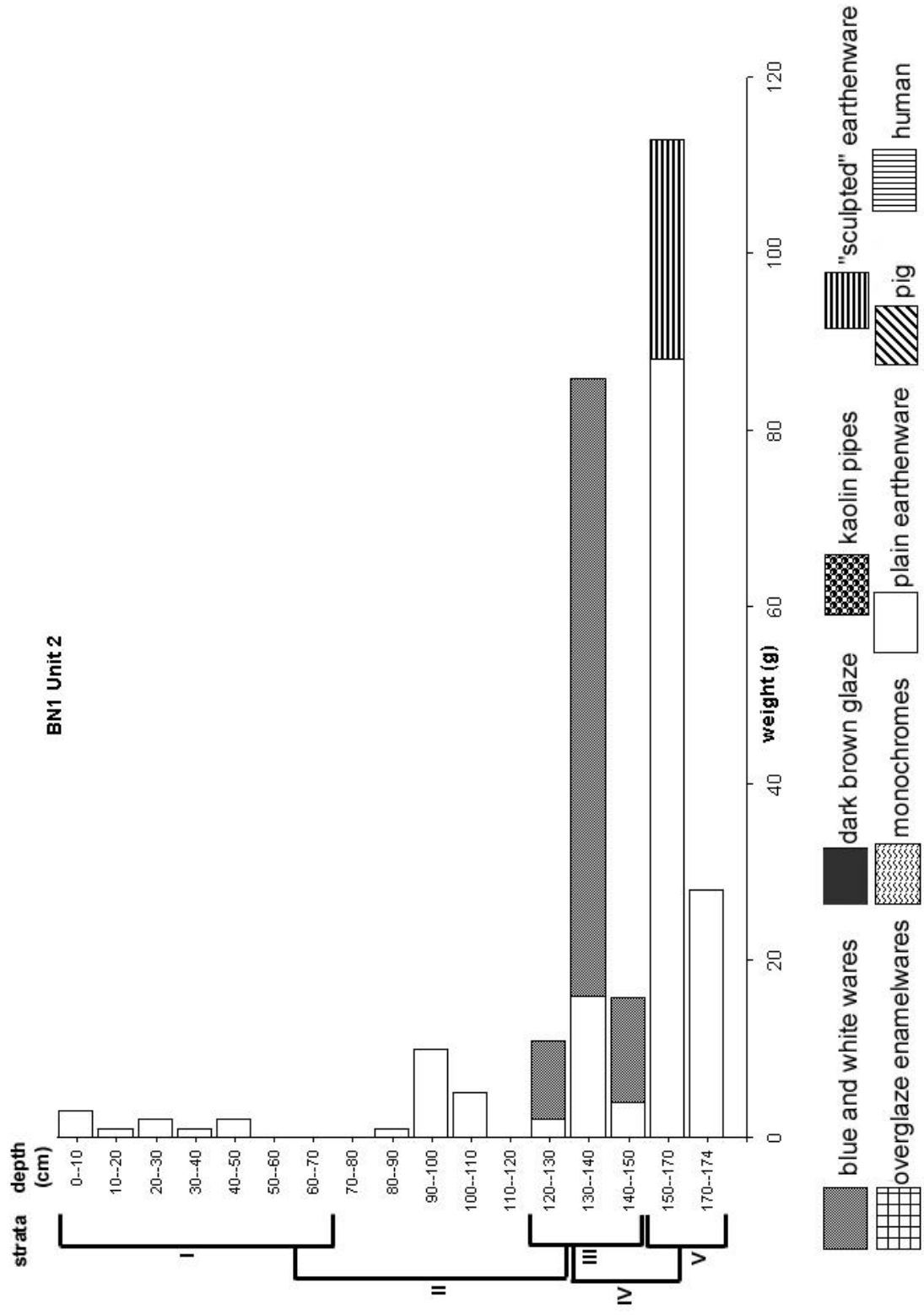


Figure 4.9. BN1 Unit 2 level assemblages

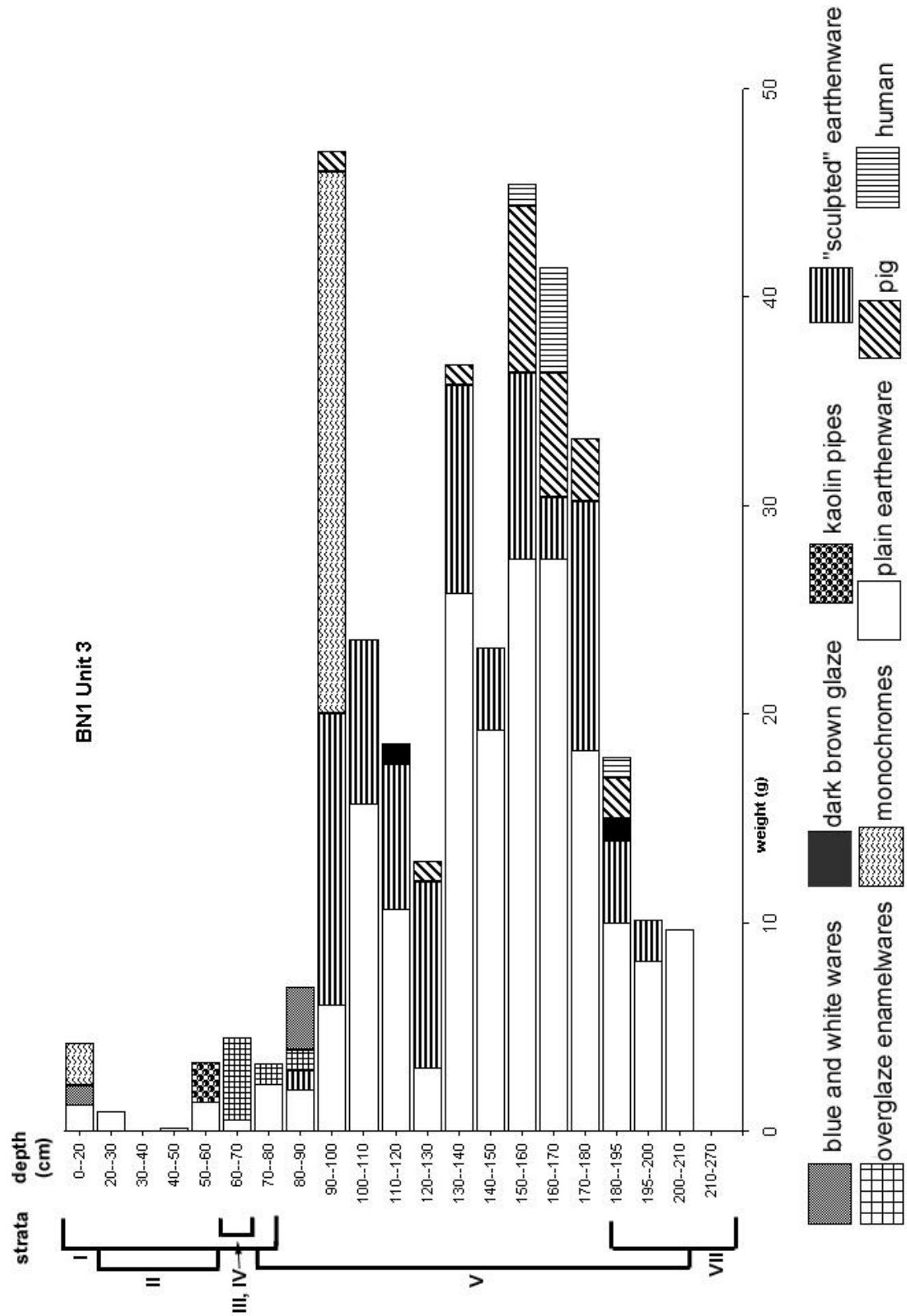


Figure 4.10. BN1 Unit 3 level assemblages

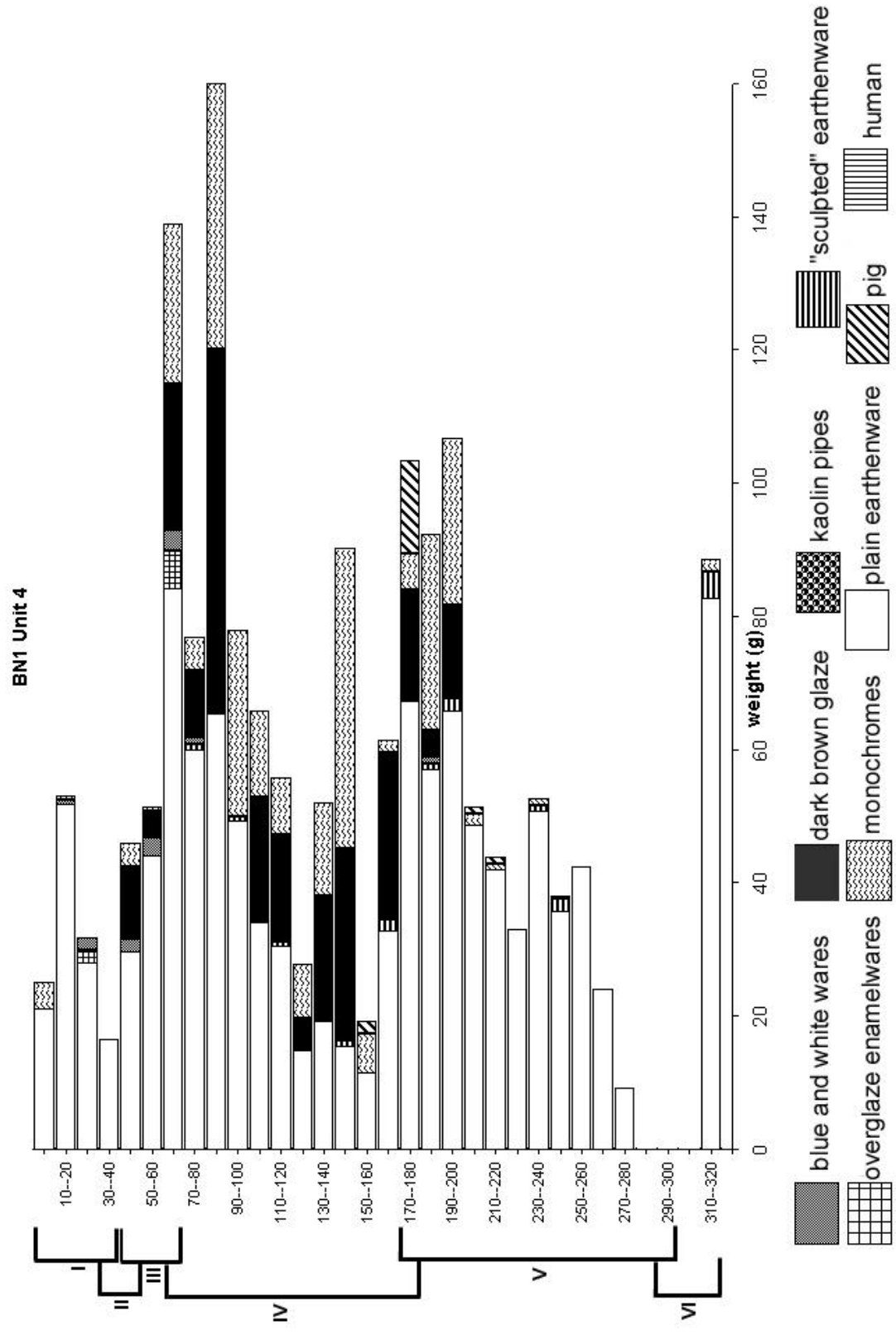


Figure 4.11. BN1 Unit 4 level assemblages

BN1 artifacts

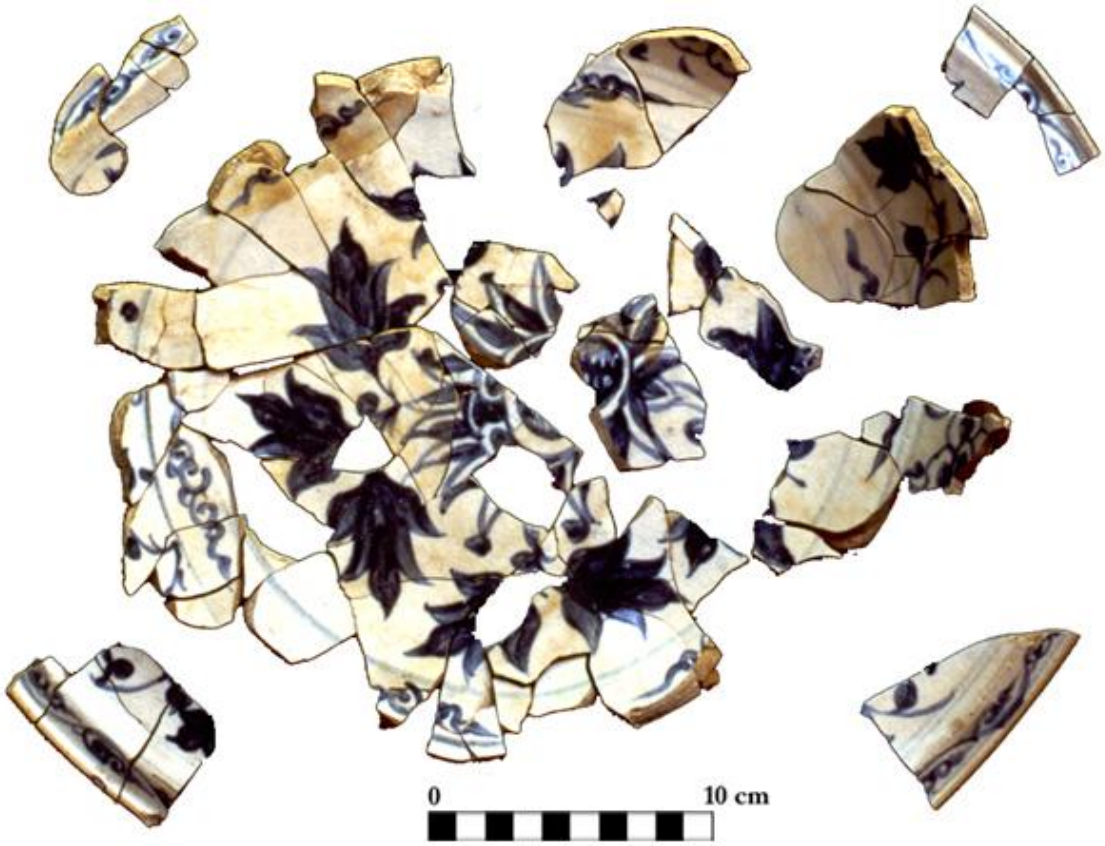


Figure 4.12. Vietnamese blue and white platter, mid-15th century from BN1 Unit 2, Stratum III

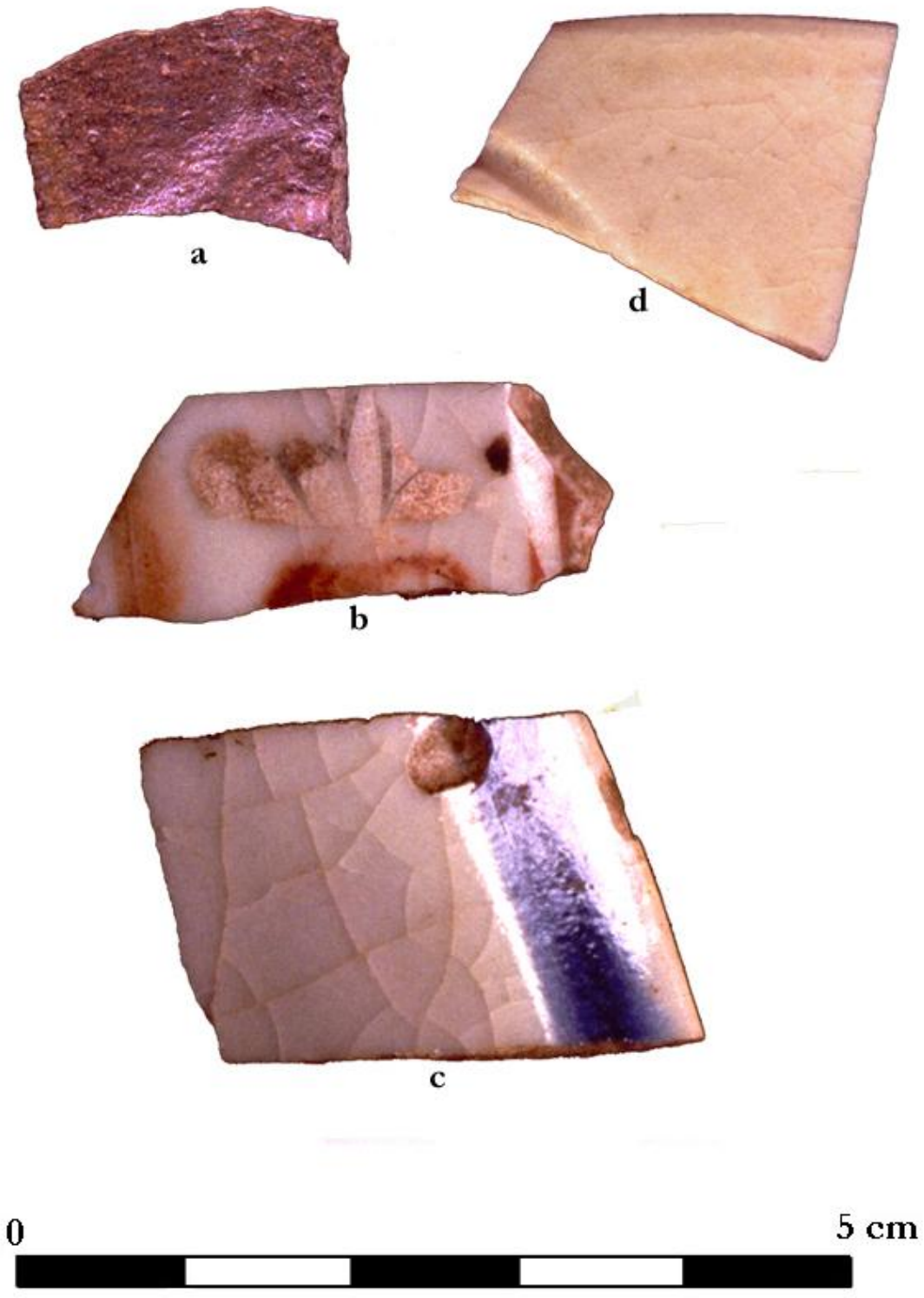


Figure 4.13. Glazed ceramics from BN1: a: brown glaze, Unit 3 180-190 cm; b: Swatow enamel ware, Unit 3 80-90 cm; c: Ming blue and white ware, Unit 3 80-90 cm; d: early Song white ware, Unit 4 300-320 cm.

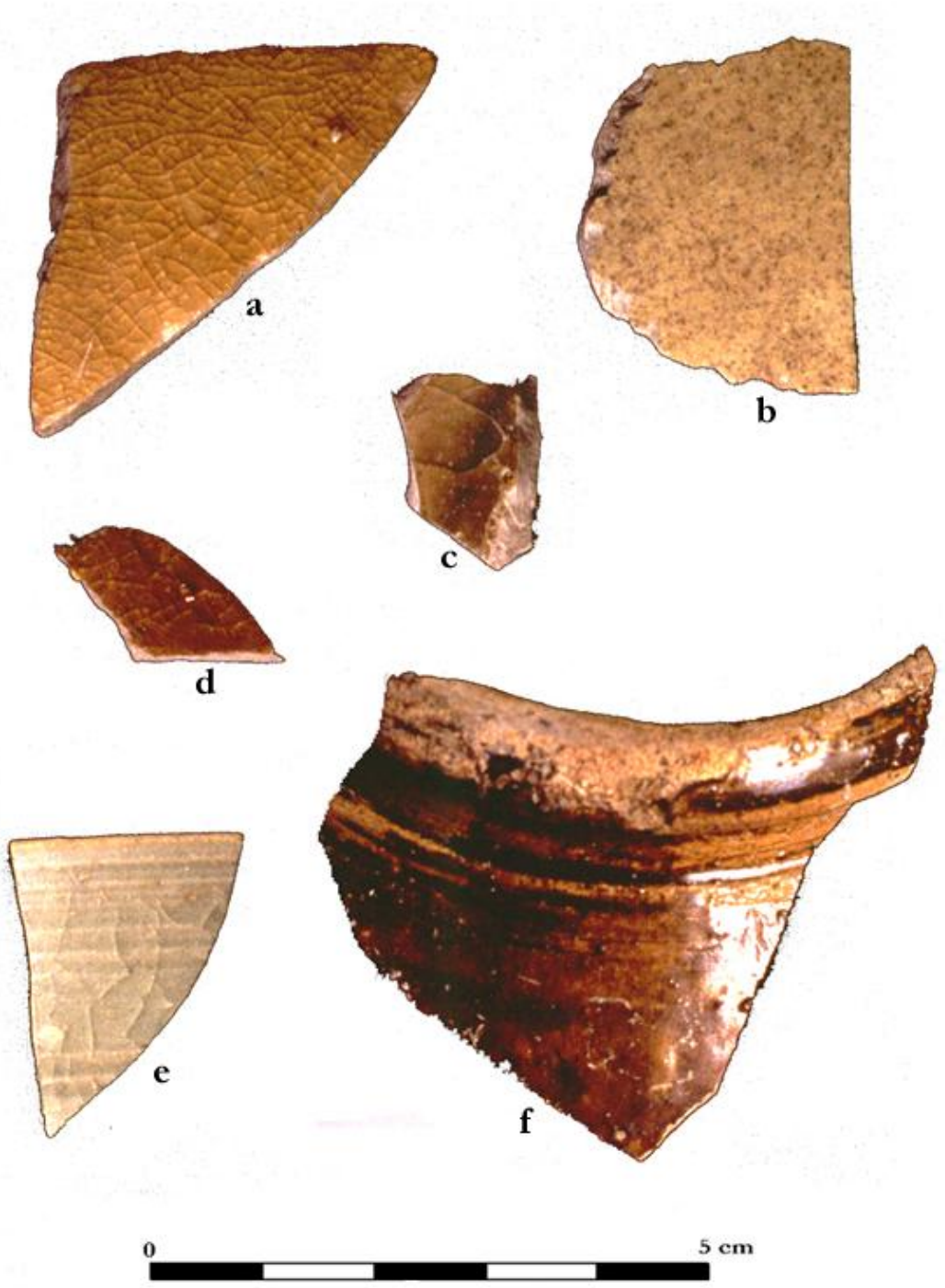


Figure 4.14. a-f: Various Song dynasty ceramics from BN1 Unit 4, 140-150 cm

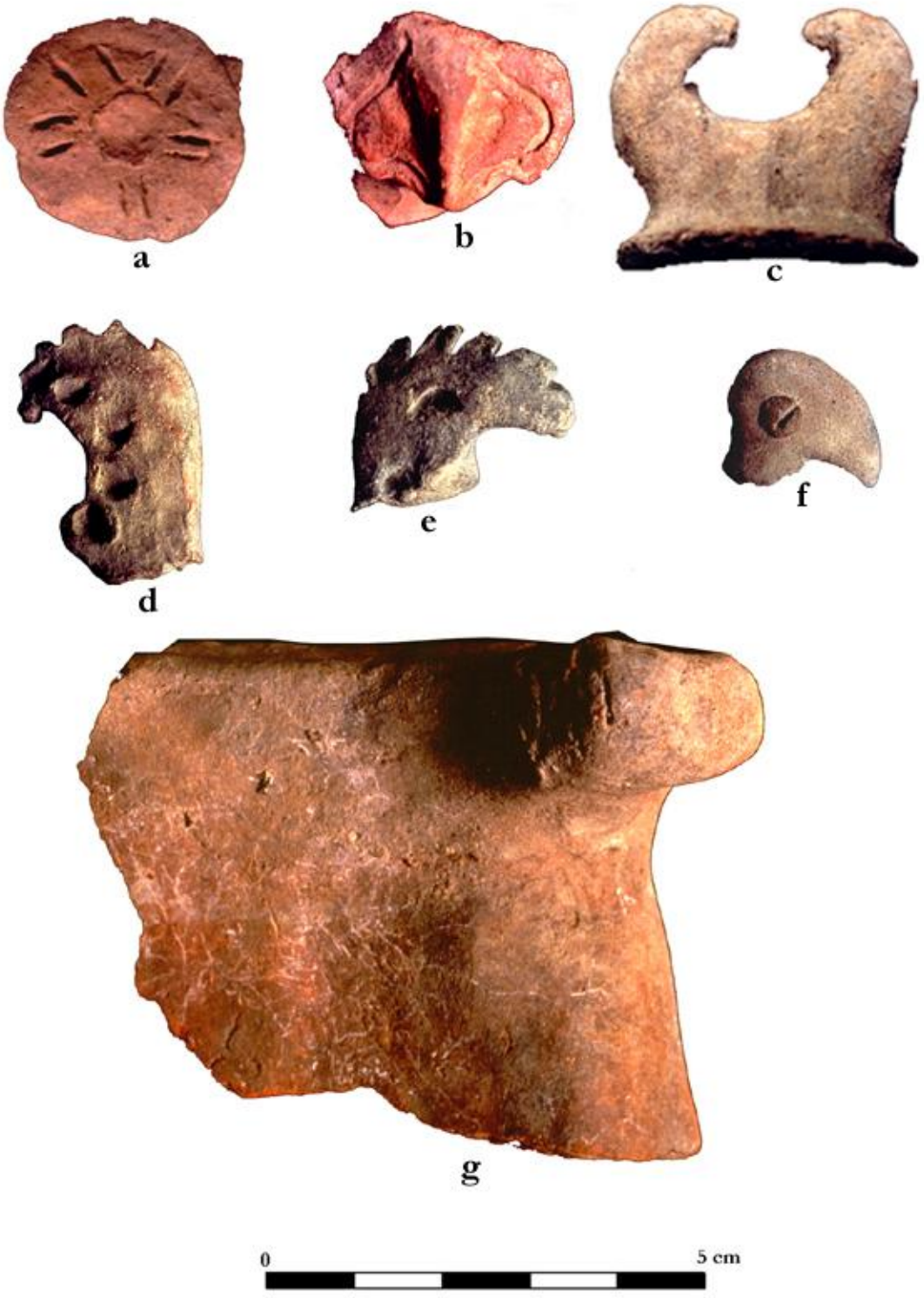


Figure 4.15. "Sculpted" earthenware from BN1; a: "pedestal" (top view), Unit 3, 140-150 cm; b. "face", Unit 3, 140-150 cm; c: "double bird head", Unit 3 160-170 cm; d and e: "bird heads", Unit 3 180-195 cm; f: "bird head", Unit 3, 160-170 cm; g: possible earthenware stove fragment, Unit 4, 300-320 cm.

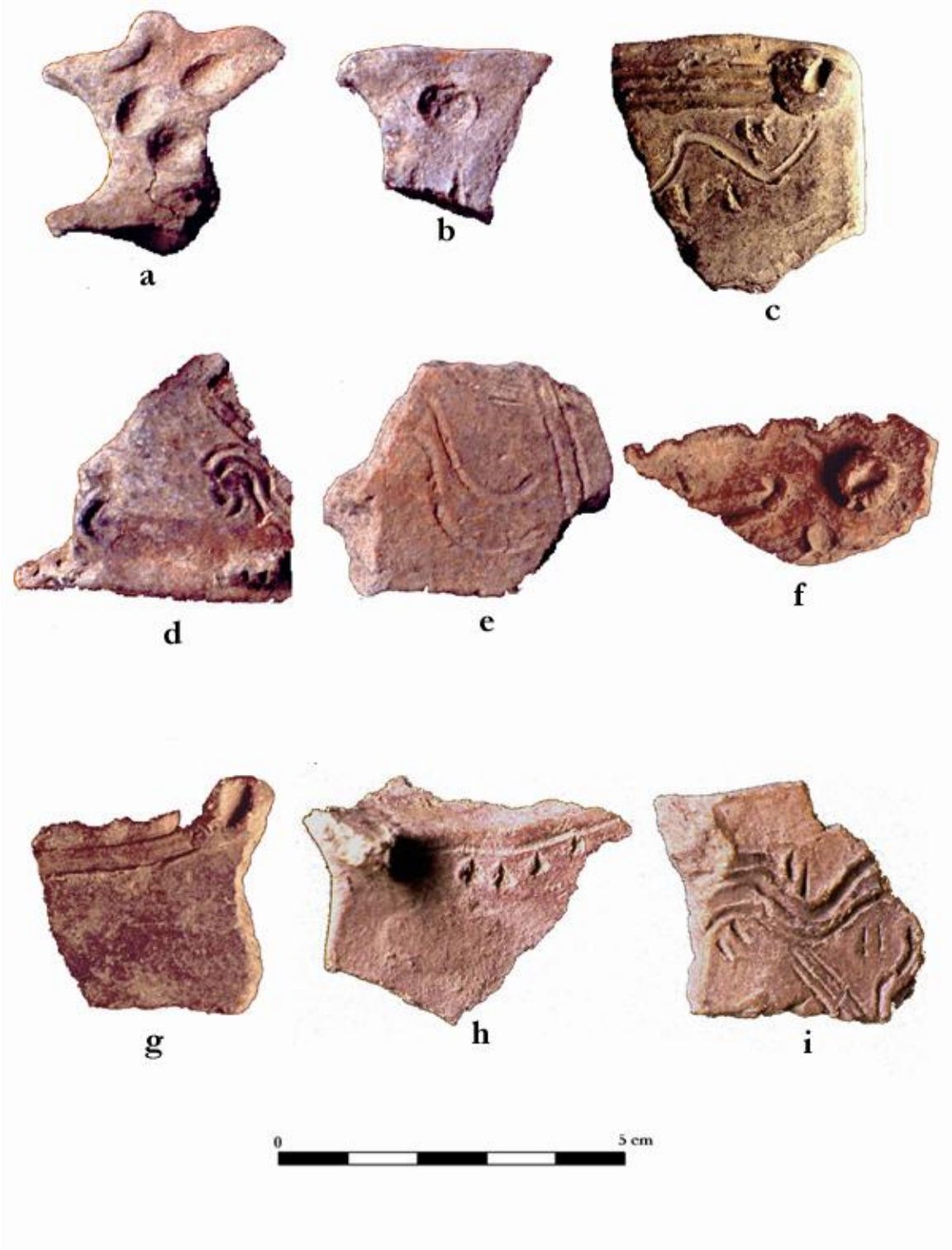
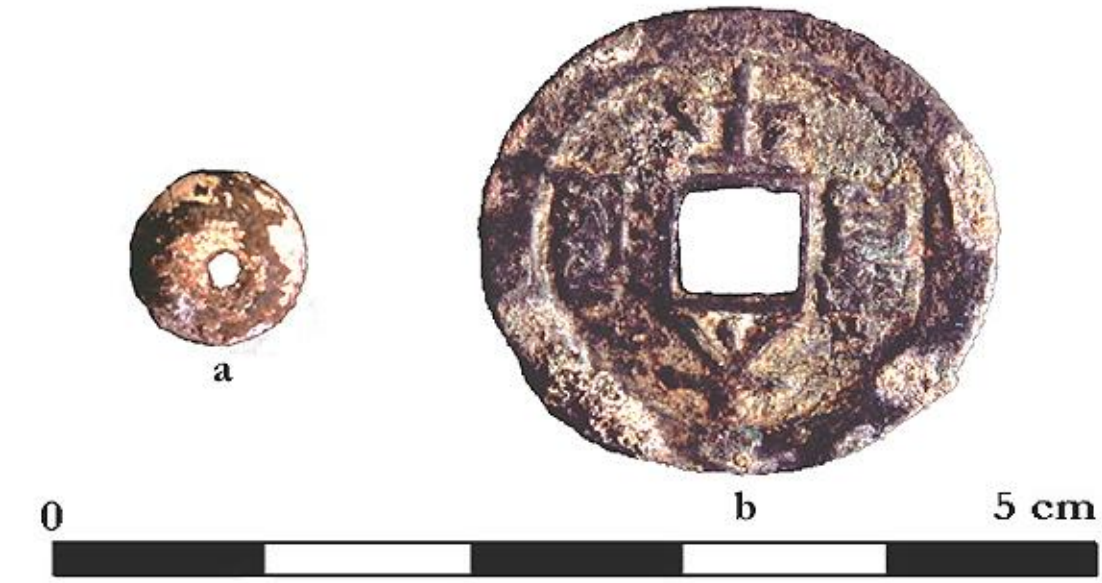


Figure 4.16. "Sculpted " earthenware from BN1 Unit 3. a-b: 100-110 cm; c: 90-100 cm; d-e: 100-110 cm; f-g: 180-195 cm; h-i: 130-140 cm. c and f have applique "eye" also found on some "bird head" artifacts.



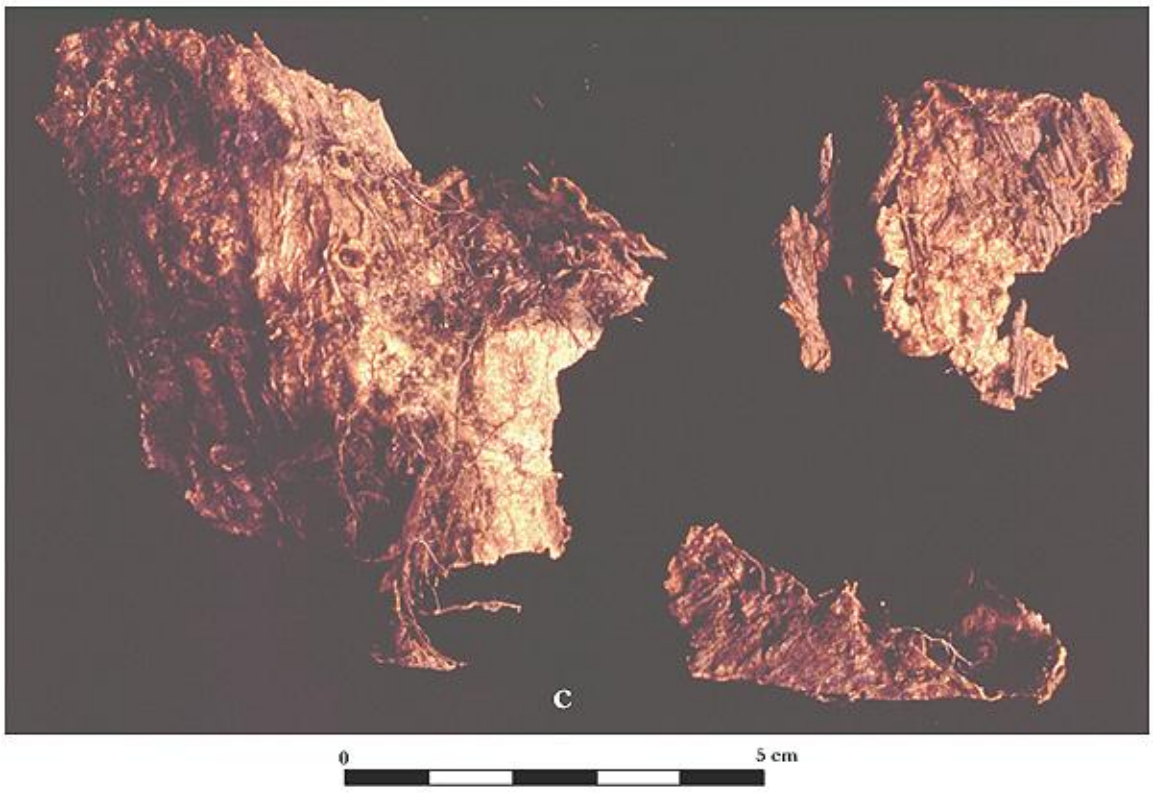


Figure 4.17. Various artifacts from BN1. a: bead (ceramic?), Unit 3, 130-140 cm; b: Song dynasty coin, Unit 4, 140-150 cm; c: fibrous material, possible bark cloth, Unit 4, 100-110 cm.

BN1 faunal remains

Faunal remains at BN1 consisted of fragmented animal bone and teeth, some of which showed evidence of burning, and marine shell (in Unit 4 only). Oddly, Units 1 and 2 had almost no faunal remains, and after the first year of excavation, I had the impression that preservation must have been poor in the soil conditions at the site. However, Units 3 and 4 had quite abundant remains, so the difference must reflect differing human activities in different areas of the site.

The remains are of particular interest because of the abundance of pig remains. These make up the largest category of animal remains recovered at the site for all phases of occupation up until the abandonment or depopulation of the site in the 17th century. Marine shell was abundant in Unit 4, although nearly absent from Unit 3, just a few meters away. It is possible that some of the shell was incorporated in the sandy fill used in the construction of the wall feature in Unit 4, or that shellfish consumption was culturally separated from the consumption of other foods. The results of the faunal analysis are presented below, with further discussion at the end of this chapter and in Chapter 5.

Figure 4.18: Pig teeth from BN1 Unit 3, 150-160 cm. Tooth on lower left may be human.

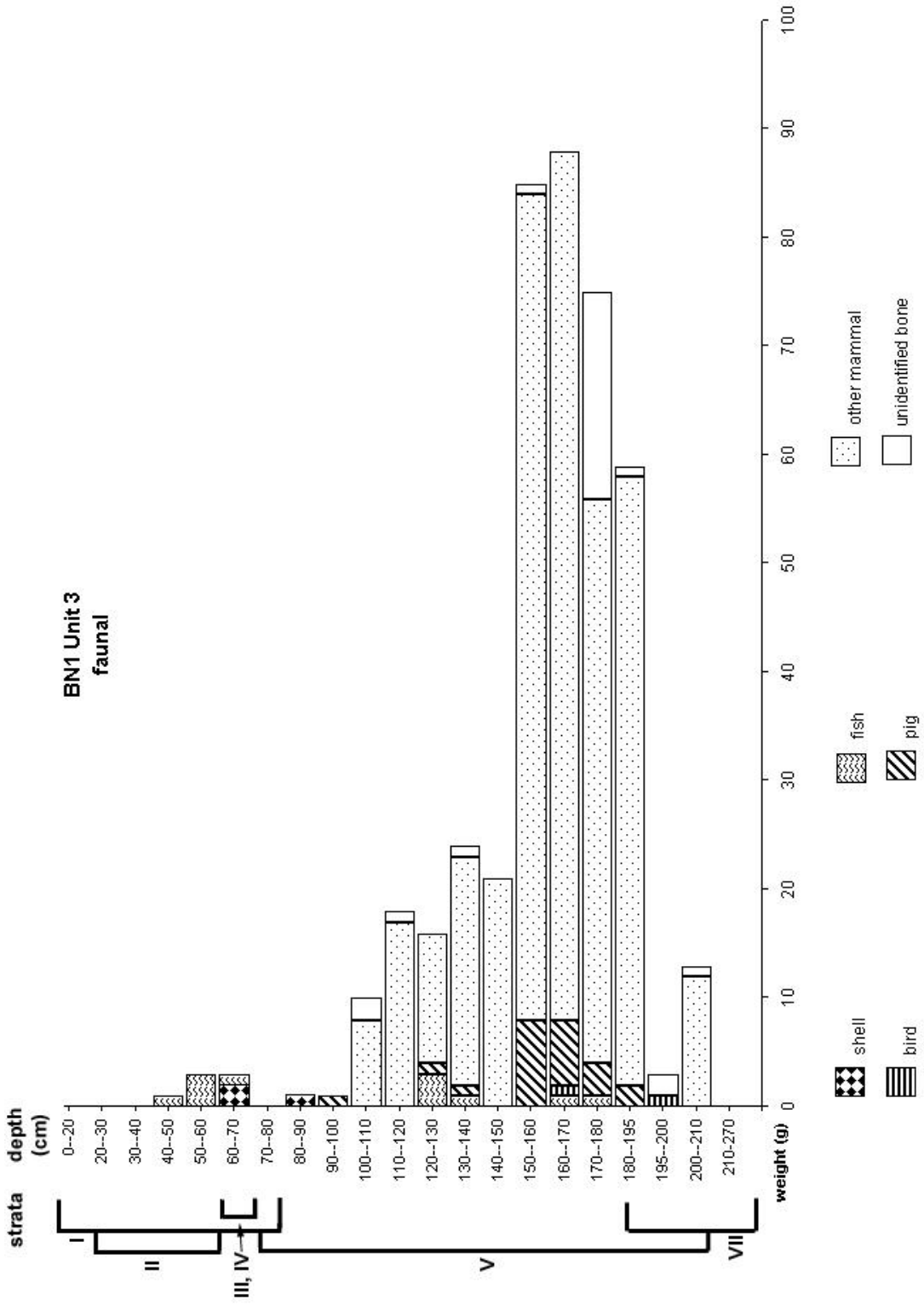


Figure 4.19. Faunal assemblages from BN1 Unit 3.

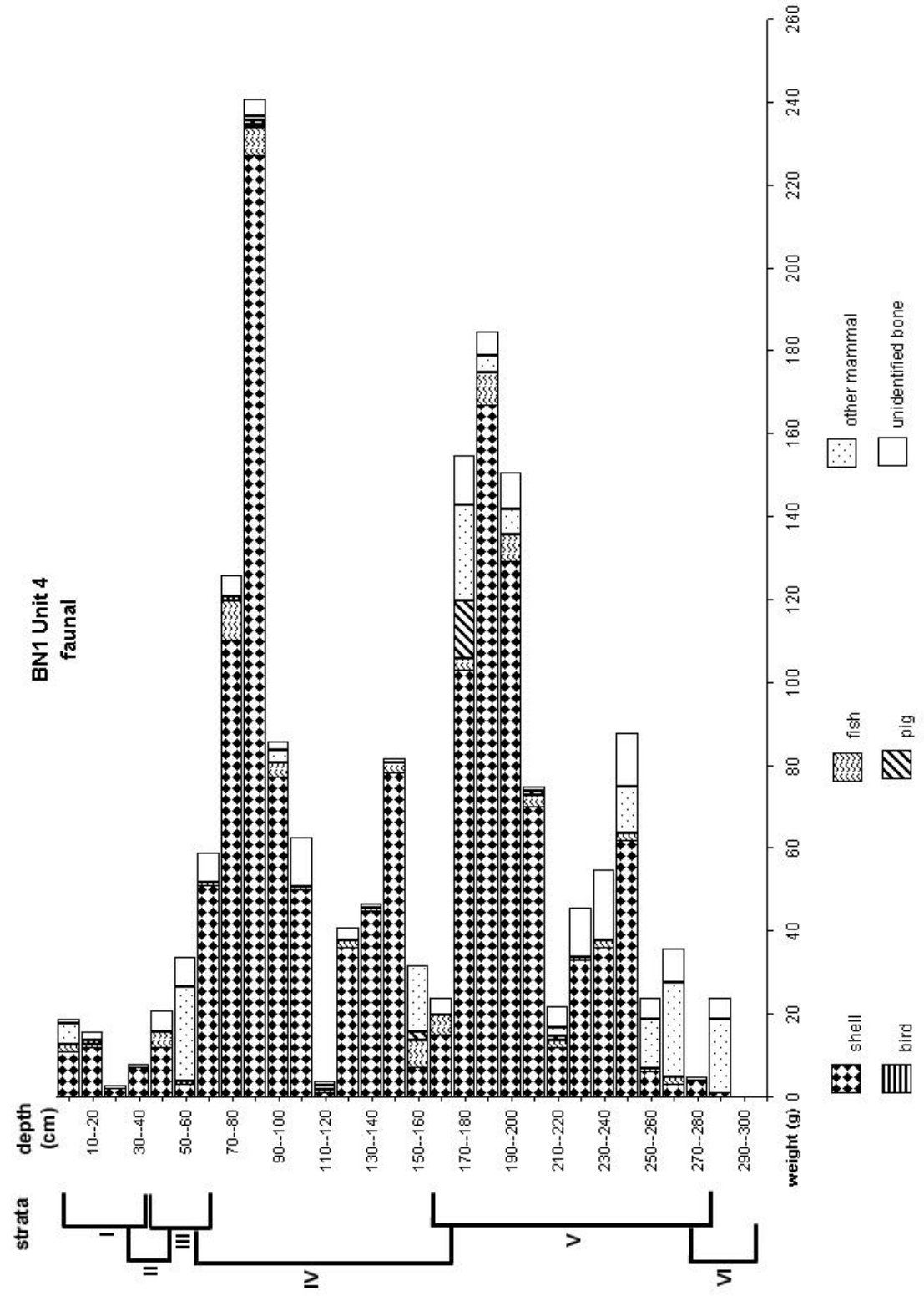


Figure 4.20. Faunal assemblages from BN1 Unit 4.

BN1 site chronology

Chronology has been established in this site using radiocarbon dates and artifact classes that serve as reliable time markers, including clay pipes, Swatow enamelware and Yuan-Ming blue and white tradeware, in that order of reliability. European-made clay pipes were first manufactured in the last decades of the 16th century, and reached peak popularity in the mid 19th century. For this project, the presence of clay pipes serves to mark the post 1600 era. Swatow enamelwares also serve as a time marker, the first of these wares entering the market also around 1600 (Guy 1986; Harrisson & Guy 1995). Blue and white tradewares were an earlier innovation, but did not enter the markets in any quantity until the Ming dynasty (1368-1544) (Brown 1988; Guy 1986). Other specific artifacts are used to establish chronological relationships, including Chinese copper cash as well as Dutch colonial coinage (VOC and Netherlands Indies coins). Below is a chronology arranged by stratum, beginning with the lowermost.

Stratum VII: This stratum of dense red clay and gravel was totally sterile. Predates the initial occupation of this site, or may overlie a deeply buried pre-first millennium occupation.

Stratum VI: Probably an old beach layer. Artifacts included three white glazed sherds, which were water-worn, plus an earthenware stove fragment (often associated with sea-faring people, such as Bajau). The glazed sherds were too small and lacking in large enough areas of decorative motif to confidently identify, however, they appear to be Ping (Shanxi Huozhou) or Qingbai wares from the Song period (960-1279), but earlier wares should not be ruled out. Pre 13th century according to radiocarbon date in overlying stratum.

Stratum V: Relatively thick stratum in Units 3 and 4, much thinner in Unit 1, if indeed it is the same stratum across the site. In Unit 3, a radiocarbon date of AD 562-772 from a sample near the bottom horizon of this stratum shows the beginning of this occupation. In Unit 4, a date of AD 1035-1250 was obtained from a sample from the middle of this stratum, and a date of 1292-1402 was obtained from stratum Va, a thin upper subdivision of Stratum V. These dates are consistent with the artifact assemblages from the two units. The upper 10 cm of the stratum in Unit 3 contained Swatow and blue and white wares, which would put the upper age of the stratum at around 1600 at the oldest. Faunal remains in this stratum are dominated

by pig in Units 3 and 4, and there are also human teeth and possible burned human bone present in the lower half of this stratum in Unit 3.

Stratum IV and Stratum II: Both of these volcanic ash strata are discussed together because they have been dated in part because of their relationship to each other. Stratum IV was a layer of largely sterile black volcanic ash, ranging in thickness from 5 to 20 cm, with the thicker layers occurring in the southernmost Units 1 and 2. Stratum II was similar sterile volcanic ash, but interspersed with striations of lighter colored material, and pumice lenses. It was generally thicker than stratum IV, ranging from 50 - 80 cm. Both strata date to after the 14th century, judging by radiocarbon date BN1-4-178, and after 1600, judging by the Swatow enamelware immediately underlying stratum IV. If the latter were true, then both of these volcanic events would have occurred during the colonial period and were recorded historically. A review of historically recorded natural disasters in Banda (see Table 2.2 above) shows four recorded eruptions in the 17th-19th centuries. The longest period of eruptions was the five years of devastating eruptions between 1691-96. The next longest period is five months of eruptions in 1632, while in 1615 and 1820, there were periods of eruptions lasting 1-2 months. As stratum II is the thickest layer of ash, and has many subdivisions, it is tentatively associated with the eruptions of 1691-96. Stratum IV, being earlier, could therefore be either the 1615 or the 1632 eruptions. I would guess that it is from the longer-term 5 months of eruptions in 1632. The 1615 eruption may not have produced large quantities of ash. The reason for no signs of the 1820 eruption may lie in the intensive farming activity at site BN1, which mix the upper 50 cm of ash and destroy any stratigraphy. Furthermore, while the 1820 eruption was recorded as producing a lot of ash, it occurred during the SE monsoon, when prevailing winds would have blown ash away from site BN1.

Stratum IVa: This stratum, which is the coral and basaltic rock wall, has proven particularly difficult to date. It is definitely post-14th century, judging by radiocarbon date BN1-4-187, which lies just under the base of this wall. The sand and soil that is interspersed between the rocks, however, is filled with primarily Song-period monochrome tradewares dating to the 13th-14th centuries, an early Song period coin from the 10th century (though these coins stayed in circulation for centuries), and some 14th-15th century Vietnamese

tradewares. The main question is whether this was built by Bandanese prior to the 1621 massacre, or after that by Dutch colonists. The 10th-15th century artifacts contained in the wall can be explained by the way the wall may have been constructed, in which rocks and soil were excavated from nearby (older) deposits and built up. Although the reverse stratigraphy that is sometimes associated with this kind of excavation-construction does not appear here, as the newer artifacts are still higher up in the wall, the digging and filling activities may not have occurred in a systematic way. There is a thin layer of volcanic ash just underneath the wall that might provide a clue. It could be an extension of stratum IV, identified as the 1632 eruption, which would put the wall firmly in the colonial period. However, other evidence puts it in the late pre-colonial era. The Swatow and Ming blue and white in the top 10 cm of the wall, and in the layer just above it, the absence of any clay pipes near the wall stratum, and the absence of mortar suggest that this was not a colonial construction. The underlying volcanic stratum may be from an unrecorded pre-colonial eruption. More precise dating of the construction of the wall would require additional excavation at the site.

Stratum III: If the dating of the volcanic strata II and IV is correct, this stratum would then date to between 1632-1696. This is consistent with the artifact assemblages of this stratum, which are Swatow enamel ware, Ming blue and white ware, and European clay pipes. There are no pig or human remains present. In Unit 4, strata I-III may have been deflated due to erosion, and also mixed and disturbed by storm activity, which may throw sand and coral pebbles up on to the top of this berm.

Stratum I: This uppermost stratum contained a wide range of ceramic types, including blue and white and 19th century color enamel ware, though it is clearly mixed and disturbed by farming activity, which may have brought up older material from underlying strata. Provisional age range: AD 1700 - present.

BN1 chronology summary

- 500-600 AD: initial occupation of site
- 500-700 AD: earliest form of sculpted earthenware tradition appears, pigs eaten, first Chinese artifact appears
- 700-1200 AD: increase in intensity of settlement use, occupied area (population?), sculpted earthenware tradition elaborated, cremation burials, continued pig eating
- 1200-1500 AD: increased amounts of Asian tradewares, Chinese coins (first direct contacts with long distance traders?), continued use of sculpted earthenware, continued pig eating, possible abandonment of human cremation practices
- 1500-1600 AD: sudden decrease in settlement use intensity, greater diversity, but lesser amounts of Asian tradewares, including Vietnamese ceramics, abandonment of pig eating, possible defensive wall construction
- 1600 AD-present: low intensity colonial/post colonial occupation and/or farming.

Site BN2

Summary of archaeological work completed

In 1997, after completing the first excavations at site BN1, we searched for a suitable excavation site within the contemporary town of Naira, which is built on the pre-colonial settlement of *Nera*. This historically important town was known as an ethnic enclave for Javanese and Malay traders by the 16th century, and was the center of later European settlement in the islands. It was hoped that archaeological data would provide insight into the history of occupation of the site prior to the date of the first documentary evidence. Did Nera have as long a history as the settlement at BN1, which dated to the 6th century AD? Would an ethnic enclave look different archaeologically from a "native" settlement, as Labbetacca appeared to have been?

Despite the fact that the two settlements are only 2-3 km apart, they are located in quite different geographical positions. Naira is on a flat plain, and has a long shorefront on the protected inner Banda harbor, offering both deep-water ship access on the western shore, and shallow beach access on the southern and western shores. The harbor is protected from ocean swell during both monsoons. The area around site BN1, on the other hand, is situated in a small, enclosed valley surrounded on three sides by high bluffs. Malole beach is suitable for landing only for small dugouts, and even then only in calm weather. There is a small, protected cove on the south side of contemporary Lautaka village, which today offers protected anchorage for a few local trading ships of 10-15 m in length. The archaeological approach was to look for differences between this location and site BN1, particularly in site chronology, evidence of contact with long distance traders, and behavior that might mark religious identity, such as pig eating and burial practices.

First, though, an excavation site had to be located. This was complicated as Naira is a densely populated town now, and was the site of considerable construction by the Dutch, including two forts, wharves and piers, streets, churches, administrative buildings and residences. It was also apparent that the location and shape of the shoreline had been considerably altered since the pre-colonial period. Two existing stone piers have acted as sediment traps on their eastern sides, collecting sediments moved by a prevailing east to west longshore current (see Fig. 4.21, Naira aerial photo below).

Figure 4.21. Aerial photo of Naira town showing site BN2 (photo by Jez O'Hare)

From analysis of historic maps, the original settlement of *Nera* was close to the pre-colonial shoreline, well inland of the contemporary shoreline along the southern shore of Naira. A location near the current DepDikBud office was chosen to situate excavation pits, as it was away from massive building projects such as the two forts, which probably have disturbed pre-colonial deposits. The site was on a small parcel of open, unused land about 40 meters inland of the contemporary shoreline, owned by the *kepala desa* of Ratu, a subdistrict of Naira, who kindly gave permission to dig. It was estimated that this was far enough inland to be located in the area of the pre-colonial village.

The following field season, after BN2 excavations were completed, Two colonial period maps of Naira town were obtained which helped pinpoint the actual changes in shoreline shape and position (see Figs. 4.22 and 4.23 below). While these maps were not available to help situate site BN2, they are presented here to help the reader get a picture of the changing landscape of Naira in the past 500 years. The two maps were used in that second field season to develop a composite maps of shoreline changes (see Fig. 4.24), and to help locate a second excavation site in Naira, site BN4, which will be discussed below.

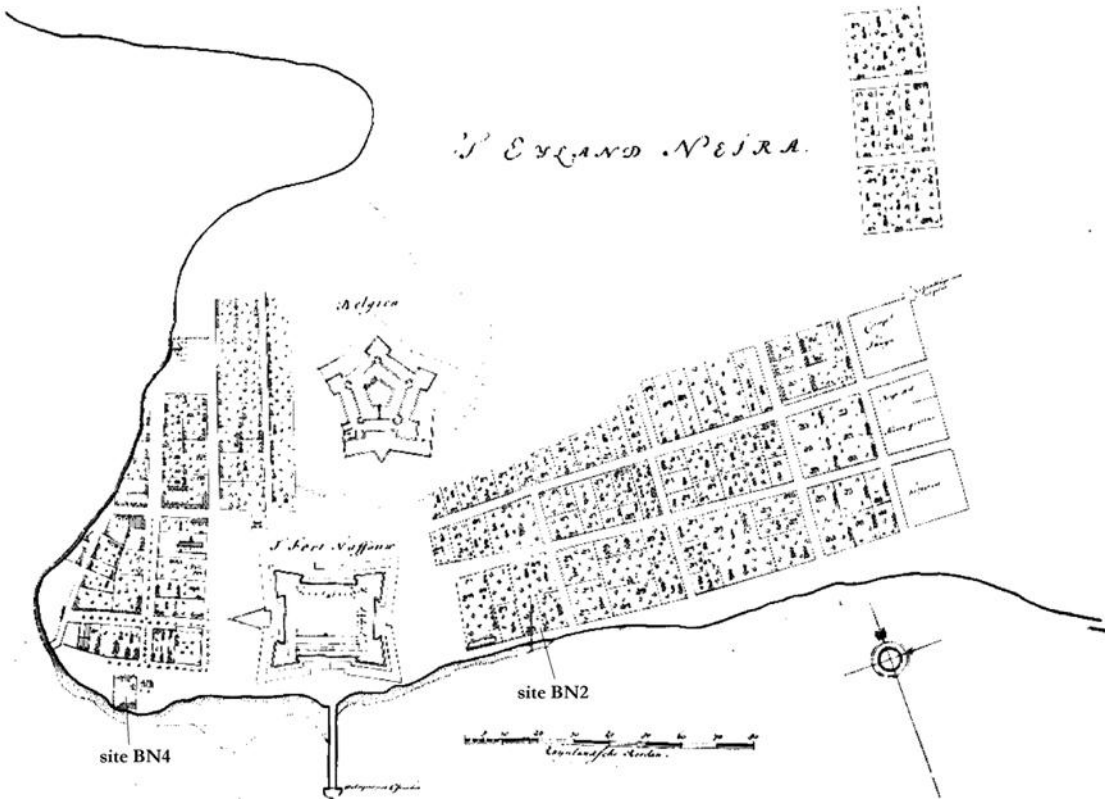


Figure 4.22. Plan of Naira, mid -17th century, showing original shoreline (copy obtained at the Algemeen Rijksarchief (Dutch Royal Archives), The Hague, microfilm cat # 4.VEL.1359).

Figure 4.23. Detail of southern Banda Naira from Reimer map, 1791 (copy obtained at the Algemeen Rijksarchief (Dutch Royal Archives), The Hague, microfilm cat # 4.VEL.245).

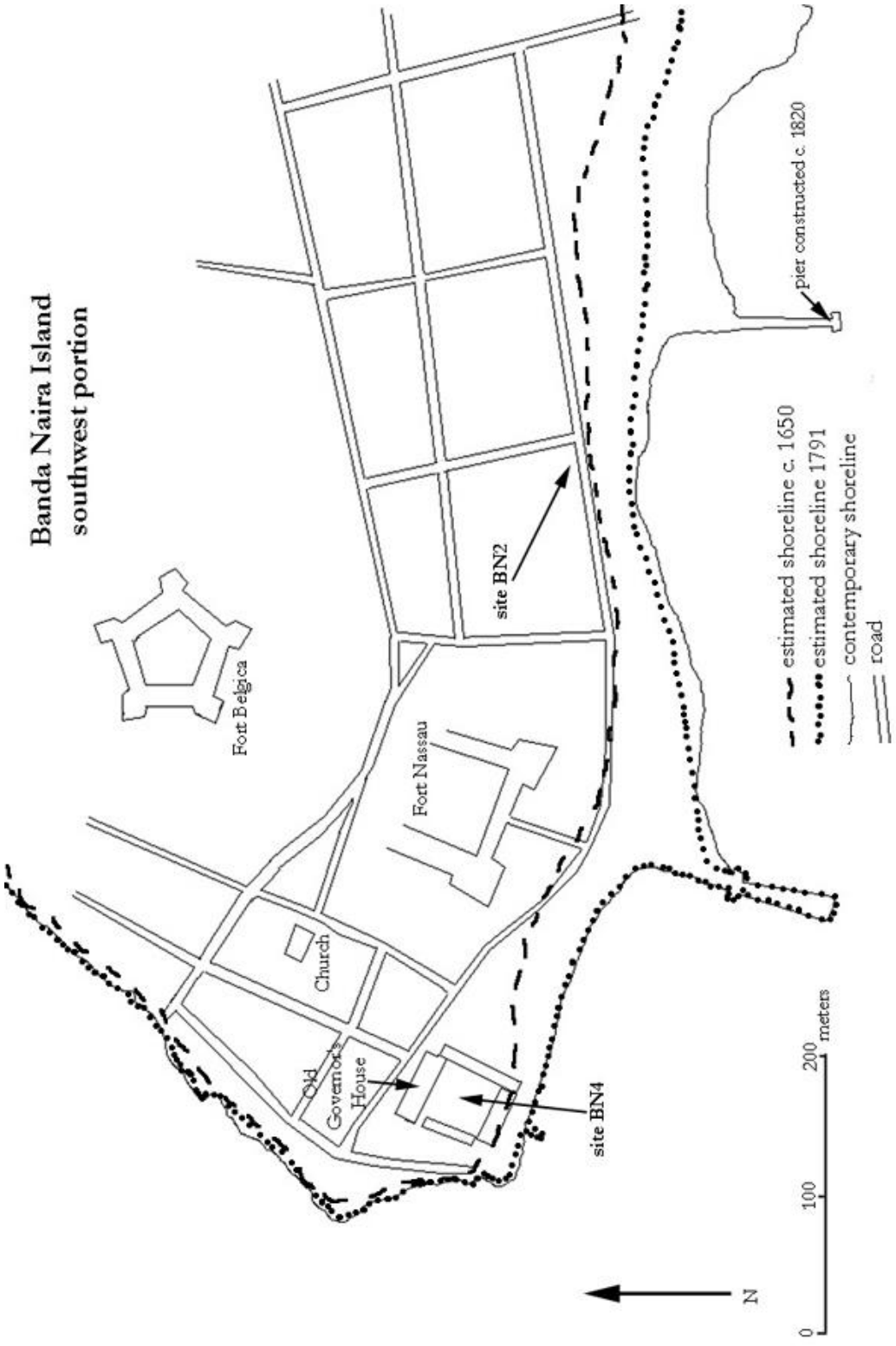


Figure 4.24. Composite map showing shoreline progradation since 1650

Two units were situated at a maximum distance from each other in the open field. As there was a large crew on site at this time, and because I was confident that the site lay on pre-colonial settlement, no test pits were dug first, and we proceeded immediately to unit excavations. Later, I learned that it would always be wise to dig a shovel test pit first, to get an idea of site stratigraphy and deposit depth, which in turn would allow for better planning of excavation times. At BN2, deposits proved deeper than expected, and the pits had to be left open for several days during an Earthwatch team changeover, and eventually completed by a very small crew. During this time, the units were disturbed, which complicated re-establishing the Unit 1 level datum. BN2 stratigraphy

As with site BN1, this site had well-stratified deposits, showing evidence of volcanic eruptions as well as human activities. The units were excavated following artificial 10 cm levels, except in Unit 2, which had three areas of obvious natural stratigraphy related to the collapse of a coral block wall. Natural strata were excavated in this case. Strata appear to correlate well between Units 1 and 2, although Unit 1 lacks two of the strata present in Unit 1 (strata VI-VII). Underlying stratum VII in Unit 1 was a reddish clay hardpan layer that was impenetrable with trowels, whereas in Unit 1 excavations had to be stopped due to flooding because the water table was reached. Strata descriptions are as follows:

Stratum I: Mixed dark brown sandy loam topsoil, with considerable amounts of modern trash.

Stratum II: Brown sandy loam with coral fragments. In Unit 2, an intrusive pit extended from this stratum down into strata III and IV. This was not followed in the excavations, so levels from 30-90 cm should be considered mixes of strata II-IV. Artifacts appear to be a colonial period assemblage, with some 19th-20th century European and Chinese ceramics.

Stratum III: Very similar to stratum II, except soil lacked coral pebbles, and was somewhat darker brown in color. Assemblages appear earlier in date, with large amounts of kaolin pipe fragments, many with Dutch manufacturers stamps.

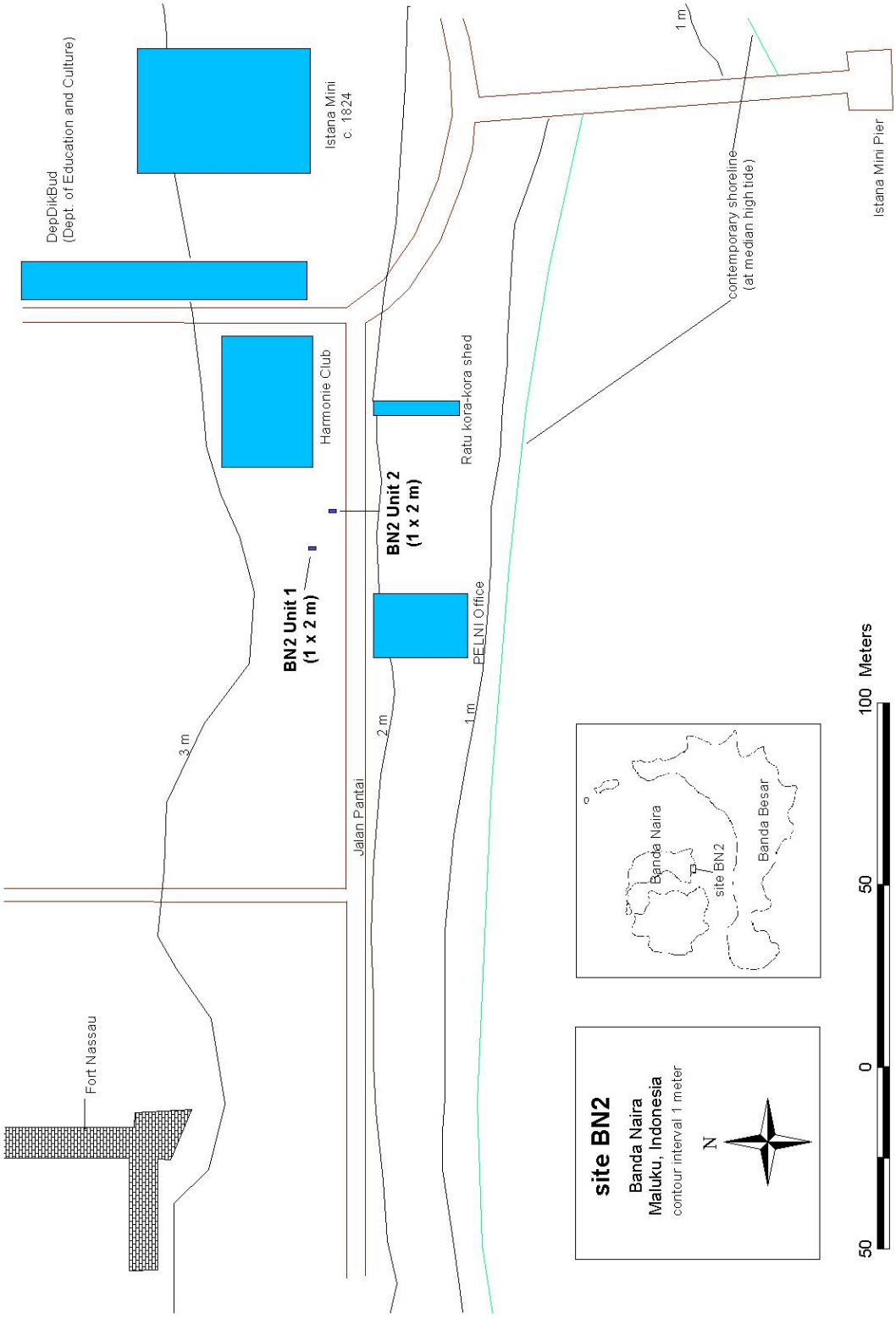


Figure 4.25. BN2 site map

Stratum IV: Black volcanic ash, with gray striations of pumice, largely sterile, except upper 20 cm, which contain artifacts from upper levels. Tentatively associated with the 1691-96 volcanic eruptions, as with stratum IV in site BN1, as it has a similar color, striations, thickness and depth in the unit.

Stratum V: Brown-gray sandy loam with ash and coral fragments. Assemblages included Ming blue and white ceramics, Swatow enamel wares, kaolin pipes (in smaller quantities than strata II and III), and a single pig tooth in an upper level.

Stratum VI: Dark brown sandy loam which contained kaolin pipe fragments, Ming blue and white wares, Swatow enamel wares and monochrome tradewares. This stratum was not present in Unit 1. In Unit 2, this stratum was excavated from the 130 cm level down to the stratum below following natural stratigraphy.

Stratum VII: Coral and basaltic rocks (20-60 cm in diameter), broken lime mortar, black sand and volcanic ash. Artifacts included small amounts of earthenware, Ming blue and white ware and monochrome tradeware. This stratum was not present in Unit 1. In Unit 2, this stratum was excavated down to the stratum below following natural stratigraphy.

Stratum VIII: Dark brown sandy loam, moist to wet, particularly in Unit 2. Assemblages included Yuan or Ming blue and white ware, dark brown glazed stoneware and monochrome tradewares, as well as plain and decorated earthenware and a single kaolin pipe fragment in the upper 10 cm of the stratum in Unit 2. Excavated following natural stratigraphy in two 10 cm levels, from the base of stratum VII or VI to the water table. Excavation was stopped at the water table, although cultural deposits appeared to extend below it.

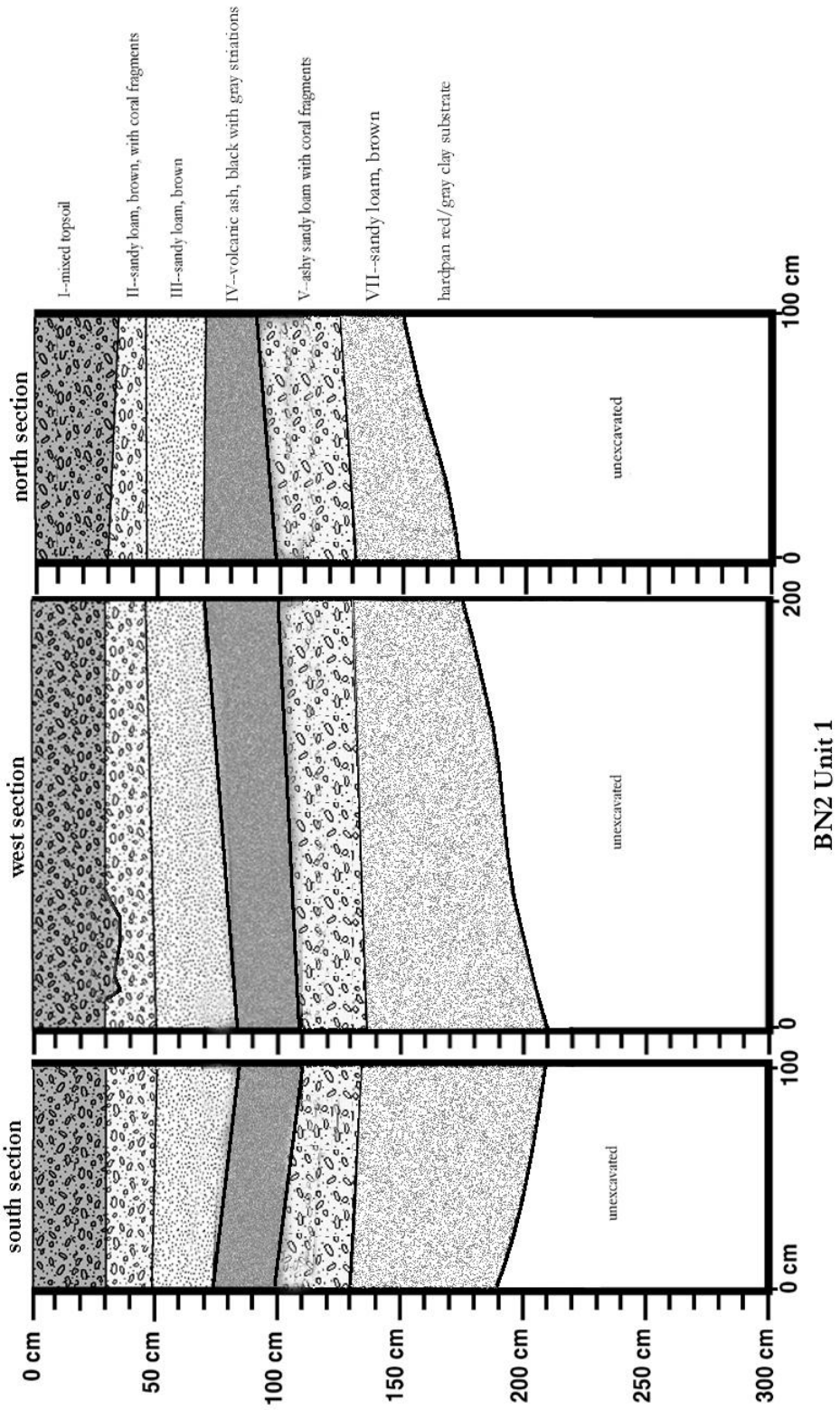


Figure 4.26. BN2 Unit 1 sections

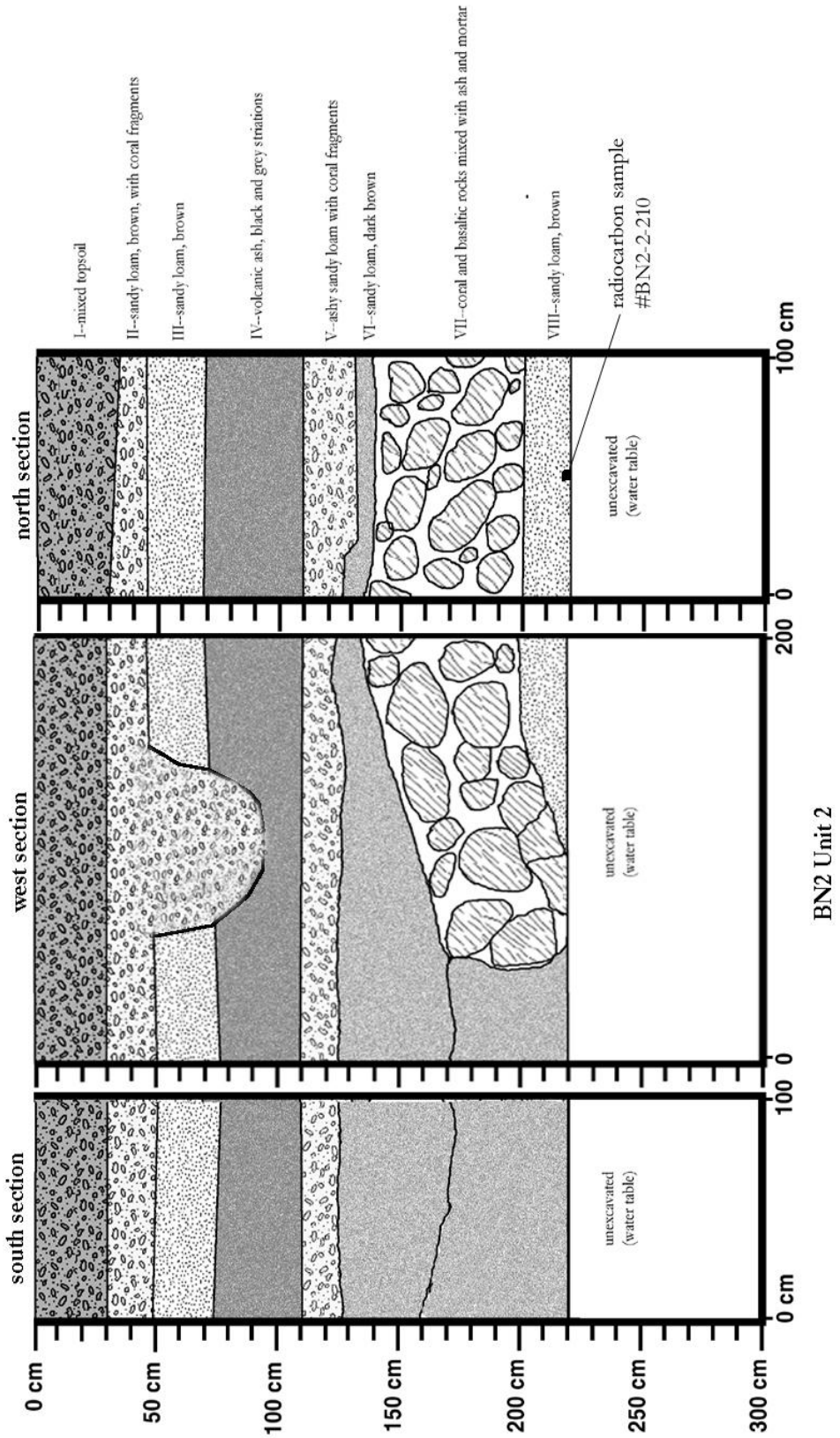


Figure 4.27. BN2 Unit 2 sections

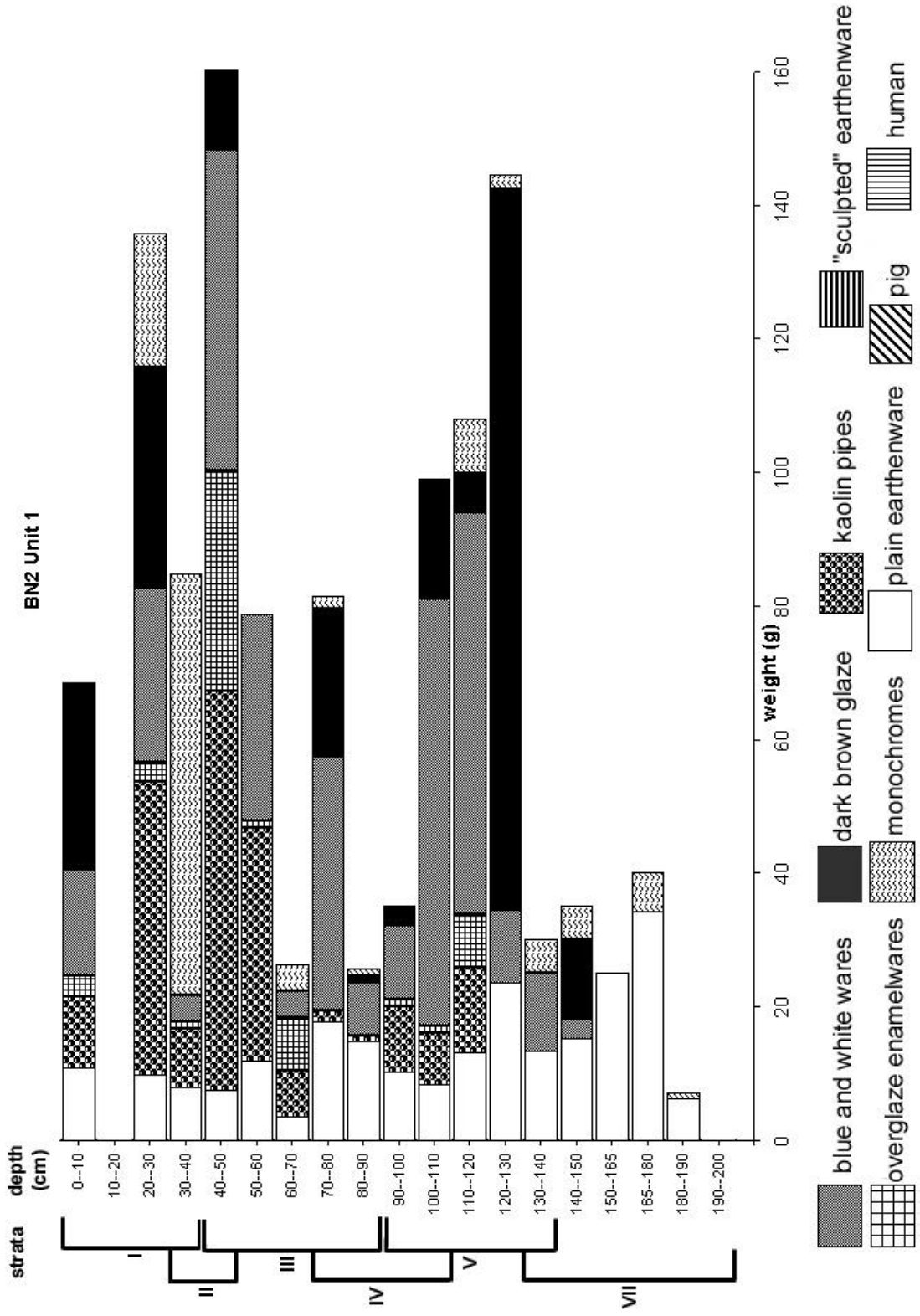


Figure 4.28. BN2 Unit 1 level assemblages

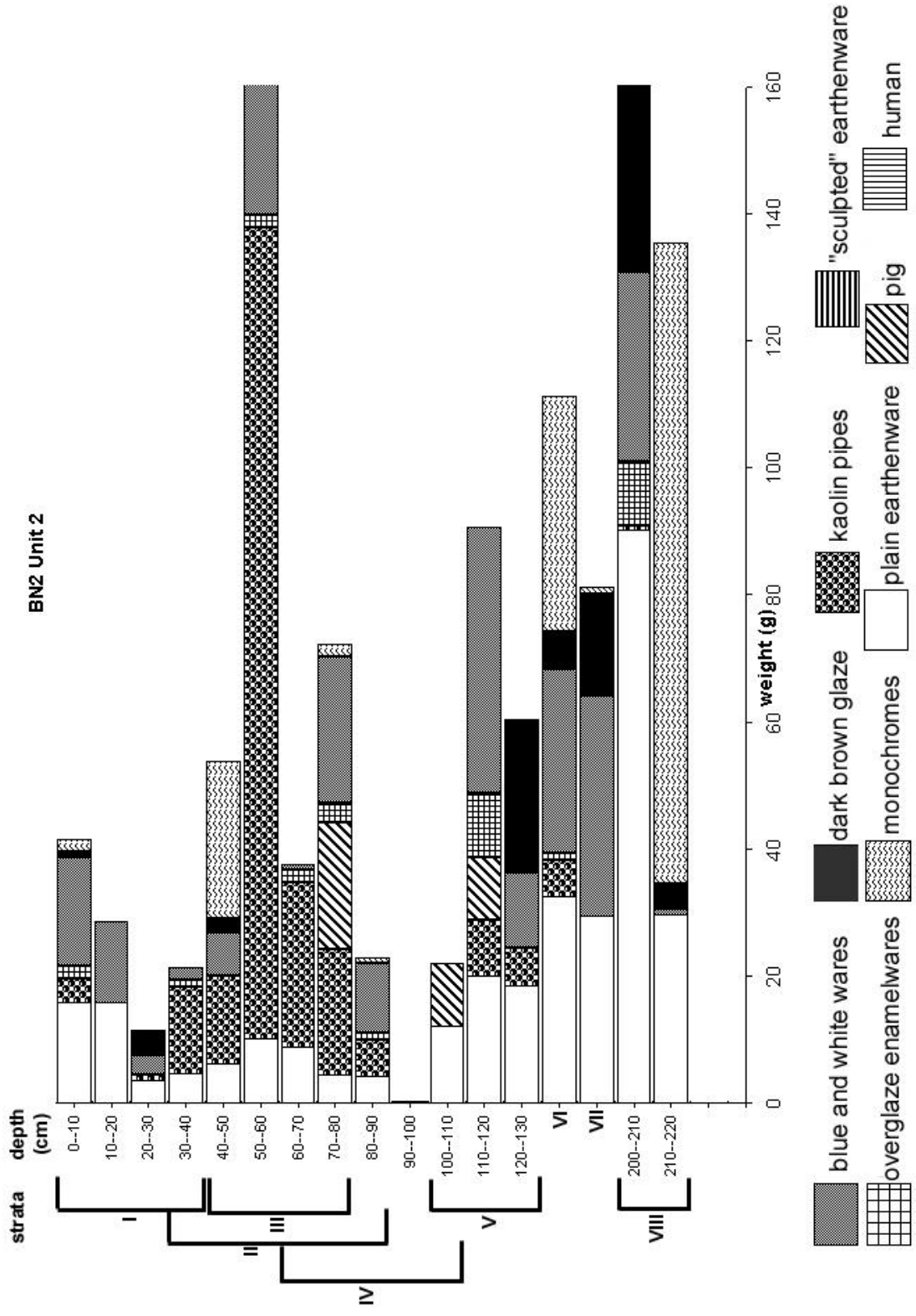


Figure 4.29. BN2 Unit 2 level assemblages

BN2 artifacts

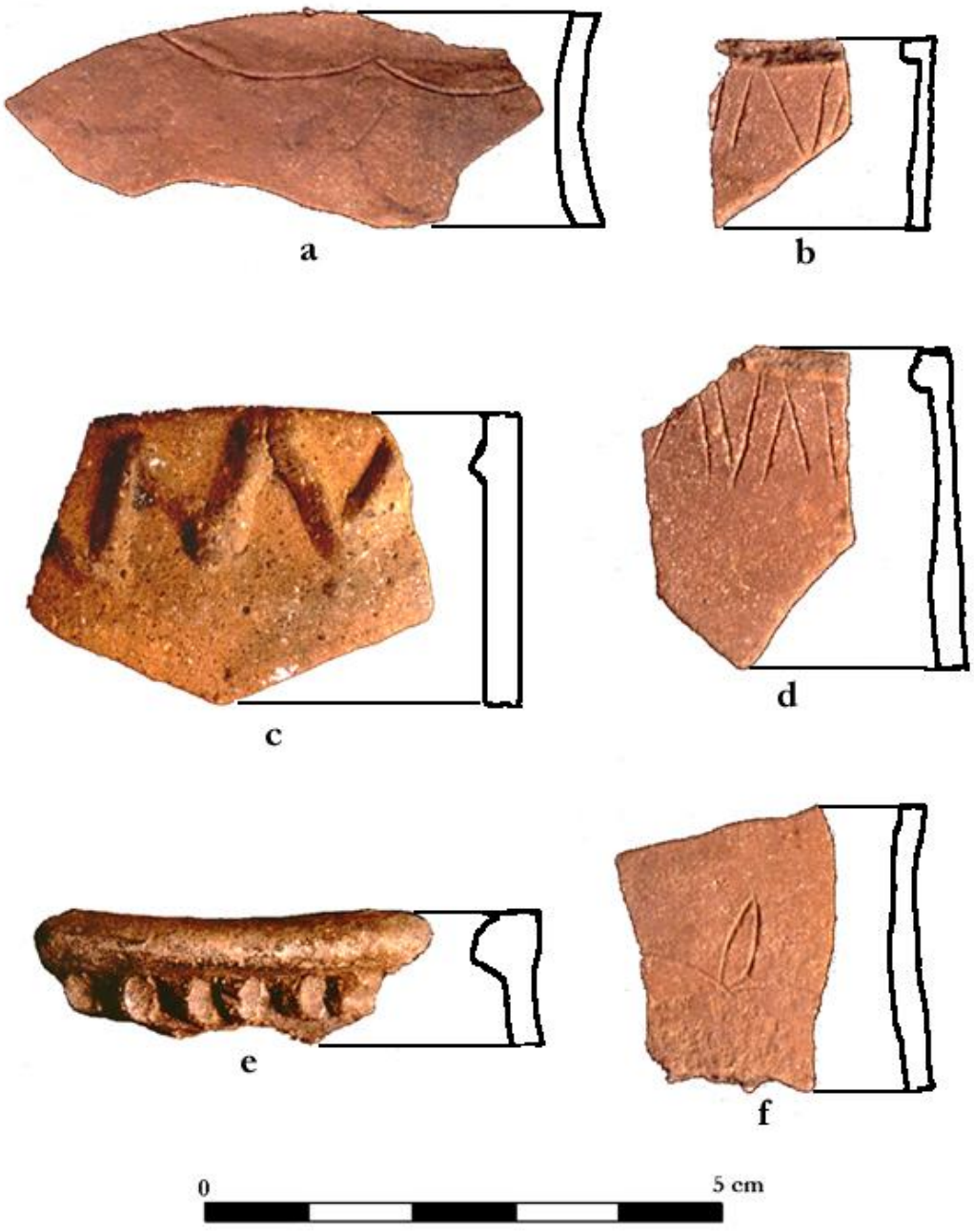


Figure 4.30. Earthenware artifacts from BN2. a, b, d, f: incised decorations, Unit 2, Stratum VII; c: raised decoration, Unit 1, 165-180 cm; e: decorated rim sherd, Unit 2, 100-110 cm.

BN2 site chronology

Site chronology at BN2 has been established using one radiocarbon date, stratum assemblages and the correlation of archaeological strata with historically recorded natural disasters such as tidal waves and volcanic eruptions. Strata are dated as follows, beginning with the oldest.

Stratum VIII: A radiocarbon sample from the bottom of this stratum in Unit 2 was dated to AD 1160-1290. The Song - Ming era assemblage of glazed ceramics is in agreement with this date. Wares found in this stratum were quite diverse in Unit 2, including fine Ming blue and white, 16th century Swatow blue underglaze wares, 16th century Thai brown underglaze jarlet fragments, possible Sawankhalok brown glaze wares and Song-Yuan monochromes. Large amounts of iron, some attached to earthenware pottery, was also present. A single kaolin pipe fragment found in the stratum does not quite fit this assemblage, although it is certainly possible the stratum contains late 16th-early 17th century materials. Unit 1 had much less diversity, containing primarily Song-Yuan monochromes and Yuan-Ming blue and white wares. Earthenware pottery in Stratum VIII in both units was mostly undecorated, with a few incised line decorated fragments. Faunal remains were dominated by shellfish, with some bird and fish, but no pig remains. The bottom of the stratum was not reached in Unit 2, while in Unit 1, a sloping (down to the south) layer of sterile hardpan clay, possibly an old sea floor, was reached.

Stratum VII: This stratum, present only in Unit 2, was most likely the remains of a coral/basaltic rock wall, either a settlement defensive wall or a house wall. It appears to have collapsed towards the north or landward direction. The overlying, post-collapse stratum VI dates the collapse of the wall to the early colonial period. There was a 9 foot high tidal wave recorded in 1629 which wrecked several buildings in Naira (see Table 2.2 above) which may have been the force behind the destruction of this wall. A few artifacts were among the coral and basalt rocks and lime mortar, including Ming blue and white ware and monochrome tradewares, some of this had bits of mortar attached, and were apparently part of the wall construction.

Stratum VI: Not present in Unit 1. As mentioned directly above, this stratum dates to the early colonial period, containing kaolin pipes, Swatow enamelware, Ming blue and white wares, monochrome tradewares, shellfish, fish and unidentified animal bones.

Stratum V: Also early colonial assemblage, similar to stratum VI above it (in Unit 2), but also contains pig remains, an undated Chinese coin fragment and distinctive 17th century Batavia-ware pottery.

Stratum IV: Volcanic ash deposit, largely sterile, tentatively associated with the period of volcanic eruptions dating between 1691-96 (see discussion in BN1 chronology above, which contains a similar stratum). This ash deposit was contaminated by intrusive pits cut in from above in both units.

Stratum III: Middle colonial period assemblage, containing many kaolin pipe fragments, European glass and stoneware liquor bottle fragments, diverse earthenware, stoneware and porcelain ceramics dating to the 17th-18th centuries and a lead bullet.

Stratum II: Later colonial period assemblage, similar to stratum III. Included a VOC coin dated 1779 and a small gold ring.

Stratum I: 19th -20th century deposit, containing kaolin pipes, coins dated 1856 and 1881, a porcelain doll piece, slate fragments and modern trash.

BN2 faunal remains

While BN2 produced diverse faunal assemblages from colonial period strata, pre-colonial strata were dominated by marine shell, with a minority of bird and unidentified mammal bones. In stark contrast to site BN1, pig remains were entirely absent from pre-colonial strata at BN2. It is likely that the extensive mud flats and shallow reef directly south of this site were a source of much of the shellfish remains seen in this site.

BN2 chronology summary

- AD 1200-1300: initial occupation. Nearby region may have been long occupied, but area of site BN2 probably underwater until this time.

- AD 1300-1600: trading settlement, with access to diverse array of trade goods, such as Thai and Chinese ceramics, iron. Possible Muslim enclave, as no pig remains in faunal assemblages from this period. Near the end of this period (late 16th century?), wall is built. Wall destroyed in the late 16th-early 17th century (1629 tidal wave?).

- AD 1600-present: transition to colonial occupation, followed by intensive colonial period use of this area.

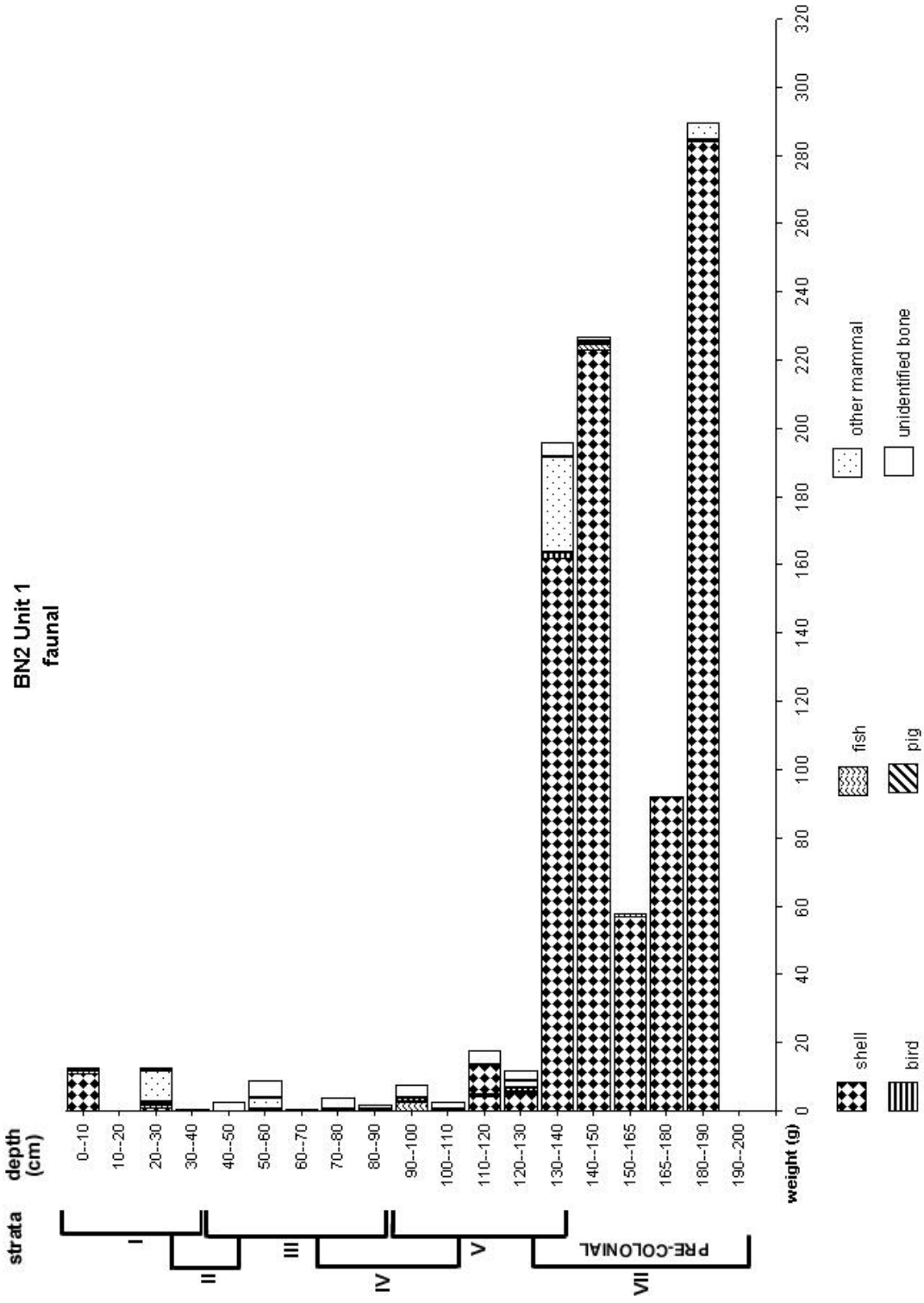


Figure 4.31. BN2 Unit 1 faunal assemblages.

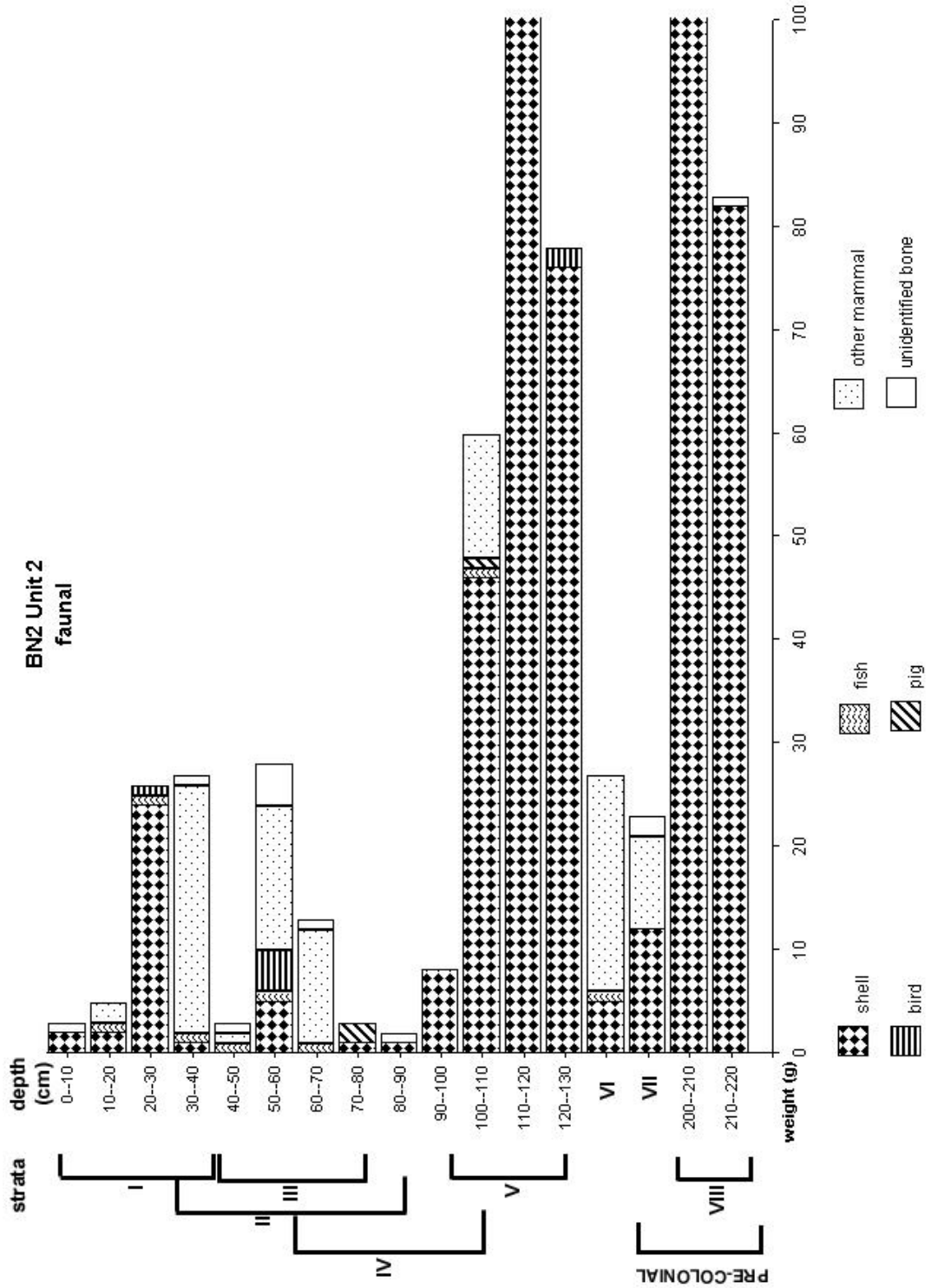


Figure 4.32. BN2 Unit 2 faunal assemblages.

Site BN3

Summary of archaeological work completed

In the early part of the second field season in 1998, a brief search was made for the remains of a small settlement called *Ouver*, which was listed on the 1602 Gelderland maps (see Chapter 3). This settlement was small and did not appear on any other maps. It might have been an ephemeral settlement, perhaps only occupied in response to 16th century social forces. I hoped to test this theory archaeologically by finding the remains of the settlement and determining its habitation chronology. However, the Gelderland maps do not give a precise location for the settlement, and it is lost to contemporary Bandanese oral history, with no similar toponyms in use. In early February, a small team made an intensive surface survey in search of remains of the settlement on the level plateau just north of the eastern end of the airstrip. This area had quite a lot of surface artifacts, but they appeared to be primarily from the colonial period. The area was also the site of a Dutch colonial *perek* called Kastin, which was demolished when the airstrip was constructed in 1985-86, and the remains we found were most likely associated with the perek.

The airstrip was made by leveling several small hills, and this exposed some almost vertical sections of hillside on the northern side, which were drawn and photgraphed. I planned to return to the area for further investigations, but later decided to concentrate on the many sites that were already known to be pre-colonial settlements, and no further work was undertaken.

Site BN4

Summary of archaeological work completed

After excavations were completed at site BN2, a second site was chosen to explore further the pre-colonial habitation of the historic town of *Nera*. Site BN4 was chosen because it was a large open area, consisting of the walled garden of a large abandoned colonial building, located at the southwestern corner of Banda Naira. The garden area was large enough to permit some probing by shovel test pits to determine the location of old shorelines, and test for pre-colonial habitation. Permission for excavations was complicated by the fact that the building was controlled by a largely defunct government service (most recently called P.T. Pala Banda) that once processed nutmeg for all of Banda's nationalized nutmeg estates. The building was last used in the mid-1980's and had since been left empty, slowly crumbling into ruins, but no local government official could tell me who was truly in charge of giving permission. After nearly a week of tracking down various people, I finally asked Des Alwi, whose foundation planned to assume control of the property, and he took responsibility for allowing the excavations to go forward.

In February 1998, an initial survey of the 50 x 50 meter walled garden was completed, and three shovel test pits were excavated. These pits revealed cultural deposits extending down 250-270 cm to the water table, and appeared to continue below it. Colonial period artifacts, such as kaolin pipes, were present down to 225-240 cm, while the lower 30-40 cm were composed primarily of earthenware, with some glazed ceramics. These lowest strata were judged to be pre-colonial on the basis of artifact assemblages.

During this work, I was fortunate to meet Jaap and An Keppel, a Dutch couple who were visiting Banda to survey colonial structures in hopes of developing a preservation/restoration scheme for colonial buildings in Indonesia. They had with them several colonial period maps of Naira that they had copied from archives in the Netherlands, including two which showed the buildings around BN4 in 1650 and 1791 (see Figs. 4.22 and 4.23 above). These maps showed that site BN4 was the original location of the VOC Governor's residence, built sometime between 1621 and 1650. In 1824, a new residence was built near site BN2 (called the "Istana Mini" or mini palace), and the old residence was subsequently used for various administrative purposes.

In March 1998, we returned to BN4 with Earthwatch Team 3, and established two 2 x 2 meter units. Unit 1 was placed adjacent to TP2, which had the most extensive pre-colonial strata. Unit 2 was placed in the far northeast corner of the garden, with the objective of getting further north of the pre-colonial shoreline into deeper pre-colonial deposits. After 10 days of excavations, the 250 cm level was reached. I planned to spend one more day excavating another 10-20 cm before the water table was reached. On our return the next morning, we were dismayed to find both units had been seriously damaged overnight. I had not realized that in fact Banda Naira's water table fluctuates with the tides. Overnight, during the high tide, the water had risen inside the pits, and eroded the base of the pit walls, which then collapsed. The walls were cleaned out so that section photographs and drawings could be made, and the wood/iron barrel feature in Unit 2 was removed, but no further excavations were attempted.

Figure 4.33. View of BN4 Unit 2, looking north, with Old Governor's Residence in background.

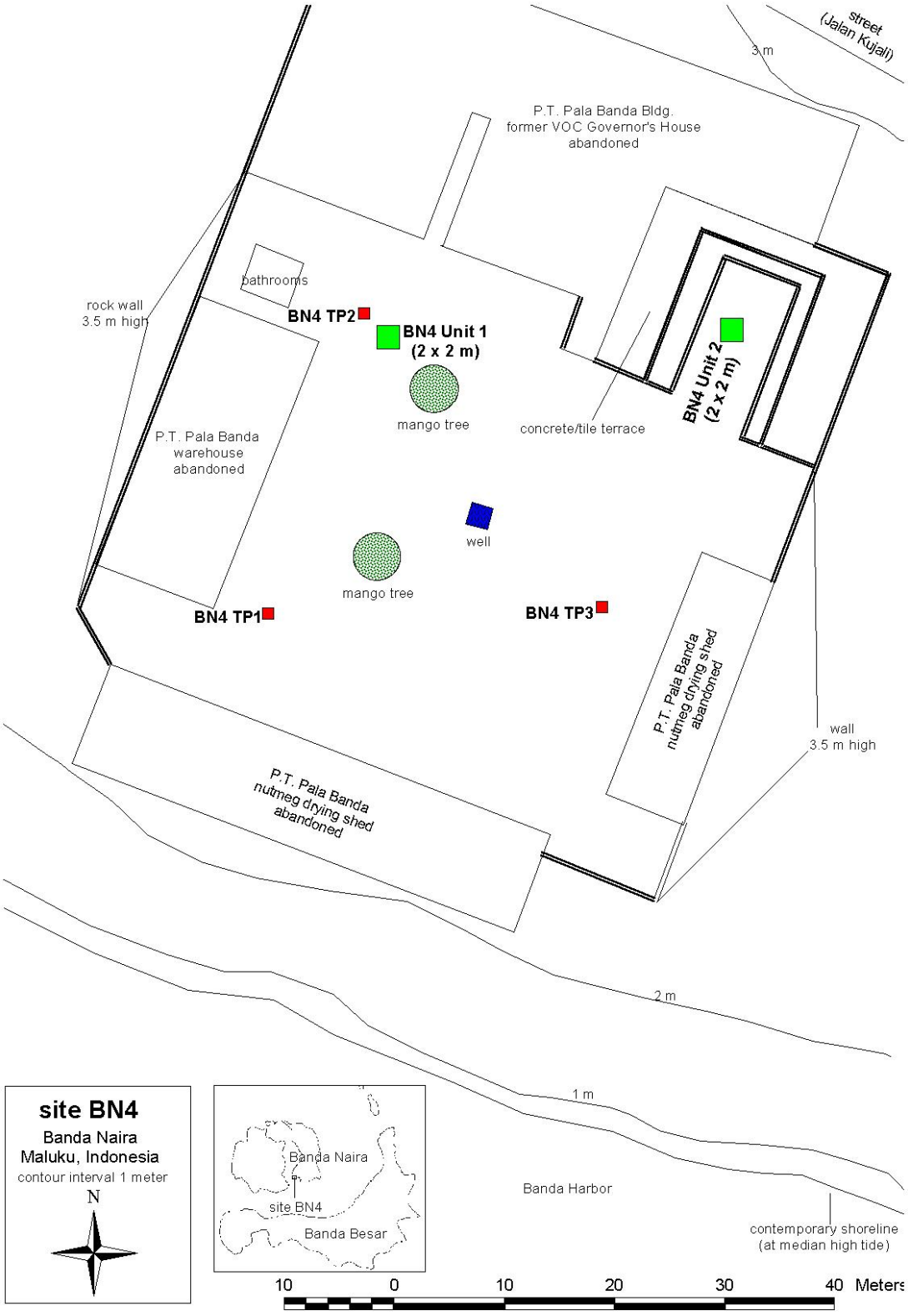


Figure 4.34. BN4 site map

Figure 4.35. Aerial photo of Naira, showing sites BN4 and BN2 (photo by Jez O'Hare)

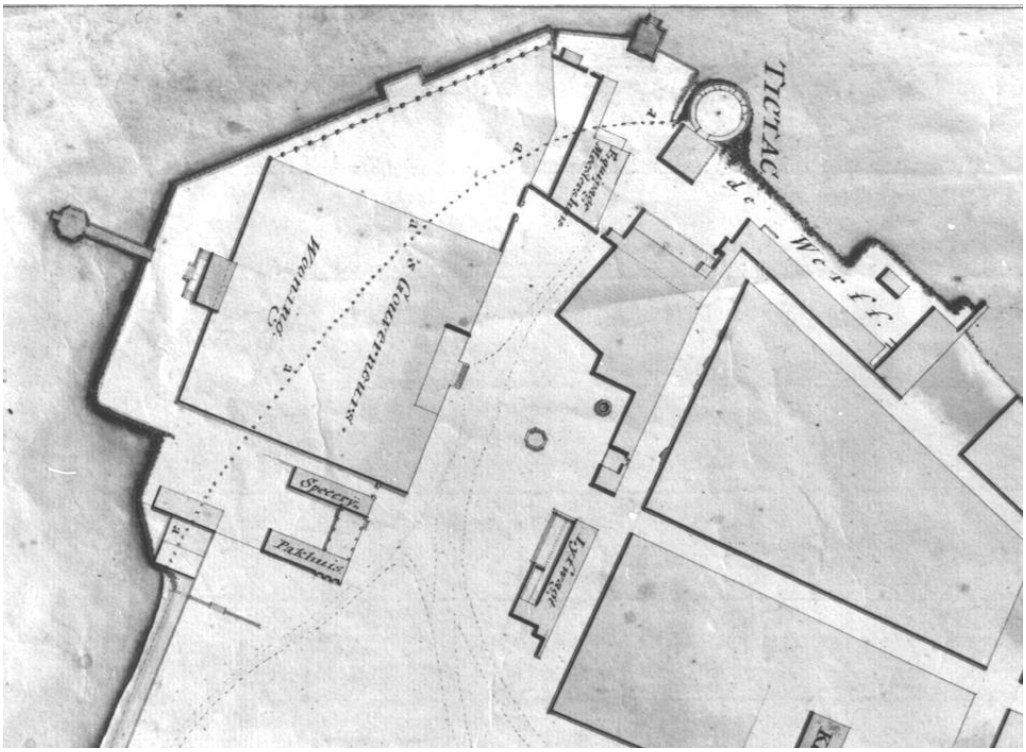


Figure 4.36. Detail from 1791 plan of Naira by C.F. Reimer, showing the Governor's Residence (copy obtained at the Algemeen Rijksarchief (Dutch Royal Archives), The Hague, microfilm cat # 4.VEL.245).

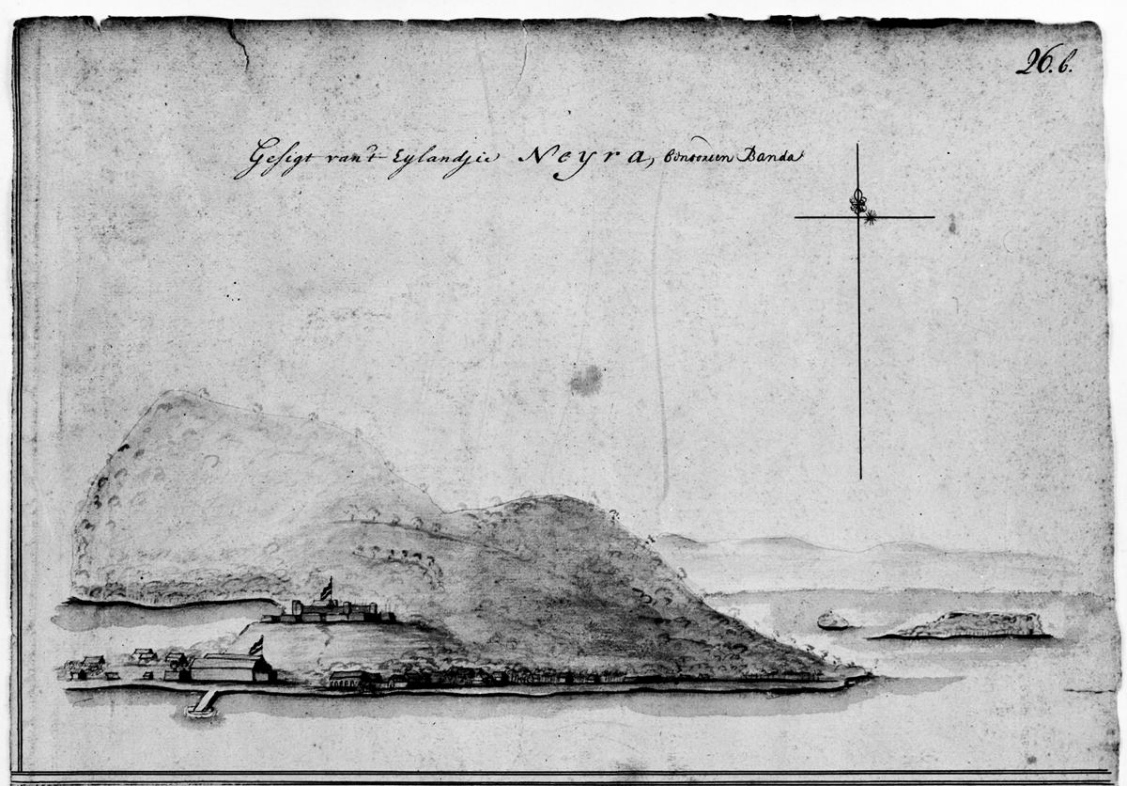


Figure 4.37. View of Naira, 17th century (copy obtained at the Algemeen Rijksarchief (Dutch Royal Archives), The Hague, microfilm cat # 4.VEL.246).

BN4 stratigraphy

Stratigraphy at this site was complex, with extensive colonial period building remains. In the interest in proceeding as quickly as possible to the pre-colonial strata, the colonial period strata were excavated in artificial 10 cm levels rather than following natural stratigraphy. Units 1 and 2 had very different stratigraphy, and because colonial chronology was not clearly re-constructable, I have not been able to correlate strata between the two units. Please note that stratum labels are separate for each unit, unlike in other sites. Stratum descriptions are as follows

Unit 1

Stratum I: Gray/ brown topsoil, with mixed modern and colonial period artifacts, including kaolin pipe fragments.

Stratum II: Dark brown loam with large numbers of kaolin pipe fragments. Cutting through this stratum were two mortar and stone concretions, one in the northwest corner and the second in the center-eastern edge of the unit. These concretions extended down to 80 cm. A line of earthenware roofing tiles was placed edge up diagonally across center of the unit as well, and next to it was a thin mortar layer. These features were in alignment with the old Governor's residence, and appear to be an old passageway, with the tiles marking a path or garden edge.

Stratum III: Black/gray volcanic ash with gray striations. This stratum was entirely sterile, although the assemblage charts show artifacts contained in the intruding mortar/rubble features described above. A thin lens of sterile dark gray clay underlay this stratum.

Stratum IV: Brown clay/loam with colonial period artifacts.

Stratum V: Black sand and loam mixed with coral pebbles, marine shells and colonial period artifacts.

Stratum VI: Brown loam and sand and colonial period artifacts. Stratum VIa, which intruded into stratum VII below, was similar, but mixed with marine shells.

Stratum VII: Dark brown sandy loam, rich with early to middle colonial period artifacts, and large amounts of iron plate, spikes and iron slag material. Lower levels had lenses of rounded pebbles, and decreasing amounts of artifacts, with the lowest 10 cm nearly sterile.

Stratum VIII: Brown gravelly loam, damp, with 15^{th}-16^{th} ceramic assemblages including Yuan-Ming blue and white, iron spikes, shellfish and goat teeth, and a single kaolin pipe fragment.

Stratum IX: Brown gravelly loam, with larger rocks than above. Sparse artifacts included Yuan blue and white, possible Song monochrome sherd, small iron spikes and earthenware, some of which appears worn with rounded edges. Excavation stopped at water table, but deposits appear to continue deeper.

Unit 2

Stratum I: Gray/ brown topsoil, with mixed modern and colonial period artifacts, including kaolin pipe fragments, 1816 "Indie Batav" coin (correlates with Stratum I, Unit 1).

Stratum II: Black loam and volcanic ash. Large amounts of colonial period artifacts, including 1770 VOC coin. Brick/mortar wall feature cuts through this stratum in the south and east walls, and rock/mortar rubble layer intrudes in south and west walls. May correspond with Stratum II in Unit 1, although soil color and morphology is different.

Stratum III: Gray/black loam with colonial-period artifact assemblage. Brick mortar wall continues through this stratum. May correspond with Stratum IV-V in Unit 1. Unit 2 lacks the sterile volcanic ash layer (Stratum III) found in Unit 1.

Stratum IV: Brown sandy loam with early colonial period assemblage. Brick wall begins above this stratum. May correspond with Stratum VI-VII in Unit 1.

Stratum V: Gravel and pebbles, with 16^{th}-17^{th} century ceramics, goat tooth, iron spikes, 2 kaolin pipe fragments, sago mold (*forna*) fragment. Top of wood/iron "barrel" feature reached in this stratum. May correspond with Stratum VII in Unit 1.

Stratum IV: Brown gravelly loam with Song Yuan monochromes, Yuan blue and white sherd, several sago mold fragments, marine shell. Some pieces appear worn. Water table reached at 250 cm, but stratum appears to continue below it. Wood/iron "barrel" feature extended down to 260 cm. May correspond with Stratum IX in Unit 1.

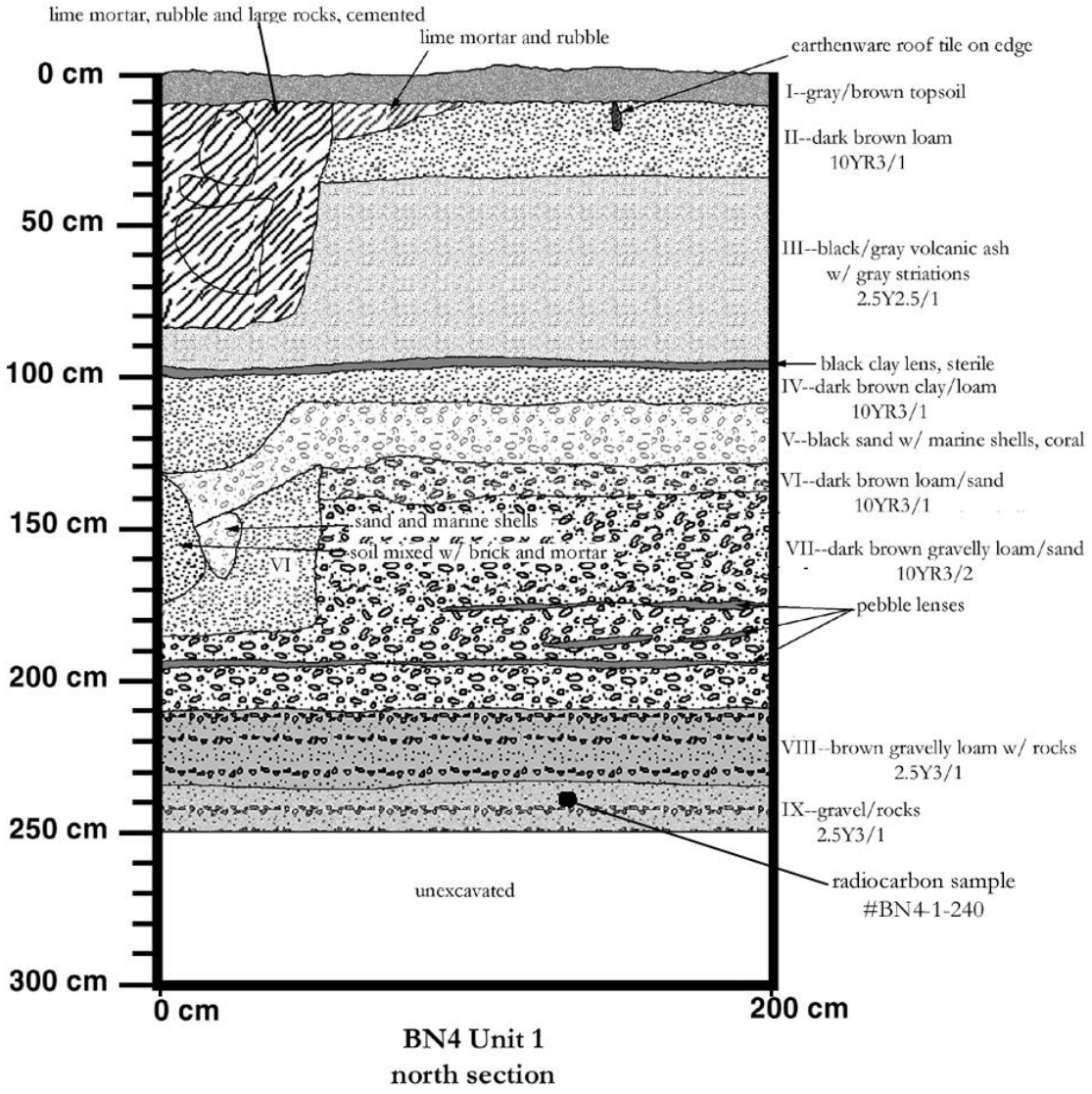


Figure 4.38. BN4 Unit 1 north section

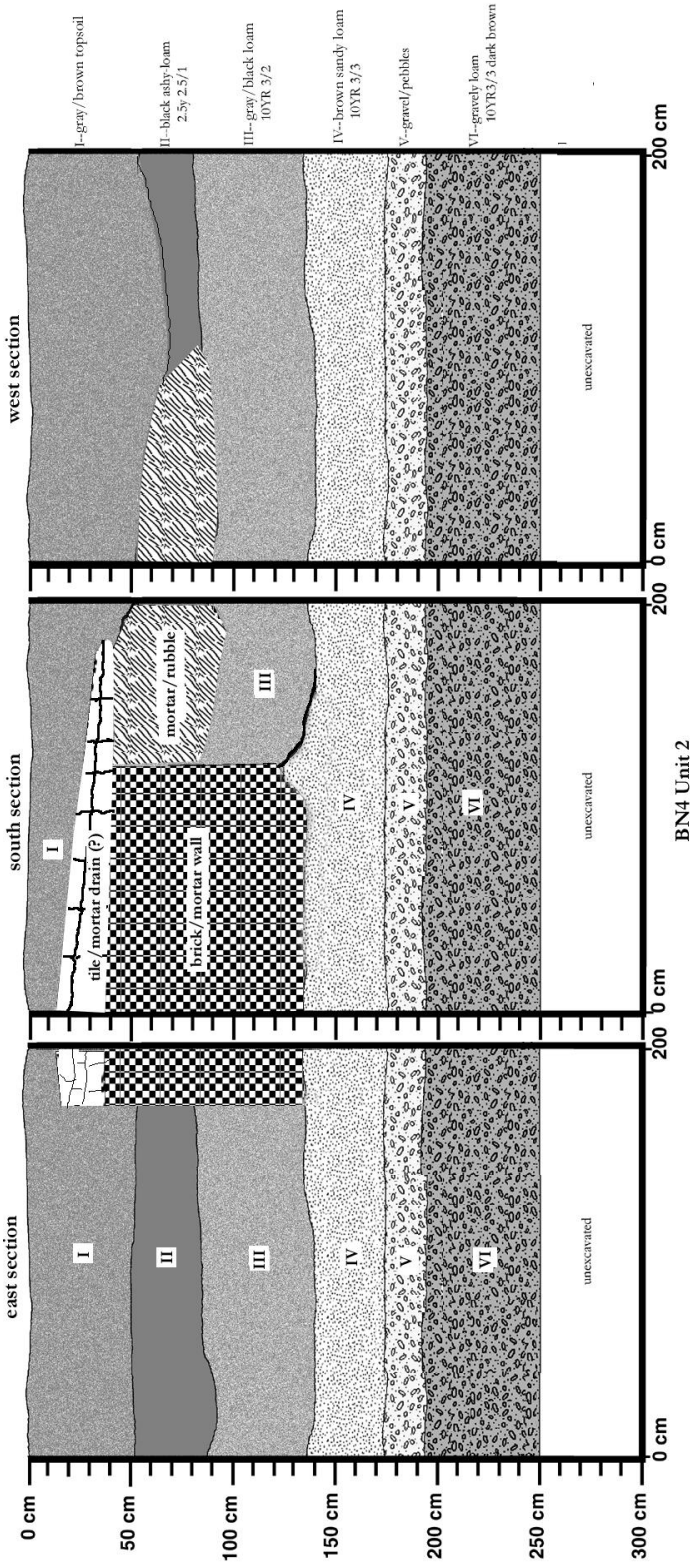


Figure 4.39. BN4 Unit 1 east-south-west sections

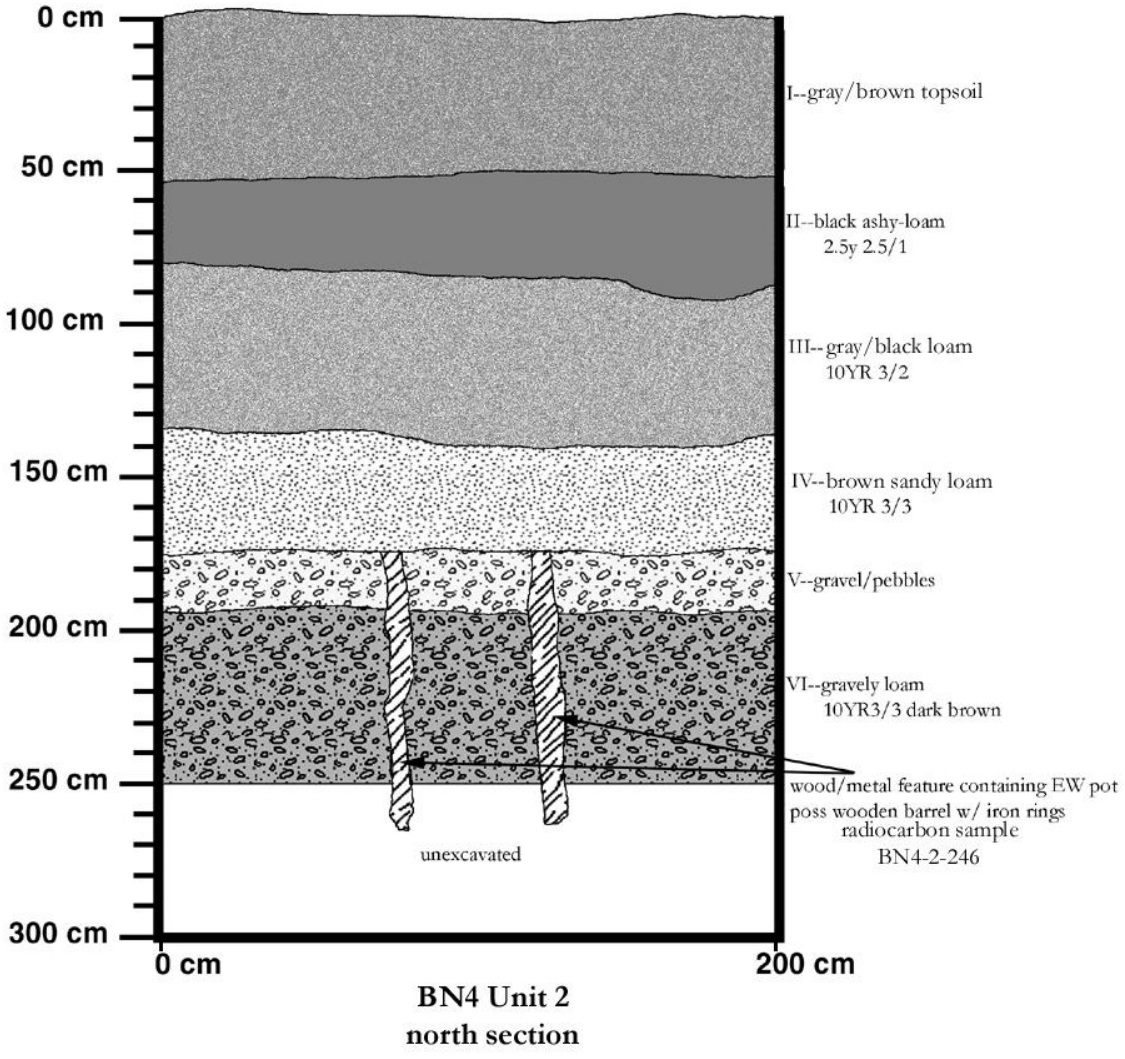


Figure 4.40. BN4 Unit 2 north section

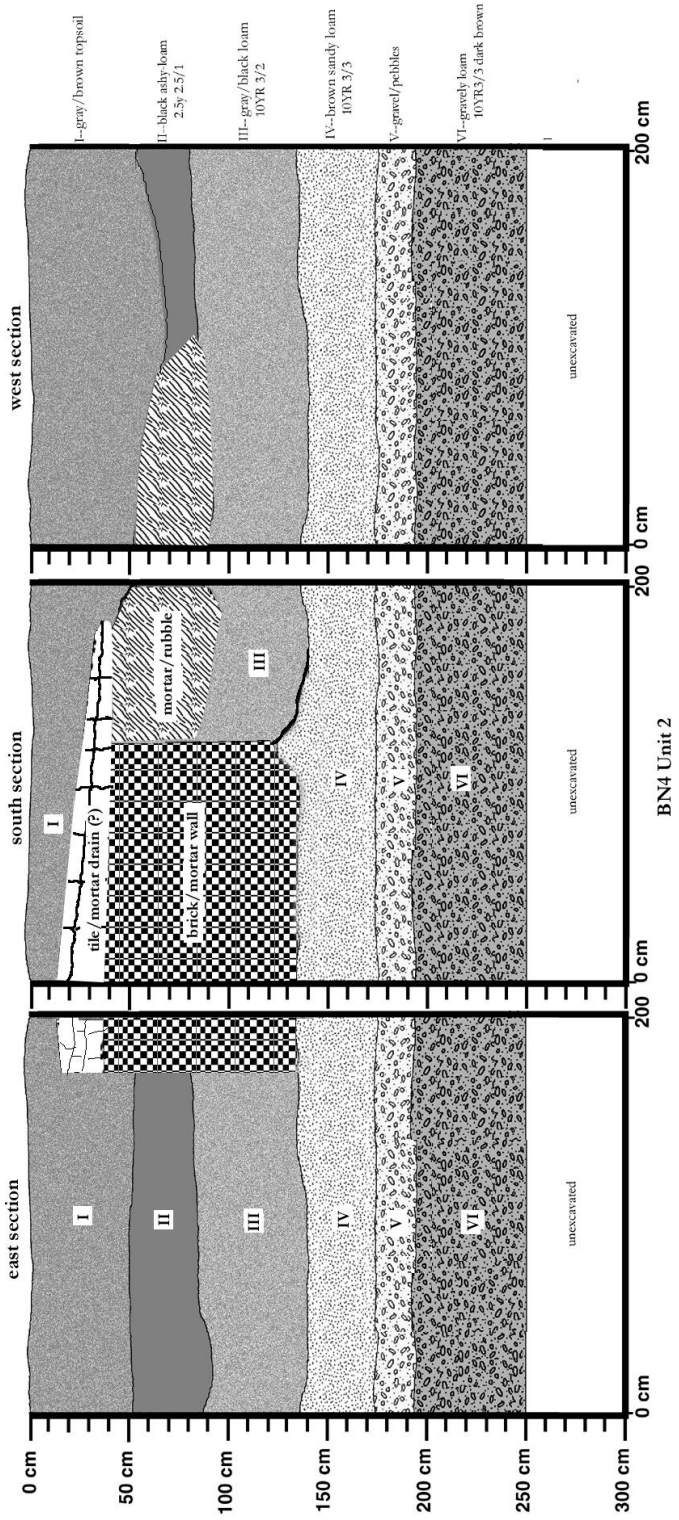


Figure 4.41. BN4 Unit 2 east-south-west sections

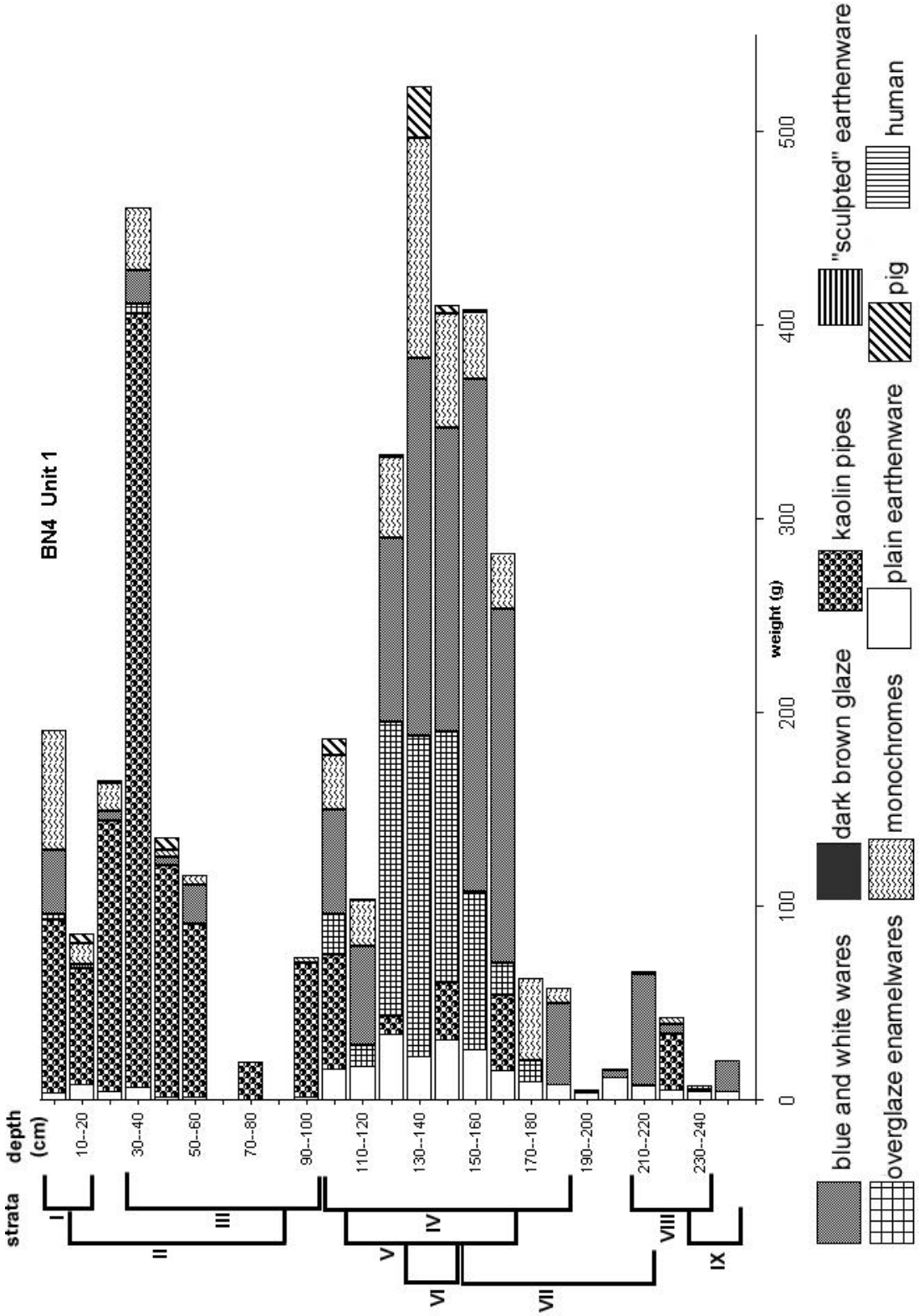


Figure 4.42. BN4 Unit 1 level assemblages

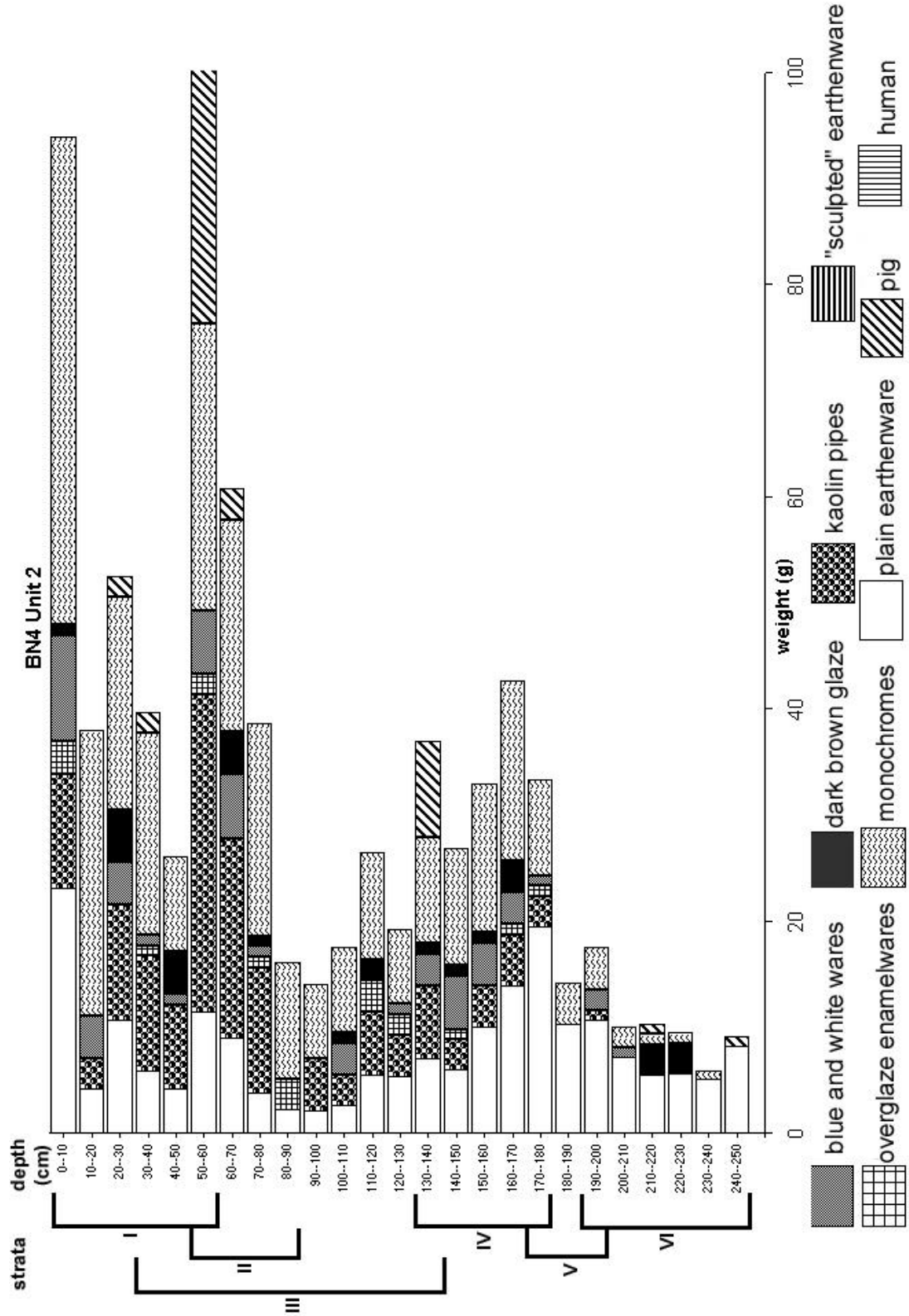


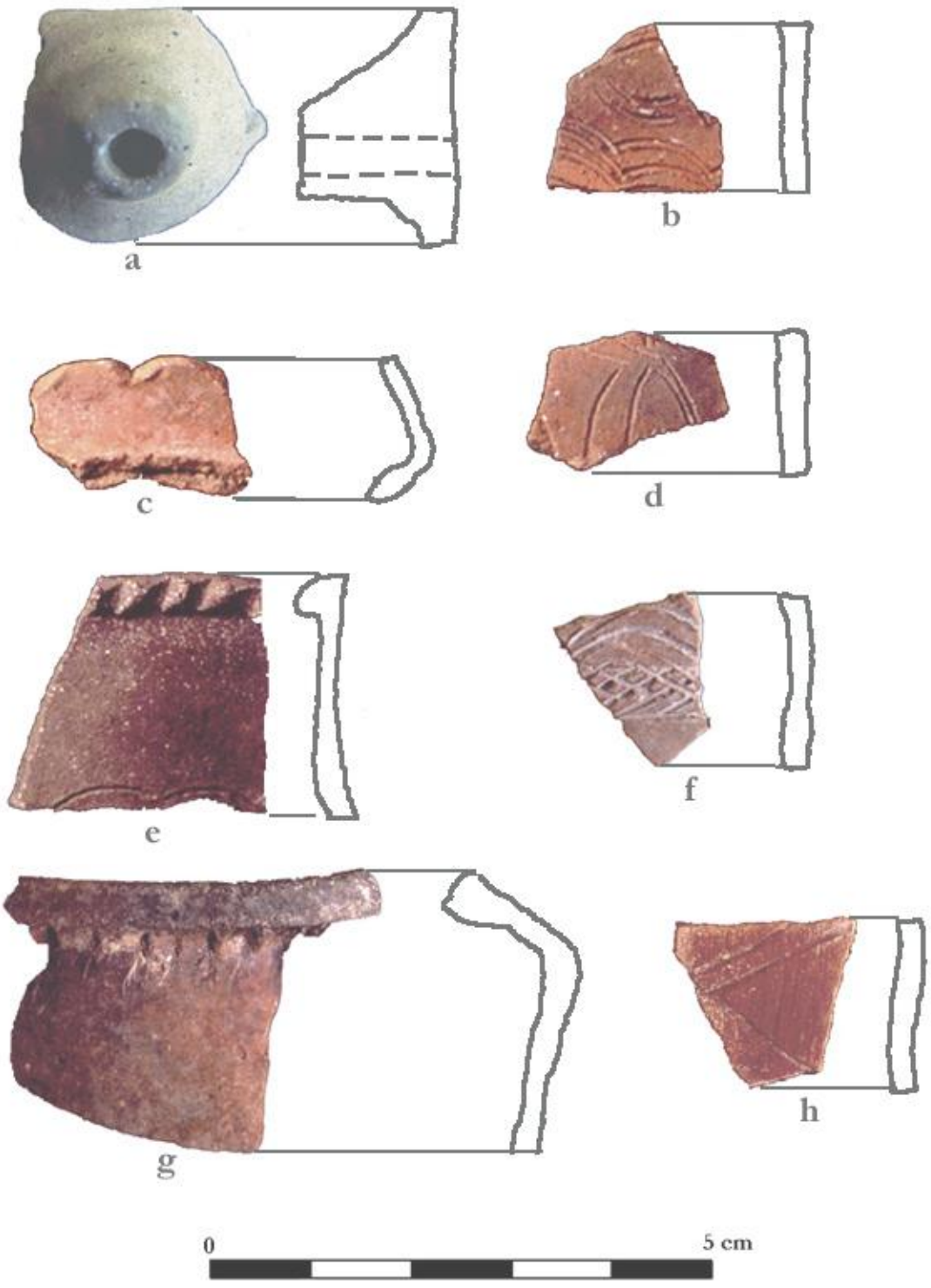
Figure 4.43. BN4 Unit 2 level assemblages

BN4 artifacts

Figure 4.44. Wood/iron "barrel" feature in situ in BN4 Unit 2. Top: top view of Unit 2 showing feature position; Bottom: close up of feature showing position of earthenware pot inside "barrel".

Figure 4.45. Earthenware pot from inside "barrel" feature, BN4 Unit 2

Figure 4.46: Lead artifact, weight or charm? BN4 Unit 1, 180-190 cm



1, 170-180 cm; g: Unit 1, 230-240 cm; h: Unit 1, 190-200 cm.

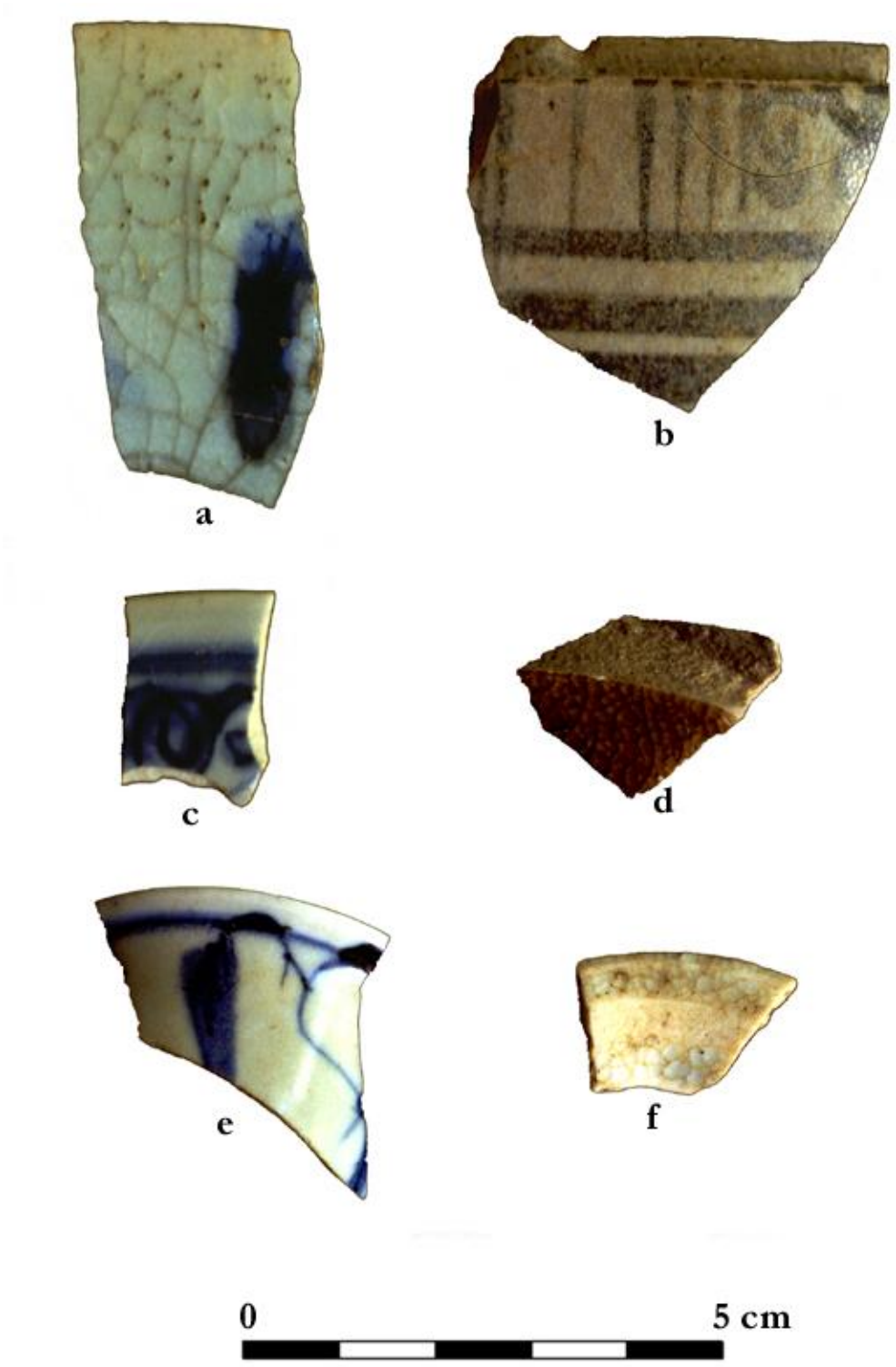


Figure 4.48: Glazed ceramics from BN4. a, c: Ming dynasty blue and white tradewares, S. China, Unit 1, 220-230 cm; b: Thai-Sawankhalok black underglaze jar sherd, Unit 1, 220-230 cm; d: Changshah amber glaze, Unit 1, 230-240 cm; e: Ming dynasty blue and white tradeware, Unit 1, 230-240 cm; f: possible Cheng te chen white glaze, Unit 1, 230-240 cm.

Wood "barrel" feature analysis

This feature is of interest not only because of the unusual preservation of the wood, but also its stratigraphic position in Unit 2, where there should be a transition from pre-colonial to the colonial period. The dating of the object would help clarify the chronology of this particular unit, which was complicated by several intrusive colonial period constructions. Thus, a sample of the wood was collected for analysis. One fragment was submitted for radiocarbon dating (sample # BN4-2-254), and was determined to be 435 +/- 45 BP, with a 2-sigma calendar age of AD 1409-1625 (the large uncertainty from calibration curve at this age). This is in agreement with stratigraphic clues, but does not provide the certainty necessary to place the object in either the pre-colonial or the colonial era.

A sample of the wood was then analyzed to determine tree species, with the hope that knowing the origin of the wood would clarify its age. A sample was mounted and viewed in a SEM (see Fig. 4.49), and was determined to be English oak (*Quercus*). It very likely dates to after the arrival of the first Portuguese traders in 1512. Assuming that the Portuguese traders were not using English oak barrels in the 16th century (not a very secure assumption) this would date the objects arrival in Banda to between 1600-1621.

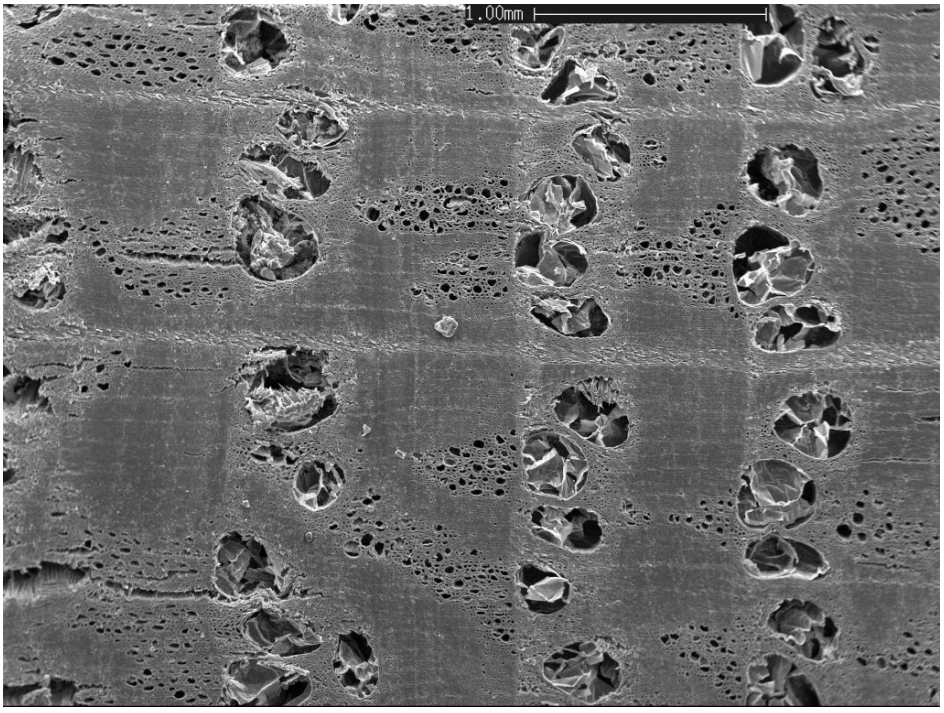


Figure 4.49. SEM photograph of wood sample from the "barrel" feature in BN4 Unit 2

BN4 faunal analysis

BN4 had a diverse and interesting assemblage of faunal remains from the colonial period, which reflect the varying uses of the site. Early colonial remains of large mammals, such as cattle, as well as goat and pig indicate European diet, and in considerable quantities. Later colonial period remains were much less in volume, indicating the use of the site for administration rather than habitation. As Unit 2 had colonial intrusions into the lowest levels, it is not possible to separate out pre-colonial faunal remains for analysis. In Unit 1, pre-colonial faunal assemblages, which are shown below in Fig. 4.50 were quite distinct from the colonial remains at the site, and quite similar to the faunal assemblages at site BN2. They are primarily shellfish, with lesser amounts of fish. Pig remains, while abundant in colonial strata, are entirely absent from pre-colonial strata, possibly indicating adherence to Muslim food restrictions.

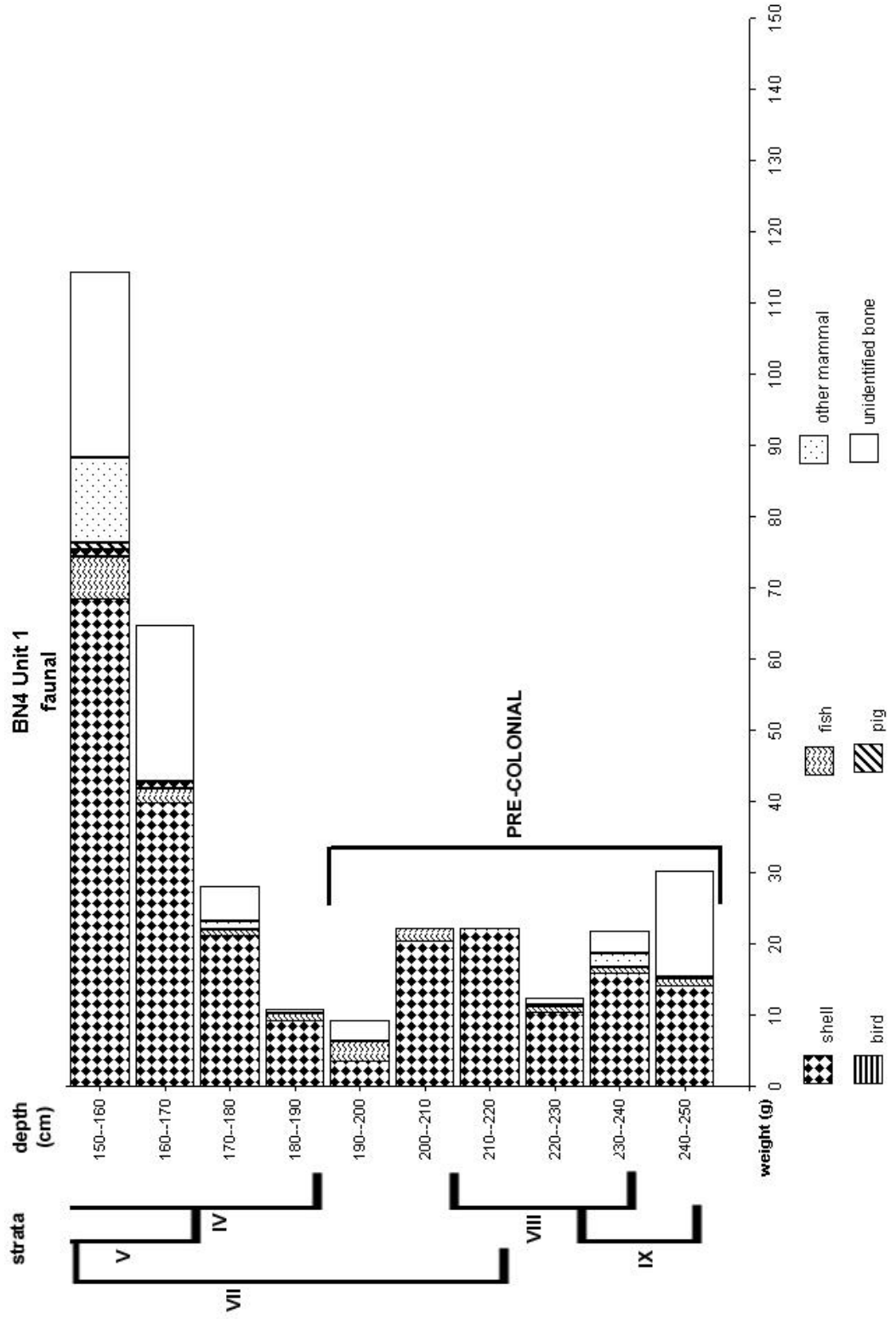


Figure 4.50. BN4 Unit 1 faunal assemblages.

BN4 site chronology

Chronology at site BN4 was determined using two radiocarbon dates, one from each unit, and artifact assemblages, as well as the identification of wood from the barrel feature discussed above. The volcanic ash layers present in other Banda Naira sites are problematic here. Although a thick layer of culturally sterile ash appears in Unit 1, and looks quite similar in appearance and position to the ash strata seen in sites BN1 and BN2, it is missing from Unit 2. It could be that the area of Unit 2 was inside a building during the eruptions that produced the ash strata in other units, or it may have been removed during subsequent building activity. Intrusive features, such as the mortar/brick and stone walls found in both units also complicate chronological reconstruction, as we did not separate artifacts during excavations by natural stratigraphy. This was done, as at site BN2, in the interest in saving time and proceeding to the pre-colonial strata. Strata ages are posited below, beginning with the deepest/oldest strata:

Unit 1

Stratum IX: A radiocarbon sample of marine shell from the center of this stratum was dated to AD 1022-1249. This is older than expectations (based on the presence of blue and white sherds) by 200 years. There are two possible explanations for this apparent discrepancy. The marine shell sample may be an old shell, not contemporaneous with the cultural materials with which it was associated. Second, the three blue and white ceramic sherds may be unusually old examples. In either case, the discrepancy is not large, and it is reasonable to conclude that the stratum pre-dates AD 1300.

Stratum VIII: A sparse Yuan-Ming period assemblage, with a single possible black underglaze Sawankhalok sherd suggests a 13^{th}-15^{th} century age for this stratum. While blue and white pottery outnumbers monochrome tradewares, the number of sherds is quite low. Large amounts of marine shell and the water-worn appearance of some of the artifacts suggest that this stratum was situated in the intertidal zone.

Stratum VII: This stratum appears to cover the colonial-pre-colonial transition, with a Ming period ceramics assemblage. Large amounts of iron, including possible iron slag, suggest metal working activity on the site. The absence of kaolin pipe fragments and pig remains below 170 cm suggest that the lower

levels date to the pre-1600 era. These levels contained some unusual copper and lead artifacts. Above 170 cm, the assemblages look colonial, with pig remains, glass and ceramic liquor bottles. However, here the technique of excavation using artificial levels may have obscured the stratigraphic relationship, as these colonial period artifacts may have come from the intrusive pit extending down from Stratum VI to 170 cm. The lower levels of this stratum may have also been in the intertidal zone, with marine shell and some artifacts water-worn, and pebble lenses suggesting a dynamic beach like environment. Age range 16th-17th century.

Stratum VI: Rich early to mid-colonial period assemblage, suggesting a 17th century age.

Stratum V: This stratum was composed of beach sand and shells mixed with colonial period artifacts. This stratum may have been deposited by one of the tidal waves that swept over Naira town, almost certainly washing over this site, perhaps in 1778.

Stratum IV: Similar in age to Strata V and VI.

Stratum III: This volcanic ash stratum dates to either the 1632, 1691-96, or the 1820 eruptions. While its appearance and position are similar to the volcanic strata in BN1 and BN2 that have been associated with the long period of eruptions in 1691-96, historical clues suggest it may date to the later 1820 eruption. The colonial period use of the site can be divided into two periods. From the early 17th century until the English occupation in the late 18th century, the site was the Governor's residence. After the Dutch regained Banda and built a new governor's residence at the Istana Mini in the 1820s, the site was used for administrative activities. The preponderance of kaolin pipe fragments in Stratum II suggests that this was non-residential activity, and that the site was used by workers who lived elsewhere. This is in contrast to the rich assemblages of Chinese and European ceramics and large quantities of faunal remains found in Strata IV-VII, which suggest that people lived at the site. This suggests that Stratum III is the ash from the 1820 eruption.

Stratum II: Large quantities of kaolin pipe fragments, as well as mortar, brick and roof tile. Dating to the post-18th century.

Stratum I: Late 19th-early 20th century, with 1945 coin.

Unit 2

Stratum VI: Radiocarbon sample of wood from the wood/iron "barrel" feature lying in this stratum was dated to AD 1409-1625, but identification of the wood as English places it in the post 1512 era, and probably post 1600. The artifact assemblages are Yuan-Ming era blue and white, monochromes and overglaze enamelware, suggesting that the stratum dates from 13th-16th century, and is probably a mixture of colonial and pre-colonial material.

Stratum V: This stratum appears to straddle the colonial-pre-colonial boundary, with Ming era ceramics, and a few kaolin pipe fragments in the upper levels, dating the stratum to 16th-17th century.

Stratum IV-II: Colonial period strata, dating 17th-19th centuries.

Stratum I: late colonial-modern period.

BN4 chronology summary

- AD 1100/1200 - 1600: site inhabited by non-pig eating (Muslim) people, possible metal working site, diverse trade goods available, including iron and copper in addition to ceramics. Shoreline probably in the vicinity of Unit 1 in early period, shifting southwards over time.

- AD 1600 - 1850: site inhabited by Europeans, with rich array of ceramics, eating large mammals such as pigs and cows, along with shellfish and large reef dwelling fish. Major building projects using

bricks and mortar. Several natural disasters including tidal waves and volcanic eruptions periodically destroyed structures.

- AD 1850 - present: site used by workers, but little or no residential activity, currently unused.

Banda Naira archaeological record: General conclusions

Archaeological work completed on Banda Naira has been focussed on three sites, BN1, BN2 and BN4, all of which are coastal trading settlements with post AD 500 occupations. There is no evidence for earlier period human habitation, but this is likely the result of excavations in areas that were probably underwater during that early period. All three of these Banda Naira sites showed evidence of old beaches, wave intrusion and water-worn artifacts in the lowest strata. Research into earlier habitation periods would necessitate excavation on higher ground, further back from the contemporary coastline. It would also likely require quite deep excavations in order to expose early strata that have since been buried by volcanic ash. These thick ash deposits complicate site discovery, however, and a search for earlier sites would probably require random test excavations. While these earlier periods remain unknown for Banda Naira, a chronology based on the available evidence is proposed here.

Banda Naira summary chronology

- AD 500: Initial occupation at BN1. Sculpted earthenware, pig eating, possible cremation burials.
- AD 500 - 1100: Continuous occupation at BN1, with elaboration of sculpted earthenware, possibly shared with other social groups in central and north Maluku, continued pig eating. Sporadic contacts with long distance traders, or access to exotic trade goods from mainland Asia via multiple short distance trade links.
- AD 1100-1200: Continued occupation at BN1, establishment of settlements at BN2 and BN4, which lack pig remains and sculpted earthenware. Increasing amounts of imported ceramics at all sites.
- AD 1200-1450: Cremation burials stop at BN1, but sculpted earthenware tradition continues as does pig eating.

- AD 1450-1600: Rock walls constructed at BN1 and BN2. Increasing diversity of glazed ceramics, including wares from Thailand and Vietnam in addition to China in all sites. Iron working at BN4. Sculpted earthenware and pig eating end at BN1 towards the end of this period.
- AD 1600 -present: Dutch colonial occupation of all three sites, though much more intense at BN2 and BN4. BN1 may have been abandoned.

Pulau Ay

Introductory notes

Pulau Ay is geologically distinct from Banda Naira, and this among other factors has affected the island's history. Pulau Ay is formed of uplifted limestone rather than volcanic debris, and lies 10 km west of the volcano. While it can be covered in layers of ash, as it was after the 1988 eruption, soil accretion is much less rapid, and sites are less deeply buried. In some cases, such as at site PA1, quite ancient remains are visible on the ground surface. The island is relatively flat, the only hill being Gunung Kota Perempuan ("city" or "fortress of women mountain") on the eastern end of the island. The shoreline is entirely fringed by coral reefs, with no protected harbors, which make access by medium or large boats difficult. They must generally anchor on the steeply sloping outer edge of the reef, which is exposed to wind and waves, and transfer people and cargo in small dugouts to the shore. The island lacks groundwater (the only water sources being too deep to be accessed by dug wells), so the inhabitants rely on collected rainwater. In times of drought, many are forced to travel to Banda Naira for water.

Historical documents and maps suggest that the island was largely ignored by the Portuguese and first Dutch visitors, despite data that suggests that the island was the second biggest nutmeg producer, probably because of the difficulty of access. The first map to show individual villages on Pulau Ay dates to 1617, about the time the English were constructing the first fortification on the island. Archaeological research was oriented toward determining the occupation history of Ay village (where the fort was constructed) as well as other settlements on the island, which may have escaped the early mapmakers attention. I also hoped to determine if the island had an earlier experience of contact with Muslim traders, and date a shift to Islamic behavior.

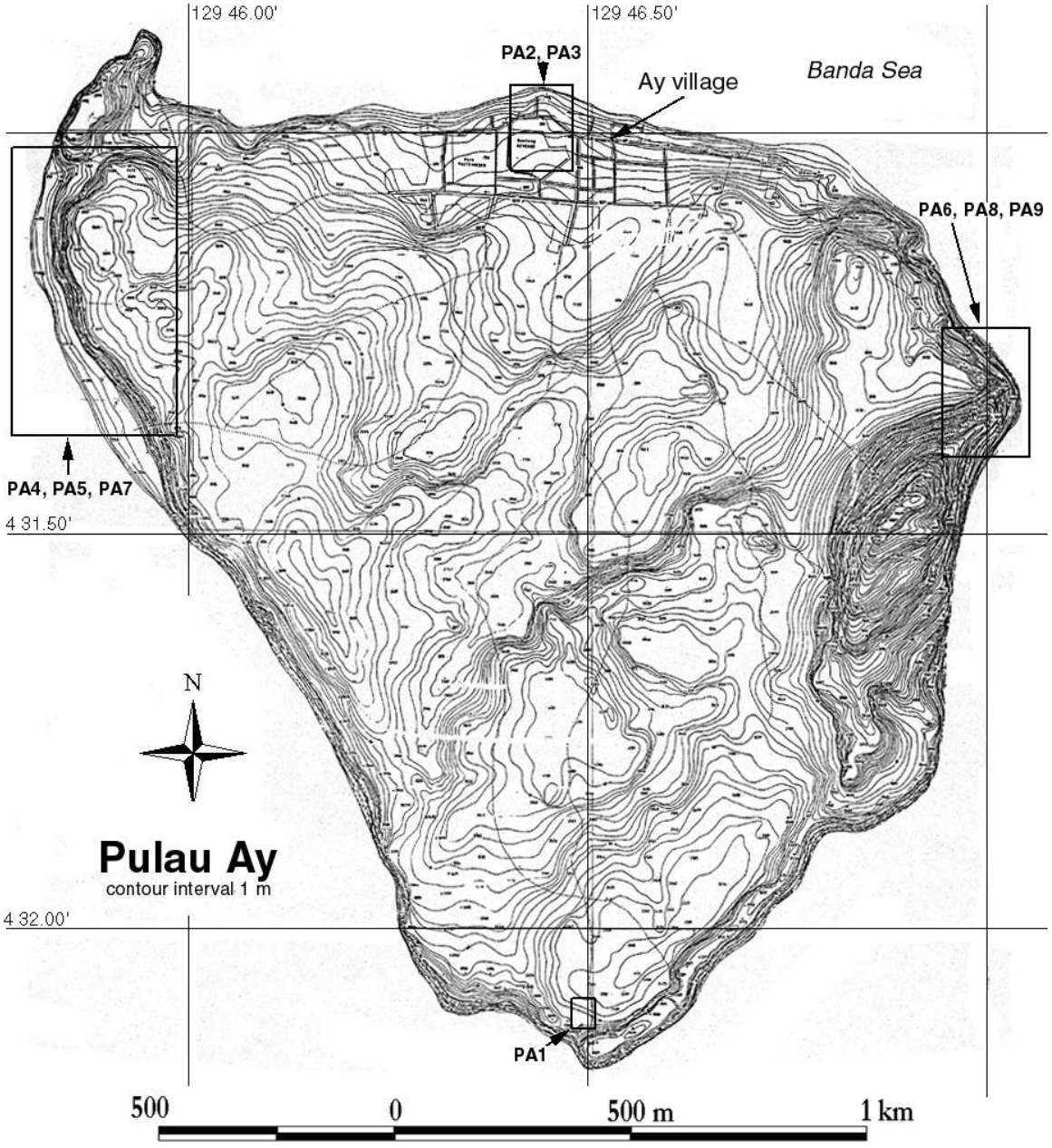


Figure 4.51. Topographical map of Pulau Ay showing archaeological site map coverage (adapted from Indonesian geographical survey basemap, 1997).

Site PA1

Summary of archaeological work completed

This site was found during the first exploratory survey of Pulau Ay in January 1997. A small survey party spent one day looking for surface artifacts along the undeveloped western coast of Pulau Ay. It quickly became apparent that this was a difficult exercise, due to the dense undergrowth along the coast, most of which was high cliffs. However, at a place where a footpath descended to one of the small pocket beaches at the southern end of the island, we noticed some earthenware pottery sherds scattered in what appeared to be a fallow cassava field.

With the arrival of the first Earthwatch team later that month, an intensive surface survey was conducted in the region of PA1, with the intent to locate the boundaries of the artifact scatter and determine if there were any concentrations of artifacts. Two 1 x 1 meter units were then excavated in the areas with the highest artifact concentrations, and deposits were found to contain earthenware ceramics, faunal remains and obsidian and chert artifacts and chip debitage, extending below 150 cm. To find out how much deeper these deposits continued, a shovel test pit was excavated between Units 1 and 2, which revealed deposits continuing below 250 cm, which was as deep as we could go without reinforcing the pit sidewalls against collapse.

At the time, nothing was known about the range of archaeological materials and typical assemblages found in sites. I suspected the site might have been a settlement of people who lacked access to glazed ceramic trade goods, because of their relatively remote location, or for other social reasons, dating to perhaps the 10th century. I was quite surprised when two radiocarbon samples from the site were dated to about 3000 BP. Despite the fact that this site had surface artifacts, it was quite ancient, due to the very different geological processes at work on the two islands of Banda Naira and Pulau Ay.

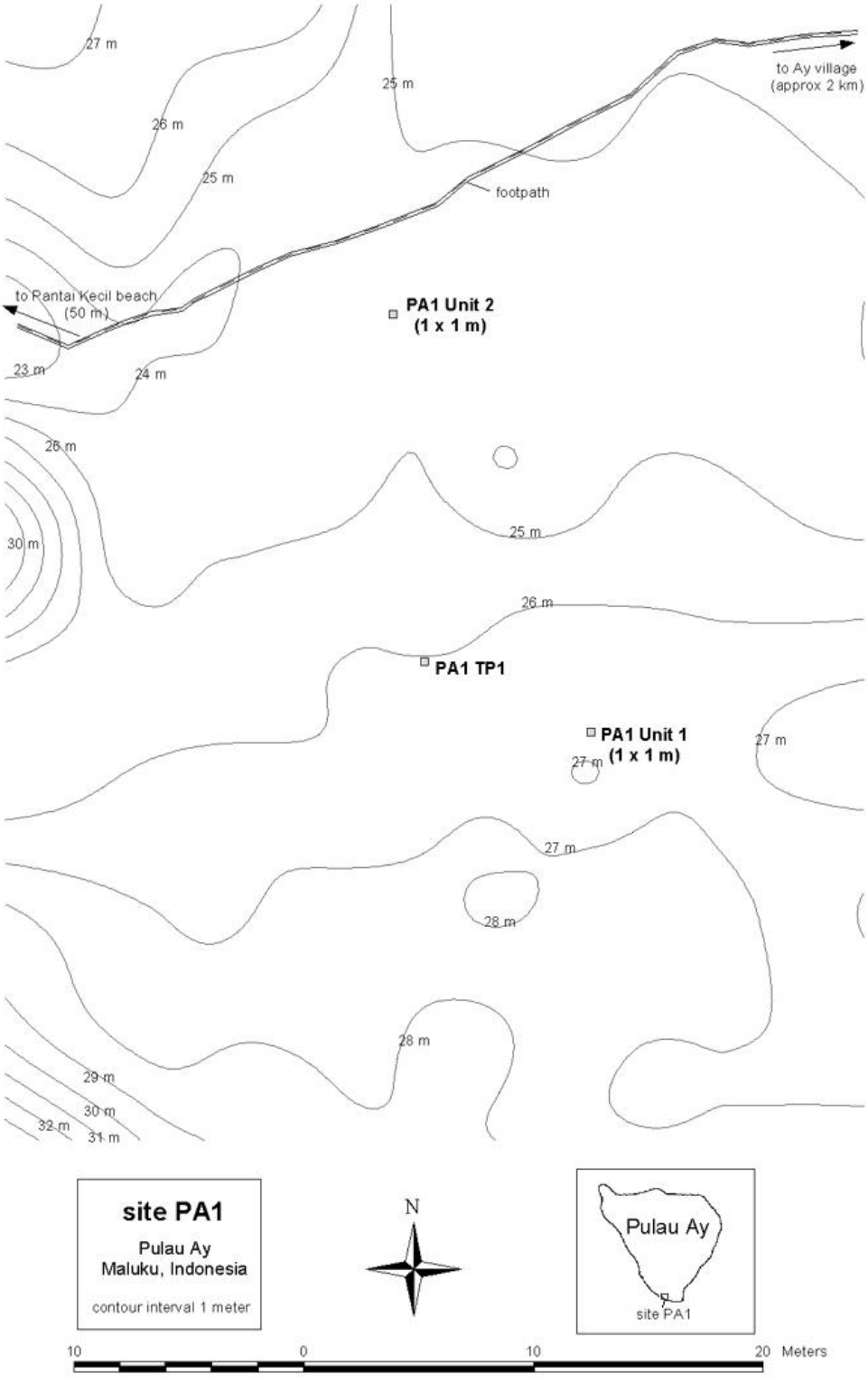


Figure 4.52. PA1 site map

Figure 4.53. View of Site PA1 area from the west.

PA1 stratigraphy

This site had relatively indistinct stratigraphy above 160 cm, probably because of low rates of soil deposition, plow zone disturbance and stratigraphic collapse caused by soil erosion. Strata correlate in approximate depth and number between the two units and the test pit, and are described on the section drawings below. Unit 1 contains Stratum IV, which was not seen (or not reached) in Unit 2. The test pit exposed several deeper strata, including a quite thick (20 cm) deposit of volcanic pumice, indicating a volcanic eruption in the deep past powerful enough to eject small rocks over 12 km from the Gunung Api crater. Strata are described in the accompanying section diagrams.

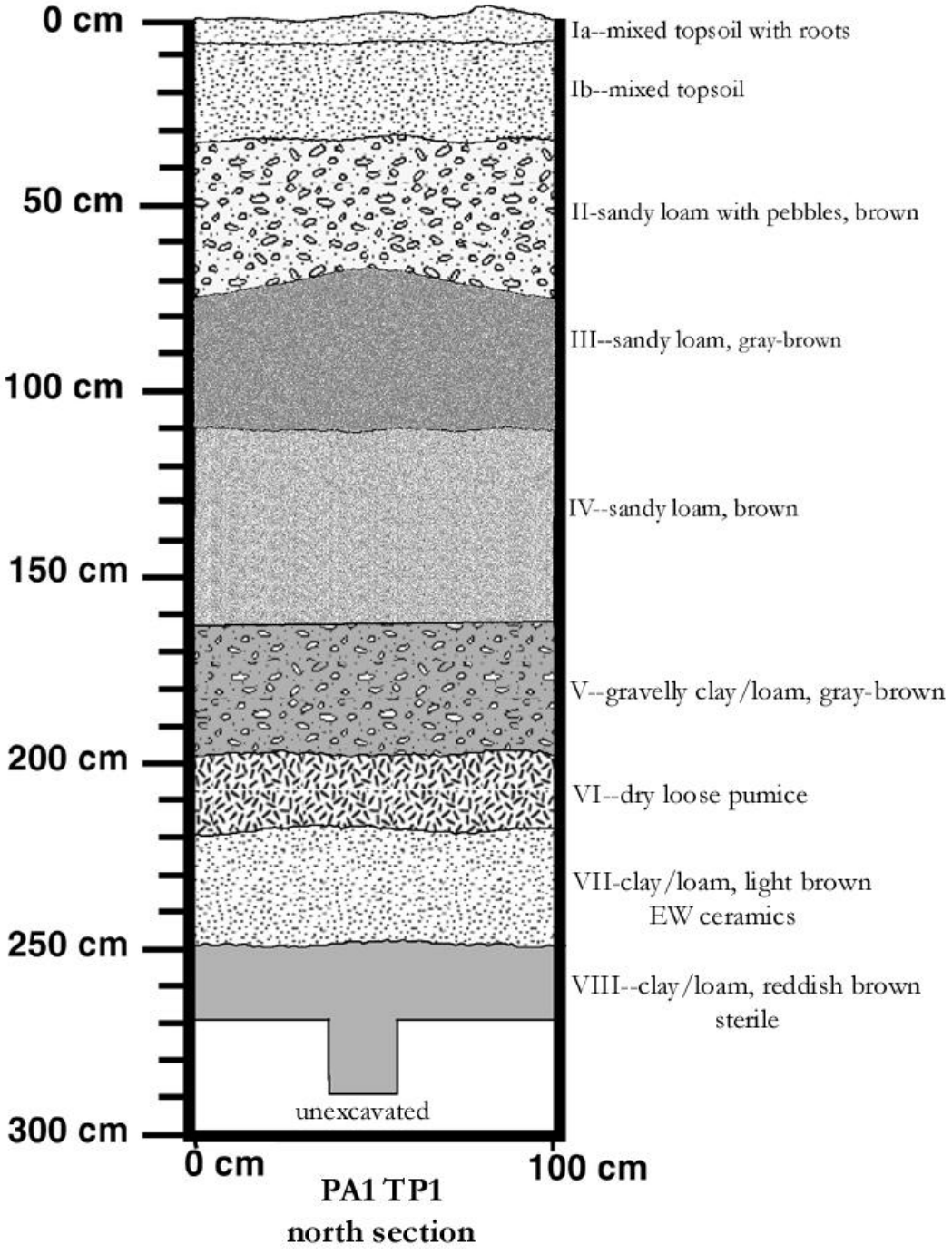


Figure 4.54. PA1 TP1 north section

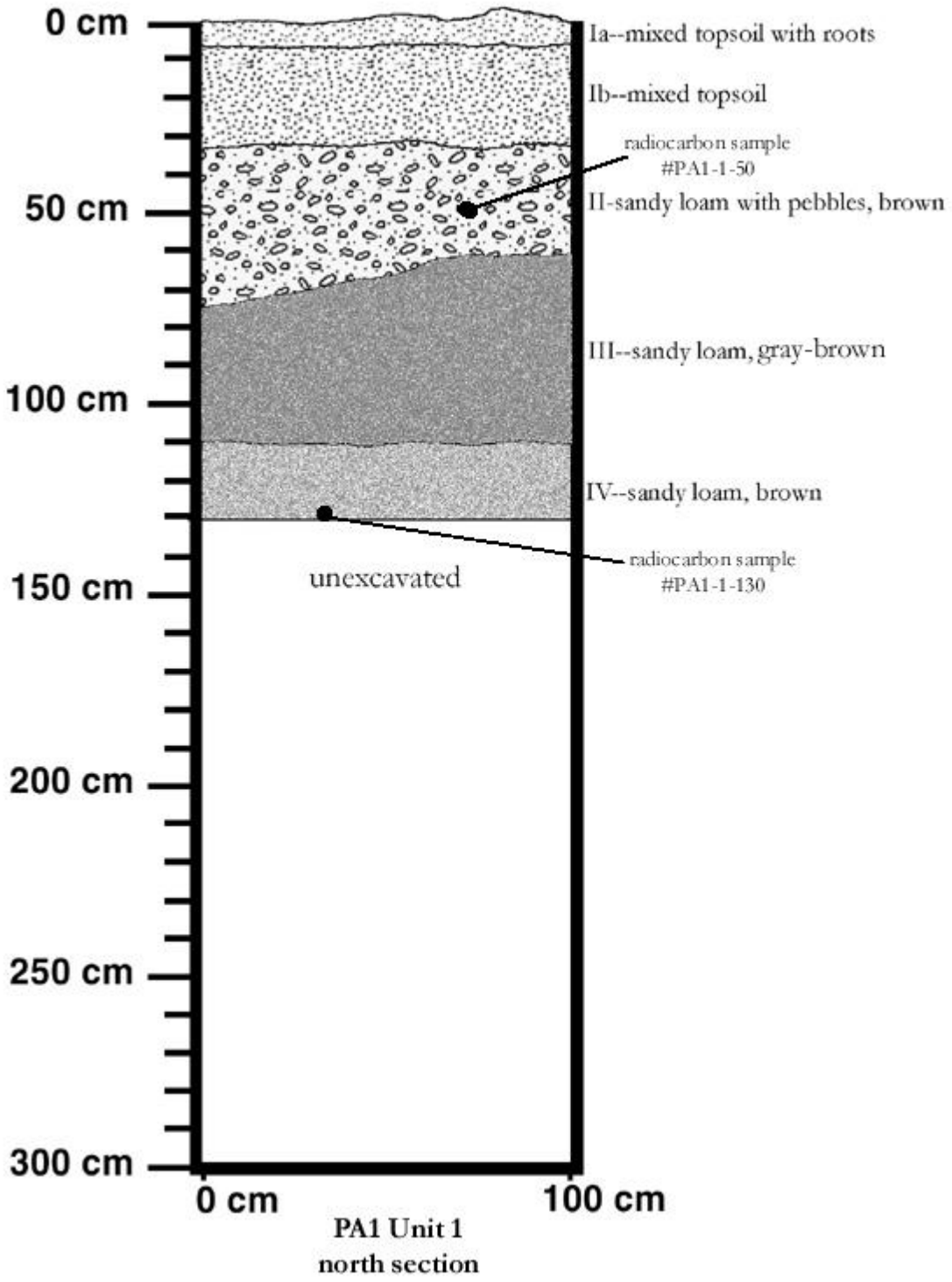


Figure 4.55. PA1 Unit 1 section

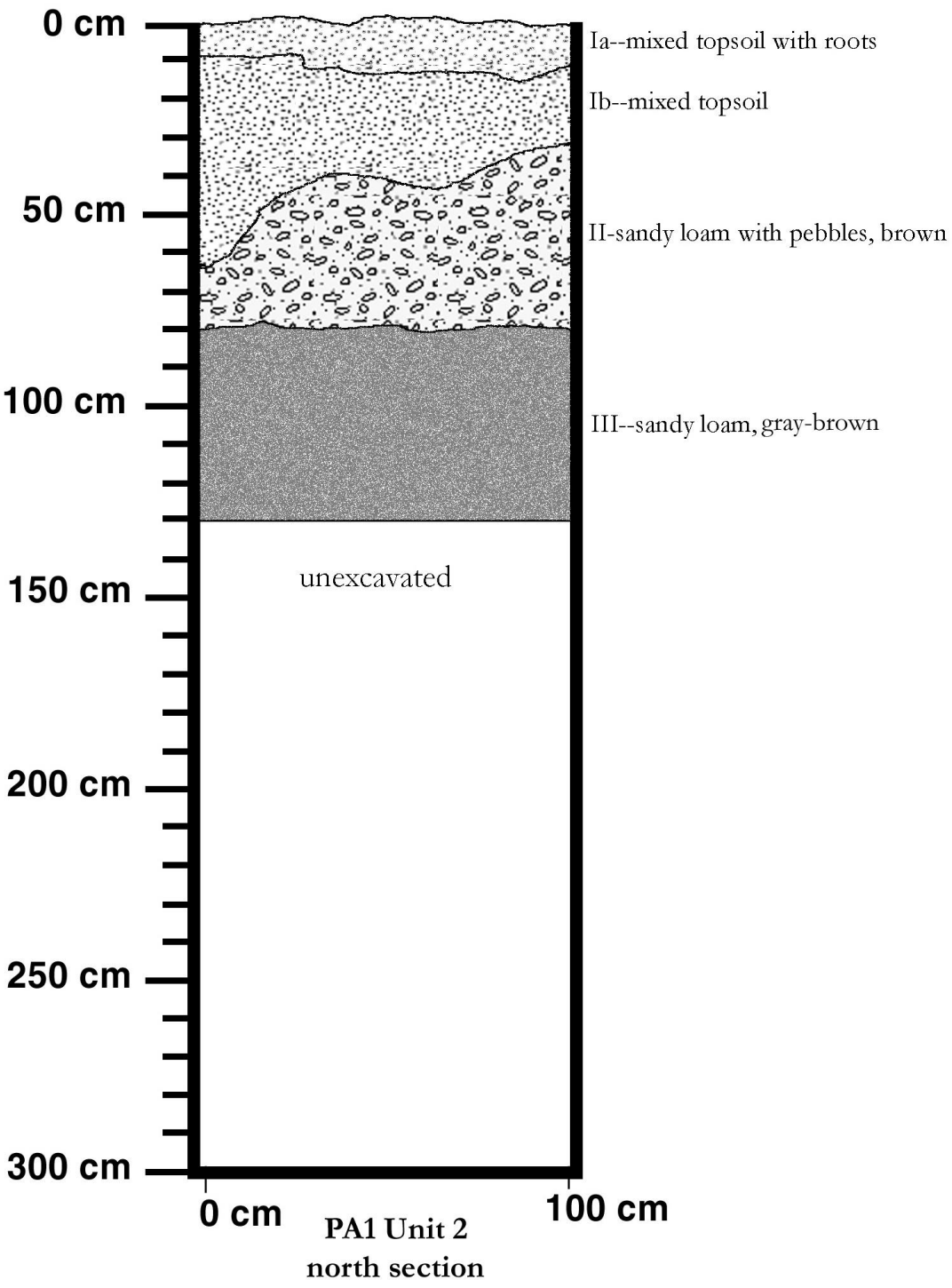


Figure 4.56. PA1 Unit 2 north section

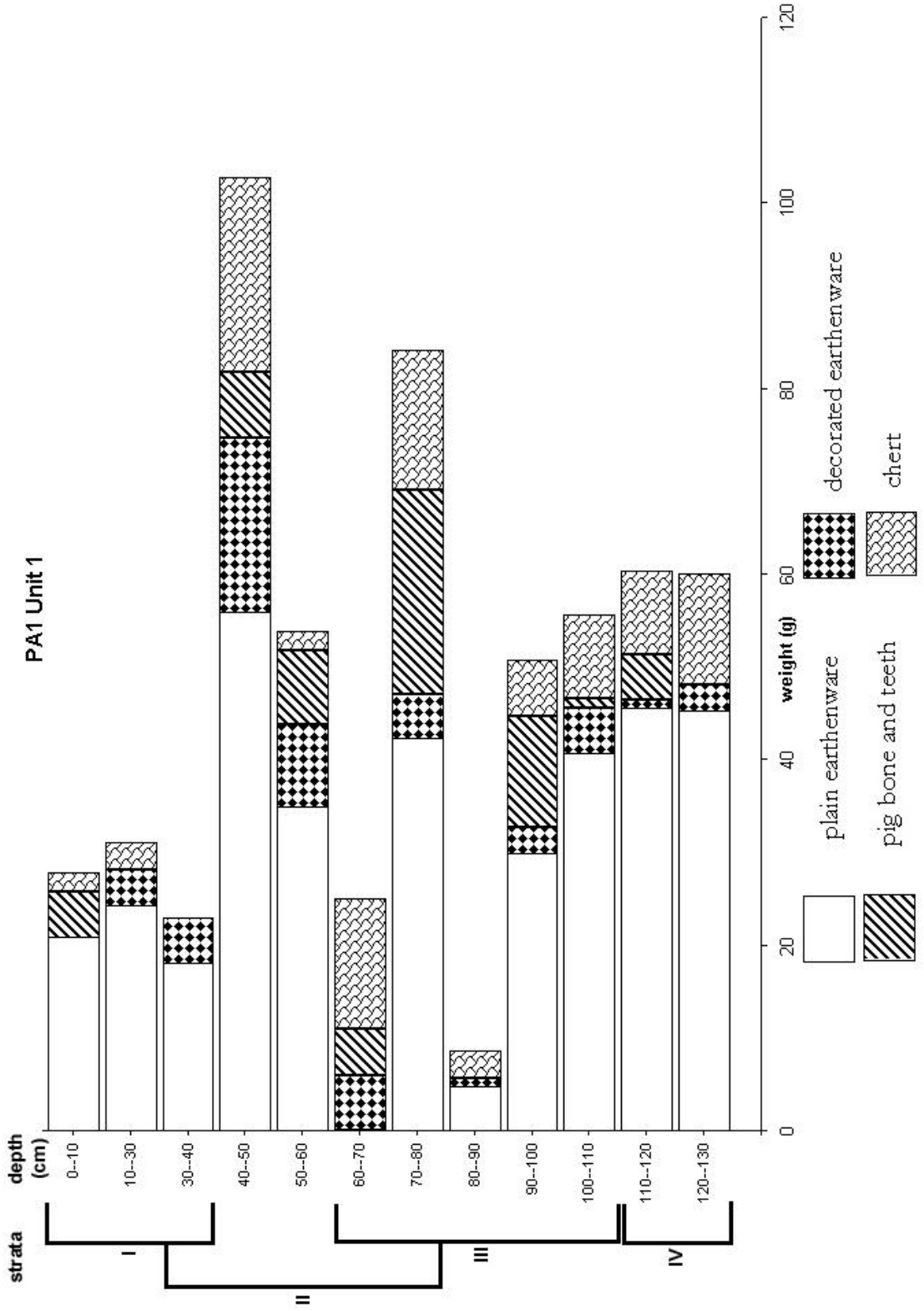


Figure 4.57. PA1 Unit 1 assemblage chart

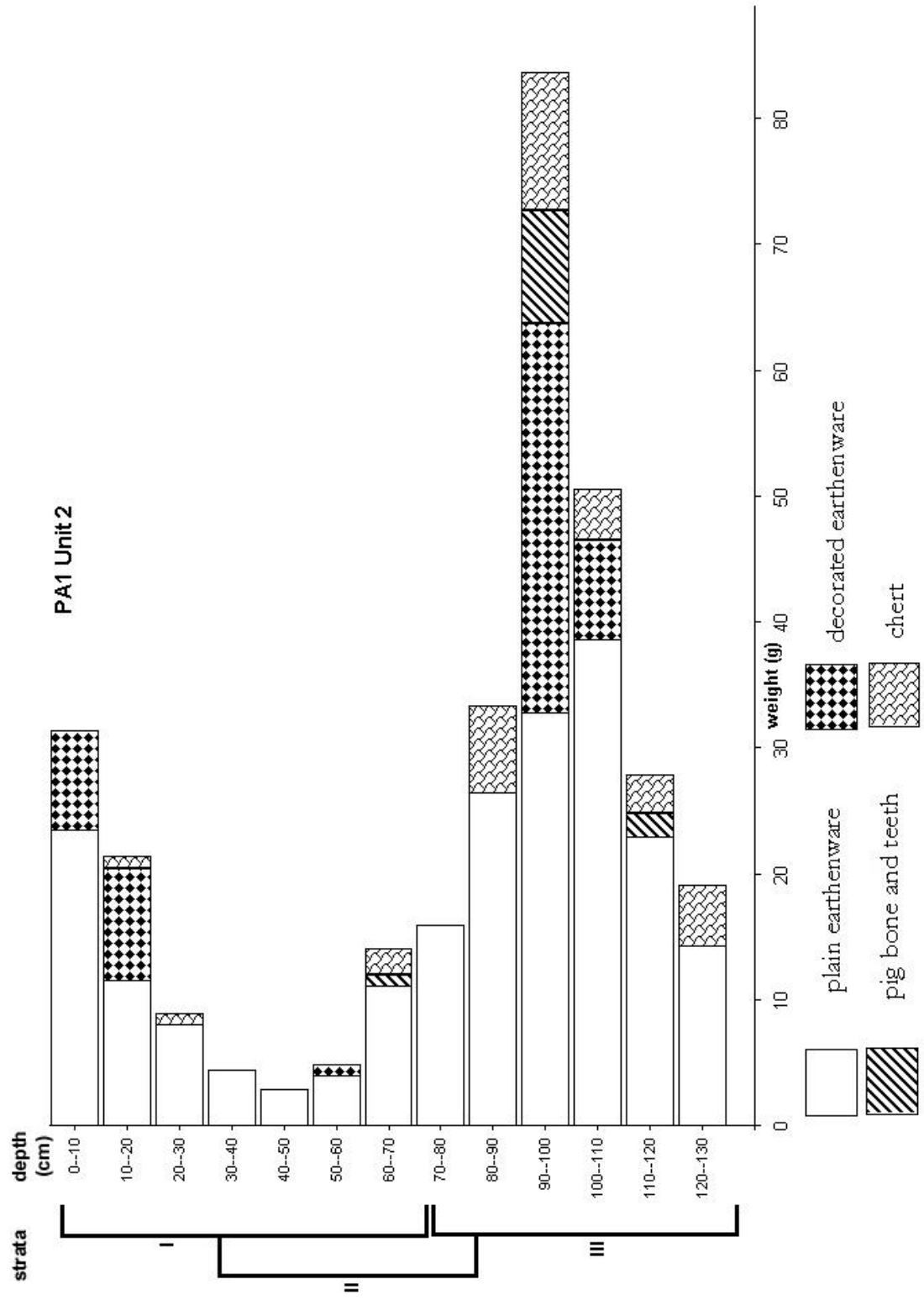


Figure 4.58. PA1 Unit 2 assemblage chart

PA1 artifacts and faunal remains

Artifacts were limited to just a few categories, including earthenware pottery, some of which had incised line decoration and red slip. This material was quite fragmented, with the larger pieces under 2 cm in diameter. Earthenware fragments under 4mm in diameter were not collected. Lithic material included chert scrapers, and small chert and obsidian chips, presumably tool manufacturing debitage. Faunal material included pig teeth, reef dwelling fish, bird and unidentified mammal bones. It would be quite interesting to conduct trace element source analysis on the obsidian samples, however, I have not yet been able to obtain the samples from Banda.

Figure 4.59. Chert artifacts from site PA1 Unit 1, 40-50 cm.

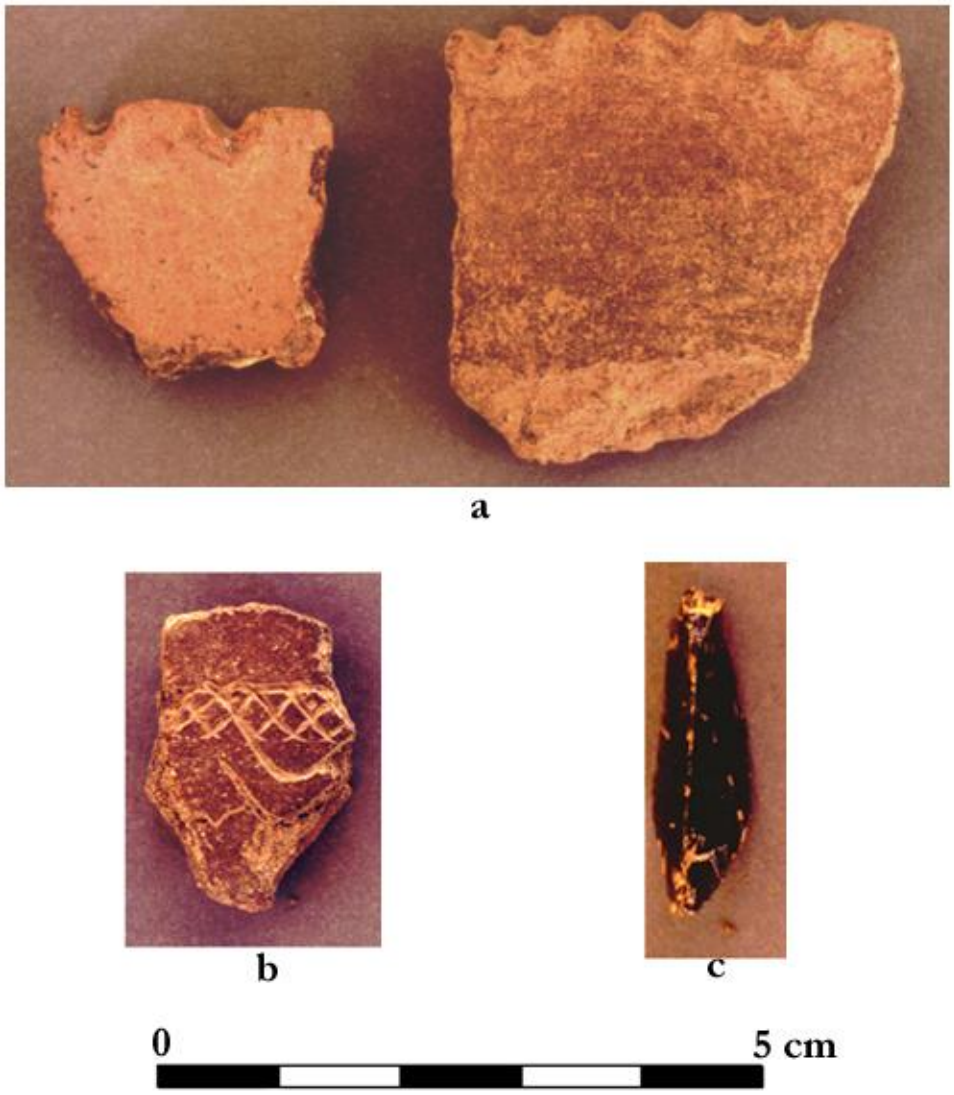


Figure 4.60. Artifacts from site PA1. a: earthenware rim sherds, Unit 1, 40-50 cm; b: incised decorated earthenware sherd, Unit 1, 100-110 cm; c: obsidian artifact, Unit 2, 100-110 cm.

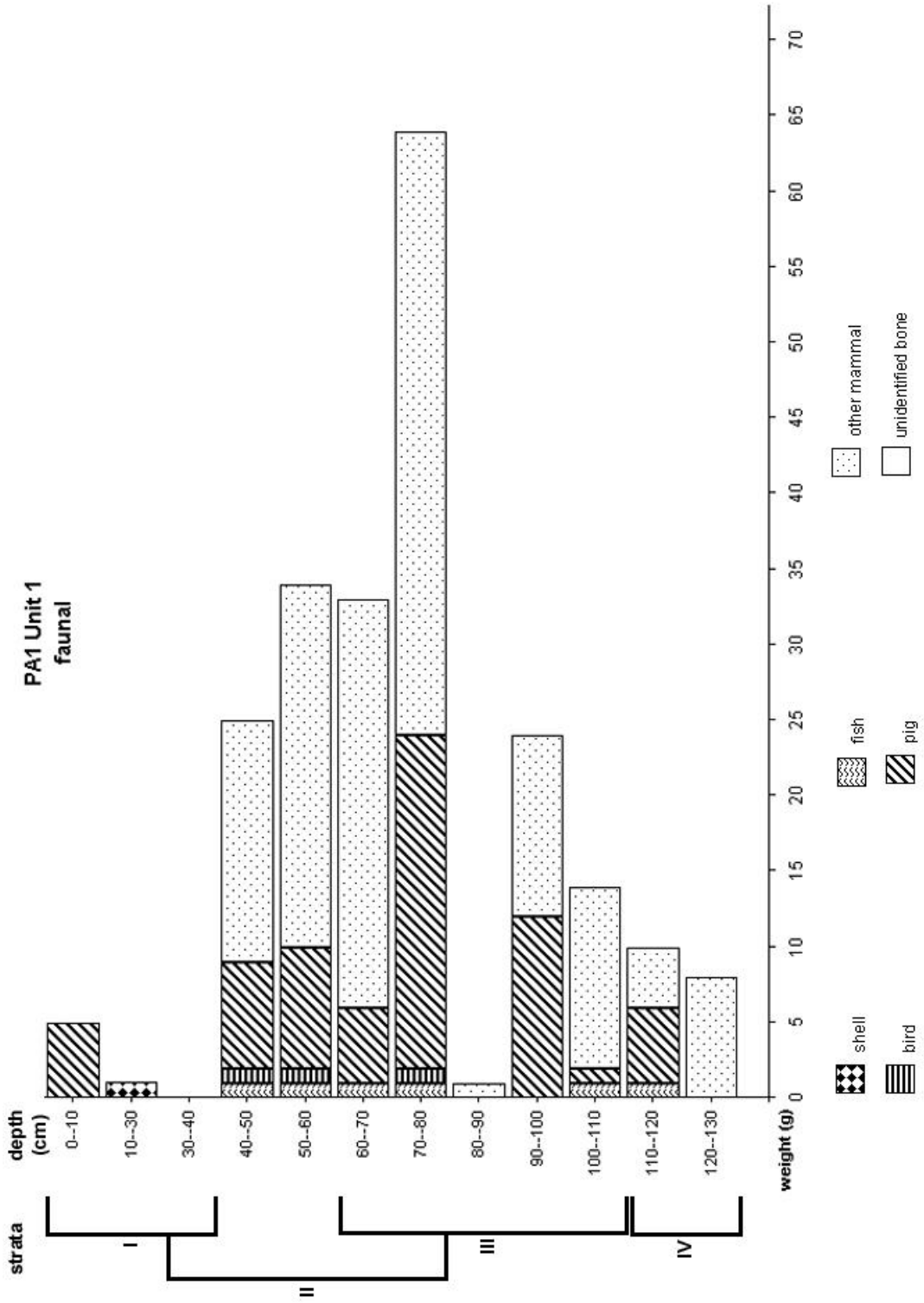


Figure 4.61. PA1 Unit 1 faunal assemblages

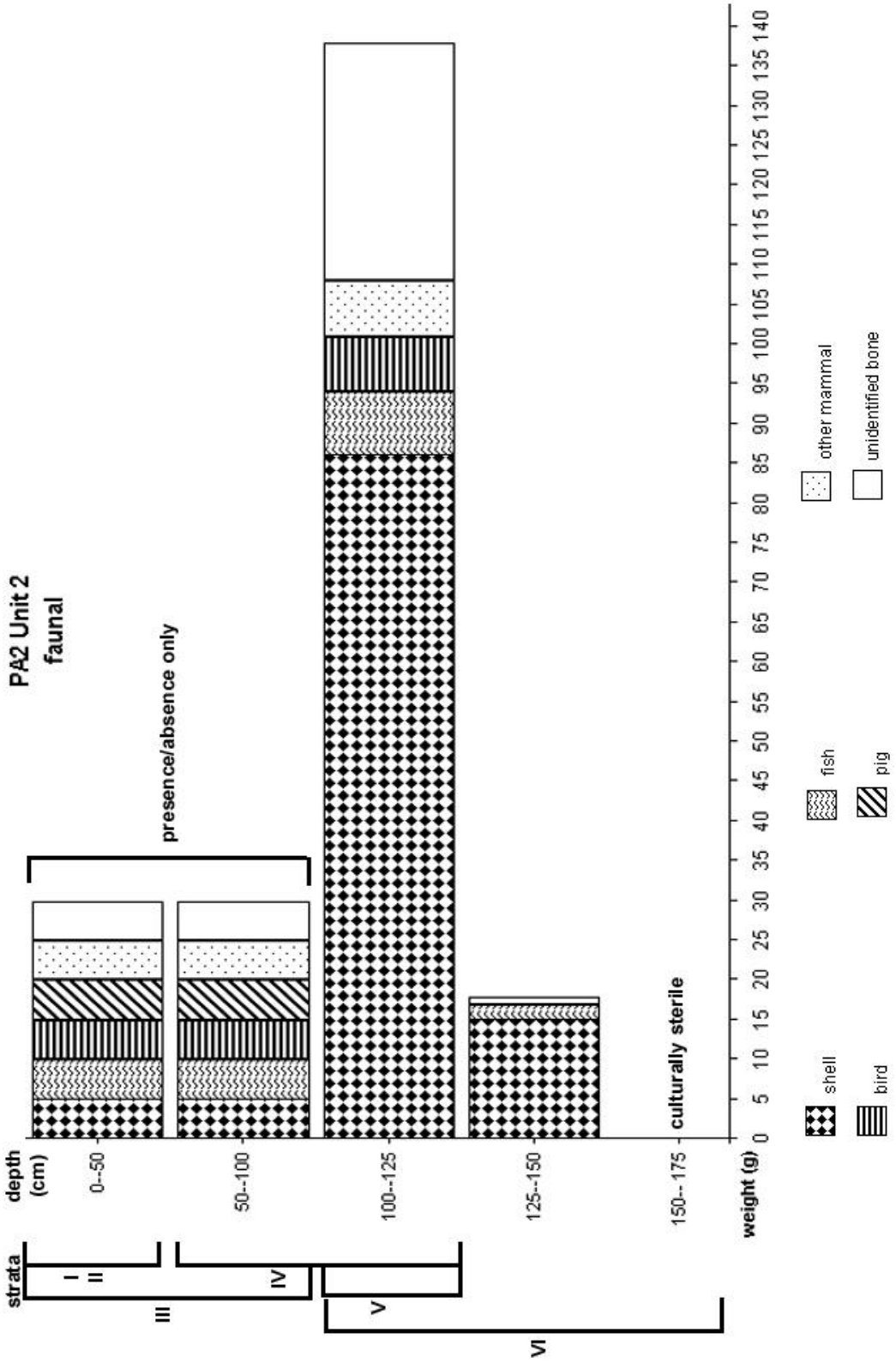


Figure 4.62. PA1 Unit 2 faunal assemblages

PA1 site chronology

Site chronology is based on two radiocarbon samples, both collected in Unit 1. An animal bone sample from Stratum II was dated to 1871-927 BC (3150 +/- 180 YBP at 1-sigma). A second bone sample from Stratum IV was dated to 1257-899 BC (2870 +/- 60 YBP at 1-sigma). The large uncertainty in the upper sample does allow for it to be older than the lower sample, but it is also probable that the site has seen considerable disturbance in the past 3000 years. Strata divisions were not clear in the sections, and the area was subject to soil mixing from planting activities. Unfortunately, a radiocarbon sample collected from TP1 Stratum VII was stored at Universitas Pattimura, along with all of the soil samples collected from this site, and the whereabouts of these samples is not currently known. Therefore, the deeper (and potentially older) pottery-bearing strata have not yet been dated. The artifact assemblages do not show any major changes between strata, although Stratum III tends to show denser artifact and faunal deposition.

PA1 chronology summary

Without any further dateable material available, it is impossible to date the initial occupation of this site, nor judge the length of occupation. It appears to have had continuous occupation throughout, however. The date of 3000 BP is one of the oldest for pottery bearing sites in Maluku, and the potential for somewhat older dates from the lower strata make it an interesting site indeed. However, it does not have much to do with the research questions around which this project is oriented, but rather suggest that Pulau Ay would be a good place to investigate the Neolithic period in Maluku. A rockshelter, situated to the north of PA1 (see Figure 4.73, map) also had large quantities of earthenware on the surface, and may have been less disturbed than this open site. However, no excavations were conducted at this site.

Sites PA2 and PA3

Summary of archaeological work completed

These two sites are located in the contemporary village of Ay, which is now the only settlement on the island of Pulau Ay. The village is oriented around Fort Revenge, originally constructed by English traders sometime before 1615 and captured and enlarged by VOC forces in 1616. Archaeological research was directed towards determining the occupation history of the settlement, and comparing its late pre-colonial assemblages with those from Banda Naira. It was hoped that these assemblages would reveal aspects of religious identity and trade links. Pulau Ay lacks a protected harbor, and even today, landing and anchoring boats is difficult and sometimes dangerous on the shallow coral reef that fronts the village. However, Pulau Ay was second only to Banda Besar in nutmeg production, and was probably an important trading center in its own right. As the antiquity of site PA1 demonstrates, poor harbor facilities have not been an impediment to human settlement on the island, nor apparently has a lack of groundwater supplies. Ay village has the best landing site on the island. While not sheltered, its north-northeast orientation means it is never directly exposed to monsoon wind or waves (which come from either the northwest or southeast). The village is on a low coastal plain, without the 10-20 m cliffs that encircle most of the rest of the island. This situation may not have always been advantageous, as it also provides the easiest access for invaders or raiders. In those situations, cliff top settlements may have been preferred.

Sites PA2 and PA3 were situated just outside of Fort Revenge, which was within or near the center of an early 17th century pre-colonial settlement, possibly the *Campong Timoor* noted on the Jansonnius map of 1617. It was hoped that colonial-period material from the fort would provide a sharp stratigraphic demarcation of the pre-post colonial boundary. A mid-17th century map that I found after fieldwork was completed

Blood and Garbage on Pulau Ay

On the last day of work on the island of Pulau Ay, two days before the last Earthwatch team of the season departed and I was to fly out to Singapore to get my new visa, we were all working feverishly to finish work at PA2 and PA3. Around noon, one volunteer took a break from digging to collect his laundry, which he had set out to dry on a tin roof covering the water cistern which supplied the *kepala desa*'s house, where several volunteers were staying. As he reached to grab a sock, he lost his balance and put his full weight on the rickety roof structure, which collapsed, sending him, his sock, sheets of sheet metal and the rotten wood frame tumbling

(see below Fig. 4.65) shows no houses in the area of the two sites. In March 1997, a 1 x 2 m unit was established at each site, both of which were located on vacant land quite near villagers' houses, and our activities drew large crowds of interested onlookers. Although covered with leaves and a thin layer of soil, it turned out that site PA3 was situated where nearby people had been throwing garbage, and in fact garbage became a running theme of these two sites along with other disasters (see full story, right).

Due to time constraints and logistical problems, PA2 Unit 1 was only excavated to 120 cm, and a section drawing was never completed. At PA3 Unit 1, limited time did not allow for excavation into clearly pre-colonial levels, so the levels below 60 cm were excavated as a shovel test pit down to 250 cm in 50 cm levels, and only samples of artifact assemblages from the various strata were collected.

I had planned to return to these sites during the second field season, as they clearly had the (still unrealized) potential to contain pre-colonial remains. However, work in other areas took precedence. In the last week of the 1998 field season, after an exhausting two months of work on building the museum exhibit, I resolved to return to

some 20 feet to the bottom of the quarter-filled concrete tank.

I was alerted to the incident as I was in the bottom of PA3 Unit 1, and by the time I climbed out of the pit and ran to the cistern, he had been hauled out by the *kepala desa*'s son, dripping and bleeding, but not seriously injured, and none of his thousands of dollars worth of artificial knee, elbow and shoulder joints were damaged. A deep cut in his hand required stitches, though, so I chartered a fishing boat and took him to the health clinic over on Banda Naira where he was sewn up. Incredibly, the *kepala desa* later apologized to us for not having a stronger cistern roof, despite the fact that his family's water supply had just been contaminated just before the dry season.

While the Earthwatch volunteer made a full recovery, the archaeology of site PA2 never did. I was unable to draw a section of PA2 Unit 1 before we left Pulau Ay, and so I left the unit open, thinking that I would be able to excavate a bit deeper, and draw the sections upon our return to Banda from Singapore in a week or so.

Four weeks later, my wife and I finally made it back to Pulau Ay, during which time project archaeologist John Muir completed building his *kole kole* dugout canoe and photographer Andy Lawless survived a mysterious tropical fever. During the intervening month, the family living next to the unit decided it would make a convenient trash pit, and when I returned to begin excavating, it had some 50 cm of ripe, steaming fish and chicken guts, and other unbelievably foul remains, which would not be of archaeological interest for another few hundred years.

I was ready to give up and fill the pit in, but John convinced me to carry on in the name of science, so began shoveling out the refuse in a cloud of flies, to the amazed hilarity of the crowd of Ay onlookers. The odious task was just completed when it began to rain, which soon turned into a downpour, lasting for two days. A return to check on the unit the next morning, still raining, showed it nearly full with water. At this point, our resolve finally extinguished itself, and during a break in the rain, we shoveled backdirt into the pit. More than a year would pass before my return.

the site to salvage what could be recovered from the site. I hoped to record a section in the near vicinity of PA2 Unit 1 so that that data on artifact assemblages would not be lost. I was able to spend two days at the site in July 1998, and brought 12 Bandanese high school students who had worked on the museum exhibit out as well, and they helped excavate a combined shovel test pit/unit at PA2 Unit 2.

This unit was excavated as a test pit in the upper levels, removing 50 cm levels and collecting only representative samples of assemblages. Below 100 cm, we excavated using trowels in 25 cm levels down to 175 cm, screening backdirt and collecting everything. While not an ideal excavation technique, it allowed for the exposure of a 175 cm section that could correspond with the Unit 1 assemblages, and also permitted some analysis of the deeper strata.

As with nearly all of the sites tested in the Bandas, this one would benefit from a large scale excavation using natural stratigraphy, but the data recovered here does allow for some preliminary comparisons to be made between social processes on Pulau Ay vs. Banda Naira. Hopefully, future research will take place on the island that will investigate these processes in more detail than is possible here.

Figure 4.63. Garbage removal at PA2 Unit 1

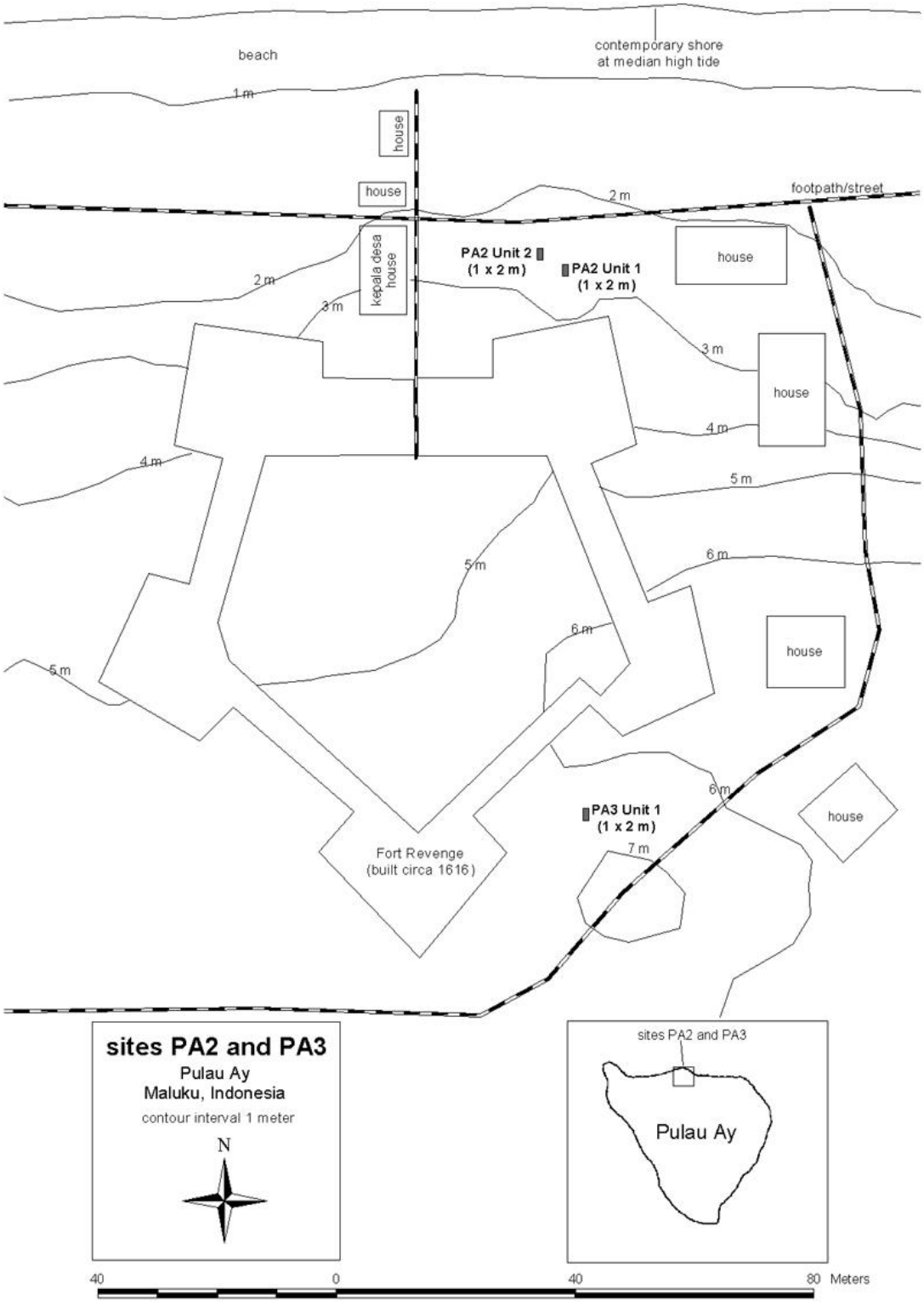


Figure 4.64. PA2 and PA3 site map

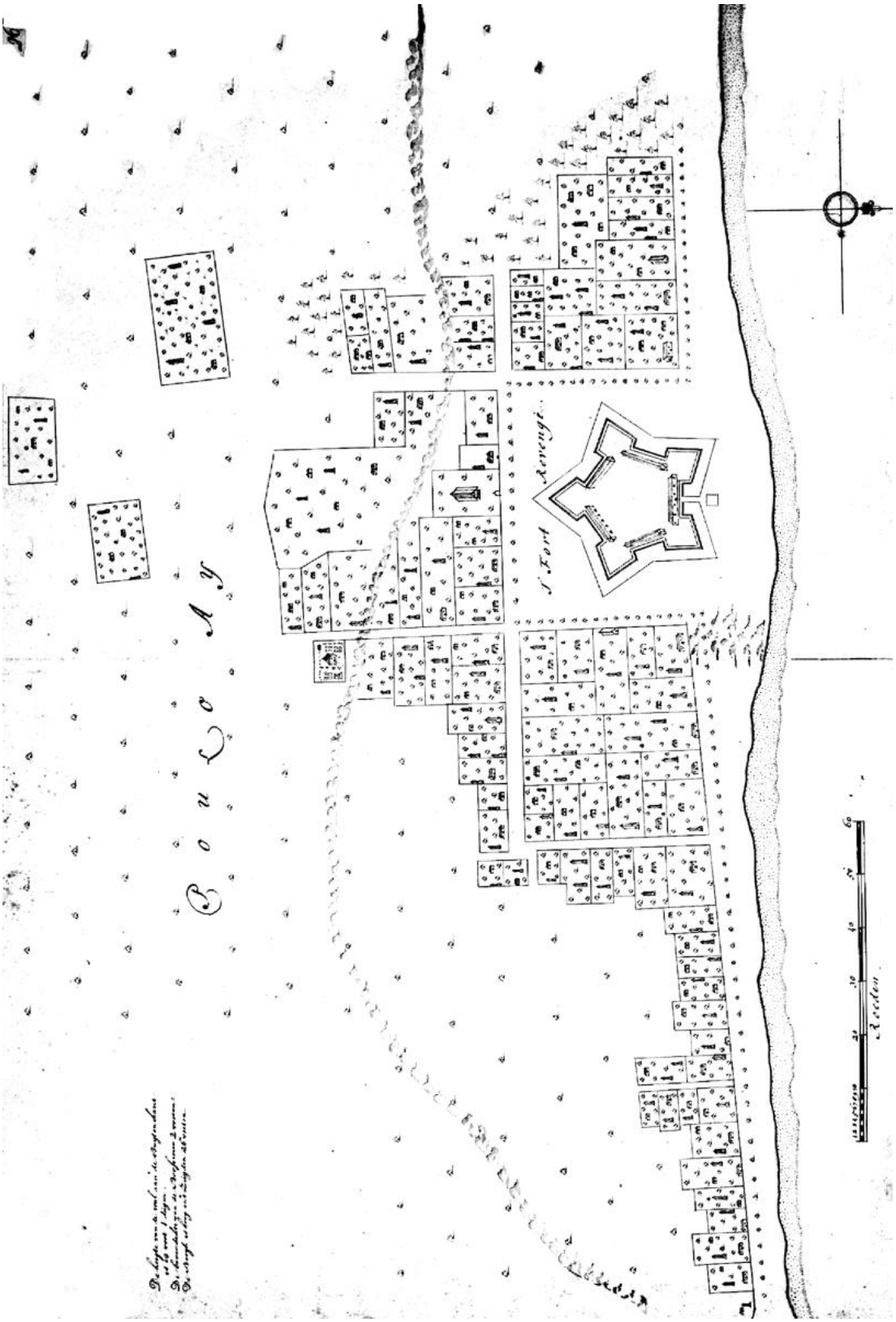


Figure 4.65. Fort Revenge and Ay village, mid 17th century (copy obtained at the Algemeen Rijksarchief (Dutch Royal Archives), The Hague, microfilm cat # 4.VEL.1359).

PA2 stratigraphy

As discussed above, only Unit 2 had a section diagram drawn, and the assemblage chart for Unit 1 will be interpreted using stratigraphy recorded in Unit 2, which was 8 m to the northwest of Unit 1. Strata descriptions are as follows:

Stratum I: Brown sandy loam, with thin (1 cm) lens of white coral pebbles.

Stratum II: Reddish brown clay.

Stratum III: Dark brown sandy loam with ash pockets.

Stratum IV: Lighter brown sandy loam.

Stratum V: White coral pebbles, 1 cm average diameter.

Stratum VIa: Dark brown clayey loam.

Stratum VIb: Lighter brown clayey loam. Lower 25 cm were culturally sterile, with reddish clay lenses.

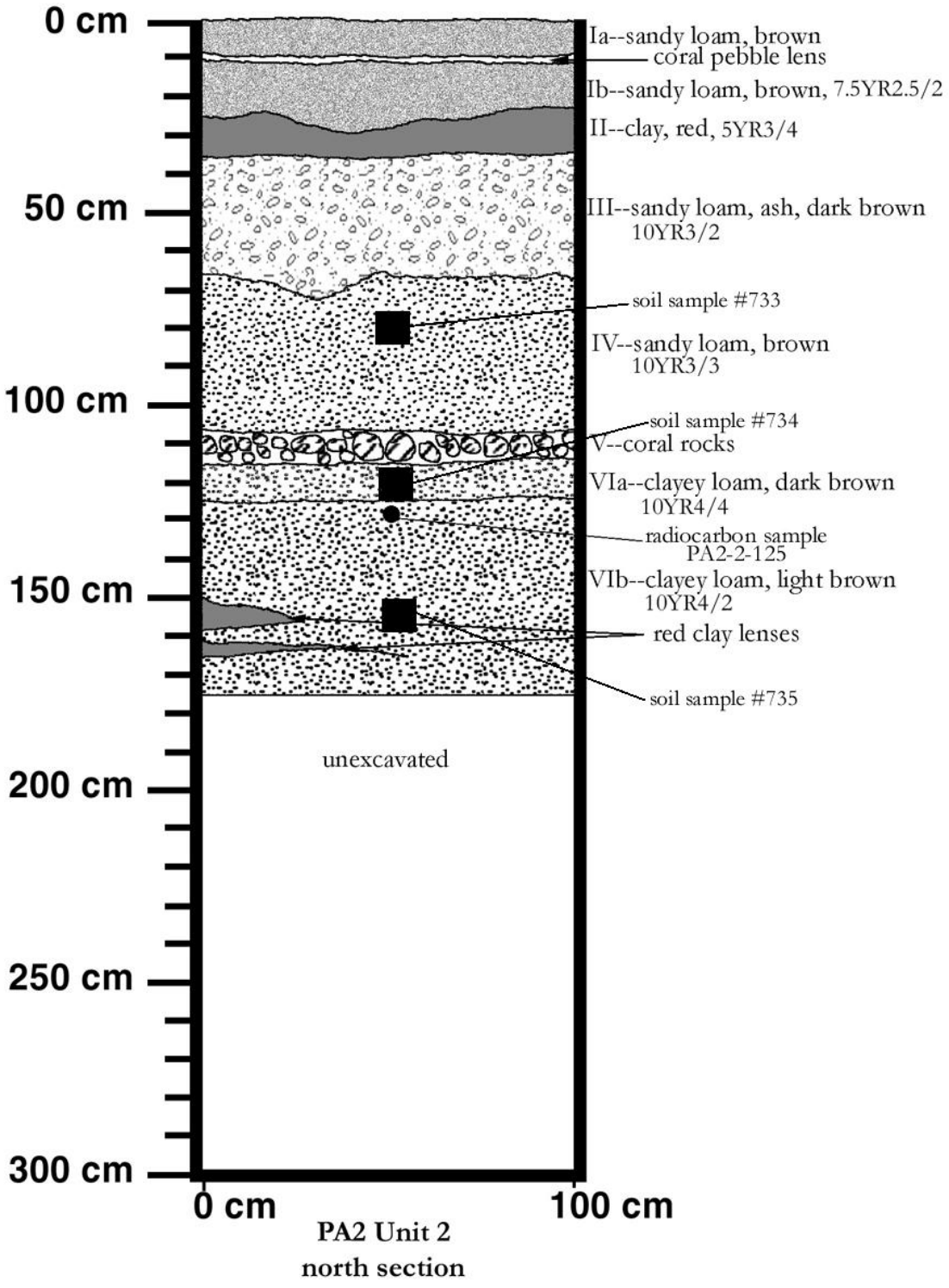


Figure 4.66. PA2 Unit 2 north section

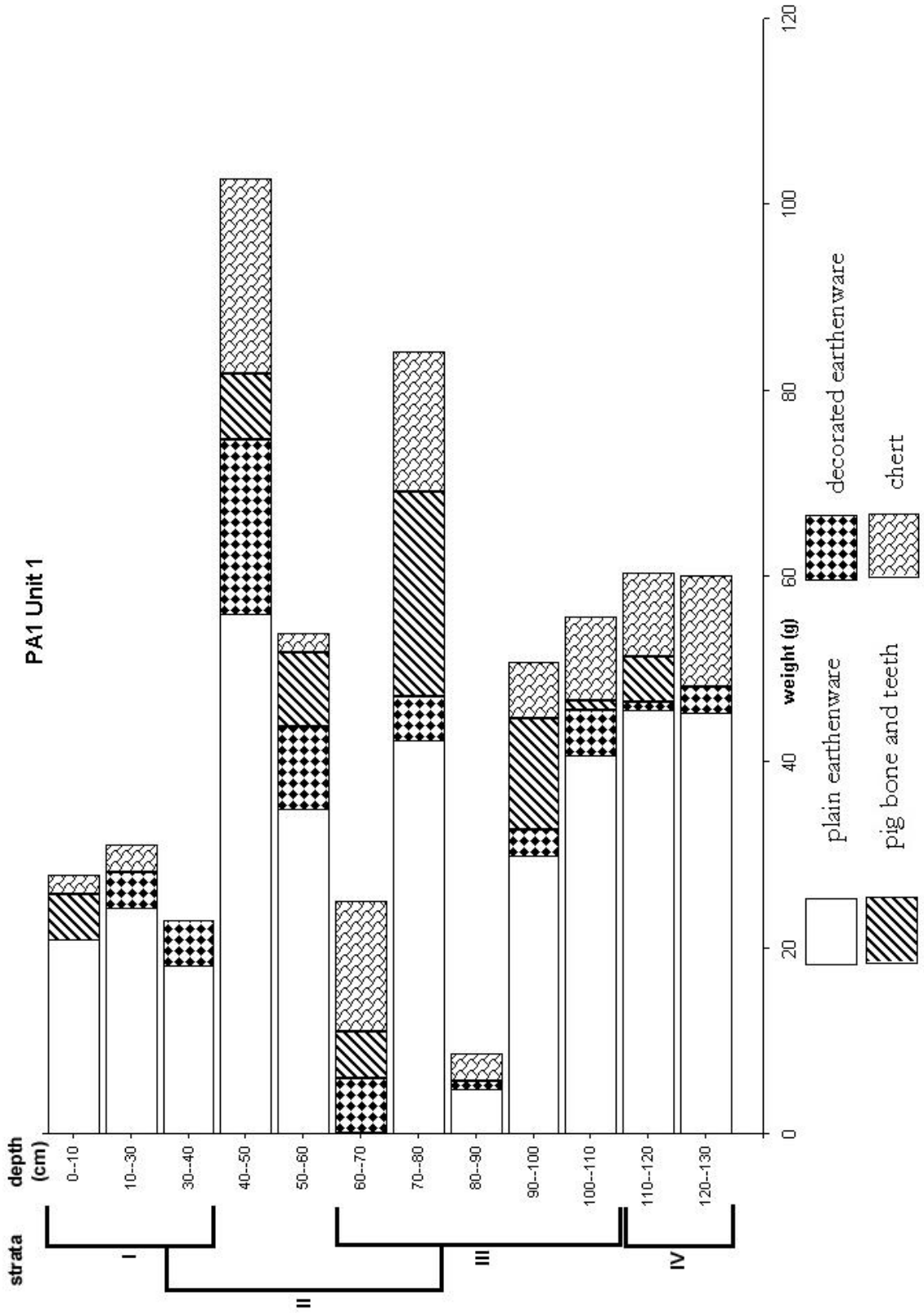


Figure 4.67. PA2 Unit 1 assemblage chart

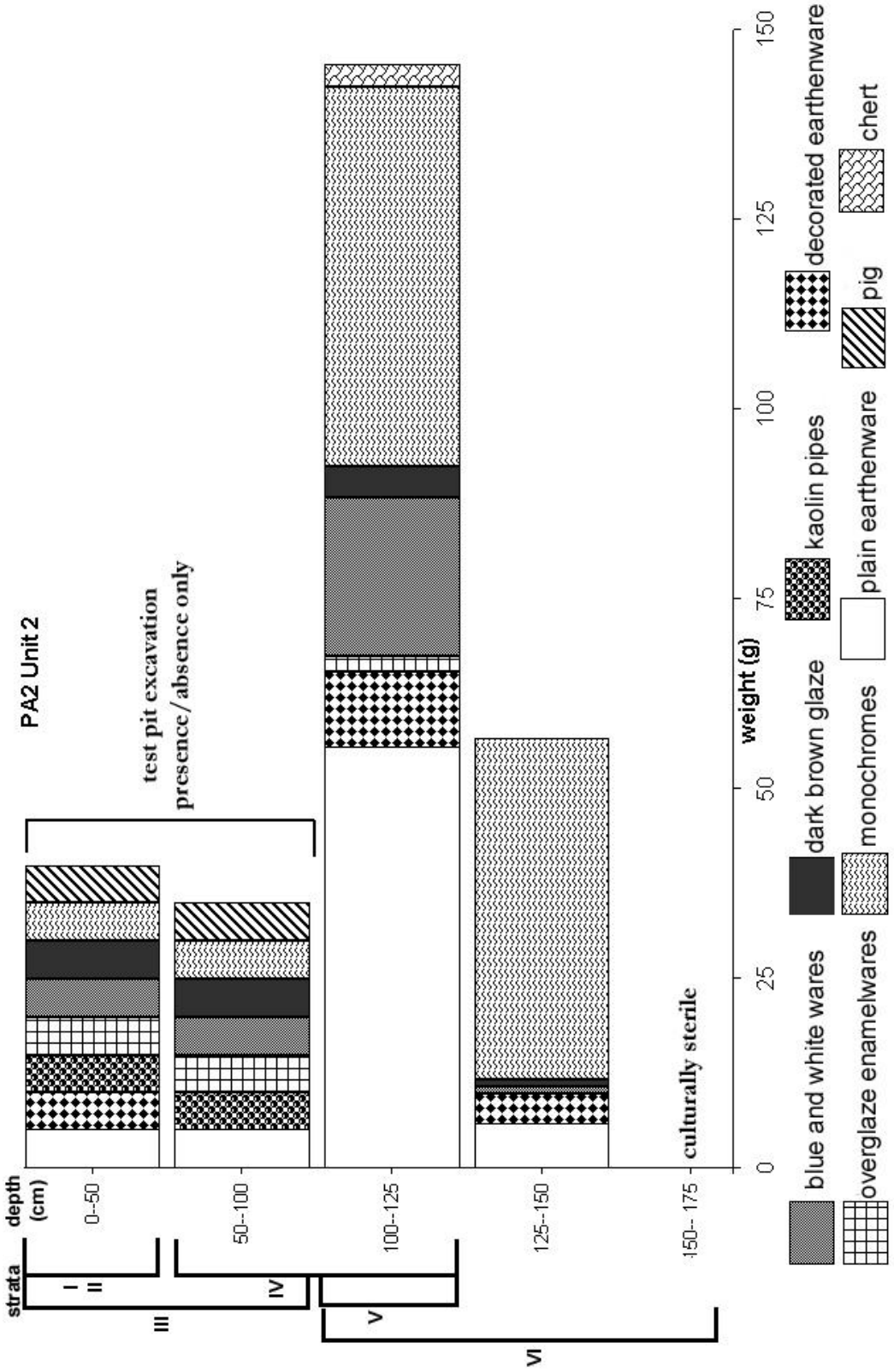


Figure 4.68. PA2 Unit 2 assemblage chart

PA2 artifacts

Figure 4.69. Artifacts from PA2 Unit 2 Stratum VIb. a: Ming blue and white; b: possible Song-fatshan or quingbai with raised decoration; c: black underglaze Thai, mid 15th century; d: early Song (11th century) greenish glaze.

PA2 faunal assemblages

The excavation methods used on this unit do not permit fine grained analysis of faunal assemblages. However, the data show an absence of pig remains in pre-colonial strata (V and VI), suggesting an adherence to Islamic food restrictions (see Fig. 4.70). Faunal assemblages look very similar to those at sites BN2 and BN4, with large amounts of marine shell, and lesser amounts of bird, fish and unidentified animal bone.

PA2 site chronology

There is inadequate information to interpret PA2 chronology with any great precision. However, some chronological changes can be determined, and a single radiocarbon sample from Unit 2, dated to 1423-1625 AD, provides a relation to a calendar date.

Stratum VI: This stratum lacked kaolin pipes in Unit 2, and assemblages included small amounts of Ming blue and white pottery, 15th century Thai black underglaze. Lower portion of the stratum contained possible Song monochromes and chert and obsidian debitage. These do not contradict a radiocarbon date from the upper third of the stratum, on the VIa-VIb boundary, of 1423-1625 AD. Stratum marks initial occupation of the site in the late 12th or 13th centuries (or re-occupation after a period of abandonment) through the 16th century.

Stratum V: Coral rocks with some artifacts, but mixed with other strata in the 100-125 cm level, though lacking kaolin pipes, it is probably pre-colonial, probably 15th-early 17th century.

Stratum IV: Assemblage includes 16th-17th century Chinese tradewares, including Ming blue and white, Swatow enamelware, as well as kaolin pipes. Early colonial period, 17th century.

Stratum III: Mixed with assemblages from above and below in 50 cm level, but probably 18th-19th century, on basis of stratigraphic position.

Stratum II: Possible house floor from colonial period.

Stratum I: 19th -20th century material. Coral pebble lens may be a house floor or footpath paving.

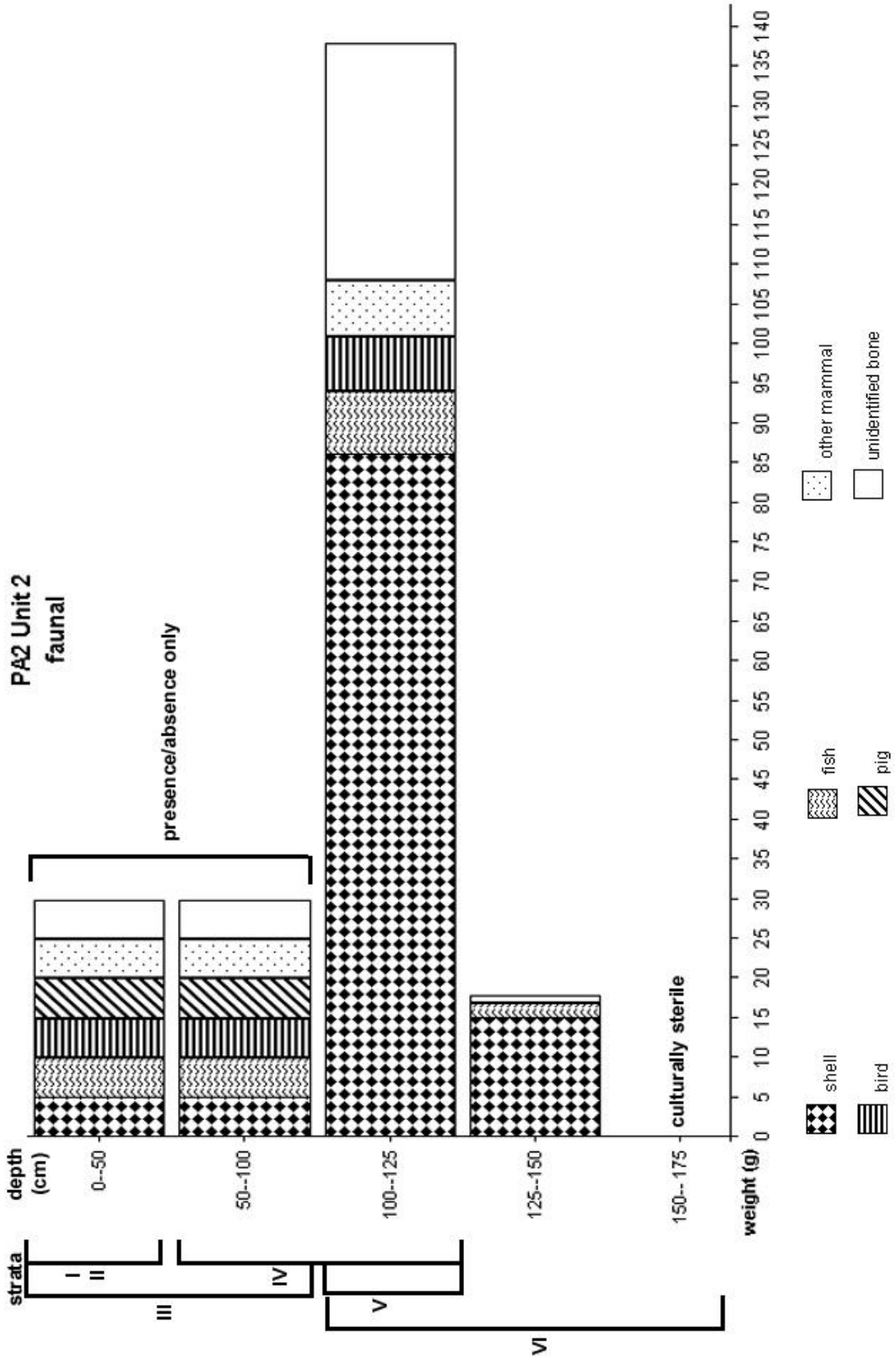


Figure 4.70. PA2 Unit 2 faunal assemblages

PA3 stratigraphy

As Unit 1 was excavated as a shovel test pit below 60 cm, only general stratigraphic relationships can be determined. Strata descriptions are as follows:

Stratum I: Dark brown loam mixed with considerable quantities of modern period garbage, and brick and mortar rubble.

Stratum II: Small coral pebbles (<1 cm), with artifacts.

Stratum III: Sandy loam, dark brown, with brick and mortar rubble.

Stratum IV: Gravelly brown loam, with concentration of artifacts and brick/mortar rubble between 190-200 cm.

Stratum V: Dark brown clayey loam, culturally sterile.

Stratum VI: Light brown sandy loam, culturally sterile.

Stratum VII: Light brown sandy loam, with pumice lenses, culturally sterile.

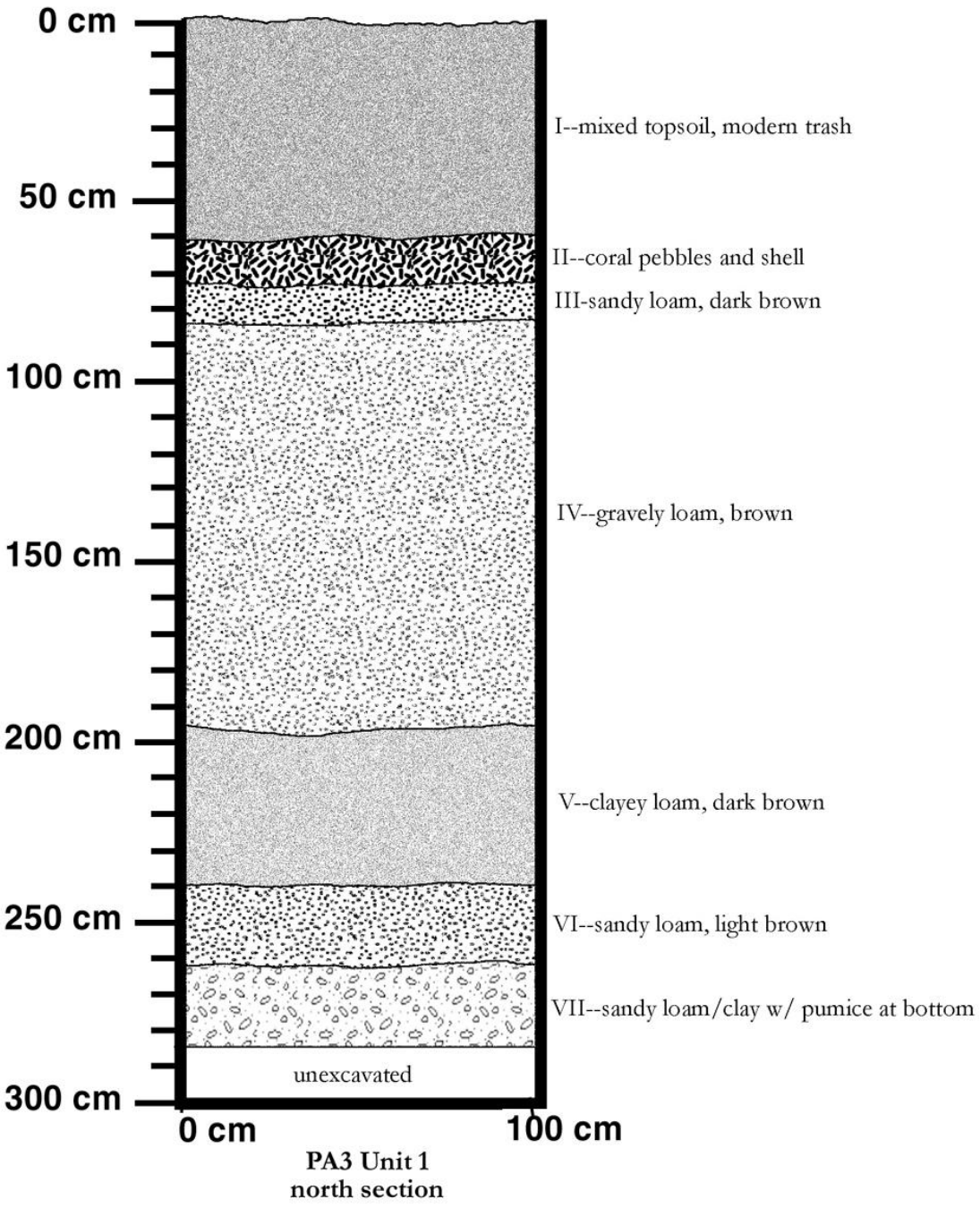


Figure 4.71. PA3 Unit 1 north section

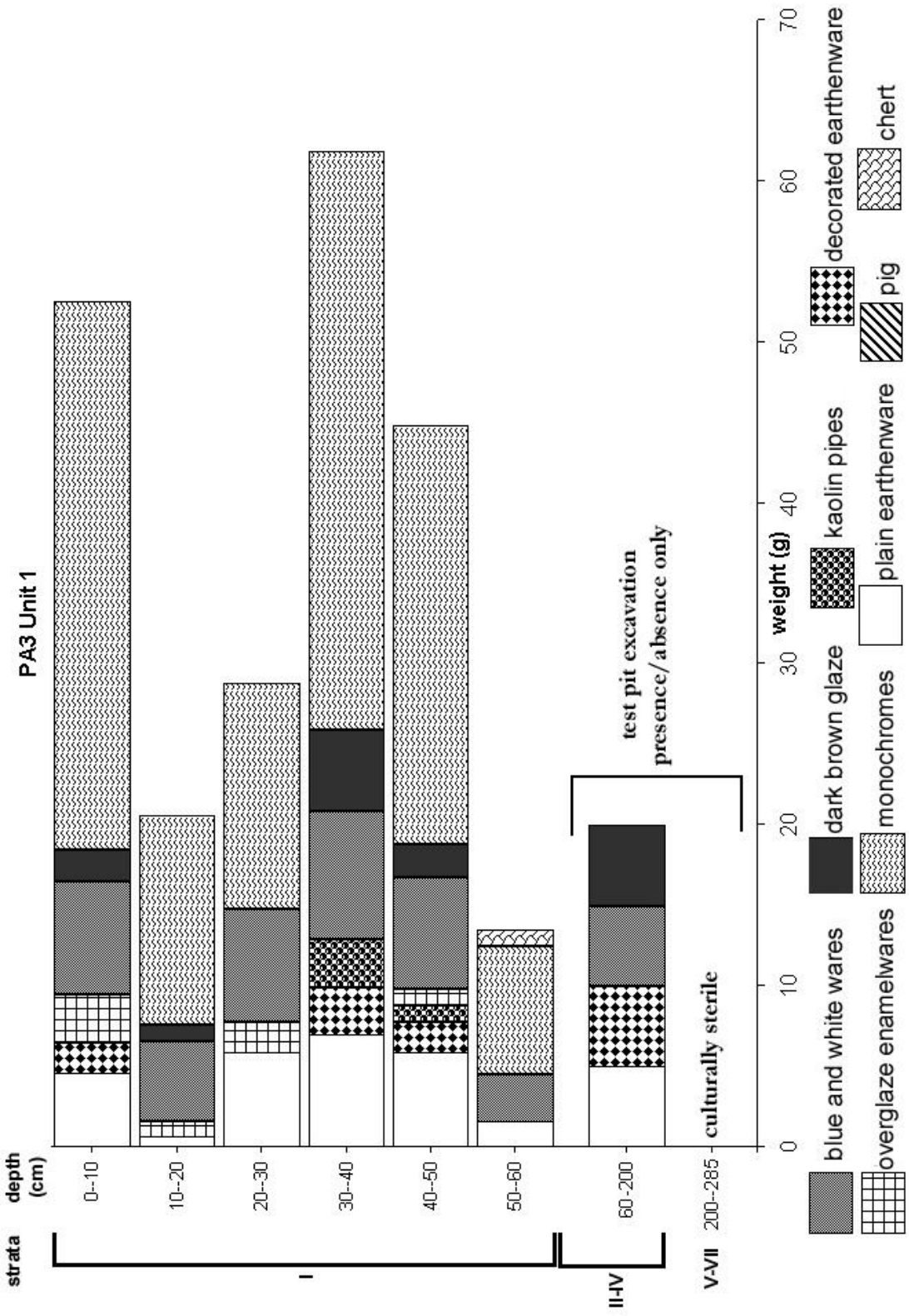


Figure 4.72. PA3 Unit 1 assemblage chart

PA3 artifacts

a

b

Figure 4.73. Artifacts from PA3. a: brown glazed stoneware, Sawankhalok, Unit 1, 190-200 cm; b: iron object, possible hinge pin?, Unit 1, 200-250 cm.

PA3 site chronology

No radiocarbon samples were submitted for testing from this site. Chronology is based solely on artifact assemblages.

Strata VII-V: These culturally sterile strata date to the pre-colonial period, based on overlying strata.

Strata IV-III: 15th-16th century Ming blue and white and 15th-16th century Sawankhalok brown underglaze in the bottom 10 cm of this stratum, and a lack of kaolin pipes throughout indicate a late pre-colonial age for these strata. However, the presence of brick and mortar rubble, which was particularly concentrated in the bottom 10 cm of stratum IV indicate that these strata may represent fill from the colonial period, possibly during construction work on Fort Revenge.

Stratum II: Possible colonial period house floor or footpath paving.

Stratum I: 19th -20th century fill/garbage dump.

PA2 and PA3 chronological summary

- AD 1200-1300: Initial occupation in the PA2 area, close to the beach. Some access to imported trade goods, though less than sites on Banda Naira Island. No evidence for pig eating.
- AD 1300-1600: Continued occupation of PA2 area by non pig eating people (Muslims?) with access to wide variety of imported ceramics, including Thai and Vietnamese wares.
- AD 1600-1700: Construction and later enlargement of Fort Revenge, includes filling area around PA3, colonial occupation of PA2.
- AD 1700-present: Colonial occupation of PA2 and PA3 areas.

Sites PA4 - PA9

Summary of archaeological work completed

With the completion of excavations at PA1, PA2 and PA3 in 1997, it was apparent that many questions were still unanswered in archaeology of Pulau Ay. In particular, we still lacked a long late pre-colonial sequence. Unlike site BN1, for example, which showed changes in archaeological materials from 500 AD through the colonial period, there were large holes in Pulau Ay's chronology, with no data between the early site of PA1 and the late pre-colonial materials from PA2, and no one sequence that showed the first introduction of Chinese glazed ceramics, or the abandonment of pig eating. With this in mind, a reconnaissance survey of the island was completed in March 1998 to locate potential sites, and shovel test pits in a number of locations were excavated over the following months. Despite excavating seven test pits in six sites, only one long sequence was found, and we did not have the time to conduct more intensive excavations at this site. However, the data gathered during the course of this work was informative in other ways, and suggests Pulau Ay may have quite a different occupation history from Banda Naira.

Below are test pit section diagrams and summary descriptions of artifact assemblages by stratum. As with all test pits, only a representative sample of artifacts were collected, and diagnostic artifacts are quantified in terms of presence or absence only, although in some cases approximate relative quantities based on excavation observations may be presented here.

Figure 4.74. Excavating PA8 TP1, March 1998. Gunung Api in the background.

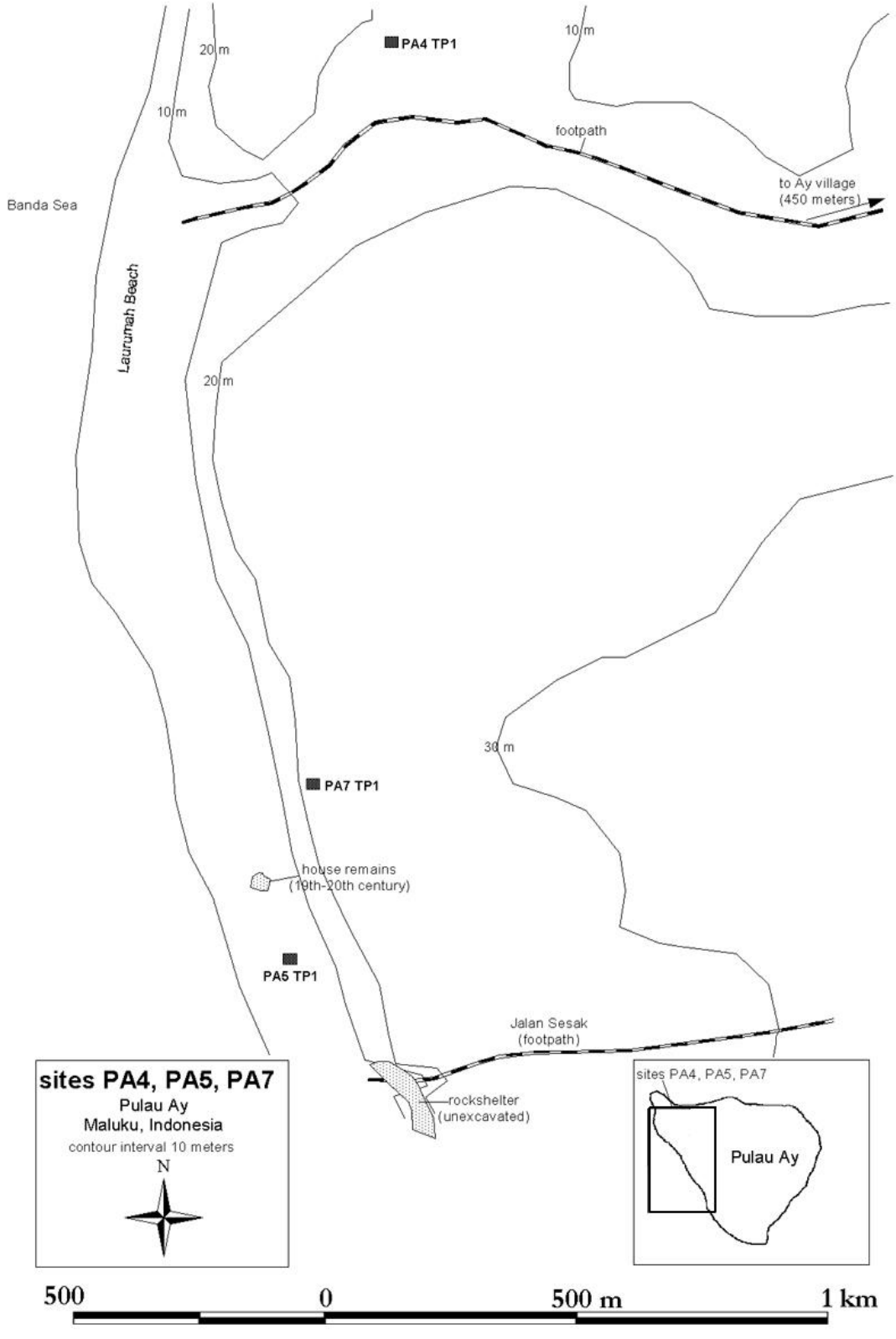


Figure 4.75. PA4, PA5, PA7 site map

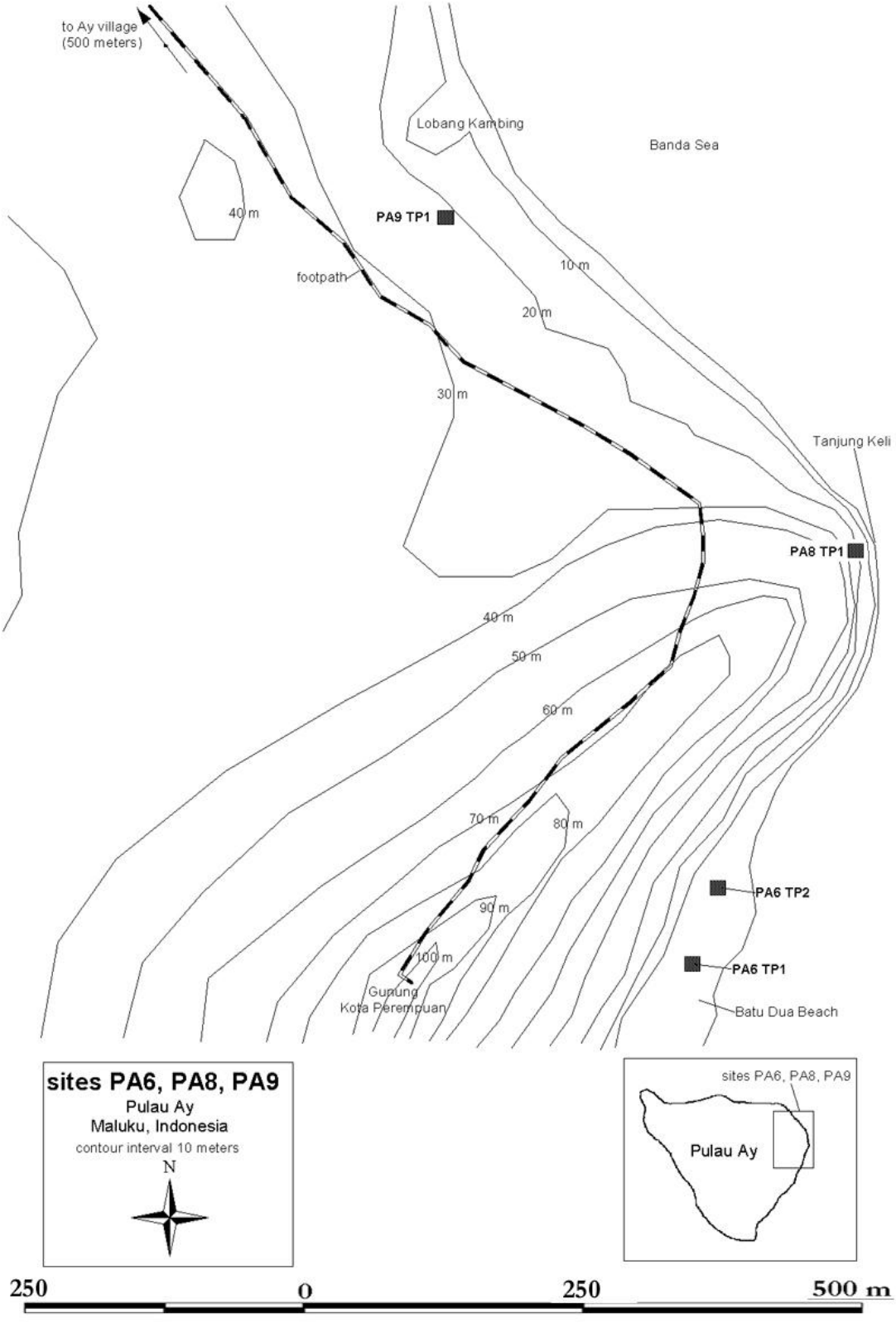


Figure 4.76. PA6, PA8, PA9 site map

Site PA4

One test pit was excavated at this site, which was identified during surface surveys as a dense scatter of earthenware pottery, with a few scattered glazed sherds. The site is located on a saddle ridge on the northwest end of Pulau Ay, and has easy access to two beaches, one with a shallow protected cove, and views to the north and west. The location had strategic advantages, both for access and for lookouts, and I thought it may have been a transitional area, more accessible than a cliff top site like PA1, but more defensible than the low lying PA2 and PA3.

Stratigraphy exposed in the test pit was similar to that at site PA1. Only one glazed ceramic sherd (a brown glazed fragment) was recovered in excavations, in the top 20 cm of Stratum I. Otherwise, Stratum I-III contained assemblages of earthenware pottery, primarily undecorated, and chert flakes. The test pit had a paucity of faunal remains. These assemblages suggest that this is a Neolithic site, which may have been re-occupied briefly in the post 500 AD era. The single brown glazed sherd is of very little diagnostic value, as pottery with this type of glaze has been manufactured from the earliest days of Chinese glazed ware through the present.

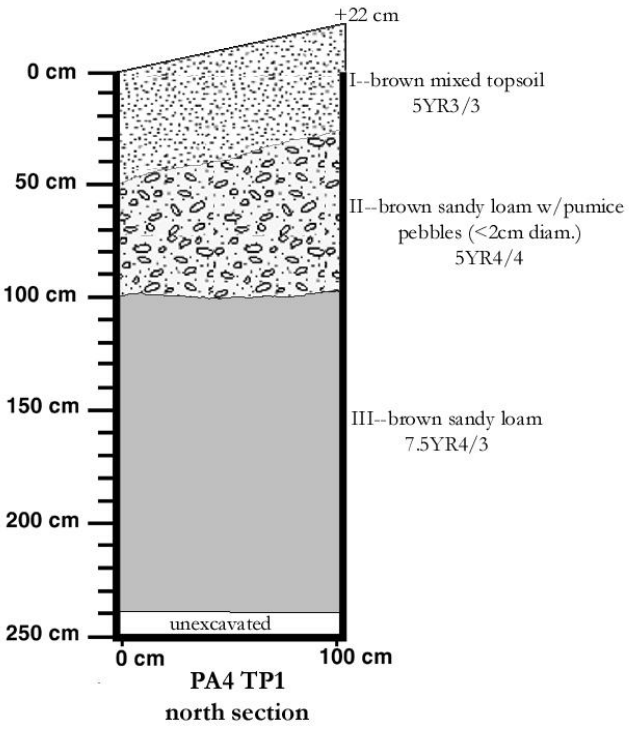


Figure 4.77. PA4 TP1 north section

Site PA5

This site was located during a reconnaissance survey of western Pulau Ay in March 1998. A dense scatter of 18th-19th century glazed ceramics was noted on a low platform behind Laurumah beach. The platform was entirely covered with a low-density scatter of earthenware. A test pit was excavated near the glazed pottery scatter. This exposed a shallow stratum of more 19th-20th century glazed ceramics, plain earthenware and shell. The underlying Stratum II was sterile beach sand to 100 cm.

Later discussions with people in Ay village revealed an oral history about the site. According to these stories, there was a house near the beach that was inhabited by Butonese immigrants about 100 years ago. The name of the beach, Laurumah, derives from this recent history, the name meaning "sea house" (*laut rumah*). Based on this and the archaeological data, it would appear that the glazed scatter is of recent origin, and the less intense earthenware may have eroded from the cliff tops above, on which there are several Neolithic sites.

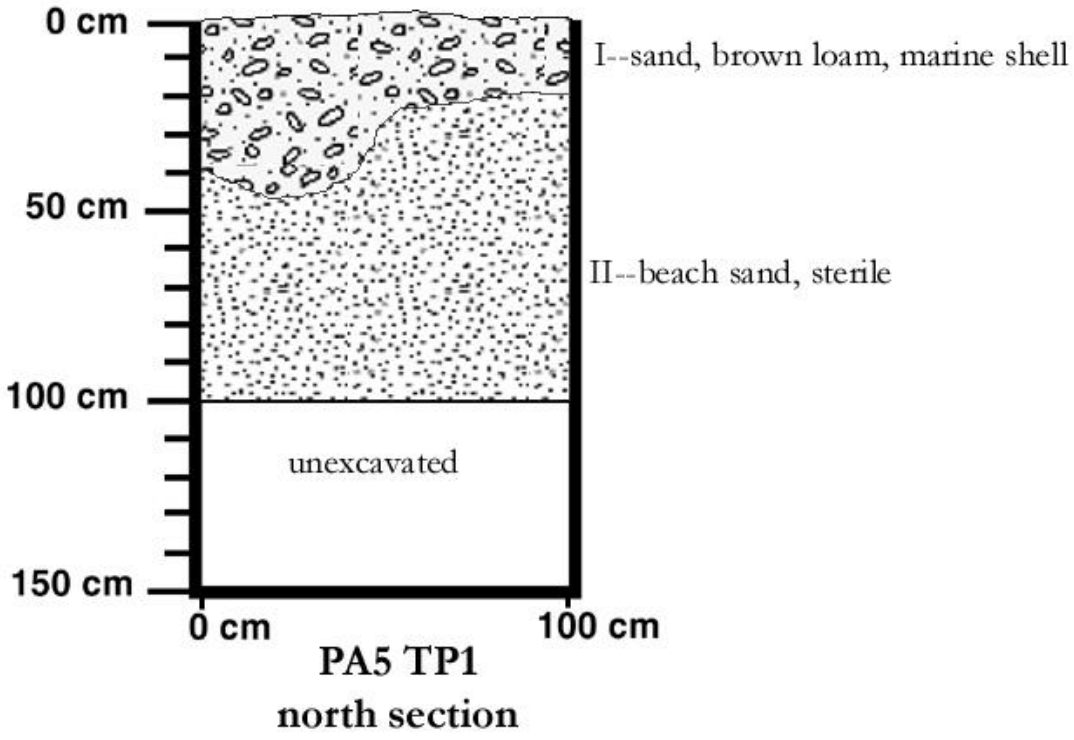


Figure 4.78. PA5 TP1 north section

Site PA6

This site was located during a survey of northeastern Pulau Ay in March 1998. In the dense vegetation on the shelf platform behind Batu Dua beach, there was a low-density scatter of earthenware pottery. Of particular interest was a large sculpted piece of earthenware, which was quite similar to an artifact excavated at BN1 Unit 4 Stratum VIII (see illustration, Fig. 3.16-g). I now believe that both of these fragments are pieces of earthenware cooking stoves, which were often used on boats, and in other archaeological sites have been associated with seafaring social groups, such as Bajau, Bugis, Makassarese or Butonese.

Two test pits were excavated on the beach platform, about 10 meters west of the high tide line, and 1-2 meters in elevation, in dense beach scrub forest with evidence of megapode nest building activity, which potentially disturbs archaeological sites. Both test pits showed shallow upper strata with plain earthenware pottery sherds. TP2 had more artifacts, and also had a goat jaw with teeth. Stratum II in both pits was sterile sand, and in TP2, a probe below 100 cm hit what was probably foundation limestone at 150 cm. In general, this site looks quite similar to PA5, although the absence of glazed pottery suggests it may be more ancient. However, the lack of long sequences suggests the site was not worth further excavation in the context of project research questions, although both PA5 and PA6 could provide data for an interesting study of sea nomadism.

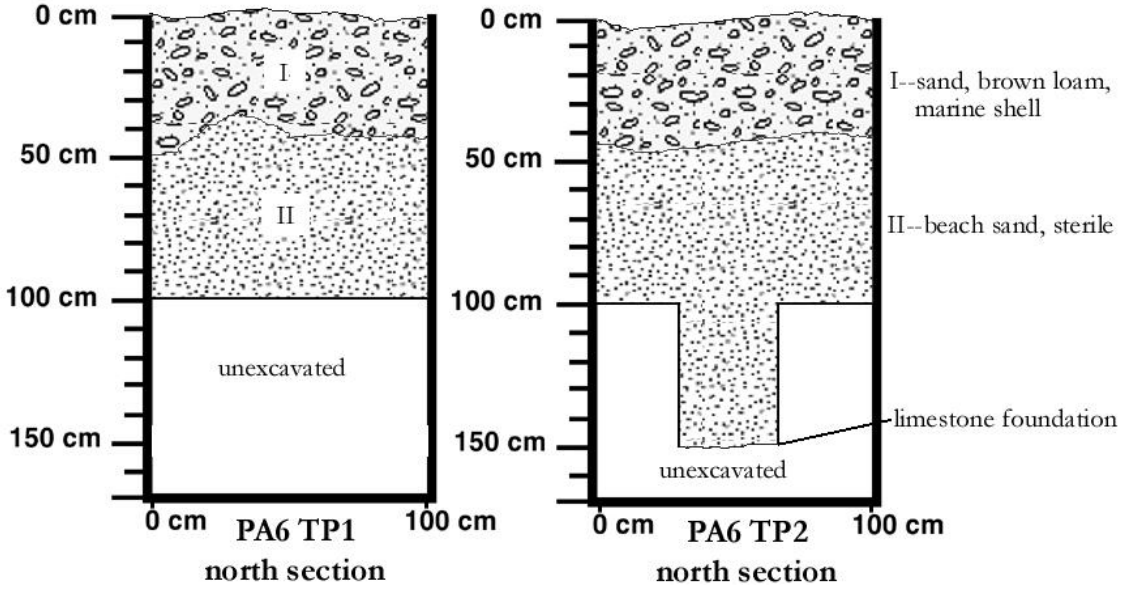


Figure 4.79. PA6 TP1 and TP2 north sections

Site PA7

This site was located on a cliff top above Laurumah beach, on the western side of Pulau Ay. It was discovered while searching the terrace for the possible source of earthenware scattered over the beach below the cliffs, some 20 meters below, around site PA5. PA7 had an extensive area of scattered earthenware, and also Ming blue and white and some possible earlier period monochrome tradewares, on the ground surface. A test pit was excavated about 14 meters east of the cliff edge, on a gently sloping fallow cassava field. A farmer working an adjacent field told us he often found glazed pottery while working his fields.

The test pit revealed a shallow upper stratum (stratum I) containing plain earthenware and one sherd of blue and white of possible Ming age. Below that the pit was entirely sterile to 100 cm. While it would take more test pits in the area to confirm, I believe the site may be one of the forest settlements used by people during WWII, or possibly the site of a 19th- 20th century *walang*, or field hut, used by farmers to guard their fields from poaching when the produce is ripening. No further excavations were conducted at this site.

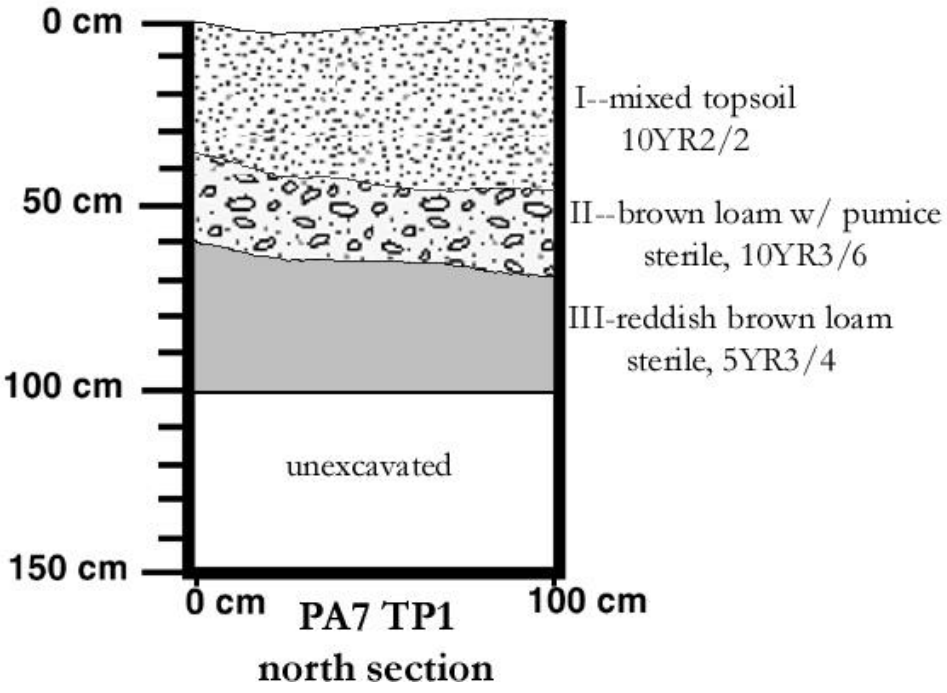


Figure 4.80. PA7 TP1 north section

Site PA8

This site was on a small platform terrace (approx. 30 x 100 m in size) above Tanjung Keli, the northeastern point of Pulau Ay, located during reconnaissance survey of the Pulau Ay coast in March 1998. The site has an excellent view of the central Bandas, being perched up on the cliff top about 25 m above sea level (see Fig. 4.76). The terrace, which had recently been burnt in preparation for planting cassava, had a surface scatter of plain earthenware and a few glazed pottery sherds (blue and white of undetermined age). TP1 was placed in an area of concentration of surface scatter, in the southwest quadrant of the terrace.

The pit revealed three strata that looked very much like the other pits dug on cliff tops above the beach, such as PA4 and PA7. Stratum I contained thin undecorated earthenware sherds, with 3 glazed sherds (two white and one blue and white) in the upper 25 cm. Stratum II contained a few scattered sherds of earthenware, and stratum III was sterile to 150 cm. Faunal remains consisted of a few shell fragments.

Judging from assemblages, this site may have had a low intensity Neolithic occupation, and possibly a late pre-colonial occupation and/or a WWII occupation, although the number of glazed sherds was insufficient to determine actual intensity and date of this occupation. The site was not excavated further.

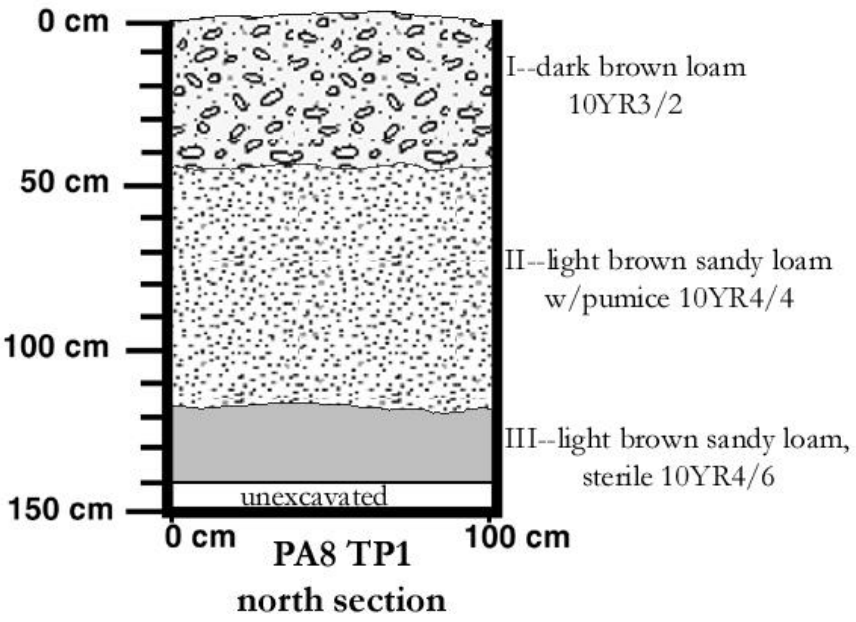


Figure 4.81. PA8 TP1 north section

Site PA9

This site was also located during the March 1998 reconnaissance survey. It was in an area of recently planted cassava fields on a raised terrace, about 500 meters west of site PA8, at about 25 m elevation. The terrace in this area had a relatively dense scatter of earthenware and glazed Ming and later era sherds. TP1 was situated on the edge of a cassava field about 150 m south of the cliff edge, about 25 m west of an older, unused Muslim graveyard. The field had several low circular mounds about 1 m tall, but unfortunately, we could not locate the field owner to gain permission to dig on the mounds themselves.

The test pit revealed five strata overlying foundation limestone rock at 173 cm. Stratum I was similar to other higher elevation Pulau Ay sites, with assemblages containing earthenware and glazed pottery. However, this test pit had a higher artifact density in this stratum than other sites on the island excepting the Ay village sites, and also contained more glazed sherd diversity, with 16th century Vietnamese and Thai sherds along with Ming Chinese blue and white sherds. Stratum II had a lower density of artifacts, but was not sterile, and the assemblage included some possible Song monochromes. Strata III and IV had lower density of plain earthenware sherds. Stratum V was a sterile clay layer, which lay directly on the foundation limestone rock. No faunal remains were visible.

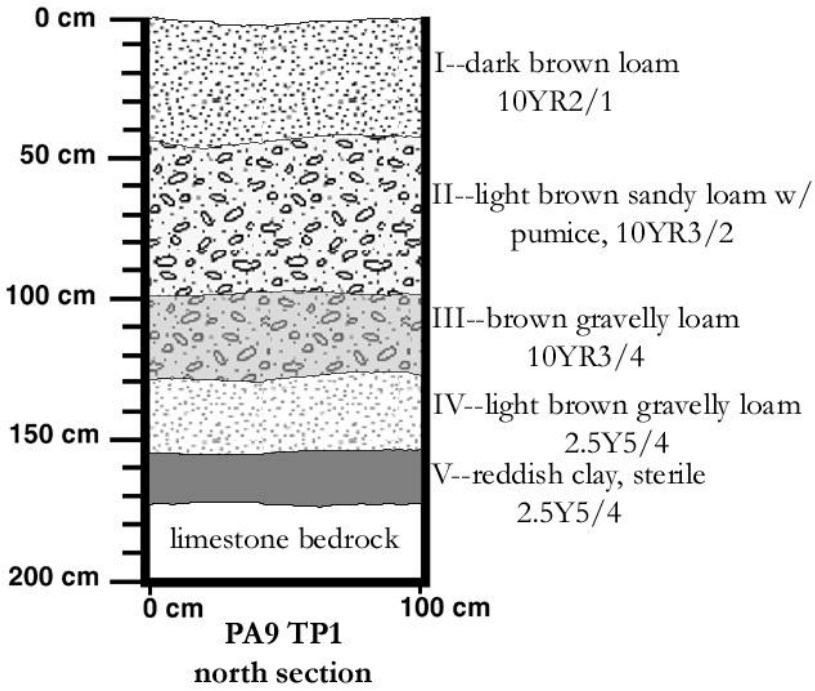


Figure 4.82. PA9 TP1 north section

While this stratigraphy was promising, with possible pre-colonial assemblages in continuum with earlier earthenware only assemblages, no further work was carried out at this site. Other duties interfered with returning to Pulau Ay until July 1998, and then it was decided that salvage operations at PA2 took precedence over this site. The data gathered from the PA9 test pit suggest that it may be a transitional site (such as I expected at PA4), between the cliff top highly defensible sites like PA1 and PA8, and the low-lying villages like PA2. Possibly, it is the site of the historically recorded village of either *Ditsa or Leytsa*, (depending on map interpretation, see above Chapter 3). This village disappeared from the maps after the colonial conquest, probably because the island was largely depopulated, and because the Dutch administration preferred to concentrate settlement around the forts. This site has high potential for future work, and which should begin with excavation of the mound features in the field.

Pulau Ay archaeological record: General conclusions

The archaeological work completed to date on Pulau Ay has produced more questions than answers. Site PA1 has established Pulau Ay as occupied very early in the Maluku Neolithic period, and the existence of similar sites such as site PA4 and the un-excavated rockshelter suggest a significant Neolithic presence on Pulau Ay. After this early Neolithic period, there is as yet no dated archaeological evidence for human occupation on Pulau Ay until the late pre-colonial era, in the 12th -14th century AD, though it is unlikely that the island was abandoned. Late pre-colonial occupation was centered at site PA2, with possible settlements at site PA4, PA7, PA8, and PA9. None of these late pre-colonial sites have any pig remains in the faunal assemblage, despite their prominence in the Neolithic Pulau Ay faunal assemblages, and in late pre-colonial faunal assemblages at Site BN1 on Banda Naira. There are colonial period artifacts scattered over several parts of Pulau Ay, which may be from periodic *walang* occupations or from the WWII period. A separate occupation of the island of interest is at the beach sites of PA5 and PA6, which, in the case of PA5 is connected in oral history to Butonese occupation. PA6 may represent an earlier version of the same kind of brief habitation by a sea-based population, as the earthenware stove fragments suggest.

Pulau Ay summary chronology

- BC 1900-900 (3200 BP): Initial occupation of the island by a population with earthenware pottery, chert and obsidian tools. Foodways include pig and small mammals, birds, reef fish. Sites located in rockshelters, or on cliff tops, rather than on low coastal plains.
- 900 BC - AD 1200: Low intensity occupation, possible shift to "transitional" sites on elevated platforms, but near accessible beach landing sites.
- AD 1200-1600: Establishment of trading settlements in current Ay village, and possibly other elevated sites such as PA9. No evidence for pig eating.
- AD 1600 -present: Occupation primarily in Ay village, with temporary, periodic habitation on other parts of the islands.

Banda Besar: Introductory notes

Banda Besar is the largest island of the Banda group, and historically has been the biggest nutmeg producer (Hanna 1978; Villiers 1990). The contemporary population of the island is spread out in several coastal villages, with no large towns like Naira. The island's archaeological record potentially has much to add to the story of late pre-colonial Banda, but work on other islands took precedence during most of the 1997 and 1998 field seasons, and never proceeded beyond preliminary survey and limited test excavations on the western end of the island. Banda Besar is probably the most challenging island on which to conduct archaeology of all the Banda islands. The island has steep terrain, and is mostly covered with dense forest, in contrast to Banda Naira and Pulau Ay, which are flatter and have a larger proportion of cleared land under cultivation. The lack of tourist facilities made it difficult to use Earthwatch teams for work on the island. The few times that this was attempted meant traveling by boat to and from the island each day, which limited the working hours.

However, an attempt was made to find a site on the island that could provide comparative data for the Banda Naira and Pulau Ay material. Work was focussed on determining the occupation history of Lonthoir, which is today, and has been for recorded history, the largest and most important settlement on the island. A second goal was to search Banda Besar's landscape for smaller settlements that may have existed outside the trade-oriented world of Naira, and might have been diverse components of Banda's pre-colonial social system. Thus, survey was oriented to finding smaller settlement sites in the hinterland of the island.

As on Banda Naira, however, these small sites were not apparent from surface remains. Most surface scatter areas, when test pitted, had very shallow cultural deposits. While there were not the thick strata of volcanic ash as in Banda Naira sites, there was much evidence that the island was periodically covered in volcanic debris, such as pumice, some of which appeared to be in concretions that were extremely difficult to dig through. In retrospect, the eastern end of the island might have been a more productive place to search for sites, being further from Gunung Api.

In February 1998, we conducted some brief surveys and excavations on the central ridge near one of the few natural springs on the island, hoping to find a smaller settlement area. However, test pits (sites

BB1 and BB2) did not reveal any habitation areas. In April 1998, I returned to Lonthoir village to request permission to excavate in the village itself, and also on the western end of the island, which was in Lonthoir's territory. In the case of Banda Naira and Pulau Ay, permission was usually given by the *kepala desa* after a formal request was made with supporting documents, such as the various government permits that I had obtained in Jakarta, Ambon and from the *Camat*, or sub-district officer, in Banda Naira (though with the occasional complications). In Lonthoir, the *kepala desa* granted official permission, but this was contingent on obtaining ritual permission following *adat* (traditional) procedures. The process of obtaining this permission was quite interesting, and it influenced the archaeological research in important ways. The reason given for requiring this extra step of permission was that the archaeological work of digging could affect the various spiritual forces at work in Lonthoir's landscape. These forces are omnipresent, but concentrated at a dozen or so *keramat*, or sacred sites, which play an important role in the daily lives of the people of Lonthoir. In fact, *keramat* play a role in the ritual lives of most Bandanese in other villages and islands (and across much of Southeast Asia, in other forms). Only in Lonthoir were rituals performed to ask for permission for my archaeological research activities.

The process of asking for ritual permission took about one week, and involved the *kepala desa* and several ritual experts from the village. Some of these activities, such as the actual placing of offerings on the *keramat* and ritual whisperings were conducted secretly, but others were open to our observation. Several evenings were spent in the construction of ritual offerings, called *tempat sirih*, by a specialist. These evening sessions were relaxed affairs, but

Buried treasures

During my 16 months of fieldwork in Banda, activities associated with the project attracted considerable attention of local people. Most of the Caucasians they saw in Banda were tourists, who came to relax, go diving or snorkeling or tramp around Banda's historic sites. However, we were often seen carrying shovels and picks, covered in dirt and grime. Some sites were in the middle of the towns, and quite open to public view, and there were a constant stream of observers trying to figure out just what we were up to.

I made continual efforts to explain my research, often taking time out to talk to curious pit side visitors, and many people were genuinely interested in our discoveries, some of them bringing me artifacts they had found while digging foundations or wells, or working in their fields. However, I knew that there were some crazy rumors flying around about my work, which filtered back to me through my Bandanese friends. Some of these were troubling, though certainly not irrational, such as the constant rumors that I was searching for valuable treasure, which in fact I was, though not in the sense implied by the rumors. In fact, there is much oral

with a sense of solemn purpose, and my questions about the meaning of various parts of the offerings were answered, along with discussions about my research, contemporary politics, both local and national, and Lonthoir's oral history. I paid for the cost of the materials for the *tempat sirih*, which included tobacco, coconut oil, palm and banana leaves, flowers, and betel. I also contributed a small offering of cash, which I was instructed to fold into a small square and present on the final evening of *tempat sirih* construction. The *tempat sirih* were then placed on seven *keramat*, including Kota Marak, by three different *adat* leaders. These ritual specialists, all men, told me they asked for peacefulness during the upcoming digging activities, and also success for my research.

As a result of these ritual activities, and my own interest in the meaning and history of *keramat* in Banda, I took the suggestion of the *kepala desa* and other ritual leaders to conduct excavations at *keramat* Kota Marak, which was denoted site BB3. This *keramat* was in the approximate vicinity of a historically recorded settlement called *Mandiango* or *Mandiangin*, and it was possible there was a connection between the old settlement and the sacred site that has important meanings for the people of Lonthoir. Unfortunately, the archaeological evidence did not reveal any settlement in the region, but only three small test pits were excavated, and it is certainly possible that we simply dug in the wrong place.

history about buried treasure in Banda, with people occasionally encountering caches of pottery and other objects which were buried by Dutch *perekeniers* before the Japanese invasion of 1942. My personal favorite was the story of a giant wheel of cheese that had been dug up in Naira during a well digging, packed in sawdust and still edible fifty years later! Quite an insight into notions of value in late colonial Banda.

I felt it was in my best interest to quell these rumors, lest it inspire others to begin treasure hunting and damaging valuable (in other ways) archaeological sites. In Lonthoir, the ritualized permission asking which preceded my research greatly helped, as it provided a network of explanatory authority in the village. While the rumors did not stop all together, I felt a sense of ease in the village right from the beginning of work there, as most people had already heard about what I planned to do, and knew that village elders and spirits had been consulted beforehand.

In other places with less strong traditional authority, the rumors continued. As the end of the 1998 field season approached, I felt an obligation to provide some more explanation to the general Bandanese public about the project activities, and also provide some preliminary results of my analysis, for those who were interested. With the help of the local Department of Education and Culture, and the private Banda Naira Culture and Heritage Foundation, and financial contributions from several generous Earthwatch volunteers, this took the form of a museum exhibit, in the Naira Rumah Budaya museum (Lape 2000). It was planned and installed with the help of a team of 12 Bandanese high school students who spent two months learning about archaeology, considering the different possibilities of museum exhibits and conducting their own ethnohistorical research. The exhibit was opened with great fanfare in late July 1998, and hopefully is the first of many such exhibits about Banda's fascinating history, as well as an end to rumors about the nature of archaeological research.

This bad luck seemed to continue at test pits within Banda Besar, as only one (BB5) had any pre-colonial remains. In the final three months of fieldwork in Banda, other duties, such as continued analysis of the large quantity of material from other sites, ethnohistorical research in Southeast Seram, the installation of the museum exhibit, and an archaeology conference in Malaysia prevented a return to Banda Besar to follow up on the test pits. Thus, much of the data presented here is preliminary rather than definitive. However, it does add, in a small way, to the larger picture of Banda archaeology from the late pre-colonial period.

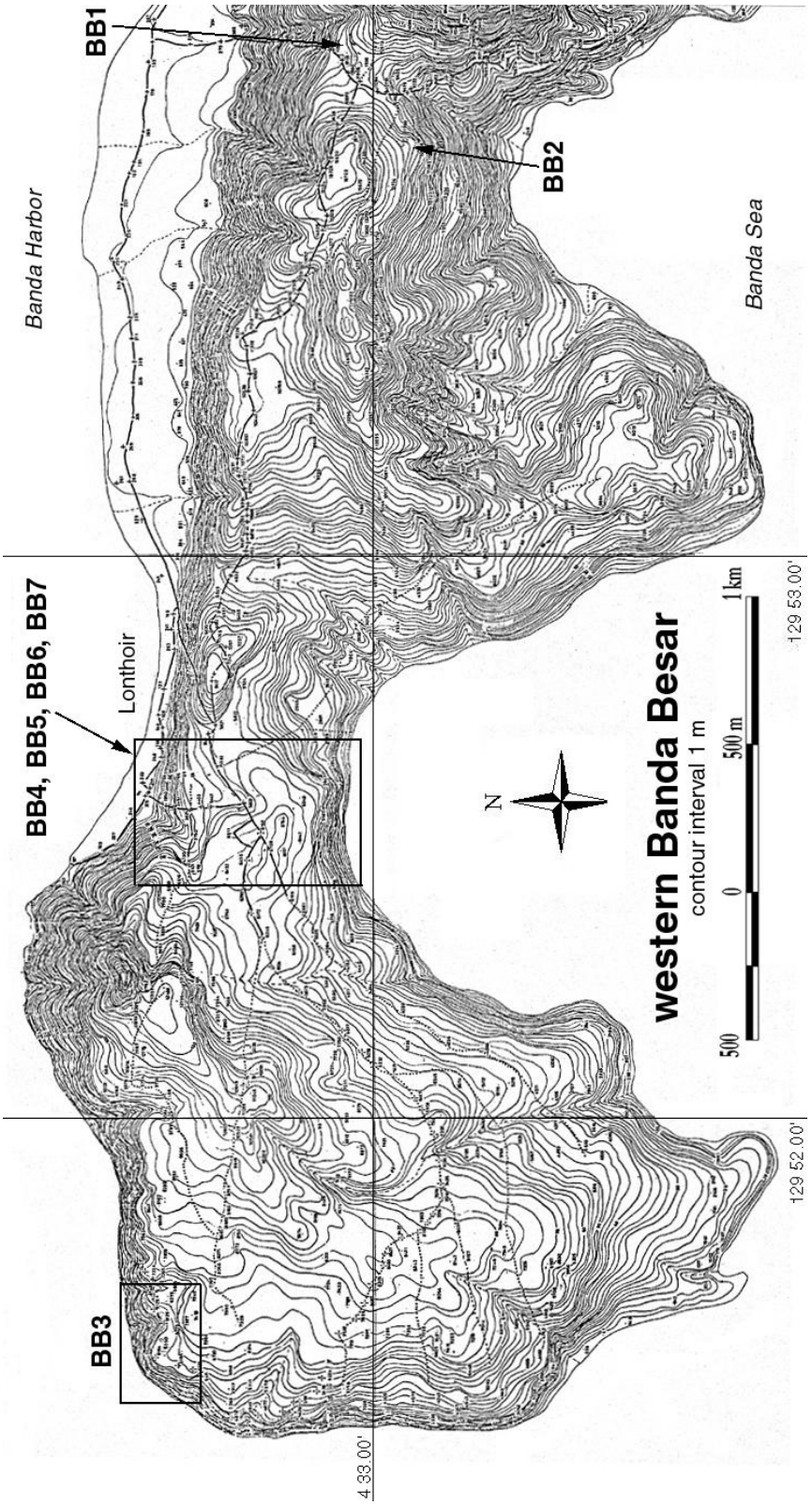


Figure 4.83. Topographical map of western Banda Besar showing archaeological site map locations (adapted from Indonesian geographical survey basemap, 1997).

Sites BB1 and BB2

These two sites were located during reconnaissance survey of *Perek* Waling Besar in February 1998. The property includes a saddle ridge and two streams, one of which flows from a permanent spring on the southern drainage of Banda Besar. The object of these test pits was to test some earthenware surface scatters found near the spring in order to begin to understand soil deposition rates on Banda Besar, and also hopefully locate a long habitation sequence.

BB1 was situated at the top of a saddle ridge, 5 m east of the main path from Waling to Tutra. It was situated in an area of earthenware scatter, on a platform on the north end of the saddle ridge, on one of the few flat areas near the streams and spring. The test pit revealed five strata, of which the upper four contained undecorated earthenware in very small quantities, becoming even less dense below 90 cm, and was culturally sterile below 125 cm. No other types of artifacts or faunal remains were found. There may have been periodic habitation in this area dating to the pre-10th century (judging by the absence of glazed ceramics).

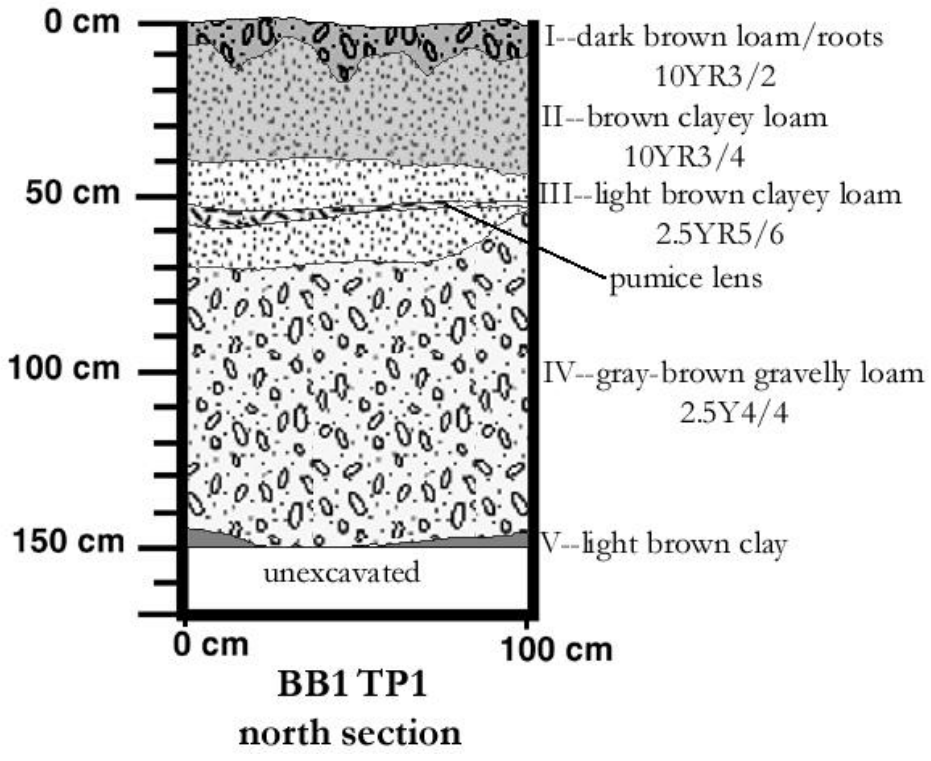


Figure 4.84. BB1 north section

Site BB2 was situated on the south side of the saddle ridge, in a cultivated cassava field. The field had a scatter of earthenware and glazed ceramics, and the test pit was situated on the edge of the field, so as not to disturb the plantings. The pit revealed three strata, of which only the upper one contained artifacts, including undecorated earthenware and one sherd of Ming or later blue and white underglaze. It is likely a 19th-20th century *walang* occupation. Because neither site appeared to have late pre-colonial era components and neither had particularly dense cultural deposits, no further excavations were undertaken at these sites.

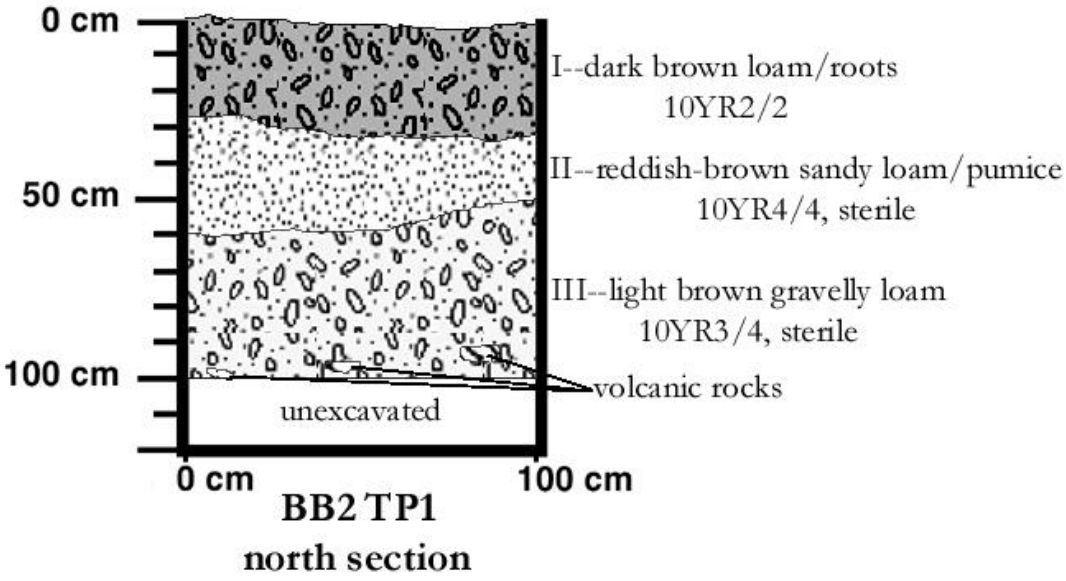


Figure 4.85. BB2 TP1 north section

Site BB3

This site was located on a 70-80 m elevated terrace above the cliffs of Banda Besar's northwest coast. The site had scatters of earthenware and glazed ceramics in varying densities, although surface visibility was limited to cultivated fields. I decided to attempt test excavations at this site based on oral history and myth surrounding the nearby *keramat* of Kota Marak. According to these stories, this site was the location of Banda's first mosque, and the four stone markers at the *keramat* were the base of the mosque building. Kota Marak translates as "noisy", "festive" or "busy town", and according to my informants, there was indeed a settlement near the *keramat* in the deep or remote past (*zaman dulu dulu*). The village of *Mandiango* or *Mandiangin* is on some historic maps in the approximate location of this site. However, there was no other information that would help pinpoint the site of this historic village. In this case, I let my informants from Lonthoir guide test pit location, partly out of curiosity to see what determined their choices, and mostly because I had no clue myself where to situate test pits. My guides would not allow excavations within a loosely defined sacred space surrounding the *keramat*. This space would probably have been my first choice for excavation if such prohibitions did not exist.

Three test pits were excavated, and none of them had cultural deposits of any depth. The uppermost stratum in all three pits was a 5-15 cm thick layer of loose volcanic pumice. This is presumably from the recent 1988 eruption of Gunung Api, as Lonthoir was the village most affected by ash and debris from the new craters formed on the southeast side of Gunung Api. Stratum II was a layer of loam varying in depth between test pits from 20-100cm, which contained undecorated earthenware pottery sherds and a few sherds of 19^{th}-20^{th} century glazed ceramics in the uppermost 20cm. Stratum III was a layer of reddish brown concretized volcanic ash/rock that was culturally sterile. In TP1, we laboriously chipped our way through over a meter of this material before ending the excavation, and in the other test pits only the top of this strata was exposed.

While three small, rather randomly placed test pits do not disprove the stories of a settlement in the vicinity of Kota Marak, it was decided to discontinue the search for this settlement. The assemblages exposed in the Stratum I layers in the test pits is likely a *walang* occupation from the late colonial period.

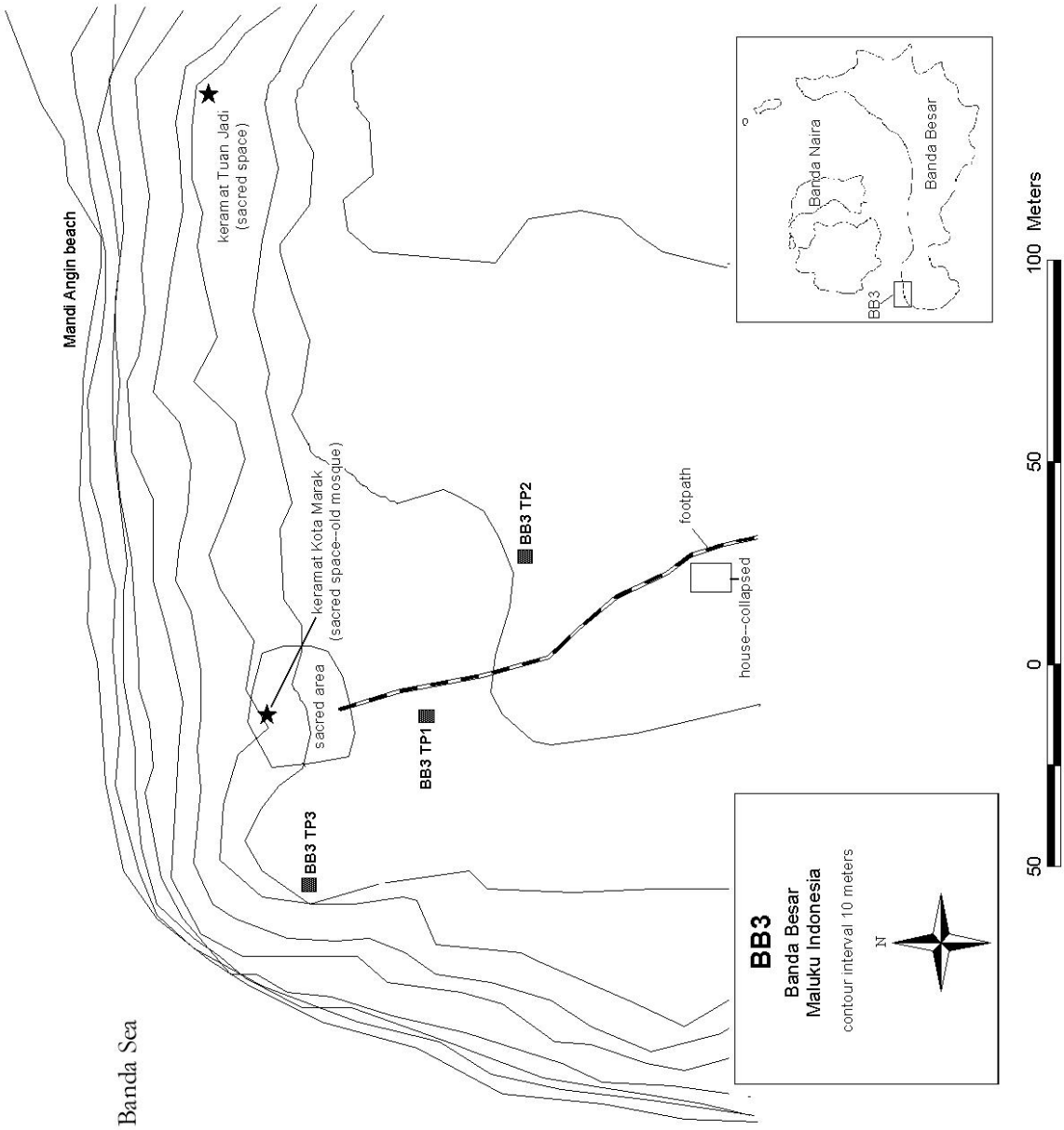


Figure 4.86. BB3 site map

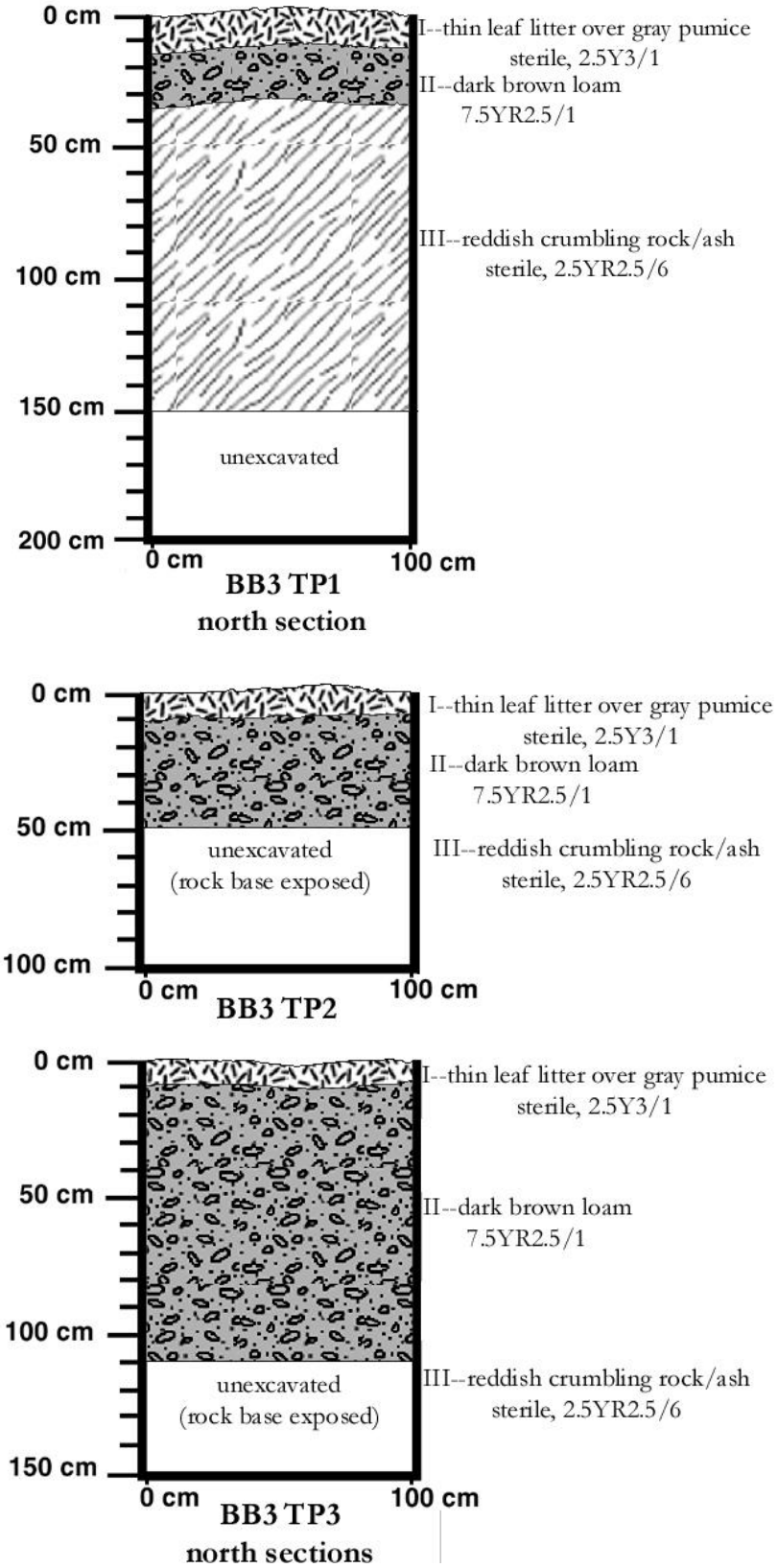


Figure 4.87. BB3 TP1, TP2 and TP3 north sections

Sites BB4, BB5, BB6 and BB7

These four sites are all within the boundaries of the contemporary village of Lonthoir, Banda Besar's largest settlement. As with sites BN2 and BN4 in Naira town, and PA2 and PA3 in Ay village, these sites were located in currently occupied land, and excavated with the aim of revealing the occupation history of Lonthoir village, with particular focus on the late pre-colonial period. As was the case in Naira and Ay, excavation sites had to be situated between occupied houses, depending on permission by individual landowners as well as government and traditional officials.

Lonthoir is spread out along a narrow coastal plain, and up a steep hill to the top of a saddle ridge. It commands a view of the Lonthoir Straits, one of the main entrances to Banda's inner bay, and was historically one of the chief trading ports in the islands, although in colonial times (and probably the last century of the pre-colonial too) it was eclipsed by Naira, which has superior protection from monsoon waves and wind and a deeper harbor. Excavations were directed towards revealing the date of initial occupation of the town, and its settlement pattern, particularly how the lower and upper portions of the settlement developed. One early description of Lonthoir implies that only the upper hilltop portion was occupied in the 16th century, with access by ladders up the steep slope from the beach (Purchas 1625: 698).

Figure 4.88. View from upper Lonthoir, *Buka Kampong* ceremony, 1997 (photo by Charlotte Spang).

Excavations might reveal whether this was a temporary pattern, perhaps inspired by the same defensive attitude that inspired the wall building at sites BN1 and BN2. Finally, I hoped to gain insight into Islamization in Lonthoir through its late pre-colonial faunal remains and burial practices. Two test pits (BB4 and BB5) were located on the coastal plain in lower Lonthoir. One pit (BB6) was situated partway up the slope on a narrow elevated terrace, and the fourth pit (BB7) was situated on the top of the saddle ridge. Results of the excavations are described below.

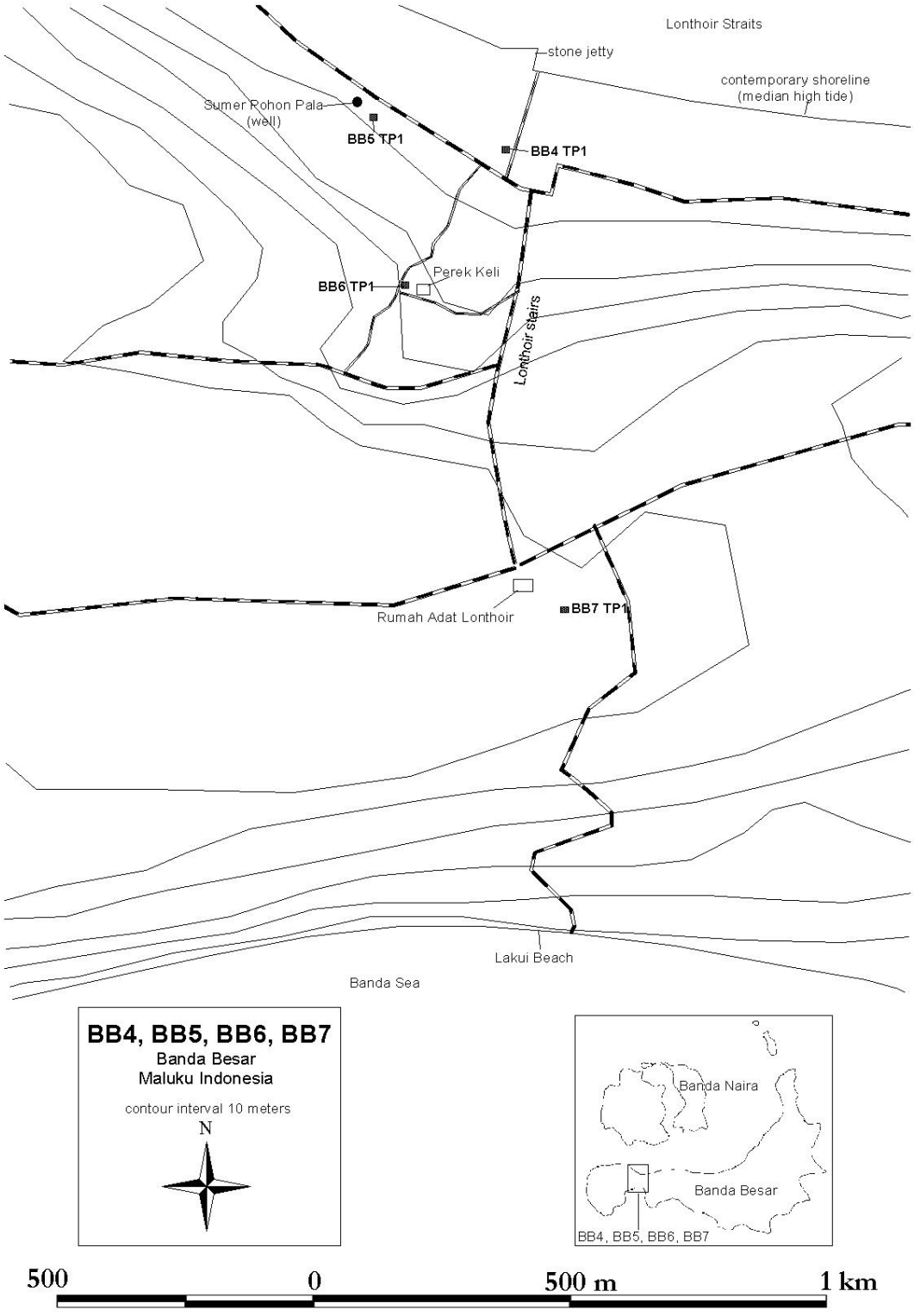


Figure 4.89. BB4, BB5, BB6 and BB7 site map

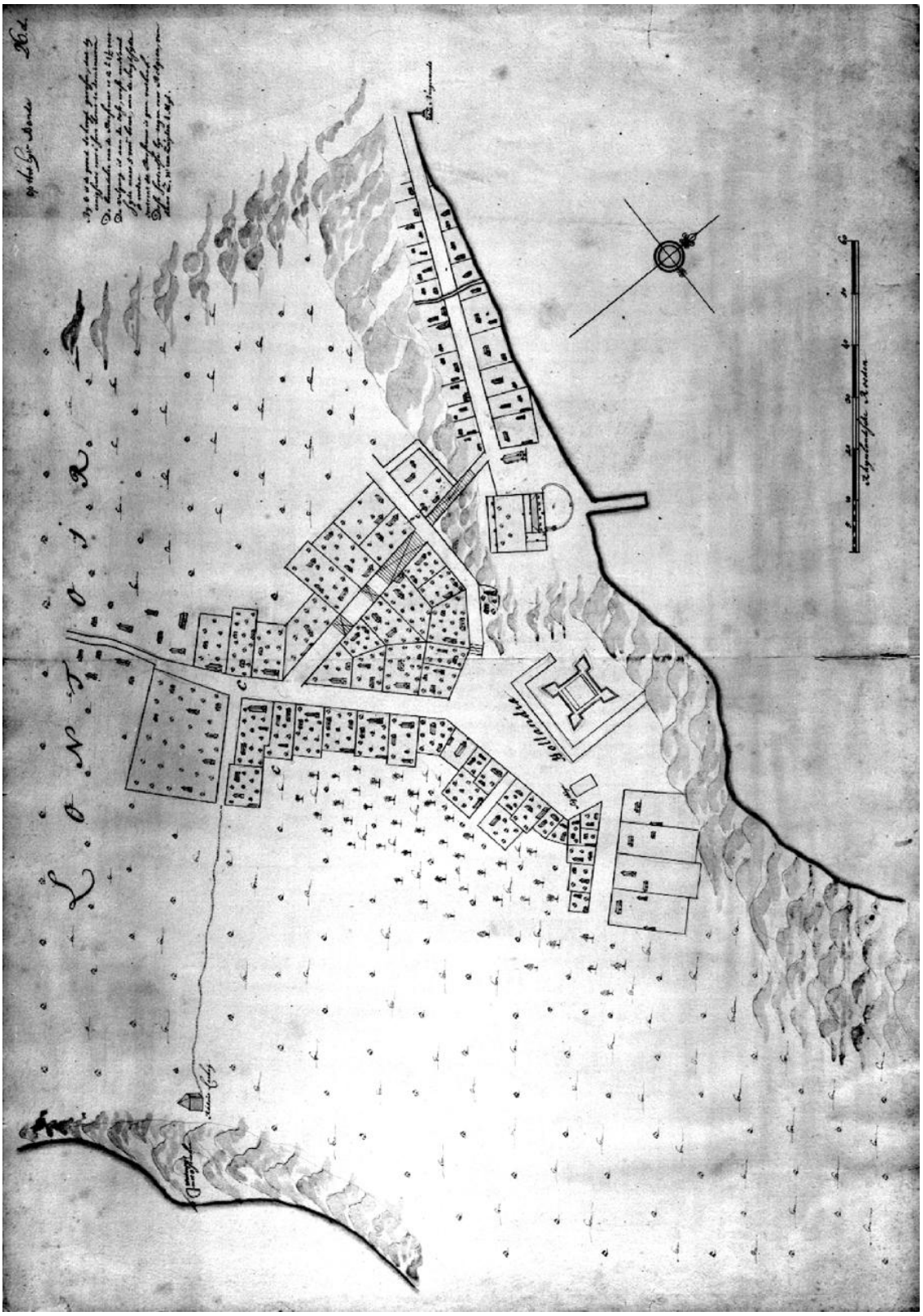


Figure 4.90. Map of Lonthoir, c. 1650 (copy obtained at the Algemeen Rijksarchief (Dutch Royal Archives), The Hague, microfilm cat # 4.VEL.1366)

Site BB4

A single test pit was excavated at this site, on open land about 1m above sea level. The primary objective was to determine shoreline progradation, which was assumed to have been relatively rapid in Lonthoir due to the wide intertidal zone in front of the village. All excavated strata contained mixed 18th-20th century artifacts, and the presence of mortar and large rocks indicated rubble fill from a colonial-era building. Several weeks after the excavation, an informant told me that his grandparents had had a house on or near the test pit site. There are also indications that in addition to rapid soil deposition from the volcano in Lonthoir, there may have been some localized subsidence, as during high tide, the pit filled with water to about the 100cm depth, while cultural materials extended to below 150 cm. It was determined after this excavation to try another pit on higher ground, further from the shore, at site BB5, discussed below.

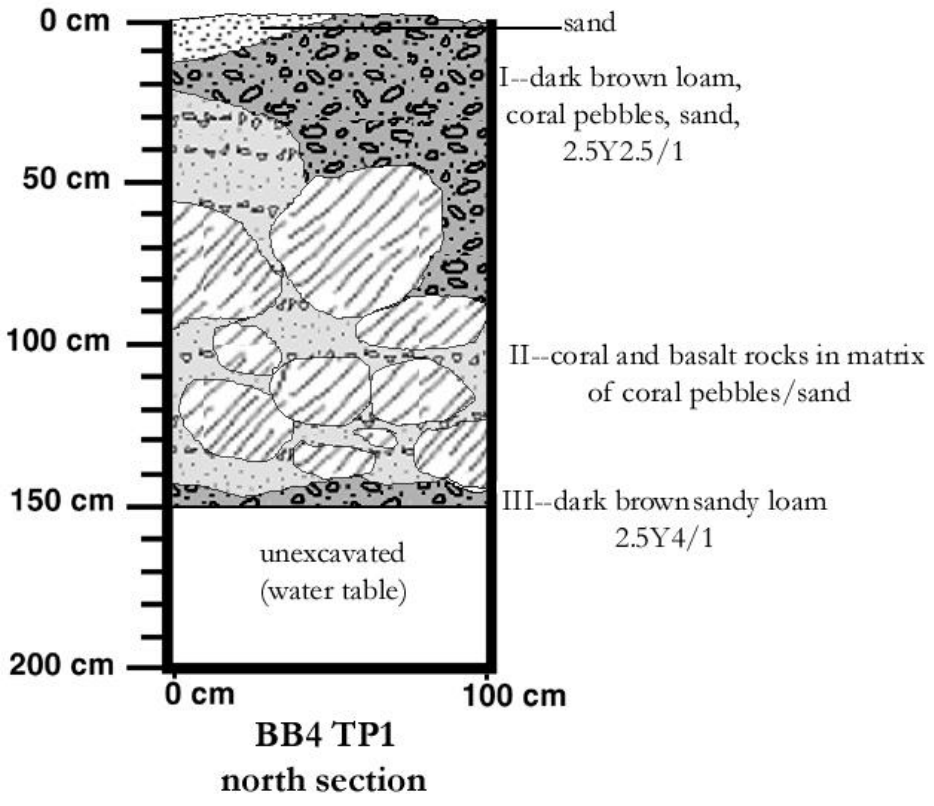


Figure 4.91. BB4 TP1 north section

Site BB5

This pit was situated close to the base of the steep cliffs which lead to Lonthoir's upper section, next to a communal well called Sumer Pohon Pala (Nutmeg Tree Well). The well provided a convenient way to estimate water table depth, which was determined to be 2-3 m below ground surface, fluctuating with, but somewhat delayed behind, the tidal schedule.

Excavations revealed three strata. Stratum I had a typical late colonial assemblage, while Stratum II had early to mid colonial assemblage. The deepest kaolin pipe was found at 125 cm, in the upper level of Stratum III, which also contained Swatow enamelware. Below this level down to the maximum depth of excavation at the 200 cm water table, there was a sparse assemblage of undecorated earthenware pottery, brown glazed wares and unidentified mammal bone fragments.

This sequence indicates low intensity occupation dating from probably the post 10th century AD, with continuous, intense habitation use of the site only in the very late pre-colonial/early colonial period onward. No further excavations were undertaken at this site, but it suggests that future excavations in lower Lonthoir be situated as far south as possible, near the cliff base.

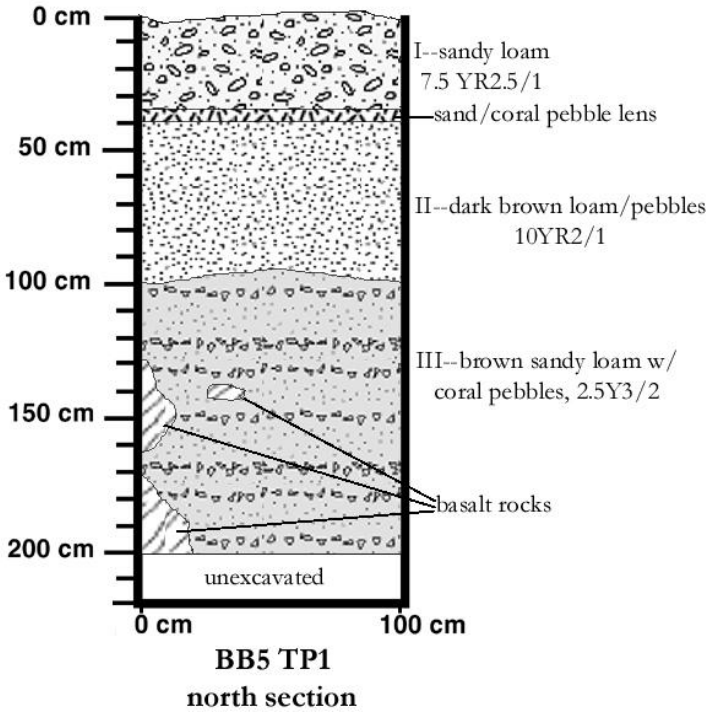


Figure 4.92. BB5 TP1 north section

Site BB6

This next site was situated midway up the steep slope between lower and upper Lonthoir. Finding a place to dig was difficult, as the few flat terraces are generally already built on in this part of the village, and much of the slope has been eroded down to bedrock. A single suitable site was eventually chosen at the edge of a secondary footpath between lower and upper Lonthoir. Excavations revealed an upper stratum of loam with mid-late colonial period artifacts, and a human burial, which had been cut into a lower stratum of hard, culturally-sterile clay. The shallowness of the burial and associated artifacts indicated a relatively recent age, and I did not want to enter the sensitive area of disturbing graves, so this burial was fully exposed, sketched and photographed, and reburied in one day. A small bone sample and a lower molar, which had become dislodged during excavations, were collected for future analysis.

The skeleton was approximately 175 cm in total extended length, and was lying on the right side, with the head to the north, facing west, arms and legs slightly flexed, a typically Muslim burial position. The bone was poorly preserved, and most of the pelvic and chest area was almost completely decomposed. The skull was gracile, without prominent brown or chin ridges. Initial analysis indicated the skeleton was of a 20-40 year old female. There were no associated grave goods.

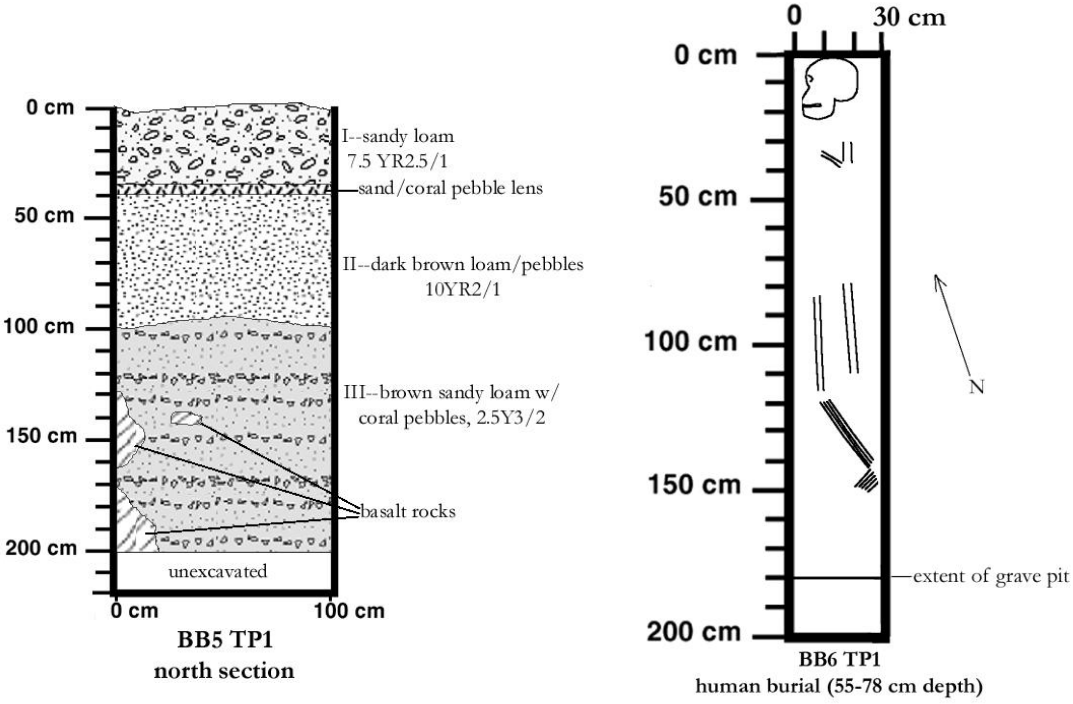


Figure 4.93. BB6 TP1 north section and burial schematic

Site BB7

This site was situated in upper Lonthoir, on the top of the saddle ridge south of the Lonthoir Rumah Adat, Lonthoir's village cultural center, which was formerly a Dutch colonial plantation house called *Perek Namulu*. The site is inside the old *perek* walls, and colonial artifacts found in excavations were probably associated with this *perek*. The excavation revealed four strata, of which the upper three contained cultural material, all of which dated to the colonial era, including kaolin pipes and European glass bottle fragments. Stratum III had particularly dense deposition of artifacts, suggesting this may have been a trash pit. Underlying these strata was a layer of reddish crumbly concretized volcanic pumice/rock, which was culturally sterile. An attempt was made to dig below this stratum, but the digging became increasingly difficult with depth, and excavation was stopped at 150 cm depth, after one entire day of energetic picking gained only 15 cm through this tough material. If pre-colonial remains lie under this stratum, it will take a determined digger, or power equipment, to reach them.

This rocky stratum closely resembled the lowest stratum in the BB3 test pits, and appears to have been deposited by a volcanic event. It must have been quite destructive to any settlements existing at the time, but no such destruction of Lonthoir is recorded historically or in oral history. This suggests it happened in rather deep history, but there are no clues as to the actual date of this event.

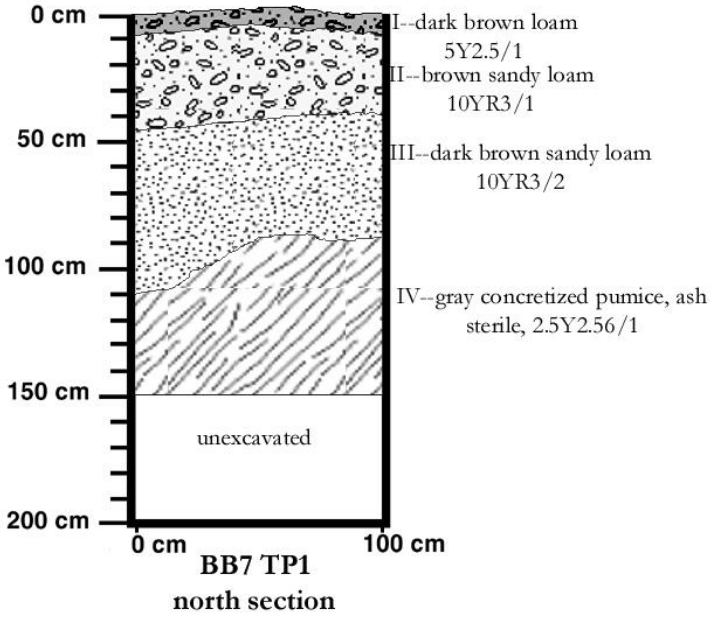


Figure 4.94. BB7 TP1 north section

Banda Besar archaeological record: General conclusions

Because only preliminary exploratory research has been conducted on Banda Besar, no firm conclusions can be drawn about its late pre-colonial occupation history. Much more intensive fieldwork would be required before such conclusions could be posited. Historical records suggest the island had a relatively large late pre-colonial population, with several villages. The island's environment, with reliable surface and ground water sources and large land area suggest it would have been perhaps the most suitable island in the Bandas for human settlement. However, difficult survey conditions, and more importantly, inadequate time to follow up on potential sites, meant that the archaeological data gathered to date is of limited use in addressing the central research questions of this project. Future work would be focussed on the area around site BB5, which appears to have deposits of late pre-colonial material. Survey and excavation might be more successful on the eastern part of the island, which is further from Gunung Api and may have been less affected by volcanic deposition.

Banda Besar summary chronology

The following chronology is based on the limited evidence available, and without the benefits of absolute dating :

- Pre 10th century: Scattered low-density occupation, particularly in higher elevations and near fresh water springs.
- 10th -15th centuries: Trading settlement established in lower Lonthoir.
- 16th-17th centuries: Lonthoir expands up the slope to the higher elevations. Lower settlement possibly abandoned during 15th-16th centuries (according to historical data).
- 17th-20th centuries: Colonial occupation of Lonthoir area, with periodic later colonial period *walang* (field house) occupation in hinterlands.

The archaeological record of Banda: summary and preliminary conclusions

The archaeological portion of this project was aimed at gathering data about long term social processes operating in the Banda Islands, and short and medium term changes occurring during the five centuries leading up to the conquest of the islands by VOC forces in 1621. Over two field seasons in 1997-1998, some portions of Banda Naira, Pulau Ay and Banda Besar were subjected to pedestrian surface survey, although this was deemed to be of limited utility on Banda Naira and western Banda Besar. In these areas, rapid soil deposition from the Gunung Api volcano has buried signs of older settlements with a thick layer of volcanic ash and pumice. Site discovery in these two inner islands was through historical evidence, primarily from old maps, or in the case of BN1, through unique geological conditions in which deeply buried remains were exposed through beach erosion. A limited experiment allowing local oral historians to guide site selection was not successful on Banda Besar.

Twenty sites (defined as places of archaeological interest) were surveyed and excavated. Five of these sites, BN1, BN2, BN4, PA1, and PA2, were tested with units, while the others were tested with shovel test pits only. These other sites were less revealing about the late pre-colonial period, as most of them lacked identifiable late pre-colonial artifact assemblages. Most of the test pits on Banda Besar and Pulau Ay had small amounts of earthenware pottery in lower strata, and many of them had 19^{th}-20^{th} century material in upper strata, but lacked dateable 10^{th}-16^{th} century glazed ceramics which were prominent in sites BN1, BN2, BN4 and PA2. Site BB5 in Lonthoir village on Banda Besar and site PA9 on Pulau Ay held some promise for late pre-colonial deposits, but there was not sufficient time to investigate adequately these sites.

Changing settlements

The data collected for this project is not a representative sampling of human use of the islands over time and space. However, the 20 sites that were tested archaeologically do provide information about changes in settlement over time that allow at least a tentative preliminary view of settlement patterning. This data is organized below (Fig. 4.95) into four temporal periods. As discussed above, there was no data from the period between 2500 and 1500 BP, nor any evidence for human settlement pre-dating 3200 BP, although the archaeological research was not designed to look for settlements from these early periods.

The earliest evidence for human occupation of the islands is at site PA1, with ceramics, stone tools and faunal remains dating to 3200 BP, with potentially older ceramic bearing strata at the site as yet undated. This makes Pulau Ay one of the earliest pottery using settlements in Maluku, although earlier dates are expected from the region when and if research continues. This is intriguing because Pulau Ay is a small island that lacks a fresh water source. Perhaps its very marginality meant it was unoccupied before the so-called Austronesian expansion, and therefore open to new settlements. The development of pottery water storage vessels may have also made this island inhabitable for the first time, as rainwater could be stored, or groundwater transported from other islands. The Neolithic period in Banda is still poorly understood. The fact that the only definite Neolithic sites in Banda were found on Pulau Ay is most likely because such sites on Banda Naira and western Banda Besar are more deeply buried by volcanic ash.

Between this early period and the subsequent first occupation at site BN1 at c. AD 500, there is no definitive archaeological evidence for human presence in the islands. What was going on in this period? While it seems unlikely that the islands were abandoned for the intervening 1500 years, it is intriguing that the next date for human presence is from a time when the contacts between mainland Asia and Maluku appear to have begun, perhaps stimulated by a nascent trade in spices. However, with the limited evidence on which to draw, any conclusions about Banda would be pure speculation.

The next period from which we have evidence of human presence is at site BN1 from approximately AD 500. The evidence shows that BN1 was an early population center, and had long distance trade contacts from its initial settlement, although these were sporadic until the 10^{th}-12^{th} century. The establishment of a settlement at site BN1 is followed by another settlement at site BN4 at approximately AD 1000-1100, then at BN2 (probably part of the same settlement as BN4) and PA2 one or two hundred years later. All of these sites have evidence that long distance trade was part of the economy, with glazed ceramics appearing in the oldest strata in the sites. Yet, these three settlements look very different archaeologically. In addition to different dates of initial occupation, and quite different geographical situations, the three settlements have quite different late pre-colonial archaeological assemblages and chronologies. Site BN1 has dense deposits of the distinctive sculpted earthenware pottery

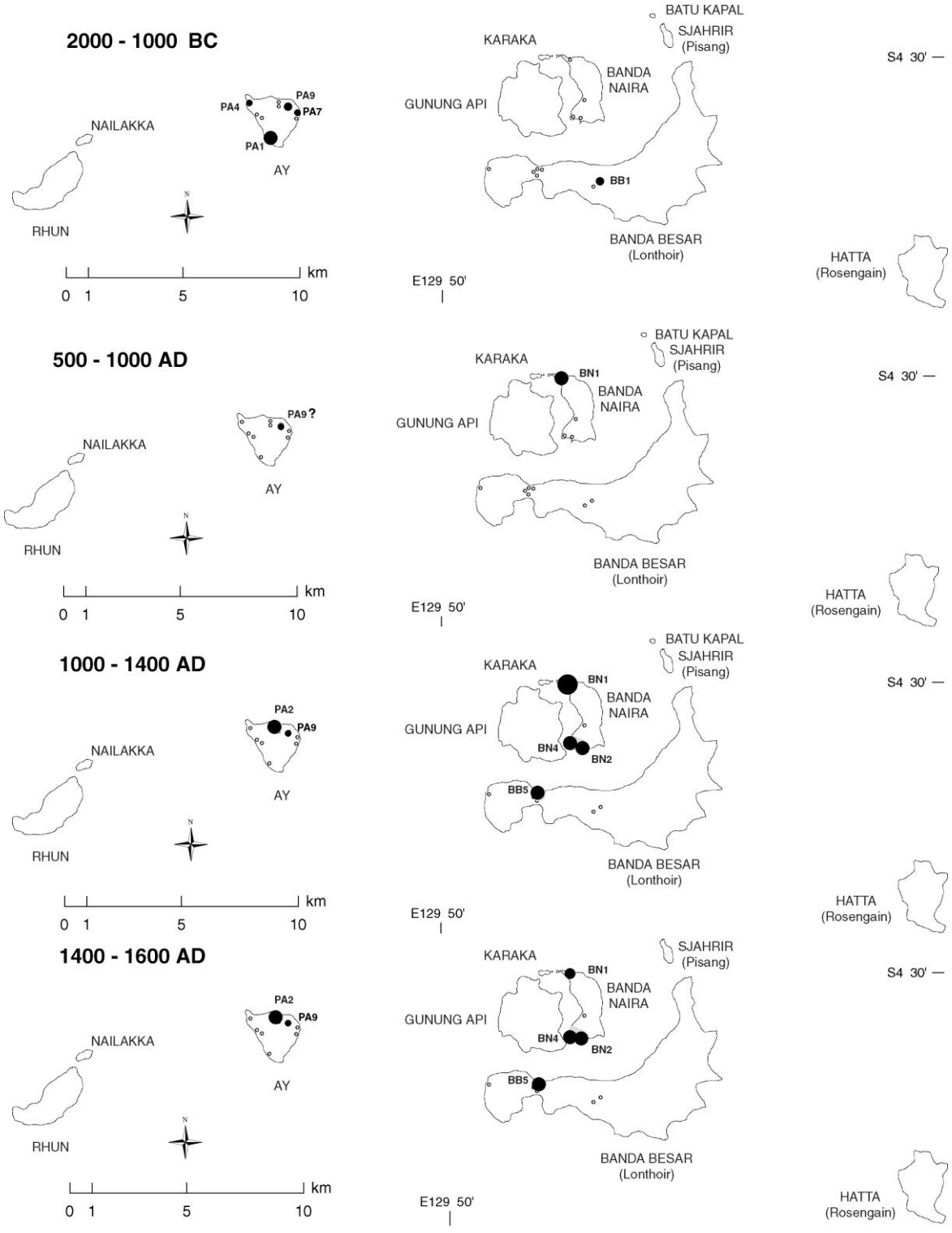


Figure 4.95. Settlement pattern changes, BC 2000 - 1600 AD (3000 - 400 BP).

tradition found nowhere else in the Bandas, dating from AD 500 - 1500/1600. Only at site BN1 is there evidence for human cremation burials, with burned fragmented human bone and teeth, and only site BN1 shows evidence for pig consumption in the late pre-colonial period. All other late pre-colonial sites lack pig bones and teeth in faunal assemblages. The remains of coral and basaltic block walls were encountered in the late pre-colonial strata of sites BN1 and BN2. While it is unclear from the archaeological evidence what purpose these walls served, the timing of their construction suggests they may be a reaction to European presence, or because of rapidly increasing trade. The placement of these wall features, which appears to have been along the shorefront, also suggests a defensive use. Finally, site BN1 did not have an intense colonial period occupation, whereas sites BN2, BN4, and PA2 all became colonial population centers (see Table 4.2 for a list of site characteristics, Fig. 4.96 for a timeline representation of these four sites,).

Table 4.2. Banda archaeological site characteristics

Site	Initial Occupation	Pig remains	Sculpted EW	Metal working	Cremations	Location
BB5	AD 1200?	No	No	No	No	On beach, high cliffs behind site
BN1	AD 500	Yes	Yes	No	Yes (end in 12th century)	On beach, high ridge surrounds site
BN2	AD 1200	No	No	Yes	No	On beach, flat
BN4	AD 1100	No	No	Yes	No	on beach, flat
PA2	AD 1200	No	No	No	No	On beach, flat
PA9	Pre AD 1100?	No	No	No	No	On elevated platform, steep climb from beach

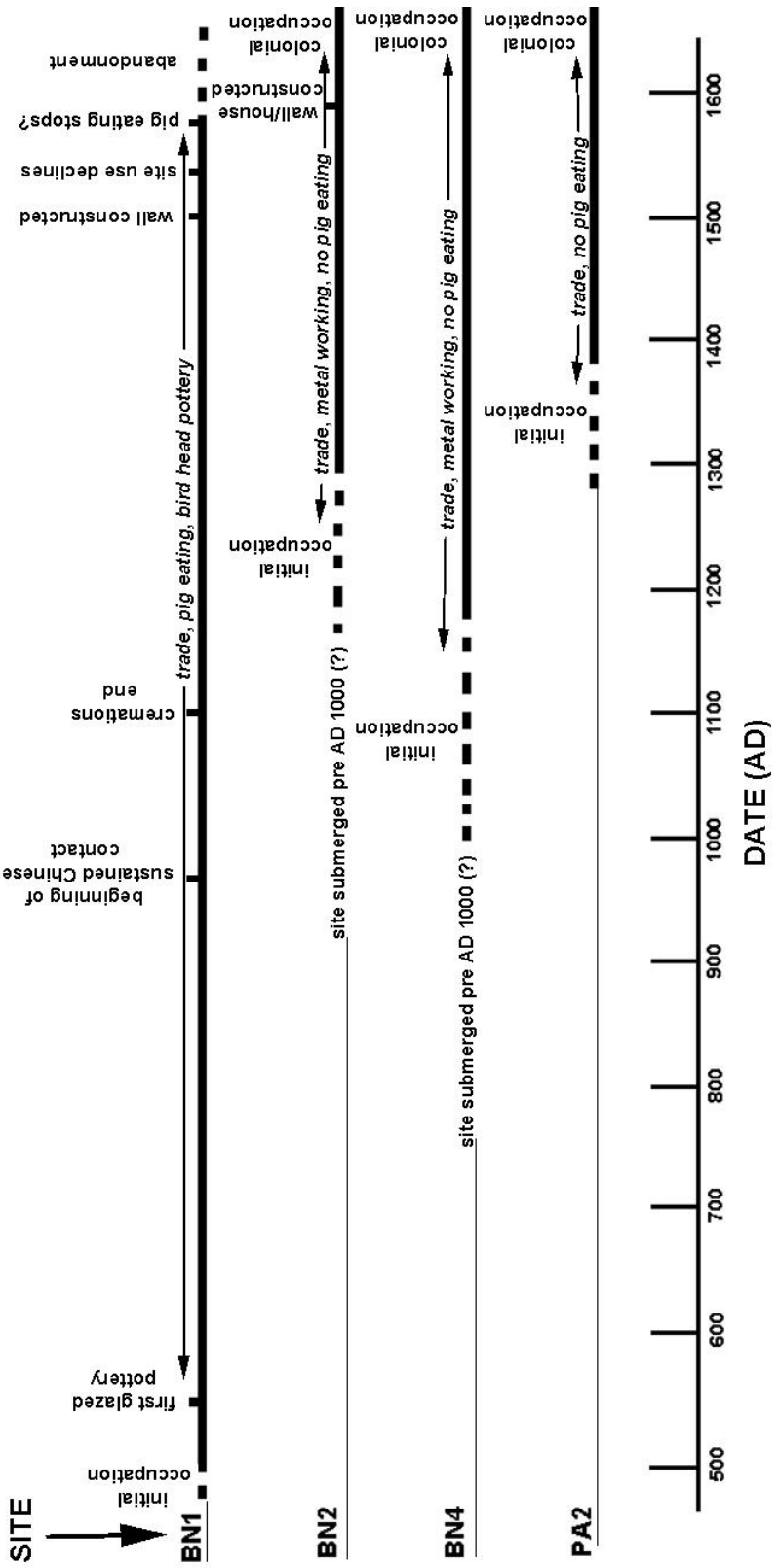


Figure 4.96. Archaeological timeline for dated sites, BN1, BN2, BN4 and PA2

Site BN1: Pig bones and bird heads

In addition to its long occupation history, site BN1 had two distinctive features that are worth reviewing here. One feature was the presence of the sculpted earthenware artifacts, which are present in the same strata, and disappear at about the same time, as pig remains. These artifacts have no obvious practical function, such as for storage or cooking, although similar artifacts found in north Maluku have been described as pestles (Bellwood *et al*. 1993). The presence of ash and burned bone (including possible human bone in pre-10th century strata) in association with many of these artifacts suggests they may have had some ritual use. The "bird head" artifacts, some of which resemble cockatoo and/or crested pigeon heads, may have been symbolic of these birds, which were important trade goods and powerful totem symbols in other parts of Maluku and New Guinea (Ellen 1986; Goodman 1998; Leirissa 1994; Swadling 1996: 126, 146; Williams 1936: 104-107).

Pig remains were the second distinctive feature of this site. The precise timing of the abandonment of pig eating is important for correlating with historical accounts of *Labbetacca*, which will be discussed in the next chapter. Pig remains last appear in assemblages in Stratum V. The actual date of their disappearance cannot be determined with the precision necessary to say whether people were still eating pig there as late as the 16th and early 17th century. In BN1 Unit 3 for example, they last appear in level 90-100 cm (see Figs. 4.5 and 4.10). Two attempts at obtaining radiocarbon dates from underneath this level were unsuccessful due to insufficient carbon (see Table 4.1). Immediately above the pig remains, in level 80-90 cm, were Swatow overglaze enamel ceramics that post date the 16th century (see Fig. 4.13b). In Unit 4, the last pig remains occur in level 150-160 cm, but were probably part of disturbed fill for the coral wall feature (see Figs. 4.6 and 4.11). Their last appearance in an undisturbed stratum is in level 170-180 cm, in Stratum IVa. A radiocarbon date of 630 +/-45 BP (AD 1292-1402) was obtained for a sample just underneath these remains (at 178 cm, see Table 4.1). This is in agreement with the estimate from Unit 3, and dates the disappearance of pig from the site to after AD 1300-1400.

Thus, at best we can conclude that pig eating was abandoned at BN1 sometime between 1300 and 1600 AD, but not any more precisely with the available evidence. Not long after this change, there was a volcanic eruption that covered the site in ash (Stratum IV), and the wall seen in Unit 4 was constructed (Stratum IVa). As discussed above, the date of the construction of the wall is not precisely determined,

although stratigraphy and the lack of mortar used in its construction suggest that it was a pre-colonial construction, probably from the late 16th century.

Let us now turn to the questions generated by the documentary and ethnographic data in Chapter 3.

1. Hidden settlements

What settlements existed outside of those noted in the earliest maps? Because of conditions that impaired site visibility in Banda, remains of some of the smaller settlements (such as *Mandiango* and *Ouver*) that were noted in later maps could not be located to analyze the length of their habitation. However, on Pulau Ay, site PA2 (possibly *Campong Timoor* on the Jansonnius map) was continuously occupied from AD 1300 though the colonial period. Site PA9 (possibly the village of *Ditsa* or *Leytsa* noted on the Jansonnius map), though not positively dated, also shows evidence that it was inhabited from well before AD 1500. The existence of these settlements on Ay, which were not noticed, or considered important, by European mapmakers until after 1615, calls into question the reliability of all of the earlier maps, particularly regarding the outer islands and outer coast of Banda Besar. There is no archaeological or narrative evidence that numbers of new settlements were suddenly established after 1600, although this is one direction for future research to confirm.

2. Village Alliances

Do the historically recorded village alliances have an archaeological signature? In fact, *Labbetacca* (site BN1), the leading village of one alliance, is remarkably different, archaeologically, from *Nera*, (BN2 and BN4), *Lonthor* (BB5) and Pulau Ay (PA2), three members of the opposing alliance (see Table 4.2). The differences are 1) date of initial occupation (*Labbetacca* is older, first occupied AD 500; the others are newer, post AD 1000). 2) "bird's head" pottery found only at *Labbetacca*, 3) pig bones only at *Labbetacca*, 4) evidence of cremation burials only at *Labbetacca* (though ending c. AD 1100). 5) *Labbetacca* in a somewhat more defensible geographic position but has an inferior harbor for larger boats compared with the other settlements (though Pulau Ay also lacks a harbor). In addition, BN2 and BN4 have evidence for iron working (metal slag and iron artifacts) which does not appear in other sites.

3. Islamization

Is there archaeological evidence for conversion to Islam? Besides the Neolithic site PA1, only site BN1 had evidence for non-Islamic behavior, such as pig eating and cremations. Cremations appear to end quite early, in the 12th century, which would be at least three centuries earlier than expected for a shift to Islamic burial practices in Banda. Pig eating also ends, but with the existing evidence, it was impossible to date this shift more precisely than the three hundred year period between AD 1300 - 1600. The abandonment of pig eating at this site may coincide with a repopulating of the site after the 1621 conquest, probably by an entirely new social group like a slave community. If however pig eating was abandoned before 1621 it would be highly suggestive of a change due to religious conversion. Unfortunately, the existing evidence cannot answer this question.

Did the Bandanese convert all at once or was the process clinal? Only BN1 actually showed a change that could potentially be traced to conversion. However, the *absence* of pig remains at other sites from the 11th-17th centuries suggests that these settlements may have been occupied by Muslims from the date of their initial occupation. Again, this would put Muslim presence in Banda rather earlier than generally accepted. Historical documents suggest a mid 15th century conversion in Banda. If we consider the possibility that BN2, BN4, BB5 and PA2 were occupied not by Bandanese, but by visiting Muslim long distance traders, the dates might be more acceptable. In any case, the distinctive BN1 assemblage suggests that Banda did not become all Muslim overnight, but rather it was a long-term process that created significant social divisions.

4. Trade networks

When did Bandanese first have contact with long distance traders? The Neolithic (3000-2000 BP) period site of PA1 contains obsidian artifacts which may be exotic, and archaeological evidence from the Maluku region shows the existence of trade networks that reached across Indonesia and into the western Pacific (Bellwood & Koon 1989; Swadling 1996). The earliest definitively exotic trade good is a glazed stoneware fragment at BN1 dated to AD 500 - 600. If the dating is correct, the pottery must have been made in China, the only place producing high-fired ceramics at that early date. This evidence of early Chinese contact would require more excavation to confirm, and represents an area for future research.

While it is a very early date, it is not impossible that there was direct or indirect contact with China. Traders from southern China were visiting Java and Sumatra by the 5th century AD (Hall 1981: 39-41). The next oldest exotic goods do not appear at BN1 until the 11th century, with Song dynasty ceramics and coins. 15th-16th century assemblages at all sites include Vietnamese and Thai wares, which conform to the expected assemblages being traded in Malacca, which was probably the most important pre-colonial market for Banda's nutmeg (Guy 1986; Reid 1993b).

What evidence is there for local trade networks? There is not much evidence here. Unfortunately, regional earthenware pottery is still poorly understood, and there are few comparative collections. The "bird head" artifacts may represent a regional tradition, as some similar items found in Morotai and Ambon (Bellwood 1993). Other local trade goods described in 16th century documents were less durable items such as foodstuffs, and have not survived in the archaeological record. Historical records are quite clear that local trade was important in Banda, but we still lack the archaeological tools to investigate it fully.

5. Conquest and migration

Which settlements were depopulated by the 1621 conquest? All archaeological sites showed significant changes in post 16th century strata, primarily the introduction of European artifacts, such as kaolin tobacco pipes. Most villages were probably immediately repopulated with Dutch and other Asians after the conquest, and there is evidence that the new occupants had different foodways, because pig and cow bones appear in most colonial period faunal assemblages. Here again site BN1 looks different from other sites. It has signs that it shrank in physical size, but this seems to have been happening for a period before the conquest. The BN1 colonial period faunal assemblage lacks pig and cow bones, and appears to be largely fish. This suggests a non Dutch settlement, perhaps an Asian (Muslim) slave settlement, or a settlement of surviving native Bandanese. It shows signs that it was largely abandoned sometime in the mid colonial period. This would be an interesting site for a project interested in colonial period transformations in Banda. Site BN4 on the other hand has a very dense colonial period occupation, reflecting its use as the VOC governor's residence. BN2, PA2 and BB5 were all also at the center of colonial settlements, which have been continuously occupied up to the present.

Are there any links between village abandonment and oral traditions and social structure in the "refugee" villages in Kei and Seram? There are no clear patterns here. It is intriguing, though, that Lawataka (presumably Labbetacca) is one of the three high ranking marga of Banda Ely, while Nera is not even used as a marga title. Does this suggest that Nera, as a Javanese or Malay enclave would not have been a source of refugee migrants, while Labbetacca (with heightened "native" associations because it was a pre-Islamic ritual center?) was sending migrants well before the 1621 conquest?

In general, the collected body of archaeological data shows considerable promise in helping us understand social change on the islands in the 11th-17th century late pre-colonial period. It extends further back in time than the documentary record, which is limited largely to the post European contact era, which began in AD 1512. It provides data about settlements that were not described in the documents, such as those on Pulau Ay. Finally, there is evidence for a non-Muslim social group in *Labbetacca* that may have existed into the European contact era in the 16th century. In the following final chapter, the general research questions and thesis of this dissertation will be revisited, and a new telling of Banda's past will be presented.

CHAPTER 5

Putting it all together again: Reconstructing a history of Banda

Introduction

In this final chapter, the archaeological, documentary and ethnographic evidence will be cast against the research questions developed in Chapter 1. As discussed in that chapter, the combination of the separate lines of evidence used in this research, archaeological, documentary and ethnographic, presents some difficulties. Not only is this a problem of "mixed epistemologies" (Wilson 1993), where each line of evidence has different accepted modes of explanation. The patchy nature of the evidence relevant to pre-colonial Banda means that many crucial pieces of the puzzle are still missing, the available evidence remains merely suggestive, and any conclusions drawn can only be provisional.

This is not to say we have not learned anything new about pre-colonial Banda. There are some surprising conclusions that can be drawn about the changing social situation on the islands that add to, and in some cases contradict, what has already been written. First, however, let us review the general research questions established in Chapter 1, and evaluate the degree to which the data gathered during the research is adequate to address these questions.

1. Who was trading with the Bandanese? Was nutmeg making its way out of the islands via hundreds of short distance exchanges, or were long distance traders visiting the islands? When did direct contact with Chinese happen (if ever) and when did contact with Muslim Arabs, Indian or Malay traders begin?

In Banda, the first evidence for long distance trade is a fragment of Chinese pottery found at site BN1 dating to AD 500-600, which is about the time the Chinese were first sailing directly to Java and

Sumatra. The earliest documentary evidence for direct contact between Banda and China dates to the mid 14th century, however, large amounts of Song dynasty trade goods at BN1 deposited in 12th century strata suggest direct contact may have been somewhat earlier. Without a better understanding of regional earthenware pottery traditions, it is impossible to reconstruct the role of local trade, but future research may illuminate this aspect of trade in Banda. The earliest documentary evidence of direct contact with the Arab world dates to the late 15th century, although 10th century sailing directions to the "islands of spices" may be referring to Banda. Documentary evidence from Java lists Banda and other places in Maluku as vassals of the Majapahit state in the mid 14th century, and Chinese descriptions from the early 14th century also list nutmeg as a trade good available in Java. 15th-16th century tradeware assemblages contain Vietnamese and Thai ceramics, which suggests, as do the historical documents, that Banda was trading primarily with Malacca by this period. After the Portuguese capture of Malacca in 1511, smaller ports on the Malay Peninsula and Java picked up much of the Muslim trade, including Banda's share. Direct trade with Portugal was limited mostly to private trade outside the royal monopoly. Table 5.1 below summarizes the evidence for trade contacts in Banda.

Table 5.1. Summary of archaeological and documentary evidence for trade contacts in Banda

Trade region	Archaeological evidence	Earliest contact	Documentary evidence	Earliest contact
Maluku	Bird head pottery Parallels with Morotai, Ambon	AD 500	Portuguese, Dutch descriptions, goods from Maluku and New Guinea in Banda	Earliest proof 16th century, but probably much earlier
Java	None	?	Majapahit vassal, Chinese descriptions	Early to mid 14th century
Malay Peninsula	Malacca assemblages with Vietnamese and Thai wares	15th century	Portuguese descriptions, Banda *Syahbandar* in Malacca	Early 16th century
China	Chinese ceramics	Possibly AD 500-600, more secure AD 1200	Maluku place names, clove descriptions (early), Chinese description of Banda	Poss. 1st century BC, def.mid 14th century
Arabia	None	?	Fairly accurate Sailing directions, Arab description of Banda	Poss. 9th century (directions), def. 15th century
India	None	?	None	?

2. When did the Bandanese begin to convert to Islam? Did the entire population convert all at once, or was the process a longer one? Were there internal tensions or conflict as a result of this religious change? What were the links between political and economic power and religious identity?

The data on Islamization is not clear. BN1 shows signs of non-Muslim presence from earliest occupation through sometime between AD 1300-1600. All other sites from that period have no signs of non-Muslim occupation. The tentative interpretation, as discussed in Chapter 4, is that BN1 became a Muslim settlement either late in the pre-colonial period, or after the 1621 conquest, when it appears to have been briefly inhabited by a population that ate fish. Other settlements, such as BN2, BN4, PA2 and BB5, never show signs of pig eating or cremation burials. Tentatively, this would imply that these settlements were initially occupied by Muslims. The early dates for this initial occupation (AD 1200 at BN4) is considerably earlier than documentary evidence about Islamization would suggest. Portuguese documents, for example, state a date for "conversion" in the 1470s. However, there were Muslim Arab communities scattered about the

Is There a Historical Explanation for the Current Religious Violence in Maluku?

Since January 1999, Maluku has been the scene of violent street riots, intervillage battles and the destruction of thousands of houses, shops, churches and mosques. As of this writing, over 2000 deaths are reported in the region, and many more people have been seriously injured. The provincial capital Ambon has been the worst affected, with its once thriving central districts reduced to ruins, but violence has also spread to other cities and towns throughout the province. In May 1999, Banda was also hit by violence in which several were killed, and most of Banda's Christian residents chose to leave Banda for the hardly more safe burned out streets of Ambon and Tual (Winn 1999).

The forces behind this violence remain poorly understood, and to date, efforts on the part of local and national government leaders and local religious and traditional leaders have been ineffective in stopping it. While the fighting has been between Muslims and Christians, many believe that other social divisions also play a role. While Maluku was once predominantly Christian, today it is about 50% Muslim. Many Muslims in Maluku are recent immigrants from other parts of Indonesia, especially South Sulawesi, and these new immigrants have been successful economically, a success that many longer term residents of Maluku resent. Ambon is also the center of government in the province, and thus a center of control by the Indonesian government, centered in Jakarta and in recent years seen as becoming more aligned with the Islamic majority of the rest of the country. This is viewed by many Malukan Christians as threatening

Others point to a decline in traditional authority as the central government increased its presence in the remote province in the 1970s and 1980s. The pela system, which used to bind villages, many of which had different religious majorities, into mutual protection pacts has largely been abandoned or forgotten, although attempts are now being made to revive it (Bartel 1977). Since the downfall of the Suharto regime in 1998, this once powerful central authority suddenly was questioned, and old conflicts across Indonesia suddenly erupted. The economic crisis that caused havoc across much of East and Southeast

trade routes to China and as far as Canton from the 9th century onwards, and Marco Polo described Muslim communities in northern Sumatra in the 13th century (Hall 1981: 221). While there is as yet no other evidence for Islam in other parts of Indonesia at this early date, it is not impossible that Banda, with its valuable produce had Muslim settlements.

It is reasonably certain, however, that Muslims and non-Muslims coexisted in Banda for some time, if we accept that BN1 was non-Muslim in the14th century, or later. Whether their co-existence was peaceful or not remains an open question. Portuguese and early Dutch documents refer obliquely to conflict between Muslims and "Idolators". More clear is the role Islamic identity had in political and economic power. Documents tell of three political categories in late pre-colonial Banda: *Orang kaya*, *syahbandar* and *Imam*. Treaties between Bandanese and Europeans were typically signed by the *orang kaya*, *syahbandar* and *Imam* of each village. All three categories have foreign origin, *orang kaya* being a leadership term of Malay origin, the other two categories being Islamic officials, the *syahbandar* in charge of trade (a type of harbormaster) and the *Imam* a Muslim priest. The *syahbandar* in Bandanese villages, and elsewhere in Island Southeast Asia, was usually a foreigner, as they would be best suited as an intermediary between foreign traders and local rulers. It is intriguing that there are no Bandanese leadership terms recorded in the documents, suggesting that the political system in place at contact was a largely foreign system. Further supporting the distinctiveness of BN1/*Labbetacca* is that only *orang kaya* are recorded as signing treaties for the village. It appeared to lack both a *syahbandar* and an *Imam*, suggesting that the village did not have a mosque, nor did it receive foreign traders, instead sending its produce to *Nera* for trade.

The abandonment of pig eating by Muslim Island Southeast Asians is remarkable considering the importance of this food source in the region. The abandonment of pig hunting in Banda as people began

Asia undoubtedly played a large role in increasing tensions, as many Indonesians saw their currency lose 80% of its value overnight, and unemployment soared.

The conflict also has a history, based on a longstanding divisions between Muslim and Christian communities in Maluku that can be traced back to the 16th century, and perhaps before. As this dissertation seeks to demonstrate, religious conflict between Muslims and non-Muslims was also a factor shaping Banda's pre-colonial history, a conflict which also divided people along other cross cutting lines of economics, ethnicity and geography. In 1999 as in 1599, violent attacks were carried out by close neighbors who have lived peacefully for years. However, tempting as it may be to search for parallels, I do not wish to suggest that these 500 year old conflicts are the direct cause of the present violence. The tragic events of the past 14 months are situated in contemporary realities, and I believe that the solution to Maluku's problems lies there as well.

observing Islamic food laws must have also had an ecological impact on the islands. Perhaps non-Muslim settlements in the past filled an important ecological role in controlling pig populations. Alternatively, perhaps the increasing difficulty of agriculture following large-scale Muslim conversion forced people in Banda to become more reliant on spice trading for food. Alternately, the presence or absence of pig remains in archaeological sites may reflect changing abundance of pigs in Banda, and on these small islands it would be possible to hunt them to local extinction. Today, for example, there are wild pigs only on Banda Besar Island. However, even if locally over-exploited, pigs could easily have been transported along with other foods from other parts of Maluku, such as Seram, where it is unlikely that they were ever scarce. This would be another potential area of future inquiry.

In general, Islamization was a process that took several centuries, moving across Banda's landscape in a clinal manner. Banda's inhabitants did not convert to Islam all at once, and settlement patterns did not instantly change to accommodate new economic patterns based on long distance trade. Rather, older patterns survived into the new phase, creating what must have been boundaries of social difference oriented around settlement locales.

3. What were the patterns of settlement in late pre-colonial Banda? In particular, where did people live in Banda? Did different settlements have distinctive characteristics that might represent differences in group behavior and identity? What social and/or physical factors affected their choice, and how did this change from the 11^{th} -17^{th} centuries, as well as after the 1621 conquest?

There is not yet a complete coverage survey of Banda, and we lack the data to describe confidently a settlement pattern on the islands. However, the data that is available does show certain patterns, and does suggest future lines of inquiry. The Neolithic sites of PA1 (and the possible Neolithic sites PA4 and BB1) are located on cliff tops or inland hills, well above or away from the shore. Large amounts of fish in faunal assemblages, though, suggest a maritime-based subsistence economy. With no other information, I would interpret the placement of these settlements as defensive.

The newest pre-colonial settlements are located on flat plains on the coast, on the edge of protected harbors (BN2, BN4, BB5) or in the case of Pulau Ay (PA2), on the best landing beach. All of these settlements clearly relied on long distance trade as the basis of their economy. European mapmakers

knew about these villages first, except for Pulau Ay, which was particularly difficult for large European ships to anchor at. European mapmakers either did not see, or knowingly ignored the other non-trade oriented villages in Banda until quite late.

Sites BN1/Labbetacca and PA9 would appear to be transitional. While oriented toward trade, their harbors are less than ideal, small and exposed. They are located on lower elevations (PA9) or on the coast (BN1), but maintain easy access to defensive positions, such as high bluffs. Documentary evidence supports the idea that defense was a major concern through the late pre-colonial period, as do evocative toponyms (e.g. "women's fortress mountain" on Pulau Ay). Labbetacca was known to the earliest European mapmakers, and was at one time one of the most important trading villages. However, its importance was waning, as by the 16-teens, European traders found little activity there.

After the 1621 conquest, many villages disappear from the maps, and most of the others show archaeological evidence that they were re-occupied by a new population, Dutch planters and their Asian slaves. Labbetacca disappears from the 1623 map, but on later maps is re-born as a Dutch plantation named Lautaka, in a slightly different position from the village site, on a small isthmus. Site BN1 shows some signs of re-occupation, not by a Dutch population, but probably an Asian slave population. This area may have been slave quarters for the plantation, before they were integrated into the plantation complex itself sometime later in the colonial period. In the later colonial period was there some dispersal again (or perhaps this was always in the background) with *walang* field houses and WWII refugee settlements.

Another pattern seen in these settlements relates to geographic orientation (see Fig. 5.1 below). *Labbetacca's* position as the northernmost settlement in the central Bandas may have made it the first landfall for traders from Seram, which was probably an import source of sago for the Bandas, and also traders from China making their way south from the Sulu archipelago and north Maluku (Ptak 1992b). The steep ridges enclosing the BN1 valley would have provided excellent views to the north, and any visiting trader (or raider) would have been noticed here first. The limited landing area for boats may also have been easier to defend against raiders, and here again the high bluffs surrounding the port would have been an advantage.

Nera was less defendable, located on a flat plain, but it fronted the best harbor in the islands, large and protected from all monsoons. Ships arriving from the west would have probably entered the harbor

from the western entrance, near *Lonthor*. *Lonthor* may have also captured some of this trade, but the wide mud flats in front of the village would have been a serious impediment to loading ships (and still makes access to the village inconvenient today). As direct trade with Malacca and Java became more frequent in the 15th century, settlements on the western side of the islands would have probably been the first landfall for visiting ships. Villages on Banda Besar's outer coast suffer from exposure to monsoon seas, especially those of the southeast monsoon, which would have carried Javanese or Malay traders. Europeans, who also came from the west and were guided by Javanese and Malay maps and guides, landed in *Ortatta*, *Lonthoir* or *Nera* first, and almost invariably made this inner harbor their base. The numbers of these visiting ships would have increased greatly in the 15th century, as reflected by nutmeg imports to Europe which increased nearly 400% between 1400 and 1500 (Reid 1993b: 14). While Pulau Ay also had a poorly protected anchorage[34], Nera had large and well-protected harbors that could accommodate dozens of ships. Banda Besar was biggest spice producer, which made *Lonthoir* and *Nera* the natural centers for trade and shipping.

[34] The English Captain William Fitzherbert wrote in 1621 that at Pulau Ay, the "seashoare is so steepe, that it seemeth, Nature meant to reserve this Iland particularly to her selfe. There is but one place about the whole Iland for a ship to anchor in" (Purchas & Hakluyt 1625: 698).

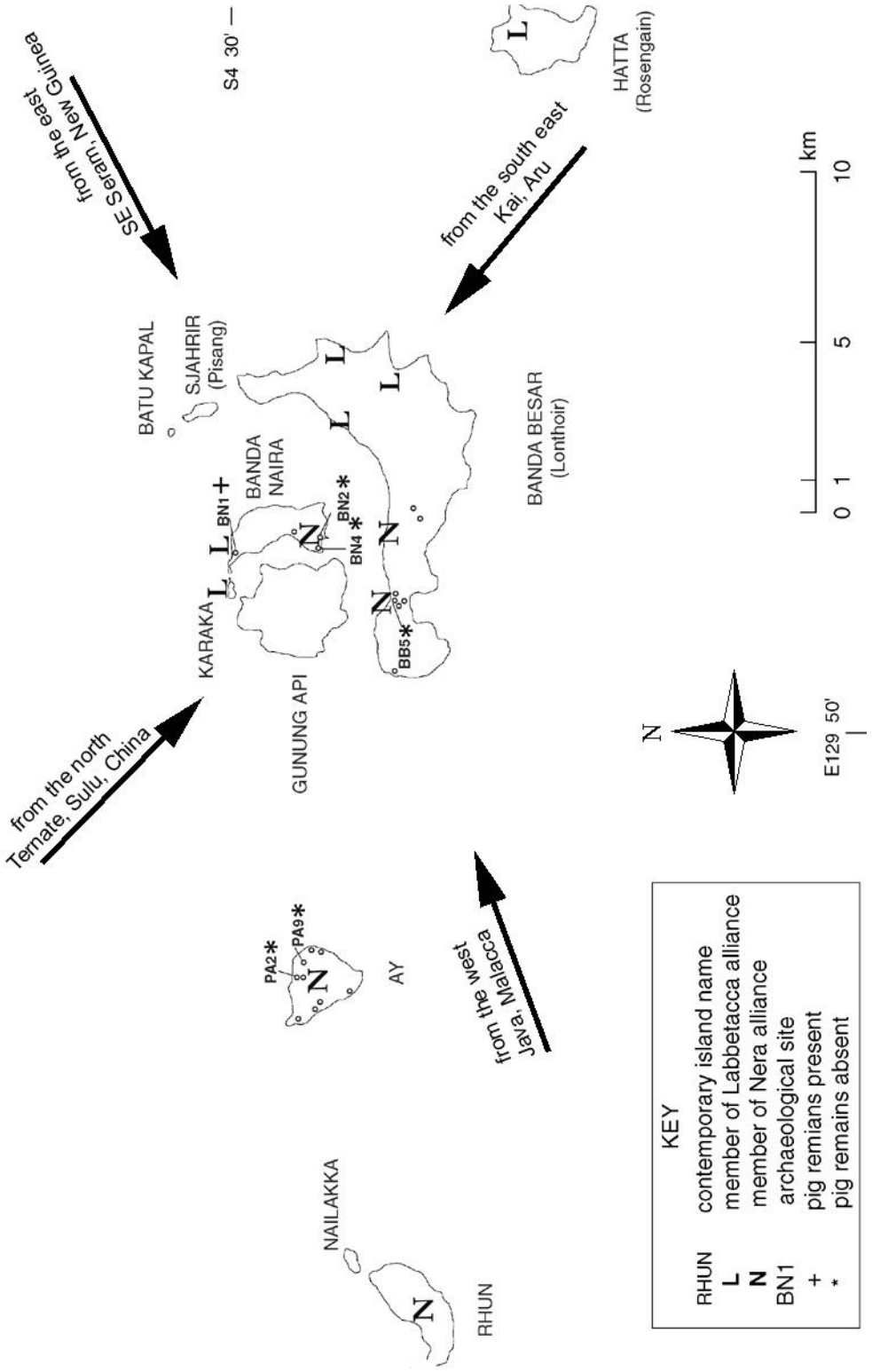


Figure 5.1. Map of trader approaches, village alliances c. 1600, and pig remains in 10th-16th century archaeological strata.

Conclusions: Trade, settlement, Islamization, and the colonial conquest

The data summarized above shows that site BN1 had a distinctive occupation history, trade links, religious identity and settlement pattern and compared with sites BN2, BN4, BB5 and PA2. *Labbetacca* was also recorded as part of an alliance of villages including *Comber* and *Waer* (or *Wayter*) that were at war with another alliance of villages, including *Nera*, *Lonthoir* Pulau Ay and Pulau Rhun (see alliance map, Fig. 5.1 above). These two alliances and the violent battles between them were first recorded by Dutch visitors in 1599, when they were told (by their informant in Nera) that the conflict had been going on for a long time, and was started when people from *Labbetacca* cut down nutmeg trees in *Nera's* territory. In 1602, *Labbetacca* was considered an ally of *Wider*, *Salame* and *Oudender* in the first treaty between the VOC and people in Banda. In 1609, *Celamme* and *Ortatta* proclaimed their separation from *Nera* and innocence in the ambush of Admiral Verhoeven, although in revenge, Verhoeven's replacement attacked several villages, including *Celamme* (despite their claim of innocence) and *Labbetacca*.

There is no evidence for the existence of such an alliance in earlier records, such as the Portuguese or Chinese documents. However, several Portuguese documents make reference to conflict between "moors" and "people of the land" which could be construed as being between foreign Muslim traders and immigrants and non-Muslim "natives". Ethnic and political categories in the Dutch and English documents show that there was a social separation between foreigners and natives, with foreigners having an advantage in political and economic power, usually holding the title of *syahbandar*. Both Portuguese and Dutch documents describe *Nera* as the town where foreigners lived, especially Javanese, and the anchorage in front of Nera as *labuan Java* ("*pelabuhan*" or "Java landing").

The conflict between these two alliances reveals internal political, ethnic and religious divisions in the social structure in Banda. The factionalization emerged from earlier experience of culture contact. *Labbetacca* had a longer history as a large settlement, the earliest connections to (Chinese) long distance trade, and was possibly a non-Muslim religious center. *Nera* was settled later, only when trade with the Muslim trade centers of Java and Malacca began, and was an ethnic/religious enclave, possibly from its origins, with no evidence of non-Muslim behavior such as pig eating or cremation burials. By 1600, *Nera* and the other Muslim oriented settlements like *Lonthor* and Pulau Ay were rapidly increasing in size and

trade dominance, while *Labbetacca* and its allies were becoming insignificant, eventually disappearing from the maps. The conflict over nutmeg trees witnessed by Warwick in 1599 may have been just one expression of a larger battle over trade dominance, which was increasingly being controlled by foreigners or natives who assimilated foreign cultural traits such as Islam, Malay language and political titles.

Historical documents suggest that there was a link between Islam, 'foreignness', trade with Java, Malacca and regions to the west, and new forms of political power. This may have been initially resisted by a social group identified with non-Muslim religion, 'nativeness', trade with China, the east and nearby islands, and older forms of political power based on age and ascribed status. The archaeological data, fragmentary as it is, suggests that these divisions had a geographical expression. These different social networks and modes of identity were oriented around villages.

These boundaries between foreigner and native, Muslim and non-Muslim, or *Neran* and *Labbetaccan* were probably rather easily crossed by individuals in the late pre-colonial era. The social and political situation in Banda in the 15^{th}-16^{th} centuries was most likely quite dynamic, as new "foreigners" arrived from further away, such as South Asia, the Middle East and eventually Europe, which allowed significant leeway in strategic identity formation and expression.

In contrast to this dynamic social situation is the remarkable resiliency of ancient trade connections, social networks and place histories and memories in Maluku. Four hundred years after Banda was conquered, memories of long-vanished Banda villages live on in the toponymic social structure of refugee communities in the Kai Islands. Stories of religious persecution and flight and Majapahit era names are preserved in the sacred sites of southeast Seram. "Traditional" social networks and trade links have withstood natural, social and demographic disasters and even the introduction of outboard engines and telephones, for hundreds if not thousands of years (Ellen 1987). Both of these seeming contradictory situations, the shifting and dynamic and the rooted and stable, are encompassed by human expressions of social identity, which is both strategic and constrained by *habitus*.

Perhaps the conflicts dividing Banda in the late pre-colonial period are best characterized as following a fault line between the new and the old, which were sharply delineated during a period of rapid change between 1400 and 1600. It was into this complex, dynamic social and political milieu that the competing trading companies from England and the Netherlands entered the Banda scene in 1599,

themselves the product of a political, economic and religious revolution sweeping across northern Europe. These new foreigners failed to comprehend the complexity of the system they hoped to exploit, and they had difficulties negotiating the terrain of Banda's cultural landscape. But they had a determination to own Banda's fragrant gold, and the military organization and capital to mount an invasion.

However, the success of the eventual victor, the VOC, had as much to do with the social realities of Banda as it did with Amsterdam capital, samurai mercenaries and sociopath governor-generals. Europeans encountered a divided society in Banda, which stands in sharp contrast to the unified, centralized sultanates of Ternate and Tidore. Banda's northern neighbors were able to maintain a large degree of political autonomy under centuries of colonial rule, and even today, the sultans maintain a degree of traditional authority.

As Stoler (1989:134) forcefully argues, the anthropology of colonialism has much to gain by "rethinking colonial categories." Constantly shifting divisions of class, race and ethnic identity make it impossible to equate "European" with "colonizer" or "native" with "colonized." In fact, by looking at the evolving definitions and conceptions of these categories, one can begin to see how individuals actively navigate and re-invent them, providing a more nuanced analysis of the social processes unfolding within colonial communities. Similarly, Lightfoot and Martinez (1995:471) propose that archaeological studies of culture contact should consider the role of the variety of social divisions or factional groups that cut across "traditionally perceived colonial-indigenous boundaries." This approach, they argue, does not take colonizers and natives as monolithic entities, but rather emphasizes the "varied backgrounds, interests and motivations of individuals on all sides of the frontier."

Historians have generally agreed that the Bandanese resisted European efforts to control their trade, and were massacred as and banished from their homeland as a result. Their resistance efforts failed because they were a small, under-armed polity in the way of the inevitable progress of European merchant capitalism and colonial empire building. However, this is based on a simplified reading of a slim and European-biased body of evidence, which does not account for internal social forces that factionalized and fragmented social and political organization in Banda. These internal divisions limited an organized response to European intrusions. Although the Banda Islands themselves were largely lost to the Dutch, new settlements and societies were established in the surrounding islands, and continue to maintain

distinctive identities to this day. The archaeological data gathered from Banda's landscape reveals a new historical depth, highlighting pasts and presents which visiting observers, or their modern day readers, failed to notice.

Epilogue: Banda re imagined

Nurbati felt the wind that morning before the first rays of sun filtered through the bamboo strip walls. The monsoon was stirring, and in a few weeks, the *orang jawa* in Nera would be spending their last nights with their Banda wives, patching their *perahu* and sailing their fragrant loads of *pala* out of sight to Tuban or Gresik. Nurbati heard Uar, his wife, stir the embers of last night's fire, and he also heard the morning call to prayer drift over the still gray waters under Gunung Api. He should have woken an hour ago, and paddled over to the new mosque, behind the high stone walls of Nera town, but for the past few weeks, he had stayed home, letting a flood of memories wash over him.

As a young man, he had been an important figure in his village of Labbetacca. His father had been a leader here, and Nurbati inherited his father's ability to trade with the white skinned *orang cina,* every year collecting another treasured platter with its deep blue like the color of the sea in *musim panas*, the hot season that was now ending. He had mastered the knowledge of the *kakatu*, had traveled to other leading *kakatu* villages in the north, and had seen the great black one flying in the high forests of Seram, the home of his people, the *Bati*. He married Uar, who made the finest red clay ceremonial platters, and could harvest *pala* faster than anyone. His younger brothers envied him at first. He would be a wealthy and powerful man, an *orang kaya*.

One day, while he was shoring up the wall that protected Labbetacca and its stores of sea blue plates from the frizzy haired raiders from the east, the ground shook. Gunung Api was coming to life again, and as he remembers now, everything seemed to shift from under him after that day. When he asked his younger brothers to hunt for a pig for their uncle's funeral, they looked sheepish, mumbling excuses about lame legs, or how pigs were scarce that year on the big island. But Nurbati had never seen more pigs than that year, their signs everywhere, digging though the taro gardens all over the island.

The next day, he realized what had happened when he saw his brothers paddle to Nera before dawn, not to fish, but to pray. They weren't the first to go. A whole row of houses stood empty and rotting along the back of the valley, the families moved to Nera. The next year, another row would stand empty. The *orang cina* never came to Labbetacca anymore, and he had to bring his *pala* to Nera like the Pulau Ay people, sitting all day in the hot dirty marketplace. His own son, who would have had all of Labbetacca if

he wanted it, left in his 12th year. He found the *kakatu* lessons boring, always interrupting with questions about the lands to the west, the great cities he heard about, the ringing bronze guns he saw in Nera that could sink a *perahu* full of frizzy haired raiders.

The battles started the year after his son left. Kuai, always hotheaded, caught some Nera men cutting down the *pala* tree his mother had planted a decade ago. He quickly got a small army of men together and they paddled the *kora kora* right into Nera, taking 10 heads before the people of Nera knew what had happened. But Nurbati knew revenge would come. The following day, three *kora kora* (how had they built them so fast?), drums beating, landed on the beach and killed many, taking his third daughter as a slave. The next few years were a blur of blood and anger. They managed to convince their old allies in Wayer to help, but Nurbati knew it would end badly.

Last year, when the tall nosed traders in the big ships, the *orang belanda*, tried to build their fort in Nera, the Nera men called a meeting in Ortatta, but Nurbati wasn't invited. Unless he became *orang islam*, and came to the mosque, they told him, he was not to be trusted as an ally. Nurbati knew he had no choice. He had to join with the other villages. The battles with Nera could not go on, as there were almost no warriors left in Labbetacca, which seemed to consist of just a few dozen old men and women now. The *orang belanda* had even attacked his village in revenge for the ambush on *orang belanda* soldiers, but he hadn't even known there was going to be an ambush. When he found out what he had to do to become *orang islam* though, he was horrified. To cut his penis? Give up the pig feasts? Paddle to Nera five times a day for prayers? He was an old man. In the end, his younger brothers helped him though. They told the *Imam* he had been cut, and covered for him when they killed a fat pig for Kilbati's funeral (and did he see his brothers help themselves to the delicious pig meat?).

The sun was up now, and Nurbati cursed himself for his laziness. If he didn't go to the mosque, he risked sacrificing all of Labbetacca. Already there were rumors in Nera and Lonthor that he wasn't a true *orang islam*, and that he had whispered secret information about ambushes and counterattacks to the *orang belanda*. His wife thought they were doomed. Why didn't they just leave?, she asked. Her relatives in Seram would give them land for a new village, and they could live in peace, planting new *pala* trees. To move from Labbetacca went against everything he believed. He would have to leave his father's grave and

the sacred *keramat* untended. But as he stepped out into the brisk morning breeze, Nurbati knew he had almost no choices left. He would make his decision today.

APPENDIX 1. BANDA SITE RECORDS

Site name	GPS coordinates	transit survey	dates excavated	local name	recent use history	excavation units-maximum depth (cm)	elevation	distance to beach	nearest beach exposure
BN1	S4 30.249 E129 53.922	y	Feb-Mar-97, Feb-Mar-98	Pantai Malole, Lautaka	Ubi fields, in use	TP1-160; TP2-220; U1-180; U2-174; U3-270; U4-320	TP1, U3, U4:2m TP2, U1, U2: 4m	nil	2 beaches, 1 always protected, deep water
BN2	S4 31.734 E129 53.967	y	Mar-97	Hussein's old house	perek house yard, garden, abandoned--trash disposal	U1-200; U2-245	2.5m	nil	protected
BN3	S4 31.197 E129 54.029	n	Jan-98	Kastin Perek, Perigi Dua	Perek grounds, Ubi and Jagung fields	TP1; TP2-340	~30m	steep climb	protected
BN4	S4 31.731 E129 53.734	y	Jan-98, Mar-98	PT Pala Banda Bldg.	pala business, abandoned since mid 80's	TP1-240; TP2-270; TP3-270; U1-250; U2-250	2.5m	nil	protected
BB1	S4 33.132 E129 54.103	n	Feb-98	Ponke's House	forest	TP1-150	~300m	.5k, steep climb	protected
BB2	S4 33.233 E129 53.945	n	Feb-98	?	mixed garden field	TP1-100	~300m	.7k steep climb from N and S coasts	2 beaches, 1 protected and 1 exposed to westerlies
BB3	S4 32.795 E129 52.099	n	Apr-98	near Kota Marak	mixed forest and Ubi fields, occupied during and after WWII	TP1-195; TP2-50; TP3-110	~90m	steep climb	exposed, esp to easterlies
BB4	S4 32.754 E129 52.758	n	Apr-98	Ayub's house	currently occupied house--back yard	TP1-150	1.5m	nil	protected
BB5	S4 32.733 E129 52.695	n	Apr-98	Sumur Pohon Pala or Batu Lobang	ruins of perek house, now well is public	TP1-195-PL98notes	2.5m	nil	protected
BB6	S4 32.801 E129 52.685	n	Apr-98	near Perek Keli	w of perek, in middle of trail from lower to upper village	TP1-78 (burial)	~40m	.4k mod. climb	protected

Site name	GPS coordinates	transit survey	dates excavated	local name	recent use history	excavation units-maximum depth (cm)	elevation	distance to beach	nearest beach exposure
BB7	S4 33.006 E129 52.756	n	Apr-98	near Perek Namulu Rumah Kampung--Adat Lonthoir	inside old perek walls--garden, now unused grassy field	TP1-150	~50m	.5k moderate climb	protected
PA1	S4 32.179 E129 46.369	y	Feb-97	Pantai Mukalrasang	abandoned field	TP1-250; U1-130; U2-130	~30m	steep climb	exposed to easterlies
PA2	S4 31.154 E129 46.442	y	Mar-97, Jul-98	Benteng Revenge	in front of fort walls, house yard, prob. trash disposal	U1-110; U2-175	~5m	nil	semi-protected (Ay village beach)
PA3	S4 31.154 E129 46.442	y	Mar-97	Benteng Revenge	behind fort walls, used as trash disposal area	U1-285	~5m	nil	semi-protected (Ay village beach)
PA4	S4 31.123 E129 45.885	n	Jan-98	near Pantai Tempat Sirih + Pasir Putih	near west beach on saddle, mixed forest/field	TP1-250	~15m	300m	semi-protected (Ay village beach)
PA5	S4 31.358 E129 45.908	n	Mar-98	Pantai Laurumah	on low sandy platform behind west beach, beach scrub forest, some burning and new agric.	TP1-100	3m	nil	exposed to easterlies
PA6	S4 31.544 E129 47.062	n	Mar-98	Pantai Batu Dua	on raised sandy platform between cliff and beach, beach scrub forest	TP1-150; TP2-150	TP1:1.5; TP2: 3m	nil	exposed to westerlies
PA7	S4 31.318 E129 45.874	n	Mar-98	above Pantai Laurumah	recently abandoned Ubi field	TP1-100	~30m	steep climb, 300 m	exposed to easterlies
PA8	none	n	Mar-98	Tanjung Keli	newly planted Ubi field--burned	TP1-117	~20m	steep climb	exposed to westerlies-1k to semi-protected (Ay village)
PA9	S4 31.413 E129 46.943	n	Mar-98	cliff top near lobang kambing	Jagung field, newly planted	TP1-173	~30m	steep climb, 300m	exposed to westerlies-1k to semi-protected (Ay village)

APPENDIX 2: POLLEN AND PHYTOLITH ANALYSES

Ecosystems in small islands have properties that are distinct from those on larger land masses. They are generally characterized by lower species diversity, and outside forces, whether caused by human or other factors, tend to have a larger impact. These small ecosystems are limited in the ways they can accommodate new species, or major changes in population of any one species. Human behavior can have a large impact on these ecosystems, and the resulting changes can in turn have an impact on human societies, and in some cases these changes can even render an island uninhabitable (Kirch & Hunt 1997).

Ecosystemic changes in Banda are relevant to the research questions guiding this dissertation. The relative amount of nutmeg grown on the islands over time can provide information about the early development of trade and intensification of nutmeg horticulture. At the site level, plant remains can be an indicator of economic activities and foodways practiced by people living there. Regionally, changes in availability of certain types of food, and their distribution across Banda's landscape can provide information on the effects of human behavior on Banda's ecosystem, and the impacts of these ecosystemic changes on the choices available to Banda's human population.

These ecosystemic changes can be measured in various ways, including faunal analysis of excavated animal bones and geomorphological analysis (such as the shoreline shift measured in southern Banda Naira). The study of plants requires the analysis of plant remains, which include preserved seeds, pollen and phytoliths. With this in mind, soil samples were collected from each strata of each excavated unit, and from several of the test pits during fieldwork. I planned to conduct subsequent laboratory tests to evaluate relative levels of plant remains over time and space. A selection of soil samples from sites on Pulau Ay and Banda Naira was sent to the pollen laboratory at the Department of Archaeology and Natural History, at the Research School of Pacific and Asian Studies, The Australian National University (ANU). Unfortunately, their analyses revealed that no plant parts or pollen had been preserved in the soil samples provided, a common problem with soils in the humid tropics. However, phytoliths, which are parts of plants made of pure silica, generally have much better preservation, and a phytolith analysis of samples from Banda was conducted in 1999-2000.

Because phytoliths generally preserve well in soils, they hold great promise in reconstructing the makeup of past plant communities (Pearsall & Trimble 1984). However, while a single plant species

produces only one type of pollen grain, it may produce many different phytoliths. Phytolith studies suffer from a paucity of published reference data, and there are very limited reference collections for many biogeographical areas. However, phytoliths can generally be classified according to broad categories of plants, such as trees, grasses and shrubs. The analysis of the samples from Banda was conducted by Dr. Doreen Bowdery, a phytolith specialist at ANU, who has been working to rectify the lack of reference collections through the accumulation and publication of reference samples from Australia and Southeast Asia (Bowdery 1998; Bowdery 1999). References were available for several of the plant species we expected to see, including palms, *kenarium*, nutmeg, banana and *alang alang* grass. Dr. Bowdery also kindly allowed me to participate in the analysis process.

Due to time and funding limitations, we were able to test only four soil samples, though analyses on other samples may be possible in the future. These four samples were chosen to include different ages and geographical locations, although the choices were limited, as most of the soil samples from this project were stored in Indonesia and inaccessible in late 1999-early 2000. The samples tested came from two excavation units, BN1Unit 3 and PA2 Unit 2, and their stratigraphic position is shown on the section drawings (see Figs. 4.5 and 4.66). Three samples from PA2 Unit 2 and one sample from BN1 Unit 3 were analyzed, and residual sediments (after sieving through a 250 μ screen) were characterized (see Table A2.1 below). The aims of the study were to 1) determine phytolith preservation, 2) determine whether the phytoliths present were identifiable, and 3) make a preliminary judgement about the variability of plant communities over time and space in Banda.

Table A2.1. Soil sample locations and estimated strata ages

Sample #	Source location	Depth in core	Stratum #	Approximate calendar age	Residual sediment grain size/ sorting
733	PA2 Unit 2	75-85 cm	IV	1600-1800 AD	300-2000+ μ poorly sorted
734	PA2 Unit 2	115-128 cm	VIa	1450-1650 AD	< 500 μ moderately sorted
735	PA2 Unit 2	155-165 cm	VIb	1000-1400 AD	< 500 μ well sorted
736	BN1 Unit 3	155-165 cm	V	700 - 1000 AD	< 710 μ well sorted

Phytoliths were isolated from their soil matrix using the "quick scan" method developed by Fujiwara, which is summarized by Bowdery (1999: 159-161). This method allows for the rapid (and inexpensive) assessment of phytolith presence and preservation, with the trade-off being some damage to larger phytolith structures, and increased "noise" from residual sediments in the samples. Because of these factors, grasses tend to be underrepresented in samples processed using this technique. Samples were mounted on glass slides for viewing in an optical microscope. Here a visual assessment was made of each sample for phytolith presence, and both known and unknown phytolith shapes were noted. Samples were also mounted for viewing on a scanning electron microscope (Cambridge StereoScan 360), which allows for detailed inspection of individual phytoliths, for comparison with reference specimens. Selected SEM images are included below in Figure A2.1. Final counts were made using two transect passes across the slides. Phytoliths have been categorized into two categories of grasses and trees/shrubs using morphological characteristics. Those that were positively identified by genus or species have been listed separately. The results of transect counts are listed in Table A2.2 below.

The results show that site BN1 had a higher ratio of trees/shrubs to grasses than site PA2. Looking at specific tree species, BN1had a much higher ratio of *Myristica* (nutmeg) to palm than did PA2. Looking just at the three PA2 samples, which cover three different time periods, there is not a extremely large variation. However, the middle period (1450-1650) had slightly fewer trees/shrubs and fewer *Myristica* than both the previous and subsequent time periods. The earliest PA2 sample (1000-1400) had the highest ration of palms to other trees of the samples. Other silica was also present in the soil samples. These included relatively large numbers of marine silica, such as diatoms and sponge spicules. These may have been deposited in the soil by natural processes, such as ocean waves, or by human activity. The use of coral blocks and pebbles as building and paving material is the likely source of the majority of the marine silica.

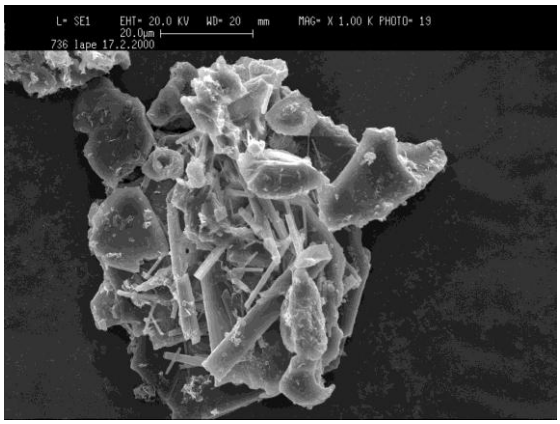
These results suggest that more nutmeg trees were present at site BN1 from AD 700-1000 compared with PA2. Phytoliths may have been deposited in the soil as a result of nutmeg processing, and/or other uses of the tree, such as for firewood and building material. The low ratio of nutmeg to palm found in PA2 from 1000-1400 suggest that nutmeg use was not as important here, perhaps reflecting a non-spice trade economic orientation. Coconut palm in particular is an important resource on water poor islands, such as Pulau Ay. Between the earliest and the middle period on Pulau Ay, palms drop in numbers,

but nutmeg does as well. This is surprising considering that the period from 1450-1650 would seem to have been the peak period for nutmeg trade at the site, considering the artifact assemblages of imported trade ceramics. However, the change is not large, and could easily be reversed if some of the unidentified phytoliths were nutmeg. It is possible that nutmeg trees were not growing near site PA2, or that nutmeg was not processed on the site, or that the tree was not used for building material or firewood. Without a better understanding of the trees/shrubs to grasses ratio (which would require different sample processing procedures), it is impossible to speculate. The most recent PA2 sample (AD 1600-1800) should have revealed the use of Pulau Ay as the second most important nutmeg-producing island in the Bandas. Nutmeg presence is slightly higher than in the 1450-1650 sample, though there is not a dramatic rise. Again, this may reflect local site conditions. According to a mid-17th century map of Ay village (see Fig. 4.65), the area of site PA2 was uninhabited land around the perimeter of Fort Revenge. In fact, the grass ratio is somewhat higher here, perhaps reflecting the Dutch colonial practice of keeping the forts clear of trees.

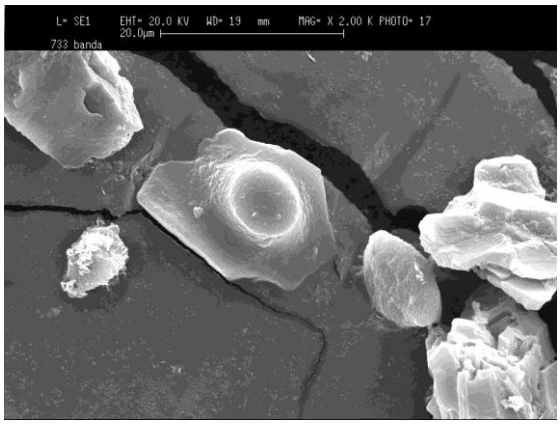
Clearly, phytolith analysis can illuminate past plant use and environmental conditions. However, this analysis conducted here is primarily a pilot study that confirms the need for additional work. The analysis of a large number of samples across a wider array of sites and strata, using different phytolith extraction techniques can reveal other past plant use patterns. Hopefully, this type of analysis will be possible in the future.

Table A2.2. Phytolith transect counts

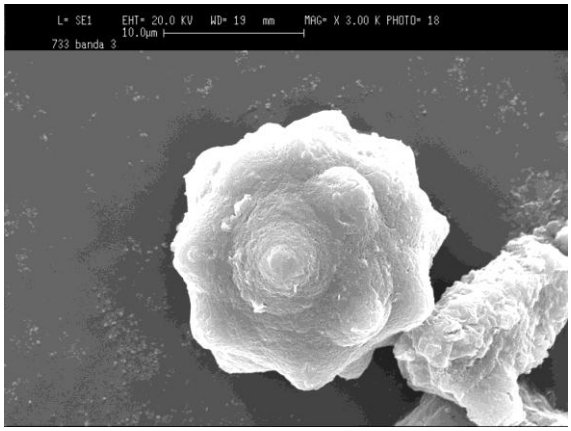
Soil sample number	**733**	**734**	**735**	**736**
Site-unit	PA2 Unit 2	PA2 Unit 2	PA2 Unit 2	BN1 Unit 3
Level (cm)	75-85	115-128	150-160	155-165
Stratum	IV	VIa	VIb	V
TREE/SHRUB PHYTOLITHS:				
Myristica sp.	45	51	51	66
Palm sp. small	5	6	31	1
medium	10	27	20	1
large	8	7	15	
Spheres smooth	4	3	1	
ornamented	10	7	3	
Oval smooth		3	3	1
ornamented		10	3	2
Rectangles small		13	6	2
medium	28	15	7	7
large	8	5	3	
ornamented	3	1	6	1
tapered		2	2	4
other	3	1	4	
Square	4	3		1
3D chunk	12	22	13	5
Cuticle	2		1	2
Perforated	1	5	4	
Hair base	1	1		
POACEAE PHYTOLITHS:				
Rectangle ornamented	10	13	3	2
AT	9	8	2	1
Hair/trichome	3	1	1	2
Poaceae other	1	1		
UNKNOWN PHYTOLITHS	77	122	79	23
TOTAL PHYTOLITHS	244	327	258	121
DIATOMS	20	91	277	268
SPONGE SPICULES	11	16	3	1
Non biogenic silica:				
Carbon particles	104	108	90	106
Starch grains	4	4	5	3



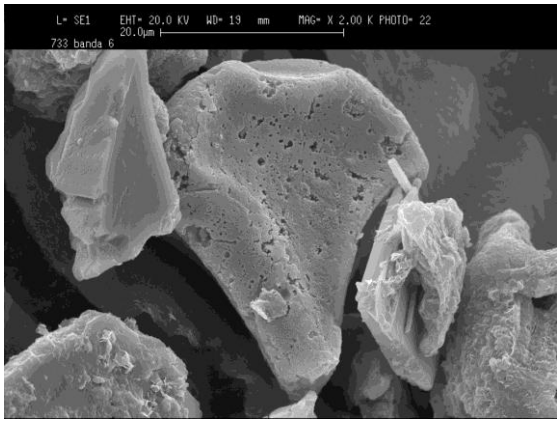
Sample 736: nutmeg (*Myristca fragrans*)



Sample 733: banana (*Musa* sp.)



Sample 733: possible diatom



Sample 733: *alang alang* grass (*Imperata cylindrica*)

Figure A2.1. SEM photographs of phytoliths from Banda soils (see Table A2.1 for sample locations).

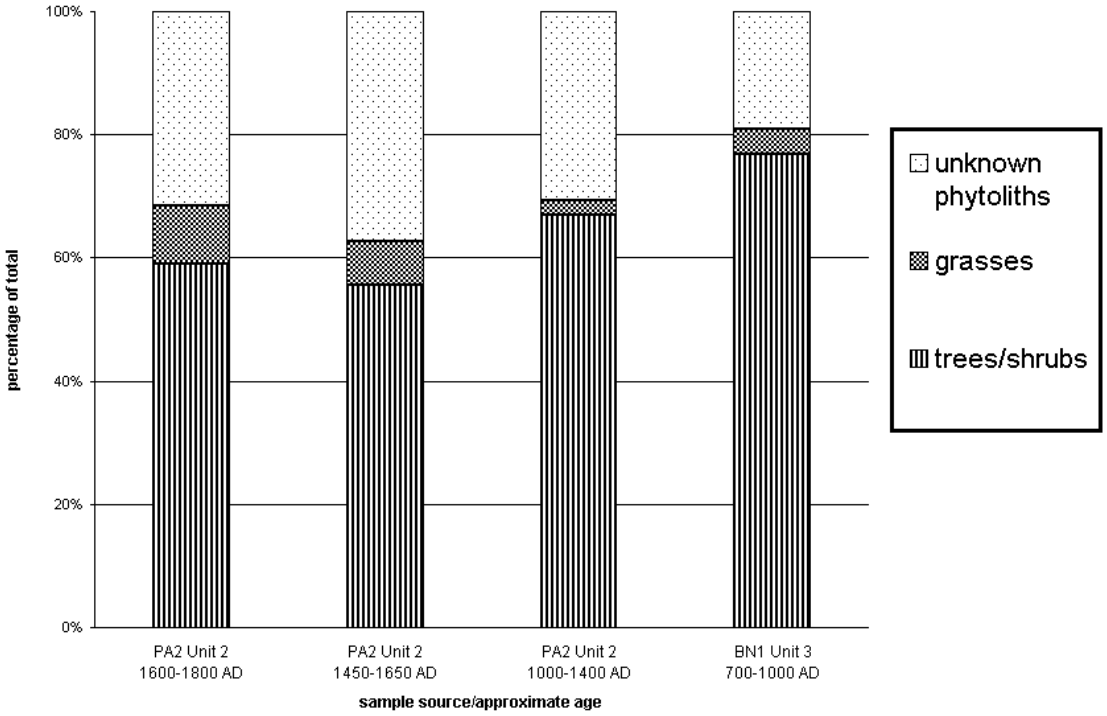


Figure A2.2. Phytolith analysis chart. Trees/shrubs vs. grasses.

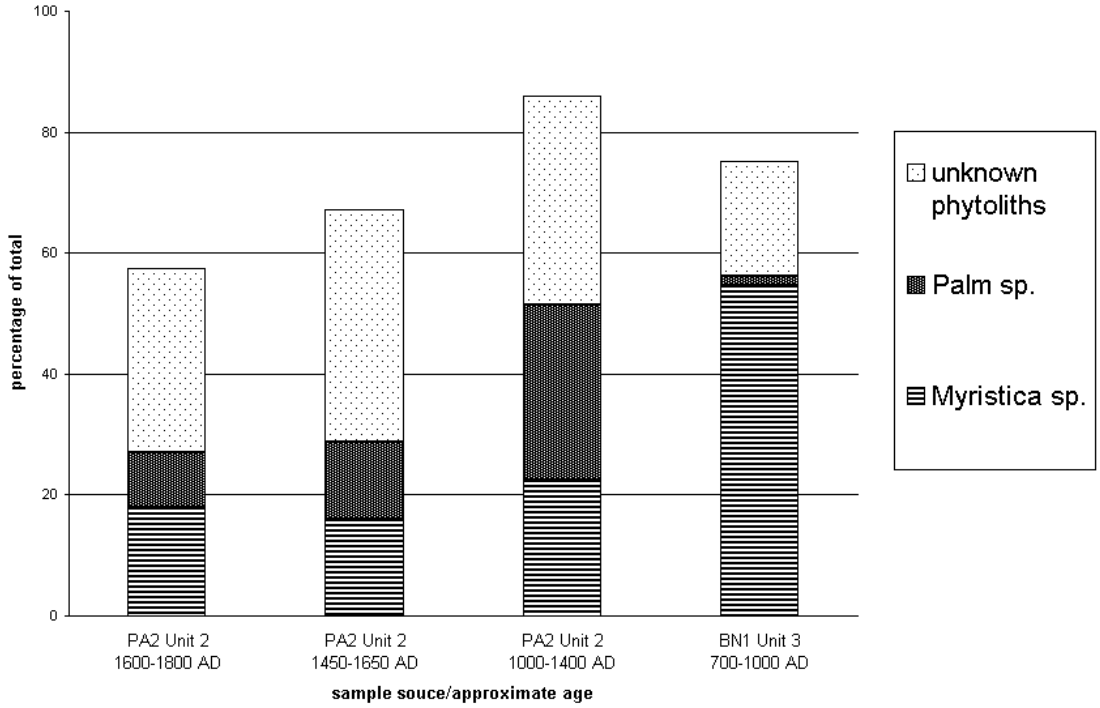


Figure A2.3. Phytolith analysis. Palm vs. Myristica

APPENDIX 3: LEVEL RECORD DATA SHEETS

BN1 Unit 1

Level (cm)		other color glaze	dark brown glaze	UG other colors	UG blue and white	UG black and white	UG white only	iron-wash	un-glazed stoneware	SCULPTED EW Bird head, Foot, Nose, Platter, Sensor, Forma, Other		Decorated EW > 1 cm	Plain EW > 1 cm	Decorated EW < 1 cm	Plain EW <1 cm	
		count	count	count	count	count	count	count	count	description	count	count	count	count	count	weight
surface		0	0	0	1	0	1	0	0		0	0	4	0	13	28
0-10		0	0	0	0	0	3	0	0		0	0	1	0	10	11
10-20		0	0	0	0	0	0	0	0		0	0	0	0	3	4
20-30		0	0	0	0	0	0	0	0		0	0	0	0	0	0
30-40		0	0	0	0	0	0	0	0		0	0	0	0	0	0
40-50		0	0	0	0	0	0	0	0		0	0	0	0	11	16
50-60		0	0	0	0	0	0	0	0		0	0	0	0	5	15
60-70		0	0	0	0	0	0	0	0		0	0	1	0	3	5
70-80		0	0	0	1	0	0	0	0		0	0	0	0	4	5
80-90		0	0	0	0	0	0	0	0		0	0	0	0	1	1
90-100		0	0	0	0	0	0	0	0		0	0	0	0	0	0
100-110		0	0	0	0	0	0	0	0		0	0	0	0	3	11
110-120		0	1	0	0	0	0	0	0		0	0	0	0	3	2
120-130		0	0	0	0	0	0	0	0		0	0	0	0	0	0
130-140		0	0	0	0	0	0	0	0		0	0	0	0	0	0
140-150		0	0	0	0	0	0	0	0		0	0	0	0	8	10
150-160		0	0	0	0	0	0	0	0		0	0	0	0	31	98
160-170		0	0	0	0	0	0	0	0		0	0	0	0	9	30
170-180		0	0	0	0	0	0	0	0		0	0	0	0	0	0

PA3 Unit 1

Level (cm)		Plain EW <1 cm	Decorated EW< 1 cm	Plain EW > 1 cm	Decorated EW > 1 cm	SCULPTED EW Bird head, Foot, Nose, Platter, Sensor, Forna, Other	un-glazed stoneware	iron-wash	UG white only	UG black and white	UG blue and white	UG other colors	dark brown glaze	other color glaze
		count	count	count	count	description	count	count	count	count	count	count	count	count
		weight	weight	weight	weight	count	weight	weight	weight	weight	weight	weight	weight	weight
surface		6	0	42	0	0	0	0	0	0	0	0	0	0
0-10		199	4	29	6	0	14	0	39	0	159	0	43	41
10-20		70	0	17	0	0	10	0	129	0	47	0	5	0
20-30		222	0	0	0	0	0	0	0	0	28	0	0	2
30-40		247	8	14	0	0	15	0	41	0	47	0	75	0
40-50		199	9	140	36	0	6	0	14	0	47	1	4	0
50-60		107	0	162	0	0	90	0	0	0	20	0	0	0
100-150		n	n	n	n	n	n	n	n	n	n	n	n	n
150-200		y	y	n	y	n	n	n	n	n	y	n	y	n
200-250		n	n	n	n	n	n	n	n	n	n	n	n	n

PA3 Unit 1

Level (cm)		surface	0-10	10-20	20-30	30-40	40-50	50-60	100-150	150-200	200-250
faunal- no ID	weight	1	2	3	3	1	7	1	n	n	n
human	weight	0	0	0	0	0	0	0	n	n	n
fish	weight	2	8	7	18	7	7	1	n	n	n
bird	weight	0	6	0	5	8	3	1	n	n	n
other mammal	weight	0	83	15	4	0	7	0	n	n	n
pig	weight	0	0	0	0	0	0	0	n	n	n
shell	weight	1	17	0	2	2	5	0	n	n	n
other	count	0	0	0	0	0	0	0	n	n	n
	weight	0	0	0	0	0	0	0	n	n	n
other metal	count	0	0	1	0	0	1	0	n	n	n
	weight	0	0	4	0	0	6	0	n	n	n
iron	count	5	26	10	40	23	72	10	n	n	y
	weight	15	176	13	114	163	183	74	n	n	y
beads	count	0	0	0	0	0	0	0	n	n	n
	weight	0	0	0	0	0	0	0	n	n	n
glass	count	5	8	3	7	6	5	0	n	y	n
	weight	9	85	8	66	13	109	0	n	y	n
ground stone	count	0	0	0	0	1	0	0	n	n	n
	weight	0	0	0	0	29	0	0	n	n	n
chert	count	0	0	0	0	0	0	1	n	n	n
	weight	0	0	0	0	0	0	1	n	n	n
other clay artifacts	count	0	0	0	0	0	0	0	n	n	n
	weight	0	0	0	0	0	0	0	n	n	n
kaolin pipes	count	0	0	0	0	3	1	0	n	n	n
	weight	0	0	0	0	4	2	0	n	n	n
brick or mortar	count	4	22	5	14	8	7	7	y	y	y
	weight	40	323	133	278	145	133	184	y	y	y
porcelain	count	7	19	6	11	29	21	8	n	n	n
	weight	23	79	67	47	69	109	70	n	n	n
over-glaze enamel	count	0	3	1	2	0	1	0	n	n	n
	weight	0	14	1	4	0	2	0	n	n	n

PA2 Unit 2

| | | |

PA2 Unit 2

Level (cm)		surface	0-50	50-100	100-125	125-150	150-175
Plain EW <1 cm	count	0	y	y	555	58	0
	weight	0	y	y	1996	212	0
Decorated EW< 1 cm	count	0	y	n	10	4	0
	weight	0	y	n	77	15	0
Plain EW > 1 cm	count	0	y	n	28	1	0
	weight	0	y	n	458	56	0
Decorated EW > 1 cm	count	0	n	n	0	0	0
	weight	0	n	n	0	0	0
SCULPTED EW Bird head, Foot, Nose, Platter, Sensor, Forma, Other	description						
	count	0	n	n	0	0	0
	weight	0	n	n	0	0	0
un-glazed stoneware	count	0	n	y	1	0	0
	weight	0	n	y	1	0	0
iron-wash	count	0	n	n	2	0	0
	weight	0	n	n	7	0	0
UG white only	count	0	y	y	3	1	0
	weight	0	y	y	4	11	0
UG black and white	count	0	n	n	0	1	0
	weight	0	n	n	0	1	0
UG blue and white	count	0	y	y	21	1	0
	weight	0	y	y	89	1	0
UG other colors	count	0	y	y	4	2	0
	weight	0	y	y	6	4	0
dark brown glaze	count	0	y	y	4	1	0
	weight	0	y	y	66	12	0
other color glaze	count	0	y	y	4	1	0
	weight	0	y	y	10	2	0

PA2 Unit 1

Level (cm)		faunal- no ID	human	fish	bird	other mammal	pig	shell	other		other metal		iron		beads		glass		ground stone		chert		other clay artifacts		kaolin pipes		brick or mortar		porcelain		over-glaze enamel	
		weight	weight	weight	weight	weight	weight	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight
surface		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0-10		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
10-20		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	0	0	0	0	1
20-30		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	71	0	0	0	0	37
30-40		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	0	0	0	0	15
40-50		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	0	0	0
50-60		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	0	0	0	0	0
60-70		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0	0	0	0	0
70-80		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0	0	0	0	0
80-90		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	0	0	0	0	0
90-100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	0	0	0
100-110		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	0	0	0
110-120		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0

PA2 Unit 1

Level (cm)		Plain EW <1 cm	Decorated EW< 1 cm	Plain EW > 1 cm	Decorated EW > 1 cm	SCULPTED EW Bird head, Foot, Nose, Platter, Sensor, Forna, Other	un-glazed stoneware	iron-wash	UG white only	UG black and white	UG blue and white	UG other colors	dark brown glaze	other color glaze
surface	count	0	0	4	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0
0-10	count	29	2	3	0	0	0	0	0	0	9	0	75	0
	weight	84	0	42	0	0	0	0	0	0	45	0	0	0
10-20	count	44	1	17	0	0	0	0	0	0	9	0	11	0
	weight	190	7	377	0	0	0	0	0	0	48	0	0	0
20-30	count	34	4	12	0	0	0	0	0	0	9	0	75	0
	weight	210	2	286	0	0	0	0	0	0	45	0	0	0
30-40	count	102	2	28	0	0	0	0	0	0	18	0	13	0
	weight	348	23	763	0	0	0	0	0	0	50	0	0	0
40-50	count	55	0	61	1	0	0	0	0	0	6	0	18	0
	weight	170	11	992	22	0	0	0	0	0	19	0	0	0
50-60	count	41	0	49	0	0	0	0	0	0	11	0	0	0
	weight	114	0	598	0	0	0	0	0	0	35	0	0	0
60-70	count	31	0	4	2	0	0	0	0	0	11	0	7	0
	weight	202	0	119	21	0	0	0	0	0	35	0	7	0
70-80	count	75	0	18	0	0	0	0	0	0	17	0	86	0
	weight	203	0	368	0	0	0	0	0	0	40	0	86	0
80-90	count	88	4	31	13	0	0	0	0	0	14	0	32	0
	weight	269	22	632	0	1	0	0	0	0	23	0	32	0
90-100	count	89	3	57	177	4	0	0	0	0	5	0	0	0
	weight	207	31	1350	0	0	0	0	0	0	12	0	0	0
100-110	count	24	0	3	0	0	0	0	0	0	1	0	0	0
	weight	86	0	697	0	0	0	0	0	0	1	0	0	0
110-120	count	24	0	5	0	0	0	0	0	0	1	0	1	0
	weight	67	0	177	0	0	0	0	0	0	1	0	1	0

PA1 Unit 1

Level (cm)		surface	0-10	10-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120	120-130
Plain EW<1 cm	count	142	209	242	181	558	349	335	422	47	298	407	455	452
	weight	186	302	447	514	1564	1112	795	917	129	755	710	768	642
Decorated EW < 1 cm	count	0	0	4	5	19	9	6	5	1	3	5	1	3
	weight	0	0	9	18	144	65	37	12	1	13	14	1	14
Plain EW > 1 cm	count	0	0	0	1	17	4	6	2	4	5	3	1	2
	weight	0	0	0	16	226	50	98	38	42	71	28	7	28
Decorated EW > 1 cm	count	0	0	0	0	2	1	0	0	0	0	0	0	0
	weight	0	0	0	0	24	46	0	0	0	0	0	0	0
SCULPTED EW Bird head, Foot, Nose, Platter, Sensor, Forna, Other	description													
	count	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0
glazed ceramics		none												
chert	count	0	2	3	0	21	2	14	15	3	6	9	9	12
	weight	0	1	1	0	24	4	9	9	2	6	10	8	13
obsidian	count	0	0	0	0	0	0	1	1	1	3	1	3	1
	weight	0	0	0	0	0	0	8	6	2	39	20	5	3
ground stone	count	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0
glass	count	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0
beads	count	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0
iron	count	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0
other metal	weight	0	0	0	0	0	0	0	0	0	0	0	0	0
other	count	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0
shell	weight	0	0	0	0	0	0	0	0	0	0	0	0	0
pig	weight	0	0	0	0	7	8	5	22	0	12	1	5	0
other mammal	weight	0	0	0	1	24	52	34	44	19	34	36	7	7
bird	weight	0	0	0	0	1	1	0	1	0	0	0	0	0
fish	weight	0	0	0	0	1	1	1	1	0	0	1	1	0
human	weight	0	0	0	0	0	0	0	0	0	0	0	0	0
faunal- no ID	weight	0	0	0	0	16	24	27	40	1	12	12	4	8

BN4 Unit 2

Level (cm)		over-glaze enamel		porcelain		brick or mortar		kaolin pipes		other clay artifacts		chert		ground stone		glass		beads		iron		other metal		other		shell	pig	other mammal	bird	fish	human	faunal- no ID
		count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	weight	weight	weight	weight	weight	weight	weight
surface		0	0	3	4	y	y	0	0	0	0	0	0	0	0	9	23	0	0	15	103	0	0	0	0	54	0	4	0	1	0	0
0-10		3	14	28	48	y	y	11	20	0	0	0	0	0	0	85	289	0	0	90	494	2	1	0	0	205	0	79	0	1	0	4
10-20		0	0	27	10	y	y	3	3	0	0	0	0	0	0	14	27	0	0	47	398	0	0	0	0	78	0	12	0	1	0	0
20-30		0	0	18	88	y	y	11	12	1	33	0	0	0	0	30	271	0	0	33	197	0	0	0	0	62	2	79	6	4	0	0
30-40		1	1	18	47	y	y	11	19	3	23	0	0	0	0	13	29	0	0	21	124	0	0	0	0	49	2	20	5	1	0	3
40-50		0	0	9	11	y	y	8	12	0	0	0	0	0	0	38	501	0	0	7	63	1	3	0	0	58	0	22	8	1	0	7
50-60		2	7	21	120	y	y	30	53	0	0	0	0	0	0	19	129	0	0	33	242	0	0	0	0	151	34	42	3	1	0	12
60-70		0	0	19	38	y	y	19	36	0	0	0	0	0	0	15	62	0	0	9	88	0	0	0	0	67	3	48	7	1	0	7
70-80		1	1	20	70	y	y	12	14	0	0	0	0	0	0	7	46	0	0	18	129	0	0	0	0	25	0	15	0	1	0	17
80-90		3	32	9	17	y	y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	7	0	6	0	8
90-100		0	0	7	21	y	y	5	6	0	0	0	0	0	0	2	6	0	0	0	0	4	33	0	0	14	0	4	1	10	0	0
100-110		0	0	5	9	y	y	3	4	0	0	0	0	0	0	6	43	0	0	0	0	9	81	0	0	12	0	4	0	6	0	0
110-120		3	24	7	44	y	y	6	17	0	0	0	0	0	0	6	18	0	0	2	48	0	0	0	0	22	0	21	0	8	0	5
120-130		2	9	4	16	y	y	4	17	0	0	0	0	0	0	8	28	0	0	8	62	0	0	0	0	144	0	40	0	2	0	7
130-140		0	0	6	33	y	y	7	13	0	0	0	0	0	0	5	6	0	0	3	22	0	0	0	0	113	9	30	7	8	0	5
140-150		1	1	10	36	y	y	3	4	0	0	0	0	0	0	3	2	0	0	6	39	0	0	0	0	65	0	6	2	2	0	4
150-160		0	0	11	21	y	y	4	5	0	0	0	0	0	0	0	0	0	0	5	101	0	0	0	0	73	0	15	1	2	0	1
160-170		1	6	10	14	y	y	5	19	0	0	0	0	0	0	3	7	0	0	7	361	0	0	0	0	78	0	15	1	1	0	4
170-180		1	2	3	54	y	y	3	2	0	0	0	0	0	0	0	0	0	0	10	284	0	0	0	0	153	0	8	0	1	0	4
180-190		0	0	4	3	y	y	0	0	0	0	0	0	0	0	0	0	0	0	4	71	3	1	0	0	503	0	34	1	2	0	1
190-200		0	0	0	0	y	y	1	2	0	0	0	0	0	0	0	0	0	0	6	68	0	0	0	0	23	0	2	2	3	0	26
200-210		0	0	1	1	y	y	0	0	0	0	0	0	0	0	0	0	0	0	1	81	0	0	0	0	113	0	0	1	5	0	4
210-220		0	0	0	0	y	y	0	0	0	0	1	3	0	0	1	1	0	0	0	0	0	0	0	0	135	1	0	0	4	0	1
220-230		0	0	0	0	y	y	0	0	0	0	0	0	0	0	0	0	0	0	4	33	0	0	0	0	253	0	20	0	1	0	1
230-240		0	0	0	0	y	y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	95	0	0	0	1	0	0
240-250		0	0	0	0	y	y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	254	1	0	0	0	0	0

BN4 Unit 2

Level (cm)	Plain EW < 1 cm		Decorated EW < 1 cm		Plain EW > 1 cm		Decorated EW > 1 cm		Other Forna, Sensor, Platter, Nose, SCULPTED EW Bird head, Fool,		un-glazed stoneware		iron-wash		UG white only		UG black and white		UG blue and white		UG other colors		dark brown glaze		other color glaze	
	weight	count	weight	count	weight	count	weight	count	weight	count	description	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count
surface	72	24	6	1	497	28	126	4	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1
0-10	1280	230	5	1	1178	58	143	5	0	0		62	1	0	0	57	18	0	0	23	10	0	0	27	1	0	0
10-20	86	41	18	3	539	25	17	1	0	0		0	0	0	0	0	0	0	0	5	4	0	0	0	0	0	0
20-30	358	106	11	3	0	0	0	0	0	0		1	1	0	0	4	2	0	0	5	4	0	0	133	5	0	0
30-40	246	58	5	1	0	0	0	0	0	0		0	0	0	0	0	0	0	0	4	1	0	0	0	0	7	1
40-50	102	42	0	0	0	0	0	0	0	0		54	9	0	0	0	0	0	0	6	1	0	0	175	4	0	0
50-60	448	114	3	1	0	0	0	0	0	0		0	0	0	0	22	4	0	0	21	6	0	0	0	0	5	2
60-70	453	89	6	1	59	2	17	1	0	0		0	0	0	0	4	1	0	0	219	6	0	0	75	4	0	0
70-80	121	37	4	1	0	0	0	0	0	0		39	1	0	0	0	0	0	0	2	1	0	0	1	1	0	0
80-90	64	22	0	0	18	2	0	0	0	0		0	0	0	0	3	1	0	0	0	0	0	0	0	0	3	1
90-100	99	21	5	2	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100-110	154	26	0	0	0	0	0	0	0	0		0	0	0	0	6	3	0	0	1	3	0	0	2	1	0	0
110-120	246	55	30	2	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	29	2	16	3
120-130	196	53	0	0	32	1	0	0	0	0		0	0	0	0	0	0	3	1	2	1	0	0	0	0	11	2
130-140	231	70	3	1	45	3	0	0	0	0		0	0	0	0	0	0	0	0	28	3	0	0	2	1	10	4
140-150	211	59	0	0	0	0	0	0	0	0		4	2	0	0	0	0	4	1	16	5	0	0	2	1	0	0
150-160	368	100	14	2	33	2	0	0	0	0		152	4	0	0	0	0	0	0	46	4	0	0	4	1	27	3
160-170	693	138	22	2	6	1	0	0	0	0		14	2	0	0	20	1	0	0	14	3	0	0	16	3	7	6
170-180	815	194	3	1	151	5	0	0	0	0		4	1	0	0	3	2	0	0	1	1	0	0	0	0	7	4
180-190	430	102	0	0	142	5	0	0	15	1	forna	31	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
190-200	423	106	1	1	22	1	0	0	28	1	forna	6	1	0	0	23	3	0	0	7	2	0	0	0	0	6	1
200-210	335	71	0	0	25	1	0	0	3	1	forna	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0
210-220	253	54	68	1	0	0	0	0	0	0		0	0	0	0	0	0	0	0	1	0	0	0	17	3	5	1
220-230	195	56	0	0	0	0	0	0	8	1	forna	74	5	0	0	2	1	0	0	0	0	0	0	13	3	0	0
230-240	427	50	0	0	121	3	0	0	0	0		4	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1
240-250	344	82	0	0	53	3	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

BN4 Unit 1

Level (cm)	over-glaze enamel		porcelain		brick or mortar		kaolin pipes		other clay artifacts		chert		ground stone		glass		beads		iron		other metal		other		shell	pig	other mammal	bird	fish	human	faunal- no ID
	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	weight	weight	weight	weight	weight	weight
surface	0	0	50	5	y	y	0	0	0	0	0	0	0	0	21	12	0	0	36	10	0	0	0	0	14	0	0	0	1	0	2
0-10	3	1	83	30	y	y	9	4	0	0	0	0	0	0	129	84	0	0	332	73	19	3	0	0	77	0	4	0	1	0	1
10-20	0	0	17	4	y	y	6	7	0	0	0	0	0	0	9	15	0	0	123	28	1	1	0	0	49	5	3	0	1	0	3
20-30	0	0	67	13	y	y	14	14	0	0	0	0	0	0	8	8	0	0	138	19	0	0	0	0	11	1	7	0	1	0	10
30-40	5	2	26	30	y	y	40	37	0	0	0	0	0	0	17	9	0	0	61	15	0	0	0	0	17	0	5	0	1	0	2
40-50	0	0	7	3	y	y	12	11	0	0	0	0	0	0	27	4	0	0	56	7	0	0	0	0	24	6	1	0	0	0	2
50-60	0	0	2	2	y	y	9	4	0	0	0	0	0	0	1	1	0	0	29	7	0	0	0	0	8	0	0	1	0	0	2
60-70	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	0	0	0	0	1	0	0	0	0	0	1
70-80	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	4	1	0	0	0	0	0	0	0	0	0	0	0
80-90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90-100	0	0	1	3	0	0	7	6	0	0	0	0	0	0	0	0	0	0	127	15	0	0	0	0	1	0	0	0	0	0	1
100-110	21	4	12	16	0	0	6	3	0	0	0	0	0	0	46	2	0	0	949	84	0	0	0	0	224	8	2	0	2	0	14
110-120	11	2	36	19	0	0	0	0	0	0	0	0	0	0	35	2	0	0	440	31	21	4	0	0	145	1	30	0	1	0	11
120-130	152	14	35	26	0	0	1	1	0	0	0	0	0	0	0	0	0	0	501	45	0	0	0	0	506	1	419	0	10	0	79
130-140	166	36	200	64	0	0	0	2	0	0	8	1	0	0	8	4	0	0	1096	84	3	2	0	0	1010	26	436	1	34	0	##
140-150	129	22	84	36	0	0	3	0	0	0	0	0	0	0	0	0	1	1	1235	117	7	1	0	0	783	4	111	0	10	0	58
150-160	82	10	29	21	0	0	0	1	0	0	1	1	0	0	0	0	0	0	1548	83	2	1	0	0	685	1	120	1	6	0	26
160-170	16	2	58	23	0	0	4	0	0	0	0	0	0	0	3	2	0	0	626	50	0	0	0	0	399	0	0	1	2	0	22
170-180	11	2	48	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	536	36	0	0	0	0	212	0	11	0	1	1	5
180-190	0	0	9	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	951	16	25	4	0	0	93	0	6	0	1	0	0
190-200	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	1	1	1	0	0	35	0	0	0	3	0	3
200-210	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	2	0	0	0	0	203	0	1	0	2	0	0
210-220	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	110	8	0	0	0	0	222	0	0	0	0	0	0
220-230	0	0	1	1	0	0	3	1	0	0	0	0	0	0	0	0	0	0	4	1	0	0	0	0	104	0	2	0	1	0	1
230-240	0	0	2	1	23	1	0	0	0	0	0	0	0	0	0	0	0	0	24	3	0	0	0	0	158	0	21	0	1	0	3
240-250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	142	0	2	0	1	0	15

BN4 Unit 1

Level (cm)	Plain EW/ <1 cm		Decorated EW/ < 1 cm		Plain EW/ > 1 cm		Decorated EW/ > 1 cm		Other Forna, Sensor,		SCULPTED EW/Bird head, Foot, Nose, Platter,	un-glazed stoneware		iron-wash		UG white only		UG black and white		UG blue and white		UG other colors		dark brown glaze		other color glaze	
	weight	count	weight	count	weight	count	weight	count	weight	count	description	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count
surface	244	36	0	0	265	26	13	1	0	0		0	0	0	0	4	1	0	0	1	1	0	0	6	1	0	0
0-10	224	35	0	0	605	24	0	0	0	0		1	2	0	0	33	25	16	1	33	11	5	3	3	1	0	0
10-20	174	81	0	0	21	3	0	0	0	0		3	2	0	0	9	3	0	0	2	3	3	1	0	0	4	2
20-30	166	42	0	0	6	1	0	0	0	0		0	0	0	0	5	2	0	0	5	4	0	0	0	0	0	0
30-40	190	65	0	0	1	3	0	0	0	0		29	3	0	0	0	0	0	0	17	2	0	0	0	0	8	2
40-50	64	17	21	2	23	1	0	0	0	0		0	0	0	0	3	1	0	0	4	1	0	0	0	0	0	0
50-60	52	14	0	0	0	0	0	0	0	0		0	0	0	0	3	2	1	1	20	2	0	0	0	0	0	0
60-70	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70-80	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80-90	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90-100	31	11	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100-110	445	156	59	2	30	5	0	0	0	0		21	2	0	0	5	5	4	1	54	23	0	0	4	3	22	6
110-120	529	176	7	2	181	6	0	0	0	0		1	1	0	0	0	0	0	0	51	7	0	0	40	2	9	5
120-130	1239	335	70	13	396	9	100	1	19	1	forna	70	5	0	0	66	6	0	0	95	26	0	0	70	7	32	10
130-140	1844	221	42	9	434	17	26	1	0	0		119	9	0	0	65	13	13	7	195	41	0	0	103	11	62	30
140-150	993	312	49	11	24	1	0	0	0	0		45	7	0	0	32	13	12	1	157	33	0	0	192	17	31	9
150-160	1061	262	99	16	296	14	0	0	0	0		114	6	0	0	51	11	0	0	264	38	0	0	46	8	28	3
160-170	652	149	37	7	0	0	0	0	6	2	forna, handle	8	1	2	1	4	1	2	1	183	19	0	0	46	3	10	4
170-180	320	96	28	9	87	1	0	0	0	0		0	0	0	0	29	2	86	15	0	0	0	0	20	4	1	1
180-190	211	80	35	5	0	0	0	0	0	0		0	0	0	0	0	0	10	1	42	9	0	0	0	0	4	3
190-200	106	39	5	2	0	0	0	0	0	0		0	0	0	0	0	0	0	0	1	1	0	0	2	2	0	0
200-210	487	117	16	3	152	7	15	1	0	0		0	0	0	0	0	0	0	0	4	1	0	0	67	3	1	1
210-220	404	72	33	2	217	9	0	0	0	0		0	0	64	5	14	2	0	0	57	5	0	0	0	0	0	0
220-230	292	48	0	0	49	3	0	0	0	0		0	0	0	0	1	1	9	1	5	1	0	0	0	0	0	0
230-240	231	41	37	2	156	8	0	0	0	0		11	1	42	2	0	0	0	0	2	1	0	0	0	0	5	1
240-250	367	45	180	7	0	0	0	0	0	0		0	0	0	0	0	0	0	0	16	2	0	0	0	0	0	0

BN2 Unit 2

Level (cm)	over-glaze enamel		porcelain		brick or mortar		kaolin pipes		other clay artifacts		chert		ground stone		glass		beads		iron		other metal		other		shell	pig	other mammal	bird	fish	human	faunal- no ID
	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	weight	weight	weight	weight	weight	weight
surface	4	2	6	6	430	62	3	2	0	0	0	0	0	0	46	20	0	0	43	10	0	0	0	0	0	0	0	0	0	0	1
0-10	2	2	12	10	267	69	4	5	0	0	0	0	6	1	85	55	0	0	30	11	5	1	0	0	2	0	0	0	0	0	1
10-20	0	0	8	10	307	54	0	0	3	1	0	0	0	0	42	32	0	0	45	8	2	1	0	0	2	0	2	0	1	0	0
20-30	0	0	1	4	418	48	1	1	0	0	0	0	0	0	15	5	0	0	17	2	22	4	0	0	24	0	0	1	1	0	0
30-40	1	1	20	26	487	72	14	11	0	0	0	0	0	0	7	8	0	0	18	2	0	0	0	0	1	0	24	0	1	0	1
40-50	0	0	41	13	189	28	14	11	0	0	0	0	0	0	11	15	0	0	14	10	3	1	0	0	0	0	1	0	1	0	1
50-60	2	2	28	19	233	36	128	154	0	0	0	0	0	0	36	6	0	0	47	6	2	1	0	0	5	0	14	4	1	1	4
60-70	2	2	6	7	189	34	26	38	0	0	0	0	0	0	2	5	0	0	16	6	0	0	4	1	0	0	11	0	1	0	1
70-80	3	2	2	3	3	3	20	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0
80-90	1	1	1	2	1	1	6	6	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	1	0	0	0	0	0	1
90-100	0	0	1	1	74	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0
100-110	0	0	59	29	204	15	0	0	0	0	0	0	0	0	4	1	0	0	0	0	0	0	0	0	46	1	12	0	1	1	0
110-120	10	1	13	9	67	8	9	3	0	0	0	0	0	0	2	5	0	0	5	1	0	0	0	0	146	1	5	1	1	0	1
120-130	0	0	8	8	98	8	6	2	0	0	0	0	0	0	2	0	0	0	2	1	0	0	0	0	76	0	0	2	0	0	0
stratum VI	1	1	19	6	248	19	6	2	0	0	0	0	0	0	2	1	0	0	1	1	0	0	0	0	5	0	21	0	1	0	0
stratum VII	0	0	41	6	92	3	0	0	0	0	0	0	0	0	2	2	0	0	87	6	0	0	0	0	12	0	9	0	0	0	2
stratum VIII 200-210	10	1	7	17	0	0	1	1	0	0	0	0	45	1	2	6	0	0	799	22	1	1	0	0	722	0	1	0	0	0	1
stratum VIII	0	0	2	2	189	4	0	0	27	1	0	0	0	0	0	0	0	0	37	10	0	0	0	0	82	0	0	0	0	0	1

BN2 Unit 2

Level (cm)	Plain EW <1 cm		Decorated EW < 1 cm		Plain EW > 1 cm		Decorated EW > 1 cm		Forma, Other Sensor, Platter, Nose,		SCULPTED EW Bird head, Foot,	un-glazed stoneware		iron-wash		UG white only		UG black and white		UG blue and white		UG other colors		dark brown glaze		other color glaze	
	weight	count	weight	count	weight	count	weight	count	weight	count	description	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count
surface	46	19	6	1	0	0	0	0	0	0		3	1	0	0	4	3	0	0	4	2	0	0	9	2	0	0
0-10	158	48	6	1	0	0	0	0	0	0		0	0	0	0	7	6	0	0	17	8	1	1	1	1	2	2
10-20	158	87	6	1	0	0	0	0	0	0		0	0	0	0	#	4	0	0	13	9	0	0	0	0	0	0
20-30	36	16	0	0	36	1	22	1	0	0		0	0	0	0	5	2	0	0	3	3	3	3	4	1	0	0
30-40	45	14	4	1	0	0	0	0	0	0		0	0	0	0	1	1	0	0	2	2	1	1	0	0	0	0
40-50	61	38	16	7	35	3	0	0	0	0		0	0	0	0	1	2	0	0	7	10	0	0	2	2	25	5
50-60	100	36	7	4	0	0	0	0	0	0		6	1	0	0	4	5	0	0	21	19	0	0	3	1	3	2
60-70	88	49	12	1	21	1	0	0	0	0		#	1	0	0	7	6	0	0	1	2	50	4	0	0	0	0
70-80	44	23	1	1	0	0	0	0	0	0		0	0	0	0	0	0	0	0	23	3	0	0	0	0	2	1
80-90	41	12	2	1	0	0	0	0	0	0		0	0	0	0	0	0	0	0	11	1	0	0	0	0	1	1
90-100	2	5	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100-110	121	47	0	0	0	0	34	2	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110-120	199	86	3	1	35	1	0	0	0	0		0	0	0	0	5	2	1	1	42	7	0	0	0	0	0	0
120-130	185	72	5	2	0	0	0	0	0	0		0	0	0	0	0	0	0	0	12	2	29	4	24	1	0	0
stratum VI	324	119	8	4	385	12	0	0	0	0		0	0	0	0	0	0	0	0	29	6	0	0	6	1	37	6
stratum VII	294	41	70	5	310	4	0	0	0	0		0	0	8	1	2	1	0	0	35	4	0	0	16	1	1	1
stratum VIII 200-210	901	177	0	0	0	0	0	0	0	0		3	1	0	0	#	3	0	0	30	6	182	3	192	10	31	2
stratum VIII	297	34	0	0	81	3	0	0	0	0		7	2	0	0	3	1	0	0	1	1	1	1	4	1	101	3

BN2 Unit 1

Level (cm)		over-glaze enamel		porcelain		brick or mortar		kaolin pipes		other clay artifacts		chert		ground stone		glass		beads		iron		other metal		other		shell	pig	other mammal	bird	fish	human	faunal- no ID
		count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	weight	weight	weight	weight	weight	weight	weight	weight
surface		3	2	5	5	3	10	4	9	0	0	0	0	1	1	100	123	0	0	0	0	1	2	0	0	1	0	0	1	0	0	0
0-10		1	3	1	2	62	305	10	11	0	0	0	0	0	0	139	182	0	0	14	28	5	10	0	0	11	0	0	1	0	0	1
10-30		1	3	22	55	127	618	44	44	0	0	0	0	0	0	107	188	0	0	19	113	3	2	0	0	1	0	9	1	1	0	1
30-40		1	1	6	2	37	343	10	9	0	0	0	0	0	0	25	12	0	0	1	5	1	1	0	0	0	0	0	0	0	0	1
40-50		7	22	97	77	148	554	95	60	0	0	0	0	0	0	11	10	1	1	2	221	0	0	0	0	0	0	0	0	0	0	2
50-60		1	1	7	4	61	470	46	35	0	0	0	0	0	0	9	20	0	0	2	5	1	22	0	0	0	0	3	0	1	0	5
60-70		2	8	8	15	5	10	8	7	0	0	0	0	0	0	1	1	0	0	0	0	1	3	0	0	0	0	0	0	0	0	1
70-80		0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	1	24	0	0	0	0	0	0	0	0	1	0	3
80-90		0	0	6	12	0	0	2	1	0	0	0	0	0	0	0	0	0	0	1	26	0	0	0	0	0	0	0	0	1	0	1
90-100		1	1	0	0	15	125	4	10	0	0	0	0	0	0	4	7	0	0	2	16	1	1	0	0	0	0	0	1	3	0	4
100-110		2	1	5	20	21	265	4	8	0	0	0	0	0	0	1	1	0	0	2	39	1	6	0	0	0	0	0	0	1	1	2
110-120		1	8	11	10	31	361	3	13	0	0	0	0	0	0	2	1	0	0	0	86	9	1	0	0	0	0	4	9	0	0	4
120-130		0	0	4	5	7	218	0	0	0	0	0	0	0	0	0	0	0	0	0	91	10	0	0	0	0	0	5	0	2	1	3
130-140		0	0	2	32	5	178	0	0	0	0	0	10	0	0	0	0	0	0	0	74	15	0	0	0	0	0	162	0	28	2	4
140-150		0	0	4	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1	0	0	0	0	0	223	0	1	0	1
150-165		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	57	0	0	0	0
165-180		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	92	0	0	0	0
180-190		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	284	0	5	1	0
190-200		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

BN2 Unit 1

Level (cm)	Plain EW <1 cm		Decorated EW<1 cm		Plain EW>1 cm		Decorated EW>1 cm		Forna, Other Sensor, Platter, Nose, head, Foot, SCULPTED EW Bird		un-glazed stoneware		iron-wash		UG white only		UG black and white		UG blue and white		UG other colors		dark brown glaze		other color glaze	
	weight	count	weight	count	weight	count	weight	count	weight	count	description	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count
surface	11	6	2	1	0	0	0	0	0	0		0	0	0	0	44	22	0	0	6	7	1	1	31	5	14	4
0-10	108	33	0	0	0	0	0	0	0	0		0	0	0	0	28	18	0	0	16	12	0	0	28	10	0	0
10-30	99	49	11	3	14	1	0	0	0	0		42	2	0	0	24	10	0	0	26	12	0	0	33	8	20	4
30-40	80	16	1	1	0	0	0	0	0	0		0	0	0	0	1	1	0	0	4	6	0	0	0	0	63	1
40-50	75	40	28	4	0	0	0	0	0	0		0	0	0	0	27	29	0	0	48	15	0	0	25	8	0	0
50-60	120	44	0	0	15	1	53	2	0	0		1	1	0	0	1	4	1	1	31	10	0	0	0	0	0	0
60-70	36	9	0	0	0	0	0	0	0	0		0	0	0	0	2	3	2	1	4	2	0	0	0	0	4	1
70-80	177	83	1	1	95	5	0	0	3	1	forna	0	0	0	0	1	1	0	0	38	2	2	1	22	13	2	1
80-90	148	67	1	1	48	3	0	0	0	0		1	1	0	0	3	3	0	0	8	2	0	0	1	1	1	1
90-100	103	43	2	1	0	0	0	0	0	0		0	0	0	0	0	0	1	2	11	3	0	0	3	1	0	0
100-110	83	20	0	0	0	0	22	1	0	0		0	0	0	0	1	2	2	1	64	10	0	0	18	3	0	0
110-120	131	60	0	0	42	1	0	0	0	0		0	0	0	0	6	1	0	0	60	12	0	0	6	1	8	2
120-130	237	98	0	0	41	3	16	1	0	0		0	0	0	0	5	1	0	0	11	5	3	3	108	4	2	1
130-140	133	48	1	1	79	5	0	0	0	0		7	1	0	0	2	1	0	0	12	2	0	0	0	0	5	2
140-150	153	52	0	0	45	3	0	0	0	0		10	1	0	0	0	0	0	0	3	1	0	0	12	1	5	1
150-165	251	67	1	1	154	6	0	0	0	0		28	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165-180	343	46	10	1	288	6	82	2	0	0		0	0	8	1	0	0	0	0	0	0	0	0	0	0	6	1
180-190	63	8	3	1	67	2	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
190-200	1	3	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

BN1 Unit 4

Level (cm)		faunal- no ID	human	fish	bird	other mammal	pig	shell	other		other metal		iron		beads		glass		ground stone		chert		other clay artifacts		kaolin pipes		brick or mortar		porcelain		over-glaze enamel	
		weight	weight	weight	weight	weight	weight	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight
150-160		0	0	7	0	16	2	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160-170		0	0	5	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170-180		0	0	3	0	23	0	103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180-190		0	0	8	0	4	0	167	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
190-200		0	0	7	0	6	0	129	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
200-210		0	0	3	0	0	0	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
210-220		0	0	2	0	2	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
220-230		0	0	1	0	0	0	33	0	0	0	0	0	0	0	0	0	0	1	10	0	0	0	0	0	0	0	0	0	0	0	0
230-240		0	0	2	0	0	0	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
240-250		0	0	2	0	11	0	62	0	0	0	0	2	6	0	0	0	0	1	73	0	0	0	0	0	0	0	0	0	0	0	0
250-260		0	0	1	0	12	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
260-270		0	0	2	0	23	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
270-280		0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
280-290		0	0	0	0	18	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
290-300		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
300-310		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310-320		0	0	1	0	8	0	7	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	4	0	0

BN1 Unit 4

Level (cm)		over-glaze enamel		porcelain		brick or mortar		kaolin pipes		other clay artifacts		chert		ground stone		glass		beads		iron		other metal		other		shell	pig	other mammal	bird	fish	human	faunal- no ID
		count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	weight	weight	weight	weight	weight	weight	weight
surface		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
0-10		0	0	0	0	0	0	0	0	0	0	0	0	1	239	0	0	0	0	0	0	0	0	0	0	11	0	5	0	2	0	1
10-20		0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	12	0	0	1	1	0	2
20-30		1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1
30-40		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0		0	1
40-50		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	4	0	5
50-60		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	23	1	0	0	7
60-70		6	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51	0	0	0	1	0	7
70-80		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	110	0	0	1	10	0	5
80-90		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	0	0	0	0	227	1	1	1	7	0	4
90-100		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	77	0	3	0	4	0	2
100-110		0	0	0	0	0	0	0	0	0	0	0	0	1	144	0	0	0	0	2	1	0	0	0	0	50	0	0	0	1	0	12
110-120		0	0	0	0	0	0	0	0	0	0	1	1	1	361	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1
120-130		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	0	0	0	2	0	3
130-140		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	0	0	45	0	0	0	1	0	1
140-150		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	78	0	0	0	3	0	1

BN1 Unit 4

Level (cm)	Plain EW <1 cm		Decorated EW < 1 cm		Plain EW > 1 cm		Decorated EW > 1 cm		SCULPTED EW Bird head, Foot, Nose, Platter, Sensor, Forna, Other			un-glazed stoneware		iron-wash		UG white only		UG black and white		UG blue and white		UG other colors		dark brown glaze		other color glaze	
	weight	count	weight	count	weight	count	weight	count	weight	count	description	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count
150-160	115	28	3	1	119	2	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1
160-170	327	47	36	3	18	2	0	0	77	2	foot, forna (sago mold)	1	1	0	0	0	0	0	0	0	0	0	0	25	2	0	0
170-180	672	73	14	2	1038	30	86	1	0	0		0	0	0	0	5	1	0	0	0	0	0	0	17	5	0	0
180-190	571	162	6	2	79	2	0	0	27	1		0	0	0	0	3	3	0	0	1	1	0	0	4	3	28	2
190-200	659	144	125	14	177	6	0	0	106	2		0	0	0	0	2	3	0	0	0	0	0	0	14	3	24	5
200-210	486	99	82	11	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1
210-220	420	125	43	6	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
220-230	330	156	76	0	59	1	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
230-240	508	144	66	8	67	3	0	0	26	1	foot	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
240-250	358	77	52	8	77	3	0	0	32	2	sensor	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
250-260	423	96	0	5	114	4	49	1	0	0		3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
260-270	240	36	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
270-280	92	16	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
280-290	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
290-300	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
300-310	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310-320	828	100	160	10	590	15	78	2	511	4	stove, foot, nose, hook	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

BN1 Unit 4

Level (cm)	Plain EW <1 cm		Decorated EW<1 cm		Plain EW>1 cm		Decorated EW>1 cm		SCULPTED EW/Bird head, Foot, Nose, Platter, Sensor, Forma, Other			un-glazed stoneware		iron-wash		UG white only		UG black and white		UG blue and white		UG other colors		dark brown glaze		other color glaze	
	weight	count	weight	count	weight	count	weight	count	weight	count	description	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count
surface	159	56	42	4	36	2	30	1	103	1	handle	0	0	0	0	1	1	0	0	4	1	0	0	0	0	1	1
0-10	212	71	8	2	27	1	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
10-20	517	146	11	2	81	5	0	0	0	0		7	1	0	0	1	1	0	0	5	1	0	0	0	0	0	0
20-30	280	102	2	1	46	2	0	0	0	0		0	0	0	0	0	0	0	0	7	2	0	0	0	0	0	0
30-40	166	59	5	1	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40-50	297	92	78	6	66	1	0	0	0	0		1	1	0	0	7	2	0	0	2	2	0	0	0	0	0	0
50-60	440	223	53	4	40	2	24	1	0	0		0	0	0	0	1	1	0	0	10	3	0	0	0	0	0	0
60-70	841	255	102	11	204	7	23	1	0	0		0	0	0	0	0	0	0	0	13	3	0	0	0	0	12	1
70-80	600	140	75	5	328	11	0	0	14	1	platter?	48	8	0	0	0	0	0	0	1	1	0	0	0	0	0	0
80-90	653	128	55	5	106	5	0	0	0	0		35	10	0	0	0	0	0	0	0	0	0	0	0	0	1	1
90-100	492	123	4	1	66	5	0	0	48	1	pestle?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100-110	340	101	37	3	293	4	0	0	0	0		0	0	0	0	4	1	0	0	0	0	0	0	0	0	0	0
110-120	304	84	10	2	111	5	20	1	78	1	birdhead	0	0	0	0	5	2	0	0	0	0	0	0	0	0	0	0
120-130	149	28	0	0	28	1	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	2
130-140	193	74	29	1	5	1	44	1	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140-150	154	35	4	1	31	2	0	0	42	1	birdhead	0	0	0	0	2	1	0	0	0	0	0	0	0	0	12	1

PA1 Unit 2

Level (cm)		Plain EW <1 cm		Decorated EW< 1 cm		Plain EW> 1 cm		Decorated EW> 1 cm		SCULPTED EW Bird head, Foot, Nose, Platter, Sensor, Forna, Other		glazed ceramics	chert		obsidian		ground stone		glass		beads		iron		other metal	other		shell	pig	other mammal	bird	fish	human	faunal- no ID
		count	weight	count	weight	count	weight	count	weight	description	count		count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight		count	weight					
surface		0	0	0	0	0	0	0	0		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0					
0-10		235	523	1	8	0	0	0	0		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0					
10-20		115	245	1	9	0	0	0	0		0		1	1	0	0	0	0	0	0	0	0	0	0	0	0		0	0					
20-30		80	169	0	0	0	0	0	0		0		1	1	0	0	0	0	0	0	0	0	0	0	0	0		0	0					
30-40		44	87	0	0	0	0	0	0		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0					
40-50		28	113	0	0	0	0	0	0		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0					
50-60		39	122	1	1	1	8	0	0		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0					
60-70		111	272	0	0	0	0	0	0		0		2	3	0	0	0	0	0	0	0	0	0	0	0	0		0	0					
70-80		159	338	0	0	0	0	0	0		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0					
80-90		264	595	0	0	6	40	0	0		0		7	17	1	1	0	0	0	0	0	0	0	0	0	0		0	0					
90-100		328	738	5	31	1	9	0	0		0		11	18	0	0	0	0	0	0	0	0	0	0	0	0		0	0					
100-110		386	109	2	8	1	9	0	0		0		4	6	1	1	0	0	0	0	0	0	0	0	0	0		0	0					
110-120		229	366	0	0	1	36	0	0		0		3	7	1	2	0	0	0	0	0	0	0	0	0	0		0	0					
120-130		142	322	0	0	0	0	0	0		0		5	4	1	1	0	0	0	0	0	0	0	0	0	0		0	0					

BN1 Unit 3

Level (cm)		over-glaze enamel		porcelain		brick or mortar		kaolin pipes		other clay artifacts		chert		ground stone		glass		beads		iron		other metal		other		shell	pig	other mammal	bird	fish	human	faunal- no ID
		count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	weight	weight	weight	weight	weight	weight	weight
surface		0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	1	17	0	0	0	0	0	0	0	0	0	0
0-20		0	0	1	8	0	0	0	0	1	15	0	0	0	0	4	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20-30		0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-40		0	0	0	0	0	0	0	0	2	4	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40-50		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
50-60		0	0	0	0	0	0	2	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
60-70		4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0
70-80		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	0	0
80-90		1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	4	3	0	0	1	0	0	0	0	0
90-100		0	0	0	0	0	0	0	0	0	0	0	0	1	61	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
100-110		0	0	0	0	0	0	0	0	0	0	0	0	1	57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
110-120		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
120-130		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	0
130-140		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	1	0
140-150		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150-160		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	8	76	0	0	1
160-170		0	0	0	0	0	0	0	0	0	0	1	21	1	178	0	0	0	0	0	3	0	0	0	0	0	6	80	1	1	5
170-180		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	3	52	0	1	0
180-195		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	11	0	0	0	0	0	2	56	0	0	1
195-200		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	0	0	0	0	0	0	0	1	0	2
200-210		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	28	0	0	0	0	0	0	12	0	0	1
210-270		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

BN1 Unit 3

Level (cm)	Plain EW < 1 cm		Decorated EW < 1 cm		Plain EW > 1 cm		Decorated EW > 1 cm		SCULPTED EW Bird head, Foot, Nose, Platter, Sensor, Forma, Other			un-glazed stoneware		iron-wash		UG white only		UG black and white		UG blue and white		UG other colors		dark brown glaze		other color glaze	
	weight	count	weight	count	weight	count	weight	count	weight	count	description	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count
surface	18	5	0	0	0	0	0	0	0	0		43	1	0	0	0	0	0	0	5	1	0	0	0	0	0	0
0-20	83	25	0	0	0	0	0	0	0	0		0	0	0	0	2	1	0	0	1	1	0	0	0	0	0	0
20-30	54	19	3	1	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-40	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40-50	2	2	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50-60	70	27	70	1	13	1	54	1	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60-70	24	11	2	1	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70-80	95	45	0	0	18	2	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80-90	150	39	20	2	40	2	0	0	0	0		1	1	0	0	0	0	0	0	10	3	0	0	0	0	0	0
90-100	420	121	222	29	112	9	0	0	14	1	small flat bird head w/ eye	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	4
100-110	1351	313	391	65	198	10	144	4	423	14	3 feet or nose, 2 bird head, squig plate, cleat, eye, nub	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110-120	1281	213	751	74	786	21	64	2	330	8	6 platter, 1 bird head, 1 eye	0	0	0	0	0	0	0	0	0	0	0	0	13	1	0	0
120-130	878	60	673	297	471	14	183	3	323	7	6 platter, 1 nose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130-140	2612	516	554	92	377	13	198	6	327	9	5 platter, 2 feet, 1 nose, 1 bird head	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140-150	1983	384	916	96	312	9	270	7	397	10	2 platter, 2 bird head, 2 spindle, 1 nose, 1 nub	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150-160	3075	549	841	99	988	36	374	12	152	4	2 hooks, 2 platter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160-170	5536	549	1803	215	1022	43	452	22	353	9	5 platter, 2 bird head, 1 double bird head, 1 lingus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170-180	1992	365	843	87	368	8	234	6	17	3		0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0
180-195	1151	200	271	38	153	6	70	2	367	12	7 platter, 5 bird head	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
195-200	910	163	122	21	74	2	25	1	178	4	2 platter, 1 bird head, 1 nose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
200-210	1105	193	394	51	123	5	0	0	49	2	1 bird head, 1 platter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
210-270	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

BN1 Unit 2

faunal- no ID	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
human	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
fish	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
bird	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
other mammal	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
pig	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
shell	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
other	count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
other metal	count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
iron	count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	9	0	0	0	0	0
beads	count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
glass	count	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	280	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
ground stone	count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
chert	count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
other clay artifacts	count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
kaolin pipes	count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
brick or mortar	count	0	0	0	0	0	y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
porcelain	count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
over-glaze enamel	count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Level (cm)		surface	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120	120-130	130-140	140-150	150-170	170-174						

BN1 Unit 2

Level (cm)	Plain EW < 1 cm		Decorated EW < 1 cm		Plain EW > 1 cm		Decorated EW > 1 cm		SCULPTED EW Bird head, Foot, Nose, Platter, Sensor, Forma, Other			un-glazed stoneware		iron-wash		UG white only		UG black and white		UG blue and white		UG other colors		dark brown glaze		other color glaze	
	weight	count	weight	count	weight	count	weight	count	weight	count	description	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count	weight	count
surface	21	7	3	1	15	1	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0-10	3	4	3	1	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-20	1	3	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20-30	2	2	2	2	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-40	1	2	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40-50	2	2	1	1	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50-60	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60-70	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70-80	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80-90	1	1	1	1	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90-100	10	3	5	1	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100-110	5	1	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110-120	0	0	1	1	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120-130	2	2	1	1	0	0	0	0	0	0		0	0	0	0	0	0	12	9	0	0	0	0	0	0	0	0
130-140	16	11	1	1	0	0	0	0	0	0		0	0	0	0	0	0	1247	70	0	0	0	0	0	0	0	0
140-150	4	5	0	0	0	0	0	0	0	0		8	1	0	0	0	0	130	12	0	0	0	0	0	0	0	0
150-170	88	27	53	9	20	1	0	0	25	1	incized "elephant foot"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170-174	28	10	1	2	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

BN1 Unit 1

Level (cm)		over-glaze enamel	porcelain	brick or mortar	kaolin pipes	other clay artifacts	chert	ground stone	glass	beads	iron	other metal	other	shell	pig	other mammal	bird	fish	human	faunal- no ID
surface	count	1	0	y	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
	weight	1	0	y	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0
0-10	count	0	0	y	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	y	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
10-20	count	0	0	y	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	y	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20-30	count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-40	count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40-50	count	0	0	y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50-60	count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60-70	count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70-80	count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80-90	count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90-100	count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100-110	count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110-120	count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120-130	count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130-140	count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140-150	count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150-160	count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160-170	count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170-180	count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

BN1 Unit 1

Level (cm)		Plain EW <1 cm	Decorated EW< 1 cm	Plain EW> 1 cm	Decorated EW> 1 cm	SCULPTED EW Bird head, Foot, Nose, Platter, Sensor, Forna, Other	un-glazed stoneware	iron-wash	UG white only	UG black and white	UG blue and white	UG other colors	dark brown glaze	other color glaze
						description								
surface	count	13	0	4	0	0	0	0	1	0	1	0	0	0
	weight	28	0	42	0	0	0	0	1	0	1	0	0	0
0-10	count	10	0	1	0	0	0	0	1	0	0	0	0	0
	weight	11	0	3	0	0	0	0	3	0	0	0	0	0
10-20	count	3	0	0	0	0	0	0	0	0	0	0	0	0
	weight	4	0	0	0	0	0	0	0	0	0	0	0	0
20-30	count	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0
30-40	count	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0
40-50	count	11	0	0	0	0	0	0	0	0	0	0	0	0
	weight	16	0	0	0	0	0	0	0	0	0	0	0	0
50-60	count	5	0	0	0	0	0	0	0	0	0	0	0	0
	weight	15	0	0	0	0	0	0	0	0	0	0	0	0
60-70	count	3	0	1	0	0	0	0	0	0	0	0	0	0
	weight	5	0	4	0	0	0	0	0	0	0	0	0	0
70-80	count	4	0	0	0	0	0	0	0	0	1	0	0	0
	weight	5	0	0	0	0	0	0	0	0	1	0	0	0
80-90	count	1	0	0	0	0	0	0	0	0	0	0	0	0
	weight	1	0	0	0	0	0	0	0	0	0	0	0	0
90-100	count	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0
100-110	count	3	0	0	0	0	0	0	0	0	0	0	0	0
	weight	11	0	0	0	0	0	0	0	0	0	0	0	0
110-120	count	3	0	0	0	0	0	0	0	0	0	0	1	0
	weight	2	0	0	0	0	0	0	0	0	0	0	1	0
120-130	count	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0
130-140	count	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0
140-150	count	8	0	0	0	0	0	0	0	0	0	0	0	0
	weight	10	0	0	0	0	0	0	0	0	0	0	0	0
150-160	count	31	0	0	0	0	0	0	0	0	0	0	0	0
	weight	98	0	0	0	0	0	0	0	0	0	0	0	0
160-170	count	9	0	0	0	0	0	0	0	0	0	0	0	0
	weight	30	0	0	0	0	0	0	0	0	0	0	0	0
170-180	count	0	0	0	0	0	0	0	0	0	0	0	0	0
	weight	0	0	0	0	0	0	0	0	0	0	0	0	0

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