

The Matitanana Archaeological Project:  
Culture History and Social Complexity in the  
Seven Rivers Region of Southeastern Madagascar

by

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*Ela nihetezana lava volo*

He, who has not cut his hair for a long time, has long hair. (Malagasy proverb)

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## CHAPTER 1

### INTRODUCTION

“If a man will begin with certainties, he shall end in doubts; but if he will be content to begin with doubts, he shall end in certainties.” – Francis Bacon.

This dissertation is based primarily upon my archaeological research along the Matitanana River in southeastern Madagascar. There are many reasons to be interested in Madagascar, but my own interests grew from a book I read my first year in graduate school, *Madagascar: Island of the Ancestors* by John Mack (1986). Specifically, a single passage stoked my imagination, a quote from Etienne de Flacourt, the 17<sup>th</sup> century French governor of Ft. Dauphin on the far southeastern tip of Madagascar. In 1661 Flacourt wrote:

These ombiasses [ritual specialists] are very feared, not just by the people, who regard them as sorcerers, but by their leaders who employed them against the French ... They sent to the French fort baskets full of papers with writing, eggs laid on Fridays covered with written symbols and script, unbaked clay pots with inscriptions both inside and out, small coffins, dugout canoes, paddles ... all covered with inscribed signs ... All of the ombiasses here are instructed by those from the land of the Matetane [Matitanana]. (translation from Mack 1986:35-6)

At the time, surrounded by other eager graduate students, I was first learning the specifics of archaeological methods and theory, of how we could “read” the past from the material remains such as the broken bits of pottery. In class we would debate our points using the case studies we were learning, whole conversations of volleyed author/date combinations: the site where they refitted the lithics to trace the movements of the left-handed knapper, the project comparing round versus rectangular houses, the study of hat style as information exchange. In wondering how I could contribute to this discipline, I

imagined future students someday discussing that group in Madagascar where the leaders sought political power by writing on their earthenware pots. I had conveniently focused on the “clay pots with inscriptions both inside and out,” while discounting the modifier “unbaked.” The thought of excavating in the land of the “pots-you-can-read” was an appealing vision. The potential combination of textual analysis, archaeology, and social history is what originally prompted my research, though my focus has shifted some over time. And though the research for this dissertation was primarily archaeological, I’ve come to greatly respect and admire the modern people of Madagascar and their culture, and know that life is not always easy in such countries. Archaeologists hope to learn and to teach something important about the past and the present, and it is my hope that this contribution, coming from my position as an outsider, will still somehow be relevant to the people and the study of Madagascar.

The dream of excavating early texts in the form of clay pots never materialized during the fieldwork. The 17<sup>th</sup> century practice probably involved writing with ink or blood, and few archaeological traces of this practice were found (with the possible exception of two sherds from the site of Marovahiny (site 46) that appear to have part of an appliqué Arabic letter preserved). Besides the whimsical desire to excavate history, the more theoretical concerns that underlie my research involve the roles of trade, conflict, and religion in the development of social inequality and state level societies. I have maintained my interest in using archaeology in conjunction with other approaches to answer such questions of anthropological and historical concern, as should be evident in what follows. I find the results of my field work to be complex, and I’m not sure how they would fit into the pithy volley of memorable case-studies. Still, the work itself has changed the way I understand other archaeological research, and has given me a more humble appreciation of the accretional nature of archaeology. Archaeology improves not only methodologically and theoretically, but also as a sum-total body of knowledge. I undertook my work along the Matitanana River because I felt it was worth doing, worth

reporting on, and would constitute a small contribution to the discipline. I hope that future archaeologists will work in this region as well, and that this dissertation will be of some service to them and to others.

The bulk of the research behind this dissertation consisted of four seasons of archaeological survey and excavation conducted in 1994, 1995, 1997, and 1999 on Madagascar's southeastern coast. In 2005 I returned to visit some of the sites in the area with nine students from St. Charles Community College as part of a field school in anthropology and archaeology. The archaeological surface surveys during the four main field seasons were centered on the lower Matitanana and neighboring rivers, a region inhabited today by some half million Antemoro people (see Figure 1.1 below). The excavations carried out in conjunction with the surveys were designed to investigate specific sites and to help with the creation of a ceramic chronology for the region.

The initial working title for this project, "The Archaeology of the Antemoro Region," was replaced with reference to the "Seven Rivers Region" (from *Fito Vinany* for seven rivers or estuaries) for three main reasons. First, the Antemoro, by their own oral and written traditions, were not the original colonizers of this region. The geographical rather than cultural focus in the title is therefore appropriate for research that attempts to extend back through time to other ethnic groups and document the arrival of these relative latecomers to Madagascar. Second, the "Seven Rivers Region" puts the emphasis on the river valleys themselves, where most of the archaeological survey was concentrated. Some survey of the barren scrubland between valleys was undertaken, but it appears that in the past, as today, human settlement was almost completely confined to the river valleys. The 40 or so kilometers separating the habitation zones makes these river valleys insular in many ways, and provides conveniently constrained units for comparative analysis. Third, the very name "Seven Rivers Region" served as a useful cautionary tale for me on the nature of archaeological inquiry and interpretation.

"Seven Rivers" is a well-known toponym for this area, in use well beyond the Antemoro core valleys. Surprisingly however, few people can name a total of seven rivers, with most managing only four or five at best. In addition, people along different rivers will name different sets of rivers that make up the "Seven Rivers Region", such that far more than seven rivers are included when all the responses are tallied. This cultural perception of the landscape (that there must always be exactly seven rivers, though which precise rivers to include is not as important) typifies how humans (including archaeologists) make sense of the world around us. In this case, the idea that a "Seven Rivers Region" exists comes first, and the idea alters how people conceive of the "facts" of their landscape. The cautionary tale in this, naturally, is how the ideas and questions of the archaeologist affect the data we collect, and how minds are often made up before the work is ever undertaken (at least in practice as opposed to the theoretical idealizations of how archaeology should be done). In going about the detailed work of archaeology, I tried to constantly limit my "certainties", whether it be my preconceived notions of a ware typology or a vessel's orientation, to better allow something new and different to emerge from the past. One of the dangers of this approach, advocated by Bacon in the introductory quote, is the potential for the unnecessary re-invention of the wheel ... plus the fact that I probably got some things wrong. I struggled with the usual typologies of jars and bowls, oxidized and reduced, that many archaeologists have successfully used to organize the data in Madagascar, as will be discussed in Chapter 5. All I can say in my defense is that I was sincere in my approach to the creation of data, and tried to record what I saw.

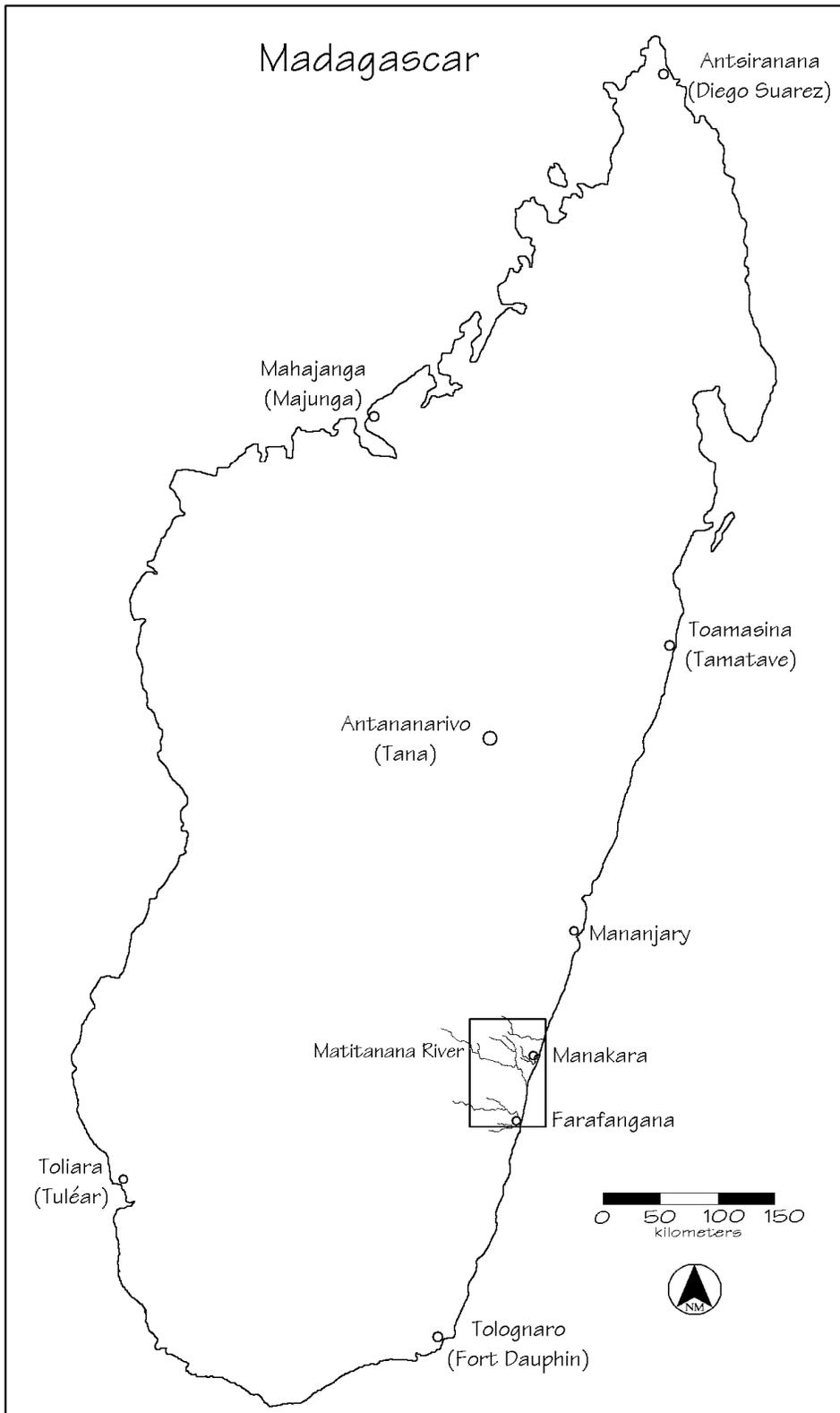


Figure 1.1. Madagascar with modern towns (colonial names in parentheses) and primary research area outlined.

Many of the theoretical debates in archaeology, such as the diminishing “processual” versus “post-processual” battles that were common when this fieldwork was undertaken, have concerned the link between research questions and data – between what we want to talk about (culture, process, past human behavior) and the sometimes-spotty archaeological record that we have at hand. These debates have also been about “interest” – about what is “interesting,” what questions are worth asking and are worthy of research? As Alison Wylie has observed (pers. communication) the dilemma for archaeology is to say things that are logically sound, but bland, or to talk about things that are interesting, but only poorly supported. Some archaeologists seem to desire a sort of “artifact physics”, a hard science resulting in statements that are imminently verifiable, but sterile in their blandness. Such an archaeology is both possible and rigorous, but probably wouldn’t interest many people, or be seen as important by the wider community. The most acrimonious debates over what archaeology should be and how it should be conducted really boil down to differing opinions on what is “important,” or in other words, what is “interesting.”

In general, “interest” and “relevance” in archaeology usually concern those things we consider to be most distinctly and uniquely human, and as such are related to a self-interest in our own development, as often seen in the power of origin myths (Conkey 1991: 104-113). These “interesting” human subjects form what Christopher Hawkes termed an “anticlimax”: “the more human [the subject], the less intelligible [for archaeology]” (Hawkes 1954:162). In other words, the archaeological record for Hawkes is prejudicial in what sorts of research it can support, such that basic investigations into ecology, economy, and technology (the “lower rungs”) often have more logically sound support from the archaeological data than investigations into more purely social and cultural matters occupying the upper rungs (presaging “Wylie's Dilemma” above). Archaeologists have generally referred to this somewhat pessimistic view of the

archaeological record as "Hawkes' Ladder of Inference," and it serves as one standard against which archaeological advancements can be measured: success is related to cleverly overcoming the problems inherent in this anticlimax. Processual archaeologists following Lewis Binford renounced this pessimism by claiming that cultures are "systems" and one could therefore aim even at the top rungs of Hawkes' Ladder [the more human but less intelligible rungs]. In practice, however, most archaeological work, including that of processual archaeologists, continued to sit on the more logically secure lower rungs. Post-Processual archaeologists, following Ian Hodder and others, aimed more exclusively at the top rungs, but with their shaky logical foundations were more open to relativist accusations of "just telling stories."

Such accusations were not new to archaeology, as every generation seems to advance the discipline by accusing their forbearers and others of being overly focused on "uninteresting" things, thereby nudging us ever higher on Hawkes' Ladder. Taylor (1948) called for archaeologists to go beyond "mere chronicle" – a charge leveled against archaeologists (such as Kidder) who had themselves been trying to make archaeology more "anthropological" and human. And far from the object fetish of pot hunting, Flannery could claim that archaeology's goal is actually to find the idea (or system) behind the Indian behind the artifact (Flannery 1967:120). Even the more recently developed "cognitive archaeology" argues that it is the upper rungs of Hawkes' Ladder, including religion and ideology, that are the more important, and therefore more worthy of research. I am not convinced however that the dilemma is so easily overcome, even if one does view cultures as systems such that the material culture can inform on all other realms. In many ways, I still see Hawkes' Ladder as an accurate description of the archaeological record, which is itself after all only the recovered sample, of the sample preserved, of the sample deposited relating to past human behavior (Clarke 1973). A realistic assessment of the nature of archaeological evidence should be kept in mind as we devise any archaeological questions based on current "interests."

To take just one example before turning to my own work: the book *Gender in African Prehistory* (Kent 1998) opens with an introduction stating:

As a result of the emphasis on environmental reconstructions over the past three or four decades, we archaeologists have come a long way in determining paleoenvironmental factors on both the macro- and microscopic levels. Had we spent as much time, money, and effort on studying gender and sociopolitical organization, we probably would have as much knowledge about prehistoric gender relations as we currently have about ancient environments. (Kent 1998: 9)

I strongly agree with Kent that questions of gender and sociopolitical organization are the interesting and important questions that we should be asking. However, the claim that we would know just as much about those topics as we do about the “lower rungs” that have been studied by researchers from a number of related disciplines simply ignores the nature of the prehistoric archaeological record. Given the material remains that survive, it seems easier in most cases to attempt to answer questions such as “what was the environment like, what did people eat, what tools did they make?” instead of questions such as “what were the gender roles and relations in this prehistoric society?” or “how was social inequality, ethnic tension, or religious conflict created and reproduced?” Of course, questions of food consumption and tool production can be gendered in politically interesting ways, though those dimensions are not archaeologically explored often enough. Even for those cases that would seem to counter this argument on the nature and potential of the archaeological record, such as a richly decorated burial with grave goods, I’m reminded of Peter Ucko’s (1969) ethnographic cautionary tale from West Africa where people passing by an open grave had to add their most valued possession to the grave to avoid their own soul being captured. In other words, the grave goods in that specific case would reflect more on the people passing by and on how long the grave was open, rather than on any social status of the individual buried therein (though the skeleton itself could still tell us things about diet, stress, and so forth). In designing my own archaeological project, I first wanted to be clear on what archaeology is good at.

This is not to say that only "easy" questions should be asked of the archaeological record or that questions about topics such as gender in the past are not worthy of research. On the contrary, given the degree to which gender topics have been neglected due to the socio-politics of the discipline, or androcentrically answered without study, such questions deserve the greater attention they have received over the last three decades (e.g. Bacus, Griffin *et al.* 1993). However, it is misleading to assume that all questions are equally accessible through material culture remains alone. Archaeology's strengths are its vast time depth and the reassuring objectivity of real world objects, but the fact remains that it is not always the best tool for researching many of the most vital social scientific questions. But it is occasionally the only tool available for asking such questions about certain contexts or time periods, and hence Wylie's Dilemma and Hawkes' Ladder. Our desire to address interesting questions can only lead to lasting contributions if the logical foundations are securely supported by the material remains. This common disjuncture between interests and the available data is relevant given my desire to explore the development of social inequalities and complexity, which, like gender, are social divisions that are not always, or predictably, reflected through material remains in systematic ways.

When I first became a student of anthropology, much of the interest in the discipline concerned writing and textual analysis (e.g., Clifford and Marcus 1986; Clifford 1988; Geertz 1988), and these topics quickly spilled over into archaeology (e.g., Hodder 1989b, 1989c). It was with this background that I later read about the Antemoro of the Matitanana in Flacourt's passage above. I was captivated – here was a group writing Malagasy in an Arabic script at the time of European contact, sending pots covered with their sacred texts to the French to frighten them with their power of the word, and this writing originated in an area (the Matitanana) that had not yet been investigated archaeologically. This interest developed into the motivating force behind my research – the desire to better understand the story, the history, of the Antemoro in

Madagascar. History, as I conceive of it, need not be in opposition to science, nor a particularist focus that would only appeal to the inhabitants of the valleys themselves, but can be conducted with an eye towards the generalizable trends and processes that speak to humans everywhere.

Many historians, linguists, and ethnographers have considered the Antemoro (as will be discussed in Chapter 3), and all seem to agree on at least two key points: the Antemoro were not the first people to settle the Matitanana region, being one of the last large groups of people to arrive on the island pre-colonially, and secondly, that they were practicing Muslims when they arrived. In fact, the French governor Flacourt, who disappeared during his voyage back from Madagascar in 1660, claimed that the Antemoro (or more specifically one of the ruling clans of the Antemoro) had arrived in Madagascar only 150 years before his time, having been sent by the Caliph of Mecca himself (Grandidier 1913:39-40). Flacourt's timing of this immigration at the very beginning of the 16<sup>th</sup> century places it just before the first European accounts of the Matitanana region. In 1514 the Portuguese captain Luis Figueira visited a large port city at the mouth of the Matitanana River that he said was peopled by "Moors" (meaning Muslims) from Malindi, an early Swahili city on what is today the Kenyan coast (Grandidier 1903:52-3)<sup>1</sup>. Where did the Antemoro, or more specifically the ruling clans of the Antemoro, come from? How is it that the last group to arrive became the ruling political and religious elite so quickly? How is it that these groups seem to have created a kingdom and an ethnicity, while losing their religion?<sup>2</sup> Scholars have addressed similar questions on the basis of language, culture, and historical documents, and it seemed likely

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<sup>1</sup> Interestingly, Malindi was also the town in which the Portuguese Vasco de Gama, 16 years earlier in 1498, had found a sea pilot capable of guiding him on across the Indian Ocean to India.

<sup>2</sup> In that few outside the region would recognize the practiced religion as Islamic, as will be discussed further in chapter three.

to me that the material remains studied by archaeologists would have something to contribute as well, depending on what my fieldwork uncovered.

The foreign origins and special knowledge of these late immigrants (such as how to write in Arabic script) would have influenced their relations with the local populations from the beginning. Such distinctions might have been used by the newcomers to secure their position as a restrictive and privileged group at the top of the social hierarchy. In thinking about these processes – how did the Antemoro kingdom emerge – I agree with those historians (such as Kent 1970) who felt that force-of-arms was not nearly as important as ideology in this case. The Antemoro polity, it was claimed, was the only early kingdom in Madagascar not to expand militarily. In fact, they didn't expand territorially at all, but rather sent their scribes and religious specialists out as courtly advisors to all the other socio-politically complex groups on the island (as suggested in the Flacourt passage above). The newcomers eventually assimilated, but what are the mechanisms of a melting pot? Why do cultures change? How is social inequality remembered and recreated in a frontier society?

In my previous archaeological research I attempted to address similar questions in a different situation, by analyzing mosque architecture on the East African coast to learn more about the spread of Islam and the creation of the Swahili city-states (Griffin 1998). In that case<sup>3</sup>, I concluded that the adoption of Islam from relatively few immigrants was instrumental in the development by elite families of the state-level societies that followed. For the proto-Swahili there were many practical, non-revelatory reasons to convert to Islam (such as protection from Arab slave raiding and easier access to a global trading network). But for the proto-ruling classes of the Swahili, Islam, as a foreign and "exotic" belief system, provided an accessible ideological tool for certain individuals to

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<sup>3</sup> A "preliminary paper" was meant to be a master's level thesis in anthropology at the University of Michigan.

create the social distinctions and distance which form the basis of the class structure that makes up a state. The idea of legitimate difference, bolstered by the conversion to a foreign faith, was more important than the imported material objects that came to signify the class structure. There is naturally a dialectic between the built environment of material objects and culture, but in this case it was the availability of this idea of "another way of life" which individuals were able to take advantage of to change their world. Some people on the East African coast adopted Islam and its foreign way of life, I believe, in the process of becoming different from others in their same community, and these distinctions became literally set in stone in the masonry mosques and great houses of the city-states that arose afterwards. If the introduction of Islam to southeastern Madagascar – the largest island off the East African coast – had impacts similar to those on the Swahili coast in terms of political evolution, how then to explain the eventual abandonment of Islam among the Antemoro?

An ethnographic example of religion and ideology being actively used in the shift from an egalitarian to a ranked society can be found in Friedman's (1979) study of highland Burma (drawing on Edmund Leach's earlier work, and as discussed in Flannery and Marcus 1993). In this example, one lineage in a village became different and privileged by co-opting for itself the village's ancestral spirit. Thus, the emergent chief gained hereditary powers as the mediator between common people and the supernatural world. A religion was changed strategically to change an ideology, thereby allowing for the legitimate accumulation of institutional power and the development of a ranked and then stratified society. Flannery and Marcus (1993) then apply this model archaeologically to the early Zapotec political developments of Oaxaca, Mexico, to explain the emergence of hereditary inequality in that society. While some may see it as a bit imprudent to attribute something as personal and mystical as religious conversions to political machinations (especially in my case of Islam among the Swahili), anthropology, like all social sciences, cannot assess the truth claims of any specific religion about the

supernatural, but can only examine the real-world ramifications of such a cultural subsystem.

It is, of course, the material objects themselves which archaeology has available for study, and this perhaps leads us to overvalue the role of material inequalities in our explanations of the development of socio-political complexity. However, as discussed above, archaeological evidence is often indeterminate when attempting to address ideology and belief systems in our social theories. Not knowing what exactly I would find in my fieldwork, I held out hope of finding things that would help me approach my questions. The spread of Islam on the East African coast is easily tracked by changes in burial practices<sup>4</sup> and mosque construction, but given the importance of the ancestors for the Malagasy, I knew that research into burials would be impossible. I could still dream of excavating trenches full of pot sherds covered in Arabic script. Perhaps I would uncover the stone foundations of early mosques, which I could then add to the dataset of mosques from 103 different towns in East Africa, the Comoros, and northwestern Madagascar that I had used for my master's thesis. At the very least I thought I would recover recognizable Swahili (or Arabian or other) sherds that would let me speak to Flacourt and Figueira's claims about the origins of the Antemoro mentioned above, or to trace out the continuities of trade in the Indian Ocean. Hoping to find the needle in the haystack is not a productive research strategy, and none of these dreams came to fruition. Instead of "digging history" I only recovered the two sherds with possible, and partial, Arabic script as discussed above (and pictured below in Figure 1.2, though the sherd on the left is not oriented correctly). Instead of mosque remains I found only a handful of postholes in my excavations. And instead of clearly diagnostic pottery I found only forms that vaguely hint at a "Swahili" style at one site (site 211), or decoration that harkens

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<sup>4</sup> My first excavation experience was at a large cemetery on the island of Pemba, Tanzania, in 1991 with Mark Horton. The orientation of the bodies at that site clearly showed an alternation between Islamic and non-Islamic burials over time.

towards Indonesia at another (site 46). On the whole, the ceramic assemblages are unlike any other with which I am familiar.



Figure 1.2. Sherds with possible appliqué letters from Marovahiny, site 46.

On the other hand, if we had never looked we would have never found the things that we did, and we did recover a great deal even if they were not the things I had originally hoped for. It seems quaint to me, now that I have conducted such field research, but I can still remember the visceral fear that there would be nothing to find in the Matitanana region. After the first hour of fruitless survey I was more worried than ever that I had wasted much time and money in attempting this project, and I can still feel the relief in my chest at finding our first pottery sherds (at what became our site 51, Sanambary). In the end we found a wide range of pottery including a few imported wares, evidence for iron smelting and smithing locations, chlorite-schist quarries, workshops, and vessels, a few faunal remains in the excavations, earthworks and ditched hill top sites, and a total of 240 sites distributed across the landscape. A fair criticism of my work is that, perhaps from my initial joy at finding things, I continued with new

fieldwork before properly analyzing and writing-up the previous work. I know now that this was a mistake. However, I still believe that the extra field seasons added greatly to the archaeology of the region, as each season revealed something unexpected.

It is my job to wring as much information as possible from what we have recovered, and the bulk of this dissertation will consist of the description and analysis of these artifacts and their patterning. I have also tried to provide the information, especially in the appendices, in such a way that others can further the analysis themselves. However, as suggested above, I do still think there is a disconnect between the questions I would like to ask concerning the rise of socio-political complexity and inequality, and the practical nature of the archaeological evidence. The best way to overcome such a disconnect between topics and data is by drawing on all the available approaches: historical, linguistic, biological, and ethnographic, in addition to the archaeological. Chapter 3 is devoted to these other approaches, but my coverage is selective and insufficient. The sort of greater synthesis I think is needed to better understand the past in the Seven Rivers region will need to wait for a future volume, as my obligations here are to fully document the archaeological evidence. A model for such a synthesis, of what might be called a “conjunctive approach,” can be found in the works of Pierre V erin (1975, 1986), the researcher who largely introduced the practice of archaeology to Madagascar. V erin claimed to have based his own methodology on that of R. Mauny working in West Africa, who freely combined historical, archaeological, geographical and ethnological approaches (V erin 1986:1). I used the phrase “conjunctive approach” for such a combination of approaches, because that is the solution offered up by Christopher Hawkes for the dilemma of his own “Ladder”, when he borrowed Taylor's phrase and argued for a "conjunction of all our other resources" (Hawkes 1954:166). The goal is to address interesting questions, but such questions are difficult to get at archaeologically, and so the solution is to go beyond archaeology. However, I believe that the best

contribution I can make to this effort at the moment is the substantive archaeological results documented in this volume.

In connection with this belief, I also recognize the utility of generating one's ideas and hypotheses from one data set and then testing them against a second unrelated set. This is the approach often taken by a more immediate model for my own research in Madagascar, the work of Henry Wright. I learned survey archaeology from Wright on Madagascar's northwest coast, and his projects in Madagascar, especially Wright *et al.* (1993) and Wright *et al.* (2007), have profoundly shaped my own research. In the first of a series of volumes on the long-running archaeological investigations of the central Merina highlands near the modern capital of Antananarivo, the authors state,

It would be unwise to attempt to mix the archaeological and historical evidence at this time. ... The use of the two kinds of evidence in concert should await the archaeological survey of the entirety of the heartland of Imerina and a full linguistically- and symbolically-informed critique of the traditions. (Wright *et al.* 2007:6)

This cautionary statement applies to an area that has seen much more intensive archaeological survey than the Seven Rivers region, and whose oral traditions have been debated by scholars for over a century (such as those collected in the *Tantara ny Andriana* of Callet 1974). Wright's point is that particular traditions are remembered for a reason, and are used for a particular purpose, and so need to be critiqued more closely than they have been to date. This also relates to the long running debates on the proper role of archaeology, should it be the handmaiden of history or not? Archaeology, as a method, can tell us unique stories about peoples' past lives. As such, to use archaeology to confirm an historical account, or to assign an historical name to a particular site, does not exploit the full potential of the approach.

In this dissertation, after laying out the substantive results of my fieldwork, I will attempt to look at the archaeology in isolation to ask some very basic questions about culture history and process in the project area. What can the archaeology tell us about

when and where the first settlers arrived? How they colonized the land and how their settlement patterns changed over time? How the different settlements interacted with each other, in terms of village fission or trade or conflict? Can the archaeology tell us anything about the development of social inequality and socio-political complexity for this region that some have said produced the first “kingdom” in Madagascar (Kent 1970). After considering the archaeology, I will briefly offer my impression on how it might relate to the other lines of evidence we have available to us, knowing full well that those are not my area of expertise and acknowledging that the archaeology of the Matitanana and neighboring rivers is only just beginning. This is not all that different from the approach of Wright *et al.* (2007), despite the passage quoted above. Wright is keenly aware of the historical, linguistic, and cultural context of his archaeological work, and takes as his central question the explanation of early state formation for the historically known Merina polity. He uses the archaeological results to address some of the classic theories of primary state formation in archaeology, as well as more specific theories on the Merina state formation by historians and ethnographers. In this regard as well I will take Wright’s work as a model.

The topic of state formation and the development of socio-political complexity has long been a mainstay of anthropological investigation, and many different researchers have looked at these questions in much more detail than will be reviewed here. The starting point for many of these theories is the evolutionary typologies of Service and Sahlins, which have received much attention and critique in the archaeological literature (as in Yoffee 1993). Rather than use (and defend) the categories of band, tribe, chiefdom, state, I will make a more basic distinction between those societies in which an egalitarian ethic prevents the development of social inequality, and those in which the pursuit of economic wealth, political power, and social prestige are taken for granted (Max Weber’s dimensions of inequality). An example of the latter is the Antemoro today, whose stratified society includes a “king” (or *mpanjaka*), along with a ruling political elite from

noble clans, a separate but still aristocratic religious elite including special scribes (or *katibo*), many commoners, descendants of former slaves freed by the French, and a pariah-like group of untouchable outcasts. How cultures like this with institutionalized social inequality arise from small-scale, simple, egalitarian societies is the key question of cultural evolution. Along with considerations of the processes that might generate inequalities, it is also worth considering the possibility that that social inequality will naturally emerge if not inhibited by effective cultural limiting mechanisms. These egalitarian-maintaining processes sometimes break down or are overcome.

Ethnographically we know that emergent elite individuals can use a number of different strategies to solidify their positions of privileged access to resources once the accumulation of power has begun.

Two case studies on the role of religion and ideology in this transformation were mentioned above (Friedman 1979; Flannery and Marcus 1993), but there are other strategies that can be employed to establish inequalities in those societies that Brian Hayden has termed “transegalitarian” (Hayden 2001:580, see also 2008). Influential in my thinking about these issues is the work of the anthropologist Mary Helms. Helms (1979, 1988, 1993, 1998) has written at length about the use of *exotica* – of foreign objects, ideas, and persona – as one way to legitimize and maintain the growing differences between the haves and have-nots in a society. It is by stressing their differences from everyone else, by claiming a “special” and even divine, as opposed to “normal,” status, that the emerging aristocrats attempt to justify and support social stratification. Archaeologists have developed and applied a number of similar theories, such as Earle’s study of Olmec and Hawaiian leaders whose greater access to resources was “sanctified by the connection of the elites to universal, divine forces external to the local world of commoners” (Earle 1990:81, see also Earle 1997 and Earle 2002). The attempts by emergent elite groups to legitimize inequality and maintain social control is also an issue in the literature surrounding my current fieldwork excavating the Bruno site

near St. Louis, Missouri (see Barker and Pauketat 1992; Pauketat 1994, 2007 for the theoretical considerations). What interests me most in these cases is how the emergent leaders often adopt foreign goods and ideas to make themselves, in a sense, foreign. By creating difference between themselves and others, they attempt to justify the entitlements to which they lay claim at the expense of everyone else.

The influences of Helms' ideas are clearly evident in my discussion of Antemoro (and Swahili) history above. In Madagascar, an historian who studied the Antemoro in the 1960's independently arrived at conclusions similar to Helms'. Raymond Kent (1970) argued that the source of power for the early ruling dynasties among the Antemoro were the connected claims of a foreign origin and a greater religious purity, and that the Antemoro state was unique in Madagascar for its heavy reliance on ideological supports rather than the force of arms. He goes on to argue that the Antemoro state was the very first (though minor) state to develop on the island of Madagascar, and that it was directly responsible for the "idea of the state" spreading to the other areas of the island. Kent, based on the historical documents, considers the Antemoro upon their arrival in Madagascar to have been priests, zealots and "king-makers with astute political training."

“... this unsettling talent found slight outlets, and it sent forth something more than ripples in the tide of political change affecting much of late sixteenth-century Madagascar. As a local state, the Antemoro kingdom never amounted to a great power in the island, unlike those of the Sakalava and Merina. Its energies, particularly before the eighteenth century, were directed inward.” (Kent 1970:99)

While other early states such as the Sakalava on the west coast and the Merina in the central highlands conquered new territory and expanded geographically, the Antemoro state is said to have collapsed into internal warfare. At the same time (according to Kent's history), its elite clans slowly dispersed throughout the island as Antemoro nobles served as advisors to kings (such as to the Merina state-founder Andrianapoinimerina), or worked as scribes in the royal courts. What can we learn about

the role religion and literacy played in the evolution of the Antemoro state itself, in the institutionalization of ideas and beliefs justifying social inequality and stratification? If the Antemoro were the source of these ideas for the other groups in this "living laboratory" of cultural evolution as Madagascar has been called, what sort of polity did they have in their homeland along the Matitanana (or even before Madagascar in East Africa, or South or South-East Asia)? And if they were the last group of immigrants to assimilate into the Malagasy world, how did they become so important so quickly? These are all issues that historians and others have considered for the Antemoro, and that I will attempt to answer here as well, with specific regard to the material remains that might possibly attest to some of these processes. Many of the questions I would like to pursue seem bigger than the archaeological data (or at least larger than I know how to get at through the archaeology). This present work will therefore concentrate on exploring the archaeological evidence we have recovered, and hopefully future work will be able to pull it all together.

This brief introduction has hopefully provided some sense of my interests and theoretical background, and can thus help explain the choices I have made in what follows. Chapter 2 will introduce the natural environment of the survey region, in the context of its relationship to human settlement. Chapter 3 will consider the cultural and historical context of the Antemoro along the Matitanana River. Given the large amount of scholarly attention that the Antemoro have received due to their ethnohistoric *sorabé* documents (local Malagasy texts produced in a derived Arabic script), this chapter will address a number of different topics in a necessarily abbreviated form. Chapter 4 on the archaeological context will then consider, briefly as well, some other archaeological projects in Madagascar that have been relevant to my own work. Chapters 5, 6, and 7 then lay out the results of my fieldwork, starting with the excavations, ceramic typologies, and a chronology, followed by the survey results and settlement patterns in Chapter 6. Chapter 7 will then discuss three projects in addition to the main work of

survey and excavation along the Matitanana and neighboring rivers, specifically investigations of pottery manufacture to the west, chlorite-schist manufacture to the north, and a neutron activation analysis of 48 samples recovered during this project. The final Chapter 8 then attempts to bring the various ideas together into a single set of conclusions. The largest, and in some ways I would argue most important, section of this dissertation is the site catalogue in the appendix A. I expect that it will turn out to be the most lasting contribution of this work, but that is not for me to decide. As stated in the Acknowledgements section, there are many people who assisted me over the years with this project, and I am grateful for their help. Any errors that remain are mine alone.

## CHAPTER 2

### PHYSICAL CONTEXT: THE NATURAL ENVIRONMENT

*May I announce to you that Madagascar is the naturalists' promised land? Nature seems to have retreated there into a private sanctuary, where she could work on different models from any she has used elsewhere. There, you meet bizarre and marvelous forms at every step ...*

Philibert Commerson, 1771, French naturalist (quoted in Jolly 1987:149)

Madagascar is indeed a naturalist's paradise: a paradise resulting from its relative isolation and the evolutionary processes that have occurred since the island drifted away from the African mainland more than 160 million years ago. It has generally been assumed that when the Gondwana landmass broke apart during the Jurassic, Madagascar occupied the similarly shaped indentation along the modern Mozambique coastline. However, more recent research indicates that Madagascar actually connected to the mainland much farther north, alongside the Somali Basin and the Kenya coast and has since drifted southward to its current relative position (Krause *et al.* 1997:9). Some of the plants and animals living on the world's fourth largest island<sup>1</sup> do descend from these very early periods before Madagascar became an island. Many, though, are thought to have arrived more recently by vegetation rafts or by swimming from the African mainland, and then to have evolved with little competition to fill the various ecological niches in "nature's laboratory." Of the 200,000 species known on the island today, some 150,000

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<sup>1</sup> At over twice the size of the British Isles, Madagascar trails only Greenland, New Guinea, and Borneo among the world's largest islands today.

are endemic, found nowhere else on earth. Many people know Madagascar to be the home of lemurs, orchids, and the spiny forest (family Didiereaceae), or they've read about recent conservation attempts and measures to protect the remaining tropical rain forests. In a region that has been designated "the greatest priority for conservation and biological inventory on earth," (La Farge-England 1997), popular as well as scholarly attention has focused largely on the natural environment of Madagascar, rather than on the culture, history and affairs of the people who live there. Even in the DreamWorks movie version of *Madagascar* (2005), we see cartoon humans in New York City but only living animals in Madagascar.

To investigate the degree to which researchers have focused on natural rather than human matters in Madagascar, I examined the topics of doctoral dissertations concerning Madagascar published by University Microfilms International (now part of ProQuest) in the 20<sup>th</sup> century. This created a manageable sample of academic work to examine, but I recognize that it is not comprehensive, as it does not adequately represent non-dissertation research, research undertaken from other home countries, or in other languages. A keyword search of the dissertation abstracts through 1999 yielded 130 dissertations concerning Madagascar from UMI (after removing those that happened to contain the keyword but did not actually concern research on the island of Madagascar). From the very first dissertation in this database (*The Distribution and Habits of Madagascar Birds*, Rand 1932), a majority (57%) has concentrated on the natural environment. Most common among these are the studies of the endemic plants and animals, especially lemurs, orchids, and tenrecs. Even the Madagascar hissing cockroach has been the subject of four different doctoral dissertations. Of those dissertations which concern the people of Madagascar, a substantial number look at relations between the people and their environment, and especially their reactions to or involvement in different conservation projects. For example, the project connected with the founding of a new national park at Ranomafana in 1991 (Wright 1992) led to four completed dissertations

looking at the human dimensions of this natural resource conservation project. Other common subjects include studies of European and American missionary activity in Madagascar and the French conquest and colonization. These dissertation topics give an impression of the most widely addressed research questions in Madagascar, and, by their absence, an indication of what areas are deserving of further attention.

Madagascar's unique environment is attractive for scientific research, and is worthy of the study it has received. My dissertation, however, partially results from the belief that Madagascar's unique people and their history are also relevant to a larger world. My goal here is not to explore a natural history but a cultural history, to consider those social processes (such as the emergence of political formations and their disintegration) that also have wider interest and relevance. But the natural history and environmental contexts are still important for any archaeological research. The present chapter therefore selectively considers those aspects of the natural world that are most relevant to understanding the human occupation of the Matitanana region and the southeastern coast, looking first at the land itself and then at the plants and animals which inhabit it.

## **2.1 The non-living environment**

### **Geology and geography**

Physically, the island of Madagascar is largely defined by its high central plateau running the length of the island parallel to the east coast. Compositionally, this plateau is

a Precambrian crystalline basement overlaid with lateritic soils<sup>2</sup>. The descent from the central highlands towards the west coast is long and gradual, passing through sedimentary regions of different periods. The descent in the other direction is abrupt, as the great Eastern Escarpment with its remnant tropical rainforests quickly drops down to a narrow littoral plain. These three zones give the island the overall shape of a *cuesta*, with a gentle slope to the west and a sharp face to the east. The eastern escarpment and littoral are compositionally similar to the central highlands, with the exceptions of two regions of late-Cretaceous basalts and rhyolites in the regions of Farafangana (included in the survey area of this project) and Vohemar (Battistini 1972:14).

This compositional information will factor into the attempt to source both pottery and chlorite-schist by means of Instrumental Neutron Activation Analysis in Chapter 7. The location of this late-Cretaceous volcanic activity is important since Vohemar has long been known to have been the center for the production of soft stone vessels<sup>3</sup> on the island, once referred to archaeologically as the Rasikajy culture (Vérin 1986:209, Gaudebout and Vernier 1941; Wright and Dewar 2000). The second region mentioned by Battistini is the coastal area around Farafangana, including the river valleys included in this study (as seen in Figure 2.1). Since this region had not previously received much

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<sup>2</sup> This clayey laterite forms a thick covering which “greatly hampers the geologist” and leads to the extremely accelerated erosion known in the highlands as *lavaka*, which constitute “a thorough nuisance in every way” (Brenon 1972:33,71). These lateritic soils are also the source for the joke that Madagascar has the shape, color, and fertility of a brick (Bourdieu 1972:227).

<sup>3</sup> I am using the term chlorite-schist for these carved, soft stone vessels, following the French and Malagasy tradition of *chloritoschiste*. In Britain and the United States related materials are often referred to as “steatite,” or more popularly as “soapstone.” All three terms refer to soft talcose rocks that can be shaped into vessels, despite any mineralogical differences. Phil Kohl (1979) has introduced the more general phrase “soft stone from chlorite sources.” However, I will follow local tradition and refer to this material generally as chlorite-schist, even though the chlorite content may not be very high for some sources in Madagascar.

archaeological attention, we originally hoped to find chlorite-schist quarries near our project area on the southeast coast. However, despite the geologic similarity of northeastern and southeastern Madagascar, we did not discover any new chlorite-schist quarries in the Seven Rivers region, though we did locate four quarries northwest of Mananjary to the north of our project area, as will be discussed in Chapter 7. The mineralogy of these two regions will be discussed further when the elemental composition of the chlorite-schist artifacts is considered. The geology of Madagascar leads one to expect the presence of chlorite-schist in these areas, since the most common processes leading to its formation are the creation of serpentine from olivine, which is “closely associated with areas of high tectonic activity such as geosynclinal mountain chains and continental margins” (Allen and Pennell 1978:231). Madagascar is both marginal to the continent of Africa and geosynclinal (Allard *et al.* 1970:9), and thus one would expect schists to be present.

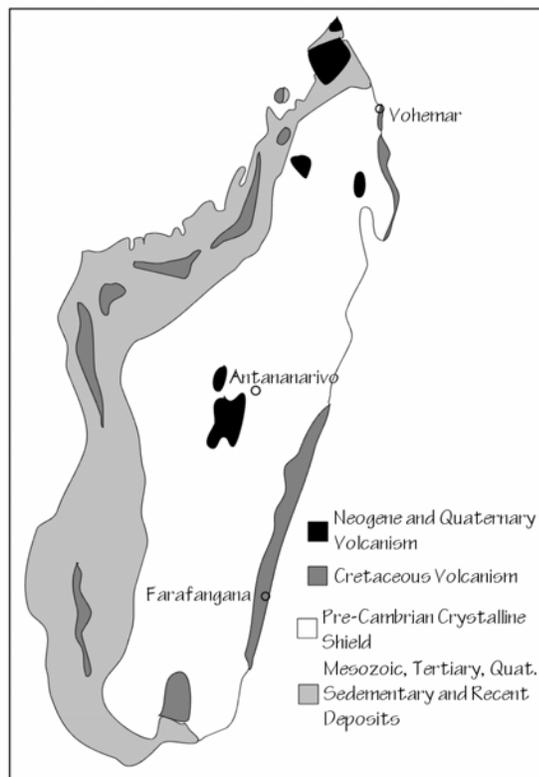


Figure 2.1 Simplified geologic chart of Madagascar, with towns mentioned in the text.

Bedrock composition also influences soil formation, with implications for the vegetation cover as will be discussed below. The “sols volcaniques latéritisés” (Bastian 1967:36), or ferrallitic soils, which cover most of the east coast of Madagascar are often fragile and vary in fertility. When these soils lose their forest cover, they quickly erode into the barren wasteland known in Malagasy as *savoka*. However, it is the hydromorphic soils of the alluvial plains that support most of the human population in the Seven Rivers region. The ethnographers Deschamps and Vianès (1959:4) reported that the population density of the Matitanana River valley is over 120 people per square kilometer, while outside the river valleys it is less than two people per square kilometer. These soils generally make the best wet rice paddies, as long as the water in the system can be controlled and the soil is free of sulfides (Roederer 1972:225). In general, most contemporary cultivation takes advantage of the alluvial soils in the river valleys, or of the sand found near river mouths and along the coastline.

Besides composition, the overall shape of the island has climatic and hydrological consequences as well. The high eastern escarpment traps much of the moisture coming in off the Indian Ocean. And the asymmetrical position of the escarpment means that the rivers draining to the east are short and steep, while those draining to the west and northwest are long and large, often producing deltas as they empty into the Mozambique Channel. Indeed, the watershed divide on the island is, on average, only 100 kilometers from the east coast (Aldegheri 1972:265) – many times closer than to the west.

The Matitanana Archaeological Project centered mainly on four river valleys on the southeast coast: the Manampatra, Matitanana, Manakara, and Mananano (see Figure 5.1). These rivers empty into the Indian Ocean along a 100-kilometer stretch of coastline, with the Matitanana having the largest drainage basin at 4,395 sq. km. (Aldegheri 1972:270). Each valley is somewhat isolated from its neighbors, with more than 30 kilometers between river mouths. In general, these rivers do not provide easy access to the sea. Though the Matitanana is an impressive river almost a kilometer wide near its

mouth, the actual outlet to the sea through the sand dunes during the dry season is only three meters across with a dangerously fast current. In fact, the people living in the Seven Rivers region have traditionally undertaken ceremonies at the mouths of these rivers each October to open them by digging out the sand, which is said to purify the rivers and bring on the rains (Thomas 1997:24, Deschamps and Vianès 1959:79). Interestingly, only the leaders of Onjatsy (our site 48) have the right to pronounce the prayers that allow men to begin this work (Deschamps and Vianès 1959:45). Before humans these river mouths would shift north and south along the coast as they broke through the sand dunes in different places. It is human action that has to some extent fixed their locations.

The straight southeastern coast of Madagascar, shaped partially by the swells and winds flowing west across the full length of the Indian Ocean, possesses no real harbors of any merit. Today people generally use two sets of boats, one for travel in the rivers and another set beached high at night for ocean use by fishermen. In general, none of the communities along the southeastern coast are oriented towards the open ocean to the degree found along Madagascar's western coast. Of all of Madagascar's coasts, this stretch is arguably the least suited to a sea-faring civilization, though that is how the Antemoro view their ancestors who first settled this region six centuries ago by their traditions.

The southeast coast of Madagascar has been straightened by the impact of the Indian Ocean, and is today defined by two parallel sets of beach ridges: an inner set of ridges which dates to the middle Pleistocene and is generally between eight and 15 meters high, and a more recent set closer to the actual shore (Battistini 1978:9). It is between these two barriers that the rivers meander north or south within sight of the ocean for many kilometers before finally breaking through the more recent dunes to the sea. Because of this, the actual river mouths can change many kilometers overnight as sand dunes shift to block the channel. Some small streams do not even reach the sea on the surface, but by "infiltration under the spits of sand" (Aldegheri 1972:266). When

river courses do change, their former channels are usually clear from the local topography and visible on aerial photographs and satellite images. An example of this process is visible at Antanimbaribe (Site 62), an early site which was once situated on the northern bank of the Manakara River mouth, but is today some 10 kilometers south of the present day outlet (see Figure 2.2). It is these long north-south river sections, along with the lagoons formed when older river sections were completely cut off, which have been joined to form the Pangalanes Canal<sup>4</sup>. The completion of this artificial river encouraged more north-south travel along the coast perpendicular to the natural river valleys. In addition to facilitating transport, the Pangalanes Canal has also encouraged human settlement in areas previously unoccupied, in large part by providing a new source for fresh water (depending on which direction the canal is flowing locally). Today, there is often little noticeable difference between sections of canal and sections of natural river meandering between the Pleistocene and Holocene dune ridges. However, the distinction is important, of course, for understanding the pre-nineteenth century settlement patterns of this region.

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<sup>4</sup> This canal was begun by the Merina king Radama I in 1823, when the Merina state expanded to control most of the central east coast (Campbell 1980:343). The French continued work on the canal during the colonial period, as did the Malagasy government after independence. Though the canal is substantial enough to carry barges north of Manajary, south of this point (including the stretch of coast covered by my research) it narrows to only a meter wide and 30 centimeters deep in places, and is used primarily by charcoal-carrying canoes.

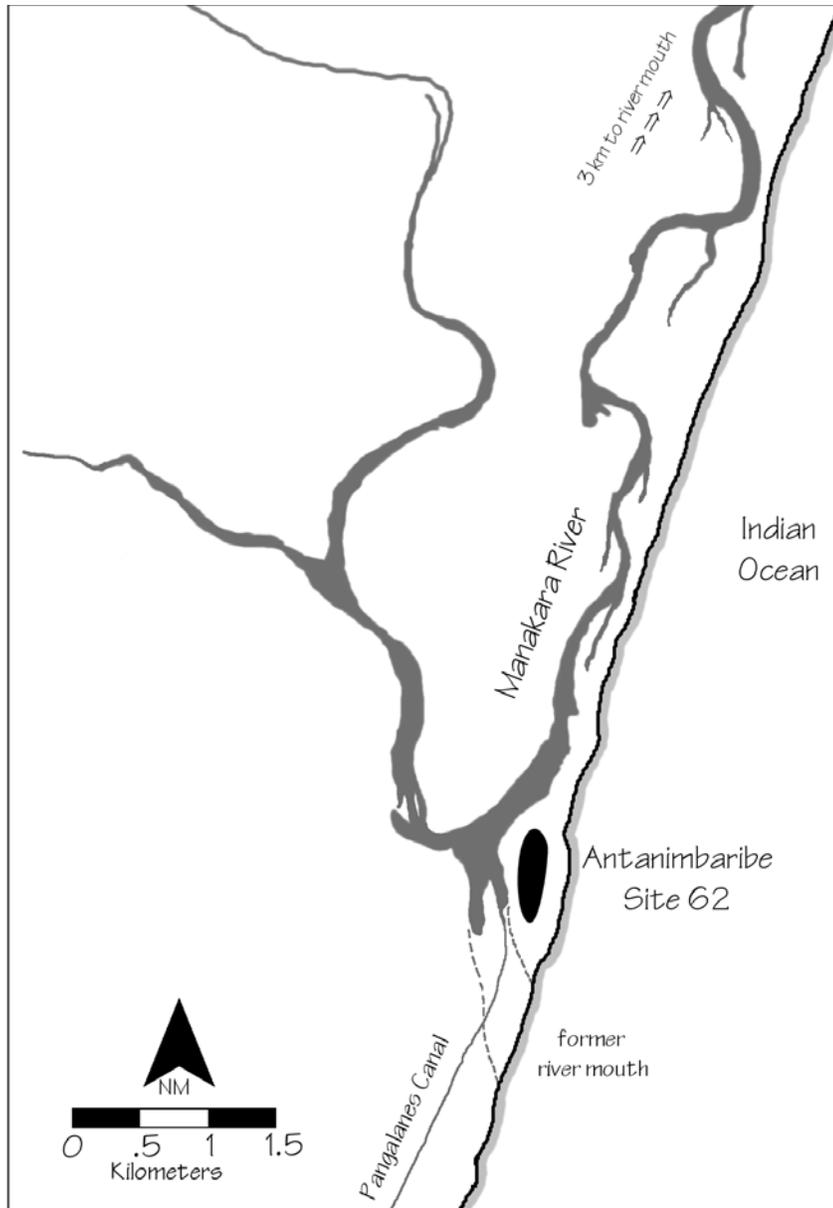


Figure 2.2. Manakara River with former channel shown.

As mentioned above, Madagascar's southeast coast is buffeted and shaped by the Trade Winds of the Indian Ocean blowing from the southeast. And it is the moisture carried in these winds which is trapped by the high Eastern Escarpment of the island, making the eastern portion of the island much wetter than the western regions. However, during the austral summer these winds are weaker and more irregular, and are countered somewhat by the monsoon winds that blow onto the island from the north and northwest. One important result of these wind patterns is that it is usually easier to sail to the

Matitanana region going counter-clockwise around the southern tip of the island than it is to arrive by rounding the cape in the Northeast. This navigational fact, presumably well known to local sailors, was also noted by the first Europeans to explore Madagascar. Tristan da Cunha attempted to sail from Mozambique to the Matitanana in 1506 by sailing around Madagascar's northern point, Cap d'Ambre; but after losing a ship in the effort he gave up and returned to Mozambique, thereby abandoning the ship of Gomes de Abreu which had already managed to reach the Matitanana River intact (Vérin 1986:98). The Matitanana was known on the African mainland by this time as an Islamic port city, and the Portuguese were eager to reach it. Some maps and sources place this town on an island in the river (see site 140), but the most likely location for this sixteenth century town is the spread of sites north of the present river mouth at Marovahiny and Ambohabe (as will be discussed in later chapters).

Other ocean currents are more favorable for travel to Madagascar: the south equatorial currents flowing westwards from Indonesia and Australia lead directly to Madagascar's east coast. Pumice stones from the eruption of Krakatoa in 1883 were observed washing ashore on Madagascar by Sibree (1896), and these currents have often been cited in regards to the arrival of the first Indonesians to the island. Likewise, winds and currents make travel from southern Mozambique to southwestern Madagascar (and from there around the southern point of Cap Ste. Marie and up to the Matitanana region) fairly easy. In fact, early Arab sailors preferred to cross the Mozambique channel from southern sites such as Sofala, and sail northwards along Madagascar's west coast, continuing on to the Comoros, and then back to the African mainland or on to the Persian Gulf regions (Horton 1984:59; Gueunier *et al.* 1992; Hourani 1995). The quality of these navigation routes has implications for the arrival of both Europeans and the proto-Malagasy to the Matitanana area, as well as for the regional trade and distribution of chlorite-schist and other luxury items on the island itself.

Two final notes on the winds and rains of Madagascar have relevance for the present study. First, Madagascar's entire east coast has stereotypically been considered a rain-forested region of high precipitation, but this is not entirely accurate. The weather is still hot and humid (with an annual average temperature of 23° C), but Farafangana (included in the survey area) receives 31% less rainfall over 36 fewer days each year than the weather station at Tamatave (Toamasina) to the north. With less rain, the project area has less of the tropical rain forest cover common further north along the east coast (see Figure 2.3), and hence ground visibility was sufficient in many areas for archaeological surface surveys without resorting to shovel test pits. However, the annual precipitation is still at such a level (2433 mm per year over 205 days in Farafangana is well over twice the average of most parts of the American Midwest) that it contributes (along with temperature and the parent material of the soil) to the formation of highly acidic soils, which can help explain the paucity of faunal remains found in our excavations. This rain primarily falls during the austral summer months of January through April, with February being the wettest and July the driest. Even the driest months in this region still see a substantial number of days with rain (Nicoll and Langrand 1989:105).

The second issue is the recurrence of tropical hurricanes, with more than one significant landfall occurring on average each summer for the past century (though again, this problem lessens as one moves south along the east coast; Donque 1974:28). Given the significant size of many of these storms and the extensive flooding they produce, one could expect their presence to be systematically reflected in the local landscape. One possible example is the unique earthen platform mound found just outside the village of Foroforo on the south bank of the Matitanana River (site 106). This circular flat-topped mound (as shown in the site map in Figure A159) is roughly two meters high and forty meters in diameter, and is said to be a retreat used by three contemporary villages in times of flooding. Village elders recalled using this mound three times so far in their own lifetimes, starting in 1945 and including during the major hurricane Dany in 1969. Given

this use, it is a local taboo (*fady*) to dig into or remove any dirt from the mound. Archaeological excavation was thus not possible, and so it is difficult to say if the mound was originally constructed for its current function as a retreat from hurricane flooding. However, surface collections did recover large amounts of iron slag from the surface of the mound, and a few sherds dating from the 17<sup>th</sup> century, and the village elders agreed that the mound had been inhabited before the present-day villages had been settled nearby.

A second implication of the hurricane winds and flooding for the archaeology of this region is the possible post-depositional factors. For example, one of the most intensively investigated sites of this project was Marovahiny (site 46), believed to have been the port city visited and described by Portuguese sailors in the early 16<sup>th</sup> century. This site was found in 1994 with a dense sherd scatter eroding from the west slope of the outer dunes just north of the Matitanana River mouth. However, returning to this site in 1997, only a few months after Hurricane Gretelle hit the region, we found very little surface evidence (though excavations revealed substantial subsurface remains). Thus, like much archaeological research, the discoveries made were in part due to happenstance, and natural formation processes must be taken into consideration (along with cultural processes) when looking at the overall settlement pattern. The taphonomy of surface artifact scatters will be considered in Chapter 6.

## **2.2 The living environment**

### **Flora and fauna**

Traditionally, Madagascar has been viewed as a classic case of environmental destruction: the island was a tropical rainforest paradise until humans arrived and devastated it. This story is supported by contemporary processes, in which much of the

remaining forests are being cut and turned into *savoka*, the secondary forest formations of ravenal (a fan palm), raffia palms and bamboo, or into *bozaka*, unusable grassy wastelands. This process has much to do with increasing population densities, the production of charcoal, the supposed improvement of pasturage, and the need for farmland. It has recently been predicted that all of Madagascar's remaining forests will disappear within the next 25 years unless agricultural practices change (Morell 1999:64). However, recent research has questioned whether these contemporary problems can be projected wholesale into the past. David Burney's paleoecological work on pollen cores from the central, northern, and western regions of the island have shown that there has long been a mosaic vegetation cover, with patches of savanna breaking up the more uniform forests (Burney 1997:78). And what applies to the island as a whole also seems to apply to the local region in this case. A reconstruction of the forest cover before the arrival of humans on the island, conducted by Sussman and Green (Jolly 1987:164, Green and Sussman 1990), has suggested a noticeable gap in the coastal forest between Farafangana and Mananjary, with only the Matitanana valley itself bringing the escarpment forest down all the way to the coast before the arrival of humans (see Figure 2.3). Thus, the first colonizers of this coast most likely did clear some forest, but also may have found large expanses of open areas.

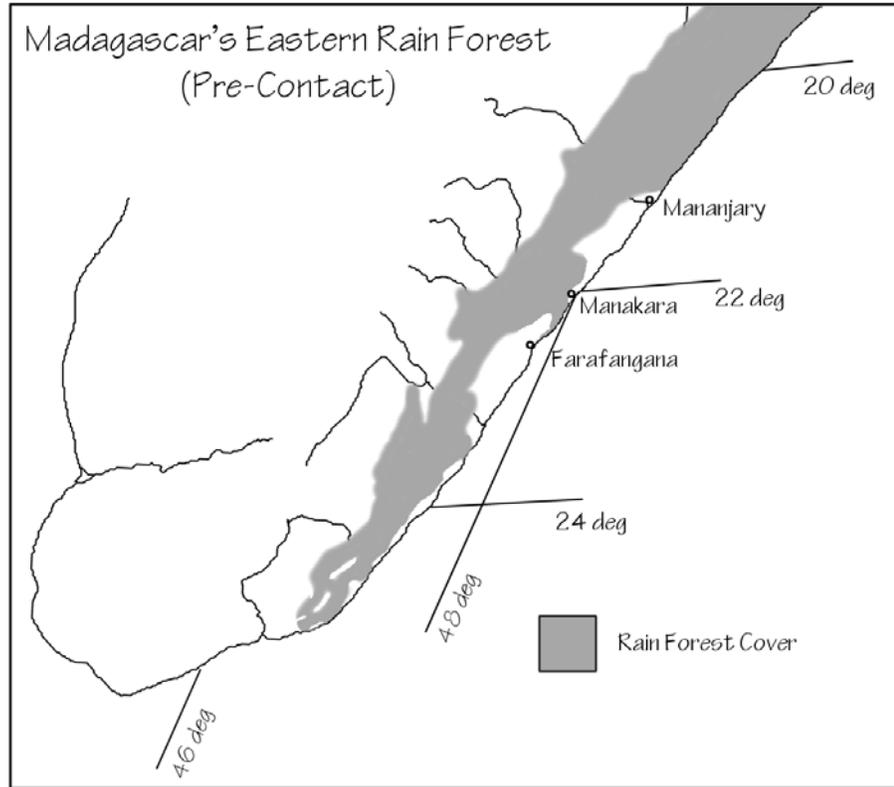


Figure 2.3. Rain Forest cover of Southeastern Madagascar before human settlement (after Jolly 1987:164 and Green and Sussman 1990:213).

More disruptive, in all likelihood, were the exotic plants and animals that were introduced by the newcomers: including cattle, pigs, cats, mice, rats and other animals; various grasses, taro, yams and other crops; and more recently eucalyptus and pines. Recently-introduced fish such as trout, tilapia, and the East Asian snake-head fish have nearly wiped out the native fresh water fish. The ecological impact of cattle on vegetation (both through grazing and the common brush fires started by their keepers to encourage fresh sprouts) has been linked to Madagascar's megafauna extinctions (Burney 1993, 1997; Dewar 1984), including, most famously, the loss of the giant *Aepyornis* birds, the *Roc* of Arabian tales. Research to link these extinctions more directly to human impact in the form of an "overkill hypothesis" (Martin 1967) has failed to uncover good evidence of human predation on the megafauna (Parker Pearson 1998; though see MacPhee and

Burney 1991).<sup>5</sup> While not exactly "destroying paradise," the human settlement over the past thousand years has substantially altered the flora and fauna of Madagascar, and archaeologists and paleontologists are still working to document the extent of these changes.

The natural history of Madagascar as a whole received an important and sizeable addition with the publication of an edited volume by Goodman and Benstead (2003). However, there is still relatively little known of the ecological history of the Seven Rivers region or of the significant changes that must have taken place over the past thousand years. A hint at what the landscape may have been like for the first settlers can be gained from a 5,000 hectare forest preserve just 20 kilometers south of Farafangana at Monombo. This small coastal forest has a wide variety of trees with a canopy up to 30 meters high and an understory of various palms. The preserve also includes three species of lemurs, tenrecs, a carnivore (*Cryptoprocta ferox*), an introduced forest pig (*Potamochoerus larvatus*), various reptiles and amphibians, and 56 species of birds (see Nicoll and Langrand 1989:105-8 for a detailed inventory of species). This modern forest has changed over the centuries as well, as future research will hopefully document, but its current nature still gives us our best glance at what an original landscape might have been like for this region.

Offshore, Madagascar's southeastern coast has few coral reefs and few mangrove swamps. Both of these were common resource zones for the Swahili on the African mainland, and if the first Antemoro were actually from Malindi as the early European

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<sup>5</sup> Having assisted David Burney one season at Belo-sur-Mer on the west coast, I had the appropriate search image for subfossil bones and *Aepyornis* egg shells fragments, but neither of these turned up in our excavation and survey work on the southeast coast. There are early reports of an *Aepyornis* egg being recovered at Mananjary (Sibree 1870:545), coming from an iron mine 45 feet below ground surface; but our survey work at Mananjary and (much shallower) excavations further south did not duplicate these findings.

visitors claimed, they must have adjusted their subsistence and economic strategies to their new environment. Fishing and shell fishing are more common today in the rivers and estuaries than in the open ocean, though the commercialization of the ocean products has led to a number of specialized villages catering to that trade (such as Mangatsioka, site 196, a village of lobster fishers a day's paddle south of Manakara). In general, the oceans and rivers of this coast provide some supplemental subsistence, but are not nearly as productive as the western coasts of Madagascar. This limited productivity, and the difficulties of ocean travel, are reflected in the more land- and river-ward orientations of these cultures in comparison to west coast groups such as the Vezo (Astuti 1995; Wright, Griffin and Ramilisonina 2001).

The most important food crop today is rice, which is generally grown in lowland wet rice paddies, though some dry rice is also grown on hill slopes farther up the Matitanana River in the Tanala regions. The Antemoro region is considered one of the five most productive regions for rice agriculture in contemporary Madagascar (Dandouau 1958:90). Interestingly, the other four most productive regions (such as the central valleys of Imerina and Betsileo) also became centers of early state formation. In the mid 20<sup>th</sup> century, Deschamps and Vianès reported that the average family in the Manakara district produced an annual 475 kilograms of rice, while the average family in the Vohipeno district produced 670 kilograms. Since neither of these is sufficient for a family of six, rice was being imported to the area with the proceeds of coffee sales, of which the average family produced 100-150 kilograms a year (Deschamps and Vianès 1959:73). These ethnographers also note that there were no goats, sheep, pigs or dogs (except for a few among the outcaste group used for hunting wild boar), and only a few cows. Domesticated birds were tended by women, and men did the fishing (Deschamps and Vianès 1959:30).

One simple way to convey modern land use in this region is to list the archaeological sites found in garden areas by cultigen (see Table 2.1). In the absence of a

specific land use survey, this use of my archaeological survey seems reasonable, with three important caveats. First, archaeological remains were not commonly found in rice paddies during our surveys, even though such paddies constitute the majority of the farm land for these river valleys. This could be due to the inopportune season of research (with many paddies being flooded and therefore lacking in surface visibility), or to the extensive treatments of such fields (with repeated churning of the mud by cattle), or even due to a long standing distinction between habitation area, disposal areas and rice cultivation zones.

Table 2.1. Archaeological sites grouped by modern day cultivation.

<b>sweet potato</b>	44
<b>cassava</b>	34
<b>coffee</b>	10
<b>taro</b>	9
<b>sugar cane</b>	7
<b>banana</b>	4
<b>pineapple</b>	4
<b>coconut</b>	3
<b>rice nursery</b>	3
<b>melon</b>	2
<b>peanut</b>	2
<b>periwinkle</b>	2
<b>bean</b>	1
<b>tomato</b>	1
<b>tobacco</b>	1
<b>maize</b>	1
<b>dry rice</b>	1

The other two potential problems with this approach are similarly taphonomic, and apply to the invisibility of rice as well. First, the type of land suitable for the cultivation of each of these crops listed in Table 2.1 varies widely in potential for archaeological survey. Cassava, for example, is most often planted on steep open hill slopes with good ground visibility, where eroding artifacts are easily spotted. Taro, on the other hand, is usually planted in low-lying alluvial lands near villages, where artifacts, if present, might remain deeply buried. Thus, taro cultivation is most likely underrepresented in the table above in comparison to cassava. The nine archaeological sites that were discovered in taro gardens were often more recent nineteenth century deposits from the nearby villages, with earlier artifacts, if present, not visible on the surface. The nutritional needs of different crops influence the garden locations, and certain crops may prefer the high phosphate and high nitrate soils common on former habitation sites.

The second factor of taphonomic importance is the various cultivation methods used for each of these crops. In particular, sweet potatoes are grown in this region by first cutting a drainage ditch up to a meter deep around the garden, and then digging within the garden to create alternating rows of mounds and gullies. The meter high mounds are then leveled after planting, with the effect that deeply buried artifacts are more often cycled to the surface in sweet potato gardens than in other types of gardens. Thus, sites are more likely to be found on land growing sweet potatoes than would be expected given their ground coverage alone.

In general, despite the problem of these conflating factors and in the absence of a formal land use survey, I do believe the order of crops listed in Table 2.1 does give a reasonably accurate representation of the contemporary farming practices of the Antemoro. In terms of acreage, it did seem that there was far more cassava and sweet potato than anything else (excepting wet rice as discussed above). In surveying throughout these valleys, we walked through many cassava and sweet potato gardens,

recording 78 archaeological sites. Conversely we walked through very few tomato or maize gardens, and correspondingly only recorded two archaeological sites at those locations. Since we already had these data, this simple tabulation can serve to give a general sense of the relative abundance of different crops in use today, even though its accuracy is lessened by the site formation processes.

While discussing the taphonomic effects of modern farming practices, I would like to mention an interesting correlation we observed that I don't yet know how to explain. In addition to recording the nature of the land a site was discovered on, we also recorded our collection policy as: 1) thorough complete collection, 2) quick complete collection, or 3) selective sample. In the first case we would look intensely and collect everything we found, implying that the site was a relatively small and sparse surface scatter with few artifacts. In the second case we would begin with a complete collection (which means that we have a representative sample of the percentage of sherds with decoration, relative proportions of wares, etc), but then as we continued to locate more artifacts than we had originally expected we would call a halt to the collecting for that site. In the third case of "selective sample" we could see at first glance that the surface scatter was larger and denser than we could possibly collect, and so from the beginning only selectively took diagnostic rim sherds, decorated sherds, and a sampling of different wares and pastes. The interesting point is found in a cross tabulation of collection method with garden type. Given that selective sample means a site has many artifacts, we found that 28% of the sites found in cassava gardens were sampled, while only 17% in sweet potato fields had enough artifacts to be selectively sampled. So, while we found more sites in sweet potato fields, the sites in cassava gardens actually had more sherds on average. These numbers compare with 30% of the archaeological sites found in modern day villages were sampled (n=50), and 55% of the sites found eroding from bare patches of sand had to be selectively sampled (n=11). As with the discussion above, there are many conflated issues involved here, but it does seem to indicate that the different

cultivation techniques have different propensities for bringing artifacts to the surface, or conversely, that denser sites have more hospitable soils in terms of phosphates or nitrates for certain crops.

There is some evidence that the disruptive method of sweet potato cultivation described was also used in previous centuries in this region. One of the Ambohabe sites (our site 5) was recorded north of the Matitanana River mouth during our first field season in 1994 (see Figure 2.4). At that time, we considered the small meter-high mounds and terraces that make up this site to perhaps be the remains of house platforms or a collapsed mosque. Iron slag was collected as well as pottery ranging from the 14<sup>th</sup> to the 18<sup>th</sup> centuries (based on the ceramic chronology developed in Chapter 5). We returned to this site in 1997 to undertake a two by one meter sondage into the tallest mound on the site (which also happened to have the closest *qibla* alignment for a possible mosque... the day dreams discussed in Chapter 1 died slowly). By the end of the day, the general consensus was that these mounds were the result of gardening activities for a crop such as sweet potatoes that required the movement of a great deal of earth. The two parallel mounds on the eastern edge of the site still interested us however, and would have received their own test excavations if we had been able to spare another day at this location. Knowledge of current farming practices in the region clearly influenced our interpretation of this archaeological site. If the small earthworks on this site are actually the remains of an old sweet potato garden, then it was one that was prepared but then abandoned before cultivation for some reason.

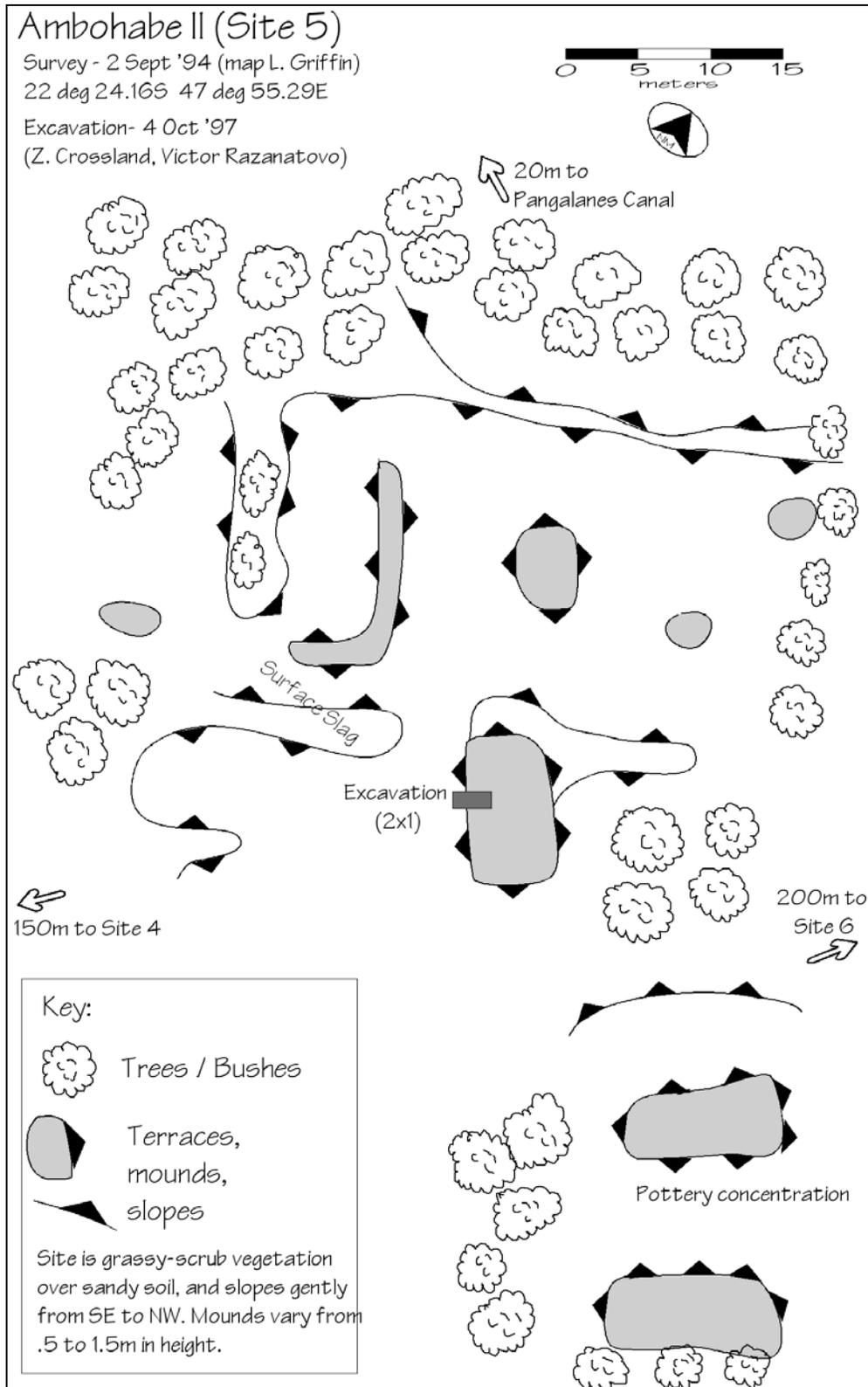


Figure 2.4. Site map of Ambohabe 2, site 5.

This chapter's short and simplified overview of the living and natural environment of the Seven Rivers region is only meant to provide a context for the archaeological and cultural historical work that follows. It is largely based on what we observed walking through the valleys during the archaeological survey. This short introduction, if anything, points to the need for more ecological and paleo-environmental work in this region of the southeast, both to create local sequences and to complement the work being carried out in other regions of Madagascar. This is ironic in that this chapter began by discussing how these are the most studied aspects of Madagascar, but even in these well-studied fields it is humbling how much remains to be done. It is important to keep in mind that these natural systems, like all systems, change through time, are influential but not determinate of human behavior, and in many cases are human constructions themselves (as described for the current positioning of the river mouths, the vast areas of *savoka* and *bozaka*, and the extensive rice paddies that were once marshes).

**CHAPTER 3**  
**CULTURAL CONTEXT: HISTORICAL, LINGUISTIC, AND ETHNOGRAPHIC**  
**WORK IN THE REGION**

*"Why question the old men! They can tell you nothing of a past which is of no interest to them ... It is not the same for me and my kin, for we like to find in the traditions passed on from generation to generation the bases for our authority."*

- Impoinimerina, king of the Bara Imamono, to Captain Du Bois de la Villeral (1900) (in Kent 1970:116)

### **3.1 The Antemoro**

The Antemoro and their past are the central concerns of this research, but I have yet to consider the important question of who the Antemoro are. On one hand, they are one of eighteen officially designated ethnic groups or "tribes" of Madagascar, so named by the French colonial regime (see Figure 3.1). On the other, they are a half million people all claiming to be dependent, in some sense, on a single "king" (or *mpanjaka*) living in the village of Ivato on the banks of the Matitanana River (site 40). The leadership of this king is, in most cases, only nominal today however, given the imposition of the modern nation-state and the many social divisions within the larger category of "Antemoro," as will be discussed below. Our archaeological surveys extended beyond the limited Antemoro area shown on Figure 3.1. In fact, over the different seasons we worked among seven of these eighteen official ethnic groups: the Antemoro, Antambahoaka, Antefasy, Antaisaka, Tanala, Betsileo, and Betsimisaraka. It is interesting that if cultures evolved as biological organisms or languages were once thought to evolve, this region would be considered the place of origin for humans on

Madagascar, being the most diversified today. However, the processes of cultural evolution differ in many important aspects from biological and linguistic evolution, and the earliest settlement of Madagascar is something we know very little about at present, and need not be related to the area of greatest cultural diversity today. The present ethnic diversity in this region is the basis for one of the main questions of this work: why did these small groups maintain their separate identities rather than coalesce into a larger socio-political unit like the other early states elsewhere in Madagascar?

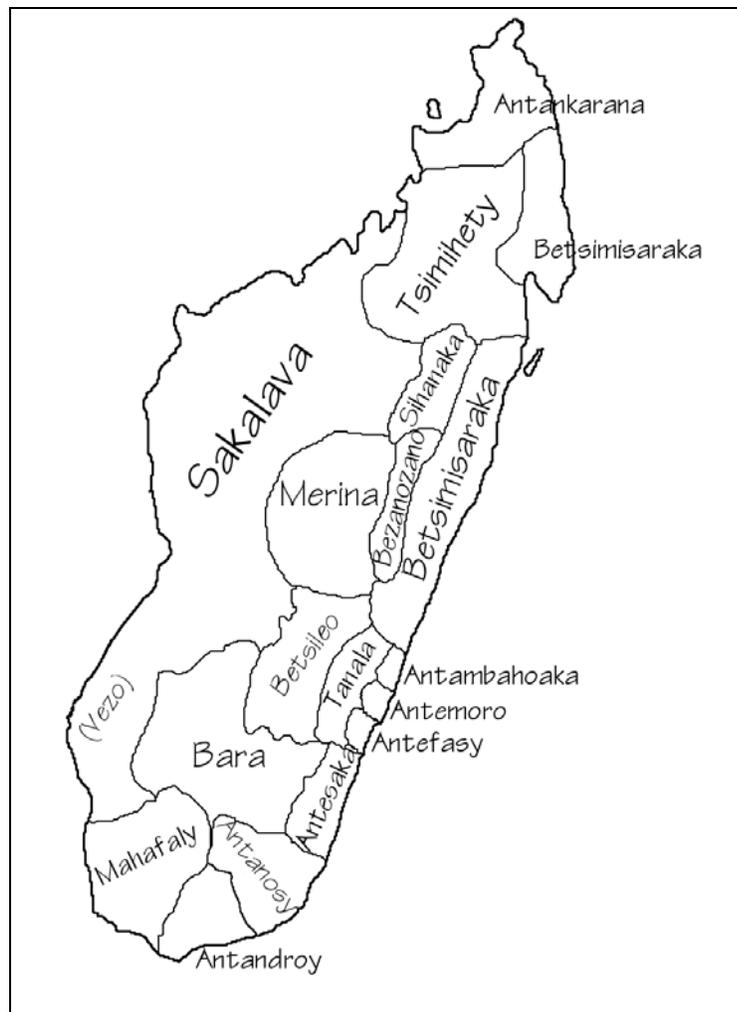


Figure 3.1. The eighteen commonly recognized ethnic groups of Madagascar (after Bradt 2005:27). These boundaries are only approximate compromises.

Ethnic groupings such as "Antemoro" have been dismissed by some as recent colonial creations of the sort found in many parts of Africa (Ramilisonina, pers. communication, and see Southall 1970; Iliffe 1979:318; and Willis 1993 for examples of how East African mainland groups are said to have been created by Colonial policies). I agree that Colonial administrators (and perhaps most anthropologists at the time), felt that individual "tribes" were a natural state for Africans, that the boundaries between these groups of people were obvious, clear-cut, and impermeable, and that the organization of the subjugated people into these groupings would facilitate both their control and administration. Colonial classifications of people (which have a legacy into the present day as seen in Figure 3.1 taken from a popular guidebook) undoubtedly created boundaries and identities for many people. Colonial classifications such as these build upon a traditional view of ethnic groups (or tribes, or, at the broadest level, cultures) asserting that the differences between groups arise from their isolation, in a manner analogous to biological evolution. In other words, a view that less contact leads to more pronounced differences between neighboring peoples.

This view was seriously challenged in the late 1960s by Fredrik Barth (1969:11) who argued that ethnic groupings result from social interaction and not isolation, that ethnicity is a political process people use to create groups and differentiate themselves from others. In this view, ethnic identities are relative, shifting, creative and political. People make ethnicities to do *something*, and there is no reason to presume that their usefulness arose only with colonialism. As Atkinson has stated,

The dynamics of the colonial era and its aftermath cannot fully explain the phenomenon of ethnicity in Africa. However powerful the colonial experience was, it did not occur in an historical vacuum, and it neither erased nor totally overwhelmed all that had gone before. (Atkinson 1994:17)

Similarly, I argue that while the Antemoro "tribe" was solidified and demarcated for colonial expediency, there is a pre-colonial history to this sense of different-ness from

their neighbors, a uniqueness that I believe may go back to their Islamized immigrant ancestors. Eventually the Antemoro state lost its autonomy to the expanding Merina state in the nineteenth century, which was succeeded by the French colonial regime, and then by the modern nation-state of Madagascar. In the process a political identity became an ethnic identity. The distinctions that had created this ethnicity were useful not only to outside rulers, but also to the insiders who helped devise and maintain them.

However, the notion that group boundaries are not generally clear-cut and obvious is an important one to keep in mind. The very heartland of the Antemoro territory, the lower Matitanana River valley, is also home to two distinct communities that do not consider themselves to be Antemoro: the Onjatsy, living in their village of Onjatsy (site 48), and the outcaste group of Antemanaza (or Antevolo), living in a number of scattered villages, including Enohona (site 38). The Onjatsy are part of a larger "river mouth culture" found along the east coast of Madagascar (the "Anjoaty" as they are known near Vohemar in the Northeast are well described by Hurvitz 1980). Onjatsy groups all claim a common kin relationship with each other, and in most locations they are in charge of both the river mouths and the important cemeteries located there (in a sense they are the controllers of movement between land and water and between life and death - the sea being seen in this case as the source of the ancestors, from whence the first immigrants arrived, Hurvitz 1980:18). Each of our field seasons, in fact, began with a trip to Ivato to ask permission of the Antemoro king to work in Antemoro territory (and to bring the elders there up to date with our progress), and then a trip the next day to Onjatsy (the owners of the water) to ask their permission to travel along the river, which was the only practical way to reach most of our survey sites.

The Onjatsy have a long history of separate identity in this region. Flacourt (1661/1995) considered the "Ondzatsi" of the Anosy region to the south to be the sailors, fishers, and guardians of the royal tombs, as well as one of the three groups of "whites" to inhabit the area. In the Matitanana region, Shaw (1893) considered the Onjatsy to be a

tribe of nobles demoted to commoners (a downgrading process which I believe created the other group on non-Antemoro - the Antemanaza - in the Matitanana region as well). Julien (1929) records their name as "Uzatsé" from a *Sorabé* document, and claims it comes from the word *zatra* meaning "acclimatized." Deschamps and Vianès (1959) confirm the Onjatsy as a group separate from the Antemoro, and as the owners of the Matitanana River mouth. In effect, this "ethnicity" is something of a functional specialization: a small group of people living in a single village over the centuries, acting as border wardens between life and death, land and water. That there is only one "Onjatsy" village for each valley in the Seven Rivers region is important, since Malagasy place names are generally descriptive, and hence very repetitive (there are literally hundreds of villages named "Anosy" or "Island" in our survey area). However, the village of Onjatsy, named for the group that inhabits it, is a single unique location for each river valley at any particular time; there can be only one per valley. The location of this village of the Onjatsy in the Matitanana River Valley has shifted over time though. The present village (site 48) is said by them to have been preceded by one at Antaritsinanana (site 31), now abandoned. Before that, their first village is said to have been north of the river at Ambohabe (sites 3 to 16 and 46), which is also claimed by the Antemoro as the location for their first villages. This conflict is related to current disputes over who should control that farmland today (there are only two houses presently on this stretch of coast). The Onjatsy have created a concrete obelisk with *Sorabé* text that they would like to erect at Ambohabe to mark their former home, but have so far been prevented from doing so by the Antemoro rulers in Ivato (see Figure 3.2). An appeal to historical migrations as well as the esoteric and sacred power of the *Sorabé* are combined in this modern-day land grab. In this environment of intense sacred and political interest in the past, archaeology is both a welcomed and a problematic endeavor.



Figure 3.2. Concrete monument with *Sorabé* in Onjatsy. The Latin text says that “Ratandramasy,” an “Onjatsy woman” is the “mother of Ramarohala,” commemorating their important common ancestor.

The Onjatsy today claim to have arrived in the region long before the other groups, and to have served as metal smiths and silver workers to the Antemoro kings in the previous century<sup>1</sup>. This kind of small-scale, localized "ethnicity" is often very difficult to uncover archaeologically, and the archaeological record for Onjatsy (based on surveys and three sondages) would not support the cultural differences between villages known from these other sources. Possible explanations for the archaeological invisibility of this different "culture" can be found in Julien's linking the word "Onjatsy" to

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<sup>1</sup> The first two Europeans to arrive at the Matitanana River both note the local presence of silver for trade. Ruy Pereira says the locals brought silver and beeswax to his ship to trade (though communication was limited to sign language) (Grandidier 1903:18), and another early Portuguese writer claims that cloves, ginger, and many types of silver ornaments could be found at the Matitanana (Grandidier 1903:24). It is possible that this silver constituted pre-Portuguese long-distance trade objects, as Madagascar is not known to have silver deposits in the present day.

"acclimatized," and Shaw claiming they are a fallen noble lineage (cited above). The Onjatsy play a functional and symbolic role in this society as guardians of liminal spaces and liminal things, a role meant for outsiders. Thus, the different river valleys along the east coast must each functionally have their own group of Onjatsy, and have, perhaps, created them autochthonously when needed. This ethnicity does *something*, and also reminds us of the common misalignments between archaeological cultures and living cultures. It is also one alternative to the emic, or local, view of repeated and multiple migrations over the centuries leading to isolated villages of a few hundred people who are able to maintain their cultural distinctiveness from their neighbors and (purported) similarities with other Onjatsy villages despite their lack of direct contact. The etymologies of "Onjatsy" given above both indicate some commonalities (either original, or developing over time) with the surrounding Antemoro groups, and their archaeological invisibility seems to back this up. The second non-Antemoro group in the lower Matitanana River valley, the Antemanaza or Antevolo, is more likely a case of conquest and subjugation rather than divergence or assimilation. And the material culture of this group is, not surprisingly, more archaeologically distinct.

The Antemanaza / Antevolo are unique to this region (Beaujard and Tsaboto 1997; Rolland 1998), stand outside the regular social system, and are treated as pariahs by the surrounding Antemoro. Beaujard considers the caste-like separation of this group of untouchables to be a possible cultural remnant and indication of a South Asian origin for the Antemoro in general (Beaujard, pers. communication). Today, there is almost no physical or social contact between the Antemoro and the outcaste villages<sup>2</sup>, whom the Antemoro claim to be descended from a man who had sex with a dog, and hence to be extremely impure (especially from an Islamic perspective). The Antemanaza (as they

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<sup>2</sup> In fact, one of our team members who has lived in the capital city of Antananarivo for the past thirty years, but is an Antemoro raised in Manakara, declined to enter or work near any of the outcast villages for our survey.

refer to themselves, Antevolo is the name used more often by others) from their own perspective (that of the elders of the village of Enohona - site 38) claim to have been the original owners of all the rice paddies in the valley, which were then taken by force from them by the Antemoro nobility when they arrived. This story is one of conquering newcomers, confiscating territory. However, if the local society when the Antemoro arrived was already stratified to some degree, it could also be a story of the bulk of the population assimilating to the newcomers' culture (or being forced into servitude or slavery) with only the former owners, the previous elite rulers, becoming the displaced and dirty (as in "matter out of place") outcastes – a social position even worse than slaves in the eyes of the Antemoro. It is interesting that Enohona, Onjatsy, and the Antemoro royal village of Ivato all have similar pottery assemblages including a rare form of footed-base bowl, also found on the ditched hilltop forts in the region (as will be discussed in Chapter 5).

In terms of the village specialization in the valley, the Antemanaza are said to have been the only producers of pottery in previous centuries (before the adoption of metal cookware early this century). Elders in both Ivato, the Antemoro capital, and Enohona, the main outcaste village, agreed in our interviews that the last Antemanaza potter died in 1925. It seems interesting that the Antemoro could not speak to, touch, nor enter the villages of the potters, but they could trade for and use their wares; especially in light of the South Asian beliefs that pottery serves as a very effective retainer of impurities (though even in South Asia new pots could be traded, as they only become dangerous after contact with cooked food (Sinopoli pers. com.)) The outcaste villages today are noticeably poorer than others in the region, and the people living in them seem eager for the chance to tell their story to outsiders.

Thus, even in the lower Matitanana River valley, the heart of Antemoro land, there are still numerous villages of people considered not to be Antemoro, such as the Onjatsy and Antemanaza villages. There are also villages of recent immigrants from

others areas of Madagascar, especially the central highlands. For example, the modern descendants of the Antekarinoro who lived at site 117 (see Figures 6.8 and A167) in the nineteenth century claim to be of mixed Merina and Betsileo descent from the central highlands. So, for the region as a whole, rather than an Antemoro "tribe" or "culture" that is homogeneous and nicely bounded (as indicated in Figure 3.1), the land is filled with people whose group membership is very much tied up with what village they were born in, who they think they are descended from, and their political situation. In general, the strength of commitment to an "Antemoro identity" seems to decline both with physical distance away from the King's village of Ivato on the Matitanana, and with social distance away from the noble Antemoro group.

The Antemoro themselves are usually divided into three main groups (some use the word "castes" instead, but group membership of these three is not as strictly enforced as it is with the outcaste Antemanaza group). The Antemoro are the political elite and are led by the overall king, or *Mpanjaka* of the Antemoro in Ivato. The Antalaotra<sup>3</sup> are the religious elite, and are led by a number of *Katibo* (religious scribes) in the village of Vatomasina (meaning "sacred rock"). Each of these two royal groups is further divided into four main clans, thus making for eight elite clans of the Antemoro. In addition to these, the largest group of Antemoro are Ampanabaka, or commoners, and this group today includes many former slave lineages. The Ampanabaka gained their freedom in a series of revolts in the nineteenth century – conflicts which served as the justification for the invasion and conquest of the area by the expanding Merina state from the central highlands. These battles have also left their traces, I believe, in the ditched hillfort sites found in the Matitanana River valley and at other sites such as Taniady (site 103) whose

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<sup>3</sup> The similarly named group of people on Madagascar's northwest coast is generally considered to be the descendants of Malagasy speaking Islamic traders. Grandidier and Deschamps believe that the Antemoro clan is descended from the Antalaotra of the northwest coast, though Ferrand, Julien, and Kent disagree.

name means "the place of combat." The elders of Taniady today claim that it is the spot where the Ampanabaka first defeated the royal Anteony, who then retreated down river, received help from *vazaha* (Europeans), and returned with guns to defeat the commoners in a second war. This oral tradition suggests the possible direct impact of European slave and gun traders in this region, but it also alludes to the Anteony ability to maintain local power over the other groups by monopolizing trade access to outsiders<sup>4</sup>.

So who are the Antemoro? The common maps (Figure 3.1) have clear distinct lines, implying the Antemoro are the people living within those borders, and that across the line are found a completely different sort of people. However, this section has detailed the multi-ethnic nature of this society, which is internally diverse and stratified, and in which different groups and individuals feel varying levels of political obligation and ethnic identity. On the other side of the map's clear lines, in the five other "tribal areas," we also visited many long-standing Antemoro villages of people claiming descent from refugees of earlier civil wars along the Matitanana. Ethnicity and social inequality are both creations, and it is created social divisions that are at the core of state formation. Such cultural distinctions between groups of people can be difficult to detect archaeologically as we attempt to trace identity or stratification back through time. However, as discussed in the introduction, I hope to eventually complement the archaeological evidence with other lines of research, to more fully understand the nature and development of the Antemoro kingdom before its loss of political autonomy to outside groups.

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<sup>4</sup> I feel the diversity of wares at Anteony sites does document their greater access to trade goods, as will be discussed in later chapters. However, there is very little material evidence for these conflicts other than the fortified sites in this region. No gunflints were recovered during survey or excavation (though a number of "strike-a-lights" were), and no spent ammunition was retrieved, other than one possible piece of grape shot from Tsangilavitra (site 153).

### 3.2 Ethnohistory

Given the existence of the *Sorabé* texts, I originally envisioned this project to be both archaeological and ethnohistorical in nature. The words "ethnohistory" and "archaeology" are often linked together in titles (e.g., Rogers and Wilson 1993; Knapp 1992; and O'Shea and Ludwickson 1992). Indeed, the first article in the journal *Ethnohistory* was "...An Archaeologist's View" (Black 1954). However, it is often unclear what "ethnohistory" in these titles actually specified, as the term itself has been used in a variety of sometimes ambiguous and problematic ways. Clark Wissler first used the term "ethnohistory" early in the twentieth century to refer to the combination of archaeology and documentary evidence to reconstruct a prehistoric culture (Krech 1996: 423). Since Wissler was thinking of certain non-literate Native American groups, the documentary evidence he had in mind was that written by outsiders, by Europeans and Euro-Americans. This came to be the most common definition of ethnohistory: the documentary history of the "people without history," to use Eric Wolf's (1982) phrase. In this vein William Sturtevant (1968:454) defined ethnohistory as "the history of the peoples normally studied by anthropologists." However, ethnohistory by these definitions becomes exclusionary and ethnocentric (history for "us", ethnohistory for "the other"); and while it has been widely used by New World scholars, it was rejected early-on by researchers in Africa for this reason (Vansina 1960; Deschamps 1968). There are many "hyphenated histories" on restrictive subjects (intellectual history, labor history, women's history), but no others that are applied exclusively to certain whole societies and denied to others. On these grounds this meaning of "ethnohistory" could not last.

Research labeled "ethnohistory" next expanded beyond the study of "texts by outsiders" to include those literate societies, such as the Antemoro, that produced their

own historical documents but were still typical "anthropological subjects."<sup>5</sup> In this way, the study of the documents of many literate societies was relegated to "ethnohistory," as those cultures and traditions were not seen as ancestral to the industrial core nations of today, which was privileged as "history" proper. Today, neither anthropology nor history is as exclusionary in its choice of subjects as each once was, and so the division along this line no longer seems appropriate. However, American archaeologists through much of the 20<sup>th</sup> century were more willing to align their studies with "ethnohistory" (seen as part of anthropology - and thus an attempt at scientific explanation), as opposed to non-qualified "history" (seen as merely descriptive, and the straw-man for many early New Archeologists). Thus, many archaeologists chose to include the word "ethnohistory" in their titles to indicate that written documents were one source of information for the study, but that the whole was undertaken within a more traditional anthropological framework. However, these disciplinary differences between traditional subject matter, method, theory, and even goals have largely broken down over the past few decades.

As one final possibility, Sturtevant (1968) listed another definition of "ethnohistory" as a people's own emic perceptions of their past. In this sense ethnohistory is a cognate for other established fields such as ethnobotany and ethnomedicine, and is no longer exclusionary (since all peoples have popular historical conceptions, which might substantially differ from their historiography based upon the documentary evidence). Ethnohistorical works of this nature are less common than those of the other types, and they are often called "ethno-ethnohistory" or "folk history" to differentiate them from the former. This is perhaps the most justifiable use of the term, and as such it shares much with research into oral traditions - into popular conceptions of the past. Many works, of course, incorporate different aspects of the term "ethnohistory" into a single study. For

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<sup>5</sup> An interesting application of the label "ethnohistory" is Ulin 1996, where the term has not been applied to a non-literate other, but to those who are marginal and neglected by scholars, in this case to small-scale wine growers in southwestern France.

example, Dirks (1987) considers ethnohistory to be not only "the reconstruction of an indigenous discourse about the past" (1987:58), but also a more general methodological collaboration between "history" and "anthropology" (Dirks 1987:10). His work is both an attempt at a history from a local point of view, and a history based upon locally-produced documents. Similarly, I originally conceived of my work as being "the archaeology and ethnohistory of the Antemoro," because I was working among a traditional, non-western, but literate society, and was interested in their own story of the past in relation to the story I would derive from the archaeological evidence. While the term "ethnohistory" is often unjustifiably exclusionary in its application, I am still interested in exploring ethnohistory as a group's own summaries of their past (whether through written or oral traditions) as a counterbalance to my archaeological research.

### 3.3 Sorabé and Oral Traditions

I admitted in my introduction that it was the presence of the handwritten *Sorabé* texts that initially attracted my attention to work in the Matitanana Valley. The Antemoro are unique among the ethnic groups of Madagascar in still possessing such a large number of locally produced historical documents, and I felt that the archaeology of this region could thus contribute to the ongoing debates and discussions about the history of this area. A number of researchers have analyzed and translated various *Sorabé* into French, and my descriptions here will draw heavily on their work, given the special linguistic skills needed to undertake such study<sup>6</sup>. The word "*sorabé*" actually refers to individual magical spells written by certain Antemoro in a derived Arabic script, but

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<sup>6</sup> In fact, having now taken formal courses in French, Malagasy, Arabic, and Swahili myself as part of this project, I have learned just enough to realize the impressive feat these scholars of the *Sorabé* have accomplished. Learning a modified and inconsistent Arabic script to read handwritten texts in a secret creole language is only possible after long and hard work with the *Katibo* of the region.

scholars have generalized the term to include all texts written in such a manner. The Antemoro themselves refer to such writing as "Fandraka," after the cow-hide covers of the books, with the individual works often named for the color of their cover (Rajaonarimanana 1990: 120). The books are written on a locally produced bark-paper, and the language used varies with subject matter, from Malagasy, to corrupted Arabic,<sup>7</sup> to a "secret language" (*kalamo tetsitetsy*) jealously guarded by the aristocratic scribes of the Antalaotra clans. The language used and the texts themselves are also referred to as Arabico-Malgache in the literature. A few other groups in Madagascar also wrote in Arabic script at the time of European contact, such as the Antalaotras on the northwest coast. However, the stone engravings of those groups used a more correct Arabic language and script (as did Swahili engravers themselves). Gueunier (1986: 82) has also argued that those groups on the northwest coast of Madagascar probably wrote in Swahili rather than Malagasy in their more perishable works. In addition, those groups did not have the aristocratic scribes or *Katibo*<sup>8</sup> of the Antemoro, nor did they ostensibly place the same religious and political importance on the texts themselves as sacred objects. In some ways, the very act of writing these texts was of greater significance than their content for the Antemoro: "from their mastery of script, and control over who should have access to its secrets, the *Katibo* acquired for themselves immense power and influence" (Mack 1986:37). *Sorabé* production is a living tradition for the Antemoro, with most new texts being created in the widely available and inexpensive school exercise books. In fact, one scholar (Legros 1984) has translated and analyzed a *Sorabé* text written in a school

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<sup>7</sup> This differs from some reports that "there appear to be no examples of *Sorabé* which are written in Arabic" (Mack 1986:37), though Mack's larger point still holds: that upon arrival the Antemoro were most likely not native Arabic speakers given the evidence of the *Sorabé* texts.

<sup>8</sup> This title is part of the secret scribal language and is identical to the Swahili for writer, *katibu*, originally from the Arabic for writer, *katib*. Similarly, the *Sorabé* word for book is *kitsàbo*, related to Swahili *kitabu*, and Arabic *kitab* (Beaujard 1998:93).

notebook by his own great-grandfather, though part of the *Sorabé* manuscript was not included in Legros' work as it contained "des secrets familiaux." Most current scholars are interested in the *Sorabé* as cultural documents, but it is their historical continuity that is the most useful for the archaeology of the region.

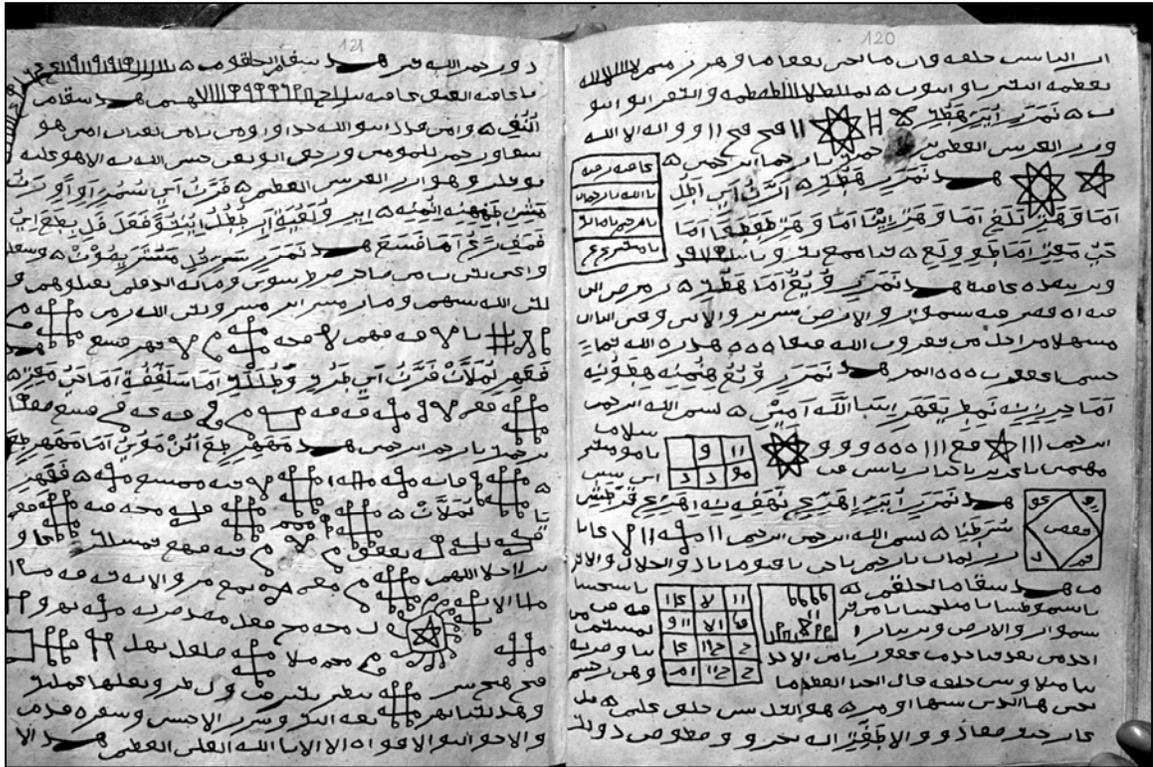


Figure 3.3. Photographed page of *Sorabé* writing. Taken from a complete cowhide volume (*Fandraka*) at the Academie Malgache, Antananarivo.

The Academie Malgache in the capital Antananarivo possesses at least twenty-five historical *Sorabé* manuscripts collected early this century (see Figure 3.3). Many other texts are distributed throughout the libraries and museums of the world, and various inventories of these works have been attempted (Munthe 1977, 1982; Dez 1983; Rajaonarimanana 1990). Kent (1970:89) predicts that there are hundreds of unexamined *Sorabé* works in the various libraries; Munthe (1982) estimates there are some seven thousand pages of *Sorabé*; and Vérin (1986) remarks that three-fourths of the texts have

yet to be translated or published. In addition to these publicly held works, there are an untold number of *Sorabé* in private collections around the world. Despite these great numbers, most texts are simple reproductions of other known texts, just as oral tradition is often numerous variations on a few common themes. For example, the oldest known *Sorabé* text is held by the National Library in Paris, and has been dated to around AD 1600 based on its accompanying Latin translation (Ferrand 1903). This text (manuscript number 7 originally, and now Malayo-Polynesian number 24) is very similar to a *Sorabé* recorded by Beaujard on the middle Matitanana 400 years later (Beaujard 1998:7).

Such texts rarely last more than a few decades when stored in Antemoro houses (given the climate, fires, floods, wars, rain and other factors), but *Katibo* repeatedly copy each work, in part to insure their wide distribution and hence survival, but also because the writing act itself is meaningful in this context, and because the number and type of *Sorabé* texts possessed by a *Katibo* helps determine his standing within the community. This oldest *Sorabé* from the French National Library was most likely obtained by a Dutch trader in Madagascar, and is primarily a list of taboos and sacrifices to heal certain illnesses, activities to do or not to do when leaving on a war or trading expedition, or when constructing a house, and other ritual prescriptions. (Rajaonarimanana 1990:50).

The first mention by a European of the *Sorabé* is in 1615 with the report of Mariano that the Portuguese da Costa had signed a treaty with the Anosy king Tsiambany written in Arabic characters. This was followed by the Englishman Boothby who purchased a manuscript of "Egyptian hieroglyphics" on Madagascar's southwest coast in 1630 for six cows (Rajaonarimanana 1990:45). Presumably, Antemoro scribes serving in royal courts beyond the Matitanana wrote these works. The first European who learned to read the *Sorabé* was Flacourt, the French governor of Ft. Dauphin in the mid seventeenth century, having been taught by an Antemoro from the Matitanana area. Flacourt includes two translated *Sorabé* in his history (Flacourt 1661/1995) and mentions owning twenty-three other books (though we are unclear what happened to these works, they could have

made their way into the National Library in Paris). This practice of Antemoro advisors and counselors serving both foreign governors and Malagasy kings soon became common across the island. The founder of the Merina state Andrianampoinimerina brought to his court four Antemoro *Katibo*, who wrote diplomatic letters and court documents in Arabico-Malgache and taught his son Radama to read and write *Sorabé*.

The actual content of the *Sorabé* varies widely, with an apparent change over time from earlier works where the topics were exclusively religious or magical, to later works which could be more secular in nature, such as king lists and genealogies. The year 1650 AD has been suggested as the point at which regular events in the Antemoro world began to be recorded with the sacred script (Mondain 1910:47). Dahl (1983) uses this change in content over time to also study the evolution of the Antemoro dialect. Dahl divides the work into two broad camps: historic texts in which the language is modernized with each copy to make it comprehensible to readers, and magic texts in which the more archaic language is maintained through various reproductions for fear of making a poorly copied segment magically ineffective.

A more detailed typology of *Sorabé* contents has been made by Rajaonarimanana (1990: 125-146) and is summarized in Table 3.1 (with additional input from our own interviews with *Katibo* and Philippe Beaujard). The first, and most thoroughly studied type of *Sorabé*, is the *Talily*, or historical accounts. These consist largely of king lists, but also include a few historical accounts, mainly of civil wars, a description of the first installation of a European trading post on the Matitanana in the early sixteenth century (which lasted six months before being overrun), and of a punitive French military expedition which attacked the area in the mid-seventeenth century. The following example will serve to give a sense of these historical *Sorabé*. Between 1659 and 1663, the French officer La Case directed an army of European and Malagasy soldiers fighting to extend French dominion. In a *Sorabé* manuscript translated by Gautier and Froidevaux (1907) we learn that the opposition to La Case (referred to as iLagasy in the manuscript)

was led by a man named Ramanirakarivo, and we learn something of the course of La Case's five campaigns. As the *Sorabé* states:

The Matatana was ravaged, Nameha was burnt, Karinoro was burnt ... Rainimadafala was killed, Ratsivazo was killed ... The army of whites was at Ilozo [Andemaka], and sent a message to Rafonony by the intermediary Randrasija, "Give us a thousand cows, a thousand pieces of gold, a thousand pieces of silver, a thousand pieces of material and we will not make war on you." [Five groups] responded, "we will give you that." ... [then] the army attacked Fotsivava ... Fotsivava was burnt, the brothers Radrazao, of the Antaiony, were killed ... All the children of the Antalaotra were taken, all the children of the Onjatsy ... Ramarofatana and Ramanirakarivo fled to the north. (Gautier and Froidevaux 1907:139-141)

Though the events described took place in 1661, the social groups mentioned have all been discussed above (the royal Anteony, the religious Antalaotra, and the Onjatsy), and many of the place names were found to be archaeological sites during our survey (such as Fotsivava site 39 and Karinoro site 117, both of which are ditched hilltop sites that we dated to the 17<sup>th</sup> century by their ceramics, as discussed in Chapter 6).

As Dahl noted, the *Talily* or historical *Sorabé* serve a political purpose so they are written in Malagasy and updated to remain comprehensible over the generations with each reproduction. The second type of *Sorabé*, *Fasiry*, are also commonly known to most Antemoro adults, and are learned orally, though preserved in the *Sorabé* texts by the *Katibo* in a corrupted Arabic. Because of this, few people know the actual meaning of the words, but all know the proper use of the ritual invocations: examples include what to say before and after having sex (dependent on whether one is male or female), when one is drunk, when one sneezes, etc.

The final two types are more the professional secrets of the traveling *Ombiasa* (religious healers). The *Fitokiana* concern divination (such as how to tell the sex of an unborn child by looking at the mother's nostrils) while the *Fitaha* are proscriptions or spells of more immediate practicality (e.g., how to cure a headache). Since these last two *Sorabé* forms are essentially the workbooks for travelling professionals, who have long

traveled far from the Matitanana River valley, they were the first *Sorabé* to be collected and studied by outsiders. It wasn't until researchers began to study within the Antemoro region and along the Matitanana that the first two forms gained wider attention.

<b>Common Types of Antemoro <i>Sorabé</i></b>				
<b>Name</b>	<b>Talily</b>	<b>Fasiry</b>	<b>Fitokiana</b>	<b>Fitaha</b>
<b>Content</b>	Histories, Accounts, Genealogies	Ritual invocations, devout quotes	Vintana, Sikidy (divination)	Magico-medicine spells
<b>Creator</b>	<i>Mpanjaka, Katibo</i> (Kings and scribes)	<i>Katibo</i> (scribes)	<i>Ombiasa</i> ("medicine men")	
<b>Clan</b>	Anteony, Antalaotra	Antalaotra	Antalaotra	
<b>Language</b>	Malagasy	Corrupt Arabic (creole)	Malagasy, Arabic, or Kalamo (secret language)	
<b>Use</b>	Political, understandable by all	Religious, known by many, oral	Practical, private, memory guides for professionals	

Table 3.1. Four common types of *Sorabé*. Information derived from Rajaonarimanana 1990 and personal interviews with various *Katibo* in Vatomasina.

Of the four types, the *Talily* obviously holds the most promise for archaeological use. However, to view the *Sorabé* as a source for history in general has been called the most "common mistake" (Gueunier 1986:81), given the paucity of historic narratives and the fact that so many manuscripts are recopies of one another. Despite the manuscript quoted above, Gautier disappointedly claimed that the *Sorabé* "contain above all 'altered and falsified geneology lists'" (Gautier 1907, quoted in Vérin 1986:80). In the late 1970s, Jacques Dez organized a team of scholars in Paris to study the *Sorabé* under the auspices of CNRS, and in their first report concluded, "It's not necessary to consider the Arabico-Malgache documents only from the point of view of their historical content, for if so their interest will probably be quickly exhausted" (Rajaonarimanana 1990:75). If most *Sorabé* are simply the same tale told over and over with minor variations, such that its basic veracity is called into question, it is easy to see why researchers, following Dez, have

turned away from the historical and towards the cultural implications of these works. To understand why these works have been viewed as less valuable historically, Gueunier points out (following Pelras 1979) that it is not enough to classify cultures as literate and non-literate, since there are important differences between societies with big, mass-produced, printed literatures and those with handwritten literature in which "the written and the oral are two inseparable expressions" (Gueunier 1986:79). Other researchers have echoed these sentiments (Beaujard 1988:130), and as a result the students of Gueunier and Dez (such as Narivelo Rajaonarimanana 1990, 1993) have focused their attention on the *Sorabé* as cultural documents rather than historical documents. But the historical *Sorabé* do hold important information, which can perhaps best be utilized if these are considered not as histories, but as oral traditions, or even as slices of an oral tradition frozen at different stages.

The cultural focus of contemporary researchers is most appropriate for the latter three types of *Sorabé*, but even for the historical *Talily*, since they are updated and changed with each generation, their commonalities with oral traditions are noteworthy. The ability of oral traditions to help us understand the African past has been stressed by many authors (Vansina 1985), but it is important to remember that such tales and genealogies are told in a present with political implications (as indicated in the opening quote of this chapter, with the Bara "king" basing his authority on the traditions passed through the generations, and thus claiming to be the only one who accurately knows them). Decades ago, Meyer Fortes reminded us that Malinowski himself asserted genealogy to be merely "a legal charter and not an historical record," and that the Bohannans observed the Tiv actively rearranging their lineage genealogies at public moots to better match current political relations (Fortes 1953:23). One potential of the *Sorabé* already in museum collections is that, unlike the study of oral traditions collected contemporaneously, these texts allow us to view how the stories have changed over a

number of centuries, and interpret the shifting relations among the different king lists and genealogies over time.

One important analysis of the *Sorabé* is that of Elie Rajaonarison (1994). Rajaonarison is interested in the Antemoro conception of history, which is generally indicated by the term *Tantara*, which he translates as the "set of events that really existed." However, the *Talily* (historical *Sorabé*) are labeled with a term that does not translate directly to "history," but rather to something like "memory, that of which one remembers, what the memory has kept" (Rajaonarison 1994:134).<sup>9</sup> *Sorabé* are the known past for the Antemoro, in the same way that memories are known; and are considered to be always correct, and not to be contested. Rajaonarison goes on to argue that the *Sorabé* serve symbolically as the ancestors for the group: they are cold, hard, dry objects wrapped up in cloth and buried in trunks, which can be brought out occasionally to bestow a blessing when needed, but shouldn't be bothered too often lest they get annoyed and start to wander away.

"History has always been an instrument of power in Malagasy societies" in the words of Rajaonarison (1994:141), but the materiality of these texts set them apart from other oral traditions. These "literary" ancestral bones lend their power and authority to whatever *Katibo* controls and recopies them. Along the Matitanana, the *Sorabé* are traditionally the exclusive property of the aristocratic clans, the Anteoony and Antalaotra. The *Katibo* of these groups are obligated to protect the texts in their care at all costs in times of crises, even before their own lives. During wars and revolts, the Ampanabaka (commoners), Onjatsy, and Antevolo (see above) have all tried to target the *Sorabé* texts. In the twentieth century, these non-elite groups have begun to produce their own sacred *Sorabé* texts (e.g., the concrete monument in Onjatsy, Figure 3.2), and thereby gain some

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<sup>9</sup> These translations from the French, along with others in this dissertation, are my own, and I apologize in advance to any authors whose words I have mis-represented here.

of the power and good fortune that is seen to flow from them. The aristocratic Antemoro generally do not accept these newer texts as valid. The word used for writing *Sorabé* is *mamandraka*, meaning to engrave or chisel, but also to reduce an adversary to silence (Rajaonarison 1994:143). Though this knowledge is sculpted, it is also respected and incontestable, and its materiality gives it even greater political import than if these oft repeated and re-copied stories had remained oral traditions.

The most common *Sorabé* are the prayers and spells of the religious healers. However, of the more historical texts, the most common is that of the founding origin myth. The ancestor of the Antemoro is said to have once been the ruler of Mecca in Arabia, but after leaving town one day to trade, he returned to find that the Prophet Mohammed had taken over the city. Recognizing the sacred nature of Mohammed and not wanting to cause any conflict, the ancestor converted to Islam and left Arabia, sailing first to the Comoros, then to Vohemar on Madagascar's northeast coast, and finally arriving at Ambohabe on the Matitanana River in 1506 AD. There he found the nearly empty village of Onjatsy being ravaged by a sea monster. The Antemoro ancestor killed the monster with his superior magic and in exchange was given the towns of Savana and Lazamasy to settle in. Similar origin myths are found in the oral traditions of other east coast groups. Paul Ottino (1977:239), Philippe Beaujard (1977), Claude Allibert and others have written about the Indonesian connections of the snake in this myth, and how the story justifies the devolution of political power, justifying succession and explaining how the youngest (the latest arrival) can hold power (Rajaonarimanana 1990:190). Also important in this text is the claim by the ruling clans of an exotic origin (Mecca) and of a foreign religion (Islam), which I suggest are both common strategies used by emerging elite classes to justify the inequalities they create and attempt to maintain (as I discussed in Chapter 1).

The minor variations between *Sorabé* texts of this story include changes in the locations of landing during the southward migrations, and the names of towns given to

the newcomers. This is important archaeologically for both its locations and dates (in this version, both Savana and Lazamasy are important early sites). On the basis of this clear date of 1506, the current Antemoro king rejected my twelfth century radiocarbon date for the lower levels of sondage three at Marovahiny-Ambohabe (site 46), claiming that it was far too early for people to have been living on that spot. (Given the politics of the situation, I did not point out to him that the most common version of the story does have the Onjatsy people living there before the Antemoro arrive). But this date of 1506 itself is part of the recursive and evolutionary nature of the *Sorabé*. Early texts do not give a specific date, and this one most likely comes from the *History of the Migrations Antemoro-Anakara written toward the year 1506*, published by the Antemoro scholar Kasanga in 1963. This work is based on a *Sorabé* discovered in Europe by Julien in 1927, described by Grandidier, but now lost to us (Rajaonarison 1994:85). Kasanga also draws on the 1954 book by Briant that claims the Antemoro to be of Jewish ancestry (based upon word comparisons which today seem very unsupportable (Vérin 1986:26)).<sup>10</sup> Thus, a local Antemoro writing in the 1960s relied upon two Europeans to conclude that a lost tribe of Israel had arrived at the Matitanana in 1506, and the *Sorabé* written or re-copied since then for the past four decades often reflect these new ideas.

The *Sorabé*, along with the oral traditions, help us to link current villages and clans with earlier sites (such as Lazamasy). They also give us dynastic lists, with the state founder of the kingdom on the Matitanana generally considered to be a man named Ramarohala (see Kent 1970), and early capitals before the current Ivato (with the first said to be at Ambohabe, a general term for the coast north of the Matitanana River mouth

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<sup>10</sup> This was common-place among many early Europeans in Africa as a whole. Faced with the unknown, they first tried to connect it to the history they knew at the time, i.e., to the biblical or classical worlds. Thus, Briant claims the Antemoro are a lost Jewish tribe, while others (Mesgnil) point to voyaging Greeks. In much of Africa, this attempt was also related to racism and colonialism, e.g., the "Phoenician" construction of Great Zimbabwe.

including our early site at Marovahiny (site 46). The few *Sorabé* that record historic interactions with outsiders are also useful (such as the account of La Case's campaigns discussed above). A different *Sorabé* recounts the arrival of the Portuguese Luis Figueira in 1514 to establish a trading post, the man who considered the Matitanana to be peopled by "Moors" from the coast of Malindi as mentioned in Chapter 1. These accounts also include encounters with other Malagasy groups, such as the Tanala living up the Matitanana River to the west. One recorded tradition tells of a battle on the banks of the river itself at Marovily, where an Antemoro magician stunned the original inhabitants (the *tompon-tany* or people of the earth) by levitating a boat and seven pots, which were then broken and cast into the river.<sup>11</sup> The *Sorabé* have the potential to allow us to study changes in traditions over time; they give important place names, dates, sequences, and relationships between groups of people. Like their oral cousins, however, they also undoubtedly reflect the perspective of the victors and not the vanquished (as the *sorabé* are specifically targeted in war for destruction). This alone can give us insight into the mechanisms the elite classes used to gain and maintain power along the Matitanana, and hence, the *Sorabé* are an important starting point for this present work.

### **3.4 European documents and ethnographic work**

The most comprehensive source for European historical texts concerning Madagascar is the encyclopedic nine volume collection of "ancient works" edited by Alfred and Guillaume Grandidier from 1903 to 1920 (Grandidier 1903). According to these sources, the first known outsider to spend time at the Matitanana was Luis Figueira, sent by the Portuguese king in 1514 to establish a small fort and trading post (trading mainly for ginger, cloves, silver, sugar cane, and fish). He lasted for six months before

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<sup>11</sup> Unfortunately, our surface survey did not reveal any archaeological remains at Marovily, the "place of the broken pots."

the Antemoro attacked and overran his outpost. As for his claims that the Matitanana was a large “Moorish” port city, it should be noted that the Portuguese usually remarked when the Malagasy locals spoke a language different from that of Mozambique, and Figueira and his crew were undoubtedly familiar with the Swahili language of Malindi. The city of Malindi at this time was one of the most important allies of the Portuguese, helping them in their conquest of Mombasa and their exploration of the Indian Ocean (Davidson 1991:154). As the Antemoro themselves in recent times have claimed Mecca and not the Swahili coast as their homeland, Europeans after Figueira have been more undecided on the matter of the Antemoro homeland.

Ferrand, one of the most important early researchers in Madagascar, considered this question of Arabian versus East African origins, and decided that the Antemoro were “Arabs” but only “in the widest possible sense of the term” (Ferrand 1902:114). Grandidier, another of the important early scholars, stated in a 1908 volume that the Antemoro had originated on the Arabian peninsula, but then first migrated to the East African coast before coming to Madagascar (Grandidier 1908, as discussed in Kent 1970:100-101).<sup>12</sup> This is important, because Ferrand had no hesitation in identifying the mythical ancestor Raminia (claimed as the founding ancestor by many East Coast groups including the Onjatsy of the Matitanana and the royal clans of Anosy to the south, but not by the Antemoro) as an *Indonesian* Muslim coming to Madagascar with the early “Wak-Wak” (maritime raiders so named by Arab geographers, Kent 1970:102). Thus, while Malagasy is an Indonesian-derived language, and the Indonesian contribution to East

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<sup>12</sup> This debate (as to whether the Antemoro are Arab or African in their origins, as opposed to their Indonesian neighbors) parallels the debates which have occupied mainland East African archaeology for most of the twentieth century - are the Swahili essentially an African or an Arab people? The question itself is one conditioned by colonialism, and the socio-political reasons for denying the Swahili an “African-ness,” both by Europeans and by the Swahili themselves, are beginning to receive scholarly attention.

Coast groups is often recognized (see Adelaar 1989, 1996 for a development of this argument on linguistic grounds; and Vérin and Wright 1999), the Antemoro see themselves and are generally seen by others as something different from their neighbors. Beaujard in his 1998 book *Le Parler Secret Arabico-Malgache du Sud-est de Madagascar* highlights these connections between the Antemoro and both Arabia and East Africa in terms of the etymology of their dialect. Other aspects of Antemoro culture point in the same direction.

Genetic studies such as mtDNA and Y-chromosomal diversity might be expected to shed some interesting light on these issues, but such research is just beginning in Madagascar (Soodyall *et al.* 1996; Jenkins 1995; Hewitt *et al.* 1996). In Hurles *et al.* (2005:894-5), a study of 37 males from four ethnic groups (Bezanozano, Betsileo, Merina, and Sihanaka) concluded that there were roughly equal contributions from Africa and Indonesia to the paternal and the maternal Malagasy lineages. This result isn't surprising, but it does show promise for greater possibilities as the sample numbers increase and individual groups (such as the Antemoro) are investigated comparatively. That said, Madagascar is the quintessential melting pot, and the genetics across the island should reflect that. Phenotypes are not reliable evidence of genetic affinity, but just for reference I am including an historical photograph from the collection of F.T.M. that also shows the distinctive Antemoro dress. The man in Figure 3.4 is wearing the *kanzube*, or shirt made from woven *Raphia* palm leaves (*kanzu* being the Swahili word for the white robe commonly worn by Swahili men). This man is also wearing the characteristic Antemoro hat that resembles the Swahili *kofia*.



Figure 3.4 Early photograph of an Antemoro man. F.T.M. collection.

Europeans after Figueira continued to record their observations of the Antemoro over the following centuries, as the various histories have documented, though the evidence is relatively sparse until the nineteenth century conquests of the area by the Merina from the central highlands. Kent (1970) is typical of most historians who have studied the Antemoro by including the evidence of the local *Sorabé* along with the

documents written by outsiders. Likewise, most ethnographers who have studied among the Antemoro have similarly related their investigations to the *Sorabé* (e.g. Beaujard 1997, 1998). A number of other talented anthropologists have studied aspects of Antemoro culture, including Rolland (1974, 1984), Chandon Moet (1972, 1984), Deschamps and Vianès (1959), and Althabe (1984). Althabe's study of the Antemoro of the Mananano River (the northern-most river of our survey region) is particularly interesting from an archaeological perspective. Althabe records the locations of many pre-colonial villages, and discusses the construction of a line of fortified hilltop villages along the western edge of the region. We were able to ground source his information derived from informant interviews during our survey, and did locate a few ditched sites close to the locations he indicated (see Chapter 6).

The opening section of this chapter gave a sense of hierarchical stratification and ethnic diversity of the Antemoro region based upon our own research, but the more qualified ethnographers listed above provide a much fuller picture of this social complexity in their writings. Additionally, the two previous archaeological projects in this region (Jacques Pannetier in 1972 and a group of University of Antananarivo students in 1973, which will be discussed in the next chapter) each include a summary of the social and political structure of the Antemoro in their archaeological reports (Pannetier 1974; Rasolofoson 1974). We did try to collect as much ethnographic information as we could, often during our formal visits to the leaders of the various villages while asking for permission to undertake archaeological fieldwork. I know, lacking the language skills, that I do not have the intensive knowledge of the professional ethnographers, but I do believe I have something of a unique perspective having visited hundreds of villages in each river valley and having talked with such a wide variety of people. Like the differences between survey and excavation in archaeology, I believe I have gained an extensive (versus intensive) knowledge of this region, and have tried to include this information in the site catalogue, appendix A, where possible. Of particular

interest to us of course, was any ethnographic information that might be relevant for our archaeological investigations. One example, we noticed a number of people living on hilltops in the region who were using bamboo poles to gather and store water in their houses, as seen in Figure 3.5. This woman was living inside the ditched enclosure of site 43 (and my collaborator Ramilisonina is next to her with a trowel preparing to excavate a sondage, with the Matitanana River in the background). Given this custom, sherds of large water jars would be unexpected on these hilltop sites.



Figure 3.5. Antemoro woman carrying water in bamboo.

The local culture influenced the archaeological work we were able to undertake along the Matitanana in other ways as well. These factors ranged from the relatively minor (such as us not being able to eat pork in our rented accommodations – a taboo (*fady*) for the Islamically-derived Antemoro) to the relatively major (such as restrictions on where we could survey or excavate). As elsewhere in Madagascar, Antemoro religion centers largely on the ancestors, which is sometimes glossed in the literature as "ancestor

worship" (though more accurately it is a continuation of prior respect and obligations for deceased elders). One side effect of this reverence for the ancestors is that an abandoned village soon becomes sacred ground as a "place of the ancestors," and thus, a suitable place for tombs. Our archaeological survey for previous habitation sites thus collided with the local belief that places of the ancestors are *fady* for non-clan members to visit. In some regions of Madagascar the tombs are highly visible on the landscape and publically acknowledged. For the Antemoro, tombs are hidden and secret. Our project did not attempt to investigate the tombs or their surroundings for three main reasons. First and foremost, as guests in their country, it was our obligation to only survey where we had permission from the communities to survey. Second, and more self-serving, since most tombs are located on hilltops surrounded by thick forests and the tall ravenala palms which mark the places of the ancestors in this region, it is unlikely that we could have recovered diagnostic artifacts in any case (though many of these hills may in fact be ditched sites, and the air photos for this region have proven insufficient for the remote identification of ditched sites). Third, and also self-serving, there are occasional rumors in this area of outsiders and Vazaha ("whites") stealing the bones of the ancestors for some sinister purpose or medicine.<sup>13</sup> Since the success of our project depended in a very real way on the goodwill of the hundreds of villages we walked through, a single rumor of us searching for the ancestors' bones could have seriously hindered our research. As it happened, by avoiding the tombs, we quickly acquired the reputation as the *vazaha*

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<sup>13</sup> These tales are related to stories of the Malagasy vampire (Mpakafy), who has light skin, blond hair and a beard, travels in the company of two Malagasy assistants, and eats the hearts of his victims. Anecdotal tales indicate this belief is more dangerous for outside researchers in the far south than it is in the Matitanana Region. My hunch is that this myth started (or was at least strengthened) in the mid 20<sup>th</sup> century as Scandinavian medical workers began to collect blood samples from remote villagers for the early research into genetic resistance to malaria.

*dahladahla* (crazy white guy) looking for sherds, and most villages knew our purpose before we arrived and enthusiastically joined in the search.

These restrictions were some of the limitations of our survey, but they were not crippling. In fact, our two oldest sites are located near tombs that were not themselves surveyed. The first, Ambohabe (and especially Marovahiny-Ambohabe, site 46) is large enough that it stretched beyond the existing tombs on either side, so we were able to get a good idea of the site without approaching the tombs themselves. Similarly, the site of Antanimbaribe (site 62) is an early site that was most likely forgotten as a "place of the ancestors" at some time in the past. The area was once called Maroangatra ("the place of many ghosts") and was covered by a large forest (as seen on the most recent air photo from 1957). The current residents cleared the area (mainly for charcoal production) and gave it its new name of Antanimbaribe. More recent sites have not faded from local memory to the same degree, and thus there probably is a skewing in our survey results, with the oldest and the most recent sites being the most accessible, and those in the middle located on ground held sacred today and therefore off limits.

Our excavations were less restricted, with most landowners welcoming our presence (since news of our practice of hiring landowners to help with the dig crew preceded us). However, there were a few instances, such as the large circular mound at Foroforo mentioned in Chapter 2 used as a retreat during floods, where permission to excavate was denied. Given the social stratification of the Antemoro, we also had to be careful of the order in which we surveyed a local region, often leaving the lands of the outcaste Antemanaza for last (otherwise our reception in neighboring villages would be somewhat chilly). Nonetheless, I was continually amazed at how willing most people were to assist our project, and in partial repayment, I hope this history and archaeology of their region is meaningful to them in some way.

This chapter opened with a leader from the neighboring Bara group claiming to know the past, and to gain power from that knowledge. As elsewhere in the world, the

past is used by the Antemoro to justify the present and create the future. And as with the physical control of the *Sorabé* texts, or the manipulations of oral traditions, I am only one more storyteller in this process. As an archaeologist, I obviously have other obligations as well, but my motivations and interpretations do come from a certain cultural context, and the context of the production of this work is just as important as the cultural context of the Antemoro in which the work was undertaken. In this chapter, I have presented only the briefest outline of the Antemoro cultural context. In so doing, I have sought to lay the groundwork for a discussion of my archaeological research, which I turn to in the remaining chapters of this work.

## CHAPTER 4

### ARCHAEOLOGICAL CONTEXT

*Don't be humble. You're not that great.*

(Golda Meir, quoted in Thomas 1999:v - and I'm thinking here only of myself, and not those in this chapter whose shoulders I've stood upon)

#### **4.1 Archaeology in the western Indian Ocean**

Most people live on land, and so it comes naturally that when we make our maps we put the dividing lines at the water's edge. But in a preindustrial world, before modern transportation technologies, waterways were the connectors. This applies not only to my work in the river valleys on Madagascar's southeast coast, but also to the ocean in which Madagascar itself can be found, and these connections are not often realized in our land-based perceptions. The peoples of the western, northern and eastern shores of the Indian Ocean have long been in contact with each other, and the ocean was their highway. The port cities on these coasts are and have long been truly cosmopolitan, often housing traders and visitors from distant shores. Over the past two millennia, many similar cultural traits have developed in these coastal regions. One example is the town of Malindi on the central Kenyan coast (including the nearby palace and city of Gedi within its sultanate), which sent the emperor of China luxury gifts including a giraffe in the 15<sup>th</sup> century (Sutton 1990). Travelers from this city could often speak their native KiSwahili tongue in Yemeni ports and elsewhere to the north, as well as in the trading ports on Madagascar's northwest coast (Vérin 1986; Radimilahy 1998). The seafaring peoples of the Indian Ocean were linked through trade and contact, and one of the goals of my

research was to investigate the possible connections between these seafaring peoples of the western Indian Ocean and the Antemoro. This larger context is relevant to the archaeology of all of Madagascar as well.

A number of works have considered the Indian Ocean as a whole, starting almost two thousand years ago with the *Periplus of the Erythrean Sea* – a travel and trading guide written by a Greek Egyptian who sailed out of the Red Sea and down the African coast as far as Rhapta (probably in southern Tanzania), and across to South Asia and beyond (Casson 1989). Along with other classics such as Hourani's (1951, 1995) look at Arab seafaring, a number of more recent edited volumes have also addressed this culture area (Reade 1996; Chandra 1987 among others). Some shores of the Indian Ocean are better known historically and archaeologically than others, such as the northern shore and especially the area of the Gulf and the Red Sea, which provide many of the dateable ceramic trade wares used elsewhere in the region. Others, such as Myanmar (Burma), Somalia, and Mozambique, have suffered long periods when very little archaeology could be accomplished due to military conflict or political restrictions in the 20<sup>th</sup> century. For many of these regions, colonialism greatly influenced archaeological research.<sup>1</sup> Today, most of the countries bordering the Indian Ocean, including Madagascar, are among the world's poorest and this has its own implications for the local practice of archaeology. Among all of the coastlands, human population growth and the concomitant

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<sup>1</sup> One of the best known examples of this is the attempt by a colonial government to attribute the construction of Great Zimbabwe to non-Africans (Garlake 1982; Trigger 1984). This hyper-migrationist argument was part of the colonial agenda to deny any achievements to "savage" Africans, as attempted justification for political domination. In a similar vein, many of the first archaeological analyses of the coastal civilizations tried to use their Indian Ocean connections to assert their "non-African" nature. An example of this trend is "Tanganyika's First Colonists. New Findings from Kilwa" (Moffett and Mathew 1951), whose very title portrays twentieth century British colonialism as the mere repetition of a thousand year old pattern for the coast.

agricultural and urban expansions are destroying the archaeological record at a distressing rate.

Since it is still somewhat unclear where in the Indian Ocean the majority of the modern Malagasy originated, antecedents may be found along any of these coasts. However, since the closest linguistic neighbor to Malagasy is found among the Barito of Borneo, recent archaeological work in Indonesia (Bellwood 2007) is especially important. Hopefully, archaeological work over the next few decades will turn up early assemblages in Madagascar with clearer connections to the wider Indian Ocean World.

Perhaps the most valuable development in the archaeology of the western Indian Ocean has been the Urban Origins Program, funded by the Swedish government (Virgin 1993). This program directed by Paul Sinclair has trained a number of students from each of the coastal African countries, and a number of the dissertations have already been published, including an important work from Madagascar (Radimilahy 1998).<sup>2</sup> This generous project has put the production of archaeological information, and the formulation of research questions, into the hands of local people, who are much better at creating the necessary public support for archaeology than outsiders could ever be. A second important result of this program is that it has created a cohort of African archaeologists familiar with each other's work and more aware of the regional connections than ever before. One legacy of colonialism is that researchers in Madagascar have often looked to Francophone West Africa for comparisons, rather than the neighboring Swahili coast (and Anglophone researchers, including myself, have been just as reticent to cross this linguistic divide in the other direction). The Urban Origins Program and its many conferences has created a group of archaeologists and related

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<sup>2</sup> Rakotoarisoa (1998) also participated in the SAREC project and published his dissertation in the same year, but his research in Anosy was sponsored by a number of different institutions and largely preceded the Swedish project.

scholars working together on a regional scale for the first time, and the archaeology of the western Indian Ocean will undoubtedly benefit from it.

My introduction to Indian Ocean archaeology was the excavation of an early cemetery on the island of Pemba, Tanzania, with Mark Horton (in preparation). The only grave goods we recovered from the twenty-some burials we uncovered were small chlorite-schist vessels. We knew such items were long distance trade goods, but did not know whether they pointed to connections with Madagascar or the Middle East since chlorite-schist was mined and exported from both of these regions. A regional neutron activation analysis of this material, of the sort described in Chapter 7 for my samples from the Matitanana, could help answer this question. Thinking about the western Indian Ocean as a whole led me to investigate the role of migrations and the spread of Islam in the rise of Swahili civilization (Griffin 1998). My starting point was questioning why elite Swahili so vehemently deny that they are "Africans," even though so much evidence points the other way. I learned there were very practical benefits to being classified as an "Asian" during the period of European colonialism in East Africa, including access to better health care, education, jobs, ration coupons for rice during the world wars, and even exemption from the Hut Tax. In fact, so many Swahili were petitioning the courts for non-native status (by proving at least one of their parents was of non-native descent) that the colonial government in Kenya gave all Swahili "Arab" status in 1952 (Swartz 1991:43, citing Stoebel 1979:40-1)<sup>3</sup>. But there were also economic benefits before the colonial era, for as Donley has pointed out,

the Swahili used, probably unconsciously, aspects of material culture, such as houses, dress and diet, as a means of creating and maintaining their respected

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<sup>3</sup> This is relevant to the publication of the first major excavation in East Africa, Kirkman's 1954, *The Arab City of Gedi*, in that "Arab City" is what one would have legally called Mombasa, Malindi, and Lamu at the time.

middleman position ... The process was centered around the ability to look Arab, even if one was mostly African."(Donley 1984:78-9)

The Swahili definitely owed their material success to their position in the Indian Ocean trading network, but I feel this self-identification with an exotic origin also had ideological and political import. As Earle has noted, elite individuals (in his case, chiefs) "often emphasize their foreign origins, an assertion that serves to legitimize rule by a group set off and connected to a universal (rather than a local) order" (Earle 1987:299), and this was the theoretical orientation outlined in Chapter 1. Islam, as a universal religion, would have contrasted strongly in its worldly nature with the more local belief systems, and by positioning themselves as descendants of Persians and Arabs, in contrast to lower class native Africans, the emerging Swahili elite attempted a hegemonic justification for social inequality. In my earlier research (Griffin 1998), I attempted to compare the total mosque space (as an index for the number of practicing Muslims) and town sizes along the East African coast over time to better understand how and why Islam spread.

In the end, my view was that the spread of Islam along the African coast had less to do with the international politics of conquest, migration, colonialism, slave raids and long-distance trading, and more to do with the locally emerging socio-political situation and internal differentiation in the coastal societies themselves (see also Wright 1993). Though the causes of social change will usually be local, those local factors can best be understood within a larger regional context. The theoretical background of that work (Griffin 1998), especially the reliance on Helms' theories of the social use of exotica, obviously underlies my current work among the Antemoro in Madagascar. The many parallel processes between the Swahili and the Antemoro, including their very similar origin myths, attracted my interests because they help define a broad trans-regional nexus in which local people act.

The archaeology of the western Indian Ocean is important for many reasons, but critical among these is that the extensive trade connections led to the wide sharing of not only goods, but ideas as well. Madagascar was not isolated in its development of social inequality and political complexity. State level societies did not develop from the *tabula rasa* of egalitarian bands on the island. The groups who stepped off their ocean-going vessels onto these shores had most likely participated in complex state level societies (whether on the western, northern or eastern shores of the Indian Ocean). Whatever their role in the previous systems, the political situation they left behind (and its ideas on social rank, leadership, and justice) likely prefigured and influenced the political structures they would develop once in Madagascar. Researchers should someday find the evidence that will help us more accurately trace the migration routes into Madagascar. The regional context needs to be known well enough to accurately understand this evidence once found. The regional connections along the trade routes involved the movement of goods, people, and ideas, and should factor into any local explanations of change in Madagascar.



Figure 4.1. Intensively surveyed areas of Madagascar (1975-2005) excluding the Matitanana Archaeological Project. (after Dewar and Wright 1993:427; Wright *et al.* 2007:2).

#### 4.2 Archaeology in Madagascar

Modern systematic archaeology began in Madagascar in the 1960's with the work of Pierre Vérin, which included his comprehensive study of the Islamized peoples of the northern coasts (1975, 1986). He indicated a desire to expand this study to include the

Islamic peoples of the east coast (to be "studied later in a separate publication" (Vérin 1986:79), though other circumstances intervened and this research was not forthcoming. Vérin did include an overview of the oral traditions and Sorabé concerning migrations down the eastern coast. Many of the topics and questions addressed in Vérin's original work on the northern coasts have strongly influenced my own. Vérin also encouraged important archaeological work by others (such as Mille's (1970) survey of the central highland hillforts by aerial photographs), and I was grateful to have one of his earliest associates and field workers, Ramilisonina, as a member of our field crew.

In the 1970s, Henry Wright and Susan Kus began working in the central highlands and introduced intensive regional archaeological surveys and detailed local ceramic chronologies (Wright 1979; Wright and Kus 1976, 1979; Kus and Wright 1986; Wright *et al.* 2007). In the 1980s a number of Malagasy archaeologists began work, building upon the established methods of Vérin and Wright: Radimilahy has worked in the south (1985) and northwest (1998). Rasamuel (1984), Rafolo (1985), and Rakotovololona (1989) have worked in the center of the island, and Raharijaona (1989) a bit further south. Another group, Emphoux and Ramiandrisoa (1991) and Barret (1991), have worked primarily in the southwest of the island, and the former head of the Museum of Art and Archaeology, Rakotoarisoa (1998), has a long standing project in the far southeast, to the south of my study area. In addition, a number of Europeans and Americans began work: Parker Pearson (1992) and Heurtebize (1986) in the far south, and Dewar in the central and far northeastern regions (Dewar and Rakotovololona 1993). Also, Burney (1988, 1993) began ranging across the island excavating and collecting pollen cores in a study of the island's paleoecology and post-Pleistocene extinctions, building upon earlier work by Dewar and others on the subfossil extinctions (Dewar 1984; Dewar and Burney 1994).

In the 1990s most of these researchers (along with a few others such as Bartelemey Manjakahery and Leon Darsot) continued their efforts, though with the unfortunate loss

of Rakotovololona. These were joined by a second generation of American students, including Sigrid Gabler (2005), Zoe Crossland (2001) and myself under the supervision of Henry Wright, and a few Scandinavian and French researchers (e.g., Allibert 1991; Allibert and Vérin 1993). The extent of these few decades of work can be seen in Figure 4.1, showing the coverage of various intensive surface surveys on the island through 2005, not including the Matitanana Archaeological Project documented in this dissertation. This map makes clear how much of the east coast had not yet been looked at archaeologically, a rectangular block over 60,000 square kilometers in size, surpassed only by the large section of the west coast that also remains largely unknown. Many of the citations above also document the various excavations undertaken on the island. This work and the artifacts recovered will be referenced in the next chapter in the creation of a ceramic chronology for the Matitanana region.

In addition to this systematic work, there has been a long tradition of less formal and amateur work in Madagascar. During the colonial period, many colonists took up archaeology as their hobby, with mixed results. During the 1940s three officials (Gaudebout, Vernier, and Poirier) opened up 461 tombs at the important northeast site of Voahemar, without adequately curating the recovered objects or publishing their results (though, see Gaudebout and Vernier 1941). As Vérin has stated,

"I would say without hesitation that, when archaeologists assume the responsibility of opening as many as 461 tombs, they are morally bound to provide details of their results for those who follow them, even if they are at the time unable to interpret the whole body of data themselves" (Vérin 1986:222).

Given the importance of the ancestors in Malagasy life, this will likely be the only large-scale study of tomb contents ever undertaken in Madagascar, and the lack of recording unfortunately makes it far less useful than it could have been. Officials also routinely wrote in to the Academie Malgache with news of their discoveries, and this correspondence was often published in its bulletin. Many above ground features and ruins on the island were first learned about in this fashion. For example, a report by Dalais

(1919) of a chlorite-schist quarry near Mananjary shaped Pannetier's (1974) work on the southeast coast, which in turn influenced my own project (as will be discussed below).

The above list of archaeologists in Madagascar is neither exhaustive nor complete. In particular, since I am affiliated with the Musée d'Art et d'Archéologie (the branch of the University dealing with foreign and field researchers and the curation of artifacts), I am not as familiar with the work being done in connection with the Centre d'Art et d'Archéologie (the University of Madagascar's teaching unit). Thus I was shocked to see a poster at an exhibition in Antananarivo in 1995 listing 39 major excavation projects undertaken in Madagascar during the 1980s alone. The shock came from the fact that I was ignorant of so many of the listed projects and their principle investigators. Some of those projects, as is also common elsewhere in the world, have not yet been published and so little information is available concerning them. I am guilty of this as well in my own delay in finishing this dissertation. However, it is clear that enough work has now been undertaken that a history of archaeology in Madagascar (by someone more knowledgeable and connected than myself) would be a useful document for the discipline as we go forward. In any case, from having effectively started with a single researcher four decades ago, the archaeology of Madagascar has expanded to include numerous researchers from various perspectives working all across the island. Despite the fact that this overview is not complete, this introduction conveys a sense of the people involved and some sources for the archaeology of Madagascar.

Building from all of this archaeological work, the culture history of Madagascar, as it is currently understood, can be summarized as follows (drawing on the useful summaries provided by Dewar and Wright (1993) and Wright and Rakotoarisoa (2001)). Most surprising, perhaps, is the fact that human occupation of so large an island appears to be so relatively recent.

Little is known of the human occupation in Madagascar for most of the first millennium AD, though there is some scant archaeological evidence for different periods.

In the first few centuries BC there is possible *Cannabis/Humulus* pollen (probably *Cannabis*) in the central highlands (Burney 1987; Gasse and Van Campo 1998), and in the first few centuries AD there are a few cut marks on hippopotamus bones in the southwest (MacPhee and Burney 1991; Burney *et al.* 2004). Of course, birds rather than people may have spread the *Cannabis* seeds, and the modified hippo bones may indicate non-resident seafarers who hunted along the west coast while sailing north, rather than actual occupation of the island. This lack of early settlement in Madagascar is puzzling to me, given the millions of years that humans have been on the neighboring African mainland and the length of time humans have been capable of open ocean voyages, as for example in the settlement of Greater Australia, (O'Connell and Allen 1998). Evidence of early occupation may yet turn up, but at the moment it appears that humans have lived in Madagascar for less than two thousand years, with substantial occupation only occurring in the past millennium.

In the middle of the first millennium A.D., the earliest evidence of occupation is found on the far northeast coast – sparse forager campsites in a rockshelter, with remains indicating the exploitation of both the local forest and the nearby shore (Dewar and Rakotovololona 1993; Dewar and Wright 2000). It is argued that even these earliest foraging settlers were most likely merchants or sailors involved in the maritime trade (Dewar 1996). Evidence for these trade connections greatly increased with the first village sites in the eighth century A.D., also on the northeast coast at Nosy Mangabe (Vérin 1986:274; Wright 1992) and along the Mananara River (Wright and Fanony 1992).

By the 11<sup>th</sup> century, settled agricultural villages had spread to most of Madagascar's coasts. Many of these sites contain evidence of iron working, imported Far Eastern and Near Eastern ceramics, chlorite-schist vessels, and cattle herding. There also developed by this time a few larger centers, such as Mahilaka on a beach terrace on the protected Bay of Ampasindava on the northwest coast (Radimilahy 1998). This large city

had masonry walls surrounding 60 – 70 hectares of occupation including post houses, masonry houses, workshops, mosques and other public buildings. In this regard Mahilaka resembled in many ways the contemporary harbor-towns of the Comoros and along the Swahili coast, and was evidently well-connected to the trading networks of the Western Indian Ocean. Mahilaka, however, was abandoned in the 14<sup>th</sup> century, just as many of the Swahili ports on the mainland were reaching their greatest extent (this abandonment may be related to the exhaustion of local resources or simply the shifting of trade connections away from this region). A very different kind of settlement of this same period is exemplified by Andranosoa on a seasonal river bank in the thorn forest of the far south, which was located inland and apparently occupied primarily by pastoralists (Radimilahy 1981; Heurtebize 1986). Like Mahilaka, there is evidence at this site of iron working, imported ceramics, and a discontinuous dry stone embankment (rather than masonry wall) surrounding about 30 hectares of open space with several concentrations of small houses on posts. It too was abandoned by the 14<sup>th</sup> century, though the excavated iron smelting feature dates to the more recent 17<sup>th</sup> and 18<sup>th</sup> centuries (Radimilahy 1985). The early second millennium A.D. also saw the first settlements in the central highlands of Madagascar, such as at Ankadivory (Rakotovololona 1993). These small sites in the highlands generally had small ditches without banks (probably for the control of cattle) surrounding a hectare or less of houses and storehouses on posts and open working areas. There were no large scale centers in this region at this time.

As Mahilaka was abandoned on the northwest coast, smaller port towns farther south developed, such as Kingany and Nosy Manja (Vérin 1986). These sites of the 14<sup>th</sup> to 16<sup>th</sup> centuries included stone built (and cut coral trim) structures, tombs, and mosques, and seem well connected to the western Indian Ocean trading networks of the Swahili and others. These new towns differed from Mahilaka in that the earlier city seems more "of the island," with closer connections to its hinterland on Madagascar and Nosy Be, while the more recent towns seem more "of the ocean," often perched on small islands

just off the coast with little apparent connections to the mainland. The important trade goods most likely passed just as effectively through these new towns, and this replicates the contemporary Swahili pattern of trading entrepôts perched on the edge of a continent. On the far northeast coast at this time, there also developed a number of important centers, such as Vohémar (Vérin 1986), specializing in the manufacture of lathe-turned chlorite-schist vessels, and a few towns farther south along the east coast towards Antalaha. The locally produced vessels, along with other trade goods from the northern coast – including gold, iron, gum, wood, and shell – undoubtedly entered the wider Indian Ocean trade networks. The excavation of the tombs at Vohémar (as discussed above) revealed the social differentiation among the inhabitants that one would expect in a cosmopolitan Islamic harbor town. However, current research by Wright, Dewar, and Radimilahy has so far failed to locate a major town in connection with the cemetery at Vohémar (Wright, pers. comm.). Perhaps the remains of this large center will soon be recovered through archaeological survey, or possibly all traces of it have been destroyed by a tsunami or other means. It is also possible that the excavated cemetery aggregated the dead from a number of small villages that were the production centers for the chlorite-schist vessels, and so was not connected with a single major site. If the northwest towns of this period appear to be the homes of remote middlemen, specializing in long-distance trade goods, the northeast towns appear more industrial, with their residents having closer connections to the villages and quarries of the interior, producing the bulky stone vessels for export.

Other areas of Madagascar also saw increasing social and political complexity during this period. In the Anosy region (Rakotoarisoa 1998), the changes in ceramics and to an hierarchical organization was so abrupt that it is argued that

there was a cultural disjunction which supports the statement of mid-seventeenth century paramounts to the French colonizer Flacourt (1661) that their ancestors came to the Efaho Valley from the north (Dewar and Wright 1993:445).

Research in the Matitanana area, to the north of Anosy, should help us investigate this development of socio-political complexity, as part of the general southward migrations along Madagascar's east coast. A similar pattern was found in the central highlands, where beginning in the 14<sup>th</sup> century large hilltop forts emerged with smaller dependent villages surrounding them (Kus and Wright 1986; Raharijaona 1993; Crossland 2001; Wright *et al.* 2007). Thus, through the middle of the second millennium, the size, number, and diversity of site sizes increased; enclosures became more defensive; site locations also became more defensive and placed so as to control wet rice production (which seems to begin in the 15<sup>th</sup> century in the central highlands); and many areas developed a number of equal-sized competing centers.

In line with many peer polity interaction theories of socio-political change (Renfrew and Cherry 1986), the last three centuries of the second millennium saw the development of state level societies in many regions from these earlier competing centers. These developments are also well within the historical period, and we have written descriptions and oral traditions to help us understand many of these state polities (such as the Merina in the center, Betsileo in the south central, Sakalava in the west, and Betsimisaraka in the northeast). The documents also help us understand the shift away from a luxury goods trading network and towards the export of slaves and the import of guns by many coastal polities. Not all of the areas experienced these socio-political developments. The former port cities on the far northeast coast declined with the cessation of the chlorite schist trade and the Anosy region in the far southeast remained at a level of competing centers and dependent villages. One of these state polities, the central Merina, eventually outgrew the others and became imperial in its expansion, taking over much of the island, including my research area along the Matitanana. The Merina state provided the ruling structure which was largely co-opted by the French colonial régime, and thus formed the basis for the modern Malagasy state.

It is into this general culture historical framework that I will situate the East Coast Antemoro region in the following chapters, after first considering the direct antecedents to my own research within that region of Madagascar.

### **4.3 Archaeology in the Seven Rivers Region**

The region centered on the Matitanana River is bounded archaeologically by work on the coast some 250 kilometers to the south in the Anosy (Wright et al 1993; Rakotoarisoa 1998) and some 350 kilometers to the north by work between the port city of Toamasina and Mananara on the Bay of Antongil (Dewar and Wright 2000; Wright and Fanony 1992). Going inland, the closest archaeological work is the study of the valley of Manandona between Betsileo and Merina territory (Raharijaona 1994), and some preliminary surveys south of Fianarantsoa (Raherisoanjato 1994) and excavations northwest of Fianarantsoa (Vérin 1968). I will look to these works for parallels in the ceramics and culture history of the Antemoro region.

The most important precursor for my work is that of Jacques Pannetier who worked in this region for a short time in 1972 as part of a master's thesis (Pannetier 1988<sup>4</sup>) and published the results as an article in *Taloha* (Pannetier 1974). His fieldwork was followed by a University of Madagascar fieldschool at the important site of Ambohabe, with 30 students excavating in September 1973 (Rasolofoson *et al.* 1974:196-210) and 33 students excavating in October 1973. Pannetier was primarily interested in chlorite-schist (soapstone) production on the Southeast coast. He noted that the most famous archaeological remains for this coast were the "grand jar" at Ivondro near Toamasina and the "stone elephant" at Ambohitsara near Mananjary (see my

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<sup>4</sup> The unpublished manuscript I obtained at the Museum of Art and Archaeology was a version of Pannetier's thesis in the process of being prepared for publication by the museum, with a date of 1988 on the title page. It was most likely written in the mid 1970s, and has not yet been published, but hopefully will be released at some point.

photographs in Figures A250 and A251 in the appendix). Both of these are sacred objects attributed to the mythical ancestor Raminia who traveled down the East Coast - a tradition recorded in a Sorabé translated by Ferrand in 1902 and included in *Taloha* 6 (Ferrand 1974). This "stone elephant" has since become the focus of study for Theo Detjen, and his work will be discussed at the end of this chapter.

Pannetier examined the early twentieth-century reports to the Academie Malgache by various colonial officials in the region, and discovered three mentions of sites with chlorite-schist artifacts. Two are quarry sites northwest of Mananjary, and one is a site with reported chlorite schist vessels in the plantations of the Protestant Mission at Mananjary. Pannetier was able to visit the mission site, but found no archaeological remains through survey or excavation. The first chlorite-schist quarry site ("site Rakoto Franck," reported in 1915) was judged by him to be too remote to visit in the available time, though Pannetier did re-locate it on the map north of Mananjary and south of the Fanantara River (Pannetier 1974:55). Thus, his work focused on the second quarry site ("site Dalais" reported in 1919) and the "newly discovered" site of Ambohabe, 150 kilometers to the south on the Matitanana River. We attempted to relocate this second quarry site to obtain samples of the rock for further analysis. I am confident that we did find the site first visited by Pannetier (though it is not clear that our site 240 is also the site that Dalais reported in 1919, see Chapter 7 for details). Locally this spot is known as "Ambatobe" meaning "big stone," and the area is most easily reached on foot from the town of Ambalanaomby, which is presently accessible by car.

While searching we also recorded three other quarry sites in the area, and obtained rock samples for compositional analysis through Instrumental Neutron Activation Analysis (INAA), in an attempt to source the chlorite-schist remains found in the Matitanana River valley (as will be discussed in Chapter 7). Pannetier's own work was focused on the production of the chlorite schist vessels, and while at the site he recorded the shape and sizes of the blocks that had been removed and the few blanks that

were abandoned nearby, and determined that they were extracted by iron chisels at least 50 centimeters in length.

Pannetier's other site of Ambohabe (our site 3) was shown to him by the residents of Seranambarry (our site 51) after he showed them a few pieces of chlorite-schist (Pannetier 1974:57). Finding a surface scatter that included chlorite-schist fragments, Pannetier excavated by natural layers two trenches of two by one meter. He provided excellent illustrations of the artifacts recovered in his *Taloha* article, designated by square, strata (a, b, or c), followed by what I believe to be a sequential find number (unfortunately, these illustrated artifacts could not be located in the museum storerooms in Antananarivo). Pannetier did not assign a date to any of the strata or to the overall site, but based on his illustrations and our work nearby, I have designated an Ambohabe phase (15<sup>th</sup> and 16<sup>th</sup> century) based on this site (see Chapter 5). Pannetier's interpretation of Ambohabe was based on information he received from an old man (born in 1898) from the nearby village of Ambohitsara (site 17). This man claimed the Onjatsy, who eventually abandoned Ambohabe in favor of their current village, had first settled the site in the distant past. After this, the site remained vacant for a long period, until occupied by Merina (from the central highlands) at the beginning of the 19<sup>th</sup> century. At the end of the 19<sup>th</sup> century, a European family named Aguis settled at the site and created a coconut plantation (Pannetier 1974:58). Pannetier noted the large number of fish net weights recovered in his excavations (made primarily from recycled chlorite-schist), and linked this with an observation made by Flacourt in the 17<sup>th</sup> century that the Onjatsy were above all fishers and sailors, to confirm this ethnic assignation of Ambohabe with the Onjatsy.

I will discuss the results of my research over the next three chapters, but here briefly note that Pannetier's informant was from the village of Ambohitsara, which is a commoner village allied with Onjatsy. The aristocratic Antemoro clans claim that they were the ones who settled Ambohabe before moving inland to their present villages of Ivato, Vatomasina, and elsewhere. This difference is related to the political struggles

discussed in Chapter 3 - with the royal Anteonny preventing the Onjatsy from erecting their commemorative marker (now lying on its back in the village of Onjatsy as seen in Figure 3.2) at the site of Ambohabe. While the ethnic identification based on fish net weights is not clear cut, I agree that the archaeological evidence indicates fishing was important for the early inhabitants of Ambohabe.

As for the other parts of this oral tradition, we found no evidence of Merina occupation near the Ambohabe sites, though we did recover evidence of the invading Merina elsewhere in the river valley (as will be discussed in the following chapters). As for the European family, only two sites on the coast north of the Matitanana River mouth had European ceramics: some 700 meters north of Pannetier's excavation site was a small scatter at site 11, and eight kilometers north was a larger concentration of European wares along with many iron implements at site 22 (see Chapter 6 for site locations). This latter site is locally known as "Antanambaza," or the "place of the foreigners," and we interpreted it to be a temporary work camp used during the construction of the nearby Pangalanes Canal, though it could as easily have been part of a colonial plantation. However site 11, which is much closer to Ambohabe, may well be connected with the Aguis family, though very few vessels were represented, and we found no structural or other evidence of European occupation. The site clearly merits further attention and some historical research in the archives of Madagascar and France.

In 1973, two University field schools were held at Ambohabe, though fieldnotes beyond the short publication describing this work ("Annexe," Rasolofoson 1974) were not obtainable. This article included an important site map that Pannetier's work lacked, and so is a valuable addition. However, the artifact descriptions and illustrations were much more cursory. The map indicates two large trenches and eight sondages scattered across a large area (Rasolofoson 1974:197). Trench B appears to be 21 meters by one meter in size, and ten square meters from this trench are described in the publication. The map also indicates sondages X1 to X3, Y1 to Y3, and Z1, but we have no information

about the results of these soundings. The museum storerooms in Farovohitra did contain the artifacts recovered during the fieldschools, and we were able to examine sherds from 53 different meter squares (including 12 squares labeled E through P, though it is unclear where at Ambohabe these sondages were situated). Unfortunately, the sherds are labeled with only the square designation and a sequential number, so there is no indication of the depth or layer for each artifact. Thus, even though some 60 square meters had been excavated during these fieldschools at Ambohabe, the material recovered is not as useful for creating a ceramic chronology as Pannetier's four square meters, since the students' artifacts can only be provenienced by square (in some cases) and not to a level or layer. The greater volume of material is useful, though, in learning the range of wares present at this site (screening was evidently not utilized, since only relatively large objects were retained), and in recovering the more rare artifacts, such as beads, which were exposed due to the greater volume of earth moved.

The Malagasy students were also interested in the ethnography of the Antemoro, and they recorded and described the most common origin myths (coming from Mecca), and, presumably on these grounds, assigned a 16<sup>th</sup> century date to Ambohabe, based on when people "first arrived at the Matitanana" (Rasolofoson 1974:196). They also recorded the current political structure with a king for each of the three different clans (royal Anteony, religious Antalaotra, and commoner Ampanabaka), and recorded a number of the local taboos (*fady*). In this latter section of their article they note the prohibition on marriages with the "caste Antevolo" (discussed as the Antemanaza in Chapter 3), and also commented on the lack of *Famadihana*, the ritual turning-of-the-bones ceremony common in many other parts of Madagascar.

Two final researchers must be mentioned in this section. The first is Theo Detjen, an independent scholar who spent ten weeks at Ambohitsara north of Manajary studying the famous "stone elephant." Detjen self-published a two volume work on the subject (Detjen 1998a, 1998b), copies of which are available at the Musée d'Art et d'Archéologie,

Antananarivo). Detjen's primary argument was that the chlorite-schist sculpted animal in this village, locally called the *Vatolambo*<sup>5</sup> and standing over a meter high and almost two meters long, is actually a wild boar, and not the elephant as it is most often labeled in the literature (see Figures A250 and A251). Detjen undertook a thorough study, exploring the neighboring region trying to source the stone of the sculpture. He traveled up the Fanantara River (towards the quarry first reported by Rakoto Franck in 1915, and situated on a map by Pannetier 1974:55) and discovered three quarries near the village of Ambatoseza (it is unclear how these quarries relate to the ones reported in 1915 by Rakoto Frank). Detjen conducted a number of "superficial sondages" at the largest quarry near Androrangalava, and hired porters to carry a 60 kilogram sample of the material back to the town of Ambatoseza (Detjen 1998a:43).

The past inspires passion in many people (including myself), but Detjen's enthusiastic report could have benefited from the eye of a good editor. For example, one of the main goals of his research is to link the *Vatolambo* with early Chinese bronzes, which often depicted wild boars. Thus, while noting the symbolic nature of the number nine for the Chinese, he found meaning in his measurement of the *Vatolambo* as being 180 centimeters long - "a multiple of nine!" (Detjen 1998b:7) ... implying that a local sculptor had relied on the metric system centuries ago. He then uses this purported Chinese connection to argue that the first immigrants to Madagascar were Chinese who arrived in the second century B.C. He buttresses this date by pointing to a Chinese emperor of the period who sent out a navy of young men with instructions to "find paradise;" and the assertion that since Buddhism arrived in China in the first century

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<sup>5</sup> Though Detjen himself argues for the term *Vatomasina* (sacred stone) rather than *Vatolambo*. What surprised me most upon seeing this object for the first time myself was the graffiti covering its surface. Objects of pilgrimages such as this are often covered in graffiti, as people attempt a sort of reciprocal exchange with powerful spots and landscapes: leaving one's name behind, while at the same time collecting some local memento to take home (Griffin 1999).

B.C., and since there are no early statues of Buddha in Madagascar, then the settlers must have left China before the first century.

The archaeological evidence for the early human occupation of Madagascar, as summarized earlier in this chapter, does not support Detjen's theory. Of course, this does not mean that closer connections between Madagascar and China will not be revealed some day, but for now our limited evidence does not suggest such things.

Detjen's work also serves as a reminder for how common, yet un-obvious, archaeological remains can be. Once we learn what to look for, archaeological survey is simple, but before being shown, many people do not take note of the things on which we base our discipline. After spending weeks living in Ambohitsara (our site 213, and his report includes a very nice site map for the village of Ambohitsara), Detjen still wondered why there were no other chlorite-schist artifacts in the town, concluding that they must have been completely destroyed and removed by immigrant Muslims arriving in the Middle Ages, the same Muslims, in his opinion, who transformed the stone boar to look more like a stone elephant for religious reasons in "purifying the village" (Detjen 1998a:64). He may have been expecting or looking for whole vessels, because our quick survey revealed a number of chlorite-schist vessel fragments within sight of the *Vatolambo*. We also discovered a large and very early site north of Ambohitsara near Ampaho (site 211, as will be discussed in Chapter 7). Despite the errors in his report, Detjen's discovery of the new chlorite-schist quarries in this region is important.

Finally, I would like to mention the work of Elie Rajaonarison, who I feel has produced some of the most insightful analyses of the Sorabé literature (e.g., Rajaonarison 1994 discussed in Chapter 3). His first trip to the Matitanana was under the auspices of the Urban Origins Project (described above). As such, Rajaonarison undertook archaeological research in this region, and he produced a few reports for this program based on his research (Rajaonarison 1989, 1990). In these, he focused on Vohitrandraiana (or "village of the nobles") (our site 59) as the "grand site of the Antemoro," though he

does not give details of his archaeological evidence. Our intensive surveys and excavations at this site recovered only a single pottery sherd, and no other artifacts. Our interviews revealed that this hill was in fact "the place of the ancestors" for Rajaonarison's main Sorabé informant, whose father had once lived on the site. A personal family history or the location of former farmsteads differs in scale from an archaeological culture history that attempts to locate the population centers of earlier eras. Though oral traditions can be indispensable for finding and interpreting sites, the sites, at some level, must also exist as archaeological sites based on material evidence. However, as stated above, important work resulted from Rajaonarison's focus on the *Sorabé* texts, and I am indebted to him for the time spent with his Katibo informants.

Archaeological research in Madagascar has documented a development from scattered coastal villages in the 8<sup>th</sup> century AD, through a complex period of involvement with successive Indian Ocean trade networks in the 10<sup>th</sup> to 16<sup>th</sup> centuries, to the emergence of indigenous states by the 17<sup>th</sup> century AD. To sum up the earlier archaeological work in the Seven Rivers Region, at the beginning of my project I knew that Pannetier had visited a chlorite-schist quarry near Manajary and had conducted preliminary excavations at Ambohabe in the 1970s, followed by a field school there for which we have very little information preserved. I also knew that Rajaonarison had more recently described a second site on the Matitanana River at Vohitrandriana (which turned out not to be an archaeological site as we defined the term, given the lack of artifacts or other evidence from both surface survey and two test excavations). These reports gave me a few places to start, and an expectation that archaeology in this region was indeed possible. Detjen's fieldwork, occurring in 1996 and 1997, was unknown to me until later, and thus I did not have a chance to visit his newly discovered quarries. It was with this background and within these contexts that I conducted my fieldwork project, as will be discussed in the next three chapters and documented in the site catalogue.

**CHAPTER 5**  
**MATITANANA ARCHAEOLOGICAL PROJECT:**  
**EXCAVATIONS AND CERAMICS**

*Ny hazo tokana tsy mba ala*  
One tree does not a forest make

This chapter and the following two will lay out the substantive results of the Matitanana Archaeological Project, in something of a reverse order from that in which they were obtained. During the fieldwork we generally began with surface surveys, which helped us identify interesting sites to return to for test excavations, the results of which helped us create a ceramic chronology for the Matitanana Region. This chapter will begin, however, by outlining the ceramic chronology and the absolute and relative dating evidence that structures it, followed by a consideration of the main excavations undertaken during the project. Chapter 6 will then discuss the survey results and the changing settlement patterns in the area. To create a pottery typology was not the goal for this fieldwork, as, like many archaeologists, I rather envisioned the fieldwork as one way to better understand past lives and cultural processes. However, controlling for the temporal dimension, in this case by assigning ceramics to successive chronological phases, is the bedrock upon which all future archaeological inquiries depend, and was a necessary first step in the archaeology of the Matitanana region. Despite the connotations of the term “bedrock,” the ceramic chronology developed for the Matitanana region is still provisional at this early stage. It is merely a heuristic device based on an “intuitive

typology” (Sinopoli 1991:49) to try and organize the data recovered. I hope that future fieldwork and analysis will refine and correct this chronology as needed.

The fieldwork for this project was carried out primarily during four field seasons in 1994, 1995, 1997, 1999, between the months of May and November (though September and October turned out to be the best months for archaeological research in this part of Madagascar, with the least rain.) The actual number of days in the field varied each season, depending on the schedules of my Malagasy colleagues and the Museum of Art and Archaeology in Antananarivo. Each season we established a base camp in the town of Vohipeno, where we spent approximately half the nights, with the other half spent in tents or school houses around the region. Field crews ranged from two to eight people, and would occasionally be split into two groups when we had sufficient numbers, often with one group excavating while the other surveyed the surrounding area. In total, many more days were spent on the systematic survey than on the excavations. Over the four seasons we completed thirty-five sondages at sixteen different sites. Table 5.1 lists the name and number for each of these excavated sites, along with the number of test excavations, or sondages, at each site. The excavations are broken into “Main” and “Minor” categories, which do not refer to the overall site size or importance, but rather to the amount of information we were able to derive from the excavations. The four main excavated sites, each the focus of a different field season, are discussed in this chapter. Three of these sites, Marovahiny, Sangilavitra, and Ambinanimananano Atsimo, are also the source for a chronological phase name. For information on the sixteen other sites with “minor” excavations, I refer the reader to the site catalogue in Appendix A.

Table 5.1. Sites Excavated.

<u>Site Number</u>	<u>Site Name</u>	<u>Number of Sondages</u>
(Main)		
46	Marovahiny (1994)	5
62	Antanimbaribe (1995)	3
153	Sangilavitra (1997)	3
214	Ambinanimananano Atsimo (1999)	4
(Minor)		
5	Ambohabe 2	2
24	Ankarinarivo	2
29	Antanambao Enohona	2
31	Antaritsinanana	1
39	Fotsivava	2
43	Lovaso	1
48	Onjatsy	2
55	Tsimilanja	1
59	Vohitrandriana	2
60	Vohitratafana	2
90	Ankatsaka	2
121	Vatanivao	1

The location of each of these sites can be found on Figure 5.1, which shows their locations relative to the modern towns of the region. The four main excavated sites are all underlined on this map, as are site 3 (Ambohabe) and site 21 (Ampasimeloka.) Site 3 is Pannetier's Ambohabe, excavated in 1972 as described in Chapter 4. Even though not undertaken by our project, the excavations at this site must be considered among the key datum points for this region, and so Ambohabe serves as the basis for one of the phase names and is listed on this map. We also did not conduct test excavations at the still occupied village of Ampasimeloka, but as that town lends its name to the final and most recent ceramic phase, its site number is underlined in Figure 5.1 as well. As can be seen on this map, the Manampatrana River valley in the Farafangana region did not receive as much survey attention nor any test excavations. My personal choices for excavations in this region would be Nofy (site 123) and Anosy (site 140), and hopefully future research will be able to incorporate the information they can provide into this project.

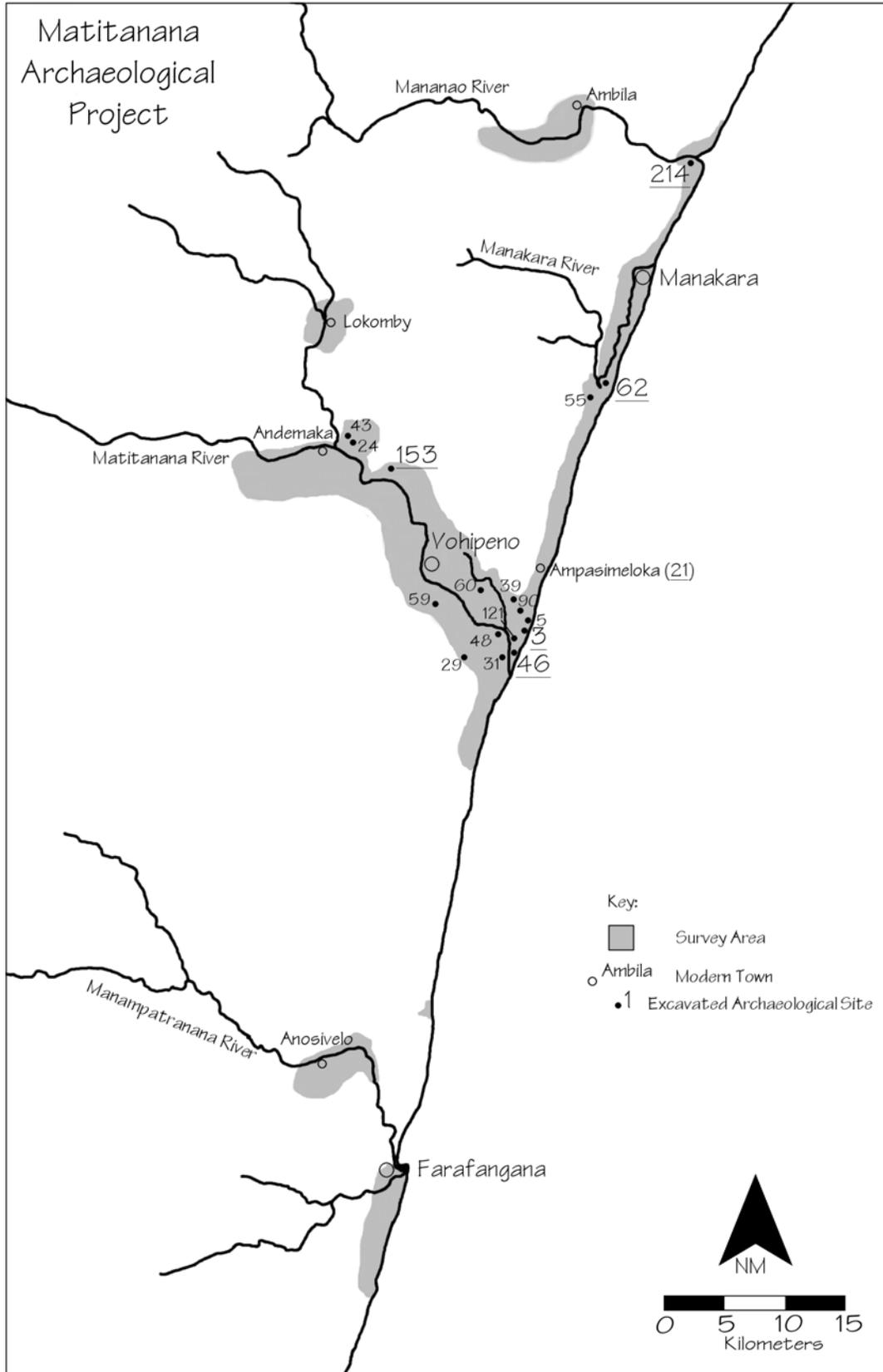


Figure 5.1. Excavated sites and modern towns. Main excavations underlined.

Figure 5.1 shows the project's concentration on the lower Matitanana River valley, especially in the concentration of test excavations. It also shows the continuous 50 kilometer stretch of coast included within the survey area from just north of the Mananano River to just south of the Matitanana. This core area is occupied today by people who consider themselves to be Antemoro. Then there is a gap of 40 kilometers, broken only by a small survey area around Anosikely (site 25), before reaching the survey area around Farafangana and the Manampatrana River, occupied today by people of the Antefasi ethnic group. The survey results are detailed in Chapter 6, but the fact that the Matitanana Archaeological Project (despite the name) stretched for almost 100 kilometers along the coast means that we also need to be aware of possible regional, or even "ethnic," differences in the ceramics, in addition to the temporal variations that we are trying to capture in our assemblages. In addition, there are three outlier areas for this project that are not shown in Figure 5.1. Survey was conducted around Ambalavao (sites 207-210), in a region occupied by the Betsileo, to investigate a possible source for the pottery found in the Matitanana region. A second survey project was conducted near the city of Mananjary (sites 211-213 and 237-240) on land occupied today by the Antambahoaka and Betsimisaraka groups to investigate possible sources of chlorite-schist. And a third project of long-range reconnaissance was undertaken with survey along the upper Matitanana River in an area occupied by the Tanala ethnic group near the town of Ifanirea (sites 227-228.) These three projects, as ancillaries to the main survey work, are more fully described in Chapter 7 and the site catalogue (Appendix A) of this dissertation. But as might be expected, their ceramics do differ in significant ways from the ceramic chronology and assemblages described in this chapter.

## 5.1 Ceramic Chronology

The chronology of ceramic phases outlined in Table 5.2 below is a work-in-progress, as already mentioned. It organizes the artifacts into a sequence based on: the relative stratigraphy of the 35 test excavations, seriation, a few early imported sherds from the Middle East and Asia, archaeological comparisons to other regions of Madagascar, and on two absolute dates from sondage #3 at Marovahiny (site 46). A radiocarbon date (DRI3168) of a charcoal sample from levels 13 and 14 of this sondage (neither level had sufficient amounts of charcoal for a standard date, and thus the charcoal from the two levels was combined) returned a likely calibrated date of AD 940 to 1260 (by OxCal v2.0). A thermoluminescence date (Aitken 1985, 1989) on a sherd from level 14 of sondage #3 (DUR2000TL pfg 269-2) gave a likely date of AD 960 to 1360 (this sondage is discussed more fully below in the section on Marovahiny). These two dates lay the foundation for the ceramic phases developed by other means. Obviously, two absolute dates are not sufficient for this task (and their number was limited by funding constraints), but they at least give us a place to begin. The chronological phases described below are based upon a comparison of artifact assemblages from the excavations and the surface surveys, including the relative proportions of different pottery wares, different vessel shapes, and different design motifs. Future research may solidify or refine these groupings by using a similarity matrix or multi-dimensional scaling to quantify the differences (Sinopoli 1993:3), but for now they are based on a holistic comparison of the artifact inventories listed in the site catalogue (Appendix A). The assemblages were given numbers and provisional dates as seen in the table below, and then organized into phases named after five sites recorded during this project (with the name of Site 214 Ambinanimananano Atsimo shortened to Manananano.) The word “assemblage” is used rather loosely here to refer to a group of artifacts and artifact types that occur together, even across different sites in this region,

that seem to have a great deal in common. The assemblage descriptions are abbreviated for this table, but the distinctions I was trying to capture can be better comprehended by consulting the artifact inventories in Appendix A.

Table 5.2. Chronological Phases, Matitanana Archaeological Project.

<b>Chronological Phase</b>	<b>Assemblage #</b>	<b>Approx. Dates</b>	<b>Assemblage Description</b>
<b>Marovahiny</b> 10 <sup>th</sup> to 13 <sup>th</sup> c.	0	10-11 <sup>th</sup> cent	Thick, soft, cream ware with chlorite-schist temper, some chlorite-schist vessels, lowest levels of Site 46, Marovahiny
	1	12 <sup>th</sup> cent	Coarse sandy wares, thick basins, red slip, grass leaf impressed, c-s skeuomorphs, some c-s vessels
	2, 2/3	13 <sup>th</sup> cent	Coarse temper, appliqué and incised designs on hole mouth jars, some c-s vessels
<b>Mananano</b> 14 <sup>th</sup> to 15 <sup>th</sup> c.	3	14 <sup>th</sup> cent	Medium sandy brown wares, oxidized, wavy combing on hole mouths, many c-s vessels, Site 214, Ambinanimananano Atsimo.
	3/4	14-15 <sup>th</sup> cent	Transitional, combinations of 3 and 4 assemblages, c-s vessels
<b>Ambohabe</b> 15 <sup>th</sup> to 16 <sup>th</sup> c.	4, 4/5	15-16 <sup>th</sup> cent	Exterior triangles, some thin reduced sandy, some graphite, some medium brown sandy wares, few c-s vessels, uppermost levels of Site 3, Ambohabe
<b>Sangilavitra</b> 17 <sup>th</sup> to 18 <sup>th</sup> c.	5	17-18 <sup>th</sup> cent	Thin reduced sandy ware, vertical combing and grooved ware, some early interior triangles, Outcaste ware, Site 153, Sangilavitra
<b>Ampasimeloka</b> 18 <sup>th</sup> to 19 <sup>th</sup> c.	6	18-19 <sup>th</sup> cent	Interior triangles on grey graphite ware, some sandy reduced, Site 21, Ampasimeloka
<b>Modern</b> 20 <sup>th</sup> c.	7	20 <sup>th</sup> cent	European imports, local bricks and tile

Crossland (2001:117) has noted how chronologies such as this might give the impression that change is marked only at the beginning and endings of phases. Change in artifact assemblages may be punctuated in such a manner, but it may also be spread out more evenly within a single phase (as in Crossland's case in the Andratsay region). For the Matitanana region, it is clear that certain phases have significant internal changes,

while the pace of change for others is still unclear at this point. For instance, the excavations at Sangilavitra (site 153) described below show that “triple grooved” designs are older than “double grooved” designs, and yet both are part of assemblage five, of the Sangilavitra phase. Likewise, a common decorated form of the Ampasimeloka phase (open bowls with graphite inclusions and triangle punctates on the interior of enlarged rims) can be shown through cross-dating to vary within a single phase – with rims more triangular in cross-section appearing earlier than similarly decorated rims with more parallel sides. However, the changes within individual phases are relatively minor compared to the assemblage changes between phases. The internal variations of the first three chronological phases for the Matitanana region are not as well known at this point.

As noted above, a significant component of the creation of this ceramic chronology, in addition to the two absolute dates and the stratigraphic excavations, is the cross-dating of artifacts by comparison with other archaeological projects in Madagascar. Table 5.3 lays out the different phase names for some of the regions to which the Matitanana material has been compared. By tradition, the archaeological phases in Madagascar have drawn their names from important type sites in each region. In the table below, the left-hand column gives the name of the region, followed by the predominant ethnic group in that area today, followed by sources or principal investigators. The bulk of the table is the various phase names for each region, organized (approximately) under the appropriate century across the top. Each row also includes the distance of that region from the mouth of the Matitanana River. This last measure can be misleading in terms of connections between the regions. In fact, the artifacts of the Matitanana region for many phases have more in common with the Mananara and Efaho regions to the north and south along the coast, than they do with inland regions which might be closer in distance but away from the coast. The close connections of the coastal peoples echo the oral traditions of the early migrations from north to south along the coast, exemplified by the movements of the “river mouth people” such as the Onjatsy described in Chapter 3.

Nevertheless, all of the regions in the following table have significant parallels to the artifacts of the Matitanana region, as will be demonstrated in the design inventory below.

Table 5.3. Regional Comparison of archaeological phases.

Regions & Phases	11 <sup>th</sup> c.	12 <sup>th</sup> c.	13 <sup>th</sup> c.	14 <sup>th</sup> c.	15 <sup>th</sup> c.	16 <sup>th</sup> c.	17 <sup>th</sup> c.	18 <sup>th</sup> c.	19 <sup>th</sup> c.
<b>Matitanana Archaeological Project, Antemoro</b>	Marovahiny		Mananano		Ambohabe		Sangilavitra	Ampasimeloka	
<b>Efaho River, Anosy (Rakotoarisoa 1998; Wright <i>et al.</i> 1993)</b>	Maliovola (coast, 310 km South of Matitanana)		Ambinanibé		Tranovato		Ehoala		
<b>Mananara &amp; Fenoarivo<sup>1</sup>, Betsimisaraka (Wright &amp; Fanony 1992; Dewar <i>et al.</i> n.d.)</b>	Sandrakatsy (coast, 720 km Northeast)	Lakaria			Serenambe		Ambitsika		
<b>Ampasindava, Sakalava (Radimilahy 1998; Wright &amp; Radimilahy 2005)</b>	Mahilaka (coast, 950 km North)			Mamoko		Amporoaha		Ampasindava	
<b>Manambovo, Tandroy (Wright &amp; Rakotoarisoa 1989; Heurtebize; Pearson)</b>	Andranosoa <sup>2</sup> (inland, 400 km SW)				Betrakafey				Tandroy
<b>Manandona, Betsileo (Raharijaona 1993)</b>	(inland, 280 km NW)			Vohimasi	Ambohimanitra	Ambohimonana	Vohitrarivo		Antamboho
<b>Andrantsay, Betsileo (Crossland 2001)</b>	Antsahabe (inland, 320 km NW)			Ambohimanitra	Ambohimonana	Vohitrarivo		Antamboho	
<b>Avaradrano, Merina (Wright <i>et al.</i> 2007)</b>	Fiekena (inland, 410km NNW)		Antanambe		Angavobe	Ambohiodray	Kaloy	Fiadanana	
		Ankatso							

<sup>1</sup> Mananara and Fenoarivo are two areas of active archaeological research north of Toamasina that share a similar ceramic chronology, though they are separated from each other by approximately 130 km.

<sup>2</sup> The ceramic chronology for Androy has been substantially refined by Mike Parker Pearson in a preliminary report, though that work is not reflected in this table.

The assemblages that form the basis of the chronological phases for the Matitanana Project (as described in Table 5.2) grew out of my attempt to organize the pottery into a useful typology. If doctoral dissertations are meant to be learning instruments, and if learning often entails making mistakes, then I will freely admit to making many mistakes during this project, but none felt more deeply than my approach to pottery classification. The primary problems were the lack of a consistent approach from season to season (in each of the four seasons I tried something new, as detailed below) and the lack of a consistent recording protocol (which could be blamed more on a lack of discipline than on an attempt at innovation). The Matitanana Archaeological Project consisted of substantial and sustained research over a number of years, and I do believe that there are some important results contained within this dissertation. However, I also know that this project has taught me how “not to do things” in the future.

Many archaeological projects in Madagascar effectively categorize their pottery along two important dimensions: dividing them into open versus closed forms (or bowl versus jar shapes) and into reddish versus dark pastes (referred to as oxidized versus reduced). The relative proportions of these two dimensions (along with inclusions, design motifs, and other elements) define different assemblages. Sometimes these relative proportions are explicitly quantified, as in the Anokay region where it was noted that the earliest site has less than 14% reduced sherds, a percentage that rises over time (Gabler 2005:187.) In other cases the comparisons remain more general: the more red the older and the more black the younger.

My original hesitancy to use this system in the Matitanana region arose in part from theoretical considerations as explained in Chapter 1. I was hoping not to pre-judge vessel shape, to not try and fit each rim sherd into my pre-conceived notions of what shapes were possible. Theoretically, differences in the data should emerge with either approach but, practically, my measurements of rim orientations without reference to normative shapes meant that a wider variation can be seen in the illustrations of my site

catalogue, due to the irregularities and unevenness of individual rim sherds. My problems with the first dimension were not just theoretical, but personal as well. It is often difficult to comprehend the whole from a part (as indicated by this chapter's opening quote, "One tree does not a forest make"). I am someone who often gets lost among the trees and can't always see an inherent structure through the crush of details. When faced with a collection of rim sherds, each one seems unique to me and I have difficulty seeing the relative proportions of jars versus bowls, and this contributed to my evolving system of recording artifacts.

The same shortcomings revealed themselves in my approach to the "reduced versus oxidized" dimension. The literature on pottery technology shows how complex these terms can be. To cite just one example, Rye (1981:116) illustrates 11 different color combinations relating to oxidized versus reduced firings, and notes that the final core and surface colors reflect not only the atmosphere during firing, but the cooling methods, the iron and organic content of the original clays, the overall temperature and position within an open kiln firing, and many other factors (also discussed in Orton *et al.* 1993:132-8). Again, the sherds I was attempting to sort each seemed unique, and to not easily conform to a two-part classification scheme. I still described most artifacts with verbal color descriptions or references to the Munsell Soil Color Charts, but had trouble assigning individual specimens to either "reduced" or "oxidized," or even to the often used sub-categories of "incompletely reduced" or "incompletely oxidized." My analysis would have been better if I had been able to discern categories rather than continuous variation. Archaeologists have been said to come in two types: "splitters" and "lumpers," and this project brought out the splitter in me. But having now tried to analyze all of the artifacts collected during this project, I can see better the value of the jars versus bowls and reduced versus oxidized typology for pottery in Madagascar. For the record, if given the chance to start the Matitanana Project again, I would gratefully use the more common system of classifying Malagasy pottery, and would thus record my artifacts differently.

But since I did attempt to re-invent the wheel, I need to explain the various pottery classification schemes used over the four field seasons.

During the first 1994 field season, I recorded artifacts with verbal descriptions and then at the end of the seasons sorted all of the collected remains into 12 common “wares” based on their color, inclusions, hardness, and surface treatments. Some of the names of these wares, such as “grey graphite speckled ware” (ware #5 in the original system) continued to be used in later seasons and can be found in the site catalogue (and above in Table 5.2 where this ware is listed as a marker for the Ampasimeloka phase). I devised various ways to distinguish between the different wares (in this case, my simple test was whether the sherd could be used as a pencil to write on paper: I could easily write my name with sherds of grey graphite ware, but otherwise the sherd was classified as a reduced ware with graphite inclusions, and not “grey graphite ware”). Other wares of this original classification turned out to be more restricted in their distribution and less useful overall, such as “outcaste ware” which was originally named for the artifacts from Enohona (site 38) and Antanambao Enohona (site 29), villages that are today inhabited by the Antevolo. These people, as discussed in Chapter 3, are considered outcastes by the rest of the Antemoro, though they are also said to have been the primary potters for the Matitanana region in the past. The ware itself is soft, with light brown exteriors and a reduced core, and extremely fine, well-sorted, sand inclusions. The name of this ware appears in a few places in the site catalogue and above in Table 5.2 as an indicator of the Sangilavitra phase, but the name was initially a poor choice as it references current ethnographic conditions. The ware differs little from other thin, reduced sandy wares of the Sangilavitra phase, perhaps resulting from different clay sources. In any case, most of the original 12 ware types were not used in the recording of artifacts from the other field seasons.

In the 1995 season, I devised a more extensive typology while sorting the artifacts from sondages three and four at Marovahiny (site 46). Table 5.4 lays out this typology,

which continued to be used in the final two seasons to varying degrees. This typology builds on the same variables of paste, color, inclusions, and surface treatments, and is used throughout most of the site catalogue. Thus, the “grey graphite ware” of the first season would now be coded as type IC. The most common type overall was type I, a plain dark brown ware without a visible core, but often with sand and shell inclusions. As an expedient (that I now regret), if no ware type was recorded for an artifact it was to be assumed that it was of type I. Along with the sand inclusions, many sherds contained very small particles of silver or gold reflective material (probably mica) or tiny black flecks. I left these verbal descriptions as they are, awaiting mineralogical analysis, but will note that we collected river sand samples from different sections of the Matitanana River. We observed early on that the sand at different canoe landings along the river appeared to have different gold, silver, or black colored particles mixed into the sand (e.g., the sand nearest the site of Marovahiny has the black particles but not gold or silver). Throughout the site catalogue these inclusions might be indicated by the type number (e.g. Type IA), or the inclusions could be spelled out in the verbal description. The typology is poorly structured, as some designations were only very rarely used, and others should be listed as structural equivalents but aren't (such as type I, type IC, and type IE, which are the most common designations in the site catalogue but do not appear to be equivalents due to the nested structure). In other words, a sherd coded as type I, might be shown to really be types IA or IB or ID with further modifying words about its inclusions, coarseness, or thickness, but it could not be modified to indicate type IC or type IE, which are more accurately separate wares. It was problems such as these that led to the seasonal revisions of my typologies. To connect this typology to the more common approach in Madagascar: all of the type ii wares are oxidized, and all of the type IC and IE wares are reduced. The rest of the plain brown wares (type I) fall somewhere in between, and may be considered by some to be oxidized. The cream wares of type III and

IIIB were most common in the lowest levels of the oldest sites, and I am not yet aware of cross-dated parallels elsewhere.

Table 5.4. Artifact and Ware Typology from the 1995 Season Onwards.

- I. Plain Brown Wares
  - a. With gold reflective inclusions
  - b. With silver reflective inclusions
    - i. with shell and sand
  - c. Graphite Ware
    - i. graphite burnished (rare)
    - ii. nearly solid graphite
  - d. Thick, coarse brown ware
    - i. coarse sand inclusions
    - ii. smooth, soft paste
    - iii. silver reflective inclusions
  - e. Grey wares (reduced)
    - i. large quartz inclusions
- II. Red wares
  - a. With sand, quartz, and shell
  - b. East African red slip
  - c. (unused so dropped)
  - d. Ambalavao red (like tile)
    - i. Black exterior
- III. Cream Wares (thick and soft paste, with chlorite-schist grog)
  - a. With red inclusions
  - b. Soft, but without inclusions
  - c. Harder than the rest, but still cream color
- IV. Soft Brown ware (flower pot feel)
- V. Tile
  - a. Brick
- VI. Imported Ceramics
  - a. European
  - b. Middle Eastern
  - c. Far Eastern
- VII. Iron Slag
  - a. With smooth droplets
    - i. All smooth
  - b. Rough angular
  - c. With baked clay attached
  - d. Flat, caked with sand
  - e. Flat, with at least 1 smooth side
  - f. Worked (e.g. hook or nail)
- VIII. Chlorite-Schist

- a. Unworked fragment
  - b. Fragment with at least 1 smooth carved side
  - c. Weight
- IX. glass

In the 1997 season, I decided against re-arranging the ware typology illustrated in Table 5.4, despite its structural imperfections, and continued to use key parts of it. However, frustration with those sherds that did not fit easily into the existing categories led me to create the supporting descriptive system illustrated below in Table 5.5. In part, this was due to the fact that 1997 was the first season I was able to take a computer with me into the field, and a coding system for individual traits such as this made it easier to record the pottery directly into a spreadsheet. These artifact codes were used in the 1997 field notes and spreadsheets for this project, but they have not been maintained in the site catalogue, Appendix A, where they have been replaced with their verbal equivalents to make reading easier (and to avoid confusion with the 1995 ware typology.)

Table 5.5. Descriptive Coding System from 1997.

Color:

- C1 Brown
- C2 Red
- C3 Cream
- C4 Grey
- C5 Black

Inclusions:

- i1 gold reflective
- i2 silver reflective
- i3 graphite
- i4 sand
- i5 shell
- i6 quartz and coarse sand
- i7 red specks
- i8 black specks
- i9 chlorite-schist grog

Firing:

- ri red interior
- re red exterior

rc red center  
 bi black interior  
 be black exterior  
 bc black center

Size:

U Thin (< .4cm approx.)  
 T Thick (>1.2cm approx.)

Hardness of Paste:

S soft paste (low fired)  
 H hard paste

Surface treatment:

mi smoothed interior  
 me smoothed exterior  
 mb smoothed both  
 ui burnished interior  
 ue burnished exterior  
 ub burnished both

By the time I reached the 1999 season, feeling burdened by these cumbersome schemes and with a greater familiarity of the archaeology of Madagascar, I was far more likely to simplify my coding of the ceramics to the basics such as “reduced” and “oxidized.” Despite these changes in how the information was encoded, I have tried, where possible, to use the verbal descriptions in the site catalogue to make things as clear as possible. The most common types from Table 5.4 have been retained, however, as have the most obvious of the ware names from the very first season (such as “grey graphite ware.”) Still there is some variability in what information was recorded and how it was coded for many of the sites, and for this I apologize to the reader. As suggested above, using four systems in four seasons is not ideal; earnest perhaps, but still a mistake.

The change in the relative frequencies of these wares is one of the important components in devising the ceramic chronology. Across the island of Madagascar in a similar progression, the earlier oxidized wares (red and orange) give way to more reduced wares (grey and black) in later centuries. This pattern holds true for the Matitanana region. This trend parallels the appearance of imported chlorite-schist vessels, which appear on the oldest sites of the Matitanana region, grow in abundance, and then

disappear from the archaeological record as the reduced wares become more popular. Archaeology can often discover patterns and document changing styles, but the really tough questions attempt to understand why such changes occur ... an attempt at explanation instead of description. I propose that the appearance of the reduced wares in the Matitanana region and the disappearance of the imported chlorite-schist vessels are linked, and that this link can help us understand the changes in wares over time. The sequence of this transition in the Matitanana region appears to be as follows.

1) In the first settlements (Early Marovahiny phase), a few chlorite-schist vessels were imported, but more diagnostically it was common to add broken bits of the imported chlorite-schist as grog to the pottery (Type III cream wares). The use of chlorite-schist as grog seems to imply the cultural belief that chlorite-schist belonged in a cooking pot (e.g. Figures A104a, A105b, A109d, A183a, and A183d). If one did not have access to a true chlorite-schist vessel, then at least some of the material should be mixed into the clay before firing the locally produced vessels. The significance here is that this temper had to be imported, as there are no known chlorite-schist outcroppings in the Matitanana region, with the closest known quarries found northwest of Mananjary, over 150 kilometers from the mouth of the Matitanana (our research at these quarries is discussed in Chapter 7). This makes the chlorite-schist temper different from the sand, shell, and local materials added to other wares. Perhaps it was already broken vessels that were further smashed to provide the temper, but either way, I believe it was a significant act to add fragments of chlorite-schist to the thick, earthenware cooking vessels of the Marovahiny phase. The known sources for this material are north of the Matitanana region, and all of the oral traditions (and Sorabé texts) of the Antemoro and Onjatsy point to the same areas of the northeastern coast of Madagascar as a previous homeland. Thus it seems likely that the tradition of chlorite-schist cookware, or at least of cookware with substantial chlorite-schist inclusions, arose among people living near the quarries and was carried by them south along Madagascar's eastern coast.

2) Over time, local substitution pottery wares developed which attempted to imitate the look and feel of chlorite-schist vessels. This was often achieved not by adding large fragments of chlorite-schist as grog, but by creating a chlorite-schist powder to be used as a temper in the clay. The fine particles of this temper are almost too small to be seen, but they influence the color of the vessels (usually to a light grey) and cause the surfaces to feel soapy (as in Figures A32j, A168b, A207, A258d, and A265b). All of the sites with this “imitation chlorite-schist” ware were occupied in either the Ambohabe (15-16<sup>th</sup> century) or the Sangilavitra (17-18<sup>th</sup> century) phase, or occupied in both. The distinction here is that the earlier wares with large chlorite-schist inclusions from the Marovahiny phase did not attempt to mimic the look, feel, or shape of the chlorite-vessels. The thick Type III wares evidently needed the chlorite-schist grog, but they were used alongside the true chlorite-schist vessels, and did not attempt to imitate them. By the later phases, people in the Matitanana area had developed a local, and possibly less expensive, replacement to chlorite-schist. Perhaps chlorite-schist was still being imported, perhaps in a raw un-worked form, to be ground and diluted in this fashion to spread further (much as blue-dyed textiles would later be re-worked on the African mainland). Or perhaps, more likely, older broken cooking pots of chlorite-schist were pulverized to be recycled in this fashion, thereby preserving something of their essence. This transitional “imitation chlorite-schist” ware, which used powdered chlorite-schist temper to achieve a similar color and soapy texture, was relatively rare compared to the actual chlorite-schist vessels (whose use seems to have ended in the Ambohabe phase for this region), and the reduced ceramic phases of the following Ampasimeloka phase (18<sup>th</sup>-19<sup>th</sup> century).

3) Eventually, the use of chlorite-schist in either fashion was replaced by a more local resource from the upper reaches of the Matitanana River (in what is now Tanala or Betsileo territory) – graphite. Unlike in the central highlands, the graphite in the Matitanana region was not a simple burnish but was a prominent temper changing the

nature and texture of the clay throughout. The grey graphite ware sherds (type IC) of the Ampasimeloka phase do not have the “soapy” feel of the previous ware, but they do have a very similar “slick” feel due to the graphite inclusions. They also have a similar color (though usually a darker grey than the imported chlorite-schist stone), and have a similar ability to sparkle and reflect light. Side by side, these different wares and materials do look remarkably similar in both color and texture, and have a similar shine especially when wet (as might be expected in the context of preparing and serving food and drink.) Such pottery vessels have to be fired in a reducing environment to preserve the graphite, and perhaps this technique was then transferred to the manufacture of other contemporary pottery types. Granted, the rim shapes and decorative motifs were quite different for the grey graphite ware vessels than for the earlier ones of chlorite-schist (as seen in the upper half of Figure 5.2 below), but still I believe there was some continuity between these three wares in terms of the appearance and significance of their fabrics. The changes in decorative design over time were also significant of course, and it is to these issues that we will turn next.

## **5.2 Design Inventory**

Pottery decoration is one of the most useful factors in defining ceramic chronologies in Madagascar, as elsewhere. Considerations of the design motif itself, the technique used in its creation, and its location on the vessel can all signify temporal and/or cultural differences. A wide range of pottery decorations were recorded during the Matitanana Archaeological Project, and a series of tables below illustrate some of that diversity. Some of these designs were more variable in their placement, their vessel’s shape, and their chronological phase, while other consistent designs appeared to be more uniform in these regards. For example, Figure 5.2 below illustrates two different design motifs found on rim sherds from eight different sites (and full descriptive details for each

of these sherds can be found in the site catalogue under the appropriate site listing). The first five sherds all share the same design of triangle punctates in false chevron banded by rectangular dentate stamps. However, the design is found on a variety of different rim shapes, and appears to have been used in both the Sangilavitra Phase and the Ampasimeloka Phase (which combine to cover the 17<sup>th</sup> to 19<sup>th</sup> centuries). The first two examples appear to be open bowls with differently shaped lips, the third is probably a high-necked jar, while the final two both appear to be hole-mouth jars. Of these, only the final example from site 156 has the decoration on the exterior of the vessel, as the fourth vessel from site 143, despite appearing to be a hole-mouth jar, nonsensically seems to have the decoration on the interior surface (this orientation and curvature were triple checked, and my drawing appears to be accurate, though I can't explain it). The example with the exterior decoration is also the only one with two rows of triangles in false chevron, instead of a single row. All five examples are found on similar reduced wares: sites 50 and 143 on grey ware Type IE, and the other three on grey graphite ware Type IC (with reference to the ware typology of Table 5.4).

The next five sherds in Figure 5.2 illustrate an incised motif found more consistently only on the exterior of oxidized, Type I, hole mouth jars. (My evolving drawing conventions, and those of the other illustrators who helped me, did not always adequately convey interior versus exterior placement; the text in the site catalogue should make clear the location in most cases.) In the field notes this motif was referred to as the “architectural design” because at first glance it reminded us of house roofs. Interestingly, site 123, with three examples of this design on three different vessels, is found in the Farafangana region, 48 kilometers south of the other two sites of Marovahiny (site 46) and Onjatsy (site 48) in the Matitanana River valley. Despite coming from two different river valleys, all of these examples were so similar in ware, rim shape, and design that we took them to be evidence for regional trade between the river valleys, or at least evidence of a closely connected group of potters living in both places (and this possible distinction

led to the NAA study described in Chapter 7). These five sherds in Figure 5.2 are older than the first five, and are part of the “2/3” assemblage tentatively dated to the Late Marovahiny phase of the 13<sup>th</sup> century. However, this motif of double incised grooves continues through later phases on the body of vessels, and especially the grooved wares of the Sangilavitra phase, though without this particular rim form and design.

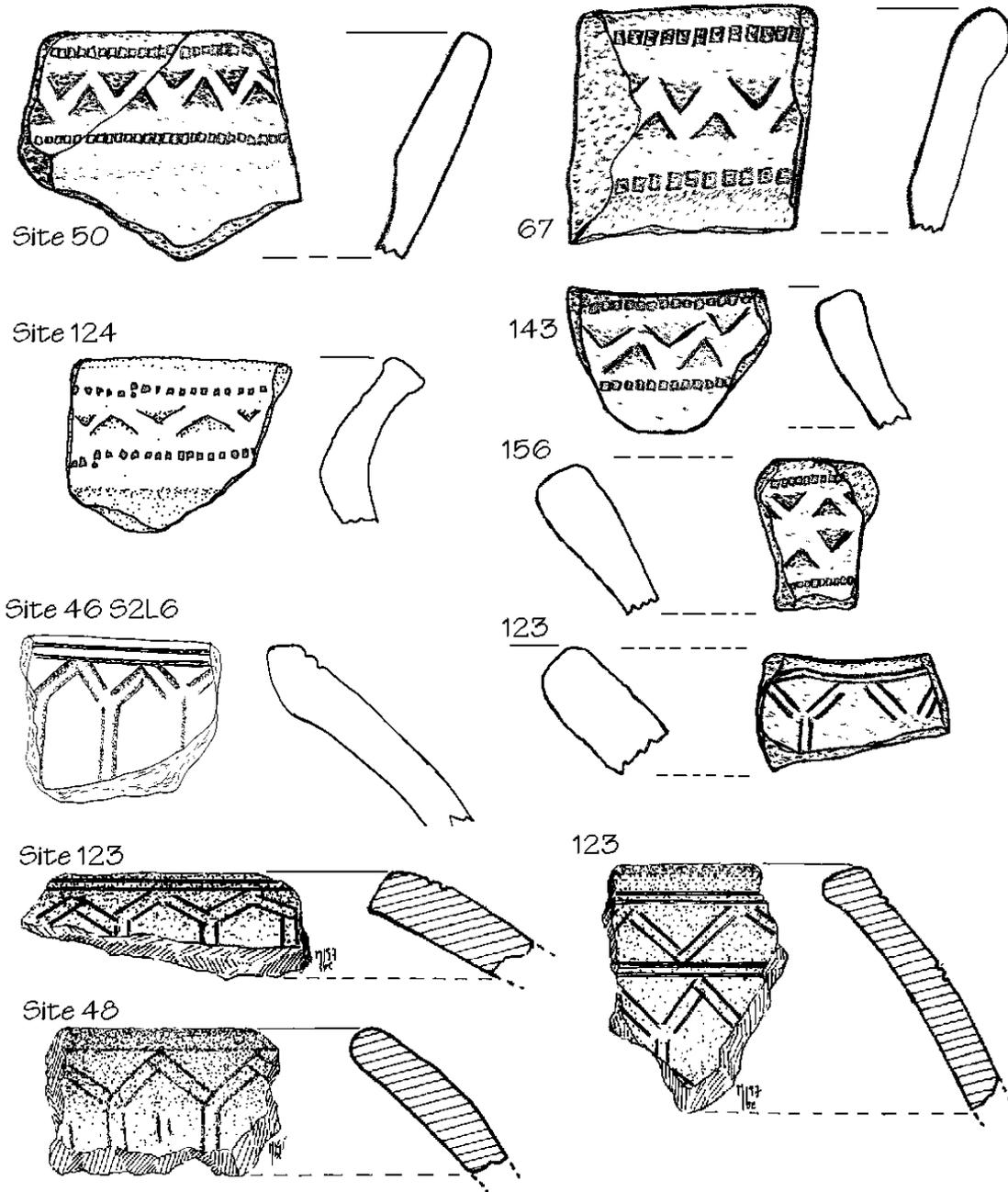


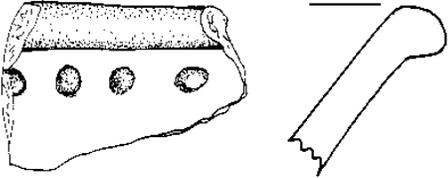
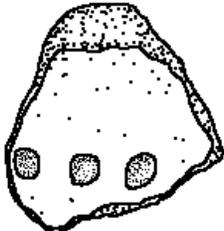
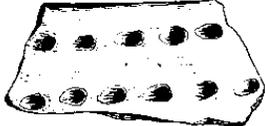
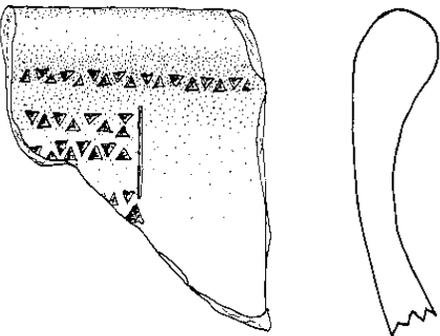
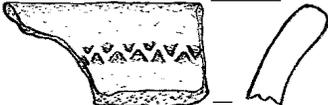
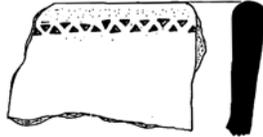
Figure 5.2. Rim shape variation for two design motifs. Descriptive details for each sherd can be found in the site catalogue (Appendix A).

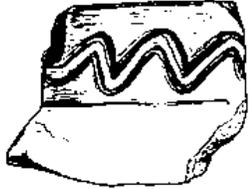
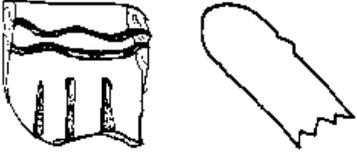
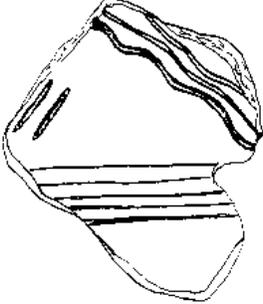
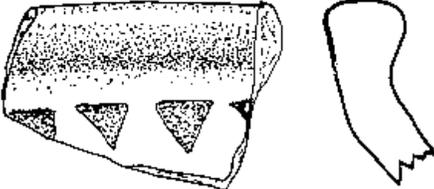
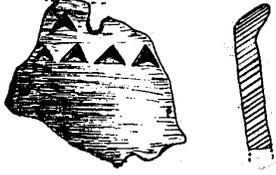
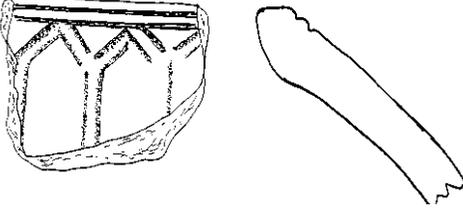
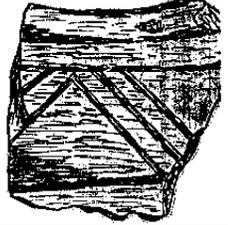
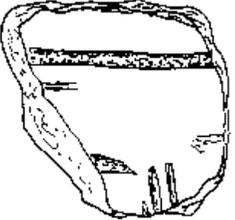
A complete inventory of the different designs used on the pottery recovered for this project can be found in the site catalogue, but in this chapter I would like to excerpt a few pottery illustrations to give the reader a sense of the overall diversity of the different types of decoration. I also wanted to use this abbreviated design inventory to draw parallels to similar decoration found elsewhere in Madagascar. In the tables below I start with an individual design in the left column, try to match it with a similar example from a different site in the region in the center column, and then suggest a possible parallel from elsewhere in Madagascar in the right column. This exercise is not meant to argue for a return to a “type-fossil” approach to ceramics. The same design might have been utilized over a number of different phases in the same location, and undoubtedly similar designs appear at different times in different places. Some designs are so common across the entire island of Madagascar (such as rows of triangle punctates in false chevron) that the “other region” column could have been filled from any number of published reports. Therefore, the “parallel” example for this design inventory is not necessarily of the same time period, nor is the example illustrated meant to imply connections between that region and the Matitanana, nor should it be seen as having priority over other possible examples from other regions which are not illustrated. Still, it is hoped that these charts can help visually organize the artifacts from the Matitanana Project, and point out some possible regional links with other areas.

In these tables I have tried to take into consideration both the design motif and the technique with which it was implemented (for example, stamps versus incised, or punctates versus impressed.) I also attempted to find examples with similar placements of the decoration on the exterior or interior surfaces and similar rim forms, but this was not always possible. Throughout these tables the abbreviation “ext” is used for exterior and “int” for interior surface. It is recognized that some of these comparisons will be spurious, based solely on the way a published design was drawn and not on the original

sherd itself. But despite all the limitations, it is hoped that this exercise will give a sense of the variation in pottery decoration for this region. Because the next section of this chapter will take a closer look at the main excavations, this design inventory will begin with sondage two (Table 5.6) and sondage three (Table 5.7) from Marovahiny, site 46. For each excavation I selected a single design to include in this inventory to attempt to match. Full details of the artifacts and excavations can be found in the site catalogue, Appendix A. After the two tables based on the excavations at Marovahiny, Table 5.8 illustrates some of the design motifs found on artifacts from the surface of that site. The degree to which different chronological phases appear on a site's surface versus its sondages is a question to be addressed in the next section of this dissertation.

Table 5.6. Design Inventory, Marovahiny Site 46, Sondage 2 by Level. For full descriptive details, please see the site catalogue (Appendix A).

Design, Sondage 2, Levels 1 to 11	Second Example	Other Region
		
Site 46 S2L1, ext large round punctates	Site 114	Irodo, Battistini & Verin 1967:xl
		
Site 46 S2L2, ext triangle punctates in false chevron, line	Site 75 ext	Andrantsay, Crossland 2001:149, (also Rakotovololona 1994:12)

		
<p>Site 46 S2L3, ext wavy incised</p>	<p>Site 46 S4L1, ext incised</p>	<p>Irodo, Battistini &amp; Verin 1967:xxxix (also Wright and Fanony 1992:38)</p>
		
<p>Site 46 S2L4, ext wavy &amp; linear incised</p>	<p>Site 6, wavy &amp; linear incised</p>	
		
<p>Site 46 S2L5, ext lg. triangle punctates</p>	<p>Site 153 S3L1, ext incised line and triangle punctates</p>	<p>Angavo, Ramilisonina 1976:88</p>
		
<p>Site 46 S2L6, ext incised "house" motif</p>	<p>Site 123, ext</p>	<p>Antanambe, Arnaud 1970:123</p>
		

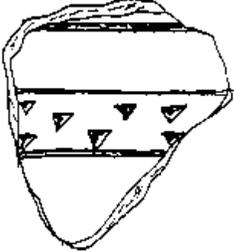
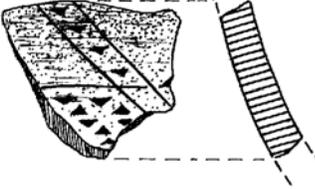
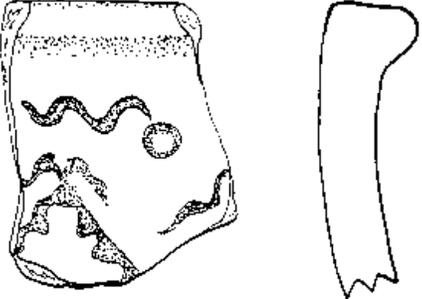
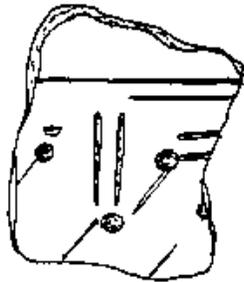
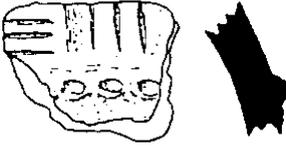
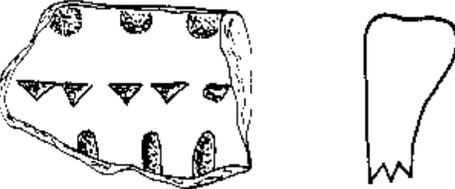
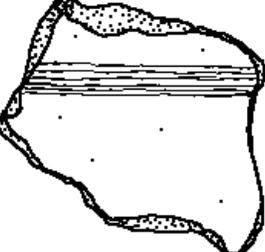
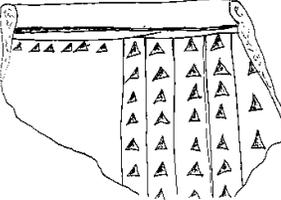
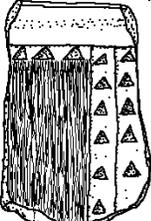
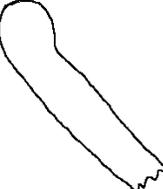
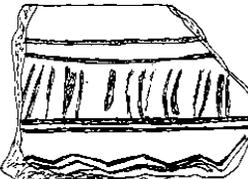
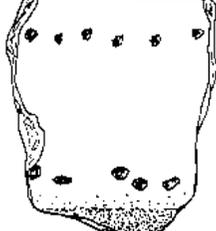
Site 46 S2L7, incised grooves	Site 6, sectioned grooves	
		
Site 46 S2L8, triangle punctates inside incised bands, but not in false chevron	Site 214D	Antanambe, Arnaud 1970:124 (also Rasamuel 1982:18; Ramilisonina 1976:88; Crossland 2001:151)
		
Site 46 S2L9, ext wavy incised and impressed	Site 5, incised lines and round impressions	Anosy, Wright <i>et al.</i> 1993:72
		
Site 46 S2L11, ext triangle punctates, incised grooves, finger pinches on lip	Site 62, ext finger pinches	Mananara, Wright and Fanony 1992:38

Table 5.7. Design Inventory, Marovahiny Site 46, Sondage 3 by Level. For full descriptive details, please see Appendix A.

Design, S3, Levels 1 to 12	Second Example	Other Region
		
<p>Site 46 S3L1, rice grass leaf impression</p>	<p>Site 116, grass leaf impression</p>	<p>Anosy, Wright <i>et al.</i> 1993:67</p>
 	 	
<p>Site 46 S3L2, ext banded triangle punctate columns &amp; blackened surface</p>	<p>Site 46 S4L1, ext, black coating as part of the design</p>	
 	<p>(Other Regions:)</p>  	
<p>Site 46 S3L3, ext incised vertical grooves with double groove border</p>	<p>(Other regions:) Andrantsay (on ext), Crossland 2001:157</p>	<p>Antanambe, Arnaud 1970:123</p>
 	<p>(Other Regions:)</p>  	
<p>Site 46 S3L4, ext small round punctates</p>	<p>(Other regions:) Bemanevika, Vérin 1975:858</p>	<p>Isandra, Vérin 1968:281</p>

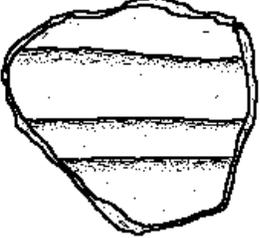
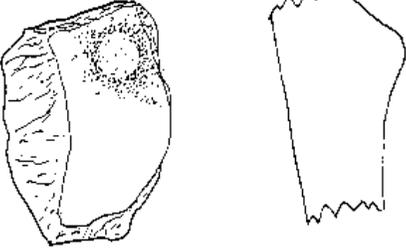
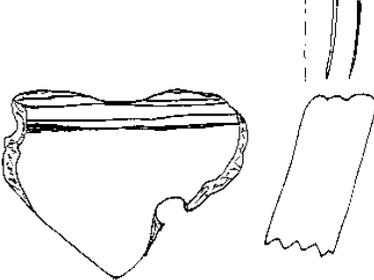
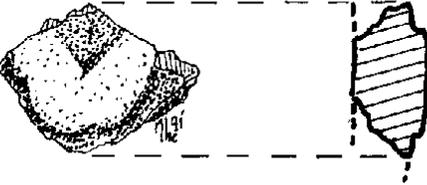
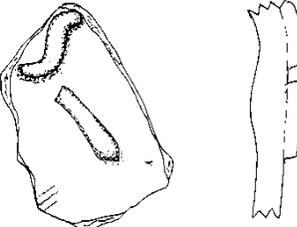
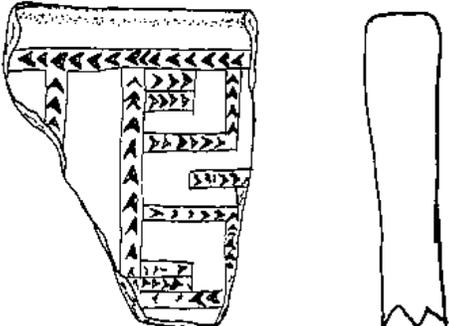
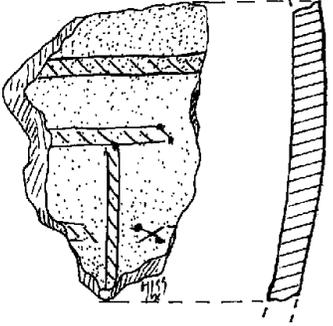
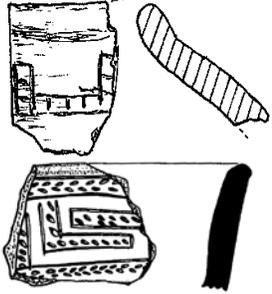
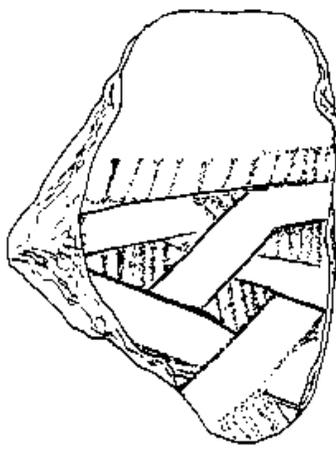
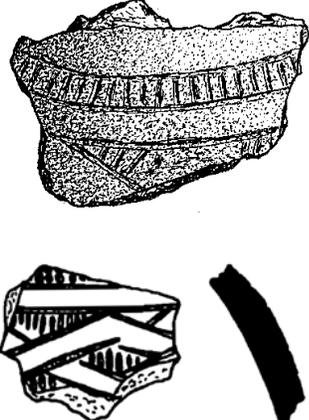
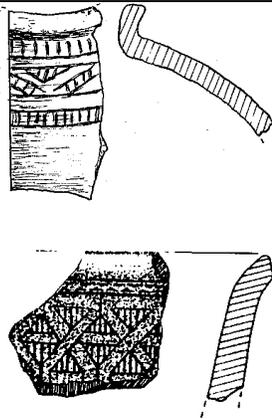
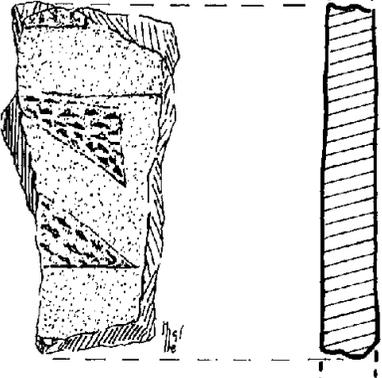
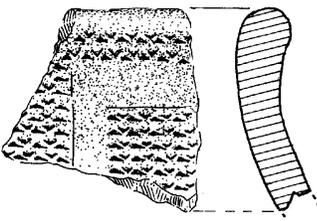
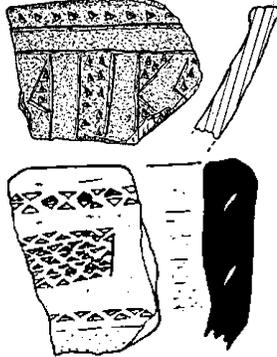
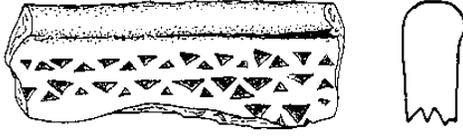
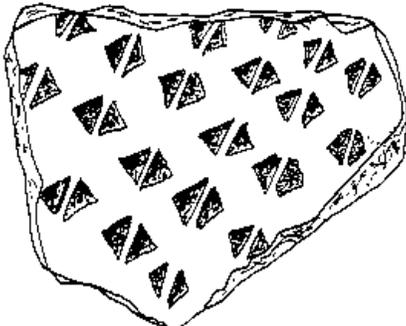
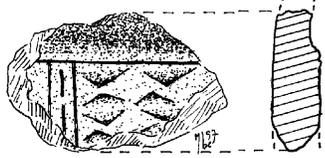
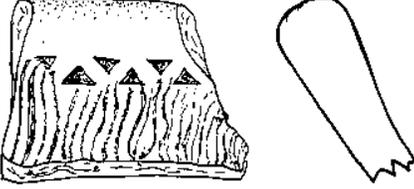
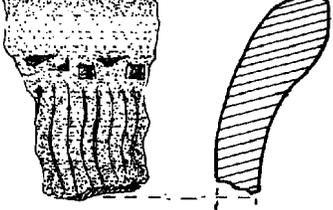
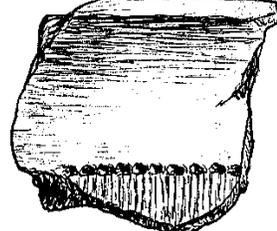
		
<p>Site 46 <b>S3L5</b>, ext vertical raised ridges, &gt; 2 mm high</p>	<p>Site 22, ext raised ridges</p>	<p>Anosy, Wright <i>et al.</i> 1993:72</p>
		
<p>Site 46 <b>S3L6</b>, ext raised boss, &gt;6mm high</p>		<p>Kingany, Vérin 1975:312</p>
		
<p>Site 46 <b>S3L10</b>, chlorite-schist rim fragment with incised lines on exterior and top of lip</p>	<p>Site 122, pottery with CS inclusions and double groove on top of lip.</p>	
		
<p>Site 46 <b>S3L12</b>, appliqué Sorabé letter</p>	<p>Site 46 Surface</p>	

Table 5.8. Design Inventory, Marovahiny Site 46, Surface Collection. For full descriptive details, please see Appendix A.

Design, Site 46 surface collection	Second Example	Other Region
		
<p>Site 46 Surface, “crossword” motif, small triangle punctates in incised borders</p>	<p>Site 233 ext incised lines, round punct.</p>	<p>Ankatso, Mille 1971, &amp; Andrantsay, Crossland 2001:152 (Also Verin &amp; Heurtebize 1974:137)</p>
	<p>(Other Regions):</p> 	
<p>Site 46 Surface, burnished woven bands over incised lines</p>	<p>(Other regions): Antanambe, Arnaud 1970:124; &amp; Andrantsay, Crossland 2001:154; (also Verin 1968:281)</p>	<p>Ankatso, Mille 1971, &amp; Manandona, Raharijaona 1993:60</p>

		
<p>Site 46 Surface, triangle punct. outside smoothed bands, incised</p>	<p>Site 70, ext rows of false chevron bordering smoothed</p>	<p>Ankatso, Mille 1971; Anosy, Wright <i>et al.</i> 1993:77</p>
		
<p>Site 46 Surface, ext rows of false chevron (see also 46 S2L2)</p>	<p>Site 18, ext row of false chevron and banded incised lines</p>	<p>Lac Alaotra, Fernandez 1970:39</p>
		
<p>Site 46 Surface, triangle punct.</p>	<p>Site 115, triangles base to base, concave surface</p>	
		
<p>Site 46 Surface, ext deep punctates, vertical wavy combing</p>	<p>Site 78, ext crude false chevron, over vertical wavy combing</p>	<p>Lac Alaotra, Fernandez 1970:39 (Also Verin &amp; Heurtebize 1974:138)</p>

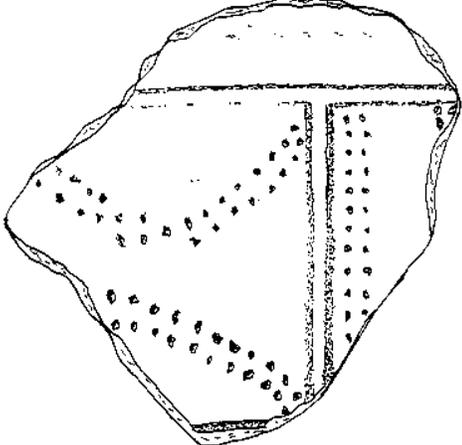
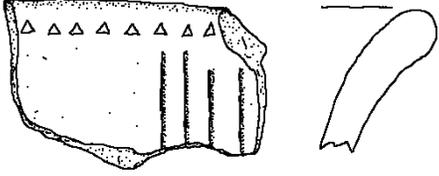
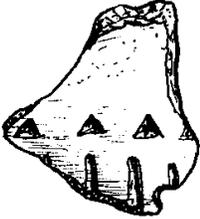
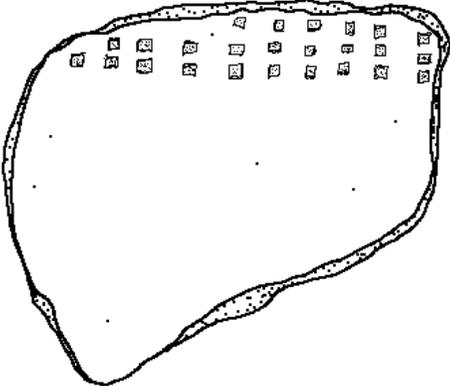
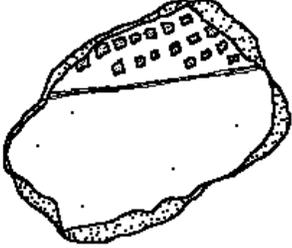
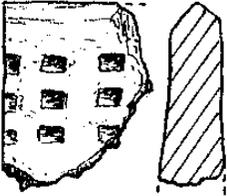
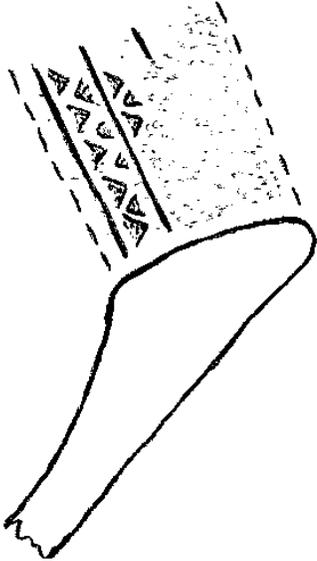
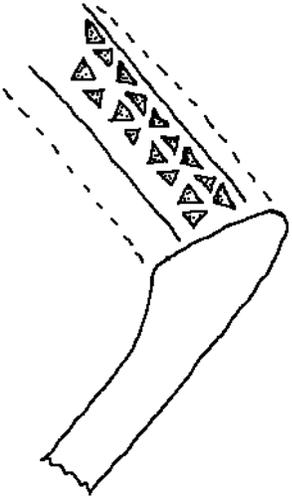
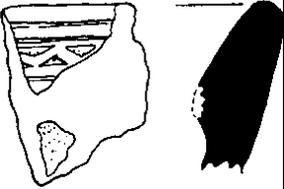
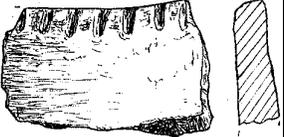
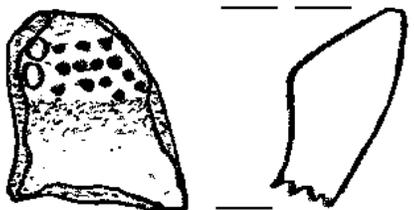
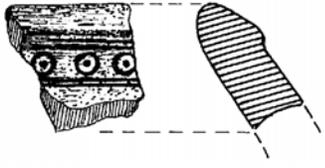
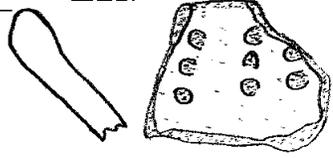
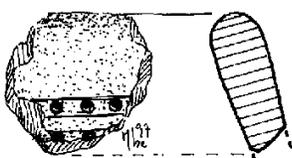
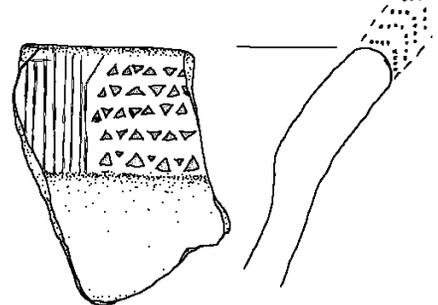
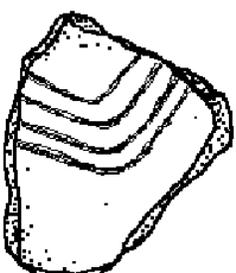
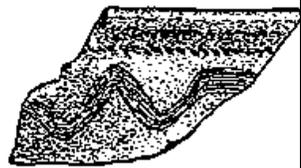
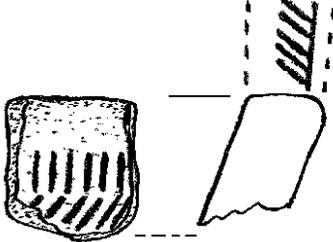
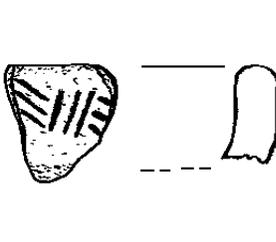
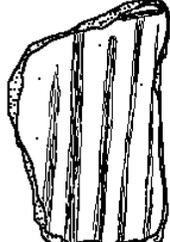
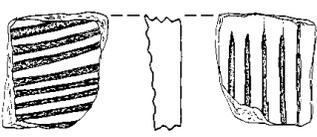
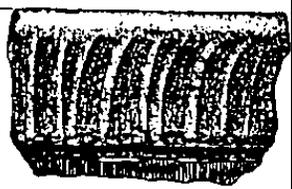
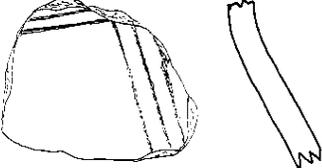
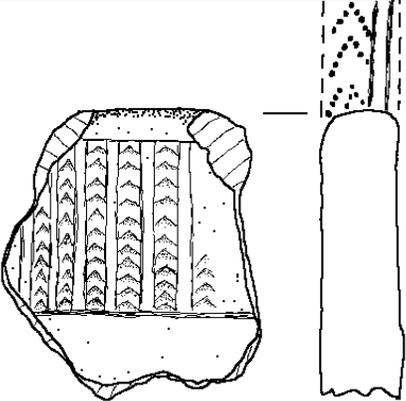
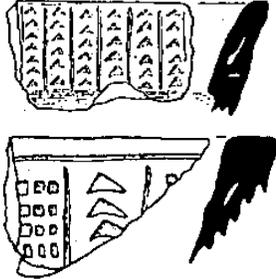
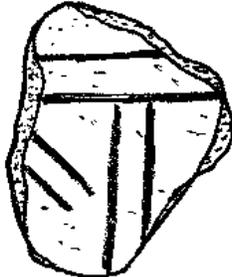
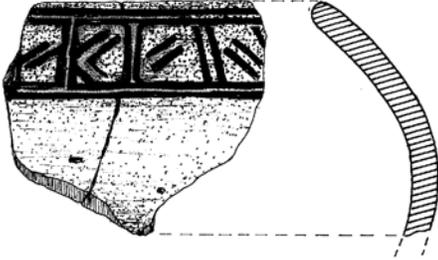
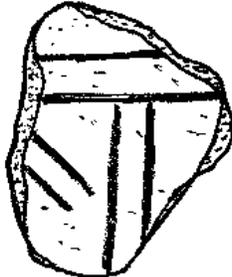
		
<p>Site 46 Surface, ext deep round punctates &amp; incised lines</p>	<p>Site 166 int</p>	
		
<p>Site 46 S4L1, ext row of triangle punctates over vertical incised lines</p>	<p>Ambohabe, Pannetier 1974:63 (MAP Site 3)</p>	

Table 5.9. Design Inventory, other MAP sites. For full descriptive details, please see Appendix A.

Design	Second Example	Other Region
		
<p>Site 10, ext columns of square punctates</p>	<p>Site 202, square punctates and incised line</p>	<p>Asambalahy, Vérin 1971:43, 14-16<sup>th</sup> c</p>

		
<p>Site 10, int incised lines banding triangles in false chevron</p>	<p>Site 84, int</p>	<p>Anosy, Wright <i>et al.</i> 1993:77</p>
		
<p>Site 11, vertical nicks on exterior of lip (profile only, but have photo)</p>	<p>Site 123, ext incised grooves on lip</p>	<p>Rezoky, Vérin 1971:35 (also Wright <i>et al.</i> 1993:72)</p>
		
<p>Site 62, <b>int</b> small round punctates and hollow tool punctates</p>	<p>Site 214, <b>ext</b> incised lines &amp; hollow tool impressions</p>	<p>Lac Alaotra, Fernandez 1970:39 (also Wright and Fanony 1992:38)</p>

		
<p>Site 70, ext round punctates on hole mouth jar</p>	<p>98 ext</p>	<p>Anosy, Wright <i>et al.</i> 1993:76 (also Wright &amp; Fanony 1992:38)</p>
		
<p>Site 88, int false chevron and incised lines, dentate stamp on top of lip</p>		<p>Anosy, Wright <i>et al.</i> 1993:83</p>
		
<p>Site 114, wavy combing</p>	<p>Site 128, wavy combing</p>	<p>Isandra, Vérin 1968:281</p>
		
<p>123, int short incised lines</p>	<p>120, ext short incised lines</p>	<p>Isandra, Vérin 1968:281</p>
		

<p>Site 153 S2L2, ext deeply grooved combing</p>	<p>Site 21, ext vertical combing &amp; int horiz.</p>	<p>Manandona, Raharijaona 1993:67, also Crossland 2001:153</p>
		
<p>Site 153 S2L4, deep intersecting triple grooves</p>	<p>Site 29 S2L1, incised triple groove</p>	<p>Lac Alaotra, Fernandez 1970:39</p>
		
<p>Site 166, int, vertical columns of banded triangle punctates</p>	<p>Site 53, int, columns of triangle punctates banded by incised</p>	<p>Mananara, Wright and Fanony 1992:48, Anosy, Wright <i>et al.</i> 1993:83</p>
		
<p>Site 214, ext deep single vertical grooves in wiped surface</p>	<p>(single groove?)</p>	<p>Anosy, Wright <i>et al.</i> 1993:72</p>
		

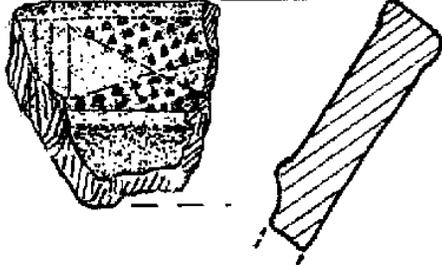
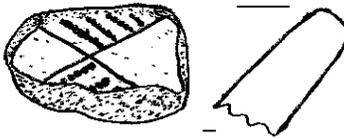
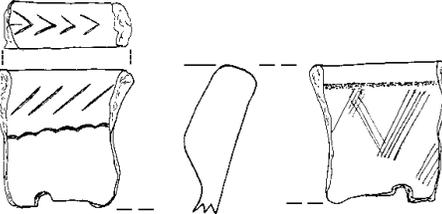
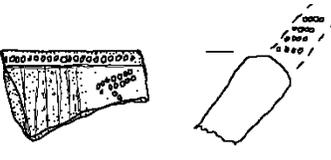
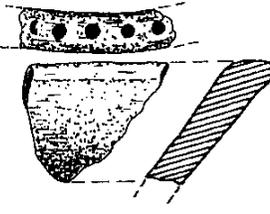
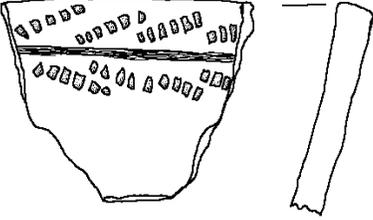
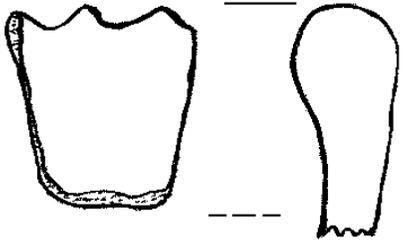
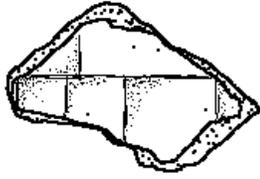
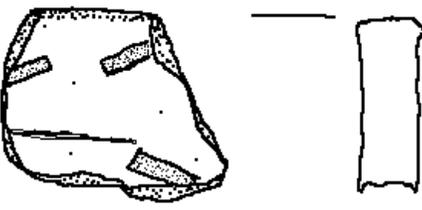
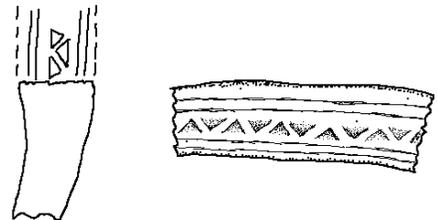
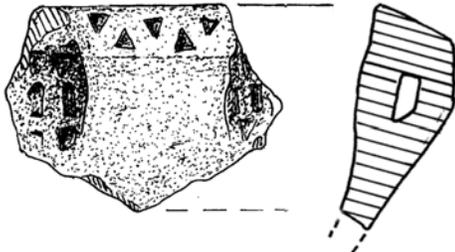
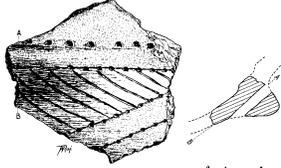
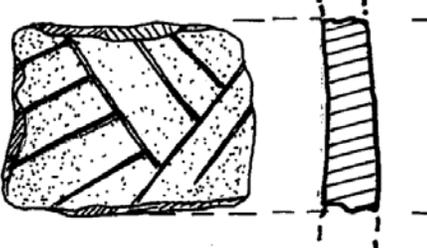
<p>Site 214, ext deep intersecting double grooves</p>	<p>Site, 123 ext, double groove</p>	<p>Ambohitrikanjaka, Rasamuel 1982:18</p>
		
<p>Site 215, int incised lines, bounded and at an angle</p>		<p>Gabler 2005:236</p>
		
<p>Site 219, int incised lines and dentate stamps</p>		<p>Mananara, Wright and Fanony 1992:48</p>
		
<p>Site 223, int incised lines and square punctates</p>	<p>Site 48, int crossing incised lines and dentate stamp</p>	

Table 5.10. Design Inventory, MAP unusual designs. For full descriptive details, please see Appendix A.

		
<p>Site 21, int incised lines &amp; top of lip, angled combing on ext.</p>	<p>Site 153 Surface, int incised lines &amp; dentate stamps, stamps also on top of lip</p>	<p>Anosy, Rakotoarisoa 1998:55</p>

		
<p>Site 83, int rectangular dentate stamp &amp; incised line</p>		
		
<p>Site 123, finger pinches on top of lip</p>	<p>Ambohabe, Rasolofoson 1974:204 (MAP Site 3)</p>	
		
<p>Site 130, square impressions, but not woven mat</p>		
		
<p>Site 139, int, rice grain impressions?</p>		
		
<p>Site 193, only top of lip</p>		

		
Site 214, attached handle with triangle and rectangle punctates		Antsoheribory, Vérin 1975:430
		
Site 214, deep incised		

The first three tables above illustrate the range of design motifs found at a single site, Marovahiny, occupied during the Marovahiny, Mananano, and Ambohabe phases (from the 10<sup>th</sup> to the early 16<sup>th</sup> century). The fourth table (Table 5.9) illustrates design motifs not yet illustrated from all phases at other sites of the Matitanana Archaeological Project. And the final Table 5.10 illustrates those unusual designs that have few parallels within the region or elsewhere in Madagascar. As with the ware typologies and ceramic chronologies of this chapter's first section, the comparative examples illustrated in the above tables are tentative at best. Those aspects of this design inventory are still a work-in-progress, and it is expected that future research (and greater familiarity with the archaeology of other regions in Madagascar) will refine this effort. It bears repeating that each comparative example does not necessarily serve as a cross-dating point for the Matitanana project, as the same design is often found on differently shaped vessels of different wares. Still, it is hoped that these tables can highlight some possible connections to be considered during further research.

As with the suggestion in the last section of a connection between chlorite-schist vessels, pottery vessels with chlorite-schist grog and temper, and the grey graphite ware, it would be beneficial if we could go beyond the simple documentation of the design motifs to a consideration of how and why such decoration changed in the Matitanana region. The archaeological literature on style and the semantics of design is voluminous, interesting, and complex (Wobst 1977; Sackett 1977; Wiessner 1983; Washburn 1983; Plog 1983; Merrill 1987; David *et al.* 1988; Hodder 1989; Conkey and Hastorf 1990; Hegmon 1992; Zeitlan 1994; Odess 1998; Masson 2001; Sinopoli *et al.* 2006; Pikirayi 2007). Here I would like to focus on two ideas concerning the structure of designs that are closely related to the archaeology of Madagascar.

In her study of the Andrantsay region, Crossland noted that bounded (ditched) sites first appeared in that area at the same time as bounded designs on the ceramics (during the local Ambohiponana phase beginning in the 16<sup>th</sup> century.) She suggested that both may related to a growing concern at the time with the “bounded nature of social groups” and a need to better define “us” versus “them,” which may also correspond to a period of conflict necessitating the creation of the ditched hilltop sites (Crossland 2001:200). She noted a similar inference was made by Hodder (1982a) concerning Bronze Age communities in Europe. This correlation does not hold for the Matitanana region however, as nearly all of the ditched sites recorded for this project date to the Sangilavitra phase of the 17<sup>th</sup> century (see Chapter 6.) The predominant design of the Sangilavitra period is double or triple parallel incised grooves that often intersect (though it should be noted that few large sherds were recovered that could give a good sense of the overall design.) Thus Sangilavitra phase designs do not seem to be more bounded than the design motifs of other periods. As can be seen from the design inventory tables for the site of Marovahiny above (which was occupied during the first three phases), bounded designs have been present in many different phases along the Matitanana. The most complex bounded designs for this region, however, cluster in the Ampasimeloka

phase (beginning in the 18<sup>th</sup> century), when people seem to have abandoned the ditched hilltop sites and move back down towards the rivers or other water sources. Nevertheless, this notion that an artist or craftsman's social context could be reflected through their creations is an intriguing one for archaeology. The possibility that increasing complexity of design (as seen in the Ampasimeloka phase) may reflect increasing socio-political complexity would be a useful material correlate, though things aren't always so simple.

Peregrine (2007) has undertaken a cross-cultural study to investigate this possible correlation between complexity of design and cultural complexity or social stratification. Building on the work of Dressler and Robbins (1975) and Fischer (1961), Peregrine compared 16 ethnographic cultures and 42 archaeological cultures to conclude that a group's degree of political hierarchy is reflected in, and can be predicted from, their ceramic designs. As he put it, "Regardless of the cause, complex ceramic designs appear to be material indicators of inegalitarian social organization and political hierarchy, and appear to be material indicators of patrilocal residence and polygamous marriage as well" (Peregrine 2007:230). Such cross-cultural research needs very precise definitions, since any patterns revealed are dependent on the definitions used (in this case, the precise meaning of "complexity" for a society, a design, or a style.) Peregrine recorded variables such as the presence or absence in pottery decoration of "crowdedness," "oblique lines," and "curved lines" to derive a measurement of the "complexity" of a pottery's "style," but the structural equivalence or universal significance of such elements should be questioned. Nonetheless, the Matitanana case does seem to confirm Peregrine's findings. The designs common in the Ampasimeloka phase are the most complex, at least in terms of the overall number of elements included in the decoration, as in the popular motif of multiple rows of triangle punctates in false chevron bounded by incised lines. The same time period of the 18<sup>th</sup> century also sees the development of state formations in many parts of Madagascar. However, as counter-examples do exist, any weak universal correlation between social and ceramic complexity cannot rise to the level of prediction.

A different approach to finding meaning in pottery decoration can be found in those studies that compare designs from a number of different contexts, such as Braithwaite's (1982) analysis of Azande decoration (in the same volume edited by Hodder cited above.) Many archaeologists have argued that pottery decoration can be used to assert social identity (as La Violette 1995 found among women potters in Mali), and that decoration itself can be protective in some fashion. Donley-Reid (1990) found that pottery decoration was thought by the Swahili to inhibit the transfer of pollution from the women involved in food preparation to the consuming men. (As she noted, women were seen as originally polluting among the Swahili for reasons of sex, menstruation, and childbirth, but also because the Swahili believe their "pure" Arab male line had been diluted by "African" wives.) In terms of the structure of these designs themselves, Hodder (1982b) noted that Nuba pottery designs seem to be based on the patterns of female scarification, and suggested that their use in both contexts provided ritual protection against male power.

For Madagascar, one possibility for linking pottery decoration with human body art derives from the notebooks of Louis Armand Chapelier, a naturalist who visited the east coast in the late 18<sup>th</sup> century and illustrated the tattoo designs he encountered (as discussed in Hébert 1971). I do not recall seeing any tattoos myself during the Matitanana project, and the practice seems to have fallen out of favor across the island before the 20<sup>th</sup> century. However, Hébert combines his own work on Sakalava tattoos and Decary's work on Tandroy tattoos to attempt an interpretation of the 18<sup>th</sup> century designs illustrated by Chapelier for the Betsimisaraka (who generally live north of the area covered by the Matitanana project, though sites 211 – 213 and 237 – 240 are found in areas occupied by Betsimisaraka today.) Figure 5.3 below illustrates some of the designs observed on women's bodies (as most men did not have tattoos) and recorded by Chapelier on his voyage between 1778 and 1806, which seem to have the greatest correspondence to the design inventories above.

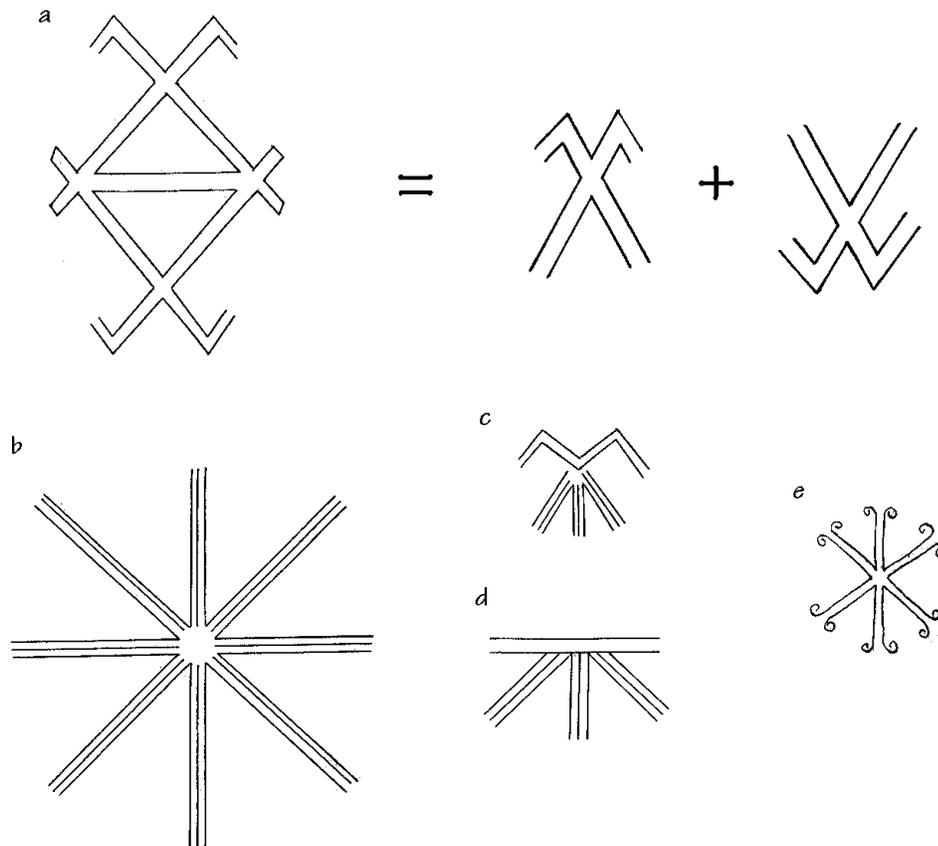


Figure 5.3. Tattoos found on Madagascar's east coast. After Hébert 1971:216, 220.

The first tattoo (a), found on thighs and calves, was interpreted by Hébert as the combination of another common tattoo motif and its inverse, as shown above. This component is said (based on Hébert's ethnographic work) to be an abstract representation of the human figure, and thus the composite design found in tattoo (a) is said to represent the union of two individuals. He goes on to suggest that the horizontal bar separating the two figures represents the ground<sup>3</sup>. Hébert does not pursue this idea further, but a natural follow-up would be that this motif, found among many different groups in Madagascar as noted by Hébert, would therefore represent a union of the living with the dead, linking a

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<sup>3</sup> "La barre transversal peut représenter le sol, comme aussi la junction de deux personnages." Hébert 1971:215-16.

person above ground with another below, emphasizing the importance of the ancestors in everyday life. This horizontal bar also divides the central space of the design into two base-to-base triangles, a design found on pottery in the Matitanana area as well (as in Table 5.8, row 4 above). Without this central bar, the central space linking the two human figures would take a diamond shape, and thus would perhaps represent not a linkage to the ancestors but a sexual linkage in the present. A survey of modern road-side graffiti in central and eastern Madagascar showed that this diamond shape was used extensively with a sexual connotation throughout the 20<sup>th</sup> century (Griffin 1999).

Hébert (1971:218) says the next tattoo (b) is “without discussion” a sun figure, and is commonly placed on the loin among the Sakalava. This design motif also appears on pottery, as in Table 5.8, row 2 above for a six branch example from Manandona (which may have more similarities to tattoo e) and an eight branch example not illustrated above from Ankatso (Mille 1971: plate 4), with the corresponding fragments of the design from the Matitanana area. However, this motif may also be seen as a combination of tattoo (d) and its inverse, which Hébert (1971:217) refers to by its Sakalava name, *volombava* or “hair of the beard.” Hébert ascribes a sexual connotation to this pubic design, especially when it is found in connection with a “broken” line as in tattoo (c) above, which is said to represent the sexual union of male and female. Though once found among the body art of the Betsimisaraka, Tandroy, and Sakalava, these specific complete design motifs (c and d) do not appear on the pottery of the Matitanana region, though key elements of the design certainly do (as in the common triple groove ware or the use of incised zig-zag lines). These elements were part of the common design repertoire for the region, and thus most likely did not have an independent meaning of their own. The final 18<sup>th</sup> century tattoo illustrated above (e) is said to be a curly cross<sup>4</sup>

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<sup>4</sup> “croix bouclées”

first seen in the 1600s among the Tanosy by Père Mariano and referred to by the neighboring Tandroy as *renamby* (Hébert 1971:223). Hébert noted that this same motif is also found carved into the wood of the mortuary canoes in caves to the northwest, and on other funerary monuments of the Besileo and Tanala in the center and eastern part of the island. Curved lines, other than wavy combing, are rare on the pottery of the Matitanana region, and it is therefore unlikely that this design motif could be differentiated from the “sun” motif discussed above. Using 20<sup>th</sup> century ethnographic information from the Sakalava to interpret 18<sup>th</sup> century Betsimisaraka tattoos that may or may not relate to even earlier pottery decorations from the Antemoro region is not the most theoretically defensible approach. And yet, while still allowing space for difference, continuity, and change, interpretation in archaeology can benefit from a consideration of wider contexts and of the connections between cultural sub-systems.

One final consideration before leaving this section on design and moving on to a consideration of the four main excavations for this project is that of vessel shape. Rim shape is often used as a diagnostic characteristic in archaeology, and the changing proportions of different rim shapes for the different ceramic phases can be seen in the site catalogue, Appendix A, for the Matitanana region. As in the Anosy region to the south, vessel shapes slowly changed from assemblages with many small bowls, flat-bottomed basins, and hole-mouth jars in early phases, to the later phases dominated by decorated serving bowls and larger high and low-neck jars. A good visualization of changing vessel shapes can be seen in Dewar and Wright’s (1993) “The culture history of Madagascar”. These later forms are often referred to by their Malagasy names of *sinibe* (large high-neck jar), *siny* (smaller low-neck jar), and *vilany* (deep bowl) in the Merina dialect, as discussed in Rasamuel (1986). One common “traditional” pottery form found in the central regions of Madagascar, the *lovimanga* or tall footed, graphite-burnished plate, was not found in the Matitanana region, though I will argue below that a smaller footed cup may have served a similar purpose.

Another form missing from the site catalogue is lid rims. Lids used for cooking rice are common elsewhere in Madagascar, but I was able to identify relatively few rim sherds from lids (the sherds illustrated in Figures A14i, A124e, A206c, A223e, and A239f). I was able to identify a number of chlorite-schist lid fragments by their shape as seen in the site catalogue, implying that there really was a paucity of pottery lids and it wasn't just my inability to spot them. If pottery lids were in common use, one would also expect to find accompanying "knob" handles with which to remove the lid. Our survey and excavations did recover a number of objects that could possibly serve as lid handles, though we originally labeled them as vessel feet (shown below in Figure 5.4). The ten pottery feet illustrated below, from nine different sites, are all approximately 4.5 centimeters in diameter. Their weight, wear patterns, and overall shape seem to argue against their use as lid knobs, though it is possible. Rather our first interpretation seems to be correct, that they may derive from small footed cups, bowls, or plates. Figure 5.4 also illustrates some possible comparison artifacts from V erin's excavations at Isandra, inland from the Matitanana near Fianarantsoa. These artifacts, according to the illustrations' scales, cluster at approximately two centimeters, four centimeters and six centimeters in diameter. The smallest four are labeled "petits fourneaux". The middle sized example, which most closely matches in diameter those from our project (and identified as top handles in the highlands), is labeled "jouets: recipients". And the largest example is considered a footed bowl (V erin 1968:273, 275, 278 respectively).

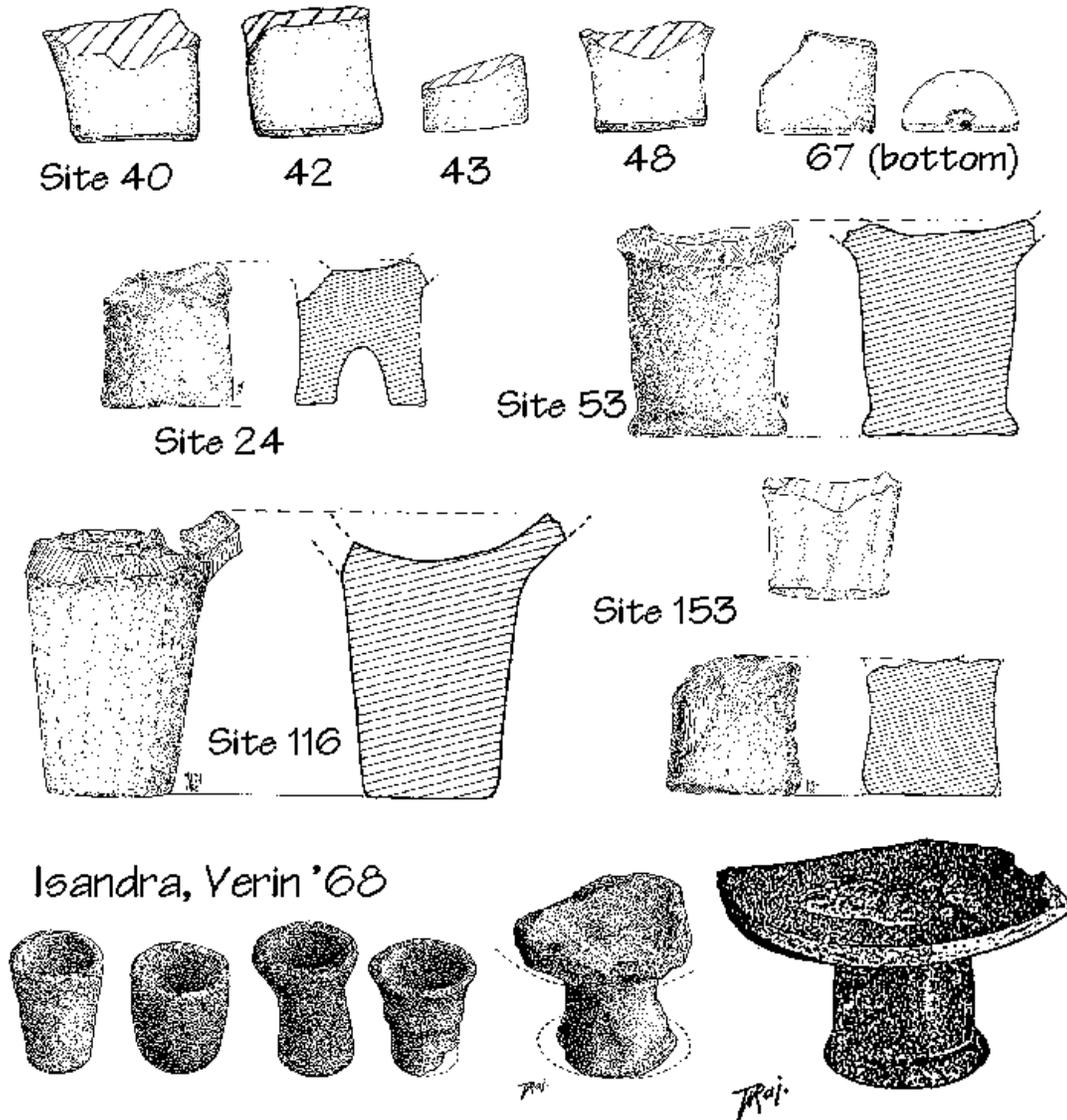


Figure 5.4. Footed vessels from Matitanana and Isandra.

Though V $\acute{e}$ rin labeled the medium-sized object a toy container for Isandra, it is clear that for the Matitanana these objects, whether bases or lid knobs, are the best status indicators we have. All of the sites on which these objects were found, dating to the Sangilavitra and Ampasimeloka phases, are ethnographically or historically important locations. For instance, of the nine sites included in Figure 5.4, sites 24, 42, 43, and 153 are all major ditched hillforts, including the site that lends its name to the Sangilavitra phase, site 153. Ivato, site 40, is home to the Antemoro king and the politically elite clans, while site 67 is at the base of the hill that is home to the Antemoro religious

nobility (in Vatomasina). Onjatsy, site 48, is home to the group considered to be the first settlers of the area and to be the owners of the water today. Fenarivo, site 116, is said to be the older part of Vohitrindry which became the “capital” of the commoner clans when they selected their own “king” in the 19<sup>th</sup> century to represent their interests with the Merina and then French administrations. The final site, Savana site 53, lends its name to the entire region which is referred to as “Ivato-Savana,” a formulation that implies Savana is older than Ivato, and probably the former political capital for the region. Thus, every site on which these objects are found can be considered to be a prestigious site in some way, and the objects themselves seem to be markers of social status that were limited in their distribution.

The one exception to this rule were the bases found at Antanambao Enohona, site 29, which is one of the main villages today for the outcaste Antevolo clan. However, this group is also said to have been the potters for the entire region (and thus might have produced these objects in question, one of which is illustrated in Figure 5.5 below). The Antevolo also, by their own oral traditions, claim to have once been the rulers of the land, though they lost control in conflict with the incoming Antemoro. Thus this site is probably not an exception to the rule, though it is considered the opposite of “prestigious” by the Antemoro today.

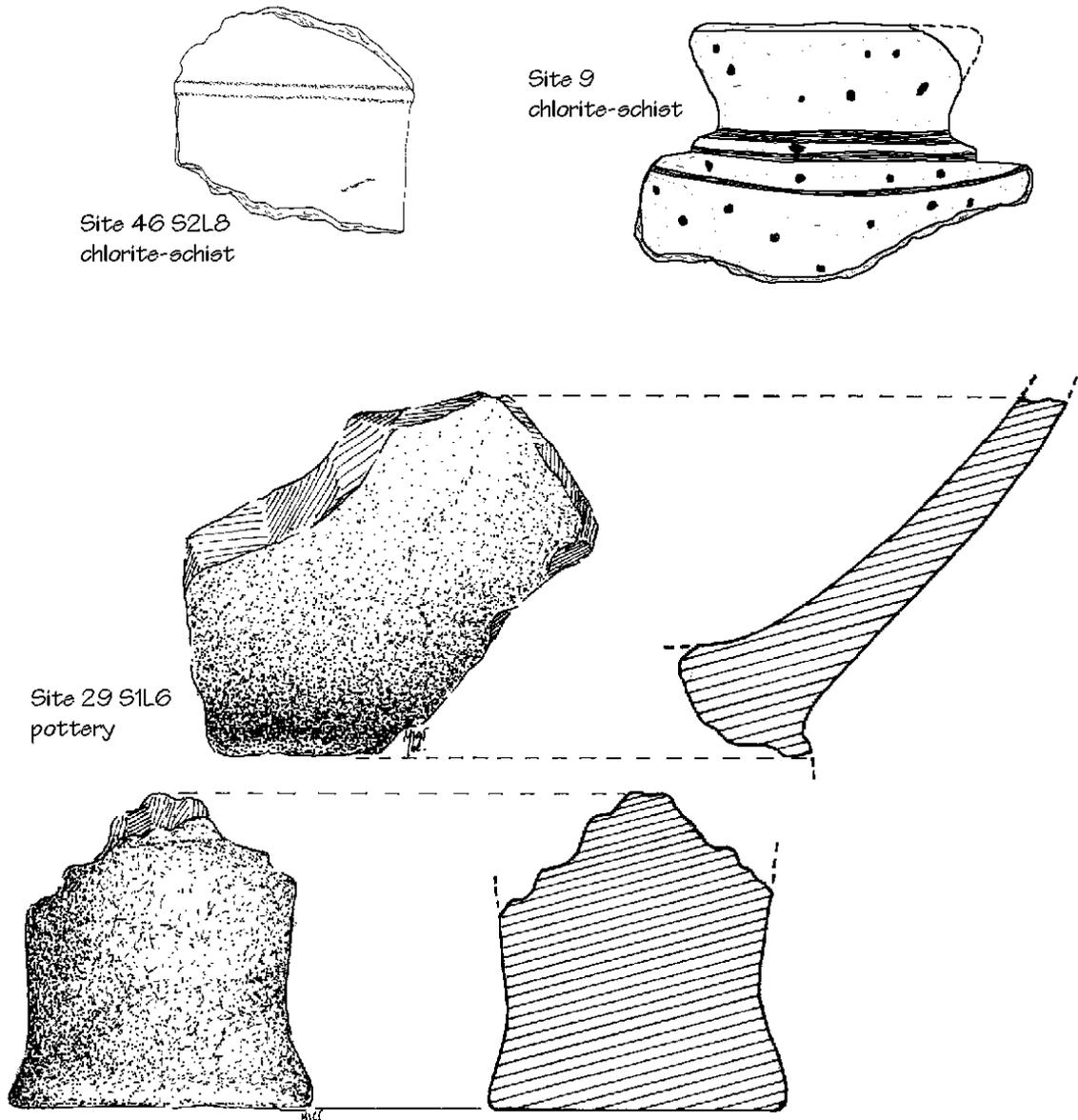


Figure 5.5. Stone lids and possible pottery lid.

As for the initial functional question of whether these objects are bases or lids, the most complete sample we recovered is the one illustrated above from site 29 (Figure 5.5). The museum illustrator drew this body sherd and base/lid pair recovered from sondage #1 as a footed bowl with steep sides. I am not convinced of this orientation, and believe that the two pieces may have refit at a more acute angle, as shown in the photograph below (Figure 5.6). This change makes the object appear more like a lid (albeit upside down) or

perhaps a footed plate. Figure 5.5 also illustrates two stone lid knobs for comparison, which are both shorter and of a slightly different shape. While I am still uncertain as to the actual functions of these artifacts, it seems clear that some of them at least are the bases to small footed vessels. Other fragments may indeed be the top piece of a lid knob, but I am not sure how to identify them as such. In any case, their limited distribution to only a few sites, all of which are important for one reason or another, will be taken as evidence for their functional use as social markers.



Figure 5.6. Footed plate or lid from site 29.

### 5.3 Main Excavations

Excavations for the Matitanana Archaeological Project were carried out at 16 sites (see Table 5.1). Most of these sites were in relatively inaccessible locations found during survey, and the excavations were generally completed within a single day using trowels and a small quarter-inch screen. The one exception is site 46, Marovahiny, where we camped for a number of days in 1995 to complete sondages three and four. The trenches were most often a meter square, though a few quick sondages were 50 centimeters on a

side. All of the backdirt was screened by a quarter-inch screen, occasionally by an eighth inch screen when beads were expected, and the pits were backfilled with a modern coin placed in the bottom. The excavations generally proceeded by ten centimeter arbitrary levels, though, when encountered, features and obvious natural strata were excavated separately. The four most important excavations, at Marovahiny, Antanimbaribe, Ambinanimananano Atsimo, and Sangilavitra, are discussed briefly below, with frequent references to the more complete site catalogue.

### **Marovahiny, Site 46**

Marovahiny, a one-house farmstead found just north of the Matitanana River mouth, was recorded during our first season while surveying around the site of Ambohabe (site 3, which as described above had been excavated in the early 1970s by Jacques Pannetier and then again by a group of students from the University of Antananarivo). Both of these earlier projects are reported in the journal *Taloha*, volume 6, from 1974. Survey archaeology was still developing in Madagascar at the time (see Chapter 4), and it seems that the primary reason for choosing this location to excavate is that the people of Ambohitsara (site 17) and Seranambari (site 51) led Pannetier there as a likely place to find chlorite-schist vessel fragments (Pannetier 1974:57). Our surface surveys, as described in the next chapter, recorded a fairly continuous stretch of sites along this coast, where most of the gardens and exposed sandy areas contained artifacts. Of all of these sites, we chose to excavate Marovahiny (a place name meaning “many visitors”) because it had at the time both the densest surface scatters of artifacts and the greatest diversity of pottery types and decorations.

In 1994 we undertook the first sondage at Marovahiny, a test pit 50 centimeters on a side as located on the site map below (see Figure 5.7, plans, profiles, and other details for these sondages can be found in Appendix A). This sondage was not wide

enough to allow us to reach sterile soil, and so we returned later in the season to undertake a second sondage some 30 meters to the west of the first. This one meter square sondage was also not large enough to allow us to dig as deeply as we would have liked in the soft sand without risk of a wall collapse. Excavation revealed a post hole (14 centimeters in diameter) in level 10, 105 centimeters below datum (see Figure A78). We had originally thought this level might have been sterile soil below the levels of human occupation, as it contained no artifacts, though it did have bits of charcoal. However, pottery sherds were found in levels 11 and 12, and so we were not convinced that we had yet uncovered the earliest occupation levels at Marovahiny, and time constraints prevented us from expanding Sondage 2. The existence of a deeply buried posthole also made us eager to open a larger excavation at this site as soon as time permitted.

Since then, an interesting and useful ethnoarchaeological study has looked at the sizes of house posts on Madagascar's southwest coast (Kelly *et al.* 2006). This study recorded the sizes of main and secondary posts in houses from different types of Mikea settlements, distinguishing between villages, forest hamlets, and foraging camps. Their study focused primarily on comparing the coefficient of variation between settlements, but our archaeologically recovered sample is far too small to use variation in such a manner (the post-hole mentioned above turned out to be the only one recorded at the site of Marovahiny). However, one can use their mean post dimensions to calculate an average size for each settlement type, which yields a number substantially smaller than the 14 centimeter diameter posthole recorded in Sondage 3. By averaging their various settlement numbers, we see that an average main post in a village was 8.1 centimeters (Kelly *et al.* 2006:88). How post size relates to posthole dimensions in sandy soils, or whether southeastern and southwestern Madagascar utilized different wood species for house construction, are just two of the questions future research might address in this regard. In any case, we returned to Marovahiny the following year (1995) to excavate a

two by one meter trench that we hoped would help us uncover other postholes as well as the earliest occupation levels at this site.

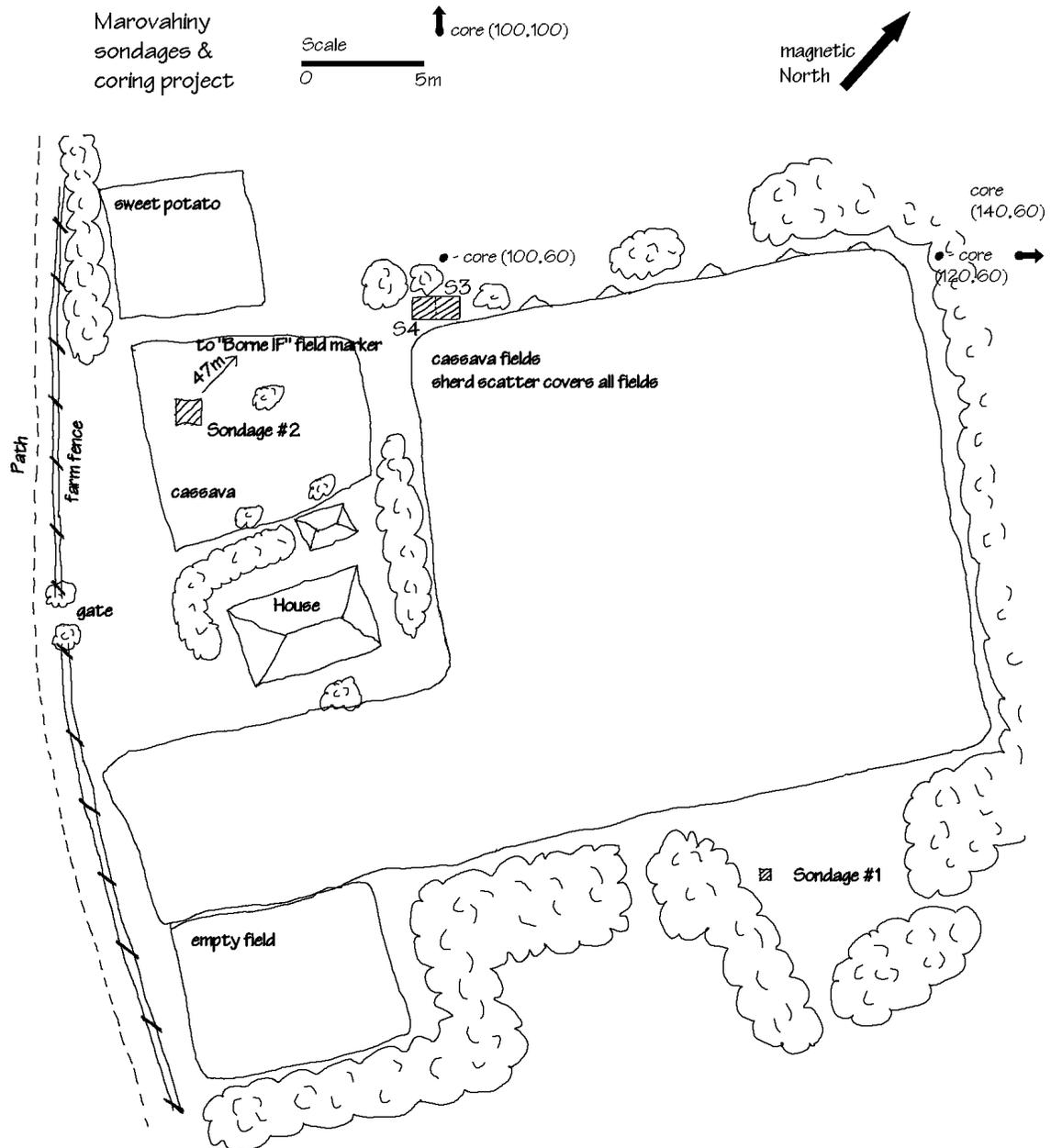


Figure 5.7. Excavations at Marovahiny, site 46.

Sondage 3, placed approximately 10 meters north of sondage 2 and extending almost two meters below the ground surface, was the main excavation for this site and

finally allowed us to reach sterile soil (or at least the water table). Sondage 4, an adjacent one meter square, was only excavated 60 centimeters below ground surface to serve as a step and to provide more space for digging in Sondage 3. One of the main goals for this excavation was to determine the degree of stratigraphic integrity for this area of former sand dunes. Did the layers we excavated have any temporal meaning, or, as evidenced by the great variety of artifacts appearing on the surface, had everything been jumbled to such a degree that relative dating was impossible? The artifact illustrations in the site catalogue for all of the sondages at Marovahiny seem to show that the ceramics do change predictably as one moves deeper into the earth, as can also be seen in the photograph below. The top row of this photograph (Figure 5.8) shows two rim sherds from level 2 on the left, and two from level 3 on the right. The three lighter sherds in the lower left are from near the bottom of the sondage, level 15, and are Type III, thick, soft cream ware with chlorite-schist inclusions as discussed above. This ware was only found in the lower levels of this site, and corresponded to other changes in decoration and rim forms as one moves deeper through the levels, as can also be seen in the illustrated sherds of the design inventory Tables 5.6 and 5.7 above and in the full inventory in the site catalogue. The final sondage at Marovahiny was placed some 150 meters northwest of Sondage 1, on the far side of the Pangalanes Canal, to test how far inland the settlement might have stretched. No artifacts were recovered in this fifth sondage.



Figure 5.8. Artifacts from sondage 3, Marovahiny.

The stratigraphy at Marovahiny appears to be meaningful as certain wares are only found in the deepest levels, and not higher up. In terms of the overall distribution of artifacts, Table 5.11 combines the raw counts from the site catalogue to present the total weight of all artifacts recovered from sondage three, along with the counts and average sherd size from sondages two and three. The idea here is that larger sherds (as measured by average sherd weight) imply a less broken-up collection for that level. Overall there were some surprising consistencies in sherd sizes for these excavations. For instance, the 50 sherds recovered in sondage two, level 2 averaged 2.4 grams, and the 170 sherds recovered from level three just below also averaged out to the same 2.4 grams. The large increase in total artifact weight for sondage three, level 3 is due to the presence of iron slag and chlorite-schist, and the 124 pottery sherds from that level (averaging 3.1 grams) indicate that the level is relatively undisturbed as well. One interesting feature of these counts is that each sondage has a level in which no cultural materials were found (level 13 in sondage three and level 10 in sondage two), below which were two more levels in which pottery did occur, including the thick Type III cream wares.

Table 5.11. Artifact weights from Marovahiny. Levels can be correlated through the profiles drawings and complete artifact counts and weights can be found in Appendix A.

<b>Sondage #3</b>	<b>Total Artifacts (in grams)</b>	<b>Pottery Sherds, Average Weight (in grams)</b>		<b>Sondage #2</b>	<b>Pottery Sherds, Average Weight (in grams)</b>
S3L1	150 (n=43)	1.5 (n=40)		S2L1	2.2 (n=11)
S3L2	158 (n=68)	2.4 (n=66)		S2L2	2.4 (n=50)
S3L3	428 (n=140)	3.1 (n=124)		S2L3	2.4 (n=170)
S3L4	158 (n=61)	2.4 (n=51)		S2L4	1.9 (n=120)
S3L5	105 (n=26)	2.3 (n=21)		S2L5	2.1 (n=102)
S3L6	70 (n=20)	3.1 (n=16)		S2L6	2.6 (n=128)
S3L7	294 (n=34)	3.2 (n=15)		S2L7	2.1 (n=47)
S3L8	104 (n=37)	1.3 (n=18)		S2L8	2.9 (n=24)
S3L9	233 (n=34)	2.2 (n=19)		S2L9	2.2 (n=6)
S3L10	67 (n=18)	2.5 (n=16)		S2L10	0
S3L11	7 (n=7)	1.0 (n=7)		S2L11	3.8 (n=4)
S3L12	19 (n=9)	1.8 (n=3)		S2L12	2.0 (n=1)
S3L13	11g (n=4)	0			
S3L14	22 (n=7)	2.2 (n=5)			
S3L15	28 (n=13)	2.2 (n=12)			

The relationship between these arbitrary excavation levels and the natural strata at Marovahiny can be seen in the profile for sondage three below (Figure 5.9). In general the excavation levels were 10 centimeters thick, with some exceptions (such as level 2 in sondage three, which stretched to the bottom of layer A). The profile below also illustrates the soil samples taken every 10 centimeters from the wall of the profile, and the accompanying phosphate spot test score from P1 to P5, with 1 being the lowest

concentration of phosphates and 5 being the highest. The phosphate tests were carried out in 1995 with the assistance of Chantal Radimilahy (see Appendix C for details and complete results), in the belief that human occupation creates higher concentrations of phosphates in the soil (McManamon 1984). It is interesting to compare these phosphate results shown on the profile below with the artifact counts listed above. For sondage three, the most pottery sherds and total artifacts were recovered from levels two, three, and four, and yet the phosphate results for all three of those levels were P1, the lowest possible score, indicating a very light human presence on the landscape. Descending to layer D sees the phosphate levels rise to P4 and P5 in excavation levels seven and eight, implying more human waste and other trash in those soils. This might imply an upward migration of artifacts through the soil over time due to gardening practices, or perhaps a change over time in the disposal patterns in relations to this particular location, or a leaching downward of phosphate through the sand. Working on similar sites to the south in Anosy, Rakotoarisoa suggests phosphate analysis such as this as one way to overcome the problem of the percolation of artifacts through sand (Rakotoarisoa 1998:17).

The phosphate spot tests at Marovahiny were undertaken in conjunction with a coring project in the 1995 season. We had hoped to use one of the manual corers from the Museum of Art and Archaeology in Antananarivo to better understand the overall site size at Marovahiny by looking at the subsurface remains. Six cores 2.5 cm in diameter were extracted, but no artifacts were recovered in any of the cores. (The phosphate reading for each natural layer in the six cores is presented in Appendix C). Since four of the cores were placed in the center of dense surface scatters, and yet still recovered no artifacts, we became suspicious of using this method for our intended purposes. A simple check of our math in the field revealed what we thought to be our mistake. Sondage two recovered a total of 754 artifacts, weighing 1782 grams (which we converted to an estimated volume based on the average specific density of brick, fired clay, and porcelain), from 900,000 cubic centimeters. Given that our core had a diameter of 2.5cm,

it would have only sampled 442 cubic centimeters (out of 900,000) if we had placed a core through sondage two before excavating it. We realized that the odds were too low to recover a single artifact (using our quarter-inch screen), even if the core had been placed into a relatively dense square as concentrated as sondage two. Thus we abandoned our coring project as a way to identify the presence or absence of subsurface remains and continued to estimate site size from the surface scatter extent. Of course, our real mistake in 1995 was that neither I nor my field crew that season knew enough to wash our extracted cores and look for micro-sherds. As opposed to my mistake, the method has been used successfully elsewhere in Madagascar, such as at Mahilaka (Radimilahy 1998), though in that case she also extracted many more cores of a larger diameter.



on surface scatters, or come up with another form of testing subsurface remains. All of the soil samples from the sondages and the six cores undertaken have been preserved for any future testing, phytolith, or pollen analysis.

As documented in Appendix A, the majority of artifacts recovered at Marovahiny were pottery sherds, followed by iron slag and chlorite-schist. Very few faunal remains were recovered, as one might expect given the acidity of tropical soils. Over 80% of what we did recover was tooth enamel from bovinds. In other words, all that was preserved were the hardest parts of the largest skeletons: and generally we only found splintered fragments of cow teeth at that. Other faunal remains from Marovahiny include one fragment of tortoise carapace (possibly sea turtle), one scapula fragment from a goat-sized animal, and one inner ear bone from a goat-sized mammal (as shown in the artifact counts in the site catalogue). Bird and fish bones are probably the first to disintegrate in these sorts of soils, and we did not recover any from our excavations.

In sum, the artifacts recovered from Marovahiny and our two absolute dates indicate that this site was occupied during our first three chronological phases, from perhaps the tenth century through the fifteenth. The ceramic collection is extremely diverse with many shapes, wares, and decorations present. The archaeological deposits are relatively deep and seemingly stratified, extending over a meter and half in places. There are no surface indications of mosques or other architecture (as one might expect from the Portuguese descriptions) and no indications of a town wall. The volume of artifacts recovered, when combined with the even greater volume recovered in the 1970s from Pannetier's Ambohabe (site 3) to the north, indicates that the entire coast north of the Matitanana River mouth was an important location in the earliest settlement of this region. The nature of this regional center is discussed further in Chapter 6.

### **Ambinanimananano Atsimo, Site 214 Excavations**

Falling between the Marovahiny and Ambohabe phases is the Mananano phase named for this site of Ambinanimananano Atsimo, a large early coastal site found south of the Mananano River mouth, north of the city of Manakara (see Figure 5.1). Compared to Marovahiny, Site 214 has a more limited range of pottery, but the surface scatter included many more and larger pieces of chlorite-schist. The sherd scatter itself covers an estimated 500 by 200 meters, and includes part of the grounds of the Eden Sidi Hotel today. The artifacts recovered were assigned to assemblages 0 and 2 (part of the Marovahiny phase) and assemblages 3/4 and 4 (constituting the Mananano phase). This seems to indicate either a regional variation or a less sustained and/or smaller occupation during the Marovahiny phase, with the bulk of occupation occurring during the Mananano phase. However, this site also had the highest percentage of ceramic shapes and decorations compared to other sites in this project, as shown by the loop handle and incised design illustrated in the last two rows of Table 5.10 above. Because site 214 is found on the northern edge of the project's main survey area, it is possible that future research will uncover similar ceramics further to the north.

The first sondage at this site was a one meter square trench placed 22 meters east of the road and 25 meters south of the river, near a surface concentration of iron slag, chlorite-schist, and pottery (see site maps in Figures A252 and A257 in Appendix A). At 46 cm below the ground surface, water began to seep into our trench, and we had to end the proper excavation at level 6 (55 cm b.g.s.) due to the seepage. We continued with a 25 cm diameter shovel test down to 85 cm b.g.s., screening all soil, to confirm that we had not yet reached a sterile layer. The high water table was partially due to the timing of this field season (May 1999), and it is expected that excavating here in October, when the river levels are generally lower, would lead to more complete excavation results. The detailed artifact counts can be found in the site catalogue, but totaling those detailed

counts reveals two clear differences from Marovahiny, as seen in Table 5.12 below. First, the overall artifact counts and weights are less at 214 (with 69 total pottery sherds) than at the previously discussed Marovahiny (site 46, with 663 total pottery sherds in sondage two and 413 pottery sherds in sondage three). Second, other than those sherds on or near the surface (i.e., in level one), the average sherd weight (and by extension sherd size) is two to three times larger at site 214 than at Marovahiny. Given the incompleteness of this excavation due to the high water levels, the uniqueness of its ceramics, and the site's position on the northern edge of the main survey area, Ambinanimananano Atsimo deserves more attention in future research.

Table 5.12. Artifact weights from Ambinanimananano Atsimo, site 214.

<b>Sondage #1</b>	<b>Chlorite-Schist Weight &amp; Count</b>	<b>Pottery Weight &amp; Count</b>	<b>Pottery Sherds, Average Weight</b>
S1L1	24.2g (n=2)	43.8g (n=16)	2.7 g
S1L2	14.8g (n=3)	88.3g (n=17)	5.2 g
S1L3	0	60.1g (n=12)	5.0 g
S1L4	46.7g (n=5)	37.7g (n=11)	3.4 g
S1L5	8.7g (n=2)	46.7g (n=9)	5.2 g
S1L6	16.5g (n=1)	26.4g (n=4)	6.6 g

### **Sangilavitra, Site 153 Excavations**

The Sangilavitra phase (17<sup>th</sup> – 18<sup>th</sup> century) is named for this ditched hilltop site of Sangilavitra (the phase between this and the earlier Mananano phase is named Ambohabe, after the extensive excavations at Ambohabe (site 3) described in Pannetier 1974). The ditched enclosure at Sangilavitra is approximately 125 meters in diameter, and unlike the other ditched sites recorded for this project, this site has seen substantial

soil accumulation and possesses a significant sherd scatter. In fact, the sherd scatter at Sangilavitra had the densest concentration of surface artifacts found on any site during this project. The artifact counts from the three small sondages undertaken at Sangilavitra (detailed in the site catalogue and summarized below) confirm this observation (for example, sondage 2 level 1 contained 211 pottery sherds, which is remarkable considering that this sondage was only 50 centimeters square, and thus contained a quarter of the volume per level of the Marovahiny sondages described above).

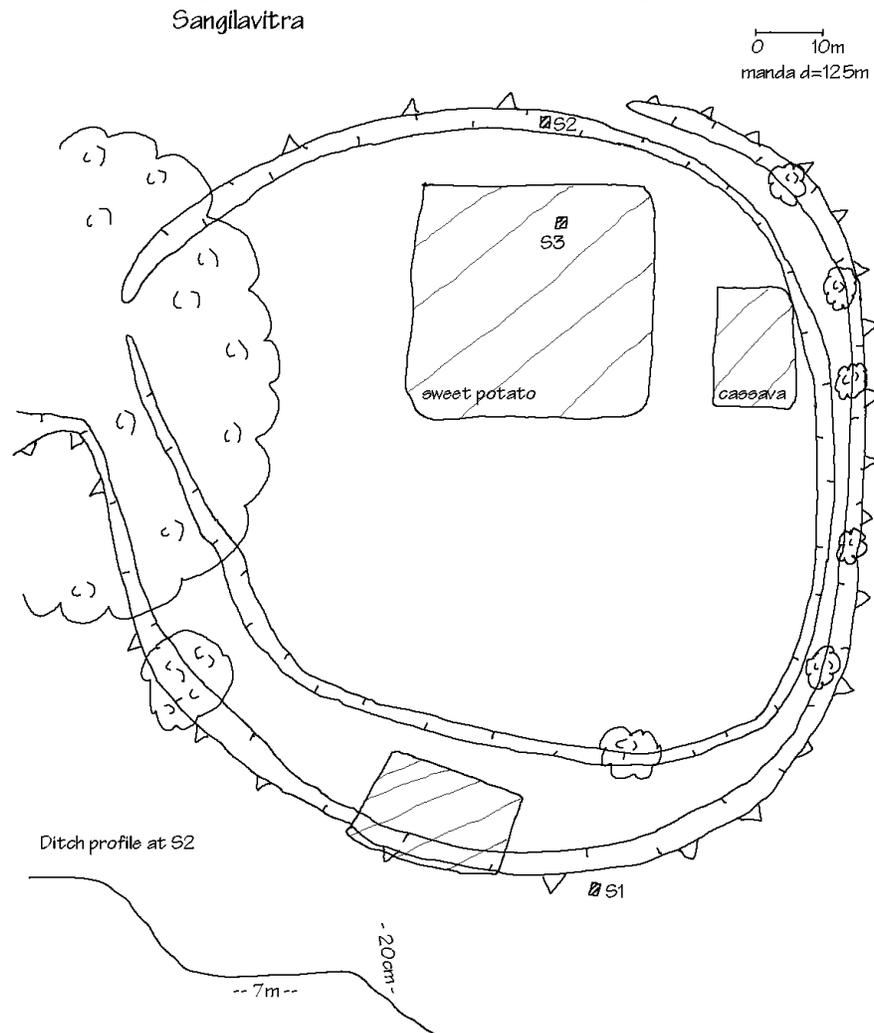


Figure 5.10. Sangilavitra site map, site 153.

The three test excavations (see Figure 5.10 above) were placed outside the ditched enclosure to the south (sondage 1 with few remains), inside the ditched enclosure

(sondage 3 with many artifacts but not as deeply stratified), and in the ditch itself on the north side (sondage 2, which had the most artifacts and the deepest deposits). We were not able to reach a sterile level in sondage 2 due to the limitations of the 50 centimeter trench. Unlike our other attempts to excavate across a ditch to determine its original shape and size (at sites 24 and 121), a larger excavation here at Sangilavitra would most likely succeed as the ditch itself is better preserved having been in-filled. The indications are, however, that such an excavation would also recover a staggering amount of pottery. The detailed artifact counts can be found in the site catalogue, but below are the tallies for just the pottery sherds from these three test excavations. As can be seen, the sherds from the ditch itself (sondage 2) were concentrated in the upper levels, which also had smaller average sherd weights (and sizes) compared to the lower levels. Sherds from inside the ditched enclosure (sondage 3) were even smaller on average. The excavation outside the ditched enclosure (sondage 1) recovered too small of a sample (only four sherds) to meaningfully compare it to the other excavations.

Table 5.13. Pottery sherd weights and counts from Sangilavitra, site 153.

	<b>S1 Pottery</b>	<b>S1 Average Sherd</b>	<b>S2 Pottery</b>	<b>S2 Average Sherd</b>	<b>S3 Pottery</b>	<b>S3 Average Sherd</b>
Level 1	2g (n=4)	0.5g	433g (n=211)	2.1g	88g (n=70)	1.3g
Level 2			278g (n=149)	1.9g	97g (n=52)	1.9g
Level 3			84g (n=26)	3.2g		
Level 4			71g (n=32)	2.2g		
Level 5			152g (n=66)	2.3g		

Average sherd weight is only a proxy measurement for overall sherd size and the degree to which a collection is broken-up or more complete. Sherd thickness can also play a part in these considerations of weight and size, and so 484 plain body sherds from sondages two and three were measured for their thickness, as shown in Table 5.14 below. Overall, the sherds clustered tightly around the mean for the entire collection of .57

centimeters, except for sondage two, level three which was larger than normal, and level four which was smaller than normal. However, these were also the smallest sample sizes (19 and 24 sherds respectively), though this can help explain why level three also had the heaviest average sherds as listed in the previous table.

Table 5.14. Site 153 Sondages 2 and 3: Plain body sherd counts:

Site 153	Mean sherd thickness	Standard deviation	N
S2L1	.56 cm	.122	170
S2L2	.59 cm	.163	115
S2L3	.69 cm	.187	19
S2L4	.48 cm	.120	24
S2L5	.57 cm	.106	57
S3L1	.56 cm	.133	60
S3L2	.56 cm	.107	39

These tables simply summarize the artifacts recovered, but as they are being curated by the Museum of Art and Archaeology in Antananarivo, it is expected that future analyses can be undertaken on the collection to produce more information from these excavations. The sherds themselves were assigned to the Sangilavitra and Ampasimeloka phases, implying that the hilltop had not been occupied before the 17<sup>th</sup> century, but that, unlike many other hillforts in the region, it continued to be occupied into the 19<sup>th</sup> century. Sangilavitra is also unique in that the surface collection recovered eight different footed bases (or lid knobs, as discussed above). Two of these are illustrated above in Figure 5.4, or see the site catalogue for other details. Given my beliefs outlined above that this vessel form signified high (or special) social status, it is interesting that Sangilavitra produced more of these footed bases than any other site (though this also must be a factor of the very high sherd density).

We did not collect any oral traditions concerning this abandoned hilltop settlement, as we were able to do with other ditched sites such as Fotsivava, site 39, except for the claim by the people in the modern village of Anosy (site 154) at the base of

the hill that they had once lived at Sangilavitra. As explained in the ethnographic notes for this Anosy in the site catalogue, the ethnographer Philippe Beaujard has stated that the people living in Anosy are outcastes (Antevolo clan), though the people themselves denied this claim in our interviews. Interestingly, the surface collection and sondages at Sangilavitra also produced pottery we classified as “outcaste ware,” comparable to the ceramics found at other Antevolo sites such as Antanambao Enohona, site 29. If Sangilavitra was an important site, or even the capital, of the Antevolo groups in the 17<sup>th</sup> century, it makes sense that the majority Antemoro (who are said to have taken the land from the Antevolo) have not maintained oral traditions concerning this hilltop.

### **Antanimbaribe, Site 62 Excavations**

Unlike the three excavated sites described above, all of which lent their name to a chronological phase for this project, there is no chronological phase named after the site of Antanimbaribe. This site was occupied primarily in the Ambohabe phase (assemblage 4), with some ceramics of the Marovahiny phase (assemblage 1) and some surface remains from the Sangilavitra phase (assemblage 5), as well as a large amount of iron slag and pieces of a clay tuyere. We chose to conduct three sondages at this site, all one meter square. We had hoped to uncover an iron smelting furnace, given the presence of the clay tuyere along with iron slag that appears to be tap slag (with a smoothed exterior and droplets that appear to have once been running liquid, Bachman 1982<sup>5</sup>.) The excavations did uncover more pieces of the clay tuyere (in sondage 1 level 5), but not an

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<sup>5</sup> This work includes many microscopic photographs of thin sections of iron slag, and is not meant to be a field guide to the identification of slags. It does however contain a few images of the exterior of tap slag, such as Plate XXVIa and Plate XVIa, that resemble the “smooth” slag we recovered on this site.

intact furnace. Elsewhere in Madagascar, a simple metal detector has been successful in recovering such furnace remains (Gabler 2005).

It was clear however that our three sondages (with a meter gap between each) were close to the furnace's location, as we recovered many pieces of baked clay that may have been part of the furnace walls. More chlorite-schist fragments were recovered than pottery sherds, though there were relatively few of either. For example, all of sondage two contained only 10 pottery sherds, 33 fragments of chlorite-schist, and 61 pieces of baked clay. But just level four of that sondage contained 405 pieces of rough angular iron slag (weighing 349 grams) and 65 pieces of the smoothed slag with droplets (weighing 94 grams). Level five below that contained 650 pieces of the rough angular slag (573 grams) and 55 pieces of the smoothed slag with droplets (54 grams). These counts (and the other detailed counts for these excavations found in the site catalogue) make it clear that large amounts of iron slag were being produced on this location, probably during the 15<sup>th</sup> and 16<sup>th</sup> century. For a recent dissertation on iron working in Madagascar to the north of the Matitanana region, please see Gabler 2005. That work makes me think that Antanimbaribe was probably also a site for iron smithing along with smelting.

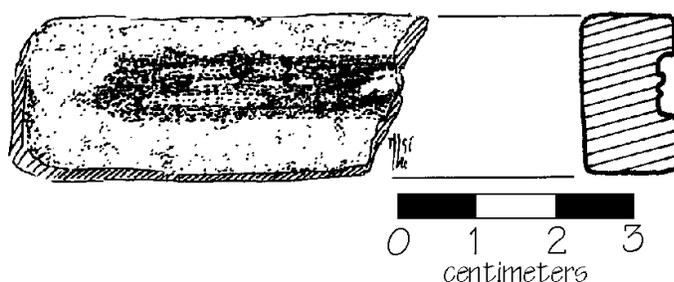


Figure 5.11. Chlorite-schist object, Site 62 S1L5. Possible ring mould, unfinished and broken, non magnetic, 23.1 grams, 5.06 cm x 1.15 cm x .92 cm.

This industrial area also appears to have been a location for working stone as well as iron. In the same level as the clay tuyere mentioned above (sondage 1 level 5), we recovered a chlorite-schist object that we interpreted as a mould meant to receive molten

metal, perhaps as a ring mould<sup>6</sup>. This object (see Figure 5.11 above) appears to have broken in half while the depression that would have received the molten metal was being carved out. Other evidence for the local working of chlorite-schist can be found in the relatively small fragments found in the excavations that appear to be production debris. Given the evidence for iron smelting and smithing, chlorite-schist work, and even the intrusive charcoal production pits that cut into the earlier layers (see Figure 5.12 below), it is clear that Antanimbaribe was an important center of craft production over an extended period of time. Our three sondages were attempts to learn more about this production center (and hopefully chance upon the furnace). However, a simple metal detector (as that used by Gabler in the study mentioned above), could have made this work much more effective. The deposits do exist well beneath the impact of modern farming on the site, and so hopefully much of the site will be preserved for future research.

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<sup>6</sup> My suggestion of a ring mould is based on my observation of a similarly shaped object (though of metal) in use in south India in the creation of decorative metal bands that were bent to form rings.



Figure 5.12. Profile, sondage 1 site 62, showing intrusive charcoal pit.

As stated in the introduction to this chapter, the four sites discussed in this section received the bulk of our attention in terms of excavations, and they also yielded the most artifacts and information. They helped us refine our ceramic chronology and gave us small insights into specialized activities that we would not have known about otherwise. They were not as large (even when combined) as the excavations at Ambohabe (site 3) in the early 1970s, but I would argue that the broader view provided by excavating at

multiple sites rather than at a single location, combined with the surface survey results and other new methods, will give us a new perspective on the archaeology of the area.

**CHAPTER 6**  
**MATITANANA ARCHAEOLOGICAL PROJECT:**  
**SURVEY AND SETTLEMENT PATTERNS**

*Tondro tokana tsy mahazo hao*  
You can't catch a louse with one finger

The systematic surface surveys for this project were centered primarily on the lower Matitanana River, though smaller projects were also carried out along the Manakara and Mananano Rivers to the north and the Salohy and Manampatrana Rivers to the south. This main survey area was illustrated in Figure 5.1, but as the surveyed area stretches along 100 kilometers of coastline, the scale for that map is of necessity too small to adequately display the site distribution and settlement patterns. Thus, in this chapter I divide the main survey area up into five smaller regions to better illustrate the site distributions: 1) the lower Matitanana River, 2) the area around the city of Farafangana, 3) the area around the city of Manakara, 4) the Upper Matitanana River, and 5) the Upper Mananano River. Some sites found on the edge between two regions will appear on the distribution maps for each region, with a note made of the overlap. Two survey areas further removed from this core area (west towards the Betsileo town of Ambalavao and north towards the Antambahoaka town of Mananjary) are not included here, but will be discussed in Chapter 7 as ancillary projects.

My original intent for the survey coverage was to investigate the river mouths in each valley along with an upriver area at least twenty kilometers inland. This would allow me to compare developments in the separate valleys, examining trade and

transactions between the valleys as well as within individual valleys up and down the river. Pottery analysis (in Chapter 5 and the site catalogue) and neutron activation analysis (in Chapter 7) would help identify these connections. The upriver component was important to see the course of development in an individual river valley, but also because the Swahili civilization on the East African mainland (which some have said was the source of the first Antemoro immigrants) never spread more than fifteen kilometers inland from the coast. Thus I wanted comparable information to see how the earliest and later settlements were distributed in the Matitanana region.



Figure 6.1. The king's village of Ivato on the banks of the Matitanana River. Nine students from St. Charles Community College hiked in to speak with the *Mpanjaka* as part of their field school in 2005.

Our survey field methods did not change nearly as much nor as often as my approach to the ceramics described in the last chapter. There were however, some

significant changes between the 1995 and 1997 seasons as will be described below. In general, our survey proceeded with between two and ten field walkers systematically covering an area in transects 10 meters apart. We paid special attention to those areas with better ground visibility, such as gardens, villages, and exposed sand. Dense forests were more quickly surveyed primarily for ditched enclosures and other earthworks, and they were generally not shovel-tested for artifacts. Likewise, the numerous rice paddies were not generally surveyed in later seasons, though their cut earth embankments still were. The rice paddies within the survey area were often filled with water, depending on the season, which denied us good surface visibility. But even when dry, sherds were never recovered from the rice paddies themselves in the Matitanana region. The site catalogue does include a few sites where sherds were recovered from what we termed “rice nurseries,” the smaller paddies where the grass plants are grown before transplantation to the primary rice fields (see sites 142, 172 and 229). The absence of artifacts in the main rice paddies may be due to a long standing and exclusive use of these low lying lands for rice cultivation and consequent lack of occupation. Alternatively, it may be due to their repeated flooding and the trampling of the mud with cattle, such that ceramics have sunk deep into the sediment. Thus, our survey rarely recorded sites on land covered currently by forests or rice paddies. More often, surface artifacts were observed in sweet potato and cassava gardens (as discussed in Chapter 2), because these crops cover much of the land area, because the cultivation techniques for these two crops seem more likely to bring artifacts to the surface of the gardens, and because these crops prefer the sandy, well-drained terraces and ridges that also happen to be good places to situate residential sites.

In terms of surface visibility, we were also concerned with the movements of sand dunes near the ocean, as many of our sites were found in gardens on the landward side of the second set of dunes back from the sea, near the Pangalanes Canal which occupies the lowest trough before the next ridge of hills going inland. During our first surveys in 1994

we were somewhat puzzled as to why Ambohabe (our Site 3) was chosen for excavations in the early 1970s by Jacques Pannetier and the field school the following year. The site was pointed out to him by the people of Ambohitsara (site 17) and Sanambary (site 51) as a place to find chlorite-schist artifacts (Pannetier 1974:57).<sup>1</sup> But we were perplexed because Site 3 had such a sparse distribution of artifacts, and looked so unpromising from its surface remains, especially in comparison to other sites just to the north and south of this location. The site on the Matitanana's north coast that we chose to excavate ourselves, Site 46 Marovahiny, had a very diverse and dense surface collection in 1994 and 1995, as described in the previous chapter. However in January 1997, Cyclone Gretelle (a category 5 hurricane equivalent with winds of 220 km/h) hit Madagascar between the Matitanana River mouth and Farafangana, passing directly over the site of Marovahiny and causing a 4.5 meter flood surge at Vohipeno, 11 kilometers upriver from the mouth of the Matitanana<sup>2</sup>. Passing through the area north of the Matitanana River mouth in October of 1997, we noticed far fewer surface remains at Marovahiny and other coastal sites, which undoubtedly had been entirely submerged. We originally thought the high density of surface artifacts at Marovahiny was most likely due to the recent creation of Yabon'ny Gova's farm on the land (who was still living there when St. Charles Community College's field school visited his family in 2005). But there also seems to be a natural taphonomic cycle for these coastal sites in which new farm fields bring a fresh crop of artifacts to the surface, which are slowly scattered and re-buried as farming

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<sup>1</sup> It can also be noted that Ramilisonina, my main collaborator on this project, was a part of both projects in the 1970s – that of Pannetier and of the students from the University of Antananarivo. Ramilisonina remembers a good road from Ambohitsara to Ambohabe (visible on aerial photographs from the 1950s) which made access to these sites much easier than it is at present, as the road and bridges no longer existed in the 1990s.

<sup>2</sup> In fact, in October of 1997 the house in Vohipeno that we rented for our base of operations had been occupied by Médecins Sans Frontières during the recovery operation from Gretelle, and had only recently been vacated.

continues with a rotation of crops or they simply disintegrate on the surface. This sequence is then punctuated by major events such as cyclones that can rearrange the sand dunes and dramatically alter artifact visibility along a large stretch of coastline. A similar situation was discussed in Dewar and Wright (1993:428) for Madagascar's southwest coast. Battistini and Vérin (1971) had received a radiocarbon date of A.D. 650 from the site of Sarodrano on the southwest coast, though they suspected the charcoal had been contaminated by older natural charcoal, leading to this anomalously early date. They returned to the site to expand their excavations and explain the anomaly, only to find that cyclone Dany of 1970 had completely destroyed the site. Such site formation processes are important to keep in mind as we look at the settlement patterns of Madagascar's coastal regions.

When artifacts were discovered during our surveys (dependent as it was on surface visibility), a site name or number was assigned, forms were filled out, site maps drawn, a pottery sample collected, and a GPS reading recorded (for the later seasons). We tried to stick to an operational definition of archaeological "site" as five discrete artifacts found within a few meters of each other (or the presence of earthworks), but a few site forms were mistakenly begun before the adequate number of artifacts had been found. The collection method depended on the size and density of the site. On small, sparse sites we made a complete collection, and on larger sites we took a selective sample, focusing primarily on collecting rims, along with a range of pastes, wares, and decorations. The collection method used for each site should be noted in the site catalogue (Appendix A), and all of the artifacts collected during the surveys (as with the excavated collections) are being curated by the Musée d'Art et d'Archéologie in Antananarivo. The biggest changes in our field methods (alluded to above) came in the 1997 season when we changed how we organized and referred to our sites, as well as the system we used to record their location.

In our first two field seasons we organized our site inventory by site name. This worked best for those archaeological sites in or near modern day villages, which we then qualified with an added descriptive modifier, such as "Ivato Atsimo" (site 40) meaning "South Ivato" for a site in a coffee garden on the southern edge of the Antemoro royal village of Ivato, or Lazamasy Taloha (site 42) meaning "Old Lazamasy" for a ditched site near modern day Lazamasy. However, when surveying away from populated areas, we often struggled to find someone who might have a name for the location of a specific archaeological site. And when someone was found, the name provided was often personal or idiosyncratic, and something that few other people would recognize in the future as being the correct name for that location. Even more problematic, Malagasy place names are descriptive, and hence similar names are widely used across the island. Thus, our site catalogue includes four different sites all with the same name of "Anosy": a modern village near Farafangana (site 140), a site along the lower Matitanana River (site 27), a modern village along the upper Matitanana (site 154), and a farmstead north of the city of Manakara (site 219). In addition, there are many other sites that include "Anosy" as part of their name (such as sites 25, 26, 130, 222, 224, and 225). This is not surprising as "Anosy" means "island" and thus is an obvious place name in these riverine locations.

Given this possible source of confusion, and my personal difficulties with Malagasy place names (for example, in the last chapter it was easier for me to think about excavations at "site 214" than about excavations at "Ambinanimananano Atsimo"), we switched in 1997 to sequentially numbering each site with a unique identifier. The earlier sites from the first two seasons were alphabetized and assigned site numbers after the fact, though a few problems arose in the transition (see the notes for sites 62 in the site catalogue, which was accidentally double-numbered). Thus, sites 1 to 61 represent the results of the first two field seasons, and the site number does not indicate the order in which they were recorded. Sites 63 to 236 however, were recorded in order during the

field seasons in 1997 and 1999, and thus sites are often closest to those with neighboring numbers, except when we changed survey locations as will be outlined below. In general for these later seasons I only added a site name to the site number when a name was easily obtainable and it seemed to be in widespread and common use. This explains why many of the sites above 63 in the site catalogue only have a site number and not a specific name for their location.

When I did record a site name, I tried to conform to the official topographic maps for this region from the National Cartographic Institute, even though those maps tend to use the Merina dialect from the central highlands. Because of this, many village names are locally pronounced differently than the official maps would indicate. For example, Sanambary (site 51, mentioned above in connection with Pannetier's work) is identified on the government maps as "Seranambary," and my site catalogue references both names. An example where I chose to use only the local dialect is the type site 153, Sangilavitra, which elsewhere in Madagascar would be pronounced and written with an initial "t", as in Tsangilavitra meaning "long walk," probably coming from the fact that the gardens in the center of that site today are indeed a long walk from the closest settlements. Even the Matitanana River itself, the central focus of this project, is locally known as the "Matataña," though in this case I have continued to use the name more common outside the Antemoro. In a few cases however, I have chosen to use a name other than those found on the official map from 1957. For example, our site of Antanambao Enohona (site 29), a name that means the "new village of Enohona" is labeled on the map as the village of Ambohimiary. The elders living in the village today insist that Ambohimiary has never been the name for their village, and they don't know why the map would have listed their town as such. I suspect that the official map may here reflect the local political situation, in that Enohona (and "New Enohona") are both villages of outcaste Antevolo clan, and other Antemoro will not only avoid contact with these people, but will usually refuse to speak the names of their villages. Hence, in a case familiar to much of anthropology and

map making, the map name Ambohimiary perhaps reflected the term used by neighboring groups, and not by the actual inhabitants of this village.

During the first two seasons, before we began numbering our sites, the unique identifier for each site was its Laborde geographic coordinates. Beginning in the 1997 season, we located sites with reference to their latitude and longitude coordinates instead of the Laborde system, in addition to assigning them a sequential site number as discussed above. Many maps of Madagascar include three different coordinate systems: the now standard latitude and longitude with degrees east of Greenwich, the French system with grades east of Paris, and a unique system of Laborde Coordinates devised in 1926 by the head of the Geographic Service of Madagascar (Laborde 1928). This system took an origin point off the southwest coast of Madagascar (at 49 grades east of Paris and -21 grades south, which converts to  $46^{\circ} 26' 14.025''$  East and  $18^{\circ} 54'$  South) and a second point 400 kilometers east and 800 kilometers north, near the capital of Antananarivo, as the center of its projection. Archaeologists have traditionally used this Laborde Coordinate system, even though Madagascar's National Cartographic Institute, or Foiben - Taosarintanin' I Madagasikara abbreviated as FTM, discontinued its use of the Laborde system in 1978 (Andriamihaja 1988:iii).

Archaeologists have used this system in part because it is a flat projection based on kilometers, and so it's easy to see distances between sites (e.g., for the sea coast north of the Matitanana, site 15 at Ambohabe (553.2-412.7) should be almost two kilometers north of site 9 (552.5-410.9) also referred to locally as part of Ambohabe.) A second reason for using Laborde coordinates is that with only 8 digits, each sherd can be marked to within 100 meters on the island (and all of our artifacts from the first two seasons were inked with their Laborde coordinates). However, archaeologists (including myself) have often confused the Laborde system, reversing x and y coordinates. Thanks to my high school math teacher, I have always conceived of the horizontal axis as the X axis, and the vertical as the Y axis, though in the Laborde system they are reversed, with Y standing

for the kilometers east of the origin and X for the kilometers north. Of course, even though archaeologists occasionally record their site locations with reversed X and Y coordinates, this only becomes a problem near the line of  $X=Y$ , which runs just north of our study area.

Beginning in the 1997 season however, I gained access to a handheld GPS system, and found it far easier to record systems by their latitude and longitude (based on WGS84) than according to their Laborde coordinates. I assume all future archaeologists will be using such satellite systems to help them locate previously recorded sites, and so it made sense to change our methodologies for the final two seasons. As a byproduct of this decision, however, we also began to write the site number on individual sherds (such as “MAT 153” for the Matitanana region and “FAR 140” for the Farafangana region) instead of their Laborde coordinates as a shorter alternative. I recognize the danger in this change, in that to maintain provenience for these artifacts the museum in Antananarivo will need to keep the information contained in my site catalogue accessible (as it lists both latitude and longitude and the Laborde coordinates for each site). Towards this end, an abbreviated print-out of the site inventory has been placed in each bag of artifacts in the museum’s store rooms at Farovohitra. The latitude and longitude readings that were provided by the handheld GPS unit are listed in the site catalogue in decimal degrees. Otherwise these coordinates were derived by interpolation on the official maps, by a conversion formula for the Laborde coordinates developed by the staff at FTM, or by visual placement utilizing Google Earth. The regional site maps below will draw on all of these different methods to show where the various sites were located, as in Figure 6.2 showing all of the sites in the lower Matitanana region.

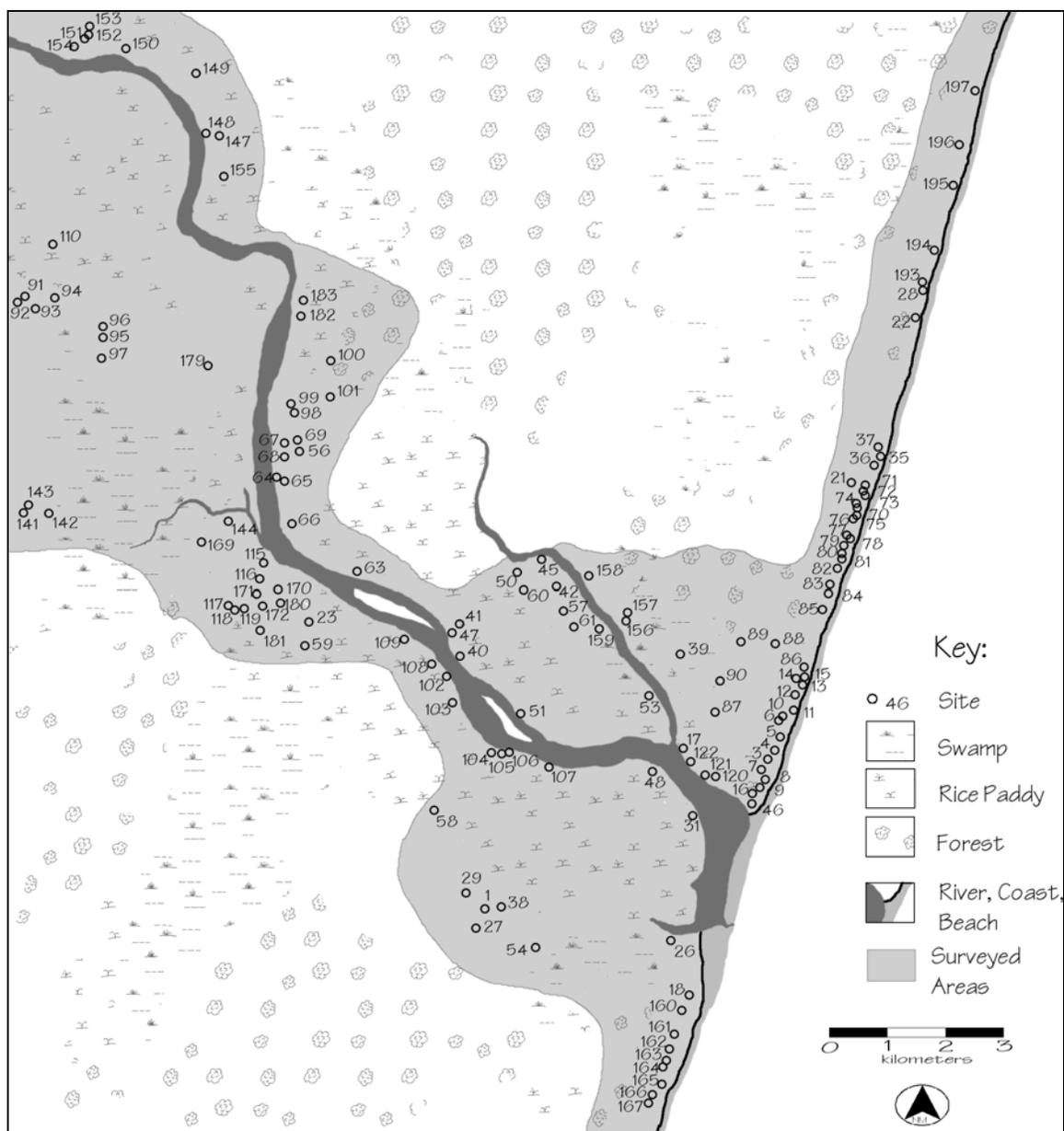


Figure 6.2. Sites of the lower Matitanana region.

Before moving on to a consideration of these regional survey maps for each chronological phase (which turn out to be more interesting than the base maps showing all of the sites recorded during this project), I would like to offer another way to organize the sites recorded by this survey. As explained above, the first 61 sites in the site catalogue are listed alphabetically and are therefore in no particular numerical order. However, the sites from the final two seasons were sequentially numbered, and thus

represent chains of neighboring sites, if one knows where the daily breaks fall. Because these sites also lack names at times, and because I have five different regional maps to consult, I devised a list showing the individual survey “walks” we undertook<sup>3</sup>. Some of the groupings in the table below represent more than a single day’s survey, but regardless of how many days’ work were involved, the groupings show the different survey “chains” as they were recorded. I consulted this table so often myself while working with these sites that I felt it was important to include here for others as well. With this table I could look up any site number (from the final two seasons) and quickly have an idea of where the site is located, much more easily than I could by learning either the Laborde coordinates or the latitude and longitude from the site catalogue. This information was included in the site catalogue in the “Region of” field, but I still found the short tabular listing more useful in making sense of the survey data.

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<sup>3</sup> On most days surveying we would start walking in one place, and continue in a very large circle recording sites until we ended up back where we started (either where we were sleeping, or at a canoe, car, or bus.) This always reminded me of my favorite story from working on the Swahili coast of the African mainland. In the Swahili language, Europeans are referred to as *mzungu* (or *wazungu* in the plural), a name said to have been derived from the root word for “circle,” as in *kizunguzungu* for “crazy” (or thinking in circles.) It is said that *wazungu* was first applied to the early European explorers because they would hop off their ships, only to slowly walk in an enormous circle to end up back where they started. So *wazungu* is said to mean “the people who walk in circles.” In Madagascar the equivalent term is *vazaha*, and during this project I became known in the area as the *vazaha dahladahla*, the crazy white guy looking for sherds. But I thought of myself as the one who walks in circles.

Table 6.1. 1997 and 1999 sites organized by survey project.

63 – 69	Vohipeno
70 – 86	Ambohabe north to Ampasimeloka
87 – 90	Northeast of Ambohitsara
91 – 96	Hills west of Vohipeno, west of river and canoe landing
98 – 101	Vohipeno north
102 – 109	West of Matitanana, southeast of bridge
110 – 114	West of Andemaka
115 – 119	Vohitrindry
120 – 122	Between Ambohitsara and Marovahiny
123 – 128	South of Farafangana
129 – 134	Farafangana – Anosivelo
135 – 140	Farafangana – Anosy, east of bridge
141 – 144	West of Matitanana (Victor's parents)
145 – 146	North of Mahasoia (Ankarinarivo, north side of river)
147 – 155	Nato to Anosy (northeast of Matitanana, north of Vohipeno)
156 – 159	Hills across water from Lazamasy, northeast of Ambohitsara
160 – 167	South of Matitanana river mouth and Ravony's bungalow
168 – 179	Near Mahasoia, and small bridge (south)
180 – 183	South of Vohitrindry and north of Vohipeno
184-190	Lokomby
191 – 199	Canoe trip from Ampasimeloka to Manakara
200 – 206	West of Ambila
207 – 210	Ambalavao
211 – 213	Mananjary (Ambohitsara)
214 – 226	Coast north of Manakara
227 – 228	Ifanirea, Upper Matitanana (Tanala)
229 – 236	North bank of Matitanana, east of Andemaka
237 – 240	Chlorite-schist quarries northwest of Mananjary

As will be seen in the regional settlement maps below, the distribution of sites in the Matitanana River valley and the areas to the north and south all seem to go through a similar progression. In the earliest Marovahiny phase there are relatively few sites, and they cluster tightly on the sea coast near the river mouths. In the following Mananano phase there is an increase in the overall number of sites, and sites first begin to appear up river. Then in the Ambohabe phase, there is a reduction in the overall number of sites (though still more than in the first phase), and the lower reaches of the rivers are

abandoned. In other words, sites are found on the sea coast, often stretching further along the coast away from the river mouths than previously, and sites are also found significantly upriver away from the coast. However there is a gap with no sites between the two areas. In the next phase, the Sangilavitra phase, there is an explosion of sites all over the landscape that must indicate an overall increase in population numbers, probably due to immigration. The ditched hill forts belong to this phase (as will be discussed below), and a common pattern is four or five small sites found on the flats near the base of a fortified hilltop site. The most important sites of the phase (and the following phase) appear to be upriver away from the coast. In the final phase before the modern 20<sup>th</sup> century, the overall number of sites is again reduced, though the sherd scatters are often much larger. It appears that a settlement pattern of small dispersed hamlets around a few ditched hill sites in the previous phase is replaced by larger centralized villages on the banks of the rivers. Sherd scatters that include ceramics of the Ampasimeloka phase are far more likely to still be occupied, as is the contemporary large village of Ampasimeloka itself (site 21).

In some ways the settlement pattern of the modern 20<sup>th</sup> century seems to be a combination of the two previous phases. The large villages on the banks of the rivers from the Ampasimeloka phase are maintained, but added to this is a spread of one and two-house compounds scattered across the landscape, reminiscent of the Sangilavitra phase. The two largest settlements in the project area, the cities of Manakara and Farafangana, are both colonial creations. Manakara began in 1928 as a commercial harbor for the exportation of coffee, which had recently been introduced as a cash crop

(Deschamps and Vianès 1959:27). Farafangana has an older history, though it too grew substantially with the introduction of coffee farming<sup>4</sup>.

The following settlement distribution maps will illustrate the progression described above for the Matitanana River valley, which will be divided into an upper and lower region to increase readability. As there are no sites in the upper region during the Marovahiny phase, no map is presented. The use of the modifier “Early” on these maps is in relation to those phases comprised of multiple assemblages. Please see Figure 6.2 for a delimitation of the survey area for the lower Matitanana region, as it is not indicated on the maps below.

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<sup>4</sup> Deschamps and Vianès also give an interesting explanation for the name of this city. The Antefasi who live there claim it is the location for the mythic defeat of the seven-headed sea monster (as in *fara-fanani* – the “end of the serpent.”) Others have said that it was the home of the ancient king Ifara, and so early European traders would call out “*Ifara faingana!*” – to Ifara, quickly! (Deschamps and Vianès 1959:78).

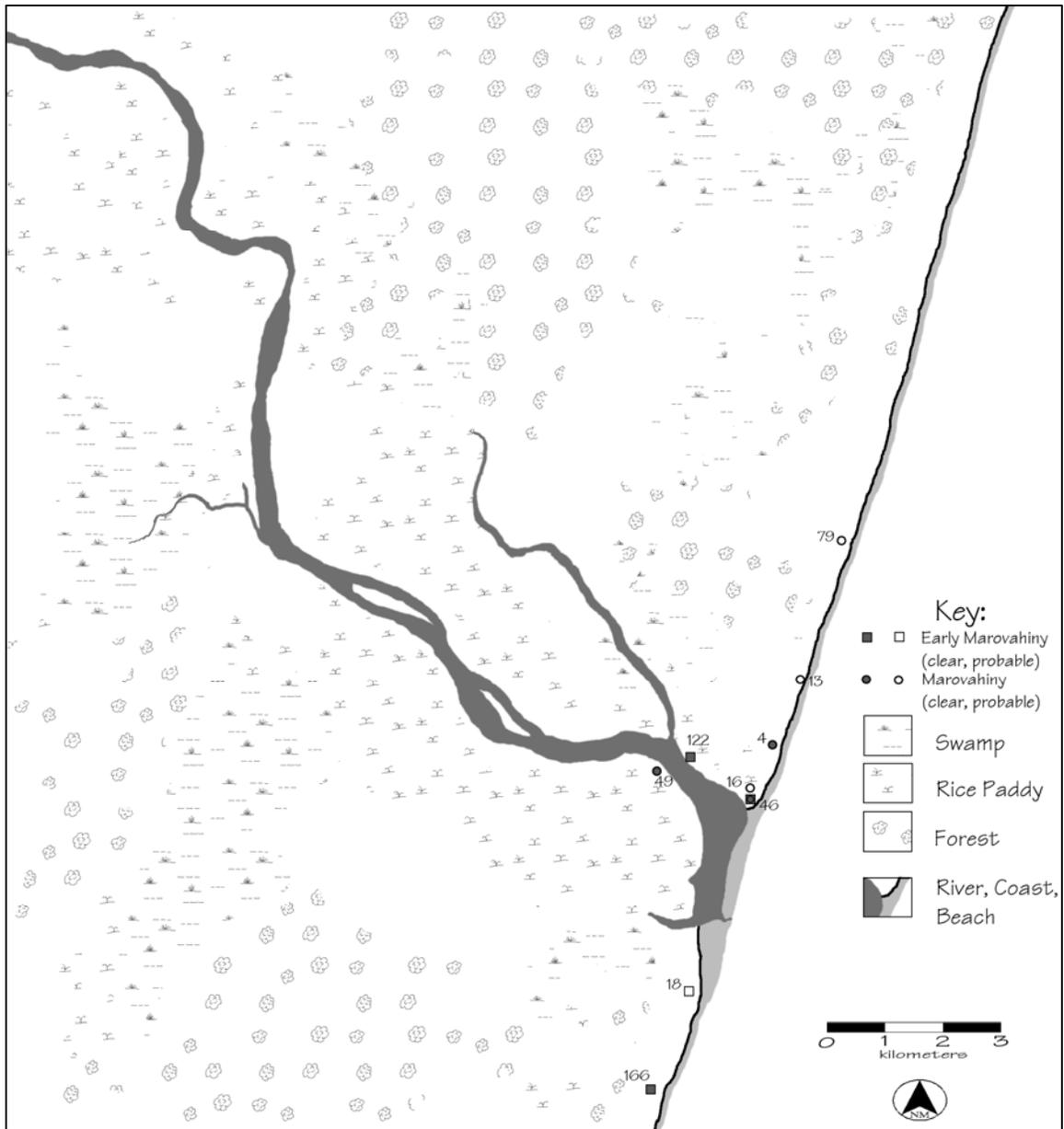


Figure 6.3. Marovahiny phase sites in the lower Matitanana River valley.

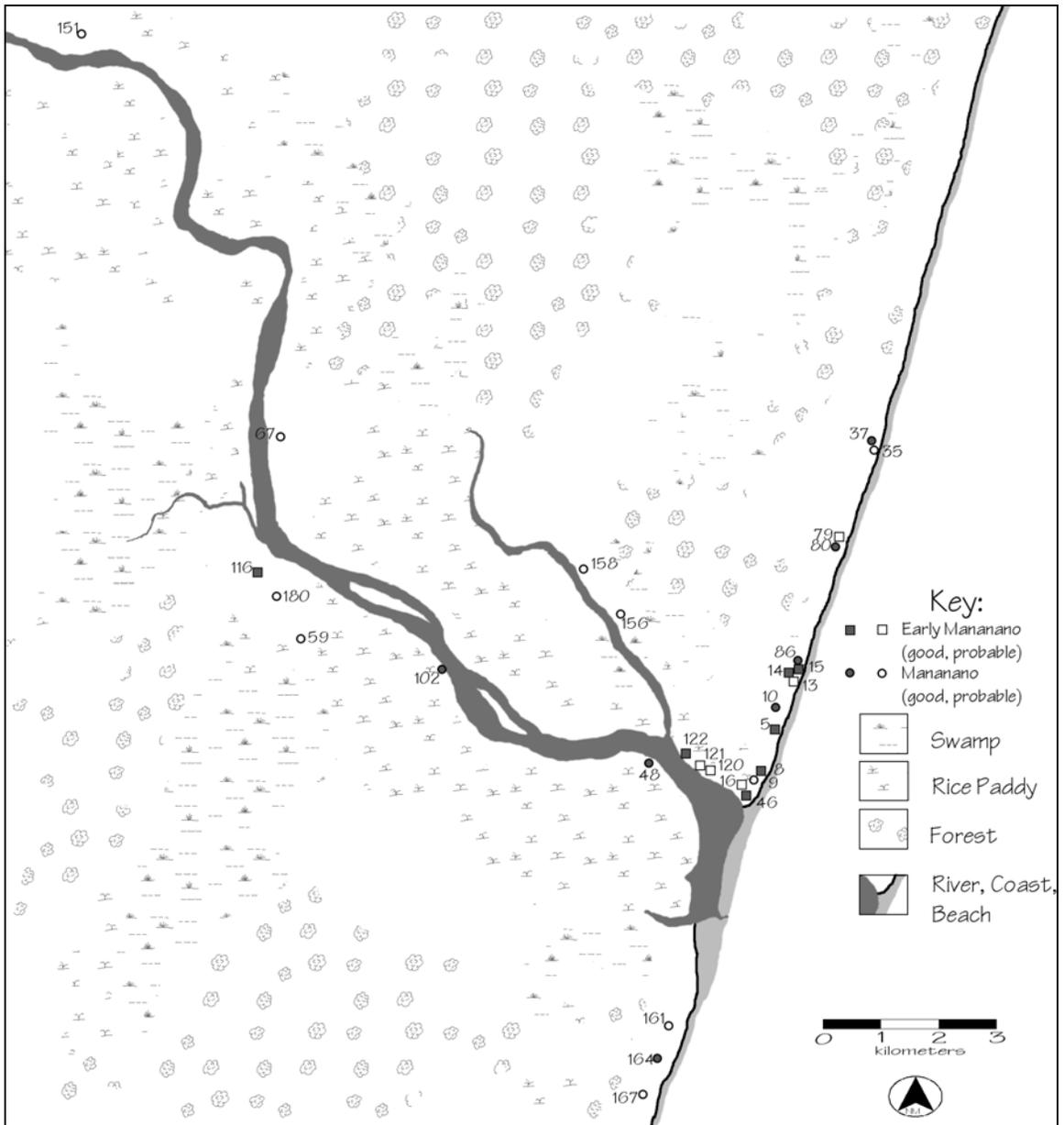


Figure 6.4. Mananano phase sites in the lower Matitanana River valley.

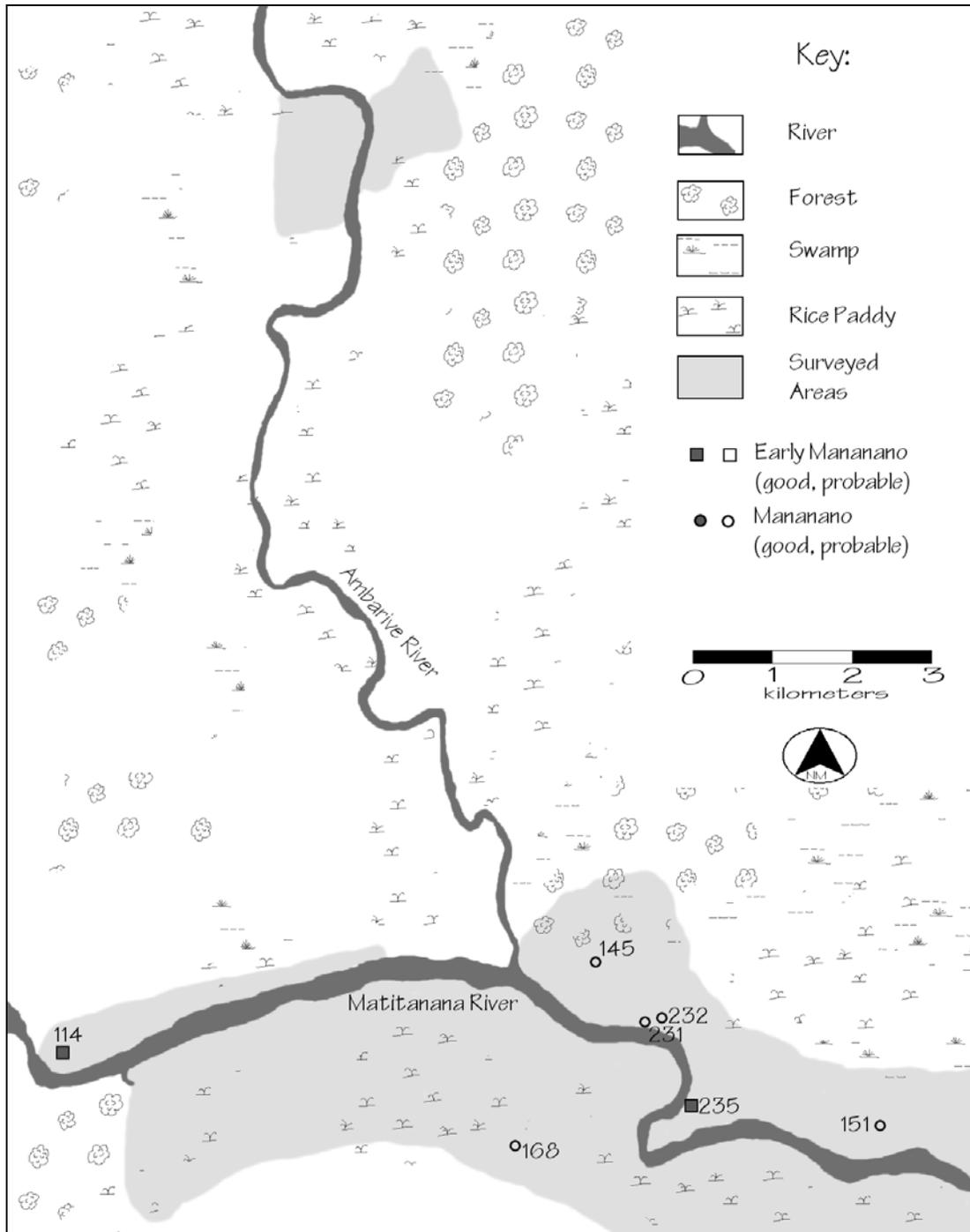


Figure 6.5. Mananano phase sites in the upper Matitanana River valley.

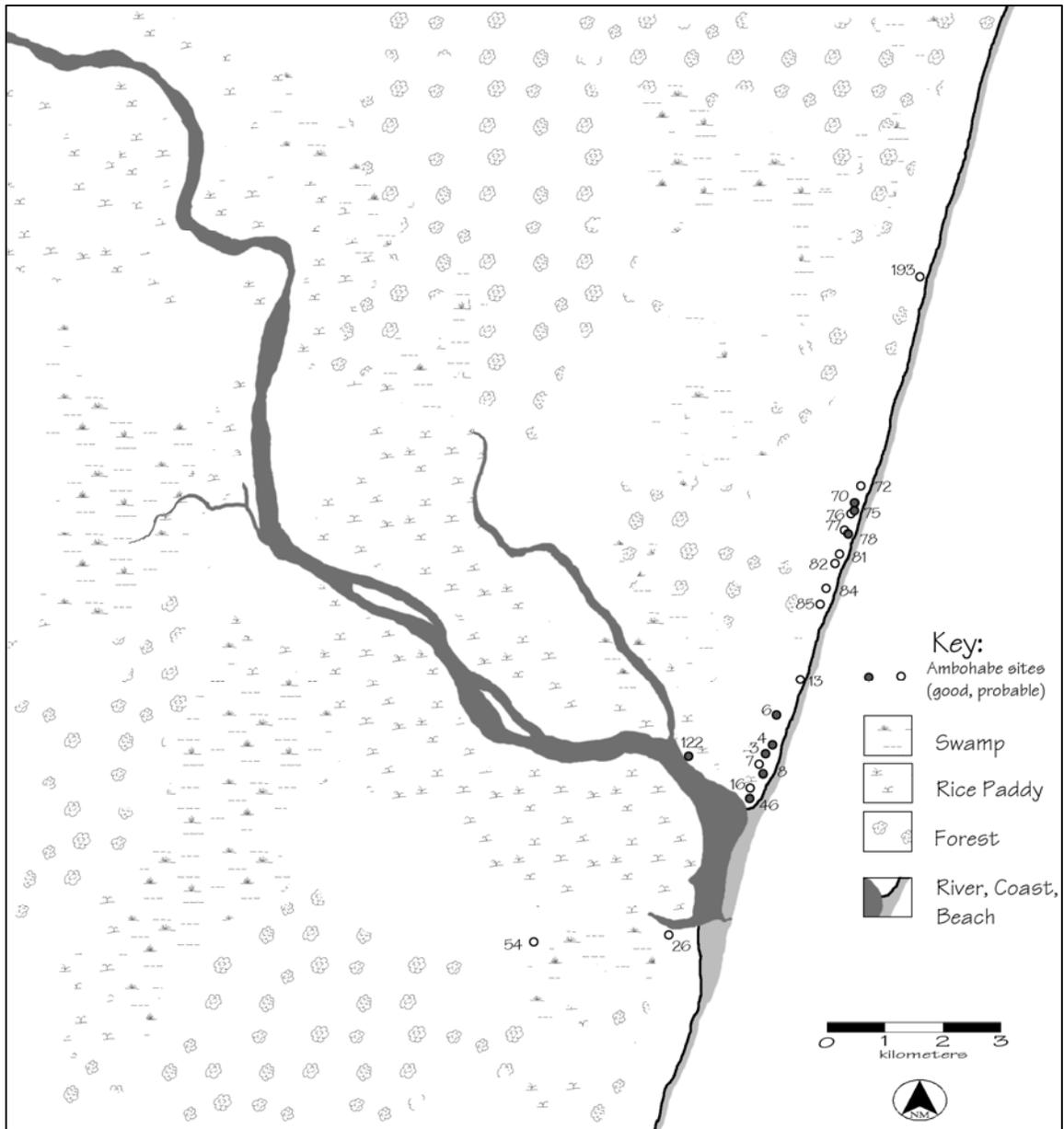


Figure 6.6. Ambohabe phase sites in the lower Matitanana River valley.

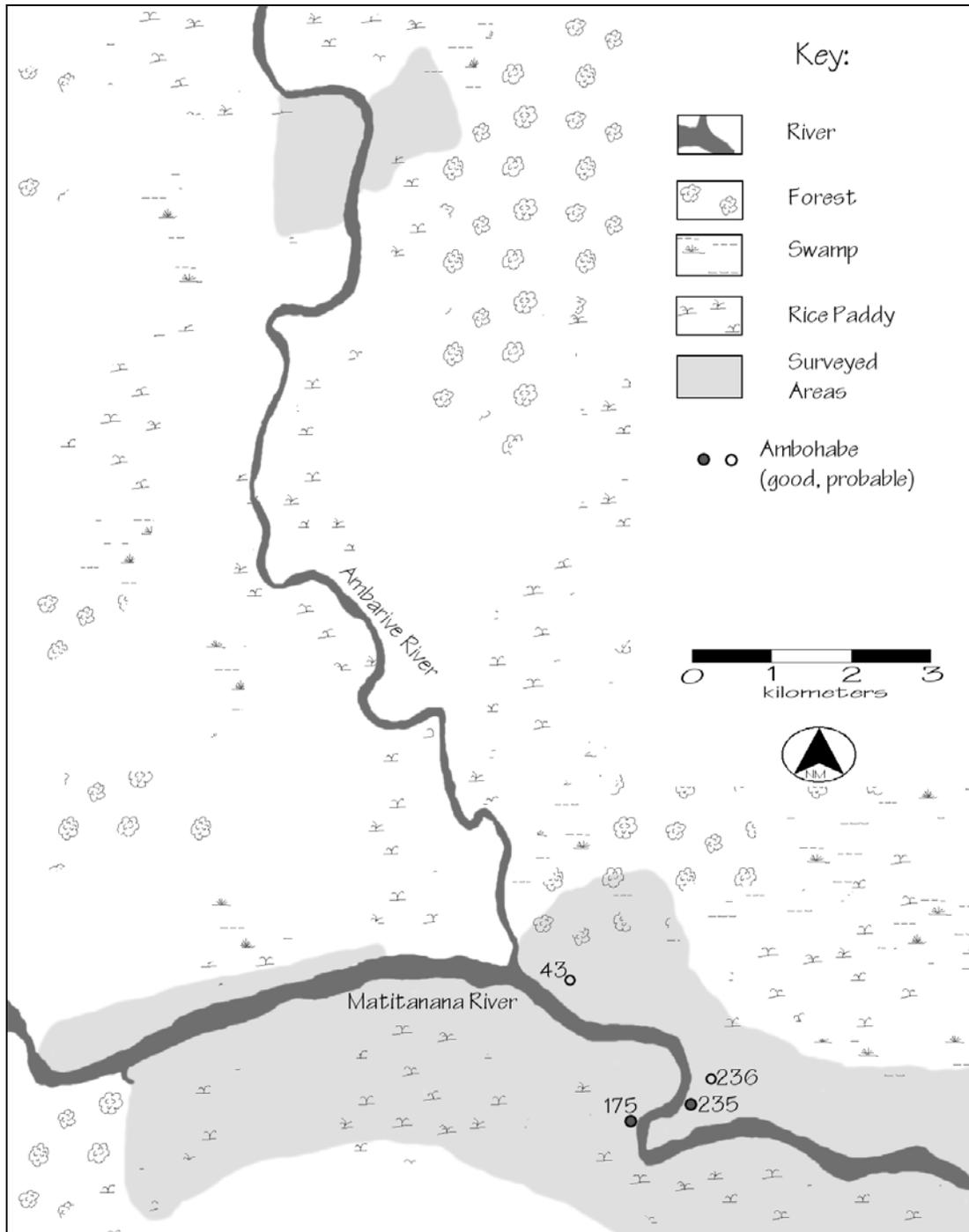


Figure 6.7. Ambohabe phase sites in the upper Matitanana River valley.

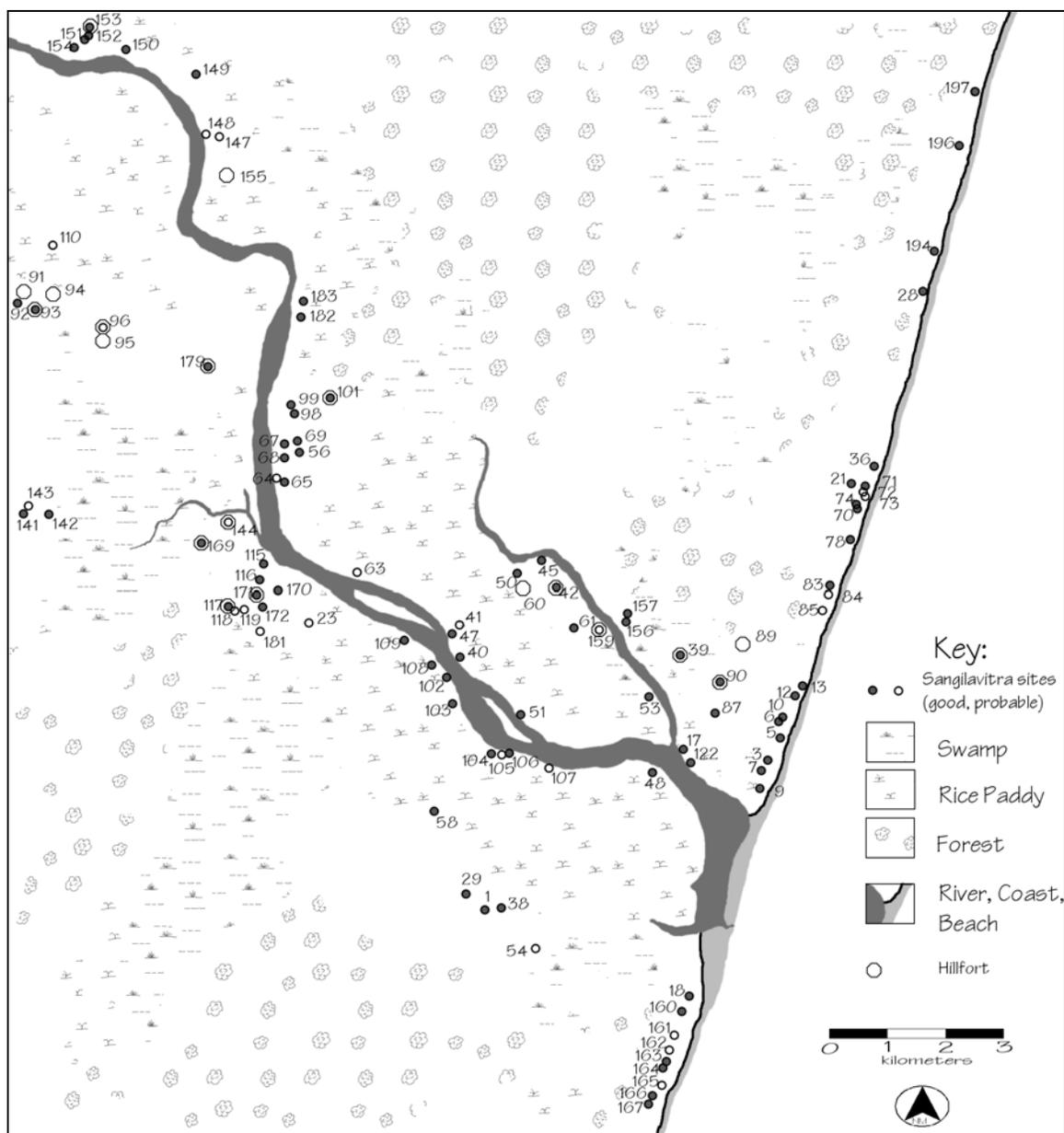


Figure 6.8. Sangilavitra phase sites and hill forts in the lower Matitanana River valley.

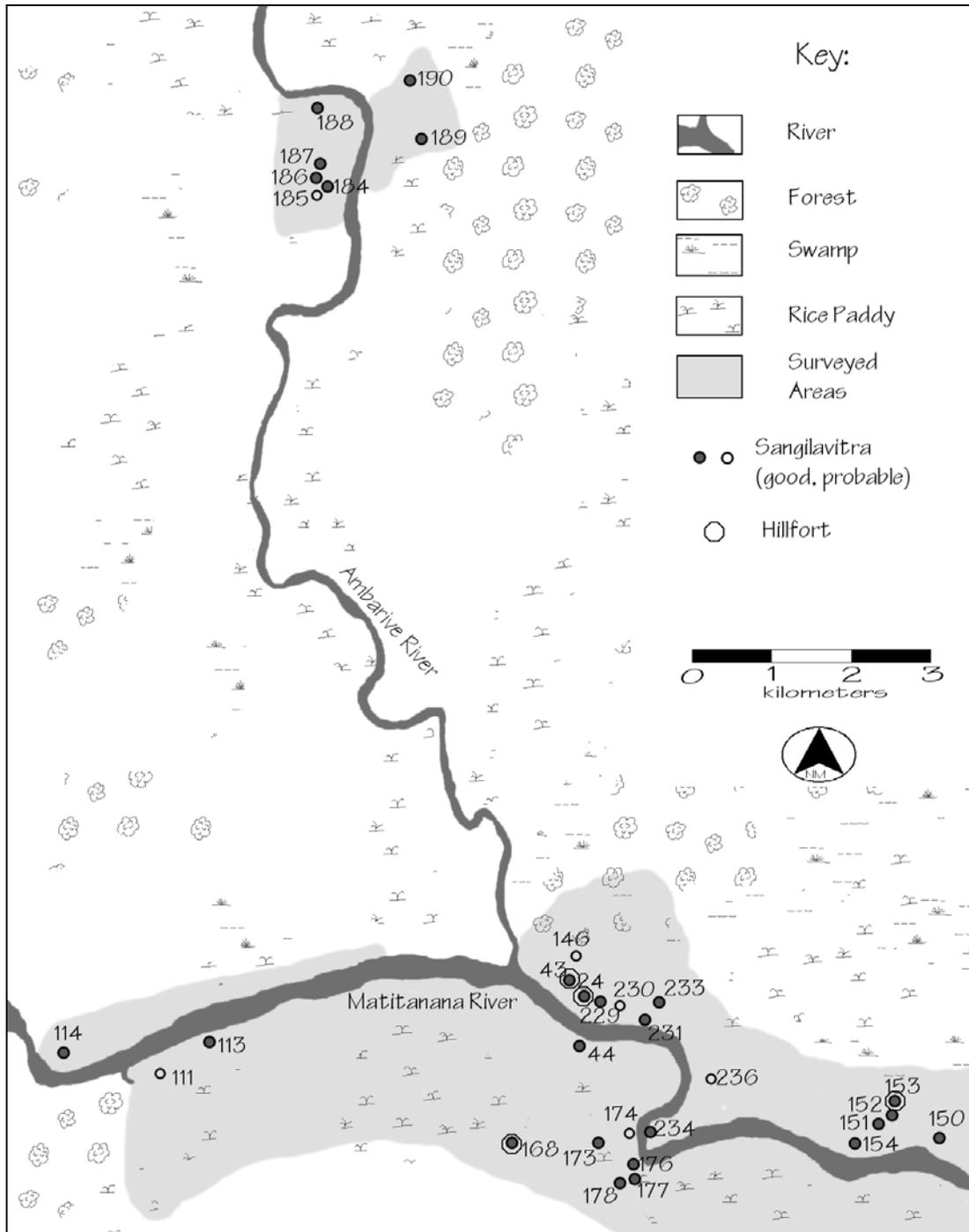


Figure 6.9. Sangilavitra phase sites and hill forts in the upper Matitanana River valley.

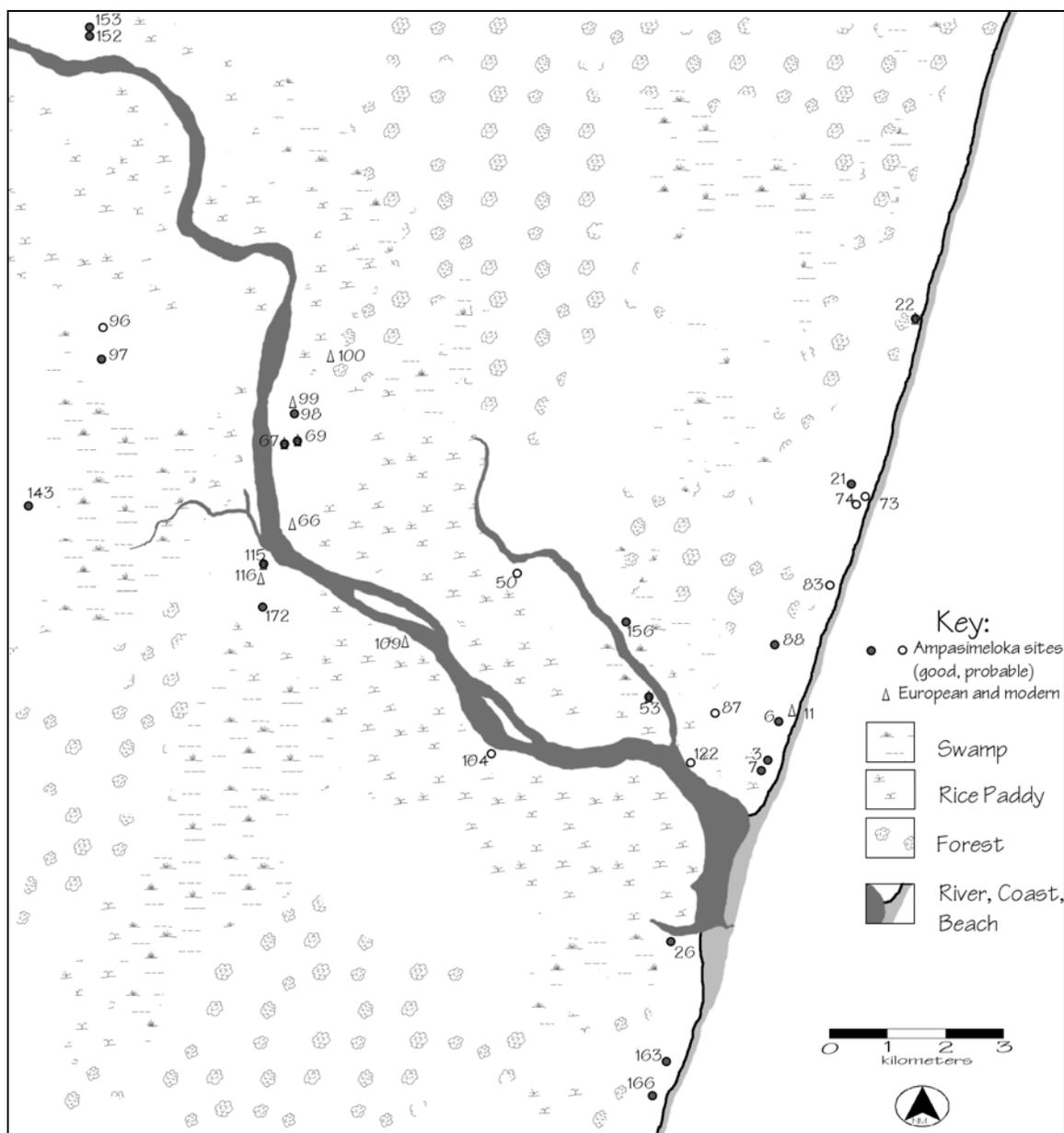


Figure 6.10. Ampasimeloka phase sites and European/Modern ceramics in the lower Matitanana River valley.

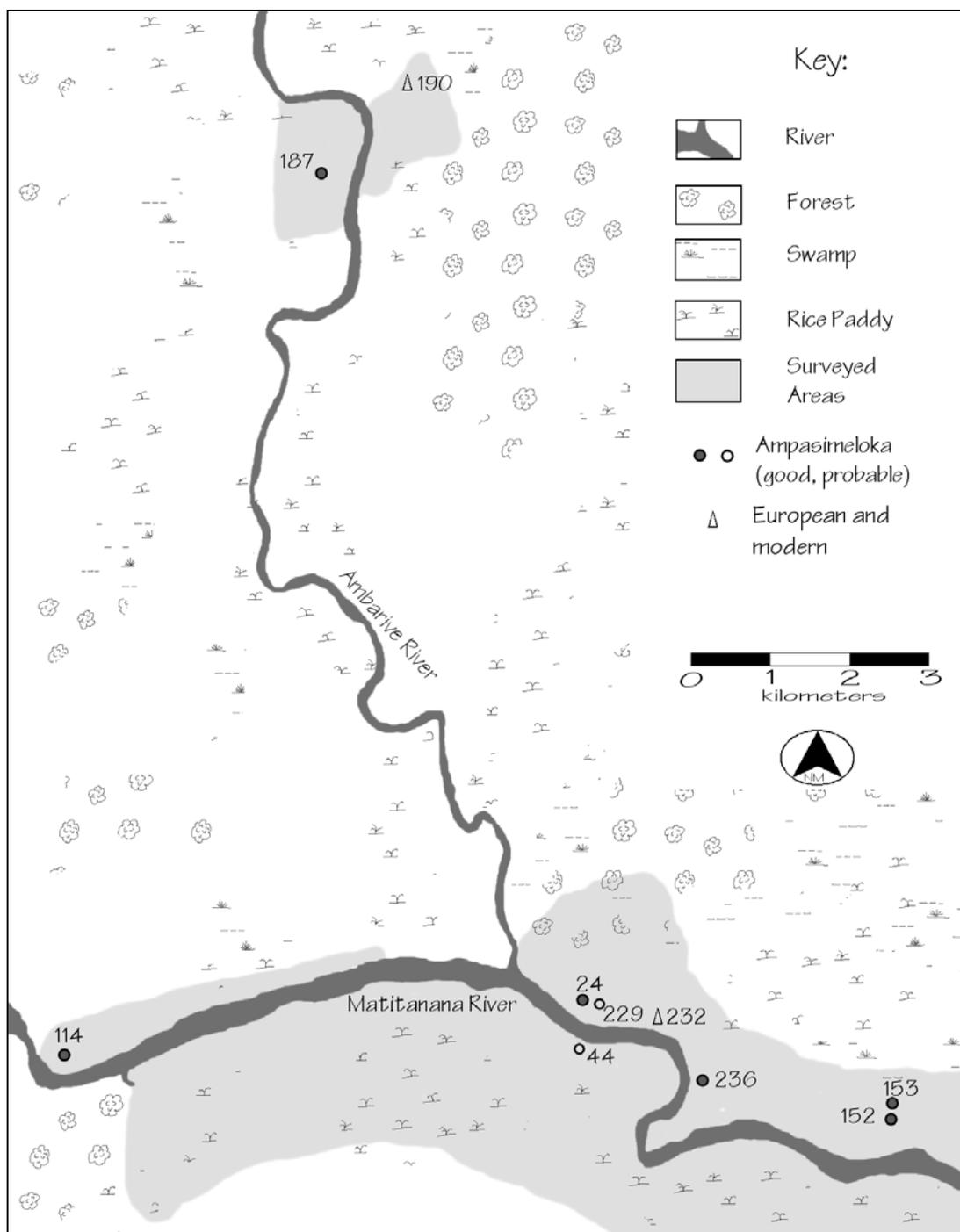


Figure 6.11. Ampasimeloka phase sites and European/Modern ceramics in the upper Matitanana River valley.

Figures 6.3 to 6.11 illustrate the cycles I outlined above - of an alternating increase and decrease in the overall number of sites, as well as an initial settlement at the river mouths, then a spread upriver and inland, then a polarization in the Ambohabe

phase (with both a retreat to the coasts and a consolidation upriver), followed by the most drastic increase in site numbers in the Sangilavitra phase with the appearance of hill forts, followed by people moving into larger villages near good water sources in the Ampasimeloka phase. Of course, any future refinements in the ceramic chronology for the area could alter these phase maps. For instance, I believe it is possible that what we termed “outcaste ware” may be somewhat earlier than the other pottery assemblages of the Sangilavitra phase, and if true that would add some sites back into the Ambohabe phase maps. However, these site distribution maps depict the current state of knowledge, and I hope and fully expect that future research will improve upon them.

Figures 6.8 and 6.9 deserve special mention because they include not only the sites from the Sangilavitra phase but also the ditched hill forts found in the survey area. In the Matitanana area these ditched locations are referred to as *manda*, the same word used in southern Madagascar for dry stone-walled enclosures, as at the site of Andranosoa with its stone embankments (Radimilahy 1981). In central Madagascar, villages with ditches are called *hadivory* (Manjakahery 1986). I will make use of the local dialect in this case and refer to these sites as *manda* in the site catalogue. It seems clear that such ditched sites date to the Sangilavitra phase. Of the 27 ditched hill forts recorded during the survey, 21 have Sangilavitra phase pottery (this includes site 94 which had no diagnostic local pottery but did have a single sherd of an 18<sup>th</sup> century Yueh imitation celadon, and thus still fits into this time period). Of the six other sites, three had no pottery or only non-diagnostic pottery (sites 60, 91, and 155), and two others had no pottery but seemed to be connected to nearby Sangilavitra phase ditched sites as a sort of forward outpost (sites 89 and 95, see Figure 6.12 below).

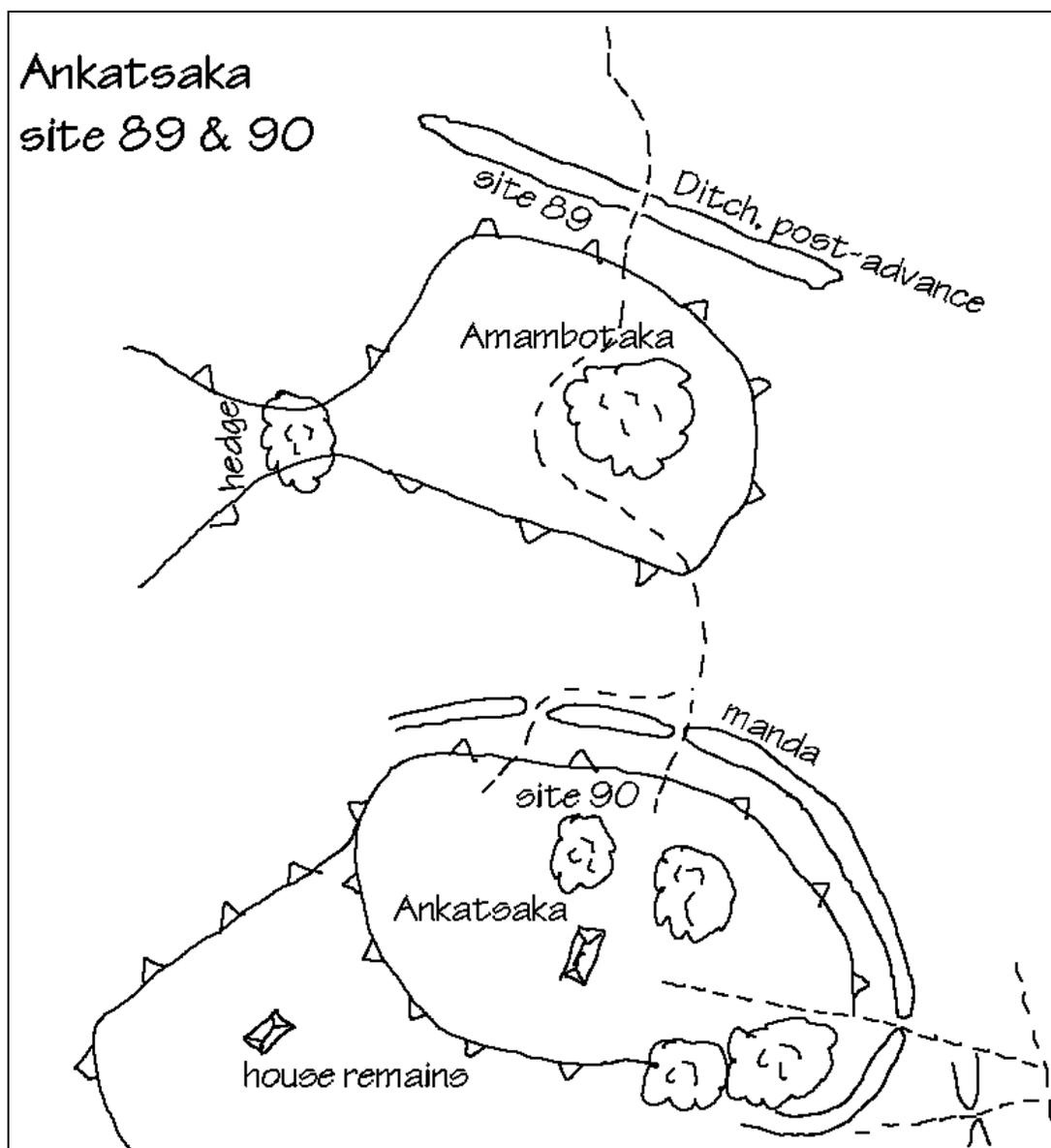


Figure 6.12. Relationship between the earthworks of site 89 (with no artifacts) and site 90 (with Sangilavitra phase pottery).

Thus, there is only a single hill fort that appears to date to a phase other than Sangilavitra, and that is Tsiatosika, site 212, which was assigned to the Ampasimeloka phase of the 18<sup>th</sup> to 19<sup>th</sup> century. As can be seen in the site catalogue, this site is unique in many ways. It is a *manda* in the regular Malagasy sense in that it did have a stone wall enclosure near the top. It is located far north of the main survey area near Mananjary. And local oral traditions say it was the fort of the Merina king Radavid, who in the 19<sup>th</sup>

century aided the Anteony refugees from the Matitanana who had fled civil war (see the site catalogue for full details, and for the site maps for this and the other ditched sites not reproduced in this chapter). Thus, with the exception of this outlier site 212 of Tsiatosika, all of the ditched sites fit comfortably into the Sangilavitra phase. These *manda* sites are on locations that were only rarely occupied before the Sangilavitra phase, but did occasionally continue to be occupied into succeeding phases. Only two of the 27 sites had ceramics of an earlier phase (sites 43 and 168), and five of the sites appear to have been occupied in both the Sangilavitra and following Ampasimeloka phases (sites 24, 96, 13, 200, and 203).

As can be seen in the site catalogue, these ditched sites came in a wide variety of shapes. Some were very large (e.g., sites 168 and 179) and others were relatively small circular ditches at the very top of hills (e.g., sites 60 and 93). Some had a characteristic second ditch that enclosed additional land on one side only (sites 55 and 200), and others had more complex multiple ditches that are thought to resemble the ditched sites of the central highlands (sites 24 and 117, as suggested by my collaborator Ramilisonina). The two sites (sites 94 and 204) with the most massive ditches in terms of their present day depth and width (though not in terms of their extent or length), may differ from the other earthworks in terms of their functions. These two are possibly more related to the movement of cattle herds, erosion, and the infrastructure needed to drain or water fields (though site 94 at least does still seem to enclose and protect a modern three-house compound).

Of those ditched sites that do actually seem to be hill forts, Figure 6.9 above best shows the typical settlement pattern. This map shows four ditched hilltops along the upper Matitanana River, though two of them are right next to each other. Site 43 on the hill called “Mandaha” (derived from the name for these ditched sites) is one of only two *manda* that has pottery from an earlier phase, in this case the Ambohabe phase just preceding the Sangilavitra phase. Site 24 is on a hill called “Ankarinarivo” (meaning “a

thousand go up”) and is one of the five *manda* to continue to be occupied into the Ampasimeloka phase that follows the Sangilavitra. Thus it seems likely that these two ditched sites were occupied sequentially, with the smaller site 43 occupied first, and “replaced” during the Sangilavitra phase by the larger site 24. If we consider these two sites as a single hilltop retreat, then the map in Figure 6.9 shows three fortified centers that are on average just under four kilometers away from each other. Below each hill is a cluster of four or five other sites from the Sangilavitra phase (though the “daughter” villages for site 168 seem further away than one would expect). The interesting point is that there seems to be a gap in each case, a “no-man’s land” between the three different groupings. Such a pattern could be interpreted as indicating competition or antagonism between the three groups, but given the relatively small size of this area, it might rather indicate a need to live close to the ditched hill forts for some reason. This reason may of course include the need to retreat quickly in times of need, but any potential conflict could also be with outsiders from further away and not among these three neighbors themselves.

Interestingly, the only other hill fort to have sherds from a phase earlier than the Sangilavitra phase, in addition to site 43 just discussed, is the site directly across the river, Vohitramba (or “twin hills”), site 168. This site has pottery classified as probably from the late Mananano phase, and is the largest *manda* we recorded in terms of the area that it encloses. So sometime around the 15<sup>th</sup> century, near the confluence of the Matitanana River and the Ambarive River (which is its first major tributary), people began to live on two facing hills: one north of the river (site 43) and one to the south (168). These two hill sites flanked the Matitanana River like Egyptian pylons and were part of the upriver cluster of sites that developed during the Ambohabe phase. These two settlements at sites 43 and 168 would gain ditched fortification in the Sangilavitra period (if they were not already ditched before) and a collection of satellite villages, and be joined by a third ditched hilltop site, the site of Sangilavitra itself (site 153). This is

undoubtedly an important set of sites for the culture-history of the region, and the implications of this settlement pattern will be discussed further below. Before leaving the discussion of Figure 6.9 however, it should be noted that the small survey region up the Ambarive river in the Lokomby area did not recover any *manda* at all. Unlike lower in the river valleys, this area was very hilly, with many suitable locations for ditched hill top sites, but none were discovered.

In addition to the fortified hilltops, three other sites with earthworks that were not included in the list of *manda* for this project deserve special attention. All three are found on river banks, with two of the sites composed of ditches and the third of a large mound. Site 106, Foroforo, is a modern village on the right bank of the Matitanana. Just outside the town (see Figure A159 for the site map) is a large, flat-topped, circular mound of earth, 2 meters high and 40 meters in diameter. The surface of the village had Sangilavitra phase pottery over part of the exposure and the mound itself had iron slag and chlorite-schist as well. The *Mpanjaka* of this town agreed that the mound was older than the village, and told us that the villagers used the earthwork as a retreat from floods and hurricanes in times of need (and thus it was taboo to dig any earth from the mound). Though we were told it was not possible to excavate the mound, if permission could be obtained in the future it could lead to interesting research, given the mound's unique location and uniform shape.

Vataniova, site 121, is on the left bank of the Matitanana River near its mouth. The site map (Figure 6.13), shows a large ditch (two meters deep and more than four meters wide in places) encircling a relatively small area. Only a thin wall of earth separates the earthworks from the river, and while the ditches are high enough to not be flooded, it is expected that this dividing wall will eventually be eroded. At one side the site is cut by a modern path, and the ditch itself is being used as a cattle pen. In this area, sherds of the Mananano phase (14<sup>th</sup> to 15<sup>th</sup> century) were recovered from the walls 120 centimeters below the modern ground surface. The low mound in the center of the site is

less than one meter high and perhaps served as a platform mound for a structure. Ramilisonina is of the opinion that this site resembles a small French fort guarding the river mouth. All five of the sherds recovered from the ditch walls were local wares however. Another very similar, small circular fort (if that is indeed what they were) was found at Mangatsioka, site 196. This second site is located at the mouth of the Ambaro River north of the Matitanana, and it has already been cut into by the river (see Figure A228 in Appendix A). No artifacts were recovered from the ditches at site 196, though a scatter of Sangilavitra phase sherds was nearby across the river. All three of these sites (106, 121, and 196) are perplexing to me at the current time.

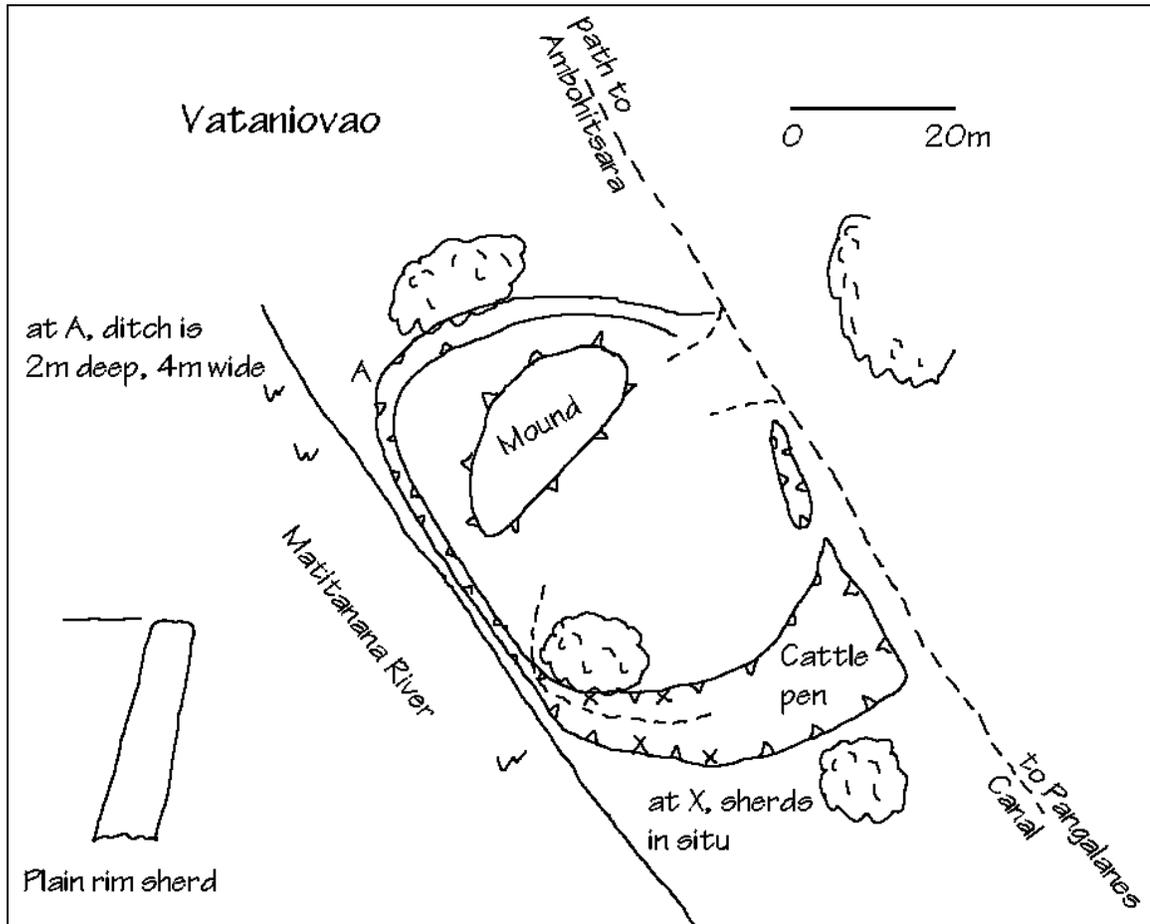


Figure 6.13. Vataniova, site 121

The figures above illustrated the settlement patterns for the different chronological phases in the Matitanana River valley. Below I consider the three other regions: near Farafangana, Manakara, and the upper Mananano River valley. None of these regions were as extensively surveyed as the Matitanana, and all show a similar progression in the settlement patterns. In this chapter I will only include those settlement maps that are unique in some way and deserve discussion, but see Appendix A for further details. For example, Figure 6.14 below shows the Marovahiny phase settlements for the Farafangana area, with the unique positioning of Anosy (site 140, which this time really is an island). This Anosy is unique because it is the only Marovahiny phase site we recorded that is back off the sea coast. As no excavations were undertaken in the Farafangana area, it is possible that regional differences in the ceramics caused us to date this site too early, and it really belongs to the Mananano or later phases when people had moved inland from the coast. Or, perhaps the suitability of this unique river island lured the first settlers away from the coast earlier here than in the valleys to the north. Either way, site 140, which is claimed in the local oral traditions to be the oldest village in the region, is deserving of future archaeological research.

Another unique feature of the Farafangana region is seen below in Figure 6.15. This map of the Sangilavitra phase settlements shows that there were no hill forts recorded for this region, even though we specifically surveyed hilly regions looking for them (south of site 130 for example). Our survey coverage and local interviews were both limited for this region, and so I cannot claim an absence of hill forts in the Manampatrana valley. Based on the area we did survey however, I can say that *manda*, or ditched sites, are much less common (if not entirely absent) in this river valley as compared to the Matitanana further north.

Since I am not including all of the phase maps for each of the regions in the settlement maps below, I will include a summary map with all of the sites recorded for that region, to help locate sites identified by other methods in the site catalogue.

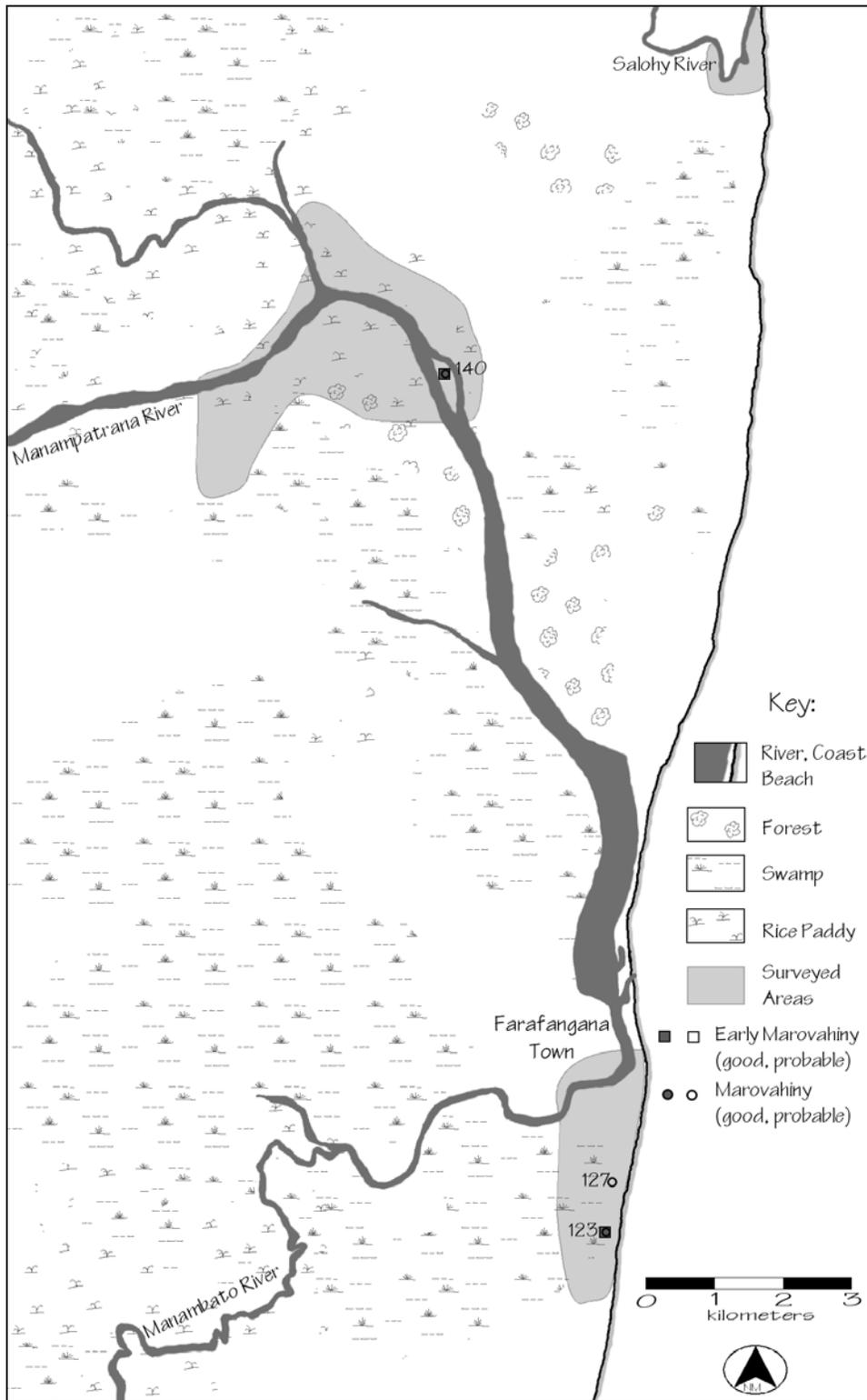


Figure 6.14. Marovahiny phase sites in the Farafangana region.

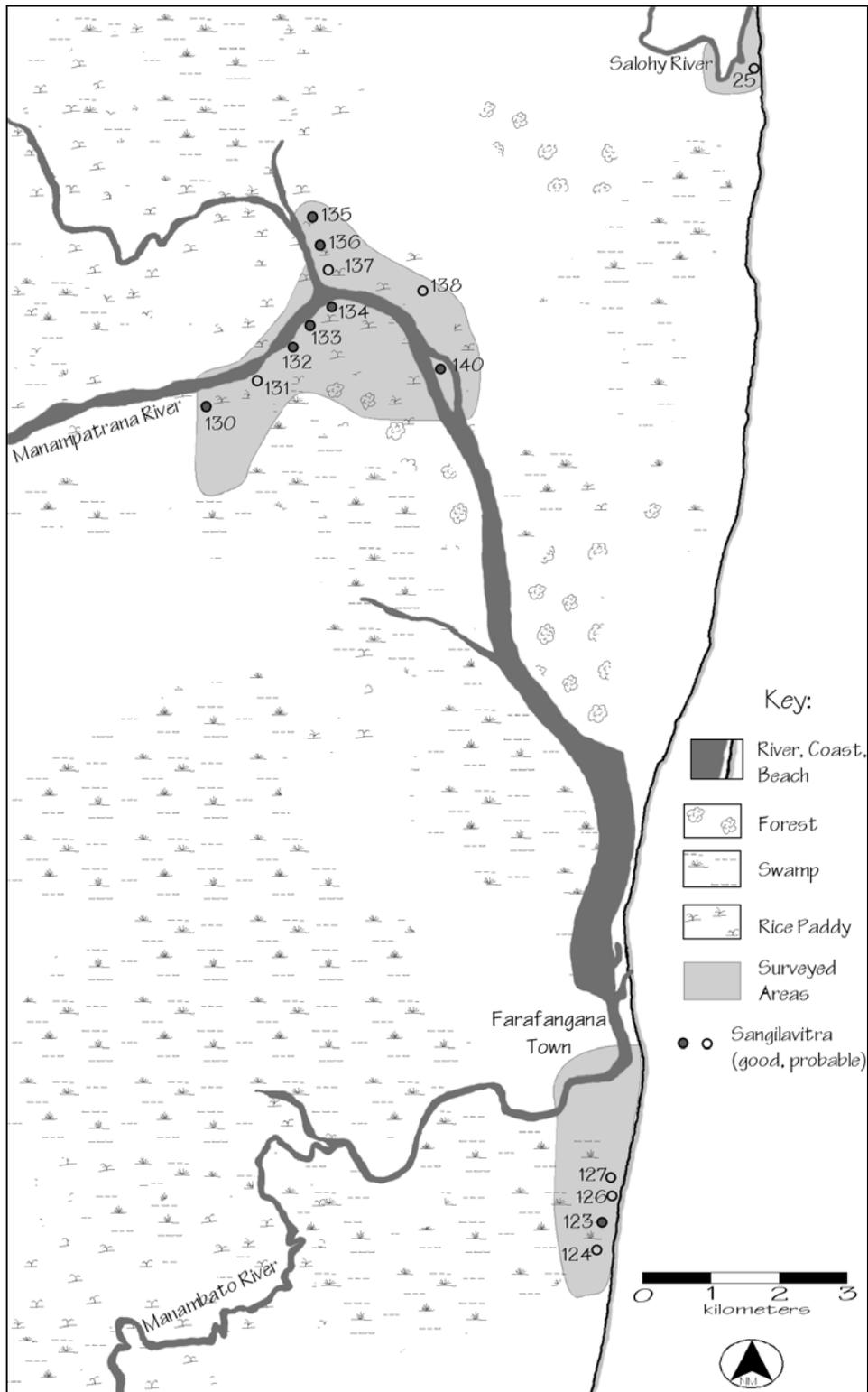


Figure 6.15. Sangilavitra phase sites in the Farafangana region.

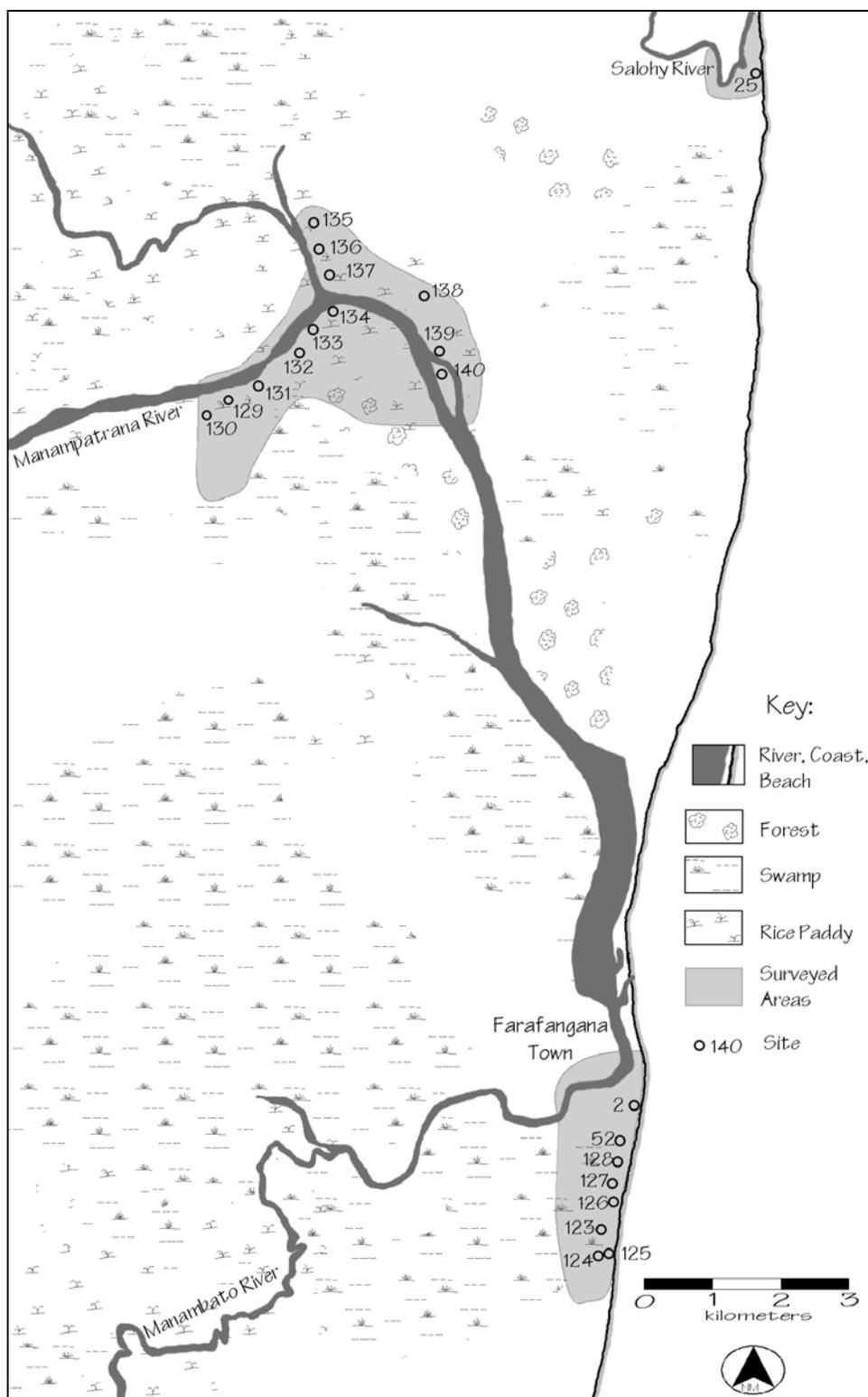


Figure 6.16. All sites recorded in the Farafangana region.

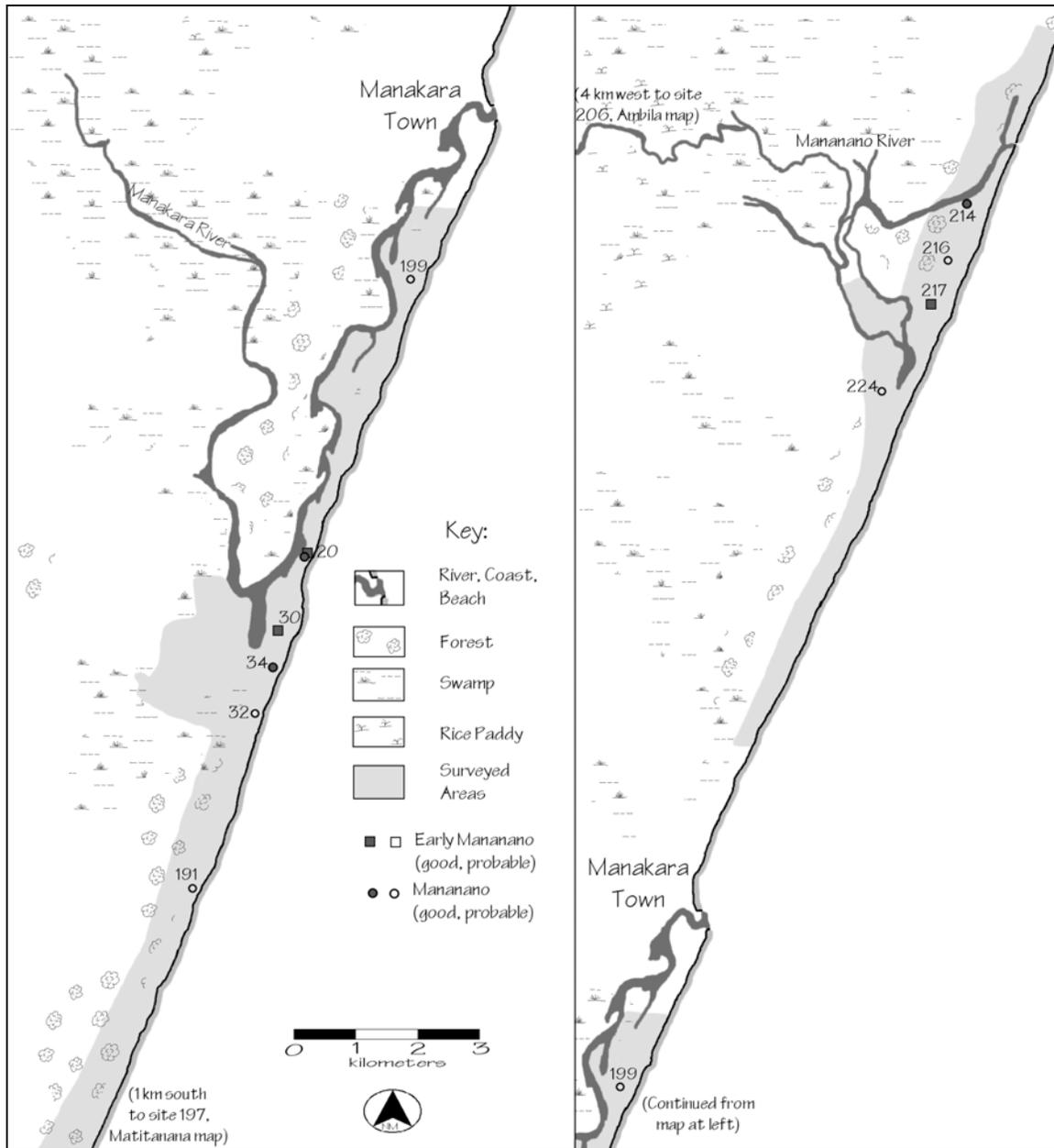


Figure 6.17. Mananano phase sites in the Manakara region.

Because the Mananano phase is named after the site of Ambinanimananano Atsimo (site 214), I wanted to include the site distribution map for the region for this phase. And because the survey coverage was narrowly confined to the coast in this region, I have saved space by doubling up the maps: the map on the left is to the south, that on the right is to the north, and they overlap at the town of Manakara.

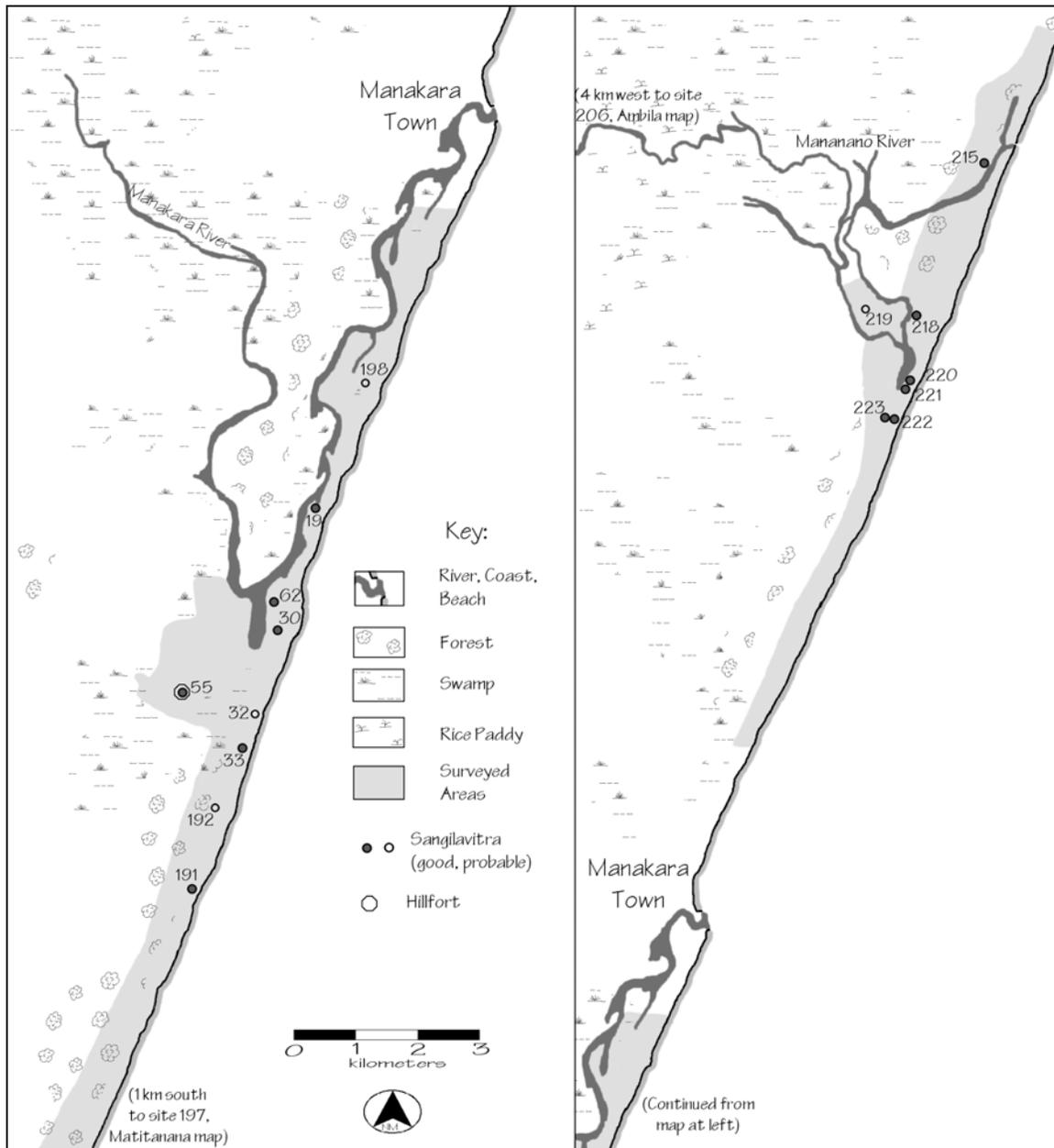


Figure 6.18. Sangilavitra phase sites and hill forts in the Manakara region.

The only *manda* found during the surveys of this region was at Tsimilanja, site 55. However, as indicated on the map, our surveys did not often extend away from the coast in this region, and there were also very few suitable hills in the coastal plains around Manakara. Tsimilanja (site 55) does overlook the former river mouth (as illustrated in Chapter 2, Figure 2.2) and is within sight of the important archaeological

site of Antanimbaribe (site 62), where excavations revealed extensive iron and chlorite-schist working. Site 62 (unlike site 55) was also occupied in the earliest Marovahiny phase, though that settlement map is not included here.

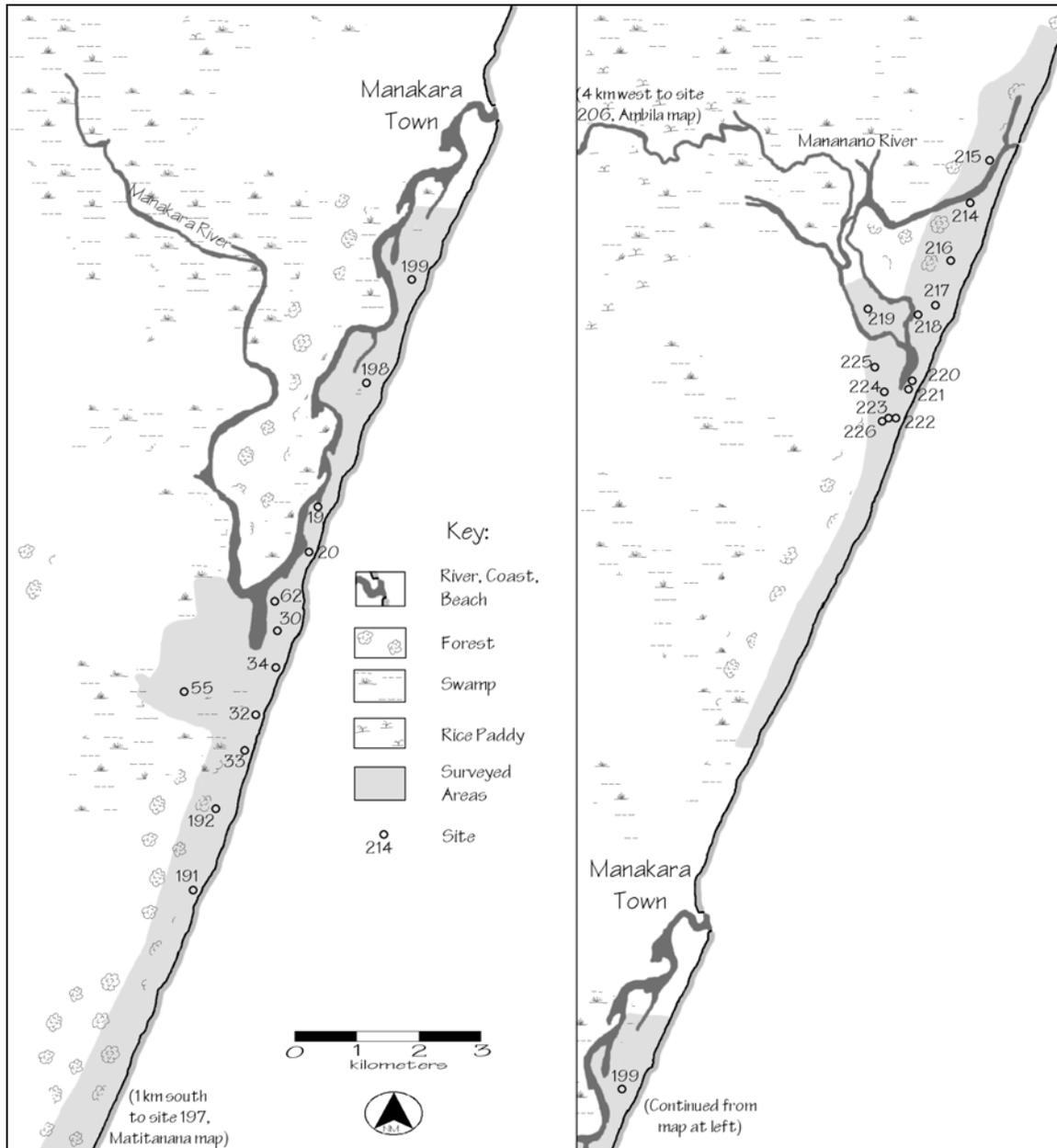


Figure 6.19. All sites recorded in the Manakara region.

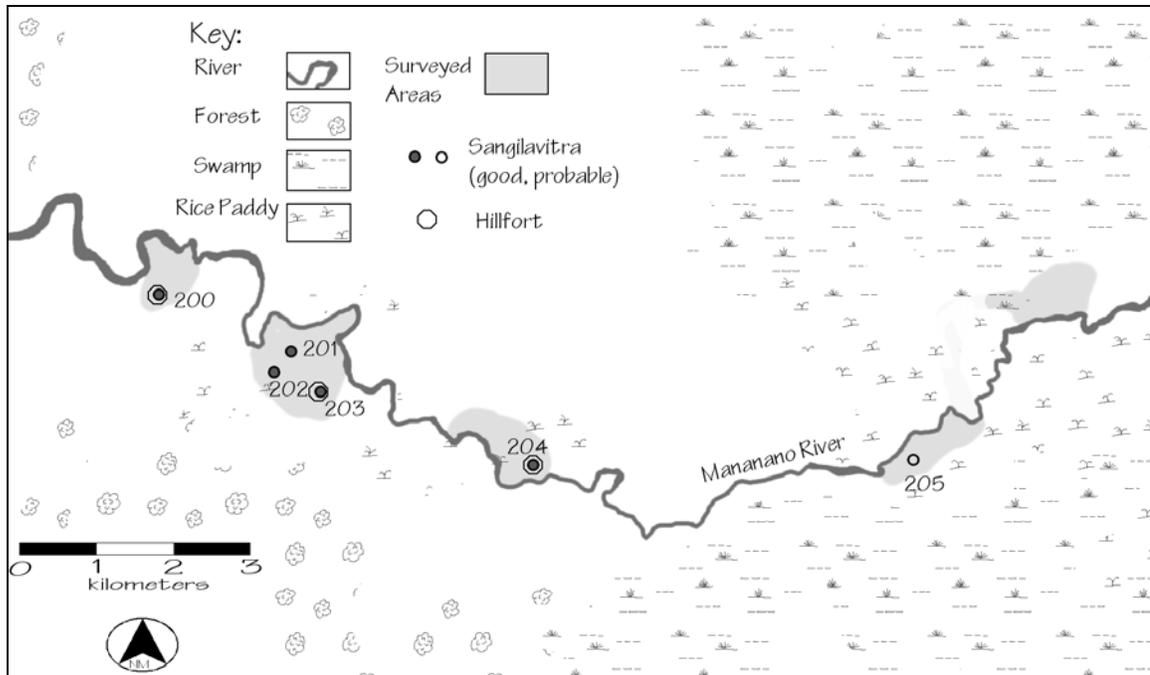


Figure 6.20. Sangilavitra phase sites and hill forts in the upper Mananano River valley.

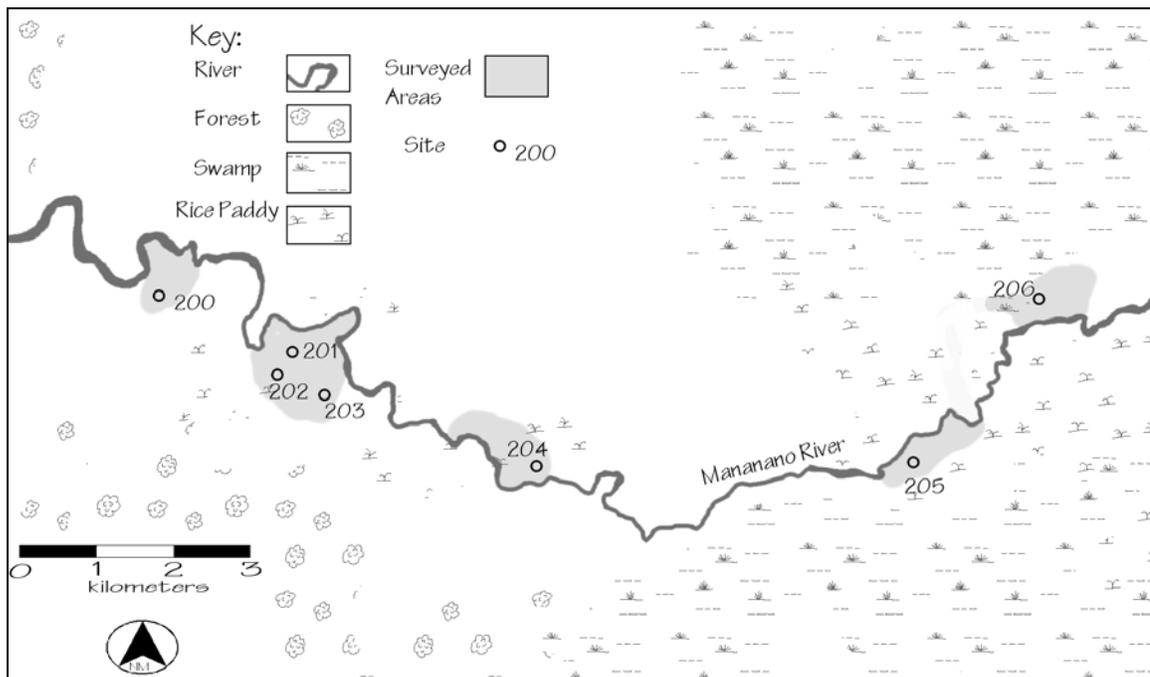


Figure 6.21. All sites in the upper Mananano River valley.

There was only one site from the upper Mananano River valley with ceramics assigned to a phase earlier than Sangilavitra – site 206 with sherds classified as

“probable” Mananano phase. Therefore, the earliest three phase maps are not included here. Starting with the Sangilavitra phase sites illustrated in Figure 6.20, we see a large proportion are *manda*. Three of the six sites recorded during the survey for this phase had ditches (though the ditches at site 204, Mahavelo, may be related to rice field irrigation rather than the typical ditched enclosure, as discussed above). Ambohifandra (site 200) would be expected to have a cluster of satellite sites, as is common for *manda* in this region, but the limited survey coverage around that site meant that we did not find any such satellites. Our surveys were limited for this region because we were trying to visit specific villages mentioned by Gérard Althabe (1984) in his ethnography based on the modern town of Ambila. Althabe’s article was the only prior locational information we had while in the field, and so our surveys here were more directed.

Althabe mentioned three villages that we wanted to investigate in our work: an Antaloatra village and two “fortified” villages. The first was the village of Ambodikely-Mahavelo (our site 204), which interested us because the Antaloatra are the religious elite clan of the Antemoro and live in only a few villages. Our interviews confirmed that the people of this town are indeed Antaloatra from Vatomasina on the Matitanana River valley, and we recovered a large number of Sangilavitra phase ceramics from the site. Althabe also mentioned two pre-colonial “fortified” villages – Vohitsivalana and Vohitraomby (Althabe 1984:147). The second village (Vohitraomby, our site 202) did have Sangilavitra phase pottery, but we were not able to find any traces of a *manda*. At the village of Vohitsivalana we did not find any ditches nor any pottery. However, we did find both at the nearby site of Ambohifandra (our site 200), and believe this is the fortified village to which Althabe referred. As confirmation, an informant from this site told us that Ambohifandra was the ancestral village to Vohitsivalana, making the connection even more probable. Althabe, based on his ethnographic work, also provided a list of the “seven original villages” in the region, which included the town of Mideboka (our site 205). We found 20 plain body sherds at Mideboka, none of which were

classified as earlier than the Sangilavitra phase. All of this seems to imply that the oral traditions of the Mananano valley are exclusively focused on the 17<sup>th</sup> century and onwards. No mention was found of the large and early site of Ambinanimananano Atsimo (site 214) at the mouth of the Mananano River, only 11 kilometers east of Ambila. This is in contrast to the Matitanana River valley where the site of Ambohabe (sites 3 to 16) plays an important role in all of the origin myths and traditions.

Before ending this chapter on the survey aspect of our project, I'd like to briefly discuss survey archaeology's ability to also provide us with "found excavations" in exposed sections. Survey work of necessity draws on the chronologies developed through excavations, as we have done in laying out the settlement patterns for the various ceramic phases in this chapter. However, landscape survey also reveals those occasions where other people have done the digging, often exposing far larger surfaces than an archaeologist ever would. Investigation of these "found" profiles and trenches can occasionally reveal much useful information. For example, the possible early fort near the mouth of the Matitanana River (site 121 discussed above) contained sherds in the walls of its ditches at 120 centimeters below ground surface. Such information can be useful when planning test excavations, either at this site itself or at other nearby sites such as Marovahiny. Other sites were found in the profile of the river banks, such as sites 51, 148, and 122. This last site included two well defined buried postholes, cross-sectioned and exposed for us in the eroding river bank (see Figure 6.22). We were even able to recover sherds (Type IIIB) from inside the postholes. As with the rivers, modern road cuts also revealed many deeply buried sites (such as 29, 129 and 188), as did modern construction practices. In 1997, we even encountered a work crew digging the foundations for a new *madrassa* after their Friday prayers. The men allowed us to clean and draw their profile (see site 67 in the site catalogue), and collect the only significant sample of pottery (spanning four different phases) that we have from the important town of Vohipeno. With their permission (and I know the entertainment value was high), we

excavated a few sherds from the bottom of their trench for thermoluminescence dating (though unfortunately that sample was one of the ones rejected by the lab as less likely to produce a reliable date for other reasons). The extent to which our survey archaeology incorporated excavation surprised me, and I know now that the two methods are not so isolated from each other.

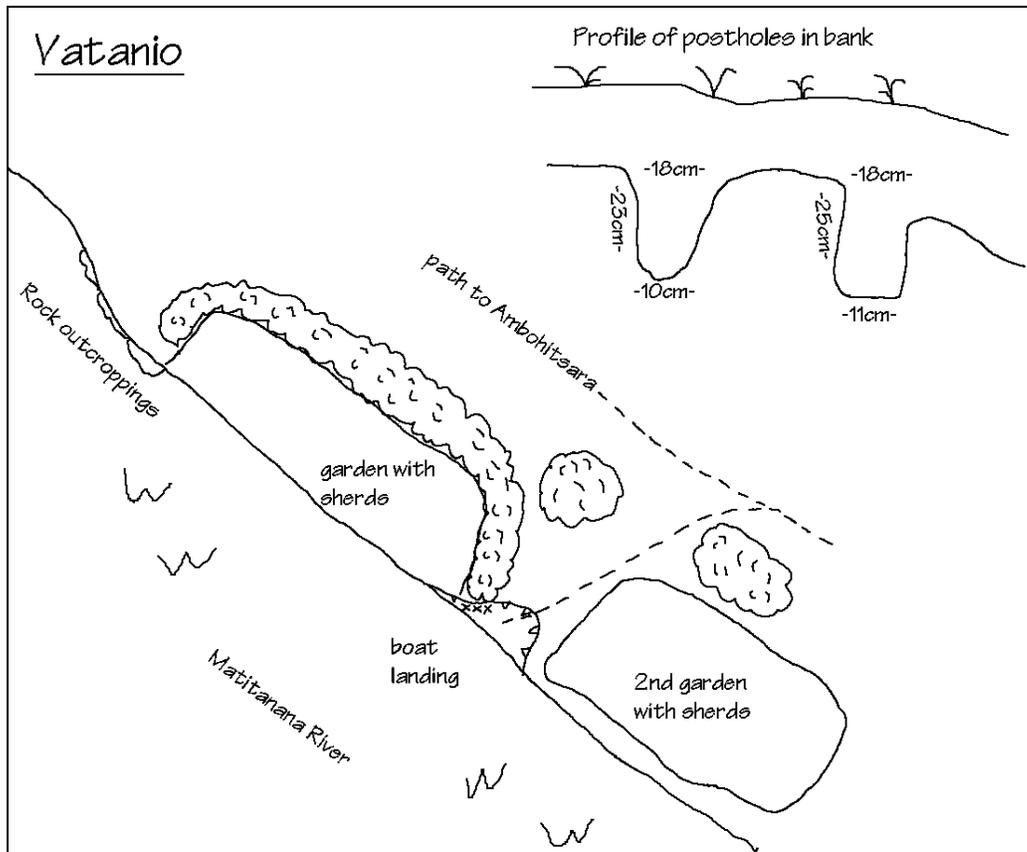


Figure 6.22. River bank at Vatanio, site 122.

This chapter has attempted to summarize the results of the survey work for the Matitanana Archaeological Project, and provide settlement maps for the different phases to help locate the sites we recorded. As with the previous chapter, many references were made to the site catalogue in Appendix A, which is where the bulk of the information derived from this field work can be found. What I have attempted to do here is pull

together information from different parts of the site catalogue to highlight the connections and patterns that might not be apparent otherwise. The most significant pattern, I believe, is the change in the distribution of sites for the different phases. And of these, I am most interested in the possibility that the Ambohabe phase in the Matitanana valley, coming just before the widespread appearance of ditched hill forts across the landscape, may represent two competing groups – one set of sites hugging the sea coast and a second set of sites clustered 23 kilometers inland as the crow flies from the river mouth. It is tempting to see the arrival of the Islamic ancestors of the Antemoro and their earliest interactions with the *tompantany*, or the original “owners of the land,” in this pattern. But as I have also suggested multiple times in this chapter and the last, archaeological research in the Matitanana region is only just beginning. I see many places in need of more research, and I welcome the improvements that should come with both more work and the involvement of more people as well.

**CHAPTER 7**  
**MATITANANA ARCHAEOLOGICAL PROJECT:**  
**ANCILLARY PROJECTS**

*Not even the wind can find it now.  
Nor whisper its whistle music  
Across that open mouth.*

*Nor water nor oil fill it.  
Nor any purpose.  
But to remind us:*

*How different a thing becomes  
When everything leaves it.  
How fragile a world is.*

*How the one who made it  
With his hands, would not understand,  
What we have done with it.*

"Clay Jar, Boston Museum"  
by Lindsay Hill, 1987

This chapter will provide details on three ancillary projects undertaken in conjunction with the Matitanana Archaeological Project. The first two of these projects are survey projects similar to those described in Chapter 6, but discussed here because they fall well outside the core area for this project. The first is the result of a trip westward up the Matitanana River to its headwaters, primarily to investigate reported sources for earthenware pottery in the twentieth century. The second ancillary project is survey work to the north near the city of Mananjary to investigate possible sources of chlorite-schist for the Matitanana region. Both of these projects are shown together on

Figure 7.1 below, indicating the six sites recorded to the west and the seven sites recorded to the north. The third ancillary project involved instrumental neutron activation analysis (INAA) of both chlorite-schist fragments and pottery sherds in an attempt to map out local and regional trading patterns. This project, described in section 7.3 below, was the largest and most complex ancillary project, and is still somewhat provisional in its conclusions.

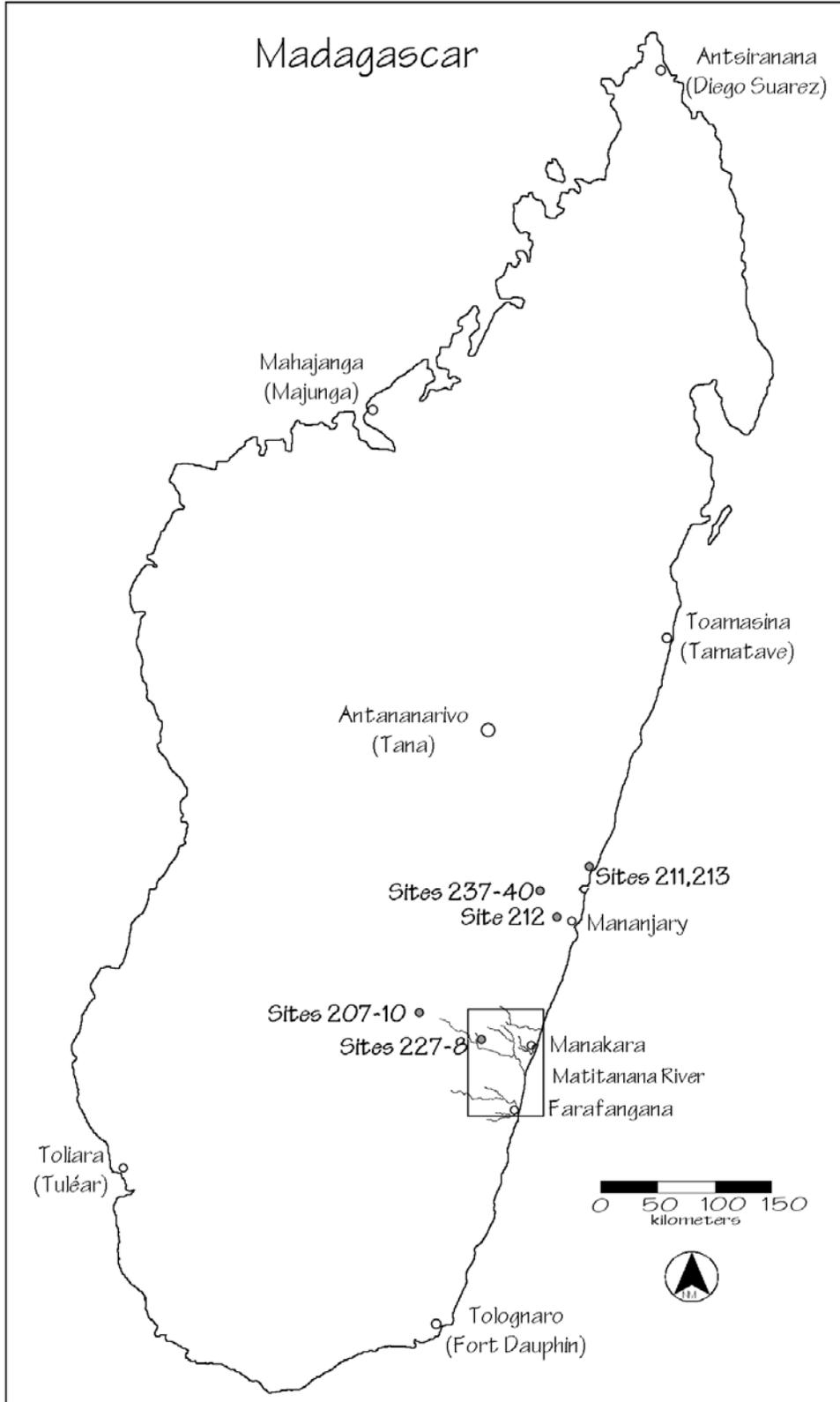


Figure 7.1. Ancillary project areas.

### 7.1 Pottery and Ambalavao

Our research into pottery production in the Matitanana valley revealed that after the outcaste Antevolo clan stopped making pottery in the early 20<sup>th</sup> century, some people in the region continued to purchase earthenware pottery made by the Betsileo people in the central highlands, not far from the headwaters of the Matitanana River. We saw some of these cooking pots in use during our survey, and also learned of travelling Betsileo merchants who come into the area from the west selling such wares. In addition to pots, these merchants also sold individual pottery sherds of our grey graphite ware, Type IC, to be used as a type of medicine. Individuals we interviewed had added the powder of these ground sherds to water, and used the concoction to variously treat stomachaches, headaches, and backaches. One woman informed us that it was especially good for women having a difficult childbirth, and another man said the powder itself was useful when rubbed into a wound. We first encountered this practice in the Farafangana area (see the ethnographic notes for site 130), but also heard of the medicinal use of ground sherds in the other areas as well (see, for example, the ethnographic notes for sites 146 and 215 as well). With this ethnographic information, and the historical connections to Betsileo pottery, we decided in one of the later seasons to make a long-range reconnaissance trip up the Matitanana River.

Our first surveys for this side project were at the town of Ifanirea (site 227), near the confluence of the Manambondro and Matitanana River. This area today is settled by Tanala people, and is claimed as an ancestral home by the Temanambondro, a coastal people living south of Farafangana who have been studied by the ethnographer Philip Thomas (1997:27). We had originally hoped to survey a hill identified from air photos and labeled on the map as “Tsimahaleha.” Upon arriving in Ifanirea we learned its name

in the local dialect (“Tsamaliha”), and that it was claimed as the ancestral village by four different towns in the area. Thus, in order to survey on top of that hill, we would need the permission of three other Mpanjaka in addition to that of Ifanirea, and would then need to sacrifice a cow to the ancestors. Given the price and the time involved, we decided instead to survey the neighboring hills of Tongay (site 228), which by the oral traditions was where the king of Tsamaliha acquired his wife. At Tongay we did not find a ditched settlement, or indications of a major occupation, only an abandoned tomb and a very sparse sherd scatter. Only nine sherds in total were recovered at the two sites of 227 and 228 (see pottery illustrations in Figure A267), and neither recorded site had a *manda* (see site maps in Figures A268 and A269 in the site catalogue). Even though our experience was somewhat unsatisfactory, and reminded us how fortunate we have been to have the support of the Mpanjaka in the lower Matitanana, the area around Ifanirea and Tsamaliha still deserves more archaeological attention at some point as time allows.

Moving past the headwaters of the Matitanana into the central highlands of Madagascar, we attempted to locate sources for the pottery and graphite traded into the Matitanana valley. Through various discussions we learned of two traditional potters’ villages in the area: Salava-Ranomanara (towards Fianarantsoa, which we did not visit), and Andranotenina (east of Ambalavao, which we were able to visit and survey as site 210). In all we recorded four archaeological sites to the east and to the south of Ambalavao (see site maps in Figures A238 and A240 and pottery illustrations in Figures A239 and A240 of the site catalogue). The people of this region claim to be the descendents of Antemoro who moved up the Matitanana River at some point in the past, though they consider themselves to be Betsileo today. This southern Betsileo region has a wealth of ethnographic information (e.g., Kottak 1980) and some initial archaeological work by the historian Raherisoanjato (1984, 1994). The area around Ambalavao would be an ideal location for future archaeological work, especially given its ease of access from the capital, the good ground visibility, the preservation of fortified hilltop sites, and the

ability to productively compare social-political developments in this region with the better known Merina state to the north (as Crossland 2001 has successfully undertaken for the Andrantsay region to the north)<sup>1</sup>.

The artifacts we recovered from sites 207 to 210 differed greatly from those recovered in the core regions of the Matitanana project. We tentatively assigned the pottery to the 19<sup>th</sup> and 20<sup>th</sup> century (though Ambalavaokely, site 207, is probably earlier than the others). There are obvious parallels to other archaeological sites in the nearby highlands (Crossland 2001; Raharijaona 1986, 1993; Vérin *et al.* 1968), though a local chronology will still need to be developed for the Ambalavao region. The majority of our time however was spent on an ethnoarchaeological investigation of modern pottery production in the village of Andranotenina, where we were able to interview three potters about their craft. Figure 7.2 below shows one of these women removing her pots from an open firing. We appreciate these potters sharing their knowledge with us, and we learned a great deal about the organization of pottery production in this village (see ethnographic notes for site 210). We also learned that a majority of the pots from this village were bound for the markets of Fianarantsoa, and not to the Matitanana valley. And we learned that the coastal tradition of using ground sherds as medicine is not common in the Ambalavao area, though one man in Andranotenina did suggest that raw graphite is useful for treating broken bones. This side project began as an attempt to learn more about the Betsileo sources of pottery found in the Matitanana region. What we learned is documented in the site catalogue, but this is obviously only an initial step in the

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<sup>1</sup> As a cautionary tale on ignoring the wisdom of our elders, the Ambalavao region was the first suggestion my advisor, Henry Wright, made to me about archaeology in Madagascar. I'll admit that the few days we spent in the beautiful, vineyard-filled landscape around Ambalavao had me questioning my obstinacy in not taking his advice. The Matitanana area was more densely forested, more logistically challenging, and more malaria-filled, but I couldn't resist the lure of the Sorabé and Antemoro history.

archaeology of Ambalavao, and hopefully our information will be useful to whoever decides to take up the archaeology of this area.



Figure 7.2. Potter in Andranotenina, site 210.

## 7.2 Chlorite Schist and Mananjary

In addition to the trips westward to investigate pottery sources, we also took time in the later seasons to travel northward to investigate the sources of the chlorite-schist objects we found in the Matitanana region, recording seven sites near the city of Mananjary (see Figure 7.1). As discussed in Chapter 4, one of the most famous objects in all of Madagascar is the *vatolambo*, a large animal figurine carved from chlorite-schist

found in the village of Ambohitsara, 42 kilometers north of Mananjary. In 1999 we had the opportunity to visit this site in the company of the Museum of Art and Archaeology's director, Jean-Aimé Rakotoarisoa. We had originally planned for a systematic archaeological survey of the region in addition to our visit to see the *vatolambo* in Ambohitsara, but after a series of boat failures and broken motors, our time in the area was reduced to just over an hour (as explained in the notes for site 211 in the site catalogue). Thus, we were only able to visit and record two sites in this region. Ambohitsara, the village of the "stone elephant" itself, was recorded as site 213 (see site map in Figure A243). This thirty-house village revealed a sparse sherd scatter of approximately 70 by 70 meters. Both pottery and chlorite-schist fragments were recovered during a brief survey (see artifact illustrations in Figure A249), though not much of either. The pottery was tentatively dated from the 17<sup>th</sup> to 19<sup>th</sup> century, but the sample size is too small to have much confidence in this assignation. Of note, we did recover a chlorite-schist bead within two meters of the *vatolambo* statue itself. Test excavations in this historic village could possibly reveal other cultural deposits.

We spent our remaining time in the area at site 211, a very dense sherd scatter exposed in the river bank north of Ambohitsara towards the village of Ampaho. My collaborator Ramilisonina had visited Ampaho in 1998 with the ethnographer Sophie Blanchy, and this site was the original starting point for the survey we had planned. In May 1999 we recorded exposed sherds along a 70 meter stretch of the river bank. The artifacts were consistently found in a dark layer containing charcoal and artifacts between 80 and 100 centimeters below ground surface. The surface of the water was 90 centimeters below ground surface, and the ripples were clearly eating into the site, eroding artifacts into the water. We believe the artifacts recovered are very early, the equivalent of the Marovahiny phase for the Matitanana region. But the pottery also differs substantially from other Marovahiny phase sites. For instance, the bowl illustrated in Figure 7.3 below has chlorite-schist inclusions (as is common for the early Marovahiny

phase), but it takes a form we did not recover from any other site: a red-slipped open bowl with a foot-ring base. Site 211 also had a high percentage of chlorite-schist vessels, and more significantly, much evidence of the carving of stone vessels on site, judging by the number of unfinished abandoned blanks. Figure 7.4 below illustrates four objects recovered from site 211 in different stages of manufacture, none of which are complete. In Chapter 5, site 62 near Manakara was discussed as a center for industrial craft production based on its iron slag and chlorite-schist remains. Site 211 is another such craft production center, but the artifacts recovered (see illustrated examples below and in Figures A244 to A247 in the site catalogue) imply a much more intensive chlorite-schist industry given the greater density and size of the recovered remains. It makes sense that this coastal site, much closer to the actual quarries themselves as discussed below, would contain evidence for the working of larger pieces of chlorite-schist.

As alluded to above, because of time constraints only Ambohitsara (site 213) and the river bank site near Ampaho (site 211) have been surveyed in this region. No systematic archaeological survey of the surrounding landscape has yet been undertaken. But given these initial findings this is clearly an area that should interest archaeologists.

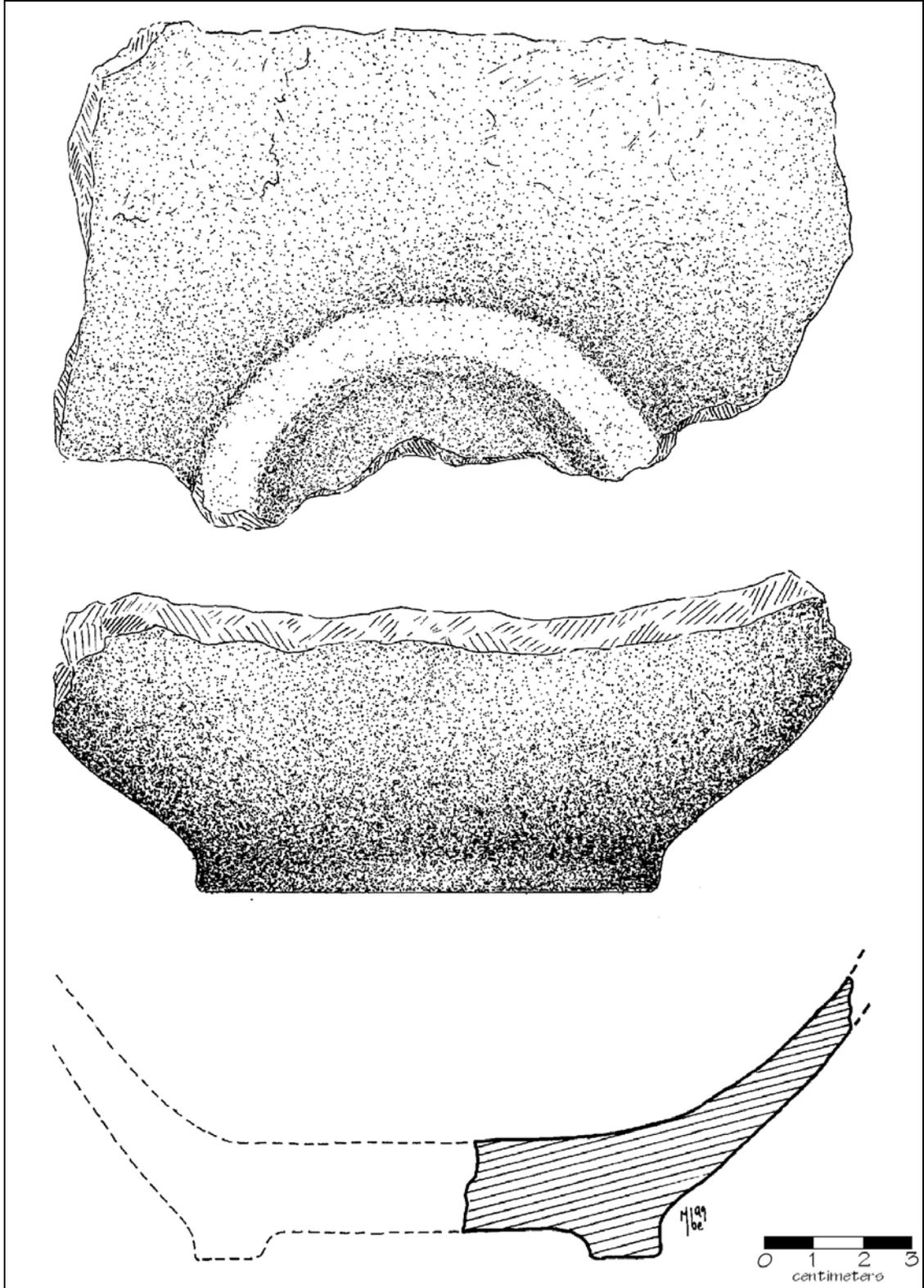


Figure 7.3. Ampaho bowl, site 211. Open bowl with foot ring base, red slip interior and blackened exterior, sand and chlorite-schist inclusions (size 3, 10%), 281.4 grams, outside diameter of foot-ring = 9.5cm.

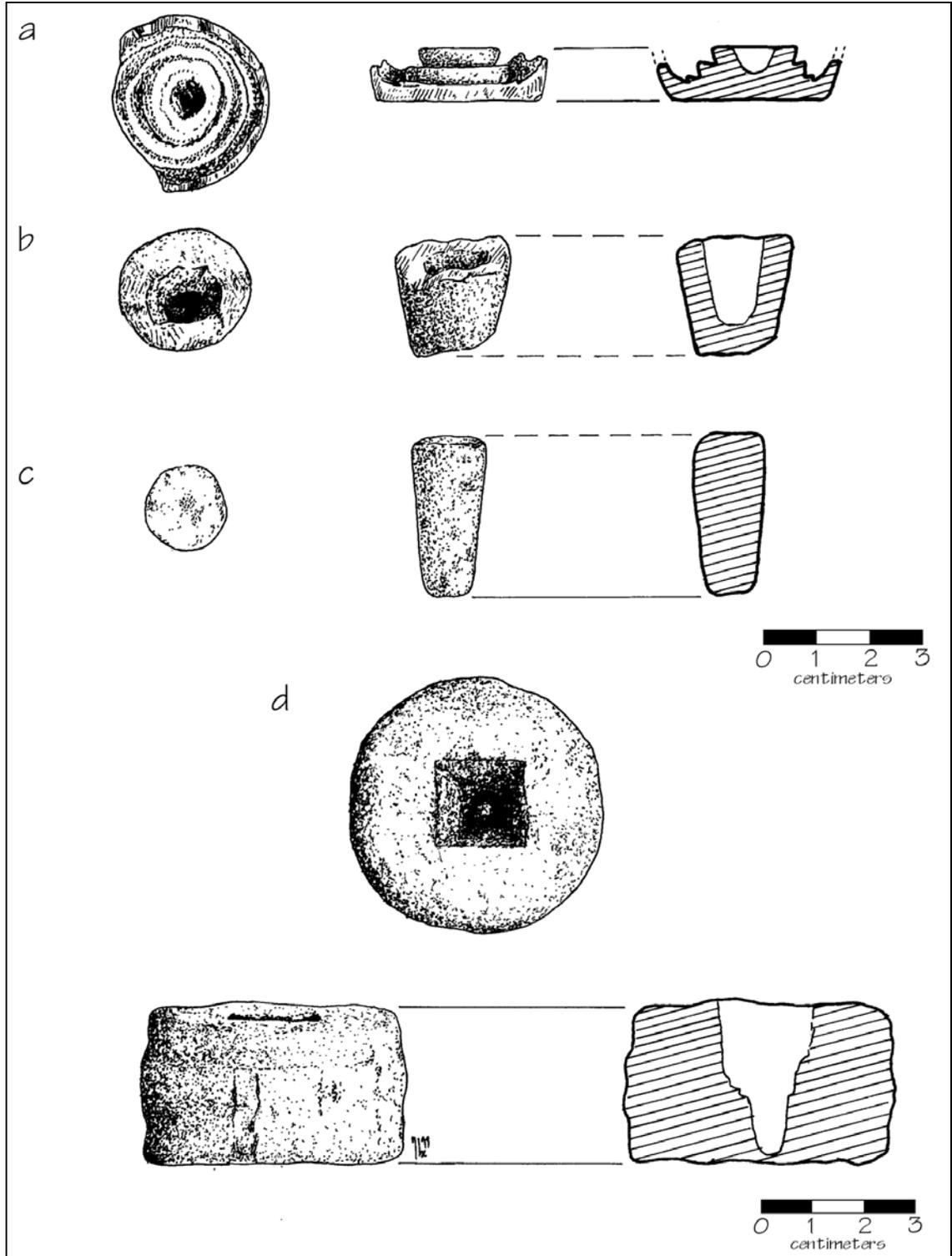


Figure 7.4. Chlorite-schist artifacts, Site 211. a. (10.2g) is an unfinished vessel's base that has not been smoothed on the interior. Fragments b (12.1 grams), c (9.3 grams), and d (121.1 g) have incomplete drill holes.

While in Mananjary waiting for boat repairs after our first failed attempt to reach Ambohitsara, we decided to survey an area northwest of the town near the confluence of the Imana and the Mananjary Rivers. We were hoping to find indications that the chlorite-schist taken from the quarries up the Imana (as described in the next section) might have been brought down river towards the coast by people who lived in the area of this confluence. We visited and surveyed a number of villages, but only recorded one archaeological site, that of Tsiatosika site 212, just north of the village of Ambohitrova (see the site map in Figure A248 and artifact illustrations in Figure A249). The artifacts recovered were assigned to the Ampasimeloka phase, which, despite the distance from the Matitanana, seems accurate given the oral traditions concerning this site. Site 212 includes a tall hill with a flat top approximately 50 meters in diameter. It appears that the hilltop was once encircled by a stone wall (remains of which were found on the southeast slope) with gates to the north and south. Local oral tradition claims this hilltop was the fort of a Betsimisaraka king Radaba who was defeated and replaced by a Merina king Radavid before the French arrived. Traditions tell that this Merina king aided the noble Anteony clan of the Antemoro, who had fled to this area during a civil war. We were able to visit a village of the descendants of these Antemoro refugees at Mahatsara, who confirmed the stories we had heard at Ambohitrova (please see the ethnographic notes for site 212 in the site catalogue for more details on these oral traditions). Thus, while this survey didn't uncover any material relevant to our investigations of the production of chlorite-schist objects in this region, it did reveal some of the effects of the conflict between social groups in the lower Matitanana River.

More relevant to that goal was our attempt to re-locate the chlorite-schist quarry reported northwest of Mananjary by Pannetier (1974, 1988), to obtain samples of the stone for neutron activation analysis as will be discussed in the next section. As described in Chapter 4, there were three possible chlorite-schist sources near Mananjary based on earlier reports. Pannetier first examined the plantation grounds of the Protestant Mission

in Mananjary, both through survey and excavation, but recovered no chlorite-schist artifacts. As this site was only reported as a location with chlorite-schist vessels, it was most likely similar to other coastal sites we've recorded for this project with extensive chlorite-schist remains, and was not itself a quarry site. The second site considered by Pannetier had been reported by Rakoto Franck in 1915, farther north of Mananjary and south of the Fanantara River (Pannetier 1974:55). Pannetier considered this site too remote to reach easily, and so focused his efforts (as did we) on the third possibility – a location he referred to as “Site Dalais” (after a 1919 report by Dalais about a chlorite-schist quarry in the area).

In 1995 we were able to re-locate Pannetier's “Site Dalais” and obtain chlorite-schist samples from the quarry. However, the site we sampled was 12 kilometers southeast of the location indicated on Pannetier's map (he places the quarry near the village of Ambohimanarina at Laborde coordinates 560.5, 570.2, on F.T.M.'s map Q-52, 1976). I am sure we were at the same location because his unpublished manuscript included a photograph of this quarry that was not included in the 1974 article (see Figure 7.5 below for both of our photographs from approximately the same angle), and because my collaborator Ramilisonina had also helped Pannetier discover this site originally and remembered the location. I am also relatively sure of where that location should be placed on the map, thanks to a handheld GPS system (21° 01.51'S and 48° 04.05'E for site 240). I believe the initial mistake arose from the unfortunate similarity of three different village names (all beginning with *Ambohi* and ending with *niarina*, *miarina*, and *manarina*), located near two different streams named *Mardena* that flow into two different *Imana* Rivers. As mentioned in Chapter 6 it was this common repetition of place names in Madagascar that convinced us, in part, to switch to unique site numbers in our third field season. Though Pannetier's mistake did add to the time it took us to find his quarry, I'm sure that I too have misplaced a few of the sites recorded for this project, especially before we began using a GPS.



Figure 7.5. Pannetier (left) at the chlorite-schist quarry he discovered in 1972, and Ramilisonina (right) at the same location, site 240, in 1995.

The hill on which this quarry is located is marked “Ambatobe” on F.T.M.’s map R-52, 1978, meaning “place of the big stone.” We assigned the site number 240 to this location, and chipped off four small pieces of the stone from different parts of the outcropping for further analysis. As visible in the photographs above, many stone blocks had been outlined with picks and then removed from one side of the outcropping, and one of these blocks still remains higher up on the stone – a round block measuring 46 by 28 by 25 centimeters deep on the northeast face. From this location we could see no other rock outcroppings on this hill, and so this is most likely the reference in the name Ambatobe. However, in our efforts to find this site we also located three other chlorite-schist outcroppings that have been quarried (see map in Figure 7.6 below). This means, as one might expect, that chlorite-schist procurement was a regional activity and not confined just to the outcropping at Ambatobe. I am sure that other quarries exist in this area in addition to the four that we have documented for this project.

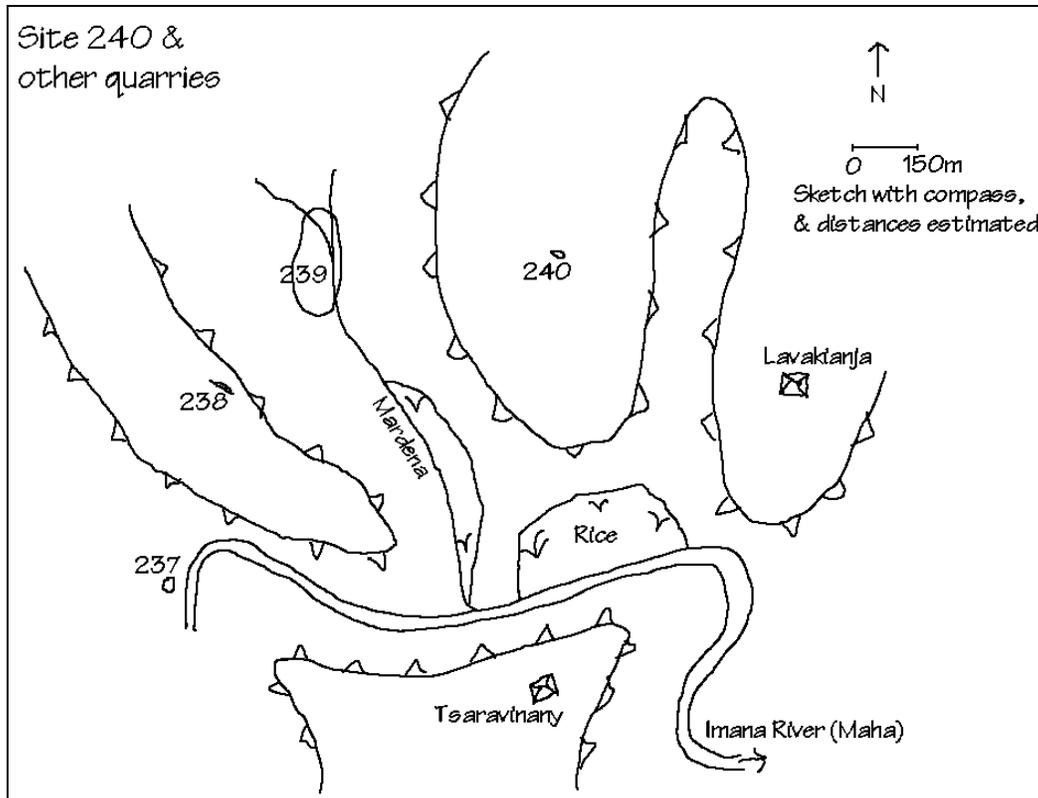


Figure 7.6. Map showing chlorite-schist quarries, sites 237 to 240.

In fact, the largest and most active quarry location we discovered was site 239, just below Ambatobe in the Mardena stream. At least six different rock outcroppings have evidence of the removal of quarried blocks from this location. As at the other sites, pick marks are clearly evident in the stone as well as a few intact blocks (see Figure 7.7 below for an example). Site 239 was also the only site in the area with the remains of worked chlorite-schist, in the form of a partially finished bowl and two chlorite-schist body fragments. Unfortunately, we did not recover any pottery during our surveys in this region, and thus the dating of this mining activity remains ambiguous. It does seem clear however, given this paucity of artifacts, that the procurement of chlorite-schist was probably undertaken by individuals who were not living permanently on or near these sites, but who rather traveled here to obtain the stone in rough-shaped blocks, which were then turned into finished vessels at some other location. As seen in the site map (Figure A276 in the site catalogue), sites 238 and 239 were probably parts of the same work area,

as they are within sight of each other. In between those two sites we found a squat cylinder of chlorite schist (30 centimeters in diameter and 15 centimeters thick) that had been moved 20 meters from its quarry spot, then abandoned, and is now lying half buried in the dirt.



Figure 7.7. In situ chlorite-schist quarry blocks, with trowel for scale, site 237.

There was no indication of any modern use of these rock outcroppings, or the land in their vicinity, with the exception of the first quarried outcropping we found. This site (237) had cavities left by seven blocks removed, as well as two outlined blocks that were still intact. The flat horizontal surface of the top of this outcropping (at 1.8 meters high) had the words “Vato malemy” carved into its surface, meaning “soft stone.” Locals we talked with said this type of stone is generally referred to as “vatosia,” and elsewhere in Madagascar it is known as “vato didi” – “stone you can cut.” As a group we found it ironic that after days of being lost (on Pannetier’s map) while hunting for a chlorite-schist quarry, the first one we find had been conveniently labeled for us. It was doubly ironic

since we had spent the drive up to this area from the Matitanana recording roadside graffiti for another project (see Griffin 1999).

Among other things, this ancillary project to the north of Mananjary yielded a large dense stratified early coastal site with much evidence of the working and carving of chlorite-schist vessels (Ampaho site 211), and a series of mined quarries from which chlorite-schist blocks had been removed (sites 237 – 240). The relationships between these possible procurement, distribution, and craft centers are something that archaeology can hopefully reveal. The finished stone vessels were widely traded throughout the Indian Ocean, and it has generally been presumed that the center of such activity in Madagascar can be found on its northeast coast. This survey reveals the need to look more closely at the rest of Madagascar's east coast as well

### **7.3 Neutron Activation Analysis**

This final ancillary project, like those presented earlier, is only preliminary in nature. It results from my participation in a course on Neutron Activation Analysis (NAA) at the University of Michigan graciously taught by Leah Minc (before the Ford Nuclear Reactor was decommissioned in 2003). For this class I prepared and irradiated 48 samples from Madagascar to learn precisely their compositional natures, with the idea that unique geochemical signatures of trace elements could possibly identify different sources for pottery and chlorite-schist. This work requires a familiarity with archaeometry, physics, chemistry and geology that I am still acquiring. However with the recent closures of many of the research reactors across the country (due reportedly to their high costs and security concerns), I felt it important to include here what results I do have, even if they are only provisional. The poem which opens this chapter stuck with me, especially the part about the “one who made it ... would not understand what we

have done with it,” because, by chance, I first read the poem the day that I had been grinding sherds with a drill press to obtain the powder for the analysis.

Twenty-four of my samples were pottery and twenty-four were chlorite-schist samples. The use of NAA to successfully source pottery samples from archaeological sites has been well established (see Neff 1992 and others), and so I will begin this discussion with the more problematic chlorite-schist samples. The ability of NAA to source soft-stone vessels has not been adequately demonstrated, and one of the goals of this side project was to explore its usefulness with our collection of quarry samples and early artifacts from southeastern Madagascar<sup>2</sup>. Early work on the NAA of soapstone at the University of Virginia (discussed below) claimed it was possible to discriminate between regional sources by comparing the relative concentrations of the rare earth elements. However, this work was followed by a project in the United Kingdom that concluded the opposite. In 1999, the Missouri University Research Reactor (MURR) reanalyzed the Virginia samples in an attempt to resolve the dispute, and determined that the methods could work, but only by focusing on the transition metals rather than the rare earth elements. My project attempted to replicate MURR's findings with soapstone from a different region. It was hoped that this research could be both methodologically significant, in helping to verify the usefulness of this technique for the study of early soapstone vessels, and substantively significant, in helping to trace out the regional trade relations in Madagascar and potentially someday in the wider Indian Ocean.

Throughout this dissertation I have been using the term “chlorite-schist,” and I now need to further define what I have meant by this word. I have used this word (after Vérin 1986) as a translation for the term *chloritoschiste* in the French and Malagasy

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<sup>2</sup> As I was submitting this dissertation I happened upon an article in *Archaeology* magazine on Randall Law's work on the steatites of Pakistan, and I look forward to reading about his sourcing efforts in the near future.

tradition. In English the more common term for such soft rocks is steatite or soapstone, though some have used other phrasings, such as “soft stone from chlorite sources” (Kohl, Harbottle *et al.* 1979). But more precisely, steatite is a metamorphic rock composed mainly of talc with a basic formula of  $(\text{Mg, Fe}^{+2})_3\text{Si}_4\text{O}_{10}(\text{OH})_2$  and with minor amounts of other minerals such as chlorite, amphibole or carbonate. One definition of soapstone is amphibole-chlorite-carbonate-talc rocks found with steatite. These are most commonly formed from serpentine rocks in areas of “high tectonic activity such as geosynclinals mountain chains and continental margins” (Allen and Pennell 1978) such as Madagascar. However, as noted above, the term soapstone is generalized in its common usage to include most talcose materials which people can carve into vessels. The term *chloritoschiste* in Madagascar (and hence my term chlorite-schist) is also used in this looser sense to refer to soft stone material from which artifacts are carved. In fact, the Malagasy material may be harder than the types of soapstone found elsewhere, though this did not pose a problem for the earliest Malagasy who produced their vessels using a lathe technique perhaps related to woodcarving. At this point, even though my samples feel soapy, I don’t yet know what they actually are, and if they contain enough chlorite to be called “chlorite-schist,” a term that I will continue to utilize in the meantime. To move beyond the semantics, I would like to turn to a discussion of the previous attempts to source this material with NAA.

Allen, Luckenbach *et al.* (1975) analyzed 108 soapstone samples drawn from 28 different archaeological sites in Virginia and from 29 different quarries in four southeastern states. Allen and Pennell (1978) then analyzed over 700 samples from the eastern United States, Labrador, and Crete. These articles (along with Rogers, Allen *et al.* 1983) claimed that Instrumental NAA can successfully source soapstone to its quarry on a regional level, in one case even claiming that they could tell when sherds were from the same vessel. The most important elements for sourcing this material in their studies were the rare earth elements (REE). They routinely analyzed 10 of the REE but claimed that it

was sufficient to obtain La, Sm, Eu, Gd, and Yb or Lu. Since Allen's teams found the method successful and later groups found it not to be successful, the differences may lay in the actual techniques applied. These studies irradiated between .25 and .6 grams of sample matter for 1 hour at  $5 \times 10^{13}$  neutrons, using two standards (basalt BCR-1 and one of their own creation), and then counted the decays between four and ten days and then again between 30 and 40 days.

A second group of studies (Buttler 1984; Moffat and Buttler 1986) by a geologist at the Universities Research Reactor, Risley, U.K, claimed that INAA cannot be used to source steatite (or "soapstone"). Buttler further claimed that there is no theoretical geological reason for why it should work (considering the partitioning of REE for this material). He questioned the sensitivity and quality of Allen's work, though also suggested that perhaps Allen's group may have used longer counting times (in fact, Glasscock and Neff, see below, reported that Allen counted for 24 hours, much longer than Buttler). Buttler's dissertation looked at steatite quarries near the Jarlshof site in Shetland UK. He ran 12 samples with INAA and found that few REE are actually detectable by this method. He then used radiochemical neutron activation analysis (RNAA) and had somewhat better success. Still, the overall scarcity of REE in steatite, and in the serpentinized ultramafic rocks from which it's derived, means that this method shouldn't be expected to work. As for methods, Buttler irradiated 500 mg of rock powder, for 9 hours at  $3 \times 10^{12}$  neutrons, which he then counted immediately for 3000s L, then the following day for 300s, and then after 10-12 days for 3000s L. Each sample was then irradiated a second time for 30 seconds and counted for 200s L after 90 seconds. The standards used included Johnson Matthey 'Specpure' rare earth oxides in dilute nitric acid including Cerium oxide, CRE1 and CRE2.

Based on his research, Buttler concluded that rare earth elements are not suitable for "fingerprinting" Shetland steatites, and argued that if the method is to work, one should homogenize a large sample of at least 100 grams to ensure an adequate

representation of all minerals in the rock (this would be problematic for me in that most of the vessel fragments I would like to source are less than 10 grams in total weight). There are of course other methods to determine the elemental signatures for chlorite-schist, as in Kohl and Harbottle's use of X-ray diffraction to assign 375 samples to four likely sources (two Arabian, one Sumerian, and Tepe Yahya in Iran) (Kohl, Harbottle *et al.* 1979). However, many of the same considerations would apply. The problem in Buttler's eyes is that the variation from his largest quarry (sampled six times) was equal to the total variation within the Shetlands (based on his other six samples from four other quarries). The differences between these two assessments of soapstone NAA may be due to their different techniques as suggested above (e.g., counting decays for different lengths of time after different amounts of cooling), but may also simply be a factor of sample size. Buttler analyzed very few samples and found great variation among them. Allen's group analyzed enough samples that they reported their results as percentages, such that "80% of samples" from a given quarry might actually fit his "pattern" for that source.

Truncer, Glasscock, and Neff at the University of Missouri Research Reactor (MURR) took up this debate on the use of NAA and the sourcing of soapstone, agreeing with Buttler that the important question is whether the intra-source variation is too great in comparison to the inter-source variation (Truncer, Glascock *et al.* 1998). To answer this question the MURR group re-studied five of Allen's original soapstone quarries, along with three additional quarries from the Middle Atlantic region and a number of vessel fragments dating between 1800 and 800 B.C. They analyzed between 22 and 30 samples from each of the eight quarries. Their methods served as the model for the methods I used at the Phoenix Memorial Lab at Michigan (e.g. irradiating 150 mg samples with standards of coal fly ash (SRM-1633a), basalt (SRM-688), and obsidian (SRM-278), with similar counting times, etc., as were routine at Michigan (please see Minc 1994, 2006; and Fowles, Minc *et al.* 2007 for details). Based on their research, the

MURR group settled on 17 elements for analysis, and found that while principle components were not good discriminators of source, bivariate plots of canonical discriminant functions did indeed show quarry groupings. Their conclusions were in agreement with Buttler that the REE are not useful for sourcing steatite, mainly because they are so rare that you would have to homogenize and sample such a large quantity of material that it wouldn't be practical for artifact analysis. On the other hand, they did find that the transition metals could be used to successfully source steatite, though some quarries worked better than others. Also the quarries only produced a generalizable signature that could account for many of the samples, but not all. This makes sense in light of the previous research: sometimes this soft talc rock has a diagnostic signature that can be identified through neutron activation analysis, and in other cases the variation within a single quarry is too great. With this research in mind (and with the help of Leah Minc), I began my study of the chlorite-schist of Madagascar.

As I was initially given 48 samples to work with, and as I wanted to reserve 24 for an analysis of the pottery to be discussed below, I chose to process 12 samples from the chlorite-schist quarries recorded northwest of Mananjary (sites 237 to 240) as well as the finished stone vessel fragment found at site 239. Added to this set were 10 chlorite-schist vessel fragments from the Matitanana region and one fragment taken from a bowl in the Museum of Art and Archaeology's collection that originated at the site of Vohemar on Madagascar's far northeast coast. The resulting counts after irradiation produced significant numbers of elements with less than detectable limits, as might have been expected from my relatively small artifacts given the discussion above. However, I was able to identify four elements for analysis that might be discriminatory after the short counts: La, Sm, Na, and Yb (along with As and Lu for presence/absence). This situation is not ideal, but at least for now I have a light, medium and heavy rare earth element for analysis. Of the 24 chlorite-schist samples it was determined on the first analytical pass that MAD033 (a quarry sample) and MAD043 (an artifact) were both outliers or

contaminated, being much higher in the REEs than anything else, and were excluded. The Vohemar sample MAD038 was retained, however, even though it was an outlier on sodium. The sample numbers (MAD001 to MAD048) were designed so that I would not know the provenience of individual samples during the analysis. My conclusions (based on the simplest of statistics at this point (with apologies to Whallon 1987), using multiple scatter plots to identify consistent and robust patterning) can be seen in the bivariate plots of Lanthanum and Ytterbium below (Sm by Yb and other scatter plots showed similar groupings).

My clearest conclusion is that the bowl from Vohémar was carved from a very different stone than either the chlorite-schist quarries found near Mananjary or the vessel fragments found near the Matitanana. This conforms with a petrographic analysis carried out in the 1950s on the “stone elephant” in Ambohitsara (site 213), the *vatolambo* itself, which concluded that this object was of a type of stone not known from the region of Vohémar on the northeast coast (as discussed in Vérin 1975:910). Thus, a regional identification of chlorite-schist objects still in Madagascar or traded off the island should be possible, at least in terms of the northeast coast versus the rest of the east coast.

My second main conclusion is that the 10 artifact samples from the Matitanana show greater variability among themselves than do the 13 quarry samples, with the exception of quarry three (site 239). As the chlorite-schist artifacts imported to our survey area most likely came from a number of different quarries, it was expected that they would show substantial variability. I actually did not expect much overlap between the artifact and quarry samples (as it seemed unlikely that we would just happen upon the actual source for our stone bowls 156 kilometers north of the Matitanana). However, as seen in the plots below (and on other scatter plots as well), four of the artifacts cluster tightly with nine of the quarry samples, creating a robust group. At this point I would be comfortable saying these four stone vessels (and possibly a fifth) found in the Matitanana region originated far to the north in the quarries we located for this project, or from

similar outcroppings in the same general area. The other four (or five) artifacts recovered near the Matitanana appear to come from quarries not yet known, which are different from both our sampled quarries and those of the northeast coast near Vohémar.

The main disruptions in this patterning are the three samples from our third quarry. One of these samples was rejected as an extreme outlier, and the other two samples from the same outcropping can be seen in the plots to be the most variable. This stone was noted upon collection as being browner than the other three quarries, which were more grey or reddish grey. Thin-sectioning may reveal quarry three to be a different sort of rock than the others, but these results also point to the possibility that macro observations such as stone color may be useful in combination with elemental composition in determining sources. In this regard I should note that the Vohémar sample was of the same grey as our other three quarries (though clearly different in terms of trace elements), while the chlorite-schist recovered near Ambohitsara (site 213) was often more yellow in color. Analyzing a larger number of samples, using samples of larger sizes, looking more at the transition metals, and applying more formal measurements of clustering tendencies could all strengthen this research and my initial impressions.

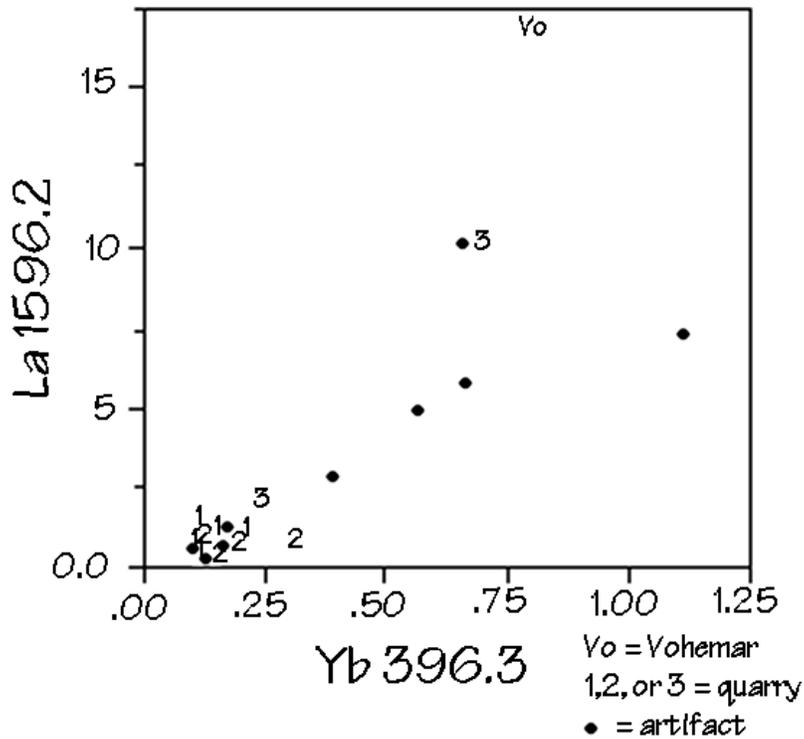


Figure 7.8. Ytterbium (Yb) and Lanthanum (La) in Chlorite-Schist.

The neutron activation analysis of the 24 pottery samples proceeded by the same methods as those discussed already for chlorite-schist above. This batch consisted of 20 sherds, 3 clay sources, and one piece of potentially pure graphite. This last was an item purchased by a man in the Farafangana region from a Betsileo merchant for use as medicine (see ethnographic notes for site 130 in Appendix A). Of the 20 sherds, six were of the grey graphite ware (type IC), and five were the footed base/lid knob form, both discussed in Chapter 5. The samples were also chosen to cover the Mananano River valley to the north of Manakara (4 sherds), the Manampatrana River valley to the south near Farafangana (4 sherds), and the Matitanana River valley in the center (12 sherds and 3 the clay samples – two of which are locally made bricks). For each river, representative sherds were chosen from the coastal regions and from further up river.

The analysis was based on elemental counts both one week and five weeks after irradiation, and focused on 24 elements that appear potentially discriminatory. The 288 scatter plots that resulted from these 24 elements have been analyzed, and reveal some important clusters as seen in the bivariate plot below of Cesium and Scandium in Figure 7.9. My impressions of this data set include the following:

1) Though there is a great deal of variability among the four sherds from the northern Mananano valley, the group as a whole appears different from the two valleys farther south. Three of the four northern samples are extreme outliers on almost all of the scatter plots (samples MAD005, 7, and 8). Whether the Matitanana and Manampatrana valleys are more similar because of trade, or whether there is a geologic difference between these two valleys and the Mananano to the north that reveals itself in the clay sources is not something I can determine at this time. In any case, the early pottery of Marovahiny-Ambohabe (site 46) has more similarities in terms of its composition with the pottery of Anosy (site 140) than it does with Ambinanimananano Atsimo (site 214), all three of which were occupied during the early Marovahiny phase, each in a different river valley.

2) The piece of graphite-like material used as medicine is an extreme outlier, unlike any of the pottery sherds, even those sherds of grey graphite ware (Type IC). For example, this sample (MAD012) has over 300 times the amount of Cesium as is commonly found in the plain sherds (and six times the amount of Cesium found in the grey graphite ware sherds, Type IC). Visually this material and the Type IC pottery were nearly identical (as seen in the site catalogue where I occasionally note an object “looks like pure graphite). But compositionally, they are clearly different.

3) The most robust clustering of sherds occurs among the plain brown sherds (Type I) of the lower Matitanana. For the Manampatrana valley to the south, all of the sherds both of graphite ware and plain brown ware cluster, indicating a common or a similar clay source. For the upper Matitanana valley, all of the sherds (both graphite and

plain brown wares) also cluster indicating a similar clay source. But for the lower Matitanana valley, the plain brown sherds do not cluster with the graphite sherds from the same region, and they do not overlap with any of the other clay sources already mentioned either. This pattern may relate to the specialized production of elite “footed bowls” found only in fortified or royal sites (as discussed concerning Figure 5.4). Five of these foot-bases were included in the NAA sample, including four from the lower Matitanana. It seems likely that these footed vessels were produced from a single source and then widely traded throughout the valley, as opposed to other plain brown wares (and graphite wares as well) that were locally made and used, resulting in greater variation across the region.

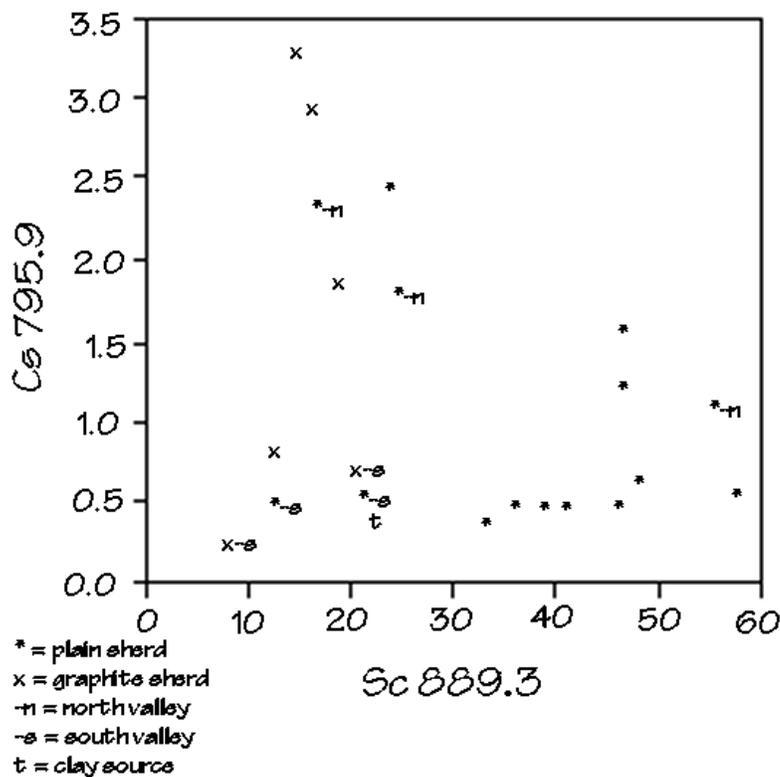


Figure 7.9. Cesium (Cs) and Scandium (Sc) in pottery sherds.

In Figure 7.9 above, “-s” indicates a sample is from the southern valley near Farafangana, and those four sherds can be seen to cluster with low concentrations of each

element. The northern valley past Manakara is marked with “-n” and those three sherds (the one outlier excluded) can be seen to have significant variation for these two elements. The graphite sherds, regardless of valley, are marked with an x, and all display low levels of Scandium though a range of Cesium. The cluster of foot-bases that persist through most of these scatter plots can be seen in the lower right hand corner of the graph, as five of the six tightly clustered points.

The neutron activation analysis of these 48 samples was a complex undertaking, and I know there are more patterns that could be teased out of the data. However, I do believe this side project, even at the broad and superficial level at which I’ve approached the data, has been able to tell us new things about the archaeology of the Matitanana region. More work obviously needs to be done, but the general clusters that I’ve identified should be able to withstand more complex manipulations of the data. And in terms of the method itself, NAA does seem to be able to successfully source earthenware pottery from these three river valleys, even cross-cutting my ware typology at times. As with the other ancillary projects, I know this has something of the feel of a “kitchen-sink” approach, but that fits my belief that the methods should be subservient to the goals. In this project I wanted to learn about the past of the Matitanana valley, and I was eager to use the ethnohistoric documents such as the Sorabé when they were available. I was also eager to use the Ford Nuclear Reactor when it was offered as well. I understand the dangers in a Jack-of-all-trades who is rarely good at anything, but I also believe that a desire to try new things is the key to becoming educated.

## CHAPTER 8

### CONCLUSIONS

*"Believe me, believe me not!  
If you believe me, it will be fine,  
If you do not believe me, it will rain...  
It is not I who tells lies, it is  
The Old Ones who have told me this story."*

- Ritual warning with which Malagasy storytellers begin their tales (Marden 1967:485)

In their ethnography of the people on Madagascar's southeast coast, Deschamps and Vianès state of the Antemoro and their *sorabé* manuscripts that:

despite their contradictions, ambiguities, and other problems, the *sorabé* are invaluable because there are no archaeological vestiges, nor any other books, that could help us reconstruct Antemoro history.<sup>1</sup> (Deschamps and Vianès 1959:37)

At the very least I hope that the Matitanana Archaeological Project has demonstrated the real potential for archaeological research in this area. There are archaeological vestiges to be found, though granted they are not the clay *sorabé*<sup>2</sup>, mosque remains, or Swahili pottery that I had originally hoped for. Instead, I found a complex archaeological record that led to new and interesting questions while revealing a great deal of the culture history for the region. In trying to make sense of that record I attempted much in this project, though some things were left undone, and others did not work at all. Such is the

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<sup>1</sup> "Tels qu'ils sont, avec leurs contradictions, leurs obscurités, leur ambiguïté parfois, ils nous sont pourtant infiniment précieux: en effet, il ne reste ni vestiges archéologiques, ni aucun autre document qui nous permette de reconstituer l'histoire du pays et de ses habitants"

<sup>2</sup> Though realistically, finding two sherds with probable *sorabé* appliqué is quite remarkable given the limited extent of my excavations and the fact that the much larger excavations at Ambohabe in the 1970s did not recover any.

nature of learning. Throughout my research I have tried to use what was available to me, whether an artifact or a method, to better understand the archaeology and prehistory of the Seven Rivers Region.

Since it was the presence of the *sorabé* documents that originally attracted my attention to this area, I'm pleased that the archaeology connects as often as it does with these local historical records. When the Frenchman La Case invaded the Matitanana Valley in the mid 17<sup>th</sup> century on a punitive expedition, the *sorabé* named the specific locations he attacked. Our archaeological survey documented fortified hilltops with some of the same place names (such Karinoro and Fotsivava), occupied during what we termed the Sangilavitra phase of the 17<sup>th</sup> and 18<sup>th</sup> century. This period is characterized archaeologically by a spread of small clusters of sites across the entire region, often centered on one of the 27 ditched sites recorded during our project (see Figures 6.8 and 6.9). Since there are often only a few kilometers between these groups of villages, one possible explanation for such a settlement pattern is that it is a reaction to an external threat that is not continuously present. In other words, the Matitanana Valley during the Sangilavitra period appears to have been a single interacting social system, lacking any visible barriers between various groups of people. And while perhaps not part of daily life, the nearby defensive retreats (or elite compounds) were still available for periodic use whenever slave raiders or other expeditions moved through the area. This settlement pattern contrasts strongly with the preceding Ambohabe phase, though again there is an interesting connection to the *sorabé* documents.

Some of the earliest *sorabé* of the Antemoro tell their origin myths about the arrival of their ancestors and an initial conflict with the original "owners of the land". Complementing the historical texts are the oral traditions of the modern outcaste groups who claim descent from the original land owners displaced by the immigrant Antemoro. Both the *sorabé* texts of the Antemoro and the first French and Portuguese to visit the area claimed that this migration occurred towards the end of the 15<sup>th</sup> century (though the

former sources claimed the homeland was Arabia while the Europeans instead identified East Africa). The ceramic analysis, conducted independently of this historical information (since, in fact, most of the *sorabé* research was conducted after the archaeological fieldwork had been completed), identified an Ambohabe phase of the 15<sup>th</sup> and 16<sup>th</sup> century with a very polarized distribution pattern (see Figures 6.6 and 6.7). Our survey project documented two large centers on the coast north of the Matitanana River mouth during the Ambohabe phase, in an otherwise empty landscape. Only by moving 20 kilometers upriver do we again find the more typical evenly spaced spread of small settlements, along with the only two ditched hilltops (of the 27) to be occupied before the Sangilavitra period. The hill forts understandably speak to a defensive need, but so perhaps do the two large connected but otherwise isolated centers on the coast. Large groups of newly arrived immigrants with a different way of life and a different identity might have found safety in numbers in their coastal towns. This potential scenario corresponds well with our other sources of information. However, one wrinkle in this tidy story is that the ceramics of these two purportedly competing groups do not differ substantially, as both were assigned to the assemblages of the Ambohabe phase. The identification during my post-fieldwork analysis of this settlement pattern for the Ambohabe phase has led to a number of goals for future research: to extend the survey even farther upriver to see if the evenly spaced spread of small sites and early hill forts 20 kilometers inland continues in that direction, to complete the survey of the other river valleys looking for a comparable pattern, and ideally to shovel skim one of the larger hill forts to learn more about their functions and internal structures.

Assuming these people were the original “owners of the land” before the arrival of the Antemoro, what of their history? The settlement patterns again have stories to tell. The earliest Marovahiny phase, dated from the 10<sup>th</sup> to the 13<sup>th</sup> centuries in this region, includes no sites more than a few kilometers from the ocean (see Figure 6.3). The sites contain few long-distance trade goods, but the first settlers did evidently maintain their

dependence on chlorite-schist imported from sites farther north along the east coast. The people must have relied on the oceans, river mouths, and dune ridges for their local resources, and their numbers must have been few (with only nine sites recorded from the lower Matitanana). In the following Mananano phase of the 14<sup>th</sup> and 15<sup>th</sup> centuries the system appears more established, with over three times the number of sites in the lower Matitanana and stretching upriver as far as our surveys extended. The people had switched to exploiting river resources and new types of farm land, but had maintained, or even increased, their use of chlorite-schist imported from the north. There was still a greater density of occupation along the coast, but the entire river valley was settled, which makes the extreme polarization of the following Ambohabe phase discussed above so surprising. This settlement history has focused on the Matitanana River valley because that is where we focused our surveys as well. There is nothing from the valleys to the north or south that would currently contradict this settlement progression, but more research is needed in those areas to learn whether the pattern was replicated elsewhere.

As interesting as I find the results of the survey in Chapter 6, they are clearly based on the necessary work found elsewhere in this dissertation. In Chapter 5 I tried to document how pottery production changed over time for the Matitanana region, and how the ceramic chronology we created is both unique and related to the archaeology of other areas of Madagascar. The excavations and ceramic analysis were the basis for the changing settlement patterns discussed above from Chapter 6. Chapter 7 then concluded the documentation of my original archaeological research by presenting a collection of ancillary projects: looking at modern pottery production to the west and attempting to find the nearest chlorite-schist quarries to the north. The preliminary neutron activation analysis seems to show that we did recover at least one of the sources for the chlorite-schist artifacts found in the Matitanana region, though a second unknown quarry source yet remains to be found, distinct from both the Northeast quarries near Vohémar and the quarries we sampled near Mananjary. The NAA study also seems to show that the foot-

base bowls, which may have served as status markers since they were found only on historically important sites, probably all came from the same clay source, unlike the other ceramics on the same sites. All three of these substantive chapters make frequent references to the site catalogue in Appendix A, which, despite being labeled an “appendix”, is probably the most essential part of this entire dissertation.

Even in the earlier chapters meant to develop a context for my research, I consciously tried to keep the focus on the archaeology and the fieldwork. I am not qualified to write a natural history for the Matitanana Valley, but in Chapter 2, I still tried to derive whatever relevant information I could from the results of our survey work. Similarly, though I lack the in-depth knowledge of the ethnographers cited in Chapter 3, our wide-ranging research gave us the chance to speak with groups of people all across the region who often had their own version of events, and hence I have included a section on “ethnographic notes and oral traditions” in the site catalogue. And behind all of this are the theoretical orientations I touched upon in Chapter 1.

I began this dissertation suggesting an approach that is largely an inductive one, of trying to minimize our pre-conceived models to let new structures emerge from the details. In an absolute form, that’s clearly impossible. As is evident to any reader of this dissertation, I’ve struggled with the details, of which this research has produced a great quantity. I’ve tried to bring out my inner “lumper,” and to use the details to uncover meaningful stories and patterns concerning the past in the Seven Rivers region. The *sorabé* documents are full of Helmsian exotica, of claims of foreign origins and exaggerated social difference in an attempt to legitimate inequalities (as discussed in the introduction). And yet the archaeology did not keep pace on this front. Little evidence of exotic trade goods being used to bolster these claims was recovered, though there is the interesting case of the imported chlorite-schist vessels, the early use of chlorite-schist grog, followed by a powdered temper, and eventually by the use of graphite as an import substitution. However, the sites in this region, as shown by the artifact counts in the site

catalogue, have a far lower percentage of non-Malagasy imported pottery than sites on Madagascar's northwest coast that were more directly connected to the Swahili trading network. In the absence of exotic long-distance trade goods, the NAA study in Chapter 7 gives one way to look at the more regional intra-island trade, and the analysis of this data should continue.

Based on the historical sources, Raymond Kent (1970) thought that the Antemoro constituted Madagascar's "first kingdom", but the archaeology at this point does not lead to the same conclusion. Nevertheless there are important connections between archaeology and other cultural and historical approaches that should be explored. In the end, I do feel that I have learned a great deal through this research project, but I also sense that the study is only just beginning.

As with any project, there is an infinite amount of work which could profitably be done, but practical circumstances will necessarily limit what is actually done. And by Murphy's Law, there are always those intriguing sites found at the very end of the last day of a field season, or important excavations put off by rain or sickness. Despite these, I am pleased with the amount of work we were able to accomplish on this project, and grateful to all the field crew members who participated (and especially for all the mornings we gamely marched off into the drizzle). Not all of the unfinished business, though, is due to rain, sickness, or mechanical breakdown. Sometimes more important things came up. We decided to shorten the 1995 field season by a week so that we could attend a *famadihana* (a "turning of the bones ceremony") for Ramilisonina's uncle in the central highlands, in which we removed the bones of Ramilisonina's mother from the family tomb, wrapped her in new cloth, and danced. I now teach anthropology and archaeology to first and second year students at a community college. The photographs of that *famadihana* ceremony are probably the most useful things to result from this project for me personally.

The analysis will continue, but the field research is over for now. Despite the scorpions, sand fleas and malaria, I found archaeological fieldwork along the Matitanana to be amazingly fun. My attempt to write up the fieldwork, however, has been a humbling experience, and far more work than I ever anticipated. With the humility comes a better understanding of the amount of work that stands behind our knowledge of the past, a better appreciation of the cumulative advance of archaeology, and a greater sense of how to set things up in the beginning to make the end result far easier. In the Seven-Rivers region of Madagascar, that little corner of the world I've tried to document in this dissertation, the work is only just beginning. There are areas I would still like to survey and sites I would like to dig, but I am also excited by the idea that other archaeologists working in the area might someday find my site catalogue helpful, in the same way that I have benefited from the work of others. The march of academia is a grand conversation, and it feels good to have contributed in my own small (and at times self-indulgent and overly sincere) way.

## **APPENDICES**

## APPENDIX A

### SITE CATALOGUE

Conventions used on site maps:

- Unless there is a specific direction arrow, it can be assumed that the top of the page is magnetic north.
- Unless there is a specific scale, it can be assumed that the scale is approximately 1 to 1000. Note that these are only field maps, with distances either estimated or paced. An easy way to get a quick sense of scale is the size of the Antemoro houses represented, which average a bit over 5 meters in length.
- Sherd scatters are often represented on the maps by hatch marks (though not always, the text should help make clear the extent of the scatter). Rough contour lines (of less than 5 meters) are indicated by triangles along the slope line. An "x" may represent a GPS waypoint, or the location of a drawn cross section of a ditch. Other details vary by map and should be explained in the description of the site or on the map itself.

Conventions used in pottery analysis:

- The field "ceramic phase recovered" refers to the assemblage number as described in Table 5.2. From that table: 0, 1, 2, 2/3 is Marovahiny phase (10<sup>th</sup> to 13<sup>th</sup> century); 3, 3/4 is Mananano phase (14<sup>th</sup> to 15<sup>th</sup> century); 4, 4/5 is Ambohabe phase (15<sup>th</sup> to 16<sup>th</sup> century); 5 is Sangilavitra phase (17<sup>th</sup> to 18<sup>th</sup> century); 6 is Ampasimeloka phase (18<sup>th</sup> to 19<sup>th</sup> century); and 7 is Modern (20<sup>th</sup> century material). An asterisk after the number implies that my confidence level is only "probable" rather than a "good" designation, two terms used on the regional survey maps in chapter six. As explained in chapter five, this ceramic chronology is only provisional, and it is expected that further research will further refine these different phases.
- The ware typology (such as "type ic") used in this site catalogue is explained in chapter five, Table 5.4.
- The artifact notes section occasionally begins with a comment on the artifacts recovered, followed by an inventory of the finds. The drawn illustrations (if any) of certain artifacts follow the overall site map.
- Abbreviations used in the pottery notes include "d" for diameter, "t" for thickness, and "g" for gram. Measurements are generally in centimeters unless noted otherwise. The estimated sizes of inclusions and their relative percentage are based on charts in Mathew, Wood, and Oliver 1991 (for inclusions, size 1 = fine = .05-.1cm, size 2 = medium = .05-.2cm, size 3 = coarse = .05-.3cm).
- Unless there is a scale, it can be assumed that the sherd illustrations are at 1 to 1.

Sites 1 to 62 were first recorded in the 1994 or 1995 field seasons, and are listed below alphabetically. Sites 63 to 236 are from the 1997 or 1999 field seasons, and due to a change in our field methods they are listed below in the order recorded, as not every location has a name. Sites 237 to 240 are chlorite-schist quarries discovered near Mananjary in 1995, but which were not given site numbers along with the sites from the Matitanana, and thus are listed at the end.

<b>Site:</b> 1	<b>Ambaloso</b>	<b>Region of:</b> Vohipeno
Laborde X: 547.5	Latitude: 22.42967	Season: 94
Laborde Y: 408.4	Longitude: 47.87333	Ceramic phase recovered: 5
Site today: banana pineapple garden	Collection method: quick complete collection	

**Site Notes:** Small sherd scatter, sherds so similar was originally thought a pot-drop. Sherds from 5m x 3m area and seem to be from same or similar vessels. After review, it's not a pot drop, at least 2 slightly different rim forms present, but all of the same ware.

**Artifacts:** Includes thin reduced sandy ware  
 - 3 plain rims (11 grams, 2 illustrated below),  
 - 21 plain body sherds (50 grams, reduced type i), and  
 - 2 decorated body sherds (1 with linear incisions, t=.63, and 1 with a single linear punctate, possibly a rice grain impression, t=.51).

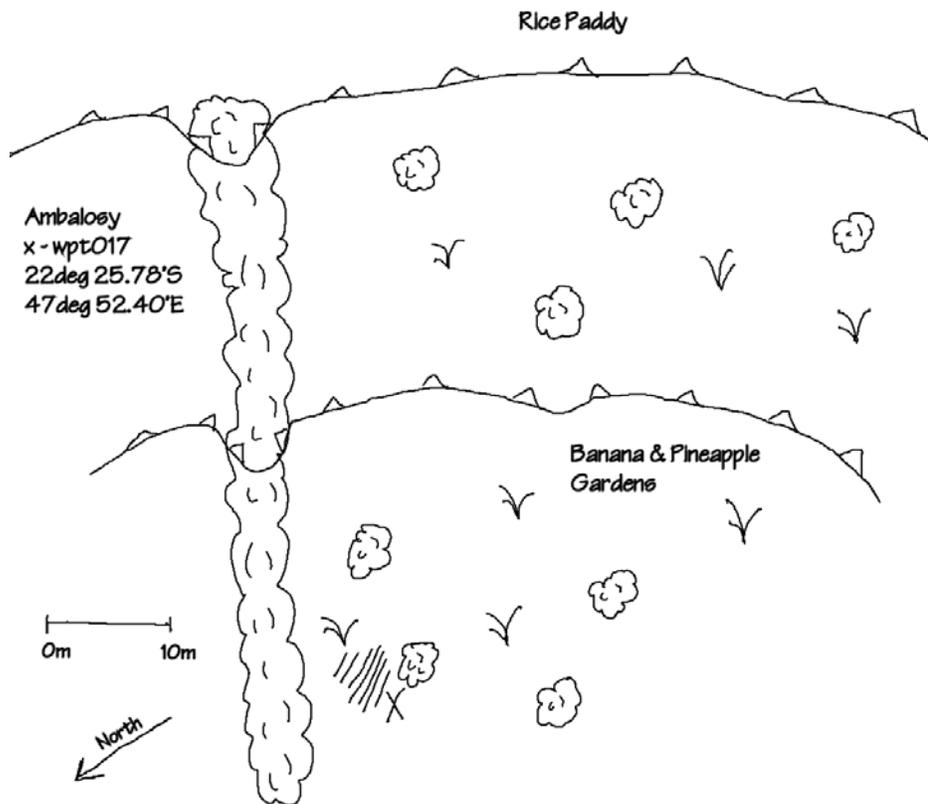


Figure A1. Site 1, Ambaloy.

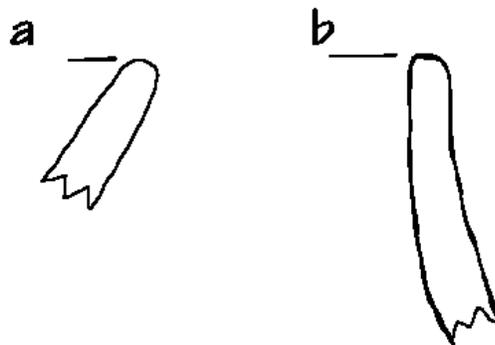


Figure A2. Site 1 artifacts.  
 a. Plain rim sherd, d=18 (6% of rim), t=.59, sand inclusion (.05-.1, 3%), interior 7.5YR6/3, exterior 7.5YR5/3, exterior surface is very coarse.

b. Plain rim sherd, d=22 (4% of rim), t=.65, sand inclusions (.05-.1, 5%), interior 10YR5/2.

**Site: 2**                      **Amboanio**                      **Region of: Farafangana**  
*Laborde X:* 543.7              *Latitude:* 22.82667              *Season:* 94  
*Laborde Y:* 364.8              *Longitude:* 47.83767              *Ceramic phase recovered:* 6  
*Site today:* exposed sand                      *Collection method:* selective sample

*Site Notes:* Amboanio beach site, very small deposit, 6 m. long by 3 m. wide, eroding from a sand dune 1.6m below top of dune, area includes modern bricks and mortar (1 brick fragment collected). Sherd scatter is located 60 meters from the modern light house.

*Ethnographic Notes and Oral Traditions:* Unlike the people of the Matitanana River valley, the people here use the word "vatokingo" for pottery. They said the best place in the area to find such things was at Saritry (site 52) to the south.

*Artifacts from Amboanio village:* Includes grey graphite ware  
 - 5 decorated body sherds, 10 grams (2 sherds with incised lines and triangle punctates on graphite speckled grey ware, and 2 sherds with basketry impression on graphite speckled brown ware, t = .68 & .56, graphite inclusions (.05-.1cm, 30%), exterior 10YR5/4, interior 5YR4/1.)  
 - 38 plain body sherds (29 of which are grey graphite ware, t = .5 to .85, generally the same color on both interior and exterior (7.5YR5/2 to 7.5YR3/0), no core visible, graphite inclusions (.05-.1, 30%), and 1 without graphite is burnished on the exterior, t = 1.23).  
 - Chinese blue and white body sherd, clear glaze over cracked white slip, soft blue floral design, probably European imitation.

*Artifacts from Amboanio beach:*  
 - 1 brick fragment (40 grams)  
 - 18 plain body sherds (45 grams), no graphite inclusions  
 - 2 plain rims (7 grams), illustrated, no graphite inclusions

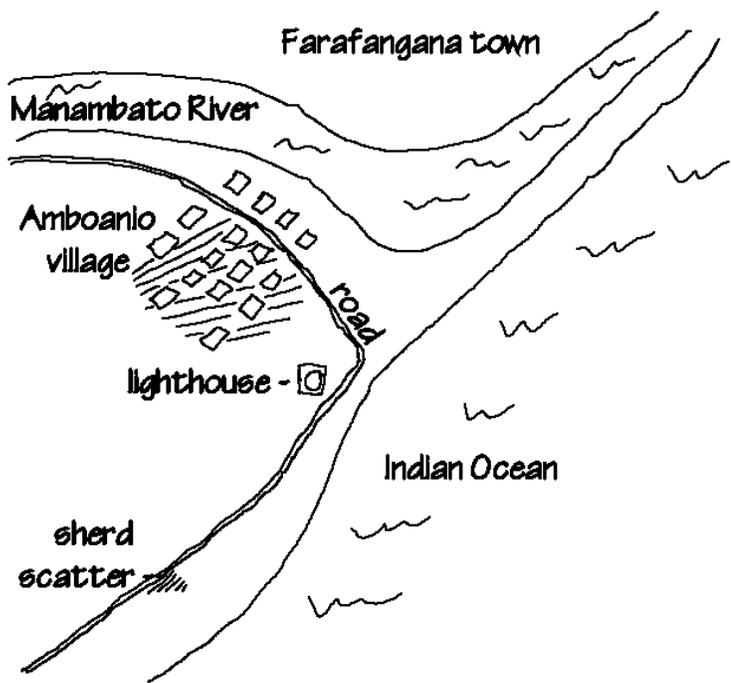


Figure A3. Site 2, Amboanio.

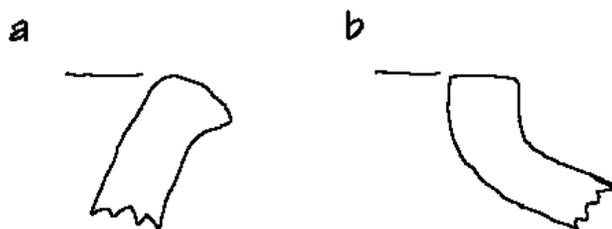


Figure A4. Site 2 artifacts.

a. Plain rim sherd from Amboanio beach, d=22cm (5% of rim), t=.84, sand inclusions (.05-.3, 15%), 5YR4/2.

b. Plain rim sherd from Amboanio beach, d=16cm (3% of rim), t = .63.

**Site: 3                      Ambohabe 0 (Pannetier's site)                      Region of: Vohipeno**

*Laborde X:* 552.6

*Latitude:* 22.40567

*Season:* 94

*Laborde Y:* 411.4

*Longitude:* 47.91917

*Ceramic phase recovered:* 4,5,6

*Site today:* exposed sand

*Collection method:* thorough complete collection

*Site Notes:* Site of excavations by Jacques Pannetier in 1972 and two teams of Malagasy students in 1973. Presently there is very little on surface of this site, and we only made a single surface collection of very small sherds from an open area near canal. Ambohabe is the name given to a very large stretch of uninhabited coast north of the Matitanana River mouth. The only two farm houses presently occupied in this area have each received their own names: Marovahiny (site 46) and Mangarivotra (site 9). Otherwise we numbered the individual sites as we found them at Ambohabe. Note: there is also a path encountered in 1995 (and not illustrated on the map below), which runs through this site from the village of Ambohitsara to a landing on the beach.

*Artifacts:*

- 2 damaged rims with everted lips (4g), and
- 5 body sherds (16 grams). Of these, 1 body sherd is grey graphite ware (t=.73), and 6 have coarse shell inclusions (15%).

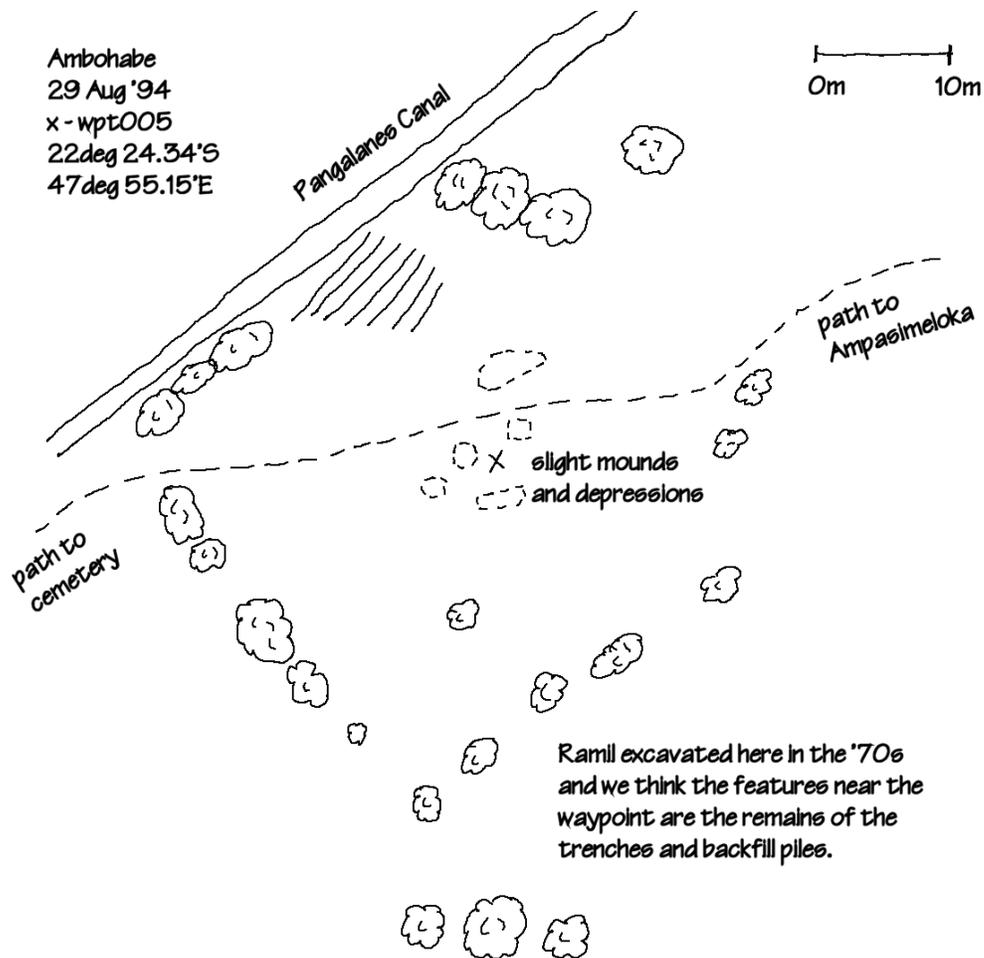


Figure A5. Site 3, Ambohabe 0.

<b>Site:</b> 4	<b>Ambohabe 1</b>	<b>Region of:</b> Vohipeno
Laborde X: 552.7	Latitude: 22.40467	Season: 94
Laborde Y: 411.5	Longitude: 47.92017	Ceramic phase recovered: 1,4
Site today: potato, grass		Collection method: selective sample
Site Notes: A sherd scatter in a potato garden and grassy field on west side of path, also a bare patch of ground 35m to the east of the path with sherds.		
Artifacts:		
- 1 decorated rim (7g, illustrated below)		
- 3 plain rims (12g, illustrated below)		
- 8 plain body sherds (88g, type i, t=.51 to .64, including 2 with graphite inclusions, and 1 with black sand inclusions, t=.86).		
- 1 decorated chlorite-schist rim (57g, illustrated below)		
- 2 chlorite-schist fragments (1 strong and 1 no magnetism)		
- 1 piece of iron slag		

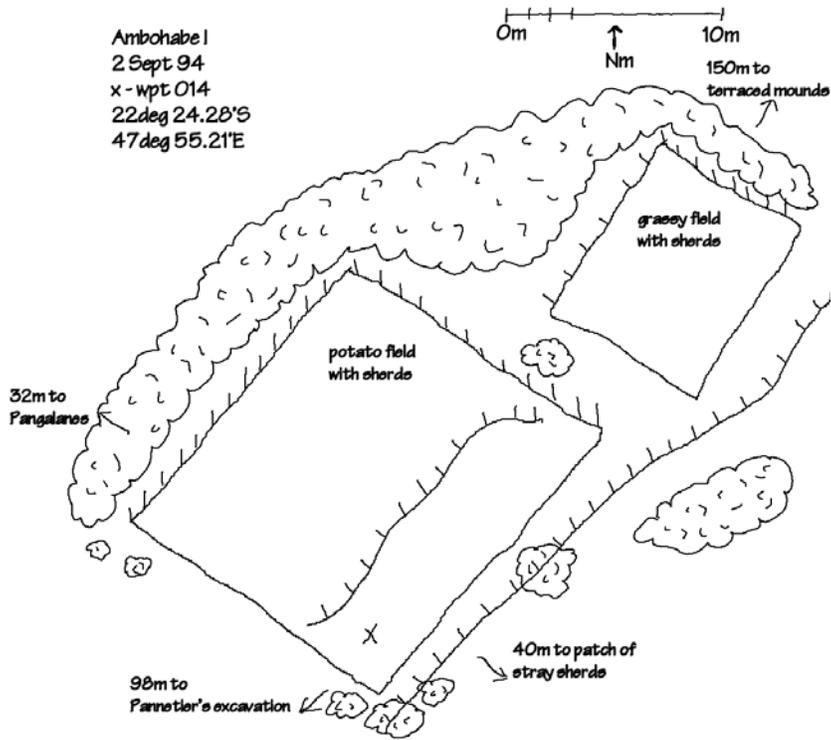


Figure A6. Site 4, Ambohabe 1.

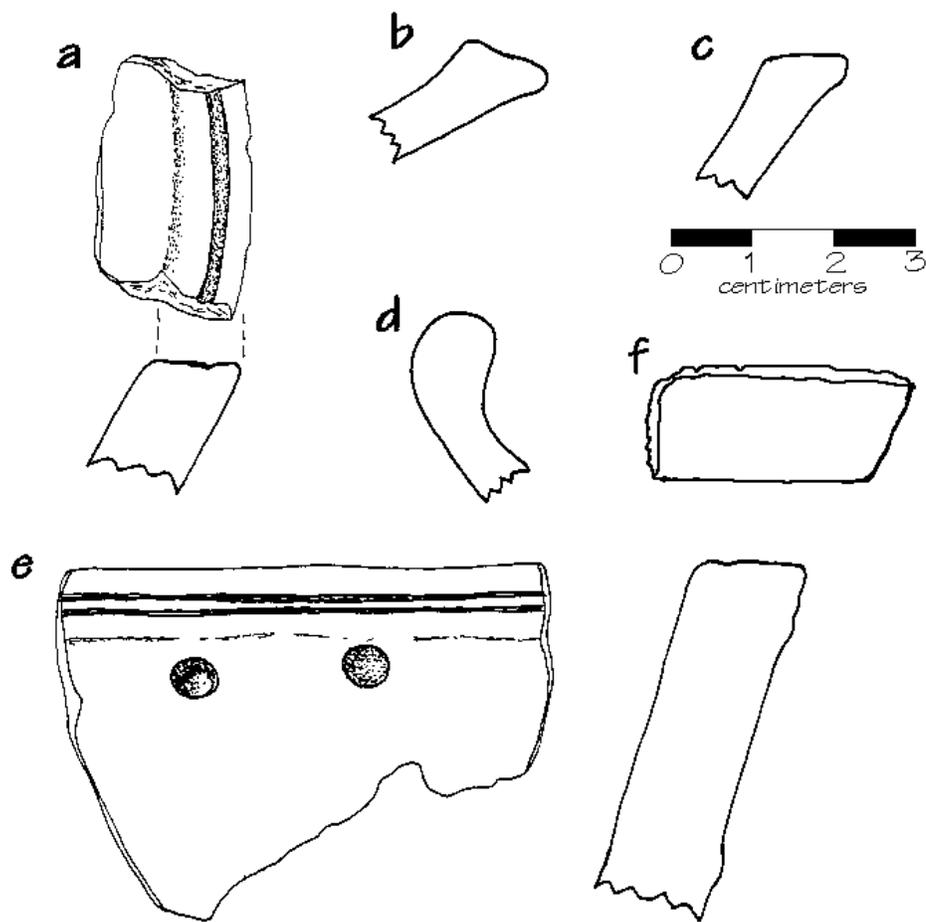


Figure A7. Site 4 artifacts.

- a. Decorated rim sherd with 2 fine incised lines on top of square lip and one line on interior surface, d = 20 (4% of rim), t = 1.20, medium sand inclusions (3%) and coarse black grog (3%), surface either burnished or possibly a reddish/brown slip (cracked), exterior color 5YR6/3, interior color 2/5YR5/3, core 5YR6/1, 7 grams (Note: this sherd was inked as if the 2 lines were the edges for a single groove, but in reality the incised lines are very fine and distinct.)
- b. Plain rim sherd of open bowl, red slip on interior and top of lip with coarse exterior, d = 19 cm (2% of rim), t = .68, very coarse sand inclusions (3% poorly sorted), interior slip 7.5YR5/3, exterior color 5YR7/3, core 5YR5/3.
- c. Plain rim sherd of open bowl, similar ware to b., t = .61, with horizontal grass impression on interior surface (see Maliovola Phase in Anosy).
- d. Plain rim sherd, d = 16 cm (4% of rim), t = .67, lip t = .91, exterior color 5YR7/1, core 5YR4/0
- e. Chlorite-Schist rim fragment with incised lines and raised ridge on exterior along with 2 incised lines on top of lip, d = 40 cm (4% of rim), t = 1.36, hole diameters .43 and .45 cm on interior surface and .50 and .52 on exterior surface, 57 grams, weak magnetic attraction.
- f. Plain body sherd flat base, t=1.41, angular coarse sand inclusions (10%), exterior cracked, 7.5YR7/2.

**Site: 5**  
 Laborde X: 552.7  
 Laborde Y: 411.6

**Ambohabe 2**  
 Latitude: 22.40267  
 Longitude: 47.9215

**Region of: Vohipeno**  
 Season: 94, 97  
 Ceramic phase recovered: 3,5

*Site today:* abandoned garden, path

*Collection method:* selective sample

*Site Notes:* 1 surface collection from site, 2nd collection from path at 552.8-411.7. Site is terraced mounds, probably a former garden, and might extend further to the west, where a piece of slag was recovered 10 m off site as drawn on (first) plan. Terrace-like fields slope downwards from SE to NW.

On Oct. 4, 1997 we returned to conduct test excavations of these mounds (with Zoe Crossland, see revised site map below.) We concluded that the mounds (between 1 and 1.5 meters high and of varying steepness) are artificial, having been created by fill all at once. There was no evidence of people living on top of them, nor of colonial involvement, and there were few sherds in the actual mounds themselves. Approximately 60cm under the present-day tops of the mounds was a dark layer with sherds on top of a sandy layer (with fewer sherds) which we interpreted as the pre-mound ground surface. Another 20 cm below this was a dark brown layer with sherds that continued to the bottom of our trenches (we ran out of time before reaching sterile). It is possible that these mounds had something to do with farming practices, though after the excavation it was still unclear to us what their function might have been.

*Artifacts:*

- 2 decorated rims (12grams, illustrated)
- 2 plain rims (11 grams, illustrated)
- 3 decorated body sherds (15 grams, illustrated)
- 30 plain body sherds (89 grams, of these 7 have graphite inclusions,  $t=.74$  to  $1.14$ , and 3 are thin, local coarse whitish ware,  $t=.38$  to  $.48$ )
- 1 piece of iron slag (7 grams, strongly magnetic)

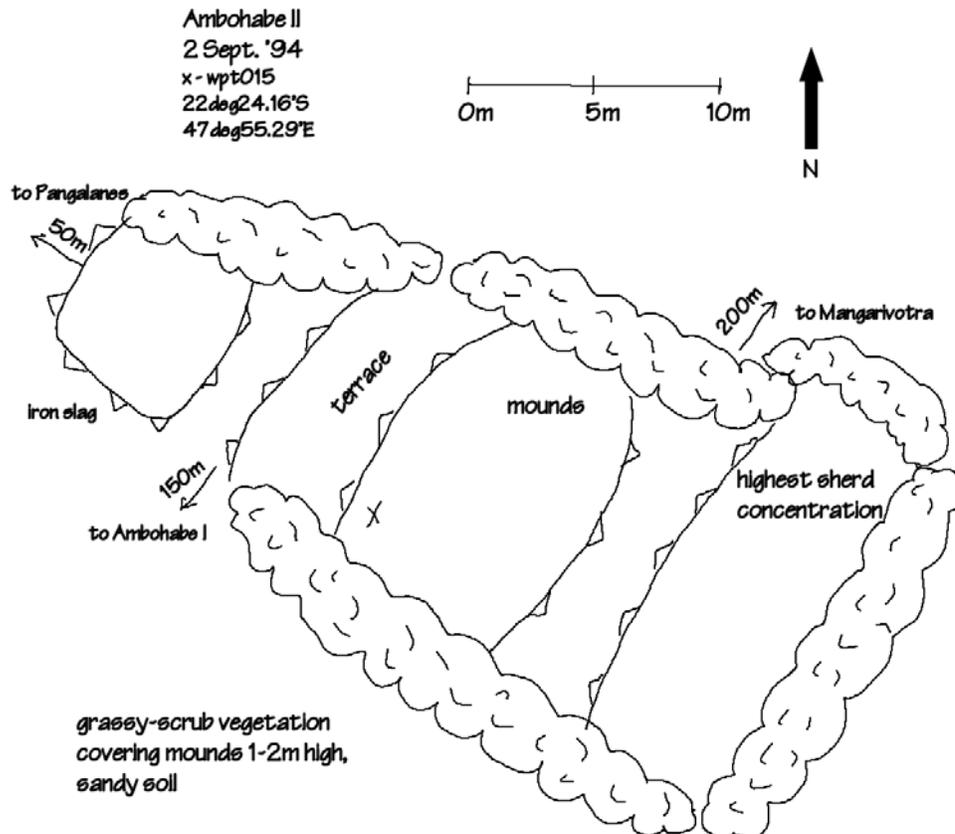
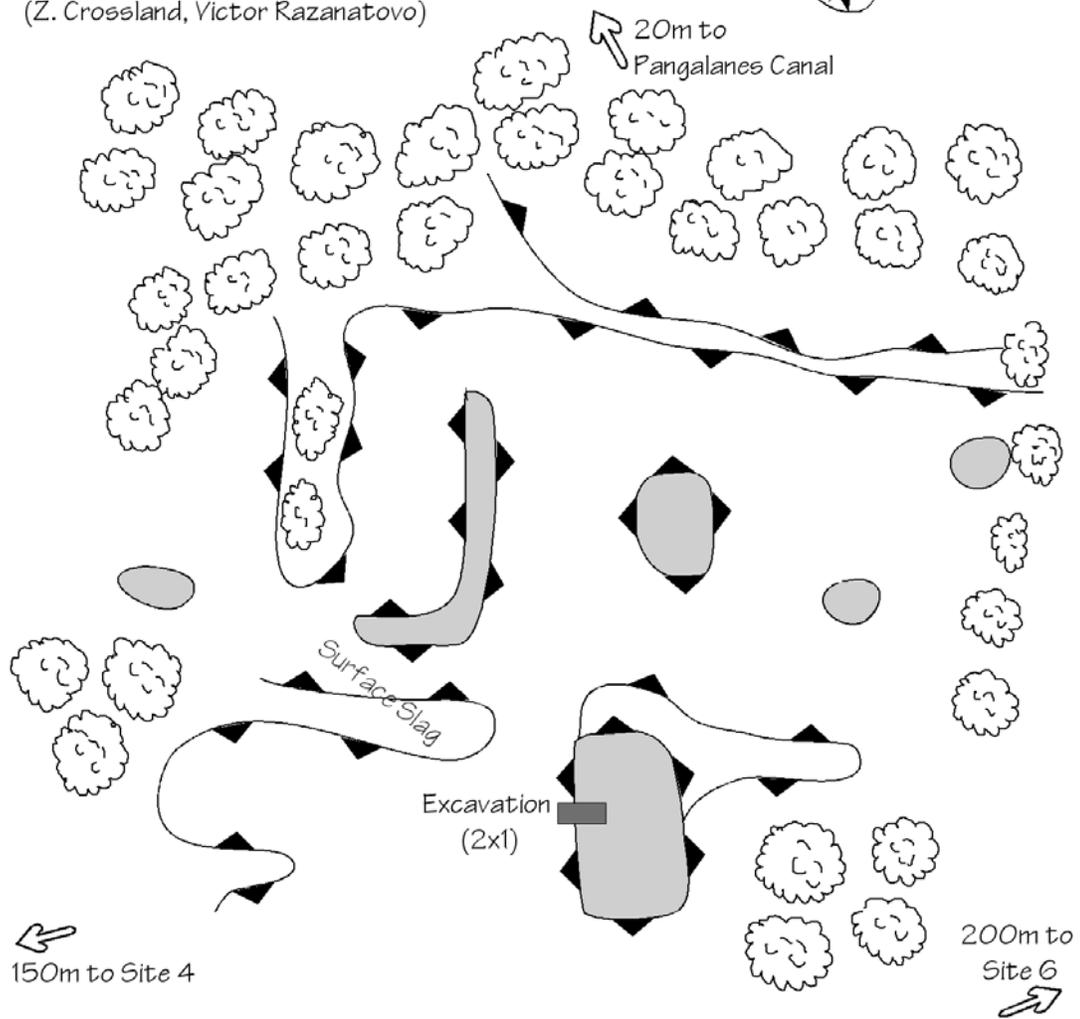


Figure A8. Site 5, Ambohabe 2, site map by Lynne Griffin.

# Ambohabe II (Site 5)

Survey - 2 Sept '94 (map L. Griffin)  
 22 deg 24.165 47 deg 55.29E

Excavation- 4 Oct '97  
 (Z. Crossland, Victor Razanatovo)



**Key:**

-  Trees / Bushes
-  Terraces, mounds, slopes
-  slopes

Site is grassy-scrub vegetation over sandy soil, and slopes gently from SE to NW. Mounds vary from .5 to 1.5m in height.

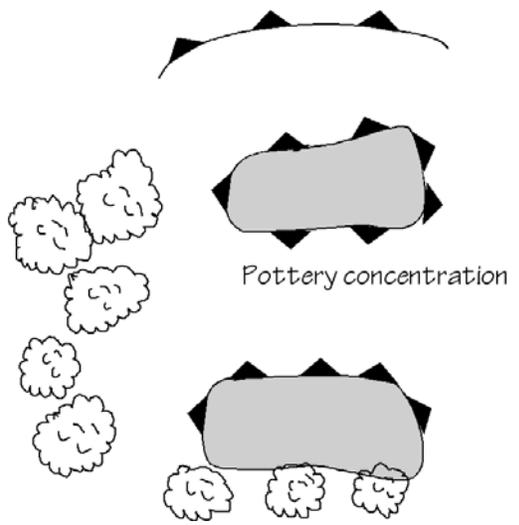


Figure A9. Site 5, Ambohabe 2, second site map by Zoe Crossland.

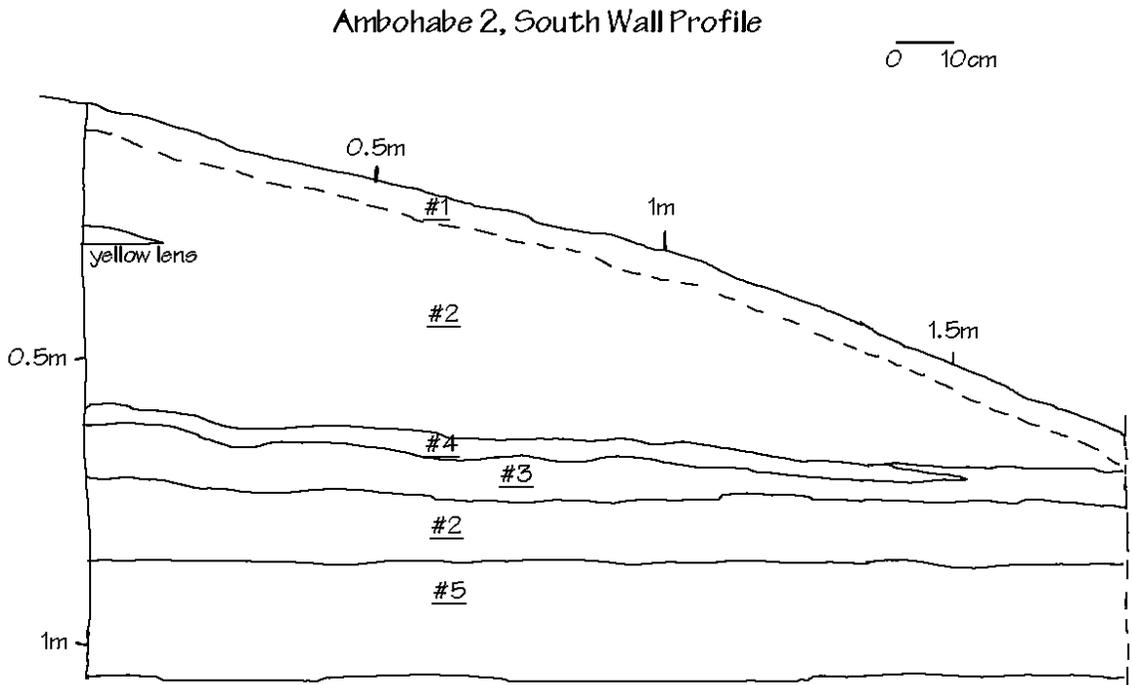


Figure A10. Site 5 sondage, south profile.

- #1. Very sandy, mix of dark and light particles, dark particles predominate (no evidence of carbon), dark 2.5Y3/1, light 10YR4/4. Layer 1 is slightly darker than layer 2.
- #2. Same as layer 1, but slightly lighter. Dark mottles still predominate over light color.
- #3. Very sandy, lighter, 10YR3/3
- #4. Darker layer, still same particles, blend is 2.5Y3/1
- #5. Dark, 2.5Y3/1, with many ceramics.

# Sondage 1 East Profile

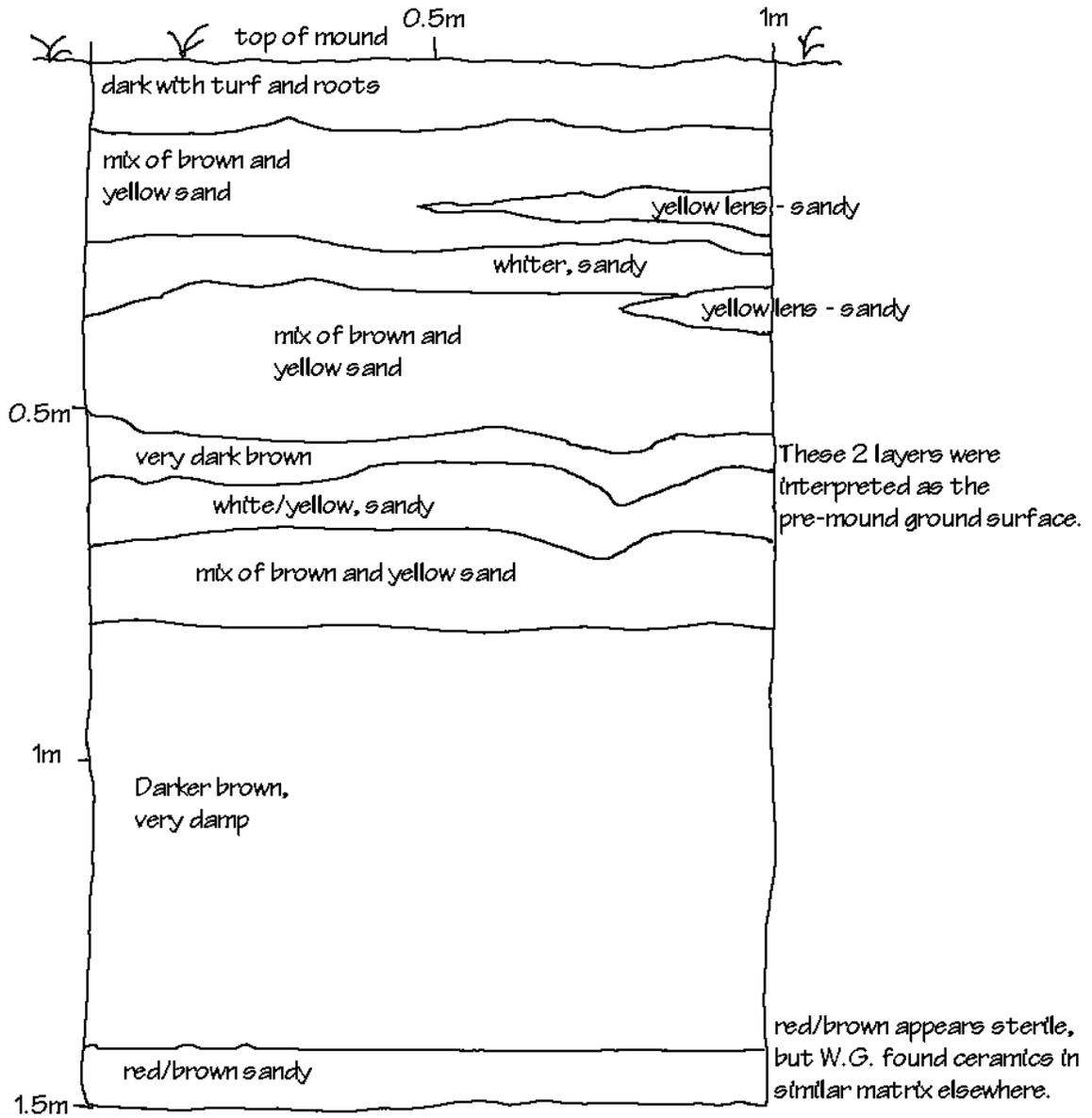


Figure A11. Site 5 sondage, east profile.

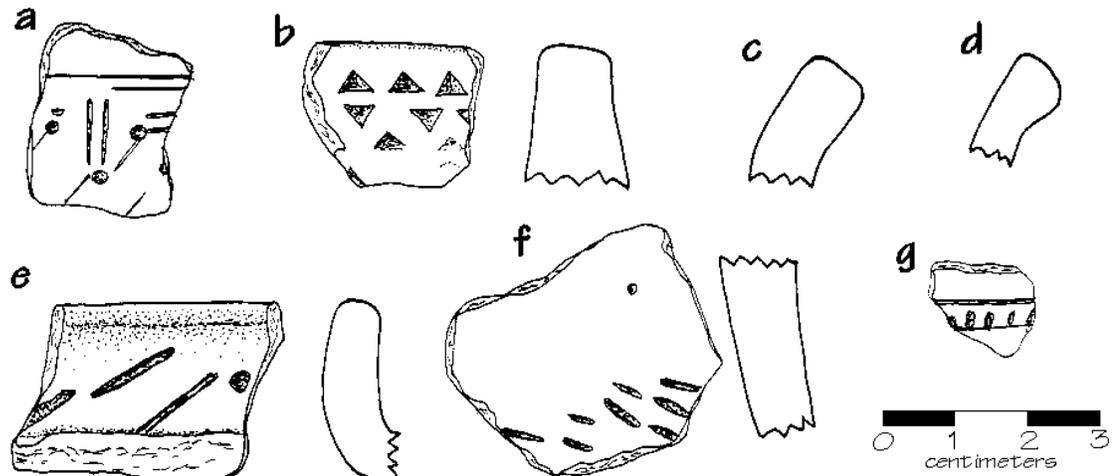


Figure A12. Site 5 artifacts.

- a. Decorated body sherd with incised lines and round impressions,  $t = .55$ , coarse sand and shell inclusions (15%), exterior color 10YR3/1, interior color 7.5YR7/4.
- b. Decorated rim sherd with triangular punctates on interior,  $d = 20$  cm. (3% of rim),  $t = 1.32$ , very coarse sand inclusions (20%), interior color 10YR7/2.
- c. Plain rim sherd,  $d = 26$  cm. (4% of rim),  $t = .89$ , very coarse sand inclusions (25%), exterior color 5YR6/4, interior color 7.5YR8/4, rough surface.
- d. Plain rim sherd,  $d = 20$  cm. (3% of rim),  $t = .6$ , coarse sand inclusions (10%), interior color 10YR7/2, core black (reduced).
- e. Decorated rim sherd,  $d = 16$  cm. (6% of rim),  $t = .75$ , very coarse sand inclusions (20%) visible on exterior surface, exterior color 7.5YR6/4, interior color 10R5/6, 7 grams.
- f. Decorated body sherd with elongated rectangular punctates,  $t = .74$  to  $.98$ , very coarse sand inclusions (10%), exterior color 10YR7/4, interior color 10YR6/1. (Note: when held with the other end up, the punctates form a zigzag pattern more clearly, so the illustration is not accurate.)
- g. Decorated body sherd with incised lines and rectangular punctates,  $t > .36$  (only top lamina of sherd), very coarse sand inclusions (3%), exterior color 5YR4/1, interior color 5YR6/4.

<b>Site: 6</b>	<b>Ambohabe 3</b>	<b>Region of: Vohipeno</b>
Laborde X: 552.8	Latitude: 22.4	Season: 94
Laborde Y: 411.8	Longitude: 47.92167	Ceramic phase recovered: 4,5,6
Site today: potato, cassava		Collection method:

**Site Notes:** Sherd scatter in a sweet potato garden and cassava garden to the west of the path. We faced a small profile on garden edge to look for stratigraphy. A majority of the sherds collected came from NE corner of the potato garden. Ramilisonina crossed the canal and surveyed around a farmstead titled Mangarivotra (of Alfred Jean), but saw nothing (though this name would be extended to cover site 9).

**Artifacts:** Includes thick oxidized sherds, medium oxidized, and coarse red sandy ware

- 2 plain rim (13.0 grams, illustrated below)
- 1 decorated rim (2g, illustrated below)
- 5 decorated body sherds (21g, with linear incising, illustrated below)
- 2 grey graphite lid fragments (?) (57g, 1 illustrated below)
- 28 plain body sherds (160g), including type i, 1 type iC, and 4 thick coarse type ii with sand,  $t = .47$  to  $1.04$
- 1 plain chlorite-schist body or weight fragment, 49.4g,  $t = 2.30$ cm, pinkish stone with a drilled hole

(hole d=.49cm).  
- 1 decorated chlorite-schist rim fragment (illustrated below).

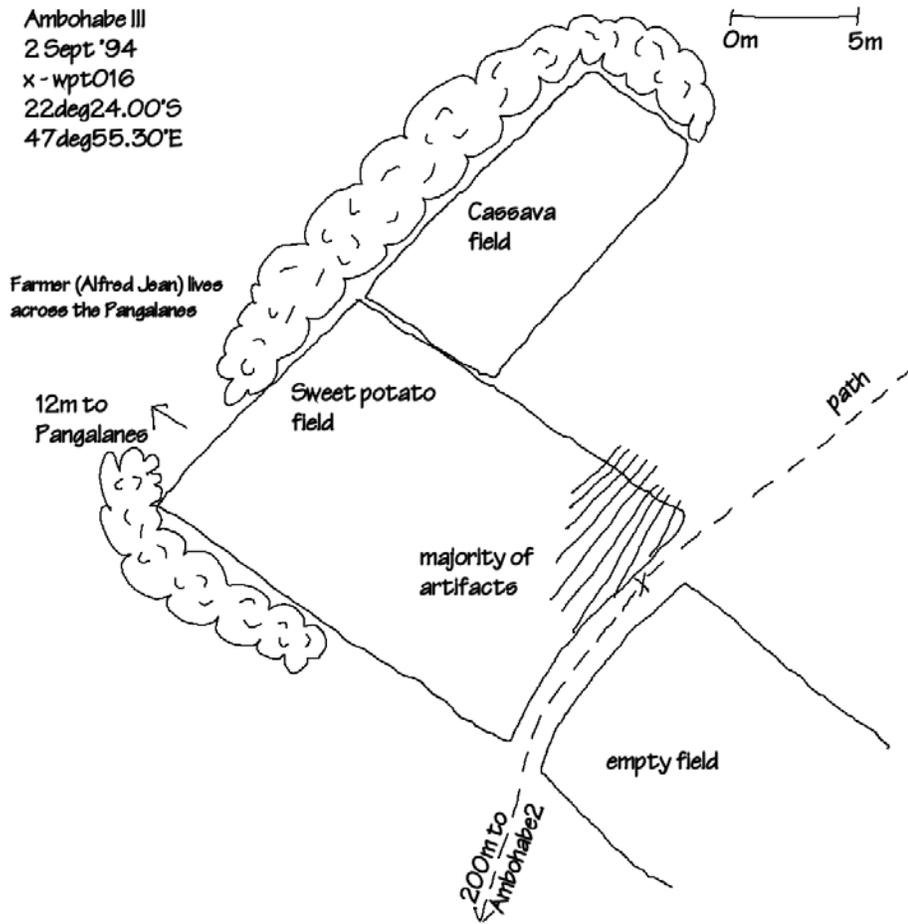


Figure A13. Site 6, Ambohabe 3.

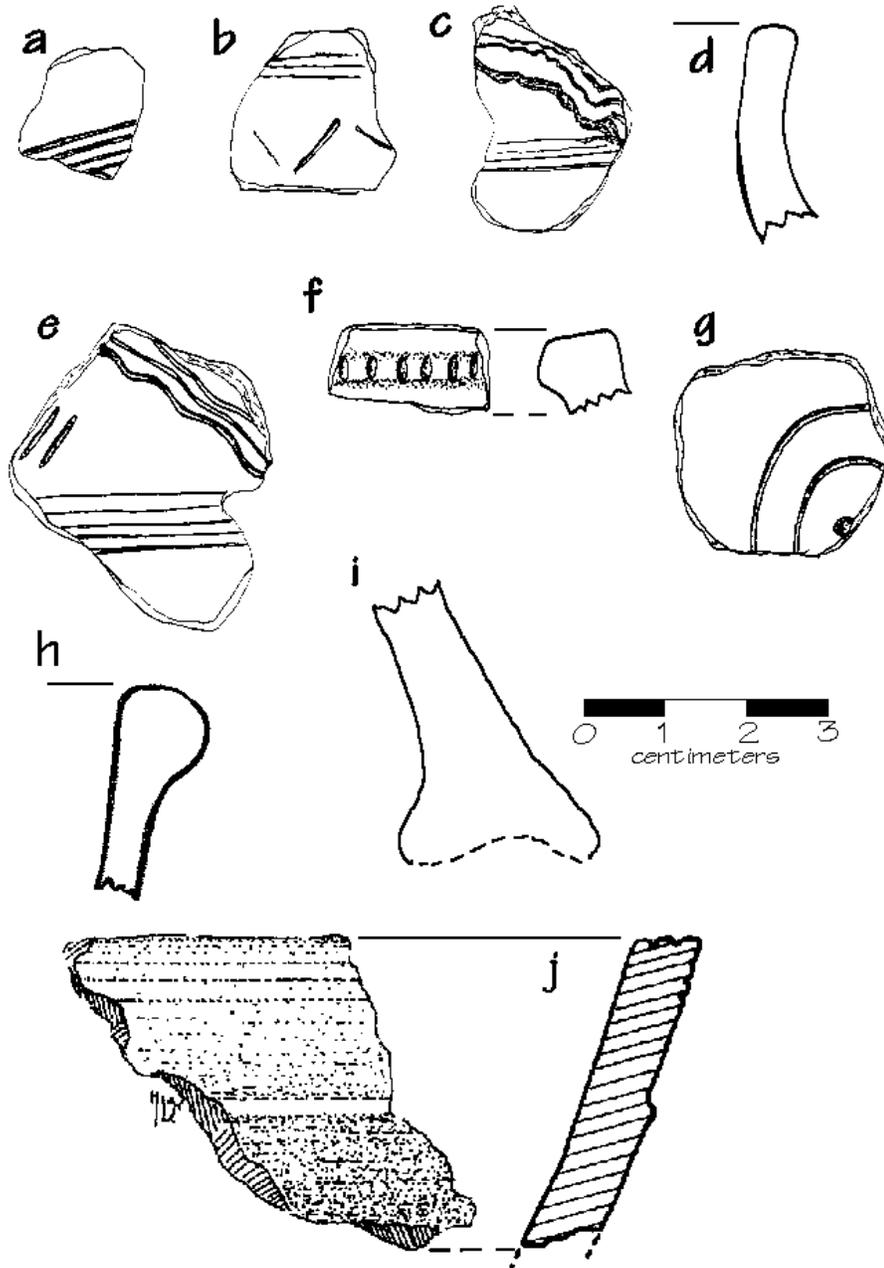


Figure A14. Site 6 artifacts.

- a. Decorated body sherd,  $t > .71$  (only top lamina of sherd), coarse sand inclusions (20%), exterior color 5YR4/1.
- b. Decorated body sherd,  $t = .69$ , very coarse sand and quartz inclusions (15%), exterior color 5YR5/4.
- c. Decorated body sherd,  $t = .79$ , medium sand inclusions (10%), exterior color 5YR5/3.
- d. Plain rim sherd,  $d = 16$  (5% of rim),  $t = .58$ , very coarse sand inclusions (10%), exterior color 5YR6/4, 4 grams.
- e. Decorated body sherd,  $t = .77$ , very coarse sand inclusions (20%), exterior color 10YR4/1, same eroded interior as rim from Ambohabe 4 (site 7) (compare to Tranovato & Antsemambe, 15-16<sup>th</sup> century).
- f. Decorated rim sherd with incised lines and rectangular punctates on exterior surface and enlarged lip on interior,  $d = 18$  cm (3% of rim),  $t = .99$ , 10YR3/1, 2 grams.

- g. Decorated body sherd with design on interior surface,  $t = .50$ , interior color 10YR3/1.  
 h. Plain rim sherd, 8.9g,  $d=26$  (4% of rim),  $t=.48$ , lip  $t=1.14$ , sand and organic temper (3,3%), red interior (2.5YR6/4) and black exterior (10YR3/1).  
 i. Possible graphite lid or saucer,  $t=.81$ , 7.5YR4/0, looks like solid carved graphite, more than just graphite inclusions. There are faint horizontal lines on exterior which could be lathe marks (chlorite-schist bowls were carved with wood-working techniques, so maybe this piece was as well).  
 j. Decorated chlorite-schist rim fragment, 14.8g,  $d=20$  (4% of rim),  $t=.88$ , lip  $t=.81$ , with 2 incised grooves on top of lip, 3 incised grooves just below lip on exterior, and raised ridge on exterior, light grey stone.

<b>Site: 7</b>	<b>Ambohabe 4</b>	<b>Region of: Vohipeno</b>
Laborde X: 552.6	Latitude: 22.40767	Season: 94, 95
Laborde Y: 411.2	Longitude: 47.918	Ceramic phase recovered: 4*,5,6
Site today: cassava		Collection method: selective sample

**Site Notes:** 1 surface collection from manioc garden with white Chinese porcelain recovered. In passing through the area in 1995, we then added some European imports to the collection.

- Artifacts:** Includes graphite ware, outcaste ware, thin red sandy, and coarse flat jar neck
- 4 plain rims (25g, illustrated below)
  - 2 imported ceramics (55g, white porcelain ring bases, illustrated below)
  - 10 plain body sherds (40g, 1 of these is brown graphite speckled (50%) and 2 are thin ware with white exterior ( $t=.48$ ,  $t=.60$ , 10YR8/3))
  - 1 green glass fragment

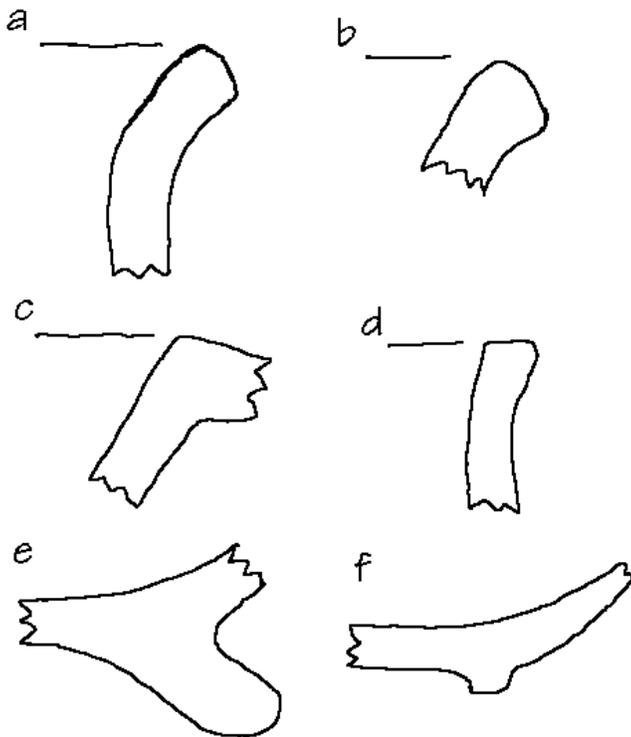


Figure A15. Site 7 artifacts.

- a. Plain rim sherd,  $d=22$ cm (5% of rim),  $t=.68$ , interior 5YR3/1  
 b. Plain rim sherd,  $d=19$  (7% of rim),  $t=.73$ , exterior 7.5YR4/0

- c. Plain everted rim sherd with deeply eroded interior, d=20 (4% of rim), t=.68, very coarse sand inclusions (20%), exterior 5YR3/1, interior 5YR5/3
- d. Plain rim sherd, diameter uncertain, t=.54, interior and exterior 2.5YR6/6, core 2.5YR5/2 (reduced).
- e. Imported white porcelain base, base diameter=10cm (32% of base), t=.53, crackled under clear glaze, glaze has flaked off a few spots in the interior
- f. Imported white porcelain base, base diameter = 18cm (10% of base), t=.23, looks more recent than e.

**Site: 8**

**Ambohabe 5**

**Region of: Vohipeno**

*Laborde X:* 552.6

*Latitude:* 22.40967

*Season:* 94, 95

*Laborde Y:* 411.1

*Longitude:* 47.9185

*Ceramic phase recovered:* 3,4

*Site today:* sweet potatoes

*Collection method:* selective sample

*Site Notes:* 1 surface collection from sweet potato garden, with Celadon sherds recovered. In walking past the site in 1995 we also added a bead and a piece with an interesting rim shape (see illustration below) to our collection.

*Artifacts:* Includes oxidized sandy ware, Celadon base.

- 1 plain rim (7 grams)
- 2 decorated body sherds (5 grams, with incised lines and round punctates)
- 15 plain body sherds (67 grams, t=.49 to 1.38cm)
- 2 imported ceramics (1 brown stoneware (core 7.5R5/6, glaze 10YR5/6 and 7.5YR2/0, t=.86, 16.3g) and 1 celadon base, 91.4g)
- 8 fragments of chlorite-schist (123 grams)
- 1 sea green bead, <.05g, d=.28, t=.22cm)

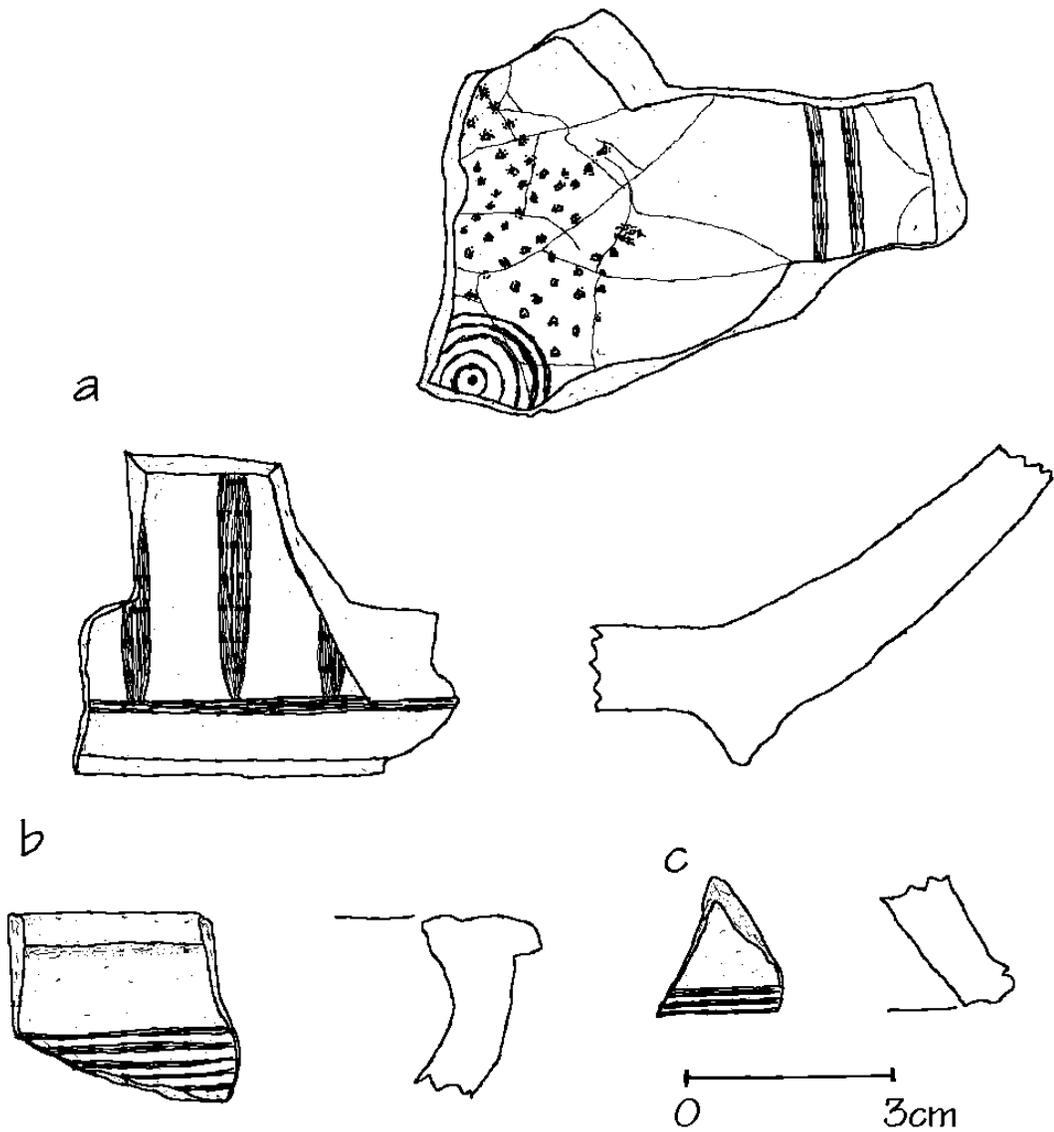


Figure A16. Site 8 artifacts.

a. Green-glaze bowl, "Celadon," with an unglazed ring base, large cracked glaze elsewhere, fish design on interior and fluted (lotus flowers?) exterior, ring base diameter = 25 cm (6% of base),  $t = 1.02$ , base  $t = 1.25$ , interior glaze  $t = .11$ , exterior glaze  $t = .07$ , glaze color is a milky green (past Munsell), core 10YR7/1.

b. Chlorite-schist rim (or possible lid),  $d=22\text{cm}$  (4% of rim),  $t=.91$

c. Chlorite-schist lid,  $d=16\text{cm}$  (4% of lid),  $t=1.00$ , color more brown than other chlorite-schist, 7.5YR7/3.



Figure A17. Site 8 green ware. Photograph of fish design on “celadon” bowl.

**Site:** 9

**Ambohabe 6 (Mangarivotra)**

**Region of:** Vohipeno

*Laborde X:* 552.5

*Latitude:* 22.4105

*Season:* 94

*Laborde Y:* 410.9

*Longitude:* 47.91783

*Ceramic phase recovered:* 3/4\*,5

*Site Notes:* 1 surface collection from sherd scatter with many large pieces of chlorite-schist. Area is presently farmed by Sylvan and his family (brother of Yabon ny Gova at Marovahiny, site 46). We learned that “Ramostra” is the old name for the northern part of Ambohabe, but this name is no longer used. Sylvan is the one who told us that the name of the place is now Mangarivotra.

*Artifacts:* Includes medium reduced sandy, chlorite-schist cutting debris  
 - 6 plain body sherds (52 grams,  $t=.63$ , including a thick ware ( $t=1.38$ ) with very coarse sand inclusions (.3cm, poorly sorted, 10%))  
 - 1 decorated body sherd (3 grams, illustrated below)  
 - 1 plain rim sherd with a rounded everted lip  
 - 11 fragments of chlorite-schist (500 grams, 5 illustrated below)  
 - 1 fragment of green glass  $<.05g$  (which Ramilisonina suggests is similar to kohl jars from Vohemar).

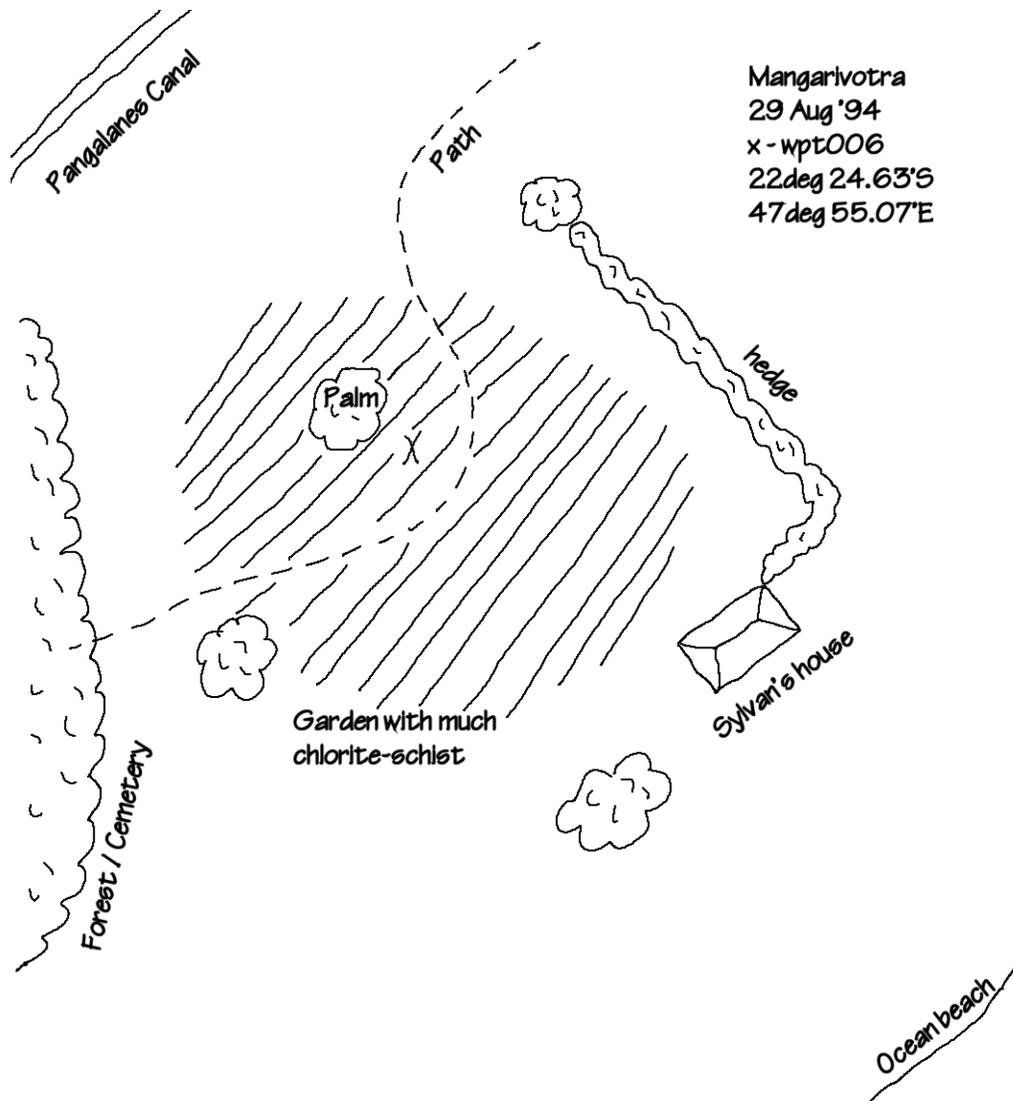


Figure A18. Site 9, Mangarivotra (Ambohabe 6).

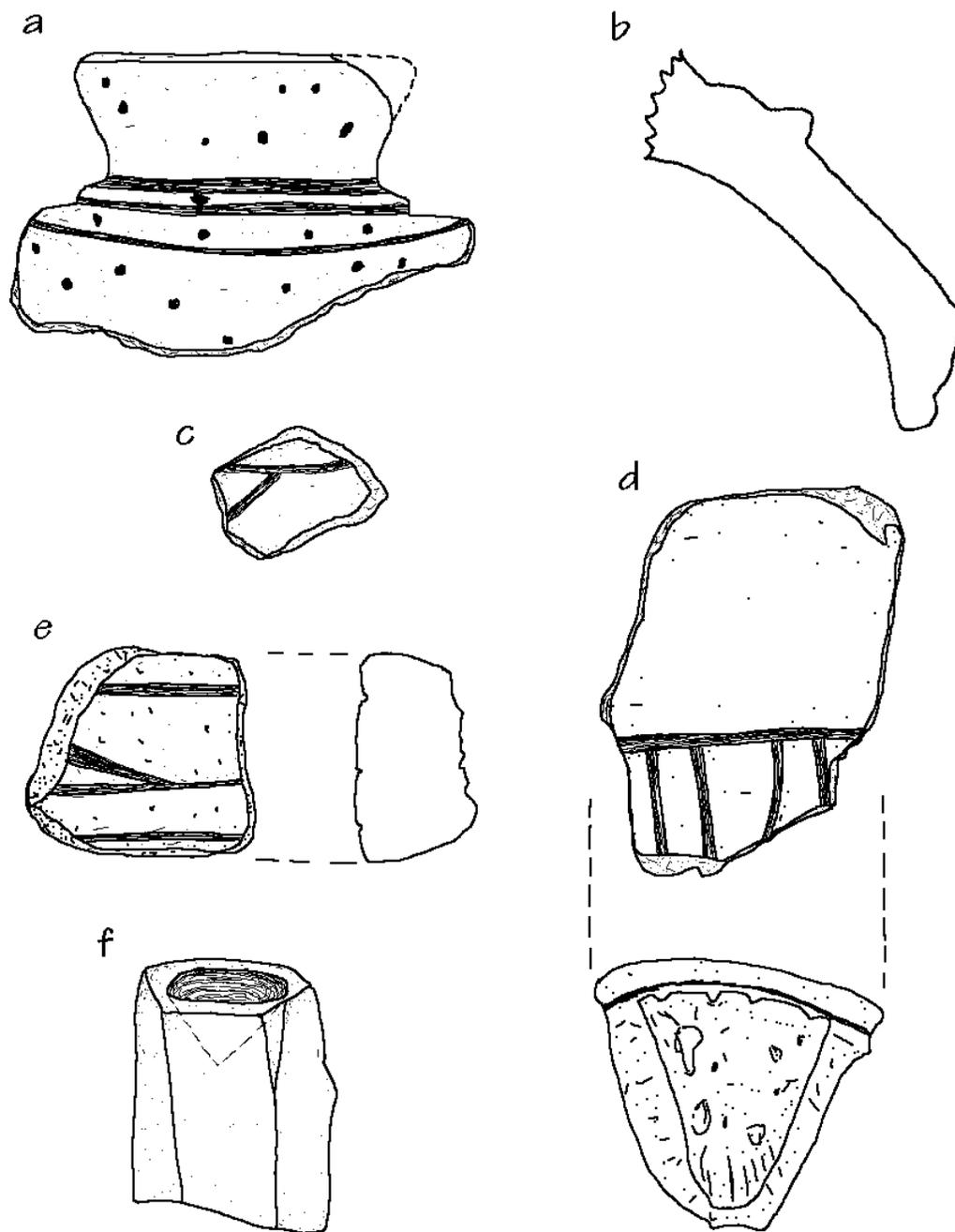


Figure A19. Site 9 artifacts.

a. Stone lid knob, deeply pitted, light grey stone, knob diameter 4.77cm.

b. Chlorite-schist lid (or less likely an open bowl), d=24cm (8% of rim), t=1.52, 7.5YR4/0, with 1 repair hole (hole d=.53cm)

c. Decorated pottery body sherd with deep incisions, t=.71, exterior 7.5YR4/1, interior 5YR6/3, 3 grams).

d. Chlorite-schist leg fragment with incised lines (also drawn from below to show depth of incisions).

- e. Chlorite-schist fragment, possibly a leg, with deep incisions on one surface, t=1.8, no magnetic attraction.
- f. Chlorite-schist object with a conical hole carved into one end, t=2.9, hole diameter = 1.55cm, hole depth = .8 cm (possibly a blank being drilled for a soapstone tuyere?, see Linton 1933:82 for soapstone tuyeres in use by the Tanala)

**Site: 10      Ambohabe 7      Region of: Vohipeno**

Laborde X: 552.9      Latitude: 22.39967      Season: 95  
 Laborde Y: 411.9      Longitude: 47.92233      Ceramic phase recovered: 3/4,5

Site today: sweet potato      Collection method: selective sample

Site Notes: A dense concentration of sherds in 10x5m area in a newly-made garden, we sampled the concentrated area and noted isolated sherds elsewhere.

- Artifacts:
- 18 plain body sherds (121.0g), including 2 type iC2, 1 type i with sand (size 3, 20%), 3 red with coarse sand, and 1 with silver graphite
  - 7 decorated body sherds (110.6g, 2 illustrated below).
  - 1 long bone fragment, 2.8g
  - 1 decorated chlorite-schist body fragment, 5.6g, t=1.01, with a single raised ridge

Ambohabe 7  
 x - wpt. 45  
 22deg 23.98S  
 47deg 55.34E

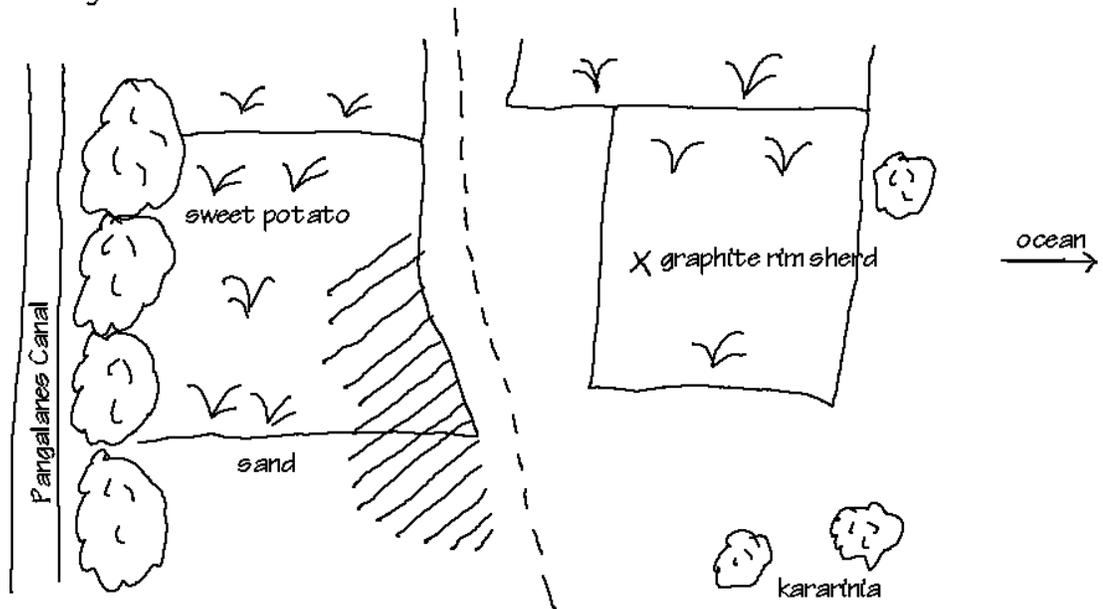


Figure A20. Site 10, Ambohabe 7.

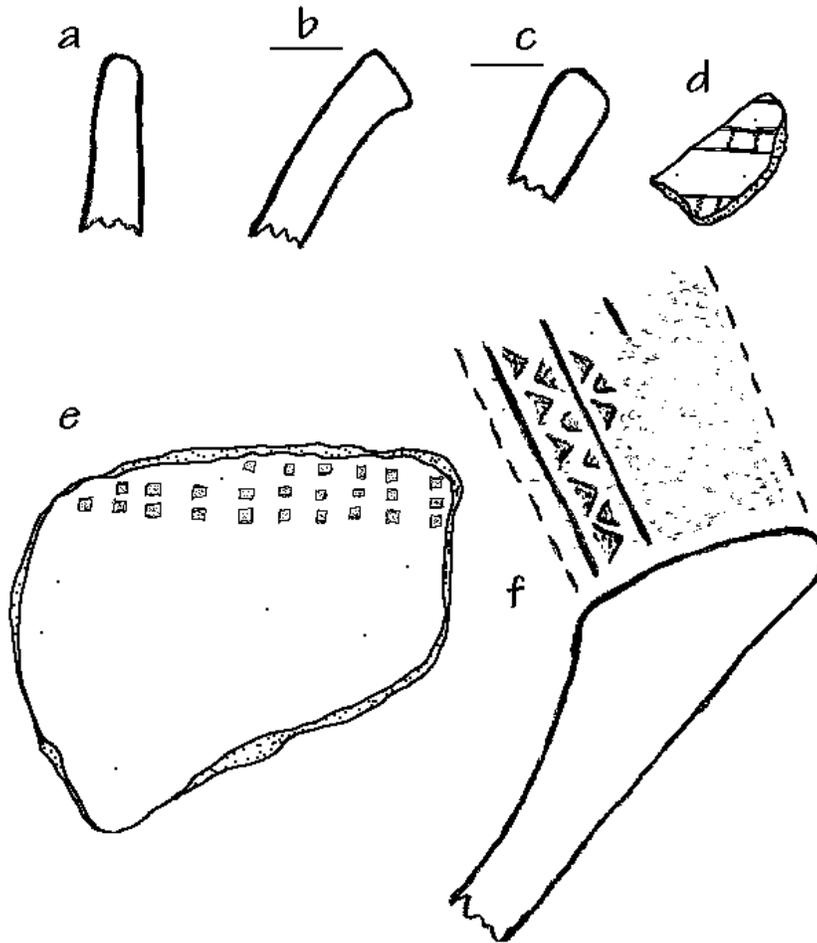


Figure A21. Site 10 artifacts.

- a. Plain rim sherd, type i, 3.3g, diameter and orientation uncertain, t=.63, lip t=.45, coarse sand inclusions (3, 5%), oxidized 5YR5/4.
- b. Plain rim sherd, type i, 7.5g, d=19 (5% of rim), t=.59, lip t=.63, sand inclusions (3, 5%), 7.5YR6/3.
- c. Plain rim sherd, 3.5g, d=24 (2% of rim), t=.61, lip t=.74, reduced (7.5YR4/2) with wiped interior.
- d. Decorated body sherd, t=.50cm, with parallel incised lines connected by tick marks.
- e. Decorated body sherd, type i, 22.5g, t=.77, sand inclusions (size 2, 3%), with rows of square punctates (dentate stamp), broken at the carination, faint angled incised line not shown on illustration.
- f. Decorated rim sherd, type iE, 58.1g, d=42 (5% of rim), t=.84, lip t=1.94, reduced with graphite inclusions (2, 40%) with horizontal scrapings on exterior and linear incisions and triangle punctates in false chevron on the deeply eroded lip.

**Site:** 11

**Ambohabe 8**

**Region of:** Vohipeno

*Laborde X:* 552.9

*Latitude:* 22.399

*Season:* 95

*Laborde Y:* 412.0

*Longitude:* 47.923

*Ceramic phase recovered:* 3/4\*,7

*Site Notes:* modern pot drop in 1x2 area sampled, and older sherds in 10x15m in garden

*Artifacts:*

- 5 plain body sherds (29.3g), including 1 type iC and 1 thick coarse type ii with sand

- 3 plain rim sherds, 69.0g, with everted lips like Ambalavao
- 1 "flower pot" ware with nicked lip.

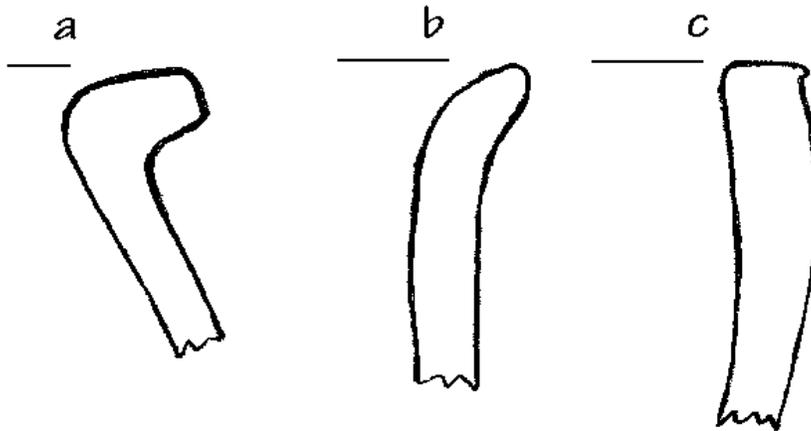


Figure A22. Site 11 artifacts.

a. Plain rim sherd, type ii, 18.2g, d=33, (5% of rim), t=.57, lip corner t=1.68, lip t=.84, sand (3, 3%), oxidized 5YR5/4 exterior.

b. Plain rim sherd, type i, 16.2g, d=15 (5% of rim), t=.71, lip t=.97, sand (3,10%), exterior 10YR5/2.

c. Decorated rim sherd, type i, 34.3g, d=30 (6% of rim), t=.68, lip t=1.12, sand (3,10%), exterior 10YR3/2, with small vertical nicks about 1 centimeter apart on the exterior edge of the lip and wiped surfaces.

**Site: 12**

**Ambohabe 9**

**Region of: Vohipeno**

*Laborde X:* 553.0

*Latitude:* 22.39617

*Season:* 95

*Laborde Y:* 412.3

*Longitude:* 47.92383

*Ceramic phase recovered:* 3/4,5

*Site today:* cassava

*Collection method:* selective sample

*Site Notes:* old casava garden sloping to Pangalanes, sherds sampled from 10x20m, some modern, approximately 60 meters in from the beach.

*Artifacts:* Includes early graphite ware

- 5 plain body sherds (64.5g), including 2 type iC

- 2 plain rim sherds, including 1 eroded type iC lid or rim sherd, 9.0, t=.66, and 1 oxidized type i, 45.7g (illustrated below).

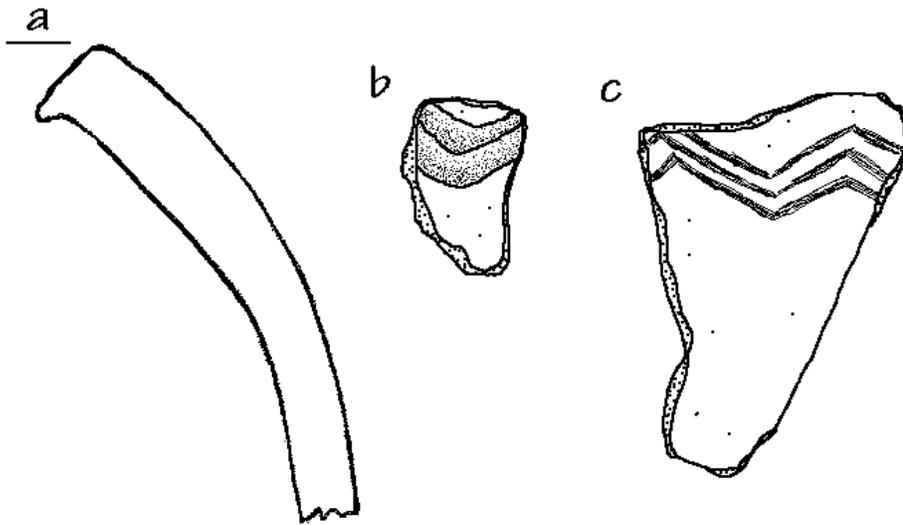


Figure A23. Sites 12 to 15 artifacts.

a. Site 12, plain rim sherd, type ii, 45.7g, d=21 (10% of rim), t=.60, lip t=1.30, sand (3,10%), 7.5YR6/4.

b. Site 14, decorated body sherd, 2.3g, t=.78, with deep wavy grooves displacing clay.

c. Site 15, decorated body sherd, 12.9g, t=.71 with incised zigzag lines displacing clay.

**Site: 13**

**Ambohabe 10**

**Region of: Vohipeno**

Laborde X: 553.1

Latitude: 22.3945

Season: 95

Laborde Y: 412.5

Longitude: 47.925

Ceramic phase recovered: 1-4\*,5

Site today: sand

Collection method: thorough complete collection

Site Notes: Sherd scatter in flat sandy area, 6x4m

**Artifacts:**

- 3 plain body sherds (10.0g)
- 1 coarse type ii with sand inclusions
- 1 tiny plain rim, 2.0g, with square lip, t=.62, lip t=.78

**Site: 14**

**Ambohabe 11**

**Region of: Vohipeno**

Laborde X: 553.2

Latitude: 22.39367

Season: 95

Laborde Y: 412.6

Longitude: 47.92467

Ceramic phase recovered: 3

Site today: sand

Collection method: quick complete collection

Site Notes: A very dense sherd scatter in 1x1m exposed sand, with a larger, but sparser, sherd scatter in a 5x5m exposure of sand to the northeast. Our impression is that this is a large site but we are only getting limited visibility into it. See illustration for Site 15, which is only 75 meters distant.

**Artifacts:**

- 30 plain body sherds (168.6g), including 3 type iB red, 9 type ii with silver inclusions, rest are brown and grey with some sand
- 1 decorated body sherd, 2.3g, with deep wavy grooves (illustrated above).

**Site: 15**                      **Ambohabe 12**                      **Region of: Vohipeno**  
*Laborde X: 553.2*                      *Latitude: 22.3935*                      *Season: 95*  
*Laborde Y: 412.7*                      *Longitude: 47.92517*                      *Ceramic phase recovered: 3*  
*Site today: grass, sweet potato*                      *Collection method: quick complete collection*

*Site Notes:* Sherd scatter in a grassy area 30m east of the Pangalanes (which is very deep at this point, 5 meters high bank on western side). Scatter is approximately 20x15m, and the site is unusual for Ambohabe with its rock outcroppings (possibly basalt, would be nice to have a geologist visit someday).

*Artifacts:*  
 - 19 plain body sherds (117.7g), including 1 type iC2, many others coarse red with sand  
 - 4 decorated body sherds (37.4g, including zigzag incisions illustrated above).

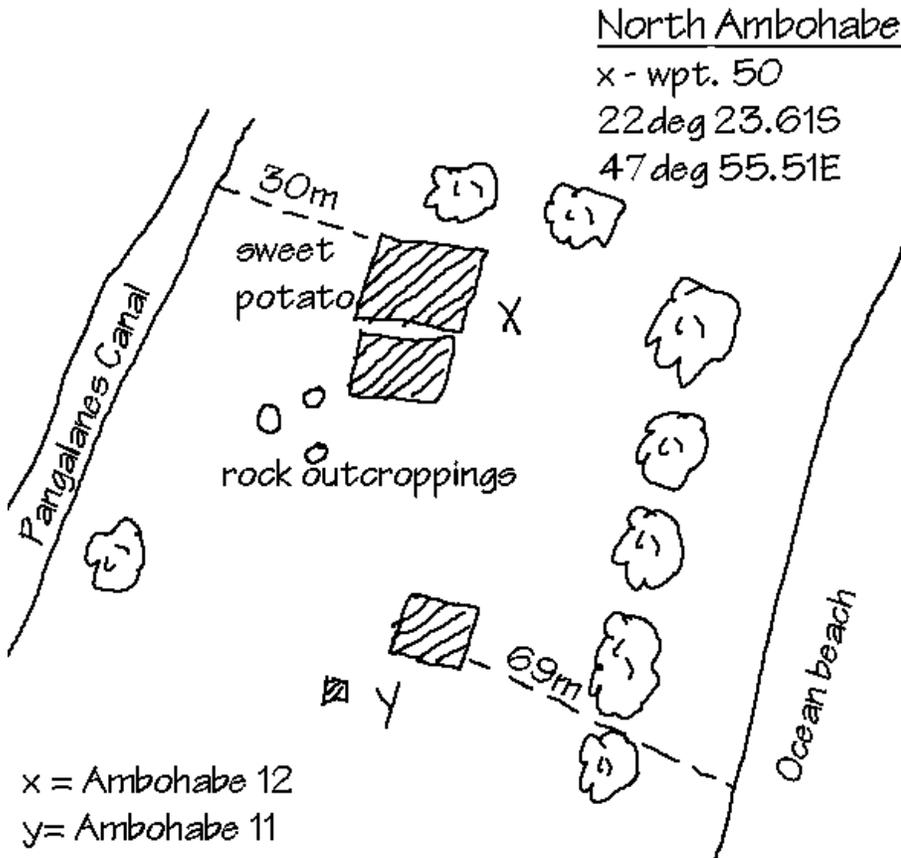


Figure A24. Site 15, Ambohabe 12.

**Site: 16**                      **Ambohabe 13**                      **Region of: Vohipeno**  
*Laborde X: 552.3*                      *Latitude: 22.41167*                      *Season: 95*  
*Laborde Y: 410.7*                      *Longitude: 47.91667*                      *Ceramic phase recovered: 2/3/4\**  
*Site today: garden*                      *Collection method: selective sample*

*Site Notes:* 100 meters north of Marovahiny (site 46), sherd, brick and slag scatter between path and rice paddy to the west. However, since this location was so close to Marovahiny, the sherds were not collected (though they were in general very coarse). We did select a few brick and iron slag samples (whose presence on the surface made this site different from Marovahiny). In the field notes this site was given the temporary name "Ambohabe X" before site numbers

were assigned.

**Site: 17**                      **Ambohitsara**                      **Region of: Vohipeno**  
*Laborde X:* 551.2                      *Latitude:* 22 24'15.90"S                      *Season:* 94  
*Laborde Y:* 411.4                      *Longitude:* 47 54'17.89"E                      *Ceramic phase recovered:* 5  
*Site today:* village                      *Collection method:* quick complete collection  
*Site Notes:* 1 surface collection, we only spent five minutes looking, as this was just a brief stop to see the village. All three sherds seen were collected.  
*Artifacts:*  
- 2 plain body sherds (2 grams, t=.35, t=.38, 5YR4/1)  
- 1 chlorite-schist body sherd (4 grams, 1 partial repair hole, t=1.03cm, slight magnetic attraction).

**Site: 18**                      **Ampanasambary**                      **Region of: Vohipeno**  
*Laborde X:* 551.1                      *Latitude:* 22.44333                      *Season:* 94  
*Laborde Y:* 407.3                      *Longitude:* 47.907                      *Ceramic phase recovered:* 0\*,5  
*Artifacts:* Includes graphite ware, thin reduced, red sandy, thin with chlorite-schist inclusions  
- 41 sherds (210 grams), t=.46 to .94, of which 7 are grey graphite ware, type iC, others type i, type ii, type iE, and 1 type ii oxidized with chlorite-schist inclusions, t=.93cm.

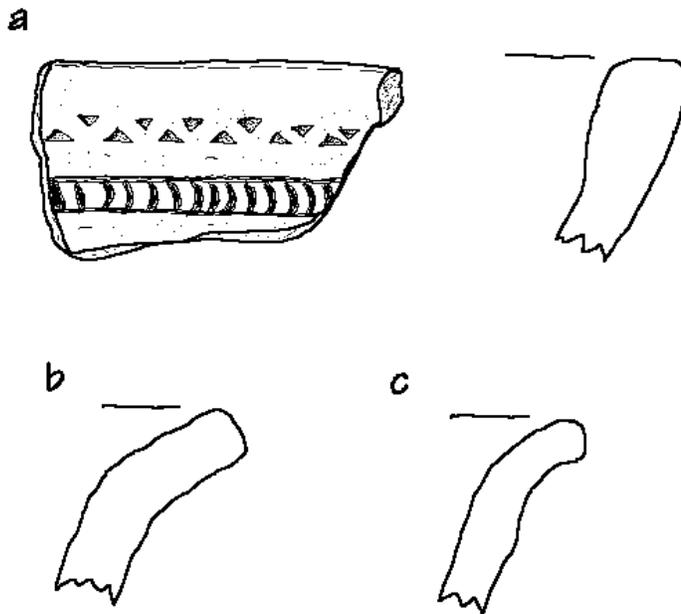


Figure A25. Site 18 artifacts.

a. Decorated rim sherd, d = 22 (6% of rim), t = .61, lip t = .96, exterior 5YR5/4, interior 2.5YR4/4, sand inclusions (.05-.2, 5%), with graphite coating on interior and exterior surfaces (note, this is not graphite inclusions into the fabric like the more common grey graphite ware).

b. Plain rim sherd, d = 14cm (3% of rim), t = .76, exterior 5YR4/2, interior 7.5YR6/2, (grayish brown exterior, whitish interior, with grey core visible), sand inclusions (.05-.1, 3%), diameter and orientation uncertain.

c. Plain rim sherd, d = 28cm (4% of rim), t = .47, exterior 5YR4/1, interior 5YR3/1, sand inclusions (.05-.2, 5%), combing on interior surface.

<b>Site: 19</b>	<b>Ampandriamboroña</b>	<b>Region of: Manakara</b>
Laborde X: 560.6	Latitude: 22.20317	Season: 94
Laborde Y: 433.8	Longitude: 47.9955	Ceramic phase recovered: 5,7
Site today: garden	Collection method:	

*Site Notes:* A low density sherd scatter in big gardens stretching from river almost up to the Ocean. A pendant weight of chlorite-schist was recovered, and a photograph was taken of a modern fishing net with weights made of iron and basalt (but not a throwing net). Site is 2.8 km north of Antsary by the road.

*Ethnographic Notes and Oral Traditions:* The name Ampandriamboroña means “where the birds sleep.” In the village we were able to photograph a modern fishing net with weights of iron and basalt (not a throwing net). An elderly woman in Ampandriamboroña told us of another place called “Ivohitsy” where she has seen large chunks of this type of stone in the forest (when looking at our sample pieces of chlorite-schist), and not just small pieces. The place is a cemetery to the southwest of her village of Ampandriamboroña and north of the hill called Ambodimanga. The geologists continue to say that there are no chlorite-schist outcroppings in the area, with the closest known deposits being near Mananjary to the north, but I’ll continue to check out these possible leads. Though this is the area we were unable to get to from the village of Antsary (site 32).

*Artifacts:*

- 2 European white porcelain (3 grams)
- 5 plain body sherds (4 grams)
- 2 decorated body sherds (5 grams), 1 with an incised line and the other with faint combing
- 3 fragments of chlorite-schist (1 weight illustrated below, a second weight was 4 grams, slightly magnetic, t = .84 with a drilled hole of .31 to .27cm.

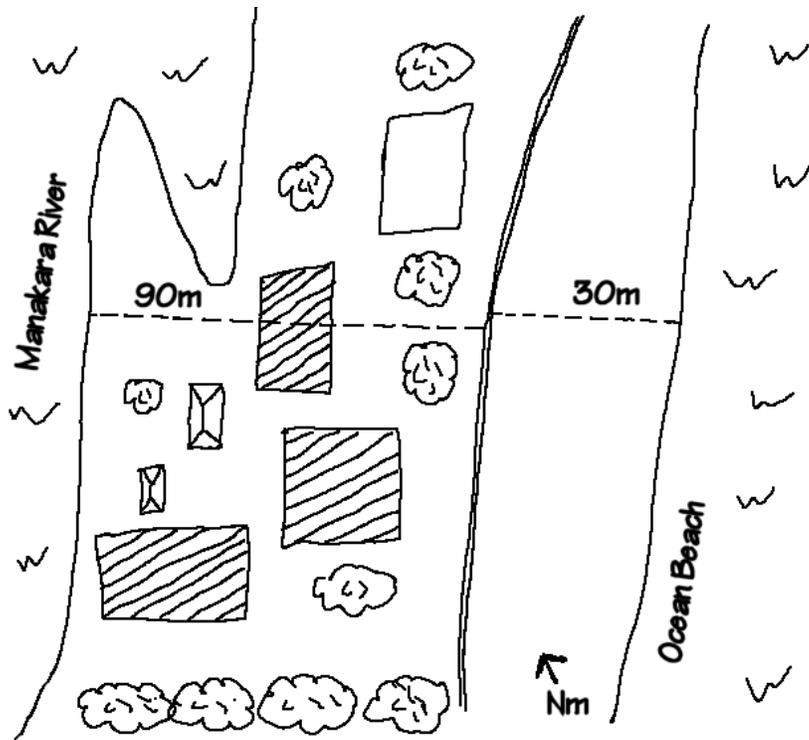


Figure A26. Site 19, Ampandriamboroña.

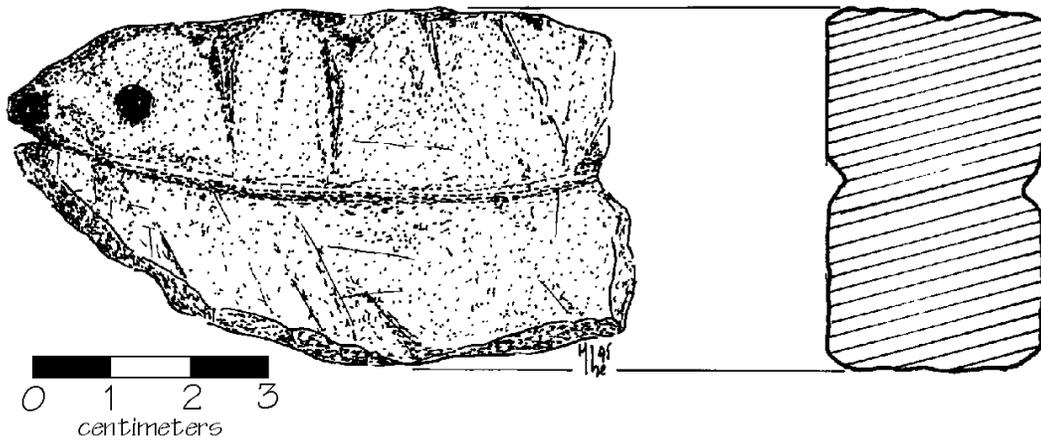


Figure A27. Site 19 artifact.  
Chlorite-schist weight, 192 grams, no magnetism, hole diameter .48 to .65 cm, t = 2.93.

<b>Site:</b> 20	<b>Ampandriamboroña Atsimo</b>	<b>Region of:</b> Manakara
Laborde X: 560.6	Latitude: 22.2085	Season: 94
Laborde Y: 433.3	Longitude: 47.99417	Ceramic phase recovered: 3,3/4
Site today: garden	Collection method:	
Site Notes: Sherd scatter in 2 small gardens. Low density of sherds, but did recover 1 decorated		

and a piece of chlorite-schist. Gardens are 2.2km north from Antsary by the road.

*Artifacts:*

- 3 fragments of chlorite-schist (10 grams, 2 weakly magnetic, no holes)
- 3 plain body sherds (4 grams) (medium sandy)
- 1 decorated body sherd (2 grams, with an incised line a punctate)
- 1 decorated rim with chlorite-schist inclusions (illustrated below)

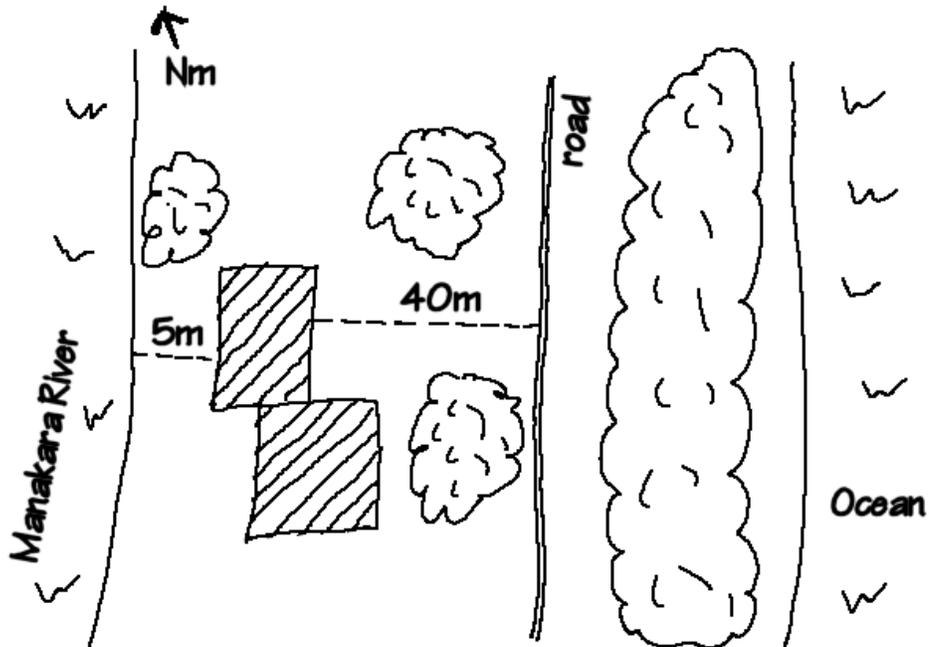


Figure A28. Site 20, Ampandriamboroña Atsimo.

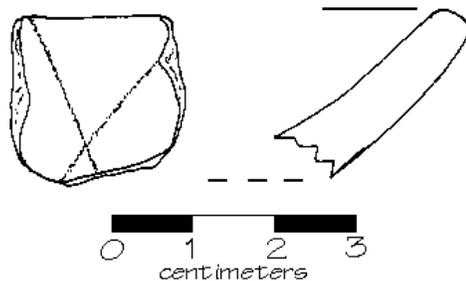


Figure A29. Site 20 artifact.

Decorated rim sherd with incised lines on exterior surface, d = 14 cm (4% of rim), t = .79, lip t = .54, chlorite-schist inclusions (10%), exterior color 5YR4/1, interior color 2.5YR4/2.

<b>Site:</b> 21	<b>Ampasimeloka</b>	<b>Region of:</b> Vohipeno
Laborde X: 554.1	Latitude: 22.36267	Season: 94
Laborde Y: 416.2	Longitude: 47.93367	Ceramic phase recovered: 5,6
Site today: village	Collection method: selective sample	
Site Notes:	1 surface collection from village, including much graphite ware, decorated	

sherds, and one sherd with matting impression, but no imported pottery. Sherd scatter covered entire modern village, and the surrounding forest was too dense to investigate its edges.

*Artifacts:*

- 56 Plain body sherds (183 grams, 14 of which have graphite inclusions, 1 is oxidized with chlorite-schist inclusions  $t=.75$ ).
- 29 Decorated body sherds (116 grams, 4 of which have graphite inclusions), 9 illustrated below.
- 18 Plain rims (101 grams, 2 of which have graphite inclusions), 4 illustrated below.
- 14 Decorated rims (100 grams, 9 of which have graphite inclusions), 10 illustrated below.

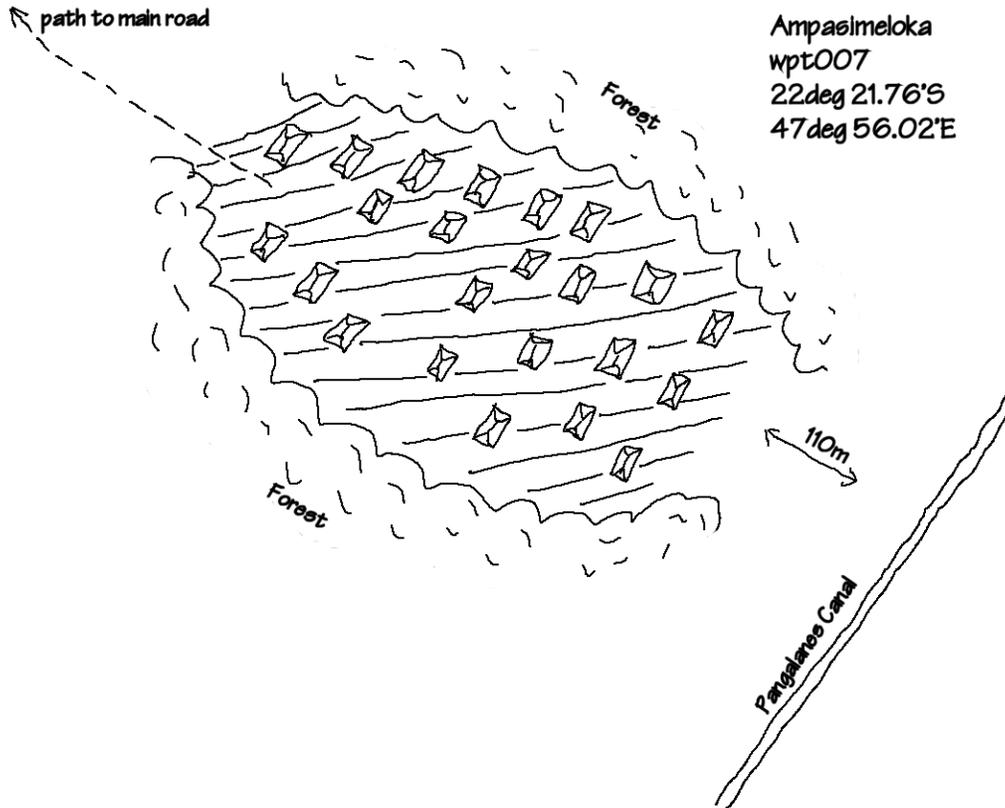


Figure A30. Site 21, Ampasimeloka.

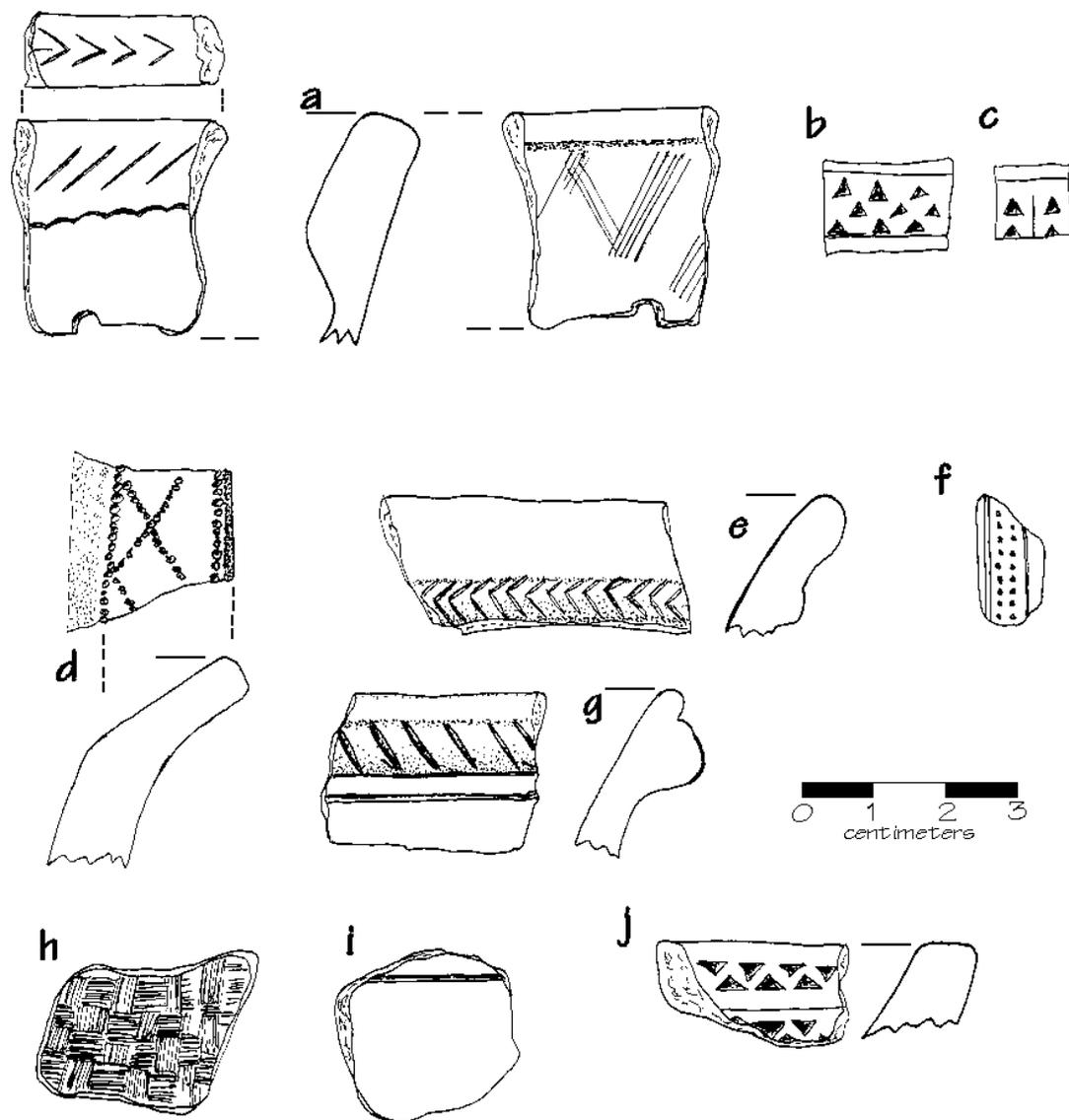


Figure A31. Site 21 artifacts part 1.

a. Decorated rim sherd with incised lines on top of lip and interior surface, angled combing on exterior surface,  $d = 22$  cm (4% of rim),  $t = .52$ , lip  $t = 1.07$ , partial hole  $d = .37$  cm, 7.5YR5/1, dense sherd resembles solid graphite.

b. Detail of decorated body sherd with triangular punctates on interior surface,  $t = 1.12$ , grey graphite speckled ware, 7.5YR5/1.

c. . Detail of decorated body sherd with triangular punctates on interior surface,  $t = .61$ , grey graphite speckled ware, 7.5YR5/1.

d. Decorated rim sherd with design on interior of broad rim, 20.1g,  $d=16$ cm (2% of rim but diameter taken from carination),  $t = 1.09$ , lip  $t=.61$ , possible ink writing on exterior of sherd.

e. Decorated rim sherd with appliqué band on exterior with design,  $d = 19$  cm (6% of rim),  $t = .69$ , quartz and graphite inclusions, 7.5YR5/1.

f. Decorated rim sherd, small and damaged (illustration is top view looking down onto decorated lip of 2 incised lines and round dentates),  $t = .89$ , grey graphite speckled ware.

g. Decorated rim sherd with appliqué band on exterior with design,  $d = 26$  cm (3% of rim),  $t = .56$  to 1.11 with appliqué, appliqué color 2.5YR5/6.

h. Decorated body sherd with mat impression on interior surface,  $t = .87$ , graphite and mica

specks (20%), exterior color 7.5YR2/0, interior color 7.5YR4/1 and 7.5YR7/2.

i. Decorated body sherd with single incised line on exterior surface, t = .56, exterior color 7.5YR3/0, interior color 7.5YR5/1.

j. Decorated rim sherd with triangle punctates on interior surface in false chevron, d = 18 cm (4% of rim), t = .81, 7.5YR5/1

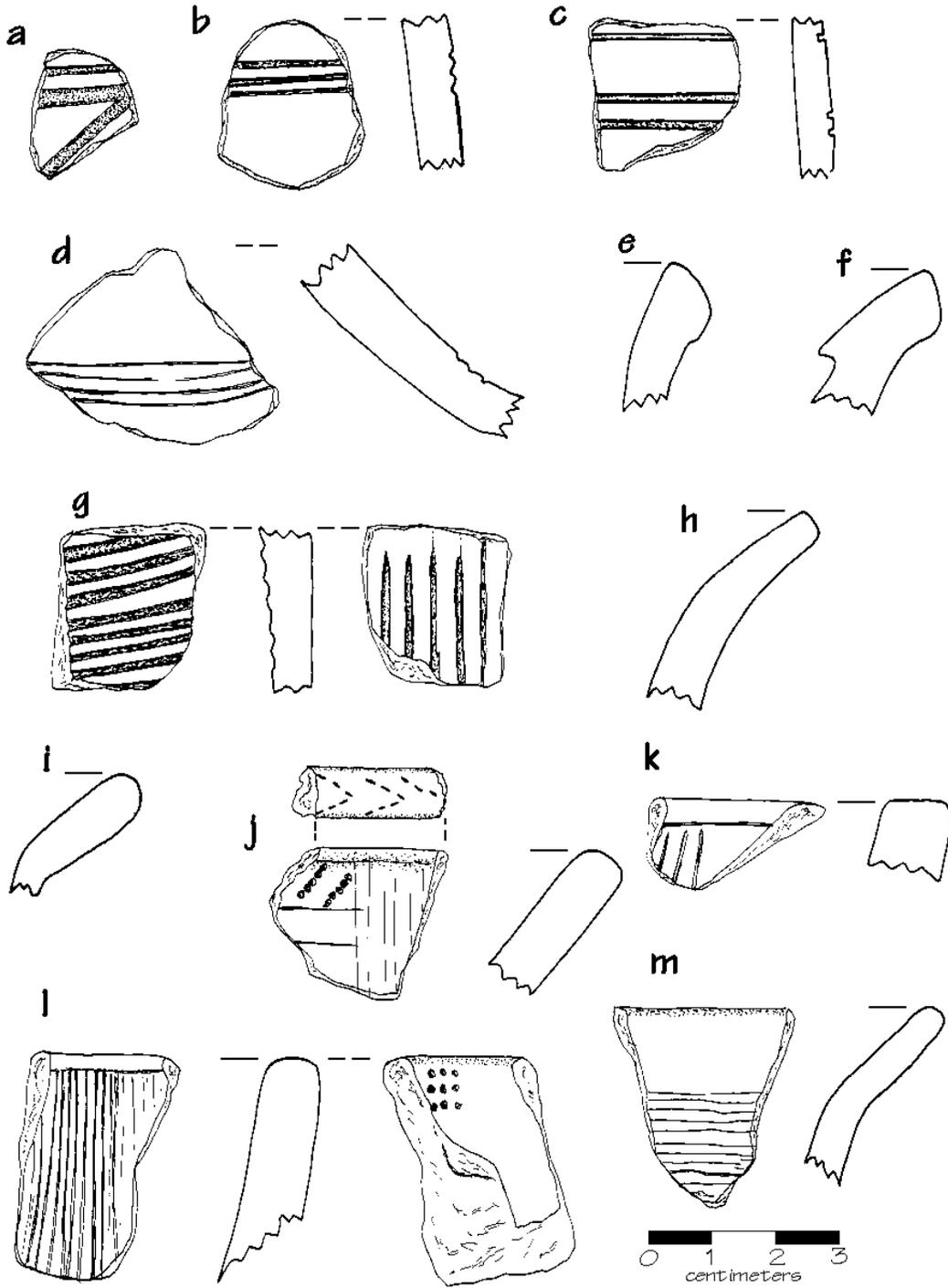


Figure A32. Site 21 artifacts part 2.

- a. Decorated body sherd with linear incised lines on exterior, t = .61, fine sand inclusions (5%), exterior color 5YR3/1, interior color 5YR6/3.
- b. Decorated body sherd with deeply incised parallel lines on exterior, t = .74, fine sand inclusions (3%), exterior color 7.5YR3/0, interior color 7.5YR7/2.
- c. Decorated body sherd with incised lines (incisions square in cross section) on exterior, t = .45, exterior color 5YR6/3, interior color 7.5YR4/0 (incised lines are well formed compared to the other incisions made by hand, these look to have been cut while spinning on a wheel).
- d. Decorated body sherd with deeply incised parallel lines on exterior, t = .92, medium sand inclusions (10%), exterior color 7.5YR3/0, interior color 7.5YR6/1 (orientation uncertain, possibly the upper part of a closed vessel).
- e. Plain rim sherd, near vertical with exterior thickening, d = 15 cm (5% of rim), t = .70, exterior color 2.5YR6/4.
- f. Plain rim sherd with thickened everted lip, d = 30 cm (4% of rim), t = .92, exterior color 5YR5/1, interior color 7.5YR7/2.
- g. Decorated body sherd with linear combing (relatively wide and deep), with horizontal combing on interior and vertical combing on exterior, t = .56 to .71, exterior color 5YR4/1, interior color 5YR6/4.
- h. Plain rim sherd with broad, thin, everted rim, d = 17 cm (7% of rim), t = .81 to .51, interior color 5YR5/1.
- i. Plain rim sherd, d = 21 cm (6% of rim), graphite inclusions (50%, grey graphite speckled ware), t = .68, interior color 5YR5/0.
- j. Decorated rim sherd with dentate stamp on top of lip and stamps plus incised lines on interior surface, 6.0g, d = 24 cm (3% of rim), t = .80, interior color 5YR6/1, interior surface looks like grey granite or chlorite-schist, unusual, reduced ware, soapy feel to surface, probably from crushed chlorite-schist temper.
- k. Decorated rim sherd with linear incisions on interior surface, d = 20 cm (4% of rim), t = 1.04, coarse sand and graphite inclusions (40%), interior color 5YR5/2.
- l. Decorated rim sherd with vertical combing on interior surface and round dentate on exterior, d = 18 cm (4% of rim), t = 1.00, interior color 5YR5/1, dense sherd resembles solid graphite.
- m. Decorated rim sherd with horizontal combing on exterior, d = 28 cm (3% of rim), t = .43, medium sand inclusions (3%), exterior color 7.5YR2/0. (compare to Isandra, 17-18<sup>th</sup> cent).

**Site: 22                      Anarintanana (also Antanambaza) Region of: Vohipeno**

Laborde X: 555.3

Latitude: 22.33667

Season: 94

Laborde Y: 419.0

Longitude: 47.945

Ceramic phase recovered: 6,7

Site today: sweet potato

Collection method:

*Site Notes:* Sherds exposed in sweet potato gardens on the back side of dunes, but too much groundcover between gardens to see surface. 1 surface collection from north garden and 1 from south garden. Ramilisonina dug into the edge wall of the garden and found 2 sherds in situ 30 cm. b.g.s. In its setting, this location greatly resembles Pannetier's Ambohabe 0 (site 3).

*Ethnographic Notes and Oral Traditions:* A man living at the nearby hamlet of Antanambao (site 28) told us that at this site (Anarintanana) there had first been Merina (from the central highlands) and then Vazaha (Europeans) living (hence the name Antanambaza). Upon seeing our sample artifacts, he noted that the *bibitso* (word he used for both the graphite ware and the chlorite-schist), could be found in great quantities further south near Ampasimeloka (site 21) – a site which does have one of the densest concentrations of graphite ware sherds. The people of Ampasimeloka told us that there had been a camp nearby for the construction of the Pangalanes Canal at a place they call Antambazaha).

*Artifacts:*

- 6 decorated rims (15 grams, 2 illustrated below, 3 have graphite inclusions)
- 2 plain rims (7 grams, 2 illustrated below)
- 3 decorated body sherds (17 grams, 2 illustrated below, 2 have basketry impressions)

- 39 plain body sherds (137 grams, 9 have graphite inclusions)
- 4 sherds of European white ware (27 grams, ring base diameter = 8 cm (38% of base))
- 2 iron objects (80 grams, interpreted as a nail and a buckle)

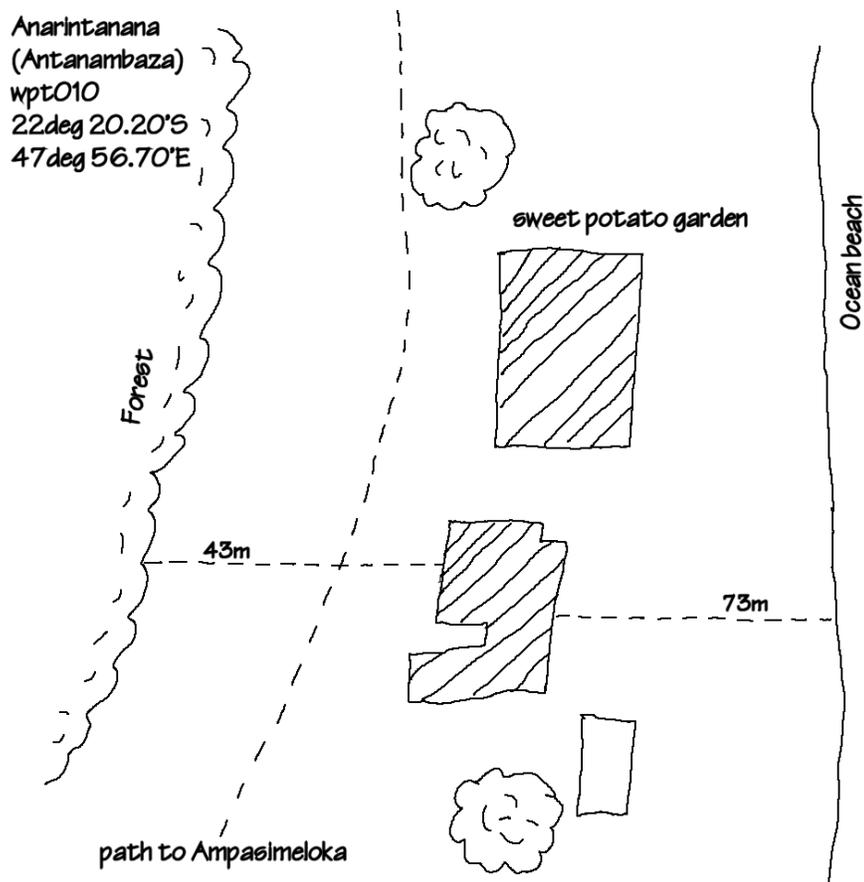


Figure A33. Site 22, Anarintanana (Antanambaza)

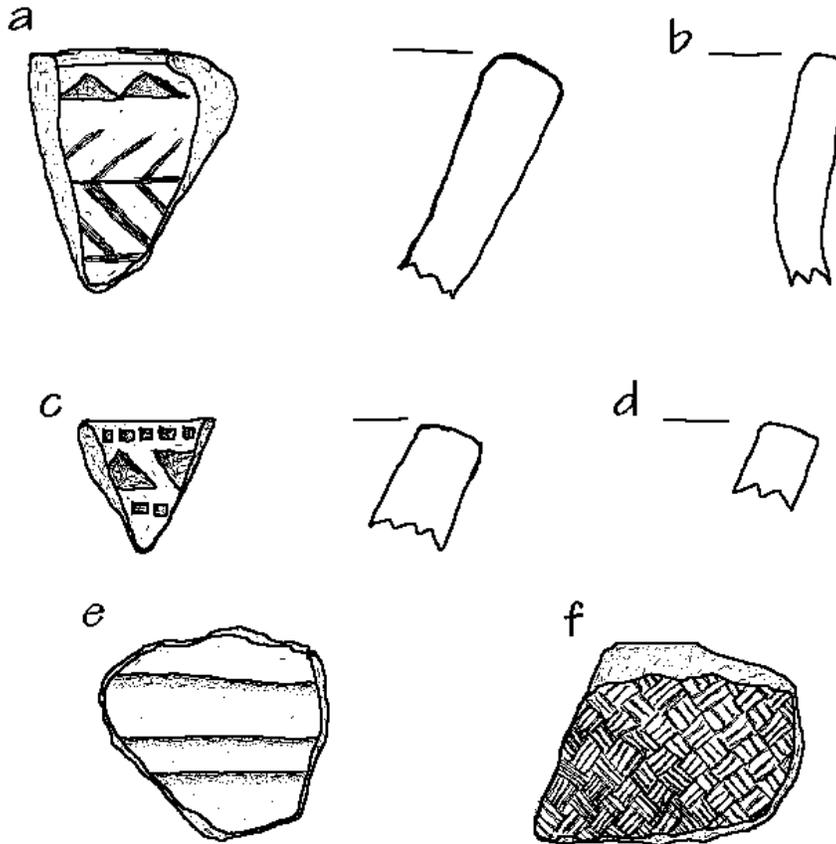


Figure A34. Site 22 artifacts.

- a. Decorated rim sherd, diameter uncertain (seems to be an irregular stretch of the rim), t=.74, lip t=.92, graphite inclusions (>50%) and very coarse quartz inclusions (3%), interior 5YR4/1.
- b. Plain rim sherd, d=26cm (2% of rim), t=.57, interior color 5YR4/2.
- c. Decorated rim sherd, grey graphite ware with medium sand inclusions (3%), interior color 7.5YR4/0
- d. Plain rim sherd, d=24cm (4% of rim), t=.69, coarse sand and graphite inclusions, interior 7.5YR5/1.
- e. Decorated body sherd with slightly raised ridges on exterior surface, t=.61cm, fine sand inclusions (5%), exterior 5YR4/3.
- f. Decorated body sherd with basketry impression on exterior surface, t=.82, interior 7.5YR2/0, exterior 5YR5/3. (note, though the illustration shows the impression of a checker-work mat, closer inspection of the sherd itself reveals the mat was twill-work with a 2 over and 2 under pattern).

<b>Site: 23</b>	<b>Andramakoko</b>	<b>Region of: Vohipeno</b>
Laborde X: 545.3	Latitude: 22.3845	Season: 94
Laborde Y: 413.7	Longitude: 47.8445	Ceramic phase recovered: 5?
Site today: cassava		Collection method:

**Site Notes:** A single piece of chlorite schist collected from a cassava garden, and a single pot sherd collected from a second cassava garden 50 m to the northeast.

**Ethnographic Notes and Oral Traditions:** Near the farmer's house at this site was a plaster-lined rectangular enclosure, only partially preserved. Ramilisonina argued it was a new feature because of the plaster lining, but the plaster-lined tombs I excavated at Mtamwe Mkuu on Pemba

Island in Tanzania (with Mark Horton) were similar, yet ancient. Zoe Crossland's typology of tombs in her dissertation (2001) makes me think that this feature probably was a tomb of a style that is no longer locally recognized.

*Artifacts:*

- 1 chlorite-schist rim sherd (illustrated below). The earliest and the latest chlorite-schist in Madagascar is hand carved, as this vessel seems to be.
- 1 plain body sherd (2 grams) t=.63, soft coarse ware, interior 7.5YR3/0, exterior 5YR6/8.

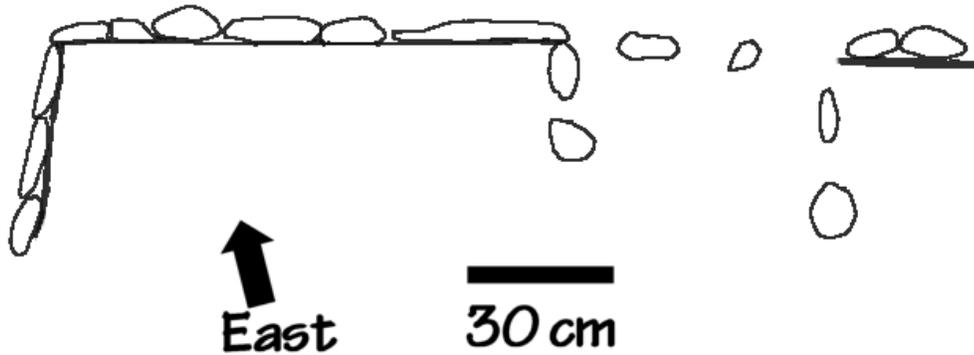


Figure A35. Site 23, Andramakoko tomb remains. Knee-high vertical stones and plaster.

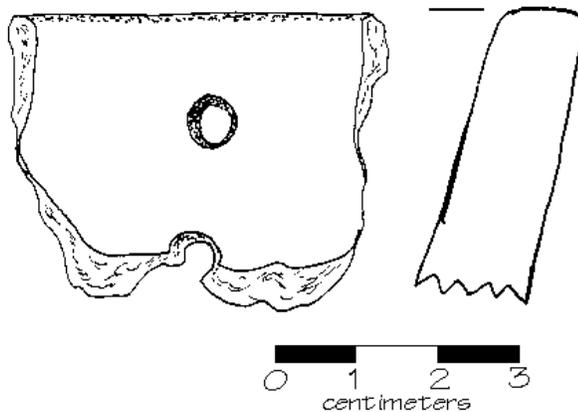


Figure A36. Site 23 artifact.

Chlorite-schist rim fragment, d = 34 cm. (4% of rim), t = 1.26, exterior color 2.5Y7/4, no magnetic attraction, complete hole diameter .61 cm (interior surface) and .65 cm (exterior surface), incomplete hole diameter .50 cm (interior surface) and .54 cm (exterior surface), 29 grams.

<b>Site:</b> 24	<b>Ankarinarivo</b>	<b>Region of:</b> Vohipeno
Laborde X: 537.6	Latitude: 22.27883	Season: 95, 97
Laborde Y: 425.6	Longitude: 47.77317	Ceramic phase recovered: 5,6
Site today: garden	Collection method:	
Site Notes: This fortified hill north of the Matitanana is presently forested with a single		

Antemoro house on top, along with the remains of a former French colonial compound (evidence by a square raised platform and concrete and brick remains). The sherd scatter was found in gardens on the western slope. There is a double ditch on east side, 3-4m wide and 4m deep on the downhill side. Both ditches have drains running eastward into rice paddies. Bricks were visible in the upper of the two ditches. In 1995 we excavated a 50cm sondage on the west side of the site, in what was probably a former ditch converted to serve as a road to the summit during the colonial period (red clay soil, only 1 sherd recovered from sondage. Out of time in 1995, we planned to return the next season to attempt a larger sondage. In 1997 we placed a 2x1m trench across the upper ditch on the eastern side (excavated by Zoe Crossland). This sondage was taken down 8 levels (53 centimeters below datum), and we believe it revealed the eastern edge of the original ditch, but not the western edge under the slump. Only 1 sherd was recovered, and we concluded that there has not been a great deal of in-filling of the ditches at this site, as they were not much deeper originally than they are now. Future research could usefully look for postholes of a palisade alongside these ditches to help us better understand what they actually are.

*Ethnographic Notes and Oral Traditions:* A local boatman who helped us cross the Matitanana River to this site was the first to suggest that the earthworks on the western slope were part of a road up to the old French farmstead. The name "Ankarinarivo" means "1,000 go up," because this site was a "*manda*" – the word used by the Antemoro today to describe a fortified, hilltop retreat. Interestingly, *manda* is also the Swahili word for "wall," as in the famous site of Manda on the Kenya coast, named for its impressive sea wall (Chittick 1984). The hill just to the west of Ankarinarivo used to be known as "Mandaha" and is said to have ditch fortifications as well (though the house compounds on it are now known as Ambohitarivo and Lavaso, see site 43).

The resident of Ankarinarivo, a 72 year old man named Toviamana, moved to the hilltop in 1984. He told us of a former village on the flat between this hill and the river named Tanantelo (and which is shown on the official FTM map, but no sherds were recovered from that location, see map below).

Ramil suggested that Ankarinarivo, given the orientation of the hill and the terraces on the north side, is similar to such structures built by the Merina in the central highlands.

*Pottery Notes:* slag, CS, everted jar, minority graphite, majority thin reduced sandy w/ everted jar., phase 5, cf outcaste ware, (green) Ambibe in Tamatave, incised arc w/ triangle phase 6

*Artifacts:*

- 21 plain body sherds type i
- 8 plain body sherds type iC
- 1 plain rim sherd of local white ware (illustrated below)
- 1 decorated rim sherd type iC with triangle punctates (illustrated below)
- 1 base/lid (illustrated below)

Ankarinarivo  
 cross section  
 west to east at 260deg

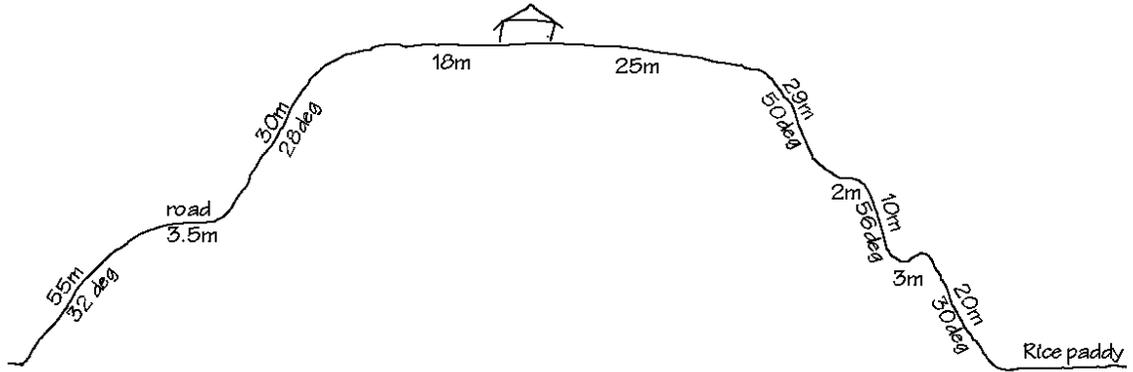


Figure A37. Site 24, Ankarinarivo, cross section.

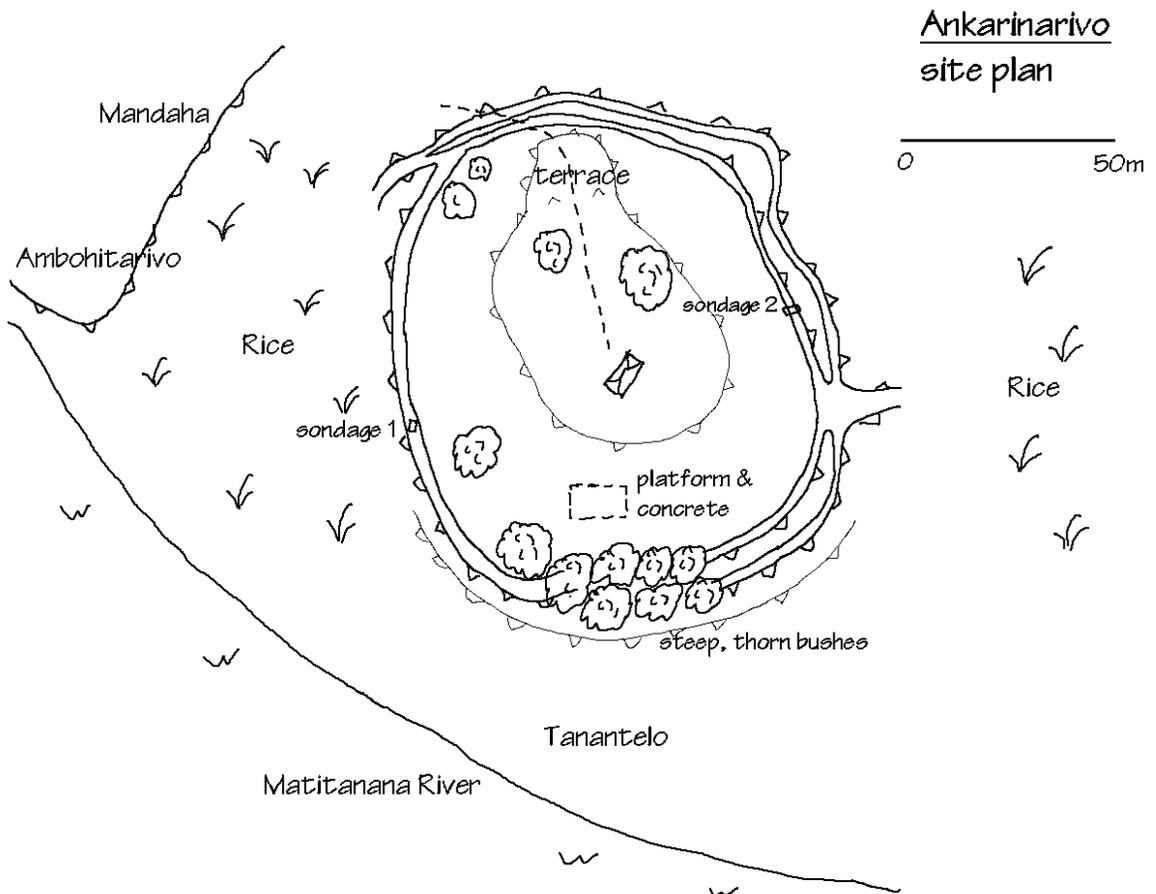


Figure A38. Site 24, Ankarinarivo.

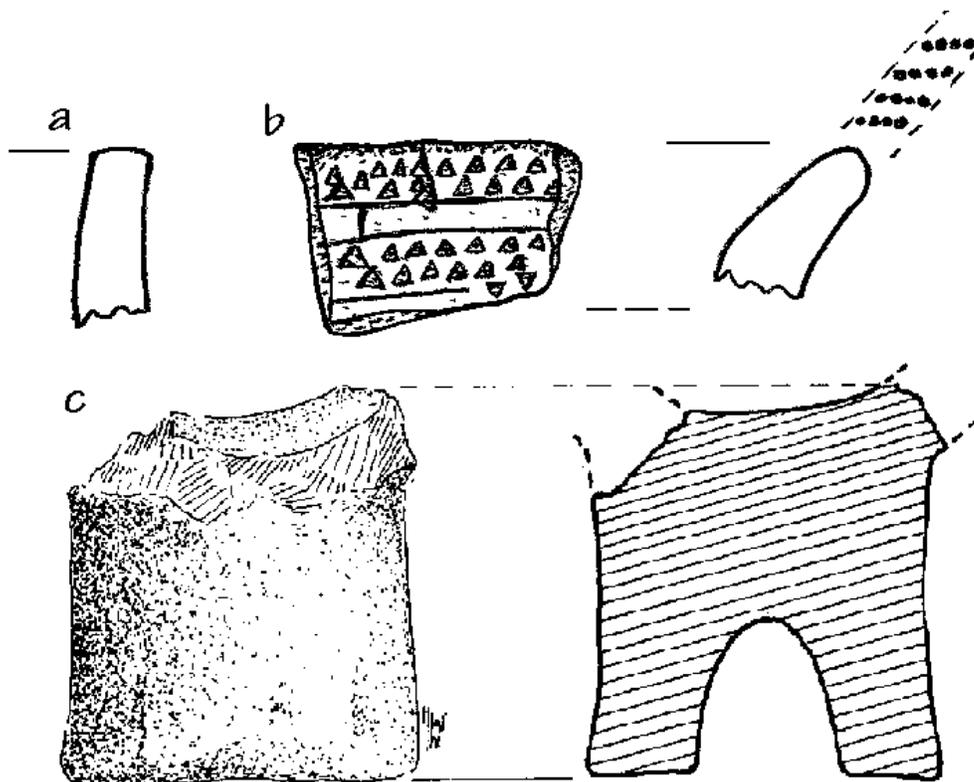


Figure A39. Site 24 artifacts.

a. Plain rim sherd, local white ware (interior 10YR8/2), 6.0g, d=24 (4% of rim), t=.92, lip t=.72, sand (3,3%)

b. Decorated rim sherd, type iC, 8.2g, d=34 (3% of rim), t=1.04, lip t=80, triangle base = .32cm, 10YR4/1, with incised lines and small triangular punctates on the interior surface and dentate stamp on top of rounded lip.

c. Lid knob or foot, type i, d=4.45cm, with hollow center (perhaps to make it lighter, if it is part of a lid).

**Site: 25**

**Anosikely**

**Region of: Farafangana**

Laborde X: 545.7

Latitude: 22°41'52"

Season: 94

Laborde Y: 379.1

Longitude: 47°51'19"

Ceramic phase recovered: 3/4, 5/6\*

Site today: village, garden

Collection method:

Site Notes: 2 sherd scatters in the modern village and 2 in gardens just to the east.

*Ethnographic Notes and Oral Traditions:* After showing people the pottery sherds we were collecting from their village, they told us the best place to find such things was north across the river in an area called "Anosy." They said this place was very far, south of Loharano and east of Bakasy. We were not able to include that area in our survey coverage, but note the possibility for future research.

*Artifacts:* Includes oxidized coarse sandy ware, dentate stamped hole mouth, c-s temper  
 - 2 decorated rims, grey graphite ware (illustrated)  
 - 5 decorated body sherds, 3 are grey graphite ware and 2 are brown graphite ware, shallow incised lines for decoration, t = .85 to .95.

- 1 fragment of chlorite-schist with metal plug intact (3 grams, weakly magnetic)
- 41 plain body sherds (140 grams), 13 of these are grey graphite ware (60 grams) and 2 are brown graphite ware, t=.81, 1.02 (15 grams).

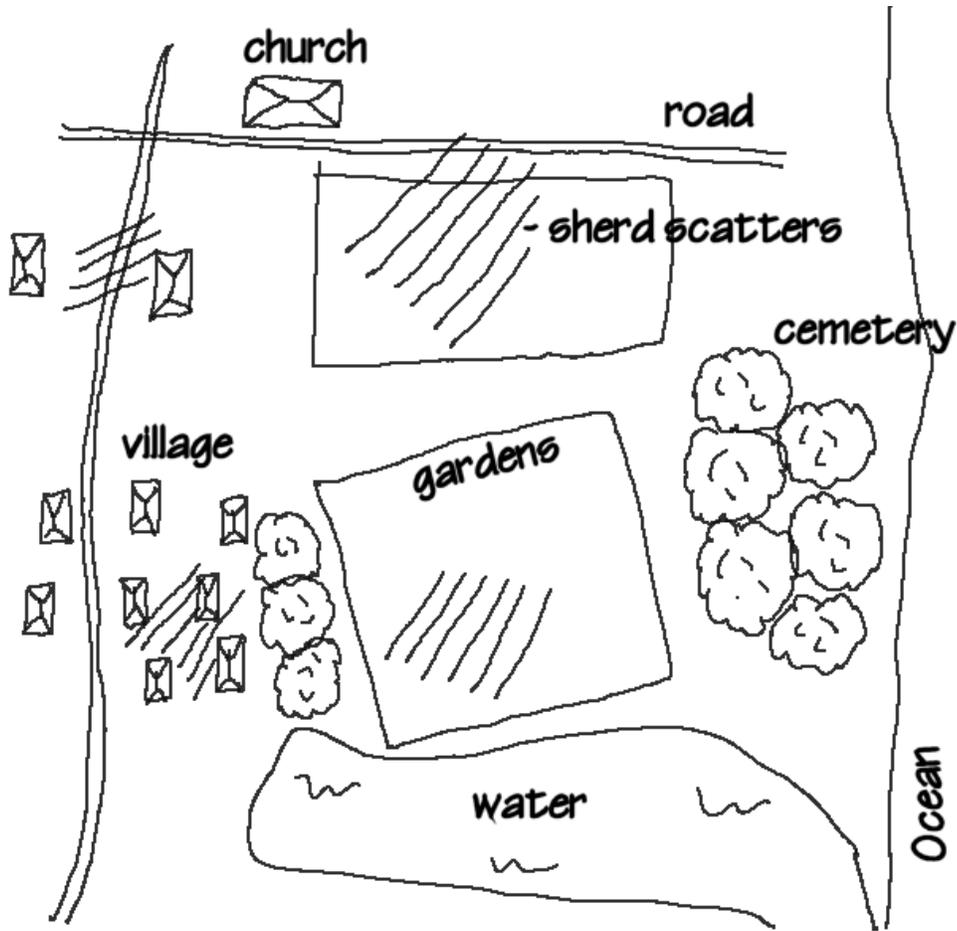


Figure A40. Site 25, Anosikely.

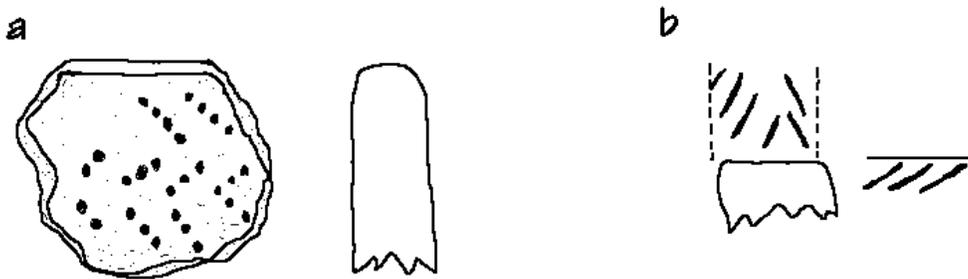


Figure A41. Site 25 artifacts.

a. round, shallow punctates (dentate stamp) on exterior of grey graphite ware, t = .97, lip t = .76, diameter and orientation uncertain.

b. linear incisions on top of lip and exterior surface of grey graphite ware, lip t = 1.35, diameter and orientation uncertain.

**Site: 26**

**Anosivelo**

**Region of: Vohipeno**

Laborde X: 550.9

Latitude: 22°26'05"

Season: 94

Laborde Y: 408.3

Longitude: 47°54'24"

Ceramic phase recovered: 4?,6

*Site Notes:* 1 surface collection on 9/3/94 and a second collection from river's edge on 9/6/94 (stopping en route to Marovahiny, site 46). The sherds were primarily in the center of the modern village and at the southern end near the school and teacher's house.

*Ethnographic Notes and Oral Traditions:* The modern village is on flat, white sand. Upon seeing our sample sherds many villagers told us that such things could be found in the sand near the sea. Our surveys of the area they indicated only revealed one site, Ampanasambary (site 18).

*Artifacts:* Includes late red-slip, medium reduced sandy ware  
- 23 sherds recovered (135 grams); only 3 sherds are grey graphite ware. 2 sherds have a red slip on interior surface and sand inclusions (t=.86 slip 10R5/6 & t = .7 slip 10R4/4). Also some very thick sherds (t=1.6 and 1.27) with sand and shell inclusions.  
- 4 fragments of chlorite-schist (7 grams)

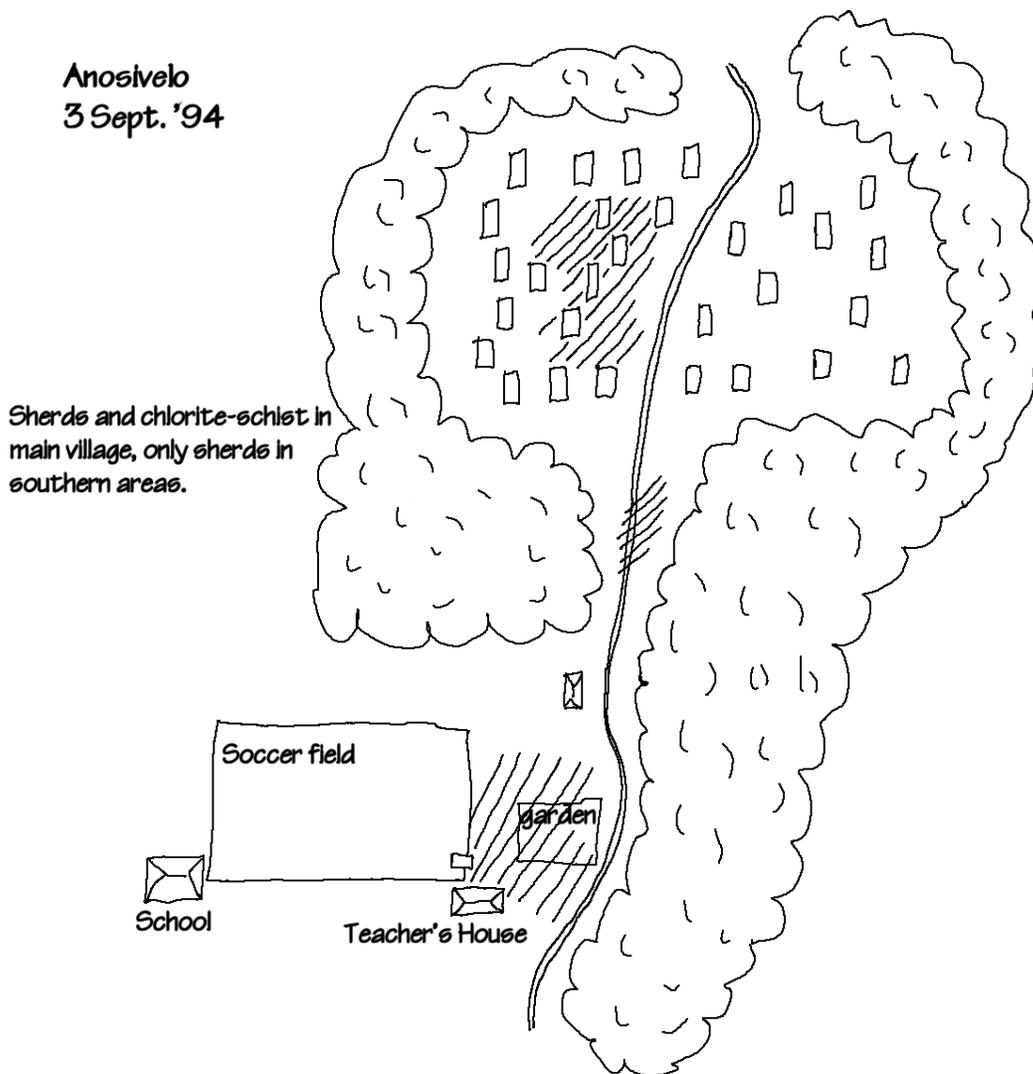


Figure A42. Site 26, Anosivelo.

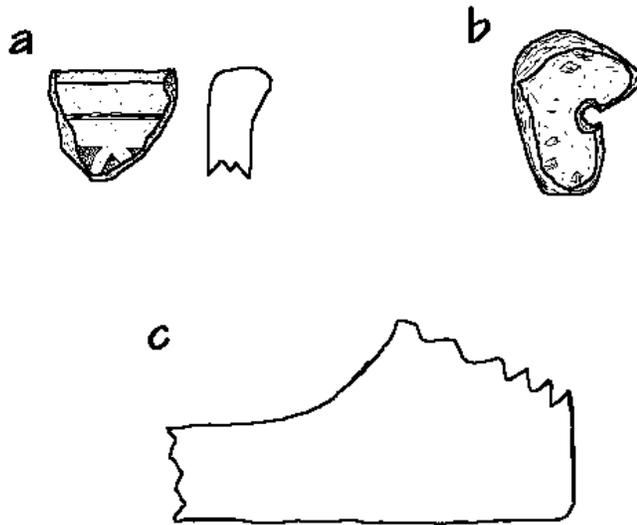


Figure A43. Site 26 artifacts.

a. Small decorated rim sherd with triangle punctates on graphite ware, diameter and orientation uncertain.

b. Shaped chlorite-schist block (probable weight) with central hole, hole diameter = .39cm, strongly magnetic.

c. Large base fragment (53 grams),  $t = 1.14$ , sand inclusions (.05-.3, 10%), exterior 5YR6/4, interior 5YR5/1, with grey core, slightly magnetic (possible iron inclusions).

**Site: 27**

**Anosy**

**Region of: Vohipeno**

*Laborde X:* 547.4

*Latitude:* 22.433

*Season:* 94

*Laborde Y:* 407.9

*Longitude:* 47.87183

*Ceramic phase recovered:*

*Site Notes:* 1 surface collection of bricks and 1 sondage (sterile, only 1 fragment recovered) made on 9/3/94. The sondage was placed in a large garden strewn with brick fragments, southeast of two depressions filled with bricks and covered in brambles. The possible brick fragment recovered from the sondage appears to have two incised lines on one face. At 12 centimeters below ground surface we struck a hard layer of rocks and pebbles, nearly impossible to dig through, which was interpreted as sterile and led to the abandonment of the excavation.

*Ethnographic Notes and Oral Traditions:* Our guide from the village of Enohona (site 38), an elderly man named Tsirambana, brought us to this site on 8/28/94 to show us where his ancestors once dug clay to make their pottery (since Enohona is known as the village of the potters and the main village of contemporary outcastes). Tsirambana says he's not old enough to have seen this pottery manufacture with his own eyes (he estimates his birth year to be 1939, and we have other traditions claiming the last potter in the area died in 1925), but he indicated a rice paddy near this site as the source of the clay. We returned the next week to undertake the excavation.

*Artifacts:* 3 brick fragments collected from surface (7.5YR6/4) and one from sondage (illustrated below). No sherds or other artifacts recovered.

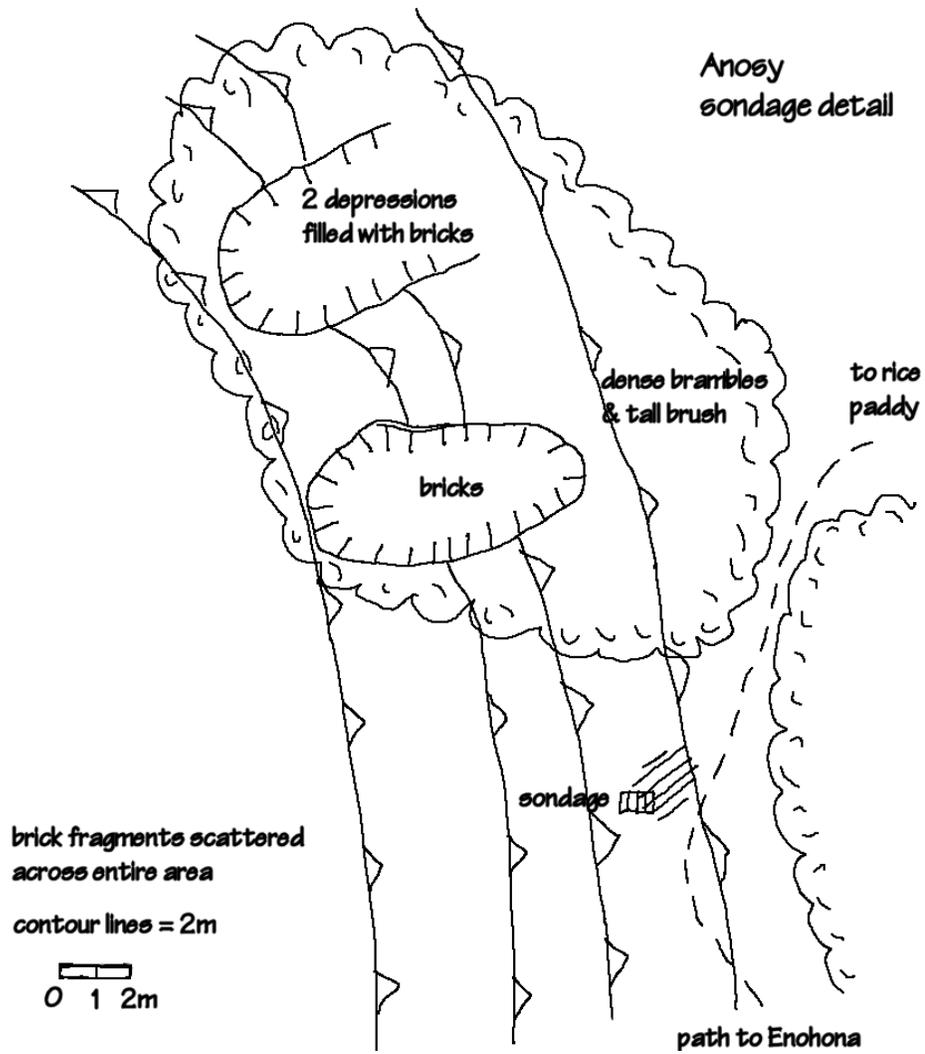


Figure A44. Site 27, Anosy sondage detail.

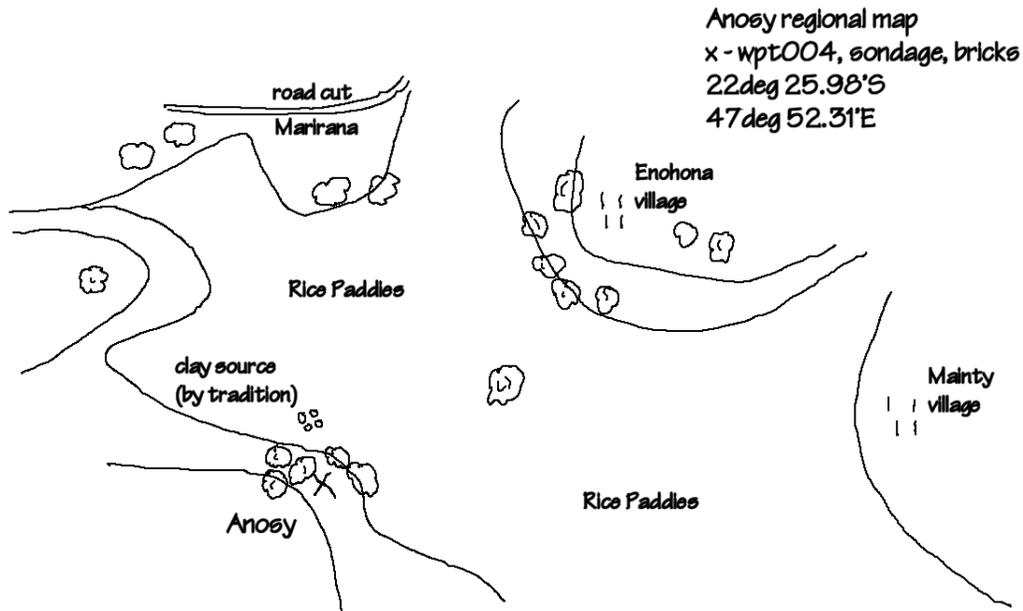


Figure A45. Site 27, Anosy region.

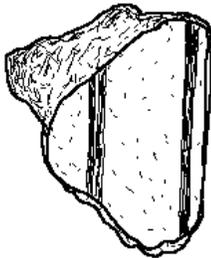


Figure A46. Site 27 artifacts.  
Brick fragment with 2 incised (or impressed?) lines, 10 grams, 5YR7/4.

<b>Site:</b> 28	<b>Antanambao</b>	<b>Region of:</b> Vohipeno
Laborde X: 555.3	Latitude: 22.3325	Season: 94
Laborde Y: 419.4	Longitude: 47.9455	Ceramic phase recovered: 5
Site today: garden, charcoal pits		Collection method: complete collection

**Site Notes:** A very sparse sherd scatter evident in large gardens and recent charcoal making pits, all the pottery we could find was collected.

**Artifacts:** Includes basketry impression and thin reduced sandy ware  
 - 2 plain rims (8 grams, illustrated below)  
 - 2 decorated body sherds (4 grams, 1 with graphite inclusions and light linear combing on exterior surface (t=.50, exterior 5YR4/1), and the other with basketry impressions on the exterior surface (t=.75, interior 7.5YR4/0, exterior 5YR5/3).  
 - 1 plain body sherd (2 gram, exterior, interior, and core all 7.5YR2/0, but I think this sherd and parts of the 2 rim sherds were recently charred by charcoal making activities).

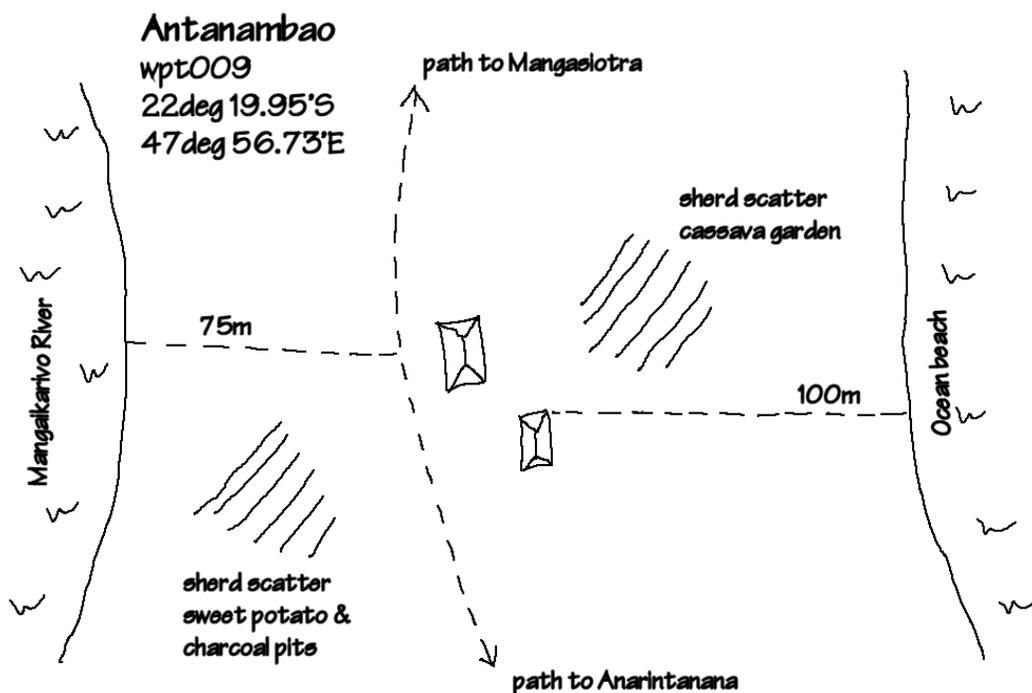


Figure A47. Site 28, Antanambao.

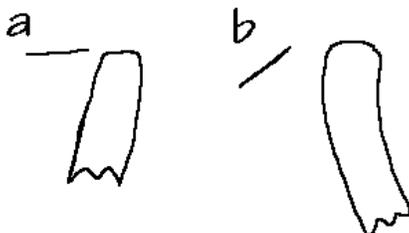


Figure A48. Site 28 artifacts.

- a. Plain rim sherd, d=20cm (4% of rim), charred
- b. Plain rim sherd, d=18cm, 7% of rim), charred interior and partial exterior, rest of surface 7.5YR6/2, orientation uncertain (the orientation line was added after recording the sherd).

<b>Site:</b> 29	<b>Antanambao Enohona</b>	<b>Region of:</b> Vohipeno
Laborde X: 547.5	Latitude: 22.42733	Season: 94, 95
Laborde Y: 409.1	Longitude: 47.87033	Ceramic phase recovered: 5
Site today:		Collection method: complete collection

**Site Notes:** 1 collection of eroded sherds from a modern drainage ditch, below a cut embankment for the road exposing dense remains. Into the road cut we scraped back the profile face approximately 5 cm along a 1.4m vertical stretch at point 1. We also placed a sondage at profile point 2 (which began as a 1m x .2m and descended 30 cm. becoming a 1m x .4m, below which was sterile. Note however that this sondage is into a modern terrace for the road cut that is already 1.3m below the former ground surface before the road). In revisiting this site in 1995 we

also found 2 bases next to the road, and took soil samples. There was noticeable erosion to the road cut in the year between our visits, leading me to believe that in 1994 we had happened upon a fresh road-cut, and hence my stratigraphy in the 2 sondages was meaningful. The soil samples (for phosphate analysis) were taken from the red "sterile" layer at 170cm b.g.s. and the brown layer with many sherds at 130cm b.g.s.

*Ethnographic Notes and Oral Traditions:* The name of this village means "the new village of Enohona" and the residents claim they settled there in 1953, coming from Enohona. The official FTM map for this region (made in 1957) lists this village as "Ambohimiary" though no one presently in the area recognizes that name. Since both Antanambao Enohona and the original Enohona are outcaste villages of untouchables, it is possible that the people working with the cartographers refused to pronounce the correct name.

*Artifacts:* Includes foot-base, outcaste ware  
The surface collection includes 13 sherds (87 grams, 2 illustrated below), but only one is decorated (a body sherd with a linear incision). Of the bases collected in 95, 1 is d=4.28cm, 112.3g, and the other is d=4.07cm, 78.7g, and both resemble the illustrated base/lid knob below. Sondage #1 recovered the following sherds by 20cm arbitrary levels, clearly showing the dense occupation layer approximately 2 meters below the former ground surface:

Level 1 -	4 sherds	5 grams
Level 2 -	13 sherds	16 grams (1 rim illustrated below)
Level 3 -	5 sherds	6 grams
Level 4 -	5 sherds	10 grams (1 rim illustrated below)
Level 5 -	14 sherds	17 grams
Level 6 -	50 sherds	274 grams (1 base/lid illustrated below)
Level 7 -	4 sherds	3 grams

Only 10 of these 95 sherds were decorated, and all of those were linear incisions of 1,2, or 3 parallel lines. All sherds were of the same ware which was a coarse tan paste (7.5YR7/4 exterior) with a dark grey core (reduced) and fine well-sorted sand inclusions (.05-.1, 5%), and thin (t=.45 to .6).

Sondage #2 recovered 177 sherds of the same ware, of which 21 had linear incised decoration plus 3 body sherds had burnishing on their exterior surfaces. All 3 levels of this sondage were within the dense occupation layer seen in sondage 1, as the top level was already approximately 1.3m below the former ground surface due to the road cut. Of interest, in level 2 the sherds were so soft and fragile that the shovel or trowel was able to shave them in half if we weren't careful.

Level 1 -	61 sherds	108 grams (2 decorated body sherds illustrated below)
Level 2 -	63 sherds	186 grams (1 decorated rim sherd illustrated below)
Level 3 -	53 sherds	97 grams (1 plain rim sherd illustrated below)

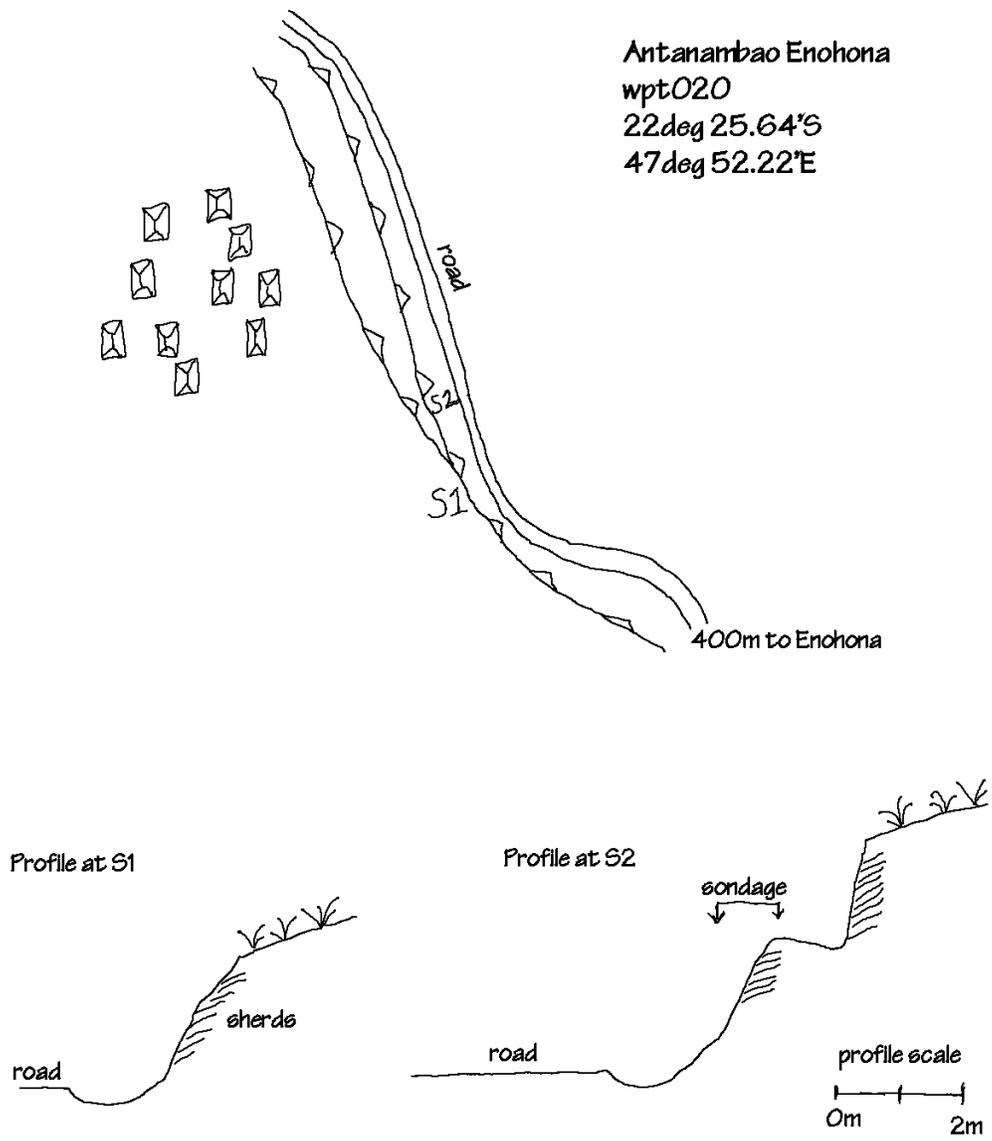


Figure A49. Site 29, Antanambao Enohona.

Antanambao Enchona  
Profile at S1

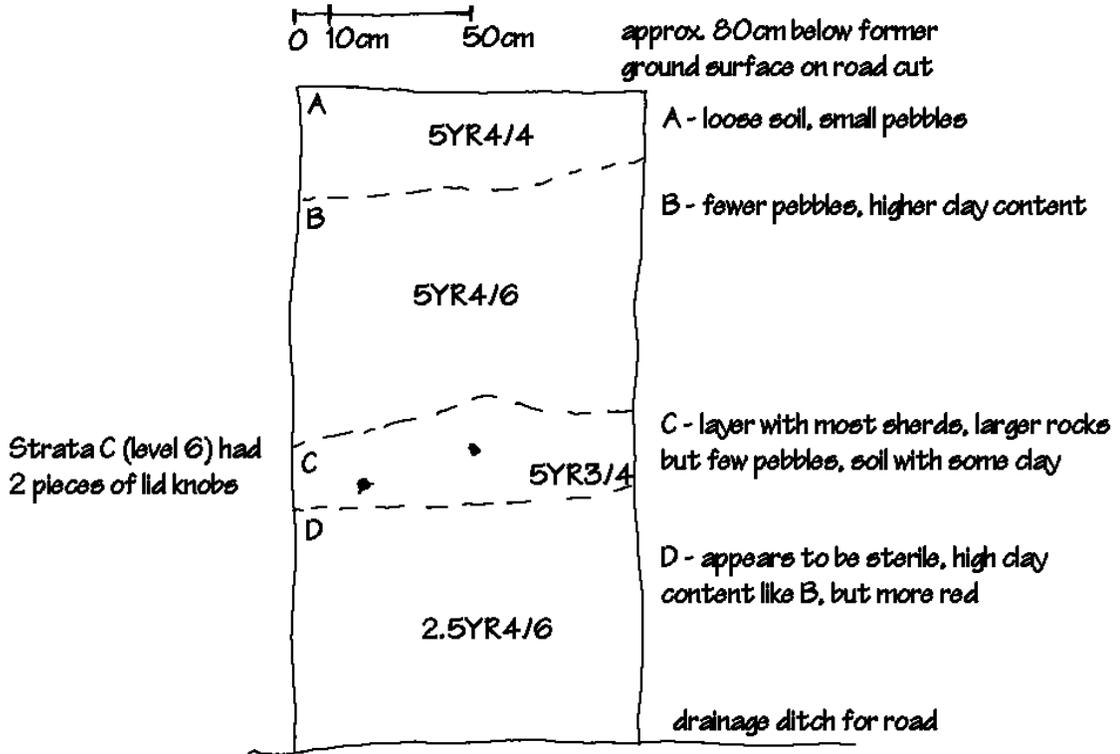
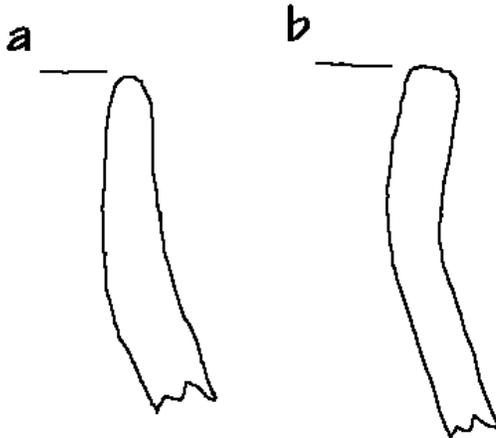


Figure A50. Site 29 Profile at S1.



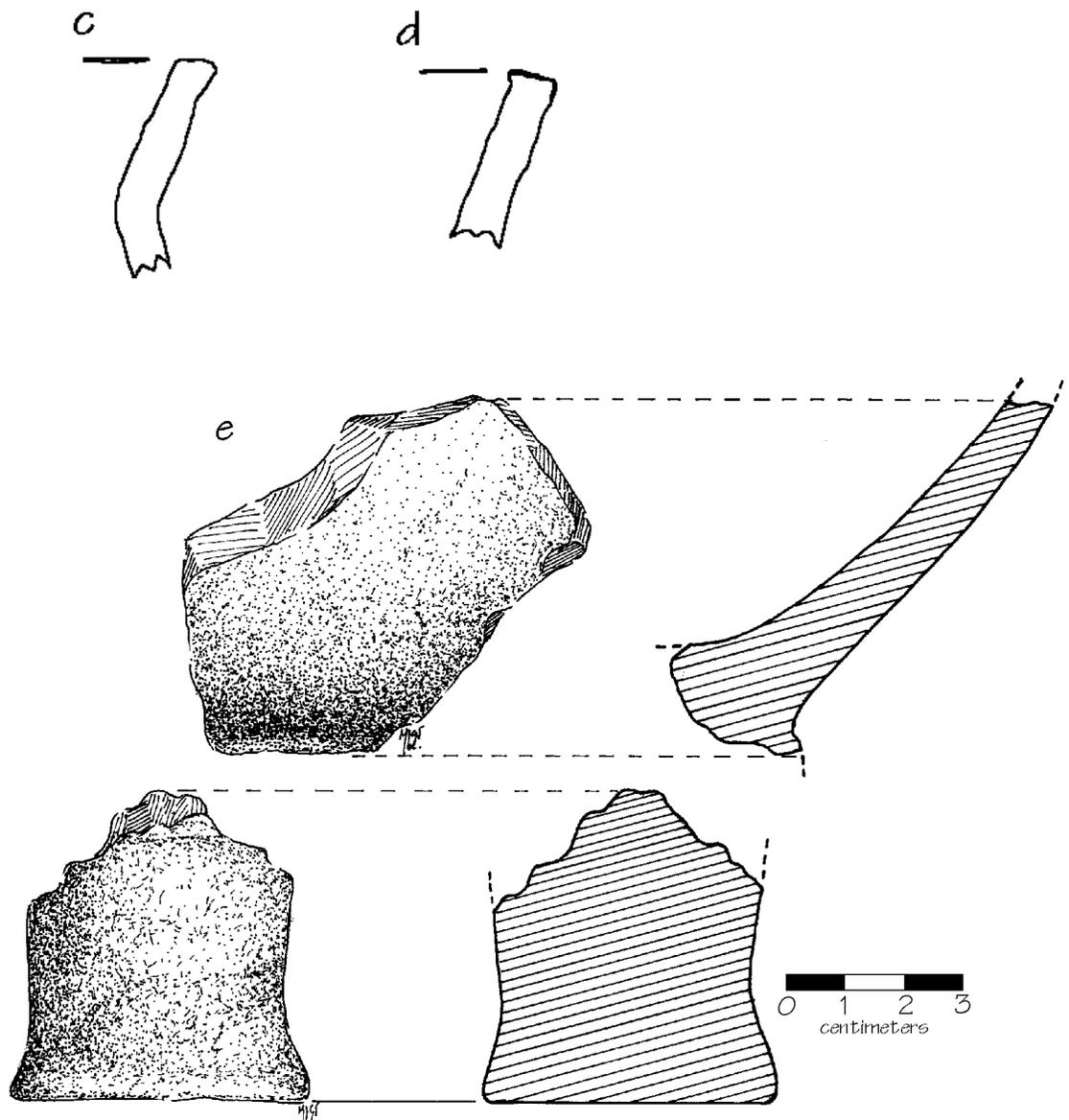


Figure A51. Site 29 artifacts from Sondage 1.

a. Plain rim sherd from surface, d=20 (5% of rim), t=.51, lip t=.64, sand inclusions (.05-.2, 10%), exterior 5YR6/3, reduced core 7.5YR3/0.

b. Plain rim sherd from surface, d=24 (3% of rim), t=.74, lip t = .45, same ware as above.

c. Plain rim sherd from sondage 1 level 2, d=20 (4% of rim), t=.51, lip t = .53, same ware as above.

d. Plain rim sherd from sondage 1 level 4, d=17 (6% of rim), t=.53, lip t=.52, same ware.

e. Pedestal bowl (or lid with handle) from sondage 1 level 6 (160 grams), base diameter = 4.85cm, nearest to lid edge t = .84cm, sand inclusions (.05-.1, 5%), 5YR6/5, core dark grey (reduced) and bottom has smudge marks. Note: the museum illustrator drew this as a pedestal bowl, but I believe it should be flipped over as a lid with a knob handle. Along these lines I believe that the angle of connection between the 2 pieces should be flatter.

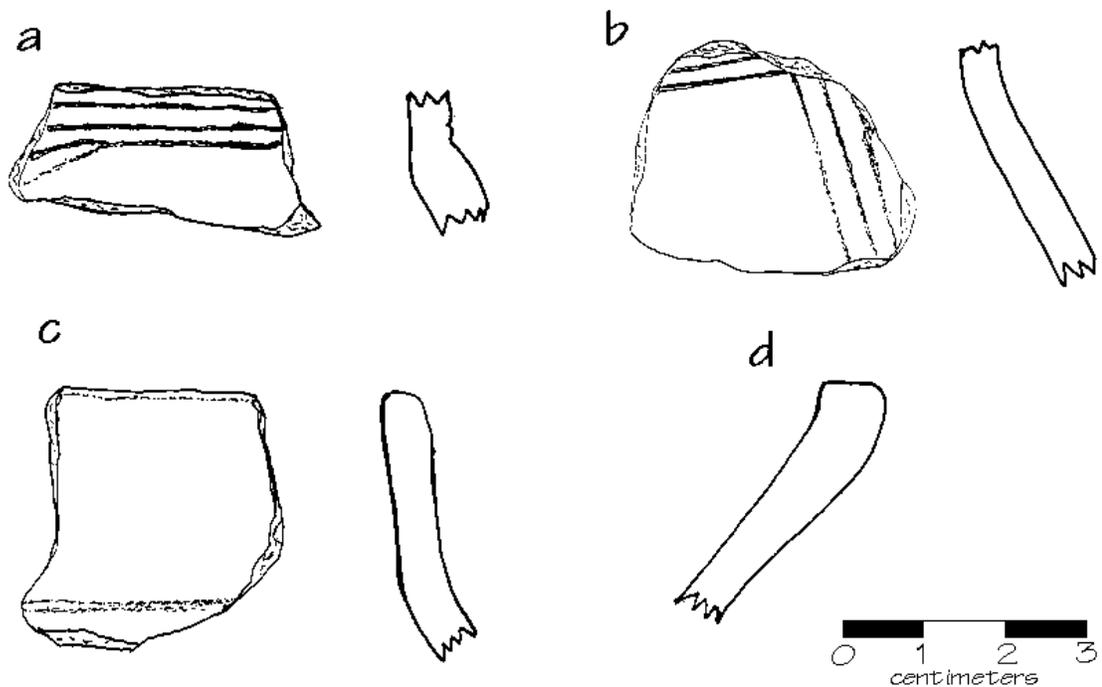


Figure A52. Site 29 artifacts from Sondage 2.

a. & b. Level 1, decorated body sherds with linear incisions, from neck or carinated bowl  $t = .63$ ,  $t = .48$

c. Level 2, decorated rim sherd with horizontal linear incisions on exterior, sand inclusions (.05-.1, 5%), wide core reduced (7.5YR 2/0),  $t = .56$ , lip  $t = .49$ , interior color 5YR5/6, exterior color 5YR4/3,  $d = 24$  cm, 3% of rim.

d. Level 3, rim sherd from open bowl, sand inclusions (.05-.2, 5%),  $t = .49$ , lip  $t = .70$ , interior color 5YR6/4, exterior color 7.5YR6/4,  $d = 30$ , 6% of rim.

<b>Site:</b> 30	<b>Antanimbaribe Antsary</b>	<b>Region of:</b> Manakara
Laborde X: 560.2	Latitude: 22.21683	Season: 94
Laborde Y: 432.4	Longitude: 47.9905	Ceramic phase recovered: 3,4,5
Site today: garden	Collection method: complete collection	

**Site Notes:** (See site 62). 1 surface collection from site and 1 collection from gardens at 560.2-432.7. We recovered a chlorite-schist pendant weight (similar to that from Ambohabe), iron slag, bits of a clay tuyere, and un-worked blocks of chlorite-schist (perhaps pre-forms for fishing net weights). We did not have time in 1994 for a test excavation, but planned to return the following year. We did return, and in 1995 excavated a sondage at the main site of Antanimbaribe (site 62).

**Ethnographic Notes and Oral Traditions:** This was our main record keeping mistake of the first 2 seasons. Along the road next to the northern-most house there was a sign post that read "Antanimbaribe Antsary," and so we used that name in 1994. The next year, all of our notes simply referred to Antanimbaribe, as the village of Antsary was over a kilometer south of this location. In making the site list for the first 2 seasons at the beginning of the 1997 season, Antanimbaribe received its own number (Site 62), on the mistaken memory that this site 30 was actually Antanimbaribe *Atsimo*, as "atsimo" means "south," which we commonly used to designate an ancient site south of a modern location. A comparison of the two site maps will show that site 30 and 62 are in fact the same location. To avoid having to renumber sites from the 1997 season, we kept the double numbering for Antanimbaribe, so please see site 62 for further

description of this site.

*Artifacts:*

- 1 possible burnishing stone for making pottery
- 4 pieces of iron slag
- 1 piece of clay tuyere from smelting furnace, with slag dribbled on it (55 grams, magnetic)
- 9 fragments of chlorite-schist (191 grams, 3 magnetic, 6 non-magnetic, 1 repair hole, 1 weight illustrated below).
- 1 large chlorite-schist block (555 grams, looks to be raw material for making other objects, slight magnetic attraction).
- 6 plain rims (30 grams, 1 illustrated below).
- 1 decorated body sherd (3 grams, illustrated below)
- 26 plain body sherds (75 grams, 1 with possible ink on exterior, 3 have graphite inclusions).
- 1 piece of white quartz (the neighboring Tanala tribe uses white quartz as part of circumcision ceremonies (Ruud 2002:84), and maybe the Antemoro do as well).

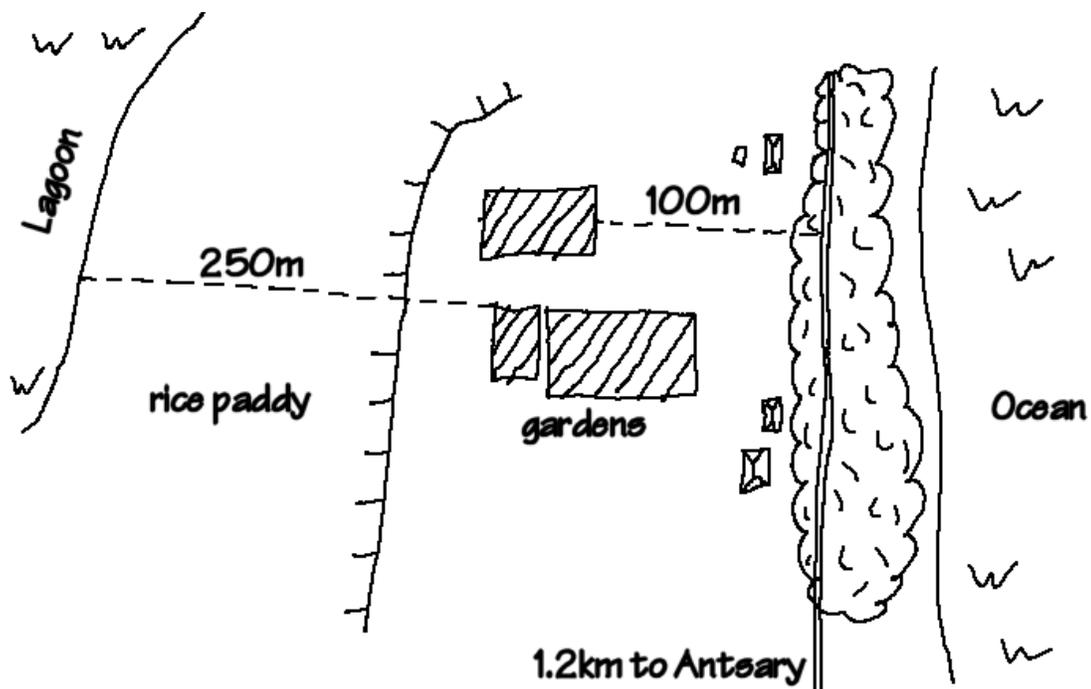


Figure A53. Site 30, Antanimbaribe Antsary.

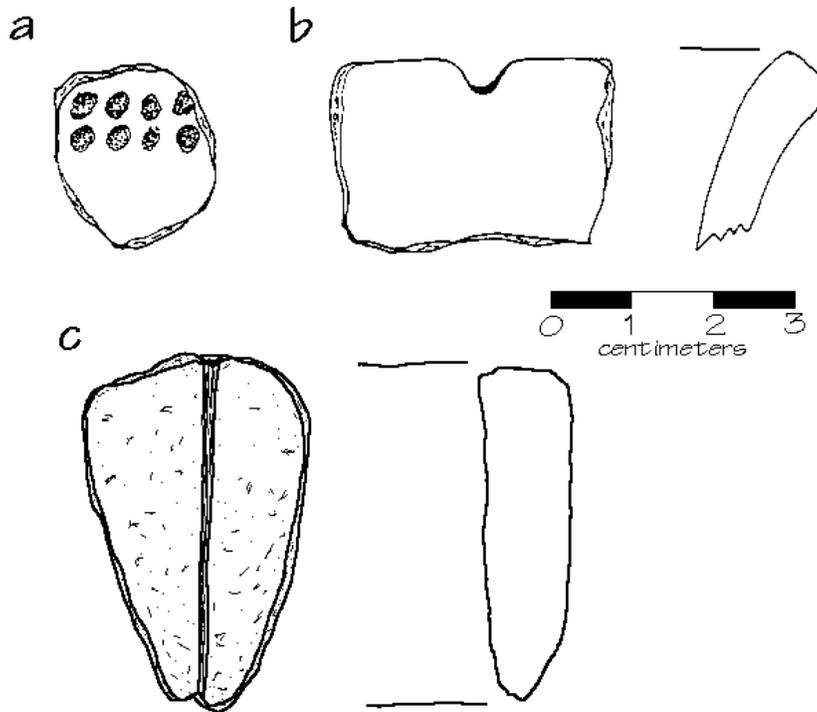


Figure A54. Site 30 artifacts.

a. Decorated body sherd with round punctates on exterior,  $t = .57$ , exterior color 5YR6/3, core color 5YR4/1 (reduced), 3 grams.

b. Plain rim sherd, interior color 5YR7/5, with possibly faint writing on exterior surface.

c. Chlorite-schist pendant weight,  $t=1.05$ .

**Site: 31      Antaritsinanana (also Andranovato) Region of: Vohipeno**

Laborde X: 551.1

Latitude: 22.41517

Season: 94

Laborde Y: 410.6

Longitude: 47.90717

Ceramic phase recovered:

Site today: garden

Collection method: complete collection

*Site Notes:* 5 sherds found in a garden southeast of Onjatsy (site 48). We did a quick shovel test pit (40 cm deep) and found no artifacts. Our test pit looked to be a single layer of river mud, and the archaeological deposits, if any, might be too deeply buried in river mud to recover.

*Ethnographic Notes and Oral Traditions:* The elders of Onjatsy pointed to this place as the site of their village between their time at Ambohabe near the sea and their current village at modern Onjatsy.

*Artifacts:*

5 sherds recovered, all of the same soft ware. The only rim recovered is illustrated below.

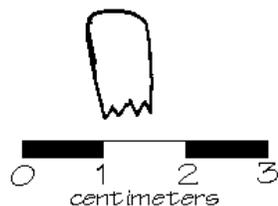


Figure A55. Site 31 artifact.

Plain rim sherd, t=.51, lip t=.84, exterior 7.5YR7/4, interior 5YR6/5.

**Antaritsinanana**

x - shovel test & wpt12

path to Onjatoy

22deg 24.91'S

47deg 54.43'E

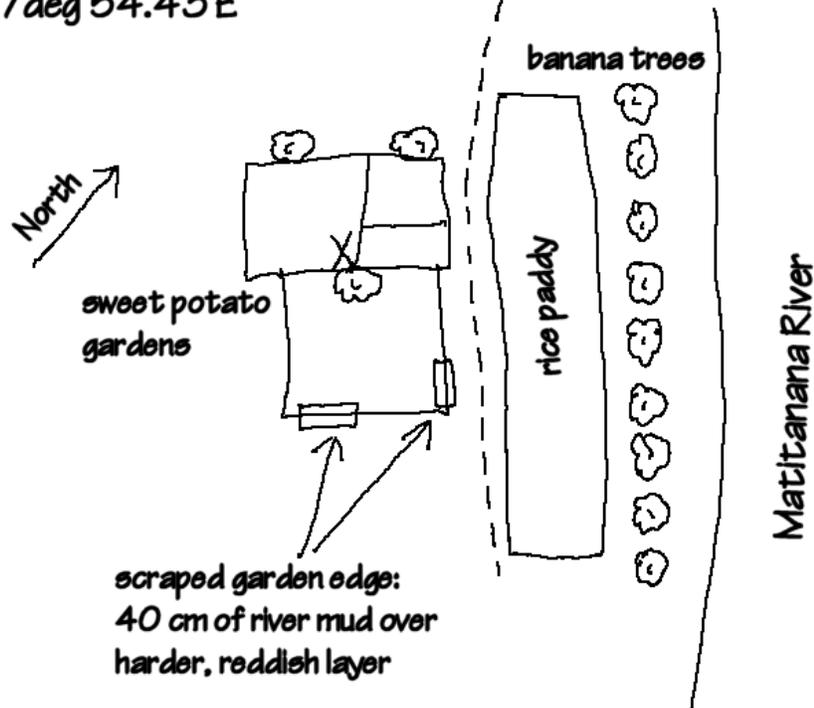


Figure A56. Site 31, Antaritsinanana.

<b>Site:</b> 32	<b>Antsary</b>	<b>Region of:</b> Manakara
Laborde X: 559.8	Latitude: 22.22567	Season: 94
Laborde Y: 431.3	Longitude: 47.98783	Ceramic phase recovered: 3/4*, 5*
Site today: garden	Collection method:	

**Site Notes:** 1 surface collection from 3 gardens around the village of Antsary and 1 collection from garden at 560.0-431.4

**Ethnographic Notes and Oral Traditions:** Antsary is a small collection of 12 houses very near the sea, with only a few sherds present. Across the canal to the west is a series of low hills that looked very promising (Ambodimanaga and to the North), but the canal is too deep at this point to cross on foot, and the only canoe available in the village was a 1-person questionable boat, so we skipped it our first season. In 1995 we did manage to cross the canal - we waited for a charcoal canoe to pass by, which just happened to be people from Antanambaza (our site 22), who remembered us from the previous year and gladly gave us passage. On the hill of Ambodimanga we found some large rock outcroppings, which appeared to us to be volcanic, perhaps basalt, and definitely not chlorite-schist quarries. The local name for the type of stone we found is "vatoarana."

**Artifacts:** Includes thin reduced sandy ware, coarse medium oxidized ware  
 - 2 plain rims (5 grams, illustrated below)  
 - 16 plain body sherds (37 grams, no graphite inclusions, but 1 is a thick, local white ware, t=.89,

interior and core 2.5Y8/2, exterior 7.5YR8/4, some reduced).

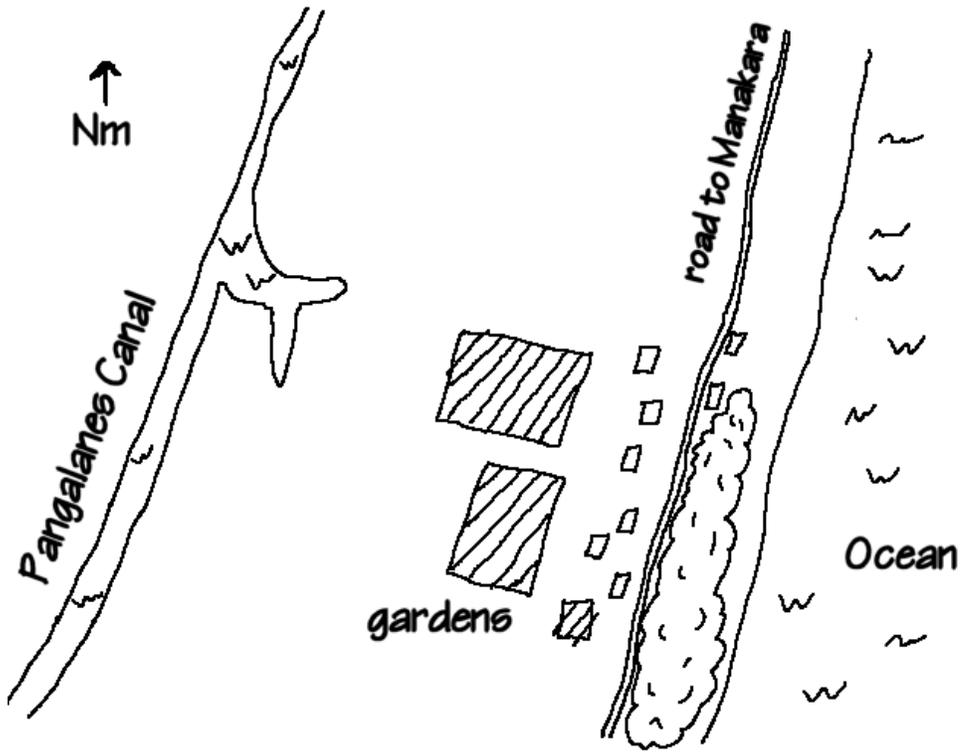


Figure A57. Site 32, Antsary.

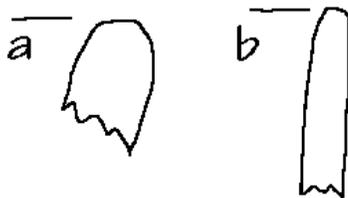


Figure A58. Site 32 artifacts.

- a. Plain rim sherd, diameter uncertain, t=.88, very coarse sand inclusions (5%), interior 5YR6/1.
- b. Plain rim sherd, d=16 (4% of rim), t=.44, medium sand inclusions (3%), interior 5YR6/3.

<b>Site:</b> 33	<b>Antsary Atsimo</b>	<b>Region of:</b> Manakara
Laborde X: 559.8	Latitude: 22.22933	Season: 94
Laborde Y: 431.0	Longitude: 47.98667	Ceramic phase recovered: 5
Site today: garden, charcoal pits		Collection method:
Site Notes: Sherd scatters in a garden on the back side of the dune to the east of the road, and exposed in a few recent charcoal pits to the west of the road.		
Artifacts: Includes thin reduced sandy ware, thin oxidized, vertical combing		
- 3 plain rims (10 grams, illustrated below)		
- 3 decorated body sherds (6 grams). All with linear combing on exterior, sand inclusions, t=.43, .37, and .36.		
- 12 plain body sherds (48 grams), no graphite inclusions, some red exterior and black interior,		

t=.50, .61.

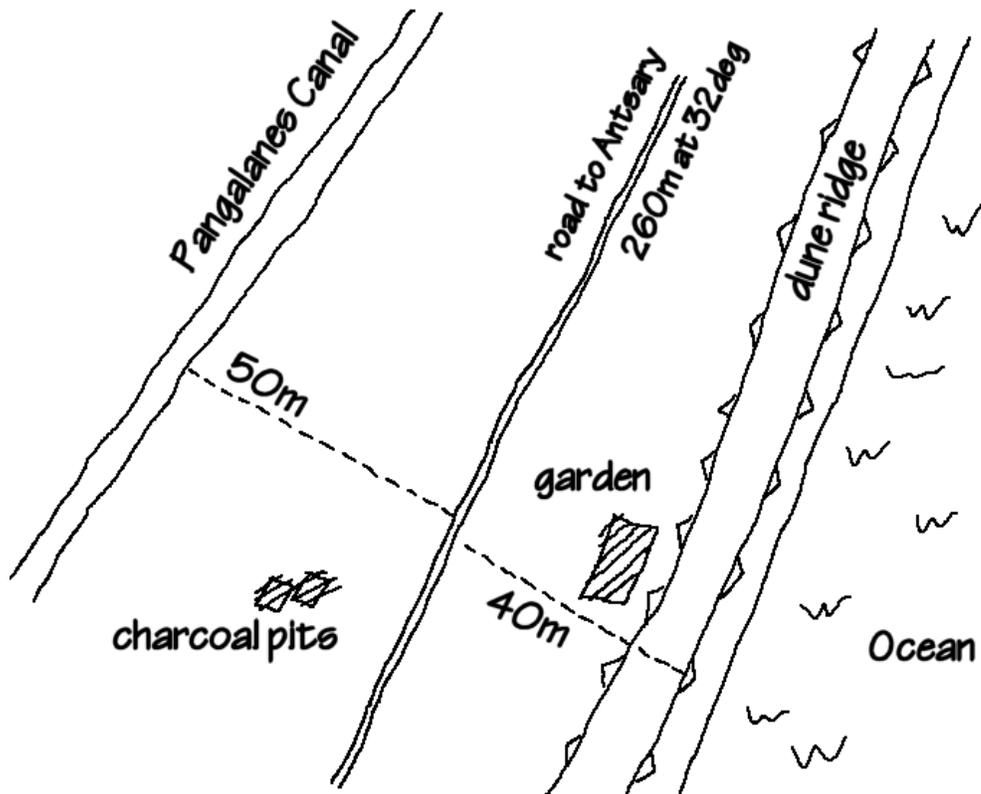


Figure A59. Site 33, Antsary Atsimo.

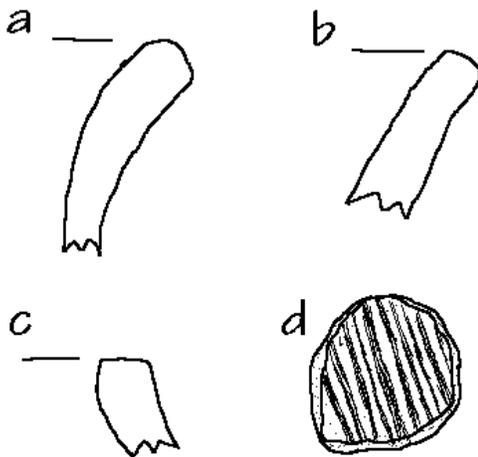


Figure A60. Site 33 artifacts.

- a. Plain rim sherd, d=20 (3% of rim), t=.7, interior 5YR7/1.
- b. Plain rim sherd, d=21 (4% of rim), t=.78, interior 7.5YR7/2, charred exterior.
- c. Plain rim sherd, d=18 (4% of rim), t=.77, interior 5YR4/2, exterior 5YR5/1, silver mica and shell inclusions (3%).
- d. Decorated body sherd with linear combing on exterior, fine sand inclusions (3%), t=.36, 5YR5/1, (compare with Isandra, 17<sup>th</sup>-18<sup>th</sup> century).

**Site: 34**                      **Antsary Avaratra**                      **Region of: Manakara**  
*Laborde X: 560.1*              *Latitude: 22.22067*                      *Season: 94*  
*Laborde Y: 431.9*              *Longitude: 47.99017*                      *Ceramic phase recovered: 3/4*  
*Site today: sweet potato*                      *Collection method: complete collection*

*Site Notes:* 1 surface collection from site and 1 from gardens at 560.0-431.6. These were very large gardens on both sides of the road with a low density of sherds. We scraped back the edge of one sweet potato garden and found an in situ sherd 30 cm. below ground surface. From these gardens it is 600 meters along the road at 217° to the village of Antsary (to the school at the north end of that village).

- Artifacts:*
- 6 fragments of chlorite-schist (80 grams), 1 strongly magnetic and the rest non-magnetic, no hole remains, only 1 with opposing sides (t=1.42cm).
  - 26 plain body sherds (53 grams), no graphite inclusions, 1 thick sherd (t=.97) with very coarse sand inclusions (20%), exterior 2.5YR7/6; and a 2<sup>nd</sup> sherd with shell inclusions
  - 1 plain rim (33 grams, illustrated below)
  - 2 large bases (110 grams, 1 illustrated below, the other is t=1.69, interior 5YR3/2, exterior 2.5YR4/2, of the same very coarse ware)
  - 1 decorated body sherd (5 grams), with a single incised line on exterior surface.

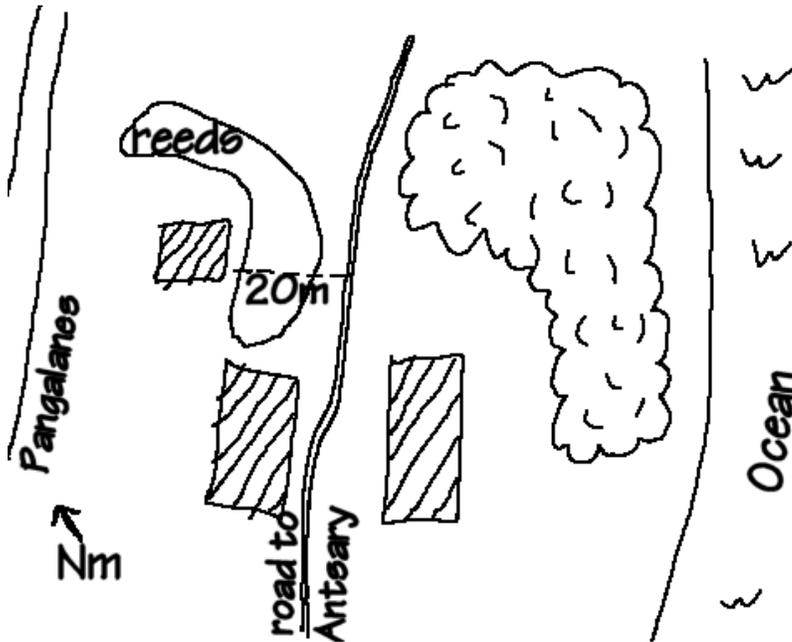


Figure A61. Site 34, Antsary Avaratra.

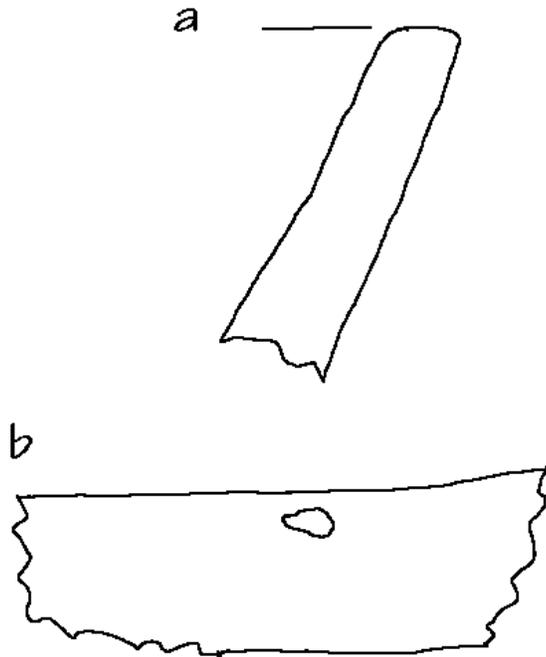


Figure A62. Site 34 artifacts.

- a. Plain rim sherd, d=24cm (8% of rim), t=1.22, lip t=.88, interior surface cracked, 7.5YR7/4, exterior 7.5YR4/2, black speck inclusions (organics?) (15%, medium) (NAA sample MAD006).
- b. Base fragment, t=1.91cm, very coarse sand inclusions (30%) with some quartz up to .55cm in size, interior color 5YR4/2, exterior surface has 3 sections of different colors – 7.5YR4/0, 7.5YR7/2, and 7.5YR4/2 (and the center of these sections also appears to be of a coarser fabric, or just weathered more).

<b>Site:</b> 35	<b>Enamaro</b>	<b>Region of:</b> Vohipeno
Laborde X: 554.6	Latitude: 22.21265*	Season: 94
Laborde Y: 416.7	Longitude: 47.56191*	Ceramic phase recovered: 3/4*
<i>Site today:</i>		<i>Collection method:</i> quick sample
<i>Site Notes:</i> A small sherd scatter 125 meters west of the path between Enamaro Avaratra (north) and Enamaro Atsimo (south), approximately midway between the two, found at the very end of the day (8/30/94).		
<i>Artifacts:</i> Includes graphite ware, coarse medium oxidized ware		
- 2 plain rims (3 grams, illustrated below). - 1 decorated body sherd (2 grams, illustrated below).		
- 8 plain body sherds (35 grams, 2 grey graphite ware, 1 other has chlorite-schist inclusions).		

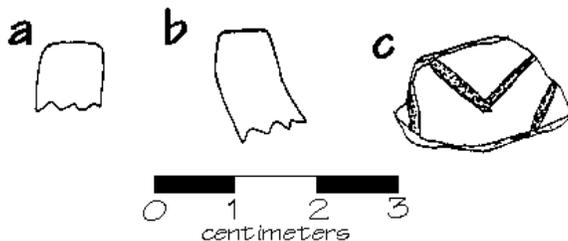


Figure A63. Site 35 artifacts.

- a. Plain rim sherd, diameter unclear,  $t = .75$ , very coarse sand inclusions (10%), interior color 5YR5/1.
- b. Plain rim sherd, diameter unclear,  $t = .75$ , exterior color 7.5YR4/2.
- c. Decorated body sherd,  $t = .61$ , coarse sand inclusions (10%), interior and exterior color 10R5/6.

**Site: 36**                      **Enamaro Atsimo**                      **Region of: Vohipeno**  
*Laborde X:* 554.6              *Latitude:* 22.21297\*              *Season:* 94  
*Laborde Y:* 416.6              *Longitude:* 47.56191\*              *Ceramic phase recovered:* 5, 6  
*Site today:* sweet potato                      *Collection method:* selective sample

*Site Notes:* Sherd scatter found in a sweet potato garden in dense forest, on the east side of the path coming from Ampasimeloka (site 21). Comparing the pottery on these three Enamaro sites indicates that the village moved southward over time.

- Artifacts:* Includes medium reduced sandy ware, early graphite ware
- 3 decorated rim sherds (45 grams, 2 illustrated below, all 3 have graphite inclusions).
  - 3 plain rim sherds (40 grams, 2 illustrated below, the other is 12.1g,  $d=17$  (6% of rim),  $t=.60$ , lip  $t=.76$ , plain brown ware with a whitish wiped exterior (now cracked), and a square lip).
  - 8 plain body sherds (40 grams, including type i and 2 with graphite inclusions).

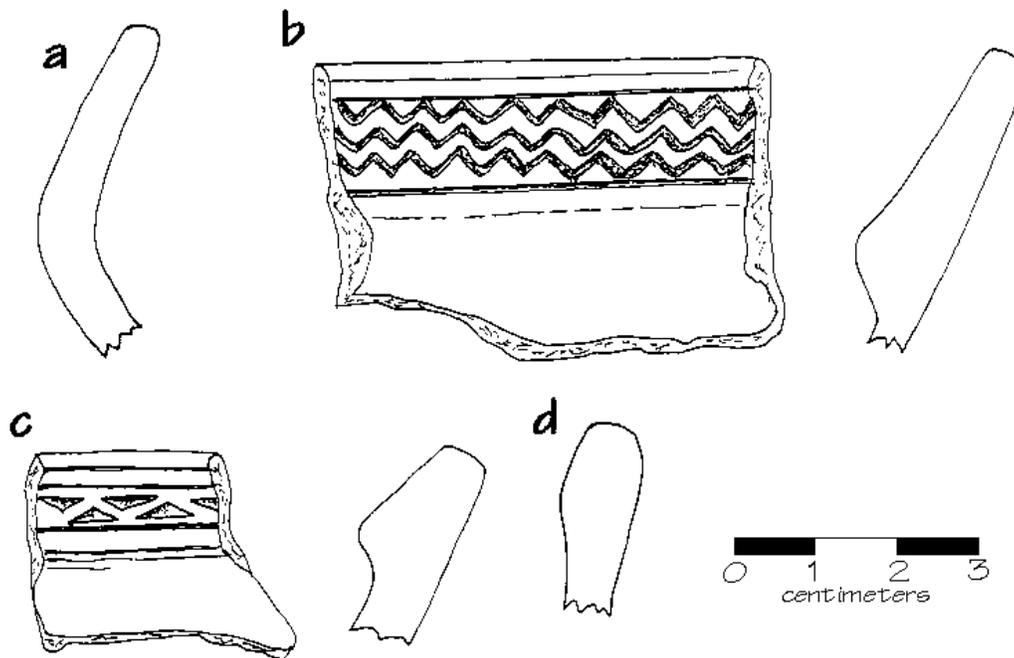


Figure A64. Site 36 artifacts.

- a. Plain rim sherd,  $d = 19$  cm (9% of rim),  $t = .57$ , medium sand and organic inclusions (15%), exterior color 5YR4/1, interior color 7.5YR7/2.
- b. Decorated rim sherd with wavy combing on interior of rim,  $d = 32$  cm. (6% of rim), lip  $t = .61$ , graphite inclusions (>50%), interior color 5YR4/1.
- c. Decorated rim sherd with triangle punctates in false chevron within incised lines on interior surface, diameter unclear,  $t = .74$ , graphite inclusions (40%), interior color 5YR5/2.
- d. Plain rim sherd,  $d = 20$  cm. (5% of rim), lip  $t = .94$ , coarse sand inclusions (20%), exterior color 5YR4/2.

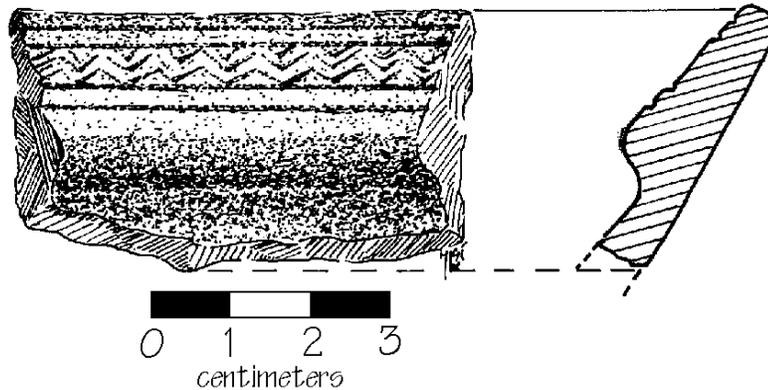


Figure A65. Site 36 duplicate illustration. Professionally drawn illustration of b above. Decorated rim sherd with wavy combing on interior of rim, d = 32 cm. (6% of rim), lip t = .61, graphite inclusions (>50%), interior color 5YR4/1.

**Site: 37**                      **Enamaro Avaratra**                      **Region of: Vohipeno**  
*Laborde X:* 554.7              *Latitude:* 22.35733                      *Season:* 94  
*Laborde Y:* 416.8              *Longitude:* 47.93767                      *Ceramic phase recovered:* 3/4  
*Site today:* garden                      *Collection method:*  
*Site Notes:* Small sherd scatter in a garden, chlorite-schist recovered.

*Artifacts:* Includes medium oxidized sandy ware  
- 5 plain body sherds (19 grams, none with graphite inclusions), of these, 3 sherds have a black interior and core (reduced 7.5YR2/0), with a whitish paste just beneath the exterior surface (5YR8/1), and an orange-ish exterior (2.5YR6/6).  
- 9 fragments of chlorite-schist (100 grams, of these 3 are weakly magnetic and 6 are non-magnetic, 2 have repair hole remains (d=.46, d=.44), and 7 have opposing sides preserved with thicknesses of t = 1.33, .79, .99, 1.45, 1.23, 1.33, and 1.45cm.

**Site: 38**                      **Enohona (or Enoña)**                      **Region of: Vohipeno**  
*Laborde X:* 548.2              *Latitude:* 22.4295                      *Season:* 94  
*Laborde Y:* 408.7              *Longitude:* 47.87617                      *Ceramic phase recovered:* 5  
*Site today:* village                      *Collection method:*

*Site Notes:* Sherd scatter in modern village, 1 surface collection made from eastern end of village.

*Ethnographic Notes and Oral Traditions:* Enohona is the main village of “untouchables” south of the Matitanana River. Our guide and main informant while in the village of Enohona was a man named Tsirambany. Three of our field crew (myself, Ramilisonina, and Philippe Beaujard) shared a lunch with the elders of Enohona, but the fourth member of our team that day (Victor Razanatovo), waited in the car outside the village. Razanatovo, an employee of the National Museum and one of my main collaborators in this project, is himself an Antemoro and did not want to risk going into an outcaste village. At the end of our meal the *mpanjaka* of Enohona gave us a live chicken to take home for our colleague Razanatovo to eat (apparently the taboo has much to do with who actually kills the animal and where the food is prepared).

It was apparent that the people of Enohona felt victimized, and were eager to tell their side of the story to anyone willing to listen. Beaujard agreed that their ancestors had most likely owned all of the rice fields south of the Matitanana River, and that perhaps they had been classified as outcastes so that their fields could be confiscated. In his article on the Antemoro

outcastes, Beaujard referred to Enohona as “Volobe,” which is more properly the name of their main cemetery today.

Near Enohona are two important cemeteries, one reserved specifically for children who die under three months in age. We were told that only women can bury children, though normally only men are allowed to go into a cemetery, except on November 1<sup>st</sup> (probably a tradition drawing on the French All Soul’s Day).

Artifacts: Includes thin reduced sandy  
 - 18 plain body sherds (45 grams), no graphite wares, 2 with burnished exteriors, some unusually soft paste fabric – 2.5YR5/6, some outcaste ware and gold mica inclusions (1,3%).

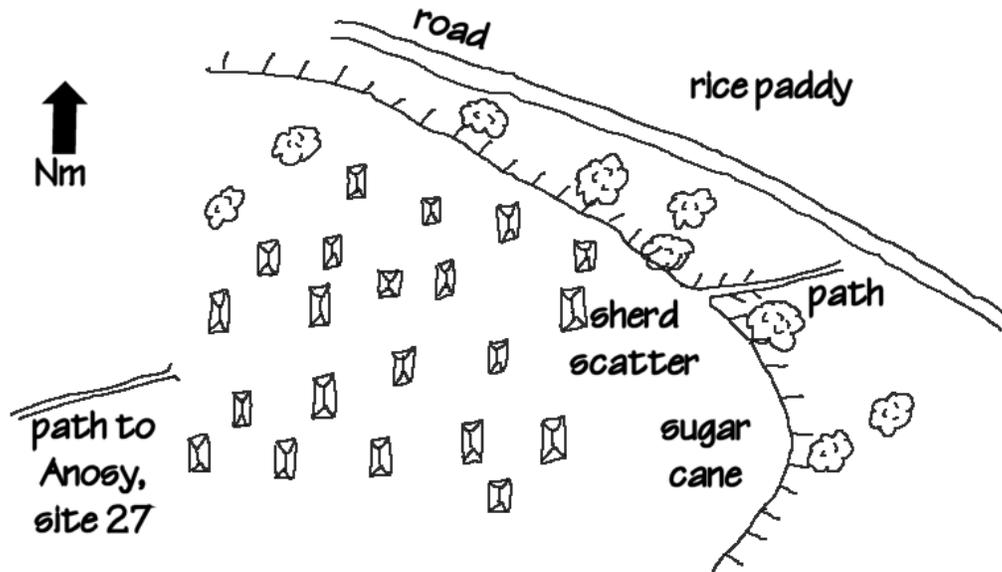


Figure A66. Site 38, Enohona village.

<b>Site:</b> 39	<b>Fotsivava</b>	<b>Region of:</b> Vohipeno
Laborde X: 551.1	Latitude: 22.23181*	Season: 95
Laborde Y: 413.3	Longitude: 47.54180*	Ceramic phase recovered: 5
Site today: coffee, mango		Collection method: complete collection

**Site Notes:** Ditched hilltop site with a small, sparse scatter of sherds from coffee and mango grove on SE slope of hill, 10 meters uphill from the ditch. Ditch is 4-5 m wide in most places, 75cm high on downhill side. Hill is heavily forested, which may help explain why the ditches here are larger and better preserved than at other nearby sites. However, the dense forest also prevented us from adequately mapping the site, and prevented us from using air photos for a similar purpose. Made two small sondages 10 meters outside the gate on the eastern side (S1 = 50cm x 30cm x 25cm deep, S2 = 40cm x 30 cm x 10 cm deep), into hard red soil, with many rocks, very difficult to dig.

**Ethnographic Notes and Oral Traditions:** The leaders of Ivato (site 40) and Vatomasina (site 69) both said that this hill top was the historic retreat for the Antemoro kings in time of war. Because of this tradition we investigated the hilltop and were surprised to find a ditched settlement (my colleague Ramil who has worked for decades all over the island, and who even assisted Jacques Pannetier in the 1970s with his work at Ambohabé, asserted that there were no ditched hilltop sites in the Matitanana region for cultural reasons. Therefore, the surprise of what we found at Fotsivava in our second season changed our survey strategy for the rest of the project.

**Artifacts:** 14 sherds including outcaste ware, thin reduced sandy ware, graphite ware, flat lip bowl and jar

Fotsivava transect  
NE - SW  
12 August '95

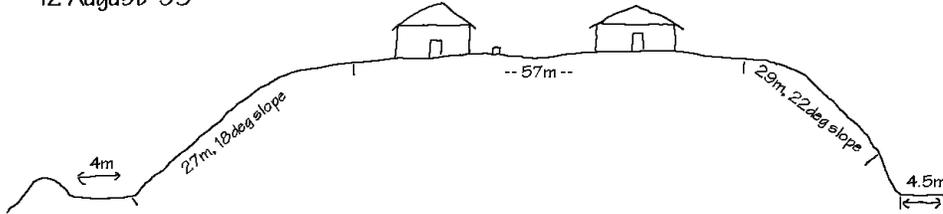


Figure A67. Site 39, Fotsivava.  
Center of site has a brass nail benchmark labeled "5(?) 195(?)" with 2 numbers illegible.

<b>Site:</b> 40	<b>Ivato</b>	<b>Region of:</b> Vohipeno
Laborde X: 547.5	Latitude: 22.39033	Season: 95
Laborde Y: 413.2	Longitude: 47.869	Ceramic phase recovered: 5
<i>Site today:</i>		<i>Collection method:</i> selective

**Site Notes:** No sherds found in Ivato village itself, but a selective sample of gardens to the south of town (second site map below).

**Ethnographic Notes and Oral Traditions:** Ivato is considered the Antemoro capital today and home to the man recognized as the king (Mpanjaka) over all Antemoro. I was first introduced to this man in 1992 (before the start of the Matitanana Archaeological Project) by a local high school teacher, Bernard Ramananarivo, and a grade school teacher, Frederic Rafanahaka (the Antemoro king himself had worked as a grade school teacher, though he was retired and in his 60's by the time I met him). This was my first introduction to the consistent spatial arrangement of people in Antemoro houses (with the house owner against the East wall opposite the door, the most important male visitor in the Northeast corner of the house, with the guests descending in importance towards the west, and women and children to the south nearest the hearth). There is also a consistent public debate ritual for any request. Next to the roof support in the center of the house sits a man playing the role of devil's advocate. His job appears to be to question everything and voice all possible concerns and potential problems with any course of action. During the ritual, this speaker would often seem hostile towards me personally, though once the Mpanjaka decides in my favor and the ancestors are included with a libation of rum, all seems forgiven and this "prosecuting attorney" is often the first to happily shake my hand.

My request on this first visit was to visit their tombs. Antemoro tombs differ in both appearance and function from the more famous communal tombs found elsewhere in Madagascar. The Antemoro differ from other people, and especially those in the central highlands, who place their tombs publically and proudly on hilltops or open spaces, gathering points for the famous Malagasy secondary burials known as *Famadihana* or the "turning of the bones" ceremony. The Antemoro however have created a "village of the dead" alongside the living village of Ivato. Five full sized wooden houses are surrounded by a barbed wire fence, with all of their doors and windows nailed shut. Leaning against the houses are a number of wooden statues serving as guardians, along with rows of standing stones. One of these megaliths is over seven feet tall, flanking the door to the "Dead King's" house (a royal "house tomb" as shown by the same regalia as on the living King's house – three inverted wooden triangles projecting above the peak of the roof along with two carved wooden birds). Elsewhere in Madagascar there is a very strong dualism between wood (meant for the living) and stone (meant for the ancestors), but

for the Antemoro the spirits of the ancestors are meant to reside in wooden houses just as they did during life. Even though this "village of the dead" is a ritual focus for the Antemoro, they claimed that the actual bones of their ancestors are not inside these houses but elsewhere, but they did not believe that the lack of the actual bones made these houses for the dead any less important. Elsewhere in Madagascar the stone communal tombs have such high visibility that everyone knows where a lineages ancestors lie, and the tombs themselves are protected by semi-subterranean entrances that are capped by megalithic stones and backfilled dirt. Such large public tombs are not the tradition in this region, and people generally did not want to discuss burial sites (I have heard other Malagasy explain that if an ill intending person removed the physical remains of the ancestors, they could severely damage the descendant family). Throughout my work in the Antemoro region people were interested and supportive of my investigations into the life of their ancestors. However, I believe I received the access and support that I did because I made it clear from the beginning that I had no interest in finding or studying human remains.

This first visit to Ivato was also the first time I heard the Antemoro version of their own history: that their ancestors came directly from Mecca in large ocean-going vessels that they no longer know how to construct; that they did not stop anywhere along the way until they reached the Matitanana region; that they consider themselves to be Muslims, though they no longer return to Mecca on pilgrimage; and that they do still worship on Fridays and consider their Sorabe texts to be "translations of the Koran" and "almost the same" as that sacred text.

Since the king in Ivato is said to control all of the Antemoro land, we would stop here first each season to ask permission for our research, and to discuss the results of the previous season's work. In 1995 the king showed good archaeological sense when, upon hearing that we had found 14<sup>th</sup> century Chinese ceramics at Marovahiny (site 46), claimed that "our date was too old since no one was living there at that time," and thus "these bowls must have been cherished antiques brought by their ancestors when they arrived more recently." After gaining permission from the *Mpanjaka* in Ivato, our second stop each season was to Onjatsy (site 48) to ask permission to be on the river (since they are viewed as the owners of the water).

In 1997 we talked with the Catholic priests serving in the area, and learned the story of Father Moniere, who came by canoe to Ivato from Ft. Dauphin in 1667, and is buried in the tomb at the door to the church overlooking Ivato. We are grateful for the assistance many priests offered during this project, including the use of their motorized outrigger canoe. A few even spent a few days assisting us in the survey field walking.

*Artifacts:* Includes foot-base, incising, flat bowl and everted jar  
- 60 plain body sherds (122.9g, including 6 type iC2, and the rest type i and reduced type iE), others with combing and linear incisions).  
- 3 decorated body sherds, type iE, 11.6g, t=.58, .63, .87, with linear combing.  
- 1 decorated body sherd, type iE, 2.4g, t=.50, with incised linear groove.  
- 2 bases (106.5g, d=4.56cm, and 121.2g, d=4.38cm)  
- 1 stoneware import (10.0g) with brown exterior and white interior  
- glass and iron slag (4.6g)  
- 11 plain rim sherds, type iE, 59.5g (6 illustrated below)  
- 1 decorated rim sherd, type iE, 5.9g with vertical linear combing on exterior (illustrated below).

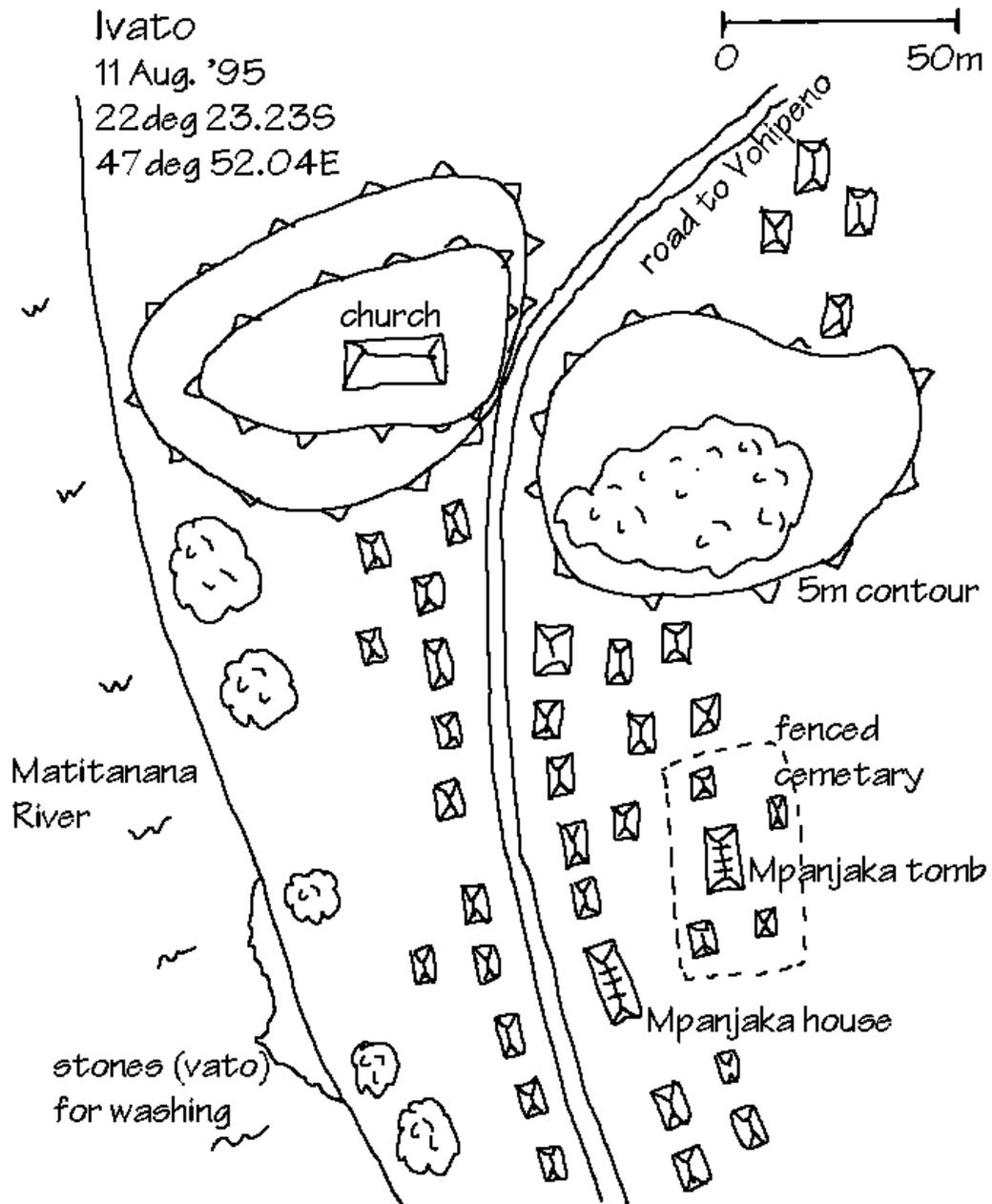


Figure A68. Site 40, Ivato village.

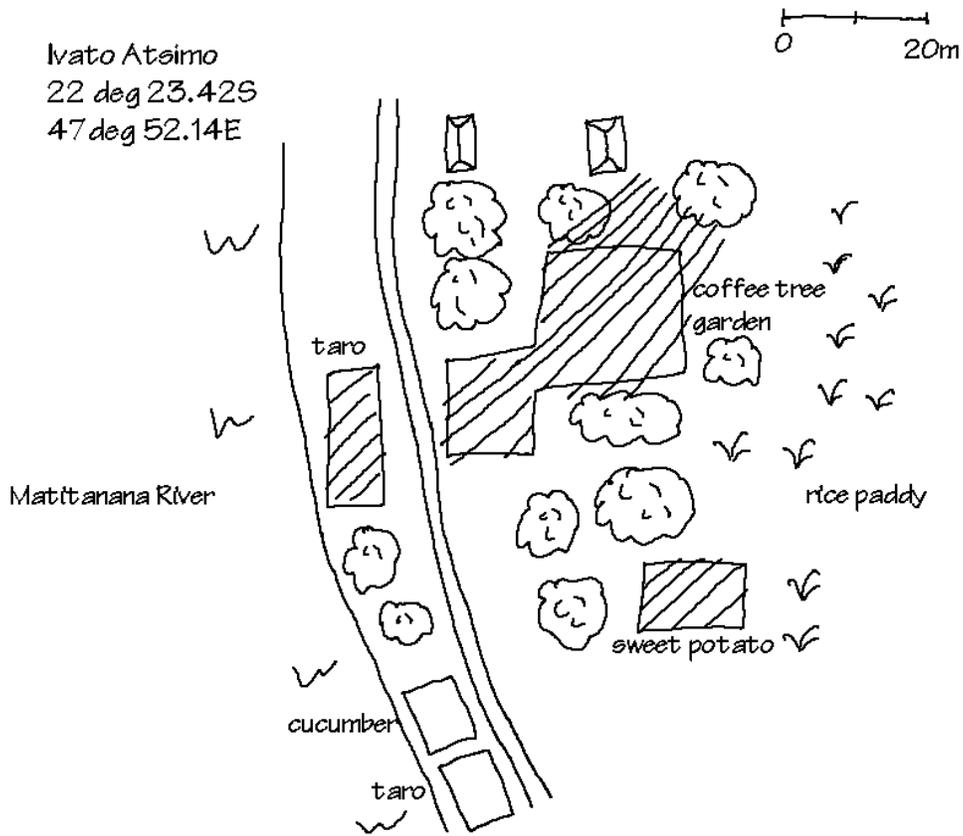


Figure A69. Site 40, Ivato Atsimo.  
 Most sherds were found in the coffee tree garden of Gervaise, Yabon ny Noeli.

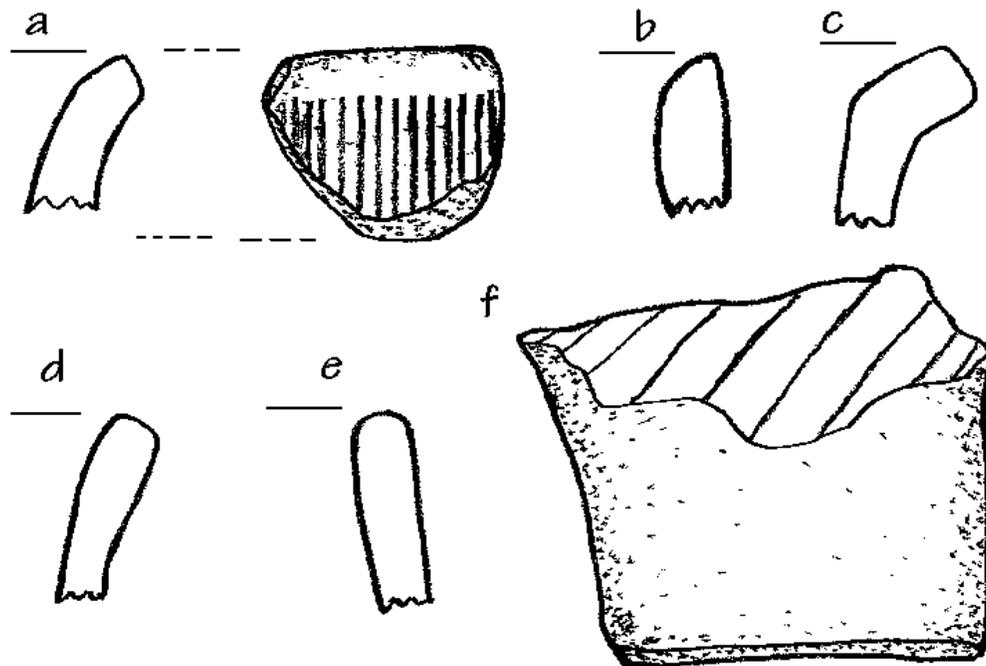


Figure A70. Site 40 artifacts.

- a. Decorated rim sherd, type iE, 5.9g, d=25 (3% of rim), t=.86, lip t=.63, 10YR4/1, with vertical linear combing on exterior.
- b. Plain rim sherd, type iE, 4.2g, d=26 (2% of rim), t=.95, 10YR4/1, with interior thickening of rim.
- c. Plain rim sherd, type iE, 6.7g, d=33 (2% of rim), t=.71, lip t=.77, 10YR5/1, with everted lip.
- d. Plain rim sherd, type i, 7.9g, d=31 (3% of rim), t=.54, lip t=.67, sand (2,5%), reduced 10YR4/2.
- e. Plain rim sherd, type iE, 9.1g, d=21 (5% of rim), t=.54, lip t=.72, 10YR4/1.
- f. Foot or lid knob, type iE reduced 10YR4/1, 121.7g, d=4.60cm, sand (1,5%).

**Site: 41                      Lamarina                      Region of: Vohipeno**

*Laborde X:* 547.3                      *Latitude:* 22.23031\*                      *Season:* 95  
*Laborde Y:* 413.8                      *Longitude:* 47.52051\*                      *Ceramic phase recovered:* 5?

*Site today:* school yard                      *Collection method:* complete collection

*Site Notes:* Small sherd scatter found in modern school yard on top of a hill, found while surveying between Voasary and Ivao, approximately 145 meters north of Ivato church.

*Artifacts:*

1 plain body sherd, type ii, 1.7g

**Site: 42                      Lazamasy Taloha                      Region of: Vohipeno**

*Laborde X:* 549.2                      *Latitude:* 22.37917                      *Season:* 95  
*Laborde Y:* 414.4                      *Longitude:* 47.88517                      *Ceramic phase recovered:* 5

*Site Notes:* Hilltop ditched site 112m north to south. The ditch is only .15m deep, 4m wide, with a 1.2m drop on the downhill south and southwest sides (see Sophie Blanchie's new book on the Karana). Center of enclosure is now occupied by a school, and sherds were found in gardens just outside the ditch on the east side, and a garden inside the ditch on the south side.

*Ethnographic Notes and Oral Traditions:* This village appears wealthier than most, and had a very engaging *Mpanjaka*, Radolpha Stefan (or Yabon'ny Talise). We first questioned him on the nearby ditched site of Vohitratafana (site 60), and he was able to tell us of other ditched sites as well. He claimed to know of 5 mountains that were fortified in this way: Vohitratafana (site 60), Fotsivava (site 39, where we found our first ditched settlement), Vohilonjo (the tallest hill by which sailors mark the Matitanana River, on which we did not find a ditch), and Ikongo (which might refer to a famous fortified mountain far inland where the Tanala resisted the Merina, or perhaps to a more local hill which also shares the name). The final fortified site was his own village of Lazamasy, which once had a more proper defensive ditch, but he claims to have personally participated in filling in the ditch to expand their gardens for coffee trees (see illustration below). The *Mpanjaka* claimed that the older village of Lazamasy was just to the south of the ditched enclosure, towards the Anoloky river, and he claims this was before the 13<sup>th</sup> century. (Our field walking only recovered very small pieces, broken up by garden work, in this area). Upon learning how we use artifacts in archaeology, the *Mpanjaka* presented us with 2 nice bases/lids he had recovered while working his own sweet potato garden on the eastern edge of the enclosure, which he had saved because they interested him. I sincerely appreciated Radolpha Stefan's help and acknowledge that it was encountering people like him that made this survey project so interesting.

*Artifacts:* Includes foot-base, thin sandy medium reduced, Karana ware, incised and vertical combing, outcaste ware, carved graphite with hole.

- 6 body sherds (18.0g, including 2 with single incised grooves and 1 with double groove, illustrated below).

- 3 plain rim sherds, 11.5g, 1 type i with a square lip t=.64, 2 type iE illustrated below.

- 1 imported thin ceramic rim with a red lip (1.4g, t=.32),

- 2 bases (1 illustrated below and the other 53.1g, d=4.92).

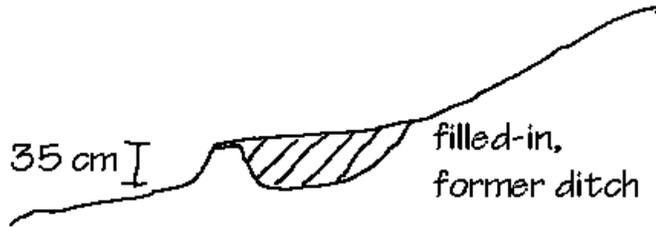


Figure A71. Site 42, Lazamasy former ditch.

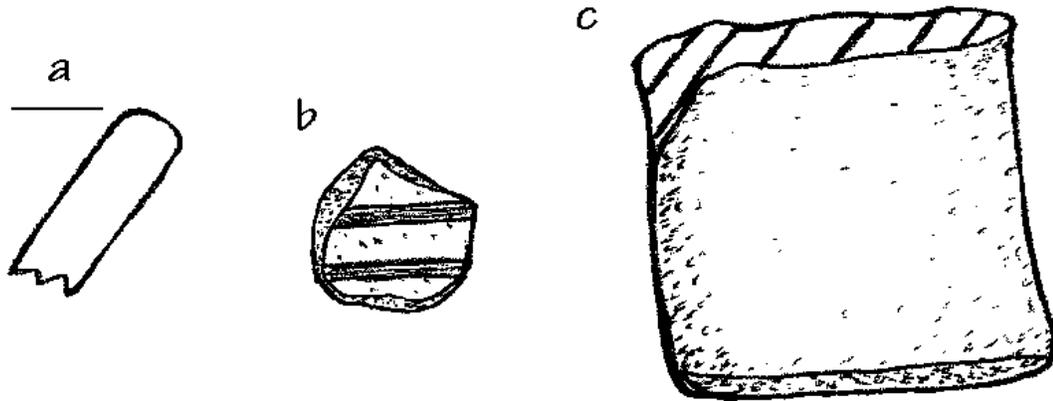


Figure A72. Site 42 artifacts.

- a. Plain rim sherd, type i, 5.5g, d=13 (5% of rim), t=.80, lip t=.75, sand (1,5%), 10YR5/3.  
 b. Decorated body sherd, type i, 2.2g, t=.57, 10YR5/3, with incised double grooves on exterior.  
 c. Foot or lid knob, type i, 120.0g, d=4.78cm, reduced core 10YR4/1, surface 10YR6/3.

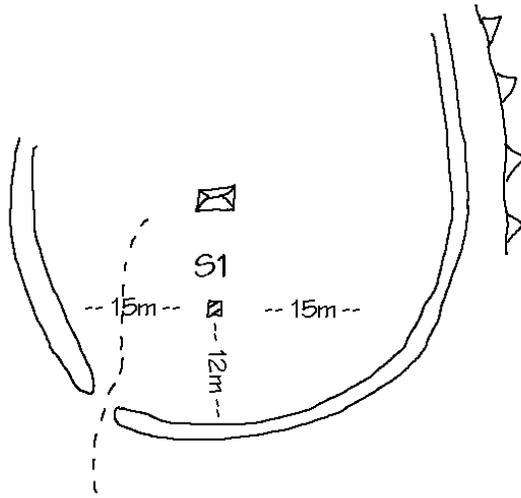
<b>Site:</b> 43	<b>Lovasoa (Mandaha)</b>	<b>Region of:</b> Vohipeno
Laborde X: 537.3	Latitude: 22.27717	Season: 95, 97
Laborde Y: 425.9	Longitude: 47.76983	Ceramic phase recovered: 4*, 5
Site today: house compound		Collection method:

**Site Notes:** A ditched enclosure, 30m in diameter, at the top of a forested hill. Sherds recovered from the house compound in the center. On Oct. 16, 1997 we returned to undertake a test excavation at this site (see map below). Sondage #1, a 1x1m trench, was taken down to rocky sterile, which turned out to be only 11 cm below ground surface in the southern portion (and 15 cm. b.g.s. in the northeast corner). Only 2 sherds were recovered in situ, and given the lack of soil accumulation on this hill top we did not learn as much as we would have hoped, and so switched our efforts to the sondage at nearby site 24.

**Ethnographic Notes and Oral Traditions:** This site was originally recorded in the field notes as "Manda 2" because of the confusion over the name. Evidently, the hill itself is known as Mandaha (see notes for site 24), which now holds 2 farmsteads, the lower known as Ambohitarivo (with a water cistern) and the farm at the top of the hill known as Lovasoa.

**Artifacts:** Includes foot-base, medium oxidized sandy ware, graphite ware  
 3 plain body sherds, 16.5g, 1 reduced t=.86, 1 oxidized t=.78, 1 plain brown ware t=.80

Mandaha  
Sondage 1



Mandaha ridge

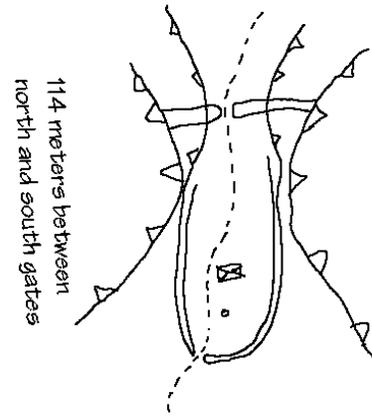


Figure A73. Site 43, Lovasoa Mandaha.

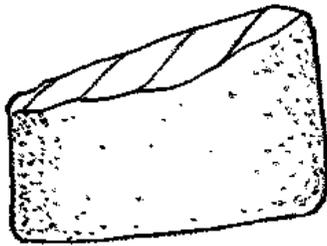


Figure A74. Site 43 artifact.

Base or lid knob fragment, 20.7g, d=4.12cm, sand (2,5%), surface 7.5YR6/4, reduced core 10YR4/1 (was sawn to create NAA sample MAD017).

**Site:** 44

**Mahasoa (Mahasoabe)**

**Region of:** Vohipeno

Laborde X: 537.3

Latitude: 22.28433

Season: 95

Laborde Y: 425.0

Longitude: 47.7715

Ceramic phase recovered: 5,6\*

Site today: village

Collection method: selective sample

**Site Notes:** The village of "Mahasoa" on the map is referred to by its inhabitants as "Mahasoabe" (or *big* Mahasoa). The sherd scatter was found in the southern portion of village, amongst the houses, over 20x20m.

**Artifacts:** Includes double incised, everted flat lip jars and bowls  
29 sherds (113.1g), many decorated with double and triple parallel grooves, including  
- 1 decorated rim, type iC, with eroded triangle punctates on interior, and  
- 9 plain rim sherds, reduced type iE with sand and gold mica inclusions (1, 3%) (3 illustrated below).

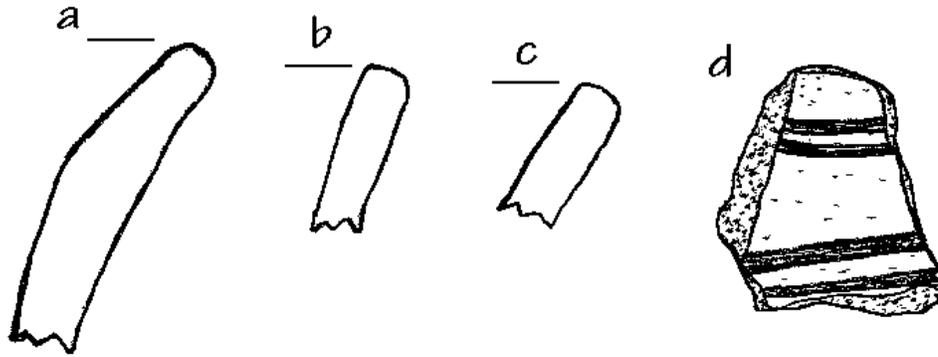


Figure A75. Site 44 artifacts.

- a. Plain rim sherd, type iE, 13.8g, d=20 (3% of rim), t=.67, lip t=.60, sand (1,5%), exterior 10YR4/1.
- b. Plain rim sherd, type iE, 5.9g, d=21 (4% of rim), t=.48, lip t=.58, sand and black flecks (1,5%), 10YR5/2.
- c. Plain rim sherd, type iE, 4.9g, d=27 (2% of rim), t=.67, lip t=.61, sand and black flecks (2,3%), exterior 10YR4/1, interior 10YR6/3.
- d. Decorated body sherd, type iE, 4.2g, t=.56, sand and black flecks (2,3%), reduced exterior 10YR4/1, interior 10YR6/3, with incised double grooves on exterior.

**Site: 45**

**Mahavelo**

**Region of: Vohipeno**

*Laborde X:* 548.8

*Latitude:* 22.37367

*Season:* 95

*Laborde Y:* 424.8

*Longitude:* 47.882

*Ceramic phase recovered:* 5

*Site today:* village

*Collection method:* thorough complete collection

*Site Notes:* Village is on a tall hill overlooking the river, similar in appearance to Fotsivava (site 39), but we could not find any ditch remains at this site. Mahavelo is such a nice location for a retreat that we searched hard for artifacts, but only recovered 1 foot-base (or lid knob) sherd in ground on eastern edge of village.

**Site: 46**

**Marovahiny (Ambohabe)**

**Region of: Vohipeno**

*Laborde X:* 552.3

*Latitude:* 22.41267

*Season:* 94, 95

*Laborde Y:* 410.6

*Longitude:* 47.91617

*Ceramic phase recovered:* 0-4

*Site today:* cassava, sweet potato

*Collection method:* selective sample

*Site Notes:* Marovahiny is a large farmstead near the conjunction of the Pangalanes Canal and the Matitanana River, currently occupied by Yabon'ny Gova and his family. In 1994 we visited Marovahiny on three different days, and made small collections each time from a surface scatter that was estimated to cover 90 x 150 meters. In addition, we excavated sondage #1 (.5m x .5m with 7 levels) on Sept. 2, and sondage #2 (1m x 1m with 13 levels) on September 6. Ramilisonina immediately suggested parallels to the Ankatso Phase ceramics of the central highlands (decoration with impressed triangles between parallel lines) excavated by Adrien Mille. Local Antemoro claimed that the appliqué sherd we recovered was in fact Sorabé writing (Figure A83h). In 1995 we returned to camp at this site for a week in August to undertake a coring project and more extensive excavations (as described more fully in Chapter 5 of this dissertation). The coring project was begun to help delimit the size of this site, but after realizing the likelihood of recovering artifacts in the cores, we switched instead to a phosphate analysis of the soil layers. To also help determine the extent of this site we placed two 50cm sondages in the flat grassy field across the Pangalanes Canal from Marovahiny, neither of which yielded any artifacts. My field journal for this camping trip records on 9/19/95 that "I arrived over-eager and over-ambitious

(like the good graduate student) only to find 2 days of hard rain followed by malaria.” Due to our work in 1995, Marovahiny became the most intensively investigated site for the Matitanana Archaeological Project, and lent it’s name to our first chronological phase (though the site was also occupied in the following Mananano and Ambohabe phases). Sondage 3 from this site provided the only absolute dates for the Matitanana project, 1 a radiocarbon date and the other a thermoluminescence date. The radiocarbon date (DRI3168) of a charcoal sample from levels 13 and 14 of sondage 3 (as neither level had sufficient amounts of charcoal for a standard date, and thus the charcoal from the two levels was combined) returned a likely calibrated date of AD 940 to 1260. A thermoluminescence date (Aitken 1985) on a sherd from level 14 of sondage #3 (DUR2000TL pfg 269-2) gave a likely date of AD 960 to 1360. These two dates lay the foundation for the ceramic phases developed by other means.

*Artifacts:*

More work was undertaken at Marovahiny than at any other site in this project, and this fact is reflected in the ceramic collection. This is a large and dense site that appears to have been occupied for an extended period of time. During 1994, surface collections recovered 73 sherds (438 grams, of which 29 sherds were decorated or rims, as we selectively focused on these) and 7 pieces of chlorite-schist (205 grams). Of these, 24 are illustrated below. Included in this sample were 4 imported sherds: 2 were Chinese blue and white, crackled under clear glaze, t=.34 (with bare base interior) and t=.34. 1 imported sherd was a thin “celadon” rim, not crackled, dark green, t=.27, with a leaf design on the exterior of a straight rim.

In 1995 we added to the surface collection a pumice stone (similar to the pumice given us in Onjatsy, site 48, for making repairs) and a sharpening stone.

The artifact counts for the sondages completed on this site are as follows:

Site 46, Marovahiny, Sondage #1

Level 1 - 5 sherds (10 grams), no decoration or rims, but 1 brown graphite ware.  
Level 2 - 6 sherds (7 grams), no decoration, rims or graphite, but 1 has burnished exterior  
Level 3 - 7 sherds (9 grams), 6 plain body sherds and 1 tiny rim (illustrated below)  
Level 4 - 3 sherds (5 grams), no decoration, rims, or graphite  
Level 5 - 9 sherds (10 grams), no decoration, rims, or graphite  
Level 6 - 20 sherds (34 grams), 6 have graphite, 7 are burnished, & 2 rims (illustrated below)  
Level 7 - 7 sherds (7 grams), 6 plain body sherds and 1 decorated (illustrated below)

Site 46, Marovahiny, Sondage #2

L0 – 11 sherds (24g); 4 decorated, 2 illustrated below  
L1 – 50 sherds (120g); 10 decorated, 6 rims, 6 illustrated below  
L2 – 170 sherds (406g); 15 dec, 5 rims, 9 illustrated below, iron slag  
L3 – 120 sherds (227g); 11 dec., 4 rims, 4 illustrated, iron & chlorite-schist (2 pieces, 20g)  
L4 – 102 sherds (216g); 12 dec., 6 rims, 5 illustrated  
L5 – 96 sherds (206g); 7 dec., 8 rims, 9 illustrated, 1 imported white porcelain, C-S (3, 50g)  
L6 – 128 sherds (330g); 10 dec., 4 rims, 4 illustrated, C-S (1, 5g)  
L7 – 47 sherds (98g); 3 dec., 0 rims, 2 illustrated, C-S (1, 3g)  
L8 – 24 sherds (142g); 1 dec., 1 rim, 2 illustrated, iron, C-S (2, 72g)  
L9 – 6 sherds (13g); 1 dec., 1 rim, 2 illustrated, iron (gossan), C-S (1, 2g)  
L10 – 0 sherds (0g); no artifacts recovered, but charcoal still present  
L11 – 4 sherds (15g); 1 decorated rim (illustrated) with “pie crust” lip, maybe related to Indonesian wares, C-S (1,2g)  
L12 – 1 sherd (2g); 1 plain body sherd (t=.49), medium shell inclusions (10%), 5YR5/1 ext.

Site 46, Marovahiny, Sondage #3 General Impressions:

L1 has 3 Celadon imports  
L3 has the most and the biggest sherds

L6 has few sherds  
L7 has many sherds, lots of iron slag and slag coated clay  
L9 has imported "Black on Yellow" (or yellow brown sgraffiato, 1050 – 1250 AD)  
L10 and below have very few artifacts, unfired ceramic basin, crucible like in shape  
L11 has the first soft, thick cream ware, and another "Black on Yellow" import  
L12 has appliqué sherd with writing  
L13 has only chlorite-schist  
L14 and L15 have lots of soft cream ware.

Site 46, Marovahiny, Sondage #3 Detailed Artifact Counts (using '95 ware typology):

Level 1:

22 plain body sherds, type i, 25.4 grams  
5 plain body sherds, type ii, 4.4gr  
1 plain body sherd, type iB, .5gr  
1 plain body sherd, type iC, 1.6gr  
2 decorated body sherds, type i, 5.2g, with linear incisions (1 illustrated below)  
1 decorated body sherd, type i, 2.9g, with triangle punctates inside band (ill. below)  
2 decorated body sherds, type i, 5.4g, with triangle punctates in rows  
3 plain body sherds, type viC, 2.1g, celadon, cracked glaze, very light pale green  
1 decorated body sherd, type iA, 6.6g, with single row of triangle punctates bounded by incisions (ill. below)  
1 decorated body sherd, type iB, 4.6g, with horizontal row of triangle punctates (ill. below)  
1 decorated body sherd, type i, 2.0g, with rice grass impression (ill. below)  
1 plain chlorite-schist body sherd, type viiiB, 86.6gr  
2 pieces of glass, type ix, 2.4gr

Site 46, Sondage #3, Level 2:

1 small bone, .3gr  
1 piece iron slag, type viiA, 1.9gr  
3 plain body sherds, type iD, 14.1g, t=.103  
16 plain body sherds, type iB, 54.0g, t=.62 to .96  
37 plain body sherds, type i, 28.6g, t=.45 to .87  
4 plain body sherds, type ii, 21.1g, t=.80  
1 decorated body sherd, type iA, 1.1g, t=.62, with three single punctates  
1 decorated body sherd, type iB, .8g, triangle punctate in incised line (illustrated below)  
1 decorated body sherd, type ii, 3.1g, with incised lines (ill. below)  
1 decorated body sherd, type iB, 7.7g, with triangle punctates in false chevron and vertical combing (ill. below)  
1 plain rim, type iC1, 1.7g, tiny, rounded lip  
1 decorated rim, type iA, 23.6g, with vertical columns of triangle punctates in incised lines (ill. below)

Site 46, Sondage #3, Level 3:

3 plain body sherds, type iD, 20.2g, t=1.10  
9 plain body sherds, type iB, 73.4g, t=.51 to .90  
1 plain body sherd, type iC, 1.0g, t=.51  
73 plain body sherds, type i, 147.9g, t=.49 to 1.01  
9 plain body sherds, type ii, 14.5g, t=.80  
8 plain rim sherds, type i, 13.8g, t=.75, too small to draw  
1 plain rim sherd, type i, 7.0gr (illustrated below)  
2 plain rim sherds, type ii, 2.5g, too small to draw  
8 decorated body sherds, type i, 21.4g, t=.85, with linear incisions  
2 decorated body sherds, type iB, 5.0g, t=.55 to .89, with triangle punctates, triangle base = .53 to .64cm.  
2 decorated body sherds, type i, 13.6g, with linear incisions (ill. below)  
2 decorated body sherd, type i, 18.2g, with linear and wavy incisions (ill. below)  
1 decorated body sherd, type i, 4.0g, with raised ridge (ill. below)

2 decorated rim sherds, type i, 32.8g, with close parallel incisions (ill. below)  
1 decorated rim sherd, type iC, 6.1g, with triangle punctates in false chevron (ill. below)  
1 clay disc with square hole and iron plug in center, type iB, 3.0g, (ill. below)  
1 amorphous piece of baked clay, type i, 8.0gr  
1 piece of translucent quartz, .6gr  
1 tiny piece of shell, .1gr  
2 fragments of un-worked chlorite-schist, type viiiA, 2.7gr  
10 fragments of chlorite-schist, type viii, 32.0g, t=.83 to 1.0

Site 46, Sondage #3, Level 4:

1 piece of iron slag with baked clay attached, type viiC, 3.7gr  
1 piece of rough angular iron slag, type viiB, 13.3gr  
1 translucent quartz, 1.2gr  
3 fragments of un-worked chlorite-schist, type viiiA, 2.8gr  
3 fragments of carved chlorite-schist, type viiiB, 13.0g, 2 of which have repair holes  
1 plain body sherd, type iB, 5.2g, t=.68  
32 plain body sherds, type i, 40.7g, t=.50 to 1.14  
9 plain body sherds, type ii, 25.9g, t=.68  
2 decorated body sherds, type ii, 4.1g, with linear incisions (1 illustrated below)  
1 plain body sherd, type iD3, 16.1g, t=1.22cm  
1 decorated body sherd, type i, 6.3g, with parallel incised lines (ill. below)  
3 plain rim sherds, type i, 14.4g, 2 with sooting on exterior (1 ill. below)  
1 decorated rim sherd, type i, 2.9g, with linear incisions (ill. below)  
1 decorated rim sherd, type i, 6.0g, with small round or square punctates on exterior (ill. below)  
1 clay disc, type i, 2.4g, t=.62cm, no sign of center hole.

Site 46, Sondage #3, Level 5:

1 piece bone, .1gr  
1 piece ground stone, 41.8g, flat and smooth on one side, broken on the other  
1 piece rough angular iron slag, type viiB, 3.5gr  
2 fragments of carved chlorite-schist, type viiiB, 11.3g, t=1.61 with repair hole  
18 plain body sherds, type i, 35.1g, t=.62 to 1.11, (2 have softer, creamy paste closer to type iii, but are still dark on one side)  
1 plain body sherd, type iB1, 4.0 g, t=.65  
1 plain rim, type i, 6.7g, hole mouth jar (illustrated below)  
1 decorated rim, type i, 2.4g, hole mouth jar with raised vertical ridges (ill. below)

Site 46, Sondage #3, Level 6:

3 fragments chlorite-schist, type viiiA, 3.1gr  
1 fragment carved chlorite-schist, type viiiB, 16.9g, t=1.54 with partial repair hole  
3 plain body sherds, type iB, 11.7g, t=.72, 1 with black soot exterior  
2 plain body sherds, type ii, 3.7g, t=.86  
8 plain body sherds, type i, 16.8g, t=.79 to .85  
1 plain body sherd, type i but with softer, creamy paste, 2.8g, t=.94  
1 decorated body sherd, type i, 9.8g, t=.91, with parallel incised lines  
1 decorated body sherd, type i, 5.0g, with raised boss on exterior (ill. below)

Site 46, Sondage #3, Level 7:

1 piece iron slag with clay attached, type viiC, 51.6gr  
16 pieces iron slag with smooth droplets, type viiA, 129.4gr  
1 piece of ground stone, 19.4gr (maybe fire cracked rock)  
1 fragment chlorite-schist, type viiiB, 45.7g, t=1.61, with single raised ridge  
11 plain body sherd, type i, 39.8g, t=.51 to .92  
1 plain body sherd, type iB1, 2.0g, t=.62  
2 plain body sherds, type iiiB, 2.7gr  
1 decorated body sherd, type i, 3.1g, t=.88, with a single incised line

Site 46, Sondage #3, Level 8:

1 rock, clay, iron concretion, 3.9gr

9 pieces iron slag with smooth droplets, type viiA, 34.2gr  
2 pieces rough angular iron slag, type viiB, 11.4gr  
5 fragments chlorite-schist, type viiiB, 30.0g, 1 with repair holes  
2 smooth pebbles, 1.2gr (to buff pottery?)  
8 plain body sherds, type i, 10.0g, t=.51 to .87  
3 plain body sherds, type iiiB, 2.7g, t=.62  
1 plain body sherd, type iiiA, 2.0g  
1 plain body sherd, type ii, 2.2g, t=.54  
2 plain body sherds, type iB1, 3.0g, t=.55, .57  
1 plain rim sherd, type iB1, 3.6g  
2 shells or seed husks, (to bone box, identified as drum teeth)

Site 46, Sondage #3, Level 9:

1 decorated rim sherd, type viB, .3g, t=.42 (imported)  
11 plain body sherds, type i, 28.9g, t=.38 to 1.05  
2 plain body sherds, type iB1, 5.6g, t=.45, .82  
1 plain body sherd, type iiiA, 4.9g, t=1.22  
5 plain body sherds, type iiiB, 2.3g  
2 pieces iron slag with smooth droplets, type viiA, 8.5g  
1 piece rough angular iron slag, type viiB, 6.2g  
5 fragments chlorite-schist, type viiiB, 13.9g, t=1.24 to 1.38, 1 with partial repair hole  
1 fragment chlorite-schist, type viiiB, 46.2g, t=1.41, different material from others, brown  
1 large soft rock (or clay?), 100.4g  
1 piece of fire cracked rock, 9.3g  
1 smooth pebble (pottery burnish?), 3.2g  
1 white bead blank, .6g (looks like pencil eraser)  
bone fragments, 2.4g

Site 46, Sondage #3, Level 10:

1 piece iron slag with smooth droplets, type viiA, 12.7g  
1 chlorite-schist rim fragment, type viiiB, 14.3g, with incised lines on top of lip (illustrated below)  
4 plain body sherds, type iiiB, 1.9g  
8 plain body sherds, type i, 7.0g, t=.38 to .53  
1 plain body sherd, type iB1, 4.1g, t=.63  
1 plain body sherd, type iD, 11.6g, t=1.87  
1 plain rim sherd, type iiiB, 8.4g, t=1.85 (illustrated below)  
Feature 2 turned out to be a disintegrating sherd, type iiiB, 6.7g

Site 46, Sondage #3, Level 11:

bone fragments, .1g  
1 decorated body sherd, type viB, .3g, t=.45, imported  
3 plain body sherds, type i, 3.7g, t=.35 to .53  
3 plain body sherds, type iiiB, 3.3g, t=.62

Site 46, Sondage #3, Level 12:

3 bone fragments, .3g  
2 fragments chlorite-schist, 10.9g, t=1.24  
1 piece iron slag with smooth droplets, type viiA, 2.7g  
2 plain body sherds, type i, 3.1g, t=.61, .75 (with some red towards type ii)  
1 decorated body sherd, type i, 2.1g, t=.68 with appliqué letter (illustrated below)

Site 46, Sondage #3, Level 13:

4 fragments of chlorite-schist, type viiiB, 10.7g, t=1.05

Site 46, Sondage #3, Level 14:

2 fragments of chlorite-schist, type viiiB, 10.7g, t=.74, 1.09  
4 plain body sherds, type iii, 6.9g  
1 plain rim, type iiiB, 4.3g, (illustrated below)

Site 46, Sondage #3, Level 15:

12 plain body sherds, type iii, 26.9g, t=.77 to 1.45  
1 fragment chlorite-schist, type viiiB, 1.0g

Site 46, Marovahiny, Sondage #4 Detailed Artifact Counts (using '95 ware typology):

Level 1:

1 cow tooth, 35.9g  
1 decorated body sherd, type viC, 4.5g, t=.43 (same celadon as S3L1)  
4 pieces of green glass, type ix, looks modern  
1 chlorite-schist rim fragment, type viiiB, 7.5g, t=.99, no decoration, round lip  
3 fragments of chlorite-schist, type viiiB, 17.7g  
4 decorated body sherds, type iB, 21.8g, with triangle punctates in false chevron, t=.54 to .79, triangle base = .41 to .64, 1 also has vertical fine combing (illustrated below)  
2 decorated body sherds, type i, 5.5g, with triangle punctates, t=.67, .90, triangle base = .44, .32  
5 decorated body sherds, type iB, 14.1g, with narrow, deep, linear incisions (1 ill. below)  
1 decorated body sherd, type i, 1.0g, with wide incised groove (ill. below)  
2 decorated body sherds, type iB, 4.1g, t=.56, with very fine toothed combing  
1 decorated body sherd, type i, 5.8g, t=.75, with wide shallow groove combing (ill. below)  
1 decorated body sherd, type iA, 5.0g, with triangle punctates in vertical lines (ill. below)  
1 decorated body sherd, type i, 5.4g, with hatch marks inside bands (ill. below)  
1 decorated rim sherd, type iA, 13.1g, with triangle punctates in vertical lines (ill. below)  
1 decorated rim sherd, type iB, 19.5g, with triangle punctates above vertical incised lines (ill. below)  
2 decorated rim sherds, type iB, 29.7g, with triangle punctates in false chevron (ill. below)  
1 decorated rim sherd, type iC1, 2.3g, with triangle punctates (ill. below)  
1 decorated rim sherd, type i, 1.0g, with parallel incised lines and square lip (ill. below)  
2 plain rim sherds, type i, 9.2g, (1 ill. below)  
2 pieces of iron slag with smooth droplets, type viiA, 33.8g  
4 plain body sherds, type iC, 15.7g  
37 plain body sherds, type iB, 107.6g, t=.75  
64 plain body sherds, type i, 89.5g, t=.62  
8 plain body sherds, type ii, 9.6g, t=.63  
3 plain body sherds, type iiiB, 7.7g, t=.77, 1.45  
4 plain body sherds, type iB1, 8.1g, t=.74  
3 plain body sherds, type iA, 14.1g, t=.60  
1 plain base (or possible rim), type i, 10.0g, t=.77 (ill. below)  
2 plain body sherds, type i, 5.3g, with crossing linear incisions (ill. below)  
1 plain body sherd, type i, 2.6g, with rice husk impression (ill. below)  
1 plain body sherd, type iB, .8g, with probable rice husk impression

Site 46, Sondage #4, Level 2, Artifact Counts:

71 plain body sherds, type i, 138.2g, t=.59 to .97  
15 plain body sherds, type iiiB, 29.5g, t=.54 to 1.09  
7 plain body sherds, type iA, 15.5g, t=1.00  
5 pieces of iron slag, type viiA, 50.7g  
1 piece of iron slag, type viiD, 3.6g  
8 fragments of chlorite-schist, type viiiB, 19.8g, t=.83 to 1.48, including a possible chlorite-schist tuyere  
1 round chlorite-schist weight, type viiiC, 4.3g, t=1.24  
1 fragment of chlorite-schist, type viiiB, 2.5g, t=.90, with partial repair hole and iron plug  
1 fragment of chlorite-schist, type viiiB, 3.8g, with incised lines (illustrated below)  
2 decorated body sherds, type i, 5.7g, with pairs of deep holes (unusual, illustrated below)  
1 decorated body sherd, type ii, 4.3g, with deep parallel grooves and ridges on a convex surface, (ill. below)  
2 decorated body sherds, type i, 8.1g, with shallower grooves and ridges on a concave surface, t=.71, .72

- 1 decorated body sherd, type ii, 1.3g, t=.45, tiny sherd with 2 possible grooves
- 1 plain rim sherd, type i, 10.9g (ill. below)
- 1 plain rim sherd, type iiiB, 3.2g (ill. below)

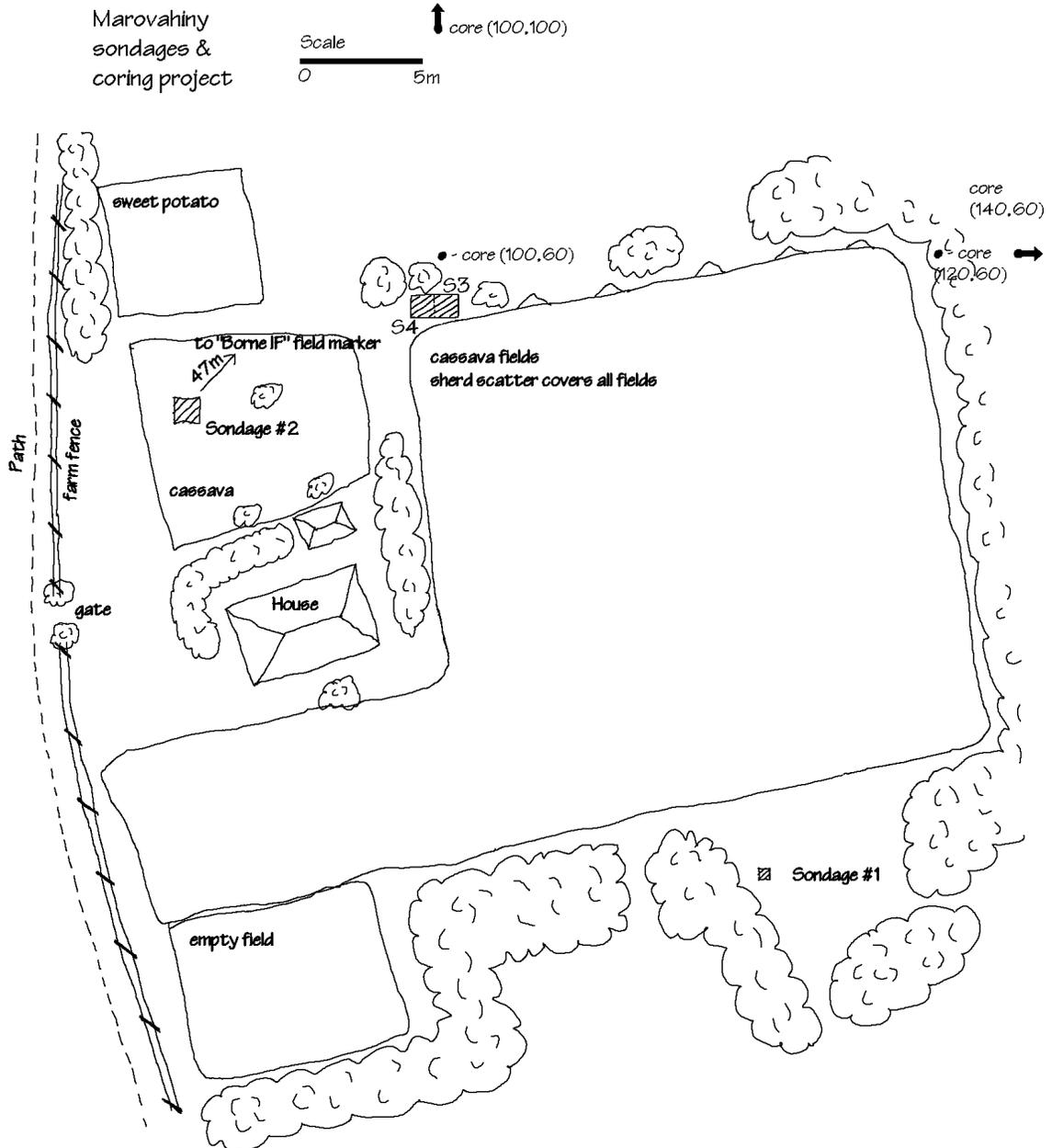


Figure A76. Site 46, Marovahiny.

Marovahiny, Sondage #1  
2 Sept. '94  
Profile of East Wall

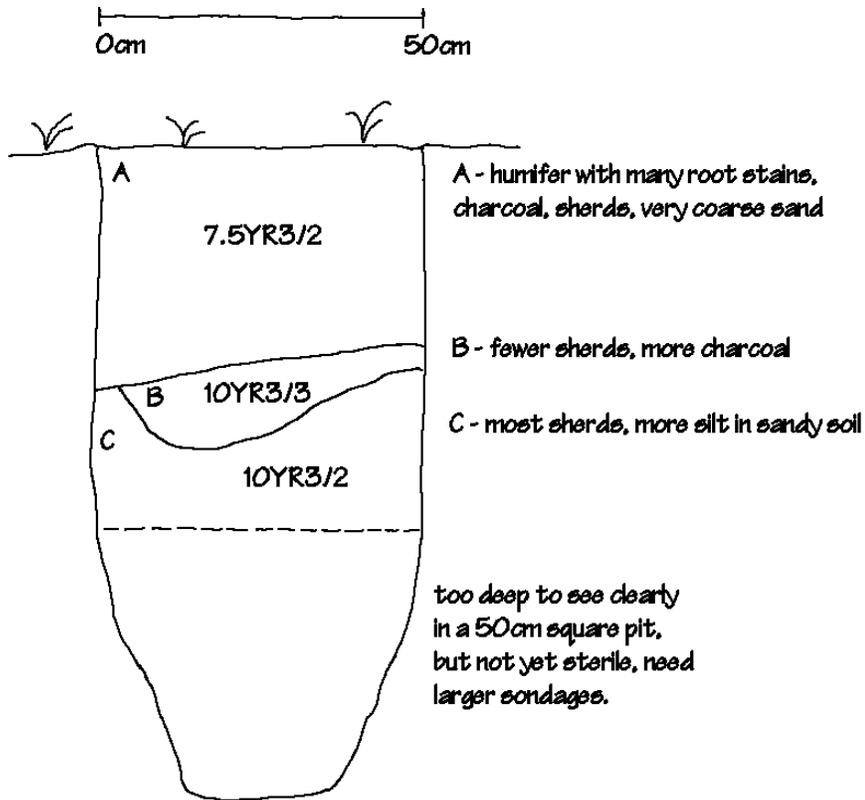


Figure A77. Site 46, Marovahiny, Sondage #1 Profile.

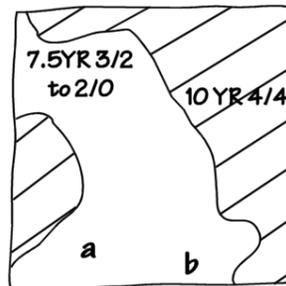
# Ambohabe-Marovahiny (site 46)

## Sondage #2 Selected Plans

10 cm 50 cm

### Level 7 65-75 cm. below datum

Coarse to fine sand, feature in NE and W is yellower with fewer artifacts, excavated separately

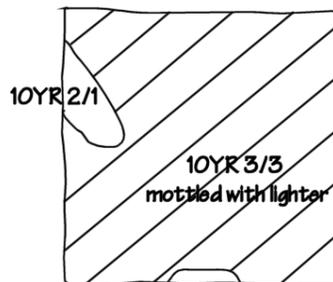


a = Charcoal sample taken from 72 cm. b.g.s.

b = Two plain body sherds taken for Thermal Luminescence Dating, with soil sample, from 71 cm. b.g.s.

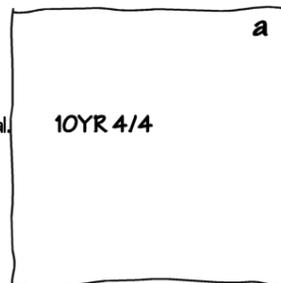
### Level 8 85 cm. below datum

Few sherds, much charcoal



### Level 9 95 cm. below datum

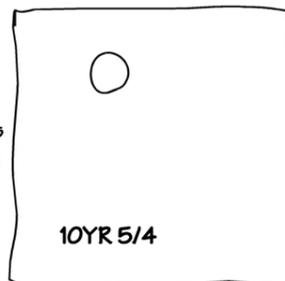
Soft, uniform sand, coarse to medium, sub-rounded, color mottled, less charcoal



a = Charcoal sample taken from 88 cm. b.g.s., just below decorated rim sherd.

### Level 10 105 cm. below datum

Well-sorted sand, charcoal but no sherds (though sherds return in Levels 11 and 12)



Probable Post Hole, 14 cm diameter, 10YR 6/6

Figure A78. Site 46, Sondage #2 selected plans.

# Ambohabe-Marovahiny (site 46)

## Sondage #2 Profile, West Wall

Excavation by shovel, trowel, and quarter-inch screen.  
 Ground surface - Cassava garden and palm fronds

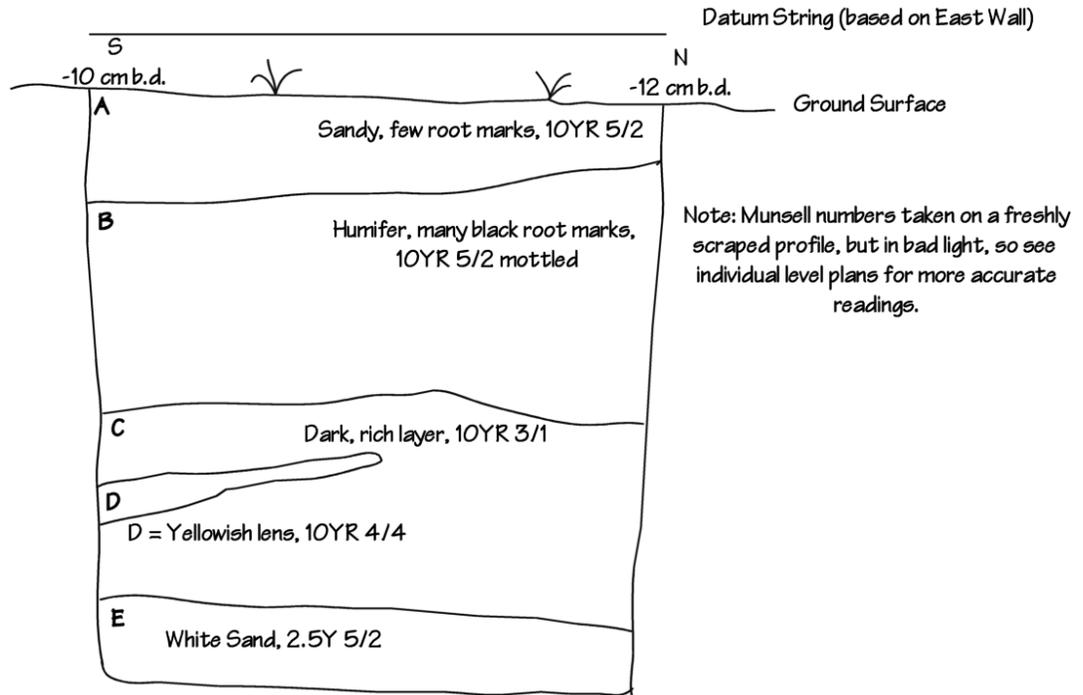


Figure A79. Site 46, Sondage #2 Profile.

Marovahiny  
 Sondage #3  
 Profile, North wall

0 20cm

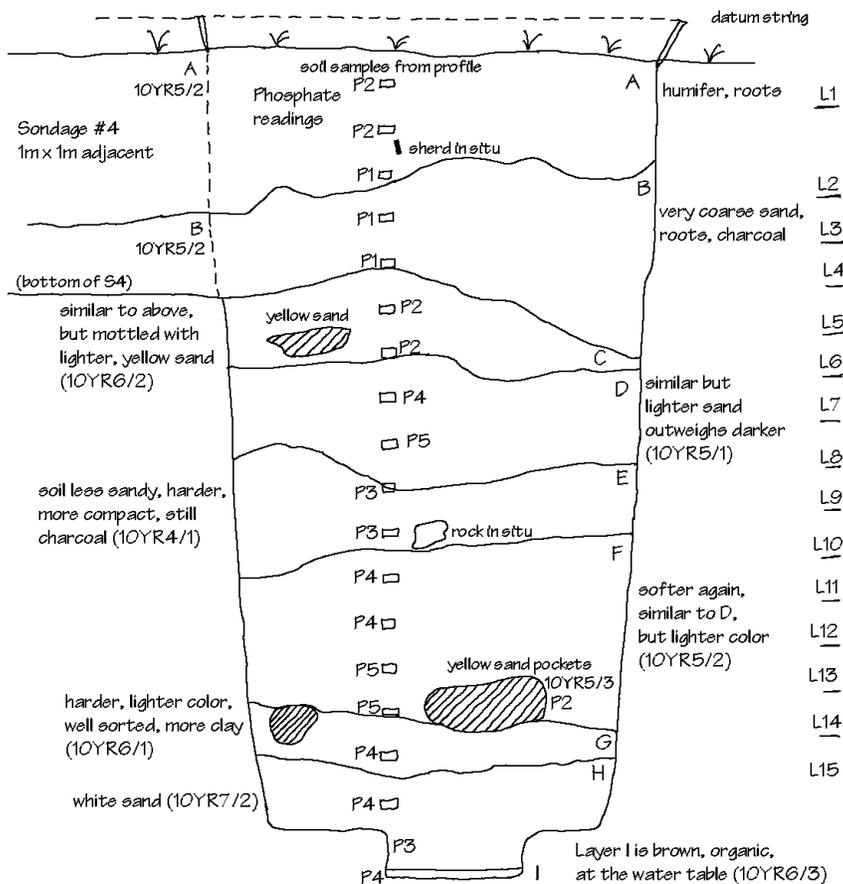


Figure A80. Site 46, Sondage #3 Profile.

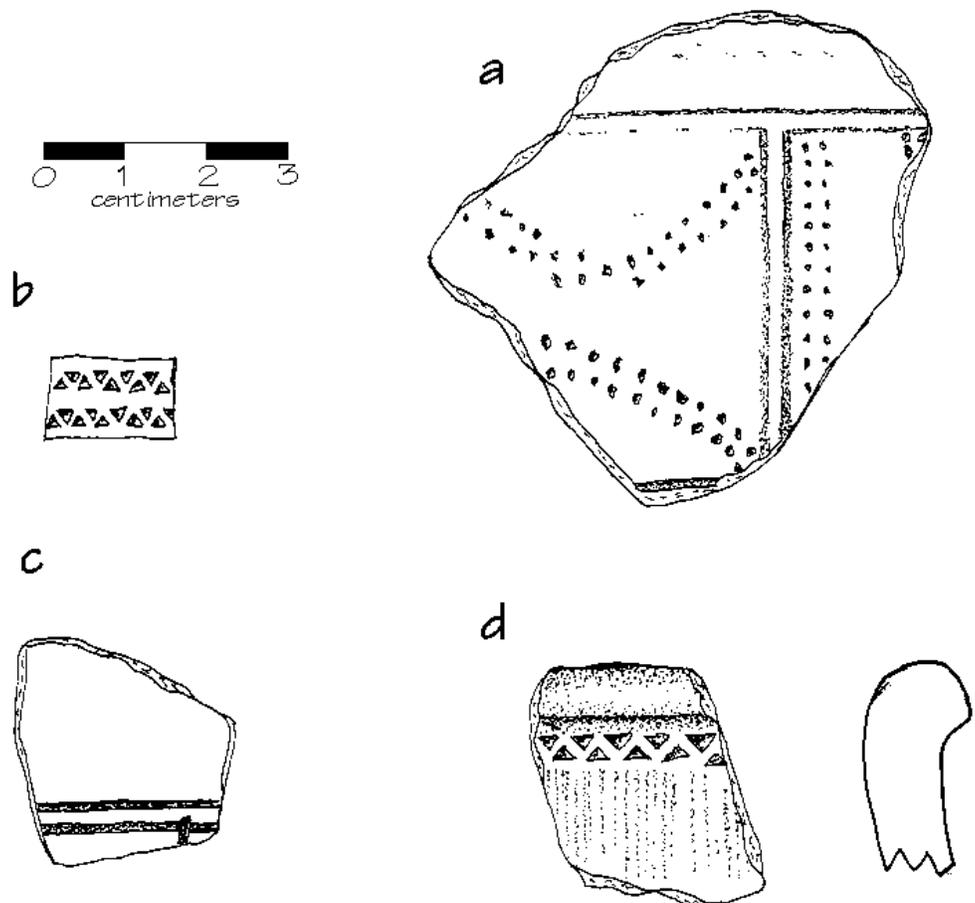


Figure A81. Site 46 artifacts surface collection.

a. Decorated body sherd,  $t = .78$ , sand inclusions (.05-.2, 10%), interior color 7.5YR 6/4, exterior color 10YR3/1

b. Detail of grey graphite decorated body sherd with two rows of false chevron.

c. Body sherd with deep incisions on exterior,  $t = .75$ , sand inclusions (.05-.3, 5%), interior color 5YR5/4, exterior color 5YR4/2

d. Decorated rim sherd, orientation and diameter uncertain,  $t = .87$ , lip  $t = 1.26$ , grey graphite speckled fabric, sand inclusions (.05-.3 cm, 5%), Interior and exterior colors 5YR3/1.

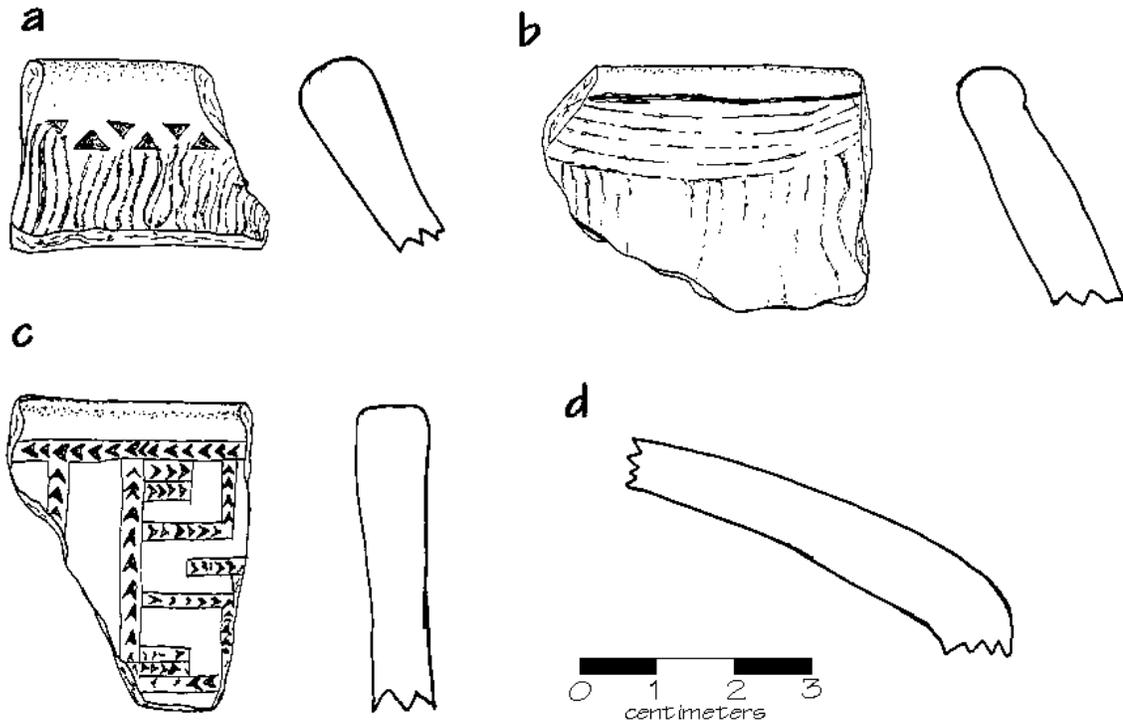


Figure A82. Site 46 artifacts surface collection part 2.

a. decorated rim sherd, very deep punctates with vertical wavy combing beneath on exterior, too small to accurately determine diameter or orientation but diameter is approximately 26 cm, 3% of rim, grey graphite speckled (30%),  $t = .63$ , lip  $t = 1.04$ , 7.5YR4/0

b. decorated rim sherd with combing on exterior, reflective quartz inclusions (30%, doesn't mark paper), 5YR5/2,  $d = 26$ , 4% of rim,  $t = .85$ , lip  $t = .86$ . (my phase 3 wavy combing)

c. decorated rim sherd, punctates forming design within incised borders on exterior (looks somewhat like writing), sand inclusions (sparse), dark wide core (5YR4/1) reduced, Interior and exterior color 5YR6/4,  $d = 20$  cm, 5% of rim,  $t = .71$ , lip  $t = .88$ .

d. Chlorite-schist lid fragment (or possibly open bowl),  $t = .79$ , includes a drilled hole .35 cm in diameter.

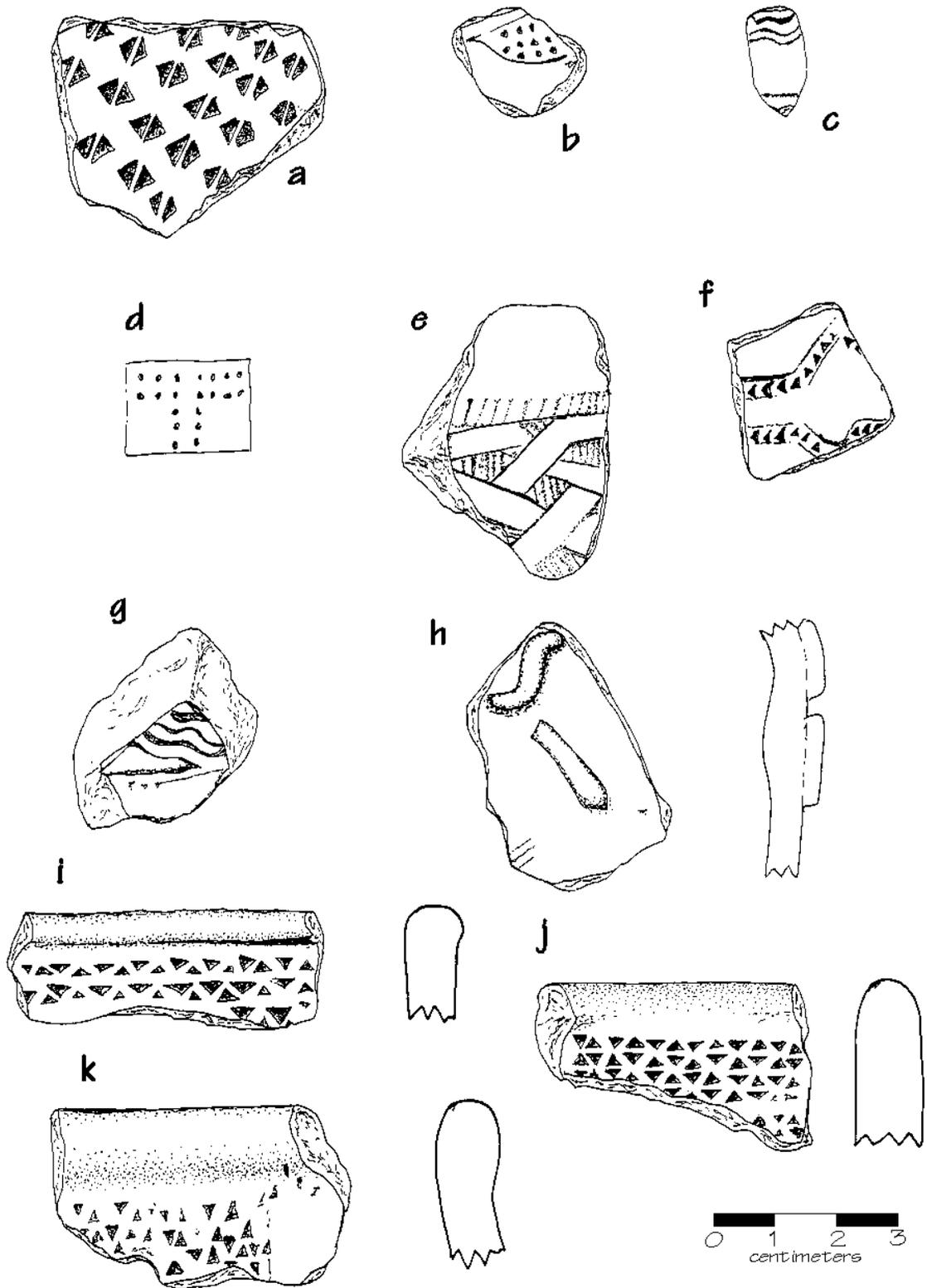


Figure A83. Site 46 artifacts surface collection part 3.  
 a. decorated body sherd, grey graphite speckled (.05-.1, 15%), t = .98, 5YR4/1  
 b. decorated body sherd, sand inclusions (.05-.3, 5%), t = .84, interior color 5YR6/4, exterior color 7.5YR5/2

- c. decorated body sherd, brown graphite speckled,  $t = .56$ , incised wavy lines.  
 d. detail of decorated body sherd with round punctates and carination,  $t = .64$   
 e. decorated body sherd, flat areas burnished, design deeply incised on exterior, few sand inclusions and possibly some graphite on exterior,  $t = .75$ , exterior color 5YR4/1, paste color 5YR6/3 (cf. Ankatso in Imerina).  
 f. grey ware but no graphite speckles, sand inclusions (.05-.1, 3%), no core visible (oxidized),  $t = .98$ , 5YR4/1  
 g. decorated body sherd, little exterior surface left, incised design of lines and dots, no graphite, sand inclusions (.05-.2, 10%),  $t = 1.04$ , interior color 5YR6/3, exterior color 5YR4/1.  
 h. decorated body sherd with 2 pieces of clay appliqué, sand inclusions (.05-.3, 5%) and possible shell inclusions,  $t = .5$  cm, thickness with appliqué = .74, interior color 10YR7/3, exterior color 5YR5/2.  
 i. decorated rim sherd,  $d = 20$  cm, 8% of rim,  $t = .71$ , lip  $t = .91$ , interior color 5YR6/4, no graphite but reflective, sand inclusions (moderate).  
 j. decorated rim sherd,  $d = 26$  cm, 4% of rim,  $t = 1.1$ , lip  $t = .99$ , interior color 5YR4/1, burnished surface, possible organic inclusions (sparse).  
 k. decorated rim sherd,  $d = 28$  cm, 5% of rim,  $t = .8$ , lip  $t = 1.06$ , exterior color 7.5YR5/2, coarse sand inclusions (moderate and poorly sorted), reflective, graphite-like speckles but doesn't mark paper. Sherd edge includes a partial hole, with possible cord marks.

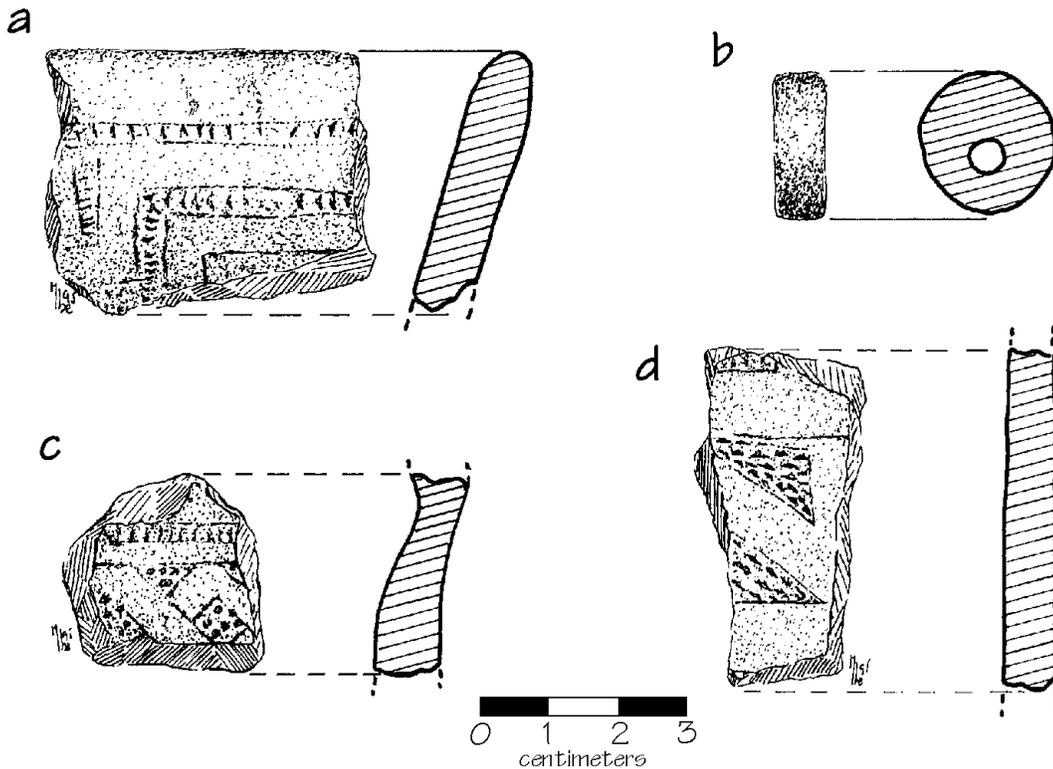


Figure A84. Site 46 artifacts surface collection part 4.

- a. type i, with shell and sand, 15%, 3.  $D = 20$  cm, 7%,  $t = .86$ ,  $\delta = .23$   
 b. Chlorite-schist weight or bead,  $d = 1.96$  cm, center hole diameter = 0.5 cm, 5.6 g non magnetic.  
 c. type i, sand and shell, 10%, 2.  $T = .89$   
 d. type i, mb, gold mica 3%, 1.  $T = .83$

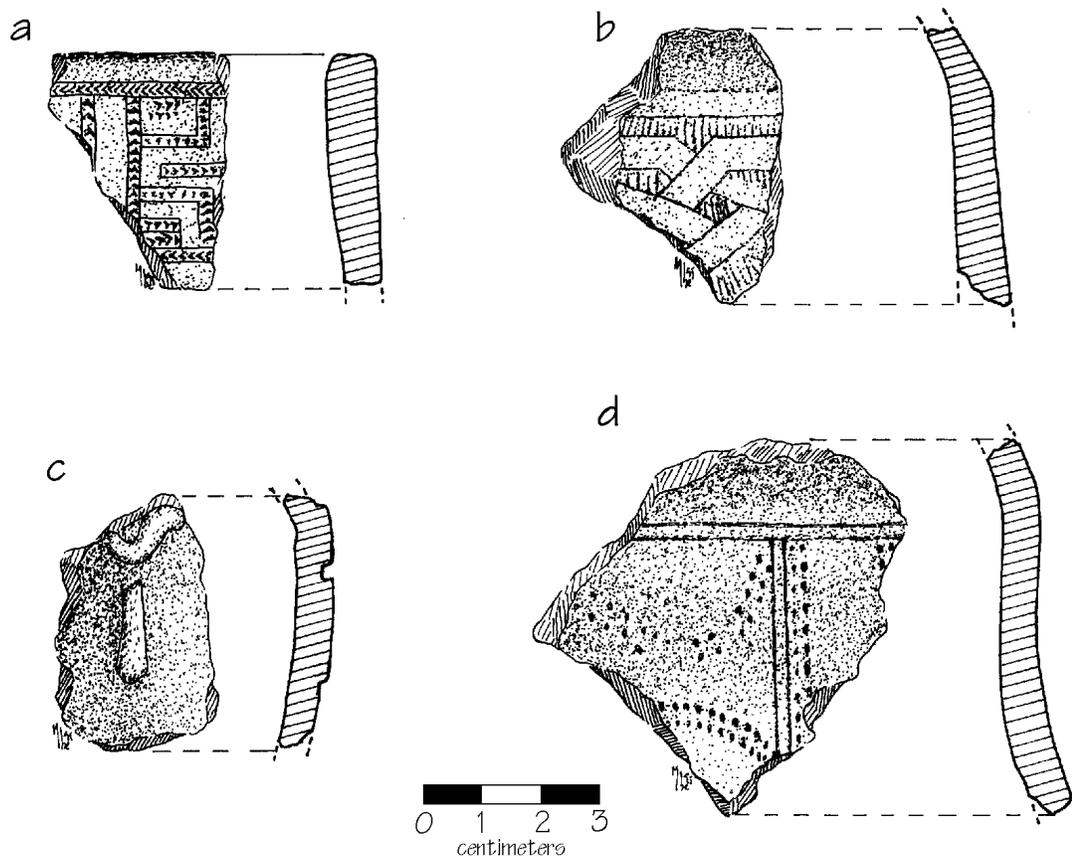


Figure A85. Site 46 artifacts surface collection duplicates.  
 These sherds were drawn by the professional illustrators at the Museum of Art and Archaeology (see acknowledgements) and duplicate sherds already described above.  
 a. same as Fig. A82c.  
 b. same as Fig. A83e.  
 c. same as Fig. A83h.  
 d. same as Fig. A81a.

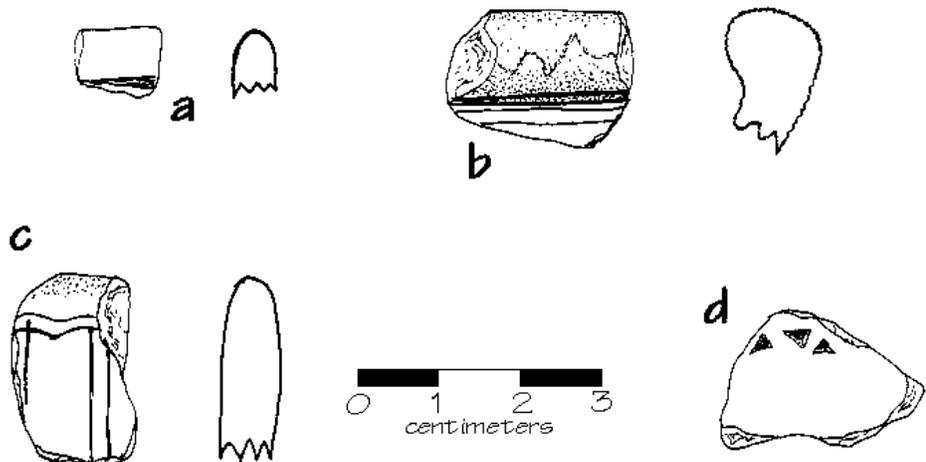


Figure A86. Site 46 artifacts, Sondage 1.  
 a. S1 Level 3, tiny decorated rim with incised line, t = .53

- b. S1 Level 6, decorated rim sherd with enlarged lip and horizontal incisions, also what appears to be a red slip on body and black paint on top of lip,  $t = .62$ , lip  $t = 1.25$ , sparse sand inclusions, color 10YR5/6 and 7.5YR2/0, too small for rim measurements.
- c. S1 Level 6, decorated rim sherd with wavy combing,  $t = .57$ , lip  $t = .55$ , exterior color 5YR4/1
- d. S1 Level 7, decorated body sherd with triangular punctates in false chevron, sand, mica, and graphite inclusions (sparse), 7.5YR4/2,  $t = .57$

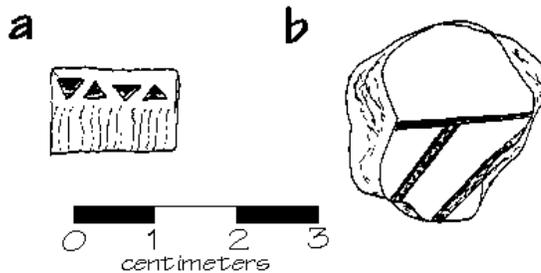


Figure A87. Site 46 artifacts, Sondage 2 Level 0.

- a. detail of decorated body sherd, grey graphite speckled with vertical combing beneath triangular punctates in false chevron.
- b. decorated body sherd,  $t = .95$ , large white quartz inclusions (sand,  $<.2$  cm, 10%), core light grey 5YR6/1, exterior color 5YR6/4.

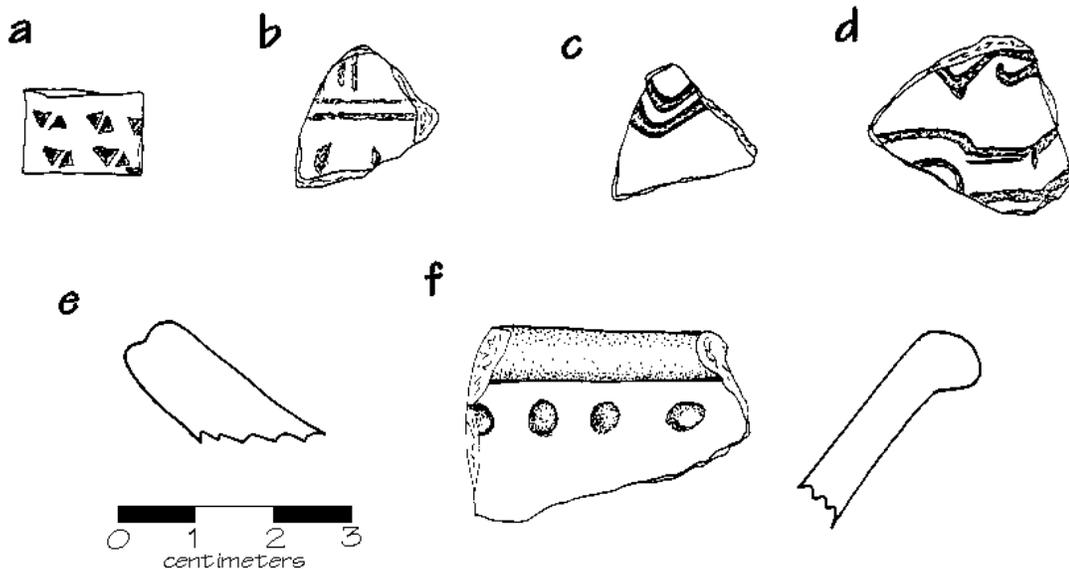


Figure A88. Site 46 artifacts, Sondage 2 Level 1.

- a. detail of decorated body sherd,  $t = .81$ , grey graphite speckled ware with triangular punctates.
- b. decorated body sherd with linear incised lines,  $t = .79$ , fine sand and shell inclusions (3%), exterior color 5YR5/3.
- c. decorated body sherd with curved incised lines,  $t = .60$ , sparse sand inclusions, oxidized, exterior color 2.5YR5/4
- d. decorated body sherd with curved incised lines (top and bottom as illustrated) and combing (center of sherd),  $t = .66$ , sand and red quartz inclusions ( $<.2$ cm, 5%), exterior color 5YR4/2, no core visible.
- e. plain rim sherd,  $t = .83$ ,  $d = 25$  cm, 4% of rim, organic inclusions with some sand (3%), exterior color 5YR4/1.

f. decorated rim sherd, everted lipped open bowl with round punctates on exterior,  $t = .66$ , very coarse sand inclusions ( $>.1\text{cm}$ , 10%).

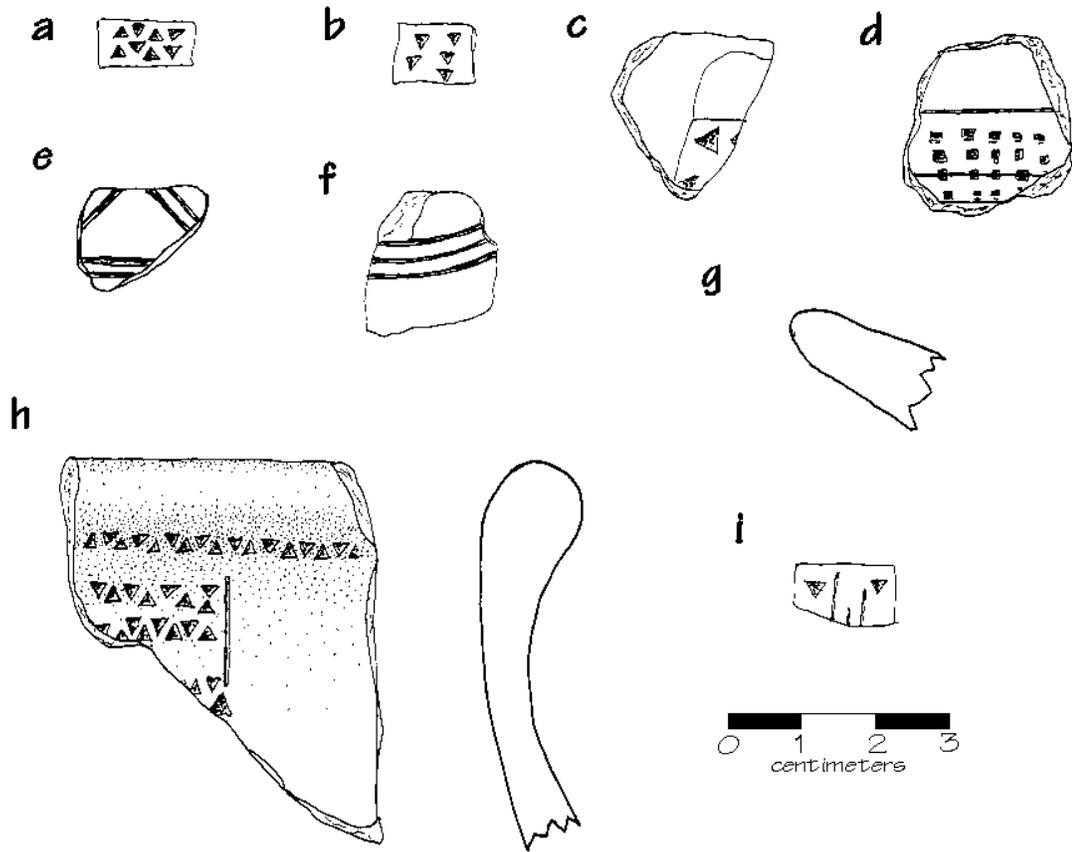


Figure A89. Site 46 artifacts, Sondage 2 Level 2.

a. Detail of decorated body sherd with triangle punctates in double false chevron,  $t = .64$ .

b. Detail of decorated body sherd with triangle punctates in vertical lines,  $t = 1.03$ .

c. Decorated body sherd with triangle punctates and incised lines,  $t = .70$ , medium sand inclusions (1%), exterior color 7.5YR 5/2.

d. Decorated body sherd with square punctates (dentates),  $t = .76$ , coarse sand inclusions (3%), 5YR 5/2.

e. Decorated body sherd with parallel incised lines,  $t = .63$ , sand inclusions (3%), exterior color 5YR4/2, smoothed exterior.

f. Decorated body sherd with parallel incised lines,  $t = .63$ , exterior color 7.5YR4/1, exterior not smoothed.

g. Plain rim from hole mouth jar,  $d = 24$  (3% of rim),  $t = 1.01$ , lip  $t = .73$ , very coarse sand inclusions (5%), interior color 2.5YR5/6, exterior color 5YR3/1.

h. Decorated rim sherd with triangle punctates in false chevron and incised lines on exterior,  $d = 30$  cm. (4% of rim),  $t = .81$ , lip  $t = 1.36$ , grey graphite speckled ware, 5YR4/1, large quartz inclusions (.3cm) (see Tranovato Phase in Anosy, 15-16<sup>th</sup> century).

i. Detail of decorated rim sherd (too small for proper orientation and measurements) with triangle punctates and incised lines.

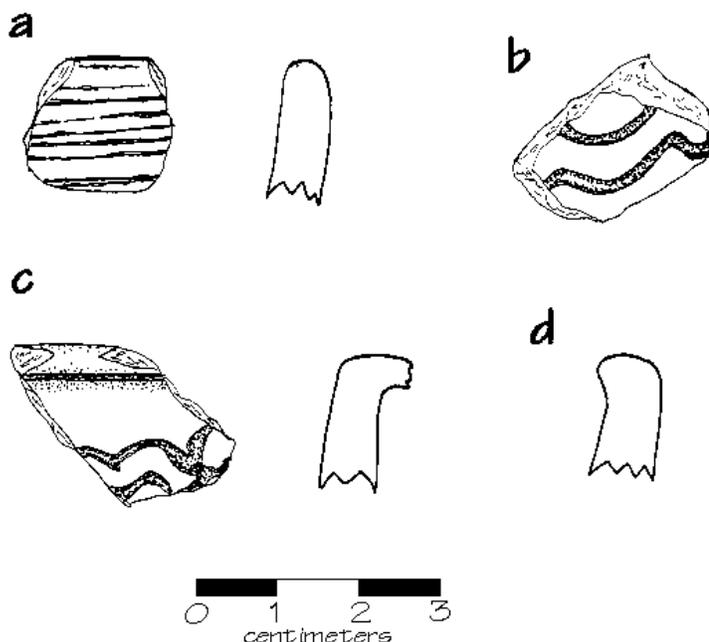


Figure A90. Site 46 artifacts, Sondage 2 Level 3.

a. Straight rim sherd with exterior combing, 10R5/3, interior possible red slip, 10R5/5,  $t = .65$ , large red quartz inclusion (.3 cm).

b. Decorated body sherd with wavy incised lines, grey graphite speckled (30%) and sand inclusions (3%),  $t = .82$ , 5YR4/1.

c. Decorated rim sherd with wavy incised lines on exterior (orientation and diameter uncertain), 2.5YR5/4,  $t = .66$ , medium sand inclusions (moderate).

d. Plain rim sherd (too small for proper orientation and diameter), smoothed or burnished brown ware, 5YR4/1, interior color 5YR4/2, medium sand inclusions (3%),  $t = .85$ , lip  $t = .74$ .

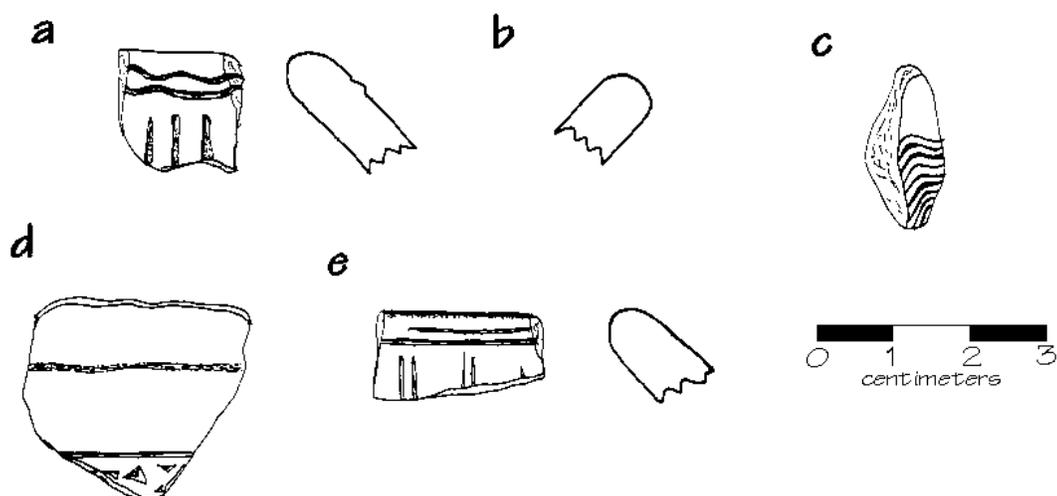


Figure A91. Site 46 artifacts, Sondage 2 Level 4.

a. Decorated rim sherd with linear and wavy incised lines on exterior,  $d = 17$  cm. (3% of rim),  $t = .69$ , coarse sand inclusions (5%), exterior color 7.5YR5/2.

b. Plain rim sherd,  $d = 24$  cm (4% of rim),  $t = .75$ , medium sand inclusions (1%), exterior color 5YR4/1, interior color 5YR5/2, small ridge on exterior lip.

c. Decorated body sherd with fingerprint impression, grey graphite speckled ware (20%),  $t = .51$ , interior color 5YR4/2, exterior color 5YR3/1.

d. Decorated body sherd with incised lines and triangle punctates,  $t = .87$ , coarse sand inclusions (3%), interior color 5YR6/4, exterior color 5YR4/1.

e. Decorated rim sherd with incised lines on exterior,  $t = .71$ , 7.5YR5/2, black quartz inclusions (1%), diameter unclear.

Note, this level also had a tiny fragment of a damaged rim sherd with triangular punctates with the very soft, powdery pale paste (7.5YR6/4,  $t = .72$ , not illustrated)

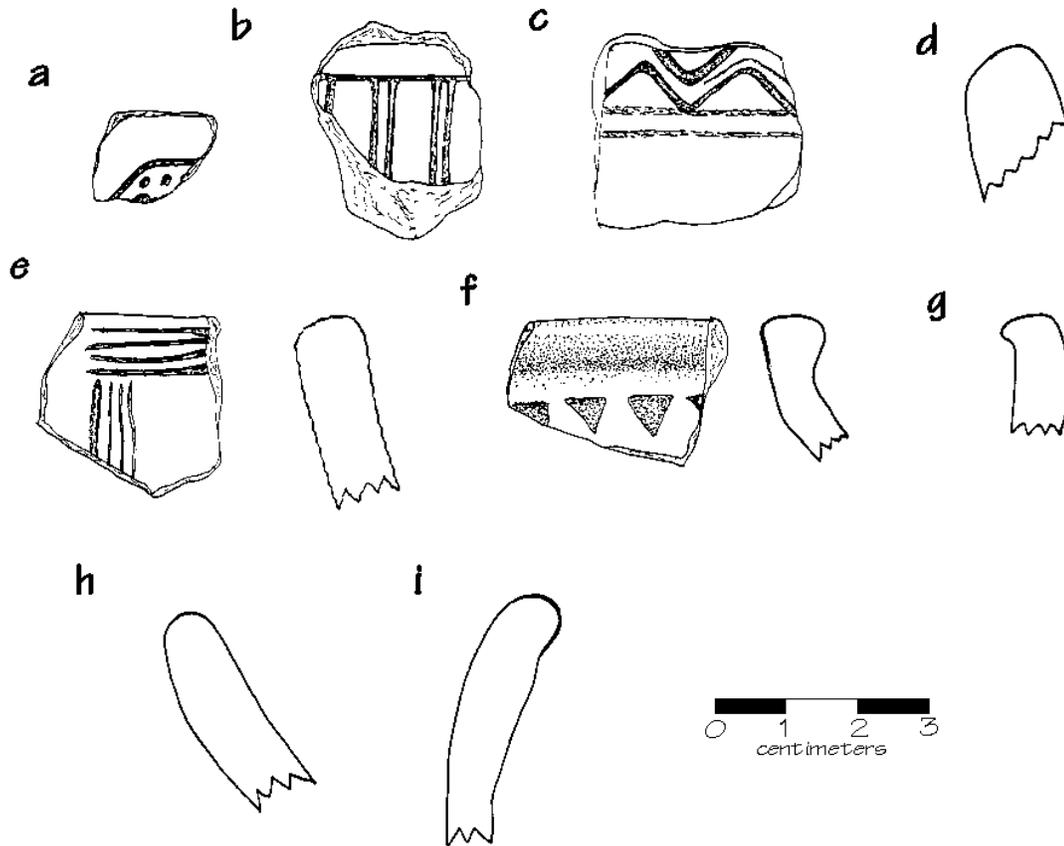


Figure A92. Site 46 artifacts, Sondage 2 Level 5.

a. Decorated body sherd with incised line and round punctates, very coarse sand inclusions (10%), 5YR4/2 (no thickness, only half of a laminated sherd, bottom half missing).

b. Decorated body sherd with incised lines, medium sand inclusions (3%),  $t = .96$ , exterior color 7.5YR7/2, interior color 7.5YR6/3.

c. Decorated body sherd with incised lines (linear and wavy), sand inclusions (1%),  $t = .92$ , exterior color 5YR4/1, interior color 5YR6/4.

d. Plain rim sherd,  $d = 28$  cm. (3% of rim),  $t = 1.3$ , sand and graphite inclusions (15%), 5YR4/2.

e. Decorated rim sherd with deep combing on exterior,  $d = 18$  cm, (4% of rim),  $t = .97$ , reflective coarse sand inclusions (15%), looks similar to graphite but isn't, interior and core color 5YR6/4, exterior color 5YR3/1.

f. Decorated rim sherd with triangular punctates on exterior, large shell inclusions (>.2 cm., 20%),  $t = .87$ , exterior color 7.5YR5/2.

g. Plain rim sherd,  $d = 28$  cm. (3% of rim),  $t = .7$ , 5YR5/1.

h. Plain rim sherd, diameter uncertain,  $t = .97$ , exterior color 5YR4/1, interior color 5YR6/4.

i. Plain rim sherd, diameter uncertain,  $t = .93$ , large quartz inclusions (>.5 cm), paste color 7.5YR7/3.

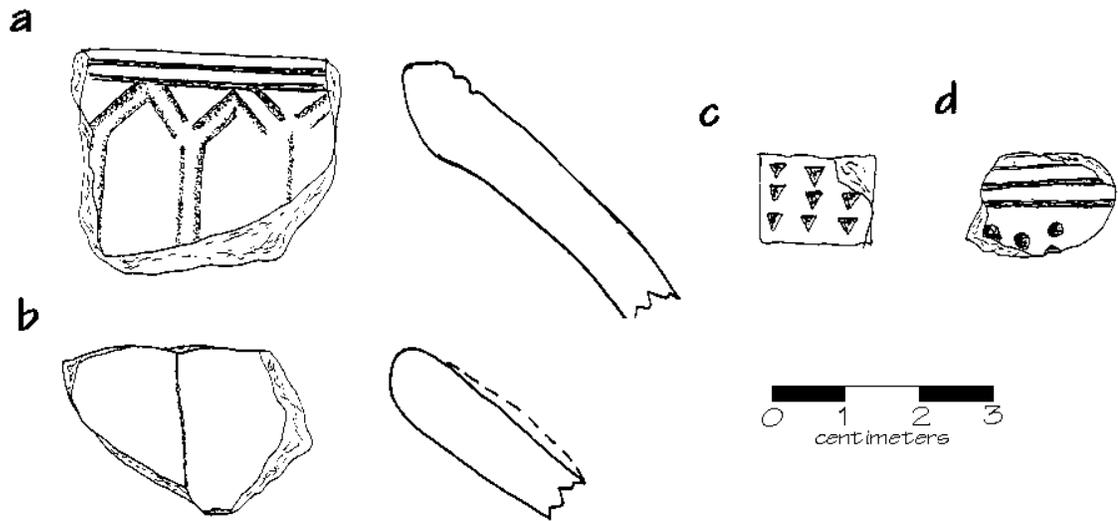


Figure A93. Site 46 artifacts, Sondage 2 Level 6.

a. Decorated rim sherd with incised lines on exterior, type i, d = 19 cm (6% of rim), t = .76, lip t = .98, fine sand and gold reflective inclusions (3%), no core visible (reduced), 10YR5/2.

b. Decorated rim sherd with vertical incised line next to raised ridge, t = .74, lip t = .89, medium sand inclusions (3%), exterior color 5YR4/1, interior color 5YR5/3 (note: Ambinanibe appliqué/incised).

c. Detail of decorated body sherd with triangular punctates.

d. Decorated body sherd with linear incisions and round punctates, t = .85, medium sand inclusions (5%), paste color 7.5YR6/3.

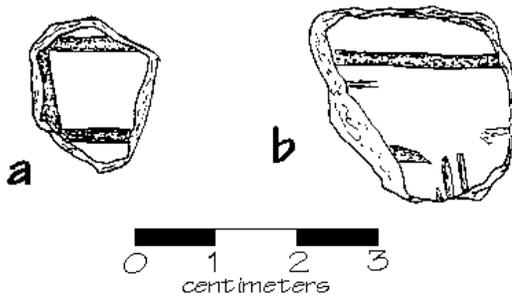


Figure A94. Site 46 artifacts, Sondage 2 Level 7.

a. Decorated body sherd with incised lines, t = .80, exterior color 7.5YR4/1.

b. Decorated body sherd with deep incised lines, t = .58, large white quartz inclusions (>.5 cm), exterior color 7.5YR6/4. (Note: level also had soft, chalky white ware, 10YR8/2, not illustrated).

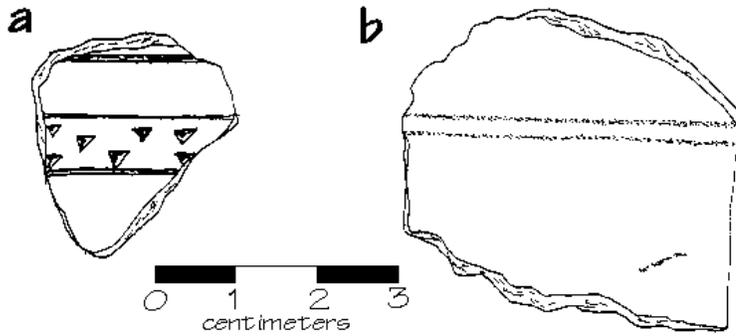


Figure A95. Site 46 artifacts, Sondage 2 Level 8.

a. Decorated body sherd with incised lines and triangle punctates, very coarse sand inclusions (20%), exterior color 5YR4/1,  $t = .37$  (only top lamina of sherd, so not accurate thickness).

b. Stone lid handle,  $d = 3.87$  cm, 10YR8/3, slight magnetic attraction, clearly stone but material is different from other chlorite-schist recovered.

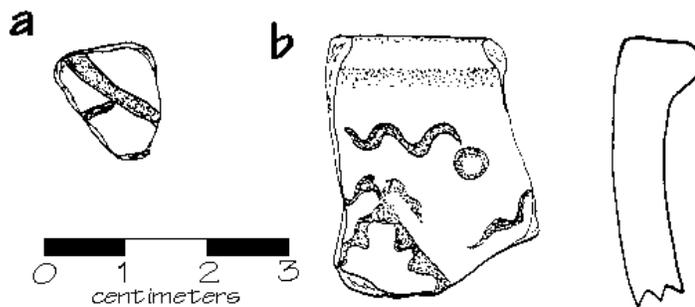


Figure A96. Site 46 artifacts, Sondage 2 Level 9.

a. Decorated body sherd with deep incised lines,  $t = .84$ , fine sand inclusions (5%), exterior color 10YR5/1.

b. Decorated rim sherd with deep incised lines and drilled hole (hole diameter = .33 cm),  $d = 20$  cm (3% of rim),  $t = .60$ , lip  $t = 1.02$ , very coarse, poorly sorted sand inclusions (>.3 cm), exterior color 10YR6/3.

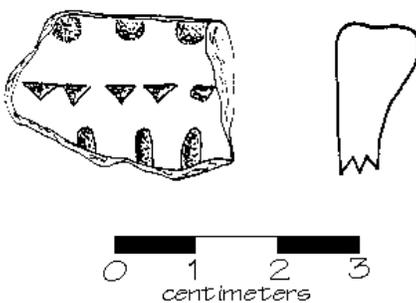


Figure A97. Site 46 artifacts, Sondage 2 Level 11.

(no artifacts recovered in level 10, but charcoal was still present). Decorated rim sherd with deep incised lines, triangle and round punctates on exterior,  $d = 30$  cm (3% of rim),  $t = .64$ , lip  $t = 1.01$ , white shell inclusions (10%), exterior color 5YR5/1, interior color 2.5YR5/4, 3 grams.

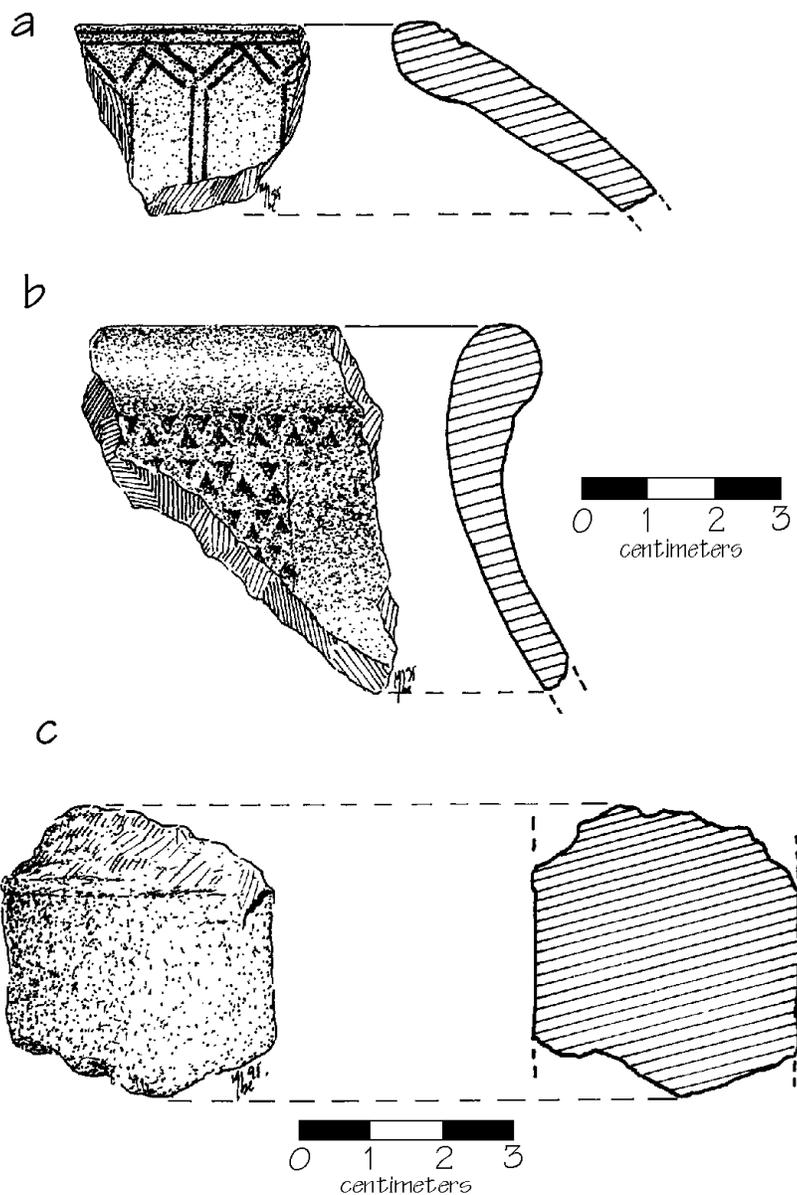


Figure A98. Site 46 artifacts, Sondage 2 professional duplicates.

These sherds were drawn by the professional illustrators at the Museum of Art and Archaeology (see acknowledgements) and duplicate sherds already described above.

a. S2L6. same as Fig. A93a. Decorated rim sherd with incised lines on exterior, type i,  $d = 19$  cm (6% of rim),  $t = .76$ , lip  $t = .98$ , fine sand and gold reflective inclusions (3%), no core visible (reduced), 10YR5/2.

b. S2L2. same as Fig. A89h. Decorated rim sherd with triangle punctates in false chevron and incised lines on exterior,  $d = 30$  cm. (4% of rim),  $t = .81$ , lip  $t = 1.36$ , grey graphite speckled ware, 5YR4/1, large quartz inclusions (.3cm) (see Tranovato 15-16<sup>th</sup> century).

c. S2L8. same as Fig. A95b. Stone lid handle,  $d = 3.87$  cm, 10YR8/3, slight magnetic attraction, clearly stone but different from the other chlorite-schist objects recovered.

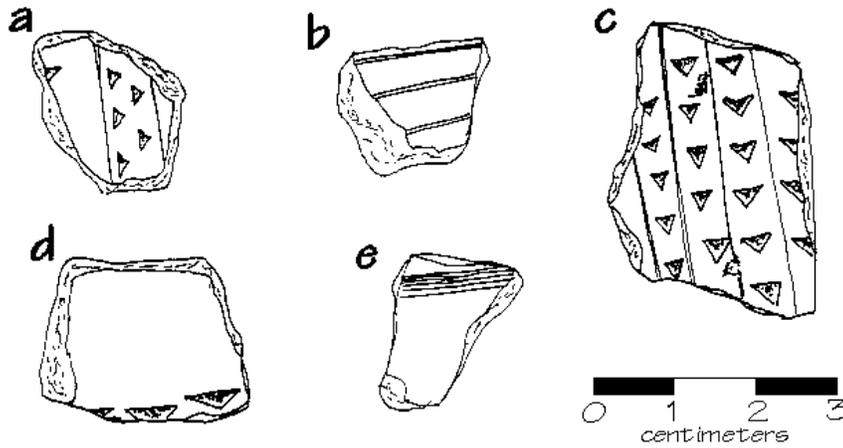


Figure A99. Site 46 artifacts, Sondage 3 Level 1.

a. Decorated body sherd (type i), with triangular punctates in incised bands on exterior,  $t = .77$ , 2.9 grams, triangles = .30 cm.

b. Decorated body sherd (type i) with linear incisions on exterior,  $t = .75$

c. Decorated body sherd (type iA) with single rows of triangle punctates bounded by incised lines on exterior,  $t = .70$ , triangles = .44 cm, blacked surface similar to rim in 46 S3L2.

d. Decorated body sherd (type iB) with triangle punctates on exterior,  $t = .63$ , 4.6 grams, triangles = .82

e. Decorated body sherd (type i) with rice grass impression,  $t = .62$ , 2.0 grams, the leaf impression is 19mm wide, with 4 distinct grooves in that distance.

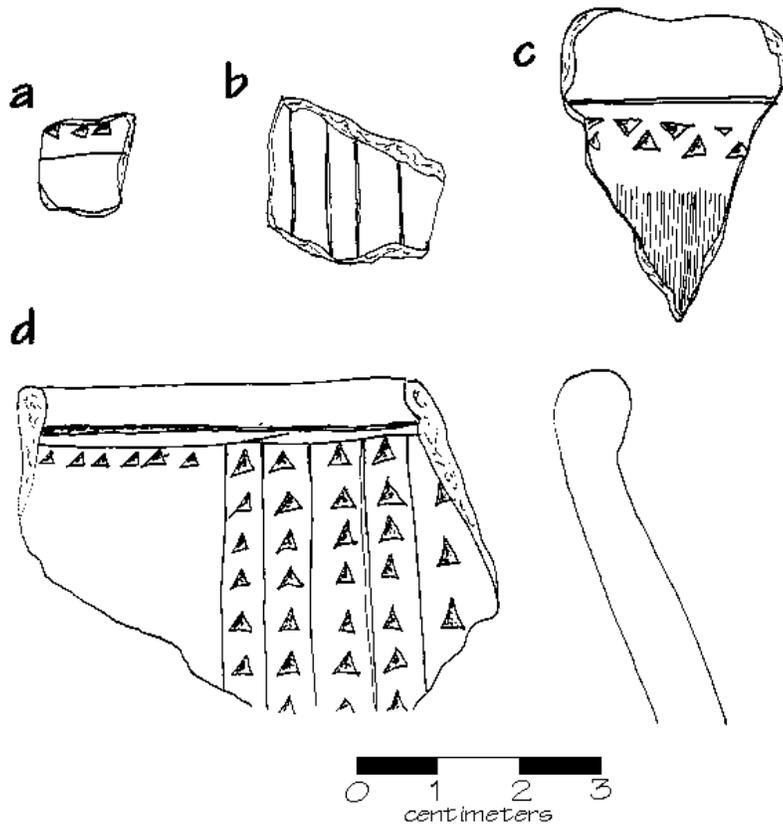


Figure A100. Site 46 artifacts, Sondage 3 Level 2.

a. Decorated body sherd (type iB) with triangle punctates in incised lines on exterior,  $t = .43$ , .8

grams, triangles = .27 cm.

b. Decorated body sherd (type ii) with incised lines on exterior, t = .65 cm, 3.1 grams

c. Decorated body sherd (type iB) with triangle punctates in false chevron and vertical combing on exterior, t = .78, 7.7 grams, triangle = .50 cm, carination at incised line.

d. Decorated rim sherd (type iA) with triangle punctates and incised lines, d = 26 (6% of rim), t = .68, lip t = 1.00, triangles = .37 cm (triangle measurements always on base length), 23.6 grams, 2 refitted sherds illustrated, blackened surface in open area to left easy to rub off.

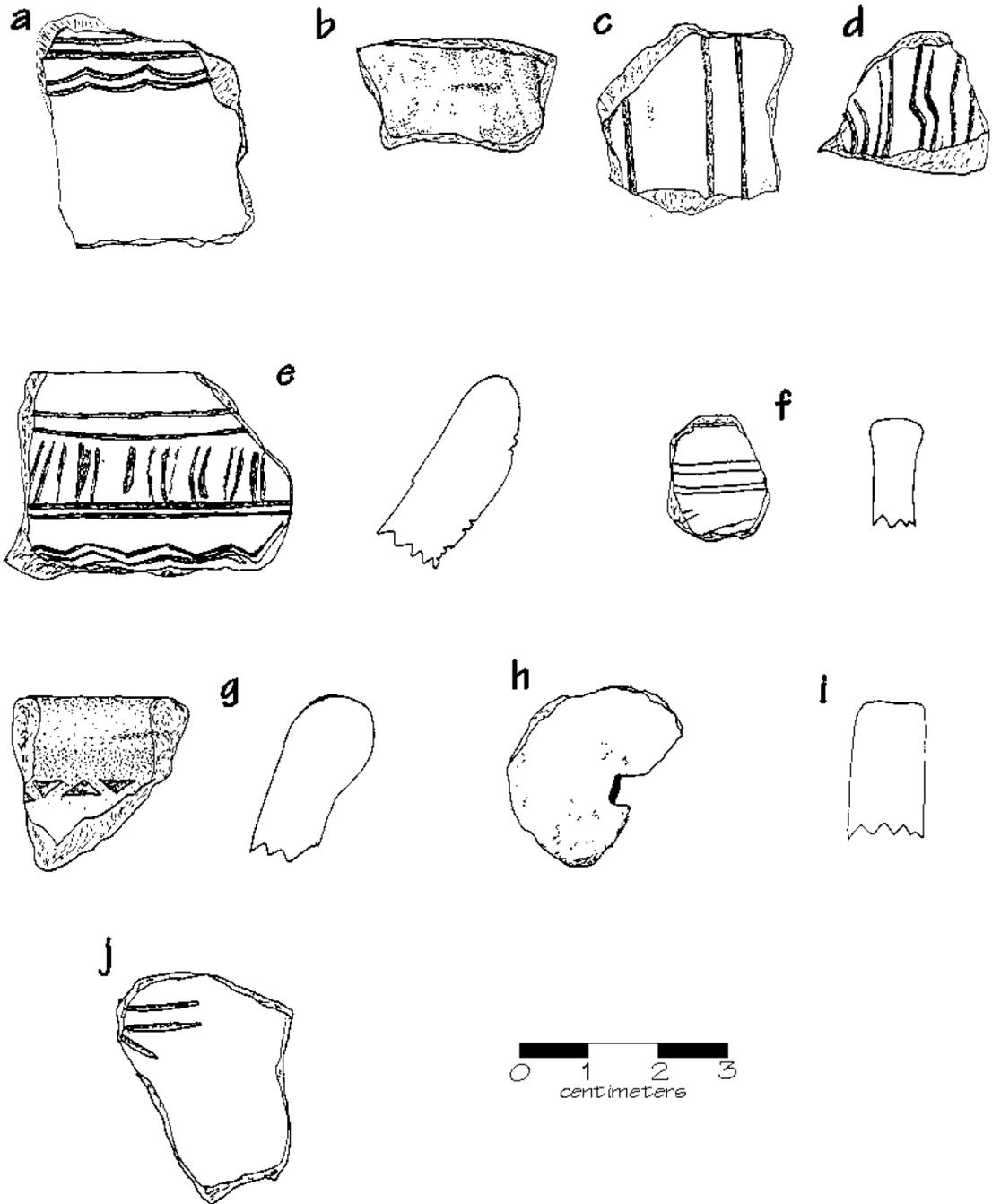


Figure A101. Site 46 artifacts, Sondage 3 Level 3.

a. Decorated body sherd (type i) with linear and wavy incisions on exterior, t = .97 cm, 13.4 grams, black sooting on exterior.

- b. Decorated body sherd (type i) with raised ridge to right, t = .58 cm, 4.0 grams.
- c. Decorated body sherd (type i) with linear incisions on exterior, t = .90 cm, 8.2 grams.
- d. Decorated body sherd (type i) with linear and wavy incisions on exterior, t = .95 cm, 4.8 grams.
- e. Decorated rim sherd (type i), with close parallel incised lines on exterior, 30.5g, d = 23 (4% of rim), t = .98, lip t = .82 cm, 2 sherds refitted.
- f. Decorated rim sherd (type i), with linear incised lines, t = .66 cm, 2.3 grams, orientation and diameter unclear.
- g. Decorated rim sherd (type iC), with triangle punctates in false chevron on exterior, t = .84, lip t = 1.14 cm, 6.1 grams, triangle base = .61 cm, orientation and diameter unclear.
- h. Clay disc with square central hole and remains of iron plug in center (type iB), t = .65 cm, 3.0 grams, (spindle whorls in area have round holes).
- i. Plain rim sherd (type i), d = 20 cm (3% of rim), t = 1.08, lip t = .94, 7.0 grams, looks like an imitation of chlorite-schist.
- j. Decorated body sherd (type i) with deep linear incisions on exterior, t = .64, 5.4 grams, sooting on exterior surface.

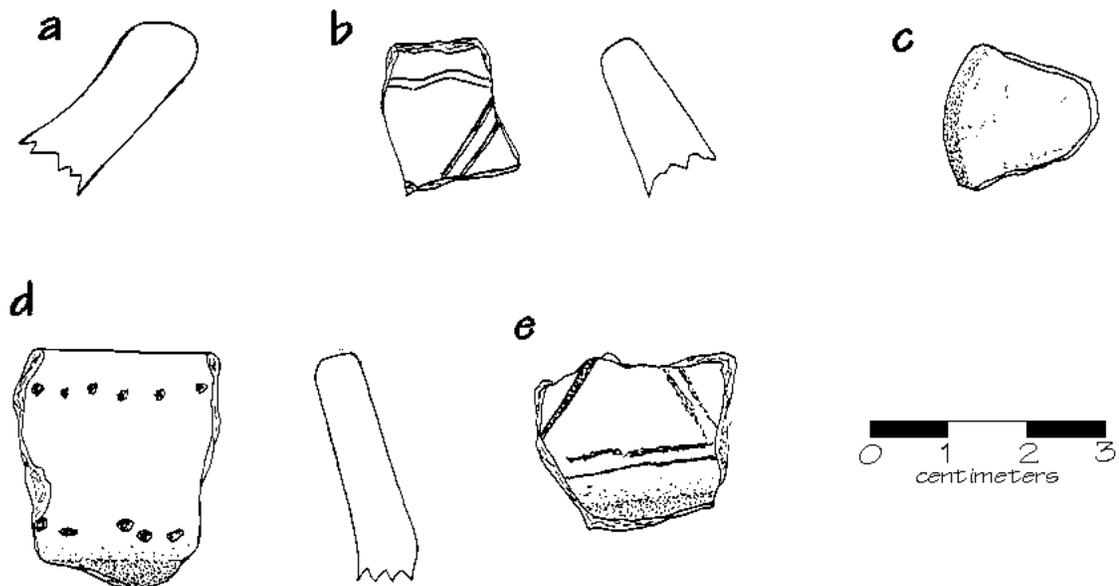


Figure A102. Site 46 artifacts, Sondage 3 Level 4.

- a. Plain rim sherd (type i), t = .99, orientation and diameter unclear, sooting on exterior.
- b. Decorated rim sherd (type i) with parallel incised lines on exterior, t = .91, lip t = .60 cm, 2.9 grams, square lip, orientation and diameter unclear.
- c. Clay disc, t = .62 cm, 2.4 grams, no sign of center hole.
- d. Decorated rim sherd (type i) with small round punctates on exterior, t = .64, lip t = .58 cm, 6.0 grams.
- e. Decorated body sherd (type i) with parallel incised lines on exterior, t = .96 cm, 6.3 grams, carination along bottom of sherd.

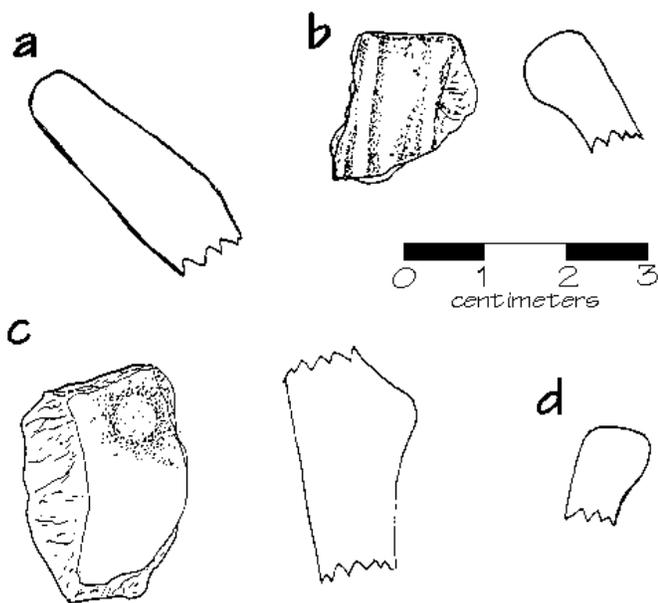


Figure A103. Site 46 artifacts, Sondage 3 Level 5 to 8.

a. S3L5. Plain rim sherd (type i) from hole mouth jar,  $d = 16$  cm (4% of rim),  $t = .99$ , lip  $t = .63$  cm, 6.7 grams.

b. S3L5. Decorated rim sherd (type i) with raised ridges on exterior,  $t = .50$  cm, ridges .26 cm high.

c. S3L6. Decorated body sherd (type i) with raised boss on exterior,  $t = .82$ , thickness at boss = 1.51 cm, 5.0 grams.

d. S3L8. Plain rim sherd (type iB1),  $t = .64$ , lip  $t = .85$  cm, 3.6 grams.

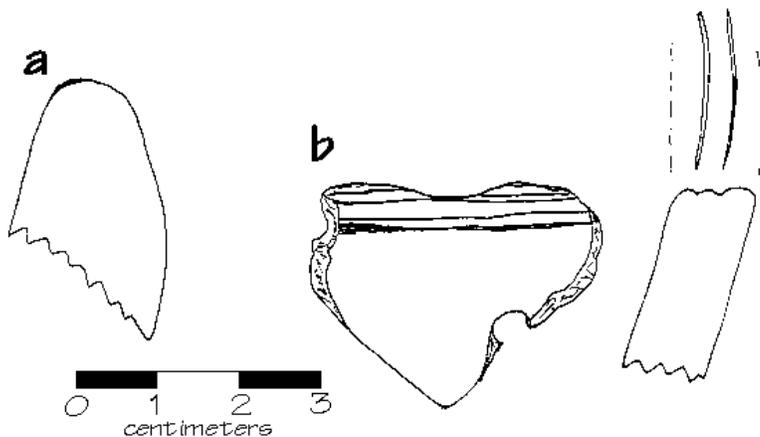


Figure A104. Site 46 artifacts, Sondage 3 Level 10.

a. Plain rim sherd (type iii),  $t = 1.85$  cm, 8.4 grams, diameter unclear (rim only 1.34 cm. long).

b. Decorated rim sherd (type viiiB) with incised lines on exterior and top of lip,  $d = 27$  cm (4% of rim),  $t = .99$ , two partial holes, 14.3 grams.

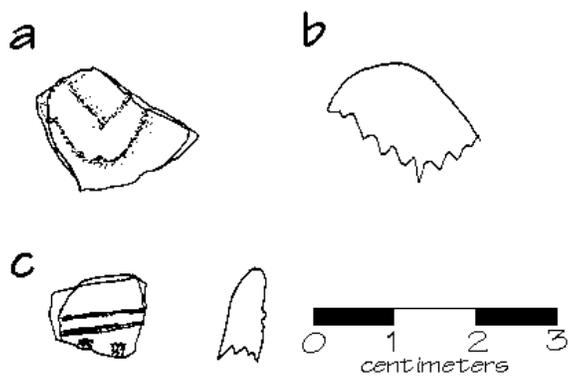


Figure A105. Site 46 artifacts, Sondage 3 Level 12 to 14.

a. S3L12. Decorated body sherd (type i) with appliqué letter,  $t = .68$  cm, 2.1 grams (with some red towards type ii), fine shell inclusions, appliqué is 12mm high.

b. S3L14. Plain rim sherd (type iiiB), 4.3 grams (1 to types)

c. S3, level unknown (scraping north wall for profile), Decorated rim sherd (type i) with parallel incised lines and square punctates,  $t = .42$ , lip  $t = .36$  cm, .5 grams, orientation and diameter unclear.

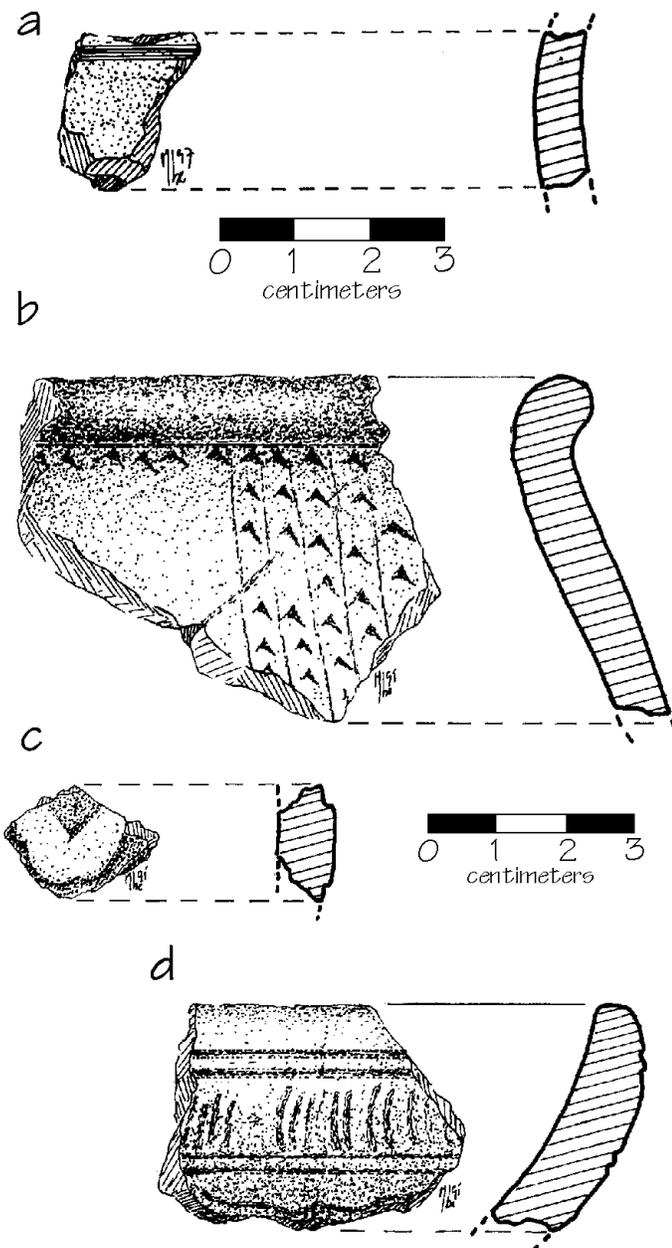


Figure A106. Site 46 artifacts, Sondage 3 professional duplicates.

These sherds were drawn by the professional illustrators at the Museum of Art and Archaeology (see acknowledgements) and duplicate sherds already described above.

a. S3L1. Same as Fig. A99e. Decorated body sherd (type i) with rice grass impression,  $t = .62$ , 2.0 grams, the leaf impression is 19mm wide, with 4 distinct grooves in that distance.

b. S3L2. Same as Fig. A100d. Decorated rim sherd (type iA) with triangle punctates and incised lines,  $d = 26$  (6% of rim),  $t = .68$ , lip  $t = 1.00$ , triangles = .37 cm (triangle measurements always on base length), 23.6 grams, 2 refitted sherds illustrated, blackened surface in open area to left easy to rub off.

c. S3L12. Same as Fig. A105a. Decorated body sherd (type i) with appliqué letter,  $t = .68$  cm, 2.1 grams (with some red towards type ii), fine shell inclusions, appliqué is 12mm high.

d. S3L3. Same as Fig. A101e. Decorated rim sherd (type i), with close parallel incised lines on exterior, 30.5g,  $d = 23$  (4% of rim),  $t = .98$ , lip  $t = .82$  cm, 2 sherds refitted.

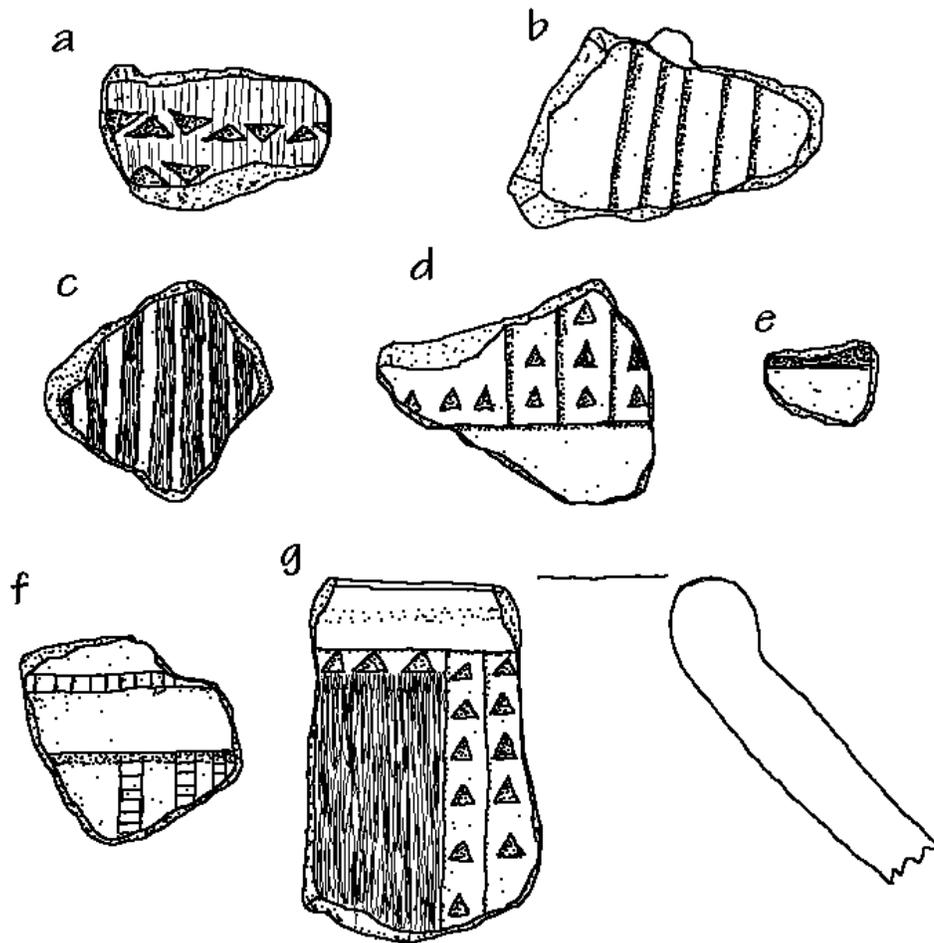


Figure A107. Site 46 artifacts, Sondage 4 Level 1.

a. Decorated body sherd, type iB, t=.78, triangle base = .64cm, with fine combing and false chevron.

b. Decorated body sherd, type iB, t=.67, with narrow deep linear incisions, and large quartz inclusions (illustrated at top of sherd)

c. Decorated body sherd, type i, 5.8g, t=.75, with wide shallow groove combing on concave surface (so either interior or exterior as part of an everting neck)

d. Decorated body sherd, type iA, 5.0g, t=.52, triangle base = .34, with columns of triangle punctates inside incised lines

e. Decorated body sherd, type i, 10g, t=.79, with wide groove

f. Decorated body sherd, type i, 5.4g, t=.59, with hatch marks inside bands

g. Decorated rim sherd, type iA, 13.1g, d=25? (3% of rim), t=.72, lip t=1.04, triangle base = .36, with columns of bounded triangle punctates, black coating is also part of design on exterior.

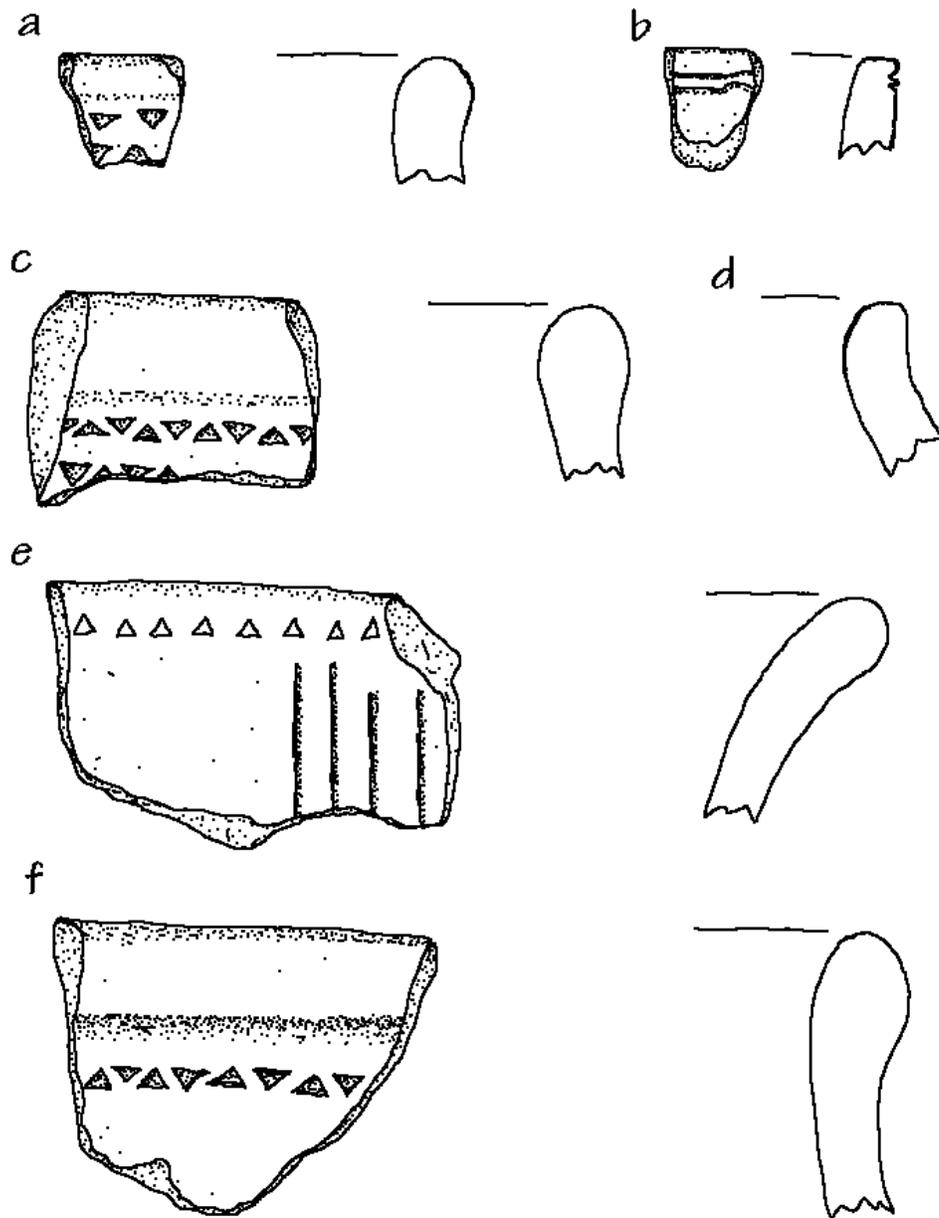


Figure A108. Site 46 artifacts, Sondage 4 Level 1 part 2.

a. Decorated rim sherd, type iC1, 2.3g, diameter and orientation uncertain, t=.81, lip t=.99, triangle base = .48, uncertain if design is interior or exterior

b. Decorated rim sherd, type i, 1.0g, d=12 (3% of rim), t=.65, lip t=.56, with parallel incised lines on exterior.

c. Decorated rim sherd, type iB, 10.2g, d=28 (3% of rim), t=.69, lip t=1.14, triangle base = .35 to .51cm, with 2 rows of triangle punctates in false chevron.

d. Plain rim sherd, type i, 8.5g, d=18 (5% of rim), t=.80, lip t=.79

e. Decorated rim sherd, type iB, 19.5g, d=40 (4% of rim), t=.64, lip t=1.01, triangle base = .34, with triangle punctates over incised vertical lines

f. Decorated rim sherd, type iB, 19.5g, d=30 (5% of rim), t=.75, lip t=1.26, triangle base=.42, with triangle punctates in false chevron.

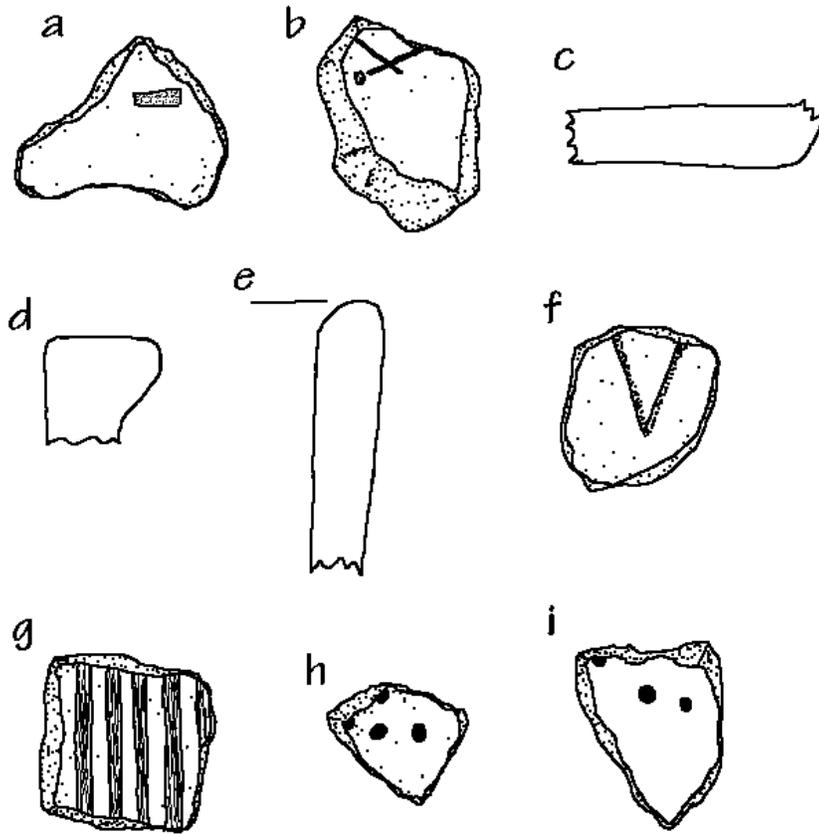


Figure A109. Site 46 artifacts, Sondage 4 Levels 1 and 2.

- a. S4L1, plain body sherd, type i, 2.6g, t=.49, with possible rice husk impression (.59x.16cm)
- b. S4L1, plain body sherd, type i, 5.3g, t=.79, with crossing linear incisions
- c. S4L1, plain base fragment, or possible rim?, type i, 10.0g, t=.67 to .77, orientation and diameter uncertain
- d. S4L2, plain rim sherd, type iiiB, 3.2g, diameter and orientation uncertain, t=.80, everted lip t=1.37
- e. S4L2, plain rim sherd, type i, 10.9g, d=20 (6% of rim), t=.61, lip t=.80
- f. S4L2, chlorite-schist fragment, type viiiB, 3.8g, t=.76, with incised lines on rough unfinished surface (other side is carved smooth)
- g. S4L2, decorated body sherd, type ii, 4.3g, t=.69, with deep grooves and ridges on convex surface
- h. S4L2, decorated body sherd, type i, t=.52, with deep punctate holes (unusual)
- i. S4L2, decorated body sherd, type i, t=.90, with deep punctate holes (unusual)

**Site: 47**

**Marovato**

**Region of: Vohipeno**

*Laborde X: 547.2*

*Latitude: 22.23064\**

*Season: 95*

*Laborde Y: 413.7*

*Longitude: 47.52016\**

*Ceramic phase recovered: 5*

*Site today: road*

*Collection method: selective sample*

*Site Notes:* Small sherd scatter, 10x5m, found while walking the road between Voasary and Ivato.

*Artifacts:* Including thin reduced bowl with flat lip  
- 17 plain body sherds, including 2 type iC (30.0g)

- 1 decorated body sherd, type i, 2.5g, t=.68, sand (1,3%), with single incised line at edge of sherd.
- 2 plain rim sherds, type 1 reduced, 5.5g combined, too small for orientation and diameter, t=.69, .75

**Site: 48**

**Onjatsy**

**Region of: Vohipeno**

Laborde X: 550.7

Latitude: 22.40767

Season: 94, 95

Laborde Y: 411.1

Longitude: 47.90117

Ceramic phase recovered: 3/4,5

Site today: village

Collection method:

**Site Notes:** 1 surface collection from village, including a number of bases/lids from the center of the village, and 2 sondages on the southern end of town. We also collected a pumice stone given to us by an elder used for making a cement for repairs.

**Ethnographic Notes and Oral Traditions:** This town of approximately 2,000 people (as of 1994) stands somewhat outside the hierarchy of Antemoro social categories (though they are not outcastes). The elders of Vatomasina (the religious capital of the Antemoro) and of Ivato (the political capital) both say that Onjatsy is the oldest village in the region. The local Catholic priest (Father Sangandahy) corrects this by saying that first there were Vazimba, and then the people of Onjatsy, and then the Antemoro of Ivato (who took their wives from Onjatsy). The leaders of Onjatsy (Hamary Bonaventure, Randriamaro Claude, and Ketsa Sylestre) agree, but say that their first village was at Ambohabe (site 46), then their ancestors moved to Antaritsinanana (which used to be called Andranovato and was only briefly occupied, site 31), and only then to their third home at the current site of the Onjatsy village. They believe their ancestors left Mecca in the 8<sup>th</sup> century AD, and first landed at Vohemar on the northeast coast of Madagascar before continuing to the Matitanana region. They created 3 cement pillars in 1984 (the modern version of the *vatoalahy* or standing stone) commemorating this migration. However throughout the period of our fieldwork they were unable politically to erect stones at the two earlier sites, and so were only able to erect the stone for their own village of Onjatsy. We also learned that there are three different kin groups present in the village, the Fisandria, Soromala, and Atenoy, each with their own *Mpanjaka* (sovereign).

In discussing our work, one elderly gentleman volunteered that he too collected pieces of chlorite-schist, which he called *bibitso*. He used it to fix other vessels, by drilling holes on either side of a crack, then making a paste of ground pumice, ground sherds and chlorite-schist, and egg whites to fill the holes and crack, and then stretching metal bands across the crack and through the holes. He claims the mixture hardens like a cement. When asked about a source for chlorite-schist in the area (other than the artifacts from archaeological sites), he said he did not know of any, though perhaps there were quarries far up river into the land of the Tanala.

We abandoned the sondage in 1994 (after only 2 levels) for a number of reasons: we spoke longer than we had intended with the *Mpanjaka* and so were running out of available sunlight, our work on the edge of the village had attracted a few hundred spectators, and the nephew of the landowner showed up drunk and harassing, creating a theatrical spectacle in front of such a large crowd (we had obtained permission for the excavation from both the landowner and the three *Mpanjaka*, but the nephew had his own agenda). Thus, even though we were still finding sherds and chlorite-schist in level 2, we gave up on this sondage and planned to return another day (complete artifact counts for this sondage can be found below).

In 1995 we returned to Onjatsy (as we did each season to ask permission to travel along the rivers), and worked with Velotady and the *Mpanjaka* Albert (Yabon'ny Zapheriny) to get permission to undertake a second sondage, 2 meters west of our first attempt. In this sondage, in the first level, we recovered a bead (illustrated below) which our informant, Claude Randriamaro, said was called a *tsimisaraka*, and was worn by boys during their circumcision ceremony. For this ceremony, they must have an even number of boys, and so if any given year only has an odd number of boys, they add a single girl, who will get her ears pierced and will then wear this same

*tsimisarka* bead in her ear.

However, this second sondage was as unlucky as the first (perhaps it was the Onjatsy ancestors annoyed that we had focused so much attention on Antemoro culture-history). We were able to complete the sondage to sterile (see profile illustration below), but soon after the 1995 season, it appears that I lost the page from the fieldnotes with the artifact counts for this sondage. And then, a search of the Museum of Art and Archaeology's storeroom in Farovohitra did not recover the artifact bag for Site 48, Sondage 2, so that I could redo the artifact counts. Since the individual sherds are numbered with the laborde coordinates in ink, as well as bagged with the site information, I should be able to record them eventually. Fortunately, before this bag went missing, Henry Wright catalogued its contents and drew 5 of the rim sherds (see illustrations below). I include his artifact counts, which take a different format than my own, for levels 3 to 5 below. I regret my mistakes and am grateful for Henry Wright's assistance.

In this season, Ramilisonina also documented the three stone monuments in town for us (one is standing and the other two are reclining, intended to be erected elsewhere). The three stones list the father of all Onjatsy (Ramaka), the mother of all Onjatsy (Ratandramasy), and the father of the 3 clans in Onjatsy today (see chapter 3).

*Artifacts from village:*

- 1 pumice stone (given by elder, 10g)
- 2 imported sherds (European, 19<sup>th</sup> century floral ware, 3g)
- 2 chlorite-schist fragments (37g) (NAA sample MAD039, chlorite-schist body fragment, light grey, 10.3g, t=1.10).
- 6 plain rim sherds (17g)
- 5 decorated body sherds (14g)
- 30 plain body sherds (107grams). Of these, 3 sherds have graphite inclusions, the decorated sherds include single incised lines, light linear combing, and deep incised combing (illustrated below).
- 2 bases/lids, 216.1g total (one of height 4.53cm left and the other of height 2.87cm taken for NAA sample).

*Artifacts from sondage #1, level 1:*

- 1 plain rim (3g, illustrated below)
- 2 decorated body sherds with deep linear combing (3g, t=.62, exterior 5YR5/2 and t=.73, exterior 7.5YR6/2)
- 12 plain body sherds (1 with graphite inclusions)
- 1 fragment of chlorite-schist (2g, no magnetism, no repair holes).

*Artifacts from sondage #1, level 2:*

- 3 iron nail concretions
- 1 iron key
- 1 fragment of tin
- 1 bone fragment
- 1 imported pottery (19<sup>th</sup> century European floral ware)
- 2 decorated body sherds with linear incisions (4g, t=.9cm exterior 7.5YR5/2, interior 7.5YR7/2), - 30 plain body sherds (78g).

*Artifacts from sondage #2, Levels 3 to 5 (recorded by Henry Wright, see notes above):*

Site 48, Sondage 2,	Level 5	Level 4	Level 3
Fine - Medium Micaceous Sand Ware			
Reduced Exterior			
thick body	0	6	20
medium body	0	10	30
combed body	0	2	1
jar rim	0	0	1?
bowl rim	0	0	3
other			

Oxidized exterior			
thick body	0	5	4
medium body	0	6	12
combed body	0	0	0
jar rim	0	0	1
bowl rim	0	0	1
other			
Medium graphite ware			
reduced body	0	0	2
Micaceous body			
reduced body	0	0	1
Coarse sand ware			
reduced exterior			
thick body	0	1	0
medium body	0	0	0
oxidized exterior	1	0	1
medium body	3	0	0
Glass	0	0	2
chlorite-schist	0	5	0
iron	0	1	2

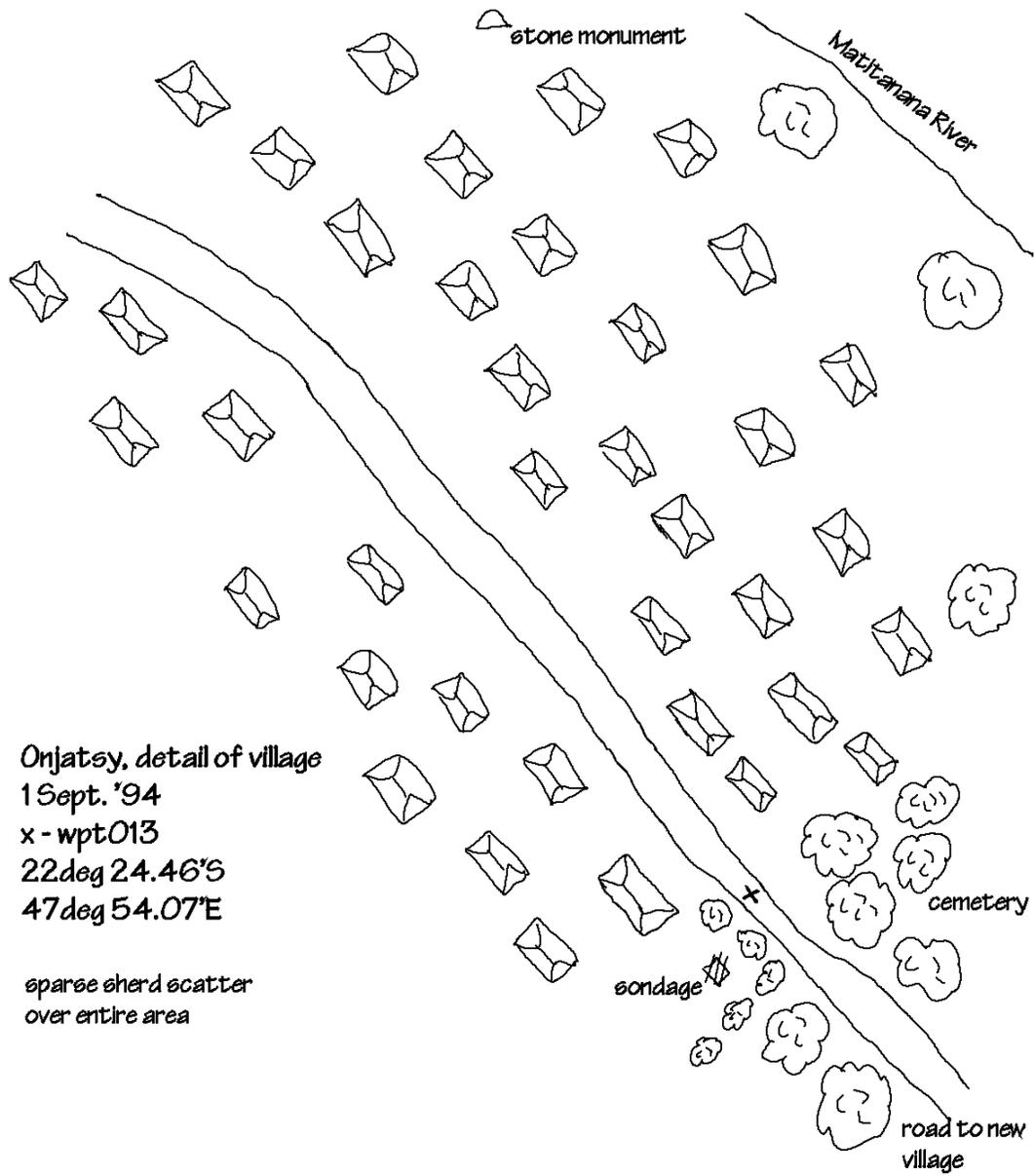


Figure A110. Site 48, Onjatsy.

Onjatsy, Sondage #2  
Profile South Wall

0 30cm

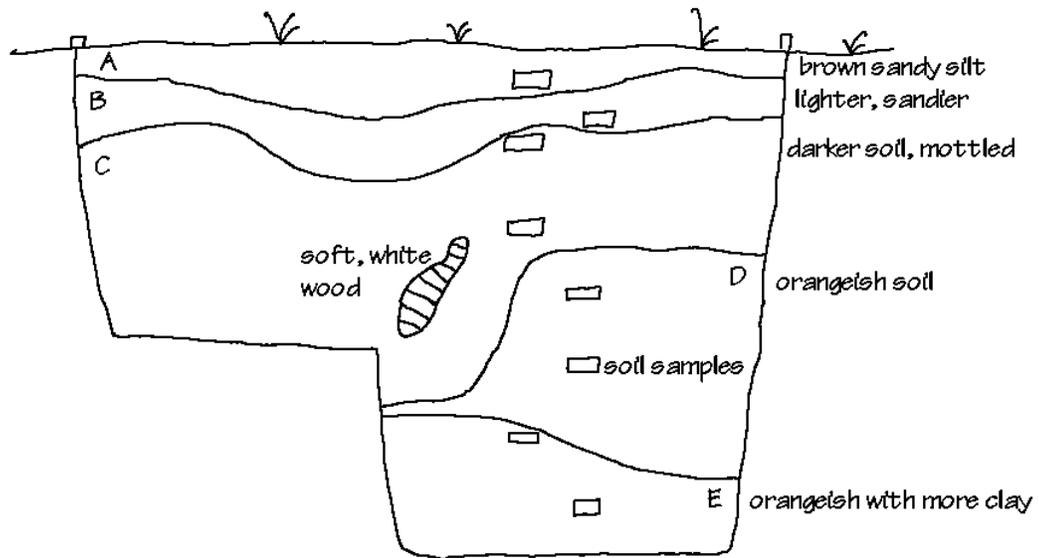


Figure A111. Site 48, Sondage 2 profile.

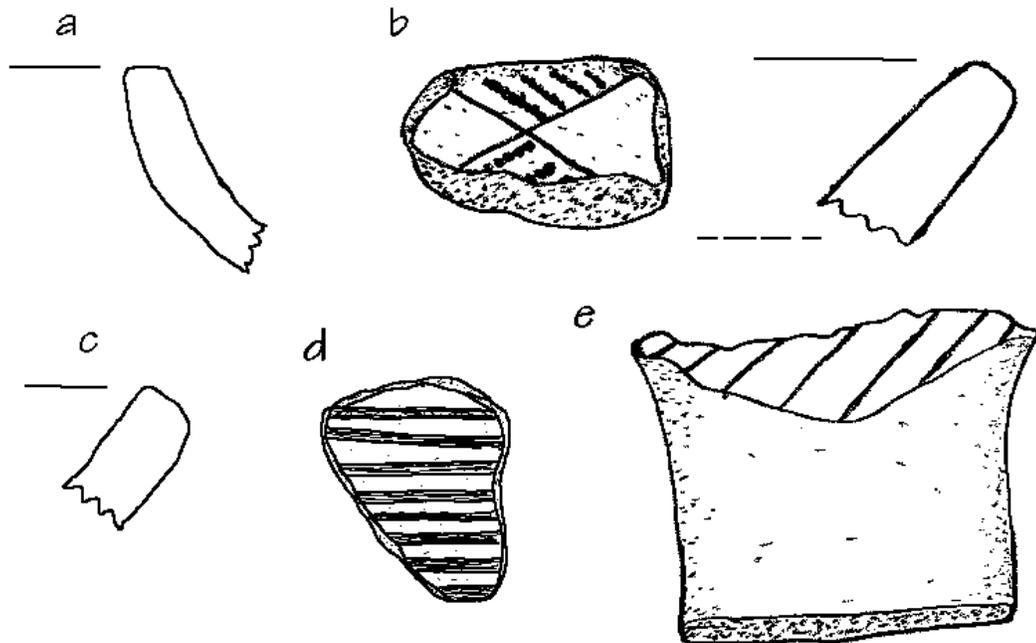


Figure A112. Site 48 artifacts.

- a. Plain rim sherd from Sondage 1 Level 1, diameter uncertain, t=.77, exterior 7.5YR4/1, interior 5YR6/3.
- b. Decorated rim sherd from surface collection, type iC, 12.9g, d=34 (2% of rim), t=1.14, lip t=.81, 10YR4/1, with incised crossing lines and dentate stamps on interior surface.
- c. Plain straight rim with square lip, d=18cm (5% of rim), t=.88, exterior 7.5YR3/0, interior 7.5YR6/2.
- d. Decorated body sherd with deep incised lines, t=.79, exterior 7.5YR5/0.
- e. Foot or lid knob, type iE reduced (10YR3/1), 77.7g, d=4.2cm.

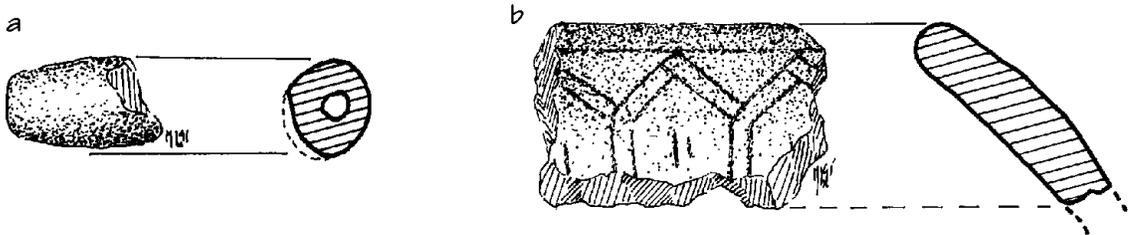


Figure A113. Site 48 artifacts, part 2.

- a. Sondage 2, level 1, clay bead fragment in the style of a *tsimisaraka*, worn during circumcision ceremonies, bead diameter 1.21cm, hole diameter .37cm. Similar in shape to a bead illustrated from Antsoheribory on Madagascar's northwest coast (Vérin 1975:431).
- b. Decorated rim sherd, type i, 14.4g, d=13 (7% of rim), t=.69, lip t=.58, sand (2,5%), 10YR6/4, with incised lines on exterior of hole mouth jar.

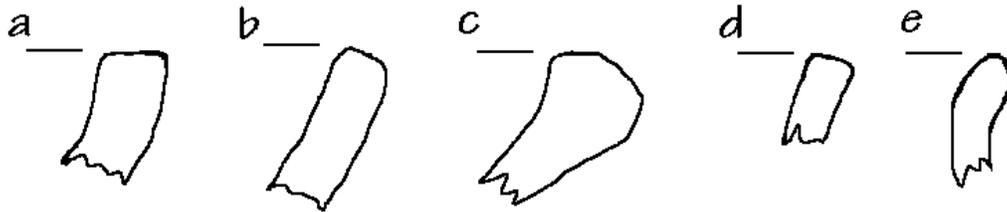


Figure A114. Site 48 Sondage 2 level 3 artifacts. Recorded by Henry Wright as explained in the notes section above.

- a. Bowl rim sherd, d=24, t=.85, 10% fine sand, 5YR3/2
- b. Bowl rim sherd, d=?, t=.81, 10% fine sand, 7.5YR4/1
- c. Bowl rim sherd, d=?, t=.69, 5% medium sand, 5YR3/1
- d. Jar rim sherd, d=?, t=.69, graphite, 10% medium sand AR, 10YR6/4
- e. Jar rim sherd, d=16, t=.48, 5% fine sand, 5YR6/1.

**Site: 49**                      **Onjatsy SE**                      **Region of: Vohipeno**  
*Laborde X:* 552.3              *Latitude:* 22.24455\*              *Season:* 95  
*Laborde Y:* 410.6              *Longitude:* 47.55009\*              *Ceramic phase recovered:* 2/3

*Site Notes:* Small sherd scatter, southeast of the cemetery of Onjatsy. The site was recorded separately, but then the artifacts (including the decorated rim sherd illustrated above in Fig. A113b) were combined with the general bag for Site 48 Onjatsy town. I would like to think that this fieldwork was a learning process, and that I made fewer mistakes in the later seasons.

**Site: 50**                      **Rotra**                      **Region of: Vohipeno**  
*Laborde X:* 548.4              *Latitude:* 22.37683              *Season:* 95

Laborde Y: 424.7

Longitude: 47.8785

Ceramic phase recovered: 5, 6\*

Site today: road

Collection method:

*Site Notes:* This hilltop village is west of the Anoloky River (the dead arm of the Matitanana River). The sherds were collected eroding from road and the northern edge of village,

*Ethnographic Notes and Oral Traditions:* The houses in this village are aligned at 60 degrees, such that their doors essentially face north. I asked the assembled group "Iza Avaratra," and they all pointed east-northeast along their houses. I showed them my compass and where magnetic north was, and they laughed embarrassedly. Two older men agreed that the village had been laid out wrong.

*Artifacts:*

- 7 plain body sherds, including 2 type iC (31.1g)
- 1 piece of hematite, 2.1g
- 1 imported white ware, 19<sup>th</sup>- 20<sup>th</sup> century, 3.8g, t=.46
- 1 decorated body sherd, type i, 3.0g, t=.47, with single incised line at edge of sherd
- 2 decorated rim sherds that refit, with triangle punctates and rectangular dentates, 18.1g, illustrated below.

Rotra

22deg 22.61S

47deg 52.71E

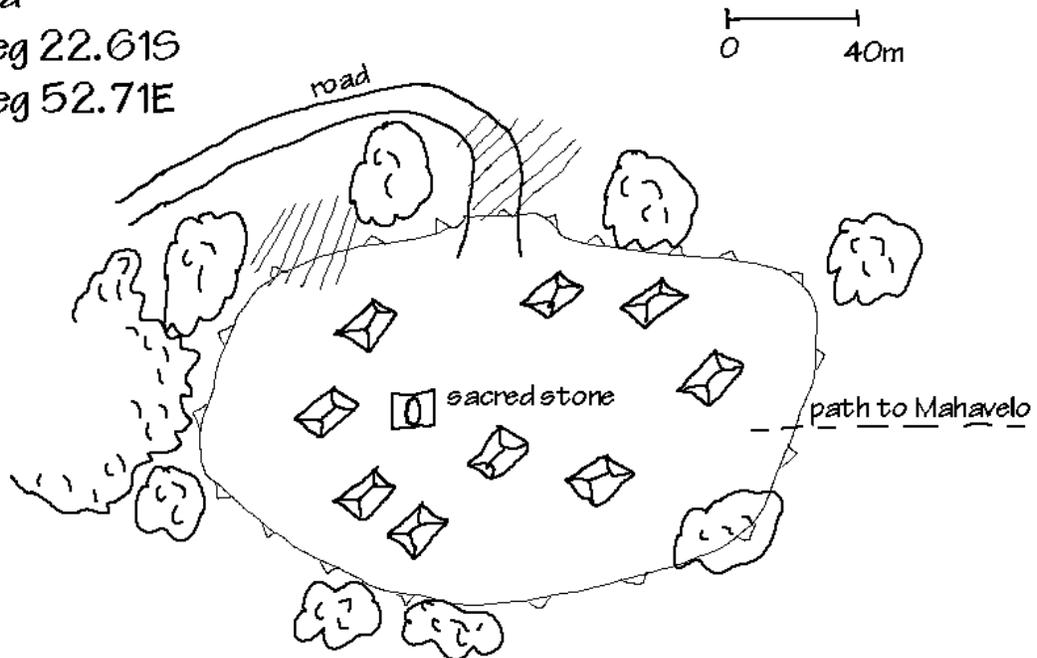


Figure A115. Site 50, Rotra.



Figure A116. Site 50 artifact.

2 decorated rim sherds that refit, type iE with graphite inclusions (2,30%), 18.1g, d=32 (4% of rim), t=.55, lip corner t=.83, lip t=.66, triangle base = .59cm, 10YR5/1, with triangle punctate in false chevron and rectangular stamp on interior surface.

**Site: 51**

**Sanambary (Seranambari Ambany) Region of: Vohipeno**

*Laborde X:* 548.4

*Latitude:* 22.3995

*Season:* 94

*Laborde Y:* 412.1

*Longitude:* 47.8785

*Ceramic phase recovered:* 5

*Site today:* village, river bank

*Collection method:*

*Site Notes:* 1 surface collection from the village above and the river's edge, and 1 collection of sherds embedded in the river embankment, 1.6m below modern ground surface (however, ten meters upstream was a piece of modern cloth embedded in the wall at the same level, and so the stratigraphy has more to do with the river flooding, and may not be of great time depth.)

*Ethnographic Notes and Oral Traditions:* Villagers told us that the Matitanana River has been cutting into their town for decades, such that now the older portion of their town is "below the water."

*Artifacts:* Including thin reduced sandy, everted jar rim, flat lip, incised

- 1 piece of glass
- 1 iron fragment
- 1 bone fragment
- 1 plain rim (1 gram, illustrated)
- 5 decorated body sherds (10 gram, 2 illustrated below)
- 26 plain body sherds (57 grams), sandy reduced ware, t=.43 to .85

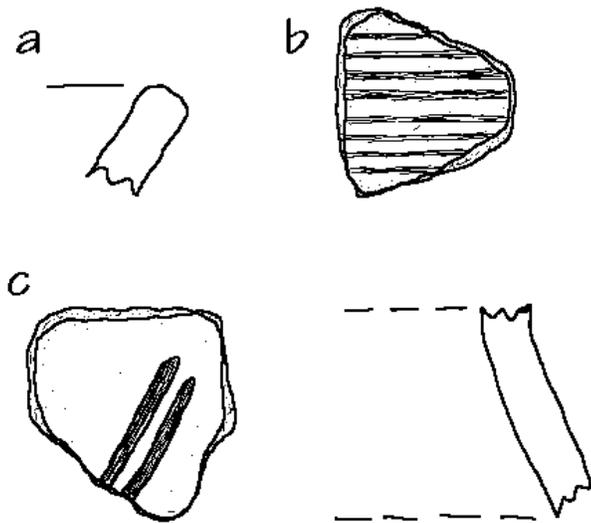


Figure A117. Site 51 artifacts.

- a. Plain rim sherd, 2.2g, d=16cm (4% of rim), t=.58, exterior 7.5YR3/1, reduced (dark core)  
 b. Decorated body sherd with faint combing on exterior surface, t=.53, exterior 5YR3/1.  
 c. Decorated body sherd with parallel incised lines on exterior, t=.58, exterior 10YR5/1.

<b>Site:</b> 52	<b>Saritry</b>	<b>Region of:</b> Farafangana
Laborde X: 543.2	Latitude: 22.83133	Season: 94
Laborde Y: 364.1	Longitude: 47.8385	Ceramic phase recovered: 3,4*
Site today: sand, garden		Collection method: selective sample

**Site Notes:** Small sherd scatter in an eroding sand dune to the west of a small waterway, and in a garden on the east side. The people at Amboanio (site 2) told us of this site after we showed them examples of pottery sherds (and a number of children came along to help us survey out to Saritry). Note: the GPS reading comes from near the Malagasy 1947 war tomb. From the archaeological site it is 270m at 48 degrees to the GPS point.

- Artifacts from sand dune to west:** Including oxidized medium coarse sandy ware
- 4 decorated body sherds (40 grams)
    - Wavy-lined combing on exterior, graphite inclusions throughout brown fabric (.1cm, 30%), t=.58, oxidized (no core), 10YR4/2 exterior, 10YR4/1 interior.
    - 2 sherds with rectangular punctates in a horizontal band (t=.5 and .46), sand inclusions (.05-.3, 10%), oxidized (no core), 10YR6/3 interior and exterior.
    - Double line of rectangular punctates, exterior cracked and pitted (10YR6/2), interior 10YR5/1, sand inclusions (.1cm, 5%), t=.74, grey core color of interior.
  - 1 burnished body sherd (20 grams), exterior burnishing, t = 1.13, sand inclusions (.1cm, 7.5%), grey core (reduced), exterior 5YR4/3.
    - 1 plain straight rim (1 gram), d. approximately 14 cm, large sand inclusions, too small to orient.
  - 24 plain body sherds (145 grams) in 3 different wares
    - A thin walled grey ware (10YR6/2 interior, 10YR6/4 exterior), t = .41 to .46, sand inclusions (.05-.3cm, 5%). On some sherds the exteriors are more yellowish
    - Thick walled (t= .82 to 1.16) with orange/yellowish exteriors (e.g. 7.5YR5/4) and grey interiors (e.g. 5YR4/4), grey core visible in some sherds (i.e., reduced), sand

inclusions (.05-.3, 5%)

- A single sherd of coarse gritty ware with much sand inclusions (.05-.3, 25%), reddish exterior (10R4/6) and grey interior (2.5YR4/2, reduced inner half of sherd), t = .81, very rough surface.

*Artifacts from garden to the east:*

- 1 decorated body sherd (3 grams), illustrated
- 1 decorated rim (1 gram)
- 1 plain rim (1 gram)
- 8 plain body sherds (43 grams), 2 have graphite inclusions, one in a grey ware and one brown.

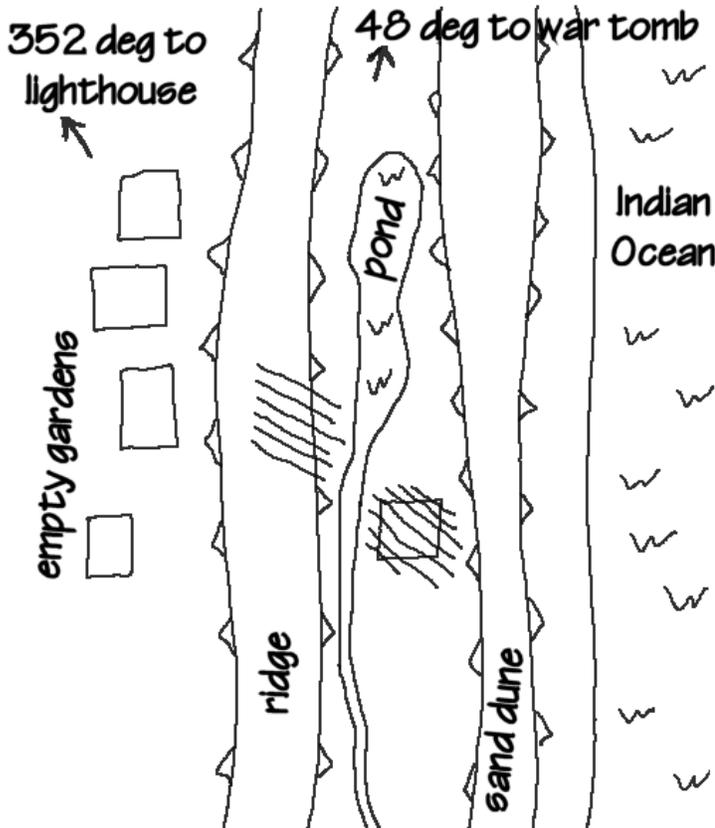


Figure A118. Site 52, Saritry.

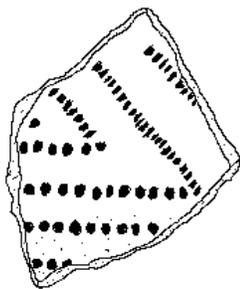


Figure A119. Site 52 artifact.

Decorated body sherd with small round and linear punctates (dentates), t=.57, interior 5YR4/2, exterior 5YR4/3, sand inclusions (.05-.1, 5%).

**Site: 53**

**Savana**

**Region of: Vohipeno**

*Laborde X:* 550.6

*Latitude:* 22.39617

*Season:* 95

*Laborde Y:* 412.4

*Longitude:* 47.9005

*Ceramic phase recovered:* 5,6,7

*Site today:*

*Collection method:* quick complete collection

*Site Notes:* Sherd scatter over 20x30m near the ferry landing, but it was a quick collection from the village with kids helping. Passing through to hire a canoe on August 24<sup>th</sup>, Dave Warren and Ramil found sherds over a larger area of approximately 80x30m.

*Ethnographic Notes and Oral Traditions:* Since this entire region is referred to as "Ivato-Savana," the name implies that Savana is an older settlement than Ivato (site 40), according to how names are normally combined.

While waiting for the canoe ferry to arrive and discussing our work with our fellow passengers, we were told of a place approximately 3 kilometers north with "many sherds" called Andranofasika, near Ankasaka. We were not able to extend our survey to cover that area, but wanted to record the tradition for future researchers.

*Artifacts:*

- 31 Plain body sherds, including 5 type iC, 3 type iB, and 1 type ii (118.8g total)
- 2 body sherds with linear combing, type iC, 4.5g, t=.90, and type i, 10.5g, t=.63, sand and black flecks (2,5%)
- 1 body sherd with incised double groove, type i, 2.1g, t=.51
- 1 piece of school slate, 11.7g
- 1 carbon cylinder, 1.2g, d=.73
- 5 imported European ceramics, 19.4g, including a floral ware base, rim, and body sherd (t=.55), a thin white ware rim (t=.27 lip t=.23), and a possible Asian grey rim (t=.40)
- 5 eroded grey graphite rim sherd fragments, very small, type iC, with incised lines and small triangle punctates, 14.8g
- 1 grey graphite rim sherd, type iC, 24.3g, d=22 (5% of rim), t=1.12, lip t=1.32, with small triangle punctates and vertical incised lines on interior surface (triangle base = .32) (illustrated below).
- 3 plain rim sherds, type i reduced, 12.6g (2 illustrated below).
- 1 decorated rim sherd, reduced type iE with sand and graphite inclusions (2,15%), 8.4g (illustrated below).

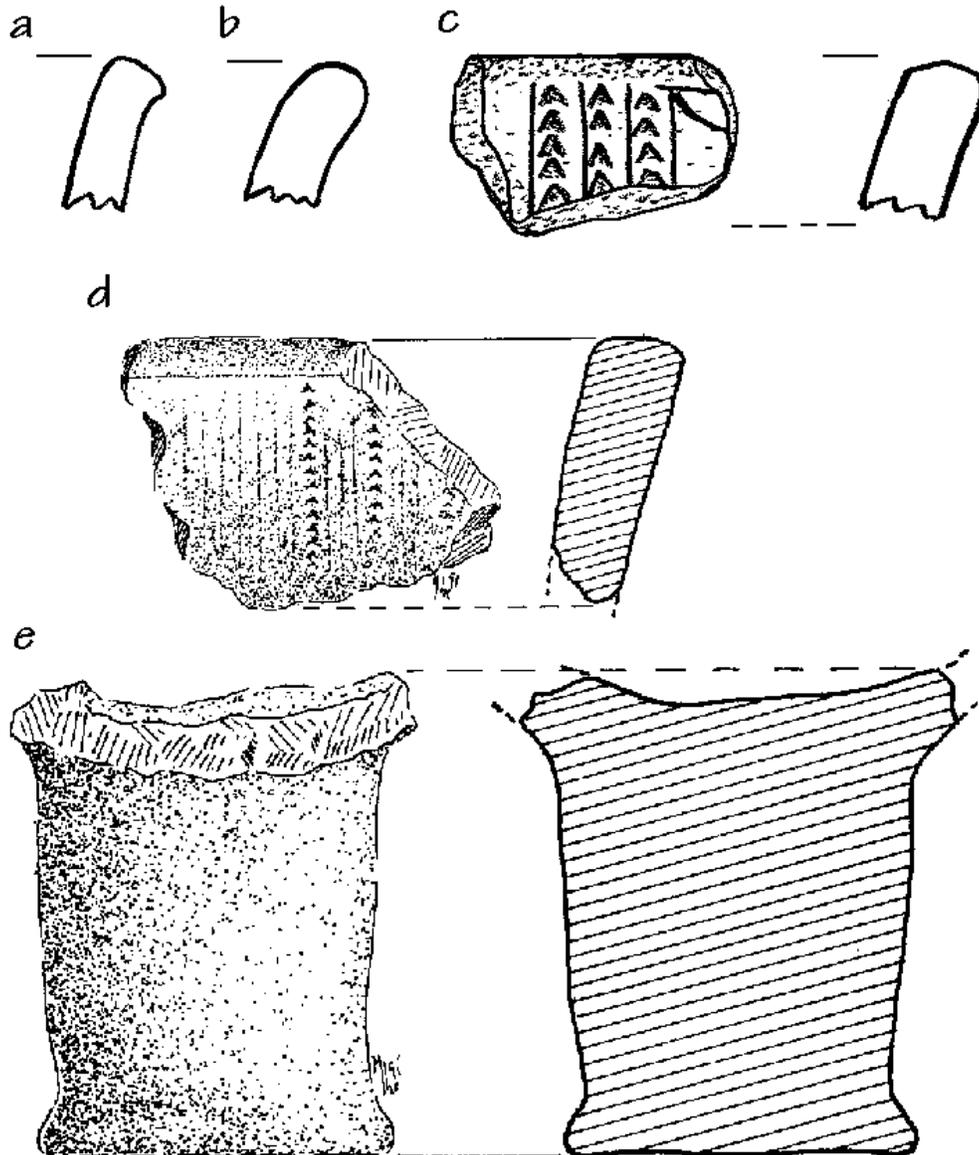


Figure A120. Site 53 artifacts.

- a. Plain rim sherd, type iE reduced 10YR4/1, 4.7g, d=23 (5% of rim), t=.72, lip t=.77, sand, black flecks, and gold mica inclusions (2,5%).
- b. Plain rim sherd, type i, 5.5g, d=25 (3% of rim), t=.89, lip t=.83, sand and black flecks (3,10%), interior 5YR6/3, exterior 10YR5/2.
- c. Decorated rim sherd, type iE with graphite inclusions (2,25%) 10YR4/1, 8.4g, d=35 (2% of rim), t=.96, lip t=.97, triangle base = .30cm, with incised lines and small triangle punctates on interior surface.
- d. Decorated rim sherd, type iC, 24.3g, d=22 (5% of rim), t=1.12, lip t=1.32, triangle base = .32cm, with small triangle punctates and vertical incised lines on interior surface.
- e. Base foot (seems too long for lid knob), type i, base d=4.36cm.

Site: 54

Tamboro

Region of: Vohipeno

*Laborde X:* 548.5      *Latitude:* 22.26047\*      *Season:* 94  
*Laborde Y:* 408.2      *Longitude:* 47.52490\*      *Ceramic phase recovered:* 4\*,5\*

*Artifacts:* 6 sherds recovered (5 grams), all plain body sherds and relatively coarse, 1 with possible burnish, sand inclusions (.05-.1, 3%), grey and tan (5YR5/4).

**Site: 55**

**Tsimilanja**

**Region of: Manakara**

*Laborde X:* 559.1      *Latitude:* 22.222      *Season:* 95  
*Laborde Y:* 431.3      *Longitude:* 47.98017      *Ceramic phase recovered:* 5

*Site today:*

*Collection method:* complete

*Site Notes:* Double ditched enclosure and sherd scatter above Antsary (site 32) and Antanimbaribe (site 62), see site map below. We excavated a 50x50cm sondage 2 meters north of the main farmhouse. We recovered 6 sherds in the first 10 centimeters of the sondage, and nothing below that.

*Ethnographic Notes and Oral Traditions:* We found Tsimilanja while working with a 65 year old man from Antsary named Isolo. He claimed that the fortifications here were dug by the Antevohimary clan of the Antemoro, before "the white man" arrived, and that their descendants have now moved to the Matitanana River (presumably to the village of Vohimary (site 57, near Voasary). He claimed not to know who the enemy was when the village was occupied, but said that it was a war between Malagasy, all before the *Vazaha* (Europeans) arrived. Ramil (my collaborator) suggests that the Antevohimary were originally the "people from Vohemar," the famous site on the northeast coast of Madagascar, based on the way Vohemar is pronounced in Malagasy. This farmstead of Tsarafelana seems rich in resources with coffee, oranges, jackfruit, and many other crops. The owner gave us a large rim he had previously dug up from the cattle park near his house (illustrated below).

A few days later, we surveyed the hills north of Tsimilanja, found nothing archaeological, but did meet Razaphy Christian, an Antevohimary himself who lives at Ivohitra. This man says that there are tombs in the forest on Tsimilanja where I couldn't penetrate (what I suspected given the size and number of Ravanala trees). Though he also says the last person of his clan to use those tombs died around 1800 (he himself will go near Vohipeno when he dies). He claims the Antevohimary came to this area of Tsimilanja after they lost a war in the Mananjary region.

*Artifacts:* Large decorated rim, illustrated below, also an everted flat lip jar rim, no incising

Tsimilanja

22deg 13.32'S

47deg 58.77'E

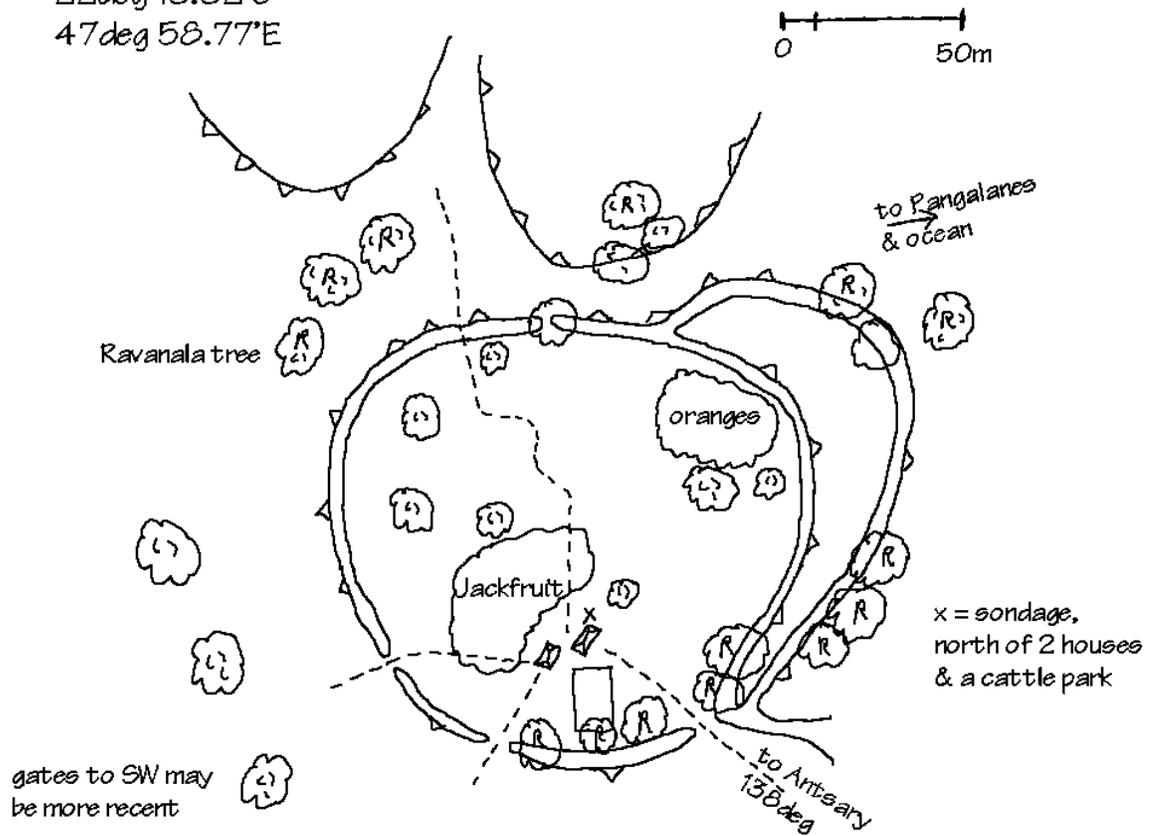


Figure A121. Site 55, Tsimilanja.

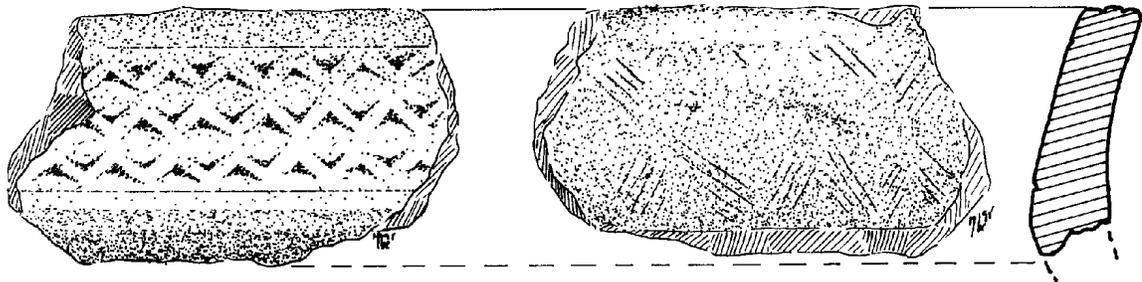


Figure A122. Site 55 artifact.

Decorated rim sherd, type iC, d = 40 (4% of rim), 2 incised lines on top of lip, 3 rows of false chevron on interior, exterior is incised with point to point triangles.

**Site: 56**

**Vatomasina, Pres. compound**

**Region of: Vohipeno**

Laborde X: 544.8

Latitude: 22.21362\*

Season: 95

Laborde Y: 416.5

Longitude: 47.50368\*

Ceramic phase recovered:

**Site Notes:** 2 sherds collected from President's compound, which helped us explain our project to the officials. President de la Délégation Spéciale of Vohipeno, Tsimandresy Gaston, and his second in charge, Ramahandresoa Edmund, assisted us in our research. Sherds were

19<sup>th</sup> or 20<sup>th</sup> century white wares.

**Site: 57**                      **Vohimary**                      **Region of: Vohipeno**  
*Laborde X:* 549.1              *Latitude:* 22.22593\*              *Season:* 95  
*Laborde Y:* 413.9              *Longitude:* 47.53079\*              *Ceramic phase recovered:*  
*Site today:* village                      *Collection method:* complete  
*Site Notes:* 1 imported white porcelain sherd found, not modern. (We assumed given the rarity of imported pottery that more local sherds would turn up, and so gave this location a site number, but no further sherds were recovered).

**Site: 58**                      **Vohindava**                      **Region of: Vohipeno**  
*Laborde X:* 546.9              *Latitude:* 22.24440\*              *Season:* 94, 95  
*Laborde Y:* 410.7              *Longitude:* 47.51522\*              *Ceramic phase recovered:* 5  
*Site today:* village                      *Collection method:* complete and selective  
*Site Notes:* 1 surface collection from village in 1994, mainly near road on northwest slope of hill, where the sherds were confined to a relatively small area. We also visited in 1995 and collected sherds from the center of the village (20x20) and at the southern end near the primary school (10x5). Vohindava itself is on a huge hill overlooking huge rice fields, and while there are lots of sherds inside the village, there were none in the road cut which encircles the village.  
*Artifacts:* Including thin medium reduced sandy ware, everted jar neck with flat lip, and graphite ware  
- 5 plain rim, some with possible wheel marks on interior surface (illustrated below)  
- 2 decorated body sherds with linear combing on interior and exterior surfaces (1 illustrated below, the other 1.9g, t=.41 with sand and black fleck inclusions (1,5%)  
- 10 plain body sherds (63 g, including a local white-slipped ware (t=.73) and a thick ware with blackened exterior and grey interior (t=1.21, 18.2g), and a grey graphite ware (type iC) 9.9g, t=.95.

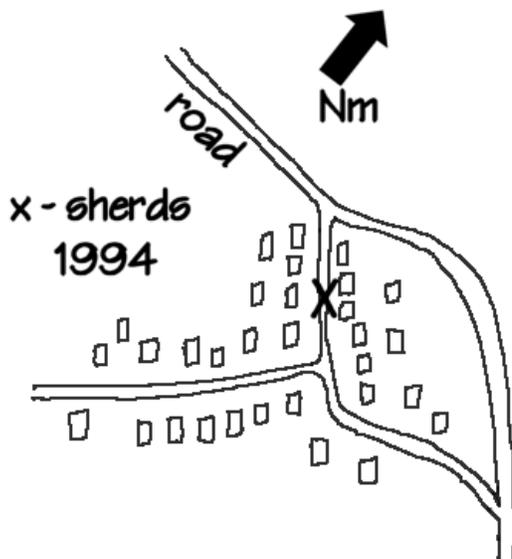


Figure A123. Site 58, Vohindava village

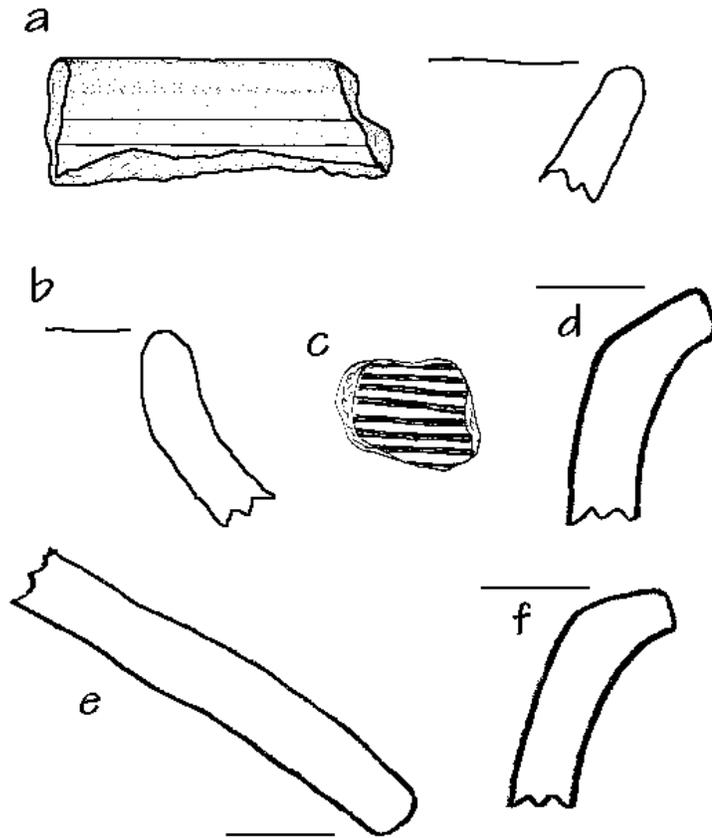


Figure A124. Site 58 artifacts.

- a. Decorated rim sherd, d=28 (4% of rim), t = .71, reflective fine sand inclusions (3%) and possibly organic inclusions, exterior color 7.5YR5/1, interior color 5YR7/2, 4 grams. Interior of vessel has incised lines (or they are possibly wheel marks).
- b. Plain rim sherd, diameter uncertain, t=.69, exterior 7.5YR3/1, interior 7.5YR7/2, 5 grams.
- c. Decorated body sherd with linear combing, t = .64, graphite inclusions, 5YR5/1, 2 grams.
- d. Plain rim sherd, 18.1g, d=23 (6% of rim), t=.75, lip corner t=.83, lip t=.56, sand (1,5%), reduced exterior 10YR3/1, interior 10YR5/1, interior wiped horizontally.
- e. Probable lid sherd, 31.7g, d=35 (4% of lid), t=.62, lip t=.65, sand (2,5%), reduced 10YR3/1.
- f. Plain rim sherd, 16.5g, d=23 (7% of rim), t=.71, lip corner t=.90, lip t=.53, sand (2,5%), reduced exterior 10YR3/1, interior 10YR5/1, interior wiped horizontally.

**Site: 59**

**Vohitrandriana**

**Region of: Vohipeno**

Laborde X: 544.6

Latitude: 22.23137\*

Season: 94

Laborde Y: 413.5

Longitude: 47.50308\*

Ceramic phase recovered: 3/4\*

**Site Notes:** Found only 1 single sherd on the eastern slope of the hill on 8/28/94, after having intensively surveyed all gardens and the slopes to the north and west, which included clearing ground cover on the top of the hill over an extensive area to improve surface visibility. We returned on 9/7/94 and completed 2 sondages (1 on the eastern slope and 1 on top of the hill), but recovered nothing on that day.

**Ethnographic Notes and Oral Traditions:** On top of the hill known as Vohitrandriana we met a man and woman working their gardens. The name of the site means "Nobles' village" and it is the highest hill in the immediate area and overlooks especially good rice fields. The woman, Randriamitsiry, claimed that there had once been a village on the hilltop, but that they were not Antemoro people, but Tanala or Tandroy or Sakalava. The man disagreed and offered to

introduce us to his older brother, a Mr. Rabeson, who is a Katibo scribe living in the village of Andranovolo (and the husband of Randriamitsiry.) Rabeson was a very interesting individual, and looked very much the part of a Katibo with his desk piled high with books and paper in the northeast corner of his house. Rabeson told us his family history (also recorded in his Sorabé), that Vohitrandriana was the “place of his ancestors.” He said his father had lived there early on, but his grandfather was from Lokomby. There had been two brothers living at Vohitrandriana, the elder stayed but the younger moved towards the river.

Elie Rajaonarison has written articles about this location being an important ancient site (and why we investigated it so intensively). Rabeson served as Elie’s main informant in the area, and so what I think has happened is a personal family history has been conflated with the larger currents of the history of social groups and population centers.

*Artifacts:* 1 plain body sherd recovered (see notes above), t=.56, coarse sand inclusions (3%), no core (oxidized), interior and exterior color 7.5YR6/6, 2 grams.

**Site: 60**

**Vohitratafana**

**Region of: Vohipeno**

*Laborde X:* 548.6

*Latitude:* 22.37983

*Season:* 95

*Laborde Y:* 414.3

*Longitude:* 47.87967

*Ceramic phase recovered:*

*Site Notes:* Ditched site on top of a high grassy hilltop, higher than the nearby settlements of Rotra, Mahavelo and Lazamasy. There are presently no houses or gardens on the hill, and the ditch itself is small and near the crown of the hill and filled in with trees and vegetation. As seen on the map below, the ditch averaged between 3 and 4 meters wide and 1 meter deep on the inside edge and a half meter deep on the outside edge. It is possible that there is a second, concentric ditch 4 meters down slope from the first, though excavation would be needed to confirm this. We did not investigate the second possible ditch, but we did shovel test just north and south of the visible ditch, as well as placed a quick sondage inside the enclosure. Many rocks were recovered from these three, but no artifacts were recovered.

*Ethnographic Notes and Oral Traditions:* A man that we encountered near the site said that the hilltop had been used during the Malagasy revolt against the French in 1947, and that the ditches date to that period (this at least contains the notion that such sites were defensive in nature). However, the *Mpanjaka* of the nearby town of Lazamasy (site 42) disagreed. He said that he doesn’t know who dug the ditches at Vohitratafana, but that it happened in ancient times, and was not reused during 1947.

Yohitratafana

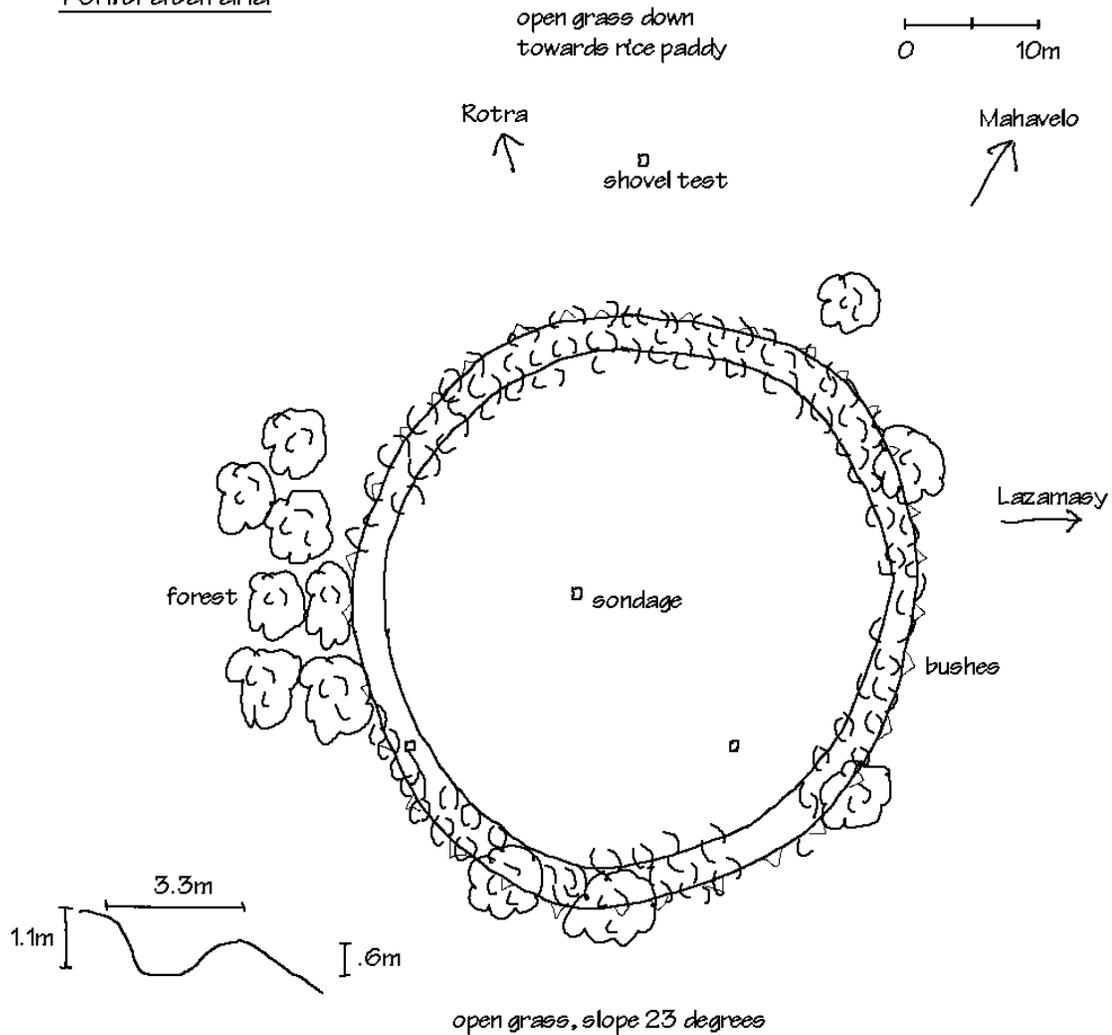


Figure A125. Site 60, Vohitratafana.

<b>Site: 61</b>	<b>Vohitsivalana</b>	<b>Region of: Vohipeno</b>
Laborde X: 549.2	Latitude: 22.38433	Season: 95
Laborde Y: 413.7	Longitude: 47.88733	Ceramic phase recovered: 5
Site today: village, garden		Collection method: quick complete collection

**Site Notes:** Sherds recovered from gardens at the top of the hill as well as from the western edge of the village and on the path leading into the village near there. Quick complete collection with kids helping from an area approximately 10m x 15m.

**Pottery Notes:** straight combing, everted jar and bowl w/ flattened lip, incised

**Artifacts:** Including incised, straight combing, everted jar and bowls with flattened lips

- 7 plain body sherds, including type iB and coarse type ii with quartz inclusions (21.3g)
- 2 plain rim sherds with square lip, type iE reduced, 3.3g, t=.62, and type i, 3.4g, t=.78
- 2 decorated body sherds, type iE, with double incised grooves, 4.1g, t=.56, .60

<b>Site: 62</b>	<b>Antanimbaribe</b>	<b>Region of: Manakara</b>
Laborde X: 560.1	Latitude: 22.2165	Season: 95, 97
Laborde Y: 432.1	Longitude: 47.9905	Ceramic phase recovered: 1*,4,5
Site today: cassava		Collection method: sondage

*Site Notes:* This site was first recorded during the 1994 season as Antanimbaribe Antsary (site 30), please see there for further explanation. In 1995 I excavated a 1x1m sondage in a cassava garden with remains of iron slag and clay tuyère visible on the surface. The excavation revealed a modern charcoal producing pit that had been dug into a layer with much iron slag (see profile below). The excavation continued by a combination of natural layers and arbitrary levels. At 60 cm below datum a single posthole was discovered in Layer C that continued down for another 30 centimeters. Charcoal was collected from this posthole at 85cm b.d. for possible radiocarbon dating.

Given this posthole and the possibility that a furnace had been in the immediate vicinity (given the fragments of tuyere), we returned in 1997 to excavate sondage 2 and 3, each 1x1m trenches separated by a 75cm baulk, placed 1 meter east of the original S1. These two squares were excavated by myself, Zoe Crossland, and Vonjy Ramilison. We excavated both squares down to 80cm below ground surface, and then shovel tested down to 1.3m b.g.s. to confirm that our bottom layer was sterile (which was a coarser, yellower sand than the white beach sand found as sterile elsewhere along this coast). As in S1, we encountered another white sandy layer with much charcoal which cut down into a grey/brown layer full of iron slag (see S2 west wall profile below). In 1995 we interpreted that feature as a recent, intrusive charcoal producing pit. In sondage 2 we decided that a very similar looking feature was instead most likely a former edge cut for a sweet potato garden. It is clear that iron production, charcoal production, chlorite-schist carving, and farming have all taken place at this site over time, and it's therefore not surprising that we found traces of each.

*Ethnographic Notes and Oral Traditions:* An elderly woman in the house south of our excavations said that this place used to be called Maroangatra or "place of many ghosts" and was once a big forest before people arrived to clear the woods 40 years ago and rename the location Antanimbaribe (which I believe means "big rice paddy"). This is of special importance if I try to use thermoluminescence dating on any sherds that are not deeply buried, since the woods were most likely turned into charcoal, the firing of which probably reset the sherd's electron counts.

One individual who watched our excavations said that he had helped 2 "Englishmen" do similar work at a place called Saranindrano (approximately 7 km west of Antsary) in 1985. He said they were looking for sherds (*vilangtany taloha*) and dug trenches over 5 meters deep such that they had to use ladders to get in and out of them. We were not able to confirm his claims, and don't know of any archaeologists he could be referring to, but while the excavation at Antanimbaribe were ongoing my colleague Ramilisonina surveyed up to the village of Ivohitra and found modern mining of volcanic rock for road construction in Manakara, so perhaps this is what the man was referring to. And concerning modern mines, Google Earth still (as of 2008) does not have high resolution images for most of this region available, but Antanimbaribe and the sites in its immediate area are visible on such a high resolution panel. A second high resolution panel can be found south of the Matitanana River, just outside our survey area, and includes what looks to be a very large mining operation at 22deg 30'23"S and 47deg 52'40"E, that deserves ground sourcing in any future research. The high resolution satellite images are much better than the aerial photographs we had been working from before Google Earth was launched. The existence of Google Earth at the conception of my survey project would have surely changed our procedures for the better.

The man who lives in the northern-most house on the map below was 59 year old lotopoezy (or Yabon'ny Zanambahi). The sign along the main road for his farmstead reads "Antanimbaribe Antsary-Tataho."

*Artifacts from surface collection:* Including medium oxidized with red slip, chlorite-schist temper, dentate and hollow reed impressions  
- 4 fragments chlorite-schist (47g) – 1 decorated body sherd (illustrated below), 1 base (d =

20cm), 2 rims.

- 1 fragment iron slag (58.9g), holes on 1 side, smooth on the other, non magnetic.
- 2 piece clay tuyere (53.4g), 5YR7/4 to 7/6 on interior of clay, iron at 1 end, clay at the other, exterior of clay in 10YR7/3, slightly magnetic at metal end.
- 2 pieces of baked clay (part of tuyere or furnace). 1 piece is 46.0g, rounded (diameter approximately 20cm), 1.77cm thick, coarse sand inclusions (10%) along with some reddish stone inclusions, exterior 7.5YR7/2, non magnetic. 2<sup>nd</sup> piece has some slag attached (59.6g), non-magnetic.
- 13 body sherds (81.1g), 1 with red slip (like site 26 "Swahili" red slip), and another with fine combing or possible rice impression (too small to tell), and a third of type iiiB, soft cream paste.
- 5 rim sherds (39.6g), 1 with finger pinch marks on exterior of lip (illustrated below).

Overall, the wares present in the surface collection, which was a selective sample to get the full range of artifacts present (and was based on my first ware typology, see chapter 5): Type 1 (2 sherds), Type 2 (2 sherds), Type 3 (5 sherds), Type 4 (2 sherds), Type 5 (2 sherds), Type 6 (1 sherd), Type 7 (1 sherd), Type 8 (1 sherd), Type 9 (1 sherd), Type 10 (1 sherd).

*Artifacts from Site 62, Sondage #1:*

Level 1:

- 7 pieces of slag, 16.8g, strongly magnetic, 2 of which are smooth slag
- 7 pieces of slag, 12.4g, non magnetic, 3 of which are smooth slag
- 3 possible sherds or baked clay (12.2g).

Level 2:

- 13 pieces of slag, 10.9g, strongly magnetic, 2 are smooth
- 2 pieces of slag, 23.7g, slightly magnetic, 1 smooth
- 14 pieces of slag, 23.3g, non-magnetic, 0 smooth
- 2 pieces of baked clay, .8g, (1 piece is strongly magnetic)
- 2 fragments of chlorite-schist, .7g, non-magnetic
- 1 piece quartz, .1gr

Level 3:

- 4 pieces of slag, 7.1g, non-magnetic, 0 smooth
- 2 pieces of baked clay, 5.1g, 1 slightly magnetic

Level 4 (white sand):

- 6 pieces of slag 9.4g, 2 strongly magnetic, and 1 is smooth slag (non-magnetic)
- 1 fragment of chlorite-schist, 1.2g, strongly magnetic, small rim fragment

Level 4 (Feature 1, dark grey sand):

- 12 pieces of slag, 25.6g, 5 are strongly magnetic, 2 smooth and non-magnetic, 1 smooth and slightly magnetic.
- 2 pieces of baked clay, 5.3g, non-magnetic
- 1 body sherd, 1.6g, non-magnetic

Level 4 (Feature 2, mottled grey sand):

- 15 pieces of smooth slag, 23.3 g, 1 is strongly magnetic, and 2 are slightly magnetic
- 37 pieces of rough slag, 86.0g, 13 strongly magnetic, and 5 slightly magnetic
- 1 nail concretion, 2.6g, 4.06cm long, diameter = .31cm
- 2 red rocks, 3.0g, strongly magnetic (ore or fire cracked rocks?)
- 7 fragments of chlorite-schist, 11.3g, 1 with grooves (non-mag.), 1 strongly mag., 1 slight mag.
- 5 body sherds, 6.5g, ware types #1,3, and 10.
- 3 pieces of baked clay, 2.3gr
- 1 piece of clear glass, looks old with air bubbles, .2gr

Level 5:

- 4 pieces of smooth slag, 7.0g, non-magnetic.
- 16 pieces of rough slag, 26.4g, strongly magnetic.
- 15 pieces of rough slag, 35.2g, non-magnetic
- 3 pieces of rough slag, 8.4g, slightly magnetic

- 6 fragments of chlorite-schist, 92g, 1 of which is slightly magnetic
- 1 body sherd, .9g, brown burnished ware
- 1 piece of slag and baked clay , 11.7g, possibly of tuyere
- 3 pieces of baked clay, 7.2gr
- 1 large sherd or piece of tuyere, smoothed (burnished?) on 1 side and missing the other side, very coarse, 49.2g, t=3.07, surface 5YR6/3 to 4/2, paste 10YR6/1
- 1 broken chlorite-schist mould, possibly an unfinished ring mould (illustrated below), 23.1g, non-magnetic, length 5.06cm, width 2.06cm, thickness .92 to 1.15cm.

Level 6:

- 3 pieces of slag, 4.5g, non-magnetic, 1 is smooth slag
- 1 strange reddish rock, 4.8gr

Sondage #1 Post-hole 70-100cm

- 1 piece of slag, 6.3gr
- 2 pieces of possible slag, 4.0g, 1 is slightly magnetic.

Table A1. Iron slag typology and counts from 62 sondage 2 & 3.

Type vii Iron Slag  
 A. with smooth droplets  
 B. rough angular  
 C. with baked clay attached  
 D. flat, caked with sand  
 E. flat with at least 1 smooth side  
 F. worked (e.g. hook)

Site 62 Iron	VII A	VII B	VII D	VII E	VII F
S2 L1		7 (7.1g)		2 (.9g)	
S2 L2	7 (2.9g)	15 (10.5g)		2 (.3g)	
S2 L3	8 (30.8g)	15 (40.0g)	1 (1.1g)	1 (.1g)	1 (.6g)
S2 F1	16 (16.8g)	50 (37.3g)		2 (1.4g)	
S2 L4	65 (93.6g)	405 (348.6g)	1 (33.5g)	17 (8.9g)	1 (.8g)
S2 F2	27 (33.8g)	295 (272.1g)		2 (1.9g)	
S2 L5	55 (54.2g)	650 aprox (572.8)		15 (7.8g)	
S2posthol	12 (22.7g)	93 (76.5g)		2 (.3g)	
S2 L6	22 (21.3g)	7 (9.0g)		2 (.3g)	
S2 L7	3 (.9g)	21 (16.3g)			
Site 62 Iron	VII A	VII B	VII D	VII E	VII F
S3 L1	5 (9.8g)	6 (3.5g)		1 (.4g)	
S3 L2	8 (7.0g)	14 (11.9g)		4 (2.2g)	
S3 L3	34 (55.0g)	29 (65.2g)		25 (19.2g)	2 (1.0g)
S3 L4	20 (52.5g)	47 (119.8g)	1 (2.9g)	22 (19.0g)	2 (2.9g)
S3 L5	14 (8.9g)	62 (58.5g)		13 (8.0g)	
S3 L6	4 (2.6g)	10 (3.0g)		2 (.7g)	

*Artifacts from Sondage 2 (in addition to the iron slag documented above):*

S2 Level 3:

- 1 plain rim sherd, type I, .3g (too small to draw)
- 1 angular rock (25.3g)

S2 Feature 1: 5 red rocks 8.3g

S2 Level 4:

- 19 fragments of chlorite-schist, 39.5g, including 2 strongly magnetic and 4 slightly magnetic, but 1 piece is 25.9g (a flat platform like a mold blank), so all the rest is very small pieces; indicates that they were working the stone here on site?
- 1 iron like rock, 39.1g
- 8 plain body sherds, 6.1g, type i, including 1 with red exterior and 1 with silver reflective inclusions.
- 16 pieces of baked clay, 22.4g

S2 Feature 2:

- 5 rocks, 95.1g
- 40 pieces of baked clay, 62.5g

S2 Level 5:

- 13 fragments of chlorite-schist, 12.9g, including 2 strongly magnetic and 2 slightly magnetic, including 1 body sherd t=.86 (weighing 7.4g by itself)
- 5 pieces of baked clay (or small eroded sherds), 4.0g

S2 Level 6:

- 1 fragment of worked chlorite-schist, 63.1g, t=2.19, non magnetic
- 1 plain body sherd, .3g

S2 L6 Posthole: 1 red iron rock, 96.2g

*Artifacts from Sondage 3 (in addition to the iron slag documented above):*

S3 Level 2:

- 1 plain body sherd, type i, .6g

S3 Level 3:

- 3 plain body sherds, type i, 2.3g
- 8 fragments of chlorite-schist (13.7g), t=1.45, including 2 strongly magnetic, 1 weakly magnetic, and 5 non magnetic

S3 Level 4:

- 3 fragments of chlorite-schist, 20.5g, 1 weakly magnetic, 2 non magnetic

S3 Level 5:

- 1 plain body sherd, type i, 1.0g

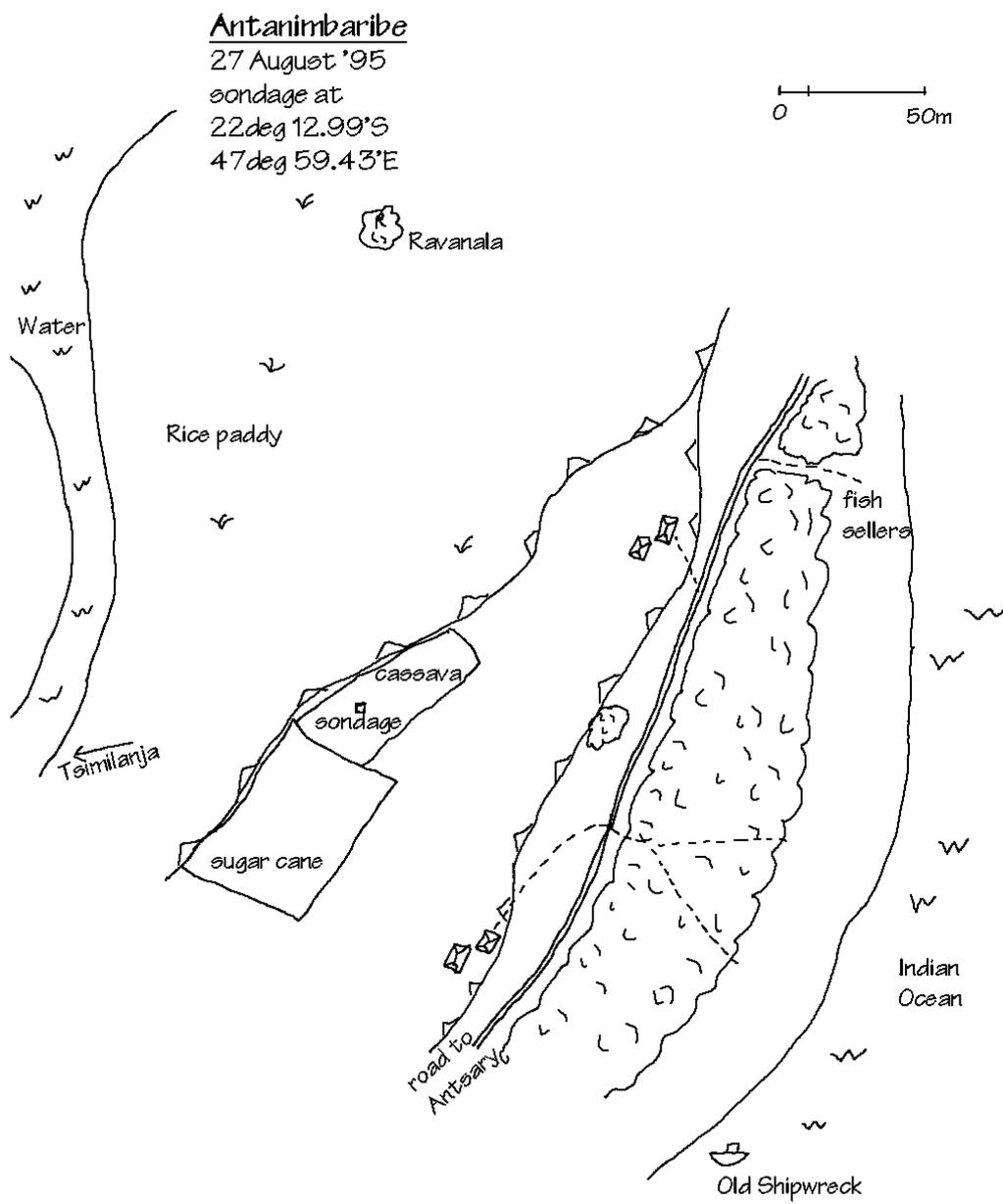
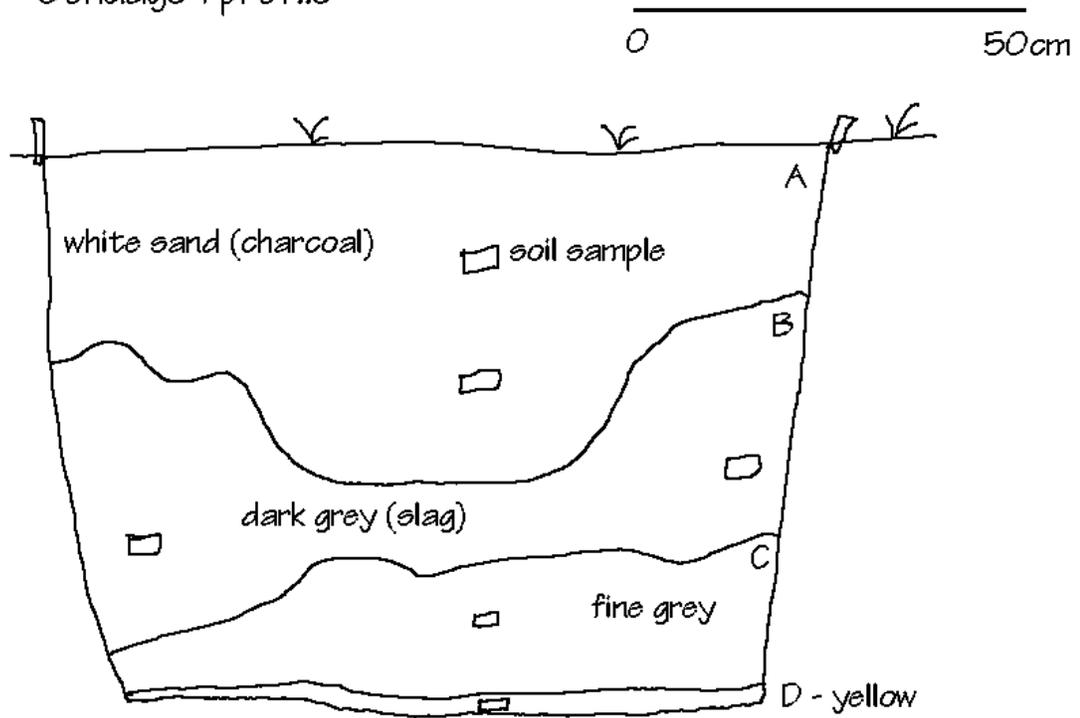


Figure A126. Site 62, Antanimbaribe.

Antanimbaribe  
Sondage 1 profile



Plan, 30cm b.d.

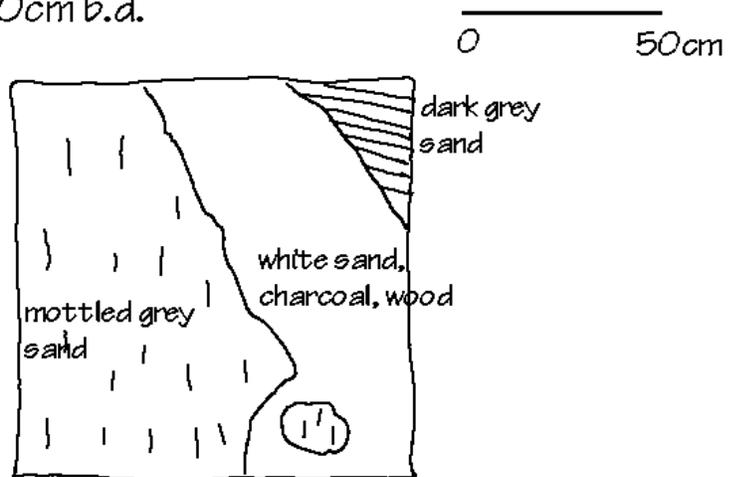


Figure A127. Site 62, Sondage 1 Profile.

## Antanimbaribe, Sondage #2 Profiles

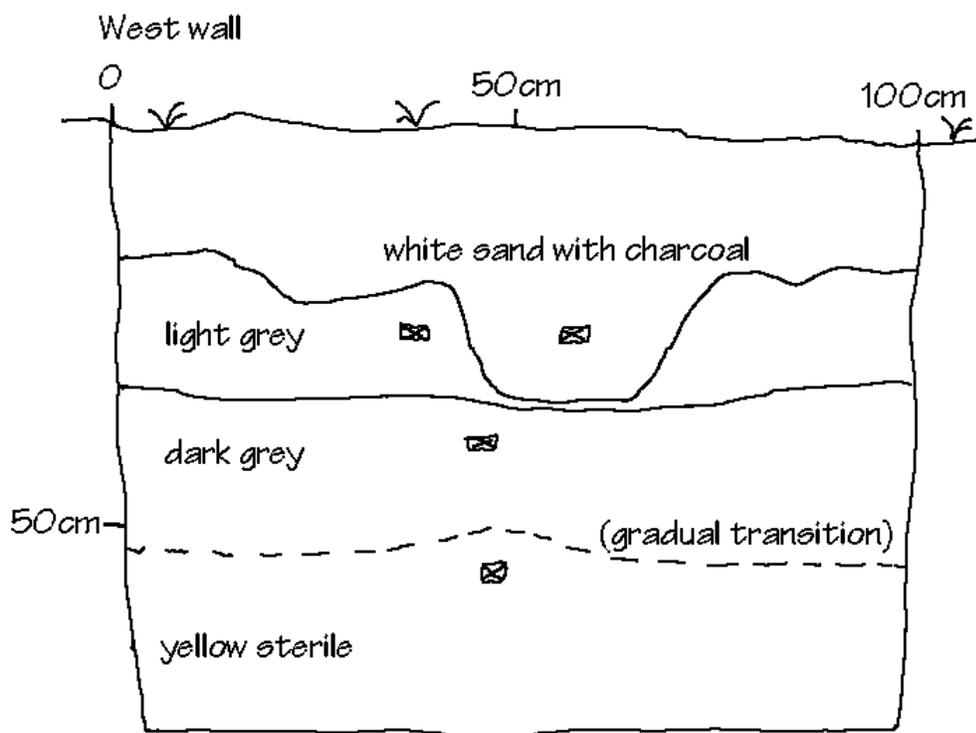
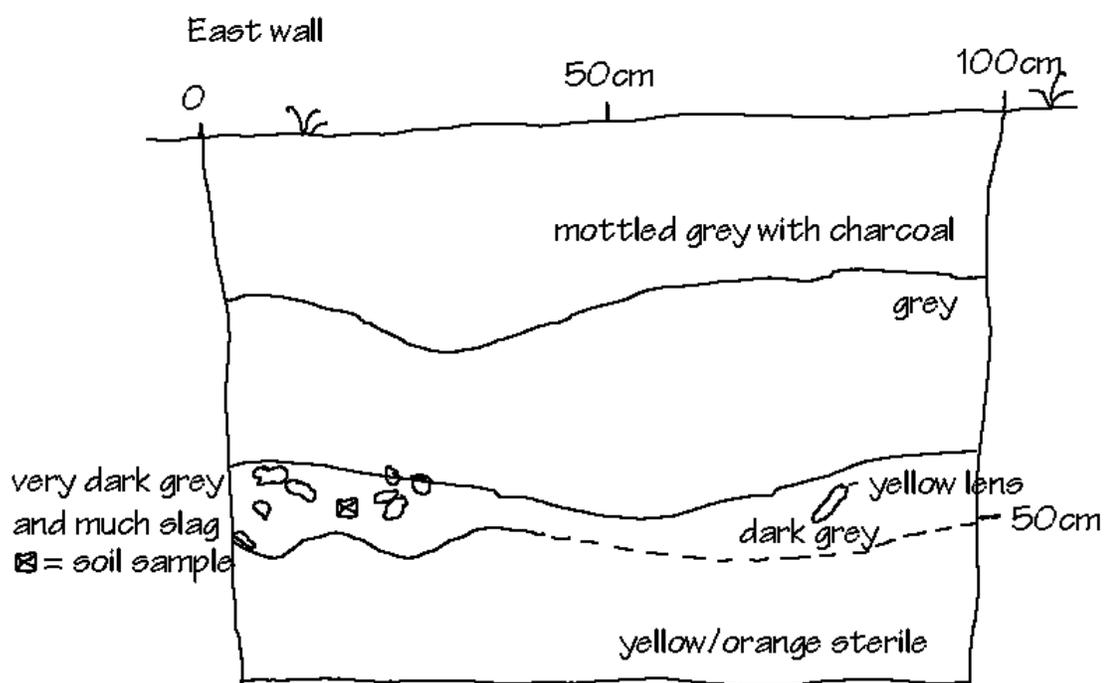


Figure A128. Site 62, Sondage 2 profiles.

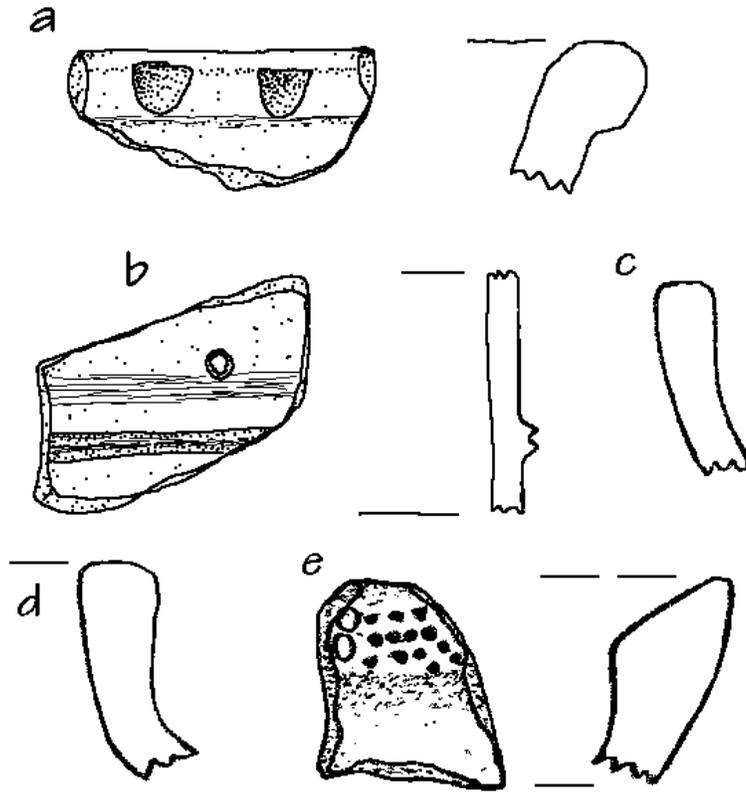


Figure A129. Site 62 artifacts.

- a. Decorated rim sherd, 9.3g, soft brown paste with sand inclusions (3,3%), d=19, t=.82, lip t=1.19cm, with finger pinch marks on exterior of lip.
- b. Decorated chlorite-schist body fragment, brownish stone, 3.9 grams, with craved ridges, groove marks, and repair hole (hole diameter = .3cm).
- c. Plain rim sherd, type i, 5.1g, diameter and orientation uncertain, t=.59, lip t=.67, sand (3,10%), 10YR5/4, smoothed exterior.
- d. Plain rim sherd, 12.0g, d=24 (4% of rim), t=.69, lip t=.95, sand (3,5%), 10YR4/1, horizontally wiped interior and exterior.
- e. Decorated rim sherd, type iE, 6.9g, diameter and orientation uncertain, t=.71, lip corner t=1.33, sand and graphite inclusions (3,20%), reduced 10YR3/1, with small round punctates and hollow tool punctates on interior lip.

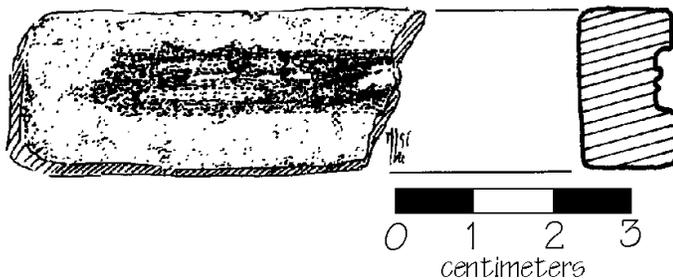


Figure A130. Site 62 S1L5 ring mould.

Chlorite-schist mould, unfinished and broken, non magnetic, 23.1 grams, 5.06 cm x 1.15 cm x .92 cm.

**Site: 63**

**Tanandava**

**Region of: Vohipeno**

Laborde X: 545.6

Latitude: 22.22344\*

Season: 97

Laborde Y: 414.7

Longitude: 47.51054\*

Ceramic phase recovered: 5\*

Site today: village

Collection method: complete collection

*Site Notes:* 1 sherd found in modern village. Since we spent time interviewing people, this became a site, when it was really just an isolated find.

*Ethnographic Notes and Oral Traditions:* A man in this village told us that while digging their 6m deep well they saw the leaves of a *Via* plant near the bottom (could be related to the vegetation mat seen at Marovahiny at 2m b.g.s., is this preservation linked to a high water table, or is this lots of alluvial deposits next to the Matitanana River?)

*Artifacts:*

- 1 plain body sherd, type i, 6.1g, t=.74, thin reduced sandy.

**Site: 64**

**Maroandry**

**Region of: Vohipeno**

Laborde X: 544.9

Latitude: 22.36203

Season: 97

Laborde Y: 416.6

Longitude: 47.83925

Ceramic phase recovered: 5\*

Site today: empty garden

Collection method: thorough complete collection

*Site Notes:* Sherd scatter 15x20 meters, southwest of church near tombs (*andry*=tombs, *maro*=many), in 2 small tilled gardens.

*Artifacts:*

- 3 plain body sherds, type iB with graphite inclusions (3,20%), 17.3g, t=1.02, 1.06, 1.11cm

**Site: 65**

**Maroandry Atsinanana**

**Region of: Vohipeno**

Laborde X: 544.7

Latitude: 22.36209

Season: 97

Laborde Y: 416.4

Longitude: 47.84044

Ceramic phase recovered: 5

Site today: foot path

Collection method: thorough complete collection

*Site Notes:* Small sherd scatter visible on foot path, low visibility elsewhere (3x1 meters).

*Artifacts:*

- 2 plain body sherds, type i, 4.7g, t=.64, .86
- 1 plain rim, type ii, 1.1g, t=.65, lip t=.53 (illustrated below)
- 1 plain rim, type iiiA, 4.5g, t=.36, lip t=.98 (illustrated below)

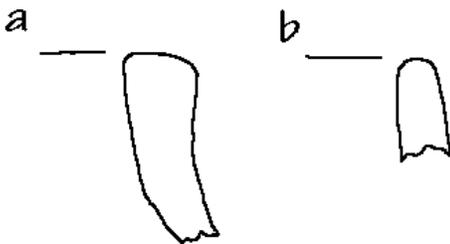


Figure A131. Site 65 artifacts.

a. Plain rim sherd, type iiiA, 4.5g, t=.36, lip t=.98

b. Plain rim sherd, type ii, 1.1g, t=.65, lip t=.53

**Site: 66****Region of: Vohipeno***Laborde X:* 544.8*Latitude:* 22.36931*Season:* 97*Laborde Y:* 415.6*Longitude:* 47.84189*Ceramic phase recovered:* 7*Site today:* cassava*Collection method:* selective sample*Site Notes:* Clay tiles (probably recent) scattered in a group of large gardens*Artifacts:*

- 7 pieces of tile, type v, 43.6g, t=.72 (recent)

**Site: 67****Vohipeno Mosque****Region of: Vohipeno***Laborde X:* 544.5*Latitude:* 22.35649*Season:* 97*Laborde Y:* 416.9*Longitude:* 47.84061*Ceramic phase recovered:* 3/4\*,5,6,7*Site today:* village*Collection method:* thorough complete collection

*Site Notes:* On Oct, 3, 1997 we met 20 men digging with shovels a foundation for a new *madrassa* (religious school) just southwest of the modern mosque in Vohipeno. They agreed to stop work to allow us to clean off their profile and collect artifacts from their trench, which was 24 meters wide and cut back into the hill on which the mosque sits. The trench was nearly 3 meters deep, and an examination of the profile (illustration below drawn by Zoe Crossland) revealed a buried layer of modern trash covered by back-dirt, probably from the earlier construction of the mosque itself in the mid 20<sup>th</sup> century. We recorded the provenience of artifacts as above or below a red clay layer which appeared to seal those levels beneath it. European imports were found above this layer, and only local pottery was found beneath. A sherd and soil sample was packaged for thermoluminescence dating from 2.8m below present ground surface, which was 1.21m below the modern trash layer and approximately 80cm below the original surface before the 20<sup>th</sup> century construction.

*Artifacts:*

67A from high backdirt:

- 2 imported rim sherds, type viA, 8.8g, t=.43, .51, European floral (1 illustrated below)

- 5 imported body sherds, type viA, 18.8g, t=.49 to .52, same European ware

- 1 plain body sherd, type i, 8.9g, t=.68

- 1 plain rim sherd, type iB, 2.6g, t=.48, lip t=.56

67B, artifacts from below red clay layer:

- 11 plain body sherds, type 12, sandy outcaste ware, 124.1g, t=.70 to .92, reduced, wiped brown exterior, looks like lid sherd from site 29.

- 16 plain body sherds, type i, 35.1g, t=.42 to .58

- 1 base or lid knob, type 12, 32.8g, d=4.35cm, (illustrated below)

- 1 plain body sherd, type iC, 15g, t=.48

- 2 decorated body sherds, type iC, 4.9g, t=.61 (1 ill. below)

- 1 decorated rim sherd, type iC, 5.7g (ill. below)

- 4 plain rim sherds, type i, 35.1g (2 ill. below)

Site 67, Vohipeno Madrasa Construction  
 (Oct. 3, 1997, artifacts collected from below  
 the red clay layer labeled 67B)

0 2m

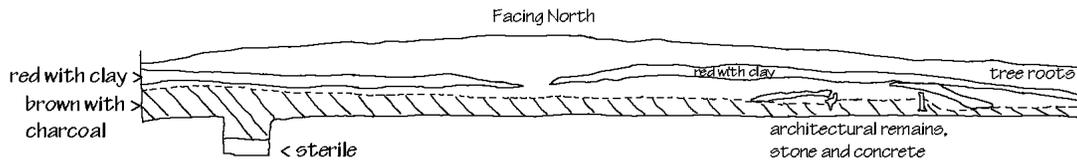


Figure A132. Site 67, Vohipeno Mosque.

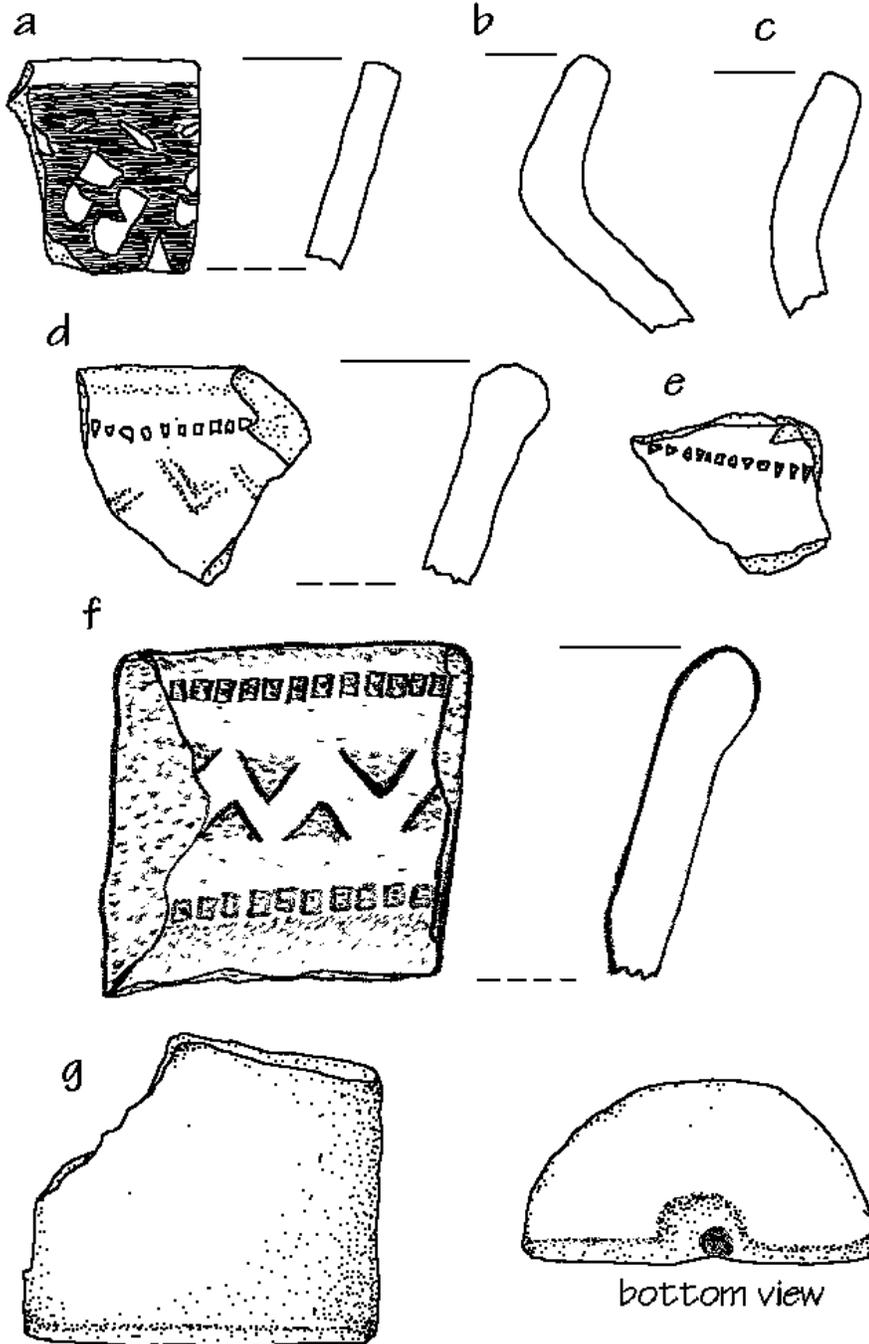


Figure A133. Site 67 artifacts.

- a. Decorated rim sherd, type viA, 4.3g, d=14 (5% of rim), t=.43, .51, European floral decal ware, from high backdirt.
- b. Plain rim sherd, type i, 15.3g, d=22 (7% of rim), t=.54, lip t=.41
- c. Plain rim sherd, type i, 6.4g, d=20 (5% of rim), t=.57, lip t=.50
- d. Decorated rim sherd, type iC, d=19 (4% of rim), t=.59, lip t=.91, with dentate stamp and incised zigzag line on interior surface
- e. Decorated body sherd, type iC, 2.5g, t=.61, with dentate stamp on exterior
- f. Decorated rim sherd, type iC, 22.8g, d=26 (5% of rim), t=.53, base of lip t=.83, lip t=1.03, triangle base = .76cm, 10YR4/1, exterior thickening of lip, with triangle punctates and large rectangular stamps on interior surface.
- g. Plain base or lid knob, type 12, 32.8g, d=4.35cm, center hole diameter = 1.2cm

**Site: 68**

**Vatomasina, church**

**Region of: Vohipeno**

*Laborde X:* 544.5

*Latitude:* 22.35853

*Season:* 97

*Laborde Y:* 416.7

*Longitude:* 47.84059

*Ceramic phase recovered:* 5

*Site today:* foot path

*Collection method:* thorough complete collection

*Site Notes:* Small sherd scatter (4x1 meter) eroding out of the road to the Catholic church from the houses at Vatomasina.

*Artifacts:* Including thin reduced sandy ware

- 8 plain body sherds, type i, 13.7g, t=.54 to .66
- 1 plain rim sherd, type iiC, 6.1g, diameter uncertain, t=.69, lip t=1.20
- 1 decorated body sherd, type i, 2.8g, t=.66
- 1 plain rim sherd, type i, 2.5g, diameter uncertain, t=.37, lip t=.76

**Site: 69**

**Vatomasina village**

**Region of: Vohipeno**

*Laborde X:* 544.6

*Latitude:* 22.21265\*

*Season:* 97

*Laborde Y:* 416.8

*Longitude:* 47.50298\*

*Ceramic phase recovered:* 5,6,7

*Site today:* village

*Collection method:* quick complete collection

*Site Notes:* Sherd scatter, approximately 70x60 meters, found in the modern village of Vatomasina, the high town overlooking Vohipeno, east of our informant's house (the Katibo Yabon'ny Babeta, or Boto Pierre). The collection was made quickly with many children helping.

*Ethnographic Notes and Oral Traditions:* Boto Pierre (who had recently changed his name to Yabon'ny Babeta, or "father of Babeta") was one of the main informants of the French ethnographer Philippe Beaujard, and was himself a *katibo* (scribe) who created Sorabé texts. He has also written his own (unpublished) history of his village. We were able to interview Beaujard and Boto Pierre (then 80 years old) together in 1994, and worked with each further in later seasons. In 1994 we were also able to interview another *katibo* from Vatomasina (Martial Tosend), along with the *mpanjaka* Jean Daia, the *tovoho* (vice-roi) Felix Andrena, and *loholo* (councilor) Pierre Seraphine, as well as Father Vincent Sangandahy from the Catholic church in Vatomasina (who kindly arranged for us to use his motorized outrigger canoe), over a series of dinners. From them we learned the local history that the first ancestors of the Antemoro arrived in 1307, having come directly from Mecca, though they acknowledged that Onjatsy was an older village. Boto Pierre believes the last people to create pottery in the region lived on the other side of the river, though the last potter died in 1925. He named the town of Vohindava as the center of pottery production, though our later surveys indicate it was rather Enohona that was the center of pottery production (Philippe Beaujard has referred to this village as "Volobe" in his publications, which is more precisely the name of the cemetery adjacent to Enohona, as the outcastes are not to be talked about). I believe he named Vohindava both to simplify things by naming the largest settlement in the area he was directing us to, but also so he could avoid naming an outcaste

village directly. Of this avoidance, Beaujard notes that the Antemoro region can be a difficult place to work, given that it's in a state of "near civil war" between the various social groups.

In regards to specific sites, Beaujard suggested that the name "Ambohabe" (the Islamic city described by the Portuguese) might mean "the place of the big river mouth," that the people of Enohona had indeed specialized in pottery production, and that Onjatsy specialized in silver working. Other than these specializations, most villages just provided warriors, except for Ivato (being the political capital) and Vatomasina (the religious center). Of the untouchables at Enohona, Beaujard noted that the Antemoro in the region will not even talk with them (among many other taboos), though it does seem that in the past people were allowed to buy the outcastes' pottery. As for more recent sites, Beaujard suggested we might locate a Merina outpost south of the Matitanana River

Other histories we collected included stories of the 17<sup>th</sup> century, which is said to have been a time of great wars, creating three separate kingdoms along the Matitanana River, which they referred to as low, middle, and high heading westward (and this oral tradition, like others, mirrors the Sorabé texts). During this time period, they suggested we explore the tall hill of Fotsivava, north of Ivato, which they said is where the king retreated to during times of war. As for the sequence of settlements, both men agreed with my suggestion that once a village site is abandoned the area probably turns into a cemetery for the descendants living elsewhere, and thus would be inaccessible to us.

As a *katibo*, it was interesting to me that Boto Pierre's house had a slightly different layout from most Antemoro houses. The place of honor in the northeast corner was taken up by a chair and table with 2 candles and a stack of books, including a copy of Munthe's book on *Sorabé*. In 1995 we showed Boto Pierre's the bases/lids we were finding (he thought they were 1 leg of a 3 footed-pot), and asked about other ditched hilltop sites in the region (referred to as *manda*). He claimed that his own village of Vatomasina (overlooking Vohipeno) once was ditched, but it had since been filled in. He suggested we look at Ankaramalaza, the site of a church built by a famous prophetess Ninilava, a modern place of pilgrimage for many Malagasy (including the former president Zaphy Albert). Despite the interesting ethnographic and religious significance, we were not able to include that region in our survey, and leave it to future researchers.

In 1997 our evening interviews with Boto Pierre included a number of new topics, including a story of his own clan's arrival in the area - the Anakara, or religious elites for the Antemoro. ("Anakara" is said to be the oldest clan of the religious elites called "Antaloatra," just as the "Antesambo" predominate among the political nobility called "Anteony.") According to this *Katibo* and his *Sorabé* writings, the ancestors of the Anakara first lived in Onjatsy when they arrived in the region, and then moved on to Lakanoro (we surveyed Lakanoro but found no archaeological remains there). While living there they began to have battles with the Tanala. So the Antemoro came up with 7 eggs, 7 *lambarena* (a red shroud for the dead), 7 clay pots, and put them all into 1 canoe. They travel up the river to meet the Tanala at a place called Marovily. When they arrived they broke the 7 pots on the water and put the other items in the canoe, which then began to levitate above the water. The Tanala were so impressed with the magic that they decided to become allies rather than enemies.

Another discussion concerned the place name "Matitanana." Boto Pierre suggested it means "dead arm", in reference to the Anoloky, the body of water that now passes Savana. Either this water was once cut off and did not reach the Matitanana River, or it's simply a reference to the fact that this "river," though 200 meters wide in places, only travels 5 km away from the Matitanana before ending. His suggestion is that an early name for this "dead arm" was then extended and applied to the entire waterway. By this interpretation, Boto Pierre suggests that there are 7 branches for the Matitanana River, 6 of them are normal and this last one is "cut." When asked to name the 7 branches, he offered 1) Ananolika (Analoky on the FTM map), 2) Manandria, 3) Manakamboza, 4) Evazaha, 5) Ambinaninony, 6) Sahalava, and the 7<sup>th</sup> branch he can't remember (which recalls the discussion in chapter 1 of how our ideas organize reality, as there had to be 7 branches, not 6 or 8, so we'll come up with a list that fits reality as it must be).

Boto Pierre also offered a list of the 3 royal Antemoro villages besides the king's village at Ivato: 1) Vohindava (site 58), 2) Sanambary (Seranambe on the FTM map, site 51), and

Vohimavo (west of Andemaka, site 111).

As for the present-day use of the Sorabé, Boto Pierre told us that there is a school in Vatomasina for boys to learn to read and write the Sorabé characters. Any boy can attend, but they must be "Islamic." The people of a town decide who will be the *Katibo*, but "you must be old," and a town should have just as many *Katibo* (scribe, religious leader) as they have *Mpanjaka* (political leader).

*Artifacts:*

- 5 decorated body sherds, type i, 16.6g, t=.52 to .64 (illustrated below)
- 2 decorated rim sherds, type iC, 3.2g (ill. below)
- 1 imported rim sherd, type viA, 1.0g (ill. below)
- 8 plain body sherds, type i, 23.7g, t=.64
- 2 pieces of tile, type v, 20.9g
- 1 graphite rod, 2.5g (possibly from battery, or carbon arc light for projector, or bead blank?)
- 1 piece of concrete tile with green glaze, 7.0g

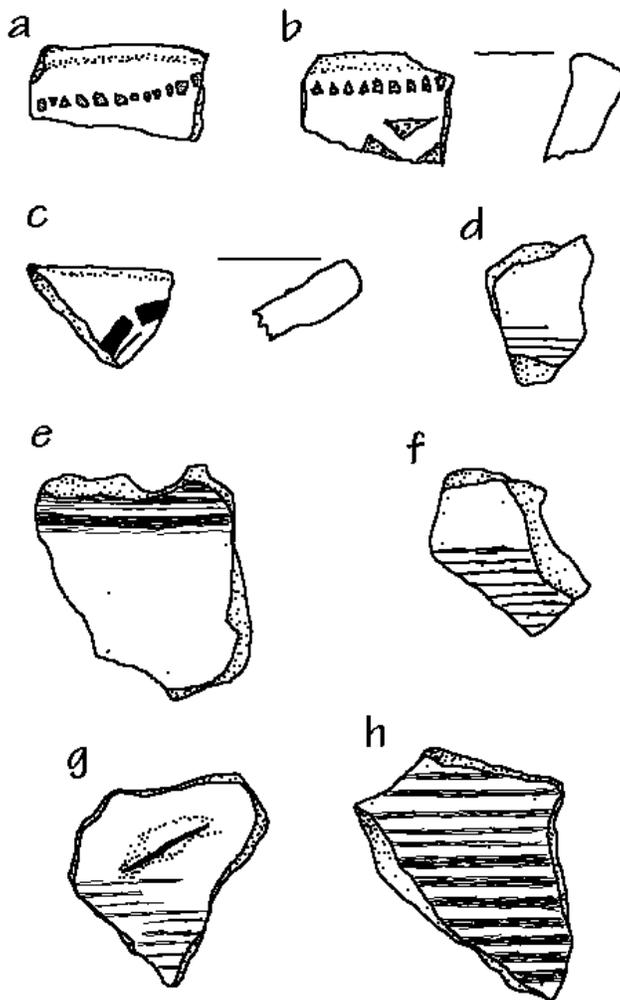


Figure A134. Site 69 artifacts.

- a. Decorated rim sherd, type iC, 1.6g, diameter uncertain, t=.61 lip t=.59, with dentate stamp on interior (very eroded sherd)
- b. Decorated rim sherd, type iC, 1.6g, diameter uncertain, t=.61, lip t=.72, with dentate stamp and triangle punctates in false chevron on interior
- c. Decorated rim sherd, type viA, 1.0g, diameter uncertain, t=.41, lip t=.43, modern blue on white

plate.

- d. Decorated body sherd, type i, 1.4g, t=.54, with fine combing on exterior
- e. Decorated body sherd, type i, 4.5g, t=.56, with incised grooves on exterior
- f. Decorated body sherd, type i, 1.7g, t=.52, with fine combing on exterior
- g. Decorated body sherd, type i, 3.5g, t=.64, with fine combing and raised ridge on exterior
- h. Decorated body sherd, type i, 5.5g, t=.58, with combing on interior

**Site: 70**

**Region of: Vohipeno**

*Laborde X:* 554.2

*Latitude:* 22.3666

*Season:* 97

*Laborde Y:* 415.7

*Longitude:* 47.93465

*Ceramic phase recovered:* 4,5

*Site today:* sweet potato

*Collection method:* selective sample

*Site Notes:* Sherd scatter in old gardens on back side of dune from ocean (45x40 meters), southeast of Ampasimeloka, continues in small garden 30x20m approx 40 m. north on path (waypoint 12).

*Artifacts:*

- 1 plain body sherd, type iiA, 14.8g, t=1.26
- 12 plain body sherds, type iiC, 42.4g, t=.52 to 1.21
- 7 plain body sherds, type iB, 100.1g, t=.71 to .75
- 3 plain body sherd, type iB1, 16.6g, t=.64 to .66
- 29 plain body sherds, type i, 75.8g, t=.47 to .64
- 1 plain body sherd, type iiiC (?), 1.9g, t=.58 (to type collection)
- 1 plain body sherd, type iC, 3.7g, t=.69
- 1 plain body sherd, type iA, 4.9g, t=.81
- 1 decorated rim sherd, type iB1, 26.1g (illustrated below)
- 1 decorated rim sherd, type i, 18.1g (ill. below)
- 1 decorated rim sherd, type iC2, 40.9g (ill. below)
- 2 chlorite-schist fragment, type viiiB, 24.0g, t=1.30
- 1 decorated rim sherd, type iiiC, 10.3g, with circular punctates on exterior (illustrated below).
- 1 plain rim sherd, type iiiC, 6.0g
- 1 decorated body sherd, type iB, 11.1g, with 3 nicks and incised lines
- 1 plain rim sherd, type ii, 2.1g
- 4 plain rim sherds, type i, 13.8g, with slightly everted lip
- 1 decorated body sherd, type i, 1.9g, with square punctates
- 2 decorated body sherd, type i, 4.8g, with wavy incision, illustrated below.
- 1 decorated body sherd, type i, 6.4g, with circular punctates on interior
- 3 plain rim sherds, type i, 13.3g, with everted lip
- 2 plain rim sherds, type i, 5.0g, with square lip

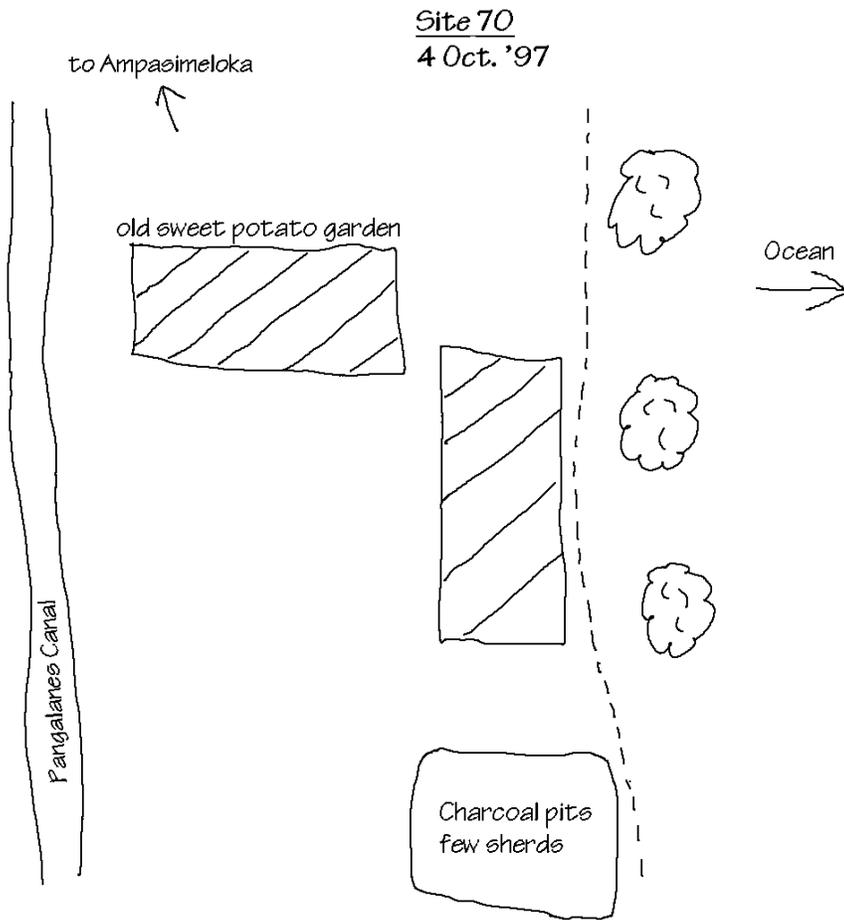


Figure A135. Site 70, gardens southeast of Ampasimeloka.

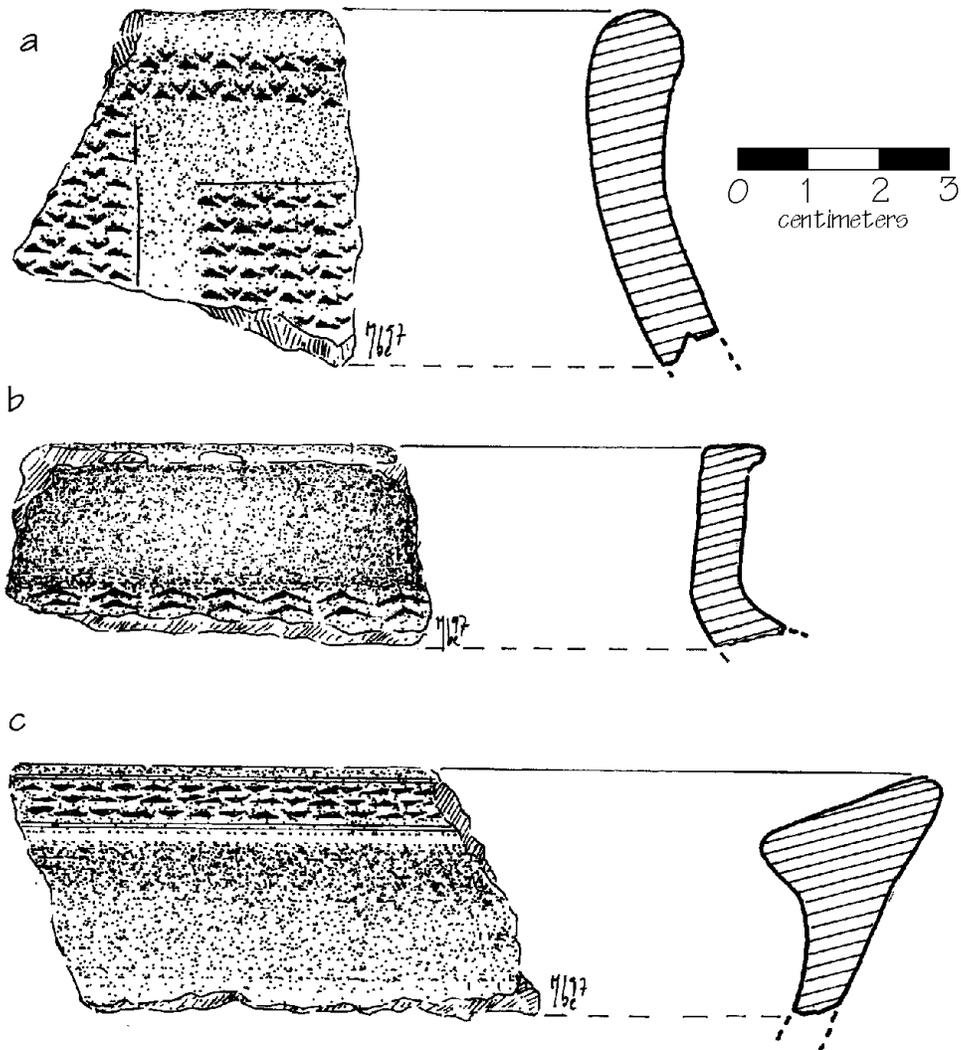


Figure A136. Site 70 artifacts.

a. Decorated rim sherd, type iB1, 26.1g, (grey with white shell and sand inclusions, 3, 3%), d = 28 (3% of rim), t = .94, lip t = 1.24, triangle base = .21cm, with triangle punctates in false chevron fields bordered by incised lines.

b. Decorated rim sherd, type i, 18.1g, (with a few large quartz inclusions); d=24 (6% of rim), t=.78, lip t=.81, with angle punctates (not full triangles) making 2 continuous zigzag lines on exterior (an awkward shape, rim an add-on to vessel?).

c. Decorated rim sherd, type iC2, 40.9g, d=44 (4% of rim), t=.62, lip t=1.94, triangle base = .41cm, with 3 rows of triangle punctates in false chevron bounded by 3 pairs of incised lines on interior.

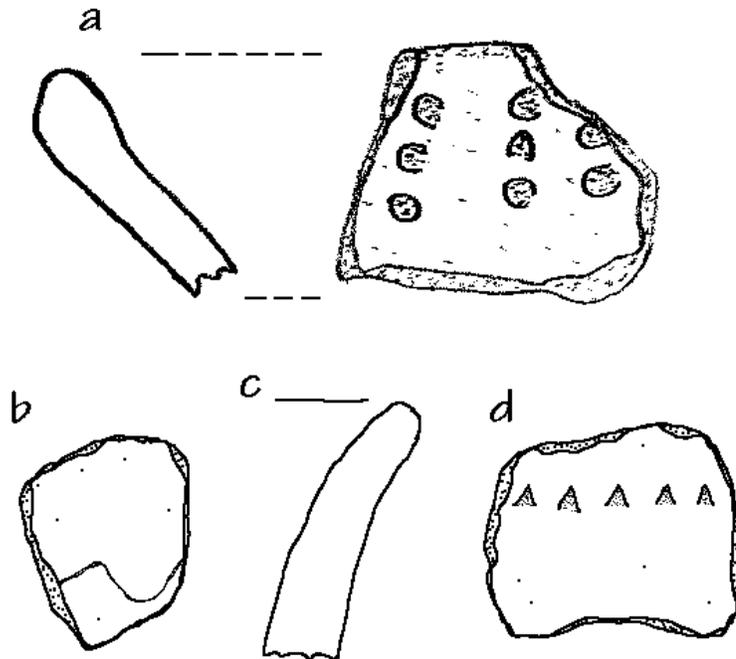


Figure A137. Sites 70 to 72 artifacts.

- a. Site 70, decorated rim sherd, local white ware, 10.2g, d=28 (2% of rim), t=.58, lip t=.86, punctate diameter = .26cm, sand inclusions (3,5%), 10YR7/2 interior and exterior surfaces and reduced core 10YR4/1, with round punctates on exterior of hole mouth jar.
- b. Site 70, decorated body sherd, type i, t=.54, with wavy incised line.
- c. Site 71, plain rim sherd, type i, t=.89, lip t=.50.
- d. Site 72, decorated body sherd, t=.58, triangle punctate base = .29cm.

**Site: 71**

**Region of: Vohipeno**

Laborde X: 554.3

Latitude: 22.36324

Season: 97

Laborde Y: 416.1

Longitude: 47.93577

Ceramic phase recovered: 5

Site today: sweet potatoes

Collection method: quick complete collection

Site Notes: Sherd scatter in new gardens just east of Pangalanes Canal and the old bridge at Ampasimeloka (40x 20 meters), and 2 gardens 20m to N (20x15 and 10x10) (waypoint 13). Approximately 294 degrees from this site to Ampasimeloka.

**Artifacts:**

- 1 chlorite-schist weight, type viiiC, 49.4g, t=1.74
- 1 decorated rim sherd, type iC, 4.6g, with linear incision
- 1 plain body sherd, type iB, 3.6g, t=.70
- 4 plain rim sherds, type i, 18.3g (1 illustrated above)
- 1 plain body sherd, type i, .8g, t=.48
- 5 decorated body sherds, type i, 27.4g, with linear incisions

**Site: 72**

**Andakazera**

**Region of: Vohipeno**

Laborde X: 554.3

Latitude: 22.3638

Season: 97

Laborde Y: 416.0

Longitude: 47.93559

Ceramic phase recovered: 4\*,5\*

Site today: sweet potatoes

Collection method: quick complete collection

*Site Notes:* Sherd scatter in gardens walking back from Ampasimeloka, 40x15 meters.

*Ethnographic Notes and Oral Traditions:* Told that the site name means "military camp" (la kazerne in French), but unclear who the name referred to.

*Artifacts:*

- 2 plain body sherds, type i, 5.1g, t=.55
- 2 plain body sherds, type iB, 14.4g, t=.75, .83
- 1 plain body sherd, type iD1, 18.4g, t=.84, with rice husk impression
- 1 decorated body sherd, type i, 5.9g, with triangle impressions, illustrated above
- 3 decorated body sherds, type iB, 47.4g, with incised line on interior and triangle punctates in false chevron on exterior, t=.85 and triangle base = .39.

**Site: 73**

**Region of: Vohipeno**

*Laborde X:* 554.4

*Latitude:* 22.36423

*Season:* 97

*Laborde Y:* 415.9

*Longitude:* 47.93629

*Ceramic phase recovered:* 5\*,6\*

*Site today:* sweet potatoes

*Collection method:* quick complete collection

*Site Notes:* Sherd scatter in garden terrace high on the back side of dune (25x15 meters), 1 isolated sherd from garden 60m to South.

*Artifacts:*

- 1 plain body sherd, type i, 2.6g, t=.43
- 1 plain body sherd, type iiD, 1.3g, t=.52
- 1 plain body sherd, type iD, 19.8g, t=1.59
- 1 plain rim sherd, type i, 17.2g (feels recent)

**Site: 74**

**Region of: Vohipeno**

*Laborde X:* 554.2

*Latitude:* 22.36621

*Season:* 97

*Laborde Y:* 415.7

*Longitude:* 47.93459

*Ceramic phase recovered:* 5,6\*

*Site today:* sweet potatoes

*Collection method:* selective sample

*Site Notes:* Sherd scatter in low garden near Pangalanes Canal (25x10m), with local kids helping to collect sherds.

*Artifacts:*

- 3 plain body sherds, type iiD, 16.9g, t=.62, .63, 1.01
- 8 plain body sherds, type ii, 27.6g, t=.61 to .69
- 15 plain body sherds, type i, 64.6g, t=.56 to .95
- 1 plain body sherd, type iC, 3.1g, t=.62
- 2 plain body sherds, type iB, 4.5g, t=.51 (1 with very large pieces of mica)
- 1 plain rim, local white ware, 1.0g, with square lip
- 2 plain rim sherds, type i, (but grey), 8.2g (illustrated below)
- 3 plain rim sherds, type i, 14.2g (ill. below)
- 1 decorated rim sherd, type iB, 12.0g, with incised line (ill. below)
- 2 plain rim sherds, type ii, 8.0g (1 ill. below)

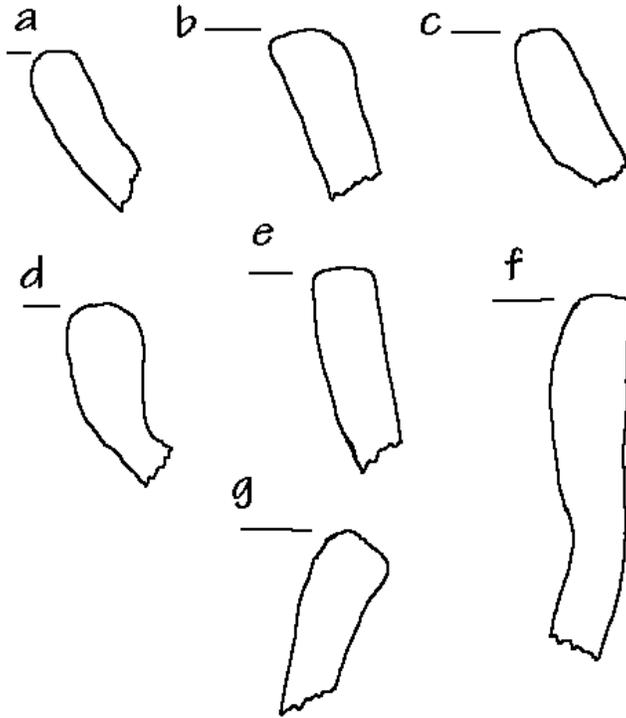


Figure A138. Site 74 artifacts.

- a. Plain rim sherd, type i, t=.61, lip t=.62
- b. Plain rim sherd, type i, t=.65, lip t=.95
- c. Plain rim sherd, type i, but grey, t=.65
- d. Plain rim sherd, type ii, t=.62, lip t=.85
- e. Plain rim sherd, type iE, t=.65, square lip t=.81
- f. Decorated rim sherd, type iB, 11.9g, d=24 (3% of rim), t=.63, square lip t=.70 with a linear incision on exterior surface near lip.
- g. Plain rim sherd, type i, t=.8, square lip t=.82.

**Site: 75**

**Region of: Vohipeno**

Laborde X: 554.1

Latitude: 22.36818

Season: 97

Laborde Y: 415.5

Longitude: 47.93427

Ceramic phase recovered: 4

Site today: sweet potatoes, melons

Collection method: quick complete collection

Site Notes: Sherd scatter in gardens near Pangalanes, 40x20 meters

**Artifacts:**

- 2 plain body sherds, type iB, 6.5g, t=.64, .71
- 1 decorated rim sherd, type iB, 14.4g, with triangle punctates in false chevron.

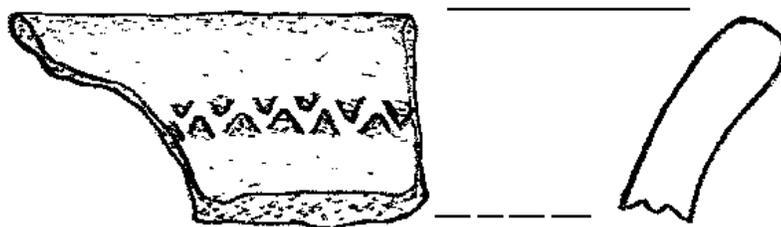


Figure A139. Site 75 artifact.

Decorated rim sherd, type i with graphite inclusions (3,20%), 14.4g, d=36 (4% of rim), t=.88, lip t=.96, triangle base = .36cm, 10YR4/2, with triangle punctates in false chevron on exterior surface (exterior surface illustrated above).

**Site: 76**

**Region of: Vohipeno**

Laborde X: 554.1

Latitude: 22.36851

Season: 97

Laborde Y: 415.5

Longitude: 47.93406

Ceramic phase recovered: 4/5\*

Site today: foot path, grass

Collection method: quick complete collection

Site Notes: Sherd scatter eroding from foot path near Pangalanes, 5x5m. Very bad visibility in the area due to brush, but a nearby charcoal pit had no artifacts, so the scatter may not be very large.

**Artifacts:**

- 3 plain body sherds, type i, 8..2g, t=.46, .55, .73
- 1 plain body sherd, type iC, .7g, t=.75
- 1 plain body sherd, type iB, 139g, t=.49

**Site: 77**

**Region of: Vohipeno**

Laborde X: 554.0

Latitude: 22.37105

Season: 97

Laborde Y: 415.2

Longitude: 47.93292

Ceramic phase recovered: 4/5\*

Site today: exposed sand

Collection method: quick complete collection

Site Notes: Very small sherd scatter (1 plain rim) from disturbed sand in an area where people had recently been making charcoal (a burned tree stump was still on the surface). A second scatter found in a nearby garden (5 sherds, approximately 10x10m).

**Artifacts:** Including rough thin sandy ware

- 1 plain rim sherd, type i, 8.6g
- 5 similar body sherds (type i, including 2 with gold mica inclusions)

**Site: 78**

**Region of: Vohipeno**

Laborde X: 554.0

Latitude: 22.37163

Season: 97

Laborde Y: 415.1

Longitude: 47.93307

Ceramic phase recovered: 4,5

Site today: coconuts, sand

Collection method: selective sample

Site Notes: Sherd scatter in sandy coconut grove, 40x30m.

**Artifacts:**

- 1 decorated body sherd, type iE, but with very large sand inclusions, t=.84, with triangle

punctates in false chevron on exterior at carination (illustrated below).

- 1 decorated rim sherd, type i, 9.2g, diameter uncertain, t=.68, lip t=1.09, with triangle punctates above vertical wavy lines (ill. below).
- 3 decorated body sherds, type i, 24.5g, t=.79 to .85, with very large sand inclusions
- 1 plain rim sherd, type i, 2.7g, diameter uncertain, t=.59, lip t=.91 (ill. below)
- 1 decorated body sherd, type i, 2.9g, t=.82, with deep linear incised lines (ill. below)
- 1 plain rim sherd, type iB, 2.7g, d=15 (3% of rim), t=.52, lip t=.47 (ill. below)
- 1 decorated body sherd, type i, 2.5g, t=.75, with faint combed lines
- 6 plain body sherds, type i, 32.1g
- 1 plain body sherd, type ii, 3.3g, t=.71

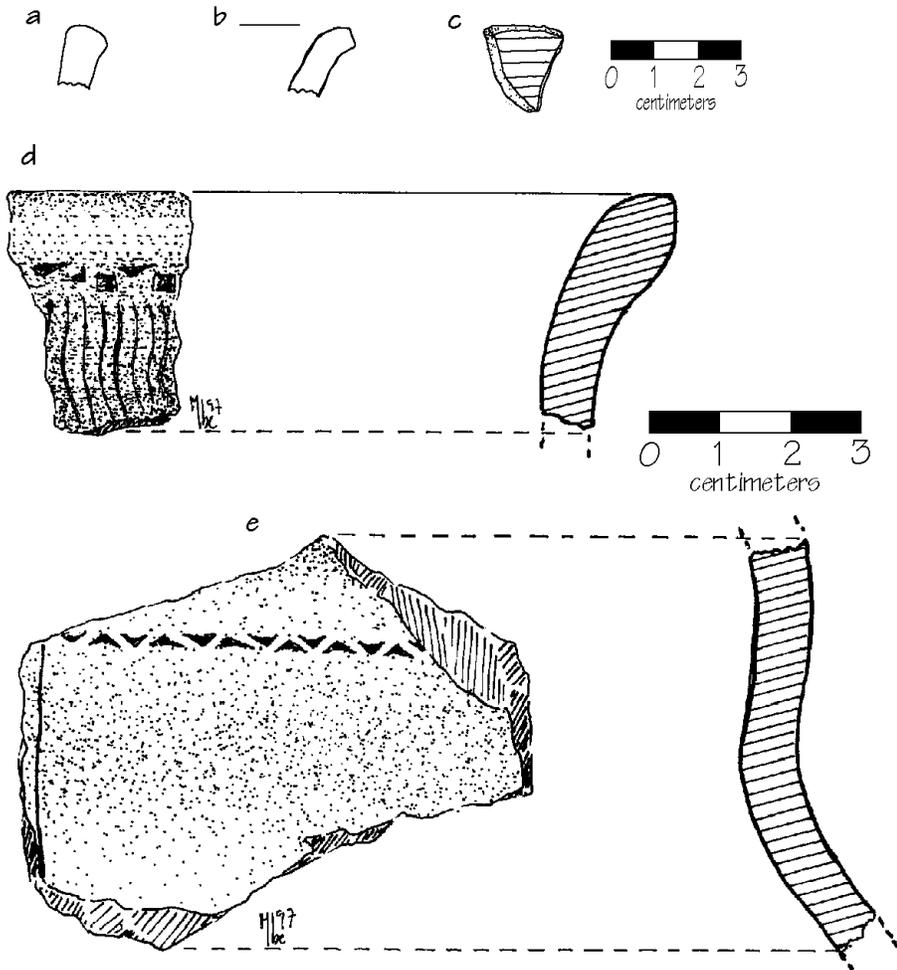


Figure A140. Site 78 artifacts.

- a. Plain rim sherd, type i, 2.7g, diameter uncertain, t=.59, lip t=.91
- b. Plain rim sherd, type iB, 2.7g, d=15 (3% of rim), t=.52, lip t=.47
- c. Decorated body sherd, type i, 2.9g, t=.82, with deep linear incised lines
- d. Decorated rim sherd, type iB, d=22 (3% of rim), t=.68, lip t=1.09, triangle base = .41cm, with vertical wavy combing beneath crude false chevron on exterior (compare to Marovahiny example).
- e. Decorated body sherd, type iE, 37.2g, (coarse grey ware with quartz and gold inclusions, size 1, 3%), d = 30 (8% of carination), t=.83, triangle base=.51, with false chevron and incised line on exterior and horizontal scrapings on interior.

**Site: 79****Ambalamarangitra****Region of: Vohipeno***Laborde X:* 553.9*Latitude:* 22.37273*Season:* 97*Laborde Y:* 415.0*Longitude:* 47.93234*Ceramic phase recovered:* 1-3*Site today:* cassava*Collection method:* quick complete collection*Site Notes:* Sherd scatter in old abandoned garden, 30x10m.*Artifacts:* Including coarse oxidized

- 6 plain body sherds, type iiA with very large quartz and coarse sand inclusions, 30.6g, t=.45 to .76
- 1 plain body sherd, type iE, 1.1g, t=.54
- 1 thick base fragment, type iiA, 14.5g, t=1.46, sand (3,10%)

**Site: 80****Region of: Vohipeno***Laborde X:* 553.9*Latitude:* 22.37367*Season:* 97*Laborde Y:* 414.9*Longitude:* 47.93206*Ceramic phase recovered:* 3/4*Site today:* cassava*Collection method:* quick complete collection*Site Notes:* Sherd scatter in a garden on the back slope of dunes, 30x30m. There are thick forests to the north and west beyond garden, so limited visibility elsewhere.*Artifacts:*

- 2 plain body sherds, type ii, 9.9g, t=.59, .73
- 1 plain body sherd, type ii with quartz and coarse sand inclusions, 5.0g, t=.63
- 1 plain body sherd, type iE, 2.6g, t=.72
- 1 plain body sherd, type i, 1.3g, t=.39, with smoothed exterior

**Site: 81****Region of: Vohipeno***Laborde X:* 553.9*Latitude:* 22.37463*Season:* 97*Laborde Y:* 414.8*Longitude:* 47.93203*Ceramic phase recovered:* 4/5\**Site today:* sweet potato, coconut, cassava *Collection method:* quick complete collection*Site Notes:* Sherd scatter in gardens west of an old deserted house. Also in a big garden of coconut trees along top of dune, and a few more pieces from a cassava garden 70m south of main site.*Artifacts:*

- Plain body sherds, type i, 11.6g, t=.36, .48, .54, (2 have black interior)
- 1 piece of pumice, similar to that given us at Onjatsy

**Site: 82****Region of: Vohipeno***Laborde X:* 553.8*Latitude:* 22.37638*Season:* 97*Laborde Y:* 414.6*Longitude:* 47.93118*Ceramic phase recovered:* 4 (if ext)*Site today:* cassava*Collection method:* quick complete collection*Site Notes:* Sherd scatter on flat ground near Pangalanes Canal (10x5m); more sherds recovered in cassava garden 10m further south (20x20m).*Artifacts:*

- 1 decorated body sherd, type iB, 4.4g (illustrated below)
- 1 decorated body sherd, type i, 5.4g (ill. below)
- 2 plain body sherds, type iB, 23.3g, t=.80, .82

- 1 plain body sherd, type iC, 3.7g, t=.96
- 1 plain body sherd, type i, 6.0g, t=.63, with burnished exterior
- 2 plain body sherds, type iiA, 5.6g, t=.61, 87
- 1 plain body sherd, brown with silver reflective and sand inclusions and black interior, 4.2g, t=.78
- 1 plain body sherd, type iE with silver reflective inclusions, 1.4g, t=.73
- 2 plain body sherd, type iE with quartz and sand inclusions, 4.5g, t=.66, .74
- 1 plain body sherd, type i, 2.7g, t=.53

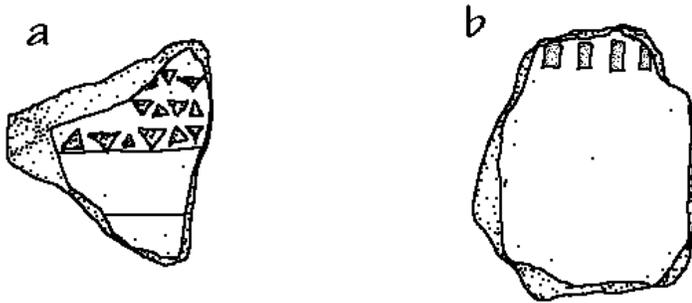


Figure A141. Site 82 artifacts.

- a. Decorated body sherd, type iB, 4.4g, t=.83, triangle base = .18 to .41, with 2 deep incised lines with triangle punctates in multiple rows of false chevron (punctates crude and not of uniform size)
- b. Decorated body sherd, type i, 5.4g, t=.56, with 1 row of rectangular punctates, light brown paste.

<b>Site: 83</b>	<b>Ambalamarangitra</b>	<b>Region of: Vohipeno</b>
Laborde X: 553.7	Latitude: 22.37883	Season: 97
Laborde Y: 414.3	Longitude: 47.93003	Ceramic phase recovered: 5,6*
Site today: cassava, sweet potatoes		Collection method: quick complete collection
Site Notes: Sherd scatter surrounding house on top of dune ridge with big new sweet potato and cassava gardens, 80x10m, but scatter is sparse.		
Artifacts:		
- 2 plain body sherds, 29.8g, type iA with parallel scrape marks, and type iC, t=.84		
- 3 decorated body sherds, 40.1g (2 illustrated below)		
- 2 decorated rim sherd, 23.3g, 1 illustrated below, the other is also type iB, but very eroded, brown with graphite.		

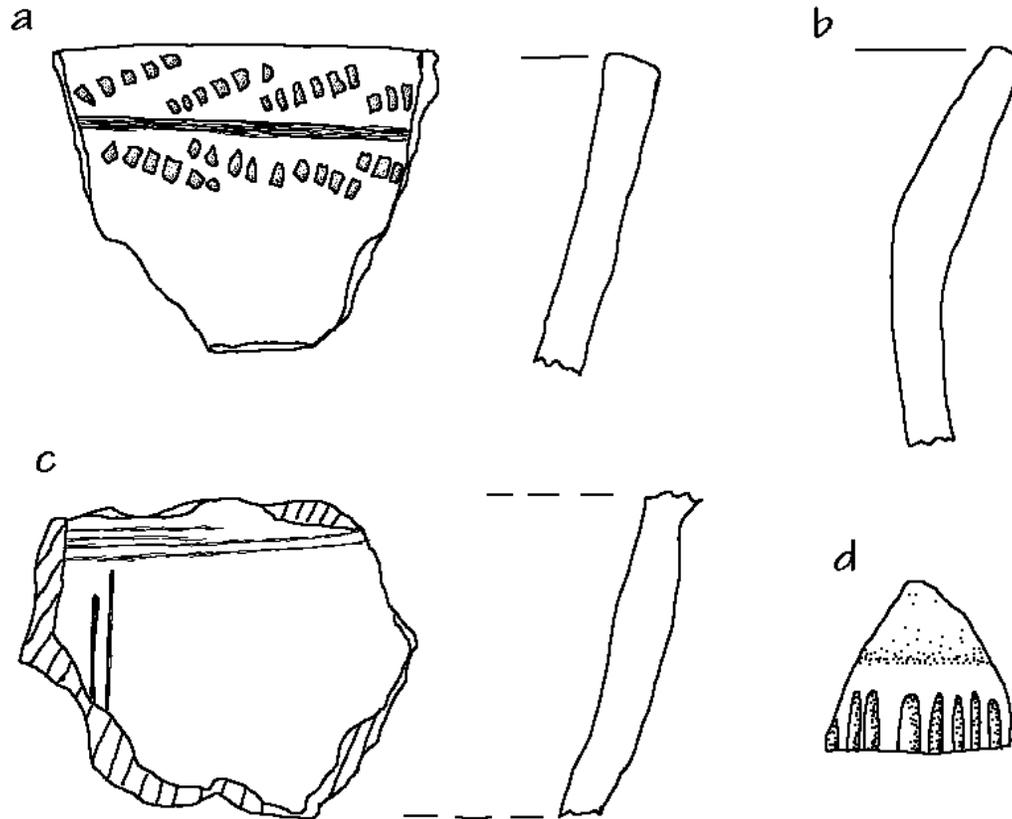


Figure A142. Site 83 artifacts.

- a. Decorated rim sherd, type iB reduced, (10% silver reflective inclusions), 12.4g, d=29 (5% of rim), t=.55, lip t=.65, with incised line and rectangular dentate stamp on interior surface.
- b. Plain rim sherd, type iB, diameter and orientation uncertain, 10.7g, t=.54, lip t=.45, thickness at carination = .79
- c. Decorated body sherd, type iB, 13.5g, t=.51, thickness at broken carination = .60, with linear incised lines on exterior
- d. Decorated sherd (very rounded and may have been a rim), type iC, 4.9g, t=.88 to 1.05, with grooves on interior surface.

**Site:** 84

**Ambohimandrosoa**

**Region of:** Vohipeno

*Laborde X:* 553.6

*Latitude:* 22.38018

*Season:* 97

*Laborde Y:* 414.2

*Longitude:* 47.92959

*Ceramic phase recovered:* 4\*,5\*

*Site today:* sweet potatoes

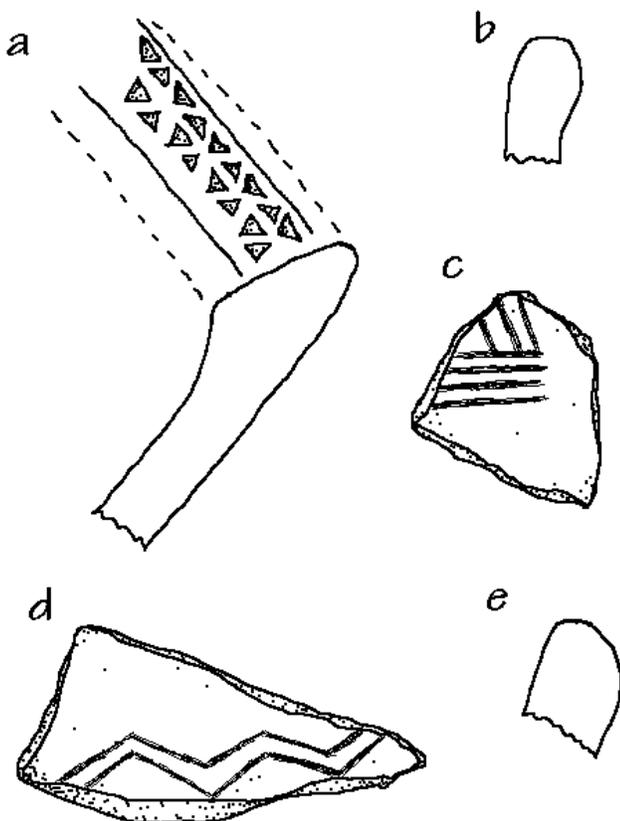
*Collection method:* quick complete collection

*Site Notes:* 2 sparse sherd scatters near a house on the dune ridge. The gardens are on the dune's backside sloping to the west (10x10m and a second 5x10m).

*Ethnographic Notes and Oral Traditions:* Residents said they moved here only 3 months before. They told us of a ditched site called Ankatzaka, which they claim is from the 1947 war (north of Ambohitsara and east of Fotsivava, see site 90). Note that from the second garden at this site (waypoint 17) southwards to 23deg 61'S there are very few gardens, and thus very few sites.

*Artifacts:*

- 8 plain body sherds, 91.0g, thick coarse red type ii
- 1 decorated rim sherd, type iB, 29.5g (illustrated below)



Figures A143. Sites 84 to 87 artifacts.

a. Site 84, decorated rim sherd, type iB, silver reflective inclusions size 3, 35%, d=38 (6% of rim), t=.72, lip t=1.28, triangle base = .45, with triangle punctates in 2 rows of false chevron bounded by incised lines on top of lip (interior).

b. Site 85, plain rim sherd, type iE, 3.8g, rough with coarse sand inclusions (3,10%), d=28 (2% of rim), t=.68, lip t=.85

c. Site 86, decorated body sherd, type i, t=.42 with deeply incised lines (combing) on exterior

d. Site 86, decorated body sherd, type ii (with silver reflective inclusions, size 1, 3%), t=.64 with 2 incised lines in zigzag pattern ("wavy combing")

e. Site 87, plain rim sherd, type iC2, 6.0g, brown with red sand inclusions along with the graphite, diameter and orientation uncertain, t=1.03, gouge on interior surface probably from hoe.

**Site: 85**

**Region of: Vohipeno**

Laborde X: 553.6

Latitude: 22.38266

Season: 97

Laborde Y: 413.9

Longitude: 47.92893

Ceramic phase recovered: 4\*,5\*

Site today: cassava

Collection method: quick complete collection

Site Notes: Small sherd scatter in an old cassava garden, 5x2m, possibly a pot drop.

**Artifacts:**

- 1 plain rim, type iE, 3.8g, rough with sand inclusions (3, 10%), grey exterior and red interior (illustrated above)

- 2 plain body sherds, 8.5g, of similar ware, including 1 with gold reflective inclusions

**Site: 86****Region of: Vohipeno***Laborde X:* 553.2*Latitude:* 22.39227*Season:* 97*Laborde Y:* 412.8*Longitude:* 47.92547*Ceramic phase recovered:* 3/4*Site today:* empty garden*Collection method:* selective sample

*Site Notes:* Dense sherd scatter in an old fallow garden (7x5m), collected quickly at the end of the day while walking back from Ampasimeloka. Garden is bordered by thick vegetation on south and west sides, so little surface visibility.

*Artifacts:* Including wavy combing

- 18 plain body sherds (71.3g, including type ii with silver reflective and sand, and type iB)
- 9 decorated body sherds (87.2g), types i and ii, only decoration is wavy and linear incised lines
- 1 plain rim sherd (2.3g)
- 2 decorated body sherds illustrated above.

**Site: 87****Vohitramonta****Region of: Vohipeno***Laborde X:* 551.7*Latitude:* 22.3989*Season:* 97*Laborde Y:* 412.1*Longitude:* 47.91119*Ceramic phase recovered:* 5,6\**Site today:* one house compound*Collection method:* thorough complete collection

*Site Notes:* Sherd scatter in clearing around house at very top of hill (10x10m), west of road out of Ambohitsara.

*Ethnographic Notes and Oral Traditions:* On the southeast edge of the hilltop are 3 rough stone steps. We asked the resident who had made the steps and she said they were built by "the ancestors." Possibly, but I think maybe colonial instead, as they lead to what might have been a road (suitable for a car) leading from this site to Ambohitsara.

*Artifacts:*

- 1 graphite ware rim (type iC2) illustrated above (6.0g)
- 3 plain body sherds of thin sandy ware type i (14.3g).

**Site: 88****Amniyabonikapoala****Region of: Vohipeno***Laborde X:* 552.7*Latitude:* 22.38822*Season:* 97*Laborde Y:* 413.3*Longitude:* 47.92102*Ceramic phase recovered:* 6*Site today:* cassava*Collection method:* donated collection

*Site Notes:* 1 house and small garden on hill, farmstead of a man named Bertran, who had collected interesting pottery sherds from his garden and donated them to us. Our survey didn't recover any sherds from this garden, but I see no reason to doubt his word given the amount of digging he's done for his cassava plants.

*Artifacts:*

- 3 large decorated rim sherds, type iC, illustrated below (62.1g)

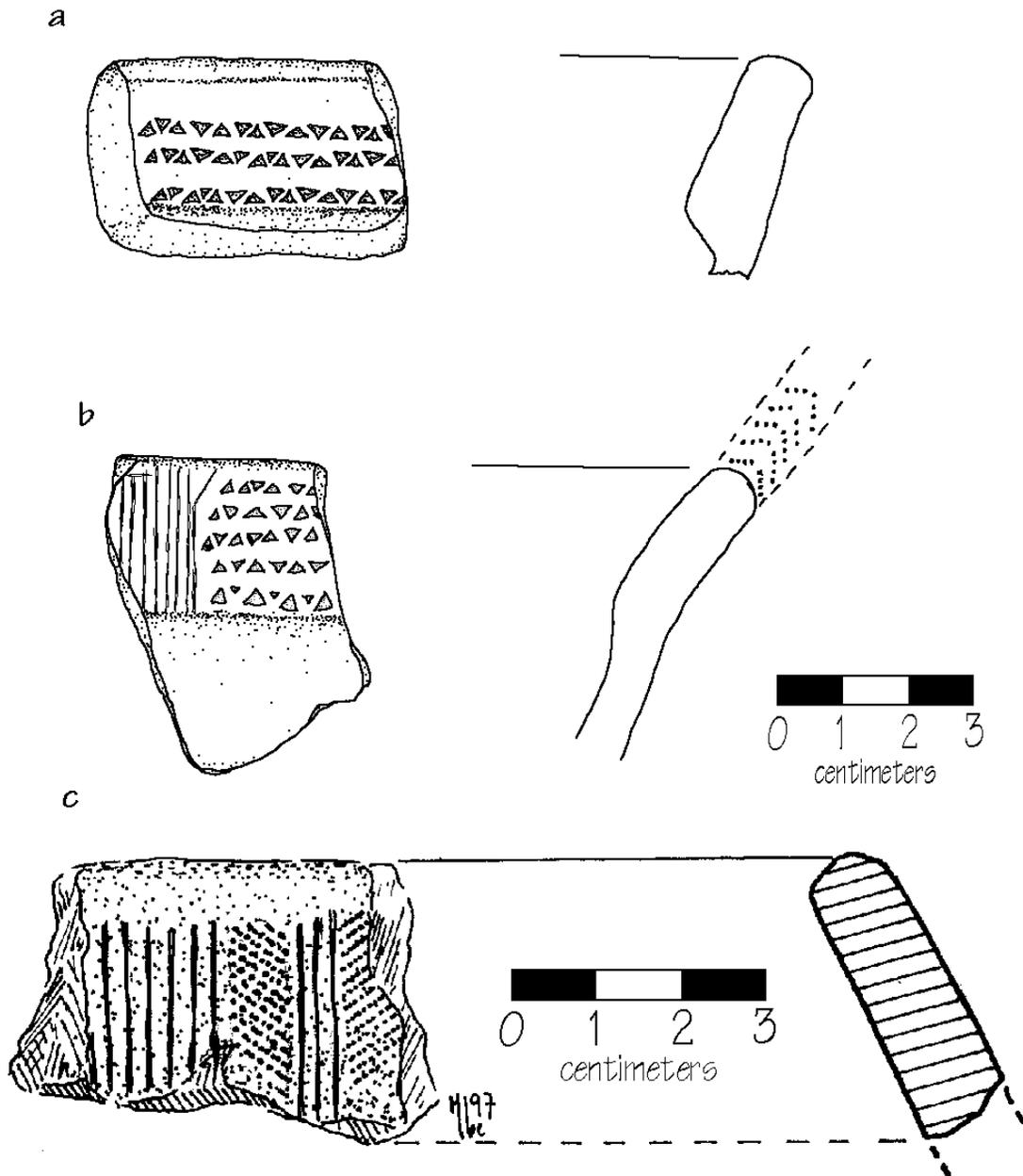


Figure A144. Site 88 artifacts.

a. Decorated rim sherd, type iC, diameter uncertain,  $t=.72$ , lip  $t=1.06$ , triangle base = .38, very eroded with 3 rows of triangle punctates in false chevron on the interior.

b. Decorated rim sherd, type iC,  $d=40$  (3% of rim),  $t=.78$ , lip  $t=.97$ , triangle base = .32, with triangle punctates and incised lines on interior, and small round dentate stamp on top of lip.

c. Decorated rim sherd, type iC,  $t = .91$ , lip  $t = .99$ , incised lines and round punctate rows (dentate stamp) on interior (I think open bowl, so illustrator has drawing reversed, but sherd is not in photo for site 88 artifacts).

**Site:** 89  
*Laborde X:* 552.2

**Anambotaka**  
*Latitude:* 22.38795

**Region of:** Vohipeno  
*Season:* 97

*Laborde Y:* 413.3      *Longitude:* 47.91532      *Ceramic phase recovered:*  
*Site today:* forest      *Collection method:*

*Site Notes:* This site is a ditch and bank earthwork that was interpreted to be a linear "post-*avancé*," guarding the approach to the site of Ankatsaka (site 90) which is on the hill to the south. See illustration for site 90 for relative location. No artifacts collected.

**Site: 90      Ankatsaka      Region of: Vohipeno**  
*Laborde X:* 551.8      *Latitude:* 22.39377      *Season:* 97  
*Laborde Y:* 412.7      *Longitude:* 47.91214      *Ceramic phase recovered:* 5  
*Site today:* forest      *Collection method:* thorough complete collection

*Site Notes:* *Manda* (ditched fortification) named for the abandoned village at the top of the hill (northeast of Ambohitsara). The ditch measured 2.25m wide and 1.5m deep at east gate. Site was first recorded Oct. 5, 1997, and sherd collection comes from Oct. 11<sup>th</sup>, when we undertook 2 shovel tests on the eastern edge of the site at the bottom of the hill. S1 was 40x40cm just to the west of the ditch: 0-25cm b.g.s. was brown soil with red rocks, 25-40cm was similar but with fewer rocks. The ground was very hard to dig and no artifacts were recovered. S2 was in the ditch, which at this point was 3 meters wide and 1.05m deep. We scraped back both edges to try to get the original ditch shape, and found that the soil was less than 10cm deep before we encountered the hard sterile. We continued for another 22cm in the bottom of the ditch but recovered nothing. It appears that the dense forest at this location has prevented the soil erosion that might have filled in a deeper ditch. We concluded that this ditch in antiquity would have appeared similar to its present form.

*Artifacts:* Included thin reduced sandy ware, outcaste ware

Ankatsaka  
site 89 & 90

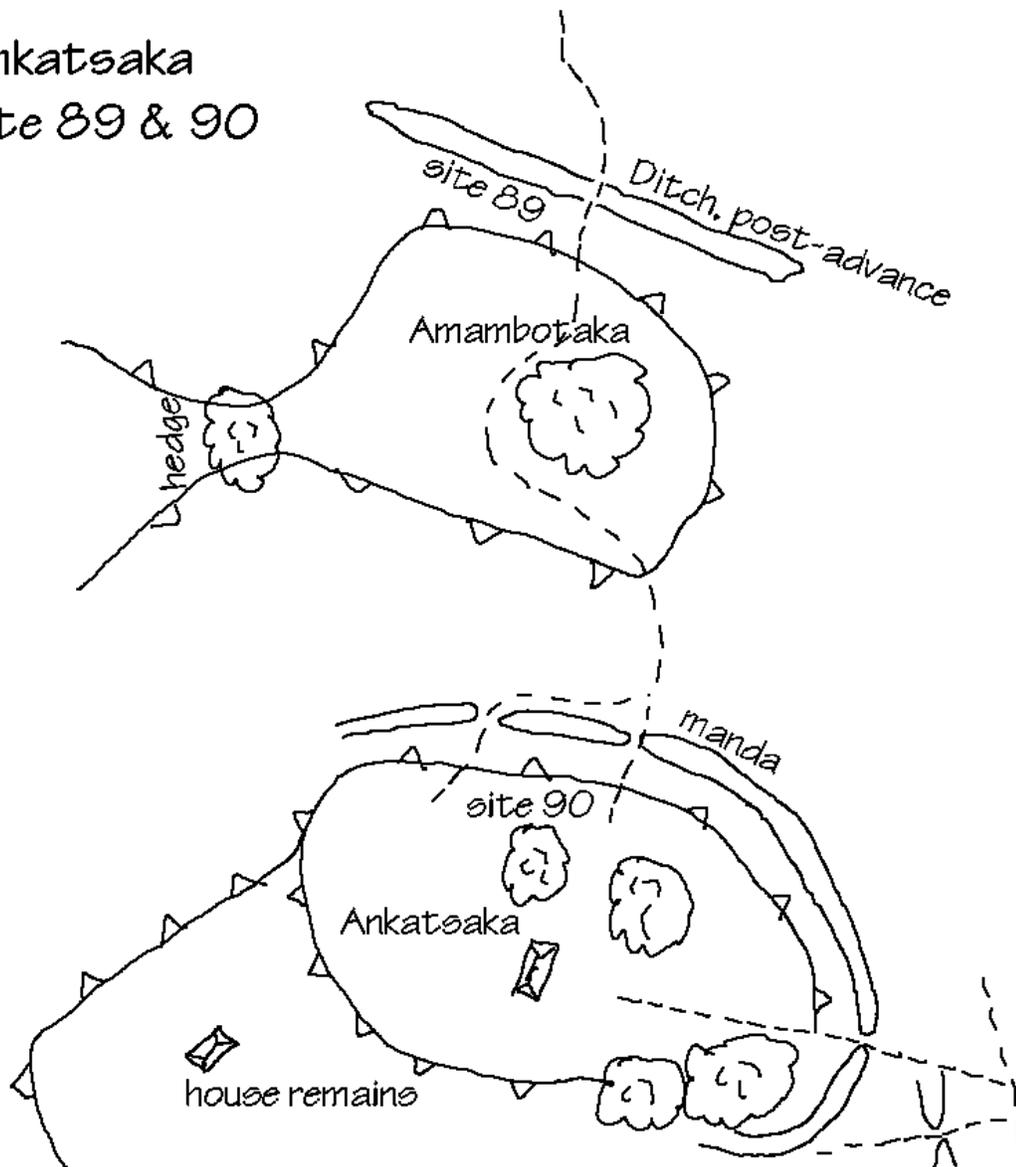


Figure A145. Site 89 and 90, Amambotaka and Ankatsaka.

**Site:** 91

**Region of:** Vohipeno

Laborde X: 540.1

Latitude: 22.33372

Season: 97

Laborde Y: 419.5

Longitude: 47.79754

Ceramic phase recovered:

Site today: foot path

Collection method:

Site Notes: Earthworks, linear ditches isolating a ridge between 2 rice fields. Possible manda, or they may be linked to drainage and rice cultivation. No artifacts recovered.

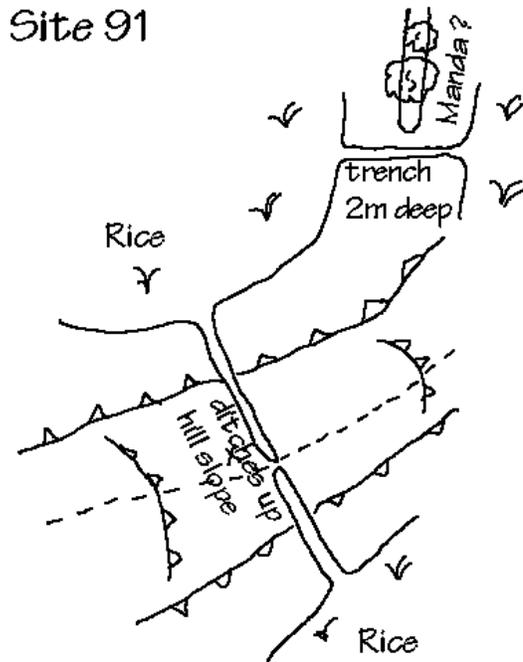


Figure A146. Site 91 site plan.

**Site: 92**      **Beseky**      **Region of: Vohipeno**

*Laborde X:* 540.0      *Latitude:* 22.33444      *Season:* 97  
*Laborde Y:* 419.4      *Longitude:* 47.79677      *Ceramic phase recovered:* 5

*Site today:* one house compound      *Collection method:* quick complete collection

*Site Notes:* Sherd scatter (10.xm) southwest of a house with a large cleared compound on top of hill.

*Artifacts:*  
 - 2 plain rim sherds, (9.2g, illustrated below)  
 - 20 plain body sherds of similar ware (54.4g, type i including 3 brown sherds with sand and gold mica inclusions).

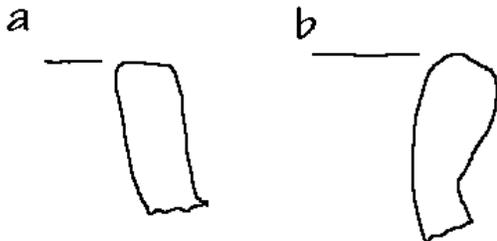


Figure A147. Site 92 artifacts.  
 a. t=.62, lip t=.72  
 b. t=.55, lip t=.97 (sherds were drawn but other measurements were not taken, small, so diameter may be uncertain)

**Site: 93**

**Tsaravanony**

**Region of: Vohipeno**

*Laborde X:* 540.3

*Latitude:* 22.33542

*Season:* 97

*Laborde Y:* 419.3

*Longitude:* 47.79951

*Ceramic phase recovered:* 5

*Site today:* empty garden

*Collection method:* quick complete collection

*Site Notes:* Sherd scatter spread across an enclosed *manda*. Ditch and bank are 98m in diameter, measured north-south, and the sherd scatter covers approximately 50x30m. North end of the ditch fades into the path and is unclear. At the south end the ditch is 3.3m wide and 1.7m deep.

*Artifacts:*

- 15 plain body sherds (67.0g, including 4 with red exterior, black interior, and sand inclusions)
- 1 decorated body sherd (3.8g)
- 7 plain rim sherds (329g)

**Tsaravanony**

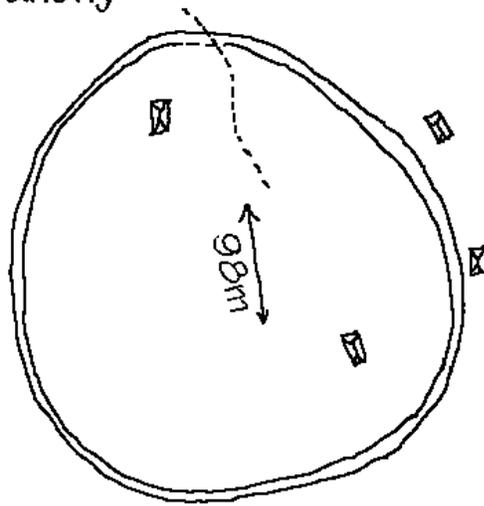


Figure A148. Site 93, Tsaravanony.

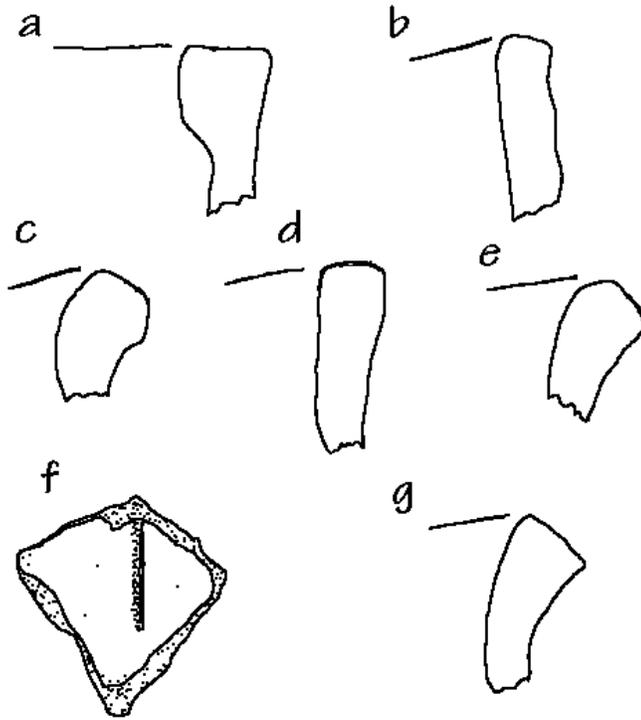


Figure A149. Site 93 artifacts.

(note, sherds oriented by the original illustrator, I added the orientation lines later showing what I believe to be level)

- a. Plain rim sherd, type iA and sand inclusions, d=31 (2% of rim), t=.55, lip t=1.0cm
- b. Plain rim sherd, type i, d=16 (5% of rim), t=.62, lip t=.62
- c. Plain rim sherd, type i, diameter uncertain, t=.63, lip t=.91
- d. Plain rim sherd, type iB, diameter and orientation uncertain, t=.52, lip t=.85
- e. Plain rim sherd, type i, diameter uncertain, t=.53, lip t=.91
- f. Decorated body sherd, type i, 3.8g, t=.72, incised line on exterior
- g. Plain rim sherd, type i, diameter uncertain, t=.52, lip t=.95

**Site:** 94 Tsaravanony East

**Region of:** Vohipeno

*Laborde X:* 540.6

*Latitude:* 22.33369

*Season:* 97

*Laborde Y:* 419.5

*Longitude:* 47.8026

*Ceramic phase recovered:* 18-19th

*Site today:* village

*Collection method:* thorough complete collection

*Site Notes:* Earthworks with 2 sherds collected. It's not clear if this ditch is a manda surrounding the village, but it is very large - at point x on the map below (waypoint 94) the ditch is 7m wide and 3m deep on north side (2.45m deep on south side, sides are vertical). It's possible that water erosion has contributed to the size of these ditches, and cattle are also using the paths through them in the present day. This site is approximately 300m at 96 degrees from Tsaravanony (site 93).

*Artifacts:*

- 1 plain body sherd (1.3g, type iE)
- 1 imported sherd (3.0g, celadon, with pale green crackled glaze, 18-19 cent Yueh celadon imitation)

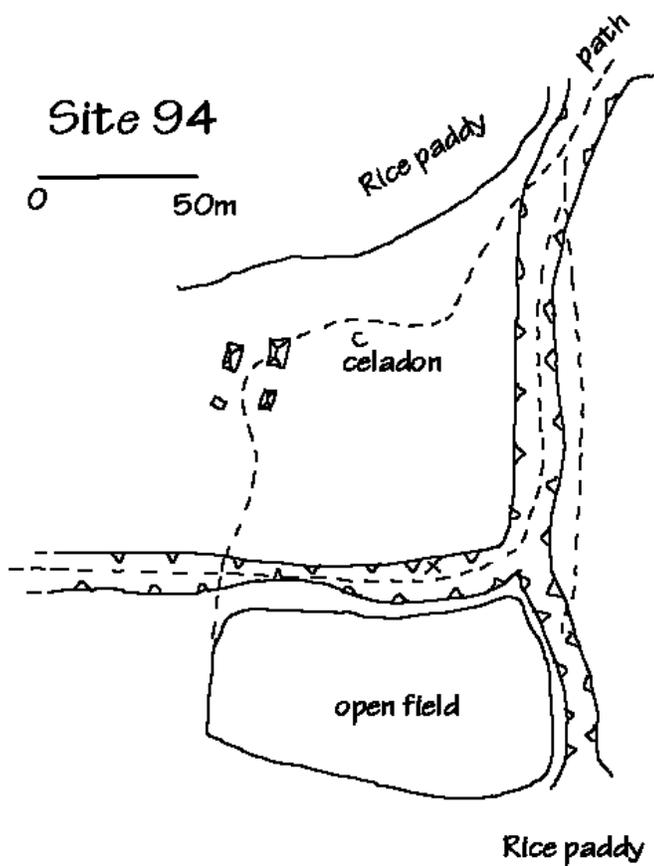


Figure A150. Site 94.

<b>Site:</b> 95	<b>Vohibato</b>	<b>Region of:</b> Vohipeno
<i>Laborde X:</i> 541.4	<i>Latitude:</i> 22.33992	<i>Season:</i> 97
<i>Laborde Y:</i> 418.8	<i>Longitude:</i> 47.81062	<i>Ceramic phase recovered:</i>
<i>Site today:</i> one house compound		<i>Collection method:</i> thorough complete collection
<i>Site Notes:</i> A ditched hill-top site recorded at end of the day (Oct. 6, 1997). 3 sherds were collected from around the house compound (sherd scatter 10x10m), which sits above a ditched "post-avancé," and just below the <i>manda</i> itself (site 96 at the top of the hill).		
<i>Artifacts:</i>		
- 3 plain body sherds (5.8g, including 1 type iA and 2 type i orange with black interior)		

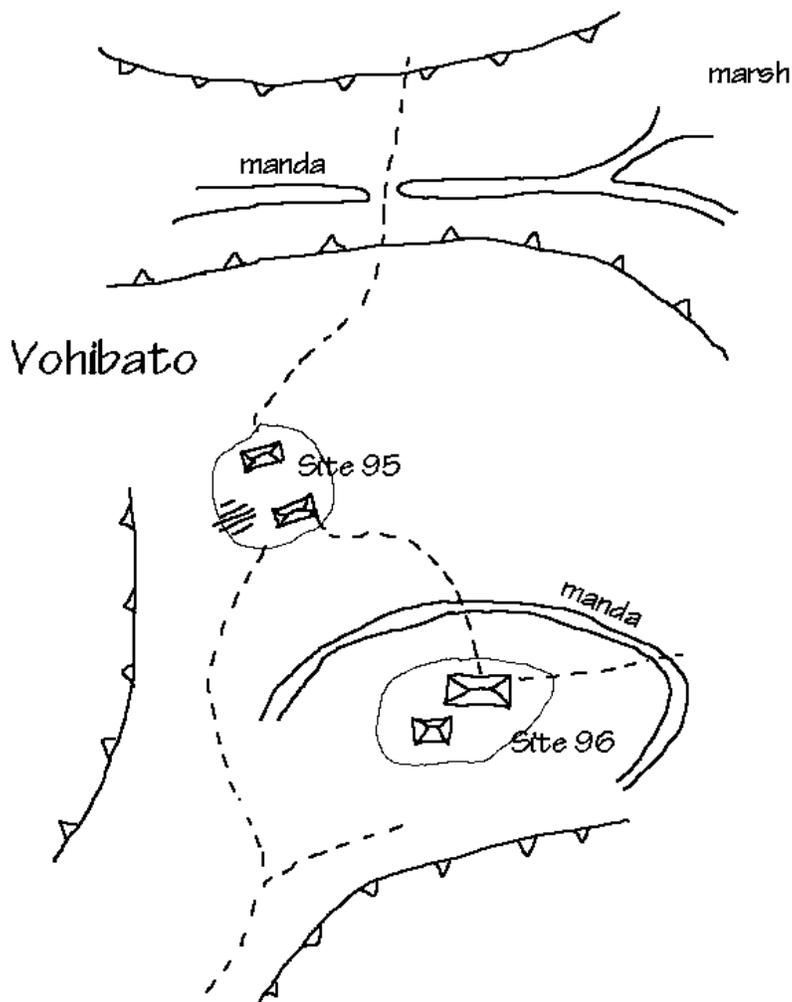


Figure A151. Site 95 and 96.

**Site: 96**

**Vohibato Ambony**

**Region of: Vohipeno**

*Laborde X:* 541.4

*Latitude:* 22.33821

*Season:* 97

*Laborde Y:* 419.0

*Longitude:* 47.8107

*Ceramic phase recovered:* 5\*,6\*

*Site today:* one house compound

*Collection method:* thorough complete collection

*Site Notes:* A house compound at top of hill with 1 sherd recovered, with a surrounding fortification ditch (*manda*). See illustration for Site 95.

*Artifacts:* Including thick graphite ware  
- 1 plain body sherd, type iC, 8.3g.

**Site: 97**

**Region of: Vohipeno**

*Laborde X:* 541.4

*Latitude:* 22.34326

*Season:* 97

*Laborde Y:* 418.4

*Longitude:* 47.81054

*Ceramic phase recovered:* 6

*Site today:* cassava

*Collection method:* quick complete collection

*Site Notes:* 1 rim sherd (illustrated below) found in a new cassava garden on a steep west facing slope. On our walk back from Vohibato to pirogue landing for Vohipeno, late in the day, and so we collected the sherd and started the site form thinking we would find more sherds, but we didn't.

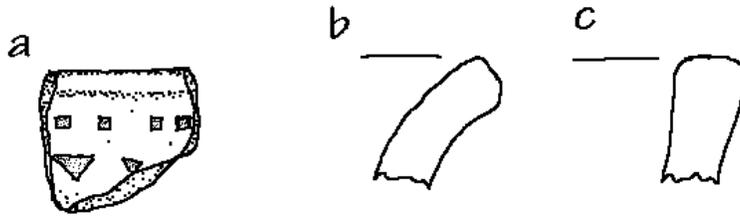


Figure A152. Sites 97 and 99 artifacts.

- a. Site 97, decorated rim sherd, type i, 2.4g, t=.70, triangle base = .57cm, with triangle punctates and square dentate stamp on rounded lip (possible graphite burnish).
- b. Site 99, plain rim sherd with square lip, type i with sand (size 1, 3%), d=22 (4% of rim), t=.64, lip t=.64.
- c. Site 99, plain rim sherd with square lip, type i with sand (size 2, 5%), diameter uncertain, t=.64, lip t=.89, smoothed both interior and exterior, with exterior blackened.

<b>Site: 98</b>	<b>Isalo</b>	<b>Region of: Vohipeno</b>
Laborde X: 544.6	Latitude: 22.35159	Season: 97
Laborde Y: 417.4	Longitude: 47.84195	Ceramic phase recovered: 5,6
Site today: village	Collection method: selective sample	
Site Notes: 2 sherd scatters in a village just north of the Vohipeno hospital (sherd scatter 25x25m).		

*Ethnographic Notes and Oral Traditions:* The people of this town are of the Antesalo clan. We interviewed 3 different people who all claimed that Isalo is older than Vatomasina

- Artifacts:* Including thick red basin, graphite ware, bounded punctates.
- 20 plain body sherds (62.7g, including 14 type iE, 1 type ii with sand and quartz inclusions, 2 type iC, and 3 type iC2 with smoothed exterior)
  - 10 decorated body sherds (48.4g, 6 with deep incisions, 2 illustrated above)
  - 8 plain rim sherds (41.4g)
  - 1 decorated rim sherd (8.5g with round dentate stamps forming arrows) (illustrated below)

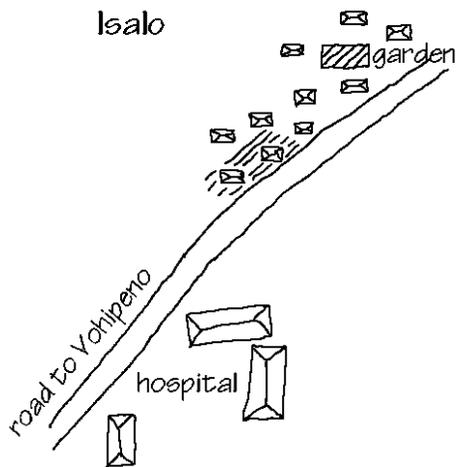


Figure A153. Site 98, Isalo.

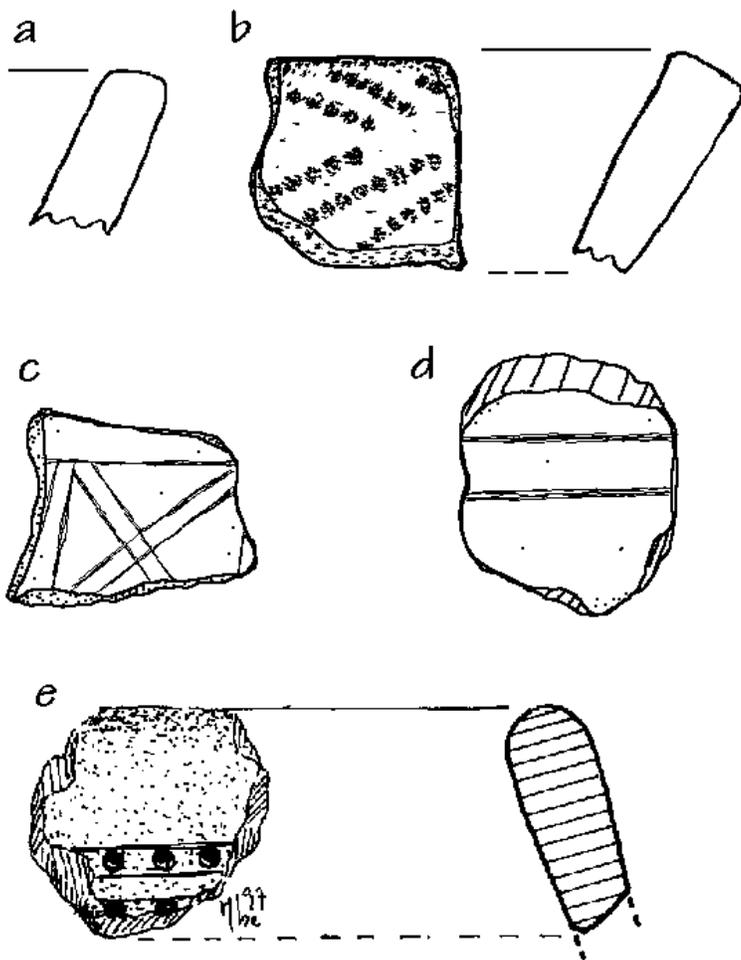


Figure A154. Site 98 artifacts.

- a. Plain rim sherd, type i, 7.1g, d=18 (4% of rim), t=.90, lip t=.82, sand and gold mica inclusions (2,5%), exterior 7.5YR6/3.
- b. Decorated rim sherd, type iE, 8.5g, d=18 (3% of rim), t=.56, lip t=.87, graphite inclusions (2,20%), exterior 7.5YR4/1, with dentate stamps on interior surface forming arrows.
- c. Decorated body sherd, type iC2, t=.91, with crossed incised lines.
- d. Decorated body sherd, type iA (3% inclusions), t=.49
- e. Decorated rim sherd, type iB with large quartz, d = 21 (2% of rim), t = .82, lip t = .95, with round punctates in incised bands on exterior.

<b>Site:</b> 99	<b>Isalo Avaratra</b>	<b>Region of:</b> Vohipeno
Laborde X: 544.6	Latitude: 22.35042	Season: 97
Laborde Y: 417.6	Longitude: 47.84178	Ceramic phase recovered: 5, 7
Site today: village	Collection method: selective sample	

**Site Notes:** 2 sherd collections from the northern part of Isalo village, down the hill close to their rice paddies. The first collection was of in situ sherds in an earthen wall cut to create a house terrace. Sherds were 70m below former ground surface. The second collection was from a sherd scatter to the east (10x10m)

**Artifacts:**  
 - 13 plain body sherds (47.7g, including 1 type iC and 2 type iB, the rest are type i)

- 4 plain rim sherds (16.6g, types i and iA, 2 illustrated above)
- 1 European white ceramic (1.5g)

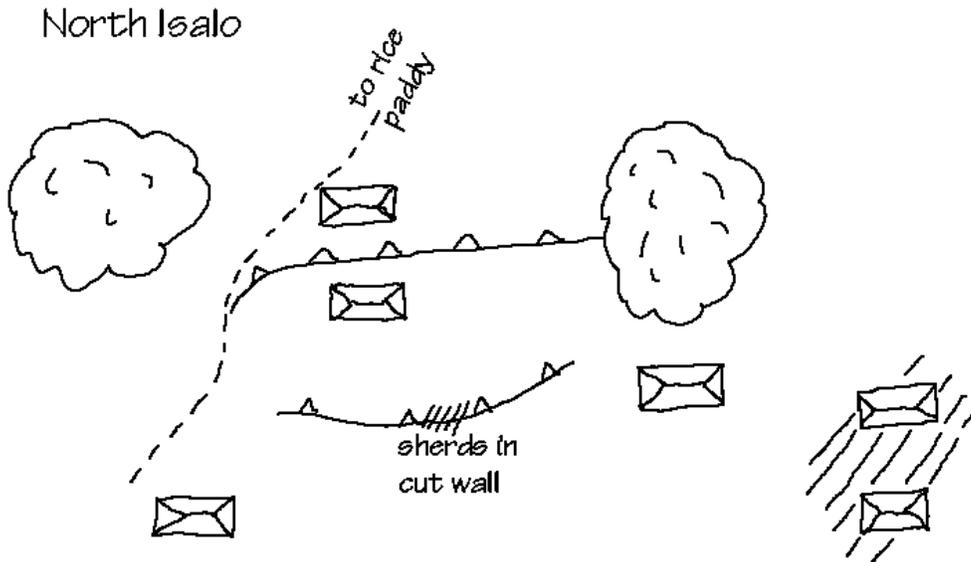


Figure A155. Site 99, Isalo Avaratra.

**Site: 100**      **Tanjomoa**      **Region of: Vohipeno**  
*Laborde X:* 545.3      *Latitude:* 22.34361      *Season:* 97  
*Laborde Y:* 418.3      *Longitude:* 47.84798      *Ceramic phase recovered:* 7  
*Site today:* village      *Collection method:* quick complete collection  
*Site Notes:* Small scatter of a European white ware, found around houses near church and hospital at the place of Père Carmé. Though this location is called "Tanjoma," I think it is actually north of where it appears on the FTM map.  
*Artifacts:* European rims

**Site: 101**      **Sarohimasy**      **Region of: Vohipeno**  
*Laborde X:* 545.3      *Latitude:* 22.3492      *Season:* 97  
*Laborde Y:* 417.7      *Longitude:* 47.84808      *Ceramic phase recovered:* 5  
*Site today:* forest      *Collection method:*  
*Site Notes:* Ditched hilltop site above rice paddies, with 2 sherds collected from a modern house compound just outside the fortification. Dense forest in area. Ditch today is approximately 3 meters wide and 1 meter deep.  
*Ethnographic Notes and Oral Traditions:* The people farming this area are of the clan Anakara.  
*Artifacts:* Including medium sandy temper, reduced, outcaste ware  
- 1 plain rim sherd (1.5g)  
- 1 plain body sherd (1.6g)

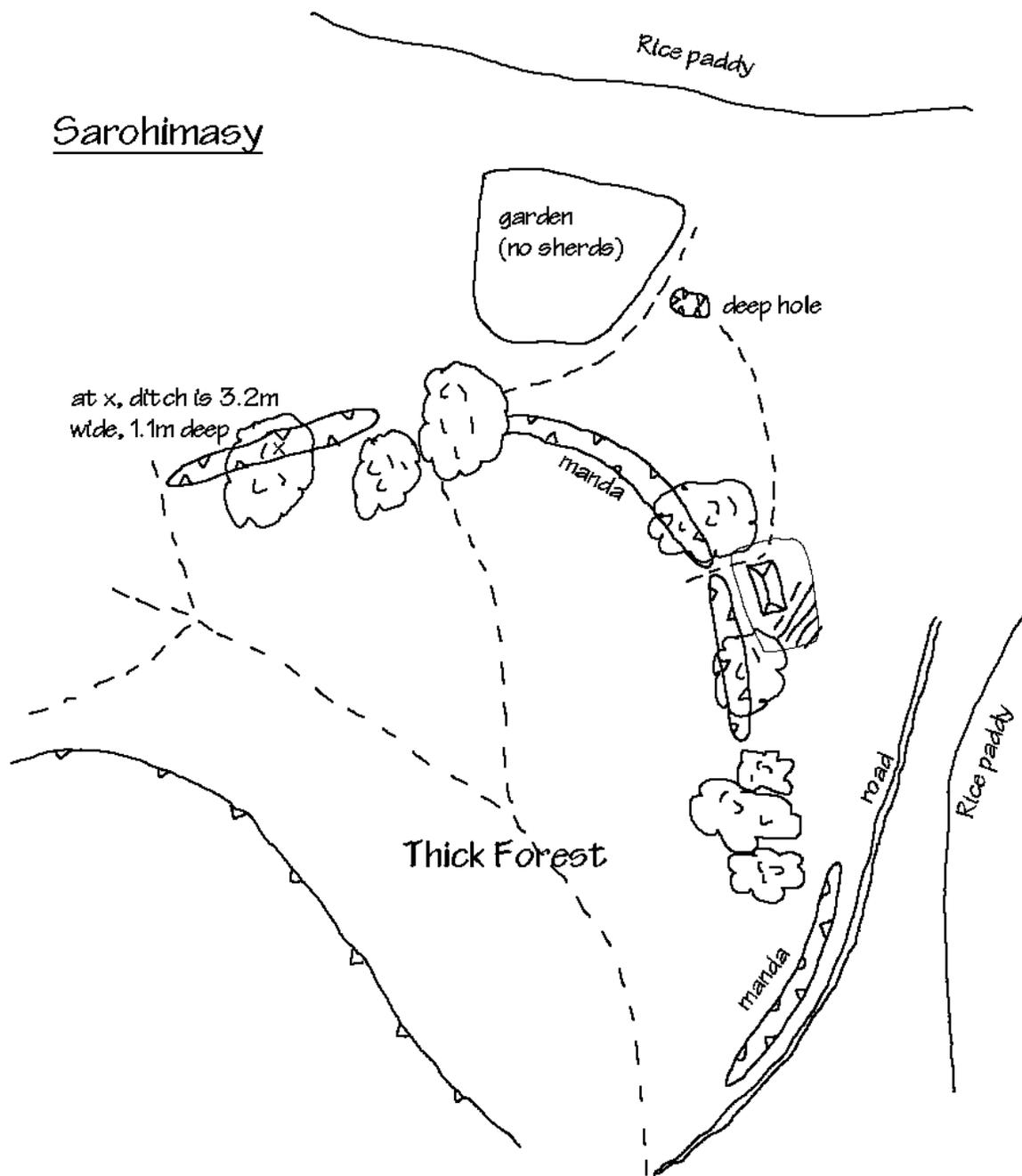


Figure A156. Site 101, Sarohimasy.

<b>Site:</b> 102	<b>Tsarinetso</b>	<b>Region of:</b> Vohipeno
Laborde X: 547.2	Latitude: 22.39264	Season: 97
Laborde Y: 412.9	Longitude: 47.86724	Ceramic phase recovered: 3/4,5
Site today: village	Collection method: quick complete collection	

**Site Notes:** 2 sparse sherd scatters from a large village with more than 30 houses. The first collection was from 40 meters southeast of the village itself, and included a 20<sup>th</sup> century European import. The second collection was from the west end of the village (waypoint 102A)

which included chlorite-schist. Total area of two scatters estimated to be 40x30m.

*Artifacts:* Including coarse oxidized, diagonal incised, graphite from scatter 102

- 14 plain body sherds (34.9g, including 2 type ii with sand inclusions, 1 type iC, 1 type iC2)
- 3 plain rim sherds (8.5g)
- 1 floral European import (4.0g) from 102A
- 9 plain body sherds (17.5g, including 2 type iC brown)
- 2 decorated body sherds (2.8g)
- 1 decorated rim sherd (3.5g, square lip t=.63 with linear combing on exterior)
- 1 fragment chlorite-schist (14.7g)

**Site: 103**

**Taniady**

**Region of: Vohipeno**

*Laborde X:* 547.3

*Latitude:* 22.39731

*Season:* 97

*Laborde Y:* 412.3

*Longitude:* 47.86792

*Ceramic phase recovered:* 5

*Site today:* village, taro

*Collection method:* quick complete collection

*Site Notes:* Small sparse sherd scatter in taro garden 250m from the modern village

*Ethnographic Notes and Oral Traditions:* The place name means "land of combat" (*ady* = combat) and so we asked in the village what the name referred to. We were told that this was the place where Ramahasitakarivo (king of the royal Anteony clan) had fought Ratsitakonarivo (leader of the Ampanabaka clan, who became commoners). The Ampanabaka were here first, the Anteony came and fought, but lost and so went to live at Ivato-Savanna (sites 40 and 53). After this defeat, "Vazaha" (Europeans) came and helped the Anteony with guns, and so they won a second war. After this, the Ampanabaka went to live at Vohitrindry (sites 115 to 117), Vohindava (site 58), and near Anosivelo (site 26). The villagers living here at Taniady say the oldest villages in the Matitanana region are Vohitrindry and Vohindava, then followed by Ivato.

*Artifacts:*

- 4 plain body sherds (20.7g), including 1 type iC and 1 type iE with smoothed exterior and interior.

**Site: 104**

**Mahasoa-Andohanosy**

**Region of: Vohipeno**

*Laborde X:* 509.0

*Latitude:* 22.40495

*Season:* 97

*Laborde Y:* 411.8

*Longitude:* 47.875

*Ceramic phase recovered:* 5,6\*

*Site today:* village

*Collection method:* quick complete collection

*Site Notes:* Small sherd scatter (5x5m) from a 10-house village and its canoe landing in the bank of the Matitanana River (2x2m).

*Ethnographic Notes and Oral Traditions:* We recovered no sherds in the main village to the southwest, which the inhabitants told us was the "new village," since their old village is now "under the water of the river."

*Artifacts:*

- 3 plain body sherds (5.6g)
- 3 plain rims (3.8g, 1 illustrated below)

## Mahasoa-Andohanosy

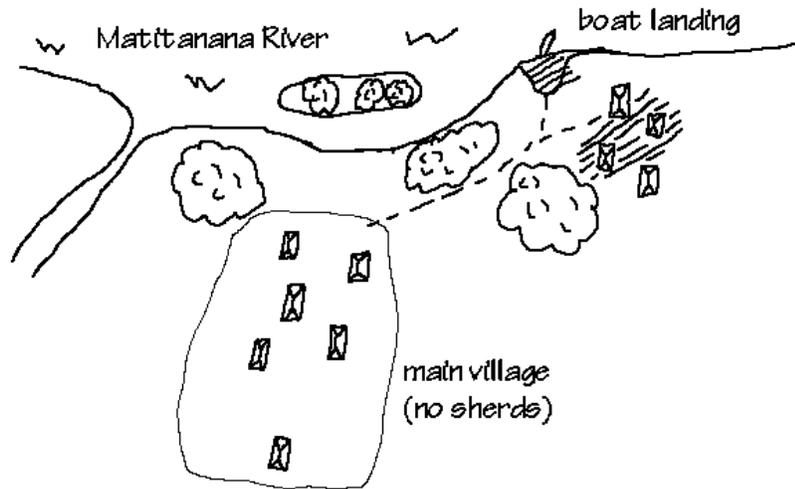


Figure A157. Site 104, Mahasoa-Andohanosy.

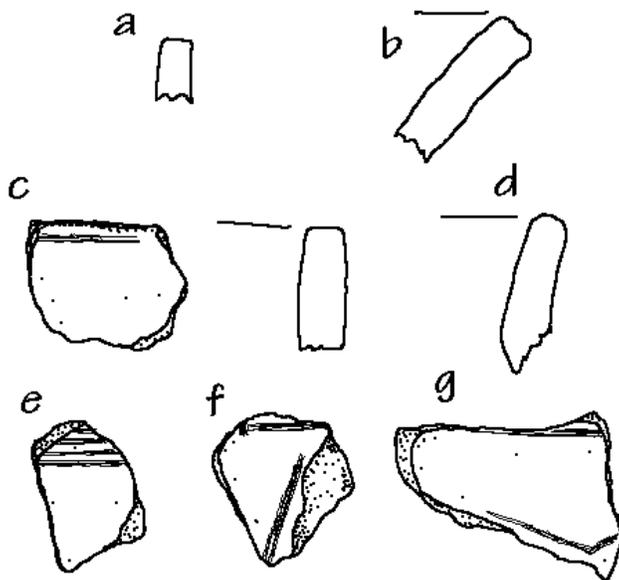


Figure A158. Site 104 to 109 artifacts.

- a. Site 104, small plain rim sherd with square lip, type i, d=20 (2% of rim), t=.43cm, blackened.
- b. Site 109, plain rim sherd, type iE with gold reflective inclusions (size 1, 3%), d=16 (4% of rim), t=.51, lip t=.61, with blackened exterior.
- c. Site 106, decorated rim sherd, type iA, 2.1g, d=19 (2% of rim), t=.55, lip t=.43, with incised line on exterior
- d. Site 106, plain rim sherd, type iA1, 1.8g, diameter uncertain, t=.54, lip t=.42
- e. Site 106, decorated body sherd, type i, t=.62, linear incisions on exterior, smoothed on both interior and exterior.
- f. Site 106, decorated body sherd, type iE, t=.47, linear incisions on exterior
- g. Site 106, decorated body sherd, type iE, t=.55, linear incisions on exterior, dark paste.

**Site: 105**

**Vohitrevo**

**Region of: Vohipeno**

*Laborde X:* 548.1

*Latitude:* 22.40447

*Season:* 97

*Laborde Y:* 411.5

*Longitude:* 47.87619

*Ceramic phase recovered:* 5\*

*Site today:* taro

*Collection method:* quick complete collection

*Site Notes:* A single plain body sherd (type i, coarse sandy thin ware, 3.2g) found in a large new taro garden north of path and south of the river, approximately 200 meters from site 104. (Again, we started the site form assuming that more would turn up in such a large garden, but we didn't see any others).

*Artifacts:* thin reduced medium sandy (described above)

**Site: 106**

**Forofofo**

**Region of: Vohipeno**

*Laborde X:* 548.3

*Latitude:* 22.40469

*Season:* 97

*Laborde Y:* 411.5

*Longitude:* 47.87791

*Ceramic phase recovered:* 5

*Site today:* village

*Collection method:* selective sample

*Site Notes:* A large, dense sherd scatter in the present-day village of Forofofo, as well as a round, earthen platform mound just outside the village. Pottery, iron slag, and chlorite-schist all recovered (with kids helping). The circular mound (collected as site 106A) is approximately 2 meters high and 40 meters in diameter (see site illustration below).

*Ethnographic Notes and Oral Traditions:* The local *Mpanjaka* of the village said he believes the mound is older than their village itself. They use the mound to retreat to when the river floods or hurricanes arrive, and so it is *fady* (taboo) to dig into it (hence we did not perform any sondages at this site). Three modern villages use the mound as a retreat in times of need: Mahasoa (site 104), Vohilany (site 107), and Forofofo. This man heard about the mound being used in 1945, and witnessed its use for Hurricane Danny and the 1 just before that. We asked about the iron slag found at the base of the mound, and the man told us that the village of Onjatsy was known for making iron as well as silver objects before the arrival of Europeans.

*Artifacts:* Including flared flattened jar necks, external false chevron, incisions, everted jar rims

106 (the village):

- 11 plain body sherds (36.4g, including 2 type iC, 2 type ii with silver mica 3%, 1 type iB with graphite burnished exterior)

- 7 decorated body sherds (23.3g, including 1 with triangles in false chevron and parallel double incised lines, and others with linear incisions)

- 7 plain rim sherds (40.5g)

- 1 imported sherd (European floral, 1.0g)

- 1 fragment of chlorite-schist (23.7g, with decoration resembling graphite ware)

106A (the mound):

- 4 plain body sherds (27.9g, including 2 type iE with gold reflective inclusions)

- 1 plain rim sherd (2.6g)

- 1 fragment decorated chlorite-schist (4.9g)

- 1 piece of iron slag (81.9g)

106B (far end of village from mound):

- 9 plain body sherds (34.6g, including 2 type iC)

- 7 decorated body sherds (20.3g)

- 2 plain rim sherds (4.0g).

5 of these are illustrated above.

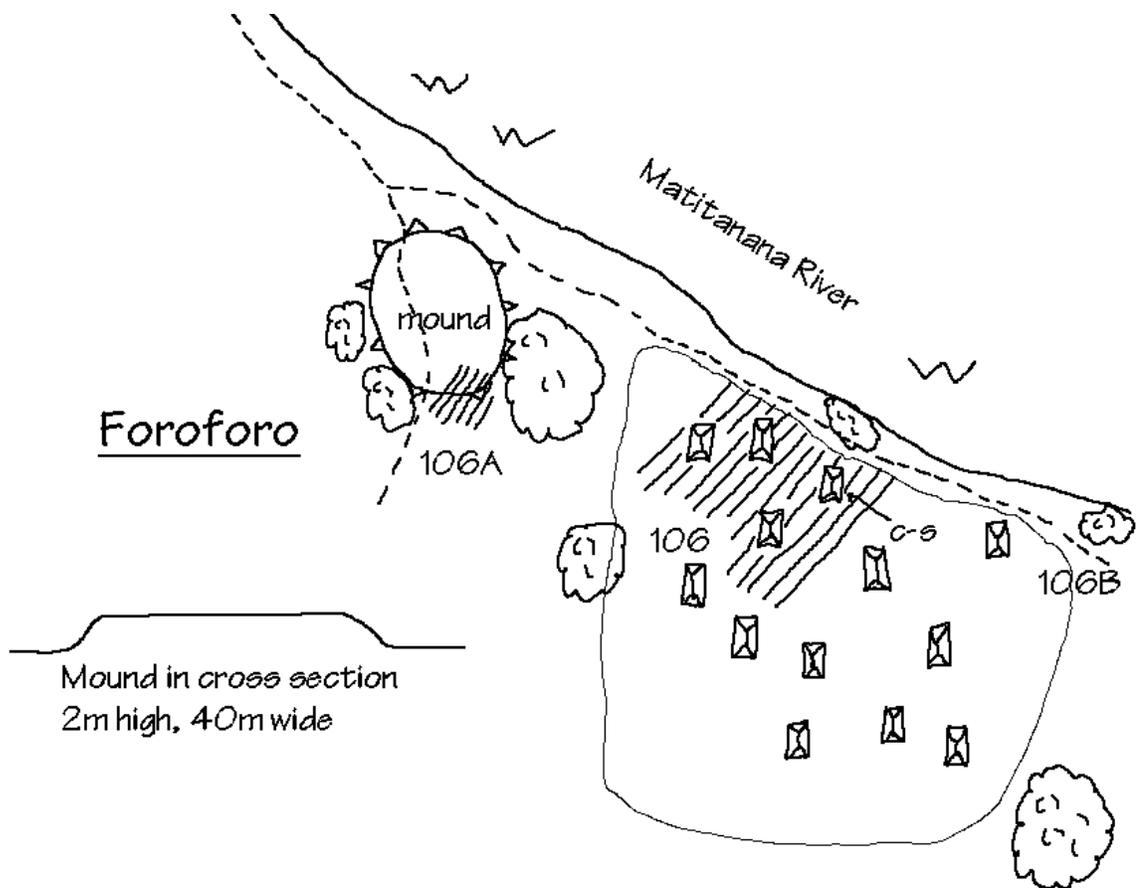


Figure A159. Site 106, Foroforo.

**Site: 107**      **Vohilany**      **Region of: Vohipeno**  
*Laborde X:* 548.9      *Latitude:* 22.40617      *Season:* 97  
*Laborde Y:* 411.4      *Longitude:* 47.8842      *Ceramic phase recovered:* 5\*  
*Site today:* village      *Collection method:* quick complete collection  
*Site Notes:* Sparse sherd scatter covering whole village (40x30m), approximately 350m down the road from church.  
*Artifacts:* Including thin, coarse, sandy  
- 9 plain body sherds (26.0g, including 1 type iE with smoothed exterior, and type i)

**Site: 108**      **Tanantsara**      **Region of: Vohipeno**  
*Laborde X:* 547.0      *Latitude:* 22.3913      *Season:* 97  
*Laborde Y:* 413.0      *Longitude:* 47.86489      *Ceramic phase recovered:* 5  
*Site today:* taro, coffee      *Collection method:* selective sample  
*Site Notes:* Dense sherd scatter in gardens near modern village, approximately 25x20m. (collected with the local kids helping).  
*Ethnographic Notes and Oral Traditions:* This is one of the outcaste villages, also said to be a traditional village of potters. We were able to interview an 80 year old man, Vitamana, who

agreed that yes, their ancestors did make the pottery for the region, but not here by the river, instead they made it in the hills at Emainty (people called Antemainty, SE of Vohindava), Enohona (site 39), and Vohindava (site 59, people called Antebe). The name he uses for the outcaste pariahs (his group) is Antemananza, which used to be "Antemanza." Originally his people were the owners of the land (*topon-tany*), they were the first inhabitants, and the second people to arrive were those of Onjatsy. They originally lived near Mahasoa, where the river is now (as its course has shifted, was once only on the far side of the small island). Today they only live in this village of Tanantsara and Enohona, though all of their tombs are at Enohona. He said that the original name of the Matitanana River before the others arrived was the "Andoamandry."

- Artifacts:** Including foot-base, outcaste ware
- 37 plain body sherds (83.5g)
  - 2 decorated body sherds (6.8g, with horizontal and vertical linear incisions)
  - 4 plain rim sherds (17.3g)
  - 1 pottery base (or lid knob, 10.6g)
  - 1 iron ball (4.7g)

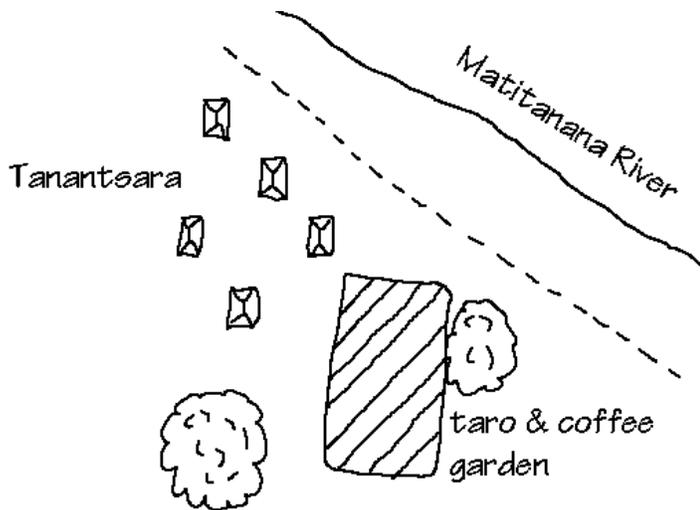


Figure A160. Site 108, Tanantsara.

<b>Site:</b> 109	<b>Ankarimbelo</b>	<b>Region of:</b> Vohipeno
Laborde X: 546.5	Latitude: 22.38726	Season: 97
Laborde Y: 413.5	Longitude: 47.86023	Ceramic phase recovered: 5,7
Site today: village	Collection method: quick complete collection	
Site Notes: Sparse sherd scatter over entire village, but very few sherds.		

- Artifacts:**
- 2 plain body sherds (5.7g, including 1 type ii with coarse sand inclusions)
  - 1 plain rim sherd (4.3g, illustrated above)
  - 1 imported sherd (European white ceramic, 2.3g).

<b>Site:</b> 110	<b>Vohilava</b>	<b>Region of:</b> Andemaka
Laborde X: 540.6	Latitude: 22.3252	Season: 97
Laborde Y: 420.4	Longitude: 47.80249	Ceramic phase recovered: 5*
Site today: village, taro	Collection method: quick complete collection	

*Site Notes:* Isolated sherds, one from a taro garden to the southeast of village and 1 from the village itself. Sherds are thick, coarse ware, and large, 24.1g.

*Artifacts:*

- 2 plain body sherds type iC

**Site: 111**

**Vohimavo (Ifandana)**

**Region of: Andemaka**

*Laborde X:* 532.0

*Latitude:* 22.28636

*Season:* 97

*Laborde Y:* 424.8

*Longitude:* 47.71854

*Ceramic phase recovered:* 5\*

*Site today:* village

*Collection method:* quick complete collection

*Site Notes:* Sherd scatter from top of hill and northern slope on path, around a 3-house village.

*Ethnographic Notes and Oral Traditions:* We interviewed one of the residents, Otongafy, who is of the Antemanga clan (though the other houses are occupied by Antevato people from the Andemaka area.) He built his house during colonialism (1962) and changed the name of this place to Ifandana from its old name of Vohimavo. In talking about the history of this place, he said that the king here was once equal to the kings in Vohindava and Ivato. All 3 kings were once equal, when this had been a great village (long before he arrived), but then the people all moved down closer to the river since it was too tough living so far from water. We asked about pottery and he said he doesn't know who once made it at the Matitanana, but that the Betsileo far upstream still make it today. We asked about any *manda* in the area, and he took us to a terrace on the south slope of this hill, which he claims was the location for a lookout fort when the village was larger (he also noted there was a similar terrace for a lookout guard house on the north slope as well). He said he did not know who the lookouts would have been guarding against, but it was not the Merina or the Vazaha (Europeans). Upon hearing about archaeology and our survey project, he produced a chlorite-schist pendant shaped weight (43.8g) which he collected while working near his rice paddy at Andavakorika (which is 2 or 3 kilometers west of his home).

*Artifacts:*

- 11 plain body sherds (28.0g, including 2 with black smoothed exteriors)
- 4 decorated body sherds (18.6g, with incisions, linear combing, and scraping on exterior)
- 2 plain rim sherds (6.3g, 1 square lip and 1 round)
- 1 chlorite-schist weight (non magnetic).

**Site: 112**

**Tangainony**

**Region of: Andemaka**

*Laborde X:* 531.7

*Latitude:* 22.28983

*Season:* 97

*Laborde Y:* 424.4

*Longitude:* 47.71596

*Ceramic phase recovered:*

*Site today:* school yard

*Collection method:* thorough complete collection

*Site Notes:* 2 plain body sherds (9.3g) collected in an EPP (primary school) yard

*Artifacts:* Including thick coarse sandy ware

- 2 plain body sherds (9.3g), including 1 type i with black specks, and 1 red with sand inclusions.

**Site: 113**

**Todia**

**Region of: Andemaka**

*Laborde X:* 532.6

*Latitude:* 22.28291

*Season:* 97

*Laborde Y:* 425.2

*Longitude:* 47.72459

*Ceramic phase recovered:* 5

*Site today:* village

*Collection method:* quick complete collection

*Site Notes:* Sherd scatter from western end of modern village (50x30m), with kids helping collect.

- Artifacts:** Including basketry impressed, incised
- 19 plain body sherds (45.4g, including type iA)
  - 7 decorated body sherds (24.6g, 1 with basketry impressions and the others with incised lines, but no triangles)
  - 5 plain rim sherds (20.8g)

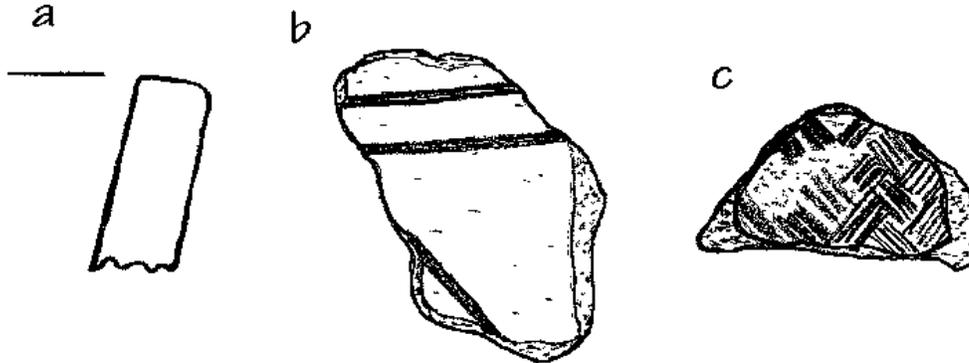


Figure A161. Site 113 artifacts.

- a. Plain rim sherd, type iE, 9.3g, d=29 (4% of rim), t=.94, lip t=.91, reduced
- b. Decorated body sherd, type iE, 6.2g, t=.53, with incised grooves on black exterior
- c. Decorated body sherd, type iC, 4.4g, t=.82, with basketry impression on exterior.

<b>Site:</b> 114	<b>Karianga</b>	<b>Region of:</b> Andemaka
Laborde X: 530.7	Latitude: 22.28389	Season: 97
Laborde Y: 425.1	Longitude: 47.70636	Ceramic phase recovered: 3,5,6
Site today: empty garden		Collection method: selective sample

**Site Notes:** Dense sherd scatter in old garden on north slope of hill, north of river and west of Fasimba. Scatter continues on flat top of hill, but is sparser. Note: from studying the aerial photographs we expected this hill to have a *manda* on it, instead, it was the different vegetation on the hill slopes versus on the flats that made the perfect circle that we took to be a ditched site. Whereas air photos have worked well in the highlands, the amount of forest cover in the Matitanana region that hide earthworks, plus the lower resolution photographs, plus problems such as found at this site while ground-truthing means aerial photographs have not been as useful for this project. Higher resolution satellite images on Google Earth, once they become available for this region, will certainly help.

- Artifacts:**
- 28 plain body sherds (130.8g, including 1 type iA, 2 type ii, 2 type ii with coarse sand inclusions, 1 type ii with graphite burnished exterior, 1 type iB with sand inclusions)
  - 4 decorated body sherds (22.0g, coarse sandy ware, 1 with a rectangular punctate (or rice grain impression, punctate .61x.25cm, sherd t=.94)
  - 1 graphite ware with triangle punctates
  - 1 with wavy combing (illustrated below)
  - 1 with round impressions (illustrated below))
  - 5 plain rim sherds (29.1g)
  - 4 large pieces of milky quartz.

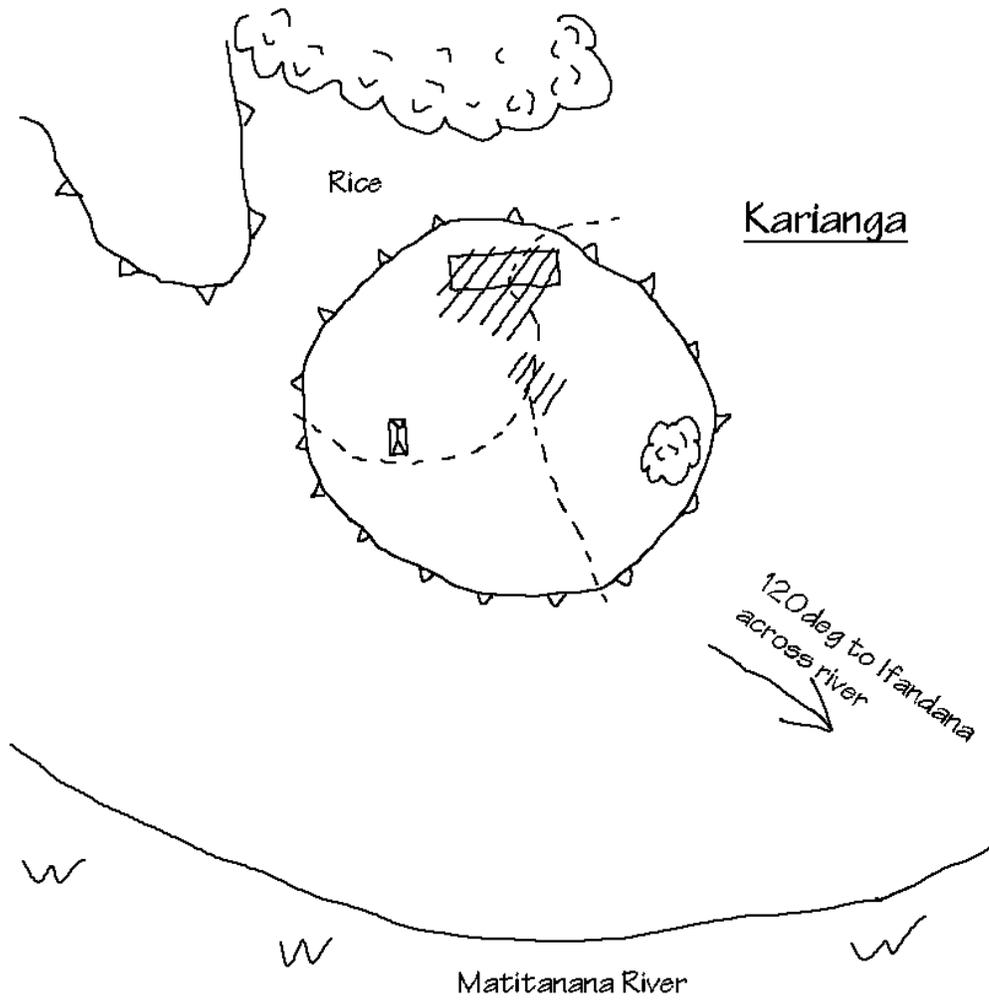


Figure A162. Site 114, Karianga.

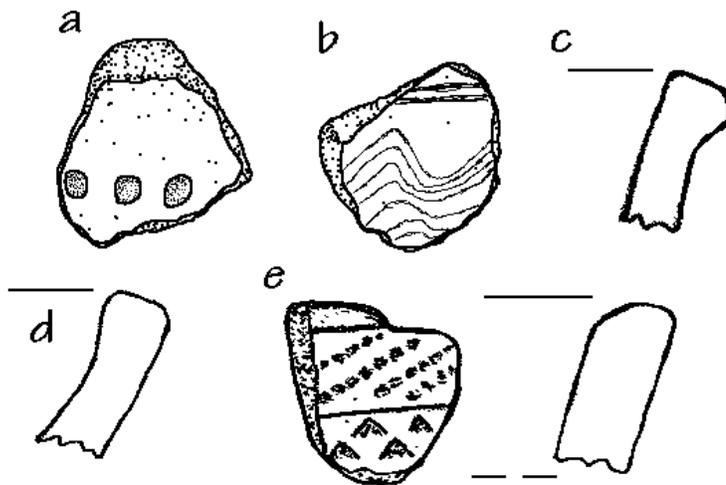


Figure A163. Site 114 artifacts.  
 a. Decorated body sherd, type iE, t=.73, with large round impressions, impression diameter = .43  
 b. Decorated body sherd, t=.89, with wavy combing and linear incisions.

- c. Plain rim sherd, type i, 7.8g, d=20 (5% of rim), t=.80, lip t=.96, sand and gold mica (2,5%), 7.5YR6/3, surfaces wiped.
- d. Plain rim sherd, type iE, 5.3g, d=20 (2% of rim), t=.75 to .67, lip t=.76, sand and stone inclusions (3,10%), 10YR4/1, possibly a lid sherd.
- e. Decorated rim sherd, type iC grey graphite ware, 4.3g, d=23 (2% of rim), orientation uncertain, t=.84, lip t=.99, triangle base = .36cm, with triangle punctates, incised lines, and round dentate stamps on interior surface.

<b>Site:</b> 115	<b>Vohitrindry</b>	<b>Region of:</b> Vohipeno
<i>Laborde X:</i> 554.1	<i>Latitude:</i> 22.37538	<i>Season:</i> 97
<i>Laborde Y:</i> 414.8	<i>Longitude:</i> 47.83717	<i>Ceramic phase recovered:</i> 5,6,7
<i>Site today:</i> village, coffee		<i>Collection method:</i> selective sample

*Site Notes:* Vohitrindry is the town just across the bridge over the Matitanana from Vohipeno. The large sherd scatter covers most of the modern town, and we made collections from near the Mayor's house and neighboring coffee garden, from the top of the hill, and from the southwest edge of the village next to a collapsed house.

*Artifacts:*

- 31 plain body sherds (138.1g, including 1 type iC, 5 type iE with red interior, 2 type iE with smoothed exterior, 1 type iB with smoothed interior and exterior)
- 11 decorated body sherds (90.5, type i, decoration all linear incisions except for 1 with angle punctates illustrated below and one with linear incisions and round dentate stamp)
- 10 plain rim sherds (55.0g)
- 1 decorated rim sherd (4.2g, type iC, t=.85, lip t=.73, eroded with incised lines and round punctates on interior surface)
- 1 base (or foot or lid knob, 14.9g)
- 1 European white ware (9.9).

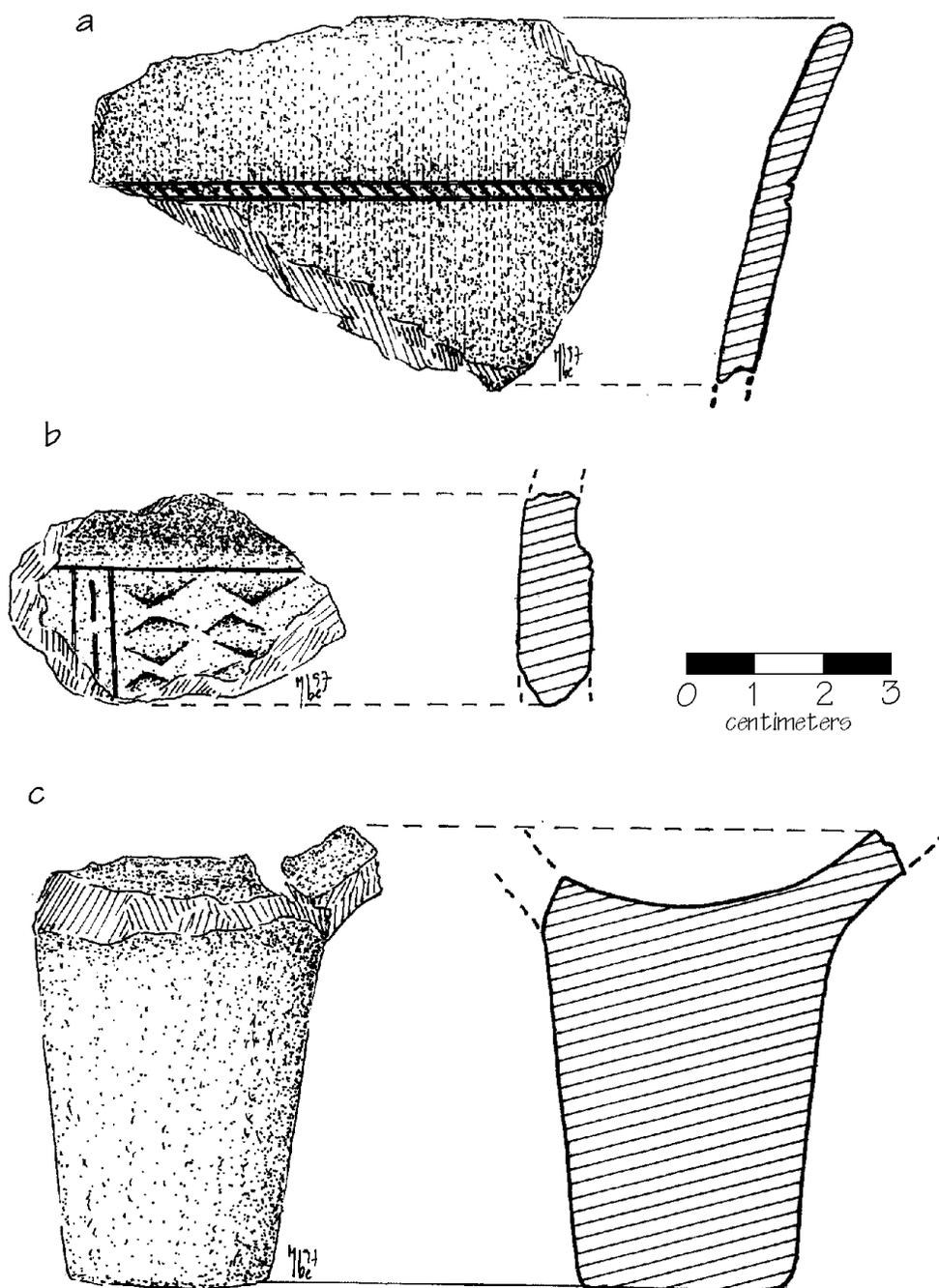


Figure A164. Site 115 to 117 artifacts.

a. Site 117C, vertical combing with rectangular nicks banded by incisions, type i with silver mica, 10%, 3, d = 15, 8%, t = .56, lip t = .46

b. Site 115, decorated body sherd, type iC2, t = 1.01, triangle base = .85, punctates are not full triangles but more angle impressions, and are not in false chevron - the angles are point to point and base to base. The design is bounded by incised lines and found on the concave side, possibly interior, or an exterior jar neck.

c. Site 116, d = 3.00 cm. base, vertical scrapings (as shallow grooves on exterior), type i, with gold mica, 3%, 2

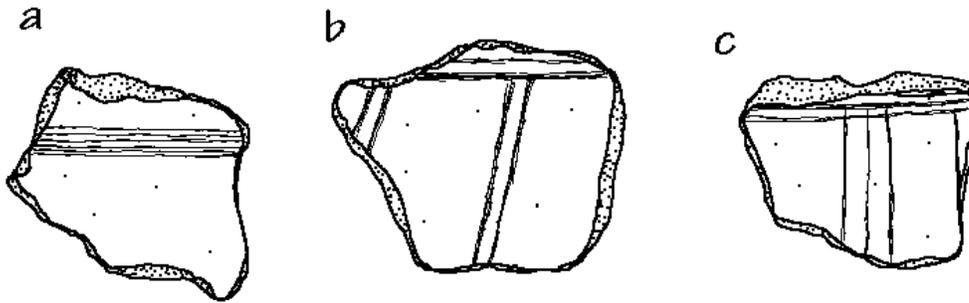


Figure A165. Sites 115 to 117 artifacts, part 2.

a. Site 116, decorated body sherd, t=.68 with rice grass impression.

b. Site 117C, decorated body sherd, t=.48cm, with double parallel incisions.

c. Site 115, decorated body sherd, possibly part of a base, with linear incisions.

**Site:** 116

**Fenarivo**

**Region of:** Vohipeno

Laborde X: 544.1

Latitude: 22.37814

Season: 97

Laborde Y: 414.5

Longitude: 47.83661

Ceramic phase recovered: 3,5,7

Site today: village

Collection method: selective sample

**Site Notes:** Fenarivo is the village across the road south of Vohitrindry, and like at that site, the sherd scatter covers most of the village. One collection was made 60 meters from the road where a bowl rim and base were found broken but in situ eroding out of the ground, and a second collection from near the "center pole" or *fatora* and an abandoned house mound (see illustration below).

**Ethnographic Notes and Oral Traditions:** People claim this is the older town, as what is called Vohitrindry across the road today is really a colonial village. The people here are Ampanabaka clan (commoners). When asked about a supposed *manda* in the area (as Phillipe Beaujard had said there should be a Merina fort near Vohitrindry), people told us it was west of here near the school (see site 117).

**Artifacts:**

- 44 plain body sherds (163.0g, including type iC1, type iC2, and type iB)
- 9 decorated body sherds (73.1g, linear incisions (1 illustrated above), linear combing, and 1 basketry impression)
- 11 plain rim sherds (69.6g)
- 1 European white ware (11.8g)
- 1 base or foot (114.8g, illustrated above).

Wares are similar to site 115, but a bit more grey.

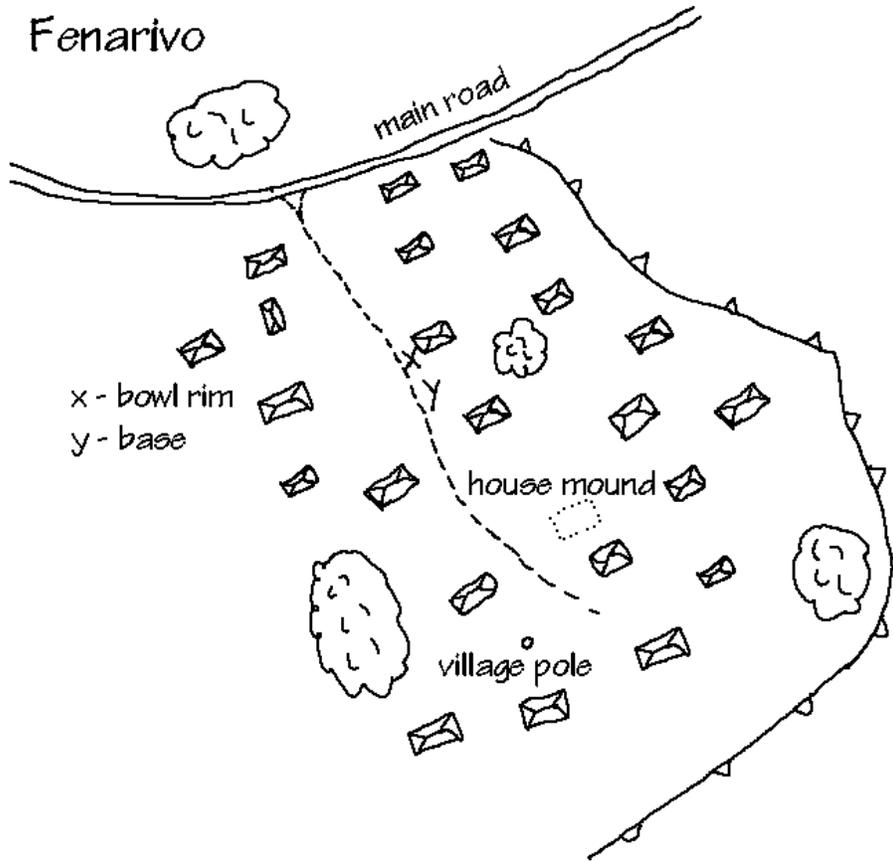


Figure A166. Site 116, Fenarivo.

<b>Site:</b> 117	<b>Karinoro (CEG de Vohitrindry)</b>	<b>Region of:</b> Vohipeno
<i>Laborde X:</i> 543.5	<i>Latitude:</i> 22.38191	<i>Season:</i> 97
<i>Laborde Y:</i> 414.1	<i>Longitude:</i> 47.83114	<i>Ceramic phase recovered:</i> 5
<i>Site today:</i> sweet potatoes		<i>Collection method:</i> selective sample

*Site Notes:* A large fortified hill just outside Vohitrindry, surrounding the modern C.E.G. (a secondary school / vocational college). Sherds were visible in most gardens on the site as well as on other exposed grounds, and 5 separate locations were sampled for pottery (see illustration below, map drawn by Zoe Crossland). The ditch formations were complex, and difficult to figure out in the dense forests. The site appears to have been triple-ditched in places, and the ditch itself averaged 1.5 to 2 meters in width (and presently 1.5m deep), though in some places (as behind the lookout post on the southeast edge) it expands to 9 meters wide and 6 meters deep.

*Ethnographic Notes and Oral Traditions:* The ethnographer Beaujard told us that there supposedly was a Merina fort on this side of the river opposite Vohipeno. Ramilisonina (my collaborator and someone intimately familiar with the archaeology of Madagascar) believes this site to be identical in shape to 18<sup>th</sup> and 19<sup>th</sup> century Merina forts from the highlands. Local tradition (including the school principal who lives in Vohitrindry) says the ditches were dug by a group of people (the Antekarinoro) who were a "mixed clan" of part Merina and part Betsileo immigrants. The people who once lived on this hill (before the schools were constructed) are said to have moved to Mangaiky because of an epidemic at this location. If this site were a Merina fort in the central highlands, we would expect to find Fiadanana ceramics (which we did not). However, Henry Wright has suggested that perhaps there needs to be officers with their families

and slaves present to have Fiadonana wares, and so this could still have been a Merina fort.

*Artifacts:*

- 36 plain body sherds (141.9g, including 1 type iB, 2 type iC, 2 type iA, 1 type ii, 6 type i with orange exterior)
- 8 decorated body sherds (including double parallel incisions, vertical combing, and linear incisions, 1 illustrated above, 36.9g)
- 6 plain rim sherds (35.3g)
- 4 decorated rim sherds (47.1g, 1 illustrated above)
- 1 European white ware (.8g)
- 1 piece of iron slag (49.6g)

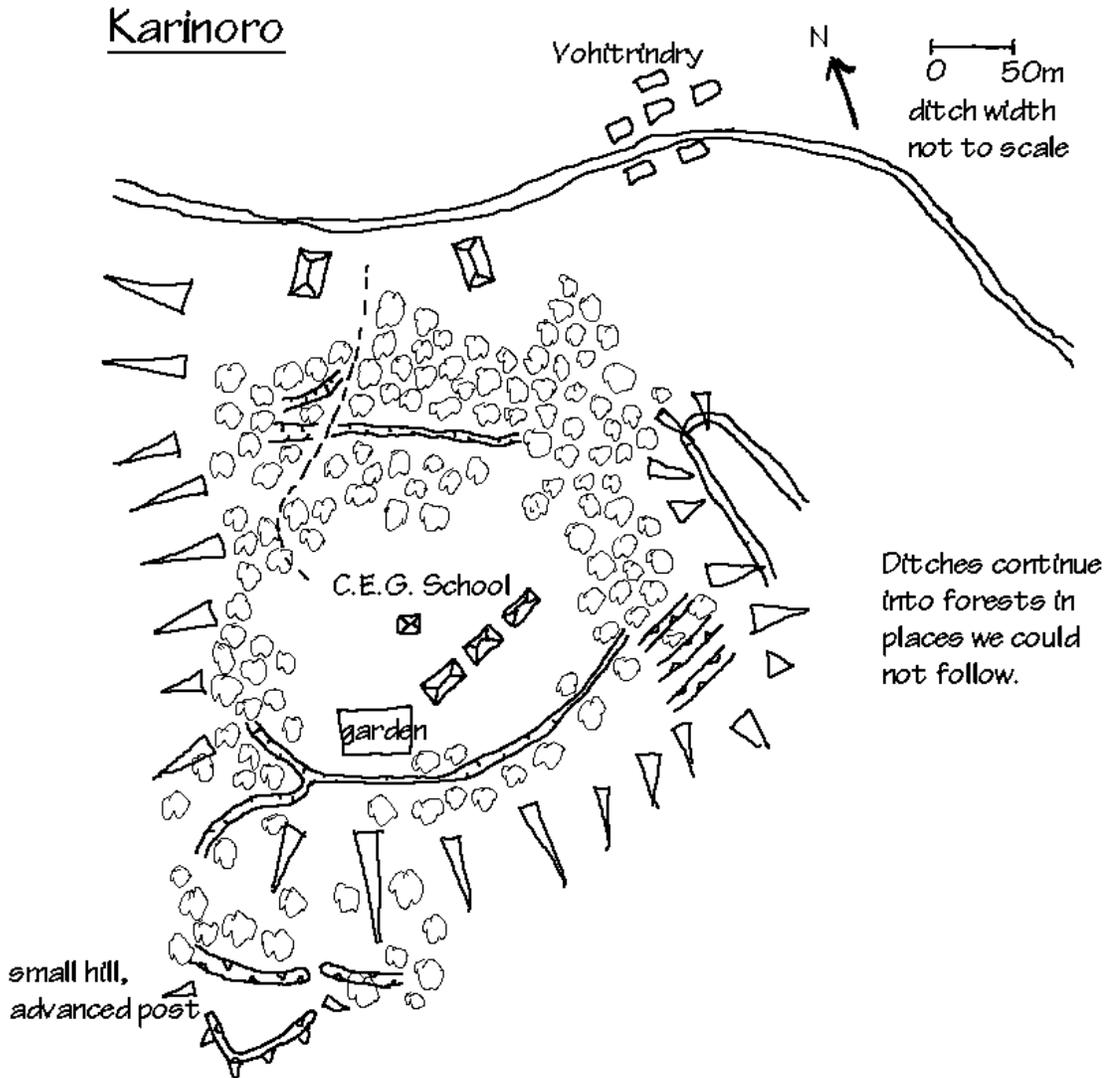


Figure A167. Site 117, Karinoro.

<b>Site:</b> 118		<b>Region of:</b> Vohipeno
Laborde X: 543.6	Latitude: 22.38243	Season: 97
Laborde Y: 414.0	Longitude: 47.83217	Ceramic phase recovered: 5*

*Site today:* empty garden

*Collection method:* quick complete collection

*Site Notes:* Small sherd scatter (3x2m) just east of hillfort site 117, in a garden down slope from a possible drainage ditch

*Artifacts:*

- 8 plain body sherds (41.8g, type iE reduced)

**Site: 119**

**Ampamafamy**

**Region of: Vohipeno**

*Laborde X:* 543.7

*Latitude:* 22.38221

*Season:* 97

*Laborde Y:* 414.1

*Longitude:* 47.83339

*Ceramic phase recovered:* 5\*

*Site today:* sugar cane

*Collection method:* thorough complete collection

*Site Notes:* An isolated sherd recovered from a sugar cane garden on the next hill east from the very large site of 117. Given the density of that site and Vohitrindry (sites 115 and 116), we expected more to emerge from this hilltop and house compound, but were wrong.

*Artifacts:*

- 1 plain body sherd (3.4g), type i with red sand inclusions.

**Site: 120**

**Region of: Vohipeno**

*Laborde X:* 551.7

*Latitude:* 22.40918

*Season:* 97

*Laborde Y:* 411.0

*Longitude:* 47.91097

*Ceramic phase recovered:* 3\*

*Site today:* sweet potatoes

*Collection method:* thorough complete collection

*Site Notes:* Small sherd scatter (15x10m) found between Ambohitsara (site 17) and the Pangalanes canal (approximately 400m from the canal and 75m from the Matitanana River).

*Artifacts:*

- 9 plain body sherds (22.7g, including 1 type iE with thick graphite that differs from normal graphite ware, 5 type iE with shell inclusions, 2 type ii with shell and sand, 1 soft type ii with mica)  
- 1 decorated body sherd (2.0g)  
- 1 fragment of chlorite-schist (25.3g)  
- 1 decorated rim sherd (illustrated below).



Figure A168. Sites 120 and 122 artifacts.

a. Site 120, decorated rim sherd, type i with graphite inclusions (3,25%), 1.9g, d=10 (4% of rim), t=.68, lip t=.57, 7.5YR5/1, with incised lines on exterior surface.

b. Site 122, decorated rim sherd, type i, 5.6g, diameter uncertain, t=1.37, lip t=1.28, sand, gold mica, and possibly chlorite-schist inclusions (2,3%) with a soapy feel to surface, reduced black core, exterior and interior surfaces 10YR7/3, with an incised double groove on top of lip.

**Site:** 121

**Vataniova**

**Region of:** Vohipeno

Laborde X: 551.6

Latitude: 22.40878

Season: 97

Laborde Y: 411.0

Longitude: 47.90972

Ceramic phase recovered: 3\*

Site today: embankment

Collection method: quick complete collection

**Site Notes:** Earthworks and sherd scatter on the banks of the Matitanana River. Part of the circular ditch is currently being used as a cattle pen, with its own path down into the pen from the interior of the ditched enclosure. Sherds were recovered in situ from the walls of this cattle pen (at locations marked "x" on the illustration below) at a consistent depth: 60 to 60cm below ground surface on the southeast wall, and 120 b.g.s. on the northwest wall. Medium sized sherd scatter.

**Ethnographic Notes and Oral Traditions:** A nearby farmer claimed that this site was a cemetery, since someone tried to garden here and turned up human bones, and so no one has gardened here since. He didn't know whose bones or cemetery it might be though. Ramilisonina (my collaborator) says it looks to him like a small French fort to guard the river mouth. The low platform mound (less than a meter high), may contain the remains of a house or building (my first thought was a mosque), and this would be a good site for future excavations. A very quick shovel test in the setting sun (with only a trowel and only going down a few centimeters) did not reveal any artifacts or indications of how the mound was constructed.

**Artifacts:**

- 4 plain body sherds (27.6g, 1 thick coarse red interior and black exterior with sand inclusions, 1 type iB, and 2 type iE with dark fabric, pink interiors, and sand inclusions)
- 1 plain rim sherd (8.2g)

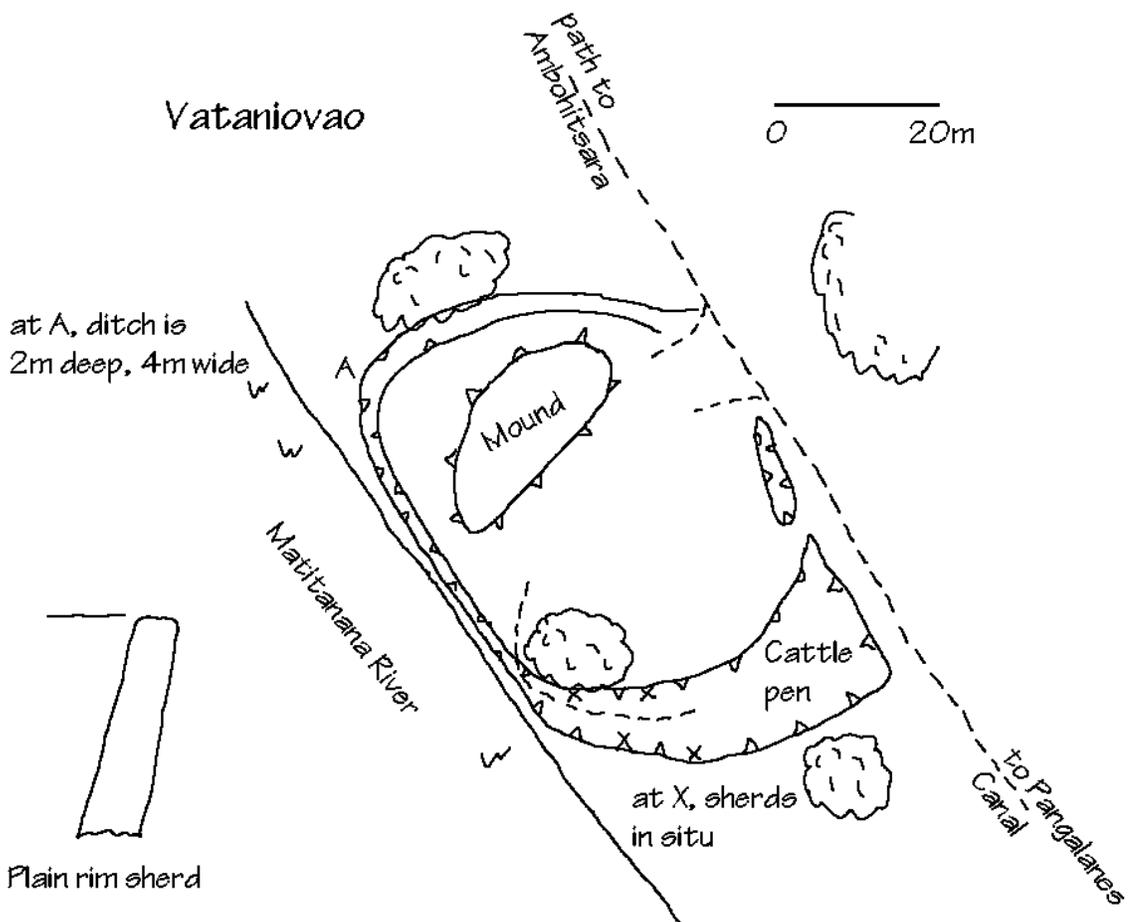


Figure A169. Site 121, Vataniova site and rim sherd.

Plain rim sherd, type iA with red sand inclusions, 8.2g, d=36 (2% of rim), t=.84, lip t=.61.

**Site: 122**

**Vatanio**

**Region of: Vohipeno**

Laborde X: 551.2

Latitude: 22.40699

Season: 97

Laborde Y: 411.2

Longitude: 47.90666

Ceramic phase recovered: 0,3,4,5,7

Site today: sweet potatoes

Collection method: quick complete collection

**Site Notes:** Medium sized sherd scatter (30x20m) in 2 gardens on the banks of the Matitanana River. In between the gardens is a path down to the river and a boat landing. Clearly visible in the embankment were 3 post holes of uniform size that cut into clean white sand (see profile illustration below). Sherds (including a decorated body sherd, type iiiB with incised lines) were visible inside the postholes. Henry Wright suggests these post holes are too big for a normal house, and so might have been part of a stockade.

**Ethnographic Notes and Oral Traditions:** An elderly farmer said that Anteony lived on this spot in 1932, but that the family now lives across the river (I don't believe the post holes are that recent).

**Artifacts:** Including chlorite-schist, thick oxidized sandy, exterior triangles, pottery basin imitating chlorite schist, chlorite-schist temper

- 18 plain body sherds (77.1g, including 3 very coarse and thick red with sand inclusions, 3 type iE thick coarse ware, 1 soft what with few inclusions, 2 type iA, 4 type i with smoothed interior and exterior, and 6 type i)
- 2 decorated body sherds (4.9g, with linear incisions)
- 1 plain rim sherd (1.4g)
- 1 decorated rim sherd (5.7g, resembles a chlorite-schist rim, illustrated above)
- 1 European sherd (1.1g)
- 3 fragments of chlorite-schist (62.8g, 1 looks to be a lid knob)
- 1 decorated body sherd is from inside a post hole, type iiiB, t=.95, with 2 incised lines.

## Vatanio

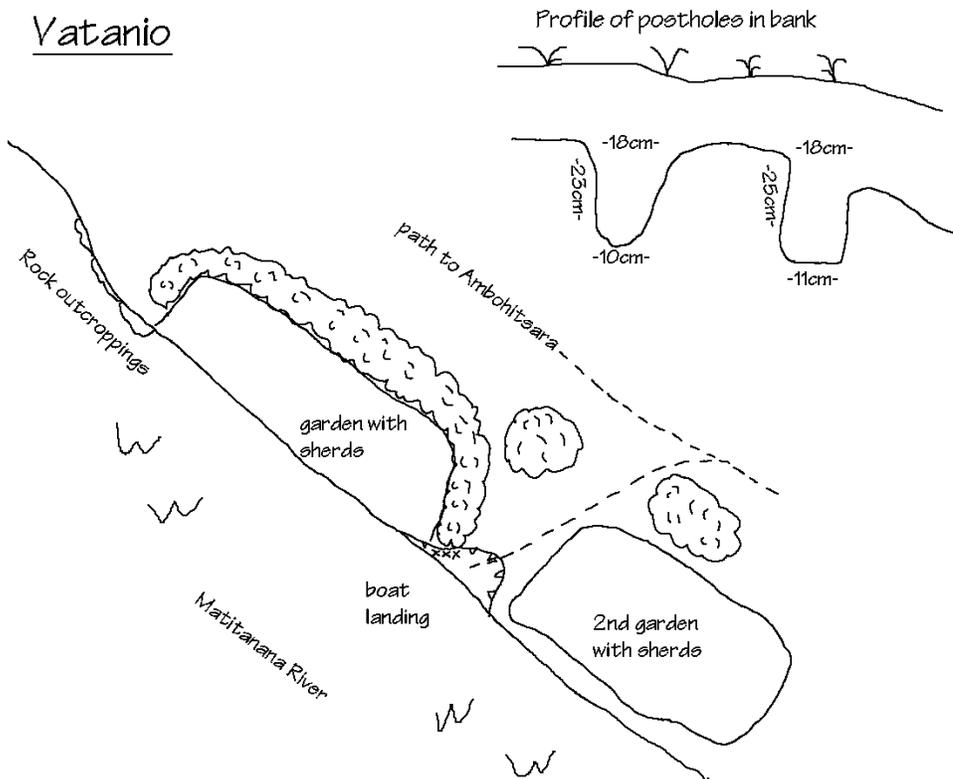


Figure A170. Site 122, Vatanio.

**Site: 123**

**Nofy**

**Region of: Farafangana**

Laborde X: 543.3

Latitude: 22.84331

Season: 97

Laborde Y: 363.0

Longitude: 47.83403

Ceramic phase recovered: 0,1\*,2/3,5

*Site today:* sweet potatoes, cassava, beans *Collection method:* selective sample

*Site Notes:* Large sherd scatter visible in 5 gardens 300 meters in from the ocean, behind a coconut orchard (total area of gardens with sherds approximately 150x 80m). Place name means "dream." The three rim sherds illustrated below all come from the cassava garden on the map.

*Artifacts:*

- 53 plain body sherds (307.4g, including type i with sand and shell inclusions, type ii with shell, type ii with large graphite inclusions but not enough to be type iC, type iC2 both brown and grey, type iC1 with some graphite in paste as well, type iB with graphite inclusions, type iA with quartz and grey interior, and plain type i and type ii)
- 5 decorated body sherds (29.3g)
- 1 plain rim sherd (2.5g)
- 9 decorated rim sherds (100.7g, including 1 thick type iC2 brown with eroded decoration on lip, 1 red square lip)
- 1 fragment chlorite-schist (3.7g)
- 1 flat base (11.6g)

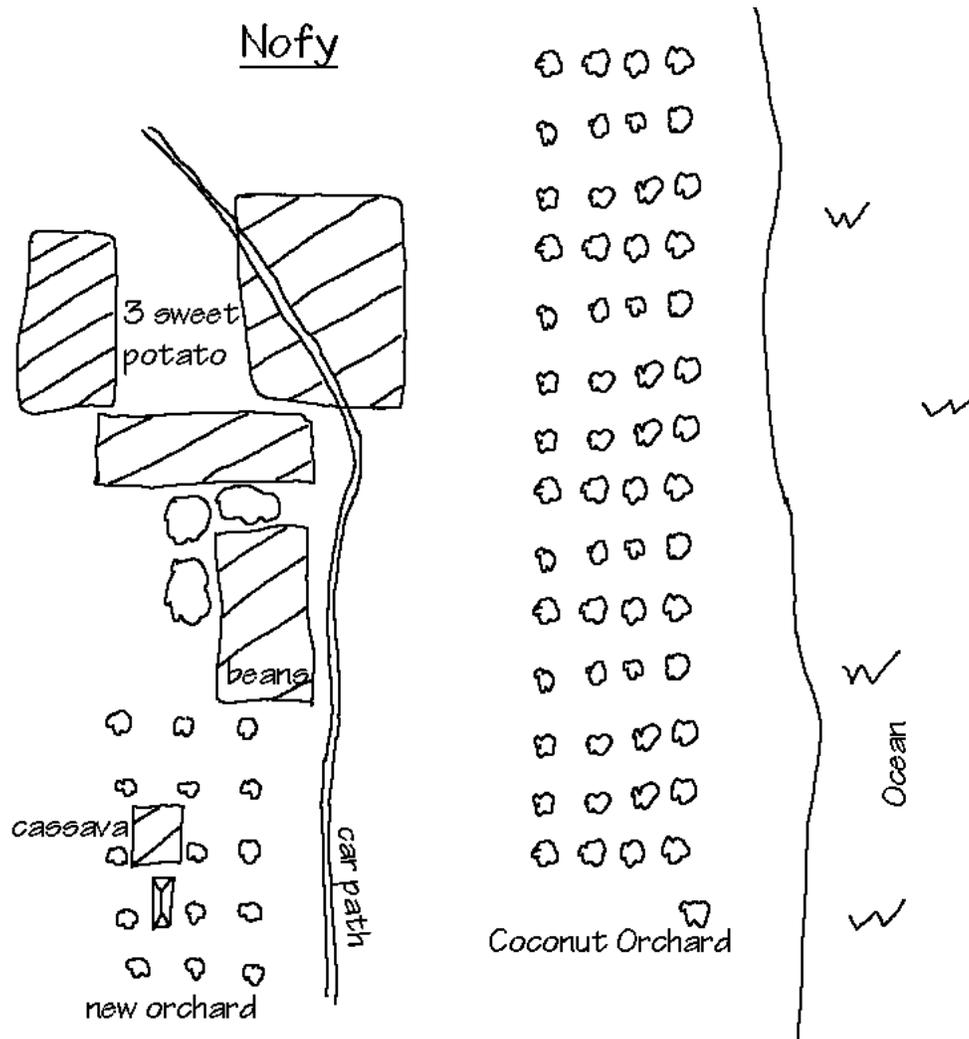


Figure A171. Site 123, Nofy.

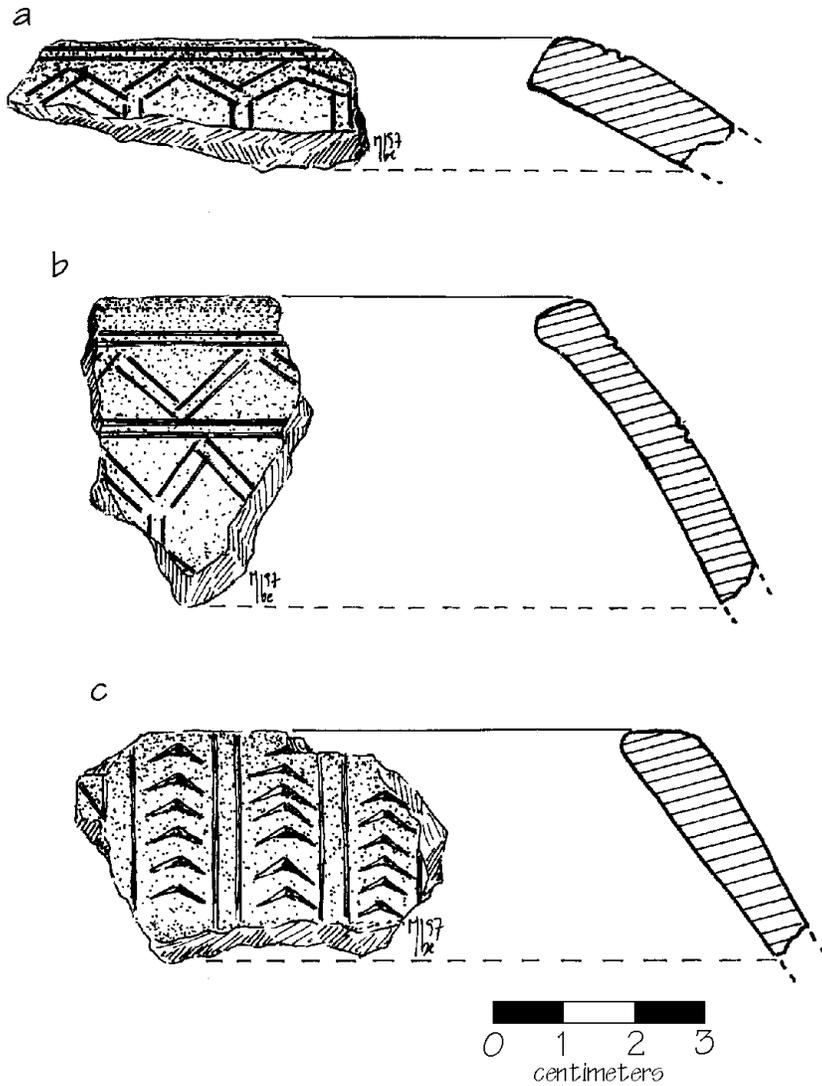


Figure A172. Site 123 artifacts.

a. Decorated rim sherd, type i with gold mica (size 3, 5%),  $d = 17$  (7% of rim),  $t = .83$ , with "architectural" linear incisions on exterior,

b. Decorated rim sherd, type i with gold mica (size 2, 5%),  $d = 27$  (2.5% of rim),  $t = .83$ , square angled lip  $t = .90$ , with "architectural" linear incisions on exterior.

c. Decorated rim sherd, type iC,  $d = 40$  (2% of rim), diameter approximately 40 (2% of rim),  $t = 58$ , lip  $t = 1.04$ , triangle base = .74cm, with columns of deep angled punctates bounded by incised lines on interior surface (so drawing is reversed).

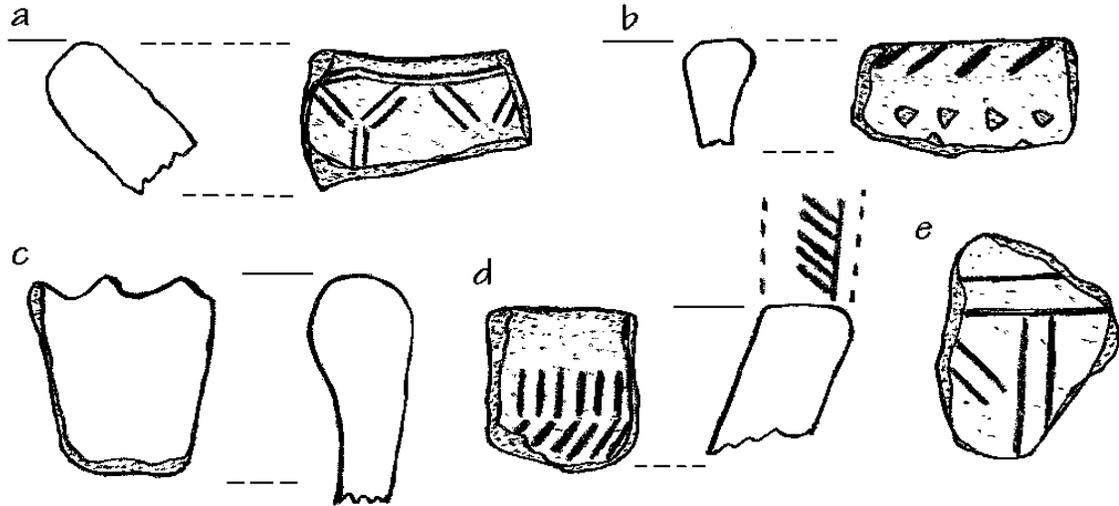


Figure A173. Site 123 artifacts part 2.

- a. Decorated rim sherd, type i, 9.9g, d=17 (6% of rim), t=1.0, lip t=.94, sand and shell inclusions (2,5%), 7.5YR5/2, with incised grooves on exterior of hole mouth jar.
- b. Decorated rim sherd, type i, 6.3g, d=25 (3% of rim), t=.42, lip t=1.08, triangle base = .41cm, sand inclusions (2,5%), 7.5YR5/2, with incised grooves of exterior of lip and triangle punctates on exterior surface.
- c. Plain rim sherd, coarse black type iC, 11.1g, diameter and orientation uncertain, t=.72, lip t=1.52, with finger pinches on top of the lip, peak to peak width = .92.
- d. Decorated rim sherd, type iC, 9.5g, diameter and orientation uncertain, t=1.39, lip t=1.41, with incised grooves on interior surface and top of lip.
- e. Decorated body sherd, type i, t=.76, interior 2.5YR3/1, exterior 2.5YR5/4, with incised grooves on exterior surface.

**Site:** 124

**Nofy Atsimo**

**Region of:** Farafangana

*Laborde X:* 543.3

*Latitude:* 22.84648

*Season:* 97

*Laborde Y:* 362.6

*Longitude:* 47.8341

*Ceramic phase recovered:* 5\*,6

*Site today:* exposed sand

*Collection method:* selective sample

*Site Notes:* An extremely dense sherd scatter (5x5), on the back side of the dunes approximately 300 meters south of site 123. This scatter was so unusually dense that we took a photograph of the surface.

*Artifacts:*

- 17 plain body sherd (126.0g, including 7 type iC2 grey with red sand and quartz inclusions, 3 type iC2 brown, and 7 type i with coarse sand inclusions)
- 1 decorated body sherd (7.3g)
- 2 plain rim sherds (6.0g)
- 10 decorated rim sherds (47.9g)

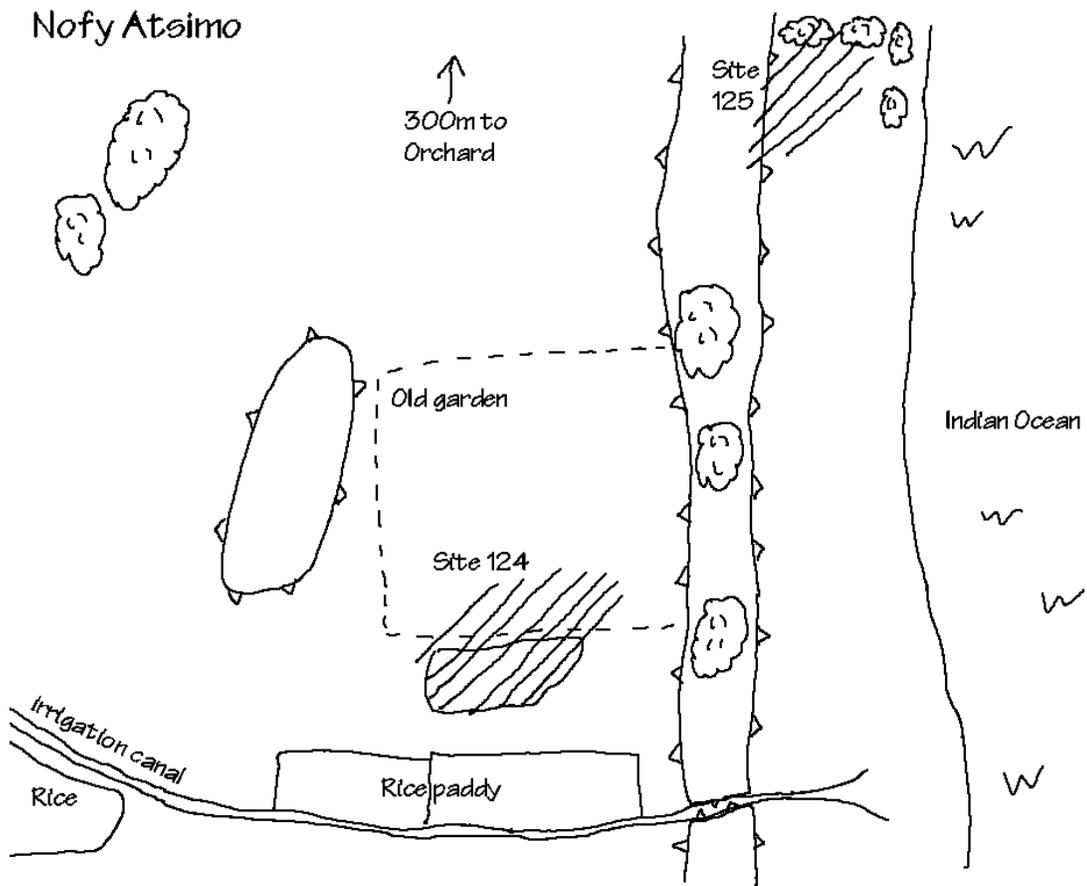


Figure A174. Site 124, Nofy Atsimo.

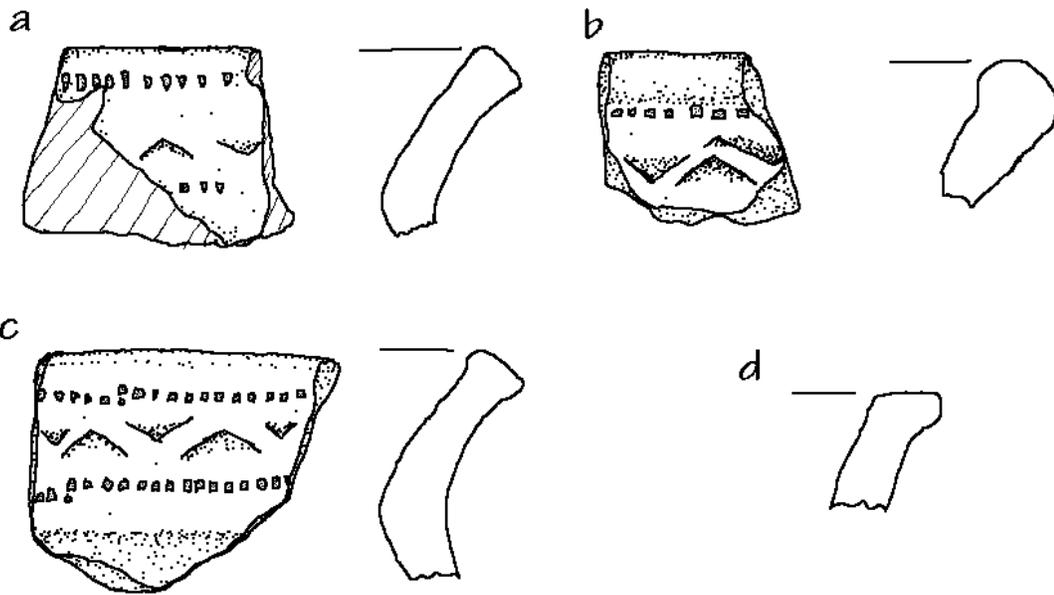


Figure A175. Site 124 artifacts.

- a. Decorated rim sherd, type iC, diameter and orientation uncertain, t=.71, lip t=.8, triangle base = .61, with triangle punctates in false chevron and rectangular dentate impressions on interior surface.
- b. Decorated rim sherd, type iC, diameter and orientation uncertain, t=.75, lip t=1.03, triangle base = .99cm, with triangle punctates in false chevron and rectangular dentate impressions on interior surface.
- c. Decorated rim sherd, type iC, d=35 (3% of rim), t=.58, square lip t=.72, triangle base = .90cm, with triangle punctates in false chevron and rectangular dentate impressions on interior surface.
- d. Plain rim sherd, type i, t=.76, lip t=.81.

**Site: 125**

**Region of: Farafangana**

Laborde X: 543.4

Latitude: 22.84628

Season: 97

Laborde Y: 362.6

Longitude: 47.83474

Ceramic phase recovered: 3\*

Site today: exposed sand

Collection method: thorough complete collection

Site Notes: Small sherd scatter 50m north, north-east of Site 124 (see map for site 124 for location). Given a separate site number in part because the sherds looked different.

**Artifacts:**

- 7 plain body sherds (35.9g), including 5 very red with coarse sand and 2 thick type i with grey interiors and sand and gold reflective inclusions.

**Site: 126**

**Region of: Farafangana**

Laborde X: 543.4

Latitude: 22.83852

Season: 97

Laborde Y: 363.5

Longitude: 47.83546

Ceramic phase recovered: 3\*,5\*

Site today: open grass

Collection method: thorough complete collection

Site Notes: Sparse sherd scatter over a wide area, with poor visibility.

**Artifacts:**

- 4 plain body sherds (7.7g, 2 type i with sand, 1 type ii, and 1 type iC2)

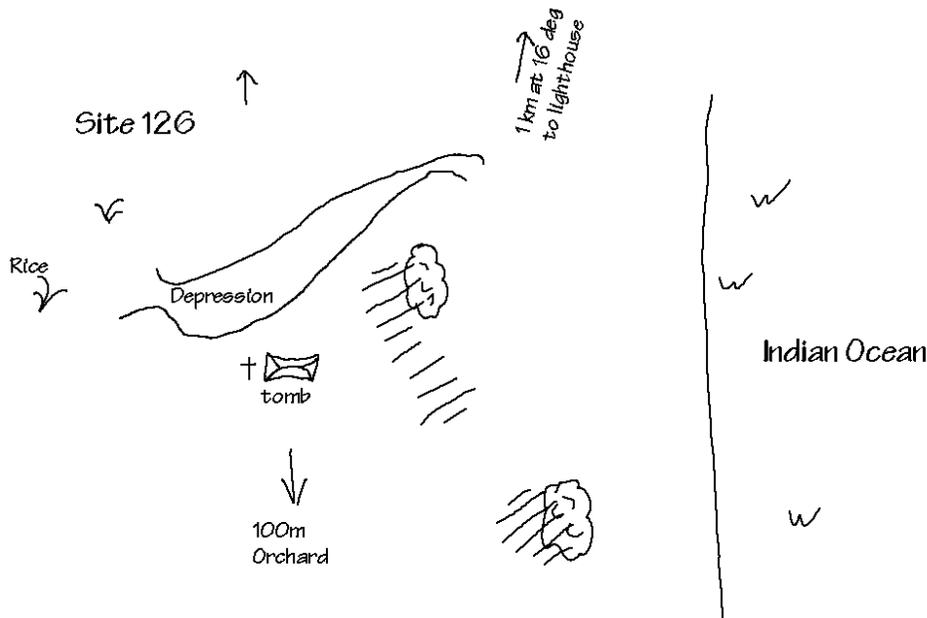


Figure A176. Site 126.

**Site: 127**

**Region of: Farafangana**

Laborde X: 543.4

Latitude: 22.8366

Season: 97

Laborde Y: 363.7

Longitude: 47.8352

Ceramic phase recovered: 1-3\*,5\*

Site today: sweet potatoes

Collection method: thorough complete collection

Site Notes: Sparse scatter in 2 sweet potato gardens (with a combined area of 20x10m). 206 deg. to tomb at site 216 and 20 deg. to Farafangana lighthouse.

**Artifacts:**

- 10 plain body sherds (59.8g, all very coarse type i with sand and grog inclusions (t=.82 and perfectly flat), 2 of which have smoothed exteriors, t=1.15), oxidized
- 1 decorated body sherd (6.0g)
- 2 plain rim sherds (22.4g)
- 1 piece of iron slag (1.2g)

**Site: 128**

**Region of: Farafangana**

Laborde X: 543.5

Latitude: 22.83433

Season: 97

Laborde Y: 364.0

Longitude: 47.83597

Ceramic phase recovered: 3,4

Site today: sweet potatoes

Collection method: thorough complete collection

Site Notes: small sweet potato garden, 1 graphite sherd from old garden 30m to south, and more sherds from gardens to north (128A, 75m N.). Large sherd scatter.

**Artifacts:**

- 11 plain body sherds (84.5g, including 3 type iE with coarse sand inclusions, 3 coarse type iC, and 2 thick type i with coarse black and red inclusions (probably bases))
- 3 decorated body sherds (23.3g, 2 with wavy combing and 1 with triangle punctates in false chevron)
- 1 decorated rim sherd (13.1g, similar to chlorite-schist in shape and feel).

**Site 128**

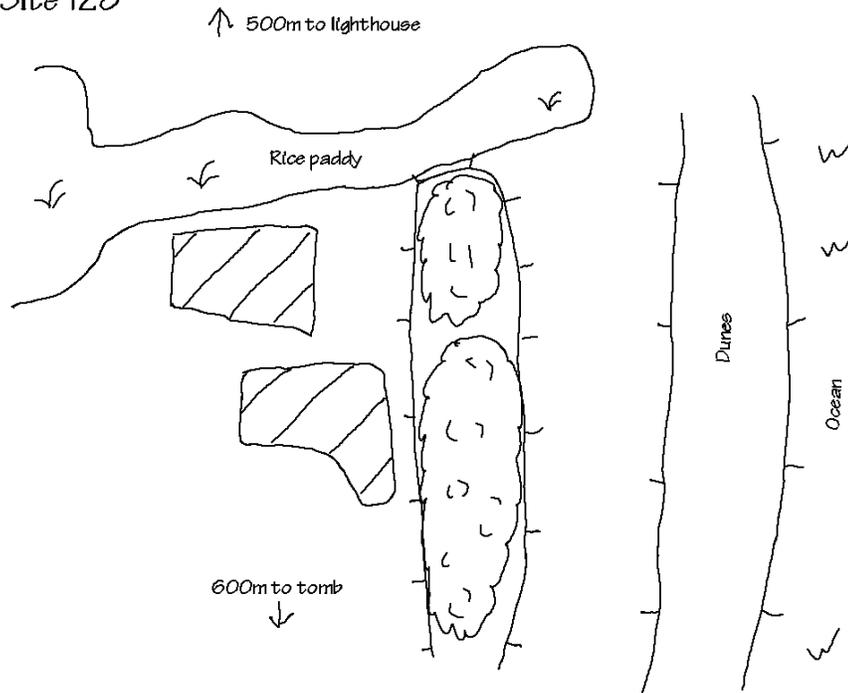


Figure A177. Site 128.

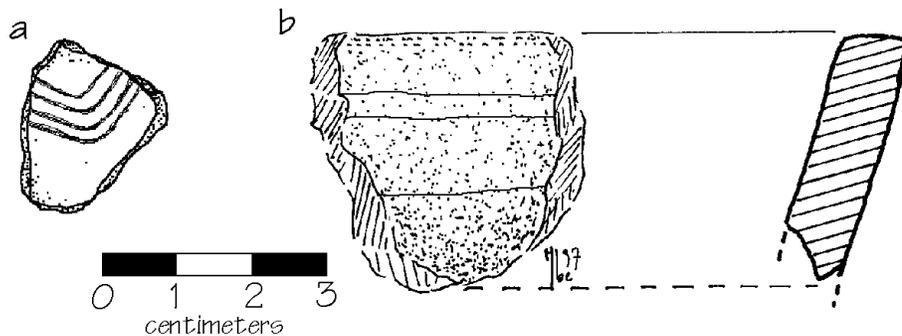


Figure A178. Site 128 artifacts.

a. Decorated body sherd, type i with black mica and sand, with 4 combed wavy grooves.  
 b. Decorated rim sherd, type i, d=34 (3% of rim), t=1.01cm, with very faint incised lines on interior. This is earthenware pottery, but the form and feel both resemble chlorite-schist vessels so much that I believe it is a pottery skeuomorph of a carved stone vessel.

**Site: 129**      **Marmite**      **Region of: Farafangana**  
*Laborde X:* 538.2      *Latitude:* 22.73588      *Season:* 97  
*Laborde Y:* 374.9      *Longitude:* 47.78287      *Ceramic phase recovered:* 3/4\*  
*Site today:* road embankment      *Collection method:* thorough complete collection  
*Site Notes:* Sherds found in situ on a north facing embankment on the road to Anosivelo, approximately 80m outside the village. Sherds appear 45 to 87cm below ground surface in the road cut. There is a sweet potato garden on top with nothing in it, and a small bean field across the road which only yielded 1 sherd in the garden and a second sherd from the slope on the far side of the bean garden leading down in a rice paddy.  
*Artifacts:* Including thin, mostly oxidized  
 - 6 plain body sherds (18.2g, including 3 type iiA with gold reflective inclusions and 3 type iA with sand)  
 - 1 piece of iron slag (18.1g)

**Site: 130**      **Anosivelo**      **Region of: Farafangana**  
*Laborde X:* 537.9      *Latitude:* 22.738      *Season:* 97  
*Laborde Y:* 374.7      *Longitude:* 47.78047      *Ceramic phase recovered:* 2-4\*,5,6,7  
*Site today:* village, taro      *Collection method:* selective sample  
*Site Notes:* Large sherd scatter visible in 2 areas of the modern village of Anosivelo and 3 nearby gardens (collections 130 and 130A from the eastern end and 130B from the west). We surveyed the hills south of Anosivelo which have lots of gardens, houses, and good visibility, but saw no sherds.  
*Ethnographic Notes and Oral Traditions:* The village is inhabited by Antefasy Andriamanalinia (who are not beholden to the Antemoro king at the Matitanana). They tell us that the oldest village in the area is the island Anosy, inhabited by clan Andriandrafia. They say they never made pottery (unlike the people of the Matitanana), but always bought it from Vohibe in Bara country, which is a 4 day walk to the west, and is also said to be a town with a *manda*. A 70 year old man

added that he also bought pottery from the Betsileo near Ambalivao.

From 2 other men in town we heard an interesting story about Betsileo pottery. Evidently there is a Betsileo trader who comes through this area every year and sells pottery sherds for 200FMG (approximately 4 cents U.S. at the time). He sells these as medicine (*fanafody*) which is meant to be ground up into a liquid and then drunk. The medicine is supposed to be good for stomach aches, when you're tired for no good reason, and/or for a bad back. The first man we interviewed (Lamara Alfred from the village of Enynambana) had bought one of the sherds 3 years earlier and still had it in his house (type iC, grey graphite speckled ware). He had tried it a few times, but it didn't seem to work for him, and he stopped using it. In his words, "when I ground it up it looked just like sand, and I didn't think drinking sand would be good for me." We offered to reimburse him for his losses, and kept his non-functioning magic stone (and then ground it up ourselves for the neutron activation analysis). This story of a Betsileo selling sherds for medicine was confirmed by an elderly woman in the next village who had also purchased one. She added that the ground powder (put in water) was especially good for women having difficulties in childbirth.

*Artifacts:*

- 30 plain body sherds (118.0g, including type iC, type iC2 red and grey, type iB, type iE, type iA, and type iC with smoothed or burnished exterior)
- 3 decorated body sherds (10.6g)
- 1 plain rim sherd (1.7g)
- 1 decorated rim sherd (4.9g, type iC with triangle punctates)
- 4 European imported sherds (8.3g)

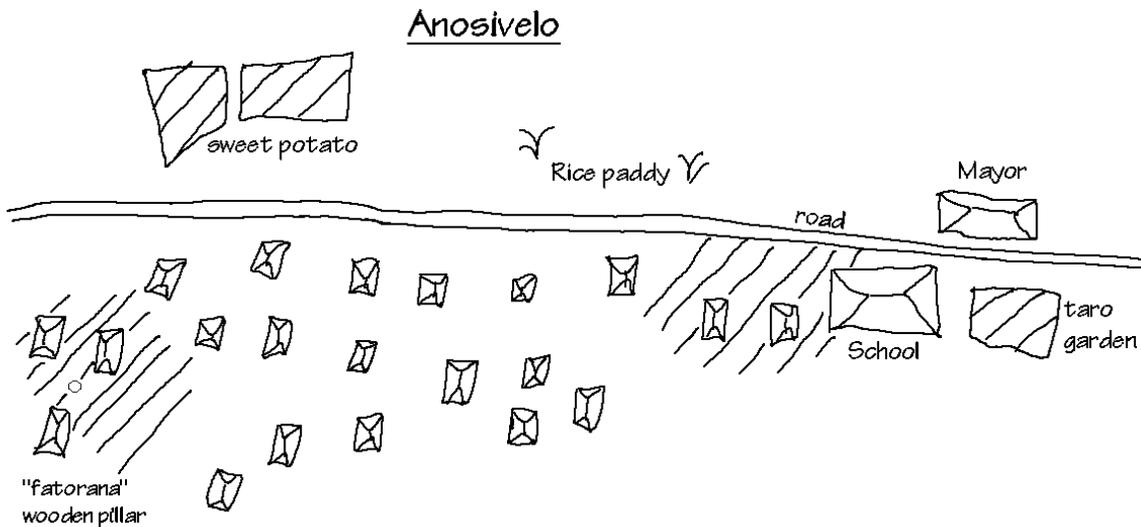


Figure A179. Site 130, Anosivelo.

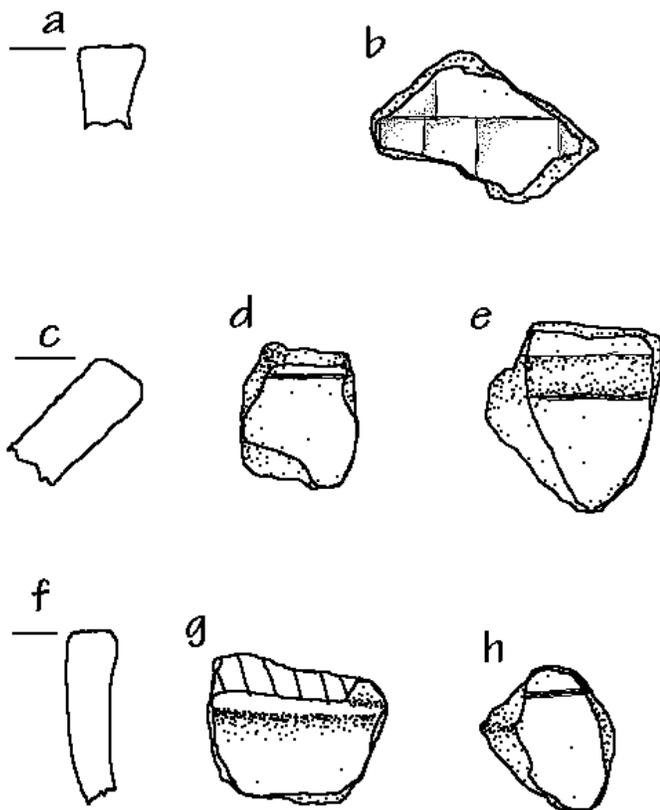


Figure A180. Sites 130 to 134 artifacts.

- a. Site 130, plain rim sherd, type ii with gold reflective inclusions (like iA), d=23 (3% of rim), t=.58, lip t = .75.  
 b. Site 130, decorated body sherd, type iB, t=.75, with unusual faceted squares, but not a basketry impression (but perhaps in imitation of the basketry wares).  
 c. Site 133, plain rim sherd, type iE with silver mica inclusions, 3.1g, d=22 (3% of rim), t=.61, lip t=.82.  
 d. Site 133, decorated body sherd, type iE with smoothed exterior, 2.2g, t=.65, with a single incised line.  
 e. Site 135, decorated body sherd, type iC, t=.65, with carination and wide shallow groove at carination with possible linear comb marks.  
 f. Site 134, plain rim sherd, type iA, 3.7g, t=.40, lip t=.52  
 g. Site 134, decorated body sherd, type iB, t=.62, with raised ridge on exterior  
 h. Site 134, decorated body sherd, type iB, t=.67, with a single incised line.

**Site:** 131

**Fierena**

**Region of:** Farafangana

Laborde X: 538.5

Latitude: 22.73397

Season: 97

Laborde Y: 375.1

Longitude: 47.78643

Ceramic phase recovered: 5\*

Site today: village

Collection method: thorough complete collection

Site Notes: Medium sherd scatter (40x40m) covering part of the modern Antefasy village, tree gardens, and the road past the small bridge.

Artifacts:

- 5 plain body sherds (17.5g, thick and coarse, 2 type iC, 1 type iC2, 1 type iC2 with red exterior.)

**Site: 132**                      **Marolava**                                      **Region of: Farafangana**  
*Laborde X:* 539.0                      *Latitude:* 22.72946                                      *Season:* 97  
*Laborde Y:* 375.6                      *Longitude:* 47.7914                                      *Ceramic phase recovered:* 3,4\*,5  
*Site today:* village                                      *Collection method:* thorough complete collection  
*Site Notes:* Very sparse sherd scatter in village (80x20m), at waypoint 132 on the road.  
(Note, the collection originally bagged as 132A, was changed to 133, with the Sahafoza sites,  
before washing and marking.)

*Artifacts:*  
- 1 plain body sherd (2.2g, type i)  
- 1 decorated body sherd (2.8g, type iC brown with groove on each side that may be angade marks, t=.75)  
- 1 European import (1.6g)

**Site: 133**                      **Sahafoza West**                                      **Region of: Farafangana**  
*Laborde X:* 539.3                      *Latitude:* 22.7274                                      *Season:* 97  
*Laborde Y:* 375.9                      *Longitude:* 47.79361                                      *Ceramic phase recovered:* 5  
*Site today:* beans                                      *Collection method:* thorough complete collection  
*Site Notes:* Sherd scatter in garden at west end of Sahafoza village (10x10m). The houses here are separated from the main village of Sahafoza by large sweet potato gardens, though only 1 sherd was recovered from those (and added to the 133 collection). Learned that "Marmite" is a name for this whole region.

*Artifacts:* Including outcaste ware, everted jar rim, flat lip, incising  
- 6 plain body sherds (25.8g, including 2 type iC)  
- 1 decorated body sherd (2.2g, illustrated above)  
- 1 plain rim sherd (3.1g, illustrated above)

**Site: 134**                      **Sahafoza**                                      **Region of: Farafangana**  
*Laborde X:* 539.6                      *Latitude:* 22.72398                                      *Season:* 97  
*Laborde Y:* 376.2                      *Longitude:* 47.79652                                      *Ceramic phase recovered:* 5  
*Site today:* village, taro                                      *Collection method:* thorough complete collection  
*Site Notes:* Sherd scatter from Sahafoza village (70x70m, approximately 140m along road from site 133.) Residents said this town is also called Ambalanina.

*Artifacts:* Including incised, everted rim  
- 14 plain body sherds (68.8g, coarse ware, some with smoothed exterior, some with gold and red inclusions, including 1 type iA red, and 1 type iC1)  
- 2 decorated body sherds (4.7g, illustrated above)  
- 1 plain rim sherd (3.7g, illustrated above)

**Site: 135**                      **Ivohitra**                                      **Region of: Farafangana**  
*Laborde X:* 539.4                      *Latitude:* 22.715                                      *Season:* 97  
*Laborde Y:* 377.2                      *Longitude:* 47.79492                                      *Ceramic phase recovered:* 5,6,7  
*Site today:* village, taro, sweet potatoes                                      *Collection method:* quick complete collection  
*Site Notes:* 3 sherd scatters around the modern village of Ivohitra. First collection made from a sweet potato garden on the south side of the village just down slope from the houses (10x20m), second bag from the north end of the village in a taro garden (10x10m, 135A), and a third

collection was made from a smaller village (12 houses) just downhill to the north from the main village (with most of those sherds coming from a green bean garden, 135B). Children helped us in the survey, and we collected everything recovered, though it was a quick coverage.

*Ethnographic Notes and Oral Traditions:* The *mpanjaka's* house here has a carved arrow design rather than the large triangles and small wooden birds which we saw more often in Antemoro villages (see sketch below). In discussions with the elders we were told that this hill never had a *manda* (though it'd be a good location for one).

*Artifacts:* Including basketry impressed, thin reduced sandy, oxidized, incised, European floral

- 13 plain body sherds (36.5g, including 5 type iC, 1 type iC2, and 1 type iA)
- 4 decorated body sherds (10.0g, including 1 with "honeycomb" basketry impressions (2.1g, type ii, t=.50, called this because the impressed pattern is much finer – squares are .15 by .15cm – than other basketry weaves), and 3 with linear incisions, 1 illustrated above)
- 11 imported sherds (European floral ware, 54.9g)

Ivohitra "tranobe"  
Mpanjaka's house  
with carved points.

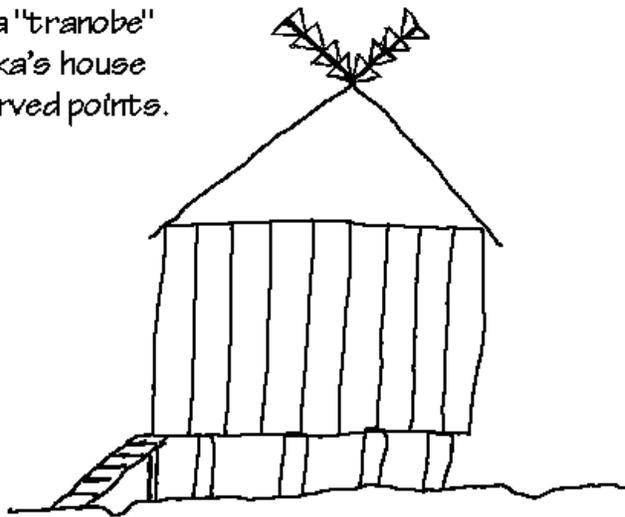


Figure A181. Site 135 king's house.

<b>Site:</b> 136	<b>Marofasy</b>	<b>Region of:</b> Farafangana
Laborde X: 539.6	Latitude: 22.71781	Season: 97
Laborde Y: 376.9	Longitude: 47.7964	Ceramic phase recovered: 5
Site today: sweet potatoes		Collection method: quick complete collection
Site Notes: Sparse sherd scatter (50x40m) around 2 houses and a large sweet potato garden on flat ground, approximately 300m south of Ivohitra (site 135).		
<i>Artifacts:</i>		
- 6 plain body sherds (43.7g, including 1 soft cream-like paste, 1 with black interior, red exterior and gold reflective inclusions)		
- 2 plain rim sherds (14.2g, very eroded cruddy rims, type i with sand and silver mica inclusions (5%))		

<b>Site:</b> 137	<b>Enivoay</b>	<b>Region of:</b> Farafangana
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Laborde X: 539.7      Latitude: 22.71946      Season: 97  
 Laborde Y: 376.7      Longitude: 47.79757      Ceramic phase recovered: 5\*,6,7  
 Site today: sweet potatoes, village      Collection method: quick complete collection

Site Notes: Sherd scatter in a large sweet potato garden on north edge of village. A second sherd scatter was collected from a sweet potato garden on the south edge of the village as well, and labeled 137A (only 1 sherd recovered from around the modern houses).

**Artifacts:**

- 5 plain body sherds (14.8g, including 2 type iC)
- 2 decorated rim sherds (5.2g, including type iC with triangle punctates in false chevron, and type i with a row of square punctates over triangle punctates)
- 1 imported sherd, floral (older Chinese or European, 3.1g)

**Site: 138      Tsararafa      Region of: Farafangana**

Laborde X: 541.0      Latitude: 22.72322      Season: 97  
 Laborde Y: 376.3      Longitude: 47.81052      Ceramic phase recovered: 5\*,6,7  
 Site today: sweet potatoes      Collection method: quick complete collection

Site Notes: Sherd scatter in 2 small sweet potato gardens (10x5m) on southern and eastern edges of the village. Village is on a hill near the bridge, 100 meters north of the road.

**Artifacts:**

- 6 plain body sherds (25.5g, including 2 type iC and 2 type iB)
- 1 decorated rim sherd (3.8g, type iC with rectangular dentate stamps on an angle to the rim)
- 2 imported sherds (11.6g)

**Site: 139      Tondabe      Region of: Farafangana**

Laborde X: 541.1      Latitude: 22 43' 41.04"S      Season: 97  
 Laborde Y: 375.7      Longitude: 47 48' 40.89"E      Ceramic phase recovered: 6  
 Site today: taro      Collection method: quick complete collection

Site Notes: Sherd scatter (8x4m) in a taro garden on the southeast edge of the village of Tondabe (residents are Andriandrafia).

**Artifacts:**

- 5 plain body sherds (14.8g, including 2 type iC2 red and 1 type iA red)
- 2 decorated rim sherds (8.3g, illustrated below)

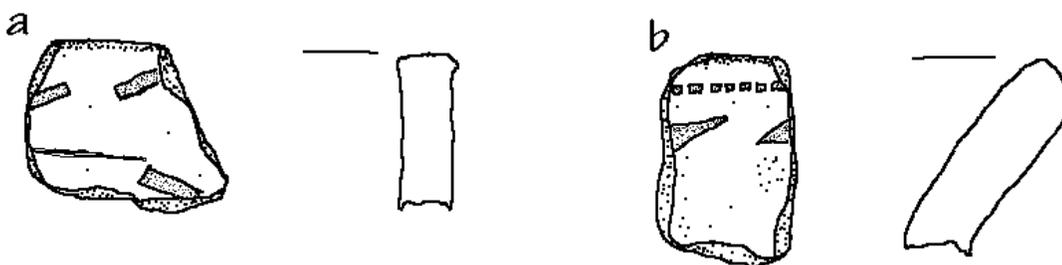


Figure A182. Site 139 artifacts.

a. decorated rim sherd, type iC, d=22 (2% of rim), t=.59, lip t=.71, with a linear incision and rectangular depressions (the size of rice husks) on interior surface.

b. decorated rim sherd, type iE with a graphite burnished lip, d=24 (2% of rim), t=.85, lip t=.81, with square dentates and triangle punctates in false chevron on interior surface (though heavily eroded).

**Site: 140**                      **Anosy**                                      **Region of: Farafangana**  
*Laborde X:* 541.3                      *Latitude:* 22 43' 50.31"S                      *Season:* 97  
*Laborde Y:* 375.2                      *Longitude:* 47 48' 43.43"E                      *Ceramic phase recovered:* 0/1,5  
*Site today:* village, sweet potatoes                      *Collection method:* quick complete collection

*Site Notes:* 3 collections made from sherd scatters on the island of Anosy in the Manampatrana River. 140 was collected from the north end of island and in the center of the modern village. 140A was collected southwest of the village (and included the iron slag). 140B was collected on the southern end of the island, after 150 meters of sweet potato gardens with no houses. This large sherd scatter was recorded by Ramilisonina (as we had split our survey team into 2 groups).

*Ethnographic Notes and Oral Traditions:* The village today is only 40 houses, but they have 8 different *mpanjaka* (according to local President de Fokotony, Mr. Botia, age 54, born in Anosy). This is said to indicate that the village was much larger in the past than it is in the present. Our informants agreed that Anosy is the oldest village in the Manampatrana valley, and while it is Antefasy territory, there are also Antemoro and Besileo immigrants living on the island. Their oral traditions regarding the founding of their town is that it was settled by 3 brothers (all of different mothers) at the same time, who gave their names to the three main clans: 1. Andriandrafia (who now mainly live at Tondabe, site 139), 2. Andriamanaly (who was originally a Betsileo, and whose clan now resides primarily at Anosivelo, site 130), and 3. Andriamamory (whose clan now lives at Sahrafa, Mandatsa and Sahafoza, site 134). All three clans have a common cemetery at Anapasy (east of Anosivelo), they used wooden money called pakova in the 1700s, and it is said (by the President) that the ancestors of the 3 came originally from Israel. In response to other questions they said they know of no *manda* in the area, there were no Merina settlements nearby, and there were no local people who made pottery.

*Artifacts:*

- 26 plain body sherds (138.6g, including 1 type ii with silver inclusions, 3 type iC2 (or dark type iB), 2 type iC, 5 type iii cream ware with chlorite-schist inclusions like at Marovahiny and type iiiB)
- 3 decorated body sherds (19.3g, illustrated below)
- 2 plain rim sherds (7.6g, illustrated below)
- 1 flat base (36.8g)
- 1 piece of iron slag (39.8g)

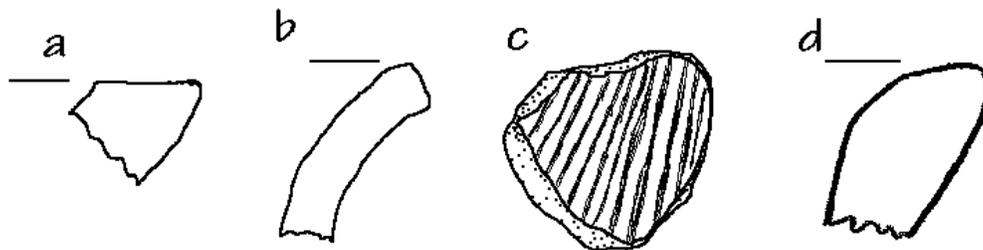


Figure A183. Site 140 artifacts.

- a. very small plain rim sherd, type iiiA, lip t= 1.30
- b. plain rim sherd, type iA, t=.63, square lip t=.69
- c. decorated body sherd, type iC, t=1.30 with linear combing.
- d. Plain rim sherd, type iii, soft brown paste with sand and chlorite-schist inclusions (3,5%), diameter and orientation uncertain, t=.98, lip t=1.28, interior 7.5YR6/2, blackened exterior, lip thickened on interior.

**Site: 141**                      **Marofelana West**                                      **Region of: Vohipeno**  
*Laborde X:* 540.1                      *Latitude:* 22.36758                                      *Season:* 97

Laborde Y: 415.7      Longitude: 47.7976      Ceramic phase recovered: 5  
 Site today: cassava      Collection method: thorough complete collection  
 Site Notes: Sparse scatter on south facing slope (10x10m), near a one house compound (see site 143).  
 Artifacts:  
 - 6 plain body sherds (23.0g, 3 coarse type i with some gold flecks, 1 type i light brown, type ii)  
 - 1 decorated body sherd (3.4g, with 2 wide incised grooves)  
 - 1 plain rim sherd (4.5g)

## Marofelana West

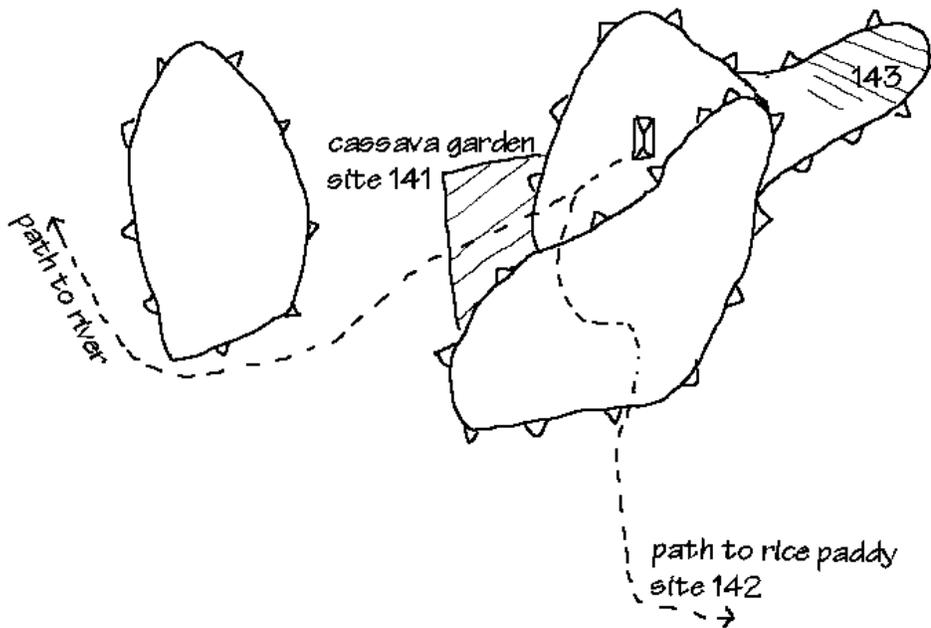


Figure A184. Site 141, Marofelana West.

<b>Site:</b> 142	<b>Marofelana East</b>	<b>Region of:</b> Vohipeno
Laborde X: 540.4	Latitude: 22.36771	Season: 97
Laborde Y: 415.7	Longitude: 47.80091	Ceramic phase recovered: 5
Site today: rice nursery	Collection method: thorough complete collection	

Site Notes: Sherd scatter found in a dry rice paddy (30x20m). In addition to the 9 body sherds we collected from this field, the farmer gave us 3 large sherds he recovered from the field the first season he farmed it. (see site 143 for map)

Ethnographic Notes and Oral Traditions: Note that this is one of the only sites recorded from land used as rice paddy. Perhaps the extensive trampling of the mud to great depths makes recovering artifacts less likely. Whatever the reason, it was very unusual for us to find sherds in such a location on the southeast coast. However, this site is not a typical rice paddy either, but is rather a "rice nursery," where the plants are started before being transferred to a proper paddy, and this plot of land had been farmed for 5 years.

Artifact:

- 9 plain body sherds (8g, type i)  
and from farmer:
- 1 plain body sherd (59.2g)
- 2 plain rim sherds (77.1g)

**Site: 143**      **Marofelana**      **Region of: Vohipeno**  
*Laborde X:* 540.1      *Latitude:* 22.36646      *Season:* 97  
*Laborde Y:* 415.8      *Longitude:* 47.79831      *Ceramic phase recovered:* 5\*,6  
*Site today:* cassava      *Collection method:* thorough complete collection  
*Site Notes:* Sherd scatter (10x10m) 40 meters northeast of Razanatovo's house compound.

*Ethnographic Notes and Oral Traditions:* This house and farmstead belong to Victor Razanatovo's father, a man who spent most of his life in Manakara but moved to this farm in retirement. Victor is one of my main 2 collaborators from the Museum of Art and Archaeology who was part of the field crew each season. We came to Marofelana on our day off to visit with relatives, but ended up recording sites anyway.

- Artifacts:*
- 17 plain body sherds (83.8g, including 6 type iB brown, 1 type iA, 3 type i brown, type ii)
  - 1 decorated body sherd (6.2g, type ii, very small triangle punctates)
  - 4 plain rim sherds (22.7g)
  - 1 decorated rim sherd (6.6g, type iC with triangle punctates in false chevron and dentate stamp border)

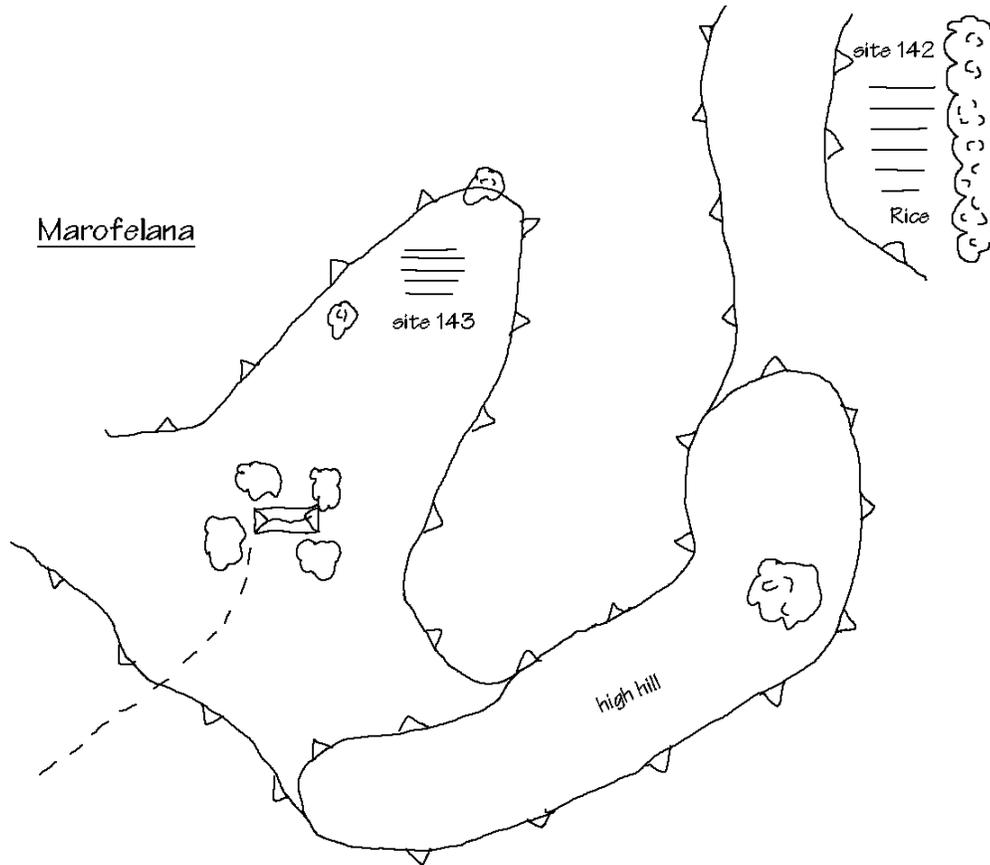


Figure A185. Site 143, Marofelana.



Figure A186. Site 143 artifacts.

- a. Decorated rim sherd, type iE reduced with graphite inclusions (2,25%), 6.2g, d=21 (5% of rim), orientation uncertain (as the sherd itself looks to be part of a hole mouth jar with decoration on the interior surface, but that conceptually doesn't make sense), t=.47, lip t=.78  
 b. Plain rim sherd, type i reduced, d=26 (4% of rim), t=.63, lip t=1.21, sand inclusions (3,5%)

**Site: 144**

**Vohilava**

**Region of: Vohipeno**

*Laborde X:* 543.5

*Latitude:* 22.36905

*Season:* 97

*Laborde Y:* 415.5

*Longitude:* 47.831

*Ceramic phase recovered:* 5\*

*Site today:* sugar cane, forest

*Collection method:* thorough complete collection

*Site Notes:* Large, sparse sherd scatter spread across a *manda* cut by the modern road. Ditch is most clear on the west side, where it is 2m wide and .8m deep. In the southern section we found sherds in earth pulled up by a tree falling over.

*Artifacts:*

- 6 plain body sherds (6.9g)
- 4 plain rim sherds (12.0g), small and very eroded.

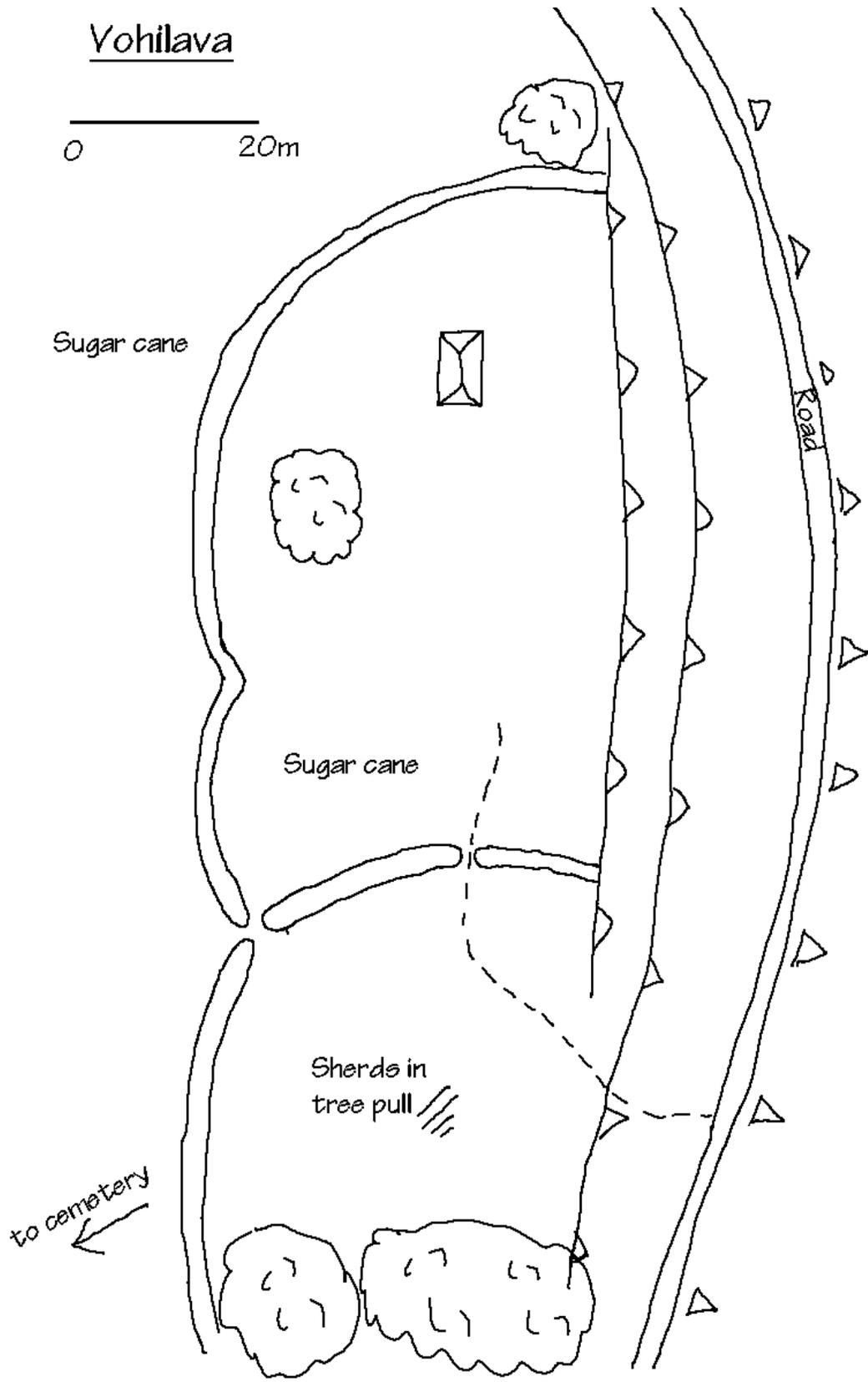


Figure A187. Site 144, Yohilava.

**Site: 145**      **Yavoloha**      **Region of: Vohipeno**  
*Laborde X:* 537.7      *Latitude:* 22.27449      *Season:* 97  
*Laborde Y:* 426.0      *Longitude:* 47.77336      *Ceramic phase recovered:* 3/4\*  
*Site today:* one house compound, gardens      *Collection method:* thorough complete collection  
*Site Notes:* Sherds from a 1 house compound and adjoining sugar cane, pineapple, and banana gardens (20x20m).  
*Artifacts:*  
- 5 plain body sherds (20.9g, type i), coarse, thick oxidized

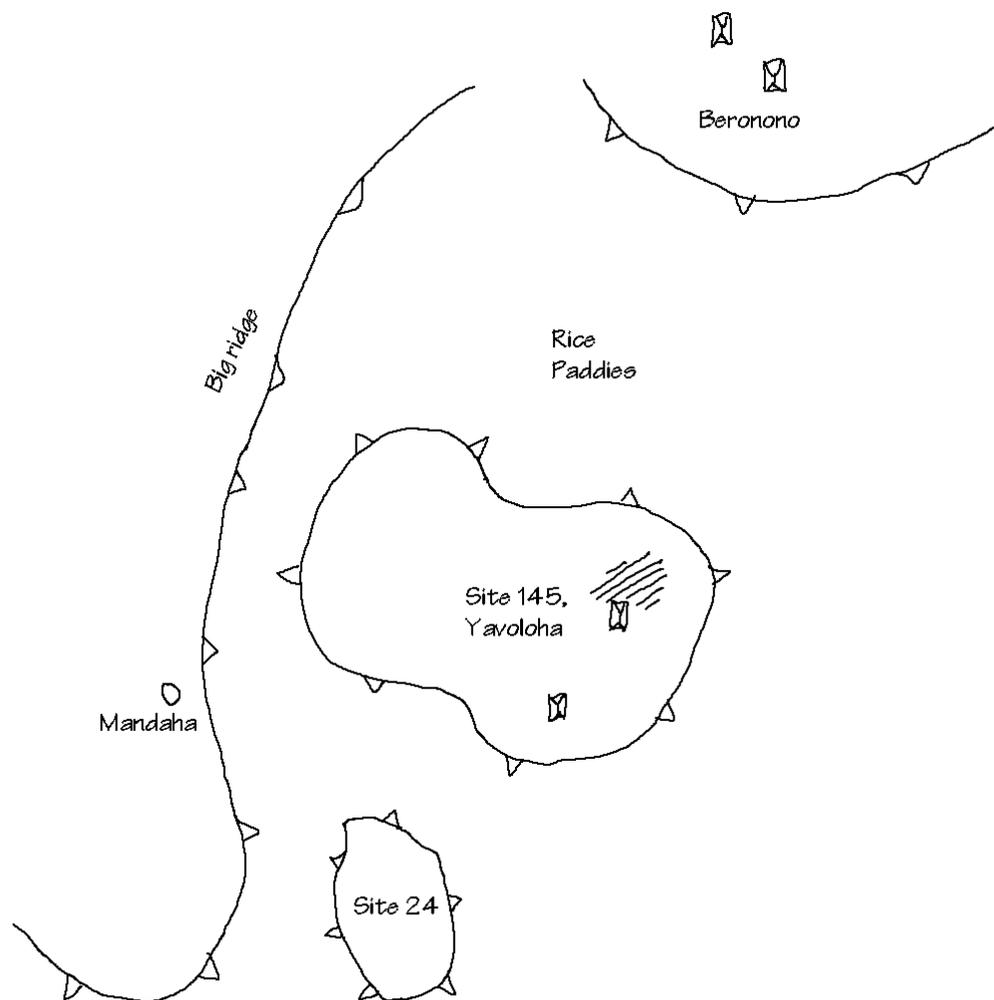


Figure A188. Site 145, Yavoloha.

**Site: 146**      **Beronono**      **Region of: Vohipeno**  
*Laborde X:* 537.4      *Latitude:* 22.27385      *Season:* 97  
*Laborde Y:* 426.1      *Longitude:* 47.77113      *Ceramic phase recovered:* 5\*  
*Site today:* one house compound      *Collection method:* thorough complete collection  
*Site Notes:* 2 sherds recovered from a hill just north of a large rice paddy (see map for site 145).  
*Ethnographic Notes and Oral Traditions:* A resident at this site told us she has found similar

sherds in her garden in the past, and that she collected them to grind up for medicine (same practice as recorded near Farafangana (see ethnographic notes for site 130), but here people collected their own sherds rather than buying from Betsileo traders).

**Artifacts:**

- 2 plain body sherds (10.6g, coarse type ii)

**Site: 147**

**Nato**

**Region of: Vohipeno**

Laborde X: 543.4

Latitude: 22.30822

Season: 97

Laborde Y: 422.3

Longitude: 47.82991

Ceramic phase recovered: 5\*

Site today: village, school yard

Collection method: thorough complete collection

**Site Notes:** Sherds collected from a large village (40 houses) on top of hill (20m high), and from a nearby school yard near the river (see map below). There was no sign of a ditch at this site.

**Ethnographic Notes and Oral Traditions:** Locals say this is the oldest village around. Ramilisonina suggested that the neighboring village of Ambohitrovabe had been settled by Merina (i.e. Hova) given its name, and locals agreed. When asked about *manda* in the area they told us of Vohitrarivo (east of Taninary, site 183), Vohilava (site 155), and Antaninary.

**Artifacts:**

- 5 plain body sherds (15.0g)
- 1 decorated body sherd (16.0g, type iC with linear incisions)

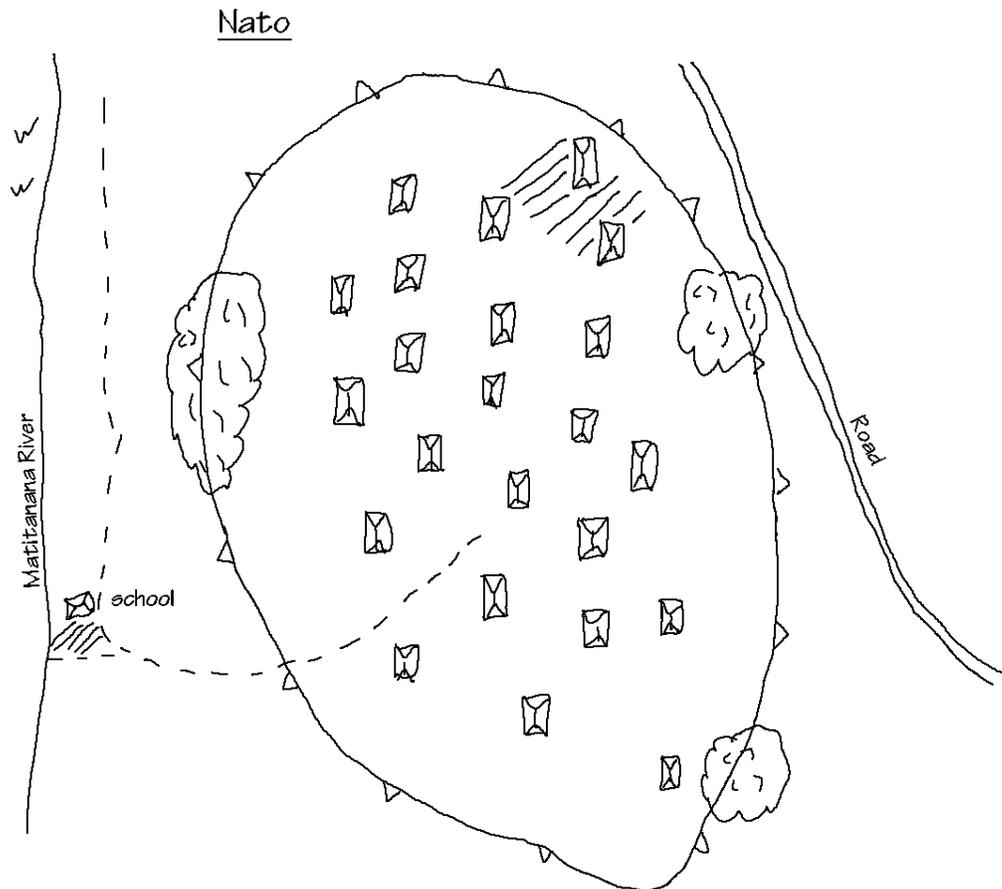


Figure A189. Site 147, Nato.

**Site: 148**

**Region of: Vohipeno**

Laborde X: 543.2

Latitude: 22.3078

Season: 97

Laborde Y: 422.3

Longitude: 47.82751

Ceramic phase recovered: 5\*

Site today: foot path, embankment

Collection method: thorough complete collection

Site Notes: Sherds eroding from a path down to the river and the river bank, northwest of the village of Nato. Sherds in bank from 50 to 100cm below ground surface, scatter stretches for approximately 10x5m.

Artifacts:

- 5 plain body sherds (61.4g, type i, t=.78 to 1.2, including a soft chalky ware taken for the type collection)
- 2 decorated body sherds (39.7g, t=.76 with single incised line) (good photo to illustrate this fine, sandy thick ware (outcaste ware), 1 piece taken for type collection.

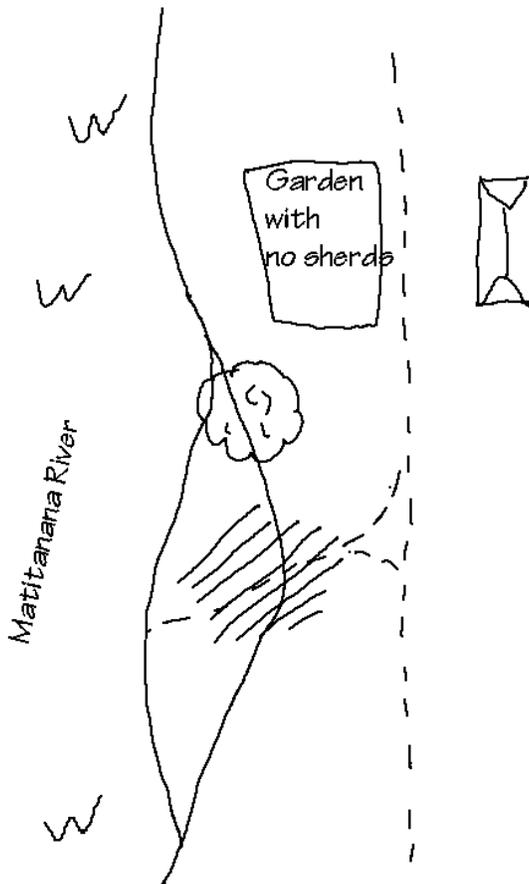


Figure A190. Site 148

**Site: 149**

**Mahazoarivo**

**Region of: Vohipeno**

Laborde X: 543.1

Latitude: 22.29832

Season: 97

Laborde Y: 423.4

Longitude: 47.82601

Ceramic phase recovered: 5

Site today: village

Collection method: thorough complete collection

Site Notes: Sherd scatter at the southern end of a medium sized Ampanabaka village (25 houses). Most sherds collected were eroding from the ground at a single location (5x5)

Ethnographic Notes and Oral Traditions: Local resident told us of a *manda* at the nearby hill of

Sangilavitra (site 153) northwest of Lanivoa. In recording that site we added the initial "t" making the site Tsangilavitra ("long walk").

- Artifacts:* Including thin reduced, incised, outcaste ware
- 14 plain body sherds (42.6g, including 1 type iC, and type iA light brown and type iB dark brown)
  - 4 decorated body sherds (12.2g, with linear incisions)
  - 2 plain rim sherds (7.6g)
  - 1 imported sherd (European, 2.3g)

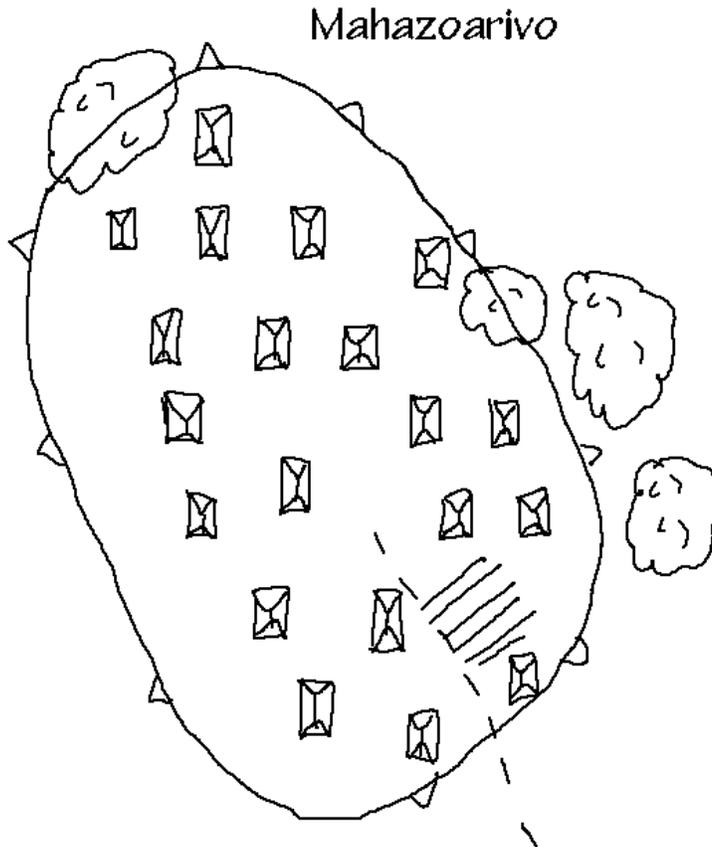


Figure A191. Site 149, Mahazoarivo.

<b>Site:</b> 150	<b>Lanivoa</b>	<b>Region of:</b> Vohipeno
<i>Laborde X:</i> 541.9	<i>Latitude:</i> 22.29431	<i>Season:</i> 97
<i>Laborde Y:</i> 423.8	<i>Longitude:</i> 47.8145	<i>Ceramic phase recovered:</i> 5
<i>Site today:</i> foot path, one house		<i>Collection method:</i> thorough complete collection

*Site Notes:* Sherds eroding out of cut earth embankment in front of Mayor's office, southwest of town. Small scatter, perhaps 10x10m in total. Lanivoa is a large village (with more than 50 houses), but our survey did not reveal any artifacts in the main town.

*Ethnographic Notes and Oral Traditions:* The government officials told us that Lanivoa once had a manda around it, but that they had caused it to be filled in.

*Artifacts:*

- 14 plain body sherds (43.6g, including 1 type iC brown, 3 type iA, 1 type ii with black specks)
- 3 decorated body sherds (7.2g with linear incisions)
- 5 plain rim sherds (11.7g)

- 1 fragment of a carved stone basin (49.8g, t=2.46, lip t=2.28, d=44? (2% of rim, if circular), different from chlorite-schist, harder and with sand, possibly granite, similar pieces were found at Marovahiny)

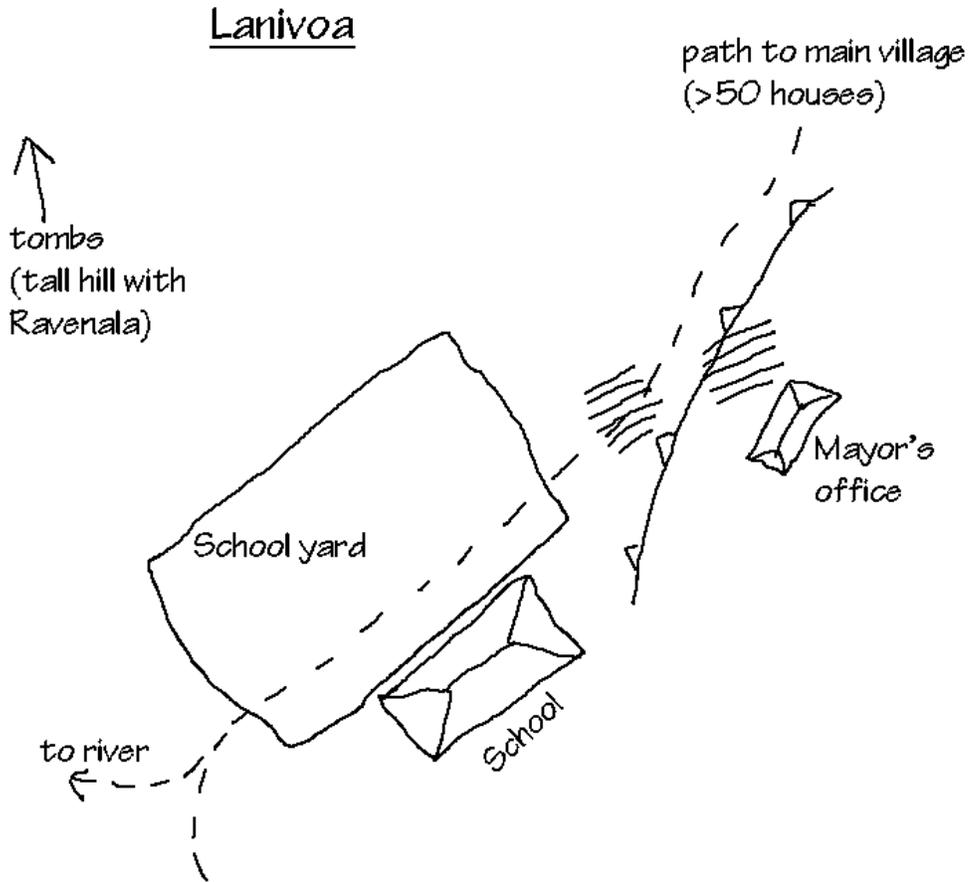


Figure A192. Site 150, Lanivoa.

<b>Site:</b> 151	<b>Tsararano</b>	<b>Region of:</b> Vohipeno
Laborde X: 541.2	Latitude: 22.29283	Season: 97
Laborde Y: 424.0	Longitude: 47.8079	Ceramic phase recovered: 3/4*,5
Site today: empty garden		Collection method: thorough complete collection
Site Notes: Sherd scatter (and chlorite-schist, 100x50m) in 4 large, newly turned gardens prepared for sweet potatoes, west of Tanivoa and south of Sangilavitra. See map for site 152.		
Artifacts: Including outcaste ware, incised, thick oxidized		
- 9 plain body sherds (30.7g, type i)		
- 3 decorated body sherds (9.6g, coarse ware with linear incisions and deep grooves .32cm wide)		
- 2 fragments of chlorite-schist (77.9g, non magnetic)		

**Site: 152**

**Region of: Vohipeno**

Laborde X: 541.2

Latitude: 22.29196

Season: 97

Laborde Y: 424.1

Longitude: 47.80816

Ceramic phase recovered: 5,6

Site today: empty garden

Collection method: quick complete collection

**Site Notes:** Sherd scatter in an older cassava garden on a west facing slope, combined with sherds from a tilled field nearby at 152B, and a longonza garden (a species of cardamom) at 152A (with more sherds than the other 2 locations, see illustration below).

**Artifacts:**

- 36 plain body sherds (146.3g including 19 type iC, 11 type iA, 2 type i with yellow sand inclusions)
- 6 decorated body sherds (22.4g, with linear combing, 1 with basketry impression t=.76, 4.1g, type iC)
- 5 plain rim sherds (25.4g)
- 2 decorated rim sherds (10.0g, graphite ware type iC) (see illustrations below).

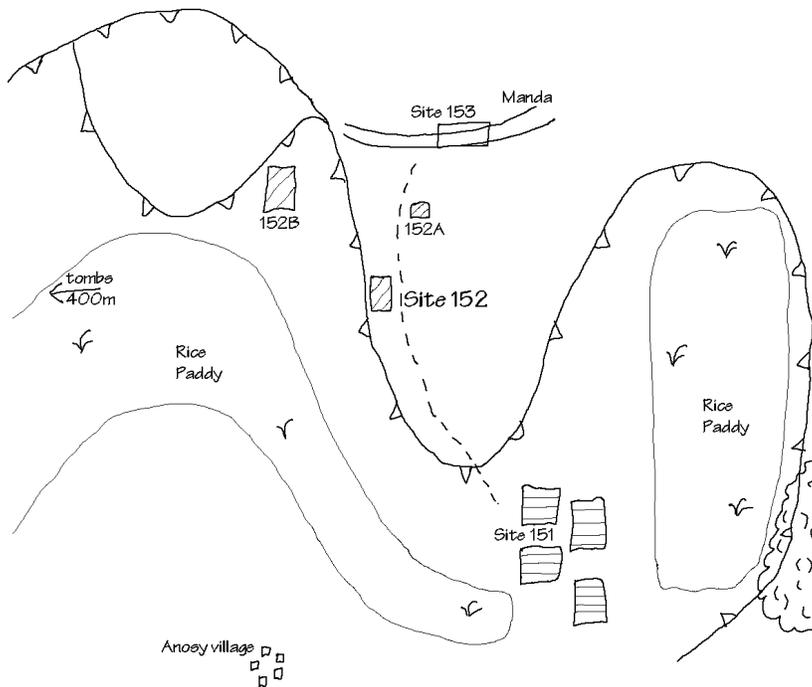


Figure A193. Sites 151 to 153.

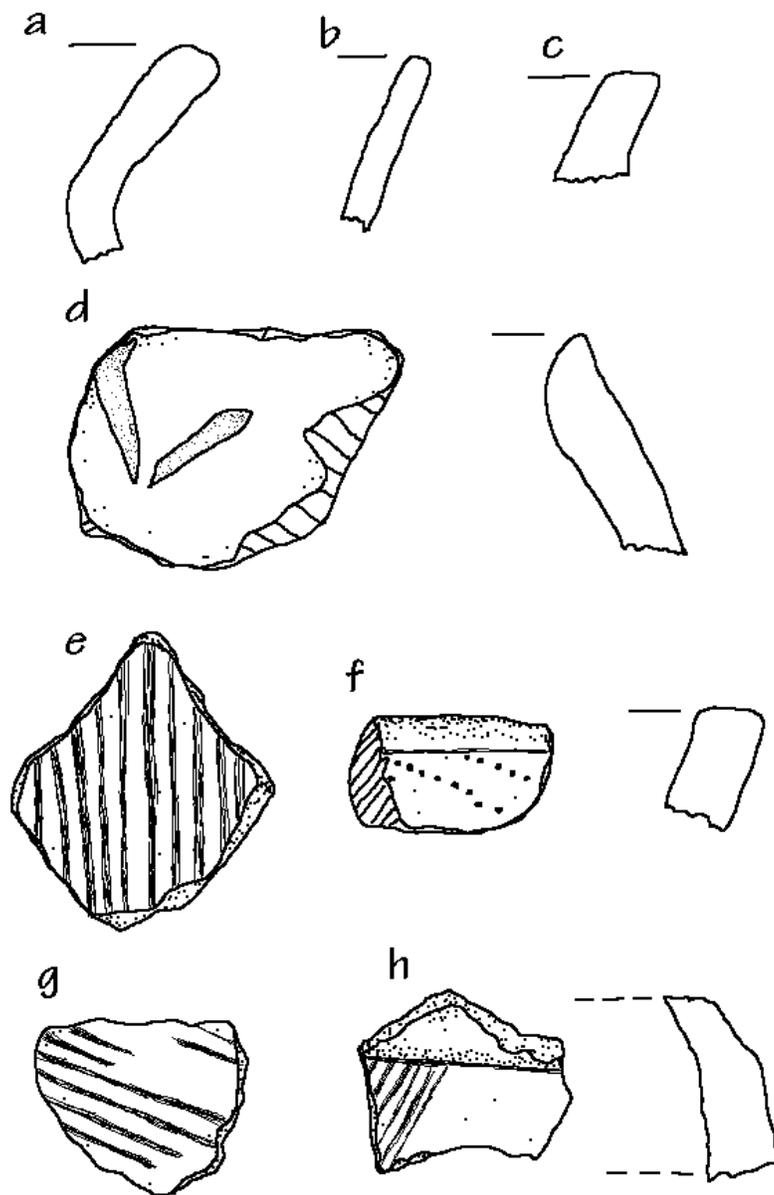


Figure A194. Site 152 artifacts.

- a. Plain rim sherd, 6.8g, d=20 (4% of rim), t=.5, lip t=.62
- b. Plain rim sherd, 3.2g, d=10 (8% of rim), t=.45, lip t=.32
- c. Plain rim sherd, 1.8g, diameter uncertain, t=.76, lip t=.62
- d. Plain rim sherd, 10.7g, d=14 (7% of rim), t=.7, lip t=.89, with indentations on exterior surface which may be decoration, a very wide triangle impression.
- e. Decorated body sherd, t=.55, with linear combing on exterior
- f. Decorated rim sherd, type iC, 3.4g, t=.8, lip t=.81, with dentate stamp at angle on interior surface
- g. Decorated body sherd, t=.35, with linear combing
- h. Decorated body sherd, t=.83, with linear combing on exterior, possibly a broken rim

**Site:** 153      **Sangilavitra (Tsangilavitra)**      **Region of:** Vohipeno  
*Laborde X:* 541.2      *Latitude:* 22.29107      *Season:* 97, 99  
*Laborde Y:* 424.2      *Longitude:* 47.80837      *Ceramic phase recovered:* 5,6  
*Site today:* sweet potatoes      *Collection method:* selective sample

*Site Notes:* Large, dense sherd scatter across a ditched hilltop site (125m in diameter). There are no houses close to the site today, but there are many gardens, and the eastern edge of the ditch is planted with jackfruit trees every 10 meters. Unlike most other *manda* we recorded that had few artifacts and little soil accumulation, Sangilavitra had the highest concentration of surface sherds of any site. Thus, after the initial visit in 1997 we returned in 1999 to conduct three sondages, outside the enclosure (S1), in the ditch itself (S2), and inside the enclosure (S3).

All three sondages were 50x50cm. We did not expect much from sondage #1, which was 4 meters down slope of the ditch on the south side, because Ramilisonina surmised that garbage would have been thrown north or west (and never south or east) given the prevailing winds and Malagasy culture. Sondage 1 reached sterile at 37cm below ground surface without a change in color, and had very few artifacts (see counts below). Sondage 2 in the north ditch was taken down 100cm without a color change, and did not reach sterile as we were still uncovering sherds and charcoal at the bottom (carbon sample collected from 90 cm b.g.s.) We were not able to expand this trench to allow us to go deeper because we still wanted to test the interior of the ditched enclosure. Sondage 3 (20 meters south of S2 and inside the enclosure) also contained many artifacts, and reached a slightly redder sterile at 45 cm b.g.s. We did not intend to gather another surface collection when we returned to excavate in 1999, but we did collect a single sherd – a rare Merina style body sherd with graphite burnishing on the interior and exterior, in part to show the difference in the graphite wares between the regions (Late Kaloy phase, 18<sup>th</sup> century, H.T. Wright, personal communication).

*Artifacts from surface collection:*

- 22 plain body sherds (197.1g, including 2 type iC, 3 type i with orange interior black exterior, 3 type i with orange exterior black interior, 3 type i, 1 type i whitish, 1 type i with mica inclusions, 1 type iC1 (Merina style graphite coating, 7.4g, t=1.15, sand inclusions size 1, 3%, and graphite burnished interior and exterior), 1 type iC, 4 type iE dark grey, 1 type i light brown with silver inclusions)
- 20 decorated body sherds (147.8g)
- 18 plain rim sherds (147.3g)
- 5 decorated rim sherds (49.9g),
- 8 bases (478.6g, type i),
- 1 iron ball (19.6g),
- 1 piece of glass (2.8g)

*Excavated artifact counts:*

Site 153, Sondage 1:

Level 1:

- 4 plain body sherds, 2.1g, t=.41 to .64, sand inclusions (2,5%)

Site 153, Sondage 2:

Level 1:

- 172 plain body sherds, 297.6g, average t=.56cm, mainly sand inclusions (2,5%).
- 5 plain body sherds, grey graphite ware, 6.3g, t= .37, .45, .46, .75, .92.
- 1 plain body sherd with sand and gold mica inclusions (2,15%), 2.4g, t=.71.
- 5 red rocks (possibly broken ore pre-roasting), 5.6g
- 2 decorated body sherds, grey graphite ware with combing, incised lines, and punctates, illustrations e and f below.
- 10 decorated body sherds with double parallel incised grooves on exterior, sand inclusions (2,5%), t= .35 to .65, illustrations h and i below. This grooved ware seems reminiscent of earlier chlorite-schist decoration.
- 8 decorated body sherds with a single incised groove on exterior, some with sand and silver mica inclusions (2,5%), t=.48 to .64. Many of these sherds most likely had double or triple groove

designs originally, but broke along a groove line. Illustration g below has enough space surrounding the line that it most likely was a single groove.

- 1 decorated body sherd with combing on a concave surface, illustrated sherd j below.
- 12 plain rim sherds, including 4 illustrated below (19.3g), and 8 others of similar shapes (22.8g)

Level 2 (overall impression: more variety of design than level 1, including triple groove):

- 115 plain body sherds, 192.2g, average  $t=.59$
- 6 plain body sherds, grey graphite ware, 11.1g,  $t=.45$  to  $.86$
- 1 piece of burnt clay or daub, 6.5g
- 3 decorated body sherds with triple groove design, illustrated sherds f, g, and h below.
- 7 decorated body sherds with double groove, illustrated sherds i and j below
- 1 decorated body sherd with a single groove, illustrated sherd L below.
- 1 decorated body sherd with intersecting grooves, illustrated sherd k below
- 1 decorated body sherd with deeply grooved combing, illustrated sherd n below.
- 1 decorated body sherd with wide shallow combing on interior, illustrated sherd m below
- 1 decorated body sherd with faint lines (5.5g),  $t=.72$ , sand and graphite or mica inclusions (2,5%)
- 1 decorated rim sherd with an incised line on interior, illustrated sherd a below.
- 12 plain rim sherds, including 4 illustrated below (13.6g) and 8 others (11.6g).

Level 3 (overall impressions: bigger sherds and less decoration than levels 1 and 2):

- 19 plain body sherds, 56.2g, average  $t = .69$ cm, sand and silver mica inclusions (2,10%)
- 1 plain body sherd, .1g, grey graphite ware,  $t=.44$
- 1 decorated body sherd with triple groove, illustrated sherd e below.
- 2 decorated body sherds with single grooves, illustrated sherd d below.
- 3 plain rim sherds, illustrated sherds a, b, c below.

Level 4:

- 24 plain body sherds, 37.7g, average  $t = .48$ cm
- 4 plain body sherds, 13.8g, grey graphite ware (but not complete graphite),  $t = .74, .78, .82, .85$
- 1 plain body sherd, 5.5g,  $t=.71$ , with grey interior and wiped exterior, sand and black fleck inclusions (1, 5%)
- 1 piece of metal (possibly slag), 3.0g
- 3 decorated body sherds with incised grooves, 14.3g, including illustrated sherds f and g below.

Level 5: (overall impression: smaller sherds again and no decoration)

- 57 plain body sherds, 99.0g, average  $t=.57$ , sand and gold mica inclusions (2,10%)
- 1 plain body sherd, 1.6g, grey graphite ware,  $t=.68$
- 1 plain body sherd, 4.1g,  $t=.61$ , with possible ink on exterior in partial figure 8 shape, sand and black fleck inclusions (1,5%)
- 1 fragment of base or lid, illustrated sherd h below.
- 6 plain rim sherds, 37.0g, including the 3 illustrated below.

#### Site 153, Sondage 3:

Level 1:

- 60 plain body sherd, 71.6g, average  $t=.56$ cm, with sand and graphite/mica inclusions (1,5%)
- 4 plain body sherds, grey graphite ware, 9.5g,  $t=.70, .75, .84, .92$
- 1 plain rim sherd, grey graphite ware, .9g, illustrated sherd a below.
- 3 decorated body sherds with incised grooves, including illustrated sherds d and e below.
- 2 plain brown rim sherds, illustrated sherds b and c below.

Level 2:

- 39 plain body sherds, 66.7g, average  $t=.56$ , with sand and silver mica inclusions (2,5%) and brown but a wider color range.
- 4 plain body sherds, grey graphite ware, 9.1g, with sand and silver mica inclusions (2, 25%), graphite up to 25%,  $t=.39, .51, .53, .63$
- 1 decorated body sherd, grey graphite ware, 1.4g, with zigzags, illustrated sherd j below.
- 1 decorated rim sherd, grey graphite ware, with triangle punctates, illustrated sherd f below.
- 2 decorated body sherd with double grooves, illustrated sherds h and k below.
- 3 decorated body sherds with single groove, including illustrated sherd i below, other 2 are 1.5g

t=.54 and 1.7g t=.60.  
- 2 plain rim sherds, including illustrated sherd g below, other is eroded and small, 1.9g, t=.88.

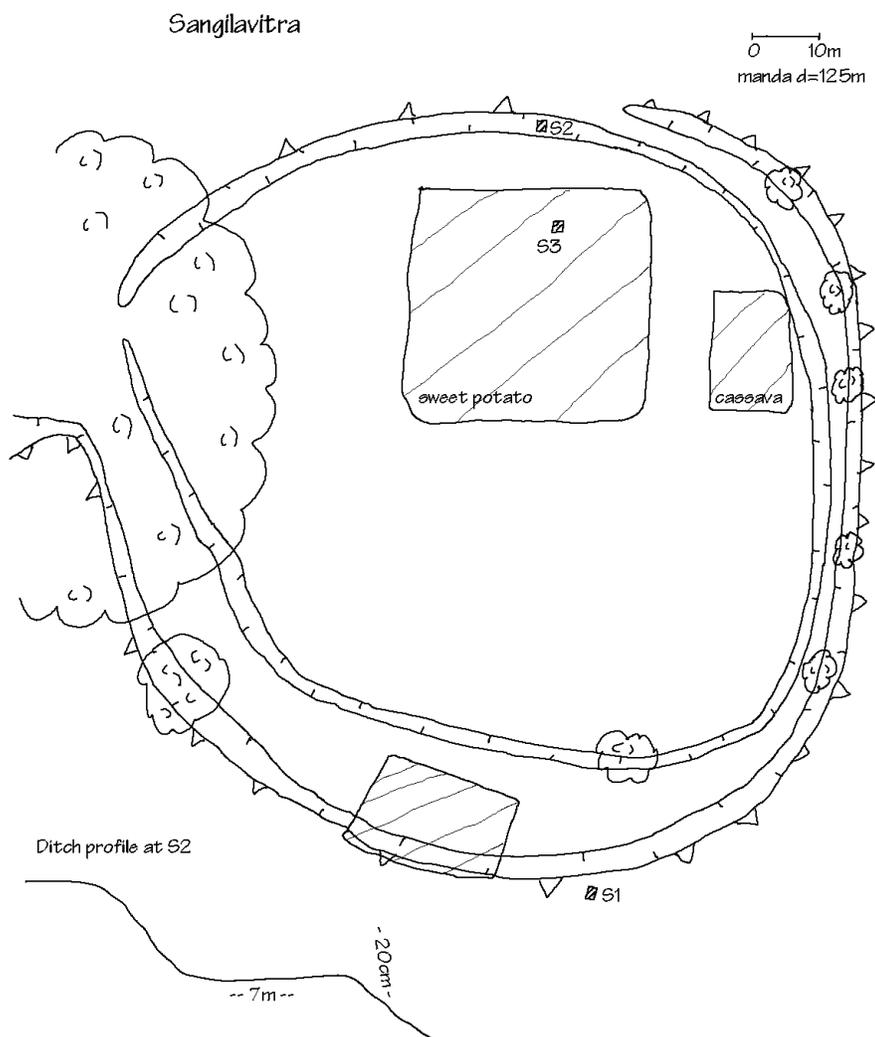
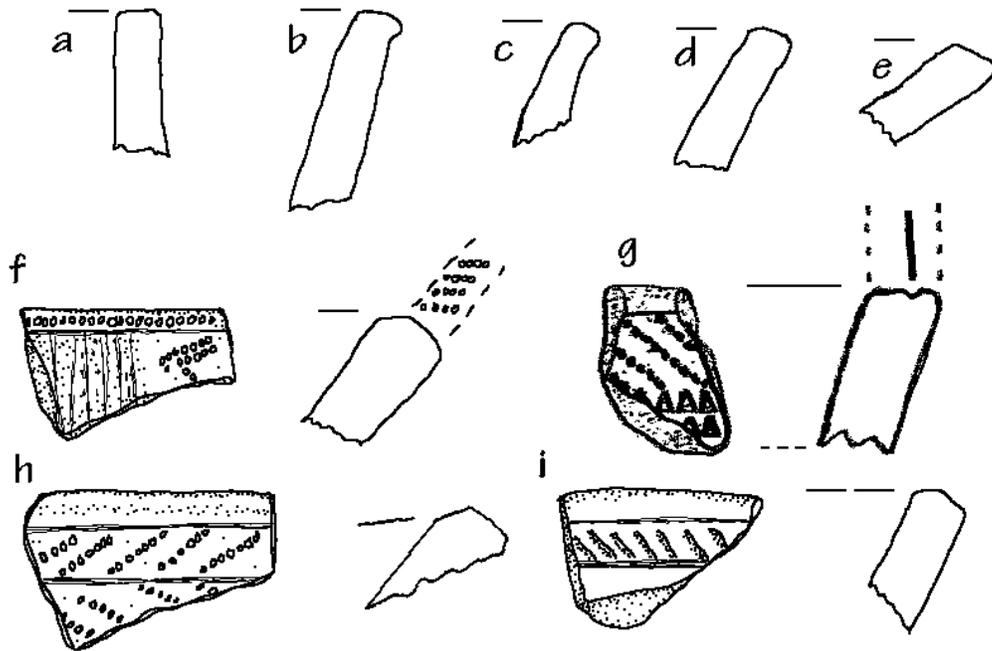


Figure A195. Site 153, Sangilavitra.



rims drawn

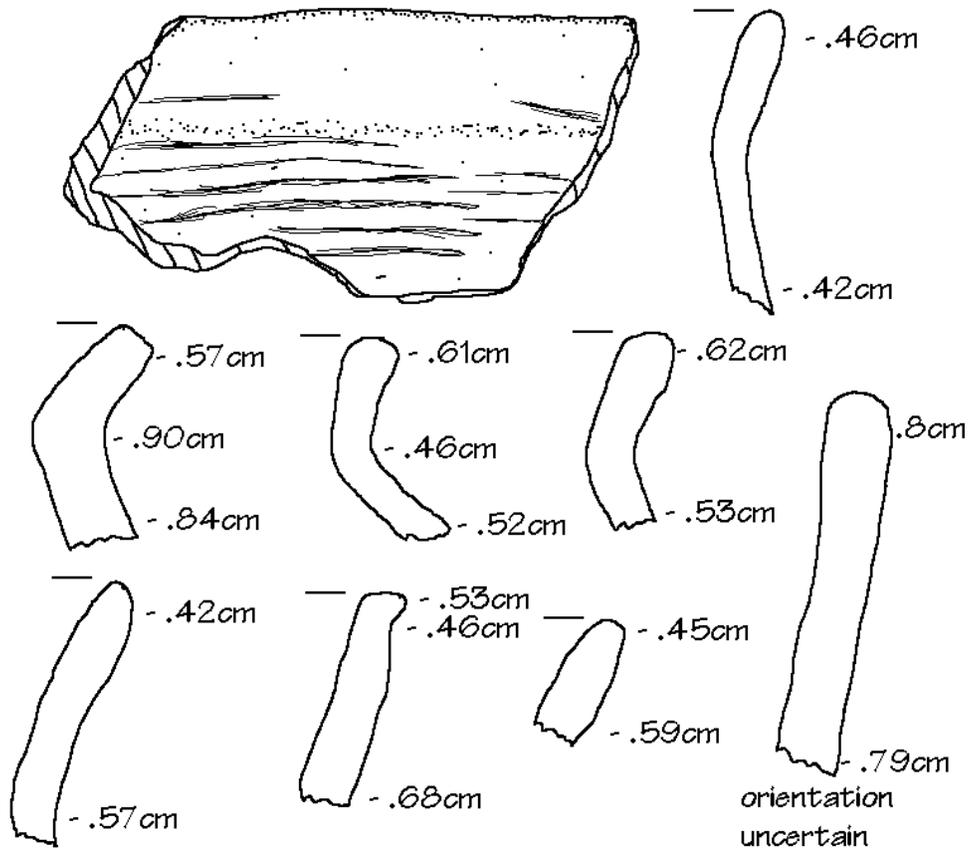


Figure A196. Site 153 surface rim sherds.  
 a. Plain rim sherd, d=25 (4% of rim), t=.67, lip t=.54  
 b. Plain rim sherd, d=23 (3% of rim), t=.69, lip t=.54  
 c. Plain rim sherd, d=21 (3% of rim), t=1.0, lip t=.47

- d. Plain rim sherd, type i, d=20 (7% of rim), t=.66, lip t=.57  
 e. Plain rim sherd, type iB inclusions size 1, 3%, d=22 (7% of rim), t=.65, lip t=.70  
 f. Decorated rim sherd, type iC, d=19 (4% of rim), with dentate stamp on lip top, and an eroded interior with dentate stamps and incised lines.  
 g. Decorated rim sherd, type iC, 4.5g, diameter and orientation uncertain, t=.87, lip t=.95, triangle base = .30cm, with deep triangle punctates, incised line, and dentate stamp on interior surface and an incised line on top of the lip.  
 h. Decorated rim sherd, type iC, d=24 (4% of rim), orientation uncertain, with dentate stamps and incised lines on interior.  
 i. Decorated rim sherd, type iC2, d=19 (4% of rim), t=.78, lip t=.74, with incised grooves on interior.

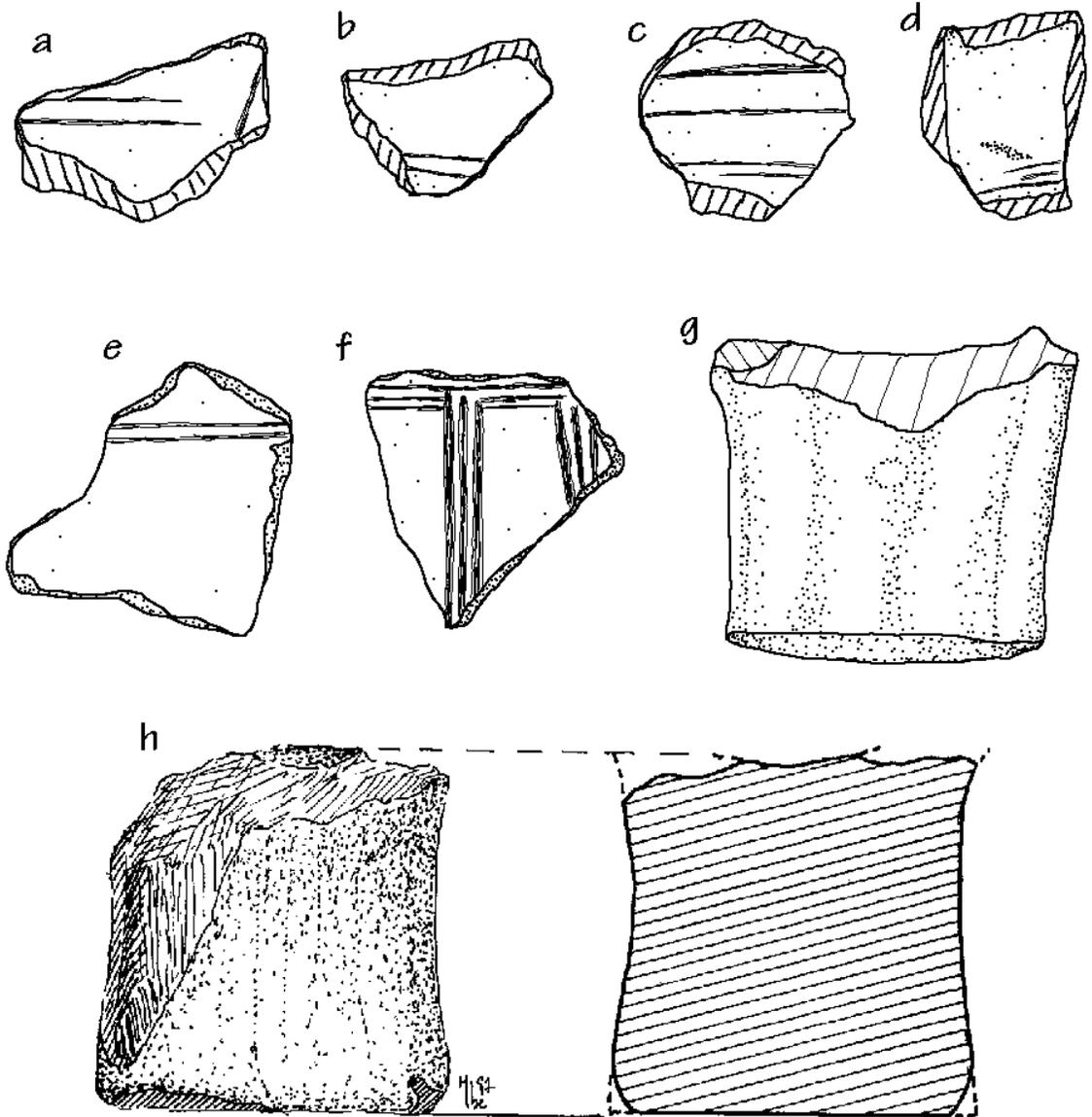


Figure A197. Site 153 surface artifacts.

- a. Decorated body sherd, t=.84, with linear incisions on exterior.  
 b. Decorated body sherd, t=.68, with linear incisions on exterior.  
 c. Decorated body sherd, t=.57, with linear incisions on exterior.  
 d. Decorated body sherd, t=.66, with faint linear incisions on eroded exterior.  
 e. Decorated body sherd, t=.71, with double parallel incisions on exterior.

- f. Decorated body sherd, with triple linear incisions on exterior.  
 g. Base, d=4.31 with vertical scrapings.  
 h. Base, type i with gold mica 5% size 2, d=4.79 cm, with vertical scrapings.

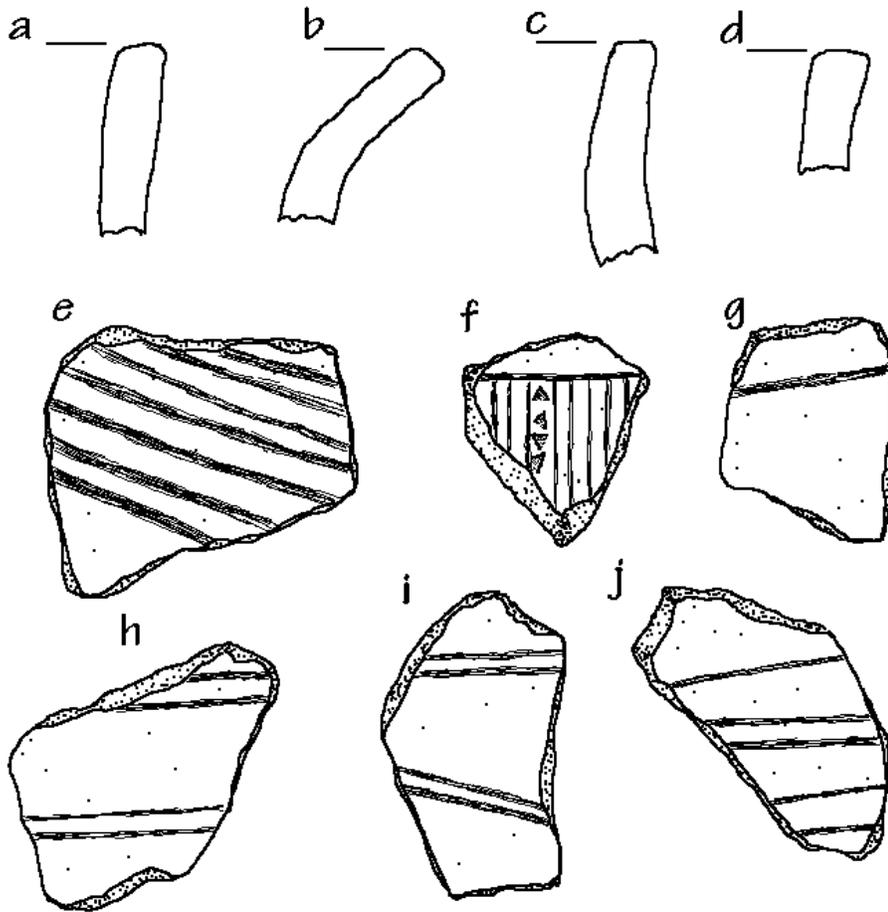


Figure A198. Site 153 Sondage 2 Level 1 artifacts.

- a. Plain rim sherd, 7.8g, d=28 (2% of rim), t=.52, lip t=.69, sand (2,10%)  
 b. Plain rim sherd, 4.5g, d=11 (6% of rim), t=.65, carination t=.71, lip t=.54, sand and gold mica (2,5%)  
 c. Plain rim sherd, 4.0g, d=13 (4% of rim), t=.68, lip t=.62, sand with gold mica (2,10%)  
 d. Plain rim sherd, 3.0g, d=26 (3% of rim), t=.51, lip t=.65, sand (2,5%)  
 e. Decorated body sherd, grey graphite ware, 9.4g, t=.70, with wide faint combing on exterior.  
 f. Decorated body sherd, grey graphite ware, 3.2g, t=.81, with incised lines and triangle punctates on interior.  
 g. Decorated body sherd, 3.4g, t=.48, sand with silver mica (2,5%), with single incised groove.  
 h. Decorated body sherd, 5.0g, t=.53, with parallel double grooves on exterior, forming a single bevel, sand inclusions (2,5%), reminiscent of chlorite-schist decoration.  
 i. Decorated body sherd, 3.8g, t=.43, with double grooves at an angle on exterior.  
 j. Decorated body sherd, 4.4g, t=.47, sand with black flecks (3,10%), with combing on concave surface (looks to be interior, but may be exterior of neck)

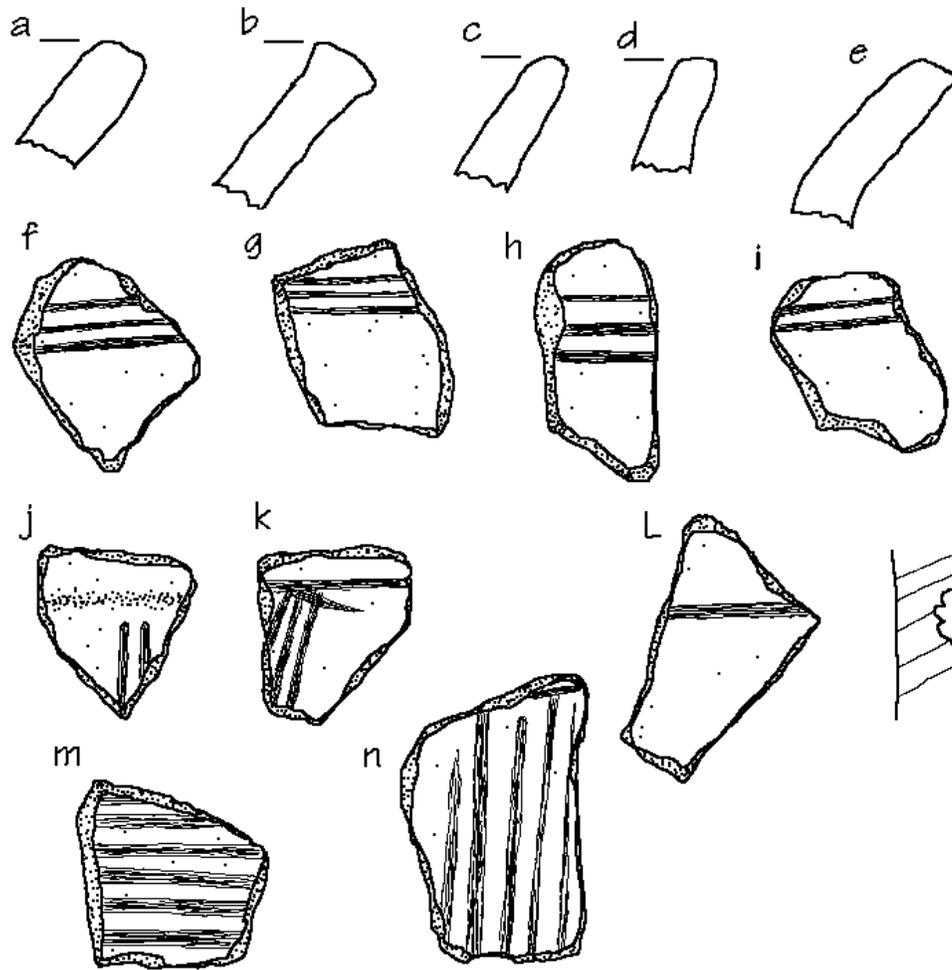


Figure A199. Site 153, Sondage 2 Level 2 artifacts.

- a. Decorated rim sherd, grey graphite ware, 2.2g, diameter uncertain,  $t=.79$ , lip  $t=.80$ , with single incised line on interior surface just beneath lip.
- b. Plain brown rim sherd, 5.1g,  $d=14$  (7% of rim),  $t=.64$ , lip  $t=.80$ , sand and gold mica (2,5%)
- c. Plain brown rim sherd, 3.0g,  $d=14$  (5% of rim),  $t=.69$ , lip  $t=.50$ , sand and silver mica (2,10%)
- d. Plain brown rim sherd, 1.8g,  $d=16$  (5% of rim),  $t=.67$ , lip  $t=.50$ , sand and silver mica (2,5%)
- e. Plain brown rim sherd, 3.7g, diameter and orientation uncertain,  $t=.77$ , lip  $t=.62$ , sand and black flecks (2,5%)
- f. Decorated body sherd, 3.4g,  $t=.68$ , sand with gold mica (2,10%), with triple groove.
- g. Decorated body sherd, 2.7g,  $t=.46$ , sand with gold mica and black flecks (2,5%), with triple groove
- h. Decorated body sherd, 2.9g,  $t=.59$ , gold mica and black flecks (2,10%), with double groove and a third groove more distant, this third incised groove is also noticeably fainter and shallower.
- i. Decorated body sherd, 2.7g,  $t=.58$ , sand and gold mica (2,10%), with double groove
- j. Decorated body sherd, 2.2g,  $t=.66$ , sand with gold mica (2,15%), with double grooves leading up to carination at base of neck.
- k. Decorated body sherd, 2.0g,  $t=.48$ , sand with gold mica (2,5%), with intersecting grooves
- l. Decorated body sherd, 3.6g,  $t=.57$ , sand with gold mica and black flakes (2,5%), with single groove, but the tool marks are visible inside the groove creating 2 ridges (shown above in profile).
- m. Decorated body sherd, 4.3g,  $t=.64$ , sand and graphite or silver mica inclusions (1,10%) with wide shallow combing on interior surface (interior of sherd is black and exterior red)
- n. Decorated body sherd, 5.6g,  $t=.56$ , sand and gold mica (2,10%), with deeply grooved combing on exterior surface.

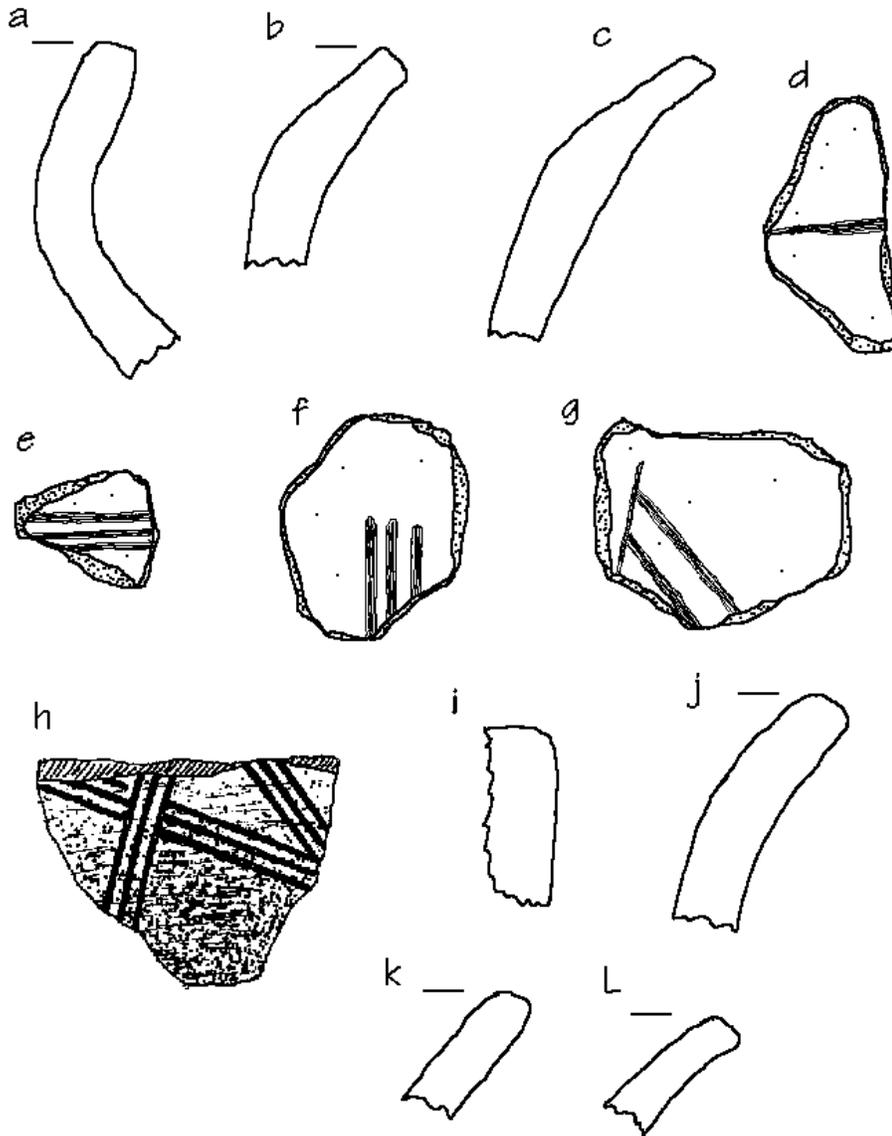


Figure A200. Site 153, Sondage 2, Levels 3 to 5 artifacts.

- a. L3, plain rim sherd, 9.4g, d=16 (5% of rim), t=.68, lip t=.56, sand, gold mica, red and black flecks (2,10%)
- b. L3, plain rim sherd, 6.9g, d=21 (4% of rim), t=.69, lip t=.56, sand and gold mica (2,10%)
- c. L3, Plain rim sherd, 7.9g, diameter and orientation uncertain, t=.61, lip t=.54, sand, gold mica, black flecks (3,10%)
- d. L3, decorated body sherd, 2.3g, t=.56, sand (2,10%), with single grooved, may be old cut from an angade (spade).
- e. L3, decorated body sherd, 1.6g, t=.70, sand with black flecks (1,5%), with triple groove, light grey interior and exterior and black core.
- f. L4, decorated body sherd, 4.5g, t=.82, sand (2,5%), with incised triple grooves that end.
- g. L4, decorated body sherd, 7.1g, t=.71, sand and silver mica (2,5%), with incised grooves at an angle.
- h. L4, decorated body sherd, 10.1g, sand and silver mica inclusions (3,5%), with deep intersecting triple incisions on exterior (drawn by Jeannot).
- i. L5, fragment of a base or lid knob, 3.6g, d=4 (15% of whole), sand (1,5%)
- j. L5 plain rim sherd, 12.3g, d=15 (7% of rim), t=.75, lip t=.72, sand (1,5%), exterior sooty,
- k. L5 plain rim sherd, 5.5g, d=21 (7% of rim), t=.69, lip t=.62, sand and gold mica (2,10%)

l. L5 plain rim sherd, 2.25g, d=20 (3% of rim), t=.64, lip t=.48, sand and gold mica (3,5%)

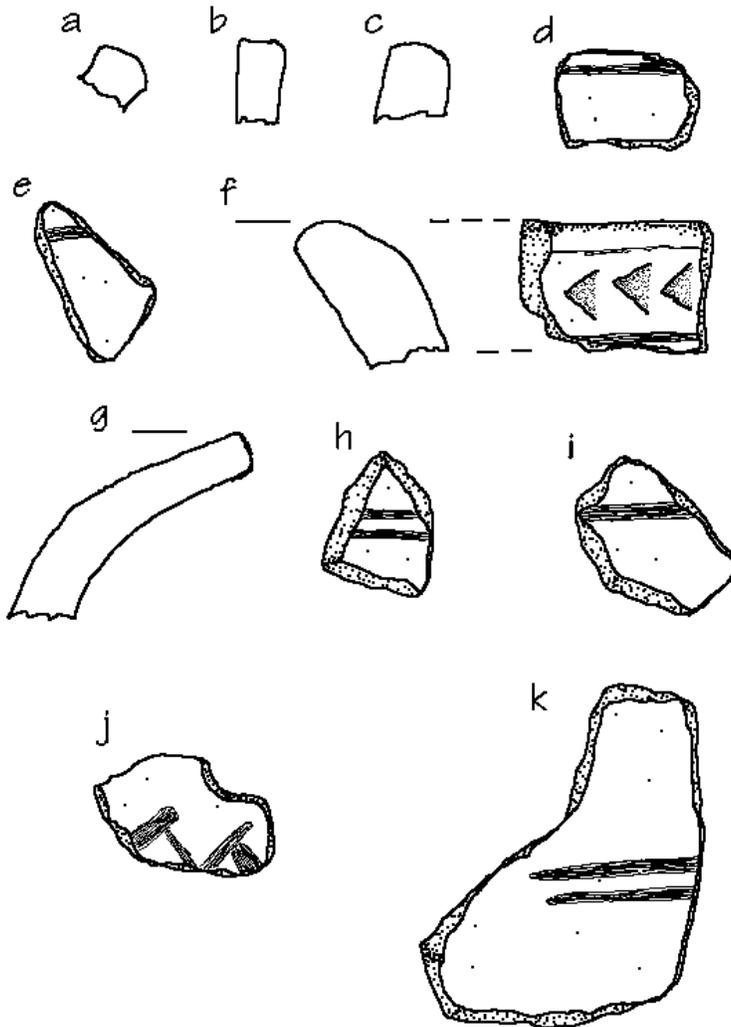


Figure A201. Site 153 Sondage 3 artifacts.

- a. Level 1, plain rim sherd, grey graphite ware, .9g, diameter and orientation uncertain, lip t=.67
- b. Level 1, plain rim sherd, 1.1g, diameter and orientation uncertain, t=.54, lip t=.59
- c. Level 1, plain rim sherd, 1.0g, diameter and orientation uncertain, t=.82
- d. Level 1, decorated body sherd, 1.2g, t=.47, with incised groove.
- e. Level 1, decorated body sherd, 1.3g, t=.69, with incised groove.
- f. Level 2, decorated rim sherd, grey graphite ware, 4.3g, d=11 (6% of rim), t=.92, with triangle punctates and incised lines on exterior surface, lip heavily decayed.
- g. Level 2, plain rim sherd, 7.6g, d=16 (5% of rim), t=.73, lip t=.50, sand and gold mica (2,5%), with sooted exterior
- h. Level 2, decorated body sherd, 1.3g, t=.67, with double groove.
- i. Level 2, decorated body sherd, 1.9g, t=.63, with single groove
- j. Level 2, decorated body sherd, grey graphite ware, 1.4g, t=.62, with incised groove zigzag
- k. Level 2, decorated body sherd, 10.2g, t=.62, sand with silver mica and black flecks (1,5%) with double grooves that end, grooves are probably vertical (but were drawn horizontal).

**Site: 154**

**Anosy**

**Region of: Vohipeno**

Laborde X: 541.0

Latitude: 22.29403

Season: 97

Laborde Y: 423.8

Longitude: 47.80603

Ceramic phase recovered: 5

Site today: village, empty garden

Collection method: thorough complete collection

**Site Notes:** Sparse sherd scatter in large, noticeably poor-looking village (approximately 50 houses, see location on map for site 152), and 1 fragment of chlorite-schist from a garden just to the east of town.

**Ethnographic Notes and Oral Traditions:** Philippe Beaujard had told us that the people of this village were outcastes (variously called Antemanaza and Antevolo). But we interviewed 5 men who all claimed they were not outcastes but Ampanabaka (commoners). They said that the Antemanaza (or Antevolo) groups only lived in the lower Matitanana (which they referred to as "Antava"), and there were none living here in the upper Matitanana. Either they were suspicious of us and our short visit, or these villagers do not accept the designation of other Antemoro. In other outcaste villages we visited the people themselves freely agreed that they were of the pariah caste. The village does look noticeably poorer than other villages in the area. When asked about pottery, they said no one in this area had ever made it, but they used to acquire it from the Betsileo around Ambalavao. Upon seeing our collected sherds they said they were called *tavikisoke*. As for their history, they claim their Antemoro ancestors once lived up inside the hillfort (Site 153), before moving down closer to the rice paddies, and there were never Betsileo or Merina in the fort.

**Artifacts:**

- 13 plain body sherds (35.7g including 10 type iE, 1 type iE with coarse sand, 1 type i with coarse sand, 1 type iE with wipe marks on exterior black surface, t=.33)
- 3 decorated body sherds (5.7g, with 4 linear incisions, illustrated below)
- 1 plain rim sherd (8.1g, illustrated below)
- 1 piece of chlorite-schist (10.5g, non magnetic, resembling pottery vessels)

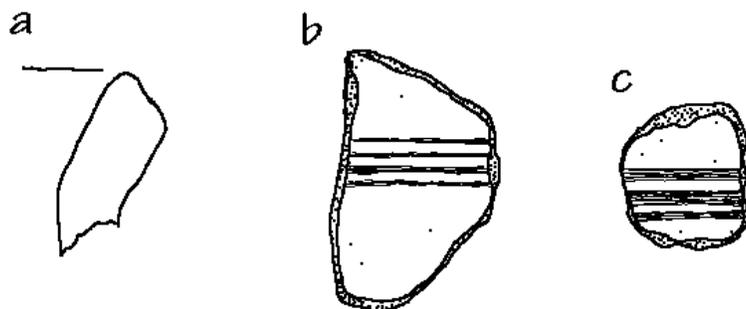


Figure A202. Site 154 to 156 artifacts.

a. Site 154, plain rim sherd, type iA interior iB exterior, lip t = .93

b. Site 154, decorated body sherd, type iA, t=.51, with 4 linear grooves

c. Site 156, decorated body sherd, type iA (size 2, 1%), t=.60, with 3 wide groove incisions

**Site: 155**

**Vohilava**

**Region of: Vohipeno**

Laborde X: 543.5

Latitude: 22.31447

Season: 97

Laborde Y: 421.6

Longitude: 47.83056

Ceramic phase recovered:

Site today: one house compound

Collection method: thorough complete collection

**Site Notes:** Circular ditch at southern end of hill south of Nato. Ditch averages 2 to 3 meters wide and a meter deep. 1 sherd was recovered from a 1 house compound to the north of the earthworks. Man in Nato said Manda here, he's right, S. end of hill is circular ditch, clan Antava,

at x ditch is 2.5m wide and .9m deep

*Ethnographic Notes and Oral Traditions:* We surveyed this hill expecting to find a *manda* based on what we were told in the town of Nato. The people who live on this hill say they are of clan "Antava."

**Artifacts:**

- 1 plain body sherds (2.0g, grey ware, type iE)

Vohilava

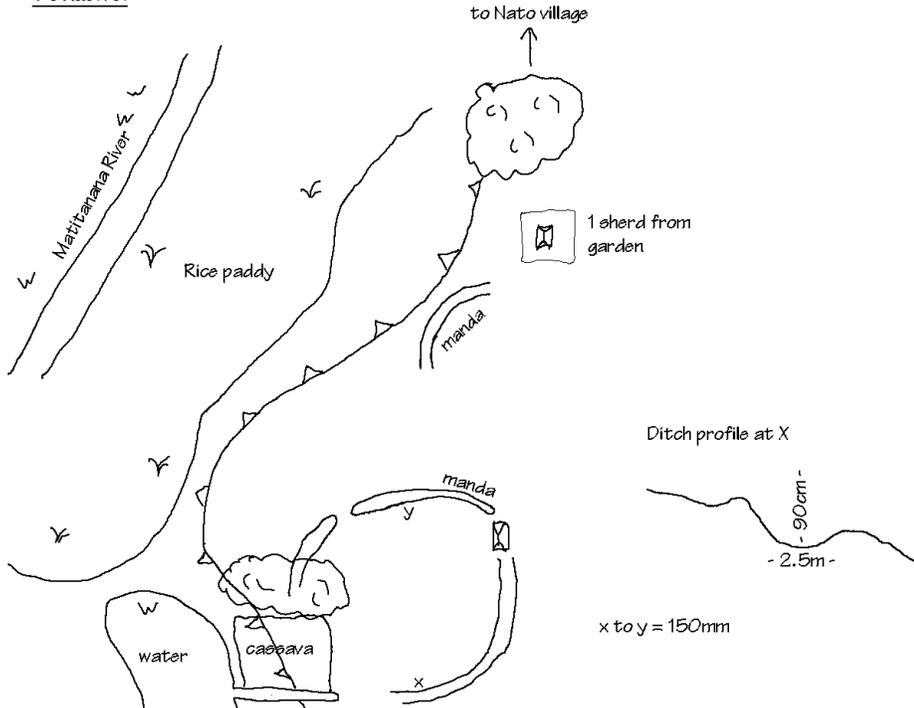


Figure A203. Site 155, Vohilava.

<b>Site:</b> 156	<b>Vohimaka</b>	<b>Region of:</b> Vohipeno
Laborde X: 550.3	Latitude: 22.38446	Season: 97
Laborde Y: 413.7	Longitude: 47.89702	Ceramic phase recovered: 3/4*,5,6
Site today: one house compound		Collection method: thorough complete collection
Site Notes: Sherd scatter in a 3 house compound on top of a wooded hill (approximately 20x15m covered by sherds in a 100m long clearing).		
Artifacts:		
- 30 plain body sherds (70.7g, including 2 type iC2 reddish interior, 20 type iE, 3 rough coarse cream ware type iii, 2 type iE thin and black, 1 type i orange exterior, 1 type i with smoothed exterior)		
- 1 decorated body sherd (6.6g, illustrated above)		
- 2 plain rim sherds (5.0g)		
- 2 decorated rim sherds (16.1g, 1 type iC with 2 rows of triangle punctates in false chevron between dentate borders).		

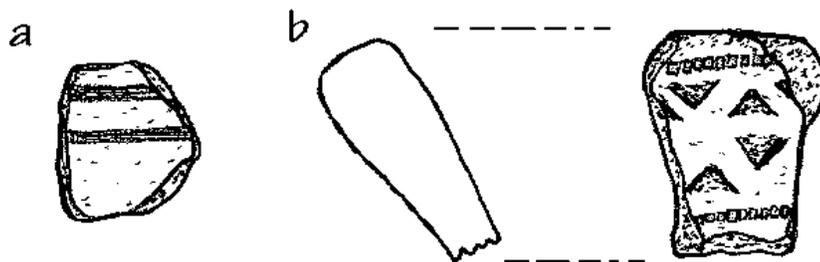


Figure A204. Site 156 artifacts.

a. Decorated body sherd, type i, t=.69, 10YR5/3, with incised groove at carination on exterior.  
 b. Decorated rim sherd, type iC, diameter and orientation uncertain, t=.63, lip t=1.09, triangle base = .55, with triangle punctates and rectangular dentate stamps on exterior surface.

**Site: 157**

**Vohimaka Avaratra**

**Region of: Vohipeno**

*Laborde X:* 550.2

*Latitude:* 22.3838

*Season:* 97

*Laborde Y:* 413.8

*Longitude:* 47.8966

*Ceramic phase recovered:* 5

*Site today:* one house compound

*Collection method:* quick complete collection

*Site Notes:* Sparse sherd scatter in 3 house compounds, approximately 100m northeast of houses at Site 156. The next house compounds to the northeast have no artifacts.

*Artifacts:*

- 5 plain body sherds (13.6g, including 2 type i and 1 type i dark brown with gold reflective inclusions)

- 1 decorated body sherd (5.1g), with incised line

**Site: 158**

**Region of: Vohipeno**

*Laborde X:* 549.6

*Latitude:* 22.37734

*Season:* 97

*Laborde Y:* 414.5

*Longitude:* 47.89018

*Ceramic phase recovered:* 3/4\*

*Site today:* sweet potatoes

*Collection method:* thorough complete collection

*Site Notes:* Small sherd scatter (10x10m) in a hilltop garden east of Lazamasy, with no houses nearby.

*Artifacts:*

- 3 plain body sherds (7.0g), all type i but 1 has orange exterior and another has coarse quartz inclusions. Thick, coarse, oxidized, red brown

**Site: 159**

**Tangainony**

**Region of: Vohipeno**

*Laborde X:* 549.8

*Latitude:* 22.38565

*Season:* 97

*Laborde Y:* 413.6

*Longitude:* 47.89222

*Ceramic phase recovered:* 5\*

*Site today:* one house compound

*Collection method:* thorough complete collection

*Site Notes:* Ditched hill with a 1 house compound on top, and 2 sherds recovered from near the house. This is one of the best looking and easiest to see *manda* we recorded. The ditched enclosure is approximately 160 meters long by 100 meters wide.

*Artifacts:*

- 2 plain body sherds (5.8g), type iE

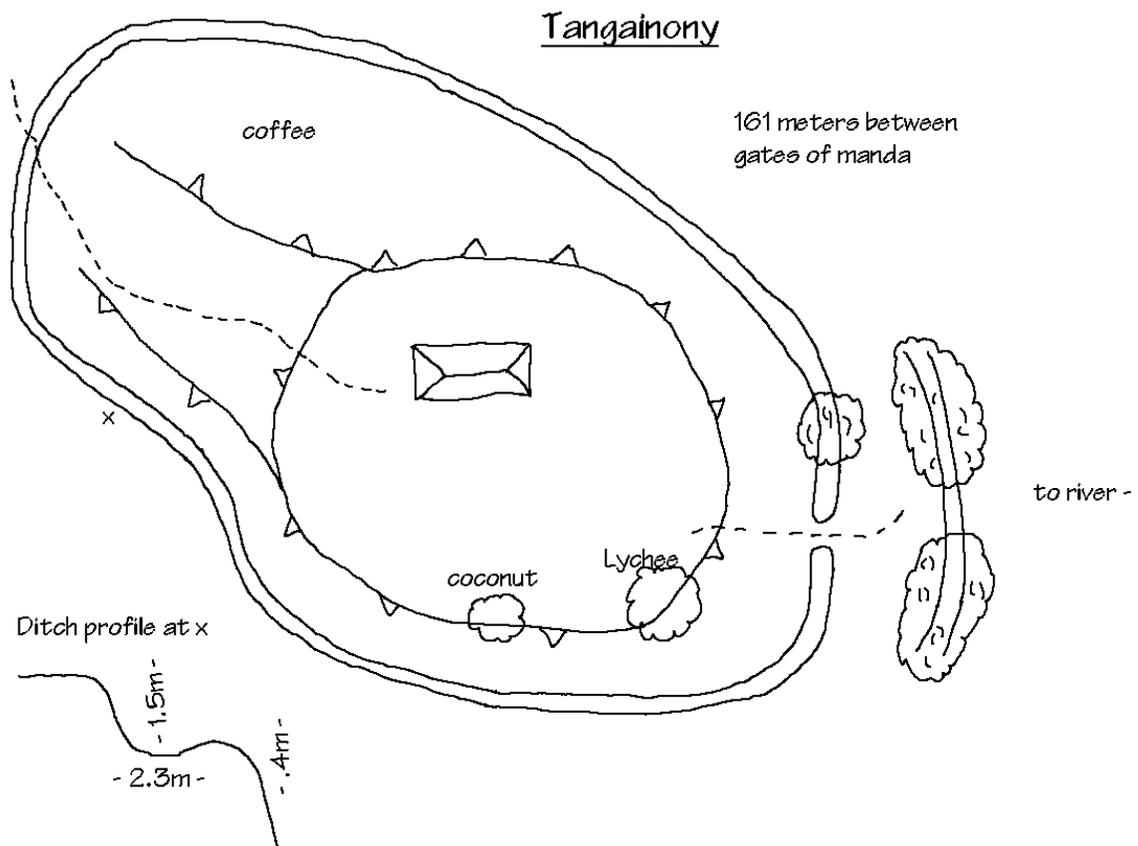


Figure A205. Site 159, Tangainony.

**Site:** 160

**Region of:** Vohipeno

Laborde X: 551.1

Latitude: 22.44581

Season: 97

Laborde Y: 406.9

Longitude: 47.9057

Ceramic phase recovered: 5

Site today: sweet potatoes

Collection method: quick complete collection

Site Notes: Dense sherd scatter along coast south of the Matitanana River mouth (10x10m).  
(Working in very heavy rain, so quick searches and few site maps.)

**Artifacts:**

- 26 plain body sherds (68.3g, 2 type iC, 1 type iC2 with chlorite-schist inclusions?, 23 type i of which 5 have red exteriors)
- 2 decorated body sherds (3.3g, illustrated below)
- 1 decorated rim sherd (7.1g, illustrated below)

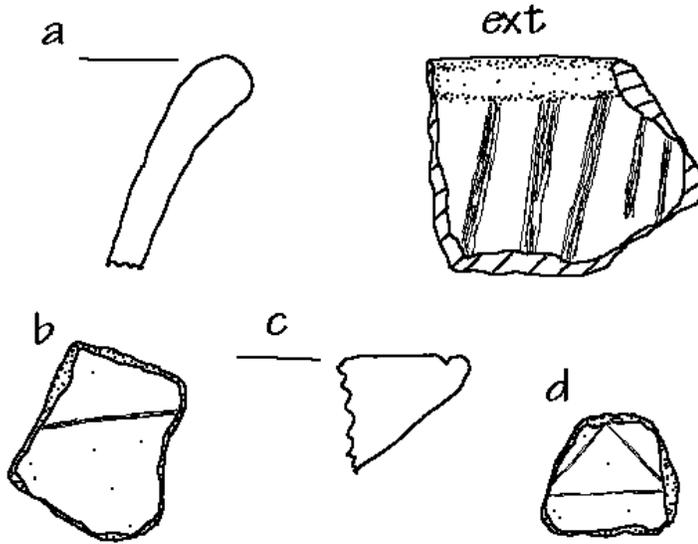


Figure A206. Site 160 to 163 artifacts.

- a. Site 160, decorated rim sherd, type iA with sand inclusions,  $t=.37$ , lip  $t = .67$ , with faint shallow vertical grooves on exterior and horizontal wiping marks with graphite burnish on interior.
- b. Site 160, decorated body sherd, type iA,  $t=.34$ , with linear incisions on one side and grooved combing on the other.
- c. Site 162, decorated rim sherd, or more likely the rim of a lid (in which case it has been drawn upside down), type iC with smoothed exterior,  $d=25$  (5% of rim), lip  $t = 1.06\text{cm}$ , with a single linear incision on top of lip (or bottom of lid).
- d. Site 163, decorated body sherd,  $t=.42$ , with incised lines forming triangle.

**Site: 161**

**Region of: Vohipeno**

Laborde X: 551.0

Latitude: 22.44956

Season: 97

Laborde Y: 406.5

Longitude: 47.90444

Ceramic phase recovered: 3/4\*, 5\*

Site today: sweet potatoes

Collection method: thorough complete collection

Site Notes: Sparse sherd scatter in large garden (first break in vegetation with visible ground since site 160).

**Artifacts:**

Including thin reduced medium sandy, coarse oxidized

- 11 plain body sherds (32.6g), including 5 type iE, 5 type iiA, 1 type iE brown interior

**Site: 162**

**Region of: Vohipeno**

Laborde X: 550.9

Latitude: 22.45189

Season: 97

Laborde Y: 406.3

Longitude: 47.90348

Ceramic phase recovered: 5\*

Site today: sweet potatoes

Collection method: quick complete collection

Site Notes: Sherd scatter (20x20m) in sweet potato garden. (There was one garden with no sherds between sites 161 and 162, so the scatter is not a continuous spread on this south coast).

**Artifacts:**

- 12 plain body sherds (98.1g, including 2 type iC2, 1 type iC, 3 type iB with silver mica inclusions, 1 type i, and 5 type i with orange exterior)

- 1 decorated rim sherd (7.9g, illustrated above, likely a lid rim)

**Site: 163****Region of: Vohipeno**

Laborde X: 550.8

Latitude: 22.45352

Season: 97

Laborde Y: 406.1

Longitude: 47.90305

Ceramic phase recovered: 5,6

Site today: cassava

Collection method: selective sample

*Site Notes:* Large sherd scatter in a cassava garden 50 meters south of site 162 (still raining hard).

*Artifacts:*

- 27 plain body sherds (80.8g, t=.49 to 1.19, including 2 type iC2, 2 type iC, 2 type iE with slick chlorite-schist inclusions?, 3 type ii orange, 13 type iE, 1 type ii with sand and silver inclusions, 1 type ii orange and gold reflective inclusions, 1 type i orange exterior)
- 5 decorated body sherds (27.0g, graphite ware type iC with dentate stamps and another type i with crossed incisions, 1 illustrated above)
- 2 plain rim sherds (35.1g)
- 1 decorated rim sherd (5.5g, type iC with triangles punctates in false chevron)

**Site: 164****Ambanilambo (aka "House-o-sherds") Region of: Vohipeno**

Laborde X: 550.8

Latitude: 22.4547

Season: 97

Laborde Y: 406.0

Longitude: 47.90235

Ceramic phase recovered: 3/4,5

Site today: one house compound

Collection method: selective sample

*Site Notes:* Sparse sherd scatter in cassava and sweet potato gardens surrounding a 1 house compound, with a very dense scatter, including actual piles of sherds, on all sides of the house (which turn out to have been collected by the farmer, see below).

*Ethnographic Notes and Oral Traditions:* When our project began in 1994, this farmer (Boto) had heard that a Vazaha (European) was in the area collecting pottery sherds, so he began to collect himself hoping he could one day sell them to us. To prevent misunderstandings like this is one of the main reasons we spend time in every village explaining archaeology and our goals, and why we also worked with local schools and school teachers and produced the preliminary report for distribution. However, in this case our efforts failed, and the man was quite disappointed when he learned we would not buy sherds from him. Luckily, this day we had a high school teacher from Vohipeno, Richard, working for us on the field crew, and he made a large sampling of the collected sherds (which had no provenience) for use in his classroom. When we first approached this house Ramilisonina exclaimed, "*Tai Be!* [big shit!] We've found the village of the potters!" So we were disappointed to learn that such beautiful sherds could be from anywhere and thus not useful for us. The farmer was disappointed that his hobby of 3 years was not going to pay off (and he didn't want to reveal his source to us). But at least the school teacher Richard was happy to receive so many sherds with interesting decoration for use in his classes. The artifacts recorded below are from our own collections from the surrounding gardens (for which we shared our lunch with the farmer), and not from the collected piles near the house, though despite our efforts their provenience may be compromised as well.

*Artifacts:*

- 8 plain body sherds (83.7g, including 3 type iC, 1 type iiA with gold reflective inclusions, 1 type iiA with silver reflective inclusions, 3 type ii with coarse sand inclusions)
- 3 decorated body sherds (28.8g)
- 11 plain rim sherds (165.5g)
- 2 decorated rim sherds (25.0g, 1 with field of triangle punctates on interior of wide everted lip, illustrated below).

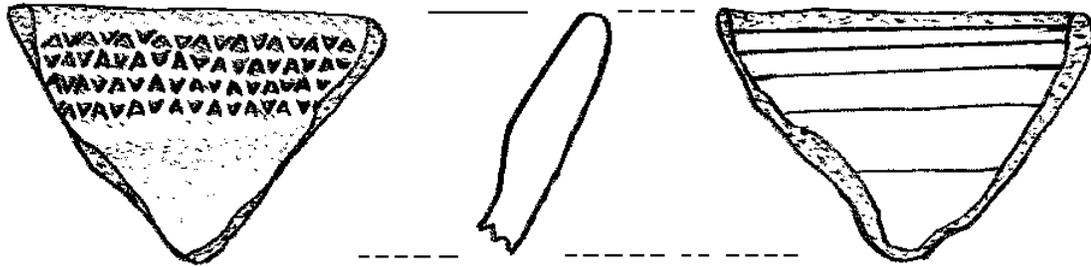


Figure A207. Site 164 artifact.

Decorated rim sherd, type ii with sand and graphite and possibly chlorite-schist inclusions (2,10%) with a soapy feel, 12.7g, d=28 (6% of rim), t=.56, lip base t= .82, lip t=.54, triangle base = .21cm, with thin incised lines on exterior and 4 rows of small triangle punctates in false chevron on interior surface.

**Site:** 165

**Region of:** Vohipeno

*Laborde X:* 550.7

*Latitude:* 22.45739

*Season:* 97

*Laborde Y:* 405.7

*Longitude:* 47.9021

*Ceramic phase recovered:* 5\*

*Site today:* sweet potatoes

*Collection method:* quick complete collection

*Site Notes:* Sparse sherd scatter (40x10m) in sweet potato garden.

*Artifacts:*

- 4 plain body sherds (15.9g, 2 type iC2, 1 type iB1 with red exterior, 1 type ii)

**Site:** 166

**Region of:** Vohipeno

*Laborde X:* 550.6

*Latitude:* 22.45934

*Season:* 97

*Laborde Y:* 405.4

*Longitude:* 47.90111

*Ceramic phase recovered:* 0,5,6

*Site today:* exposed sand

*Collection method:* selective sample

*Site Notes:* Dense sherd scatter exposed in sandy patches of a grassy area (approximately 80x20m). The site is very dense and someone had collected sherds into piles in a few places (either kids playing or the man from the "house-o-sherds" site 164, though it's possible that the piles were the result of deposition or natural erosion as well).

*Artifacts:*

- 25 plain body sherds (129.1g, including 2 iE with quartz inclusions, 3 type i reduced, 1 type ii with black interior, 5 type iC, 1 type iC red interior, 1 type iC2 brown interior and red sand inclusions, 1 thick type i with chlorite-schist grog?, 2 type ii, 2 type iE, 6 type ii reduced with black core), 1 roundish sherd, graphite ware type iC, t=.68, with a hole drilled completely through it, 1 decorated body sherd (7.3g), 4 plain rim sherds (37.6g), 4 decorated rim sherds (48.1g)

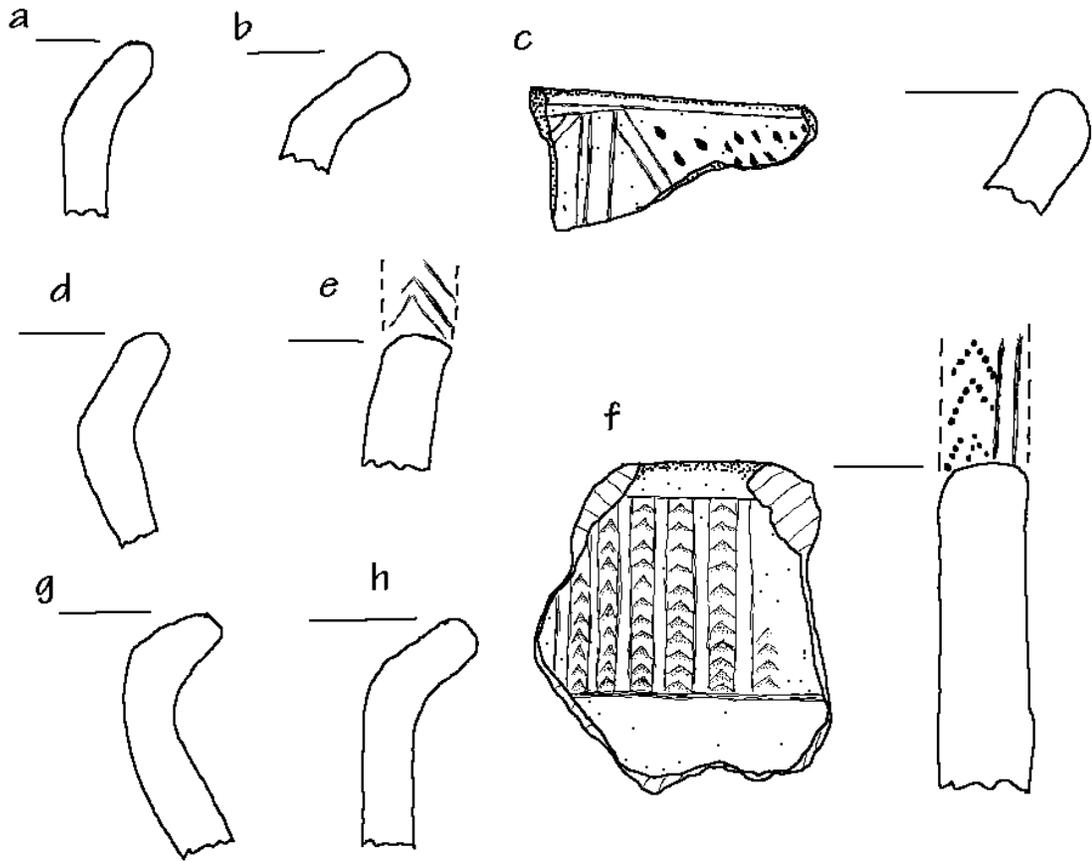


Figure A208. Site 166 artifacts.

- a. Decorated rim sherd, type i with coarse sand inclusions, d=22 (6% of rim), t=.44, lip t=.50, with combed grooves on exterior.
- b. Plain everted rim sherd, type i, t=.71, lip t=.65
- c. Decorated rim sherd, type iC, d=23 (6% of rim), t=.96, with incised lines and square punctates on interior surface.
- d. Plain rim sherd, 9.6g, d=24 (5% of rim), t=.49, lip t=.55
- e. Decorated rim sherd, type iC, d=28 (4% of rim), t=.90, lip t=.96, with incisions on top of lip.
- f. Decorated rim sherd, type iC, 26.4g, d=35 (3% of rim), t=1.05, lip t = 1.16, triangle base = .29cm, with columns of triangle punctates bordered by incisions on interior surface, and dentate stamp arrows on lip top, and vertical combed grooves on exterior surface. The overall shape of this vessel may have been similar to a Betsileo cooking basin recorded at Vohitrandry (site 115).
- g. Plain rim sherd, type i with 3% sand inclusions, 17.2g, d= 22 (4% of rim), t=.69, lip t = .55
- h. Plain rim sherd, type i with red interior and gold reflective and shell inclusions, 10.3g, d=26 (5% of rim), t=.62, lip t=.68 (note: orientation may be off, probably the lip is more vertical to make a traditional jar rim).

**Site: 167**

**Region of: Vohipeno**

Laborde X: 550.5

Latitude: 22.46035

Season: 97

Laborde Y: 405.3

Longitude: 47.90039

Ceramic phase recovered: 3/4\*,5

Site today: exposed sand

Collection method: selective sample

**Site Notes:** Dense sherd scatter in an exposed sandy area (60x30m). This was the last site recorded working our way south along the coast (east of the 2 distinctive hills). There may have been fewer sherds on the surface of this area due to the actions of Hurricane Gretel. There were

definitely fewer gardens providing good visibility than along the coast north of the Matitanana River mouth.

*Artifacts:*

- 30 plain body sherds (70.2g, including 1 type iC, 5 type iE, 4 type ii, 1 type iA, 3 type iE with white interior, 6 type iE, 10 type i orange)
- 7 plain rim sherds (41.3g, including high neck jars, and square lips)
- 1 piece of chlorite-schist (red, non magnetic, 7.2g)

<b>Site:</b> 168	<b>Vohitramba</b>	<b>Region of:</b> Vohipeno
<i>Laborde X:</i> 536.6	<i>Latitude:</i> 22.29487	<i>Season:</i> 97
<i>Laborde Y:</i> 423.8	<i>Longitude:</i> 47.76345	<i>Ceramic phase recovered:</i> 3/4*,5
<i>Site today:</i> one house compound, forest, cassava complete collection		<i>Collection method:</i> thorough

*Site Notes:* 350 meter long ditched enclosure surrounding an entire ridge, with sherds collected from small scatters near the northern and southern gates (see map below). Note: the scale seems to have been compressed for the southern portion of the site (probably to fit on the paper), as our pacing showed the distance from the northern end to the central "mound" (perhaps a post-*avancé*) was 142 meters, while from that same central mound to the southern end of the fortification was 210 meters.

*Ethnographic Notes and Oral Traditions:* This site name means "twin hills" from *tramba* for "twin." We first suspected there was a *manda* here by studying air photos of the area (one of the only cases where ground truthing the air photos proved true), and then were told about this ditched site by the man north of Ankarinarivo. At this site of Vohitramba we were told (by the mayor of Andemaka who was working his fields in the area) that two hills to the west have *manda*, Vohitrapahano and Vohimbalala, and the hill just to the south also has a smaller ditch. We were not able to include all of these locations in our survey area.

*Artifacts:*

- 23 plain body sherds (77.0g, including 16 type iE, 4 type i orange reduced black interior, 1 type i orange interior black exterior with gold mica inclusions, 1 type ii black interior with quartz inclusions)
- 2 decorated body sherds (4.6g, illustrated below)
- 2 decorated rim sherds (10.1g, 1 ill. below)
- 1 local ring base (9.2g, ill below)

Vohitramba

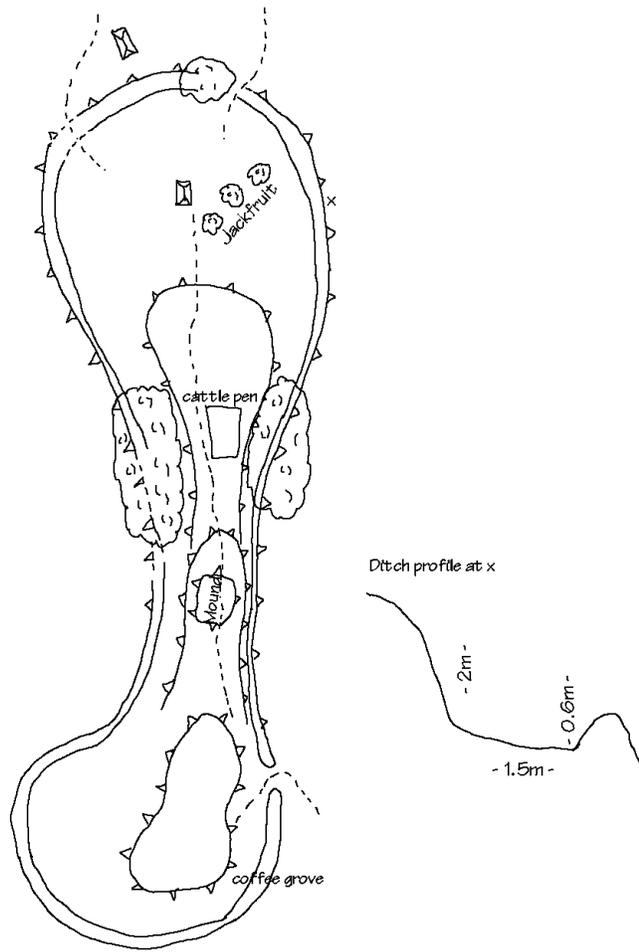


Figure A209. Site 168, Vohitramba.

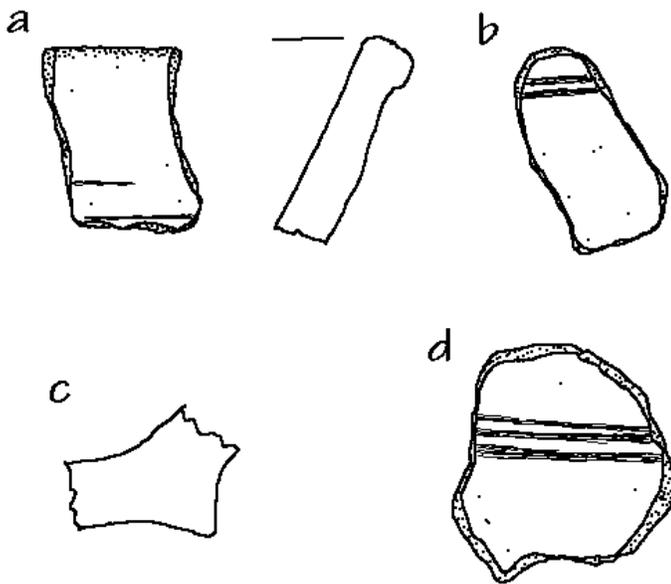


Figure A210. Site 168 artifacts.

- a. Decorated rim sherd, type iB (5% inclusions), t=.60, lip t=.71, with 2 incised lines on interior surface.
- b. Decorated body sherd, type iE, t=.63, with 2 linear incisions on exterior.
- c. Local foot ring base, type iA with silver reflective inclusions, 9.2g, t=.78 left end, .82 right end, and smoothed exterior and interior surfaces.
- d. Decorated body sherd, t=.65, with 3 grooves at carination on exterior surface

**Site: 169      Fanovelo (also Fanivelo)      Region of: Vohipeno**

Laborde X: 543.1

Latitude: 22.37211

Season: 97

Laborde Y: 415.2

Longitude: 47.82698

Ceramic phase recovered: 5

Site today: one house compound,

Collection method: thorough complete collection

*Site Notes:* Ditched enclosure, 105 meters in diameter, with sherds collected from a cassava garden just east of the *manda* and a 1-house compound to the east again (see map below). Ditch averages approximately 3 meters wide and does seem to form a complete circle, with a possible second ditch fragment further east.

*Ethnographic Notes and Oral Traditions:* Surveying south of *manda* south of small bridge, and were told by multiple people that this site, Ifanovelo, had been a Hova (Merina) village, whose people then moved to Vohilava (name used for both *manda* and cemetery, site 155), and then onto Vohitrindry (site 115). Maroala is also said to have been a Merina (Hova) village, whose people then moved to west of Manakara. We were told that Hova always like to live high on the hill tops and not down low. If any Hova from Vohindava (site 58) and Vohitrindry die today they come to the tombs at Vohilava for burial. The man who currently lives on this site of Fanovelo says he himself is "Hova," that he is descended from the "warrior" who originally built this *manda*, and that the site was once a much larger village.

*Artifacts:*

- 27 plain body sherds (83.0g, including 23 type i black interior and orange exterior, 1 type i)
- 2 plain rim sherds (6.6g, illustrated below)

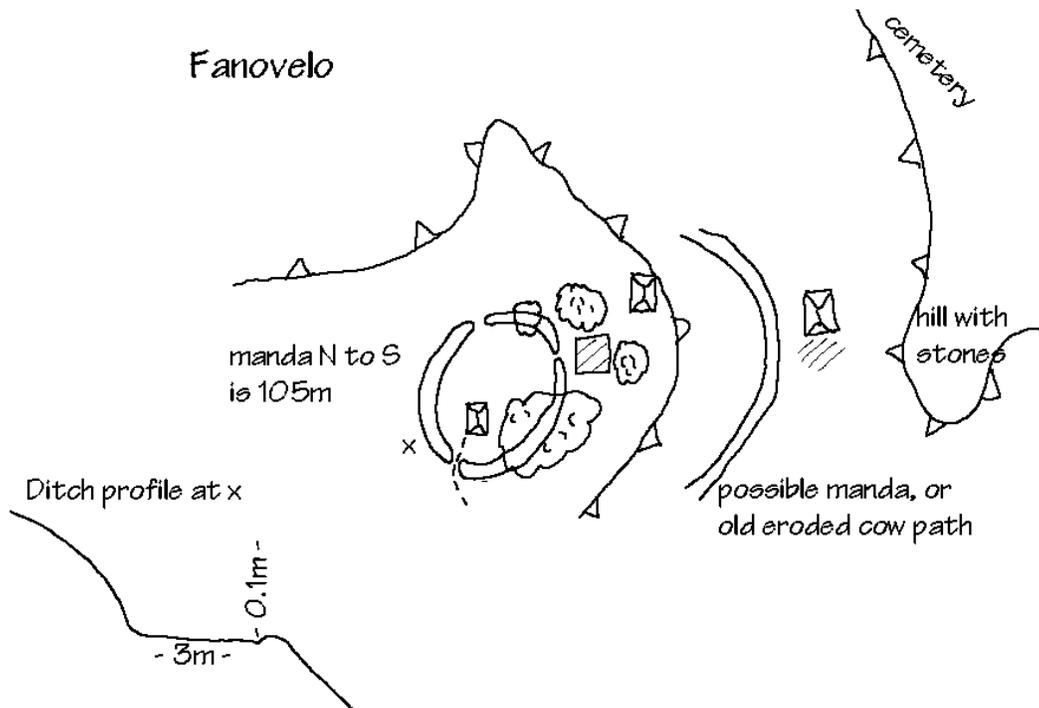


Figure A211. Site 169, Fanovelo.

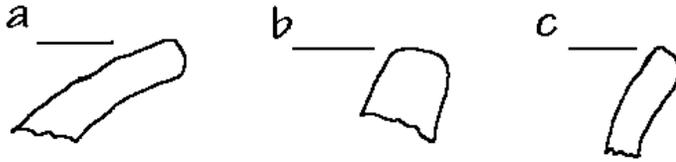


Figure A212. Site 169 to 170 artifacts.

- a. Site 169, plain rim sherd, type i but more orange, diameter uncertain,  $t=.91$ , lip  $t=.55$   
 b. Site 169, plain rim sherd, type iB with dark paste, diameter uncertain,  $t=.87$ .  
 c. Site 170, plain rim sherd, type i but more orange, 1.9g,  $d=19$  (3% of rim),  $t=.46$  with square lip.

**Site: 170**      **Vohimena North**      **Region of: Vohipeno**  
*Laborde X:* 544.2      *Latitude:* 22.38097      *Season:* 97  
*Laborde Y:* 414.2      *Longitude:* 47.83802      *Ceramic phase recovered:* 5  
*Site today:* cassava      *Collection method:* quick complete collection  
*Site Notes:* Small sherd scatter (20x10m) in garden on south facing slope, due north of site 59.

- Artifacts:*  
 - 5 plain body sherds (13.9g, including 1 type iC2, 3 very coarse type iE, 1 coarse type ii)  
 - 1 plain rim sherds (1.9g, illustrated above)

**Site: 171**      **Vohimena**      **Region of: Vohipeno**  
*Laborde X:* 544.1      *Latitude:* 22.38186      *Season:* 97  
*Laborde Y:* 414.1      *Longitude:* 47.83703      *Ceramic phase recovered:* 5  
*Site today:* coffee      *Collection method:* quick complete collection  
*Site Notes:* Sherd scatter in coffee tree grove, surrounded by manda (ditched enclosure is 205 meters long, filled with a dense hedge on eastern side, see map).

- Artifacts:*  
 - 20 plain body sherds (55.0g, red surfaces with grey cores, including 7 type ii with black interior and orange exterior, 8 type i with black paste, 5 type i orange)  
 - 1 decorated body sherd (3.9g, with 2 linear incisions at carination)  
 - 2 plain rim sherds (5.8g)

## Vohimena

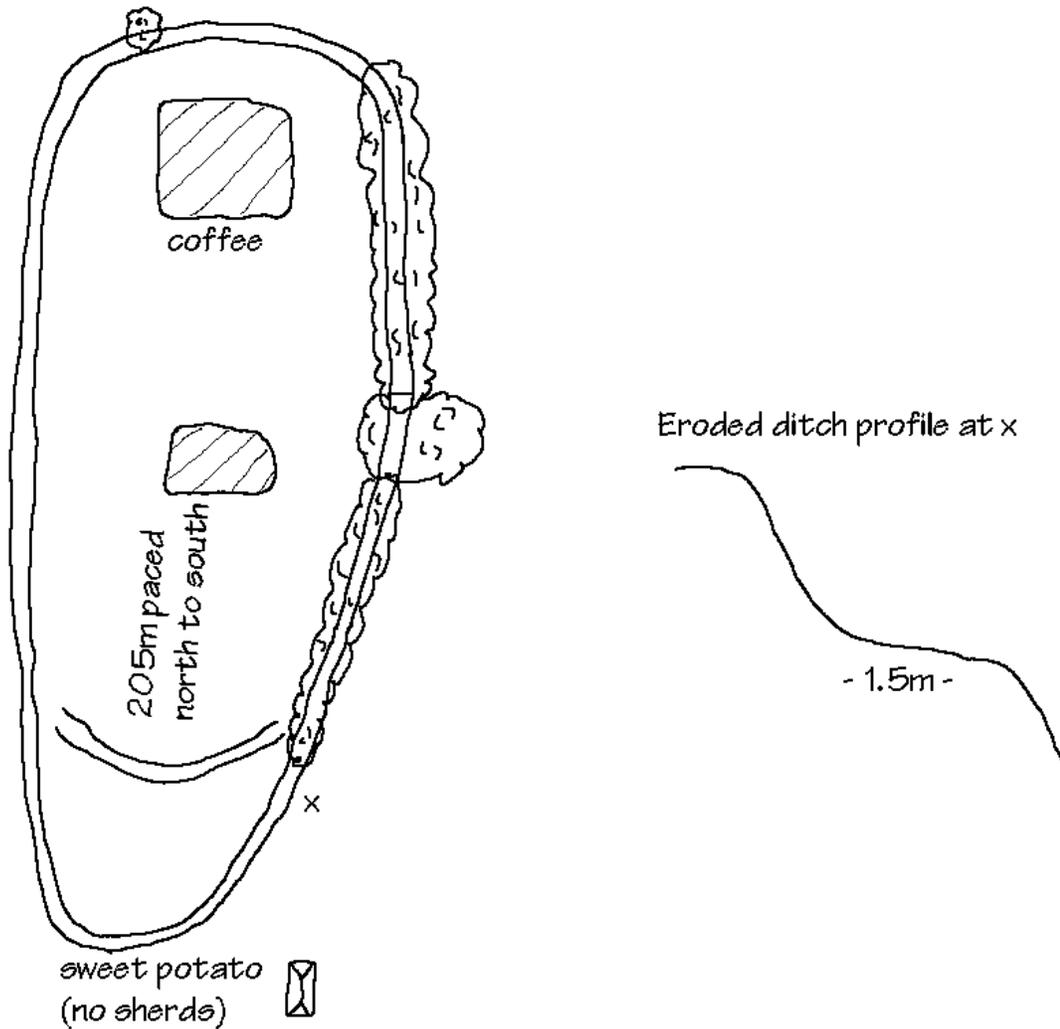


Figure A213. Site 171, Vohimena.

**Site: 172**

Laborde X: 544.2

Latitude: 22.38181

**Region of: Vohipeno**

Season: 97

Laborde Y: 414.1

Longitude: 47.83798

Ceramic phase recovered: 5,5/6

Site today: rice nursery, tomatoes

Collection method: thorough complete collection

**Site Notes:** Small sherd scatter (15x10m) in 2 gardens in valley south of site 170. This is the first year for the rice nursery, before which it had been a vegetable garden (see site 142 for another rice nursery, both of which were in their first years of cultivation.)

**Ethnographic Notes and Oral Traditions:** South of the house near these fields is a boulder field. 3 boulders form a small, natural shelter. The local tradition is that someone once found a pot in this rock shelter, and then that person went crazy. I thanked them for the warning, and pointed out that I was already known locally as the "Vazaha dahladahla" (crazy white guy) for my survey

work.

*Artifacts:*

- 7 plain body sherds (10.4g)
- 2 decorated body sherds (13.5g, with linear incisions, the other with triangle punctates 4.4g,  $t=.70$ , triangle base = .62, in horizontal rows, not false chevron)
- 1 plain rim sherds (4.1g)
- 1 decorated rim sherd (8.4g, illustrated below)

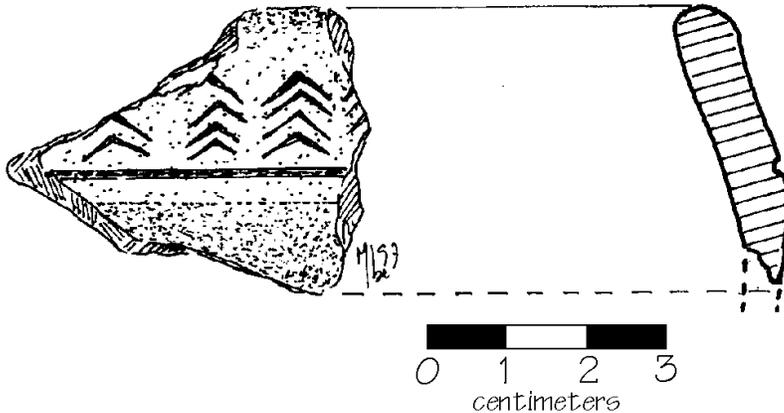


Figure A214. Site 172 artifact.

Decorated rim sherd, type iC,  $d= 30$  (1% of rim),  $t=.67$ , triangle base = .78, with columns of triangle punctates and dentates on interior surface. (Line beneath triangles in illustration is actually a series of dentate stamps, not an incised line.)

**Site: 173**

**Vohitrandria**

**Region of: Vohipeno**

*Laborde X:* 537.6

*Latitude:* 22.17444\*

*Season:* 97

*Laborde Y:* 423.7

*Longitude:* 47.46229\*

*Ceramic phase recovered:* 5

*Site today:* village, coffee, taro, tobacco *Collection method:* quick complete collection

*Site Notes:* Sherd scatter on west, south, and east face of the hill Vohitrandria and near the 4 houses on top (total area of scatter approximately 60x50m).

*Ethnographic Notes and Oral Traditions:* This village is occupied by clan Antevohipasy, and from the air photo we thought it would have a *manda*. We did not find traces of one, and the inhabitants said the hill never had a ditch.

*Artifacts:*

- 35 plain body sherds (104.0g, including 1 type iC2 red, 6 type ii, 28 type i),
- 3 decorated body sherds (25.7g, graphite ware iC with remains of triangle punctates, and 1 type i with what looks to be wheel-turned linear incisions)
- 1 plain rim sherds (1.1g)

**Site: 174**

**Maroambo**

**Region of: Vohipeno**

*Laborde X:* 538

*Latitude:* 22.17378\*

*Season:* 97

*Laborde Y:* 423.9

*Longitude:* 47.46368\*

*Ceramic phase recovered:* 5\*

*Site today:* village, school yard

*Collection method:* selective sample

*Site Notes:* This village is marked on the FTM map as Maroakanio (which people say is

actually far to the southeast). Large village (30 houses) with sherds scattered sparsely throughout, but the densest concentrations are at the southern end of the village near a Madrasa.

*Ethnographic Notes and Oral Traditions:* Many houses in this village had orange tree branches stuck into them (always an odd number) to ward off 7 evil snakes. There is also a great orange tree in village that is taboo (*fady*) to eat its fruit.

*Artifacts:*

- 8 plain body sherds (19.9g, including 3 type i with sand inclusions, 3 type i, 2 type iiiA but with black inclusions)
- 2 plain rim sherds (6.4g)

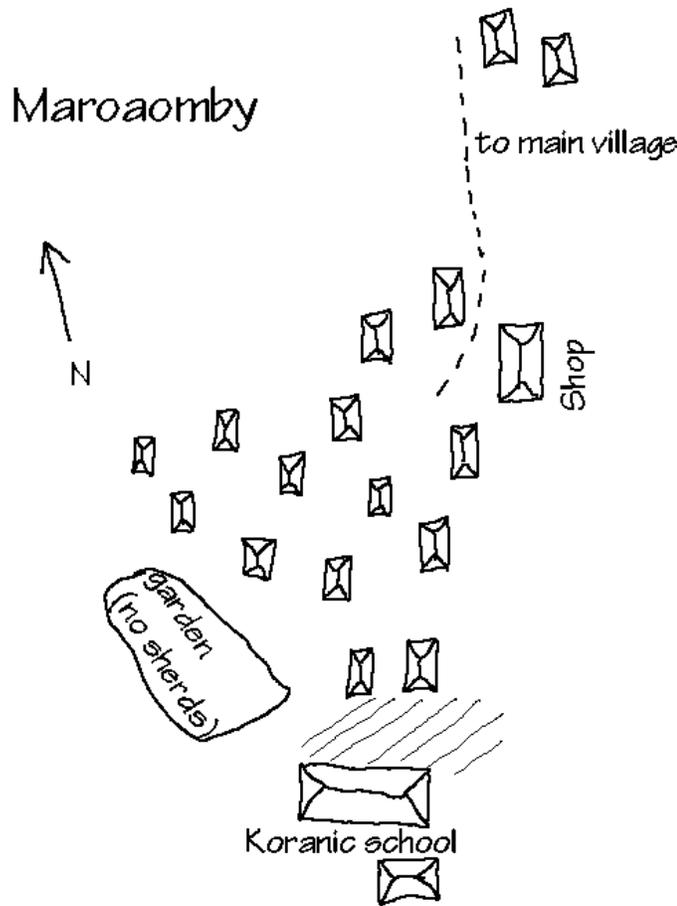


Figure A215. Site 174, Maroaomby.

<b>Site:</b> 175	<b>Makavelo</b>	<b>Region of:</b> Vohipeno
Laborde X: 538	Latitude: 22.17345*	Season: 97
Laborde Y: 424	Longitude: 47.46368*	Ceramic phase recovered: 4
Site today: village	Collection method: thorough complete collection	
Site Notes: Sherd scatter (20x10m) in a small Ampanabaka (6 houses). Sherds cluster on the southern edge of the village.		
<i>Artifacts:</i>		
- 4 plain body sherds (15.5g)		
- 2 decorated body sherds (7.8g)		

- 1 plain rim sherd (5.2g)
- 1 decorated rim sherd (10.9g, type iC graphite ware with linear incisions and small triangle punctates on exterior surface, t=.72, lip t=1.52, with interior thickening, diameter and orientation uncertain)

**Site: 176**

**Lanisay**

**Region of: Vohipeno**

Laborde X: 538

Latitude: 22.17508\*

Season: 97

Laborde Y: 423.5

Longitude: 47.46390\*

Ceramic phase recovered: 5

Site today: village

Collection method: selective sample

**Site Notes:** Sherd scatter (30x100m) in a large village on ridge (30-40 houses). Sherds densely scattered throughout village, with many large pieces visible in the ground smashed into smaller fragments, but still "in situ."

**Artifacts:**

- 24 plain body sherds (55.6g, including 13 type iE, and 10 type iE with black interior and exterior)
- 4 decorated body sherds (14.2g, 1 illustrated below, and 1 with 2 grooved lines at carination)
- 2 plain rim sherds (12.0g)
- 1 decorated rim sherds (3.9g)

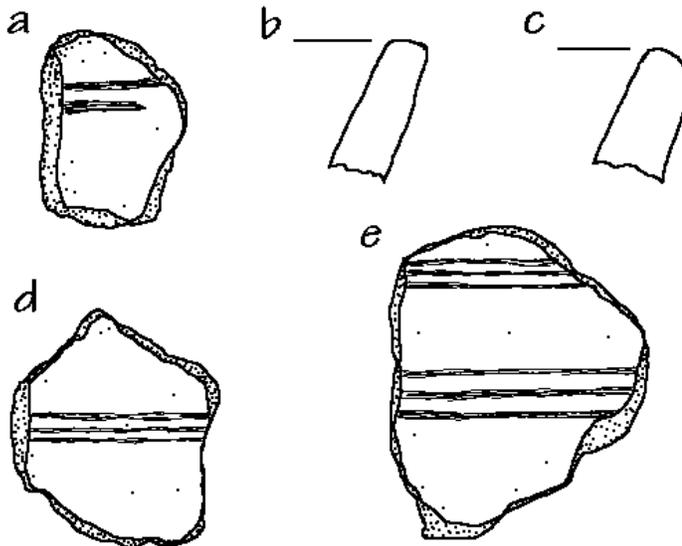


Figure A216. Sites 176 to 179 artifacts.

- a. Site 176, decorated body sherd, 2.7g, type iE with 3% mica inclusions, t=.59, with 2 grooved incisions.
- b. Site 179, plain rim sherd, type iE with dark paste and square lip, d=20 (3% of rim), t=.69, lip t=.56
- c. Site 179, plain rim sherd, type iE with more rounded lip, diameter uncertain, t=.83
- d. Site 179, decorated body sherd, type iE with gold reflective inclusions, t=.46, with 3 incised lines
- e. Site 179, decorated body sherd, type iA, t=.59, with 2 sets of 3 linear incisions.

**Site: 177**

**Foroforo**

**Region of: Vohipeno**

Laborde X: 538

Latitude: 22.17573\*

Season: 97

Laborde Y: 423.3

Longitude: 47.46370\*

Ceramic phase recovered: 5

Site today: village

Collection method: selective sample

*Site Notes:* Sherd scatter in hilltop village (clan Antekasy, south of site 173 and close to road, see map for site 178). Ceramics were dense and found throughout, in comparable numbers to Lanisay (site 176).

*Artifacts:*

- 15 plain body sherds (63.6g, including 2 type iC2, 5 type ii, 4 type iE, 4 type iE with black interior and exterior)
- 4 decorated body sherds (8.3g, with linear incisions)
- 2 plain rim sherds (17.6g)
- 1 round base (77.9g, fine sandy ware /outcaste ware))

**Site: 178**

**Vohilambo**

**Region of: Vohipeno**

*Laborde X:* 537.9

*Latitude:* 22.18005\*

*Season:* 97

*Laborde Y:* 423.2

*Longitude:* 47.46336\*

*Ceramic phase recovered:* 5

*Site today:* village

*Collection method:* thorough complete collection

*Site Notes:* A single large rim sherd from a sweet potato garden east of the hill and village known as Vohilambo. What first drew our attention to this site was the very large north/south cut through the hill itself, which turns out to have been dug by the department of public works for road construction and repair in the area. No ancient *manda* was observed at this site.

*Ethnographic Notes and Oral Traditions:* The people living here now say there was once an older village on the eastern edge of the hilltop, but it had been struck by lightning, which caused the whole village, people and houses, to be transported instantly far away (though no one knows to where). The only things that weren't transported by the lightning were their tombs, which still exist near the present-day village. No sherds were found at either the present village or the traditional location for this older site.

*Artifacts:*

- 1 decorated rim sherd (15.2g)

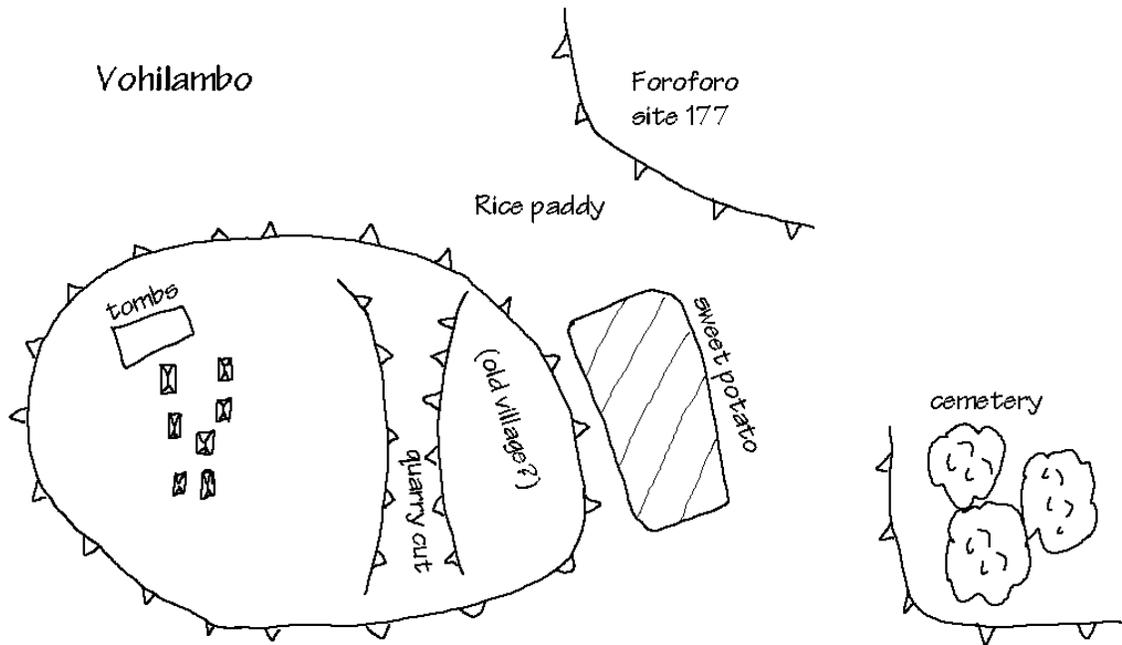


Figure A217. Site 178, Vohilambo.

**Site:** 179      **Ankaroka**      **Region of:** Vohipeno  
**Laborde X:** 543      **Latitude:** 22.20382\*      **Season:** 97  
**Laborde Y:** 418.3      **Longitude:** 47.49333\*      **Ceramic phase recovered:** 5  
**Site today:** forest, empty garden      **Collection method:** selective sample

**Site Notes:** Double *manda*, approximately 400x200m, on a forested, shallow hill. The large ditch follows the hill contours on top and a second smaller circular ditched enclosure (site 179B, 100x100m) was recorded 80 meters to the northeast (see map below). The ditches are massive (on the larger *manda* we measured them to be 8m wide at top, 1.5m wide at bottom, with 5m wide banks on both sides of ditch, making the vertical drop 3 meters deep at present. Dense foliage and poor visibility over most of the site, but sherds were found in the gardens inside both enclosures.

- Artifacts:**
- 34 plain body sherds (164.1g, some type iC, some fine sandy outcaste ware, including 9 type iE, 17 type i, 1 type iB, 1 type iC2, 1 type ii)
  - 6 decorated body sherds (38.6g, 2 illustrated above, 1 illustrated below)
  - 8 plain rim sherds (51.4g, 2 illustrated above)
  - 2 base/feet/lid knobs (204.2g, including 1 "knob" style with no side scraping, d=4.54cm, and 1 saucer-like as in the bottom of a bag shaped pot)

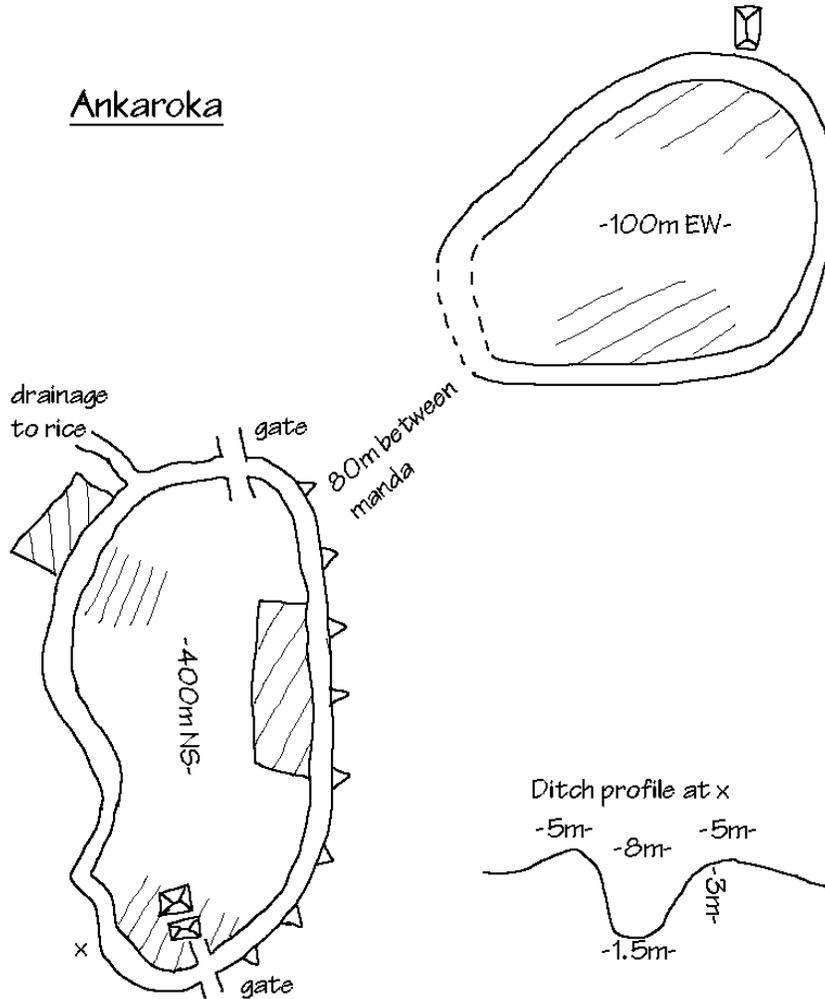


Figure A218. Site 179, Ankaroka.

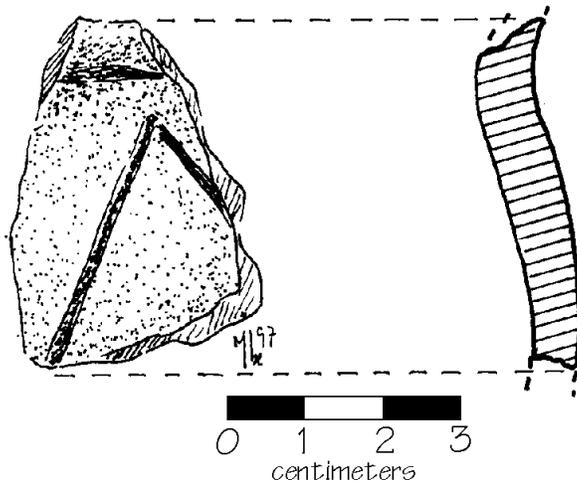


Figure A219. Site 179 artifact.  
 Decorated body sherd, type i, light brown grey,  $t=.65$ , with deep incised lines on exterior, (incised triangle motif in new typology).

**Site: 180**

*Laborde X:* 544.4

*Latitude:* 22.38164

*Season:* 97

*Laborde Y:* 414.1

*Longitude:* 47.83965

*Ceramic phase recovered:* 3/4\*

*Site today:* coffee

*Collection method:* thorough complete collection

*Site Notes:* Sherds recovered from fresh holes dug for planting coffee trees, on a ridge top south of Vohitrindry (Site 115). Sherd scatter 5x5.

*Artifacts:*

- 2 plain body sherds (8.2g), thick coarse oxidized
- 2 plain rim sherds (illustrated below).

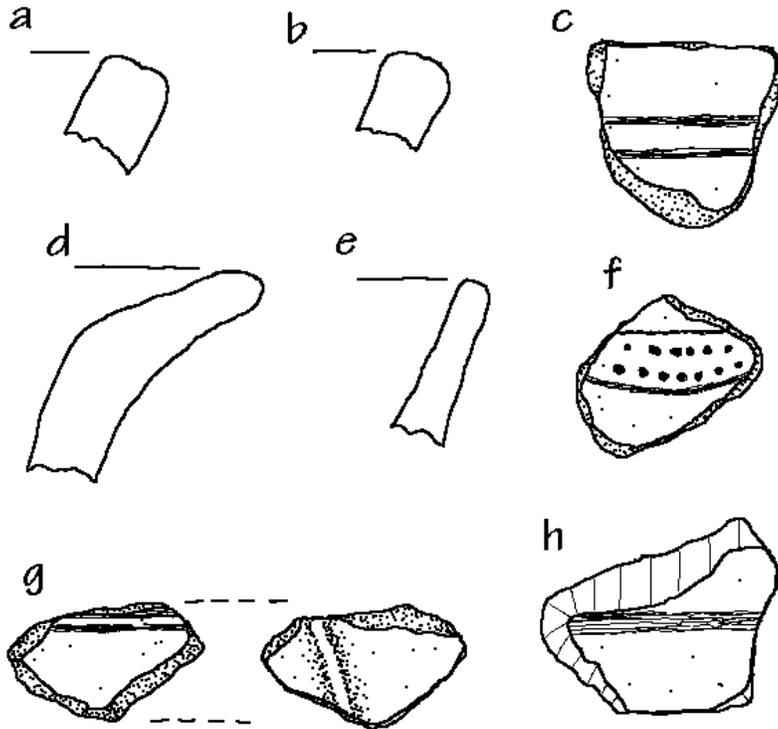


Figure 220. Sites 180 to 183 artifacts.

- a. Site 180, plain rim sherd, type ii, diameter uncertain, t=.98
- b. Site 180, plain rim sherd, type i, diameter uncertain, t=.88
- c. Site 182, decorated body sherd, type iA (size 1, 3%), t=.67, coarse with 2 grooves.
- d. Site 183, plain rim sherd, type i with gold reflective inclusions and black surfaces, d=24 (6% of rim), t=.88, carination t=.91, lip t=.44.
- e. Site 183, plain rim sherd, type iA, d=18 (4% of rim), t=.74, lip t=.46
- f. Site 183, decorated body sherd, type i, t=.74, with round punctates bounded by incised lines
- g. Site 183, decorated body sherd, type i, t=.68, with black coating on 1 side with incised lines, and a raised ridge on the other side (ridge .23cm high)
- h. Site 183, decorated body sherd, type iA, t=.46, with wide incised line on exterior (may be grass impression).

**Site: 181**

**Region of: Vohipeno**

Laborde X: 544.1

Latitude: 22.38584

Season: 97

Laborde Y: 413.7

Longitude: 47.83675

Ceramic phase recovered: 5\*

Site today: cassava

Collection method: thorough complete collection

Site Notes: Very sparse sherd scatter (30x10m) in a cassava garden near the end of ridge south of Vohitrandry (Site 115), close to a grove of Eucalyptus trees.

**Artifacts:**

- 2 plain body sherds (1.2g), incising, but oxidized (may be from swidden agriculture)
- 1 decorated body sherds (1.7g)

**Site: 182**

**Vatomasy**

**Region of: Vohipeno**

Laborde X: 544.6

Latitude: 22.20085\*

Season: 97

*Laborde Y:* 419.2      *Longitude:* 47.50289\*      *Ceramic phase recovered:* 5  
*Site today:* empty garden      *Collection method:* selective sample  
*Site Notes:* Sherd scatter (40x20m) on hill east of the Matitanana, 300m south of Taninary.  
*Artifacts:*  
- 11 plain body sherds (32.3g, including 10 type i orange and yellow and 1 type iA with incised grooves, illustrated above)

**Site: 183      Taninary      Region of: Vohipeno**

*Laborde X:* 544.6      *Latitude:* 22.20020\*      *Season:* 97  
*Laborde Y:* 419.4      *Longitude:* 47.50288\*      *Ceramic phase recovered:* 5  
*Site today:* village      *Collection method:* selective sample  
*Site Notes:* Sherd scatter (50x30m) sampled from the southern end of the modern village. No indication of a *manda* (or local tradition of one, we asked since a man in Nato had told us there was a *manda* here at Taninary, but the foliage was dense around the village).  
*Artifacts:*  
- 19 plain body sherds (65.1g, including 18 type ii with black interiors)  
- 3 decorated body sherds (8.4g, reduced with linear incising, illustrated above)  
- 2 plain rim sherds (20.3g, illustrated above)

**Site: 184      Tanambao      Region of: Lokomby**

*Laborde X:* 534.2      *Latitude:* 22.18498      *Season:* 97  
*Laborde Y:* 436.0      *Longitude:* 47.73926      *Ceramic phase recovered:* 5  
*Site today:* melons, coffee, pineapples      *Collection method:* thorough complete collection  
*Site Notes:* 2 sherd scatters in a melon garden and coffee grove (25x25m), near a 1 house compound on far side of river from Lokomby (see map for site 185).  
*Artifacts:*  
- 22 plain body sherds (53.1g, including 1 type ii with quartz inclusions, 1 type iA with coarse sand, 2 type iC, 18 type i many with black interiors)  
- 7 decorated body sherds (19.2g, illustrated below)  
- 5 plain rim sherds (18.2g, illustrated below)

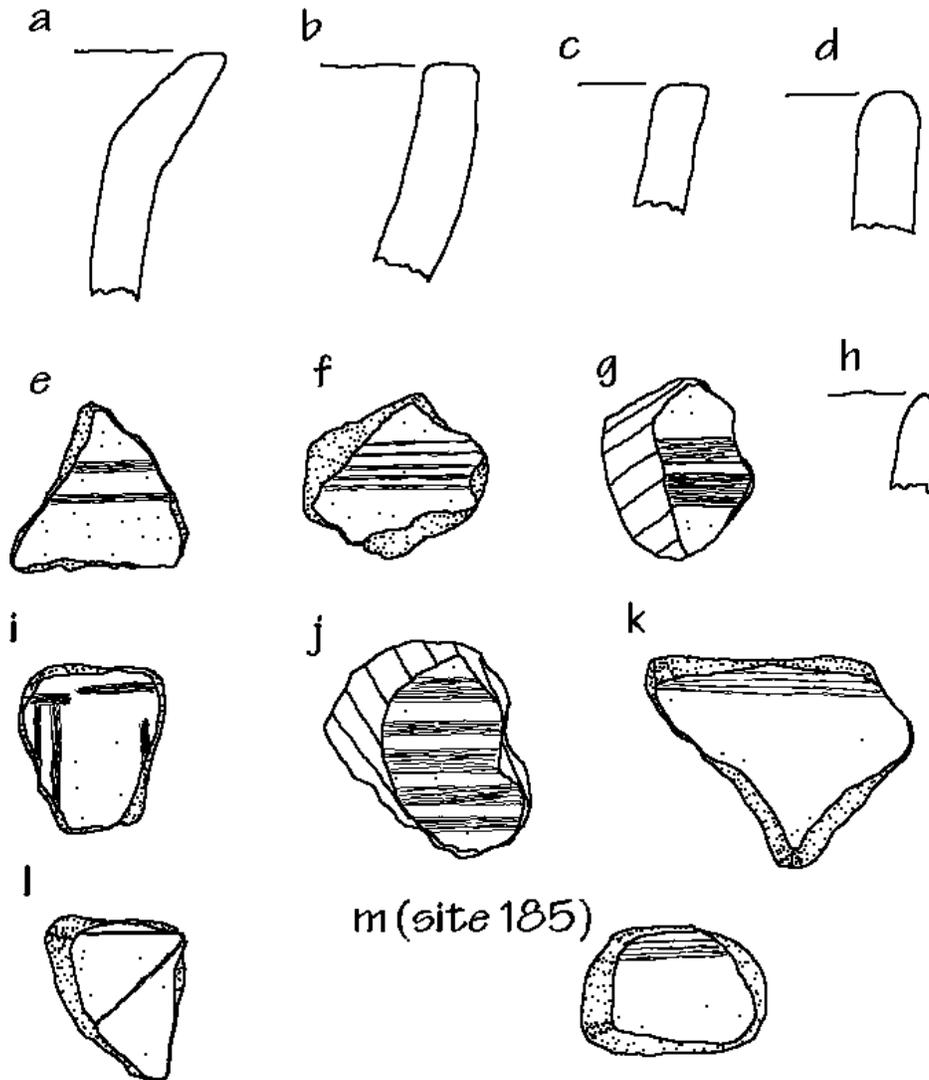


Figure A221. Sites 184 and 185 artifacts.

- a. Plain rim sherd, type i with dark grey paste,  $d=18$  (3% of rim),  $t=.59$ , carination  $t=.69$ , lip  $t=.46$
- b. Plain rim sherd, type i dark grey,  $d=16$  (4% of rim),  $t=.69$ , lip  $t=.61$
- c. Plain rim sherd, type i,  $d=18$  (5% of rim),  $t=.57$ , lip  $t=.63$
- d. Plain rim sherd, type i, diameter uncertain,  $t=.68$ , rounded lip  $t=.78$
- e. Decorated body sherd, type i,  $t=.52$ , with deep incised grooves on exterior
- f. Decorated body sherd, type i,  $t=.48$ , with linear combing or bands of shallow incisions
- g. Decorated body sherd, type i,  $t=.59$ , with 2 wide shallow grooves
- h. Plain rim sherd, type i, diameter uncertain,  $g=.45$ , lip  $t=.37$
- i. Decorated body sherd, type i, with incised perpendicular grooves
- j. Decorated body sherd, type iC,  $t=.80$ , with deep combed grooves
- k. Decorated body sherd, type iA,  $t=.52$ , with very fine faint linear incisions
- l. Decorated body sherd, type i,  $t=.37$ , with 2 incised lines at an angle
- m. Site 185, decorated body sherd, type i,  $t=.65$ , with fine shallow incised lines, possible rice grass impression.

Site: 185

Tanambao Atsimo

Region of: Lokombo

Laborde X: 534.1  
Laborde Y: 435.9

Latitude: 22.18565  
Longitude: 47.73844

Season: 97  
Ceramic phase recovered: 5\*

Site today: one house compound, Collection method: thorough complete collection

Site Notes: Sherd scatter in a coffee garden and 1 house compound (10x10m), on other side of hill from site 184 (see map below). No ditch visible on this hill, but it has a densely forested hill top with low visibility.

Artifacts:

- 9 plain body sherds (19.5g, including 7 rough type i brown, 2 type i orange)
- 1 decorated body sherd (2.6g, illustrated above)

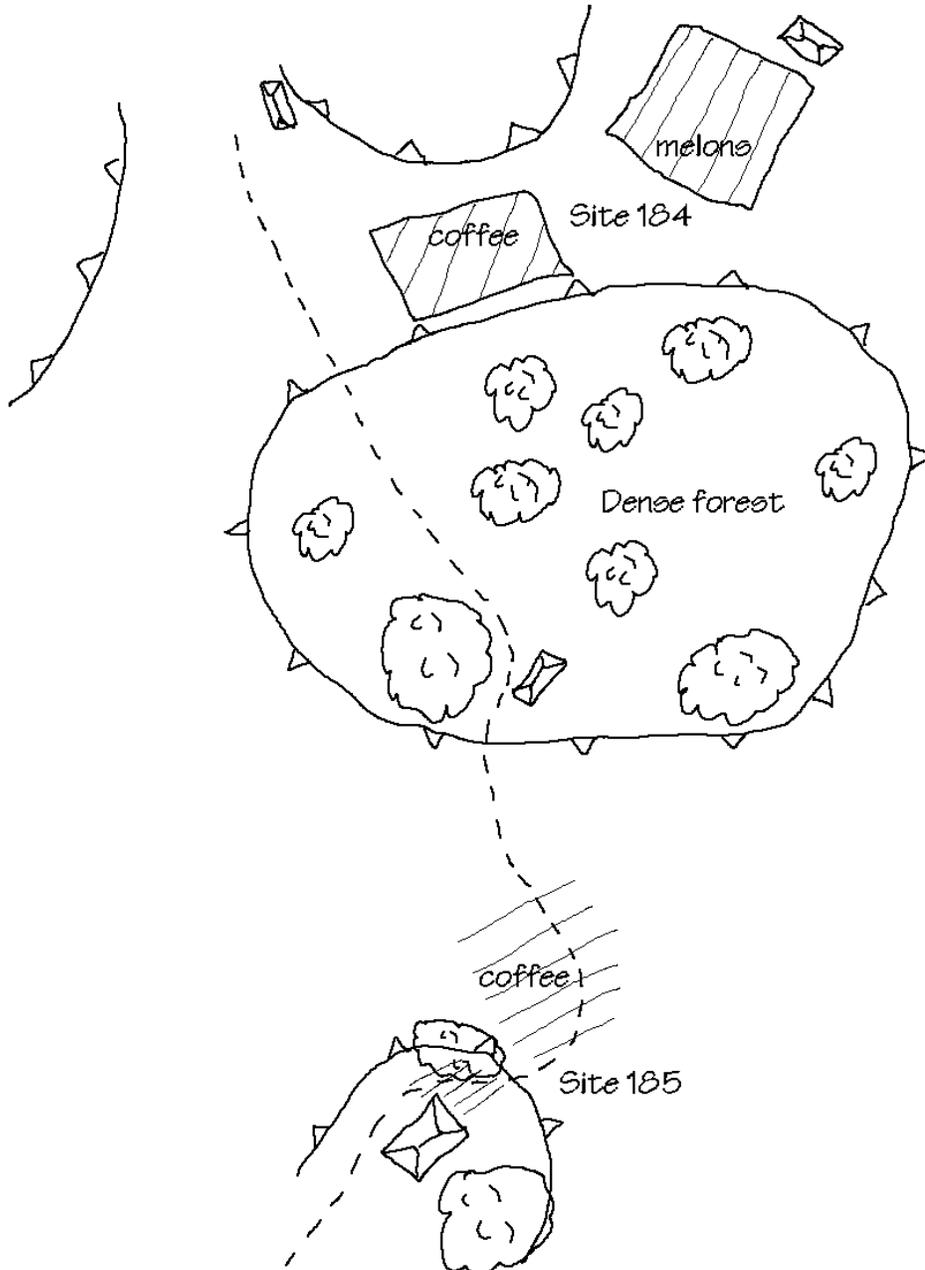


Figure A222. Sites 184 and 185, Tanambao.

**Site: 186**

**Ambohitrabo**

**Region of: Lokomby**

*Laborde X:* 534.1

*Latitude:* 22.18392

*Season:* 97

*Laborde Y:* 436.1

*Longitude:* 47.73826

*Ceramic phase recovered:* 5

*Site today:* one house compound,

*Collection method:* thorough complete collection

*Site Notes:* Large, but sparse, sherd scatter across 2 cassava gardens and a 1 house compound overlooking a rice paddy.

*Artifacts:*

- 13 plain body sherds (30.0g, including 12 rough type i brown and 1 type iC)
- 3 decorated body sherds (5.2g, with deep parallel incised grooves)
- 1 plain rim sherd (1.7g)

**Site: 187**

**Region of: Lokomby**

*Laborde X:* 534.2

*Latitude:* 22.18265

*Season:* 97

*Laborde Y:* 436.2

*Longitude:* 47.73862

*Ceramic phase recovered:* 5,6

*Site today:* cassava

*Collection method:* selective sample

*Site Notes:* Large sherd scatter in cassava gardens on the northeast slope of a hill, west of Ambalakaza.

*Artifacts:*

- 9 plain body sherds (28.0g, including 1 type iC2, 1 type ii, 6 type iE)
- 5 decorated body sherds (17.6g, with deep incised grooves, 3 illustrated below)
- 4 plain rim sherds (21.3g, illustrated below)

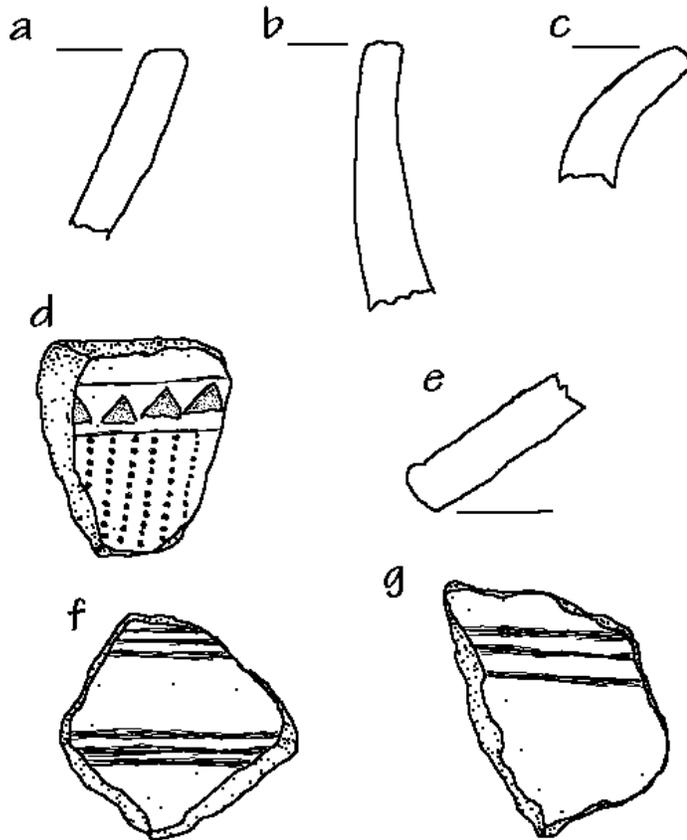


Figure A223. Site 187 artifacts.

- a. Plain rim sherd, type i, t=.51, lip t=.51
- b. Plain rim sherd, type iA, d=16 (3% of rim), t=.75, lip t=.47
- c. Plain rim sherd, type i, t=.81, lip t=.34
- d. Decorated body sherd, type iC, with a row of triangle punctates in incised bands over columns of round punctates (or dentate stamps)
- e. Plain lid rim sherd, type i but orangish, d=26 (4% of lid rim), t=.49, lip t=.59
- f. Decorated body sherd, t=.59, incised lines
- g. Decorated body sherd, t=.43, with incised lines (2 deep and 1 shallow)

<b>Site:</b> 188	<b>Borahana</b>	<b>Region of:</b> Lokomby
<i>Laborde X:</i> 534.2	<i>Latitude:</i> 22.17553	<i>Season:</i> 97
<i>Laborde Y:</i> 437.0	<i>Longitude:</i> 47.73891	<i>Ceramic phase recovered:</i> 5
<i>Site today:</i> village, embankment		<i>Collection method:</i> quick complete collection

*Site Notes:* Sherd scatter from the southeast end of the large village of Borahana (10x10m), and a second collection of sherds from a newly cut roadside embankment (188A) just east of the village on the new road leading to their new ferry landing. The in-situ sherds were 40cm below ground surface in a light brown layer, just above a layer 10 to 20cm thick with many pebbles which was above the orange-ish sterile layer.

*Ethnographic Notes and Oral Traditions:* The people of Borahana are Antemoro of the clan Antesoia. When shown the pottery sherds, the elders asserted that such things came from the Betsileo (around Ambalavao and Fianarantsoa) in the times of their grandfathers. They were able to tell us of 2 *manda* that they knew of: at Mahatsinjo, near Ambodivolo (8km from here) and Vohimanitra, south of Ambandrika (5km from here). We were not able to expand our survey to

look at these areas.

*Artifacts:*

- 17 plain body sherds (28.8g, including 14 type i black interior, 1 type iA, 1 type iC)
- 6 decorated body sherds (10.7g, reduced incised triple grooves and double grooves)
- 3 plain rim sherds (8.6g)

<b>Site:</b> 189	<b>Nihona</b>	<b>Region of:</b> Lokomby
Laborde X: 535.5	Latitude: 22.10425*	Season: 97
Laborde Y: 436.7	Longitude: 47.45055*	Ceramic phase recovered: 5
Site today: village	Collection method: thorough complete collection	

*Site Notes:* Medium sized sherd scatter and iron slag from the northwest end of the modern hilltop village (which is written as Nihaonana on the FTM map, but the current inhabitants insisted that was wrong).

*Ethnographic Notes and Oral Traditions:* The people here claim to be of the clan Onjatsy, which is interesting as this is the only group of people outside the actual village of Onjatsy (site 48) to make such a claim to us (and see chapter 3 for the Onjatsy's unique position in the oral histories). Onjatsy have also been claimed to be the traditional iron workers for the valley.

*Artifacts:*

- 5 plain body sherds (13.0g, including 1 type iC, 3 type iE, and 1 type ii with silver mica inclusions)
- 1 decorated body sherds (3.2g, illustrated below)
- 1 piece of iron slag (99.3g)

<b>Site:</b> 190	<b>Vohibazimba</b>	<b>Region of:</b> Lokomby
Laborde X: 535.4	Latitude: 22.10133*	Season: 97
Laborde Y: 437.6	Longitude: 47.45017*	Ceramic phase recovered: 5,7
Site today: village	Collection method: selective sample	

*Site Notes:* Sherds from a very large village (300 houses) on a ridge, and a second collection from Fenoarivo (20 houses) just to the northeast on the same ridge. Had been told there was a *manda* here, but no sign of it, and locals said no. Residents here did say they knew of a *manda* at Vohibao, a hill 5km to northeast.

*Ethnographic Notes and Oral Traditions:* We had been told that there was a *manda* on this hill, but saw no sign of it and the inhabitants here said there had never been one (but they did know of a *manda* on the hill Vohibao, 5km to the northeast). The place name for this village "Hill of the Vazimba" would imply an ancient site, and perhaps that is why people told us we could find a *manda* here.

*Artifacts:*

- 13 plain body sherds (36.8g, including 11 type iE (black and pink) and 3 type i (brown and pink))
- 6 decorated body sherds (26.2g, reduced double incised grooves, 3 illustrated below)
- 3 plain rim sherds (13.3g, illustrated below)
- 1 European imported pottery (4.8g)

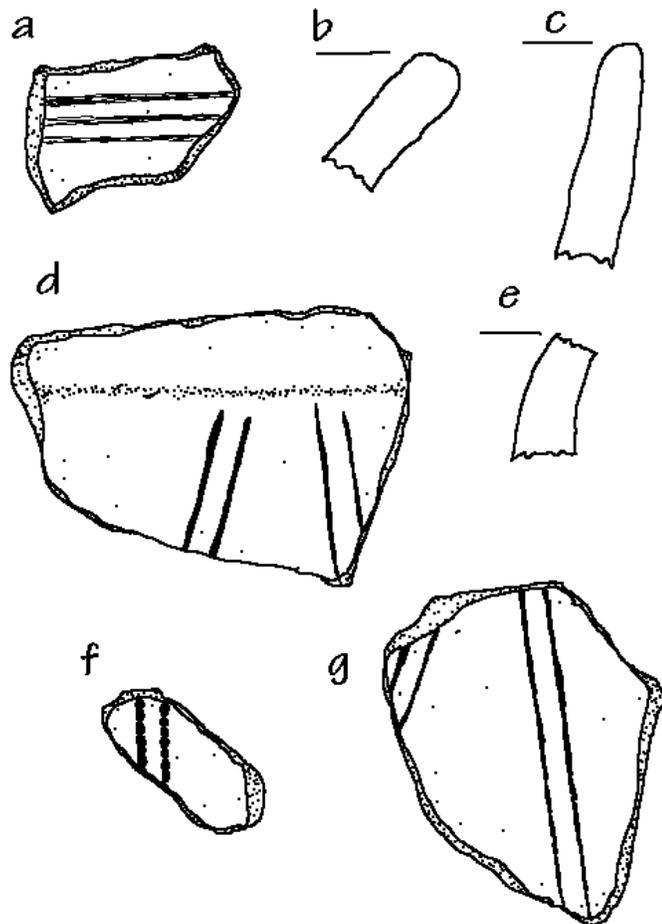


Figure A224. Site 189 and 190 artifacts.

- a. Site 189, decorated body sherd, type i with silver mica (3% inclusions), with triple incised grooves.
- b. Site 190, decorated rim sherd, type i, t=.65, lip t=.75, with a single incised line on exterior
- c. Site 190, plain rim sherd, type i, t=.68, lip t=.45
- d. Site 190, decorated body sherd, type i, t=.52, with deeply incised parallel grooves on black exterior, and a carination.
- e. Site 190, plain rim sherd with the lip broken off, type i, t=.75
- f. Site 190, decorated body sherd, type iC, t=.63, with shallow, parallel lines (possibly made of dentate stamps)
- g. Site 190, decorated body sherd, type i, t=.55, with deeply incised parallel grooves on black exterior.

**Site: 191**

**Ankazomainty North**

**Region of: Manakara**

*Laborde X: 559.0*

*Latitude: 22.24398*

*Season: 97*

*Laborde Y: 429.2*

*Longitude: 47.97992*

*Ceramic phase recovered: 3/4\*,5*

*Site today: village*

*Collection method: thorough complete collection*

*Site Notes:* Sherd scatter (40x20m) in a 4-house compound between the Pangalanes Canal and the Ocean. We were surveying north towards Antsary, and passed many cassava gardens without any sherds before this site. It may be that before the Pangalanes Canal fresh water wasn't as easy to come by, and hence there was less occupation.

*Artifacts:*

- 23 plain body sherds (66.5g, including 1 type iC, 2 type ii, 2 type i with red exterior, 13 type i, and 4 type iE)
- 2 decorated body sherds (5.9g, illustrated below)
- 2 plain rim sherds (23.0g, illustrated below)

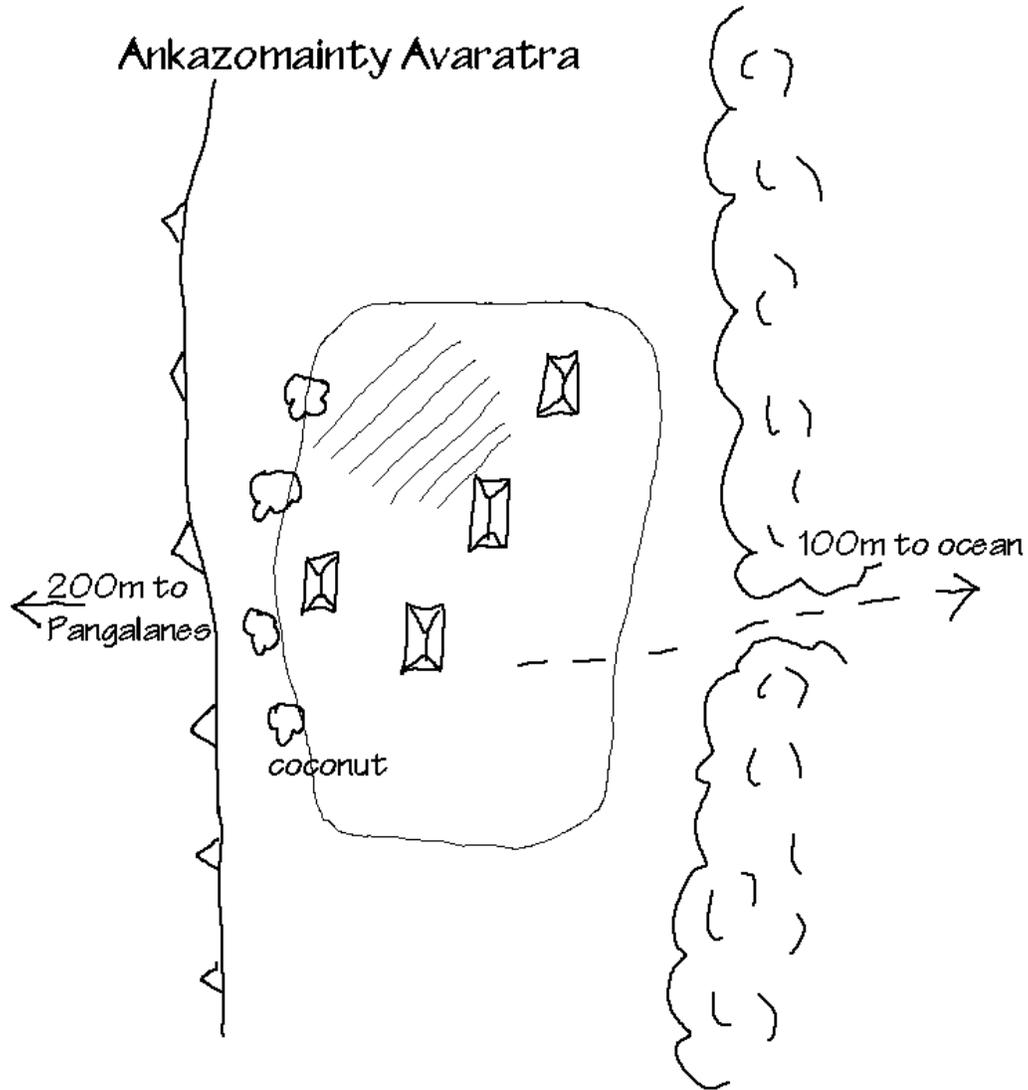


Figure A225. Site 191, Ankazomainty North.

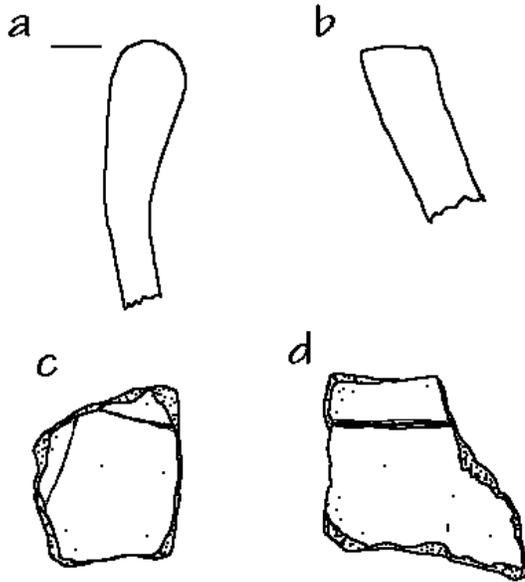


Figure A226. Site 191 artifacts.

- a. Plain rim sherd, type i with smoothed interior and exterior,  $d=26$  (5% of rim),  $t=.39$ , lip  $t=.87$   
 b. Plain rim sherd, type i with coarse sand,  $t=.66$ , lip  $t=.82$   
 c. Decorated body sherd, type i, with linear incisions at an angle  
 d. Decorated body sherd, type i, with a linear incision.

**Site: 192**      **Ampaho**      **Region of: Manakara**  
*Laborde X: 559.4*      *Latitude: 22.23543*      *Season: 97*  
*Laborde Y: 430.2*      *Longitude: 47.98346*      *Ceramic phase recovered: 5\**  
*Site today: cassava*      *Collection method: thorough complete collection*  
*Site Notes:* Sparse sherd scatter (30x20m) in a cassava garden near a one-house compound.  
*Artifacts:*  
 - 7 plain body sherds (18.7g), including 4 type i, 2 type iE, 1 type i orange.

**Site: 193**      **Antanambao Avaratra**      **Region of: Manakara**  
*Laborde X: 555.3*      *Latitude: 22.3311*      *Season: 97*  
*Laborde Y: 419.6*      *Longitude: 47.94554*      *Ceramic phase recovered: 4*  
*Site today: coconuts, open grass, sweet potatoes*      *Collection method: selective sample*  
*Site Notes:* Sherd scatter (30x20m) in an open grassy area near a three-house compound.  
*Artifacts:*  
 - 14 plain body sherds (87.9g, 1 with smoothed cracked surface, including 1 type iC1, 1 type iC, 6 type iiA, 4 type iE, 2 type i)  
 - 4 plain rim sherds (26.8g, illustrated below)  
 - 2 decorated rim sherds (33.0g, illustrated below)

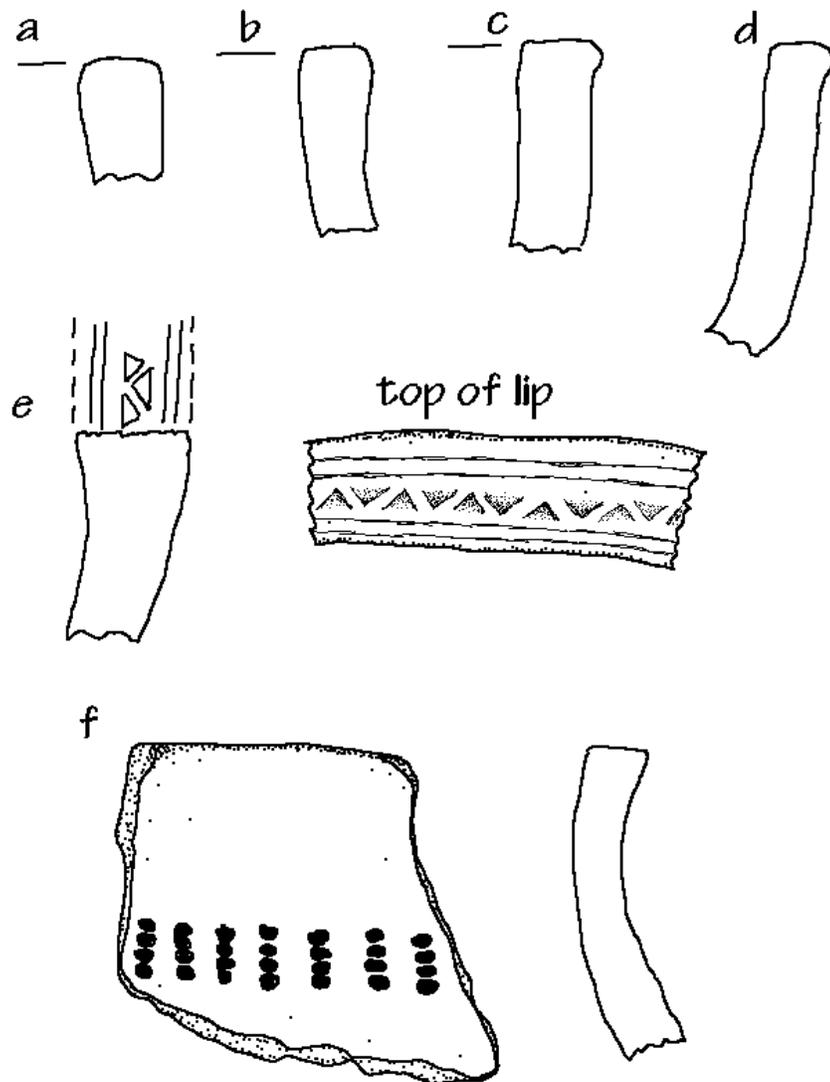


Figure A227. Site 193 artifacts.

- a. Plain rim sherd, type i, t=.81, lip t=.94  
 b. Plain rim sherd, type i with soft paste, d=19 (4% of rim), t=.67, lip t=.84  
 c. Plain rim sherd, type i with smoothed interior surface, t=.84, lip t=.96  
 d. Plain rim sherd, diameter uncertain, may have drawn in reverse, t=.68, lip t=.79  
 e. Decorated rim sherd, type iC, d=34 (4% of rim), t=.78, lip t=1.34 to 1.41, with triangle punctates in false chevron bounded by parallel incised lines on top of the lip.  
 f. Decorated rim sherd, type i with smoothed exterior and interior, d=18 (6% of rim), t=.66, lip t=.79, with columns of 4 round punctates (punctate diameter .27cm)

**Site:** 194

**Mangatsiotra Atsimo**

**Region of:** Manakara

Laborde X: 555.6

Latitude: 22.3264

Season: 97

Laborde Y: 420.1

Longitude: 47.94797

Ceramic phase recovered: 5\*

Site today: cassava, charcoal pits, one-house compound  
 Collection method: thorough complete collection

Site Notes: Sherd scatter (10x10 total) from recent charcoal making pits and adjacent new

cassava garden, and the yard of a one-house compound 100 meters to the northeast of the garden.

*Artifacts:* Including thin reduced medium sandy  
- 11 plain body sherds (44.5g), including 1 type iC, 1 type iC with red exterior 2 type ii, 2 type iE, 3 type i, and 1 type iE

**Site: 195**

**Region of: Manakara**

*Laborde X:* 555.9

*Latitude:* 22.31615

*Season:* 97

*Laborde Y:* 421.3

*Longitude:* 47.95099

*Ceramic phase recovered:*

*Site today:* sweet potato

*Collection method:* thorough complete collection

*Site Notes:* Small sherd scatter (2 sherds) from a sweet potato garden next to a one-house compound (their much large cassava garden had nothing apparent).

*Artifacts:*

- 2 plain body sherds (4.0g, oxidized, coarse, 2 type iE with red exterior)

**Site: 196**

**Mangatsioka**

**Region of: Manakara**

*Laborde X:* 555.9

*Latitude:* 22.30968

*Season:* 97

*Laborde Y:* 422.0

*Longitude:* 47.95112

*Ceramic phase recovered:* 5

*Site today:* village

*Collection method:* thorough complete collection

*Site Notes:* Small sherd scatter (10x5m) on the southern side of the lobster catchers' village, north of the Ambaro River. Just across the river (at point A on the map below) was a strange earthwork with a *manda*-like ditch that had been cut into on the west side by the river. We recovered no sherds at that location, but Ramilisonina suggested it might be an early French fort guarding the river mouth.

*Artifacts:*

Including thin reduced sandy, incised, everted neck  
- 17 plain body sherds (21.7g, including 4 type ii, 4 type i, 9 type iE)  
- 3 decorated body sherds (5.6g, illustrated below)

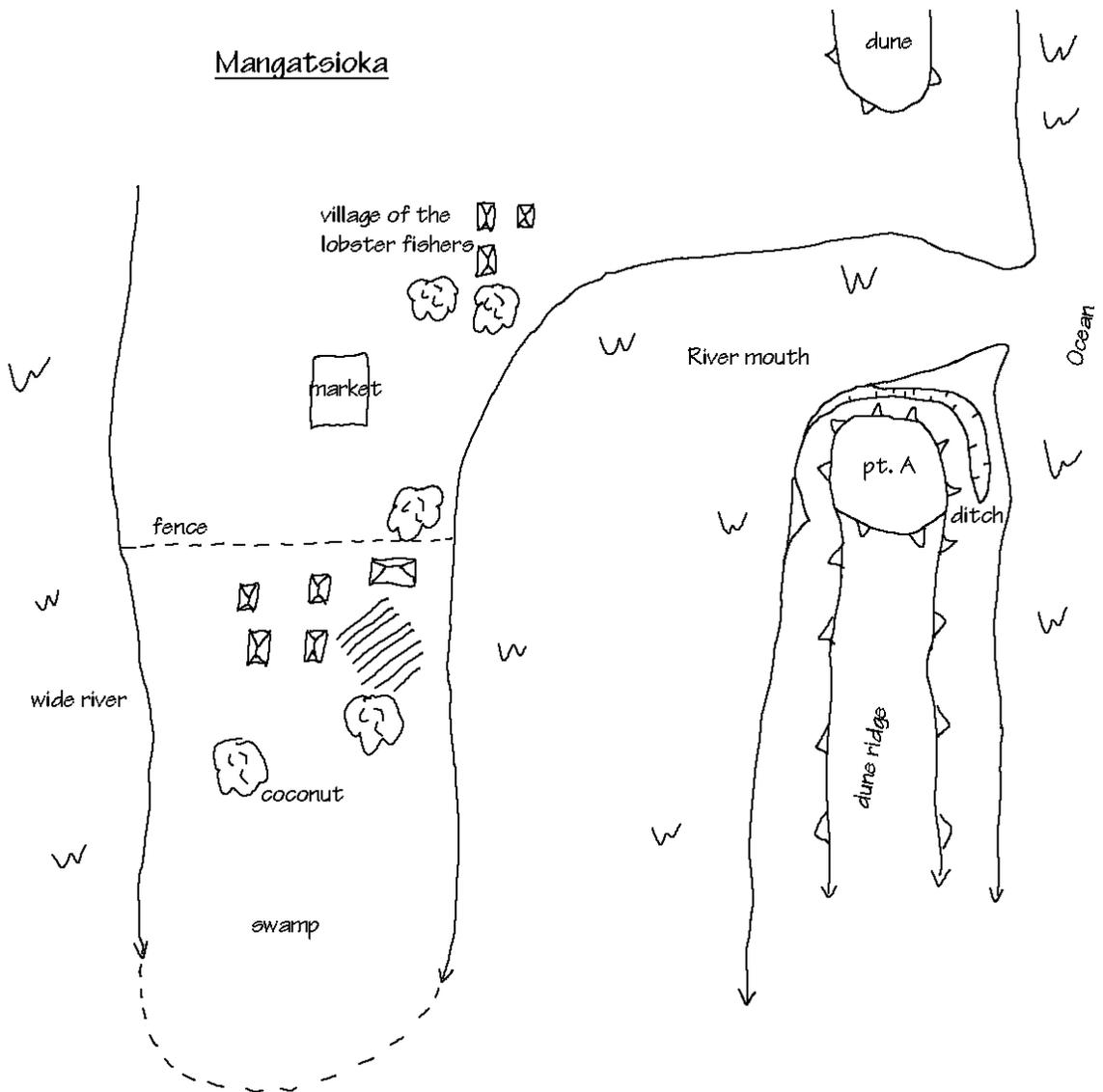


Figure A228. Site 196, Mangatsioka.

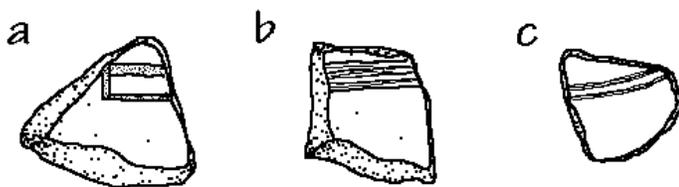


Figure A229. Site 196 artifacts.

a. Decorated body sherd, type iE, t=.76, with 3 shallow grooves

b. Decorated body sherd, type iE, t=.84, with a shallow wide groove (maybe grass leaf impression)

c. Decorated body sherd, type i with smoothed interior and exterior, t=.37, with 2 fine parallel lines.

**Site: 197**

**Andranosovoka**

**Region of: Manakara**

Laborde X: 556.2

Latitude: 22.30121

Season: 97

Laborde Y: 422.9

Longitude: 47.95383

Ceramic phase recovered: 5

Site today: charcoal pits

Collection method: quick complete collection

**Site Notes:** Small sherd scatter (10x5m) in 2 charcoal mounds on the bank of the Pangalanes. The area had been very recently deforested (for charcoal production) and gardens had not yet been dug.

**Artifacts:** Including flared flattened everted rim on medium sandy ware, incised, flat lip bowls, thin reduced sandy ware

- 24 plain body sherds (66.5g, including 6 type iE, 4 type iE with red inclusions, 4 type i, 6 type i orange-ish)

- 1 decorated body sherds (2.3g, illustrated below)

- 2 plain rim sherds (5.0g, ill. below)

- 2 decorated rim sherds (7.5g, ill. below)

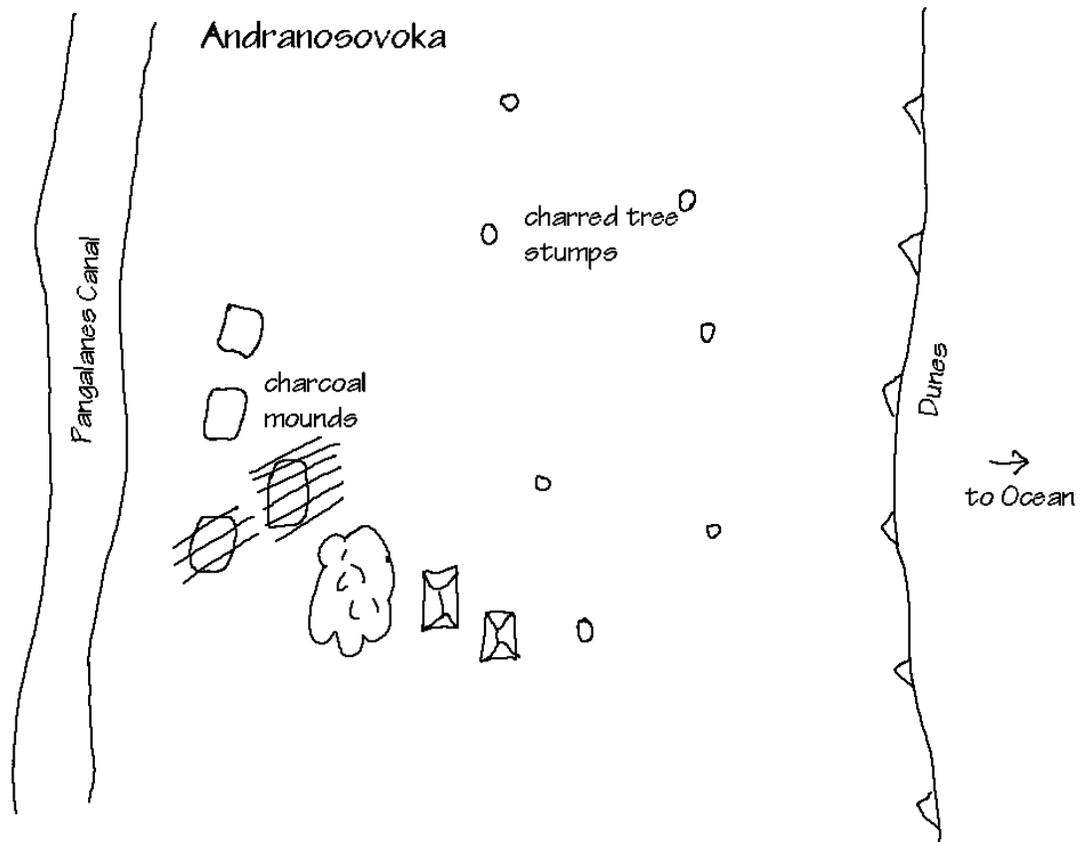


Figure A230. Site 197, Andranosovoka.

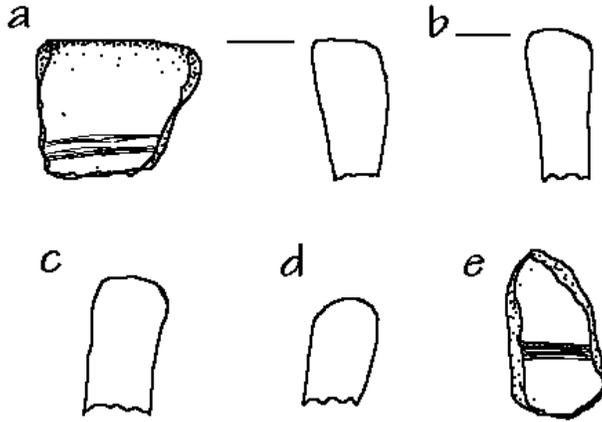


Figure A231. Site 197 artifacts.

- a. Decorated rim sherd, type i, orientation and diameter uncertain, t=.45, lip t=.84, with 2 incised parallel lines on the exterior.  
 b. Decorated rim sherd, type i, d=20 (4% of rim), t=.46, lip t=.77, with 2 incised parallel lines on the exterior (similar, but not same vessel as sherd a.)  
 c. Plain rim sherd, type i with dark paste and sand inclusions, t=.81 square lip t=.87  
 d. Plain rim sherd, type i with grey paste, t=.63, lip t=.83  
 e. Decorated body sherd, type iE, t=.71, with a deep incised groove.

**Site: 198**

**Namakia Atsimo**

**Region of: Manakara**

*Laborde X:* 561.2

*Latitude:* 22.19142

*Season:* 97

*Laborde Y:* 435.0

*Longitude:* 48.00057

*Ceramic phase recovered:* 5\*

*Site today:* sweet potatoes

*Collection method:* thorough complete collection

*Site Notes:* Sherd scatter (40x30m) in sweet potato gardens on the back side of dunes. Note: poor ground visibility between these gardens and Ampandriamborona.

*Artifacts:*

- 8 plain body sherds (15.9g), including 4 type iE, 2 type i, 4 type i dark brown

**Site: 199**

**Ilokahambo Avaratra**

**Region of: Manakara**

*Laborde X:* 561.7

*Latitude:* 22.18105

*Season:* 97

*Laborde Y:* 436.2

*Longitude:* 48.00561

*Ceramic phase recovered:* 1-3\*

*Site today:* sweet potatoes

*Collection method:* thorough complete collection

*Site Notes:* Sherd scatter (45x30m) in a sweet potato garden 200m north of the house compound called Ilokahambo. This garden had an especially deep trench on the south side: 40cm deep and 50cm wide). From this site we could see the Manakara radio tower at 38 degrees.

*Artifacts:*

- 9 plain body sherds (83.7g, coarse oxidized with shell and sand inclusions, unusual type, smoothed and reduced on one side and extremely coarse on the other (probably the exterior, but too flat to be sure, t=1.08).

**Site: 200**

**Ambohifandra**

**Region of: Ambila**

Laborde X: 547.3

Latitude: 22.00594

Season: 97

Laborde Y: 455.7

Longitude: 47.86457

Ceramic phase recovered: 5,6

*Site today:* forest, bananas, tree fall roots      *Collection method:* selective sample

*Site Notes:* Circular ditch (163 meters across) with sherd scatters (20x20 total), one from a banana grove outside the ditch and 2 collections from tree falls inside the enclosure (where fallen trees had pulled up soil.)

*Ethnographic Notes and Oral Traditions:* The anthropologist Gérard Althabe (1984) has written that there was a "pre-colonial fortified village near Vohitsivalana." We found no sherds or ditches at Vohitsivalana, but our informant at this site 200 (Nanika or Yabon'ny Karila) claimed this *manda* to be the ancestral village to Vohitsivalana, and thus believe that Ambohifandra is the location to which Althabe was referring.

*Artifacts:*

- 55 plain body sherds (231.9g, including 10 type iC, 2 type ii with black interiors, 22 type i, 6 type i with pink paste, 1 type iA, 3 type iB)
  - 9 decorated body sherds (58.5g)
  - 8 plain rim sherds (32.2g)
  - 3 decorated rim sherds (35.4g)
- (11 sherds illustrated below)

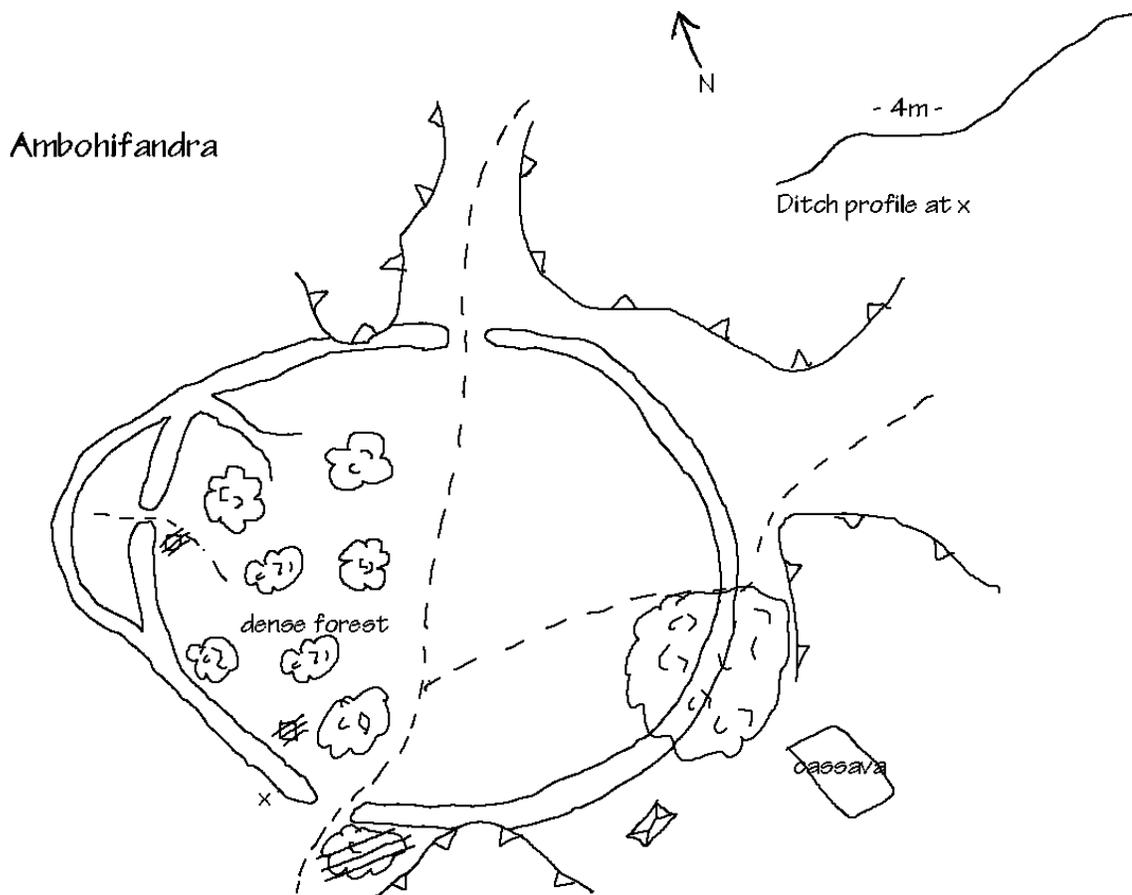


Figure A232. Site 200, Ambohifandra.

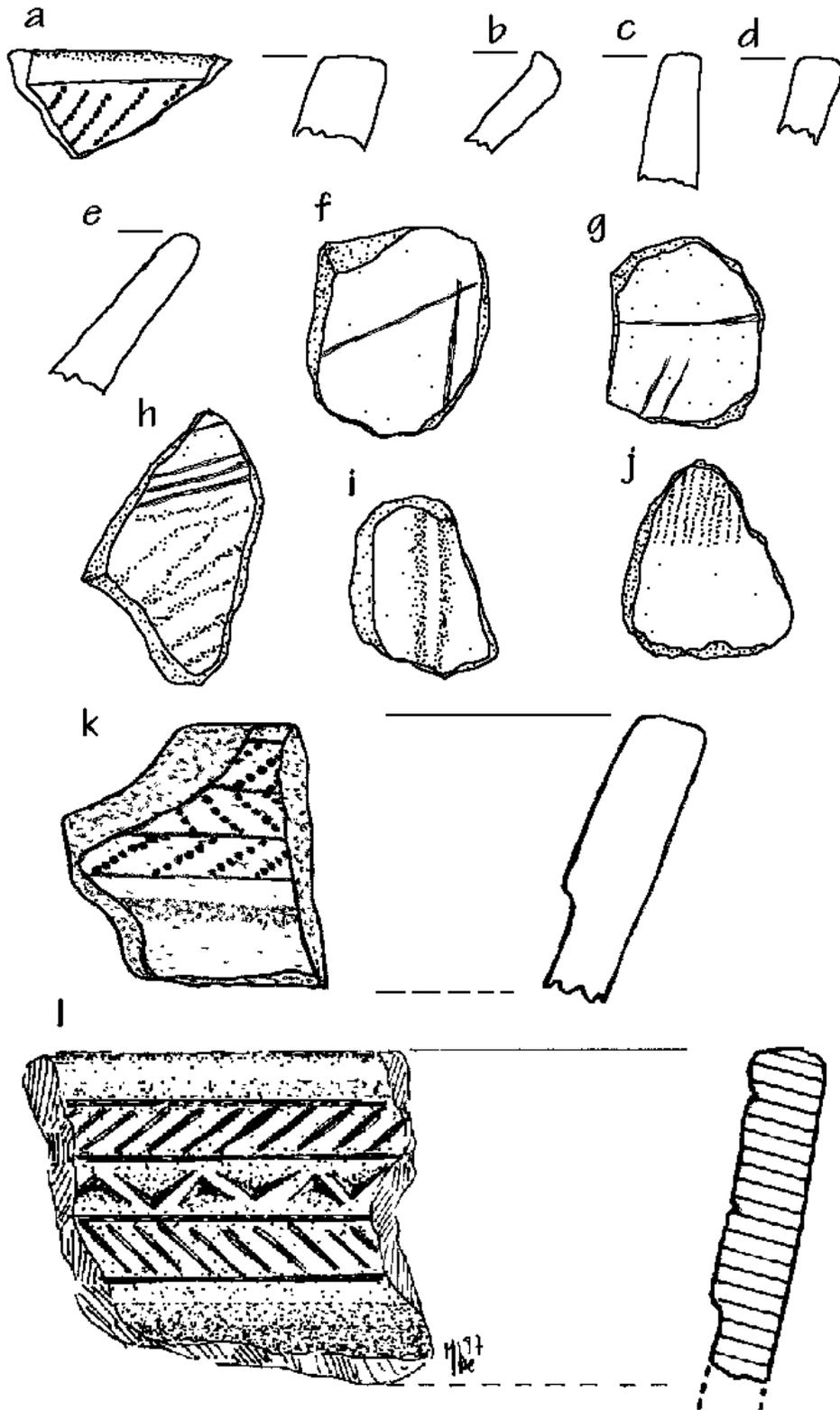


Figure A233. Site 200 artifacts.

a. Decorated rim sherd, type iB, t=.93, lip t=.90, with incised line bordering diagonal dentate stamps (looks like an imitation of chlorite-schist)

b. Plain rim sherd, type i, d=17 (5% of rim), t=.42, square lip t=.47

- c. Plain rim sherd, type i, t=.79, lip t=.52
- d. Plain rim sherd, type i, t=.64
- e. Plain rim sherd, type i, d=20 (7% of rim), t=.72, square lip t=.52
- f. Decorated body sherd, type i, t=.71, with 2 incised crossing lines
- g. Decorated body sherd, type i, t=.61, with parallel incised lines and a horizontal line at carination.
- h. Decorated body sherd, type iC, t=.79, with incised triple lines and rough combing
- i. Decorated body sherd, type iE, t=.55, with raised ridge
- j. Decorated body sherd, type iC, with faint linear combing
- k. Decorated rim sherd, type iC grey graphite ware, 14.2g, d=18 (5% of rim), t=.81, lip t=1.03, eroded with incised lines and dentate stamps on interior of rim platform.
- l. Decorated rim sherd, type iC2 with light grey fabric, d = 33 (4% of rim), t = .69, lip t = .98, with triangle punctates in false chevron banded by incised lines and dentates (the diagonal lines in the illustration are actually 4 to 6 round dentate stamps) on the interior surface.

**Site: 201**

**Vohitrambelo**

**Region of: Ambila**

*Laborde X:* 548.9

*Latitude:* 22.00809

*Season:* 97

*Laborde Y:* 455.4

*Longitude:* 47.88

*Ceramic phase recovered:* 5

*Site today:* school yard

*Collection method:* quick complete collection

*Site Notes:* Sherd scatter (10x5m) from school yard just northeast of Vohitraomby, on same hill but a bit lower than the town.

**Artifacts:**

- 11 plain body sherds (16.5g, including 5 type i yellow, 3 type iE, 2 type i, 1 type iC)
- 1 decorated body sherd (1.6g, illustrated below)

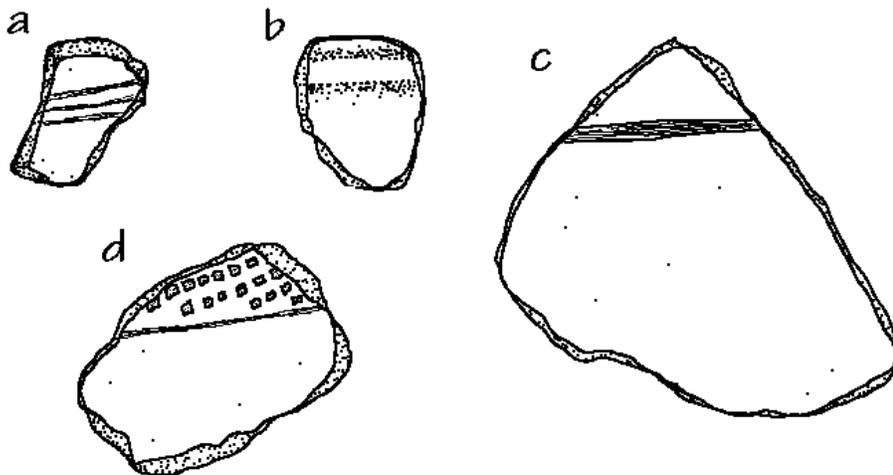


Figure A234. Sites 201, 202, and 204 artifacts.

- a. Site 201, decorated body sherd, type i light brown, t=.66, with triple incised lines
- b. Site 202, decorated body sherd, type iE with smoothed exterior, with 2 raised ridges on blackened exterior
- c. Site 202, decorated body sherd, type i, t=.42, with 1 deep incised groove on exterior
- d. Site 204, decorated rim sherd, t=.89, with rows of square punctates and an incised line.

**Site: 202                      Vohitraomby                      Region of: Ambila**

*Laborde X:* 548.8                      *Latitude:* 22.00986                      *Season:* 97  
*Laborde Y:* 455.3                      *Longitude:* 47.87871                      *Ceramic phase recovered:* 5  
*Site today:* village                      *Collection method:* quick complete collection

*Site Notes:* Sherd scatter (10x5m) on the northeastern edge of a large village visited by Althabe (1984).

*Ethnographic Notes and Oral Traditions:* In speaking with the people of this village we learned that they are Antemoro (not Antefasy), who say they arrived about 1700AD. They told us that their ancestors had migrated from 1) Vohipeno to 2) Ranomeno (west of Vaingdrano) to 3) Karianga (southwest of Farafangana) to this village of 4) Vohitraomby.

*Artifacts:*

- 6 plain body sherds (13.2g)
- 2 decorated body sherds (12.3g, illustrated above)

**Site: 203                      Anarinamizilo                      Region of: Ambila**

*Laborde X:* 549.5                      *Latitude:* 22.01053                      *Season:* 97  
*Laborde Y:* 455.2                      *Longitude:* 47.88543                      *Ceramic phase recovered:* 5,6  
*Site today:* cassava, coffee, pineapples                      *Collection method:* thorough complete collection

*Site Notes:* Large sherd scatter across an oval ditched hill site (65 meters north to south, see map below).

*Ethnographic Notes and Oral Traditions:* The people of Vohitraomby (site 202) and Althabe (1984) both claim Mizilo to be older than Vohitraomby, and that neither site had ditch fortifications. We did not find any traces of a *manda* at Vohitraomby, but we were able to discover ditches at this site (see map below.)

*Artifacts:*

- 51 plain body sherds (237.7g, including 3 type iC, 18 type i light brown, 21 type iE grey, 1 type i with soft brown paste, 1 type ii with soft red/cream paste, 3 iE thick coarse grey with black interior)
- 4 decorated body sherds (32.6g)
- 2 plain rim sherds (6.4g, illustrated above)
- 4 decorated rim sherds (78.4g)

Anarinamizilo

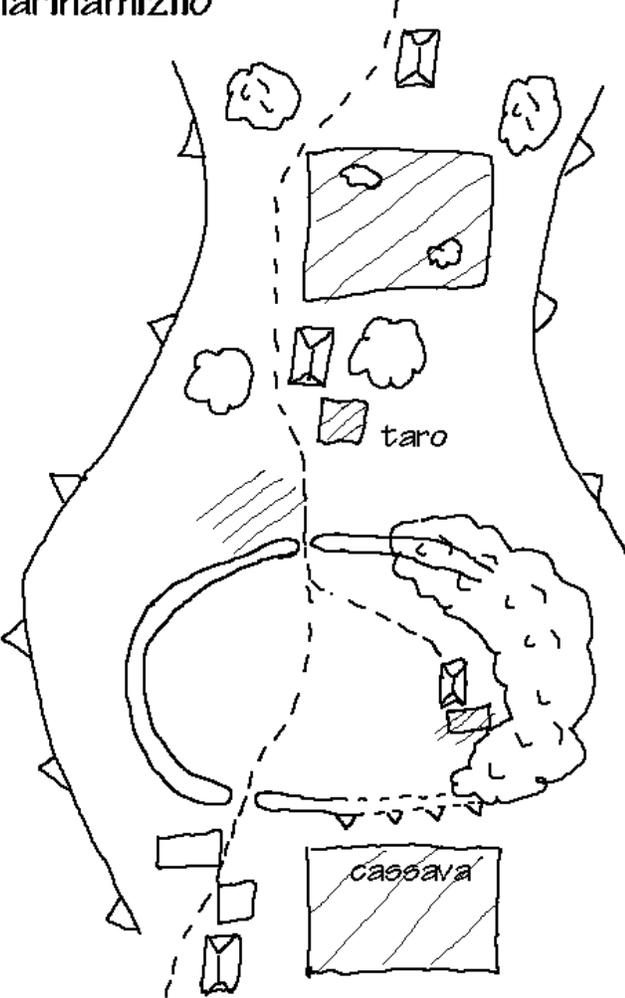


Figure A235. Site 203, Anarinamizilo.

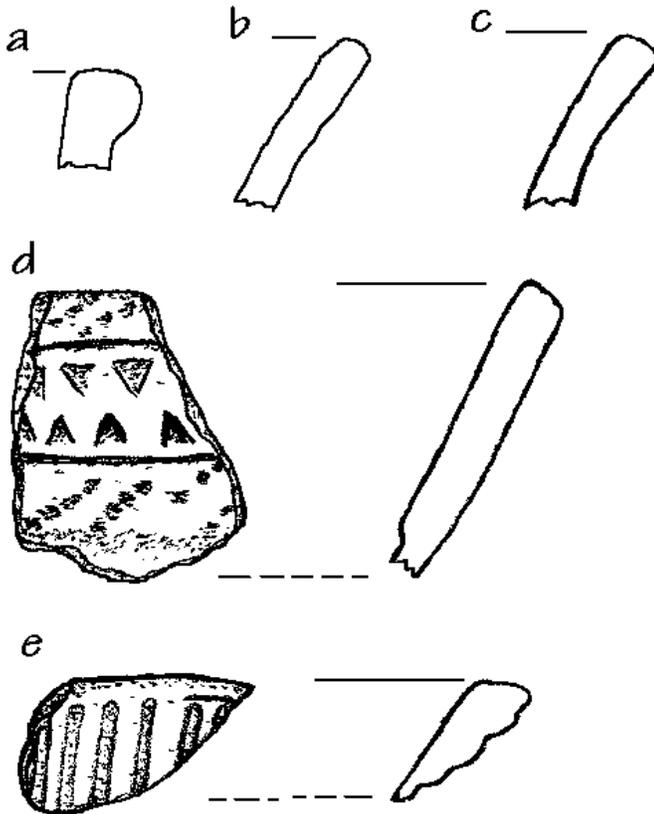


Figure A236. Site 203 artifacts.

a. Plain rim sherd, t=.58, lip t=.87

b. Plain rim sherd type i with silver mica (1% inclusions), d=16 (5% of rim), t=.48, lip t=.49

c. Plain rim sherd, type i, 4.5g, d=13 (6% of rim), t=.46, lip t=.50, sand and black flecks (2,5%), interior 7.5YR5/2.

d. Decorated rim sherd, type i with a white surface, 5.9g, diameter and orientation uncertain, t=.30, lip base t=.47, lip t=.54, triangle base = .35cm, sand and black flecks (2,5%), interior 7.5YR7/2, with incised lines, triangle punctates and dentate stamps on interior surface.

e. Decorated rim sherd, type iC grey graphite ware, 3.2g, diameter and orientation uncertain, lip t=1.0 (broken rim), 7.5YR4/1 with vertical incised grooves on interior surface.

**Site:** 204

**Mahavelo Be**

**Region of:** Ambila

Laborde X: 551.5

Latitude: 22.01741

Season: 97

Laborde Y: 454.4

Longitude: 47.90505

Ceramic phase recovered: 5

Site today: sugar cane, sweet potatoes Collection method: thorough complete collection

**Site Notes:** Earthworks and 2 sherd scatters (25x10m) in a sweet potato garden at the top and sugar cane at the bottom of a hill near the town of Mahavelo (east of Ambodikily). The ditches are massive (10 meters wide and 4 to 5 meters deep at one point) and straight. Given their shape, and the fact that they connect wet lowlands, I'm not convinced they are a *manda* or even linked to fortifications or settlements, but rather may be linked to wet rice cultivation (or perhaps the movement of cattle herds and erosion).

**Ethnographic Notes and Oral Traditions:** Althabe (1984) mentions Mahavelo as a town of Antaloatra (the religious elite clan, which includes the *Katibo* scribes). In 1997 we had a very productive *kibary* with the village (a public meeting with many speeches), where we learned that there are now 4 *mpanjaka* and 4 *kitabos* in the town, but that the *katibo* "no longer do prayers and

magic anymore since the whole village is now Protestant" ... "with some Catholics," added another. The people did claim Antaloatra clan identity, and said that their ancestors had lived previously at Voasary, Vatomasina, and Vohibolo (near Nato, west of Vohipeno). The school teacher added that people did not move to this present village until after 1947.

- Artifacts:* Including thin reduced sandy, everted rim with rounded lip
- 51 plain body sherds (190.7g, including 22 type i, 18 type iE, 2 type iC2, 4 type iiiB)
  - 5 decorated body sherds (31.9g, 1 with square punctates illustrated above, others with incised lines)
  - 2 plain rim sherds (11.4g)

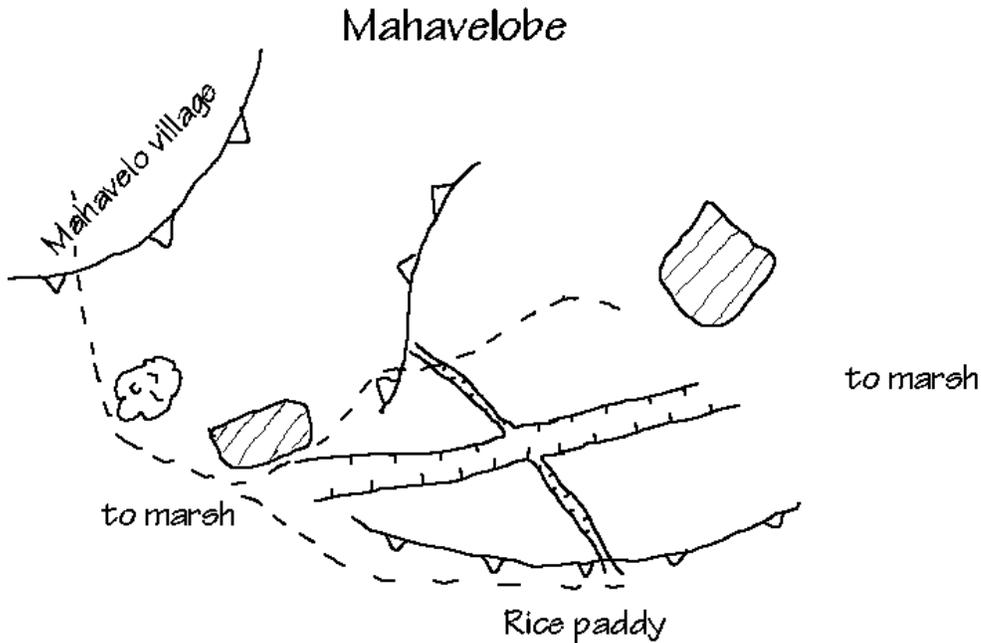


Figure A237. Site 204, Mahavelo Be.

<b>Site:</b> 205	<b>Mideboka</b>	<b>Region of:</b> Ambila
Laborde X: 556.9	Latitude: 22.01201*	Season: 97
Laborde Y: 453.8	Longitude: 47.57261*	Ceramic phase recovered: 5*
Site today: village		Collection method: thorough complete collection

*Site Notes:* Very small sherd scatter (3x4m) from the remains of a house (the ground surface was rough and raised in the shape and orientation of the other houses), in the large village of Mideboka.

*Ethnographic Notes and Oral Traditions:* In Althabe's chronology (1984) this village was one of the 7 original villages, and a daughter of Ambila. We therefore wanted a sherd collection very much, but this tiny outcropping was all we could find.

*Artifacts:* Including thin reduced sandy, graphite

- 20 plain body sherds (25.2g, reduced, coarse and sandy, including 4 type iB, 4 type iC2, 10 type i)

**Site: 206                      Ambila                                      Region of: Ambila**

*Laborde X:* 558.6                      *Latitude:* 22.00113\*                      *Season:* 97  
*Laborde Y:* 455.9                      *Longitude:* 47.58246\*                      *Ceramic phase recovered:* 3/4\*  
*Site today:* village                                      *Collection method:* thorough complete collection

*Site Notes:* Small sherd scatter (only 3 sherds) from the large town of Ambila. We only had time for a very quick, pass-through survey of this town (20 minutes with 4 field walkers) due to time constraints.

*Ethnographic Notes and Oral Traditions:* We didn't conduct any extensive interviews in this town (we were leaving too late on our way back up to the central highlands, and it's possible that a more thorough survey would reveal a larger distribution of artifacts.) But the *mpanjaka* did give us permission to look through the town for sherds ... as long as we didn't go near the stones in the middle of the village (which was taboo for us, *fady*). Given the work of Althabe (1984) we tried to get to Vohitrapanany from Ambila, but, with our fully laden car, were not able to make it. Given Althabe's work and these initial 7 sites that we've recorded from the Ambila region (sites 200-206), this is a region that deserves further attention.

*Artifacts:*

- 3 plain body sherds (7.0g, coarse, sandy, 2 oxidized type ii and 1 reduced type iE)

**Site: 207                      Ambalavaokely                                      Region of: Ambalavao**

*Laborde X:* 456.1                      *Latitude:* 21.687                      *Season:* 97  
*Laborde Y:* 491.6                      *Longitude:* 46.97977                      *Ceramic phase recovered:* 5  
*Site today:* empty garden, maize, cattle pen                      *Collection method:* selective sample

*Site Notes:* Large sherd scatter in gardens and a cattle pen north of the Betsileo village of Ambalavaokely (see map below.)

*Ethnographic Notes and Oral Traditions:* We came to this region of the highlands (recording sites 207 to 210) to investigate the sources of pottery and graphite that we recovered in the lower Matitanana valley. The people here told us that the name for graphite sherds is Anzamanga. In this area (unlike on the coast), graphite and graphite sherds are not used as medicine (though see notes for site 210 for a counter view). They say the source is near the potters' villages of Andranotenina (site 210), which is east of Ambalavao. They also told us of a second potters' village closer to Fianarantsoa called Salava-Ranomanara, which is north of Telataampano.) When told of the historian Daniel Raherisoanjato articles (1984, 1994), the people we interviewed in this village agreed that people ("Hova") used to live on top of the nearby mountain of Vohibe, and that one can still see the *manda* and house remains on top (we unfortunately did not have time to survey the hilltops in this region, since our primary goal was the potters' village.)

*Artifacts:* Including thin, micaceous, appliqué bands

- 70 plain body sherds (215.1g, including 24 type iiD, 10 type i, 30 type iE, 1 type iB, and 1 type ii), 1 Merina graphite burnished (7.2g, t=.65), 1 type ii with gold mica inclusions (2,30%, 4.7g, t=.46)  
- 6 decorated body sherds (27.3g, 2 illustrated below)  
- 6 plain rim sherds (27.2g, 2 ill. below)  
- 6 decorated rim sherds (26.2g, 1 ill. below)

Ambalavaokely

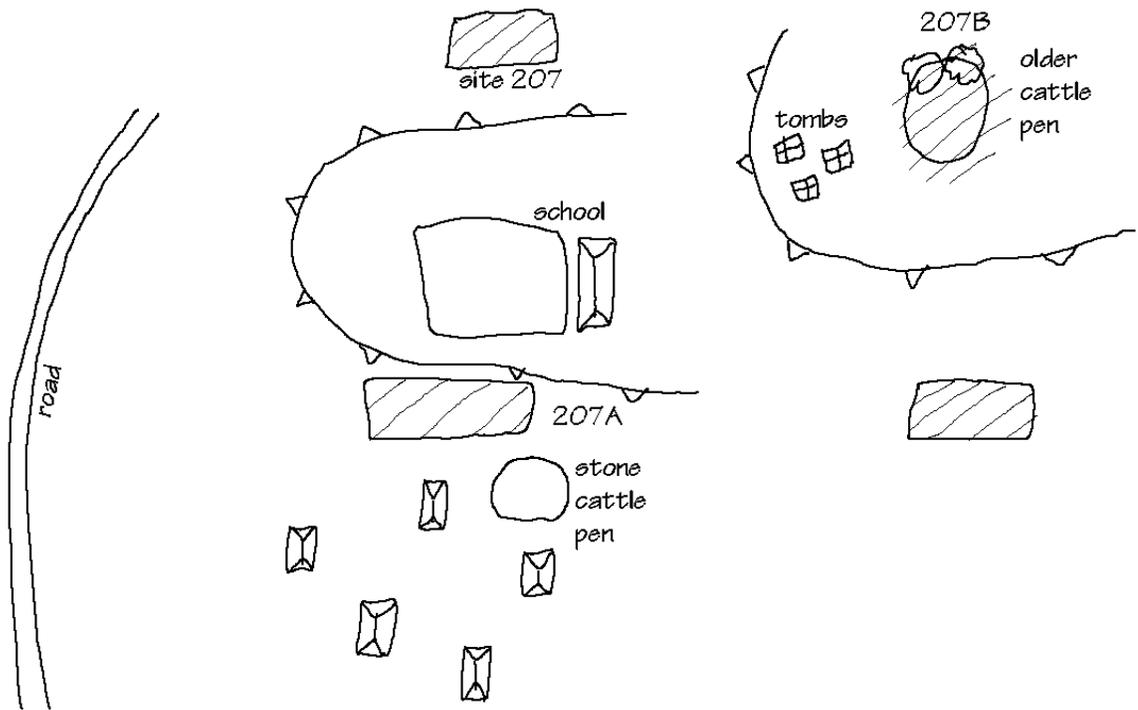


Figure A238. Site 207, Ambalavaokely.

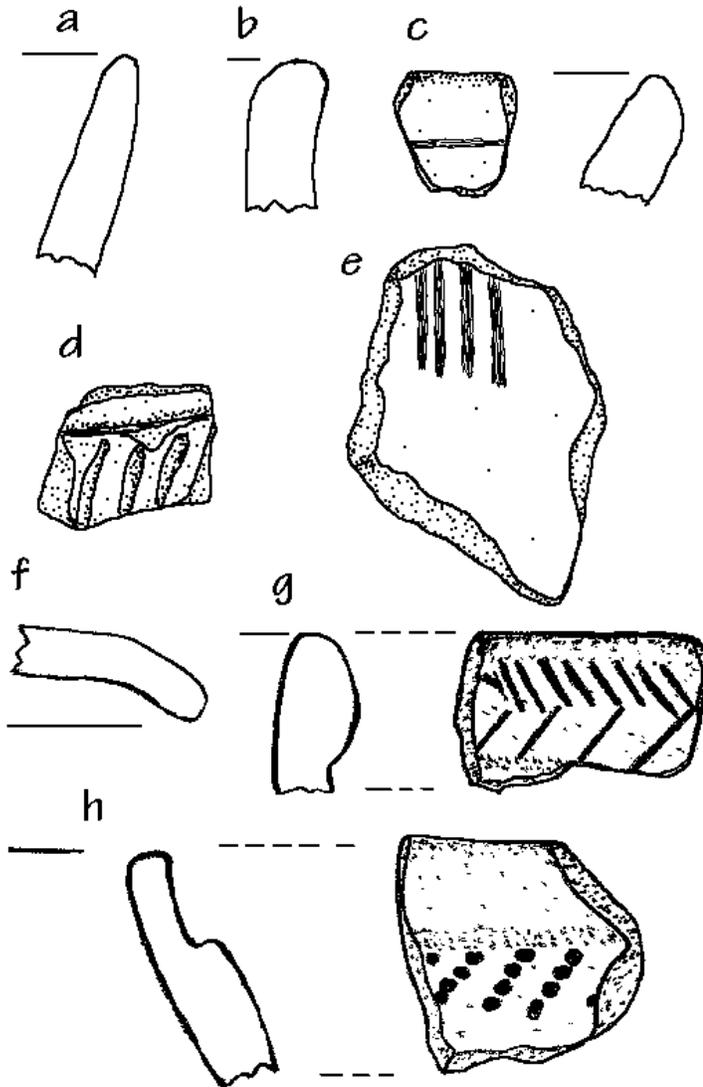


Figure A239. Site 207 artifacts.

a. Plain rim sherd, type iC1, d=12 (5% of rim), t=.65, pointy lip t=.39

b. Plain rim sherd, type iC1, d=18 (4% of rim), t=.88, lip t=.86

c. Decorated rim sherd, type iC1, diameter uncertain, t=.68, with single shallow incised groove on exterior.

d. Decorated body sherd, 3.4g, type i with red interior and black exterior and shell inclusions, t=.82, with appliqué ridges.

e. Decorated body sherd, type ii with blackened exterior and large quartz inclusions, t=1.32, with shallow grooves combed onto exterior.

f. Plain lid sherd (or possible plate), type i, 6.4g, d=15 (7% of rim), t=.48 lip t=.36, sand, gold mica, and black flecks (1,3%), 5YR6/2.

g. Decorated rim sherd, type i, d=18 (5% of rim), t=.68, lip t=1.0, 5YR6/2, with graphite burnish on interior of lip and incised lines on exterior surface. (Note: along the Matitanana this design was made with dentate stamps, but here these are actual incised lines and not stamps).

h. Decorated rim sherd, type i with grey interior and pink exterior (5YR5/3), 6.8g, d=18 (4% of rim), t=.80, lip t=.48, with round stamps on exterior and unusual exterior thinning of lip.

Site: 208

Ambalavohimay

Region of: Ambalavao

Laborde X: 455.0

Latitude: 21.70908

Season: 97

Laborde Y: 489.2

Longitude: 46.96929

Ceramic phase recovered: late 19th-

Site today: village, peanuts

Collection method: thorough complete collection

Site Notes: Sherd scatter (35x25m) in a peanut garden and village.

*Ethnographic Notes and Oral Traditions:* When asked about their previous settlements, the people of this village told us their ancestors had lived in Ambalamahatsinjo (where their tombs presently are), and before that they lived on top of the big hill to the northeast – Andraijato. They said this hilltop site is of the same age as Vohibe (the site written about by Daniel Raheisoanjato, and that if we were to climb up there we would find wooden and stone bowl remains, Chinese pottery, and both ditch and stone-wall fortifications. Again, we were not able to continue this survey with our limited time for reaching the potters' village.

*Artifacts:* late Betsileo, 19th-20 th cent.

- 12 plain body sherds (33.0g, type iiD)
- 7 plain rim sherds (54.8g, 4 illustrated below)
- 1 European imported pottery (2.8g, white ware)

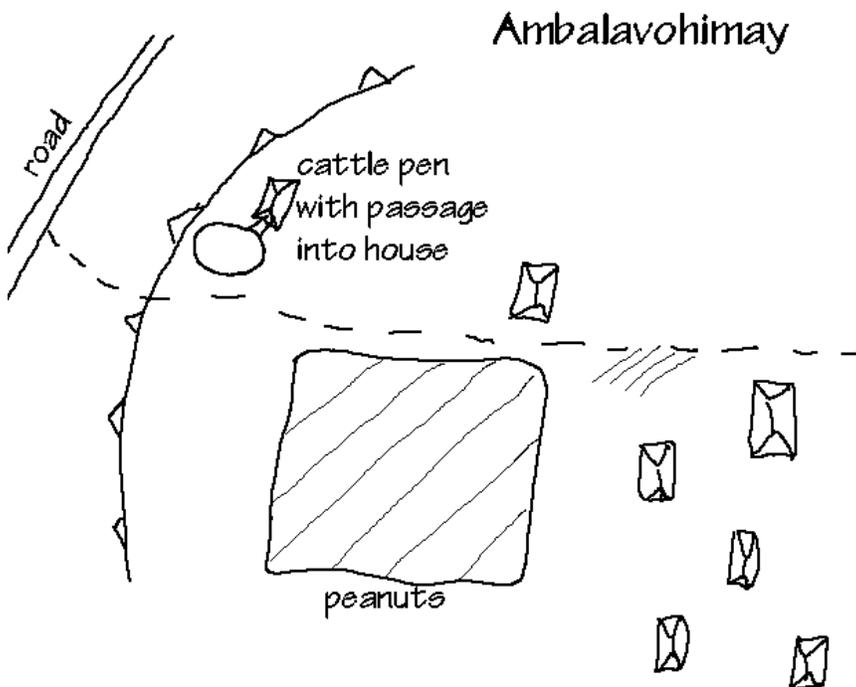


Figure A240. Site 208, Ambalavohimay.

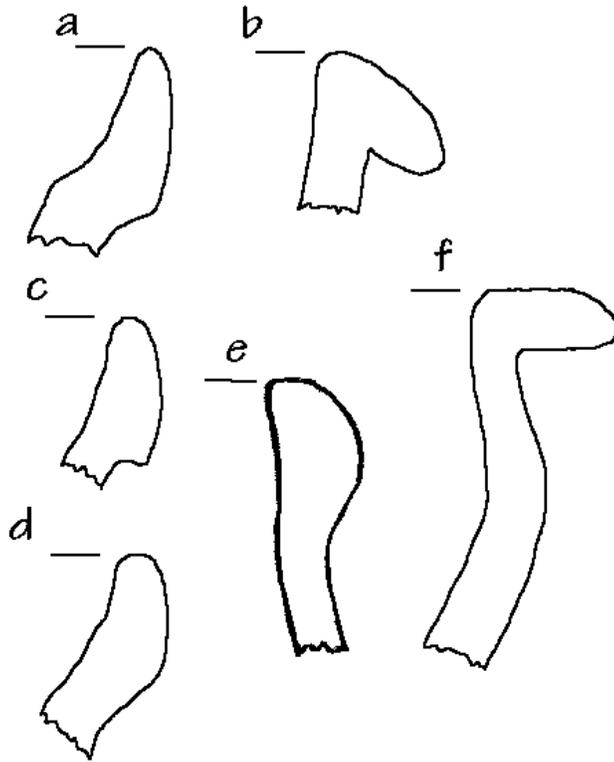


Figure A241. Sites 208 to 210 artifacts.

- a. Site 208, plain rim sherd, type iiD with graphite burnish, d=28 (4% of rim), t=1.23, lip t=.39, (shape seems strange to me, 3 other rim sherds from this site were similar)
- b. Site 208, plain rim sherd, type iC1, t=75, lip t=2.01
- c. Site 208, plain rim sherd, type iE1 with gold inclusions but paste like iiD, d=31 (3% of rim), lip t=.46, widest point t=.91
- d. Site 208, plain rim sherd, type iC1, d=26 (5% of rim), t=1.08, looks older than others
- e. Site 210, plain rim sherd, 12.1g, d=28 (3%), t=.54, lip t=1.11, sand (3,5%), with horizontal scrapings on interior of rim and graphite burnished exterior.
- f. Site 209, plain rim sherd, oxidized with traces of graphite on surface, t=.78, lip t=1.85.

**Site: 209**

**Region of: Ambalavao**

Laborde X: 458.3

Latitude: 21.86752

Season: 97

Laborde Y: 471.6

Longitude: 47.00119

Ceramic phase recovered: 19-20th

Site today: peanuts

Collection method: quick complete collection

**Site Notes:** Small sherd scatter (15x10m) in a peanut garden on the road towards the potters' village (just after the bifurcation on the left).

**Artifacts:**

- 26 plain body sherds (125.7g, including 24 type iiD with sand and gold mica inclusions (2,10%), and 2 type iiD with smoothed interior)
- 1 decorated body sherd (12.0g)
- 5 plain rim sherds (59.0g, 1 illustrated above)
- 1 flat basin bottom, 34.9g, t=1.51.

**Site: 210**

**Andranotenina**

**Region of: Ambalavao**

Laborde X: 460.2

Latitude: 21.52364

Season: 97

Laborde Y: 470.6

Longitude: 47.01122\*

Ceramic phase recovered: 20th cent

Site today: village

Collection method: selective sample

**Site Notes:** Large sherd scatter in the traditional “village of the potters.” Huge scatters of broken pottery all over the village, but we only took a small sample and did not thoroughly survey the area for older sherds. Instead we interviewed 3 potters and observed one removing her wares from an open firing (see ethnographic notes below).

**Ethnographic Notes and Oral Traditions:** What we learned of pottery manufacture in this village: Both men and women go to get the clay from the large hole at Ambalakely. The men then pound the clay and the women make the form. The graphite (which they call *anzamanza*) is from Soaniarena to the northeast. For the firing they make a pile of upside down pots, with wood and *buzaka* grass underneath, grass over the top, and then they fire for about 1 hour. When asked about oxidizing and reduction, they offered that “if the exterior is black, and the day is good, then something bad will happen.” They also said that if the interior of the pot is black, that means the pot is not ready yet, because they need it to be red. They used to make a larger form called “boboka,” see illustration a) below, for cooking sweet potatoes and water, but this has been replaced by the French cocotte inspired form of b) shown below. They also make another traditional form called “mariry,” which is made on moulds that are slightly smaller than the pot: turn upside down and press the clay against the exterior with ones hands, then gently lift the wet clay off, and add the rim later. Later still, one applies the *anzamanza* (graphite) with fingers.

As for the economics of the final products: a truck comes periodically to collect the pottery and take it to Fianarantsoa, where it sells for 2500 FMG (about 50 cents US at the time). Our car was not able to make it the entire way into this village and we had to walk the last few kilometers, so the arrival of the truck is probably dependent on the weather and the condition of the road. For each pot, the potter makes 1000 FMG (or 40% of the retail price). The woman we watched removing her pots from the open firing says she averages about 20 pots a day. When told that some Betsileo had been selling graphite sherds on the coast as medicine, an older man acknowledged that some in this village do sometimes put *anzamanza* on a broken bone, but that this use is rare.

**Artifacts:** Includes 20<sup>th</sup> century graphite coated

- 4 plain body sherds (10.6g)
- 1 decorated body sherd (1.4g)
- 12 plain rim sherds (133.6g, type iiD1)
- a graphite sample

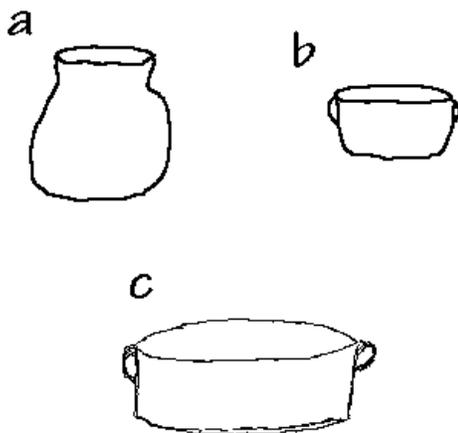


Figure A242. Site 210 pottery.

a. Traditional form called the “boboka”

b. More modern form inspired by the French cocotte.

c. A Betsileo pottery vessel observed earlier in the project in a house in Vohitrandry on the

Matitanana River (site 115).

<b>Site:</b> 211	<b>Ampaho</b>	<b>Region of:</b> Mananjary
Laborde X: 611.6	Latitude: 20.84477	Season: 99
Laborde Y: 583.6	Longitude: 48.4703	Ceramic phase recovered: 0,1
Site today: grass, embankment		Collection method: quick complete collection

**Site Notes:** Sherd scatter eroding from the river bank, north of Ambohitsara and south of the village of Ampaho (see map below). The sherds stretch for approximately 70 meters along the bank, and start at 80 cm below ground surface. We recorded 4 layers in the profile: layer 1 (0-38cm, humus with many roots), layer 2 (38-80cm, light brown with no artifacts), layer 3 (80-102cm, dark with charcoal and many artifacts, but the lake's water level is currently at 92cm b.g.s.), and layer 4 (below 102cm, a grey clay layer which appears to be sterile.) The high water in May is clearly eating into and destroying the site, and this would be an ideal place to excavate when the water is lower in October. The illustrations below also include 2 artifacts from a sweet potato garden closer to the village of Ampaho, collected by Ramilisonina, which we labeled site 211A. This garden was approximately 900 meters at 356 degrees from our recorded site, and the area between the two has not yet been surveyed.

**Ethnographic Notes and Oral Traditions:** In 1998 one member of our team (Ramilisonina) was able to visit this site while working with the ethnographer Sophie Blanchy. Due to this reconnaissance and the book about the chlorite-schist of this area by the amateur archaeologist Theo Detzen (see chapter 4), one of our main goals for the 1999 season was an archaeological survey of this region. However, due to a cascading sequence of boat failures and broken motors, our week of work turned into just over an hour in the area, with only enough time to visit this site 211 and the village of Ambohitsara (site 213) to see the *vatolambo* ("stone elephant"). So this area has not been systematically surveyed, only these 2 places were visited. Ampaho deserves survey attention and excavation, and hopefully future research can trace out the connections between this area and our main body of work on the Matitanana.

**Artifacts:** from site 211 proper: Including red slip, chlorite-schist inclusions, flat lip basins, ring base on open bowl

- 1 pottery base and 2 pottery rims, along with the following chlorite-schist artifacts - 4 carved blanks, 2 beads, 1 weight, 1 lid, and 1 rim fragment - all illustrated below.
- 8 plain chlorite-schist body fragments, 182.6g, t= .48 to 1.44, colors are more yellow and more varied than at the Matitanana, ranging from light grey, to yellow mottled with grey, to a reddish yellow.
- 3 chlorite-schist weights, t=1.10 to 1.32, hole diameter .30cm
- 4 decorated chlorite-schist body fragments, 95.6g, t=1.36 to 1.53 with combing and incised grooves
- 2 plain body sherds (pottery), 53.5g, t=.73 with chlorite-schist inclusions (3,15%) and t=.91 with sand inclusions (2,5%), both with red slip interior.
- 1 plain rim sherd, 16.4g, t=1.10 with red slip, of same type as illustrated sherd below, but more eroded.
- 1 plain body sherd, 14.4g, t=.99, with chlorite-schist inclusions (3,15%) (and no red slip)
- 1 plain body sherd, 12.8g, t=.87, with coarse sand inclusions (3,10%)

**Artifacts** from 211A, garden near village:

- 5 plain chlorite-schist body fragments, 140.2g, t=1.18 to 1.52.
- 2 chlorite-schist base fragments, 39.2g, including a round base, d=7 (13% of base), t=.82.
- 2 plain chlorite-schist rim fragments that fit together, 57.7g, illustrated below artifact e.

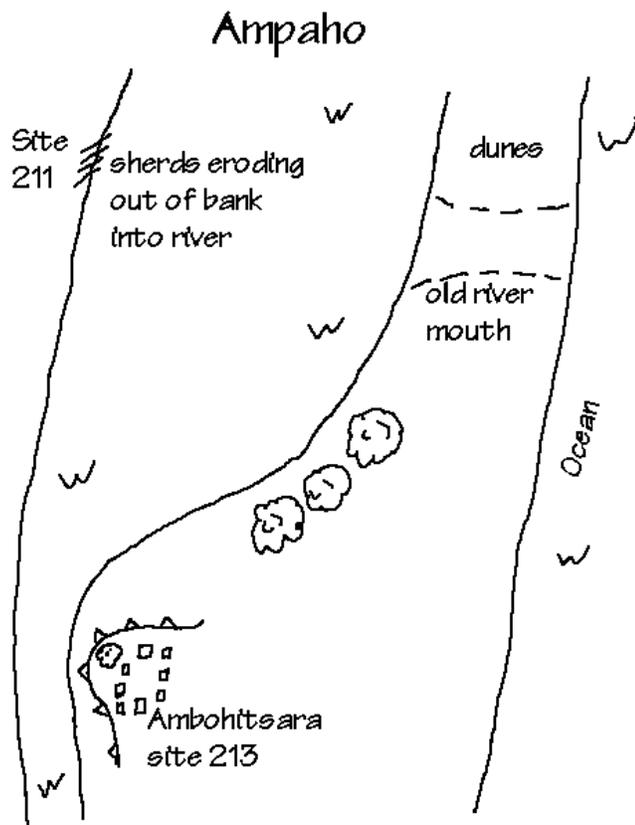


Figure A243. Site 211, Ampaho.

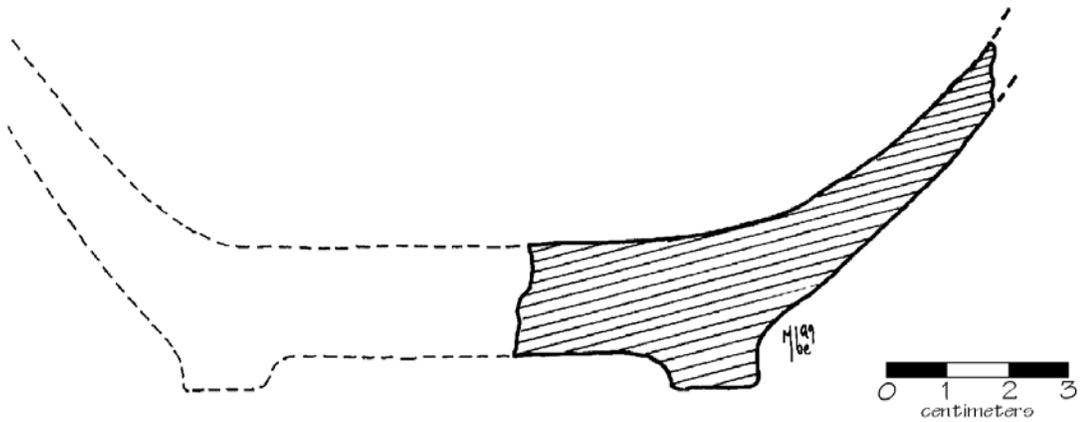
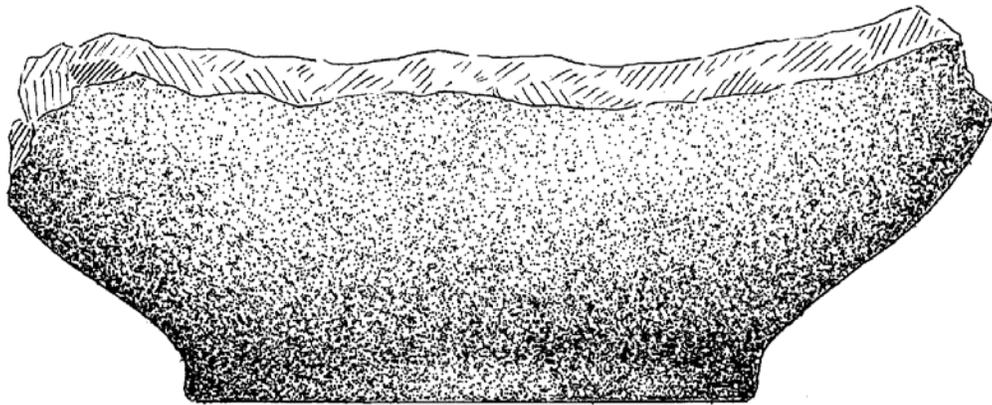
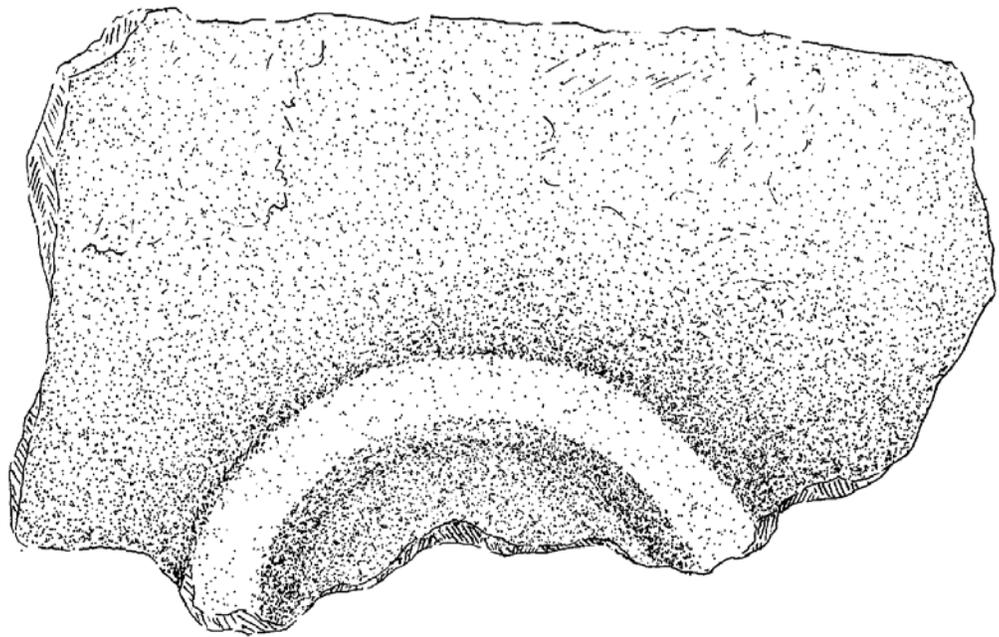


Figure A244. Site 211, Ampaho bowl.  
Ceramic bowl with foot ring, red slip interior and blackened exterior, sand and chlorite-schist inclusions (size 3, 10%), 281.4 grams, outside diameter of foot-ring = 9.5cm.

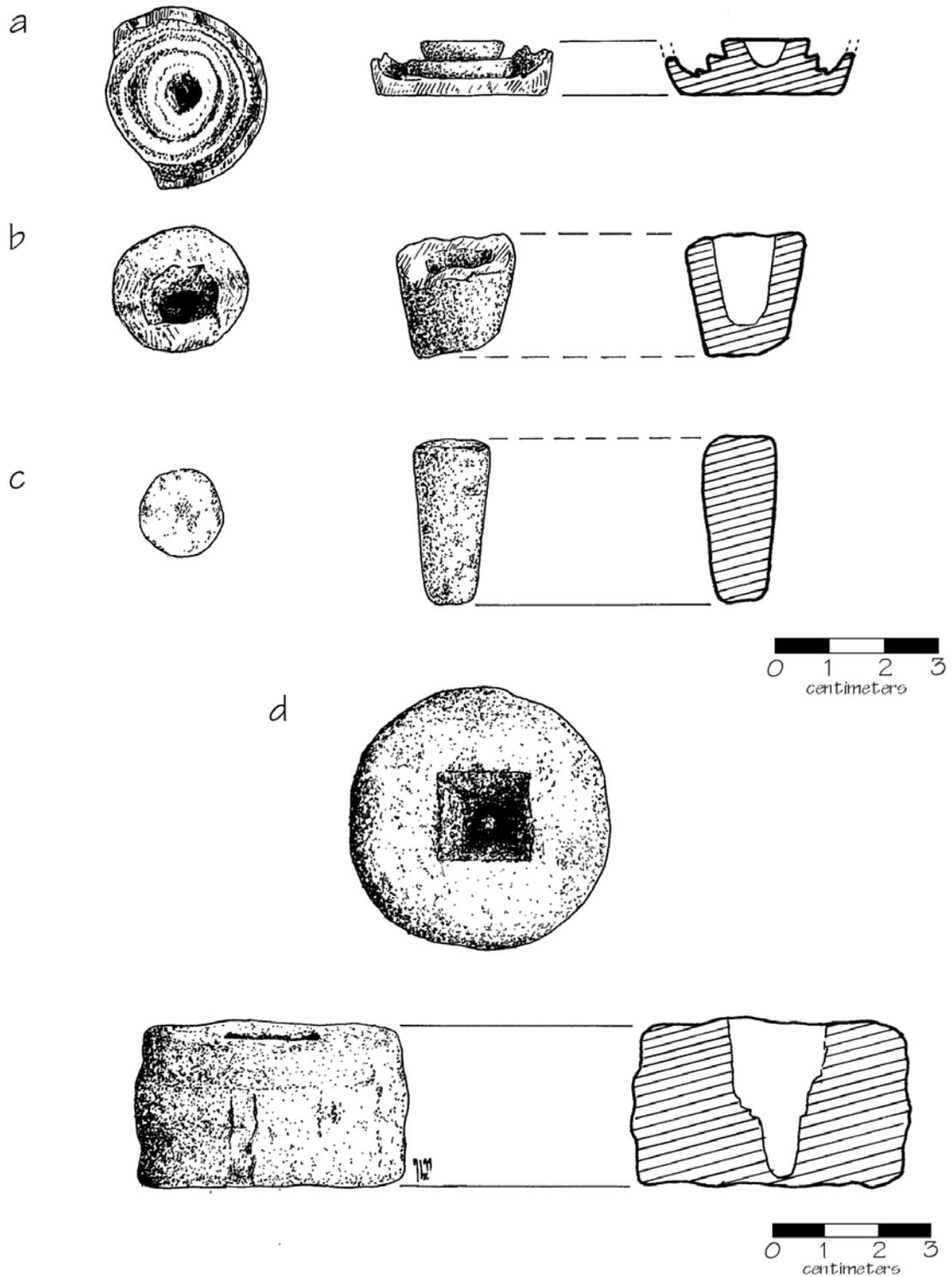


Figure A245. Site 211, chlorite-schist artifacts.

a. (10.2g) is an unfinished vessel's base that has not been smoothed on the interior; and fragments b (12.1 grams), c (9.3 grams), and d (121.1 g) have incomplete drill holes.

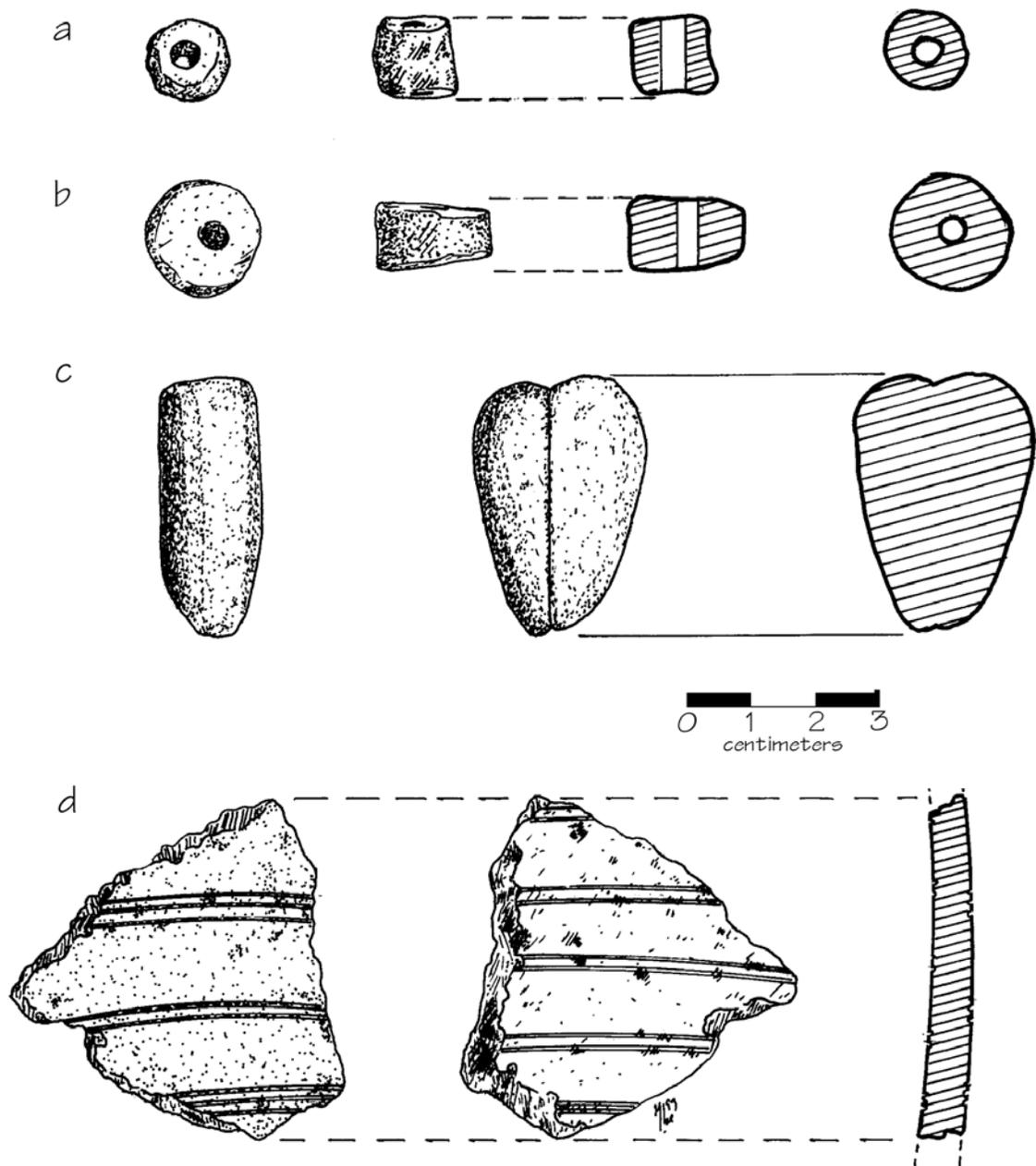


Figure A246. Site 211, chlorite-schist weights. Artifacts a (2.7 grams) and b (5.1 grams) are most likely beads, while artifact c (25.4 grams) is a fish net weight. The chlorite-schist body fragment d (23.2 grams) with incised grooves on the interior (right) and exterior (left) surfaces is from Site 211A.

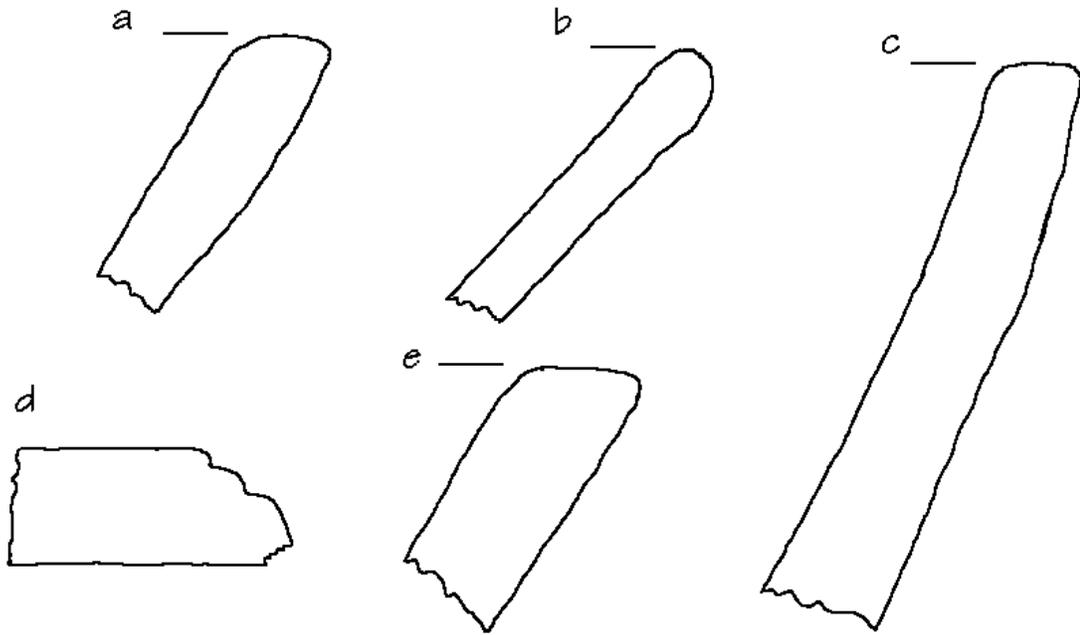


Figure A247. Site 211, artifacts.

a. Plain rim sherd (pottery), 20.2g, d=27 (3% of rim), t=.87, lip t=1.14, sand inclusions (2,5%), heavily burnished interior and exterior.

b. Plain rim sherd (pottery), 28.8g, d=32 (5% of rim), t=.70, lip t=.81, chlorite-schist inclusions (3,15%), with red slip interior.

c. Chlorite-schist plain rim fragment, 122.6g, d=34 (10% of rim), t=1.44, lip t=1.12.

d. Chlorite-schist lid fragment, 39.5g, t=1.41, with part of lip missing.

e. Chlorite-schist plain rim fragment, 57.7g, d=31 (7% of rim), t=1.36, lip t=1.40, from site 211A.

<b>Site:</b> 212	<b>Tsiatosika</b>	<b>Region of:</b> Mananjary
Laborde X: 585.6	Latitude: 21.20042	Season: 99
Laborde Y: 544.5	Longitude: 48.22523	Ceramic phase recovered: 6
Site today: forest	Collection method: thorough complete collection	

**Site Notes:** Large sparse sherd scatter covering the western slope of a hill just north of the modern village of Ambohitrova (see map below). The remains of a collapsed stone wall were found on the south east slope of the hill at Waypoint 212 B. The possible ditches to the west had been transformed into 3 terraces for gardens, and the flat top of the hill supported banana, coffee, mango, jackfruit, orange and breadfruit all in one small area. The dense foliage covering the hill shows that this area (near Mananjary) receives much more rainfall than the lower Matitanana valley, and the hill tops in this region are covered with tropical rainforests. The level top of this hill, approximately 50 meters north to south and previously surrounded by a wall, probably had gates to the north and south. Local informants (see ethnographic notes below) claim these are the remains of a Merina fort.

**Ethnographic Notes and Oral Traditions:** We came to the Mananjary region to visit the village of Ambohitsara (site 213), but while in the area I also wanted to survey downstream from the chlorite-schist quarries we discovered in 1995 (see sites 237 to 240). Thus we started 20 kilometers west of Mananjary at the confluence of the Imana and Mananjary Rivers. Because we only had a single day for survey in this region, we were not able to cover much ground, but we did record this interesting site of Tsiatosika and an oral history concerning its features.

While taking refuge in the local school house from afternoon rains on May 7, 1999, we conducted interviews with Raolison Tavy, a 67 year old blacksmith whose father was Merina and mother was Tanala, and Florent di Lala, the President d'Fokontany (mayor of the town). These two gentlemen told us their traditions concerning the nearby site we had found that morning, of an Antemoro civil war and a local Merina king. The hill had once been called Ambodimanga (place of the Mango trees, though elsewhere in Madagascar this would be translated as blue, or beautiful, or sacred), before a Betsimisaraka king named Redaba came to live there. He was defeated and replaced by a Merina king named Radavid, and the name of the site was changed to Ambohitrova (hill of the Rova = royal palace). This was before 1896 - the year of French colonization. At that time, there was a war to the south between two Antemoro clans, the Antemoro Anteony and the Antemoro Pantakana or Antevalanady. The Anteony were defeated, and they fled northward, pursued by the Pantakana. The Merina king Radavid possessed a canon (or gun) and decided to help the Anteony with his soldiers. A final battle was fought near the modern bridge over the Mananjary River, and the Pantakana were defeated (the tombs of the soldiers who died in this battle are near the bridge at Ambodiara, and are cleaned every November 1). Because of this battle and the assistance of Radavid, the Antemoro Anteony made agreements with Radavid to become "blood brothers," and the name of the village was changed to Tsiatosika ("the people who cannot be pushed"). We were told the descendants of the Anteony refugees from the Matitanana from that era currently live two kilometers to the east at Mahatsara (see below for our visit there).

Years later, the French invaded and came to Ambohitrova / Tsiatosika with orders to kill this same Merina king Radavid. Learning of the plans, Radavid fled to Mahatsara and his Antemoro allies, then jumped in a rice paddy and covered himself with mud. The French soldiers caught up and asked this muddy peasant which way the king went. Radavid answered that he had fled to the north, and thereby avoided capture.

We visited the village of Mahatsara (and looked hard but found no artifacts so it's not listed as a site in this catalogue, but has Laborde coordinates of 587.5 - 544.7), and heard a similar story in the President's house from a collection of the older men of Mahatsara. They agreed that they were Antemoro Anteony, but said they had come north to this region from Ivato (site 40) on the Matitanana because "there wasn't enough room down there." They said they no longer have a Katibo, but they have preserved a few Sorabé documents. They laughed when we suggested they might be clan Antevolo (outcastes), saying, "No, those people were bad" (showing they know of the caste system and pariahs of the Matitanana). In general, the houses in this village, and the village of Betampona to the south (which we also visited but found no artifacts), are of an Antemoro style, and the women wear Antemoro hats. Finding Antemoro villages this far north was unexpected by us.

As for the stone wall remains we found, we were told that the wall for "the Merina king's village" finally collapsed in 1979, and is now buried by vegetation.

*Artifacts:*

- 3 imported sherds: 1 modern white ware (4.5g, t=.49), 1 older white ware with crackled glaze (3.0g, t=.38), and 1 European blue and white floral ware (illustrated below).
- 4 plain body sherds, including 2 plain brown ware (4.9g, t=.43, .60, sand and gold mica inclusions (2,5%)) and 2 grey graphite ware (12.4g, t=.78, 1.07).
- 1 decorated rim sherd, grey graphite ware (illustrated below)

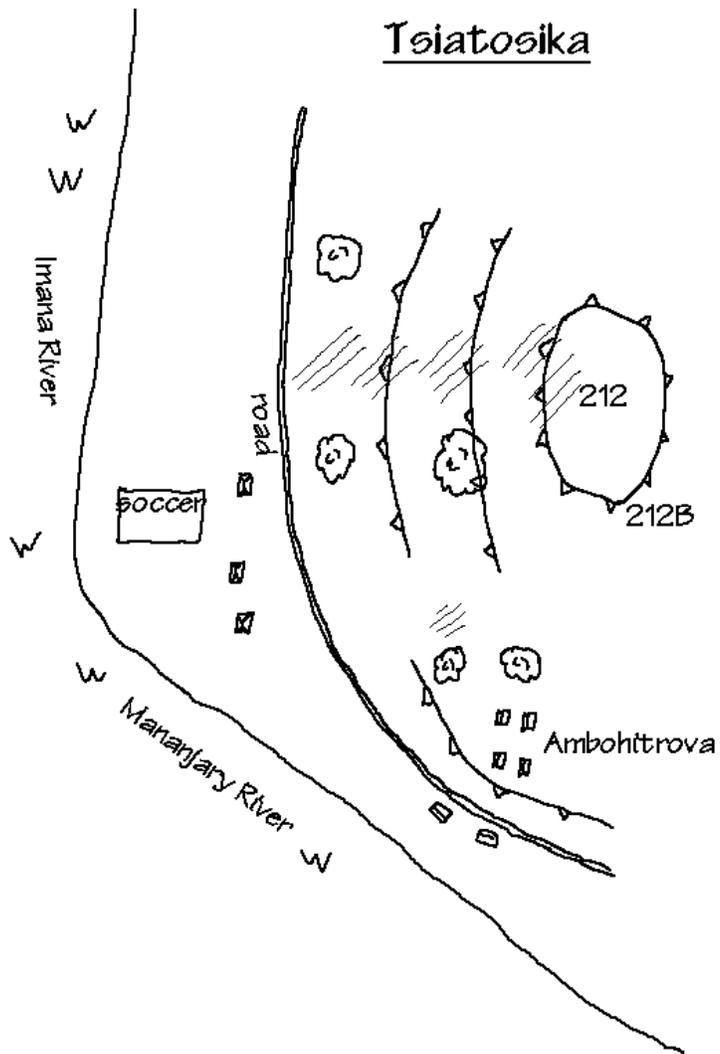


Figure A248. Site 212, Tsiatosika.

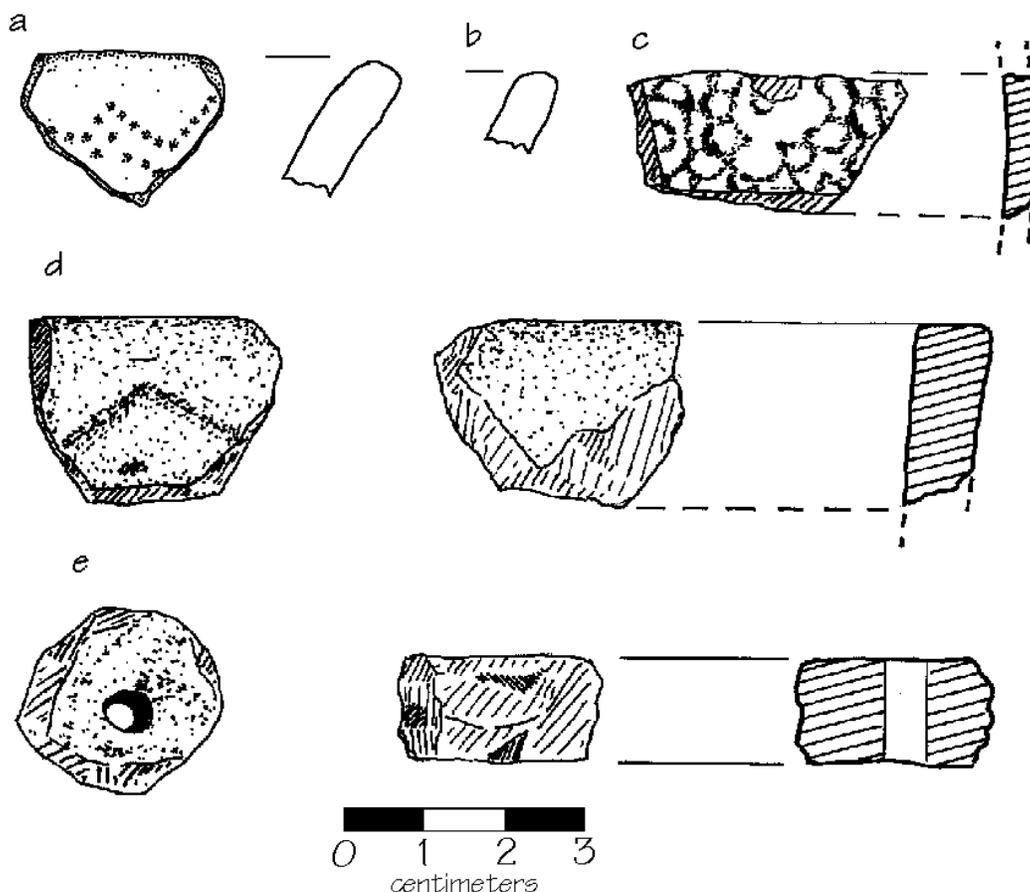


Figure A249. Site 212 and 213 artifacts.

- a. Site 212, decorated rim sherd, grey graphite ware, 6.8g, t=.69, with round punctates in a chevron pattern and a square lip.  
 b. Site 213,  
 c. Site 212, European blue and white floral pattern, 3.6 g, t = .40  
 d. Site 213, decorated pottery rim sherd, 8.6g, d = 23 (3% of rim), sand inclusions (2, 10%), grey (but not graphite) with linear incisions on interior surface.  
 e. Site 213, chlorite-schist weight or bead, 12.1g, t=2.31cm, hole diameter = .58 cm

<b>Site:</b> 213	<b>Ambohitsara</b>	<b>Region of:</b> Mananjary
Laborde X: 610.9	Latitude: 20.85892	Season: 99
Laborde Y: 582.0	Longitude: 48.4644	Ceramic phase recovered: 5/6
Site today: village	Collection method: quick complete collection	

**Site Notes:** Sparse sherd scatter (70x70m) in a 30-house village, 42 kilometers north of Mananjary between the Pangalanes Canal and the ocean. This village is well known as the "village of the stone elephant" or the *vatolambo*, a sacred object carved of chlorite-schist. This statue is the focus of religious ritual and pilgrimage (as performed for us), but it is also covered in graffiti, primarily of European names that probably date to the colonial period, when villagers lost the power to protect it from defacement. We were only able to visit this village of Ambohitsara and site 211 on May 8, 1999, and so the surrounding region has not yet been surveyed.

**Ethnographic Notes and Oral Traditions:** The *vatolambo* (called variously a "stone elephant" and a "stone boar") has attracted many researchers over the years. The object itself appeared in 1974

on the cover of *Taloha* 6 (the University of Madagascar's journal of archaeology and anthropology) in a photograph taken by my project collaborator, Ramilisonina (and see below for photographs of my own). More recently it has become the focus of Theo Detzen's research (1998) discussed in chapter 4. Detzen's argument in brief is that immigrant Chinese in the 2<sup>nd</sup> century B.C. made this "wild boar," but then Muslims arriving a millennium later found it objectionable and turned it into an elephant. Detzen went on to claim that there were no other chlorite-schist remains in or near the village because the Muslims were so offended by the former pig that they got rid of everything else made of the same material, and hence he was not able to collect any chlorite-schist artifacts from this area. On this point at least, during our visit we did find a large complete bead of chlorite schist within 2 meters of the *vatolambo*; though Detzen is undoubtedly correct that there is no longer any complete chlorite-schist vessels or other full statues left in the present-day village. More productively, Detzen's work also records the chlorite-schist quarries he believes the *vatolambo* came from. Though these are within a few hours travel of the village of Ambohitsara, we were not able to investigate their locations. It is hoped that future archaeological survey will be able to encompass this area, and that the quarry samples can then be compared to the chlorite-schist quarries we discovered northwest of Mananjary (sites 237 – 240).

Compared to our more thorough surveys in the Matitanana region, time was such a constraint at this site and site 211 because, at the request of the Museum director Jean-Aimé Rakotoarisoa, we had come along with a group of French diplomats who had wanted to see the *vatolambo*. After three broken motors and days of trying, we arrived in Ambohitsara with only an hour of daylight left, and only 22 hours before their international flight departed from the capital of Antananarivo. And so the archaeology clearly suffered. It's also clear from my description that this region is a logical extension of the Matitanana Archaeological Project. Whether conducted by myself or someone else, I believe that the archaeology of this area north of Mananjary would be both interesting and rewarding. And as for the *vatolambo* itself, there is a range of theories in addition to Detzen's ideas mentioned above. Today it is a cult object managed by the leaders of Ambohitsara, and there is no reason to expect that it did not play a similar function in the past. Molet and Vernier (1954) interviewed the local Tambahoaka who claimed the *vatolambo* had originally held Sorabé texts which were stolen by the same vandals who put the graffiti on the object. Pannetier (1974:70) in the *Taloha* volume mentioned above suggested that it represents the union of Indonesian themes and Islamic techniques. At a minimum we can say that it is certainly unique in Madagascar, that it must have held great significance to have been transported many kilometers from its quarry given its weight and the fragility of the stone, and that its craftsmanship demonstrates a familiarity and competence with working in chlorite-schist by its sculptors (such as would have been common during the centuries that chlorite-schist vessels were being produced and exported from this area). Hopefully, future archaeological research can shed more light on the role chlorite-schist production played in the history and political-economy of this region between the 11<sup>th</sup> and 14<sup>th</sup> centuries.

*Artifacts:*

- 1 chlorite-schist weight or bead, 12.1 g, t=2.31cm, hole diameter = .58 cm (illustrated above)
- 4 chlorite-schist body fragments, 34.3g, including 1 with cut marks, t=.44, .81, .96, 1.26
- 3 unshaped fragments of chlorite-schist, 19.1g
- 1 decorated pottery rim sherd, 8.6g, d = 23 (3% of rim), sand inclusions (2, 10%), grey with linear incisions on interior (illustrated above)
- 5 plain brown ware body sherds, 10.8g, t=.36, .54, .69, .69, .88.
- 1 plain body sherd, 1.0g, of soft, orange-ish ware
- 3 plain body sherds of grey graphite ware, 10.3g, t=.47, .58, 1.11
- 1 plain rim sherd of grey graphite ware, 1.5g, d=14 (3% of rim), t=.59, with a square-ish lip (illustrated above).



Figure A250. Site 213, the vatolambo of Ambohitsara.



Figure A251. Vatolambo graffiti.

**Site: 214      Ambinanimananano Atsimo      Region of: Manakara north**

*Laborde X:* 568.2

*Latitude:* 22.03593

*Season:* 99

*Laborde Y:* 452.2

*Longitude:* 48.06707

*Ceramic phase recovered:* 0,2,3/4,4

*Site today:* village, cassava, bananas, coconuts, exposed sand    *Collection method:*  
selective sample, excavation

*Site Notes:* Very large and very dense sherd scatter, south of the Manananano River, across from the village of Ambinanimananano, and near the river mouth north of Manakara. The scatter is estimated to be 500x200 meters in extent, and includes the grounds of the Eden Sidi Hotel. The surface remains include more chlorite-schist artifacts than other sites, and the pottery assemblage also appears to be different. To help maintain provenience on such a large site, we labeled artifacts by area as shown on the site map below: 214 is the ferry landing and a small creek to the west, 214A is the hill west of the main road, 214B is the area of the road leading into the Hotel, 214C is cassava gardens on the grounds of the hotel bordering the river, 214D is an area of banana and coconut trees east of the ferry landing and main road, and 214E is the area of the main road away from the river. We returned the next day to this site to excavate a sondage between areas 214C and 214D.

Sondage 1 was placed 22 meters east of the road and 25 meters south of the river, near a surface concentration of iron slag, chlorite-schist, and pottery. We excavated by 10cm arbitrary levels until we hit a natural layer change. At 46cm below ground surface water began to seep into our trench, and we had to end the excavation at level 6 (55cm b.g.s.) We continued with a 25cm diameter shovel test down to 85cm b.g.s. that we screened to confirm that we had not yet reached a sterile layer (see artifact counts below). It is expected that excavating here in October, when the river levels are generally lower, would lead to more complete results.

Ramilisonina says the forms resemble older Tandroy - many small bowls, crude, coarse and irregular.

*Artifact Counts:*

214 Ferry landing:

- 1 shaped ground stone (sharpening stone?), 127.6g, t=1.62
- 3 chlorite-schist body fragments, 13.3g, t=.56 to .99, including 1 with a repair hole (d=.40)
- 1 decorated chlorite-schist body fragment, 12.4g, t=1.72, with 3 grooves making 2 bevels
- 1 chlorite-schist rim fragment, 8.2g, d=34 (2% of rim), t=1.04, square lip with a repair hole d=.55cm (illustration c below).
- 2 hard brown sherds with chlorite-schist inclusions (not the soft cream ware like at Matitanana and Farafangana), 13.1g, t=.93, 1.06.
- 1 piece of iron slag (or iron concretion), 15.5g
- 5 plain brown body sherds, 17.2g, coarse sand inclusions (3,15%), t=.51 to .75
- 5 light brown body sherds, 13.8g, sand and gold mica inclusions (3,10%), t=.54 to .83
- 1 light brown rim sherd, 3.5g, d=21 (3% of rim), silver mica inclusions (2,5%), t=.70 (illustration h below).

214A:

- 3 pieces of iron slag (20.7g)
- 2 chlorite-schist body fragments, 33.4g, t=1.37, t=.146, light grey.
- 1 chlorite-schist rim fragment, plain and smooth, 32.4g, t=.97, lip t=.87 (illustration a below)
- 1 decorated body sherd with reddish exterior, 11.9g, t=.98, sand inclusions (2,5%), with a single curved incised line on exterior
- 10 plain body sherds, 64.9g, t=.57 to .96, coarse sand inclusions (3,5%)
- 2 plain body sherds, 25.0g, t=.68, 1.04, with burnished red exterior.
- 5 plain brown rim sherds, 50.9g, coarse sand inclusions (3,5%) (illustrations c, d, f, g, h below).
- 1 plain brown rim sherd shaped like the chlorite-schist rims, 7.0g, d=22 (3% of rim), t=.94, lip t=.88, sand inclusions (2,5%) (illustration j below).
- 1 plain brown rim sherd, 3.1g, t=.66, lip t=.60 with burnished surfaces and sand and chlorite-schist inclusions (3,5%) (illustration i below)
- 1 decorated rim sherd, red ware, 13.3g, d=22 (4% of rim), t=.70, lip t=.81, coarse sand

inclusions (3,10%), with vertical incised lines on exterior (illustration b below).

- 1 decorated rim sherd, brown ware, 9.6g, orientation and diameter uncertain (this stretch of rim is too straight for an accurate measurement, but probably a hole mouth jar like the others), t=.80, lip t=.65, sand inclusions (1,5%), with very faint incised zigzag pattern on exterior (illustration e below).

214B:

- 2 chlorite-schist body fragments, 32.9g, t=1.21, 1.39
- 3 plain brown body sherds, 8.4g, t=.73 to .86, sand inclusions (2,5%), with burnished exterior
- 1 light brown body sherd, 3.5g, t=.70, sand (1,3%)
- 1 coarse body sherd with red exterior, 2.9g, t=.90, sand (3,5%)
- 2 coarse brown body sherds, 8.8g, t=.9, .94, sand (3,5%)
- 1 decorated body sherd, plain brown ware, 8.4g, sand (1,5%), with 2 incised lines (illustration i below).

214C:

- 3 blocks of chlorite-schist with smoothed parallel sides, but not obvious parts of vessels, 215.1g, t=.164, 2.01, 2.52
- 4 chlorite-schist body fragments, 144.1g, t=1.02, 1.25, 1.75, 2.06, including 1 with repair holes (hole d=.73)
- 1 decorated chlorite-schist body fragment, 13.3g, t=.65, with 4 incised lines forming 3 raised square bands (illustration d below).
- 1 smoothed ground stone (for sharpening?), 57.9g
- 11 plain brown body sherds, 157.3g, very coarse with sand inclusions (3,5%), t=.59 to 1.41.
- 1 light body sherd, sandy ware, 3.9g, t=.52, with coarse sand inclusions (3,40%).
- 1 decorated rim sherd, 6.5g, d=21 (5% of rim), silver mica (2,15%), t=.62, lip t=.59, with a faint incised triangle on exterior of hole mouth jar (illustration f below).
- 1 decorated body sherd, red ware, 3.4g, t=.76, silver mica inclusions (2,10%), with partial triangle punctates.
- 1 pottery base, 20.7g, light cream ware with coarse sand inclusions (3,10%), t=.91 to 1.19 (illustration e below).
- 3 plain rim sherds, soft brown ware with sand inclusions (3,5%), 22.3g, t= .56, .64, .74 (including illustration g below).

214D:

- 4 plain brown body sherds, 26.4g, t=.51 to .76, sand inclusions (3,5%)
- 2 plain brown rim sherds, 68.6g, (illustrations j and k below).

214E (we were trying hard not to sample any more surface artifacts, but couldn't resist this bead):

- 1 chlorite-schist bead with a slightly greenish color, 1.9g, d=1.38cm, t=.78, hole diameter=.43 (illustration b below).

#### *Artifact Counts for Sondage 1:*

Site 214, S1, Level 1:

- 1 chlorite-schist rim fragment, 23.4g (illustration a below)
- 1 iron nail, 11.1g
- 1 chlorite-schist body fragment, .8g
- 1 plain body sherd, 1.9g, t=.85, with chlorite-schist inclusions (2,10%)
- 15 plain body sherds, 41.9g, t=.36 to .89, sand inclusions (2,5%), and 1 with t=1.34cm and sand (3,5%).

214, S1, Level 2:

- 1 chlorite-schist bead, (illustration b below)
- 14 plain body sherds, 43.6g, t=.37 to 1.08, sand (2,5%)
- 1 piece of pumice, 0.7g
- 1 chlorite-schist body fragment, 11.4g, t=1.14, light grey
- 1 chlorite-schist rim fragment, 3.4g (illustration c below)
- 3 plain pottery rims, including illustrations d and e below), last rim is 1.7g, t=.77, sand and silver

mica (3,5%)

214, S1, Level 3:

- 5 body sherds, reddish/yellow coarse ware, 37.1g, t=.65 to 1.05, sand (3,5%)
- 4 plain body sherds, brown and grey wares, 15.7g, t=.46 to .72, sand (2,5%)
- 1 plain body sherd, brick red ware, 2.5g, t=.71 (possibly a rim)
- 1 decorated rim sherd, 2.8g, with incised groove (illustration f below)
- 1 decorated body sherd, 2.0g, with double groove (illustration g below)

214, S1, Level 4:

- 1 decorated chlorite-schist body fragment, 17.8g (illustration a below).
- 4 plain chlorite-schist body fragments, 28.9g, t= .65, .99, 1.28, 1.40, including 1 with a repair hole (hole d=.40cm).
- 3 rocks, 23.1g, similar to chlorite-schist (and to pottery), but it's something else.
- 9 plain pottery body sherds, 18.0g, t=.49 to .92, sand (3,10%)
- 2 plain rim sherd, 19.7g (illustrations b and c below).

214, S1, Level 5:

- 1 decorated rim sherd, 10.1 with vertical incised lines (illustration g below)
- 1 smoothed stone, exotic, possibly for burnishing pottery, 32.4g
- 1 piece angular iron slag, 8.0g
- 1 chlorite-schist body fragment, 2.4g, t=1.18
- 1 decorated chlorite-schist body fragment, 6.3g (illustration d below)
- 4 plain body sherds 13.1g, t=.39 to .85, sand (3,15%)
- 3 plain body sherds of a soft ware with red exterior, black interior, and a soapy feel in places but I think it's pottery and not chlorite-schist, 18.5g, t=.98, 1.10, 1.17, sand (3,5%)
- 1 decorated rim sherd, 5.0g, d=23 (2% of rim, but sherd is very irregular), t=.80, lip t=1.11, with very faint incised lines on exterior surface (illustration e below).

214, S1, Level 6:

- 1 chlorite-schist base or corner, 16.5g (illustration e below)
- 4 plain body sherds, 26.4g, t=.68, .81, 1.23, coarse sand (3,10%), and 1 t=.89 with sand and gold mica (2,10%)

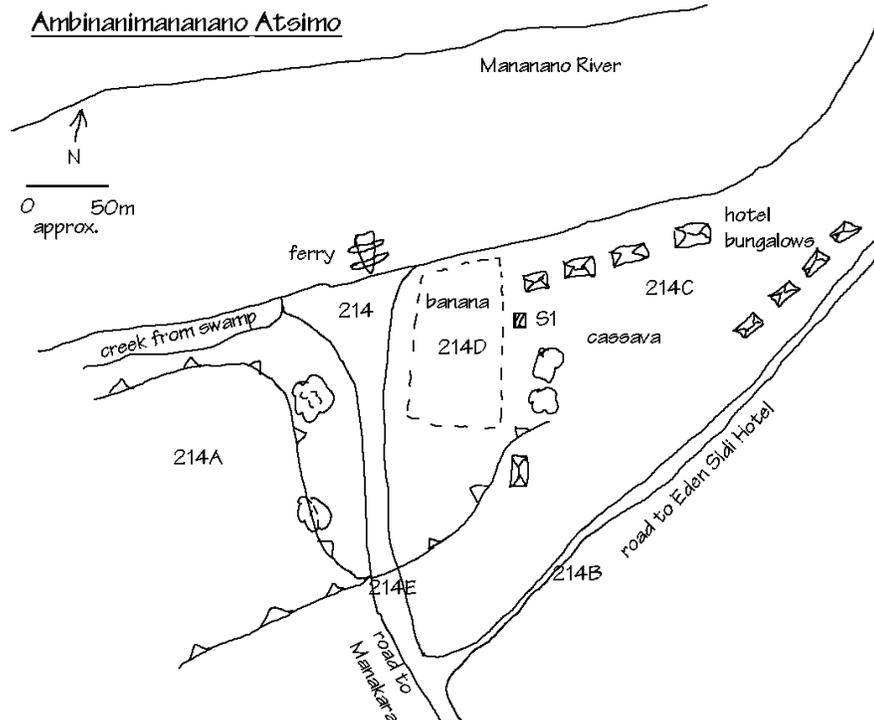


Figure A252. Site 214 Ambinanimananano Atsimo.

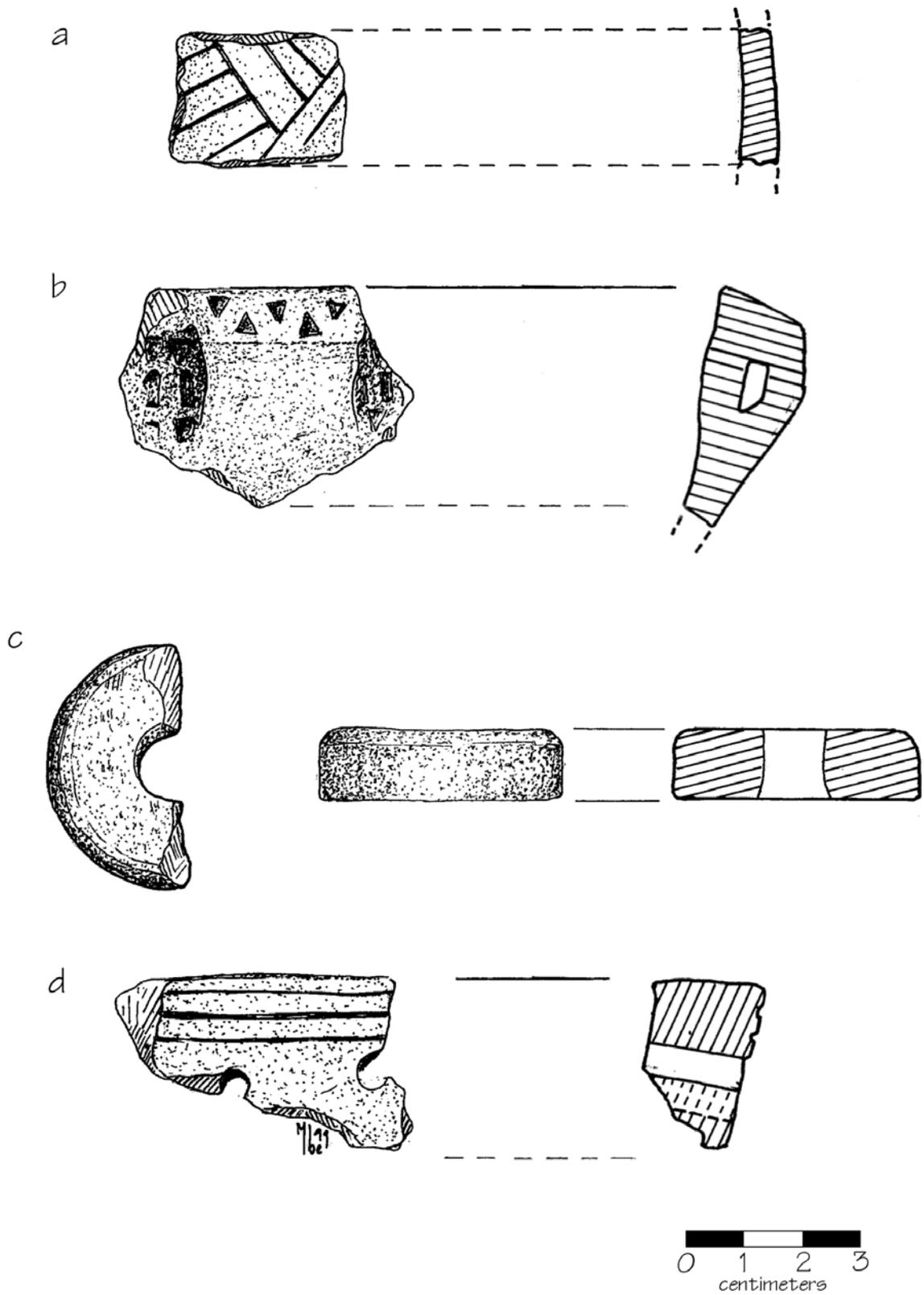


Figure A253. Site 214A artifacts.

a. Decorated body sherd, brown ware, 6.7g, sand inclusions (size 2, 5%) with intersecting incised lines.

b. Decorated rim sherd, coarse brown ware, 24.6g, d=17 (5% of rim), sand and quartz inclusions (3,10%), with triangular and rectangular punctates and attached handle, probably for rope to pass through to suspend or seal the vessel.

c. Well-formed, chlorite-schist disk weight, 17.2 g, d=4.3cm, t=1.2cm, hole d=1.04.

d. Chlorite-schist rim fragment, d=28 (5% of rim), with incised grooves on exterior (3 lines making 2 bevels) and repair holes (hole d=.47cm).

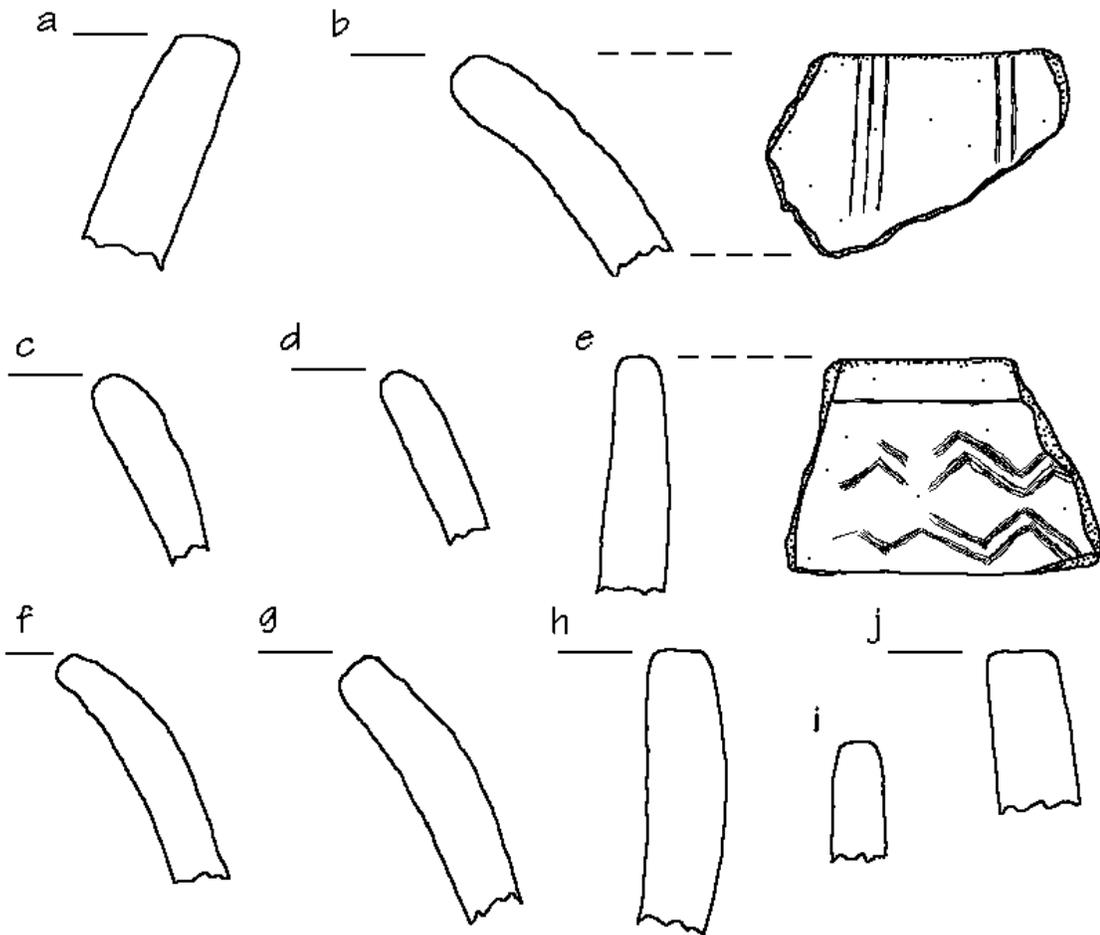


Figure A254. Site 214A artifacts part 2.

a. Chlorite-schist rim fragment, plain and smooth, 32.4g, t=.97, lip t=.87

b. Decorated rim sherd, red ware, 13.3g, d=22 (4% of rim), t=.70, lip t=.81, coarse sand inclusions (3,10%), with vertical incised lines on exterior.

c. Plain brown rim sherd, 6.0g, d=14 (8% of rim), t=.55, coarse sand inclusions (3,5%)

d. Plain brown rim sherd, d=16 (6% of rim), t=.52

e. Decorated rim sherd, brown ware, 9.6g, orientation and diameter uncertain (this stretch of rim is too straight for an accurate measurement, but probably a hole mouth jar like the others), t=.80, lip t=.65, sand inclusions (1,5%), with very faint incised zigzag pattern on exterior.

f. Plain brown rim sherd, d=23 (4% of rim, but crude and uneven, so this may just be a straight section of the rim), t=.60, lip t=.37

g. Plain brown rim sherd, d=16 (10% of rim), t=.69, lip t=.62

h. Plain brown rim sherd, d=21 (5% of rim), t=.81, lip t=.73

i. Plain brown rim sherd, 3.1g, t=.66, lip t=.60 with burnished surfaces and sand and chlorite-schist inclusions (3,5%)

j. Plain brown rim sherd shaped like the chlorite-schist rims, 7.0g, d=22 (3% of rim), t=.94, lip t=.88, sand inclusions (2,5%).

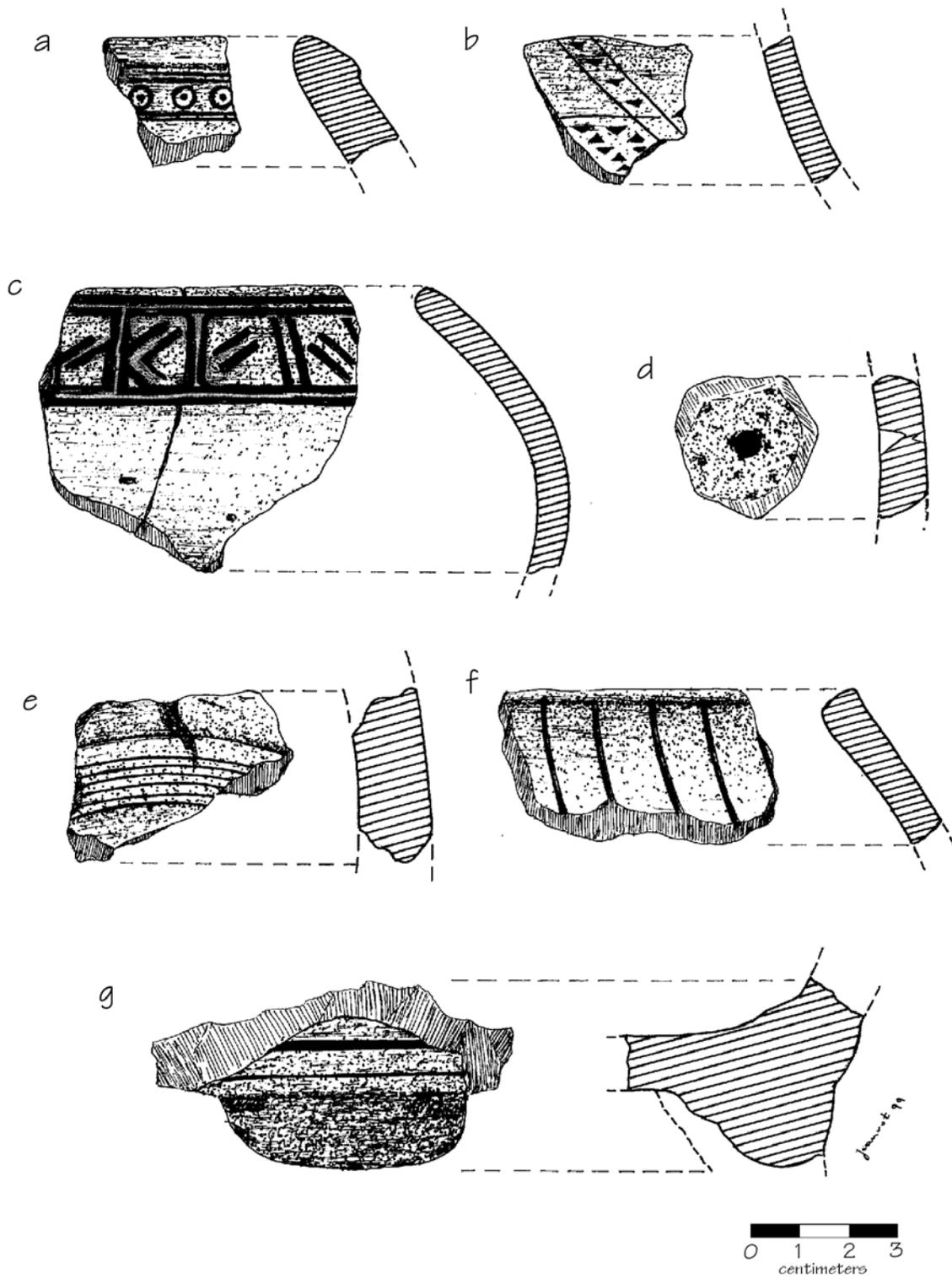


Figure A255. Site 214D artifacts.

a. Decorated rim sherd of hole mouth jar, grey type iE, 8.6g, d=19 (4% of rim), t= 1.09cm, sand and shell inclusions (3,5%), with incised lines and precise round impressions from a hollow tool on exterior surface.

b. Decorated body sherd, red type ii, 7.5 g, t=.64, with triangle punctates banded by incised lines.

c. 2 decorated rim sherds that refit, grey type iE, 40.8 g, d = 15 (11% of rim), t=.60, with deep

intersecting grooves that displace clay.

d. Chlorite-schist weight, 10.2 grams,  $d=2.29$ ,  $t=.91$ , hole  $d=.51$ , whose center hole is not complete – it was started on each side, but didn't connect.

e. Chlorite-schist base or lid fragment, 26.0g,  $t=1.43$ .

f. Decorated rim sherds, brown ware, 22.5g,  $d = 36$  (4% of rim),  $t=.73$ , lip  $t=.92$ , sand inclusions (2,5%), with vertical grooves and wiped exterior surface.

g. Chlorite-schist foot fragment, 86.2 g, interior  $t=1.06$ .

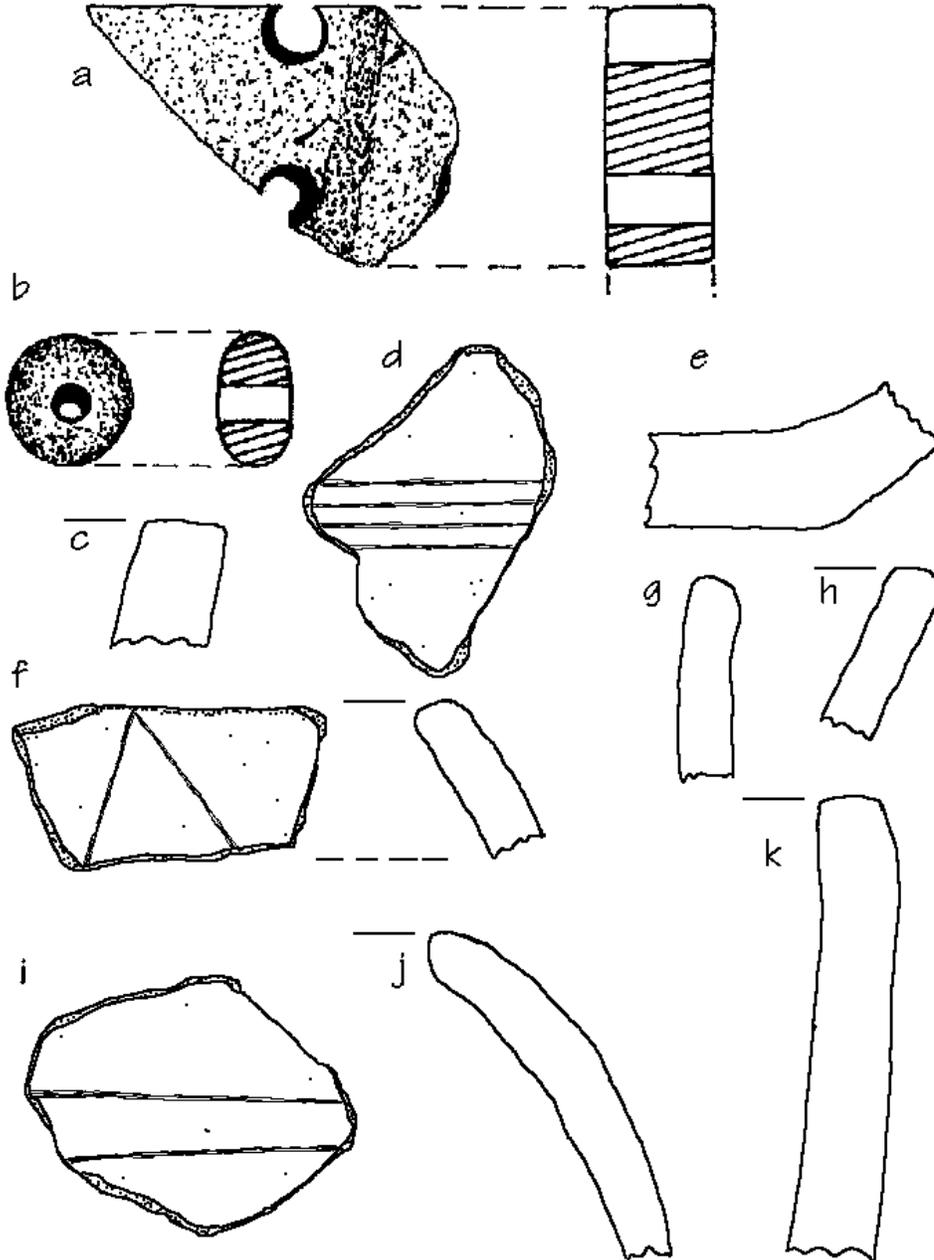


Figure A256. Site 214 surface artifacts.

a. Site 214B, shaped chlorite-schist object, 14.3 g,  $t=1.16$ , with drilled holes (hole  $d= .56$ cm.)

b. Site 214E, chlorite-schist bead with a slightly greenish color, 1.9g,  $d=1.38$ cm,  $t=.78$ , hole diameter=.43

c. Site 214, 1 chlorite-schist rim fragment, 8.2g,  $d=34$  (2% of rim),  $t=1.04$ , square lip with a repair hole  $d=.55$ cm

- d. Site 214C, chlorite-schist decorated body fragment, 13.3g, t=.65, with 4 incised lines forming 3 raised square bands.
- e. Site 214C, pottery base, 20.7g, light cream ware with coarse sand inclusions (3,10%), t=.91 to 1.19.
- f. Site 214C, decorated rim sherd, (brown pottery), 6.5g, d=21 (5% of rim), t=.62, lip t=.59, silver mica (2,15%), with a faint incised triangle on exterior of hole mouth jar
- g. Site 214C, plain rim sherd, soft brown ware with sand inclusions (3,5%), t= .56, lip t=.69, diameter and orientation uncertain.
- h. Site 214, light brown rim sherd, 3.5g, d=21 (3% of rim), silver mica inclusions (2,5%), t=.70
- i. Site 214B, decorated body sherd, plain brown ware, 8.4g, sand (1,5%), with 2 incised lines.
- j. Site 214D, crude plain brown rim sherd, d=23 (8% of rim), t=.60, lip t=.67, sand and quartz inclusions (3,10%).
- k. Site 214D, crude plain brown rim sherd, d=25 (5% of rim), t=1.05, lip t=.83, sand and quartz inclusions (3,10%).

### Site 214 Sondage 1

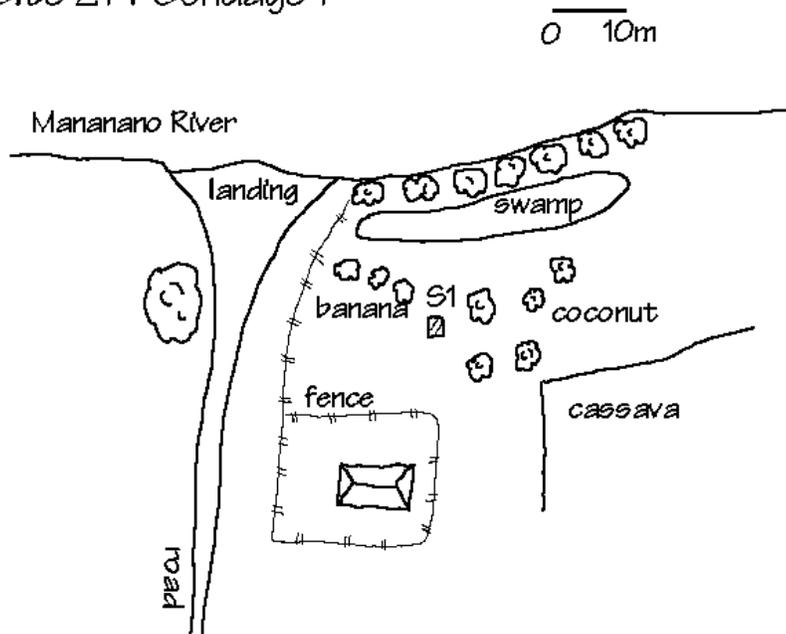


Figure A257. Site 214, Sondage 1

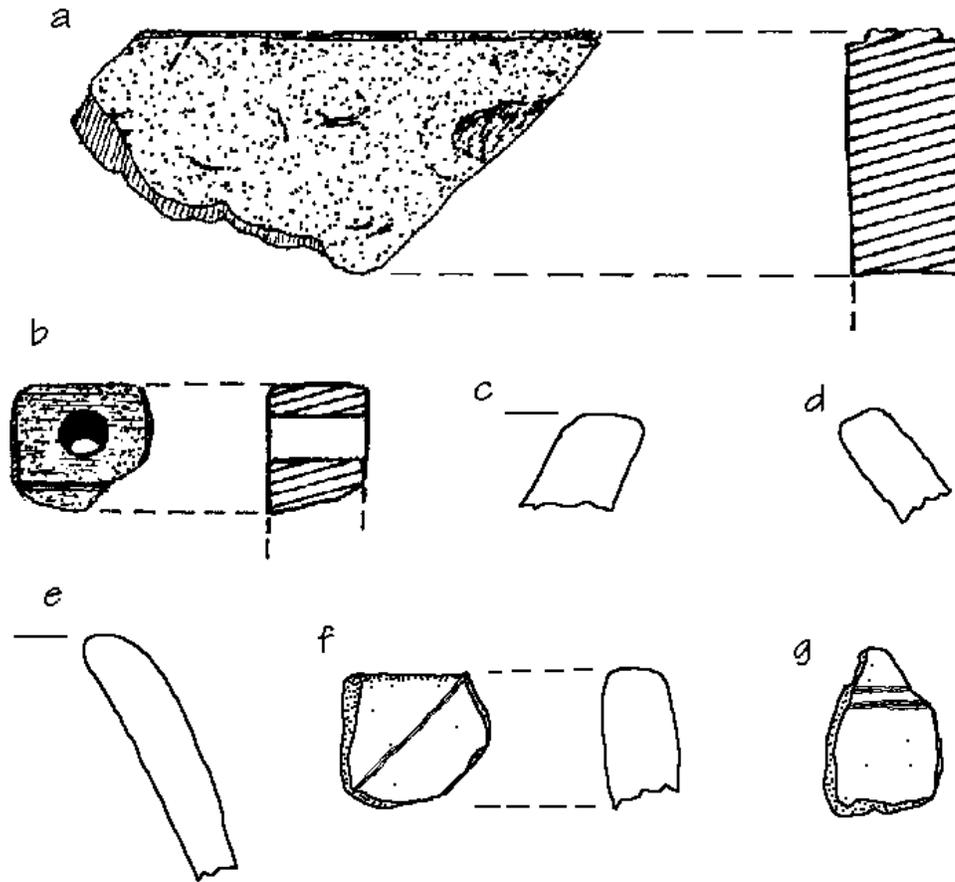


Figure A258. Site 214, Sondage 1, Levels 1 to 3 artifacts.

a. S1L1, chlorite-schist possible rim fragment, 23.4 grams, rough section on top as if making grooves and grinding down a rim's lip. If it is a rim being carved, it's  $d = 52$ , (3% of rim).

b. S1L2,  $t=.45$

c. S1L2, chlorite-schist rim fragment, 3.4g,  $d=20$  (2% of rim),  $t=1.06$

d. S1L2, plain rim sherd, 3.0g, diameter and orientation uncertain,  $t=.75$ , lip  $t=.68$ , sand and possibly chlorite-schist inclusions (2,5%), has a soapy feel.

e. S1L2, plain rim sherd, 10.0g,  $d=29$  (5% of rim),  $t=.51$ , lip  $t=.64$ , sand (3,10%).

f. S1L3, decorated rim sherd, 2.8g, diameter and orientation uncertain,  $t=.82$ , lip  $t=.78$ , sand (2,5%), with incised groove on exterior.

g. S1L3, decorated body sherd, soft reddish paste, 2.0g,  $t=.92$ , sand and quartz inclusions (2,5%), with incised double groove.

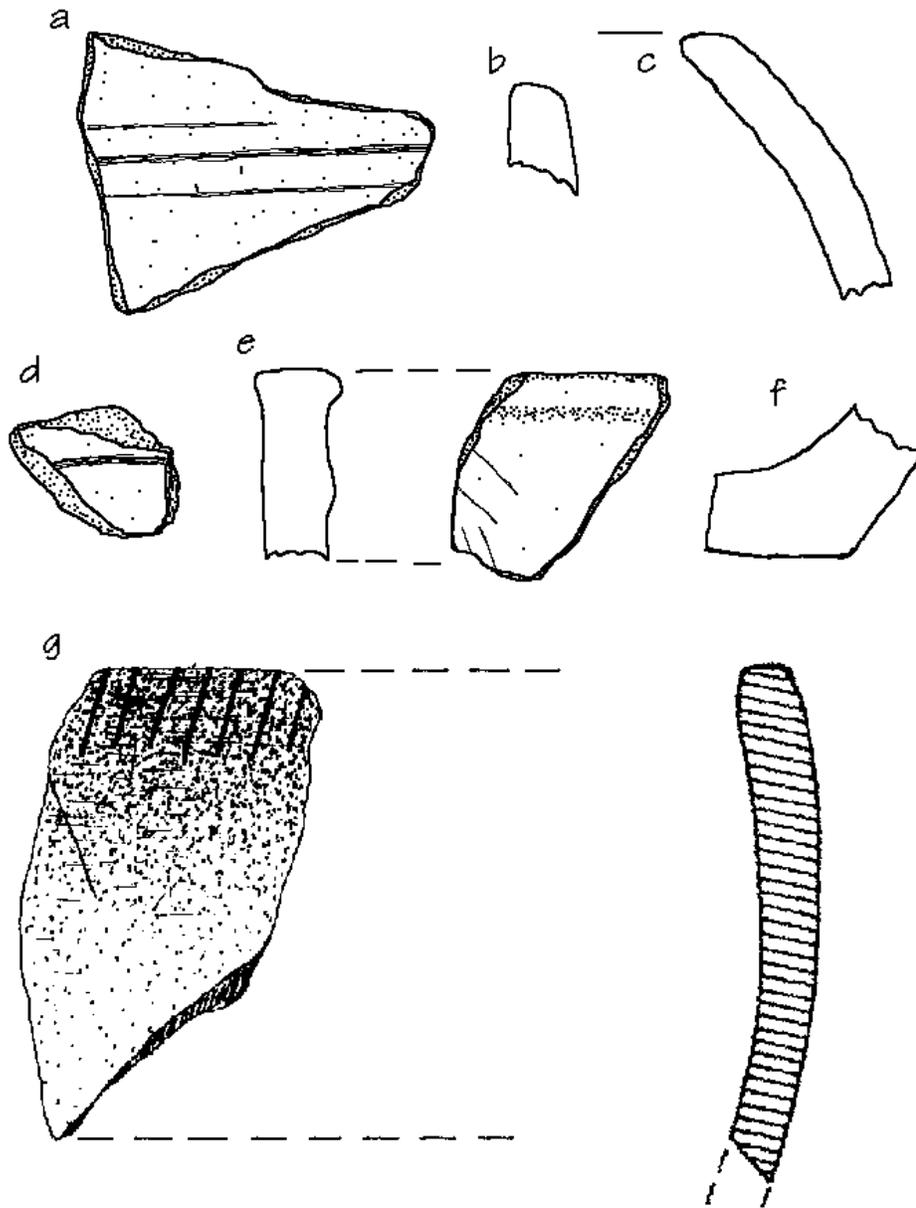


Figure A259. Site 214, Sondage 1, Levels 4 to 6 artifacts.

- a. S1L4, decorated grey chlorite-schist fragment, 17.8g, t=.94, with 3 incised grooves.
- b. S1L4, plain pottery rim sherd, 1.5g, diameter and orientation uncertain, t=.82
- c. S1L4, crude plain rim sherd, 18.2g, d=28 (6% of rim), t=.62, lip t=.55, sand (3,15%), with uneven mouth.
- d. S1L5, decorated chlorite-schist body fragment, 6.3g, t=.45cm, with a single incised line.
- e. S1L5, decorated rim sherd, 5.0g, d = 23 (but rim is irregular, 2% of rim), t=.80, lip t=1.11, with very faint incising on exterior surface.
- f. S1L6, chlorite-schist base or corner, 16.5g, t= 1.0, corner t=1.42
- g. S1L5, 10.1 grams, d = 15, 4%, I changed to make lip more square and changed angle to more upright.

**Site: 215      Ambinanibe (also Ampisofana)      Region of: Manakara north**

Laborde X: 568.5

Latitude: 22.03227

Season: 99

Laborde Y: 452.6

Longitude: 48.06953

Ceramic phase recovered: 0\*,4\*,5,6

Site today: footpath, exposed sand

Collection method: selective sample

*Site Notes:* A very dense, compact sherd scatter (40x10m) on top of a 5m rise near the Mananano River, not far from a length of hard rock outcroppings extending into the river.

*Ethnographic Notes and Oral Traditions:* The ferryman (a man called Arika who is also the *Mpanjaka* of Ambinanimananano) told us that this was the location of the "old village" for his town, and that people from both Ambinanimananano and Anosiala still come to this place to sacrifice their cows. He said the older name for this place was Ampisofana. When asked about the pumice we recovered he said it is called *vatondreky*, that it comes from the ocean, and that it is used to clean pots (meaning it's possible it is a type of coral, but it looked more like pumice to us). When asked about the sherds we were finding he told us they were known as *siny* from the name for water pots here (*sinitany*), and the people in his village grind the sherds from this site to use as a medicine for headaches and other problems, or to put the crushed powder on wounds. We had a long discussion with the ferryman about the use of the phrase "seven rivers region," which resulted in the title of this dissertation as explained in chapter 1. Many Malagasy refer to the region of this project as that of the Seven Rivers (*Fito Vinany*) though most people we asked within the region could not name all 7 by themselves, and people along each river in the area tended to name different sets of rivers. When asked, the ferryman Arika listed 1) Matitanana, 2) Manakara, 3) Mananano, 4) Tampolo (also called the Marofotatra), 5) Farony, and the 6) Namorona. He couldn't remember the seventh, but after consulting with some fishermen, he decided the seventh must be the Mangasiotra (south of Manakara). This cultural perception of the landscape (there must always be seven rivers, which rivers precisely is not as important) interested me for how humans (including archaeologists) make sense of the world.

*Artifacts:*

- 1 iron nail, 26.0g
- 2 pieces of pumice (said to be coral), 4.9g
- 4 plain body sherds, 29.8g, t=.90, .92, .68, red ware with chlorite-schist inclusions (3,20%), and 1 with sand inclusions (2,10%), t=.83
- 2 plain body sherds with reddish exterior, 26.3g, t=.77, 1.16, sand inclusions (3,10%)
- 1 red body sherd like tile, 3.4g, t=.56
- 2 soft body sherds with red exterior, 13.1g, t=1.05, 1.1, with possible chlorite-schist inclusions (2,10%)
- 6 plain brown body sherds, 26.4g, t=.51 to .90, sand inclusions (2,10%)
- 2 decorated body sherds, 6.1g, t=.49, .48, sand (3,5%), with faintly combed interior and exterior surfaces (1 illustrated below).
- 1 decorated brown body sherd, 2.4g, t=.56, sand (2,5%) with 3 incised grooves similar to chlorite-schist vessels (illustrated below)
- 5 plain grey graphite ware body sherds, 22.1g, t=.64, .91, 1.04, and 2 that are reddish on one side, t=.58, t=.55 (these 2 sherds did not refit, and were found approximately 100 meters apart, but they do seem to indicate a thin walled, partially oxidized variant of graphite ware).
- 2 decorated body sherds of grey graphite ware, 10.4g, with incised lines and punctates (illustrated below)
- 1 decorated rim sherd of grey graphite ware, 5.2g (illustrated below)
- 1 plain brown rim sherd with everted lip, 6.6g, (illustrated below).
- 3 other plain brown rim sherds too small to draw, 11.3g, t=.45, .51, .66

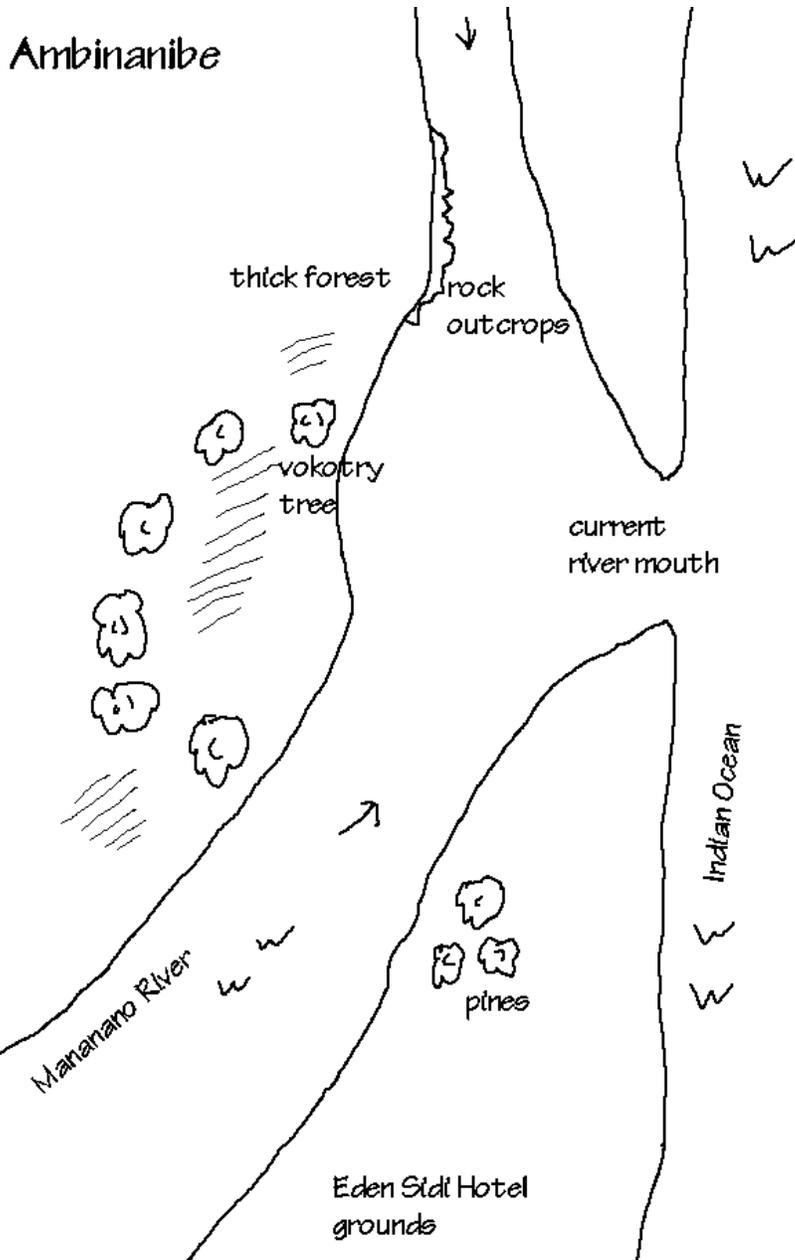


Figure A260. Site 215, Ambinanibe.

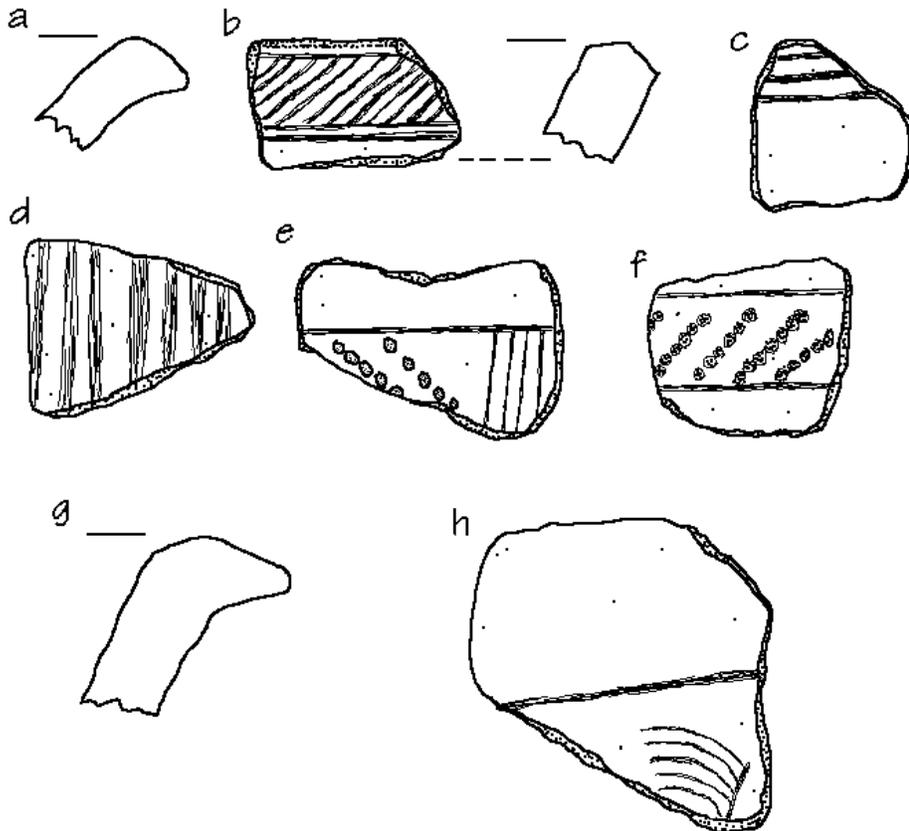


Figure A261. Sites 215 to 217 artifacts.

- a. Site 215, plain brown rim sherd, 6.6g, d=16 (7% of rim), t=.61, lip t=1.0, sand and silver mica (2,15%) with everted lip.
- b. Site 215, decorated rim sherd of grey graphite ware, 5.2g, d=20 (3% of rim), t=.91, lip t=1.0, with incised lines on interior surface.
- c. Site 215, decorated body sherd, 2.4g, t=.56, with 3 incised grooves similar to chlorite-schist decoration.
- d. Site 215, decorated body sherd, t=.49, sand (3,5%), with faint combing on interior and exterior surfaces.
- e. Site 215, decorated body sherd of grey graphite ware, t=.78, with incised lines and round punctates (dentate stamp), on interior surface.
- f. Site 215, decorated body sherd of grey graphite ware, t=.99, with incised lines and round punctates (dentate stamp), on interior surface.
- g. Site 217, plain rim sherd of coarse brown ware, 10.4g, d=23 (4% of rim), t=.83, coarse sand inclusions (3,10%)
- h. Site 217, decorated body sherd, coarse brown ware, 13.9g, t=.90, coarse sand (3,10%), with an incised line and faint combing (or shell impressions).

**Site: 216**

Laborde X: 567.9

Latitude: 22.04558

Laborde Y: 451.1

Longitude: 48.06448

Site today: cassava

Site Notes:

Small, compact sherd scatter (20x20m) in northwest corner of a large cassava

**Region of: Manakara north**

Season: 99

Ceramic phase recovered: 3/4\*

Collection method: thorough complete collection

garden, approximately 100 meters west of the coast road north of Manakara.

*Artifacts:*

- 14 plain body sherds, 40.2g, all of same coarse ware with sand inclusions (2,15%), t=.50 to .81, 4 are red on one side and the others grey.

**Site: 217**

**Region of: Manakara north**

*Laborde X:* 567.7

*Latitude:* 22.05058

*Season:* 99

*Laborde Y:* 450.5

*Longitude:* 48.06222

*Ceramic phase recovered:* 3

*Site today:* cassava

*Collection method:* thorough complete collection

*Site Notes:* Sparse scatter (30x20m) in northern half of a large garden, west of coast road north of Manakara.

*Artifacts:*

- 7 plain brown body sherds, 14.8g, t=.47 to .72, very coarse sand inclusions (3,10%), including 2 with reddish exterior and light brown interiors.
- 1 decorated body sherd, of the same brown ware, 13.9g, t=.90, coarse sand (3,10%), with an incised line and faint combing (or shell impressions) (illustrated above).
- 1 small brown rim sherd, 2.3g, t=.60
- 1 coarse brown ware rim sherd, 10.4g, d=23 (4% of rim), t=.83 coarse sand inclusions (3,10%) (illustrated above).

**Site: 218**

**Andriamanitraomby**

**Region of: Manakara north**

*Laborde X:* 567.4

*Latitude:* 22.05183

*Season:* 99

*Laborde Y:* 450.4

*Longitude:* 48.05935

*Ceramic phase recovered:* 5,6

*Site today:* house compound, cassava, pineapples, sugar cane *Collection method:* selective sample

*Site Notes:* Very dense scatter (150x40m), just east of the river, with many sherd, some slag, and almost no chlorite-schist. Collected a separate Site 218A from a sherd scatter (40x20m) in a cassava garden south of a swampy region (see map below).

*Artifacts:*

- 1 decorated rim sherd of grey graphite ware, 7.8g (illustration e below).
- 2 pieces of iron slag, 59.7g, including 1 with smooth sections.
- 1 stone with flake scars, 5.1g, (broken gun flint?, or more likely a "strike-a-light")
- 2 plain red body sherds, 16.7g, t=.79, .85, with chlorite-schist inclusions (3,15%)
- 6 plain brown body sherds
- 1 plain body sherd of grey graphite ware, 1.9g, t=.62
- 1 plain chlorite-schist body fragment, 45.2g, t=1.14, light grey
- 3 thick coarse ware body sherds, 80.4g, t=1.46, 1.51, 1.85. grey
- 2 decorated body sherds, 5.0g, t=.39, .62 sand (3,3%), with double incised grooves (illustration f below).
- 16 plain brown rim sherds, 104.0g (illustrations a to d below).

*Artifacts from 218A:*

- 2 plain chlorite-schist body fragments, 27.1g, t=1.05, and 1 with a drilled hole, t=1.56, hole d=.46cm.
- 1 chlorite-schist base, 29.3g, base d=37 (3% of base), t=1.26 to 1.47, with 3 grooves forming 2 raised bevels on exterior (illustration h below).
- 1 plain body sherd, grey graphite ware, 3.7g, t=.81
- 4 plain brown body sherds, 9.5g, t=.45, .54, .55, .61
- 1 plain brown rim, d=25 (4% of rim), t=.86, lip t=.94 (illustration g below).

# Andriamanitraomby, Site 218

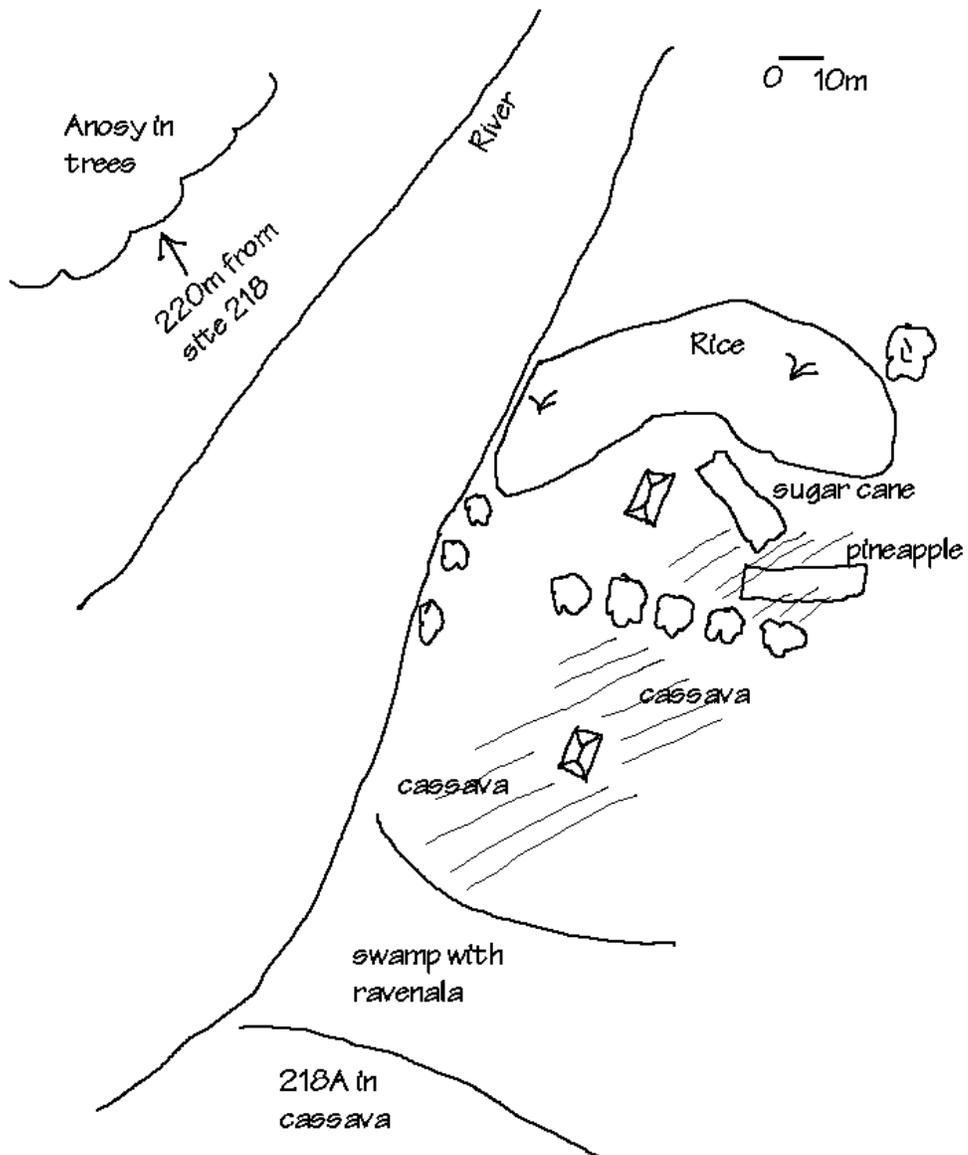


Figure A262. Site 218 Andriamanitraomby.

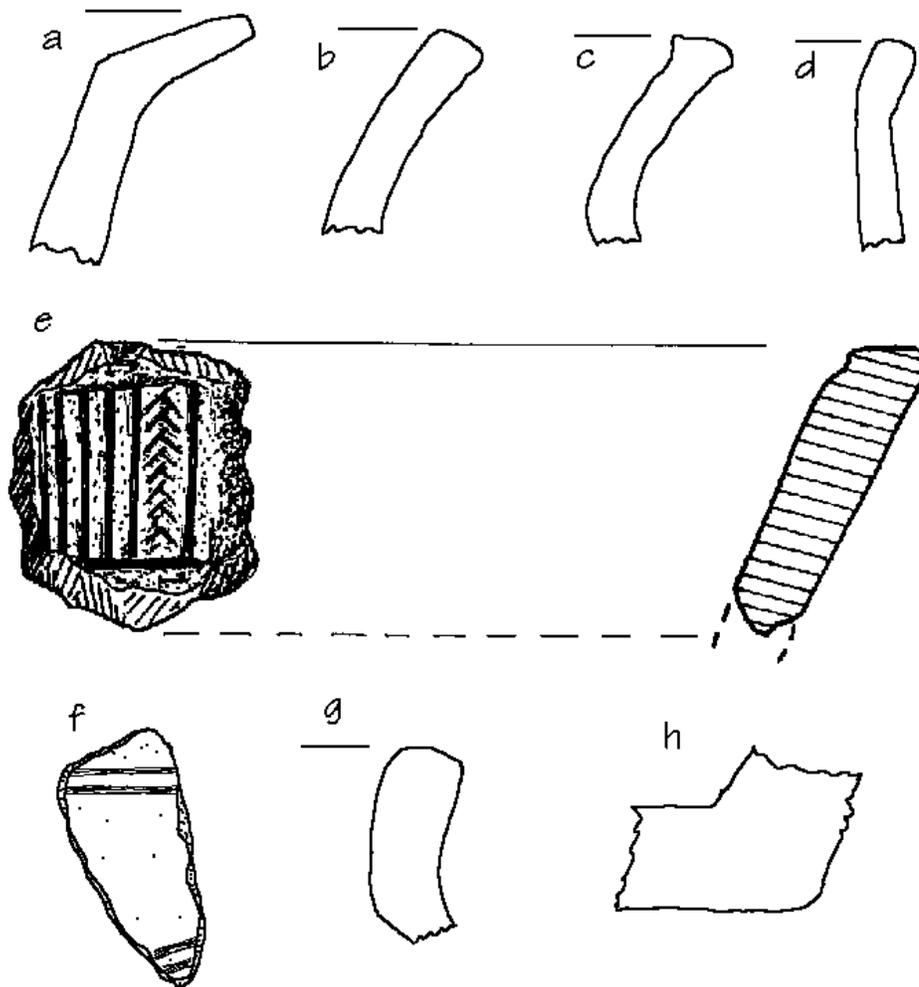


Figure A263. Site 218 artifacts.

- a. Plain brown rim sherd, d=23 (5% of rim), t=.73, lip t=.43, sand (2,5%), with flared lip  
 b. Plain brown rim sherd, d=22 (3% of rim), t=.64, lip t=.68  
 c. Plain brown rim sherd, d=18 (6% of rim), t=.52, lip t=.65  
 d. Plain brown rim sherd, d=13 (7% of rim), t=.51, lip t=.54  
 e. Decorated rim sherd, grey graphite ware, 7.8g, orientation and diameter uncertain, t=.83, lip t=.89, with decoration on interior surface (note, parallel sided like this is generally later, as the earlier is triangular everted, so phase 6 rim).  
 f. Decorated body sherd, 2.2g, t=.39, sand (3,3%), with double incised grooves  
 g. Plain brown rim sherd, d=25 (4% of rim), t=.86, lip t=.94  
 h. Chlorite-schist base fragment, 29.3g, base d=37 (3% of base), t=1.26 to 1.47, with 3 grooves forming 2 raised bevels on exterior

**Site:** 219

**Anosy**

**Region of:** Manakara north

Laborde X: 566.8

Latitude: 22.05098

Season: 99

Laborde Y: 450.5

Longitude: 48.05332

Ceramic phase recovered: 5\*,6

Site today: cassava, coffee

Collection method: quick complete collection

Site Notes: Small, sparse sherd scatter (10x10m) on the island formed by the meanders of the Mananano River, in a coffee and cassava garden northwest of the house compounds called

Anosy. The area is low lying and swampy with heavy vegetation and probably with lots of river deposits.

*Artifacts:*

- 8 plain brown body sherds (28.3g), sand (3,5%), t=.7 to .84
- 2 light grey body sherds (4.4g), sand (2,3%), t=.58, .67
- 1 decorated body sherd, reddish brown ware, 3.0g, t=.91, silver mica and chlorite-schist inclusions (2,10%, surface feels soapy), with a single incised line (illustration b below).
- 1 decorated rim sherd of grey graphite ware (1,30%), d=17 (6% of rim), t=.98, lip t=1.02, with incised lines and dentate stamps on interior surface (illustration a below).

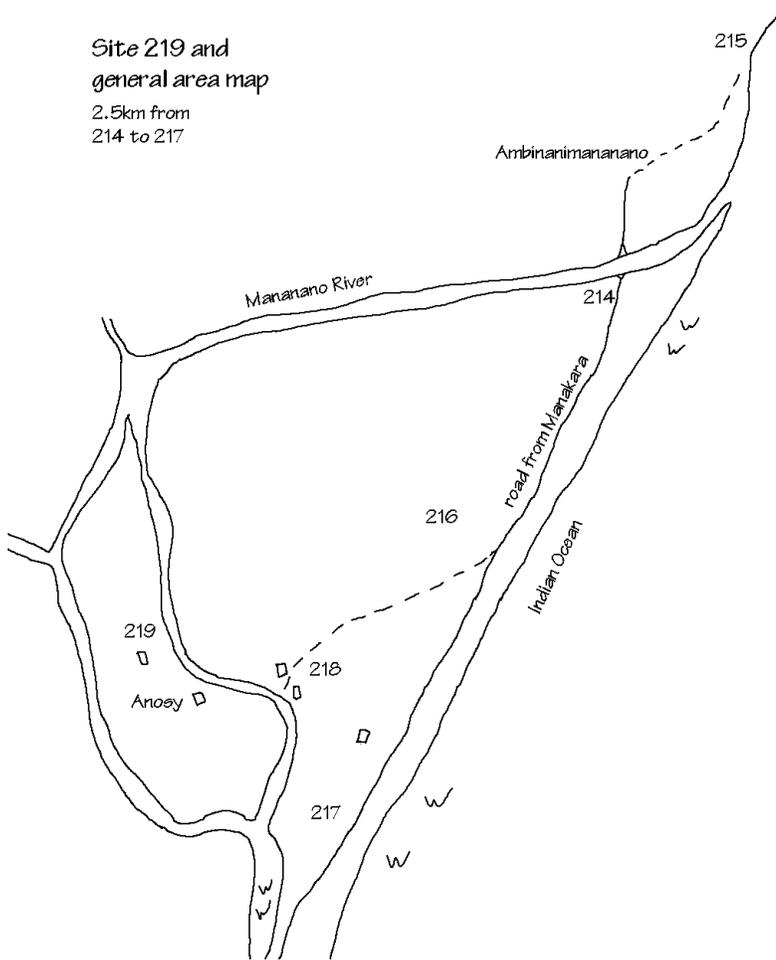


Figure A264. Site 219 Anosy and general area map.

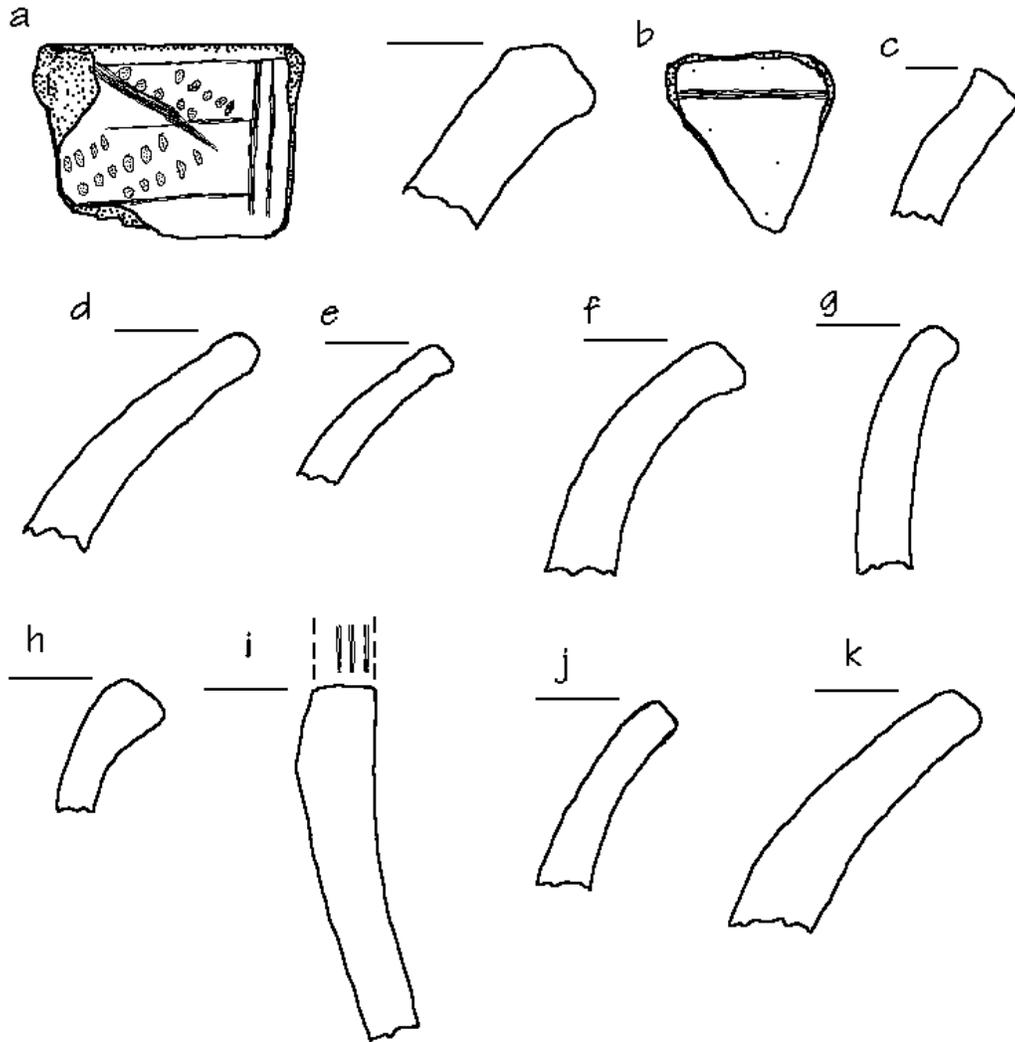


Figure A265. Sites 219 to 222 artifacts.

- a. Site 219, decorated rim sherd of grey graphite ware (1,30%), d=17 (6% of rim), t=.98, lip t=1.02, with incised lines and dentate stamps on interior surface
- b. Site 219, decorated body sherd, reddish brown ware, 3.0g, t=.91, silver mica and chlorite-schist inclusions (2,10%, surface feels soapy), with a single incised line.
- c. Site 221, plain grey rim sherd, d=14 (4% of rim), t=.58, lip t=.56, sand and silver mica inclusions (2,15%)
- d. Site 220, plain brown rim sherd, 12.7g, d=25 (1% of rim), t=.79, lip t=.55, sand (2,10%)
- e. Site 220, plain light brown rim sherd, d=15 (3% of rim), t=.46, lip t=.39, sand (1,3%)
- f. Site 222, plain rim sherd, 7.1g, d=26 (2% of rim), t=.81, lip t=.58, sand (3,10%)
- g. Site 222, plain rim sherd, 17.7g, d=22 (7% of rim), t=.62, lip t=.56, sand (2,5%)
- h. Site 222, plain rim sherd, 3.9g, d=21 (5% of rim), t=.51, lip t=.78, sand (3,5%)
- i. Site 222, plain rim sherd, 16.0g, d=26 (3% of rim), t=.58, lip t=.81, sand (3,5%), with faint incised lines on the top of the lip, similar to chlorite-schist.
- j. Site 222, plain rim sherd, 7.3g, d=20 (4% of rim), t=.66, lip t=.48, sand and silver mica (1,5%)
- k. Site 222, plain rim sherd, 14.4g, d=20 (3% of rim), t=.93, lip t=.65, sand (3,10%).

**Site: 220****Region of: Manakara north***Laborde X:* 567.3*Latitude:* 22.06067*Season:* 99*Laborde Y:* 449.4*Longitude:* 48.05868*Ceramic phase recovered:* 5*Site today:* cassava*Collection method:* thorough complete collection

*Site Notes:* Small, sparse sherd scatter (20x10m) in a large garden on the back side of the first dunes in from the ocean.

*Artifacts:*

- 6 plain brown body sherds, 10.7g, sand (3,10%), t=.69, .74, .75
- 2 plain brown rims of similar ware, (illustrations d and e above).

**Site: 221****Region of: Manakara north***Laborde X:* 567.3*Latitude:* 22.06158*Season:* 99*Laborde Y:* 449.3*Longitude:* 48.0586*Ceramic phase recovered:* 5*Site today:* exposed sand, periwinkle*Collection method:* quick complete collection

*Site Notes:* Small, sparse sherd scatter (5x5m) in an area of exposed sand and periwinkles, approximately 150m south of site 220.

*Artifacts:*

- 3 plain brown body sherds, 17.3g, t=.48, .56, .64, sand (3,5%), including 1 with a red interior, and another with a grey exterior
- 1 plain body sherd, 0.8g, t=.46, with chlorite-schist inclusions (2,20%)
- 1 plain grey rim sherd, d=14 (4% of rim), t=.58, lip t=.56, sand and silver mica inclusions (2,15%) (illustration c above).

**Site: 222****Andokana Anosy****Region of: Manakara north***Laborde X:* 567.1*Latitude:* 22.06568*Season:* 99*Laborde Y:* 448.9*Longitude:* 48.05643*Ceramic phase recovered:* 5*Site today:* cassava, periwinkle*Collection method:* selective sample

*Site Notes:* Dense sherd scatter (80x40m) in a large cassava garden and periwinkles on the backside of dunes, just east of the Pangalanes Canal, which is 15m wide at this point (and near the spot where the lobster sellers meet the buyers coming north from Manakara).

*Artifacts:*

- 5 plain body sherds, 21.5g, sand (3,5%), and 1 with black specks (2,5%), t=.56, .65, .68, .69, .77.
- 1 decorated body sherd of grey graphite ware, 7.7g, t=.85, with combing
- 2 plain body sherds of grey graphite ware, 46.3g, t=.88, 1.04
- 7 plain rim sherds, 3 are reduced, 3 oxidized, and 1 is local white ware, 1 of the red wares is 3.5g, sand (2,5%), and the other 6 are illustrated above (illustrations f to k above).

**Site: 223****Region of: Manakara north***Laborde X:* 567.0*Latitude:* 22.06588*Season:* 99*Laborde Y:* 448.9*Longitude:* 48.05583*Ceramic phase recovered:* 5,6*Site today:* exposed sand, footpath*Collection method:* selective sample

*Site Notes:* Large, dense sherd scatter (200x200m) on a small rise west of the Pangalanes Canal, and southwest of site 222. The Pangalanes is shallow at this point (there's a ford near this site for cars to cross the canal), but I think the small rise may actually be backdirt from the digging

of the canal.

*Artifacts:*

- 7 decorated rims (illustrated below)
- 1 plain body sherd of grey graphite ware, 5.9g, t=.70, with repair hole (hole d=.49cm)
- 1 chlorite-schist body fragment, 21.2g, t=1.01, with reddish stone
- 3 decorated body sherds with incised grooves (illustrated below).
- 8 plain brown body sherds, 26.4g, t=.52, .63, .71, .61, .50, .44, .57
- 6 plain brown rim sherds, including 4 not illustrated (15.7g, lip t=.48, 1.0, .67, .61) and 2 illustrated below (g and i)

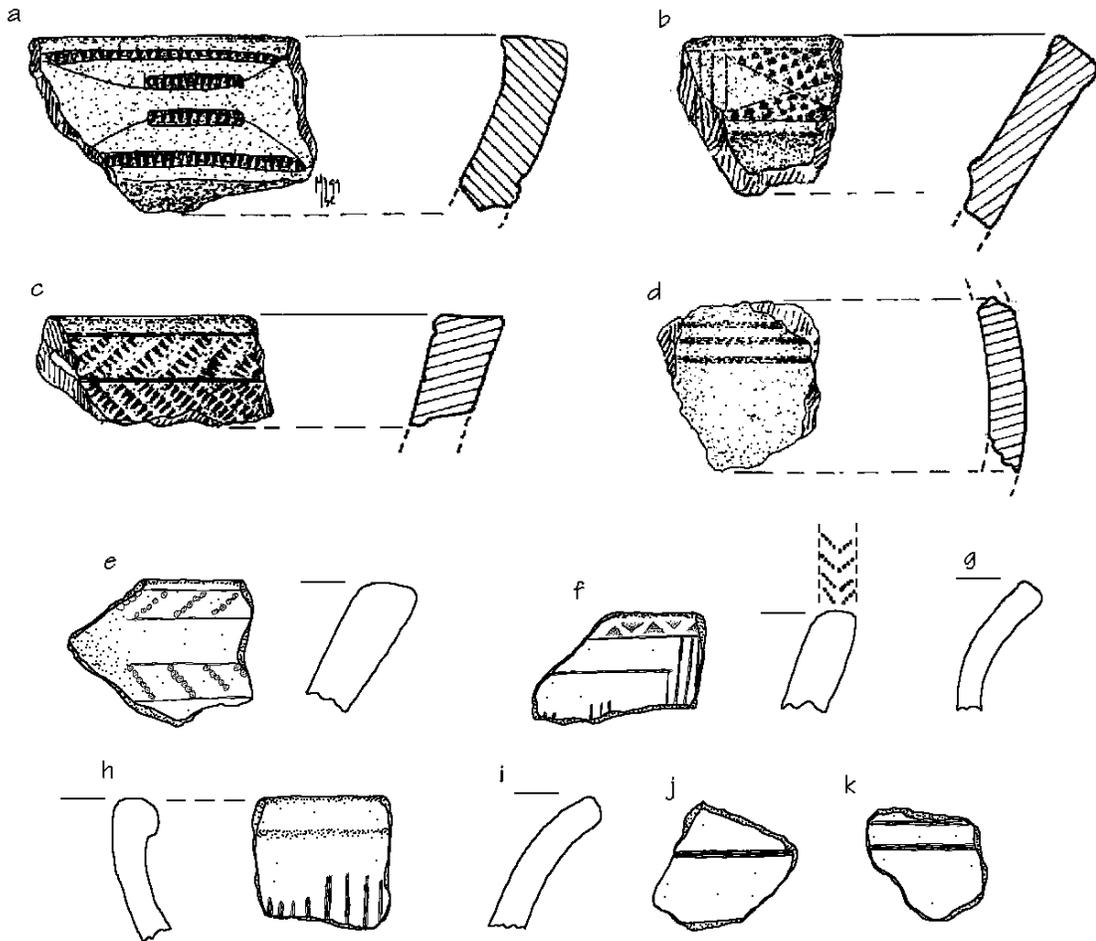


Figure A266. Site 223 artifacts.

- a. Decorated rim sherd, dark grey graphite ware, 18.7g, d=24 (6% of rim), t= 1.0, lip t=1.12, with incised lines and rectangular punctates (stamps) on interior surface.
- b. Decorated rim sherd, grey graphite ware, 10.1g, d=24 (3% of rim), t=.60, lip t=.96, with incised lines and square punctates on interior surface and 2 incised lines on the top of the lip (which are not shown on the illustration above, but resemble chlorite-schist designs).
- c. Decorated rim sherd, type iE grey ware, 11.4 grams, d = 32 (3% of rim), t=1.0, lip t=1.16, sand (3,5%), with incised lines and punctates (dentate stamps?) on interior surface.
- d. Decorated body sherd, 4.9g, t=.61, sand and silver mica (or graphite) inclusions (2,20%), with incised grooves on exterior.
- e. Decorated rim sherd, grey graphite ware, 9.8g, too straight for diameter reading, t=.78, lip t=1.02, with incised lines and round punctates (dentate stamp) on interior surface.

- f. Decorated rim sherd, 6.1g, d=25 (2% of rim), t=.81, lip t=.78, graphite and possible chlorite-schist inclusions (2,10%), with incised lines and triangle punctates on interior surface and dentate stamps on top of lip.
- g. Plain brown rim sherd, 5.0g, d=14 (6% of rim), t=.39, lip t=.46, sand (1,5%)
- h. Decorated brown rim sherd, 5.3g, d=27 (3% of rim), t=.54, lip t=.82, sand and gold mica (2,15%), with incised lines on exterior surface.
- i. Plain brown rim sherd, 7.1g, d=17 (4% of rim), t=.57, lip t=.52, sand and silver mica (2,20%)
- j. Decorated body sherd, type iE grey reduced, 3.4g, t=.63, sand (1,5%), with deep incised groove
- k. Decorated body sherd, type iE grey reduced, 2.0g, t=.45, sand (1,10%), with deep incised double groove

**Site: 224**

**Anosy Ampasika**

**Region of: Manakara north**

Laborde X: 567.0

Latitude: 22.06233

Season: 99

Laborde Y: 449.3

Longitude: 48.0556

Ceramic phase recovered: 1-4\*

Site today: house compound, cassava      Collection method: quick sample

*Site Notes:* Sparse sherd scatter (30x40) in a cassava garden near a one-house compound west of the river. A quick end-of-the-day collection, but did recover iron slag and 2 pieces of a clay tuyere,

*Artifacts:*

- 3 pieces of iron slag, 67.4g, with smoothed surfaces
- 2 thick coarse ware, 54.1g, t=1.77, 1.80, sand inclusions (3,15%), interpreted as part of a clay tuyere
- 4 plain brown body sherds, 14.7g, t=.46, .68, 1.19, 1.23, the thickest sherd also had a softer paste.
- 1 plain brown rim sherd, 14.0g, orientation and diameter uncertain, t=.78, lip t=1.03, sand (1,3%) (illustration a below).

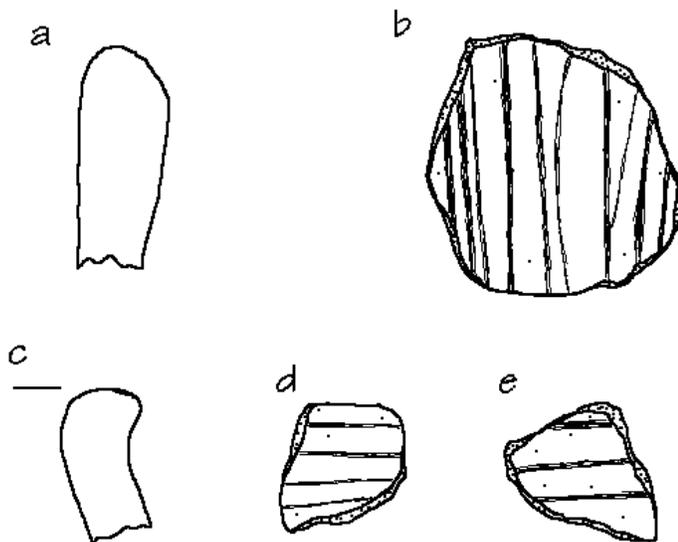


Figure A267. Site 224 to 229 artifacts.

a. Site 224, plain brown rim sherd, 14.0g, orientation and diameter uncertain, t=.78, lip t=1.03, sand (1,3%).

b. Site 227, thin decorated body sherd, 4.9g, t=.29, sand (2,10%), with incised combing on exterior and burnished interior.



whole event, including the three hour meeting with the town's elders, reinforced how fortunate our project has been to have the wide-spread support of the Antemoro in the lower Matitanana.

*Artifacts:*

- 2 plain brown body sherds, 5.8g, t=.48, .63, sand (3,5%)
- 1 plain red ware body sherd, 7.1g, t=.50, sand and quartz (3,10%)
- 1 thin decorated body sherd, 4.9g, t=.29, sand (2,10%), with incised combing on exterior and burnished interior (illustration b above).

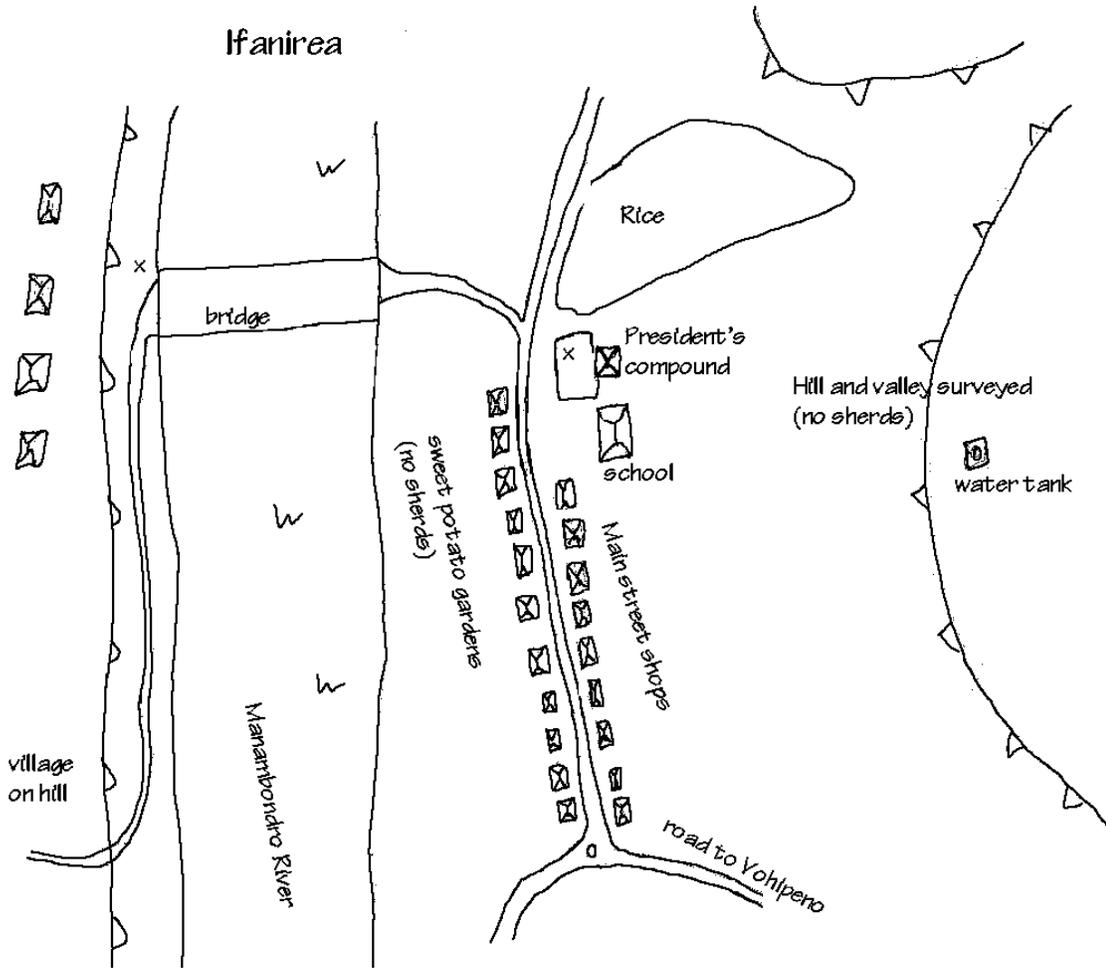


Figure A268. Site 227 Ifanirea.

<b>Site:</b> 228	<b>Tongay</b>	<b>Region of:</b> Ifanirea
Laborde X: 509.0	Latitude: 22.22008	Season: 99
Laborde Y: 432.3	Longitude: 47.49493	Ceramic phase recovered: 5
Site today: open grass		Collection method: thorough complete collection
Site Notes: An abandoned tomb and sparse sherd scatter (20x20) on a hilltop southeast of the town of Ifanirea. The hills in this area are very steep, with very few ceramic remains.		

*Ethnographic Notes and Oral Traditions:* After a day spent trying to gain permission to survey the old site of Tsamaliha (see notes for site 227), we decided to survey the hills to the east of Tsamaliha, labeled Tongay on the FTM map. We had collected an oral tradition that the founding

king of Tsamaliha had taken his wife from Tongay, and thus we hoped to find a substantial site here as well. Even though Tongay did not turn out to be very productive, it would be worthwhile to return someday with enough time to gain permission to look at the main site of Tsamaliha.

*Artifacts:*

- 3 plain coarse brown body sherds, 8.3g, t=.74, .74, .49, sand (3,15%)
- 1 decorated body sherd, type i, 1.3g, t=.46, sand (3,5%), with faint incisions or possibly leaf impressed (illustration d above).
- 1 plain rim sherd, type i, 6.0g, d=21 (5% of rim), t=.69, lip t=.79, sand (3,5%) (illustration c above).

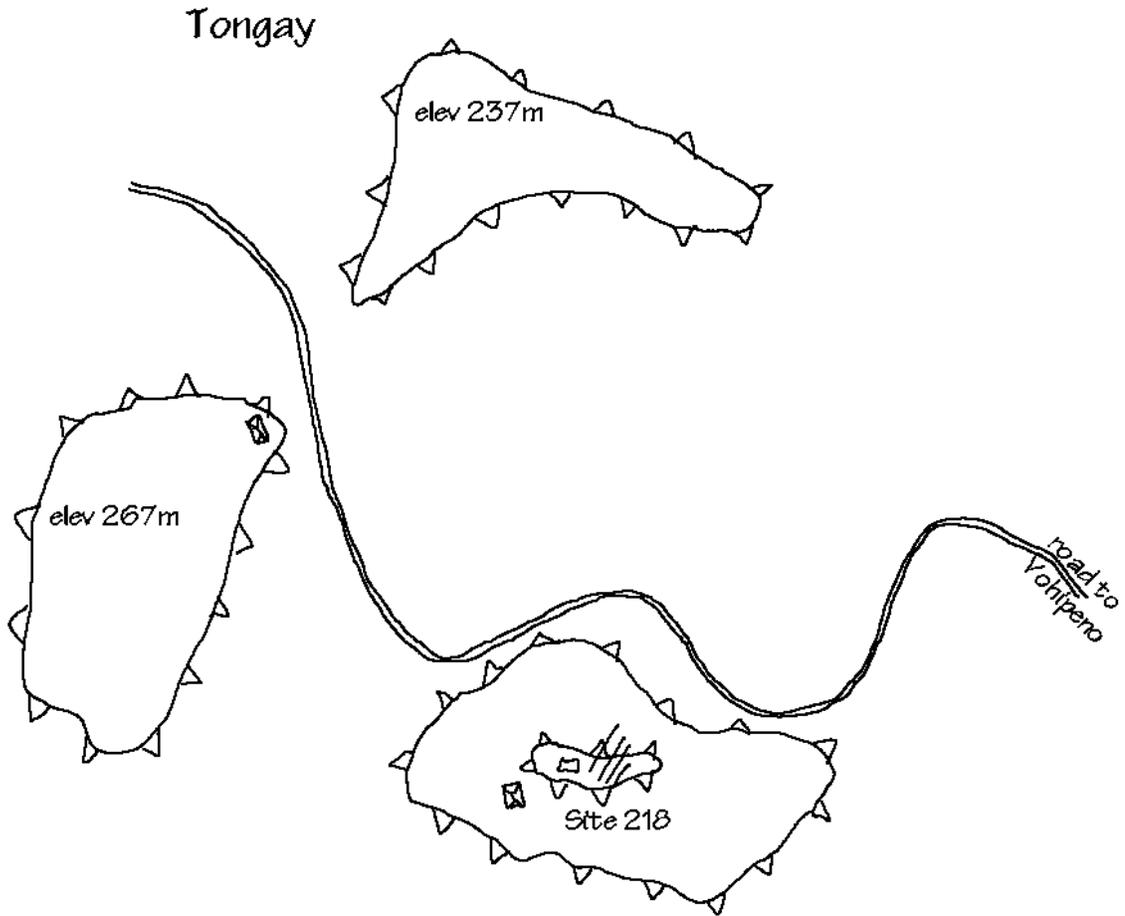


Figure A269. Site 228 Tongay.

**Site: 229**

**Region of: Vohipeno**

Laborde X: 537.7

Latitude: 22.27913

Season: 99

Laborde Y: 425.5

Longitude: 47.77423

Ceramic phase recovered: 5,6\*

Site today: sweet potatoes, dry rice

Collection method: thorough complete collection

*Site Notes:* Very sparse sherd scatter (6 sherds) stretching over a rice nursery, sweet potato garden, and the path, southeast of the ditched site 24 (we were filling gaps in previous years' survey coverage).

*Artifacts:*

- 2 plain body sherds with graphite inclusions (2,25%), 18.2g, t=.95, 1.04 (though the graphite inclusions were numerous, this was not yet the "grey graphite ware," since it couldn't write on

paper, which was one of my determinative tests).

- 3 plain brown body sherds, 3.6g, t=.43, .45, .73, sand and silver mica inclusions (1,3%).
- 1 decorated body sherd, brown ware, 1.6g, with 3 incised grooves (illustration e above).

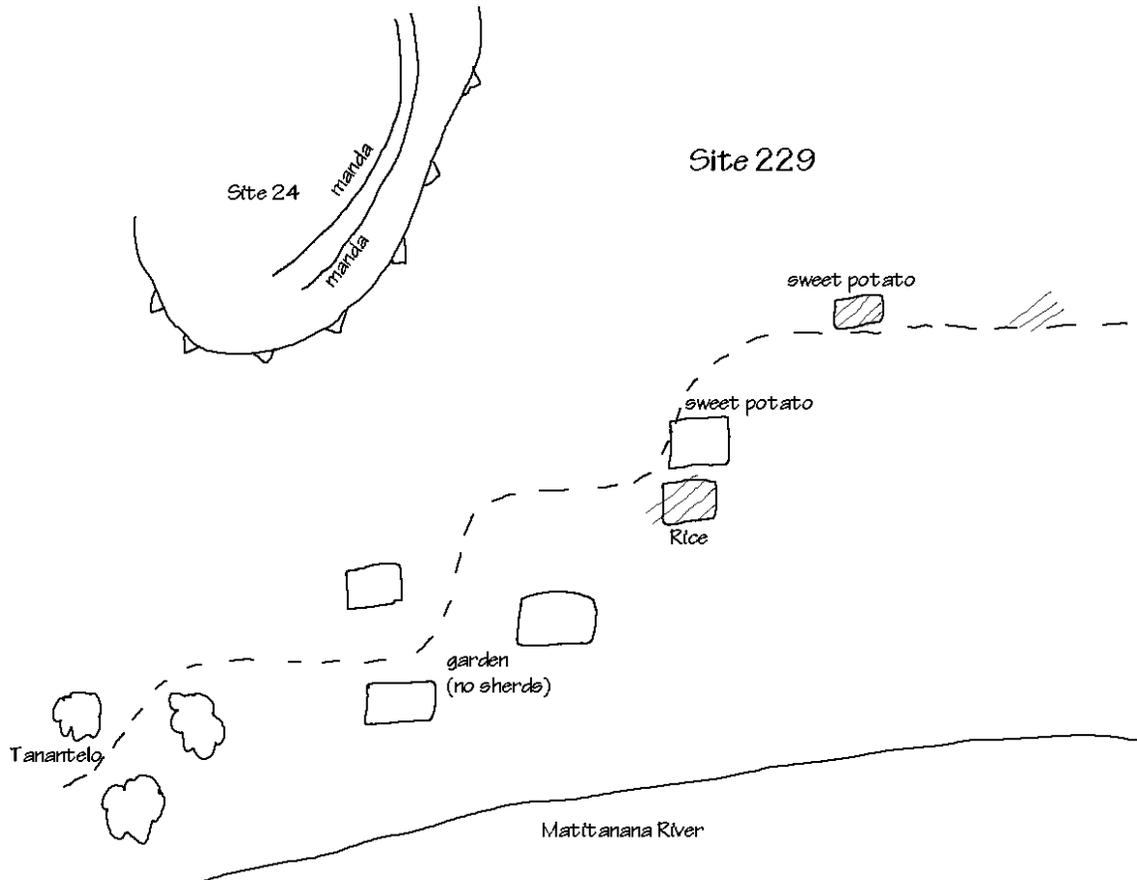


Figure A270. Site 229.

**Site: 230**

**Region of: Vohipeno**

Laborde X: 538.0

Latitude: 22.27965

Season: 99

Laborde Y: 425.5

Longitude: 47.77647

Ceramic phase recovered: 5\*

*Site today:* sweet potatoes, sugar cane *Collection method:* thorough complete collection

*Site Notes:* Sparse sherd scatter in a sugar cane field (230) and a nearby sweet potato field (230A). Both had the same coarse brown ware with sand inclusions.

*Ethnographic Notes and Oral Traditions:* These sherds were bagged and labeled upon collection, but the bag for site 230 disappeared that night as we camped out in the school house of the village of Farafasy. The school teacher had helped us with the survey during the day, and then offered us the roof over our heads for the night. There were a number of children in the schoolhouse excited to watch us sleep, so it's possible the 1 bag was lifted by someone, as all the other bags, including the collection from the sweet potato garden Site 230A, were still on the table. On the other hand, Ramilisonina told us a rat had gone for his arm during the night, and so he thought perhaps the bag was carried off to line the rodent's den. In any case, the similar sherds from site 230A survived and made it to the museum storeroom in Antananarivo.

*Artifacts from Site 230A:*

- 1 large piece of iron slag, smoothed, 37.0g
- 7 plain body sherds, coarse brown ware, 14.2g, t=.65, 1.02, .80, .47, .71, 1.06, .58, sand

inclusions (3,15%)

**Site: 231**

**Tanimbazaha**

**Region of: Vohipeno**

Laborde X: 538.3

Latitude: 22.28107

Season: 99

Laborde Y: 425.3

Longitude: 47.77983

Ceramic phase recovered: 3/4\*,5

*Site today:* cassava, bananas, sweet potatoes, sugar cane *Collection method:* thorough complete collection

*Site Notes:* Sparse sherd scatter, widely spaced, in a number of different garden types.

*Ethnographic Notes and Oral Traditions:* These gardens north of the Matitanana River are said to have once been a French colonial plantation, and hence the name (Vazaha = European).

*Artifacts:*

- 1 piece of iron slag, angular, 13.1g
- 7 plain body sherds, coarse light brown, 21.6g, t=.87, .68, .60, .75, .73, sand and quartz inclusions (3,5%)
- 1 plain body sherd, 1.0g, t=.60, with graphite inclusions (2,15%)
- 1 plain body sherd, whitish, 0.7g, t=.50, sand and shell inclusions (2,5%)
- 2 plain body sherds, reddish ware with burnished (or wiped) interior surfaces, 10.6g, t=.69, .98, sand, shell, and silver mica inclusions (2,5%)
- 2 plain body sherds, 8.7g, with black interior and red exterior wiped smooth, t=.96 (with sand 3,10%) and t=.78 (with sand and black flecks 2,10%).
- 2 plain brown rim sherds, 5.2g (illustrations a and b below).
- 1 decorated body sherd, 8.5g (illustration d below)

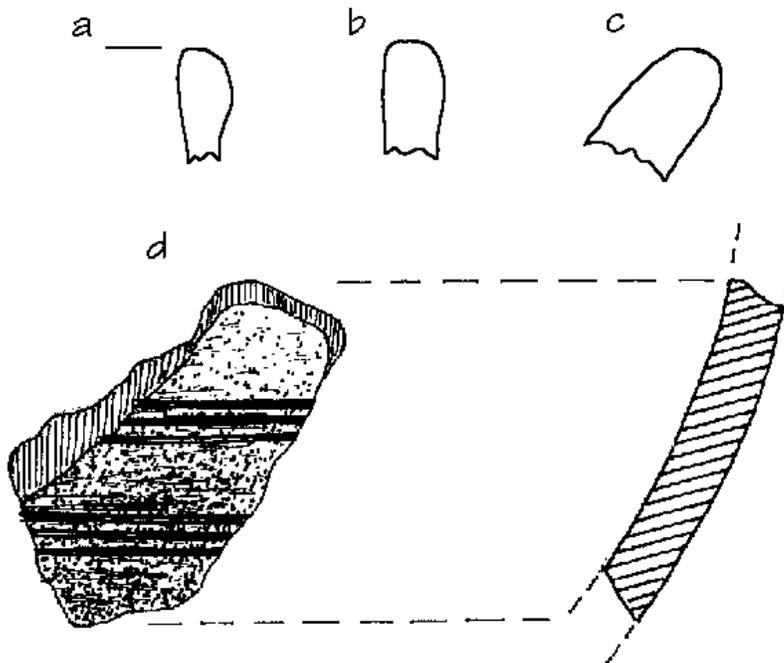


Figure A271. Site 231 and 232 artifacts.

a. Site 231, plain brown rim sherd, 3.5g, d=25 (4% of rim), t=.35, lip t=.61, sand and gold mica inclusions (2,5%)

b. Site 231, plain rim sherd, 1.7g, diameter and orientation uncertain, t=.75, sand (2,5%)

c. Site 232, plain rim fragment, 3.5g, diameter and orientation uncertain, t=1.04

d. Site 231, decorated body sherd, 8.5g, sand and gold mica (1,10%), with triple incised grooves

on the exterior surface.

**Site: 232**

**Region of: Vohipeno**

*Laborde X:* 538.5

*Latitude:* 22.28047

*Season:* 99

*Laborde Y:* 425.4

*Longitude:* 47.78118

*Ceramic phase recovered:* 3/4\*,7

*Site today:* sweet potatoes

*Collection method:* thorough complete collection

*Site Notes:* Sparse scatter (20x20m) in a sweet potato garden under construction.

*Artifacts:*

- 1 tiny fragment of chlorite-schist, 0.2g, grey
- 1 sherd of European floral ware, 1.2g, t=.64
- 6 plain body sherds, 28.8g, t=.83, .49, .59, .54, .57, .43, mainly sand and silver mica inclusions (2,5%), including 1 that is oxidized.
- 1 plain rim fragment, 3.5g, diameter and orientation uncertain, t=1.04 (illustration c above).

**Site: 233**

**Tsaratanana**

**Region of: Vohipeno**

*Laborde X:* 538.5

*Latitude:* 22.27903

*Season:* 99

*Laborde Y:* 425.5

*Longitude:* 47.78123

*Ceramic phase recovered:* 5

*Site today:* house compound, cassava, sugar cane

*Collection method:* selective sample

*Site Notes:* Dense sherd scatter (60x30m) in a cassava field and nearby sugar cane field around a 1-house compound.

*Artifacts:*

- 11 plain body sherds, 43.6g, sand (1,5%), t=.5, 1.02, .66, .63, .65, .58, .78, .72, including 3 with black interior and reddish exterior t=1.08, .91, .64.
- 1 plain body sherd, 6.5g, t=.81, sand and black flecks (1,10%), exterior wiped smooth
- 5 decorated body sherds, illustrated below
- 4 plain rim sherds, including 3 illustrated below.

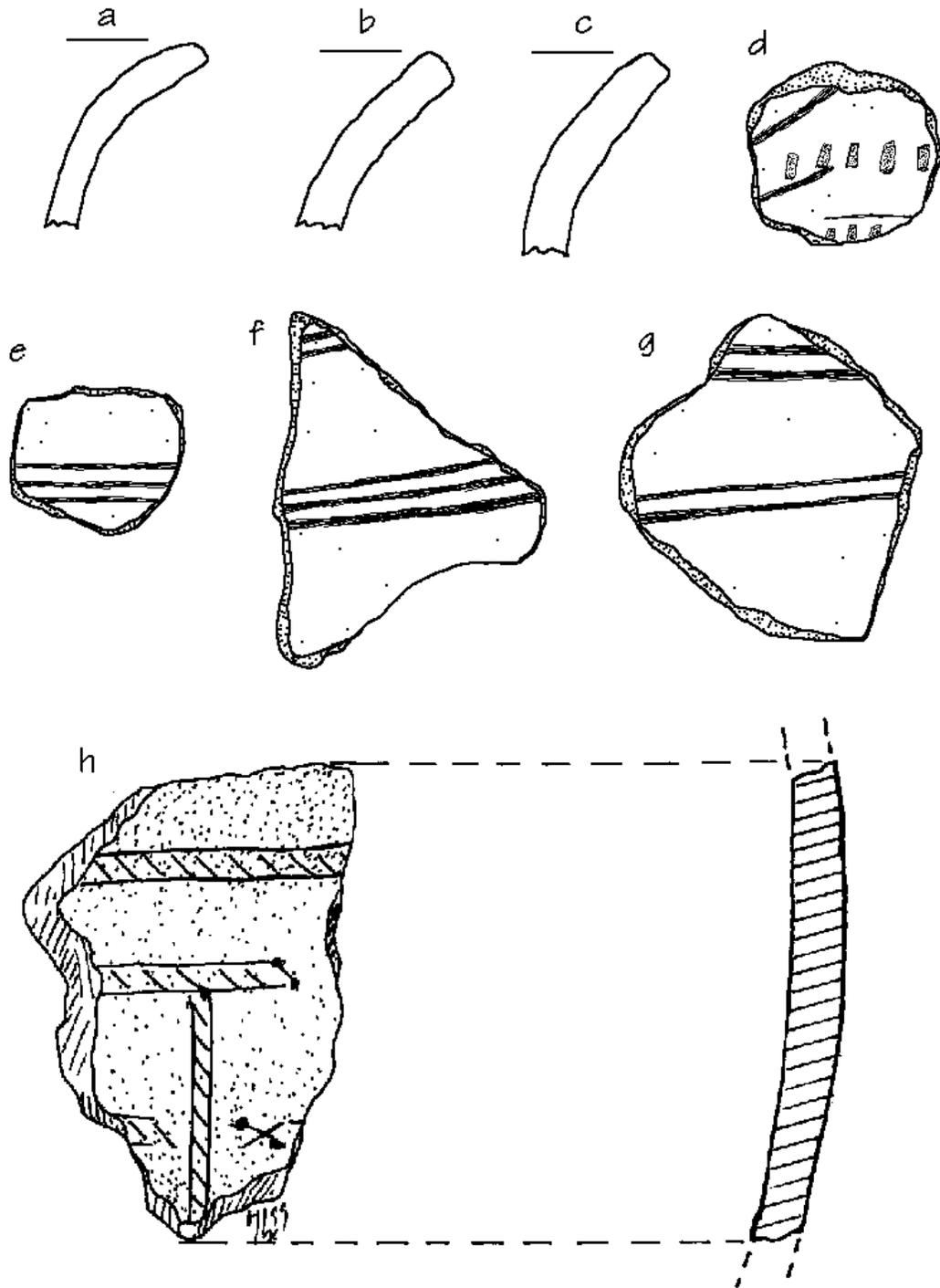


Figure A272. Site 233 artifacts.

a. Plain rim sherd, 3.9g, d =approx 21 (2% of rim), t=.44, lip t=.40, sand (2,10%)

b. Plain rim sherd, 6.8g, d =approx 28 (3% of rim), t=.64, lip t=.58, sand (3,5%).

c. Plain rim sherd, 6.5g, d =approx 27 (1% of rim), t=.59, lip t=.50, sand with black flecks (1,3%), of a light brown grey ware

d. Decorated body sherd, 5.9g, with irregular punctates and incised lines on convex side, concave side is wiped smooth and graphite burnished.

e. Decorated body sherd, 2.6g, t=.44, sand and silver mica (1,5%), with 3 incised grooves making

2 bevels

f. Decorated body sherd, 7.8g, t=.63, with 3 incised grooves making 2 bevels.

g. Decorated body sherd, 8.1g, t=.59, sand with black flecks (1,10%), with 2 incised grooves making a single bevel.

h. Decorated body sherd, 19.3g, sand (2,10%), with incised lines and round punctates on exterior surface.

**Site: 234**

**Region of: Vohipeno**

*Laborde X:* 538.2

*Latitude:* 22.29427

*Season:* 99

*Laborde Y:* 423.8

*Longitude:* 47.77887

*Ceramic phase recovered:* 5

*Site today:* exposed sand

*Collection method:* thorough complete collection

*Site Notes:* Tightly clustered sherd scatter (5x5m) on a dry portion of the river bed of the Matitanana (as the river is low). Probably a secondary deposit.

*Artifacts:*

- 3 plain body sherds, with light brown interior and exterior and black core, 7.2g, t=.36, .47, .69, sand and silver mica (1,5%)

- 1 plain grey body sherd, 5.1g, t=.75, coarse sand and quartz inclusions (3,15%)

- 2 decorated body sherds with double grooves illustrated below

-1 plain rim illustrated below.

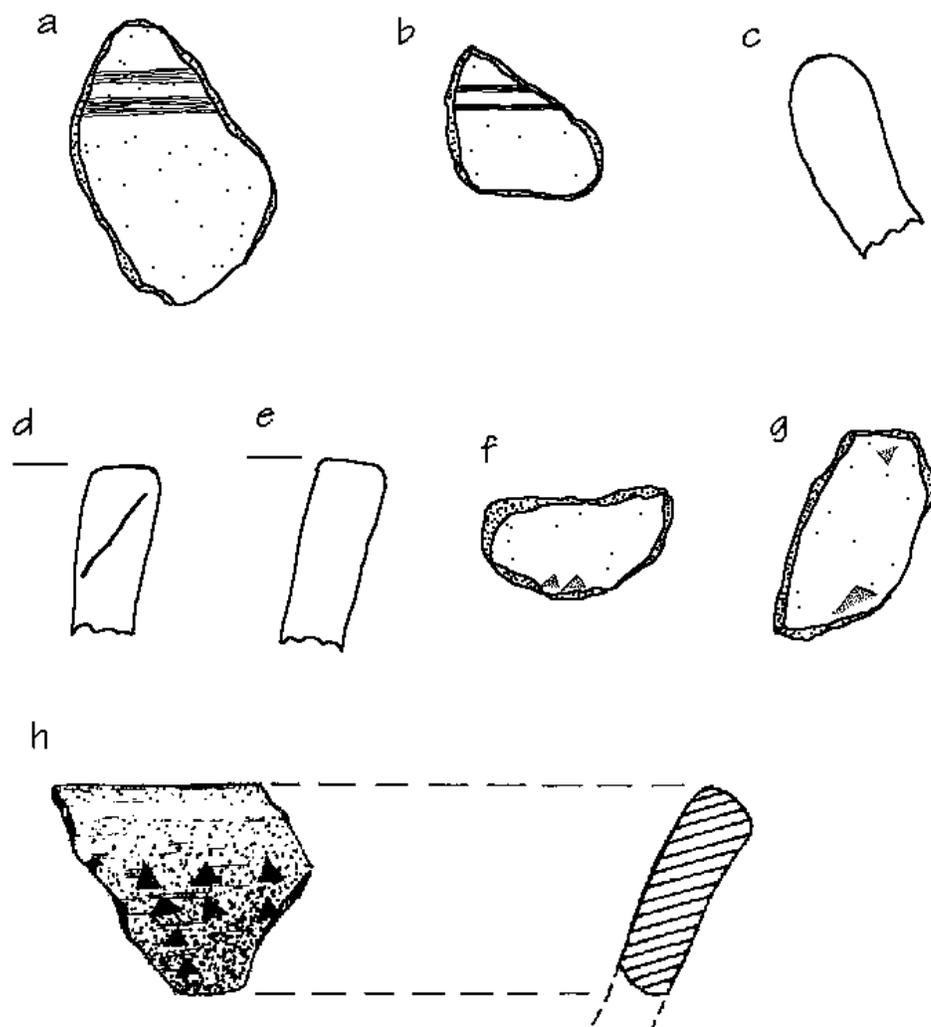


Figure A273. Site 234 and 235 artifacts.

- a. Site 234, decorated body sherd, 5.4g,  $t=.54$ , sand (3,15%), with 2 faint incised grooves  
 b. Site 234, decorated body sherd, 2.0g, sand (2,5%), with 2 clear incised grooves  
 c. Site 234, plain rim sherd, 6.9g,  $d$  approximately 16 (2% of rim, but too small to be sure of diameter or orientation),  $t=.72$ , lip  $t=1.07$ , sand and gold mica inclusions (2,5%)  
 d. Site 235, plain rim sherd, 7.2g,  $d=25$  (4% of rim),  $t=.76$ , lip  $t=.84$ , sand and shell inclusions (3,15%)  
 e. Site 235, 2 plain rim sherds refitted from recent break, 7.0g, too straight for good diameter reading,  $t=.73$ , lip  $t=.85$ , of same ware as rim d.  
 f. Site 235, decorated body sherd, 2.7g,  $t=1.07$ , sand and quartz inclusions (3,5%), with 2 small faint triangle punctates.  
 g. Site 235, decorated body sherd, 3.5g,  $t=.99$ , sand inclusions (2,10%), with 2 faint triangle punctates.  
 h. Site 235, decorated rim sherd, grey ware, 5.8g,  $d=28$  (3% of rim),  $t=.74$ , lip  $t=.86$ , sand and gold mica inclusions (2,10%), with triangle punctates on exterior (note: sherd profile may be off).

**Site: 235**  
 Laborde X: 539.0

**Antansompasy**  
 Latitude: 22.29073

**Region of: Vohipeno**  
 Season: 99

*Laborde Y:* 424.2      *Longitude:* 47.78608      *Ceramic phase recovered:* 3,4  
*Site today:* sweet potatoes      *Collection method:* quick complete collection  
*Site Notes:* Sherd scatter (10x10m) in a newly turned sweet potato garden. Older gardens to the north and west were empty of artifacts.

*Artifacts:*

- 1 decorated rim sherd with triangle punctates on exterior (illustration h above)
- 2 plain rim sherds (illustrated above)
- 2 decorated body sherds (illustrated above)
- 11 plain body sherds, 49.3g, sand inclusions (3,10%) and some with gold mica as well, t=.45, .46, 1.10, .82, 1.31, .68, .67, .72, .57, .83, .68
- 1 plain body sherd of soft smooth paste, 0.9g, t=.87, sand with black flecks (3,5%)

**Site: 236**

**Region of: Vohipeno**

*Laborde X:* 539.2      *Latitude:* 22.28817      *Season:* 99  
*Laborde Y:* 424.5      *Longitude:* 47.78813      *Ceramic phase recovered:* 4\*,5\*  
*Site today:* coffee      *Collection method:* thorough complete collection  
*Site Notes:* Sparse sherd scatter (60x30m) found surveying from Farafasy to Anosy.

*Artifacts:*

- 6 plain body sherds, 19.5g, sand inclusions (3,15%), t=.68, .75, .69, .87, and sand inclusions (2,10%), t=.72, .53.

**Site: 237 Vatomalemy, Quarry #1**

**Region of: Mananjary**

*Laborde X:* 569.1      *Latitude:* 21 01.88'S      *Season:* 95  
*Laborde Y:* 563.3      *Longitude:* 48 03.89'E      *Ceramic phase recovered:*  
*Site today:* ancient quarry      *Collection method:* quarry sample

*Site Notes:* A chlorite-schist (soapstone) outcropping 1.8 meters high and 4.7x2.3m, with 5 rectangular and 2 round blocks removed at some point in the past, and 1 block delimited but still in place. There are many other large chlorite-schist outcroppings to the north, but this is the only one we found from which blocks have been removed (though given the dense vegetation, I would expect other quarries in this immediate area). This outcrop itself has been labeled by someone with the words "Vato malemy" carved into its surface, meaning "Soft Stone" (though locals generally refer to this type of stone as "vatosia," and elsewhere in Madagascar it is called "vato didi" – "stone you can cut." We chiseled five rock samples off this quarry (see illustration below) for our INAA project.

To double check my placement of these sites, I submitted my GPS readings to the National Cartography Institute in Madagascar (FTM) for conversion into Laborde coordinates. Their calculations returned (566.5-564.9) for this site, which while close, are not as close as I would like. I am not sure why there is such a discordance between my GPS readings (based on WGS84) and the FTM maps, though I believe their maps do need revision with the advent of more accurate GPS instruments. For each of these quarry sites, I will therefore give my actual GPS reading, the Laborde coordinates as I believed them to be looking at the FTM maps, along with the Laborde coordinates as determined by the FTM conversion formula based on the GPS reading here in the site notes.

*Ethnographic Notes and Oral Traditions:* These last 4 sites in this catalogue were all discovered in 1995 about 157 kilometers north of our survey area near the city of Mananjary. We were attempting to find the source of our chlorite-schist artifacts and re-discover Pannetier's other main research area from the 1970s. Please see chapter 7 for a more extensive discussion of this project. I also find it very ironic that during the drive from the Matitanana to Mananjary we began what became a large project studying modern graffiti in Madagascar (see Griffin 1999). And then,

after days of searching for a chlorite-schist quarry, we finally find one that happens to be already labeled for us with graffiti.

*Artifacts:* These quarry sites are in a different ethnic group's territory, the Betsimisaraka, but unfortunately no pottery sherds were seen during our quarry survey.

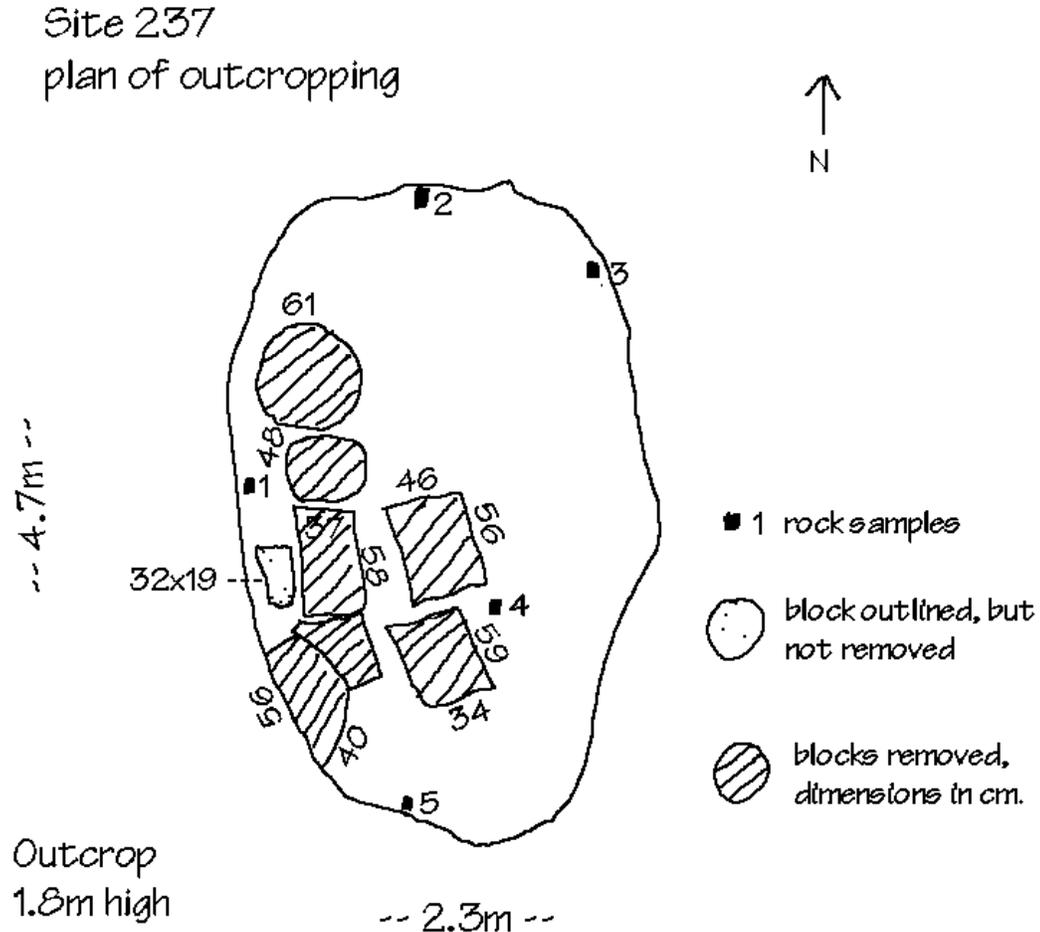


Figure A274. Site 237 plan of outcrop.

**Site:** 238 Quarry #2

**Region of:** Mananjary

*Laborde X:* 569.0

*Latitude:* 21 01.70'S

*Season:* 95

*Laborde Y:* 567.0

*Longitude:* 48 03.87'E

*Ceramic phase recovered:*

*Site today:* ancient quarry

*Collection method:* quarry sample

*Site Notes:* Rock escarpment facing 20degrees, overlooking Mardena River. The stone is chlorite-schist, and 10 blocks have been removed while 2 outlined blocks still remain in place. 4 samples of the stone were chipped off for INAA study. Stretching down the hill from the escarpment are smaller outcroppings of chlorite-schist, many with blocks removed. We also discovered an abandoned blank that had been carved out, moved 20 meters and then dropped and abandoned (the squat cylinder of chlorite-schist was 30 cm in diameter, 15cm thick, with groove marks on 1 face, and now half buried in the ground. The FTM-converted Labordes for this site were (566.5-565.0) (see site 237 for explanation).

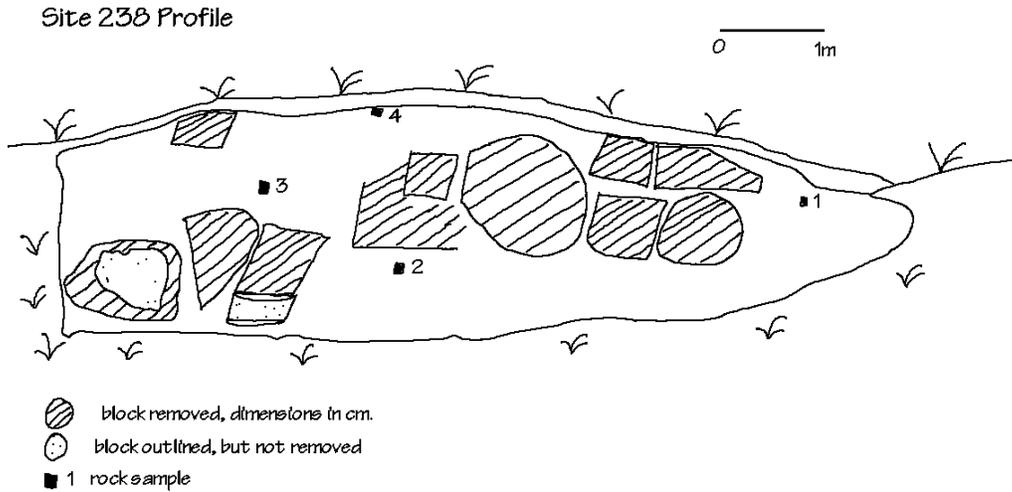


Figure A275. Site 238 Profile. Voids average 20 to 30 centimeters deep.

**Site: 239 Quarry #3**

**Region of: Mananjary**

Laborde X: 569.2

Latitude: 21 01.60'S

Season: 95

Laborde Y: 567.2

Longitude: 48 03.87'E

Ceramic phase recovered:

Site today: ancient quarry

Collection method: quarry sample

*Site Notes:* This is the largest and most active quarry we discovered, just downhill from the escarpment we recorded as site 238, next to and in the stream covered by dense vegetation. We cleared enough brush to reveal 6 different outcroppings that had been quarried, and also discovered a partially finished bowl (collected for the museum) and two other carved bowl fragments. Quarry samples collected at waypoint 21deg 01.62'S 48deg 03.88'E. The FTM-converted Labordes for this site were (566.5-565.2) (see site 237 for explanation).

*Artifacts:* 2 Chlorite-schist bowl fragments (1 sampled for NAA)

Site 239 (rough sketch, not to scale)

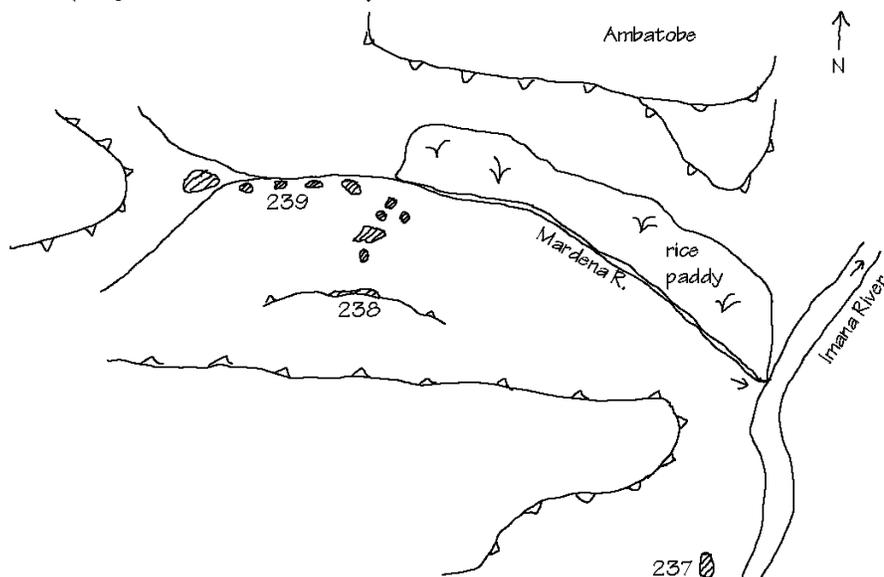


Figure A276. Site 239.

**Site:** 240 Pannetier's "Site Dalais" (Ambatobe)      **Region of:** Mananjary

Laborde X: 569.4

Latitude: 21 01.51'S

Season: 95

Laborde Y: 567.3

Longitude: 48 04.05'E

Ceramic phase recovered:

Site today: ancient quarry

Collection method: quarry sample

*Site Notes:* A large outcrop of chlorite-schist standing on a terrace two-thirds the way up a hill near the confluence of the Mardena and Imana Rivers. The local name for this place means "place of the big stone," and it was visited by Jacques Pannetier in 1972. Pick marks are visible on the outcropping where blocks have been removed, and one large round block (46x28cm and 25cm deep) remains on the northeast face. This was not as active a quarry as site 239 down below, but it is tall, standing on a ridge next to a major path, and seems to be the only outcropping on this hill. Four quarry samples were taken for INAA work. The FTM-converted Labordes for this site were (566.7-565.3) (see site 237 for explanation). The Google Earth coordinates for Lavakianja on the map below are 21 01'39.57"S 48 04'15.79"E.

*Ethnographic Notes and Oral Traditions:* Jacques Pannetier based his 1974 article and master's dissertation on 2 important sites: Ambohabe (our site 3) and this site 240 which he called "Site Dalais" (after a 1919 report from Dalais on a chlorite-schist quarry in the area). However, due to the similarities of 3 different village names (all of which begin with *Ambohi*, ending with *niarina*, *miarina*, and *manarina*) and the fact that 2 different Mardena streams flow into 2 different Imana Rivers in this area, I believe Pannetier was mistaken in his placement of his "Site Dalais." Pannetier places this site on his maps near Ambohimanarina (560.5, 570.2). Thanks to the creation of handheld GPS units, I believe my placement is more accurate (though see my own problems with FTM as described for site 237), and I am sure we are both referring to the same quarry as we have a photograph of Pannetier at this site (see chapter 7) and Ramilisonina, my collaborator, also assisted Pannetier in his research.

Site 240 &  
other quarries

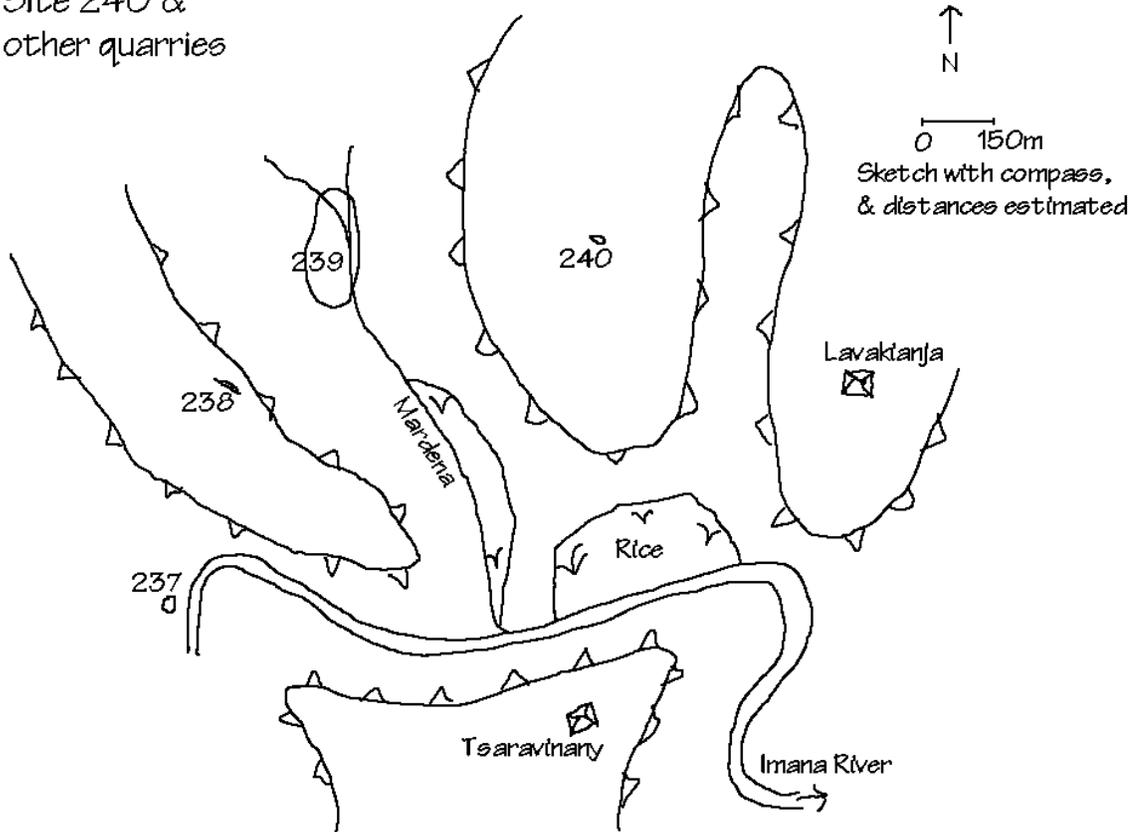


Figure A277. Site 240 and other quarries.

## Appendix B

### Introduction to the Preliminary Report in Malagasy

*The preliminary report was prepared specifically to have an explanatory document that we could carry with us and distribute to any interested individuals during the field work. As such it included many of the pottery illustrations and settlement maps found in this dissertation. It also included the following one page explanation of archaeology and our project. The preliminary report was in both English and Malagasy (given our purposes for the document), and so I have included the introduction below in both languages.*

#### **English:**

Archaeology is the study of human history and culture based on the material things that humans have left behind. Before people wrote histories, they made objects, some of which have survived till today. And even when they did write about their life and times, their things can often tell us different stories than those that they themselves chose to tell.

Since the people living near the Matitanana in the past did not build their houses out of stones or bricks, the primary artifacts we have from their lives are the small pieces of their pottery, and the ditches they sometimes dug around their settlements. Styles, and ways of doing things, are always changing; and so the pottery from different centuries looks different. By looking closely at the pottery, we can tell when it was made, and thereby when people were living in each place. We can also date some pottery by more scientific methods, as well as date any charcoal by "radiocarbon dating." By this second method, for example, we know that people were living at Marovahiny (Ambohabe) on the north shore of the Matitanana in the 12th century AD, and thus this was probably the port mentioned by the Portuguese in 1507 AD.

By collecting and studying the pottery we can learn where the villages of the past were located and how big they were. The oral traditions, the Sorabe, and the early European accounts also help us learn these things, but these and archaeology are best when used together, each giving us a slightly different picture of the past. Understanding the story of our human past is important in itself, but it can also help us understand human behavior in general, since similar things tend to happen in many different places. Because of this, archaeology is considered a social science, which uses specific studies (such as ours here in Southeast Madagascar) to understand more general questions (such as how the migrations of people, warfare, trade, and social inequality are all related).

Thus, the members of this project have come from the Museum of Anthropology, University of Michigan, U.S.A. and the Musée d'Art et d'Archéologie, Antananarivo, to study the pottery and its distribution in the Matitanana and Manakara areas, just as other researchers have gone to other areas of Madagascar. The following table lists all of the archaeological sites we have visited during 2 weeks of work in 1994 and 3 weeks in 1995 and their map coordinates. All of the pottery which has been collected is stored at the

Musée in Antananarivo and is available for future study. Also included in this report are sample drawings of some pottery sherds to show the different designs, and plan drawings of the different types of sites we have visited. We would like to thank all of the people in Ivato, Onjatsy, Marovahiny, Lazamasy, Vohipeno, and Manakara, as well as all the other villages and individual farmers, who have helped us in our work so far. And we hope that, with your assistance, we can make the 1997 season a success as well.

### **Malagasy:**

Ny arkeolojia dia fanadihadiana ny momba ny tantaran'ny olombelona sy ny fomba amam-panaony izay mifototra amin'ireo zavatra azo tsapain-tanana sisa tavela. Nanoratra momba ny tantaran'ny firenena ny olona teo aloha, nataony tarigetra mihintsy moa izany, misy amin'ireto olona ireto aza no mbola velona mandrak'ankehitriny. Na dia ny mikasika ny fiainany sy ny vanim-potoana niainany aza no nosoratan'ireo olona voalaza tetsy aloha dia ny fananany aza indraindray no manambara amintsika tarehin-javatra samy hafa noho ny tantara tian-dry zareo ho tantaraina.

Ary satria tsy mba nanamboatra ny tranony tamin'ny vato na biriky ny olona nonina manodidina an'i Matitanana taloha hany ka potika vilany tany sy hadivory nohadiany matetika manodidina ny toeram-ponenany no singa hitanay voalohany indrindra. Miovaova foana moa ny endrika sy fomba fanaovan-javatra iray, noho izany dia samihafa ny vilany tany nisy tamin'ny taon-jato isanisany. Avy amin'ny alalan'ny fandinihana akaiky ireo vilany tany ireo no ahafantarana ny fotoana nanamboarana azy sy ny vanim-potoana nonenan'ny olona tamin'ny toerana tsirairay avy. Misy fomba arantsiantifika ihany koa no ahafantarantsika mamaritra ny fotoana nisian'ny vilany tany iray na ny arina iray dia ny "Radiocarbon 14" izany. Ity fomba faharoa ity ohatra no nahafantarantsika fa nisy olona nonina tany Marovahiny (Ambohabe) any amin'ny moron-drano avaratr'i Matitanana tamin'ny taon-jato faha -XII tao aorinan'i Kristy, mety ho izany ilay seranan-tsambo nambaran'ireo portogea tamin'ny taona 1507 tao aorinan'i Kristy.

Avy amin'ny alalan'ny fanangonana sy fanadihadiana ireo vilany tany ireo no nahitana ireo tanàna fahiny sy ny mety haleben'izy ireny. Ny lovan-tsofina, ny Sorabe ary ny tantaran'ireo Eoropeana taloha dia nanampy anay koa mba hahafantarana ireo toe-javatra voalaza tetsy aloha. Tsara raha ampiarahina ireo lovan-tsofina sy ny sisa ireo sy ny arkeolojia satria samy manome antsika sary an-tsaina ny fahiny.

Ilaina ny fahaizana ny tantaran'ireo razantsika amin'ny maha tantara azy, manampy antsika hahafantatra ny fiampiainan'ny olona amin'ny ankapobeany koa mantsy izy satria misy ny zavatra mitovitovy mety mitranga amin'ny toerana maro samy hafa. Noho izany antony izany indrindra no nandraisana ny arkeolojia ho fianarana na fanadihadiana ny momba ny fiainan'ny olombelona, mampiasa fandinihana manokana (tahaka ity fanadihadiana nataonay tany atsimo atsinanan'i Madagasikara ity) mba hahafahana mamaly ireo fanontaniana (toy ny hoe manao ahoana ny fifindra-monon'ny mponina, ny ady an-trano, ny varotra ary ny tsy fitoviana eo amin'ny fiaraha-monina).

Noho izany ary, ireo mpandray anjara amin'ity teti-kasa ity dia avy any amin'ny Mozea momba ny atropolojia, Oniversiten'i Michigan USA sy ny "Musée d'Art et d'Archéologie", Antananarivo dia nanadihady ireo vilany tany sy ny finjarazarany any

amin'ny faritr'i Matitanana sy Manakara, sahala amin'ireo mpikaroka hafa mandeha amin'ny toerana isan-karazany eto Madagasikara ihany koa. Ny tabilao manaraka dia mitanisa ireo toerana ara-arkeolojia notsidihanay miaraka amin'ny saritany ny taona 1994 nandritry ny roa (2) herinandro ary telo (3) herinandro tamin'ny taona 1995. Ireo vilany tany rehetra voahangona moa dia tehirizina ao amin'ny Mozea ao Antananarivo, azo ampiasaina amin'ny fikarohana manaraka izy ireo. Tafiditra amin'ity tatitra ity ihany koa ny sarin'ireo santionana vakim-bilany tany, izany no natao dia mba hanehoana ireo endrika samy hafa mety hisy. Tao ihany koa moa ny sari-tany misy ireo karazana toerana notsidihanay.

Tianay ny maneho fisaorana etoana ireo mponina ao Ivato, Onjatsy, Marovahiny, Lazamasay, Vohipeno ary Manakara, torak'izany koa ireo tanàna hafa rehetra sy ireo mpamboly tsirairay izay nanampy anay tamin'ny asanay. Manantena izahay fa ny fanampianareo anay dia mbola hahitanay fahombiazana ihany koa amin'ity taona 1997 ity.

## Appendix C

### Phosphate Analysis Results

Chantal Radimilahy (1998:87) assisted in performing a “spot test” for phosphates, to help determine the intensity of human occupation for different locations and for different layers (as human occupation tends to raise the phosphate levels of a soil, due to urine, food remains, and other sources, see also Eidt 1985, Sánchez et al. 1996, Persson 1997). The six manual cores drilled in 1995 resulted in 46 samples (one sample taken from each natural layer in the core), to which we added 44 samples taken from the soil samples of seven different excavations. We first laid these 90 samples out on a board covered in neutral paper, and then we applied two different liquid mixtures, the first we created from ammonium heptamolybdat, hydrochloric acid, and water, and the second from water and citric acid. After applying the liquids to our soil samples, we graded the intensity of reaction from 1 (the lowest) to 5 (the highest) based on the darkness of blue and size of the stain on the paper. Preliminary readings were taken at 10 minutes, and then final readings were taken at 1 hour. This provides a relative measurement of the phosphate levels in that soil sample. In the tables below, the depth is centimeters below ground surface, and the soil descriptions for the excavated samples can be found in the excavation write-ups. The results of this analysis (based on the final reading) are discussed in chapter 5.

Table C1. Phosphate Readings from manual cores samples.

Site	Sample #	Depth cm.	1st Read	Final Read	Soil Description
46, Marovahiny	(100,60)-1	25	1	2	lighter colored sand
	(100,60)-2	50	1	2	darker sand, mottled
	(100,60)-3	90	5	5	lighter sand as it dries
	(100,60)-4	146	4	4	harder, more compact, clay in soil, with charcoal
	(100,60)-5	163	3	4	white sand mixed with brown pockets (vegetal, organic?)
	(100,60)-6	176	4	4	brown pocket from above
	(100,60)-7	220	3	3	dark brown sand with vegetal matter (very wet, sand past 2.3m fell out of core)
46, Marovahiny	(120,60)-1	20	1	1	light sand mottled with darker
	(120,60)-2	35	1	2	homogeneous dark sand with a few pebbles
	(120,60)-3	45	1	2	same, but slightly darker
	(120,60)-4	75	1	3	same

	(120,60)-5	107	1	3	same
	(120,60)-6	128	2	3	lighter sand mottled with dark, some charcoal
	(120,60)-7	143	5	5	compact, more clay, with small charcoal
	(120,60)-8	170	3	3	light sand mottled with grey
	(120,60)-9	199	2	3	brown vegetal matter
46, Marovahiny	(140,60)-1	11	1	2	black loamy soil, large charcoal
	(140,60)-2	30	1	2	dark sandy soil, medium charcoal
	(140,60)-3	48	0	2	slightly darker lens, not much clay, no charcoal
	(140,60)-4	80	1	3	brownish sand, mottled with dark
	(140,60)-5	125	1	3	same
	(140,60)-6	175	1	3	yellowish sand
	(140,60)-7	198	2	3	whitish sand
	(140,60)-8	207	2	3	brown sand mottled with dark
	(140,60)-9	220	2	3	yellow sand
	(140,60)-10	250	2	4	whitish sand
	(140,60)-11	276	3	4	pocket of mud in sterile beach sand
46, Marovahiny	(100,100)-1	10	1	2	rice paddy, dark mud with roots
	(100,100)-2	60	1	2	softer, looser mud, much vegetal matter
	(100,100)-3	115	1	3	as above
	(100,100)-4	150	1	3	softer mud, less vegetal matter
	(100,100)-5	185	2	2	sandy grey mud
9, Manga- rivotra	A-1	10	1	1	dark sandy topsoil
	A-2	27	1	1	lighter sand
	A-3	50	1	2	dark sand with small charcoal
	A-4	80	1	3	light brown sand, some charcoal
	A-5	106	1	2	dark brown sand, charcoal
	A-6	140	2	2	yellow sand
	A-7	180	2	2	white sand
	A-8	199	5	5	brown
between 7&8	B-1	8	1	1	light sand topsoil
	B-2	30	1	1	very dark sand, small charcoal
	B-3	75	1	3	softer, brown sand
	B-4	107	1	1	very dark sand, charcoal
	B-5	123	1	2	mottled brown sand
	B-6	170	2	2	yellow sand

Table C1. Phosphate Readings from sondage soil samples.

Site	Sample #	Depth cm	1st Read	Final Read	
46 S3, Marovahiny	G-1	15	1	2	
	G-2	25	1	2	
	G-3	35	1	1	
	G-4	45	1	1	
	G-5	55	1	1	
	G-6	65	3	2	
	G-7	75	3	2	
	G-8	85	4	4	
	G-9	95	5	5	
	G-10	105	2	3	
	G-11	115	3	3	
	G-12	125	5	4	
	G-13	135	5	4	
	G-14	145	5	5	
	G-15	155	5	5	
	G-16	165	4	4	
	G-17	170	3	3	
	G-18	175	4	5	
	G-19	sterile level		2	3
	G-20	wet level below sterile		4	4
G-21	J, yellow sand sample		1	2	
G-22	F1 sample		3	3	
48 S2, Onjatsy	H-1	5	3	4	
	H-2	10	3	4	
	H-3	15	3	4	
	H-4	25	3	4	
	H-5	35	4	4	
	H-6	45	4	4	
	H-7	55	2	3	
	H-8	65	3	3	
	H-9	90	3	4	
	H-10	surface		2	3
62 S1, Antanimbaribe	I-1	15	1	1	
	I-2	30	1	2	
	I-3	40	1	2	
	I-4	50	1	2	
	I-5	60	1	1	
	I-6	70	1	2	
55, Tsimilanja	C-1	5	1	1	
	C-2	15	1	1	
24, Ankarinarivo	D-1	20	0	1	
39, Fotsivava	E-1	25	1	2	
29, Antanambao Enohona	F-1	130	2	3	
	F-2	170	2	2	

## Appendix D

### Neutron Activation Analysis Results

Chapter seven includes a description of these tests conducted (with the vital assistance of Leah Minc) at the Phoenix Memorial Lab of the Ford Nuclear Reactor at the University of Michigan. The tables below contain the week one and week five counts for the pottery samples as well as the week one counts for the chlorite-schist samples. Please see chapter seven for my initial impressions of this data set. For both of these tables, less than detectable amounts were changed to 0 for presence/absence analysis, or limits were changed to positive values to represent this lower limit for certain samples. U 277.6 was retained in Table 2 only to show the high concentrations of U in MAD027.

Table D1. NAA results for pottery samples.

<u>Sample</u>	<u>Material</u>	<u>River</u>	<u>As 559.1</u>	<u>Ba 496.3</u>	<u>Br 776.5</u>	<u>La 1596.2</u>	<u>Lu 208.4</u>	<u>Nd 531.0</u>
MAD001	plain	south	0	1541.065	15.66097	118.8624	0.258394	69.2063
MAD002	graphite	south	6.28715	365.5316	43.50285	22.58243	0.10323	23.36114
MAD003	graphite	south	0	361.086	3.878049	16.91186	0.2103745	7.296993
MAD004	plain	south	0	1068.729	1.11751	45.41235	0.3040329	30.90552
MAD005	graphite	north	6.034981	485.9507	16.91276	198.933	2.268018	173.8781
MAD006	plain	north	2.227349	320.0699	68.43703	63.12084	0.4519573	45.86193
MAD007	plain	north	0	325.7045	3.356601	295.4258	2.303608	252.7879
MAD008	plain	north	0	155.0405	3.361919	8.101029	34.42026	40.57537
MAD009	brick	central	2.17573	144.5769	12.81289	10.65364	0.7986027	27.48362
MAD010	brick	central	1.210613	721.8195	1.955115	104.0886	0.4436152	66.42636
MAD011	clay	central	0	68.57044	1.531115	34.69427	0.2705138	25.19953
MAD012	rock g	south	0	533.2288	1.19758	16.36954	0.3149861	24.21639
MAD013	plain	central	0	619.1541	9.40461	21.79718	0.3165407	28.26532
MAD014	graphite	central	0	107.9401	8.639192	28.48796	0.3173599	22.94392
MAD015	plain	central	0	554.9572	15.11185	45.4617	0.6210417	24.1662
MAD016	plain	central	0	525.2131	2.056921	103.6561	0.3245877	70.56765
MAD017	plain	central	0	528.5778	12.89362	8.890903	0.3214185	13.21913
MAD018	graphite	central	0	461.4444	9.145836	117.9678	0.8561434	98.54633
MAD019	plain	central	0	450.8023	17.28165	25.33076	0.7209558	24.6048
MAD020	graphite	central	4.560784	487.4887	33.88326	92.2364	0.8354633	97.98562
MAD021	plain	central	3.716921	190.655	28.0988	12.50683	0.5558661	24.95843
MAD022	plain	central	0	395.0705	2.875045	13.8199	0.3325538	33.60508
MAD023	plain	central	0	396.4401	12.40685	11.45146	0.3741893	27.28804
MAD024	plain	central	0	585.6869	7.309539	14.29536	0.4771093	9.743407

<u>K 1524.6</u>	<u>Sm 103.2</u>	<u>Na 1368.6</u>	<u>U 228.2</u>	<u>Yb 396.3</u>	<u>Ba 496.3 w5</u>	<u>Ce 145.4</u>	<u>Cs 795.9</u>
21240.94	10.27974	12246.3	2.145284	1.541707	1608.718	210.6644	0.5477634
8157.049	1.72352	572.1974	1.921897	0.6414835	343.4269	40.06845	0.2227848
9979.308	1.80621	3878.327	3.382953	0.8779298	290.495	178.9614	0.6628639

16270.82	6.960147	2160.707	0.6657497	2.223627	1141.977	90.78246	0.5122783
36463.1	31.69069	1701.087	12.94826	16.28111	791.6912	338.9443	22.29744
9817.992	10.36354	1703.988	7.814085	2.709997	490.5922	126.2592	1.81278
0	55.7755	498.3073	5.747849	16.95162	463.9717	74.68849	2.332669
2616.013	6.13806	209.474	104.6193	223.5384	1236.062	38.22733	1.101633
0	4.900129	431.6505	1.936491	2.739925	326.555	25.42667	0.5811504
23646.54	13.34994	3862.398	3.36036	3.206247	807.7202	189.5214	1.87588
0	5.960797	164.3698	1.158562	2.07726	78.48357	38.15462	0.3942555
32739.81	2.827907	444.8663	1.093251	2.35262	442.773	20.94666	125.5448
18082.34	2.83115	7942.023	1.029307	1.697919	694.1321	38.10229	1.590827
0	2.962398	1756.673	4.84624	2.082665	180.4048	167.9293	0.815084
0	6.60392	5995.195	1.167079	2.679646	673.197	85.00522	1.226466
11419.25	10.63348	14720.3	2.177532	2.367455	548.5237	182.182	2.481314
15640.47	2.191301	5863.194	0.8355324	1.18697	352.4304	17.10425	0.3901552
11166.84	19.46325	715.9825	9.798745	5.733393	637.3753	150.8528	2.932682
7909.338	5.414682	5785.218	1.237282	2.914718	525.7785	47.10339	0.5209528
0	19.25195	1715.539	3.175074	6.360215	390.5475	135.5427	3.288687
0	1.414495	299.2161	1.10494	2.091637	302.4856	16.75156	0.4984466
9806.529	2.866171	4202.784	1.300786	1.26782	336.2992	28.3651	0.4823947
4515.548	4.022301	5293.715	1.204701	2.339147	484.734	25.89193	0.6735273
11252.73	2.426164	4593.477	1.002247	1.463739	404.6935	27.69621	0.4829787

<u>Cr 320.1</u>	<u>Co</u> <u>1332.5</u>	<u>Eu 1408.0</u>	<u>Hf 482.2</u>	<u>Fe</u> <u>1099.3</u>	<u>Ni 810.8</u>	<u>Rb</u> <u>1076.7</u>	<u>Sc 889.3</u>
356.1677	16.47989	2.506552	11.66516	38579.34	90.8116	44.47651	21.05938
114.5869	3.236909	0.3397338	2.884064	20847.48	16.56899	14.46396	8.629646
101.6363	17.03097	0.4089116	4.696105	68688.5	25.1288	69.97607	21.05885
46.59624	14.04202	1.68928	7.313975	51590.5	59.14763	74.17567	12.68433
182.5135	73.54489	3.438765	13.50362	55491.75	348.0645	219.6993	18.37794
204.465	18.36533	2.045468	8.70438	29942.32	44.81363	27.86151	24.73228
352.8111	4.541856	14.73375	6.061086	21505.17	165.2676	35.82149	16.62733
1229.511	10.19779	1.222364	6.686182	24348.42	0	16.66137	55.90033
214.3065	27.2171	1.69425	14.22702	63739.34	78.60059	18.42255	57.98548
123.4742	17.86186	2.708071	13.99275	43697.18	35.75004	172.812	18.87767
92.92726	22.16528	1.647569	9.350263	41180.52	148.1174	14.23699	22.96657
59.89646	12.04142	0.9183027	4.664076	37077	100.4492	872.3701	11.11756
188.2292	19.35144	0.863762	14.46182	49341.79	56.58903	98.01665	46.75086
62.32594	6.458019	0.5143918	5.163096	44947.17	69.85895	33.4626	12.50834
185.6541	23.25484	1.668458	17.27218	55587.12	61.21267	43.31753	46.61794
358.8392	24.51224	1.904148	8.503448	46267.05	61.10752	101.3986	23.34308
101.7744	13.83018	0.7304181	9.646194	36373.84	0	27.67672	33.48944
45.64859	10.53777	3.786774	5.339293	51749.18	104.7071	71.97881	16.35536
188.0476	19.73849	1.510718	12.31095	51766.11	0	26.7997	46.60735
114.3931	17.7819	5.050238	5.986949	85359.52	163.4958	36.3507	15.01292
123.4646	31.30325	0.3401982	19.35562	97090.33	0	5.748621	36.29893
134.8885	21.86193	0.6164797	10.23583	49045.32	0	12.33134	39.32693
197.6558	24.2263	1.308703	11.91456	55558.07	53.76484	24.82472	48.25221
158.5193	14.62744	0.745317	10.91239	39049.13	0	21.34541	41.29989

<u>Ta 1221.4</u>	<u>Tb 879.4</u>	<u>Th 312.0</u>	<u>Zn 1115.5</u>	<u>Zr 756.7</u>
0.7848064	0.7672241	18.36935	92.09761	241.9284
0.5353293	0.2038952	10.07125	42.77175	60.45715
1.237453	0.1683569	9.24476	113.8059	82.93414
0.783644	0.8058717	6.707504	99.24313	181.0923
2.777817	4.174296	32.94108	503.0545	319.8248
1.787309	1.035149	33.28713	79.9873	178.2557
0.4723579	6.824703	3.384743	74.87566	330.3542
2.296923	19.19641	149.8197	13.63697	530.4232
2.443302	0.7095482	3.973516	133.2822	156.5138
1.734384	1.500603	26.63316	119.7163	319.868
2.107748	0.5633309	2.990453	73.94325	152.3554
0.8611791	0.3810496	9.037841	167.1642	98.96469
1.50009	0.4021738	7.725881	107.7141	241.0295
0.9203926	0.4359938	12.73429	51.01098	95.90923
1.750698	0.6438054	11.93426	118.3265	252.8721
1.419997	1.061402	13.84566	67.63712	220.8277
0.8807901	0.3069254	1.685993	78.4251	221.7855
0.7730353	1.600279	24.38229	35.59878	165.8844
1.658122	0.8878219	6.189601	89.35898	240.0827
0.611846	2.115658	9.449161	226.8438	158.6821
3.038665	0.3461702	6.411394	97.6912	335.4161
1.65517	0.3027968	4.623449	155.226	184.7801
1.528682	0.5971989	2.038653	274.108	156.2444
1.462943	0.2615381	3.847358	135.5227	161.1311

Table D2. NAA results for chlorite-schist samples.

<u>Samples</u>	<u>location</u>	<u>type</u>	<u>As 559.1</u>	<u>La 1596.2</u>	<u>Lu 208.4</u>	<u>Sm 103.2</u>
MAD025	quarry	Q1	3.575	0.372173	0	0.109536
MAD026	quarry	Q1	2.209	1.087	0	0.292357
MAD027	quarry	Q1	2.392688	0.4978598	0	0.033
MAD028	quarry	Q1	3.107488	0.4612712	0	0.132101
MAD029	quarry	Q	0	1.39997	0	0.1945498
MAD030	quarry	Q2	2.011796	0.6388981	0	0.0784954
MAD031	quarry	Q2	1.214297	0.2237658	0	0.2311827
MAD032	quarry	Q2	2.475534	0.8036258	0	0.3183905
MAD033	quarry	Q3	0	87.82999	0.3085896	12.63158
MAD034	quarry	Q3	0	10.28589	0.1111427	2.165291
MAD035	quarry	Q3	0	2.293006	0	0.5134462
MAD036	quarry	Q	0	0.3244706	0	0.070572
MAD037	quarry	artifact	0	0.7551702	0	0.3304127
MAD038	Vohemar	artifact	0	16.86266	0.1224413	3.357515
MAD039	Mat	artifact	0	7.438999	0.1723649	2.452312
MAD040	Mat	artifact	0	0.6886176	0	0.270294
MAD041	Mat	fish	0	0.6046584	0	0.0967103
MAD042	Mat	artifact	0	10.20889	0.0952518	1.854079
MAD043	Mat	artifact	0	14.37148	0.3270923	4.484989

MAD044	Mat	artifact	0	2.896285	0.076797	0.5014527
MAD045	Mat	artifact	0	4.991822	0.0881468	0.8079461
MAD046	Mat	artifact	0	5.757995	0.1417995	1.96129
MAD047	Mat	artifact	0	1.273568	0.0227534	0.1765831
MAD048	Mat	artifact	0	0.1498461	0.0189694	0.0615553

<u>Na 1368.6</u>	<u>U 277.6</u>	<u>Yb 396.3</u>
178.854	0.338518	0.129312
206.575	0.690622	0.201986
173.4324	2.200543	0.1190904
200.3756	-0.5679422	0.1427522
139.8567	-0.4722447	0.1134989
176.1595	-0.5735747	0.1308052
181.558	-0.4810415	0.1247879
197.7757	-0.7001252	0.3112757
227.9324	-0.6604626	2.322632
622.5906	-0.538588	0.6961198
193.9324	0.6949878	0.2435998
157.3884	0.6857202	0.1493023
258.0583	-0.7408247	0.1566168
767.5961	-0.7313387	0.8053472
338.6176	-0.9261979	1.112657
200.1321	-0.7619004	0.1735023
279.067	-0.5665169	0.1104938
312.5895	-0.9219181	0.657741
373.666	-0.8964923	2.251636
233.2669	-1.034018	0.4002465
116.0871	-1.050428	0.5800547
272.1436	-1.074484	0.6685436
439.2284	-0.927225	0.1763565
420.4609	-0.7998005	0.1378802

### **Dissertation Post-Script**

Rather than end this work with a table of element concentrations, I'm going to indulge myself with two final quotes, quotes which helped me finish. I'm not pessimistic by nature, and I do see value in my research and in this dissertation, but I also found these quotes (especially the second) to be both liberating and motivating.

"... an average Ph.D. dissertation. In other words, it is too long; some critical concepts and methods lack definition; approaches to data are sometimes inappropriate; some material is irrelevant to stated aims; and it is strewn with typographic errors..." – David 2004:479

"Anything that is *really* worth doing is worth doing poorly." - Zoë's Dad.

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