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2002

Protohistoric Archaeology and Settlement in Central Maluku, Eastern Indonesia

David Kyle Latinis

**(B.A.-Anthropology)
(M.A.-Anthropology)
(Ph.D.-Anthropology)**

A Thesis Submitted

For the Degree of Doctor of Philosophy

Southeast Asian Studies Programme

National University of Singapore

2004

**Protohistoric Archaeology and Settlement
in Central Maluku, Eastern Indonesia**

David Kyle Latinis

2004

Name: David Kyle Latinis

Degree: Doctor of Philosophy

Department: Southeast Asian Studies Programme

Thesis Title: "Protohistoric Archaeology and Settlement in Central Maluku, Eastern Indonesia"

Abstract

Maluku played a major role in history for at least 2000 years as the sole source region of the highly demanded spices, clove, nutmeg, and mace. However, historic documents from visitors and indigenes emerge only in the 16th century or later. Few archaeological projects have been conducted in Maluku to shed light on the protohistoric period. The purpose of this thesis is designed to explore the late protohistoric period through archaeological data, especially the artifactual assemblages from a few relatively large walled settlements possibly dating to the 8th-15th centuries. Factors relating to the emergence, location and distribution of these sites are explored as well as factors possibly relating to sites' possible abandonment towards the end of the 15th century. Compositional studies coupled with identification of foreign ceramics to known time periods indicate several local and extra-local exchange spheres existed. New settlements appear to have emerged in the subsequent colonial period. Continuities, changes and possible influential factors in the transition from protohistoric to historic periods are also discussed.

Keywords: Maluku (Moluccas), Archaeology, Ceramics, Compositional Analysis, Protohistory, Settlement.

Summary

The following thesis highlights the results of field and laboratory research conducted on late protohistoric period (ca. 8th-15th centuries) archaeological sites and archaeological assemblages from Central Maluku, Eastern Indonesia. Chapter 1 introduces the study area and some of the problems and hypotheses. Chapter 2 is intended to provide an extensive overview of past and present Maluku and Malukan culture. It is a synthesis of much historical, archaeological, and ethnographic data. Chapter 3 summarize previous archaeology, important archaeological topics related to the thesis and a brief prehistory of Maluku. Chapter 4 recounts survey and describes the fieldwork. Chapter 5 is devoted to the ceramic assemblage description. Chapter 6 recounts the results of compositional studies conducted on earthenware samples. Chapter 7 concludes with an overall assessment and brief discussion of some transitional trends from the protohistoric to early historic period.

Perhaps more questions are provided than answers throughout the discussion. However, the protohistoric period and protohistoric archaeology in Central Maluku remains in a state of infancy and additional work is sorely needed, especially because Maluku played such a prominent role in world history. Nevertheless, the results of the research helps shed light on an otherwise completely unknown era and place. This research coupled with current investigations in places like Banda should be viewed as a launching pad for future studies in the area rather than a definitive conclusion of the time period and settlement patterns during the protohistoric period.

Large, stacked stone walled settlements with dense earthenware assemblages and sparse foreign ceramics provide the bulk of the data. These sites seem to have lost their importance and were likely mostly abandoned by the dawn of the historic period. The factors related to their emergence and decline remain obscure, but at least they yield clues about Malukan protohistory and Maluku's connection to the larger world during arguably one of the most exciting periods in history.

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I must also thank my friends in Maluku and all the people of Maluku. Without you and your knowledge I would be nothing. In many ways, all my successes have only been translations of your cultural genius. These are troubled times and my heart goes out to those who are affected. I hope that these troubled times will quickly dissipate. I have never felt more at home outside of my home than I have in Maluku. I hope that I can soon experience such hospitality, relaxation, fun and security again. I cannot thank you enough.

Lastly, I wish to thank the Henry Luce Foundation, National Science Foundation and the National University of Singapore for their direct and indirect research support. Particularly, Prof Frank Watt and Mr. Ng Tong Hoe (EDXRF lab) and Mr. Eugene He (Materials Science, SEM and XRD) deserve great recognition and thanks for their help and support with compositional analyses conducted on the ceramic assemblages.

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List of Video Clips

Video Clips 1 & 2: Dongson drum in Gorom.

Video Clips 3 & 4: Feature in Tomu.

Forward

This is a very visual thesis. Most archaeological documents necessitate a high visual component due to the nature of the field. Over the last few decades, however, there have been two trends in the presentation of archaeological reports and articles: those that shy away from the visual presentation because it is more difficult, time consuming and expensive and those that continue to incorporate a high visual content due to the fact that it delivers more information in a less biased manner. I have chosen the latter approach.

Many of the printed images throughout this thesis may not appear sufficiently ‘photo quality’. My apologies are extended to the readers if this causes any inconvenience. However, all images are included with the text in MS-Word format on the CD inserts. The digital images are often far clearer and they are much easier to manipulate if so desired in order to highlight specific features, etc. The images on paper are not necessarily meant as a final product, rather they are intended to offer the reader a sample which can then be viewed more clearly on a computer screen or reprinted after appropriate alterations have been made.

Included in this thesis are also a few video clips. Most have been removed from the earlier submission at the request of the initial examiners. At present it is difficult if not impossible to put video clips on paper (but, ‘plasma paper’ is probably on someone’s invention list). If this were a ‘web-based’ thesis, the appropriate links would serve the purpose. Unfortunately, it will probably be many more years before a purely web, CD or digital format thesis is allowed. In the meantime, the ‘reader’ is encouraged to use the CD inserts on their personal computers to view the referenced video clips. All video clips are saved in MPEG format and most computers are able to play the clips.

If a picture tells a thousand words, a video clip tells a million. The video clips not only ‘multi-dimensionalize’ the topics, they also inform the reader/viewer much more about the personal experiences and biases of the author. This will undoubtedly help the reader ‘judge’ the objectiveness and highlight flaws and contentious data. I think it is vitally important. I hope these approaches will help further advance anthropological studies.

Unfortunately, I had only one short season to capture video. Also, due to the inaccessibility of electricity in many places, I was unable to charge the batteries and videotape many of the interior highland excursions. Additionally, many tapes were damaged beyond repair for various reasons. Nevertheless, for those not familiar with Maluku, the video clips should be helpful. For those who have visited the area, the video clips may not be as informative but helpful nonetheless.

A live tour is of course more informative than a video clip. If a video clip tells a million words, a live tour tells an infinite amount. However, I think it will be even longer before live field trips become standard aspects of doctoral theses. If I had the funding, I would certainly try to oblige the readers.

The video clips have been digitized from original footage. At first, I thought it would be best to edit the footage (non-linear digital editing is quite easy now) to make it appear more like a documentary. After several trials, however, I decided that video editing only biased the data presentation and made the final product appear ‘unrealistically documentarized’. Thus, I have only included raw video clips. It may not be the same ‘visual candy’ as edited versions, but what the reader sees and hears is far more original than what the edited versions relate.

Much of the footage was shot on old 8mm tape which has since succumbed to mold problems and other tropical diseases affecting film. The quality of many shots may be less than preferable (i.e., really bad). On the other hand, some clips are very good. Either way, both types of clips should be informative.

A final point about the video, is that it allows missed data to be recaptured without the need for returning to the field. It also highlights data that would otherwise be background noise or invisible while in the field. It is a useful tool. However, it cannot replace the actual experience and I caution researchers to not become obsessive with viewing other cultures and places only through the camera’s lens.

I have also included on CD as many still images of the assemblages as possible. The entire assemblage could not be photographed, of course, but thousands of the most diagnostic artifacts in all assemblages were photographed or captured in digital imagery. Again, the images were not ‘doctored’ so as to reduce bias or make them ‘look prettier’. If the reader desires to alter the images (e.g., adjust brightness, contrast, gamma, sharpness, etc.) it may help resolve some images but may obscure others. Nevertheless, it may be worth ‘playing around’ with the image qualities to enhance specific details that the reader may be interested in.

The original bag labels were used to title the folders for all artifacts that were excavated. For example, ‘1fi2’ or ‘1FI2’ should refer to the original provenience as follows; ‘Unit 1F, Layer I, Level 2’

(levels were excavated every 10cm, thus the artifact was recovered between 10 and 20 centimeters below the surface). I suspect several bags were mislabeled, although there is no question that the artifacts came from the sites listed. There has been no mixing of assemblages.

As mentioned, the inclusion of much digital imagery and video clips is not typical of most theses or publications. I hope that the reader does not find this cumbersome or unnecessary. On the other hand, I hope the reader finds this helpful and useful.

Part of the logic behind including this much information is that I have read hundreds of theses and professional reports. With each one that I have read, I have always wanted to ‘see more’. Current technology has made it easier for us to enable capturing, saving, disseminating and displaying visual information (not easy in all cases, but easier). Why not use it. I also have nothing to hide so why not display what I saw and subsequently visually highlight what led me to my conclusions. Hopefully this will also allow others to assess the information to further support or refute many of the conclusions I have drawn from the research.

Finally, the information, images, video clips, etc. in this thesis and the accompanying CDs are copyrighted under David Kyle Latinis. Please do not hesitate to use the information for educational or research purposes, although permission is needed for reproduction of the information, images, video clips, etc.

Rebuttal and Comments to the Initial Examiners' Review Comments

The following is a reply to the initial examiners' statements. Generally, the statements were thoughtful, useful and pertinent to the revision process. The comments are very much appreciated. However, not all comments and subsequent literary review have altered the prevailing opinions and interpretations. Rather than addressing each comment independently, the comments will be addressed holistically in the following paragraphs.

Firstly, the use of unadulterated video clips as part of the thesis was deemed unprofessional and distracting by the majority of examiners. These have been removed with a few illustrative exceptions. Personally, this is digested as both problematic and helpful. On one hand, the removal of the video clips and the lack of "editing" the original forms into something more "modern media oriented" do enhance the thesis in the sense that the flow of information and arguments are less distracted so that one need not reorient after reviewing the video clip. It allows the thesis to more quickly get to the point in written form.

On the other hand, the removal of the video clips essentially removes a dimension of information that could be used by future researchers. What would one give to have access to video material of Magellan's voyage, the battle of Coen with the Bandanese or daily life in Maluku 1000 years ago? If deemed unprofessional to include this type of data, it is curious as to why pictures, drawings, graphs, maps and historic texts are considered professional (and when this occurred) while video data is not. It is difficult to understand why it is problematic to include new types of data presentation into modern academia. On this note, I hope things change.

Secondly, chapter two has been significantly revised. Originally, chapter two was intended to highlight a personal interpretation of Malukan life coupled with background interpretations vis-à-vis an understanding of Maluku based on long-term fieldwork and extensive historic, archaeological, ethnographic and ecological research. Obviously, this failed. But it is necessary to spotlight that personal interpretations of past research do not always correlate with other researchers' interpretations, and many interpretations have focused on the 20-30 % of life that conveniently fits in a very anthropologically structured manner and not the 70-80 % of life that does not. Most historic and ethnographic research has been geared towards reinterpreting the symbolism and cultural grammar that local informants say should represent Maluku rather than the real variability that seldom fits the cultural grammatical rules. The focus on variability and deviation is one of the spinoff background purposes of the thesis and is important for understanding why it is difficult to place protohistoric Maluku into boxes that may be more misleading than illuminating.

The length of chapter two is considerable. However, much of this is due to the visual nature of the chapter with many pictures. I find this difficult to believe that this makes the chapter confusing and cumbersome. The subsections adequately designate differing themes. These could be written as separate chapters but it would essentially return to the same divisions. The chapter is intended to demonstrate background research and discuss a wide variety of topics related to past and present social and physical variables related to Malukan culture and environment over the last several millennia, a daunting task. Also, these issues do relate to the main themes of the thesis whether or not an outside reader chooses to see the connections or ignore them.

Thirdly, there is a continuous call for references. In many cases, many of the desired references are unnecessary as they are well known topics and general knowledge, particularly in Malukan studies. It is probably not necessary to reference Charles Darwin every time the word "evolution" is used or Newton every time the word "gravity" appears. Also, it is not necessary to devote an extensive bibliography to the concept of dualism in Maluku. Additionally, it has been very difficult to obtain many of the suggested sources. For instance, it has been four years without results for a National University of Singapore interlibrary loan request for Mahirta's thesis on Northern Maluku from the Australian National University. Finally, many of the concepts are original, although there is a possibility other researcher's may have discussed similar ideas. It is not possible to read everything, particularly for a thesis originally given a three year time limit.

Fourthly, the overall style has been altered as desired by the examiners. The original attempt was to implement a style more conversational and less dictatorial in order to emphasize the speculative nature of many interpretations and conclusions. Most of archaeological interpretation is pure speculation. However, it is agreed that the original style is sometimes distracting, confusing and leads to a reader's sense of ambiguity and academic insufficiency on behalf of the author.

As stated, archaeological interpretation is very speculative. The composition of pottery, the spatial placement of an artifact, the drawing of a design, the analysis of soil, etc. can be analyzed with far more certainty than the interpretation of why certain material items are where they are and why

certain differences or similarities occur. The original purpose was not intended to deceive the reader that speculation is indeed fact, a common flaw in many archaeological publications.

Other comments by the reviewers are clearly unsupported. One reviewer states, “I cannot see the usefulness of comparing a site area to the area of Singapore unless one knows it was occupied at the same time...” Indeed, it is clearly stated and illustrated that there is strong proof that the site(s) were occupied at the same time (14th century). The comparison not only has relevance regarding contemporaneous population sizes in 14th century Southeast Asian settlements, but has relevance because the highly demanded spices and other goods from Maluku were imported to the Chinese, Indians, Arabs, etc. through trade entrepôts such as 14th century Singapore. Additionally, comparisons of site size as determining population similarities and differences from totally unrelated sites around the world is commonplace. Finally, there have been no remarkably believable attempts at population estimation on similar sites within a 500 mile radius. Why not Singapore?

Comments such as “an advanced analytical technique [EDXRF] with only two bibliographic references given is inconceivable in any field of study known to me” are also flawed. The EDXRF lab at the National University of Singapore has been used to test archaeological pottery and glass samples in the past (referenced, although more references have been added to fulfill the examiner’s desires). Nevertheless, I have had four years of experience testing thousands of samples (particularly earthenware) from over a dozen projects. There is no one more experienced than myself at analyzing archaeological earthenware sherds at the National University of Singapore EDXRF lab and no one else has tested and analyzed as many Southeast Asian earthenware ceramics to date.

Another example is a comment on the presence of Hindu and Buddhist architecture, a Shiva figure and Majapahit grave markers. None of these have been confirmed and none come from provenanced archaeological contexts. The point is clearly stated in the thesis that with the exception of a few artifacts recovered from Sulawesi and the Philippines, the major drop-off line for substantial Buddhism and Hinduism as reflected by artifacts, religion described by early explorers and monumental architecture from the pre-colonial period is Bali.

Fifthly, one of the examiner’s comments suggested an over-reliance on Galvao (Jacobs 1970) as a source. This is a good comment. I agree that a review of other sources is helpful. This was done. And, as originally state, Rumphius, Manusama and others played important roles in the thesis. However, Galvao’s work is exceptional in that it provides details on culture, environment, subsistence, local production, etc. that many other historic documents do not. Most others retell major events, describe elite hierarchical genealogies and account business transactions. Although this information is useful, Galvao’s is the most useful for the purpose of this thesis.

Also, Galvao witnessed the very early colonial period in Maluku first hand. Most other lengthy and detailed texts were from the seventeenth century and later. By then, significant changes had occurred, and with the exception of a few naturalists, topics deemed worthy of recording had as well. Some of the latter texts are utilized to show the strong continuity in some spheres of Malukan life over time while simultaneously highlighting major changes. For instance, A. R. Wallace’s insights are used almost as much if not equally as Galvao’s.

Lastly, the thesis was never intended to be a historiographic exercise. This is primarily an archaeological thesis. Galvao, Rijali (Manusama), Rumphius and Wallace are traded heavily upon for three reasons: 1) they are very descriptive and very accurate, 2) they give local and non-local views of Malukan life over time that are important for assessing post-protohistoric changes and continuities, and 3) Galvao’s work in particular is by any standard an excellent ethnography and also describes life during the early contact period before dramatic social changes occurred during the latter colonial period. Presentation of archaeological material from historic sites is only intended to provide future researchers with data and to avoid truncating the historic evolutionary trajectory of Malukan life at the end of the protohistoric period. The sites were assessed because they may have potential for earlier material culture deposits. It would be unwise to omit the data as it was part of the survey process.

Chapter 1: Introduction

The following thesis is designed to archaeologically explore the nature of settlement, socio-political complexity, trade, and ceramic distribution in Central Maluku, Eastern Indonesia (Figure 1) during Maluku's protohistoric period (ca. early first millennium AD to 1522). It is hypothesized that several unique and varyingly interdependent settlement types¹ existed during that time span. Part of the uniqueness is due to the nature of environment, subsistence and social relations in Eastern Indonesia. However, an equally important part is probably due to the nature of trade and exchange, demand for exotic goods, competition and a combination of other socio-political factors. The possible dependency or independency of each settlement type vis-à-vis all other settlement types is explored, as well as possible developmental trajectories.

The socio-political factors are considered first in this introductory chapter followed by concerns about settlement patterns and material culture, which are necessarily the meat and bones of the thesis. As implied in the rebuttal to the examiners' comments, this thesis is primarily archaeological, focusing on the protohistoric Malukan period. This period was doubtfully a period of stable continuity across all aspects of life, but one of considerable flux in several areas (e.g., political alliances, material culture, technology) and stability in others (e.g., subsistence).

Protohistoric Maluku, further defined below, is an historic category generally referring to the time span between about 2000 or more years ago to 1512; the former date equates to when commodities from Maluku are first mentioned (Han references to clove use) and exotic artifacts dating from that period reached Maluku (Dongson drums and bronzes), and the latter date equates to the onset of European interaction and textual data recording in Maluku. Archaeologically and socially, the protohistoric period is undoubtedly complex and will assuredly be periodized with greater complexity in the future.

The following introductory sections highlight the main problems and issues that contribute to the overall thesis goals listed at the end.

Socio-Political and Power Concerns

It is hypothesized that the socio-political scenario was significantly complex by 2000 to 3000 years ago as evidenced by artifacts that could only be acquired by influential and complex polities, yet not state level societies as defined by current anthropological discourse. What is meant by 'significantly

Figure 1a: Map of Southeast Asia.

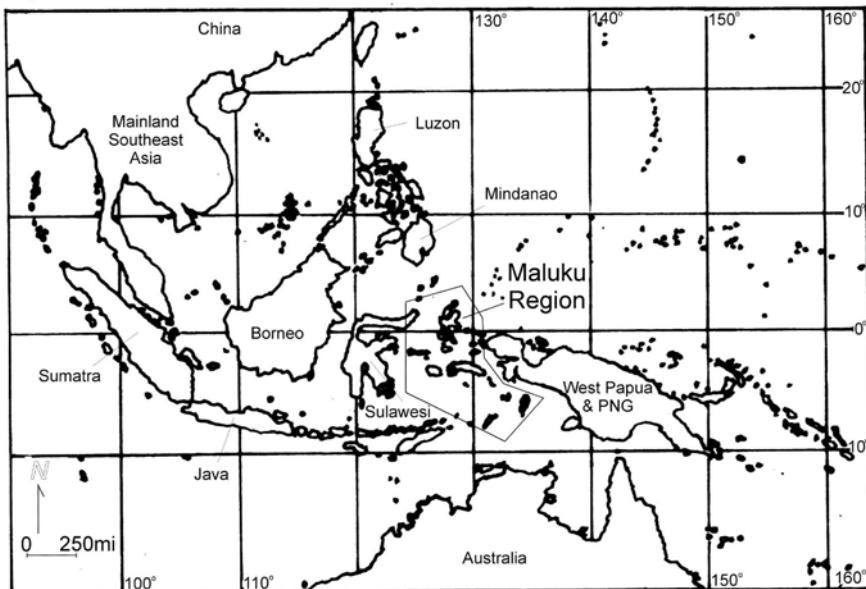
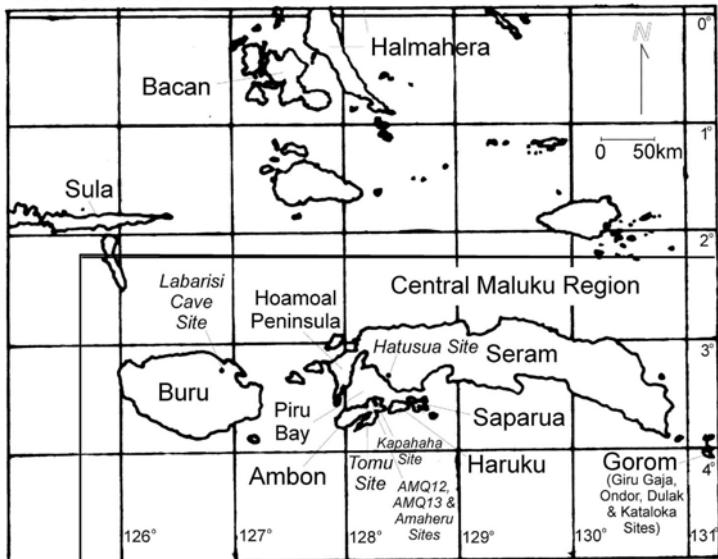


Figure 1b: Map of Central Maluku Noting Some Important Locations Discussed in Text.



complex' will certainly vary among researchers. One could use the traditional categorization scheme of "band, tribe, chiefdom, and state" placing some Malukan settlements towards the complex chiefdom zone while others towards the simple tribal zone. However, "linear continuum" models, although sometimes multi-dimensional, are often composed of outdated idealized categories derived from the studies of unrelated peoples and do not appropriately categorize past and present Malukan lifeways.

Most researchers understand that the framework is merely an analytical tool to facilitate description and communication. And, most agree that the boundaries are diffuse, overlapping and often problematic. Nevertheless, the models and categories persist in use (e.g., Junker 1999). Recent comments by Longacre's (2000:192) on Junker's recent book that the “[cultural] evolutionary stage called the chiefdom as classically defined by Service and others in the 1960s’ as a ‘precursor to state-level

societies... will cause some anthropological archaeologists discomfort” is relevant to the stance taken throughout the thesis. Longacre (2000:192) continues to elucidate, “since then, of course, there have been great strides forward in better understanding the emergence of such complex forms of society.”

These strides should be taken advantage of and the journey should be continued. Thus, it is difficult to place Malukan society comfortably into any of the typical categories. Malukan settlement, politics and particularly culture in several dimensions defy almost all traditional models. However, the use of ‘significantly complex’ is intended to mean that Malukan life, settlement, subsistence and socio-political organization were far more complex than the stereotypical concept of bands of hunter-gathering foragers or the simple chiefdoms often implied about pre-colonial and prehistoric Maluku in many past studies.

The social change and evolving complexity was perhaps stimulated by trade, exchange, demand for exotic goods, and other social factors. Dongson artifacts and Han references to cloves indicate trade connections (albeit indirect and multi-nodal) by 2000 or more years ago. Recent radiocarbon analyses indicate large walled settlements with exotic trade goods existed as early as the eighth to ninth centuries. Interestingly, and perhaps in partial stimulation by, this is the time of the rise of post-Funan ancient maritime trade entrepôts, particularly Srivijaya in Palembang, Sumatra. Perhaps the trade potential was a significant stimulus for the emergence of these sites. Based on assessment of non-local stonewares and glazedwares, intensive occupation of many sites ended in the fifteenth to early sixteenth centuries. Undoubtedly, the causal pushes and pulls were many and complex and it is unwarranted to assume that all groups in the region followed the same path.

Nevertheless, complexity increased through time for many groups and eventually culminated in at least three similar but slightly different manifestations by the early colonial period: 1) powerful competing sultanates/polities in Northern Maluku in which the sultans were influenced by a number of title holders and a council of elders (Andaya 1993a); 2) a complex federation of village-like social

conglomerates (higher level *uli* or *negeri*) in Hitu (Leihitu, Ambon Island, Central Maluku) which was ultimately ruled by four title holders (*perdana*) headed by another title holder in which that title curiously rotated between the *perdana* who were subsequently influenced by a large number of lesser title holders and elders as well (Manusama 1977); and 3) what appear to be competing factions of allied villages in Banda, Central Maluku (Lape 2000), also led by groups of elders, advisors and title holders.

It should be noted that the federation of villages seen in the Leihitu Peninsula, Ambon was not just restricted to Ambon Island, but was likely a common form in the Southwest Seram and Uliase (Ambon Lease) region, and arguably throughout Central Maluku. For instance, it is known that Haruku developed a federation of villages prior to Dutch control. Also, ‘*uli*’, a local term used to describe an alliance or federation as one of its definitions, is used in the term Uliase (Lease) which refers to the islands of Ambon, Haruku, Saparua, Nusalaut and smaller neighboring islands. *Uli* also refers to the two major social groupings, *ulilima* and *ulisiwa*. *Pata* is the similar term used in Seram, and there are other equivalents in the Kei Islands. Perhaps there was even an inter-island federation at a higher level at one time in the past, although the concept of an allied Maluku or allied Central Maluku does not seem to have existed in early historic times.

Nevertheless, it is obvious that Malukans are unified or have a sense of inclusion, identity and unity based on a common way of life from the north to the southeast; particularly subsistence, knowledge and use of the environment, and certain behavioral characteristics. This unified nature could even be extended historically to the southern Philippines (e.g., Mindanao). This way of life is clearly distinct from their immediate neighbors such as Sulawesi to the west and Irian Jaya (West Papua) to the east.

Malukans view the West Papuan lowlanders as more closely related but this could reflect a stronger identification with religion (e.g., Christianity) and sago subsistence rather than culture in general. Sulawesi has remnant sago subsistence cultures (e.g., Palopo) and similar biogeography. Linguistically, Malukans are more closely related to Austronesian speaking Sulawesi groups than Papuan speaking West Papuan groups (except parts of Northern Maluku). The historic and modern sense of Sulawesi as completely distinct by the Malukans may be a result of competition, conflict and religious differences evolving in the seventeenth century and later.

Returning to the issue of Malukan political manifestations, similarity can be seen in all three systems due to the importance of elders, title holders and influential people. However, the ultimate

ruler(s) may have differed in number, type of authority and degree of power and influence over immediate and neighboring populations.

Interestingly, the most populous groups of Malukans, the ‘commoners’ or ‘peasantry’, for lack of better terms (also including but not exclusively the ‘*alifuru*’, often a reference to the colonially perceived less socially complex and more Papuan-like interior groups), were fairly independent consisting mainly of families or multiple family groups in scattered hamlet-like settlements. These more numerous social groups in total were likely less numerous in regards to the size of each individual settlement or village. However, they interacted directly and indirectly with the ‘elite’ groups but were not totally dominated by elites through absolute power and authority. It is truly unknown how different the elites were from the non-elites other than their formal dress, roles in ritual events, and the amount of ink given to them historically. What was the nature of social stratification and differentiation in Maluku? What was the relationship between the elites and the commoners? What was the nature of each other’s power? How were role differences and power differences related?

Two brief examples are needed to demonstrate the flexibility, potentially deceptive nature of role and power differences and highlight why I have hesitations taking for fact some past ethnographic and historic research using inappropriately and overconfident models. Firstly, women in Maluku often have fairly distinct roles but have a considerable amount of power, often increasing as economic level decreases. The power is especially evident in regards to family finances and the family decision making process. Despite some objections, it could be argued that men are far more dependent on women and much less powerful. It is unfortunate that many see role differences as reflections of power differences. Based on many ethnographic experiences, men often play symbolic roles as power holders when indeed the majority of power is held by the women, or, at least power is distributed relatively equally among men and women. Along the same lines, many non-title holders can become highly respected people and hold significantly greater authority and power than many title holders. However, these cases could be viewed as part of a global phenomenon and not necessarily restricted to Maluku or all that informative about the defining aspects distinguishing Malukan culture.

Following the same path of logic, it was likely the Sultans, important title holders, ruling class, etc. (i.e., the complex socio-political elite groups dependent on trade) that feared and were largely dependent on the commoners for food, support, basic necessities, labor, protection, and important commodities such as spices, forest and marine resources, bird of paradise feathers, etc. These

commodities were needed for exchange with non-Malukans in order to acquire the highly desired extra-locally produced goods such as stonewares, glazed ceramics, metals, textiles, etc. Were leaders symbolic power holders while the general populace maintained the true power, thus contrasting how sultans, kings, etc. are sometimes viewed in Southeast Asia? At a larger scale, how much power, authority and influence did leaders and elite have over non-local social groups and powerful kingdoms far away, such as Srivijaya, Majapahit, or states in China and India? Were they dealing with middlemen traders from these places or the larger complex polities directly? More will be discussed on this subject in the following chapters.

Settlement

As for the nature of settlements, some of the relatively complex settlements may have loosely resembled the contemporaneous ‘complex chiefdoms’ in the Philippines (Bacus in press, 1997; Junker 1999, 1993, 1991, 1990; Junker *et al.* 1994; Hutterer and Macdonald 1982; Nishimura 1992) or other complex ‘mutualistic’ combinations of polities and social groups described in the southern Philippines (Cembrano 1998).² Other settlements included a variety of inland, coastal and perhaps maritime groups of varying sizes that may have been intimately, loosely, or not at all connected to the larger, more complex polities.

Did settlement patterns adhere to the hexagonal Christaller-Losch model, Bronson’s dendritic model (Bronson 1977), Southeast Asian *mandala* models, galactic polity models, or some other pattern such as Ellen’s model of social system and trade node cohesion [author’s interpretation] (Ellen 2003)? This question needs further exploration.

Bronson’s dendritic model is generally applied to settlement patterns with large river systems that act as communication/transportation routes to access hinterland resources obtained from numerous smaller settlements in exchange for exotic goods obtained from increasingly larger and more trade oriented settlements. The major nodes are seen as constantly competing while the smaller distant nodes are less tied to the main centers and essentially free to move from one dendritic system to another. The dendritic system if necessarily river based is not very applicable to Maluku as few lengthy and navigable river systems exist in the mountainous small islands and most of the large islands. However, the dendritic model must accommodate for overland communication/transportation routes in the upland areas. Thus, the model in reality need not be restricted to water based communication routes to form the dendrites, but could be a combination of land and water, or even purely land based.

The interesting question is how does this relate to the classic hexagonal Christaller-Losch model? The Christaller-Losch model suggests that if all factors are evenly distributed, hexagonal arrangements are the natural order. Once more complex center-periphery transformations take place, such as the emergence of complex polities, either the hexagon will have large dots in the center, or that a fractal pattern of lesser hexagons will be enveloped by a larger hexagon with the most prominent in the center. However, this is a two dimensional representation of a multidimensional problem. Even moving to three dimensions, the cube would be preferable to the hexagon. There could be the possibility of multiple three dimensional shapes interacting together to form what physicists would claim the natural evolution of stability and efficiency of systems through transformation to complexity or simplicity. What is the desired perfect manifestation, shape or constellation considering all the social and physical factors in human settlement?

It is possible that if all variables (e.g., distribution of resources; topography; geography; communication and transportation energy, distance and time; cultural and social factors; diachronic factors; population size; population limiting factors; technology; etc.) could be realistically formulated into a large multi dimensional matrix that accommodates for relative intensity of each variable and then statistically compressed into a two dimensional model, the dendritic model and others may adhere to the Christaller-Losch hexagonal pattern, or something multi-dimensionally similar.

With modern GIS and statistical software, this can be eventually tested. However, the problem with archaeological data, it is far more incomplete than ethnographic and historical data. Can the gaps be filled in correctly or are the gaps too many and too deceptive that a false sense of settlement, settlement evolution and historic understanding is created? The intention of the following thesis is to add a puzzle piece in this direction. The reality is that these questions cannot be tested with the present data, though there is plenty of room for useful speculation. This discussion is included to direct others to consider these issues as well.

But, why one particular point for the hexagon center over another if things are equally distributed? The likely explanation is necessarily historic. One point would have had to have transformed first and all others subsequently formed around it. This process also could have happened in several areas and resulted in imperfect connections when clusters ran into each other while expanding. What happens then? Conflicts, alliances, confusion?

Also, what ultimately caused the transformations (whether simple to complex, peripheral to central, complex to simple, etc.) needs consideration? Is it merely timing, entrepreneurship, a cluster contacting another and effectively transforming the other? Was it intentional and planned, as attested by some historic cities and “central places”, or merely blind evolution to increase fitness somehow?

Other issues are important as well. Were settlement patterns fractal in nature? Did the social and physical layout of the garden *walang* (garden residence and work station) adhere to that of the household? Were households and *walang* patterned in a specific way? Were they subsequently a smaller pattern of the village layout and the constellation of *walang* in the total resource environment? Were these in turn representative patterns of village federation, sultanate or kingdom settlement patterns? Did dualism and dualistically integrated social groups have a role in the patterns as well? Interestingly, Andaya (1993) discusses the nature and history of sultanate politics in Northern Maluku with each other and also vis-à-vis various colonial groups as one of a typical Malukan family social order that needed to be correctly adjusted. This could be interpreted as fractal social ordering patterns which may have also affected the physical patterns.

Additionally, how much did physical geography and resource distribution restrict the physical manifestations of ideal settlement patterns, and was the physical and social achievement of idealized settlement patterns an important issue to Malukans, or, most Malukans? Additionally, is the level of desire to achieve these patterns based on class, vocation, religion, other belief systems (e.g., *adat*), spirituality, etc.? Again, the data from this thesis cannot answer these questions definitively, but will contribute to a greater illumination of the full picture in time. It is paramount that the issues discussed above hover in the minds of those interested in pursuing these topics vis-à-vis settlement archaeology in Maluku and elsewhere.

Protohistory to History

Maluku’s colonial period and truly historic period began in 1512 with the arrival of the Portuguese shortly after their conquest of Melaka and continued with the Dutch during the seventeenth through twentieth centuries. Other colonial powers such as the English and Spanish played less enduring but no less important roles in Maluku’s colonial past. Even the Japanese were involved in the region during the colonial period (e.g., mercenaries in Banda during the early Dutch period, Japanese traders, and WWII occupation). The Chinese, Javanese, Malays, Bugis, Butonese and other Southeast

Asian groups, possibly including some Arab and Indian groups, were involved with Maluku for some time before and during the colonial period.

The colonial period witnessed the development, or continuation of other important political and trade centers and sub-centers (e.g., Gorom, Luhu, Dobo among many others) in addition to the continued importance of the Northern Malukan sultanates, the Banda Islands, Ambon Island and Aru. Some of the other centers and/or sub-centers more than likely were important trade nodes or fairly important settlements during the pre-colonial era (e.g., Seram Laut, Gorom, and Geser). However, other settlements may have arisen or rapidly expanded due to post fifteenth century historical and particularly colonial-induced factors during the early to mid colonial period. For example, Ambon Town (or city) is an example of a prominent center in Maluku that was significantly developed only during colonial and modern times.

Colonial factors seriously affected local settlement in many areas and in many ways. However, it is unfortunate but necessary that the issues surrounding these other areas particularly during the latter colonial era are beyond the scope of this thesis (see Abdurachman 1981, 1978; Andaya 1993a, 1993b; van Fraassen 1994, 1987; Ellen 2003; Hanna 1991, 1978; Hanna and Alwi 1990; Knapp 1992; Lape 2000a, 2000b, 1998, n.d.; Lapian 1994; Leirissa 1990; Manusama 1977; Meilink-Relofsz 1962; Miksic n.d.; Ptak 1992; Purchas 1625; Purchas & Hakluyt & Hakluyt Society 1905; Ricklefs 1993; Reid 1988, 1993; Rumphius 1910; Valentine, 1724-26; Villiers 1990, 1981; Wolters 1967; Ziwar Effendi 1987 among others for more detailed information regarding the early to mid colonial periods). Indeed, the central issues discussed in the following thesis are predominantly focused on the Piru Bay region, which includes the Hitu or Leihitu peninsula on Ambon Island and the southwestern area of Seram Island, during the protohistoric period.

Some early colonial historic documentation review is necessary in order to assess Maluku at the time of contact with people dramatically differing in custom and intent upon controlling and monopolizing spice trade. Later historic records allow the assessment of aspects of Malukan life that remained fairly constant through time and also aspects that changed gradually or rapidly. Nevertheless, historic and colonial impacts are documented adequately elsewhere (see list of references above) and will continue to be a backdrop rather than central topic of the following thesis.

Contact, Communication and Trade

Local and supra-local contact, communication and trade are important factors that are explored in the following thesis. Undeniably, Maluku was linked to larger regional and extra-regional trade spheres in the late first millennium BC and first millennium AD, extending from perhaps as far as the Solomons, Bismarcks and Admiralty Islands, throughout New Guinea (probably lowland/coastal settlements), the Philippines, Indonesia, China, South Asia, the Mid-East and eventually as far as Europe. Although the linkages were undeniably indirect and numerous in this semi-global exchange sphere, it is important to note that Maluku was a major player, particularly as Maluku was perhaps the only source of the highly demanded spices, clove (*Eugenia caryophyllus*, also *Syzygium aromaticum*) and nutmeg (*Myristica fragrans*). Were the linkages a series of interlocking *kula* ring-like trade networks (Malinowski 1922) in tune with the monsoon cycles or were they organized much differently? Further research is certainly needed to begin to answer this question.

Despite her significance, Maluku seems to have never been one of the prominent international trade entrepôts characteristic of western Southeast Asian ports such as Melaka, Singapura, Palembang (Srivijaya), various Javanese ports, etc., probably due to the vast distance from the Straits of Malacca, Isthmus of Kra and other mid-points in the maritime China-India trade spheres of the last 2000-2500 years. Nevertheless, Maluku's geographic position and mostly the desire for many of Maluku's commodities allowed Malukans access to exotic goods.

It is also hypothesized that access to non-local goods, especially exotic and highly prized goods, may have had a role in stimulating the development of trade-based settlements in Maluku as well as strengthening these settlements' importance and size. Exotic goods, especially textiles, metals, and ceramics from India, China, and western Southeast Asia, also came to play important roles in marital exchanges, family wealth and inheritance, social alliance formation and social conflict resolution. Once imbedded within these traditions there was undoubtedly a snowball effect increasing the local importance of these exotic goods and desire to acquire them.

It must be emphasized that spices were not the only important resources produced and traded locally and extra-locally in Maluku, however. Numerous terrestrial, marine and human resources (human manufactured goods as well as humans themselves) provided a much richer array of circulated goods. It is even possible that sago was used as a form of currency in parts of Maluku. It is unfortunate that excessive attention to spices has often trumped research regarding the exchange of other goods (see

also Ellen 2003; Ptak 1999; and Swadling 1996 for a list of other commodities). Subsequently, this has actually hindered detailed investigation of the variety of exchange spheres in which these other commodities circulated. Again, more will be discussed on these issues throughout the chapters.

Conflict

Local conflict, warfare and defense are subjects that are addressed throughout the thesis.

Undoubtedly, the nature of conflict and warfare changed rapidly during the early colonial period, which witnessed intense technological and strategic changes in militarism, sieges, massacres, and in some cases ethnocide (e.g., the massacre in Banda). Malukans unquestionably had never before experienced the nature and degree of warfare introduced during the colonial era, or the desire by a foreign power to be completely control their economic and religious lives.

However, the existence of walled and possibly fortified settlements suggests that conflict was present in the pre-colonial era; an inference further supported with data from the oral and historic records. However, due to the nature of subsistence in Maluku, it is not likely that land and food resources were scarce—key factors that are commonly associated with the escalation of competition, conflict and the development of fortified settlements in the Pacific and elsewhere. It could be argued that land and food resources on some of the more populated and environmentally degraded smaller islands could explain some tensions, but it is hardly suspected that these were dominant factors in the prehistoric period although possibly increasing factors during the protohistoric and historic periods with increased ecological degradation and growing population on small islands, particularly the latter trade nodes. Other factors are explored, such as competition for trade relations, acquisition of exotic commodities, access to human resources, and other social considerations.

Trade, Settlement Formation and Abandonment

Roy Ellen (2003, 1990, 1979) has suggests that a variety of local to inter-regional nested and overlapping trade spheres characterized the region in the protohistoric and historic periods. He suggests that one such local network, which also had larger connections and implications beyond the local network itself (i.e., also part of a larger trade sphere), centered around western Seram and Ambon Islands, particularly around the Piru Bay area. Interestingly, there is archaeological evidence that suggests the occurrence of rather important relations between relatively large settlements during the protohistoric period in the Piru Bay region. However, Ellen (2003) contends that the western part of Central Maluku was a relative backwater in protohistoric and early historic times compared to Banda,

East Seram, Seram Laut, and Gorom which formed important central and peripheral nodes. Preliminary archaeological evidence indicates the reverse for the protohistoric period.

Larger trade oriented settlements may have been stimulated by increased demands in Malukan commodities and a rise in western Southeast Asian sea trade entrepots during the first millennium AD. However, what was the linkage to their apparent abandonment during the fifteenth and sixteenth centuries? Could the changes have been partially stimulated by changes in trade and politics in China, India, Southeast Asia and/or the Near East and Europe?

Many of the protohistoric sites surveyed during the research period appear to have been largely abandoned prior to Portuguese arrival. Factors and issues relating to this phenomenon are also discussed in detail throughout the thesis. One of the main factors to consider is not necessarily internal, but alternatively related to the external global market. For instance, Reid (1993, particularly chapter I:1-61) notes several external factors that periodically disrupted spice commerce at various points (e.g., increased market demands for spices, piracy, war, technological changes, policy changes, but especially the arrival of the Portuguese into the Indian Ocean and their relentless attacks on Muslim traders at the twilight of the sixteenth century (Reid 1993:14)). That is, there were rapid increases in spice demands yet serious disruptions in the late protohistoric period in Maluku due to rising external market demands, and, conflict and policy changes respectively. Also, Chinese policy during the early Ming changed to one of more or less trade isolationism. This may have affected trade-based settlements in Maluku. The late protohistoric period from the demise of Srivijaya to the arrival of colonialism was neither one of stability in Southeast Asia nor in external areas involved with Southeast Asian commerce and politics. Things were in constant flux, competition and change in many aspects of life. This is probably no less true for Malukans.

Could the multiple factors have led to rapid increased production of spices, increased trade, increased importation of exotic goods, and increased wealth; followed by a serious drop-off? How did this affect settlement shifts, the nature of trade settlements, import/export trade volume in Maluku, socio-political changes, or even relations between producers, transshippers and traders including the relations between the rising elite, the wealthy classes, title holders and the commoners? The proposition that 1) external trade demands and disruptions coupled with 2) internal demands for exotic goods and items of wealth affected the evolution of settlement patterns is one of the central hypotheses addressed in this thesis. The archaeological data necessary to address the hypothesis are in the form of size,

type/morphology and location of settlements as well as the type and amount of exotic goods in assemblages (particularly stonewares, glazedwares and porcelains in the ceramic assemblage) among other data sets.

Of course, commodity demands, technological innovations, conflict and even policy changes within and between kingdoms and states throughout China, Southeast Asia, India, the Mid-East and even arguably Europe over the last two thousand years and perhaps longer may have played a role in oscillating settlement shifts in Maluku (assuming that there were oscillations in settlement patterns). However, the major disruptions at the end of the fifteenth century and beginning of the sixteenth century noted by Reid (1993:14) through his analyses of spice shipments to Europe and the subsequent sharp rise in spice shipments once the Portuguese secured Melaka and Maluku may have more dramatically affected settlement as opposed to the possible gradual inclines and declines in the preceding centuries or millennia.

Reid's ideas may be corroborated through archaeological data discussed in the following thesis. There are large walled settlements with a small yet important component of thirteenth to late fifteenth (possibly early sixteenth century) century 'valuable' non-local ceramics. The sites seem to have been abandoned at the end of the fifteenth century or early sixteenth century. As an interesting note, however, Reid suggests a paucity of earlier Chinese ceramics in Southeast Asia during this period of which ample archaeological evidence indicates otherwise. This discrepancy will be discussed further below as it may or may not have implications regarding the terminal fifteenth century.

The fifteenth-sixteenth centuries also seem to have been a period of movement/relocation of many groups throughout Maluku (as indicated in the oral records, the local histories and early foreign accounts). This may have been a period of heightened local conflict as well, possibly as a response to economic and social crises (as is the case today). Subsequently, the sixteenth and seventeenth centuries witnessed the development of many new settlements some of which may have been in the same locations as previous settlements but perhaps with new social groups and little connection to what lay beneath them from previous times. There was also increased growth and socio-political complexity, although checked and controlled externally by the Portuguese and Dutch and internally due to local conflict in the sixteenth and seventeenth centuries.

Alternatively, despite disruptions in shipments of spices to some foreign markets (e.g., Europe), was there ever a serious disruption in production and export in Maluku, especially if the core

of production was household based that did not infringe on fulfilling basic subsistence needs? Was there a decline in exchange of spices and other commodities to other groups not acknowledged by historians? This may be more difficult to determine. The likely sources that may document pre-sixteenth century shipment of spices and other commodities are Chinese and Arab. Further investigation into this may help support or refute Reid's hypothesis.

Were the aforementioned larger possibly trade-based settlements competing or allied? Are the sites in question even contemporaneous? One explanation is that the various sites could easily reflect a settlement shift of the same people who chose to rebuild at more desirable locations (perhaps better harbors, possibly movement from malarial swamps to better drained locales to reduce 'micro-predation', and so forth). These ideas will be addressed further throughout discussions in the text.

Data Sources

The primary data sources for the following thesis are archaeological and historic in nature, predominated by earthenware ceramics, early Portuguese writers such as Galvao (Jacobs 1970) and one locally written seventeenth century document, the *Hikayat Tanah Hitu* (Manusama 1977; Miksic n.d.), although other historic documents such as the fourteenth century *Nagarakrtagama* (also *Desawarnana*; Prapanca, translated by Robson 1995) and Chua Ju-kua's thirteenth century *His Work on the Chinese and Arab Trade in the Twelfth and Thirteenth Centuries* (translated by Hirth and Rockhill 1911) among many other works certainly give adequate clues about past Maluku life despite their indirect nature.

As for archaeological data, non-local ceramics (Chinese, Thai, Vietnamese and European) and surface architectural features, though numerically small, are also vitally important. Additionally, artifacts such as glass, metal, shell, bone, bronze drums, etc., although rare, contribute to the database. Oral historical and ethnographic data provide important supplements to the database as well.

The primary ceramic data sources derive from archaeological surface samples collected from numerous sites throughout Central Maluku and an excavated ceramic assemblage from the Hatusua Site in Seram. Obviously, these data sources are limited in their ability to provide information that can be used to undeniably support or refute the above hypotheses and other inferences. However, this is the nature of archaeology and there is no need to detail the shortcomings at length here. Archaeological data also includes radiocarbon samples from excavated sites that help place the sites in a more restricted temporal context, although the non-local ceramic types and styles from the twelfth century onwards probably provide more reliable temporal placement than radiocarbon samples would.

Several field seasons in Central Maluku from 1991 to 1998 provide the bulk of the field data. Unfortunately, 1998 through the present witnessed major social, economic and religious upheavals in Maluku which unfortunately culminated in a tragic game of ethnic, religious and national warfare played out in the islands. Two final seasons of systematic survey and data recovery were necessarily cancelled. It is doubtful that more systematic collection of data will seriously alter the conclusions presented in this thesis. Nevertheless, the reconstruction of settlement patterns is further limited by this unfortunate turn of events. On the positive side, this allowed for further EDXRF analysis (explained in the following chapters) which is useful for assessing exchange patterns. The region would benefit, however, from a much more large scale archaeological program which is beyond the scope of one thesis research project. Such a project was intended to be initiated with Ambon's recently introduced Balai Arkeologi, but this has likely been abandoned in the wake of current unrest.

Periodization

The protohistoric period in Maluku roughly extends from about 2000-2500 years ago to about the sixteenth century AD when the Portuguese arrived from the west shortly after the fall of Melaka (1511 AD; a Portuguese party was subsequently dispatched to Maluku in 1512), and other European explorers arrived from the east (ca. 1522-Magellan's crew, although Magellan had already been killed in the Philippines by this time). This period is relevant only to the fact that systematic local history was recorded after colonial occupation and that products and place names were mentioned in some documents outside of Maluku prior to this period. The category of protohistory as a static social and economic state of existence in Maluku is certainly misleading. It is doubtful that the material culture remains recovered in the future will adhere to a single temporal category of protohistory thus leading to far more complex archaeological temporal categories.

The definition of 'protohistory' is arguable. Some researchers prefer to view periodization simply as historic or prehistoric. However, protohistory throughout the following thesis is specifically defined as the period during which the region or resources from the region are mentioned or described, however ambiguously, in textual, inscriptional and/or oral historical sources; and spices from Maluku were mentioned for over two thousand years. More specifically, the ninth through sixteenth centuries AD are the primary concern throughout the following chapters.

The second millennium AD protohistoric period likely exhibited more intense spice trade and non-local contact as well as change in socio-political organization and settlement than the prior

centuries. However, it is possible that Maluku experienced a partial lull for several centuries from the Dongson and perhaps earlier periods of trade, contact, settlement change and expansion, etc., and that a resurgence occurred during the eleventh through sixteenth centuries. There very well could have been oscillating changes as mentioned above.

The historic period ‘proper’ coincides with the colonial period beginning in 1512 AD in Maluku. The terms ‘historic’ and ‘colonial’ are used interchangeably throughout the text, although modern colonial generally refers to late eighteenth through twentieth centuries.

Malukan protohistory remains vague and mysterious with few attempts at deciphering the story. It is currently filled with more assumptions than facts. It is hoped that this thesis (along with recent works such as Peter Lape’s archaeological project in Banda) will begin to help alleviate that problem. It is unfortunate that historic archaeology has been relatively avoided in Island Southeast Asia in favor of questions dealing with initial pre-Austronesian human settlement, initial Austronesian settlement and the ecological differences between the two. To help rectify the imbalance is one of the primary reasons why this particular topic was chosen.

The following thesis should be considered within an archaeological and ethnographic (i.e., anthropological) more than historical or historiographic framework. It is not implied that one approach is better than the other, but that the two fields often address quite different (albeit complimentary) questions. Finally, the use of historical linguistics to help formulate or support archaeological models (or vice versa) is popular in the archaeological world surrounding Austronesian speaking peoples (e.g., Bellwood 1997, Bulbeck and Caldwell 2000). Although this approach has significant value, it will be largely absent in the following thesis except for some speculations in the discussion. The linguistic analysis could easily form one if not many theses. This is unfortunate but necessary to reduce the length. Additionally, although language, culture, technology, religion, subsistence, etc. may correlate tightly in some places and periods, they are seldom 100% in most places and time. My earlier work on subsistence in Maluku (Latinis 2000, 1999) has cautioned me not to let one data set and aspect of society dictate the modeling of another.

Summary of Goals

- Understand the nature of Malukan archaeology, settlement and life during the late protohistoric period to the dawn of the colonial era. Primary methodology includes literature review and assessment; archaeological ground survey and mapping; recovery and analysis of surface

collections; analysis of the previously excavated protohistoric Hatusua Site artifacts, ecofacts and soils; and geographic, ecological and other assessment related to settlement locations and sizes.

- Assess pottery, pottery production and earthenware.
- Understand the nature of exchange intra-locally (i.e., between Central Malukan settlements) and the nature of exchange at the extra-local level. Primary methodology includes analysis of artifact types, forms, styles, and composition. Ceramics are of particular relevance. The non-local Vietnamese, Thai and Chinese ceramics are easily identifiable and fit within particular time periods. This gives temporal context as well as indications that exotic goods were in demand and where they originated from. Compositional, stylistic, functional and morphological analysis of local ceramics can reveal information about local trade, exchange, subsistence, technology and life. Ceramics distributions are also useful for determining settlement boundaries in Maluku (Latinis and Stark 2003).
- Test whether trade, exchange and access to exotic goods are correlated to protohistoric settlement patterns. Primary methodology includes basic site and artifact analysis.
- Increase the knowledge of Central Malukan archaeological ceramics: Primary methodology includes basic ceramic analysis of style, function, morphology and composition.
- Test the utility of compositional ceramic studies. Primary methodology includes petrographic analysis (conducted by Bill Dickinson and summarized in unpublished reports) and EDXRF analysis (conducted by Latinis).
- Place sites into a temporal and spatial context. Primary method includes site survey, GPS coordinate location, site size estimation and dating through radiometric means and relative dating through ceramic analysis.
- Primary hypothesis one: protohistoric Maluku was involved in local and extra-local exchange spheres. Supporting evidence includes protohistoric non-local references, evidence of non-local artifacts (obviously imported), and evidence of the exchange of local artifacts mostly through analysis of ceramics. By extension, evidence of ceramic exchange indicates communication and exchange of material and non-material items (commodities, prestige/wealth items, people, ideas, etc.).

- Primary Hypothesis two: the desire for trade and acquisition of exotic commodities and prestige/wealth items stimulated the expansion and development of trade-based settlement sites. However, these sites were not major trade entrepots such as those that existed in western Southeast Asia. Evidence should include larger coastally oriented sites with a fair amount of non-local artifacts but in lower quantities, diversities, and/or percentages compared to trade entrepots sites in the west. It is possible, however, that because exotic prestige items are valuable, they may remain in circulation longer or be stored in hidden safe places thus less likely to enter the main settlements' archaeological contexts. Additionally, trade-based sites should only represent one of many types of settlement sites in the nebula of site types characteristic of Maluku. Other site types may be more archaeologically invisible. It is unknown if protohistoric trade-based sites were permanently inhabited or seasonally as described of Dobbo by Wallace in the mid nineteenth century.
 - Primary hypothesis three: some settlements, particularly trade-based non-agricultural production settlements (e.g., pottery, textiles and metal working), may have experienced an ecological and, by extension, economic push to develop into trade and production settlements. These should be found in areas with few agricultural resources or potential, or smaller islands that may have witnessed more intensive environmental degradation due to space constraints and inability for settlements to move to non-degraded areas. Environmental data and artifact analysis should provide data, but it could easily be argued that settlement expansion and population increase led to food resource degradation rather than degradation leading to the development of trade and non-agricultural production to compensate. Finer protohistoric environmental analysis and fine-grained temporal analysis in the future will more adequately address this hypothesis. Hypothetical details are provided in the last section of chapter three regarding ceramic production centers. Current data and results, however, preclude definitive conclusions.
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Notes:

1. The use of the term 'types' here does not imply that essential types actually exist. Types are constructs produced by the researcher and/or informants for analytical purposes. There is of course quite a lot of variability in reality. However, the variability is not likely an evenly populated continuum.

The use of the concept ‘continuum’ is problematic as often it implies linearity. A ‘multi-dimensional universe’ is perhaps a better term for visualization here. In fact, there are likely clusters or clouds of more densely populated areas in the hypothetical multi-dimensional universe with relatively empty space in between. Distances between clouds may be distant or near for a variety of reasons and the space between may be sparsely or more densely populated with real units. The clouds made up of real units and the analytical types will hopefully be similar, the latter thus adequately representing the former for the overall research purposes.

The analytical types should not be viewed as an average or essentialized type that defines the ‘typical’ unit in the cloud. However, the type in this case should be viewed as encompassing the majority of units in the cloud. These matters are further detailed in a forthcoming publication.

2. However, the term, ‘complex chiefdoms’ (as well as ‘commoners’ or ‘peasantry’) is used with extreme hesitancy for numerous reasons detailed in the following chapters. For now, ‘complex chiefdom’ is used as a general category of socio-political organization and complexity (an analytical construct) for basic comparative purposes. The nature of early Malukan socio-political complexity is vaguely known at best and is arguably significantly different from both the ‘band-tribe-chiefdom-state’ or the New Guinean/Melanesian ‘big man’ models and the original case studies from which these models were formed. It is doubtful that any professional believes that these models truly represent the infinite variability in the real world, but these types continue to mould the way many researchers interpret archaeological, historical and ethnographic data. These issues are briefly addressed in the first few paragraphs of this chapter.

Chapter 2: A Diachronic Background to the Environment, People and History of Maluku

The following sub-sections are intended to give a holistic understanding of Malukan social and physical environments as well as the Malukan people, beliefs and way of life in general—past and present. The sub-sections may appear somewhat lengthy and eclectic. It is included so that other researchers can use this information, some of which is additional and relevant ethnographic information collected by the author. It is important to insert detail here as earlier and often inappropriate models need alteration/correction by carefully disentangling and reworking them. It is also argued that this information is imperative as it helps demonstrate the author's vantage point and biases.

Real variability more than ideal rules of which the real variability orbits around are an important topic. As an analogy, with every language there is a grammar. Yet, the colloquial and formal forms deviate significantly from these grammars. Cultures similarly have their rules of conduct and behavior. The rules come in several sets in which to accommodate various roles, sexes, responsibilities, vocations, classes, age groups, etc., often encoded in their ideal beings, heroes, heroines, archetypes, etc. The ideal models may shape behavior as much as individuals reshape the ideal models. Using another analogy, the interest is not that rules such as preferred marriage arrangement and the 20-30% of society that adhere to these rules are not important, but that the 70-80% of society that demonstrates considerable deviation from these rules should also be considered in designing appropriate explanatory models.

The idealized rules have been adequately discussed in detail by various researchers. The deviation that defines the majority of society still awaits adequate attention.

Many of the ethnographic and other data presented below has been compared with information from historic and archaeological sources in order to examine possible long-term continuities and significant changes. That is, Maluku is assessed in a much more diachronic processual manner rather than a simple synchronic slice of current or past Maluku. This is an attempt to build a more holistic picture.

Although the works of Dutch writers are extremely informative (e.g., Rumphius, who also had a version of the *Hikayat Tanah Hitu*), Portuguese historic sources are a major focus as the Portuguese were in Maluku at the crucial time of initial colonial contact and influence. Additionally, the 15th and

early 16th centuries seem to represent the terminal occupation era of some of the more interesting archaeological sites related to this thesis.

The *Historia Das Molucas* written by Antonio Galvao (trans. By Jacobs 1970) with some minor additions and deletions by subsequent editors is an extremely valuable resource, as it represents one of the earliest, more holistic, and less biased accounts of Malukan society in general, despite its primarily focus on Northern Maluku and Ternate in particular. Galvao took a keen interest in describing ‘mundane things’ such as normative daily life, environment, subsistence, material culture and a variety of aspects of local life often ignored by many historic writers and historians who often favor description and analyses of the rather soap-opera like Sultans, heroic figures, infamous title holders and prominent colonialists. Galvao’s accounts in the 1500s vis-à-vis the ‘ethnographic present’ in the 1990s are strikingly similar. They are far more objective than many ethnographies, even by today’s standards.

Tome Pires’ *Suma Orientale* (Pires and Rodrigues’ *Suma Orientale*, trans. by Armando Cortesao 1944) is another useful document, although the descriptions were based on secondhand knowledge from Arab, Malay and other sources rather than first-hand experience. Nevertheless, there is much useful information and the descriptions of various places. Descriptions of life in Maluku are frequently accurate and informative.

The *Hikayat Tanah Hitu* (presumably written by Rijali, a 17th century *imam* who resided in Hitu—possibly a Hituese indigene; Manusama 1977; trans. Miksic n.d.) is a 17th century locally written history of Hitu. This also is an extremely valuable data source. The negative aspect of the document is that it omits many mundane details of normal and daily life and is extremely biased due to local cultural and Muslim influences. On the other hand, this bias is extremely useful as it allows a much better ‘emic’ view of the early historic period. The *Hikayat Tanah Hitu* also recounts the initial settling of the island by predominantly non-Ambonese rulers who eventually came to rule Leihitu in Amboina beginning as early as the 14th-15th centuries.

Antonio Pigafetta’s account of Magellan’s voyage as well as Pigafetta’s personal experiences in Maluku and elsewhere are of significant value (Nowell 1962). In particular, the word lists are an important tool for linguists and historical ecologists.

Regarding ethnographic data, discussions of various formal rituals have been largely ignored (e.g., marriage rituals and rights of passage in particular) as well as research on dualistic or binary opposition symbolism. These are important subjects, but have been covered in detail elsewhere and

would require too much ink than allowed to adequately discuss here. Additionally, the stance here is more materialistic and thus the interpretation of the formation, evolution and re-creation of rituals, symbolism and belief systems are viewed as the result of solutions to more practical problems. It is recognized that the symbolic and ‘ideal’ often shapes the individual and cultural behavior. But the ‘materialist’ position is likely true for many cases regarding the initial institutionalization of many of these practices and beliefs, and especially dealing with longer time scales that archaeologists and many historians face regarding cultural evolution.

The following contains different opinions concerning various aspects of Malukan society that have not been expressed in other publications. For example, the nature of power, authority and influence is related to achievement and mutual goals rather than based on inherited entitlement, the title as a means of legitimizing power, and absolute authority despite the fact that certain seemingly powerful titles may be inherited or are perceived to be hereditary (e.g., the title Kapitan Hitu is said to have been the sole property of Jamilu’s descendants and most titles seemed to be inherited by the eldest males (Manusama 1977; Miksic n.d.)). Like Wolters (1967) individuals as “[people] of prowess” achieve power rather than titles imbuing individuals with power. The primogeniture of certain titles may be true in many cases, however, one must also remember that recruitment of potential title enforcers or rearrangement of the ‘age’ or ‘kin closeness’ of capable enforcers may have been much different in practice than theory. Also, adoption (sometimes at very old ages) and name changes are common in Maluku.

Thus, titles did not necessarily have to be inherited by true blood relatives, and more likely with mid to lower level title holders. Rather, capable persons may have inherited the title followed by a subsequent name/kin change.

Most researchers agree that what the rule is and what actually happens are often two different phenomena. The point here, is that in many parts of Maluku, what the rule is compared to the fact that what actually happens seldom accords with the rule, seems to be the common rule discernable. A well seasoned Malukan research colleague has agreed that if you could place various Malukan societies on a ‘scale of flexibility and deviation from the rules’ Malukans would certainly deviate far from most other societies. That is, Malukans deviate towards the extremely flexible end of the continuum. If one could index variability for an ethnic group (a coefficient of variability for instance), Malukans would likely

top the scale. This is not surprising given that Maluku is a modern, historic and very ancient crossroads of many societies, environments, etc. But where does this variability and deviation come from?

In essence, however, Malukan society and politics may have been much more Melanesian and/or Papuan-like than Southeast Asian. However, the western Southeast Asian and Austronesian systems have been influential as well. Kin relations, formal and informal friendships and other factors of social cohesion, power/authority/influence, etc. come into play much more strongly. As best as it can be described in practice is that of a very hybrid and strongly negotiable system.

One fact is definitely certain: Malukan life, history and evolution seems to fit none of the standard models applied to neighboring regions or similar kinds of societies. Models, methodologies and interpretations need to be constantly reinvented in order to better understand Maluku, past and present. It is unfortunate that many descriptions have been hammered into non-applicable models that create more of an illusion of what anthropologists want Maluku to be rather than what it is.

The Physical Environment and Human Factors Affecting the Physical Environment

Maluku, located in Eastern Indonesia, is predominantly equatorial and composed of almost 1000 islands (Figure 2a and 2b; Photos 1 and 2). The islands are mountainous and range in geologic composition from uplifted ocean floor to continental fragments and include several extinct, dormant and active volcanoes. The general geologic history is one of relative instability and constant change compared to the Southeast Asian mainland and Borneo (Walker 1982).

Photo 1: Malukan Islands: Mountainous and Forested.

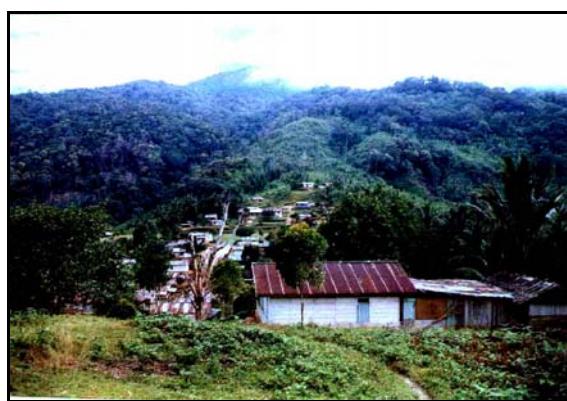


Photo 2: Malukan Islands: Numerous, Mountainous, Large and Small.



New Guinea and Australia make up Sahul, the continental land mass torn from the ancient southern super continent, Gondwanaland. Sahul has witnessed a rather rapid northern migration but long term isolation over the last tens of millions of years, hence the evolution of unique flora and fauna (e.g., marsupials).

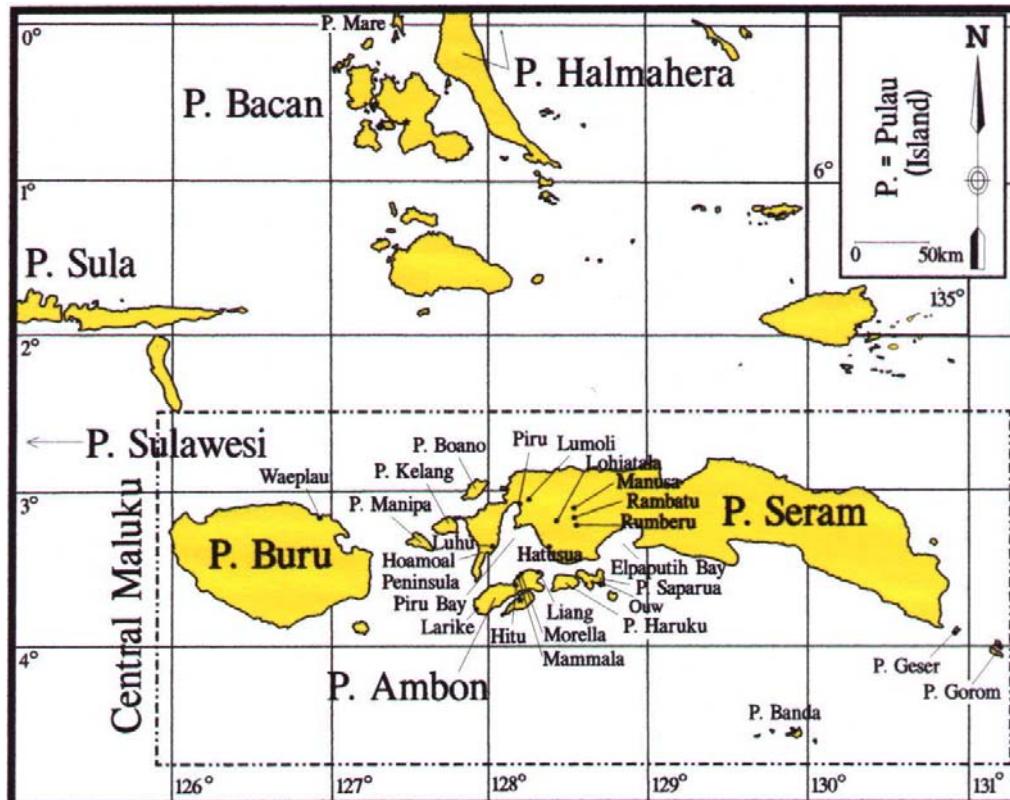
Sahul has subsequently collided into the Asian continental plate creating the double volcanic and uplifted Sunda-Banda arc which is bent northwards and back in a curled fashion as seen from Timor to Buru. The complex geologic processes have also twisted (or combined) the rather bizarrely shaped Halmahera and Sulawesi Islands into their unique ‘orchid’-like shapes. Wallacea and the Central Lydekker regions are thus composed of a wide variety of geologic formations with interesting and very

Figure 2a: Bowen 1714 Map of Wallacea and New Guinea.



complex geologic histories (see Audley-Charles 1993, 1991, 1981; Ollier 1985; Verstappen 1975; Whitmore 1981). The long term isolation of Sahul and subsequent collision into Sunda has had interesting consequences regarding the biodiversity (Walker 1982), in turn affecting human adaptation to the environments (Latinis 2000).

Figure 2b: Study Area in Central Maluku.



Buru, Halmahera and Seram are among the largest islands in the region ($7,814 \text{ km}^2$, $20,000 \text{ km}^2$, $17,429 \text{ km}^2$ respectively) and have mountain ranges that exceed 2000-3000 meters in height (Photos 3 and 4). Other islands range considerably in size. Some are little more than flat sand bars and coral reefs, sometimes submerged at high tide (Photo 5). Although a total of almost one thousand islands suggests ample terrestrial space, Maluku is more water than land. The land area is approximately $78,000 \text{ km}^2$ while $776,500 \text{ km}^2$ is sea. Coral reefs are numerous and the seas are exceptionally deep, except east of Aru due to the continental landmass of Sahul on which Aru sits.

Limestone outcrops are present on most islands and reach extremely high altitudes on some of the large islands. Limestone cave systems are located almost everywhere. Due to the mid-Holocene rise in sea level, there are wave cut cave systems which are located further inland, although presently distant from the coast (i.e., a one or more meter high mean sea level existed during the mid-Holocene which has subsequently fallen to its present position). Uplift and subduction have also resulted in a few terrace-like formations as well as increasing overall geologic complexity.

Photo 3: Buru



Photo 4: Seram Mountains.



Photo 5: Geser.

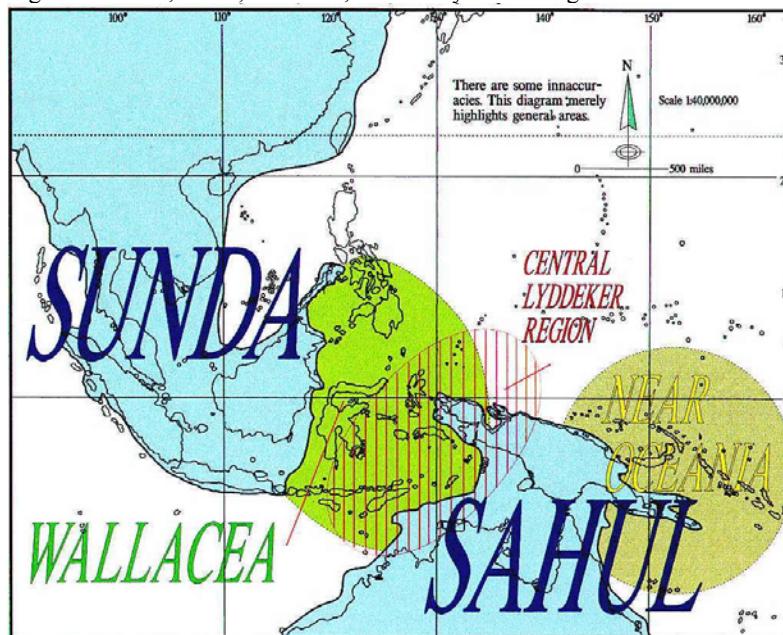


Unfortunately, there is almost nothing known about Malukan uplift and subduction from the localized geologic standpoint. Very few intensive local studies have been carried out. Nevertheless, these processes have affected human settlement as well as the ability to locate archaeological sites. Soils are fairly well developed on most islands excluding perhaps the younger volcanic islands, although volcanic soils are extremely rich in plant nutrients and, with adequate moisture, quickly support dense vegetation. Most Malukan soils support dense vegetation and yield adequate clays suitable for ceramic production, an important factor for ceramic discussions below.

Most of the islands have been separated from the Pleistocene continental land masses of Sunda and Sahul (Figure 3) by deep sea channels during the Pleistocene and Holocene geologic periods. This resulted in no land bridges from Sunda to Sahul during the last ice age when sea levels were as much as 100-150 meters lower than present. Maluku and much of Wallacea was a mosaic of islands much as it

is today. This has precluded natural migration of many plant and animal species from either Sunda or Sahul.

Figure 3: Sunda, Sahul, Wallacea, Central Lyddeker Region and Near Oceania.



Nevertheless, past Maluku likely had floral, insect, lizard, amphibian and avian populations that were more related to Sahul than Sunda with the exception of species that could easily overcome moderate to long distance water barriers; generally strand, marine, estuarine species and sea-bird species. Few mammals made it to Maluku prior to intentional or unintentional human translocation. The notable exceptions consist mainly of bats and perhaps some species such as stegadonts and *Sus* species, although the archaeological/paleontological evidence for the latter two have not been recovered (see Allen 1991; Flannery 1995 and Flannery and White 1991 for further details). Ironically, the genera and species diversity of marine life in Malukan waters is among the highest in the world and Maluku is renowned for its rich fisheries potential.¹

The Aru Island group is quite different as the islands rest on the ancient continental land mass of Sahul. A large portion of Sahul was subsequently flooded during the post-Pleistocene rise in sea level which separated New Guinea from Australia. Thus, Aru was part of the New Guinea-Australian land mass during the Pleistocene. The flora and fauna are somewhat different than those found in the other Malukan Islands and the geology and topography are unique as well.

O'Connor et al. (1998) have confirmed Pleistocene human occupation in Aru and a diverse mammalian faunal assemblage that is similar to what is found in neighboring parts of New Guinea and

Australia. The assemblage is particularly rich in Phalangers and other marsupials related to kangaroos and wallabies. During the late prehistoric and protohistoric periods the Aru Islands played an important role in trade and supplied commodities such as Birds of Paradise (skins and feathers), pearl shell, turtle shell and other marine products.

The weather in Maluku follows a tropical monsoon pattern, although Central Maluku is truly equatorial and is comparatively wet year round with less seasonal distinction than the non-equatorial tropics. However, the monsoon pattern is the reverse of what western Island Southeast Asia and mainland Southeast Asia experience.

During the winter months the sun heats areas over Australia creating a vacuum. Water laden air enters Maluku causing increased rainfall. Rain is enhanced by orographic processes which cool air and causes additional rainfall as the air is forced to rise over the large mountain ranges. During the summer months when the sun creates a vacuum in the northern hemisphere the airflow from the dry Australian continent contains little moisture for Maluku. Maluku is secondarily but significantly affected by the El Nino Southern Oscillation patterns (ENSO) which either leave Maluku in occasional drought-like circumstances or give Maluku significantly greater amounts of rainfall. The effects of ENSO on Maluku has received almost no attention compared to western Southeast Asia and the Pacific. ENSO may also relate to occasional mast-fruiting among some Malukan plant communities as well. Central Maluku is fairly wet and lush in vegetation compared to the southeastern islands in Indonesia such as Flores, Timor and parts of Maluku Tengara. Of importance, Dewar (2003) highlights a diachronic rainfall isoline moving east west in Southeast Asia and the Pacific. This means that Eastern Indonesia and Near Oceania are highly variable over time, important for environmental instability discussion and subsistence below, but Central Maluku is not necessarily prone to sever droughts.

The rather consistent and predictable general monsoon pattern, however, gives rise to rather predictable and consistent wind and sea current patterns. This phenomenon has been advantageously exploited by humans during the last two millennia, permitting sailing vessels from the western Southeast Asian entrepots and elsewhere to visit Maluku each year for several months (presumably for trade), returning when the monsoon winds shifted.² On the other hand, because foreign vessels from places like India, China and elsewhere returned on the same monsoon winds, the location of Maluku (the source of highly valued spices and other desired commodities) likely remained a mystery to all but

a few interested trade groups in the Indo-Malay archipelago, the Philippines and New Guinea until the Portuguese era.

The seas in Maluku are not particularly rough, although there are certainly treacherous areas and dangerous times due to tectonic and volcanic activity, weather patterns and storms, water currents and geologic formations. For instance, Hatusua, one of the villages in the study area, was completely destroyed by a *tsunami* in 1898. Also, there have been numerous reports of ship sinkings due to weather, reefs, rocks and high seas. *Tsunami*, volcanic activity, etc. could have affected past settlement. Nevertheless, compared to parts of the Pacific and Atlantic Oceans, especially those located in the hurricane or typhoon belts, Malukan seas do appear relatively calm in general. It should be noted that it is also unusual to be completely out of sight of land or signs of land while traveling the Malukan waters. On the other hand, Malukan seas could be considered more dangerous compared to the waters surrounding islands enclosed within the Sunda shelf (read Wallace's descriptions of the waters at Lombok for instance).

Although there is a 'general' monsoon pattern, it needs to be emphasized that Central and Northern Maluku are characterized as ever-wet and 'almost' ever-wet forests in most areas. Thus, seasonality is less obvious. Southern and southeastern Malukan islands have a more distinct dry season, though. Additionally, the large mountain ranges in many of the Malukan Islands produce rain shadows or 'leeward'-like effects in some areas resulting in relatively arid circumstances (e.g., the north lowland coast of Buru). Finally, local variations in topography, etc. cause significant variations from one side of an island to the other, one valley to the next, etc. This is especially evident in Seram and Buru. Table 1 below highlights the annual difference in rainfall from three locations in Seram. Note the almost opposite patterns between northern and southern Seram. According to Ellen's (1978:213) statistics, the number of rain days per month averaged between 12 and 25.

Table 1:Average Monthly Rainfall (mm) in Select Locations in Seram.

Location	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Wahai, N. Seram	300	445	307	200	142	101	105	79	85	102	102	211
Amahai, S. Seram	112	101	146	198	309	380	456	432	247	152	110	107
Ruhuwa	133	110	144	220	377	411	469	392	222	146	104	104

Data from Ellen (1978:213-214).

Data from Wahai and Amahai from 1922 (collected over 25 years).

Data from Ruhuwa recorded from 1970-1971.

Temperatures are typical of equatorial humid tropics, with only slight yearly variation (generally ranging between 23-27 degrees centigrade for lowland and coastal areas). Cleared coastal

areas are generally hotter, while sub-canopy areas are naturally several degrees cooler. Temperature decreases with altitude, and the mornings in Mountain villages such as Manusa at 2200 ft asl (feet above sea level) are quite cool.

Vegetation in Maluku is primarily composed of tropical monsoon and tropical rain forests (Photos 6 and 7). The forests are diverse and contain many local endemic species, although the total diversity is less than that found in Borneo or New Guinea. However, genera and species diversity in small plots may be higher than identical sample sizes in New Guinea, Borneo and mainland tropical Southeast Asia despite the latter areas having more total species and genera at the regional level. For example, any given ten hectare plot in Maluku may have more genera and species represented than an equal sample in Borneo and New Guinea, although the total in large samples of several hundred thousand hectares may be less.³

Mixed forests are common and monospecific stands are rare except for nipa, sago and mangrove swamps (Photos 8 and 9), generally the coastal, lowland swamp and estuarine environments. The highly mixed forest is partly due to Maluku's geologic and topographic variability. However, it is undoubtedly partly a result of human interaction with their environment and manipulation of the forest ecosystems over the last 40,000 years.

Strand and mangrove forests are common along the coasts and are generically similar throughout equatorial Southeast Asia, New Guinea and Near Oceania. Some riparian forests exist in the larger islands, such as Seram, but most rivers are generally short, small and rather fast. The large rivers are only navigable by canoes, rafts or very small boats for limited distances. Thus, the Seram and Halmaheran riparian environments differ significantly from riparian communities along larger slow-moving meandering rivers characteristic of certain places in New Guinea, Sumatra, Java, Borneo, mainland Southeast Asia or other areas.

Smaller more densely populated islands such as Ambon have significantly greater amounts of grassland (*Imperata* spp.), secondary growth and scrub (Photos 10 and 11; Video Clip 4). Presumably, this is due to more intensive land clearance practices, and the different and more intensive agricultural/horticultural land use (also tree clearance for fuel acquisition needed for domestic and industrial purposes). It is hypothesized that this process began in the late prehistoric and early protohistoric periods perhaps related to initial Austronesian in-migration, the development of pottery production, population growth, and, perhaps more significantly, the age of increasing extra-local

Photo 6: Forest in Sawai.

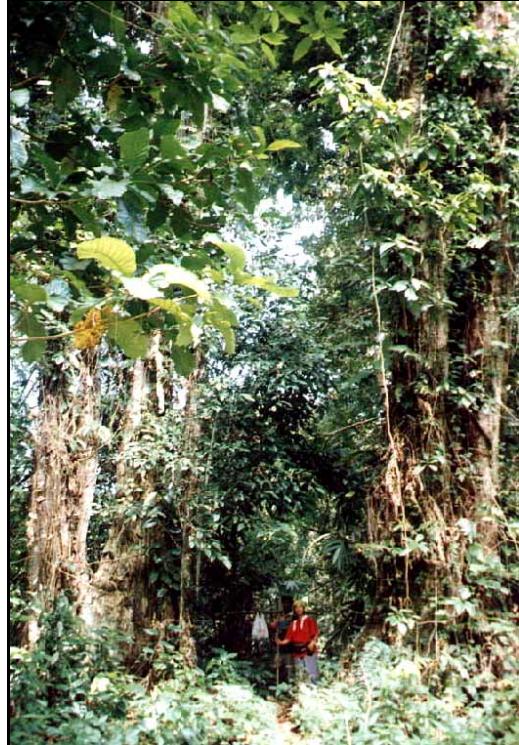
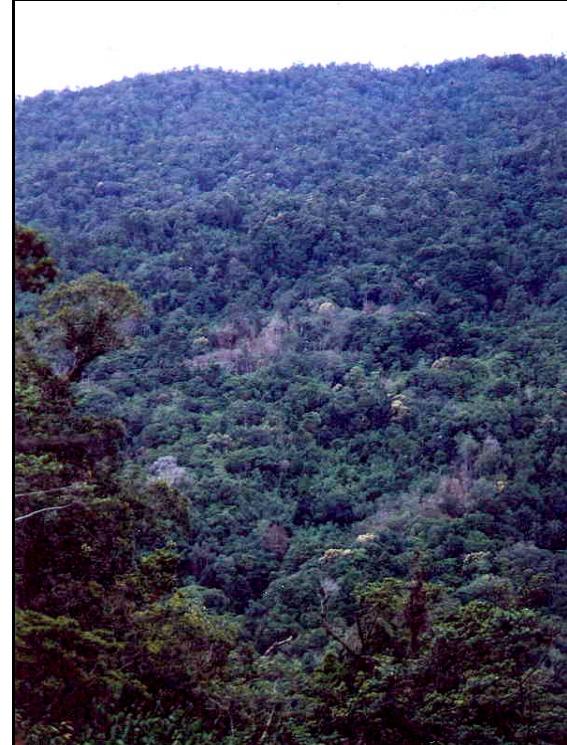


Photo 7: Forest in Manusa.



commerce and spice trade (possibly pushing increased immigration, population increase, production increase and more intensive land use in certain locales).

That is, the protohistoric period likely resulted in significant increased population densities on some smaller islands and some locations on larger islands due to both local and extra-local immigration as these places eventually became more important trade nodes. Thus, the level of increased density during the protohistoric period is unknown as well as the reasons for population increase or suppression (increased fertility/survival or increased immigration, the latter which is more likely before the advent of modern medicines). It is possible that Maluku may indeed have been more densely populated in the past than current populations or other western Indonesian areas in the protohistoric period, but it is presently difficult to determine.

The prehistoric and protohistoric periods also may have witnessed the introduction of different food production systems, with perhaps less environmentally conservative management strategies; beginning with the initial Austronesian settlement and increasing with the presence of other groups such

Photo 8: Sago Forest in North Seram.

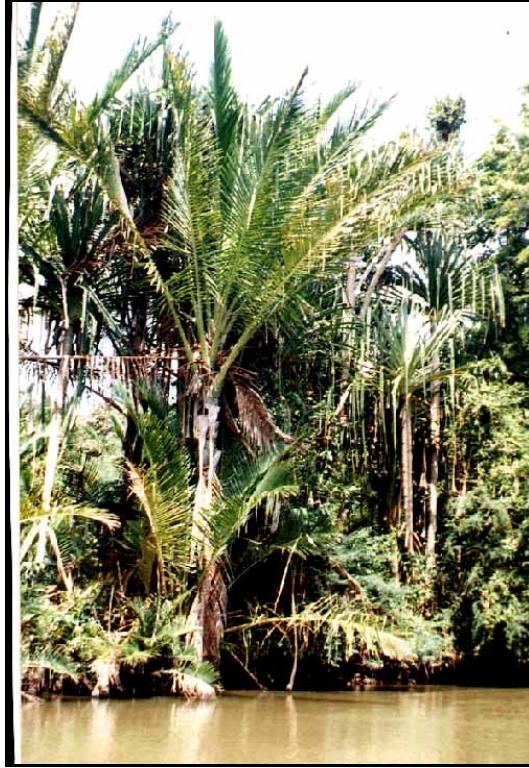


Photo 9: Nipa Forest in North Seram.



Photo 10: Scrub, etc. in Ambon.



Photo 11: Scrub, etc in Ambon.



as the Malays, Butonese, Bugis, Makassarese and Javanese. These groups have quite different agricultural practices than what are witnessed in traditional Malukan food production strategies. The non-local systems subsequently may lead to faster and more pronounced environmental degradation in Maluku. Additionally, wood fuel consumption likely dramatically increased, reducing the amount of secondary and primary forests. Finally, the introduction of a variety of mammals such as deer, goat, sheep, cattle and pig, likely affected vegetation and may have contributed to the pattern of increased grassland, scrub and secondary forest.

Larger islands in Maluku are less densely populated, although this does not mean that larger islands do not have large populations (currently population density is comparatively low in Maluku, particularly in comparison to places like Bali and Java). For Central Maluku, coastal areas are frequently more heavily populated. There is a fair amount of inland settlement, however, with the exception of eastern Seram and parts of Buru in which most villages are coastally oriented. This pattern could be due to topography and environment (i.e., unfavorable habitats), but historic factors also need consideration such as the various programs to relocate inland villages to the coast for easier census and control during the colonial era, and perhaps an increasing local desire to be more involved with trade and exchange by moving to coastal locales. Prior to the late protohistoric period and colonial period, inland settlement seems to have been more prevalent. Currently, coastal villages frequently have larger populations, especially along important trade nodes.

Most villages rarely exceed 2000-3000 persons. Ambon contains some villages with larger populations, but this is likely a relatively modern phenomenon. The typical village populations usually range from a few hundred to one thousand or slightly more. Again, interior villages are generally less populated than coastal. It is also doubtful that even the largest of past settlements exceeded 2000 persons. Galvao (in Jacobs 1970:105), mentions that the presumably largest settlement in Ternate, “...does not reach two thousand; which does not mean that the country is less populated than is recounted of that other one...” The latter part of this citation accords with the earlier speculation that the islands were fairly well populated, although individual villages were not particularly large. Ternate at that time was the seat of the considerably powerful and wealthy sultan who is said to have access to thousands of able fighting men and commanded a sizeable navy. One would assume that based on descriptions of his wealth, power, court, charisma, and military command that the settlement should have been much larger than the settlement described by Galvao, which is about the size of a moderately above average coastal village in the area today.

Interestingly, some ‘part-time’ villages may have only been populated during trade seasons. Such places would have been comparatively densely populated during the high season when thousands of locals and non-locals may have filled these settlements. The same settlements would be all but totally abandoned during the off season. This was witnessed and described by the famous naturalist, A. R. Wallace, while he resided in Dobo in the Aru Islands (Figure 4). The following excerpts describe the difference in high and low trade seasons.

As we had arrived [in Dobbo] early in the season, most of the houses were empty, and the place looked desolate in the extreme—the whole of the inhabitants who received us on our landing amounting to about half a dozen Bugis and Chinese [8 January 1857] (Wallace 1989:327).

Dobbo was full to overflowing... Dobbo now presented an animated appearance. Five or six new houses had been added to the street... Piles of firewood were being heaped up behind the houses; sailmakers and carpenters were busy at work; mother of pearl shell was being tied up in bundles; and the black and ugly smoked tripang was having a last exposure to the sun before loading. The spare portion of the crews were employed cutting and squaring timber, and boats from Ceram and Goram were constantly unloading their cargoes of sago-cake for the traders' homeward voyage [May 1857] (Wallace 1989:361).

Figure 4: Wallace's Sketch of Dobbo.



It remains unknown how dramatically these types of settlements may have impacted the physical environment or what their archaeological signatures are.

Coastal villages are generally larger, more sessile and more sedentary, but the inhabitants often have a smaller total resource environment. The immediate areas surrounding these villages are not necessarily intensively gardened and degraded, but often more so than inland settlements. Incidentally, coastal villages are more frequently Muslim and have more goats and cattle, which may be a factor for ecological/environmental differences. Most interior villages on the larger islands such as Seram, Buru and Halmahera are Christian or animistic and only recently began to adopt cattle husbandry. Generally, there are no other animal husbandry practices (most non-Muslim Malukans prefer wild meat above

domesticated) other than keeping free roaming chickens mostly for eggs, formal occasions, and sale to the transmigrants. There are also the occasional phalangers kept as pets. The presence of larger numbers of wild pig and deer in these areas may affect vegetation as well. On the other hand, wild and feral pig and deer are frequently hunted and trapped which may help control the species' population sizes and subsequent negative impacts to the environment.

Currently (and historically) coastal Muslim villages are more actively involved in trade and commerce with both non-local 'outsiders' and local 'insiders' playing an intermediary role in many cases. Some traders often repeat trade circuits stopping at coastal villages throughout the islands, trading on a village to village and patron-client basis. In fact, this is how much of the spices and other commodities eventually move to more prominent centers such as Ambon where they are bought, sorted, packaged and sold by larger dealers.

Leihitu villages such as Mamala and Morela are excellent examples in which this sort of trade was witnessed during fieldwork. I had the opportunity to document the full process of nutmeg and clove harvesting, processing, transport, resale, drying, shipment to Ambon and export while working in Ambon during 1998 and 1997. Others trade direct to prominent centers or with traditional trading partners. Although trade is important for many of these settlements, the mainstay of life is still based on horticulture, arboriculture and animal husbandry.

Incidentally, there are many Bugis and other Sulawesian trade vessels that often 'hop' village to village or trade settlement to trade settlement to sell and buy various commodities. In 1993 while surveying the north coast of Buru, I managed to witness a Bugis crew from Makassar repairing their *pinisi* (a South Sulawesian sailing vessel common throughout Southeast Asia). They were remaking a mast as the main mast had snapped in high winds. They described their trading circuit and claimed that it had been established well before any of the crew members had worked for the ship. They stated that other ships often have different circuits.

Various Malukan and Irian Jayan trade vessels run various circuits as well. Established trading partners from groups in Maluku, Sulawesi and Irian Jaya/Papua New Guinea had been well-developed by proto-historic times. As recounted by Galvao (Jacobs 1970:313-317) while describing Fernando de Grijalva's fateful voyage to Maluku in the early 16th century, people from the port of Sawai (north Seram) frequently traded with Papuans, especially groups from Versai (Biak). Galvao notes that one

group of the crew was ‘rescued’ from somewhere in north Seram by a group Papuans from somewhere around Biak who had come to Seram to trade.

Of those who had remained behind ill, three went inland as best they could until they found people who took the few garments they wore form them and left them naked. And [the natives] made them come with them to the place where the ship had gone aground—because they were not natives of that island but had come from the island of Versai [Biak] in order to barter *fisas*—and they stayed there for a month and a half. And they returned to their country, providing for and treating them as well as they did for themselves Jacobs 1970:317).

It is impossible to imagine that protohistoric Maluku was not involved in various webs of established trade relations among coastal groups from other islands and regions, and among other local groups both inland and coastal (see Ellen 2003). It is hard to imagine that many of the trading activities were not accompanied with rituals, feasting, etc., a topic that will become more important with archaeological analysis below. It is also likely that marital exchanges took place, although in some cases this may have been forbidden as described below regarding certain *pela* alliances in Maluku in which member of allied villages are forbidden to intermarry.

Many coastal villages (Muslim and Christian) have frequently ‘recruited’ or ‘tolerated’ outside emigrants, especially from Sulawesi such as the Butonese. Non-Malukan groups have rarely or never emigrated to inland settlements on larger islands, however, and they settle fairly close to the coast. Because Malukans traditionally do not view land as ownable real estate, Malukans generally tolerate and often helpfully accommodate small emigrant gardening and fishing communities. They often willingly share their total resource environment, often for low rent costs, percentages of the surplus and sometimes for nothing in return. Occasional disputes occur, but these more often relate to social infringements rather than land, environment or resource issues. It is clearly evident that the Butonese engage in more intensive clearing, burning and gardening than the Malukans, and this practice generally results in less trees and more secondary growth and scrub surrounding settlements. Occasionally this increases erosion which subsequently affects water systems and soil fertility. Sometimes conflicts emerge (a few cases occurred during fieldwork, but, according to locals was not common in the past).

Javanese transmigrant communities have impacted the environment the most visibly (perhaps second to large logging operations). Forest areas have been totally cleared, small dams have been made for irrigation, and numerous rice paddies constructed. This effectively transforms diverse forest into monospecific marshland. This has created a wide variety of problems as land fertility and productivity has decreased and the use of insecticides and fertilizers has increased. Additionally, during the research

seasons, plans were made to increase the amount of cleared land and dams to increase production. This will likely result in further long-term degradation rather than a solution to the problem.

Regarding soil erosion and degradation, the topic of roads should be mentioned. Coastal roads exist in some areas on the larger islands and most areas along important small islands such as Ambon. Roads are often in a state of disrepair and these are generally locations of severe erosion. Very few inland roads exist. Communication and transport along coastal areas is largely by boat or land vehicle, but mainly by foot in interior areas. Pack animals (other than humans) are not used. Nothing more than footpaths likely existed in the protohistoric period. Water transport/shipment and communication was and remains commonplace.

Returning to forest issues, larger islands tend to have more and larger mature forest tracts. Forests are often mixed. Multi-cropping and diversity maintenance are part of traditional agroforestry and environmental management strategies. Dominant species may differ greatly from one valley or mountain to the next and from one settlement's resource environment to the next. This pattern may be a result of communities' past forest commodity specialization rather than environmental factors; each settlement's 'special' commodity often differing from their neighbor's.

For example, when crossing a stream which informally divides the resource environments of Rambatu and Rumberu with that of Manusa in the western Seram uplands, one literally walks from a *Agathis* dominant forest to one in which *Durio*, *Canarium* and *Salacca* palms dominate a seemingly mature forest. This is because generations of the former villages have long produced *damar* as a trade commodity while the residents of Manusa rely on fruit and nut products (although Manusa probably was not a major player in trade as they are one of the furthest inland groups; thus their forests are not as specialized and probably more evenly multi-cropped). Moreover, the forests do not differ due to environmental factors, but purely due to social factors related to tradition, economics and subsistence.

Only a few mono-specific plantations such as rubber, coconut and cocoa exist in Central Maluku. Some of the Banda Islands, however, were historically converted to Dutch *perkenier* plantation systems in order to intensively cultivate nutmeg (Loth 1995). The nutmeg plantations on Banda also have numerous *kenari* trees (*Canarium indicum*—the traditional shade tree used for nutmeg cultivation). Plantation cropping of highly ordered groves with few species is not and was not a traditional Malukan practice.

Deforestation has increased in the last few decades due to logging and other activities, significantly reducing the amount of mature forest. This is clearly evident after reviewing aerial photographs taken during the post World War II period (a large collection is housed in the Map Collection at Hamilton Library, University of Hawaii) and comparing them to modern observations, photos and satellite images. The pattern of deforestation on smaller islands noted above is also evident through the same analyses. Alarmingly, the level of deforestation in the last 25 years is unparalleled to that of the preceding 40,000 years or so of human occupation.

One final note regarding spices should be mentioned here. Nutmeg (particularly domesticated nutmeg) is said to be exclusively indigenous to the Banda Islands while domesticated clove is said to be exclusively indigenous to a few Northern Malukan Islands (the original islands of Maluku). Both propositions are likely untrue. The ‘wild’ varieties of both plants were probably more widespread throughout Wallacea and New Guinea and no archaeological evidence related to pinpointing such a specific area of domestication is available. The smaller areas or islands which came to be associated with the ‘only’ islands that produced the spices were likely protohistoric trade areas where large quantities of the spices were collected and stored for trade.

Most Malukans probably did not extensively utilize either spice (other than additions to local medicines, condiments and occasional snacks). Production was never at the monospecific plantation scale until the Dutch period. Additionally, at least regarding nutmeg, past markets likely demanded several varieties as they do today. Dealers in Ambon claim that there is a high demand for both the long nutmeg and round nutmeg varieties with no historic distinction of which is “better” other than claims made by the buyers.

There is little evidence pointing to if, who or what and when and exactly where the spices were domesticated. Selection pressures by animals certainly can affect the evolution of a plant which then may also result in a variety favorable to humans as well. The history and validity of the domestic/wild dichotomy remains unsolved.

The People

There are roughly 1.5-2.0 million Malukans (some of which live in foreign countries—a sizeable community lives in the Netherlands). As mentioned above, population density is comparatively low. Outside of Ambon (288 people per km²), Banda (264 per km²), Saparua (280 per km²), Kai Kecil

(153 per km²), Ternate (126 per km²) and Tidore (298 per km²) Islands, population density in Maluku is one of the lowest in Indonesia. Seram averages 20 persons per km². Maluku as a whole averages 25 per km². Although this is not as low as Irian Jaya's four people per km², it is half of East Timor's 50 people per km² and far less dense than Lombok in West Nusa Tenggara, which averages 462 persons per km², and especially Bali and Java whose averages are significantly higher than Lombok's. Average growth in Maluku was 2.78% from 1980-1990. Several transmigration communities (mostly Javanese) exist throughout Maluku as well. However, due to the ethnic and religious crises in the last few years, demographic factors have dramatically changed, although the nature and extent is not yet known. It is known that mass out-migrations have occurred, refugee camps now exist in many places, settlement shifts have occurred, entire villages have been destroyed and it is more than likely that the fertility rate has dropped significantly.

It is almost impossible to estimate pre-colonial population. Warfare, disease and forced immigration significantly reduced the population during the colonial period. For instance, the Portuguese sources note several severe epidemics. Also the Dutch dramatically devastated several areas during their early occupation. It is reasonable to estimate a population consisting of several hundreds of thousands of people throughout the entire Malukan region prior to the colonial era, with a fairly low population density (although higher in important trade centers). The powerful Northern Malukan Sultans in the early colonial period had access to perhaps tens of thousands of fighting men, with the largest contingent from Seram. Thus, assuming that each fighting man was attached to a larger family, an estimate of several hundred thousand is not unwarranted. Additionally, it is suggested that population size remained fairly stable for perhaps hundreds and maybe thousands of years due to a possible environmental/ecological 'equilibrium' of sorts.

Unlike the more isolated New World and Oceanic regions, diseases carried by traders (local and non-local), colonials and explorers likely did not devastate the populations to the same extent, although there were epidemics that did take their toll as recounted in historic documents.

Settlements in Maluku were comparatively dispersed with few if any urban-like environments that are frequently more conducive for disease communicability, etc. However, there was the threat of 'micro-predation' (Groube 1989)—various lethal microbes such as malaria which certainly competes in the evolutionary 'arms race' with humans (i.e., the more humans develop resistance, the more malaria populations evolve to overcome the resistance).

Rural Malukans have a tendency to prefer large families (labor and love of children), although population density remains low. Why Maluku does not have a higher population density (past and present) is unknown as energy and adequate nutrients are present in quantities that could support a significantly larger and denser population due to their arboreal-based food production economy (sago being an important and rather ubiquitous starch resource) coupled with numerous marine resources. The low population density may relate to micro-predation in the form of malaria and other tropical diseases (Groube 1995), but could also relate to other forms of stress related to fertility reduction, social factors, warfare and other demographic factors such as out-migration or a tendency towards dispersion. Currently, family planning implemented in the last few decades tends to result in younger couples having fewer children as well.

Alternatively, even in agriculturally based rice growing regions such as Java (which many would assume could handle higher population densities), ancient population density was not exceptionally high compared to modern estimates. Either the physical environment (such as Groube's micro-predation, but not a lack of calories and nutrients) or social practices possibly prevented significant population increase.

Phenotypically, Malukans appear more like Melanesians and Papuans rather than Austronesian or Asiatic groups. Typically, many Malukans are short in stature, dark skinned, have kinky, curly or wavy black hair, and heavy or robust muscularity (perhaps more related to daily workload and conditioning, as an average Malukan probably burns 3000-3500 calories per day (Ellen 1978)). The phenotypic variation in Maluku is nonetheless extreme. Straight hair, light skin, tall stature, etc. are also common. It is clearly evident (and corroborated by numerous historic and ethnographic documents) that Maluku has been an area of genetic inter-mixing between various Austronesian and non-Austronesian groups for a very long time (prehistorically, protohistorically and historically). However, I know of no significant genetic studies that have been conducted on the current population with perhaps the exception of Oppenheimer's work (1998, which is based more on several larger regions in the Asia-Pacific realm rather than Maluku-specific).

Physically, Malukans are robust, skillful and dexterous. This appears to describe the past scenario as well and is supported through historic documentation. For instance, Galvao (in Jacobs 1970:71) claims that, "they are strong... runners, jumpers, manual laborers, divers, and great swimmers; they are so skillful in all this that they could be called birds on land and fishes in the sea."

As Maluku seems to be an area of exceptional diversity, the number of ‘cultural personalities’, typical physical and behavioral traits as well as ideal types (heroes, heroines, anti-heroes, archetypes, role models, etc.) seems to follow this exceptional diversity. The following excerpt from Wallace intimates the complexity of Maluku. In this chapter, Wallace has attempted to divide the “races” into two types, Papuan and Malay, both of which reside in Maluku. Wallace continues (perhaps unknowingly in defiance of his two race classification) to make new categories while describing residents of islands in and around Maluku.

It appears, therefore, that, whether we consider their physical conformation, their moral characteristics, or their intellectual capacities, the Malay and Papuan races offer remarkable differences and striking contrasts. The Malay is of short stature, brown-skinned, straight-haired, beardless, and smooth-bodied. The Papuan is taller, is black-skinned, frizzily-haired, bearded, and hairy-bodied. The former is broad-faced, has a small nose, and flat eyebrows; the latter is long-faced, has a large and prominent nose, and projecting eyebrows. The Malay is bashful, cold, undemonstrative, and quiet; the Papuan is bold, impetuous, excitable, and noisy. The former is grave and seldom laughs; the latter is joyous and laughter-loving—the one conceals his emotions, the other displays them.

Having thus described in some detail the great physical, intellectual, and moral differences between the Malays and the Papuans, we have to consider the inhabitants of the numerous islands which do not agree very closely with either of these races. The islands of Obi, Batchian, and the three southern peninsulas of Gilolo, possess no true indigenous population; but the northern peninsula is inhabited by a native race, the so-called Alfuros of Sahoe and Galela. These people are quite distinct from the Malays, and almost equally so from the Papuans. They are tall and well-made, with Papuan features, and curly hair; they are bearded and hairy-limbed, but quite as light in colour as the Malays. They are an industrious and enterprising race, cultivating rice and vegetables, and indefatigable in their search after game, fish, tripang, pearls and tortoiseshell.

In the great island of Ceram there is also an indigenous race very similar to that of Northern Gilolo. Bouru seems to contain two distinct races—a shorter, round-faced people, with a Malay physiognomy, who may probably have come from Celebes by way of the Sula Islands; and a taller bearded race resembling that of Ceram.

Far south of the Moluccas lies the island of Timor, inhabited by tribes much nearer to the true Papuan than those of the Moluccas... (Wallace 1989:450-451).

This excerpt is very informative demonstrating the complexity of personalities, behaviors and physical traits in Maluku. This is no less true today than it was for Wallace in the 1850s. Sifting through early historic documents, one comes to the conclusion that it was no less diverse during the late protohistoric and early historic periods. It is hard to imagine that this complexity and diversity did not have roots in prehistoric times. It is impossible to deny that Maluku was probably an area of human inter-communication and interaction in the early to mid-Holocene and even during the Pleistocene.

Returning to the description of Malukans and their values, education is extremely important in secular, religious and cultural (*adat*) matters. Additionally, experimentation in agricultural, horticultural, hunting, fishing techniques and technology is encouraged. Malukans also prefer to travel while young in order to gain experience (*merantau*). Important persons, political and religious leaders

and the wealthy preferred traveling as early as the Portuguese period and probably well prior to the colonial era. However, the cultural desire to travel to distant locations prior to the Portuguese period is unknown and there are few if any descriptions of Malukan people outside of Maluku prior to the colonial era.

Despite a significant presence of Islam which typically emphasizes a patrilineal inheritance and patriarchal power structure, and what appears to be a pre-Islamic typical pattern of shallow patrilineages tied to real or mythical male ancestors, family life is fairly egalitarian. Women, and even children, seem to enjoy a fair amount of power, although gender roles may require different tasks that are sometimes seen from Western perspectives to be sexist. The latter is possibly erroneous. During field trips many young males and even many married males were seen washing their laundry and helping in the kitchen. Women generally control the economic side of life and important decisions usually involve family consensus, but are heavily influenced by the woman's position. Again, this appears to be the past case during early colonial contact as well. Galvao (Jacobs 1970:75) comments:

It is the women who negotiate, do business, buy and sell for twice as much movables and immovables. If they have to make a contract on buying or selling or to rescind it, all the members of the family have to give their advice and opinion; and if only one say [no], even if he is only six or seven years old, they cannot do it.

Wallace (1989:450) seems to corroborate this scenario some 300 year later when describing the Papuan race (referring also to many groups in Maluku), "Women and children take their share in every discussion, and seem little alarmed at the sight of strangers and Europeans."

As stated above, shallow flexible patrilineages are the typical kinship patterns. Patrilocal, neolocal and matrilocal post-marital residence are common. Generally, men pay a bride-price to recruit women into their family. Marriages, especially among the elite and wealthy, involve complex ceremonies and exchanges. Interestingly, a mandatory part of the exchange process involves gifts of Chinese, Thai and Vietnamese pottery dating from as early as the 12th century, but mostly from the late 13th through late 15th centuries and many from the Late Ming period. This has serious implications regarding the archaeology and many aforementioned hypotheses discussed below.

Overall, the kinship system in practice is much more cognatic or bilateral and generally very fluid and flexible. Few cases exist where rules are strictly adhered to. With modernization and both imposed and/or willing assimilation into the national culture, traditional practices, behaviors and relations relating to kinship and marriage are rapidly changing and undoubtedly changed dramatically

due to European influences in the past (Cooley 1962a). Marriage patterns maintain incest taboos and also many *pela* alliance taboos forbid intermarriage with *pela* partners.

Ancestors, as with most Austronesian societies and at least with many neighboring lowland Papuan groups, are vitally important. Patriclans generally identify themselves with common ancestors who are often real or mythical male ancestors. In many ways, the ‘animistic’ religion attributed to Malukans prior to the colonial era was likely more related to ancestor worship than the worship of natural objects. That is, a place or object was probably associated with spirits (or the spiritual realm) and powers of the ancestors. The places or objects were thus feared or revered, rather than that particular place or object having its own powerful spirit inherent within it.

Titles are important to Malukans past and present, which clearly indicates a form of social stratification in their society. However, clans and families especially in Central Maluku are more frequently seen as equal rather than having stratified or subordinate-superior positions, except when couched in elder sibling/younger sibling or parent/child ways (though there is constant differences as to who the elder or parent is depending on which village informants come from; likely no different in the past when recorded in historic texts). This seems to have been the pre-colonial situation as indicated in the *Hikayat Tanah Hitu* (Manusama 1977; Miksic n.d.). Evidently the four founding rulers of Hitu (the four *perdana*) had equal status and power, subsequently forming a federated-like alliance.

As stated above, many of the important families are seen to be in brother-sister or older sibling-younger sibling and sometimes parent-child relations, thus, revealing that there are subordinate-superior positions and different roles, rights, and responsibilities associated with these positions. Andaya (1993) suggests that the redefining of these types of relationships vis-à-vis colonial powers and amongst themselves during the colonial era coupled with the societal desire to come full circle into the realization of these relations affected historical trends and events in Northern Maluku at a much larger scale. Incidentally, beginning with the origin myths, Andaya does in a sense do well to move beyond the ‘dualism/binary-opposition’ symbolic approach that often pervades and may bias other researches and examines broader family/social relationship factors, that may be part of the socially fractal nature of Malukan society discussed in the introduction.

As stated above, depending on which family or village that particular member comes from, “everyone is the older brother and all others are subordinate younger siblings.” Ziwar Effendi (1987:39) suggests that all *uli* were considered equal in the protohistoric period (perhaps further implying no

sibling inferior-superior relationship), that they were constantly fighting (perhaps emulating sibling rivalry) and had no sense of a unified Central Maluku in the sense of a Kingdom or political unit. Thus, at least at the inter-*uli* level, there seems to have been no superior-inferior organizational plan other than win-defeat during times of conflict (presumably ‘equaled’ by payments of some form of booty, etc.).

Although most families are seen as equal in any given Malukan village, founder families and families who are associated with prominent individuals in the past are often given higher levels of social respect, and frequently hold important positions and titles. Manusama (1977) mentions that founder families often change names which may give clues to where they came from or where they originally settled after a migration. The new name acts as a quasi-title referred to as a *teun* or *teong* in the local language, although the current meanings have undergone many changes, and like *negeri* (as will be explained below), the term *teun* can be complex with multiple and vague meanings.

Titles have changed, increased and evolved significantly from early colonial days (see Ellen 1986 for an excellent discussion on foreign titles in Central Maluku). New titles with Malay, Portuguese, Dutch and other names have been adopted since the protohistoric and colonial periods. The wide variety of non-local titles that have been adopted since protohistoric times indicates Maluku’s strong interaction with a variety of non-Malukan groups, primarily through trade and exchange, and later through religious influences and colonialism. A significant number of earlier titles undoubtedly existed, although most of the original Malukan names of these titles probably have been replaced with non-Malukan terms. Interestingly, even in modern Ambonese Malay, words as important as ‘you’ have been fully replaced by the transformed Portuguese reference to ‘you’ (‘ose’ or ‘se’ in the local tongue). There are many more examples, but what is interesting is that these terms have withstood the test of time and other influences, even resurgences or revivals of local culture and pride. They are also key terms which one would not expect to be replaced so easily. *Orang kaya* is an achieved title that seems to have been prevalent in the protohistoric and early historic periods, although this is a Malay term and the original Malukan equivalent term(s) may be lost forever.

Interestingly, titles in New Guinea never had the importance that they did in Maluku (or in other parts of the Pacific for that matter). Ellen (1986:61) comments that:

In New Guinea no respect was shown for such ranks and titles, partly because such persons lacked effective power (e.g., control of the means of production, circulation or destruction) and partly because in New Guinea power is not thought of as a disembodied quality. In contrast, Melanesian power is recognized only in its concrete manifestations, e.g., in the control of pigs, women, mastery of warfare, words, and the means of production.

Imported titles seem to have been recognized in the Moluccas for what they were intended to be, in a way which was not the case in New Guinea. The reasons appear to be the long prior period of historical contact with the Javanese, a cognitive and political culture more receptive to notions of hierarchy and inequality, and to power as concrete, homogeneous, and constant quantity, rather than something abstract, heterogeneous, limitless, and morally ambiguous, the product of achievement.

This understanding is partially true, but it may not necessarily be caused by Javanese contact and influence. Local evolution may be a factor. Further exploration into why titles became so prominent in Polynesian and other Oceanic societies may give clues to why titles may have become important in Maluku as an ‘internal evolutionary’ case rather than a ‘diffusionary’ case through non-local (e.g., Javanese, Malay, Bugis) contact and influence. One could compare and contrast the process of adopting ‘Indian’ titles in mainland Southeast Asian in the first and early second millennia AD to further compare and contrast Maluku’s case. The titles changed but these were likely adopted as cultures locally evolved in tandem with outside influences.

Some titles are achieved and some ascribed but generally the power behind a title is necessarily achieved in most cases. Appropriate individuals are usually elected by consensus of several influential persons. Some titles are rotated amongst individuals such as the ruling title among the four *perdana* in Hitu in which each held the title for a given amount of time but never indefinitely. Many titles are hereditary but are usually only valid upon proof of abilities or achievement. In cases where the heir fails to adequately execute the responsibilities associated with a title, outsiders may be ‘elected’ to take the title which is then often followed by a name change to accord with the title. In other cases, a titled individual who fails to live up to the responsibilities associated with the title may be ignored and left powerless, thus decreasing the power/importance of the title in practice, or at least until another worthy individual takes over the title (i.e., the title may be powerful only when a qualified person commands it). In other cases, the title holders may be killed.

For instance, in some villages the village headman is highly influential, powerful and respected with all traditional formalities (almost unquestionably and unchallenged), while in other villages the village headman may be the butt of all jokes and totally ignored. The difference is usually related to the capabilities of the individual. Thus, most titles commanding real authority and power are actually achieved in practice rather than ascribed, and depending on the capabilities of the individuals in question, a village secretary may actually have more influence and power than a village headman (as witnessed in at least two cases during fieldwork).

Certain families and individuals maintain certain ritual, medical and magical knowledge.

These families and/or certain individuals in the families have certain rights, responsibilities and powers associated with their rituals, medical and magical knowledge. Apprentices are often selected from the same family, but this is not a necessary criterion. Some of these positions/skills could be argued to give the bearer a non-formalized title. Magic, divination, superstition, witchcraft and sorcery are very prevalent and important in Malukan traditions and beliefs, both past and present. An interesting spell is the ‘disrespected Ternatan woman who can make a man’s penis grow out of his forehead’, which has almost as many self-proclaimed eyewitnesses as the ‘man who explodes from eating durian and drinking alcohol’ myth throughout Southeast Asia. Seram and Buru are said to be centers of sorcery, witchcraft and a home to a wide variety of supernatural beings.

The Malukan manner in which power, influence and respect are acquired and maintained (titles as well) may be more akin to the Melanesian/New Guinean ‘Big Man’ or Wolter’s ‘man of prowess’ phenomenon rather than caste-like, hereditary or rigidly ascribed systems. Not that there was no flexibility or fluidity in other places, but Maluku hardly accords with the “absolute monarchy” such as described in Lombok by Wallace (1869:133). If so, Wallace would have described the scenario in detail. It is interesting that this is where Wallace draws his east-west distinctions and that Maluku always falls into the category of similar to both yet different. Wallace may have been better off creating a third category, evident in his comments, but still forced the model of a ‘two race’ division.

Indeed, it is speculated that the early leaders and even early sultans had to win supporters through favors, alliances, mutual interests and promises of material and non-material goods, and more rather than maintaining supporters through unquestioned/unchallenged authority and power, corvee labor, debts, occasional displays of generosity, etc. Nevertheless, as hinted by Ellen above, the ‘Big Man’ phenomenon may be a problematic model as well.

As stated previously, titles do not necessarily give the bearer power. Alternatively, charisma and achievements of an individual may strengthen or weaken the importance and power of the title which that person holds. That is, the true power and authority of any title may change dramatically due to the character of each successive holder. Comparatively, the nature of titles in Maluku is far more fluid and mutable than what is seen in many Oceanic societies such as Samoa and Hawaii, or in historic and even modern areas in western Southeast Asia.⁴

When questioned if title holders are unable to fulfill their obligations, residents and informants throughout Central Maluku generally replied that they would ignore him, replace him, throw him into the ocean, or even kill him. Indeed, many past powerful title holders were frequently claimed to be poisoned (a common occurrence among court members in the Northern Malukan Sultanates). When asked about the replacement of a title holder, most people generally agreed that a person who was subsequently ‘elected’ for a title might be ‘adopted’ into the family holding that title.

Adoption is common and not restricted to young children. For example, one of my assistants was ‘given’ to or ‘adopted’ by another family at a post adolescent age (no formal paperwork). The latter family had no children. The former family cared for the elder male of the latter family. Upon the death of the elder male my assistant inherited all the rights and responsibilities of the latter family, including such things as traditional medicine making, land and resources, the family name, etc. Had the deceased been a title holder, my assistant would have inherited the title as well. Indeed, he necessarily inherited the informal title of being the family’s land/resource manager (not to be confused with the *tuan tanah*, the village land/resource manager).

Military/combat skills, physical prowess, wealth, wisdom, ritual and magical knowledge, hard work, food production, fertility, public speaking skills, ability to seek consensus, patience, and some level of equality (and later, the acquisition of religious purity and energy, and resistance to foreign oppressors) seem to be traits attributed to good leaders and title holders (i.e., heroes and archetypal figures—both men and women, although few women appear to have held titles⁵). Many of these are typical of most societies, although meditation, an important quality in western Island Southeast Asia and Mainland Southeast Asia, seems to have played little importance among the Malukans, most likely due to the fact that Hinduism and Buddhism never played a prominent role in the eastern islands.

Alternatively, one cannot be quick to assume a complete unimportance of meditation as *alkissah* IV in the *Hikayat Tanah Hitu* (Manusama 1977; Meksic n.d.) relates that one of the founding leaders of Hitu from Goram “remained silent in the forest [looking for a place to live]” until he was discovered and invited to resettle in Hitu. Perhaps forest meditations (or solitude) were considered practices/qualities needed to overcome problems. Nevertheless, as with many Austronesian (and generally Asian) groups, desire for solitude is not a normal cultural trait and often indicates physical or mental problems or disorders. Patience when considering important matters, however, is a desirable trait.

Ideas of dualism and binary opposition are prevalent in Malukan society, ritual and belief. This is typical of all societies. Nevertheless, the *siwa-lima* distinction (groups of the ‘9’ and groups of the ‘5’ respectively) is important in the sense that most social groups in the region identify themselves with one or the other and this may have important implications regarding alliance and marriage formation and/or traditional trading partner relations. *Siwa* and *lima* distinctions are manifest in rituals, exchange relations, marriage taboos, penalties, punishments, fines, number of exchange items, etc. in Maluku. It pervades many aspects of society beyond mere social identity.

Few Malukans are excluded from one or the other group. The Ambon-Lease Islands use the terms *uli-lima* and *uli-siwa* while the Seramese use the terms *pata-siwa* and *pata-lima*. Ziwar Effendi (1987) suggests that the latter is based more on territoriality rather than kinship, although territory could be rephrased as resource ownership. The Seramese groups are further divided into *pata-siwa hitam* (black) in Western Seram whose members are tattooed, and *pata-siwa putih* (white) in Eastern Seram whose members are not tattooed (not necessarily related to the Wemale-Alune snake eaters-non-snake eaters distinction often highlighted by the locals).

The groups of ‘9’ and ‘5’ are typically seen to represent female/male dualisms, but could easily have been inherited from other religious doctrines during the protohistoric period. For example, the symbolic importance of ‘9’ and ‘5’ are prevalent in Buddhist and Hindu doctrines as symbols of Mount Mehru (i.e., the universe/cosmology), etc. They are important mandala numbers. It is very tempting to see *siwa* and *lima* as somehow related to *mandala* concepts as well. For example, Negeri Sembilan in Malaysia is one example of how the past residents physically implemented a *mandala* layout into their settlement and governance pattern (Miksic pers. comm.). Could this be a similar case for islands and their settlements such as Saparua? It is a remote possibility, but not likely. The number 9 is also important to many Chinese groups and influence could have diffused from that direction. In summation, however, it is most likely a locally important distinction rather than one of diffused origin.

It is almost certain that Malukans were exposed to people of both Buddhist and Hindu faiths. For instance, place names for the islands (or particular locations) in Ambon, Banda, Northern Maluku, Seram and Irian are mentioned in the *Desawarnana*. Malukans definitely had intimate contacts with the Malays and Javanese and other Central and Western Indonesian groups.

Some historians and chroniclers have suggested that Ternate and Tidore respectively influenced the development of *siwa* and *lima* groups in Central Maluku as they had influence over

Seram and Ambon-Lease during the 17th century (Ziwar Effendi 1987). However, Ziwar Effendi (1987:36) correctly states that there is no evidence to support the existence of such a phenomenon in Northern Maluku and ample evidence to suggest that it was purely Central Malukan with an extension to at least the Kei Islands (Bandanese influence?).

Despite possible religious influences, the number ‘5’ is important in almost all Austronesian societies and seems fairly important in all societies past and present around the world. That the hand has five fingers, and that humans identify with the hand and the number ‘5’ as a special human trait needs no further discussion here (also consider that rock/cave art in Central and Eastern Indonesia often has hand prints or negative hand prints). It should be noted that the number ‘4’ is also important to Malukan cosmology (see Andaya 1993 for a much more detailed discussion). However, ‘5’ is often seen as ‘4’ plus ‘1’ (the central binding force) and subsequently ‘4’ is given importance (the same with ‘9’ and ‘8’).

Several historic documents indicate that the Javanese traded with, influenced and even migrated to Maluku in protohistoric pre-Islamic times. Some traditional villages in Northern and Central Maluku are even said to have originally been Javanese (Galvao even devotes a section to ‘how they boast of their Javanese origin’ (Jacobs 1970:103; see also Manusama 1977)). It is highly possible that Buddhist or Hindu notions may have influenced Malukan society or parts of Malukan society via the Javanese. Nevertheless, despite claims by others (Ellen 2003), Buddhism and Hinduism seem to have never penetrated east past Bali with possible limited areas in Sulawesi and the Philippines despite Malukan involvement in trade with powerful Hindu and/or Buddhist kingdoms for 1500 years or longer and seems to have had little long lasting impact if any at all. The evidence discussed by Ellen (2003, often referring to van Heekeren 1958) is unconvincing.

Hinduism and Buddhism in Maluku are not reflected in material culture past and present, nor in architecture (monumental or otherwise), oral histories, historic documents or extant religious practices in the region. Occasionally, informants will refer to the pre-Christian and pre-Islam period as “Hindu,” but it seems that the use of the term ‘Hindu’ in such cases is intended to refer not to the religion, Hinduism, but to a time period when animism and/or ancestor worship was prevalent.

There is no adequate explanation for the emergence of *siwa* and *lima* groups in Maluku, other than local evolution. Why the numbers ‘5’ and ‘9’ that is? Why not ‘5’ and ‘10’ or ‘1’ and ‘2’ or ‘3’ of which often suggests stability (e.g., physically stable base such as a tripod). Western Southeast Asians

certainly localized concepts and practices developed in parts of South Asia; borrowing certain desirable aspects, ignoring some, and reinventing others. Was there select borrowing and reinvention of the organizational and numerological elements from Western Southeast Asia by the Malukans? At present, it is skeptical, but there remains the possibility.

Before progressing, it should be mentioned that the *siwa-lima* distinction may be reflected in settlement. For instance, the *batu meja* and *batu pemali* of *lima* groups' are located coastally whilst the *siwa* groups' are located towards the mountains. The *baeleo* (*baleo*, *baileo*) construction is also distinct among the two groups. This may, eventually, emerge in the archaeological record but current data does not reveal definitive answers. Physical settlements, although the possibility of creating the social ideology into physical reality may have existed, have to cope with the realistic problem of topography and environment.

Socially, Malukans belong to several overlapping groups. Basically, there are extended blood-kin groups (*uku*) associated through kin and symbolically through a common hearth, which are associated with a *lumatau/rumatau* (also called *mata rumah*, *mata-mata*, or *fam*). The *lumatau* is basically a family/kin unit but often is associated with a common hearth and residence (i.e., non-family members who may share the hearth and residence could be included with the *lumatau*). Obviously, all these terms except *fam* refer to house (*rumah*), but it should be emphasized that the idea of house in Maluku may not necessarily refer to a physical building, but rather the individuals in a particular kin group and their social relations. Ziwar Effendi (1987) state that it relates to the hearth or kitchen (i.e., the people who contribute to and eat from a specific kitchen in many regards).

Lumatau members often share a common ancestor(s) (*upu*). *Upu* is also the title of the *lumatau* headperson, usually the oldest capable male. For all practical purposes, the *lumatau* and *uku* are shallow and often fluid clans (often referred to as *soa*, although *soa* has other meanings as well and may be a borrowed term from Northern Maluku). The family (*fam*, also *marga* which may not exactly equate to *fam*) and clan memberships and responsibilities can be fairly complex. *Fam* seems to have derived from colonial terms and may reflect the attempt to modify and practice two intertwined kinship systems. Cooley (1962a, 1962b) describes the Ambonese system in detail, but the Ambonese system may be distinct from their Seramese and other neighbors.

Manusama (1977) discusses the traditional kinship system in Hitu. An *uku* is a tribe composed of several clan families (*lumatau*) that are led by an *upu*. The leader of an *uku* is referred to as *tamata-*

ela or *tamaela*. *Uku* is also synonymous with *uli* I. A union of several *uku* is referred to as an *aman* or *uli* II. The leader is referred to as an *amanopunyo*.

In Hitu when the *aman* recruited several additional *uku*, they became an *uli* III or *uli helawan*.

By this time, Manusama (1977) suggests that the four original *amanopunyo* became paramount chiefs led by the oldest among them. Eventually, Hitu's *uli* III combined with six other *uli* III to form a complex federation led by the four leaders of *uli helawan*, with an ultimate rotating leadership. The federation was referred to as an *uli* IV.

There is very little known about the physical settlement within this federation or even the real nature and extent of the social relations within each *uli*. It is likely that *uku* and occasionally *aman* resided in clustered hamlets or villages, although individuals and families possibly resided in their various *walang* (garden/forest houses) for considerable periods throughout the year. It seems highly probable that all members of the Hitu *uli* IV lived on Ambon and members did not include settlements from other islands such as Seram or Haruku (although Ambon, Haruku, Saparua, and Nusa Laut are often referred to as the Uliase Islands which may indicate an inter-island alliance at some level). Inter-island social relations and alliances are well known and it is possible that higher level *uli*-like relations were not restricted to single islands.

As for the nature of the social relations, they probably included ritual and non-ritual exchanges, mutual labor and protection, and perhaps potential marital candidates. There is virtually no evidence to support the latter inferences regarding the nature of social relations during the protohistoric period and it is doubtful that archaeological evidence will shed any light on most of these matters.⁶

Ziwar Effendi's explanation (1987) is relatively clear and logical although the territorial versus kin based distinctions can be questioned. 'Territorial' could be interpreted in two ways; 'resources' on one hand versus 'land', and later, 'territory' on the other. 'Territory' as a bounded land unit probably was not prevalent in past Malukan society.

Ziwar Effendi (1987) interprets the *lumatau* as the basic kinship unit. *Uku* is an alliance of *lumatau* based on kin. *Soa* is similar but more territorial rather than kin based. *Soa* may be an import from Northern Maluku. Still, *soa* can be more akin to *hena* or *aman*. *Hena* or *aman* refer to alliances of *uku*. *Hena* may or may not be more territorial based than the *aman*. *Negeri*, an obviously borrowed term (although the antiquity of borrowing is unknown), refers to a higher level territorial unit composed of various *aman* or *hena*. But, a *negeri* may just be a composition of several *soa*. An *uli* is the next

level of organization and is composed of several *aman* or *hena*. *Pata* is a term used on Seram for *uli*, but may be more territorial based than kin based according to Ziwar Effendi (1987). Although Ziwar Effendi does not go into significant detail on the matter, higher level *uli* do occur and may be very complex. How this relates to *siwa* and *lima* groups is unclear and there may be no relation at all.

Nevertheless, the nuclear family is the most important basic social unit in Malukan society. Most families include a somewhat extended family in any particular residence, although the actual individuals in a particular residence are almost never fixed. Individuals often rotate around a number of households for a variety of reasons. Neolocal residence is generally expected for married couples who have children.

The nuclear family can and frequently exists as a self sustaining entity due to the nature of traditional subsistence. In fact, it is sometimes difficult for village leaders to enforce village level cooperation because of the ability for complete family independence if desired (witnessed by the author in several villages). Also, extra-family labor recruitment is sometimes difficult. Generally people agree to help with projects for a free meal, mutual interests or to accumulate favors for future requests of return labor.

One of the burning mysteries is why village development ever occurred in Maluku at all. There are almost no timing requirements or large scale labor requirements needed for traditional subsistence. A single family could subsist on its own indefinitely almost anywhere in Maluku. Thus, perhaps social factors rather than ecological/environmental factors may explain the development of village sized settlements and the desire for larger social aggregation, perhaps related to protection, rituals, marriage partner recruitment, trade, trade competition, etc.

On the other hand, with substantial food, particularly plenty of starch resources, why were larger settlements never formed? An earlier comment by one of the thesis examiners suggested that Maluku may have been more agricultural based (assuming from the prevalent Austronesian agriculturalist model?) and presumably transformed into the spice producing and arboreal/sago-based people they were historically and are today. If so, assuming that agricultural societies generally live in larger settlements compared to hunter-gatherers and horticulturalists (well attested), then why is there no evidence in Maluku? Topics on subsistence are discussed in further detail below.

Indeed many Malukan higher level *uli* were federations of allied social groups based not on physical presence within a single physical settlement, but based on a sense of alliance and social bonds

with very large but dispersed groups of people. Thus, urbanization and the development of large socially, politically and culturally united groups of people in Maluku may not have been linked except in relatively rare cases. Some Malukan polities seem to have had exceptional widespread influence and power such as the early historic Sultanates in Northern Maluku, without the presence of large centralized urban cities.

Historically, different kinds of formal alliances between two and sometimes several villages are common. The most common forms are generally referred to as *pela* and at least two types of *pela* bonds exist, although it is possible that the pre-colonial period may have included only one or perhaps even several types of *pela*. *Pela* partners are bound by strong social traditions and beliefs to aid each other in many ways, especially by supplying assistance when under attack, supplying labor for large projects, and supplying food resources in times of need. *Pela* partners often are exchange partners as well. Frequently, *pela* relations are between Muslim and Christian villages and sometimes include different local-ethnic/linguistic groups, but these are not necessary criteria. Interestingly, *pela* partners for at least one type of prominent *pela* alliance may never inter-marry (see comments above). *Pela* relations are strengthened in a ceremony called *panas pela*. *Panas pela* is conducted once every several years and, like many Malukan traditional ceremonies, does not seem to follow any specific calendar date, season or standard temporal interval.

The origin of *pela* is unknown. It is not detailed in the *Hikayat Tanah Hitu* or several other early historic sources, although it is discussed in the introduction of the *Hikayat Tanah Hitu* by Manusama (1977) as Manusama suggests that the alliance of two or more *uli* constituted a *pela* bond. This may indicate that *pela* began only during the colonial period, although *pela* may be a more recent term applied to a very ancient tradition. *Pela* alliances may have evolved during the period of conflict (*perang suku*, inter-group local conflict), a period prevalent in the oral record, which seems to have occurred prior to or during the early colonial period. This may coincide with the period of resettlement and settlement change around the 15th century.

Villages, clans and families often have special relations and alliances between other villages, clans and families. Many of these relations relate to resource extraction rights (*hak ambil* ‘x’, the right to take/extract ‘x’; a right called *bobatu* (many variants of this term exist such as *bobalu*, *babulu*; also similar to *paplele*). For instance, many residents of Liang Village on Ambon have rights to extract coconuts from Hatusua Village on Seram. Normally, few people exercise these rights, but the recent

currency crisis drove the prices of coconuts and coconut oil up in Ambon and numerous people from Liang began exercising their extraction rights during fieldwork residency in Hatusua. Many villages harvest and process sago in other village's traditional resource territories as well, often giving the owner's a share of the product or a fee payment.

Malukans do not traditionally perceive land and geographic space (i.e., property or real estate) as something that can be owned. Alternatively, Malukans view resources and particularly plant resources as things that can be owned (as an individual, family, clan, group of families, special interest group, religious group, and/or village). That is, people, etc. have *hak* (rights) to resources that they inherited, cultivated, etc., and people who take those resources without a *hak* may be punished by the community, religious organization or supernatural powers. Alternatively, any human basically has the right to eat from anyone else's resources if needed. However, if the resources are taken for anything other than immediately needed consumption, such as items to be sold at a market profit or other unacceptable purposes, then the aforementioned consequences may occur. Two traditional practices, *sasi* and *matakau*, are used to manage resources, protect resources and punish those who do not adhere to the restrictions. These may be applied to both plant and animal resources. The former is often institutionalized through the church, mosque or village political leaders and may coordinate with harvesting or resource management at larger community levels. The latter is generally more individually executed for personal holdings protection.

Subsistence/Food Production and Settlement Implications

I have devoted an entire thesis, book chapter and several articles to Malukan subsistence and ecology (Latinis 1998, 1999, 2000). Therefore, I will offer a condensed version of subsistence here. The unique Malukan subsistence practices have significant implications regarding past and present settlement patterns and social institutions.

Traditionally, Malukans have been described as hunter-gatherers, foragers, horticulturalists, agriculturalists and/or fisherfolk with a heavy reliance on sago starch and fish. None of these terms adequately describe the nature of their traditional subsistence systems. Alternatively, at least by the mid-Holocene, two basic subsistence systems had likely emerged in Maluku. One was a marine and strand-based economy while the other was a terrestrial arboreal-based economy, both of which have continued to the present. The impact that the Austronesian contact (ca. 3000-4000 years ago) had on the

nature of subsistence was not extensive except for the introduction of pigs, dogs, chickens, rats and some plant species, all of which readily were incorporated into the existing subsistence economies (Latinis 1999). Dogs are kept at home and used for hunting, pigs are an important meat resource, chickens are important for eggs but generally kept as free range animals and sold or eaten for important events, and rats likely had an impact on the local ecology. Malukans, however, do not traditionally engage in animal husbandry practices, with the exception of Muslim villages and transmigrants. The former is probably a historic phenomenon developing after the adoption of Islam. Rather, the impact that the regional tropical agro-forestry economies characteristic of Greater Near Oceania had on the Austronesians was significant, and, strongly shaped the development of Oceanic horticulture and agriculture (Latinis 2000, 1999).

Additionally, rice agricultural economies (dry and wet) typical of northern and eastern Southeast Asian areas seem to have had little or no penetration and large-scale adoption in Maluku despite a probable awareness of rice agriculture by Malukans, as evidenced through oral records and myths in many areas and a few extant rice growing traditions in Halmahera (perhaps elsewhere Northern Maluku). The antiquity of the latter is unknown. There is no convincing evidence that grain-based and animal husbandry-based agricultural systems were adopted during early Austronesian expansion into the region as suggested elsewhere (see Bellwood 1997 for more detailed model descriptions of Austronesian expansion and subsistence).

It is possible that environmental factors could explain the resistance to an often presumably superior rice-based subsistence economy (Maluku being in many regards too wet and non-seasonal or too unpredictable and unstable). However, it is highly probable that the Malukan economies were superior in the Malukan environment for ecological and social factors (a development evolving locally over 40,000 years of human occupation) that resisted the penetration of rice agriculture to the present day. The idea that rice agriculture is complex and superior, while Malukan arboreal-based subsistence is simple and inferior is seriously flawed. Most researchers today do not hold such polarized views, but these notions still pervade and possibly hinder some current research and certainly a significant amount of development policy.

To understand the present subsistence economy, one must understand the evolution of tropical agro-forestry and arboreal-based economies in the region. Elsewhere, I have argued (Latinis 2000, 1999) that initial migrants to the island areas in Southeast Asia likely had diverged from a broad

spectrum hunting and gathering strategy characteristic of early Sunda inhabitants some 40,000 to 50,000 years ago. Some groups eventually relied heavily on a broad spectrum economy which focused more specifically on strand and nearshore marine, swamp and estuarine environments. It is highly probable that they had developed simple maritime technology and watercraft as well.

The island ecosystems off the Sunda shelf were not inhabited by many large and medium mammalian species (potential competitors for resources), but did have similar strand environments. This may have been particularly attractive to early groups from Sunda. By at least 30,000-40,000 years ago, almost all ecosystems from Tasmania, throughout Australia, New Guinea, Wallacea, Island Indonesia and the Bismarcks and Solomons had been inhabited by human populations, as evidenced by numerous archaeological sites (Figure 5). This supports a claim for early systematic migration across water barriers and local human adaptation to a variety of different ecosystems by this time.

Although strand environments were somewhat similar as strand species generally can disperse over water barriers more readily than inland species, inland terrestrial environments in Wallacea and New Guinea were quite unique and new. Humans quickly adapted to these conditions through a process of subsistence system diversification and the seeds of an arboreal-based economy emerged by the late Pleistocene, supported by archaeological evidence throughout the region (Table 2). This economy developed a heavy reliance on palm starch extraction, broad spectrum tropical agro-forestry and forest maintenance. Root crops and bananas (grown in forest plots, gaps and cleared gardens) as well as many fruit and nut bearing trees play pivotal roles as well.

With the exception of New World species introductions in the colonial period and recently imposed agricultural system transformations, very little has changed over the last several millennia regarding traditional Malukan tropical agro-forestry subsistence systems. In fact, many of the species introductions seem to have been adequately inserted into the agro-forestry systems with few serious alterations to the core subsistence economy.

It should be briefly mentioned that maritime economies have also evolved into sophisticated forms and play a vital role in traditional Malukan coastal settlements. Also, marine resources provided important trade commodities in the past. Coastal and inland settlements are often said to have been linked in a ‘fish for sago’ symbiotic relation (Ellen 2003). However, this may be overstated as most coastal and lowland locations have as much or more sago resources than many inland areas. Additionally recent ethnographic studies conclude that marine resources acquired directly or through

exchange/purchase are not always prominent aspects of the terrestrial-based subsistence economies of many Malukan inland groups and a surprising amount of coastal groups (Latinis 1999). Several upland families occasionally eat dried fish, but far less frequently than originally assumed or implied in much of the literature. In many of these places, fish is a weekly luxury at best rather than a daily staple.

The development of specialized maritime and coastal economies has affected many settlements in Maluku in unique ways, however. Many coastal Malukan settlements are located more on water than land with stilt houses fairly common while pelagic, reef and nearshore ecosystems providing numerous resources (Photos 12a and 12b). Galvao (Jacobs 1970) even relates the story of Francisco Serrau's encounter with Badjau or Celates maritime groups in 1512 near Ambon Island (Ambon was where he was taken after his junk sank and his men were stranded on a nearby island when sailing from Banda to Melaka). Some of these groups spend more time on sea than land and more or less have floating mobile settlements. For the record, a number of interesting pre-modern marine, coastal, inland, hybrid, etc. subsistence systems have emerged in the region as highlighted in figure 6.

Traditional Malukan subsistence practices at first appear to be a form of swidden or slash and burn agriculture (although a slash and 'let rot' or 'partially burn' approach may be a more appropriate description). Surprisingly, Malukans rely more heavily on what they refer to as an *umur panjang* or 'long age' strategy. Each cleared plot is often immediately converted to an agro-forestry plot by inserting desired arboreal resources coupled with the continual production of typical *umur pendek* or 'short age' garden products. Frequently *umur panjang* plots are created by inhibiting the growth of undesirables and aiding the development of desirables and/or introducing desirables into relatively mature forest plots. The secondary and 'maturing' forest plots are actually more vital to the Malukan subsistence economy than the cleared garden. Thus the forest plots take a more central role than the fallow phase characteristic of other swiddeners where the fallow plot is less central to fulfilling the immediate subsistence needs (Figures 7a and 7b). Of course, it is not necessarily the plot itself but the cultivated resources in the plot that the Malukans have rights to.

Tables 3 and 4 highlight the nutritive contributions of many arboreal resources in the Malukan system. It is clearly evident that the arboreal-based or tropical agro-forestry system can provide an adequate subsistence base. Furthermore, studies have shown that this system may be more nutritious and environmentally appropriate with greater long-term stability than wet rice agriculture characterized by the transmigrant communities (Novotny and Rumalatu 1996). The ecological stability perhaps

Figure 5: Pleistocene Sites in Wallacea and Sahul (after Smith and Sharp 1993).

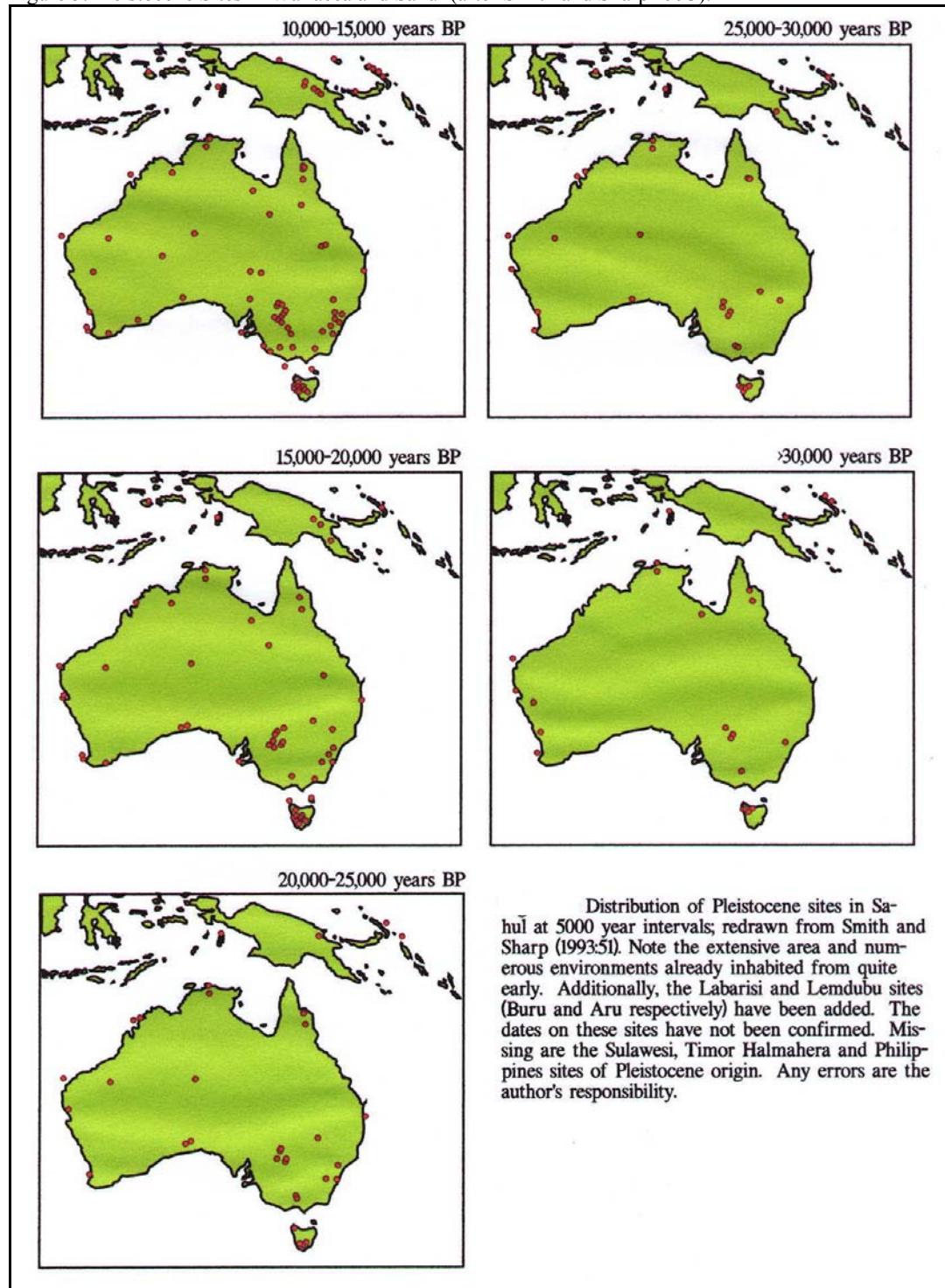


Table 2: Early Arboreal Botanical Remains from Sites in the Wallacea, New Guinea and Near Oceania Regions (from Latinis 2000, 1999; detailed references and comments included in original).

Genus	Approximate Date BP	Location	References
<i>Aleurites</i>	13,000	Indonesia, Timor	Bellwood 1985; Glover 1977
	10,800-5810 (?)	New Ireland; Buang Merabak	Rosenfeld 1997
	5830	New Guinea, Sepik, Dongan	Swadling et al. 1991; Gosden 1995
	4250-4050	Bismarcks, Arawes, Kumbun, Apalo	Spriggs 1997; Hayes 1992
	3200	Bismarcks, Mussau (Eloaua), Talepakemalai	Kirch 1988, 1989
<i>Areca</i>	13,000	Indonesia, Timor	Bellwood 1985; Glover 1977
	5830	New Guinea, Sepik, Dongan	Swadling et al. 1991; Gosden 1995
<i>Brugueira</i>	3200	Bismarcks, Mussau (Eloaua), Talepakemalai	Kirch 1988, 1989
<i>Burckella</i>	3200	Bismarcks, Mussau (Eloaua), Talepakemalai	Kirch 1988, 1989
<i>Calophyllum</i>	4250-4050	Bismarcks, Arawes, Kumbun, Apalo	Spriggs 1997; Hayes 1992
	3200	Bismarcks, Mussau (Eloaua), Talepakemalai	Kirch 1988, 1989
<i>Canarium</i>	14,000	New Guinea, Sepik-Ramu	Gorecki n.d. (in Yen 1990)
	12,000	Admiralties, Manus, Pamwak	Frederickson et al. 1993
	10,800-5810 (?)	New Ireland, Buang Merabak	Rosenfeld 1997
	10,000-3000 (?)	N. Maluku, Morotai, Tanjung Pinang	Bellwood et al. 1998
	9400-6600	Solomons, Buka, Kilu	Wickler & Spriggs 1988; Yen 1990
	8000	Bismarcks, Panakiwuk	Marshall & Allen 1991; Gosden 1995
	6000	Solomons, Guadalcanal	Yen 1990 (see also Roe)
	5830	New Guinea, Sepik, Dongan	Swadling et al. 1991; Gosden 1995
	4250-4050	Bismarcks, Arawes, Kumbun, Apalo	Spriggs 1997; Hayes 1992
	3650	Solomons, Nissan	Spriggs 1991
<i>Casuarina</i>	3200	Bismarcks, Mussau (Eloaua), Talepakemalai	Kirch 1988, 1989
	9000-6000	New Guinea, Kuk	Powell 1982
	3200	Bismarcks, Mussau (Eloaua), Talepakemalai	Kirch 1988, 1989
<i>Celtis</i>	20,890	New Ireland; Buang Merabak	Rosenfeld 1997
	11,000	Admiralties, Manus, Pamwak	Frederickson et al. 1993
<i>Cocos</i>	5830	New Guinea, Sepik, Dongan	Swadling et al. 1991; Gosden 1995
	4850 (?)	Solomons, Nissan	Spriggs 1991
	4250-4050	Bismarcks, Arawes, Kumbun, Apalo	Spriggs 1997; Hayes 1992
	3200	Bismarcks, Mussau (Eloaua), Talepakemalai	Kirch 1988, 1989
<i>Cordia</i>	4250-4050	Bismarcks, Arawes, Kumbun, Apalo	Spriggs 1997; Hayes 1992
	3200	Bismarcks, Mussau (Eloaua), Talepakemalai	Kirch 1988, 1989
<i>Corynocarpus</i>	3200	Bismarcks, Mussau (Eloaua), Talepakemalai	Kirch 1988, 1989
<i>Cycas</i>	4250-4050	Bismarcks, Arawes, Kumbun, Apalo	Spriggs 1997; Hayes 1992
	3200	Bismarcks, Mussau (Eloaua), Talepakemalai	Kirch 1988, 1989
<i>Diospyrus</i>	3200	Bismarcks, Mussau (Eloaua), Talepakemalai	Kirch 1988, 1989
<i>Dracontomelon</i>	4250-4050	Bismarcks, Arawes, Kumbun, Apalo	Spriggs 1997; Hayes 1992
	3200	Bismarcks, Mussau (Eloaua), Talepakemalai	Kirch 1988, 1989
<i>Inocarpus</i>	3200	Bismarcks, Mussau (Eloaua), Talepakemalai	Kirch 1988, 1989
<i>Metroxylon</i>	5500-6000 (?)	New Guinea, Sepik, Dongan	Swadling et al. 1991; Bellwood 1996
	3650 (?)	Solomons, Nissan	Spriggs 1991
<i>Nipa</i>	3200	Bismarcks, Mussau (Eloaua), Talepakemalai	Kirch 1988, 1989
<i>Pandanus</i>	12,100	New Guinea, Yuku	Bulmer 1975; Powell 1982
	10,000	New Guinea, Wahgi and Porgea Valleys	Christensen 1975; Yen 1990
	9760	New Guinea, Manim	Christensen 1975; Powell 1982
	5830	New Guinea, Sepik, Dongan	Swadling et al. 1991; Gosden 1995
	4250-4050	Bismarcks, Arawes, Kumbun, Apalo	Spriggs 1997; Hayes 1992
	3200	Bismarcks, Mussau (Eloaua), Talepakemalai	Kirch 1988, 1989
<i>Pangium</i>	5800	New Guinea, Sepik, Dongan	Swadling et al. 1991 (in Kirch 1997)
	3200	Bismarcks, Mussau (Eloaua), Talepakemalai	Kirch 1988, 1989
<i>Pometia</i>	5830	New Guinea, Sepik, Dongan	Swadling et al. 1991; Gosden 1995
	3200	Bismarcks, Mussau (Eloaua), Talepakemalai	Kirch 1988, 1989
<i>Spondias</i>	4250-4050	Bismarcks, Arawes, Kumbun, Apalo	Spriggs 1997; Hayes 1992
	3200	Bismarcks, Mussau (Eloaua), Talepakemalai	Kirch 1988, 1989
<i>Terminalia</i>	4250-4050	Bismarcks, Arawes, Kumbun, Apalo	Spriggs 1997; Hayes 1992
	3200	Bismarcks, Mussau (Eloaua), Talepakemalai	Kirch 1988, 1989
Other resources associated with an arboreal context			
<i>Bambusa</i>	12,100	New Guinea, Yuku	Bulmer 1975; Powell 1982
	3800	New Guinea, Aibura	White 1972;
<i>Alocasia</i>	28,000	Solomons, Buka, Kilu	Loy et al. 1992
<i>Colocasia</i>	28,000 (?)	Solomons, Buka, Kilu	Loy et al. 1992
	9000	Solomons, Buka, Kilu	Loy et al. 1992
Wood Planks	40,000	New Guinea, Eastern Highlands, Yonki	Groube 1989

Spriggs (1991:230 Table 6) lists additional species but some have a low confidence rating and were subsequently omitted. The highlighted resources in blue/gray are found in both pre- and post-Lapita sites.

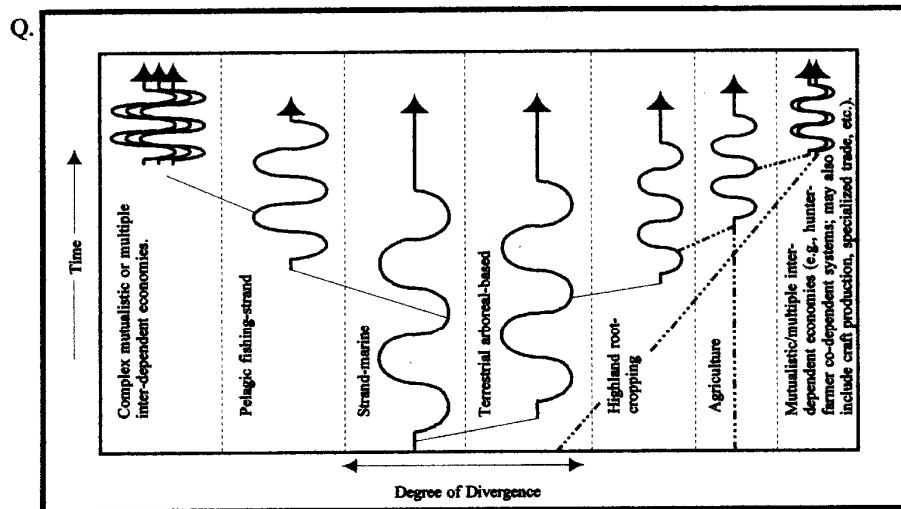
Photos 12a and 12b: Sawai Village-Predominantly Built above the Water



further contributed to the resistance of rice penetration in the past. Finally, it must be emphasized that the arboreal-based economy also is responsible for the production of many valuable exchange commodities such as clove, nutmeg, *damar*, sago, fruits, nuts, aromatic woods, industrial products, etc. It also cannot be ignored that the arboreal habitat is important for species such as birds of paradise which in turn provide valuable commodities.

Traditional arboreal-based subsistence economies or tropical agro-forestry were well established in the protohistoric period and have changed very little since. In fact, Galvao (Jacobs 1970) devotes three of the first chapters entirely to various tree products and agro-forestry practices but none to any specific form of agriculture. His descriptions of Malukan tropical agro-forestry, subsistence and other related factors seem as applicable now as they were likely in the mid Holocene. Table 5 is a list of some species and agro-forestry plants listed by Galvao (Jacobs 1970). The usual suspects continually appear in the archaeological record (dating to the Pleistocene in many cases; see Table 2 above) and are present in recent ethnographic accounts (Latinis 1999). Descriptions by Pigafetta in the 16th century, although less detailed, corroborate Galvao's accounts. Also, by the mid-19th century, little had changed as seen in A. R. Wallace's accounts.

Figure 6: Possible Evolutionary Trajectories of a Variety of Subsistence Systems in the Region.



This model is purely speculative and merely included to demonstrate how complex the regional model may become. This diagram also highlights how multiple inter-dependent economies (mutualistic) may relate to the basic model. The vertical dotted lines represent subsistence system core thresholds. Curved lines within the borders represent oscillations but relative stasis in the core's basic structure. Dashed lines represent intrusive, imported or hybrid systems. These may occur anywhere but have been added to the right side of the diagram merely as an example. Extinction/termination is possible for any system but is not displayed graphically here. Several systems may be in the process of disappearing now.

R: Notes concerning the various elements of these visual representations.

The vertical lines may represent periods of overall core stability or relative 'stasis' in regards to punctuated evolution/equilibrium.

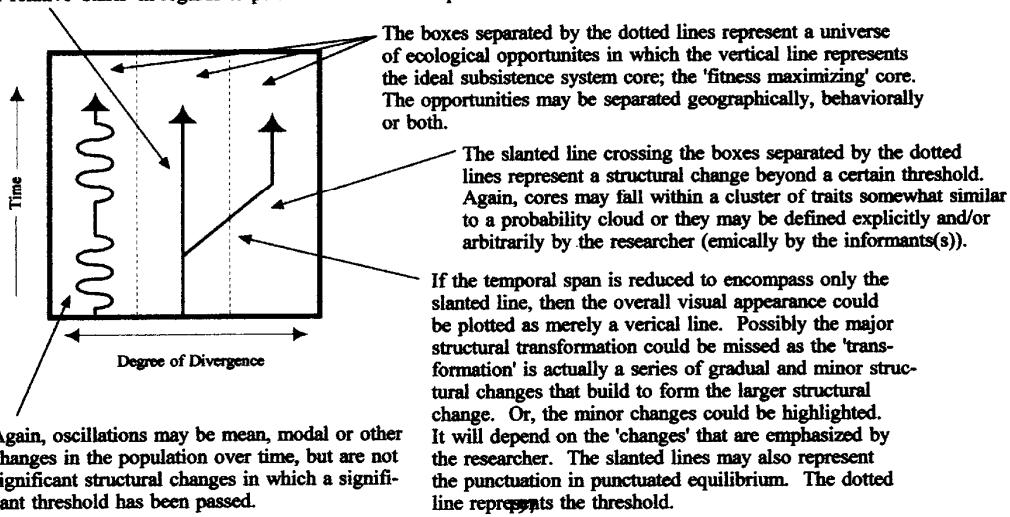
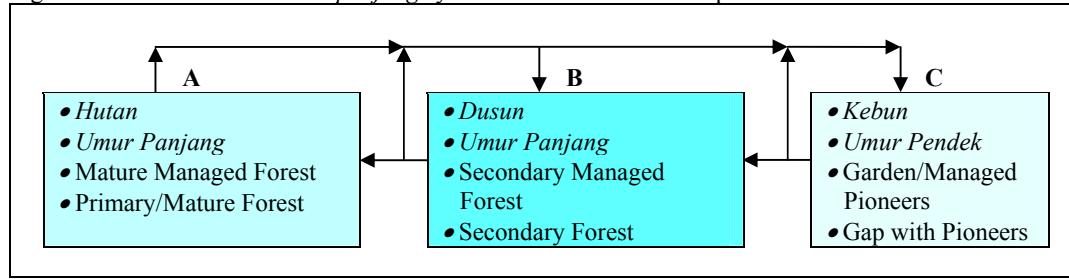
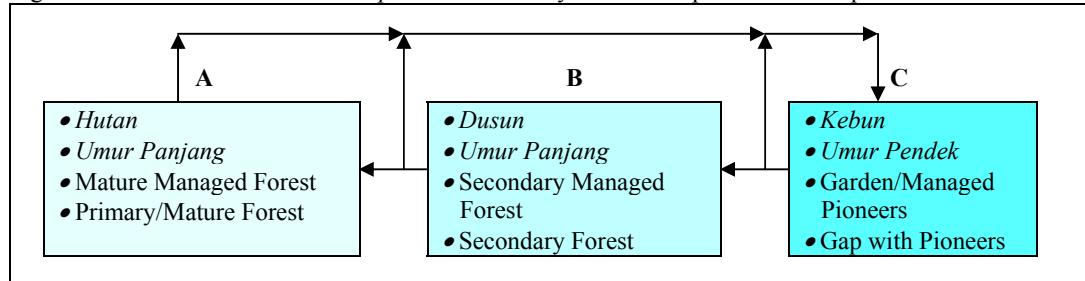


Figure 7a: Model 1-dusun/umur panjang systems with ‘active fallow’ phase.



The intensity of blue/gray represents the importance of the ‘phase’ in relation to the subsistence economy. Note that the *dusun* phase here (box B) is most important. Some may consider this the ‘fallow’ phase as well. This is typical of Malukan systems. Thus, the *dusun* phase is typically more ‘active’ (i.e., contributes more to the overall economy). The arrows represent transition routes.

Figure 7b: Model 2-kebun and *umur pendek* swidden systems with ‘passive fallow’ phase.

In this model box C is clearly most important. This pattern may be typical of other swidden systems where cereal crops and/or root crops fulfill the primary energy and economic requirements. The *dusun* phase (box B) is less active and thus truly more of a fallow phase. The arrows represent transition routes.

Table 3: Food Ranks for Selected Resources Based on Nutritional Data for Calories, Protein, Fat and Carbohydrates.

Resource Following values per 100 g	Calories	R a n k	Protein g	R a n k	Fat g	R a n k	Carbo- hydrates g	R a n k	Cal+ Pro+ Fat+ Car	R a n k	Cal+ Pro+ Fat	R a n k
<i>Artocarpus altilis</i> —Flesh —Seeds	55-110 150	11	0.8-4.3 6.0	4	0.3-1.5 0.5	8	12.0-26.0 30.0	6	29	6	23	8
<i>Bruguiera</i> sp.	75	13	2.5	10	0.3	12	16.0	10	45	13	35	10
<i>Canarium</i> spp. <i>Citrus</i> sp.	644 41-59	2 16	14.2 0.4-0.9	2 15	68.5 0.2-1.0	1 9	5.5 8.3-15.3	20 11	25 51	4 15	5 40	1 14
<i>Ficus</i> spp. <i>Garcinia</i> spp.	70 23	14 19	1.3 0.6	13 17	0.2 +	15 18	17.8 6.8	8 18	50 72	14 19	42 54	15 19
<i>Gnetum gnemon</i> —Seeds	41	18	3.3	9	+	19	9.0	15	61	17	46	17
<i>Inocarpus edulis</i>	240	7	4.5	6	4.5	7	40.0	2	22	2	20	6
<i>Macaranga</i> spp.	601	3	18.9	1	60.4	3	7.4	16	23	3	7	3
<i>Mangifera</i> spp.	65	15	0.7	16	0.2	14	17.0	9	54	16	45	16
<i>Myristica</i> spp.	20	20	0.4	20	+	20	7.3	17	77	20	60	20
<i>Pandanus</i> spp.	683	1	11.9	3	66.0	2	22.0	7	13	1	6	2
<i>Syzygium malaccense</i> (?- also <i>Eugenia</i> spp.)	13-51	17	0.4-0.6	18	0.1	17	3.6-13.7	13	65	18	52	18
<i>Colocasia esculenta</i>	100-165	9	1.4-2.0	12	0.2-0.5	10	24.2-39.0	3	34	7	31	9
<i>Cocos nucifera</i> Mature Meat Immature Flesh Mature Nut Milk	351-500 30-180 311-346	4 8 6	4.0-4.7 0.7-4.0 2.5-4.3	5 8 7	33.0-53.4 1.0-15.0 34.0-35.0	4 6 5	5.1-15.0 4.0-10.0 5.0-6.0	12 14 19	25 36 37	5 8 9	13 22 18	4 7 5
<i>Dioscorea</i> spp. <i>Musa</i> spp. <i>Metroxylon</i> spp.	95-161 85-142 285-362	10 12 5	1.0-2.5 1.0-1.3 0.1-0.5	11 14 19	0.05-0.2 0.1-0.5 0.0-0.3	16 11 13	15.0-38.7 20.0-34.6 71-86.9	4 5 1	41 42 38	11 12 10	37 37 37	12 13 11

Breadfruit was analyzed as a kind of conglomerate (seeds + fruit) because Malukans eat both seeds and fruit.

Data from Powell 1976:115-117; see also Hipsley & Clements 1950, Massal & Barrau 1956, Oomen & Malcolm 1958, Peters 1958, Powell 1974.

+ = traces present; / = no data available.

Table 4: Food Ranks for Selected Resources Based on Nutritional Data for Calories, Protein and Fat.

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

Data from Powell 1976:115-117 & Ellen 1978:225; see also Hipsley & Clements 1950, Massal & Barrau 1956, Oomen & Malcolm 1958, Peters 1958, Powell 1974

+ = traces present; / = no data available

* Grubs are an important dietary component in traditional Malukan subsistence repertoires. Large and small varieties are often consumed, more often in forest contexts than village, especially for the large grubs, *ular kayu*, as opposed to the small grubs *ular sagu*.

** Insects, often raw or steamed beetles, are an important dietary contribution in the traditional Malukan diet, especially during forest forays.

As for the operation of the subsistence system, each family generally has direct access and rights to about three to five forest plots scattered throughout the community's total resource environment in such a manner as to maximize the number of ecosystems and resource repertoire available to that family. Resources are inherited and distributed in various ways which ultimately ensures that holdings are not frequently clustered. Quite often, rights to certain resource holdings are distributed to increasingly more members of the extended family, and eventually the entire community until some areas (generally neglected for multiple generations) cycle back into the communal holdings. Anyone can then work these areas and cultivate new resources, thus, restarting the cycle.

Malukans engage in multi-cropping and intentionally maximize diversity. Overall this reduces risk, creates ecological stability and maximizes resource repertoire. That tree crops are targeted also ensures that available energy and risk is averaged over many years, thus reducing severe impacts of any particularly bad year or reducing risk overall. Mono-cropping actually destabilizes the ecological community and increases risk as disease, climatic change, market demand change, etc. will have more severe effects on mono-cropped stands and household economies.

Table 5: Probable Arboreal-based Resources Described in the Early 16th Century by A. Galvao.

Damar	<i>Agathis spp.</i>
Candelnut, Kemiri, Buah Keras	<i>Aleurites moluccana</i>
Betel Nut, Pinang	<i>Areca catechu</i>
Wild Areca	<i>Areca sp.)</i>
Areca (several varieties)	<i>Areca spp.</i>
Sugar Palm, Aren, Enau, Mayang	<i>Arenga pinnata</i>
Breadfruit	<i>Artocarpus altilis</i>
Cempedak	<i>Artocarpus champeden</i>
Jackfruit, Nangka	<i>Artocarpus heterophyllus</i>
Starfruit, Belimbing	<i>Averrhoa carambola</i>
Bamboo (several varieties)	<i>Bambusa sp.</i>
Lansat	<i>Bouea macrophylla</i>
Flowering trees used for garlands, etc. (possibly includes Kenanga)	<i>Canangium odoratum (Kenanga)</i>
Kenari	<i>Canarium amboinense, Canarium indicum</i>
Kasuari	<i>Casuarina equisetifolia</i>
Panha, Cotton (probably Kapok)	<i>Ceiba petandra</i>
Orange	<i>Citrus aurantiaca</i>
Grapefruit (more likely Pomeло)	<i>Citrus maxima</i>
Citrus	<i>Citrus sp.</i>
Nipis, Calamansi	<i>Citrus sp.</i>
Lemon	<i>Citrus spp.</i>
Coconut	<i>Cocos nucifera</i>
Durian	<i>Durio zibethinus</i>
Genemu, Melinjo, Melinjau	<i>Gnetum gnemon</i>
Mango	<i>Mangifera odorata, Mangifera sp.</i>
Eucalyptus	<i>Melaleuca leucadendra</i>
Sago	<i>Metroxylon sagu</i>
Banana (several varieties)	<i>Musa spp.</i>
Nutmeg	<i>Myristica fragrans</i>
Nipa	<i>Nypa fruticans</i>
Pandanus (several varieties)	<i>Pandanus spp.</i>
Sugar Cane	<i>Sacharum officinarum</i>
Saeyro	<i>Sayur-?</i>
Bidaras (Port.)	<i>Syzygium aqueum, Syzygium malaccense, Spondias sp.</i>
Clove	<i>Syzygium aromaticum</i>
Tamarind	<i>Tamarindus indica</i>
Ketapang	<i>Terminalia catappa</i>
Ayoes (Port.)	?
Bark cloth trees	?
Beech	?
Boat caulking trees	?
Cane Varieties	?
Carambola (Port.)	?
Fitaco	?-cork like, soap
Gambir	?
Gemutu (probably Arenga spp.)	?
Glue producing trees and berries	?
Gourds, Colomdroes (Port.) (Could be Buah Botol, Bottlefruit, or possibly bitter gourd, Papari, <i>Momordica</i> spp.)	?
Jacas (Port.)	?
Joint fittings (cork-like substance) trees	?

Table 5 (Continued) : Probable Arboreal-based Resources Described in the Early 16th Century by A. Galvao.

<i>Kayu Baru</i> (ship caulking used for export to India)	?
Medicinal trees (numerous varieties)	?
Pine (could be <i>Casuarina</i> but species like <i>Durian</i> were also referred to as pine-like)	?
Poison producing trees	?
Pomegranate	?
<i>Puas</i> (Port.)	?
Rattan	?
<i>Salawaku</i>	?
<i>Tali Air</i>	<i>A variety of vines and climbers that supply fresh drinkable water when cut</i>

As arboreal resources have significantly long maturation rates most Malukans prepare new plots for future generations. Also, plots are continually dispersed throughout the total resource environment. Distance from village does play a factor and most prefer not to travel extensive distances except on hunting forays and seasonal resource collection from older more distant areas (often old village settlements). Eventually, this puts a strain on the immediate area, but the ecology and nature of subsistence generally results in settlement shifts probably every 50 to 200 years. This is supported with the fact that most Malukan settlements have one or several *negeri lama* (old settlement) dispersed throughout their total resource environment, a phenomenon probably not always reflecting forced resettlement or social fissioning, although social fissioning does also occur on occasion. Thus, settlements may shift with a shift in total resource environment while the older total resource environment recovers through a ‘fallow’ phase, all though this concept should not be confused with specific cleared forest plot fallow phase.

Although almost every Malukan family maintains a village house, most Malukans spend a considerable amount of time in their various *walang* (garden houses). Each family generally maintains between three and five garden houses of various sizes and shapes ranging from as simple as a temporary thatch roof supported by poles to as large as a two story palm wine distillery—larger than most village houses.

Thus, the idea of a geographically ‘fixed and permanent’ village-like settlement or even fixed and permanent houses in Maluku (perhaps with the exception of traditional port-like and coastal trade settlements) is probably an historic or even relatively modern phenomenon. Traditional settlement probably took the form of non-permanent hamlets with as much or more physical residence in various garden houses as in the main house. Perhaps, there were no main houses at all. Finally, most

settlements were necessarily impermanent as were actual building materials and material culture in general. Ethnoarchaeological studies (Latinis 1999) have demonstrated that most traditional Malukan settlement should be relatively invisible in the archaeological record, although the recent archaeological work presented in the following thesis may indicate otherwise for some settlement types.

The traditional subsistence economy also seems to leave the environment appearing similar to mature natural forest. However, the environment is as much an artifact of human creation as an axe. Careful species-genera sampling reveals a very artificial but forested, mixed species, and ecologically sustainable environment (Latinis 1999). This is a unique phenomenon that has received almost no attention. In many ways, looking at settlements from the total resource environment perspective may be more informative than trying to find villages and sites, especially if settlements were associated with different kinds of created total resource environments (discussed below with Rambatu's *damar* forests). That is, the manipulated total resource environment is a site. This is also an important concept for current large scale landscape archaeology.

Other Issues Related to Current and Past Settlement

Modern Maluku is composed of a number of settlement types, ranging from special interest camps or resource extraction and processing camps to the modern mid-sized city of Ambon. There are inland and coastal villages, traditional and modern villages, farming and fishing villages, logging and pulp mill settlements, transmigration rice farming villages, recent and old migrant/immigrant villages (many of which are Butonese from Sulawesi), trade villages, potting villages, and other specialized villages. In fact most villages are seen to have a special right to process and produce certain commodities such as palm wine/alcohol, *damar*, sago, spices, etc. For all practical purposes, Maluku is a very complex mosaic of settlement types and ethnic groups with varying degrees of interdependency. This has been the case from at least the protohistoric period throughout the modern era.

It is tempting to begin with the village as a unit for understanding settlement variability in Maluku. However, the village as a traditional settlement unit may be misleading and it may be wiser to begin with the *negeri*. *Negeri* is not a traditional Malukan term for a settlement composed of a social group that identifies themselves as a single entity, but it seems to have been in use for quite some time, at least since the time that the *Hikayat Tanah Hitu* was composed in the 16th to 17th centuries. One

could also begin with the clan or family (*lumatau, soa, marga, fam*) as basic units to understand settlement as detailed above.

Negeri according to standard Indonesia dictionaries means ‘country or land’. It is implied that it is a meaningful physical place and geographically defined territory. This is not necessarily the case in Maluku. *Negeri* in Maluku is both a physical place and a social group. Its physical place may also be seen, not necessarily as the land or geographic territory owned by a corporate social group, but the wild and domestic resources extracted, utilized and cultivated by that social group and their ancestors.

As described above, Malukans generally do not have the same concept of land ownership in a geographic sense that many agriculturalists do. This is most likely due to their agroforestry or arboreal-based subsistence systems. Malukans believe that they have rights to extract resources (primarily forest resources) that they cultivate and the rights can be individual or any combination up to and sometimes exceeding the village and *negeri* level. The rights to extract those resources are transferable to other individuals and groups. Thus, the *negeri* at one level can be seen as the total resource environment (i.e., the sum of all potential and utilized resources) for a particular social group. It was mentioned above the Liang residents had the rights to extract coconuts from Hatusua. Thus, *negeri* may sometimes overlap in physical space, even on separate islands.

Negeri can be a physical place nonetheless. However, it is better to view that particular physical place as not the land, territory or a geographic coordinate, but the place where the members of that particular social group reside. Mostly, this refers to the village. The major implication is that the traditional *negeri* is not a fixed geographic point. In fact, settlements (i.e., *negeri/villages*) probably physically shifted geographically every 50-200 years due to subsistence, ecological and social factors in the past. It was likely only during the mid to late protohistoric period and colonial period that Malukan settlements became more stable or fixed in certain locales, although this most likely occurred with coastal settlements rather than inland settlements.

Most villages still remember their one or more *negeri lama* (old/past settlements) and often target *umur panjang* resources located in the *negeri lama*. Some *negeri lama* are located close to modern settlements while others are literally scores of kilometers removed and require a few days hike to reach. Preliminary assessment indicates that *negeri lama* on small islands are often closer to their modern villages than those on larger islands such as Seram. Many villages have several *negeri lama*. In fact one informant in Seram described twelve *negeri lama* that was part of an oral tradition taught by his

uncle. The older *negeri lama* in his mythical account dated back several hundred years, possibly over a thousand years. Generally, three to five *negeri lama* appears to be the numerical extreme. Interestingly, inland villages on Seram frequently remember more *negeri lama* than coastal villages or villages on Ambon.

Some *negeri* are physically split into a number of hamlets or *dusun*. Other *negeri* may at times include several villages as Negeri Hitu seems to have done in the late protohistoric and early colonial periods. Hitu is a complex case, because at times in the *Hikayat Tanah Hitu*, Negeri Hitu refers to the actual village of Hitu. Other times, it seems to refer to the federation of villages on the Leihitu Peninsula. Still, other times it refers to areas located around Morela and Mamala including Kapahaha, all places where Hitu retreated during times of conflict with the Dutch. Obviously, the physical settlements were not moved, but the people moved.

In Hitu's case, it may be better to view settlements in terms of the various levels of *uli* discussed by Manusama (1977); the higher level *uli* composed of several *negeri*-like groups bound politically and socially in a manner perhaps different than traditional alliances. Unfortunately for the Malukans and many anthropologists, this unique federation was destabilized, undermined and eventually eradicated by the Dutch. Although it would be interesting to discuss the *uli* in detail here (as Manusama and Ziwar-Effendi have adequately done already), it is prudent to return to the *negeri* discussion here.

A *negeri* can also be seen as the group of people who identify themselves with a particular social group. They share the same general values, lifestyles, beliefs and language, and often founding families and/or common real or mythical ancestors. Thus, one definition of *negeri* only refers to the people rather than the physical settlement, resource environment, etc. Nevertheless, *negeri* is generally attached to the geographic area where the people live as well, particularly today.

Negeri are generally composed of several families (*fam* or *marga*) who belong to traditional clans (*soa*). Founding clans seem to have higher status and this is a typical Oceanic and perhaps Austronesian phenomenon. If this phenomenon is powerful enough, as is suggested in the Pacific, this may have been a major factor driving migration and re-settlement (i.e., desire to be a founding family may have driven rapid migration).

In fact, it is clearly evident in the *Hikayat Tanah Hitu* and through oral records that Hitu was presumably settled by migrant communities from at least four different areas including Seram, Goram

(Gorom, Goron, Gorong), Jailolo (although the implication is Javanese or mixed local and Javanese descendants), and Java (perhaps Tuban, although this is questionable⁷); who later interacted with and joined the local *negeri* to form the higher level *uli* or federation.

Above it was mentioned that there seems to have been significant movement and resettlement in the later protohistoric and early historic periods. Also, it is known that there were Javanese contacts in the protohistoric period. Galvao (Jacobs 1970) devotes a section to how the northern Malukans ‘boast’ of Javanese origins. Additionally, most villages share somewhat similar origin myths in which the villages were settled by communities from some other place. The exception is Manusa and other highland Seram settlements, whose origin myths claim emergence from the center of west Seram in an almost Biblical-like ‘Garden of Eden’ story (Seram is said to be the mother island, Nusa-ina, and ultimate origin of all Malukans, from Nunusaku). Goram villages also have origin myths that claim the original settlement was in the center of the island as well, and villages subsequently descended to the current coast.

However, it should be noted that sources indicate that some ‘settlers’ left or were driven out of their homeland rather than pushed by an intention to form a founder settlement. This very well could have been the norm rather than the exception. It seems logical that some ‘hometown’ tension or pressure would be a strong catalyst to migrating to new areas with the added benefit of becoming a founder family, particularly during unstable times.

Did migrant villages have different forms of settlement and how did this impact local settlement? One would expect that if indeed Javanese migrants resettled in Maluku, they would likely have executed a very different settlement pattern, subsistence economy and land use practice than the locals. However, it is questionable that whole Javanese communities resettled and formed part of the Hitu federation, although it seems highly likely that there was a strong Javanese presence and ‘connection’ during the protohistoric period. If they were only seasonal residents, then the desire to set up permanent Javanese style settlements were likely lessened significantly. Impacts do not seem to have altered local populations dramatically, and assuming that most of the settlers were Malukans from elsewhere, their settlement patterns, subsistence practices and land use practices were not likely very different from the immediate locals. Additionally, the incorporation of migrant communities in Maluku seems to have caused few tensions in the early phases up to fairly recent times.

One factor related to the original Hitu immigrant communities in the late protohistoric period is that they were coastally oriented and were particularly interested in trade. *Alkissah II* in the *Hikayat Tanah Hitu* (Manusama 1970; Miksic n.d.) describes the following interaction between the supposedly Javanese immigrant *negeri* and the local ‘indigenous’ community:

When this was finished [an initial discussion between the two communities], the two parties conducted trade, buying and selling, changing and exchanging in throngs. When night came the people returned to their *negeri*. When the next day came, they came again to buy and sell, changing and exchanging in the same way. No one was there who did not do as he pleased.

Unfortunately, it is not mentioned how many people settled in the area, how they settled (i.e., how they mapped themselves onto the environment, what structures they lived in or how their settlement was physically/spatially organized), or what they even traded. Oral records are very vague on this matter as well. It could be assumed that this indicates that the form of settlement in Hitu differed insignificantly if at all from traditional Malukan and/or local settlements. When the Portuguese arrived, however, the *Hikayat Tanah Hitu* is far more descriptive regarding these matters (about the Portuguese as well as some information on the locals) and this may support a claim for dramatic changes in settlement at that time. Rijali, however, relied on oral tradition for early accounts, but witnessed firsthand changes in the 17th century.

Settlement Types

Modern Maluku contains a few basic types of settlements at the surface level. However, the picture is much more complex if one is to include settlement relations and the distinctly different dominant industries that sometimes define a particular settlement. Settlement type in this case is defined partially by the mode of production of a particular settlement, which affects their relation to other settlements, outsiders and even may physically alter their settlement and total resource environment as well as the overall location, size and morphology.

Ambon city is perhaps the largest settlement in Maluku, although many of the various districts are organized like traditional villages. Ambon city is composed of numerous local and non-local ethnic groups and at the time of field work was a center of trade, markets, fisheries, storage facilities, shops, small industries and everything generally associated with what Miksic (2000) would define as a ‘heterogenetic’ city. Ambon City’s history is primarily a colonial and modern phenomenon, although

there were a few existing settlements when the Portuguese arrived and when the Dutch further developed the town. Parts of the Dutch fort, Fort Victoria, remain and this and Ambon city would be an interesting location for further historical archaeological studies. There are also logging and pulp mill settlements that have sprung up in various locations throughout Maluku as well as a number of transmigrant settlements. Modern migrant settlements are a worthy study topic for comparison as there were likely plenty of migrant settlements in the past (certainly from at least early Austronesian presence) which may yield important analogies for better understanding Maluku's complex social history.

Other sizeable villages of several thousand people occur or did occur in the traditional trade and provisioning areas throughout the Maluku Islands, notably in Ternate, Tidore, Ambon, Banda, East Seram, Gorom and Aru, although they rarely exceeded 2000 individuals in any particular settlement. Several of these large villages, particularly on Ambon have virtually grown together and are quite sizeable in terms of population size and number of households now, generally augmented by numerous immigrant communities from outside of Maluku. However, these villages continue to maintain their distinctness and political separation.

Almost all settlements on Ambon Island have become geographically fixed beginning in the early historic period and late protohistoric period and increasing during the early and mid-colonial periods. The major exception are villages that are relocated to accommodate transmigrant communities and their needs. Most inland settlements on Ambon and many in west Seram, particularly the Hoamoal (sometimes Huamual) Peninsula, have been relocated to the coast or driven out during the Dutch period. Most coastal villages on Seram and other larger islands have become more geographically fixed than inland villages, although this is probably a more modern phenomenon than what would appear to be the case in Ambon. Inland villages today generally have a fixed village with relatively fixed houses, although residents may seldom be in the village. It is more than likely that this is also a modern phenomenon and inland villages or *negeri* were comparatively more mobile and less centralized in a highly dense manner; perhaps not as mobile as many shifting cultivators elsewhere due to the Malukans' arboreal-based subsistence economy (discussed above), but mobile nonetheless with possible physical village or *negeri* movements likely every 50 to 200 years.

Villages or *negeri* average between a few hundred to a few thousand persons and may or may not be divided into different hamlets or *dusun* that are sometimes separated by as many as several

kilometers. Traditionally the village is intended to be spatially and spiritually arranged in accordance with local *adat*, although topography generally precludes the true achievement of a highly structured *adat* order in reality. The central *baleo* (*baileo*, *balai*) of the *negeri* consisted of the village *adat* house, perhaps raised on stilts or even a stone platform, which often included a field or meeting area outside (as well as inside), very much like many Oceanic settlements.

Settlement has changed dramatically with the introduction of roads and especially the trans-Seram highway. Now, most villages are strips of houses on either side of the road or major communication arteries. Inland settlements with no roads have become more fixed with the use of more modern construction materials, such as cement and corrugated tin roofing, and, due to pressures to remain in fixed geographic locales.

Some villages throughout Maluku have interesting megalithic remains in the shapes of boats, platforms and stone seats associated with the *baleo* or *kramat*. *Batu meja* (table stones associated with the ‘heart and soul’ of the *negeri*, although most are large natural rocks; Photo 13) and *batu pemali* (generally stone pillars associated with the ancestors) or wooden *pemali* are also part of the arrangement. Some *batu meja* and other symbolically and mythologically important megaliths, stones and rock formations may be located at some distance away from the village, however. Incidentally, most villages will often move their *batu meja* when the settlement moves. However, in modern villages, many of the *batu meja*, etc. are located in the most recent *negeri lama*.

Generally the more important families are arranged in houses towards the center of the village in locations/directions symbolically associated with that particular family and the roles that they performed. Less important families were often located further from the center. Houses probably followed a symbolic arrangement where possible. All families, however, likely maintained several garden houses which may have acted as a true home and may have been much more elaborate than their village houses.

Past houses were predominantly made of sago and bamboo (Photo 14). Many were built on the ground with dirt floors, although some were frequently built on piles with split bamboo floors. Stone foundations or houses on stone platforms do not seem to have been frequent phenomena with perhaps the exception of the *adat* house mentioned above. Galvao (Jacobs 1970:107) notes, “...there are no houses built of stone and mortar nor splendid buildings like ours.” Today, most who can afford the materials prefer cement foundations, wood plank walls and corrugated tin roofs. Nevertheless, in

Photo 13: Batu Meja in Seram.



almost every village one can still witness many traditional sago houses still in use. Admittedly, the sago house with sago thatch roofing is far more comfortable and cooler than cement houses with corrugated tin roofs.

Almost all *walang* or garden houses are made of sago and bamboo. Many of these *walang* are quite elaborate (Photos 15 and 16).

Villages traditionally seem to have seldom built significantly sized walls or used walls at all, although archaeological evidence now suggests otherwise for certain settlements, especially during the protohistoric period (Gorom provides the most significant modern exception with extensive use of walling in some garden plots outside of the village). Simple garden walls are currently part of the Butonese gardening system but do not appear to have been used by the Malukans except in few cases. Most Malukans prefer to invest their energy into traps or physical presence to protect resources, and, the

umur panjang system is less affected by predators than the Butonese *umur pendek* system. Individual houses generally do not have fences, although fencing is more prevalent today. Mostly, plant fences if any are utilized rather than wooden or stone fences.

Some coastal settlements are and likely were located more on mild bays with houses built on piles rather than on land (Photo 17). Many such villages are more coastally oriented regarding subsistence, but this is not always the case as many families have an almost purely terrestrial subsistence economies. In general, many coastal villages seem more densely clustered and larger than inland villages. Coastal villages on Ambon are larger, although this may be a historic or more recent development.

Historic sources and oral records also indicate that sea nomad (Badjau and/or Celates) groups lived in Maluku. These groups frequently live on mobile houseboat settlements on the sea.

Photo 14: Sago House.



Photo 15: Elaborate Walang.



Thus far, it can be said that at least three basic traditional settlement types existed in Maluku; the coastal *negeri*, the inland *negeri* (both village-like) and perhaps the houseboat-like sea nomad settlement. A fourth, the trade settlement, will be discussed further below.

Earlier it was mentioned that settlement types can also be differentiated based on the ‘mode of production’ of a particular villages. As for basic subsistence, most villages are relatively independent and could be totally independent with the exception of many of the protohistoric and historic trade settlements such as Banda, Ternate, Tidore and islands off of east Seram (Ellen 2003). The latter relied heavily on food imports.

Most villages have several families that specialize in the production of a particular commodity, which has become the particular economic emphasis of those particular families and subsequently that particular village. These production specialties differ from one village to the next. In most cases this has affected the physical layout and characteristics of the total resource environment, the various processing *walang*, and less frequently the layout and characteristics of the village settlement itself (perhaps potting and brick-making villages being the most different).

Photo 16: Elaborate Walang (*sopi* distillery to produce distilled palm wine).

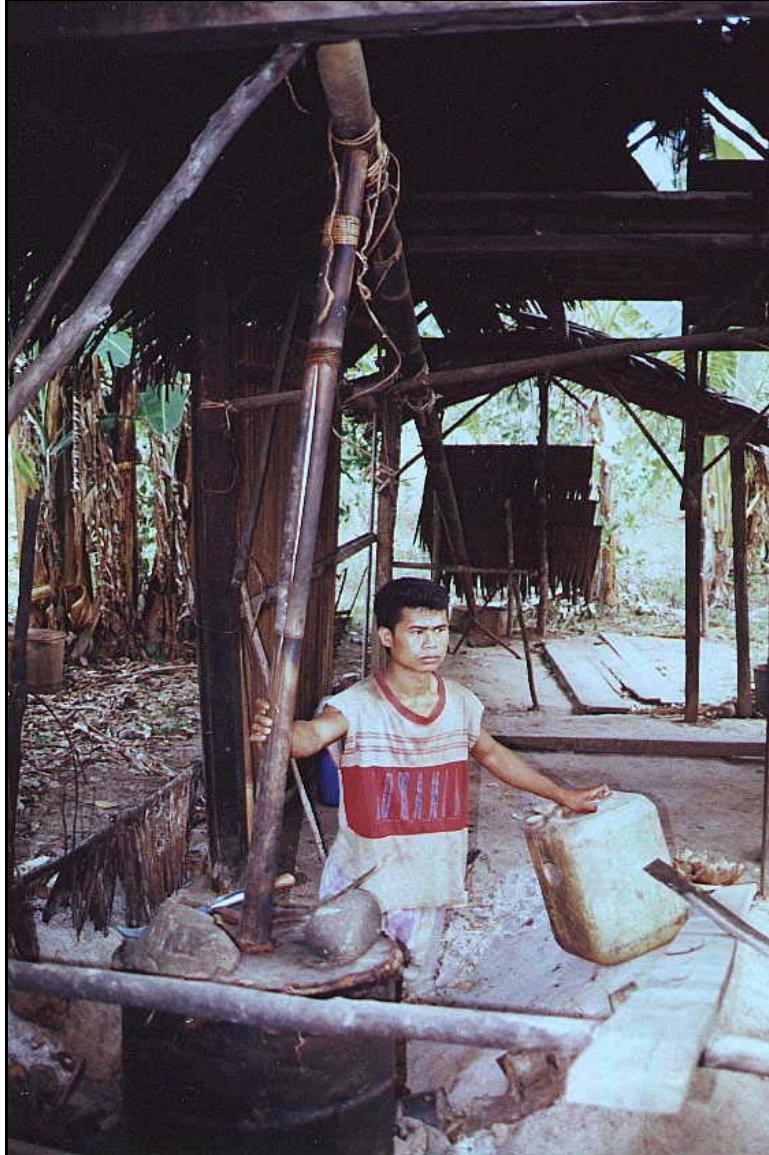


Photo 17: Houses on Piles.



For instance, Rambatu and Rumberu villages in Seram traditionally extracted and traded *damar* resin. They have actively transformed their total resource environments over many generations into *damar* dominated forests. They have processing *walang* that accord with the nature of the processing activities and are subsequently designed and located to maximize productivity. Additionally, they have *damar* storage facilities that are different from other villages.

Their immediate neighbors in Manusa have forests that are far more mixed and dominated by *durian*, *kenari*, *salak* (one of their special products not typically found in abundance elsewhere), and other fruit and nut bearing trees. They do extract some *damar*, but certainly not at the level witnessed in Rambatu.

The coastal village of Hatusua specializes in *mayang* (sugar palm) products (red palm sugar, fermented palm wine and distilled palm wine). They cultivate hundreds if not thousands of sugar palm trees and have various *walang* for sugar reduction and palm wine distillation. Other villages such as Ouh in Saparua specialize in pottery production. Still other villages (e.g., Luhu on Seram and Namlea on Buru) specialize in *minyak kayu putih* production (a eucalyptus oil). Other villages are known for *kenari* production, coconut production, clove production, nutmeg production, citrus production, lumber processing, sagu production, fishing, *tripang* extraction, pearl shell collection, *masohi* bark extraction, trade, etc. All of these alter the nature of the species genera combinations and distributions in their respective total resource environments as well as the distribution and production nature of their *walang*, and less dramatically, their villages and village residences.

At this level of understanding, a large number of settlement types exist. Again, this further indicates high variability in Maluku. At one level, there are redundant types of settlements based on a very basic classificatory scheme. At a more refined level one can appreciate the diverse complexity. This complexity may have serious implications regarding interpretation of archaeological remains. It is suspected that this complexity has its roots in the early protohistoric and late prehistoric periods. Although in many cases, such as the prominent potting industry villages in Mare, Saparua and Kei seen today, this may have been a more recent historic phenomenon.

Thus, particular settlements can be defined by their particular industries. However, subsistence-wise, most villages were very similar and probably extremely independent, at least in the pre-Islamic periods.⁸ Additionally, villages houses and the manner in which they were constructed and

oriented may have been fairly similar, with the main exceptions occurring among inland, coastal and marine settlements.

Again, it must be emphasized that by the Portuguese period village settlements reached a maximum of around a few thousand individuals. Archaeological evidence detailed below suggests the formation of protohistoric walled settlements anywhere from fifteen to over 100 hectares in size. Questions regarding the factors that led to the formation of villages and when and where they occurred have not been adequately explored. The desire for exotic goods and the formation of trade settlements may have been important.

A monothetic argument with a single causative factor may not be responsible. Undoubtedly, as complex as Maluku was and is, history and historic explanations will be equally as complex. Other factors to consider include protection (e.g., against headhunters, marauders and malevolent spirits), desire for social proximity and interaction, and increased group-level economic efficiency. These are just a few of the many factors that might push village-level community formations. The trade settlement (desire for exotic goods and commerce, and tied to possible food resource degradation) as one part of the equation and perhaps a prominent aspect regarding the archaeological sites discussed below is an important concern. This possibility can also be more easily traced through archaeological evidence. The variety of different settlement types undoubtedly continued as they do today.

Alternatively, with the ability to produce surplus calories (and nutrients) in large quantities, why was there never a major population explosion which subsequently led to even larger settlements? Groube's (1989) micro-predation factor (along with other factors) may have checked population growth, but mountainous well drained Maluku seems less impacted by malaria than lowland New Guinea (although some islands in Maluku certainly suffer from malaria problems). Additionally, most historic accounts discuss the healthiness of Malukans despite cases of various epidemics. Nevertheless, little research has been conducted concerning malaria in Maluku and *malaria* in the local tongue often means any sickness with severe fever (i.e., verbal questionnaires may skew the statistics as opposed to blood testing). Technological, social and other constraints need consideration as well.

However, Maluku may have indeed been fairly populous in protohistoric times compared to Java. Due to high independence potential and subsistence systems, large populations would not have to equate to the formation of large settlements. No definitive population estimates are available for pre-colonial Maluku and a means and data set for accurately determining pre-colonial Malukan population

are not available. Evolutionists might claim that fitness enhancement resulted in larger population clusterings or restricted them. However, it is important to move beyond this simplified explanation and seek out other causal factors.

It may be that the long-term maturation rates of many resources, the spatial and temporal predictability of resources, the ‘sessile’ nature of most resources, the abundance of certain staple resources, as well as a number of other factors simply allow larger social aggregations rather than forcing the continuation of small social groups (i.e., related to the arboreal-based economy which may be incipient in the area instead of the often assumed primordial hunter-gather economy). Participation in village-level social groupings may indeed increase the individual fitness of many community members by increasing returns, reducing risks, allowing access to a larger resource repertoire, increasing production efficiency, etc. Participation in larger social aggregations may also increase the fitness of large social groups if indeed such larger units undergo selection at a larger than individual level.

Village-level social aggregations may have also facilitated rituals such as initiation of young adults and marriages (i.e., the village settlement was an important social locus rather than purely functional in subsistence economies). Nevertheless, if this were the case, one would expect perhaps the regional occurrence of larger settlement evolution despite any external factors and there is little archaeological evidence to support this.

Finally, before leaving the complex issues of settlement it is suspected that a dual residential settlement pattern (possibly ‘stacked’ or ‘nested’ both spatially and temporally) was likely typical in the past and continues to some degree in the present. These may be fractal as well. It is thus suggested that there was a conglomerate village settlement that served as central loci for one or several clans. This may have been inhabited purely on a part-time basis. Habitation of the village settlement may or may not have been seasonal in a sense that it necessarily phased with seasonal resource availability. Different members of a family may have inhabited the residence at different times. Perhaps different families inhabited a village residence at different times. The second settlement locus, and by no means the less important, was likely the garden house or forest house. These residential areas were probably dispersed throughout the total resource environment and supported smaller hamlet-like conglomerate groups, corporate groups, clans or families. It is likely that families maintained dual, perhaps multiple, residential affiliation. Each differed for a variety of reasons but served complementary purposes

(undoubtedly many overlapped). That traditional Malukan villages are frequently and significantly empty during any part of the year is strongly supported in ethnographic accounts.

Religion and Beliefs, Past and Present

Recently, Maluku was composed of Muslims-57%; Christians-43% (only 6% Catholic); Hindus and Buddhists-negligible. The distribution may be significantly different after the recent conflicts. Islam, probably the first relatively modern ‘world’ religion in the area, seems to have entered in the 15th and 16th centuries at the earliest and clearly entered through trade settlements and important trade nodes (e.g., Banda; see Lape 2000), particularly among the elite classes.

Galvao (in Jacobs 1970:83-85) relates that the Northern Malukans claim that they were converted by “Persians and Arabs” rather than “Malayans or Javanese” who were there at the same time in the 15th century. Lape (2000) also mentions the possible presence of Arabs in Banda during pre-colonial times. Initial elite class conversion is supported with Galvao’s statement, “even now their manners are heathen for the most part, and some people of the lower classes are still pagans” (Jacobs 1970:85). This hints that the commoners did not necessarily convert with title holders, chiefs, *rajas*, etc.

Rijali (Manusama 1977) suggests that the conversion to Islam occurred in Leihitu in Ambon during the 16th century. There are few specifics in Rijali’s account, however, other than that certain prominent heroes and leaders learned Islam during travels to Java. It is then implied that the people ‘followed’ the religion (i.e., converted to Islam-?) especially in response to growing anti-Iberian sentiment during the 16th century and anti-Dutch sentiment in the 17th century. Rijali states (in Miksic n.d., Alkissah X), “when *perdana* [title of a leader] Pati Tuban [Tuban, of course the name of the Javanese port, but also a title created for one of the four great leaders of Hitu] came from Java, *negeri* Hitu entered the faith of Allah and Nabi Muhammad and the religion of God’s prophet.” Apparently, at this time Ternate had already converted to Islam and the above statement clearly places conversion to Islam in Hitu around the mid 16th century. Rijali wrote during the 17th century and was passionately influenced by Islam vis-à-vis opposition to Iberian and Dutch forces and thus may overstate the thoroughness of conversion among the population. However, Rijali suggests that once a leader converted, all supporters followed suit.

Lape (2000) tends to suggest that Islamic communities existed in Banda (foreign and Bandanese) prior to colonial contacts. However, he suggests that they almost ‘dualistically’ existed

with non-Muslim communities. His thesis largely covers Islamization through archaeological and historic research. The archaeological evidence supporting a definitive date for Islamization (mostly faunal remains) may not be fine-grained enough to accurately place Islamization in a temporal or spatial context, although Lape's contributions are extremely useful.

Nevertheless, Islam seems to have escalated as well as Christianity in the period following rising conflicts with an outside force adamant about monopolizing and controlling the spice trade (and the local population). This large escalation seems to have coincided with a local desire to unify and resist the foreign (European) desire to control and monopolize, which may have resulted in Islam becoming particularly more attractive. Conversion to Islam may have allowed locals to more easily unify against an oppressor as well as call for additional support from non-Malukan Muslims.

Conversion and identification with Christianity perhaps became attractive as a way to resist other local rivals as well as ally with certain powers. It is interesting that the early colonial period witnessed heavy conversions to Christianity and Islam during a period of alliance formations and shifts (an 'either with us or against us' reshuffling), monopolizing spice trade by outsiders, and control/oppression of local groups while the previous 1500 years of interaction with various religious groups seems to have little effect.

Hinduism and Buddhism seems to have had little impact. There is virtually no archaeological evidence and basically no early historic evidence to suggest any influence at all. This may be construed as unusual despite obvious contacts during protohistoric times. Perhaps local custom and beliefs were so strong and stable that an allure towards Hindu or Buddhist conversion never took place. If Maluku were highly susceptible to earlier Hindu and Buddhist religious conversions, one would hypothesize that social groups able to 1) access and control large labor groups such as the Malukan naval forces described in historic texts, 2) groups that had access to wealth (especially through the spice trade), and 3) groups that certainly had access to food surplus, would be able engage in the monumental architectural construction coupled with an oral history that is commonplace in the Hindu and Buddhist kingdoms in western Island and Mainland Southeast Asia. Despite a possible yet questionable few and unverified cases of Hindu or Buddhist infiltration, it is without question that current evidence suggests little influence if any.

Malukans also may have been under no serious domination by groups to the west. Indeed, Prapanca notes in the *Desawarnana* (Robson 1995:34), "taking them island by island: Makasar... as

well as Wandan [Banda], Ambwan [Ambon], Maloko [one of the northern Malukan locales from which the name Maluku derives] and Wawanin [in Irian Jaya close to Central Maluku—perhaps close to the famed spice producing area of Fak-Fak], Seran [Seram], and Timur [Timor] as the main ones that remember their duty.” The last remark, “as the main ones that remember their duty,” strongly suggests that there were many other prominent and known places in Maluku that seem to have had little regard for maintaining formal ties with Java or maintaining a subordinate role. Also, the term “remember” has a hint (in English as well as Indonesian) of voluntary accordance rather than submission through absolute domination. Nevertheless, the mention of various place names in Maluku as subservient to Java during this period indicates that Maluku was clearly in contact with Hindu and Buddhist belief systems.

As stated above, outside groups appear to have had little interest in trying to overtake and conquer both Maluku and the spice trade during the protohistoric period. There may have been little incentive to adopt a new religion by the Malukans as a means of unification to ally various interest groups and resist outside oppressors invading with desires for control (such as the Portuguese and Dutch). The traditional mythology/religion also must have remained favorable and unthreatened. Furthermore, there may have been little desire for religious teachers to travel as far east as Maluku. Maluku truly was (and still is) a completely different world than protohistoric Java or Sumatra for instance.

Adat, as anyone who has worked in the Indo-Malay region can attest, is a very powerful belief system that differs from (sometimes fully contradicts, sometimes complements) and often intertwines with major world religions prevalent today and in the past. *Adat* is more than just traditions, customs and local beliefs. *Adat* is very powerful in Maluku and pervades Malukan cosmology, rituals, beliefs, daily behavior, physical realm, planning and virtually all aspects of life. *Adat* can relate to very mundane things but also very important, ritualistic and supernatural things.

Adat probably evolved to fulfill certain practical, social and psychological needs. However, it cannot be denied, like other belief systems, *adat* actively shapes the Malukan world as well. How much the symbolic actively shapes the real or is actively reshaped to suit certain needs in the real world is a question that will likely remain debated and unanswered.

Adat is certainly not immutable, being very dynamic in many instances. *Adat* is also very ancient and exceptionally conservative. *Adat* seems to occur as sub-regional, alliance, linguistic group,

other social group (e.g., *siwa/lima*), specialized social group (e.g., *kakehan, patasiwa putih, patasiwa hitam, ulisiwa, ulilima, pela*, etc.), village, religious, sex-group, age-group, vocational and even family levels. Interestingly, a regional-like *adat* could be argued to be a unifying factor that links Maluku as a region, past and present, despite internal competition and conflict.

Magic, witchcraft and sorcery are extremely important in past Malukan society and still have a powerful hold today. A whole repertoire of entities, spells, potions and supernatural powers are dispersed throughout the region. These are important in local belief systems, some of which are tied to *adat* and/or religion.

Kramat are located throughout the islands often in or near older historic villages. Some are auspicious places based on the lives, actions or burial places of real and mythical heroes and have a variety of shrines, while others are merely auspicious places or natural features.

Legends and myths are numerous and extremely interesting. Relevant myths are discussed below. As mentioned above, ancestors are vitally important and fit well within a broader Austronesian tradition of ancestor worship/respect, although various Malukan groups have developed their own specific myths, legends and beliefs.

Finally, it must be emphasized that Maluku has been a cultural crossroads for over 40,000 years. It is difficult to gauge what was borrowed, reinvented, or even distributed elsewhere as interaction with non-Malukans has surely been varied and continuous. It is difficult to gauge how much beliefs were influenced by Malukan neighbors and visitors to Maluku as well as the degree of influence Maluku had on others. The historic period is much easier to discern, but by no means easy. The protohistoric and prehistoric periods remain a mystery.

Linguistics

There are approximately 131 different languages, mostly Austronesian, but a significant number of West Papuan speakers primarily in Northern Maluku. According to estimates from reviewing numerous language sources, the total of 131 languages is an underestimate of all past and present distinct language categories and the number of dialect variations is significantly higher. This seems to have been the trend from at least the protohistoric period. Galvao (Jacobs 1970:75) mentions in the 16th century that:

These peoples have many and different languages so that the islands represent a Babel; for not only does every one of them have its own, but there are also towns with different languages. Some speak from their throat in the Hebrew manner, others from the point of their tongue. So they resemble Latins, Germans, Englishmen and Frenchmen. The [languages] are so many and so varied that neighbours scarcely understand each other, from which it seems to follow that the [islands] were populated by foreign crews. The kings, princes, and those who are familiar with them have a way of speaking not comprehensible to the others.

This last statement may reflect not only differences in languages based on ethnic/social groups but differences in language based on position in the social hierarchy as found in Javanese and also in languages such as Japanese (e.g., *keigo*). However, formal and informal speech depending on social status and context is apparent for most societies and it is difficult to determine whether or not their were ‘high’ languages and ‘low’ languages at that time that significantly differed by linguistic standards today. Galvao and others strongly support that their were elite tongues and that these followed social divisions based on class distinctions (the true nature of which may be slightly skewed by their interpretations).

The languages spoken prior to Austronesian presence were likely related to ancestral Papuan languages, although this is impossible to ascertain at present. Significantly different prehistoric languages could have been totally absorbed by both Papuan and Austronesian conversions. It is highly probable that many more Papuan-like languages were spoken throughout Maluku prior to the protohistoric period. The West Papuan languages spoken in Halmahera and neighboring areas may reflect a back-migration rather than descendent from the pre-Austronesian languages spoken in that same area. The proof for this, however, could be subject to debate and the current Papuan languages/dialects may have replaced older Papuan dialects. Unfortunately, this thesis is focused on the archaeological remains and cannot include a lengthy discussion on historical linguistics.

It was suggested by one examiner that “if Austronesian “contact” had as one effect the total replacement of all indigenous languages of central Maluku, which is well-documented, then one might suggest some rather overwhelming effect on all aspects of society, as has been suggested by Bellwood and others.” I cannot concur with this notion. Language is one of many aspects of life. My previous subsistence research suggests otherwise. Genetic and physical anthropological work suggests otherwise. After all, Chinese Singaporeans speak English but does that make them culturally, physically, etc. British?

Malay became the *lingua franca* prior to the colonial period in most of the trade centers in Maluku. In fact, some of the earliest letters written in Malay that are still preserved are from 16th

century Northern Maluku, written by normally Papuan speaking people. The period when Malay was adopted as the *lingua franca* is unknown, although Galvao in the first half of the 16th century mentions, “at present the Malayan language has come into vogue; and most of them speak it and avail themselves of it throughout the whole region, where it is like Latin in Europe” (Jacobs 1970:75), which may suggest that it was only widely adopted during the 15th and 16th centuries.

Currently, Ambonese-Malay (a creole) is spoken as an everyday household language especially among the younger generations while Bahasa Indonesia is taught in school and used in formal situations or among local interaction with non-Malukans. Most Muslim villages coastal or inland, and Christian, Muslim or Animist villages located in the interior areas of large islands maintain their presumably indigenous Austronesian or Papuan-based languages (Collins pers. comm.). Christianity has unfortunately taken its toll on indigenous languages thus leading to a loss of indigenous dialects among many coastal Christian groups (Collins pers. comm..), and it is ironic that most linguistic research efforts now are conducted by Christian groups such as the Summer Institute of Linguistics.

Historical linguistics currently has a major role in the archaeology of Austronesian speaking peoples (Bellwood 1997). It is tempting to model and link archaeological distributions with linguistic distributions in Central Maluku. However, with the complexity in Central Maluku (past and present) both archaeologically and linguistically, it is unwarranted to do anything other than speculate at present at the most general of levels. More will be discussed on this below, but it is emphasized again that caution is warranted when using historical linguistics to dictate archaeological models or vice-versa, or assume that evidence from one area necessarily proves/disproves models from another. The two fields are indeed complimentary, though quite often different questions are asked. Over-interpreting certain patterns vis-à-vis other patterns may be counter-productive.

Summary

In summary, most Malukans speak several different dialects and languages. Most associate themselves with a hierarchy of not necessarily nested, but overlapping social groups. Titles are complex with some titles intended for interactions with outsiders and some intended for interactions with insiders (see Dix-Grimes 1994). Phenotypic expression is very diverse. The subsistence systems are diverse. The social and physical environments in general are very diverse. Religion and *adat* are diverse. For all practical purposes, Malukan people, their lives and their environments in all dimensions are diverse and

there seems to be a penchant for diversity maintenance rather than any form of leveling or homogenization. This is undoubtedly a sign of a very rich, diverse and complex culture with a very rich, diverse and complex history. Future archaeology should be no less exciting.

Notes:

1. Incidentally, the use of coastal and estuarine fishponds seems to have been a practice common prior to Portuguese presence (see Jacobs 1970:67), an apparently rare practice in pre-colonial Oceania except in a few areas such as Hawaii.
2. The only Malukan group in the premodern era who seems to have been significantly involved in piloting their own ships to the western Southeast Asian entrepôts such as Melaka seem to be the Bandanese. There was a significant amount of local trade and travel in Maluku, but key trade areas such as Ternate and Tidore seems to have relied on seekers of spices to come to Maluku and engage in a form of tributary trade with the foreign goods redistributed by local rulers.
3. This basically means that a species area curve over a large area in Maluku may display an initial climb more steep than a plot from Borneo or New Guinea (i.e., the overall plateau indicating total number of species in the curve may be more quickly reached), but the overall plateau indicating total species should be lower in Maluku.
4. As another example, the *raja* of Gorom is traditionally a very respected, powerful and unchallenged position. However, in 1998 when I stayed in that village for approximately one month, the old *raja* had died and his son had recently taken the position. The village was very angered at the lack of ability of the new *raja*, his apparent unconcern with the village welfare vis-à-vis the economic crisis, and what they referred to as his, “apparent stupidity and inability to solve problems.” Part of the village had rebelled against his authority even prior to the economic crises and moved to another part of the island. Additionally, none of the teachers attended school (i.e., the teachers went on strike) due to the appointment by the new *raja* of a new headmaster that they disliked. While I was there the new *raja* only came from Ambon for three days to inspect a flooding crisis (which was not resolved) and then left without truly attending any problems. The villagers frequently asserted that his authority was dwindling to ineffectiveness. Some individuals even publicly defied a ritual prohibition (*sasi*) set by the new *raja* that forbade coconut extraction from the beach strand as a protest and statement to the *raja* and his family. On the other hand, some villagers still maintained that he was truly powerful, benevolent and deserved great respect. Nevertheless, there will always be variation among different members of the social group in regards to their interpretation of the nature of a title holder’s due rights, power, authority, influence, etc.
5. There are a fair number of women heroines (real and mythical) in Malukan folklore. Ziwar Effendi (1987:7) mentions Monia Laturima (Latu Uli Ulia dan Uli Hatuhaha) from Haruku among others.
6. However, archaeological evidence can help elucidate which physical settlements were likely involved in trade and exchange and whether or not they may have been involved in a formal alliance. Furthermore, the archaeological evidence can inform on the size and location of some settlement types during the protohistoric and early historic periods as will be discussed in depth below.

7. Manusama (1977) suggests that social and political unrest elsewhere in Indonesia during the 15th century may have been a factor in the movement of outside groups to Maluku, such as the Javanese, and other groups within Maluku to other parts of Maluku.
8. When Islam entered, at least regarding the consumption of animal foods, pork and Phalangers seem to have fallen out of heavy consumption except in animistic and Christian villages. Also, domesticated animals, particularly goats and cattle, are more prevalent in Muslim villages. One could admit that settlements differ based on religious factors (see Lape 2000 for an archaeological approach based on similar lines to assess Islamization). However, as indicated by Galvao (Jacobs 1970:145-146), the consumption of alcohol seemed little affected:

They never drink water; they consider it a courtesy to do so, and an act of civility to rise drunk or, as they call it, *koketo*. They pay no attention to the precept of Mohammed; but, while drinking like Flemings, they rather joke about it, soliciting each other that all may take part in it together. Though people admit and say that, where there are many vineyards strife will not be wanting, in these islands there is so much [liquor] and it is used in such large quantities that the report of it would not seem to be true.

This may also reflect the consumption of non-*halal* foods as well. It is possible that non-*halal* foods were consumed in secret or at least not consumed flagrantly in public. I have witnessed many such instances during ethnographic fieldwork.

Chapter 3: Introduction to Prehistory, Protohistory and Archaeology in Maluku

Brief Prehistory of Maluku

Archaeological evidence from Maluku, Irian Jaya and Australia strongly supports that human groups colonized Maluku around 40,000 years ago and possibly earlier. Initial colonizers likely included groups who were familiar with subsisting on strand and marine environments rather than relying on classic ‘hunter-gatherer’ economies (Latinis 2000).¹ Over time, new subsistence economies emerged to include a terrestrial arboreal-based economy (similar to lowland arboreal-‘sago palm’-based economies) and a highland root crop economy characteristic of Highland New Guinea. Stone tool kits remained relatively ‘amorphic’ for most of prehistory. Alternatively, organic tools kits were probably highly developed, although few sites have yielded well preserved organic remains.

Initial inhabitants were aceramic or pre-ceramic and apparently remained aceramic until presumably the arrival of ceramic bearing Austronesian speaking groups beginning some 4000-6000 years ago (Bellwood 1997, 1985). Unfortunately, the nature, degree and frequency of early interaction between Austronesian and non-Austronesian groups (including social and genetic intermixing) remains speculative at best. Details regarding subsistence evolution have been expressed elsewhere (Latinis 2000, 1999).

Interestingly, many indigenous non-Austronesian speaking groups and possibly indigenous Austronesian speaking groups (i.e., indigenous groups who may have abandoned non-Austronesian languages in favor or adopting Austronesian languages) apparently remained aceramic despite probable knowledge of ceramic production and proximity to ceramic producing groups. In fact, some groups in the region remained aceramic until the modern era. There is also the possibility that some Austronesian groups opted to drop ceramic production over time. This is a tropical island trend supported with archaeological evidence in some Oceanic areas, such as the Samoan Islands. The possibility of such trends beg interesting archaeological questions in Maluku and elsewhere. How important were ceramics? Were ceramics always in sufficient demand? Were adequate clay sources scarce? Were ceramic vessel substitutes more economical in some areas? Was ceramic production an economically lucrative pursuit?

For the last two or three thousand years (arguably longer), plants, animals and other resources have been moved back and forth from as far as Near Oceania to mainland Southeast Asia, China and as

far as India, and definitely to the Mid-East and even parts of Europe by one to two thousand years ago. The nature and extent of these larger trade spheres still remain poorly understood, as do the inter-linking subsidiary trade networks that composed the mosaic of inter-regional trade spheres, although Ellen's recent work (Ellen 2003) is a significant step forward to unraveling the complex web in Eastern Indonesia. The role that earthenware ceramics played in these networks (if any) as trade items, or as containers for trade commodities, remains enigmatic. Also the full repertoire of prestige and non-prestige trade items that circulated is not well understood, even during early historic times.

Maluku begins to emerge as a shadow in historic records around 2000 years ago due to a growing demand for cloves and nutmeg in an increasingly global market. By 'shadow' it is meant that the famous spices and other commodities from Maluku rather than Malukan place names are first mentioned. It is possible that the Chinese visited Northern Maluku and possibly Central Maluku from very early times (see Lape 2000a:287 who suggests possible Chinese trade contacts in Banda from as early as AD 500-600; also, recounted below, Galvao in Jacobs 1970 mentions a story that Chinese once visited Northern Maluku). Chinese contact seems less likely in the first millennium A.D. especially directly to Central Maluku but quite possible in the first half of the second millennium A.D. It is more likely that Northern Maluku and the Philippines were frequented by Chinese traders periodically in the early second millennium A.D. Nonetheless, extensive visitation, trade and colonization in Central Maluku seems improbable as Chinese and many other traders likely preferred visiting the trade entrepôts to the west. Galvao (Jacobs 1970:79-81) recounts:

Things being this way, ships or junks came here by the Borneo route. They were the first to be seen in these islands, and they always came from that direction. Some say they were Chinese, others hold them to have been Malayan or Javanese. They are not able to make up their mind so as to give you true information. Most of them incline towards the view that it was the Chinese, and that seems to be the truth because they are said to have been masters of India and its archipelagos, or at least to have sailed to them and to have traded there, as is proved by the buildings one finds there, and even the ink comes from China; and even now they sailed to Mindanao, Borneo, Malacca, and Siam... The Taibencus [Chinese] were the first to buy clove wholesale in the islands; people gave it to them in exchange for very little. It is not known how this trade came to an end, and much time passed when no ships came here.

This excerpt suggests with a certain degree of credibility that the Chinese were in Northern Malukan waters and trading with the Malukans direct at some unspecified point in protohistoric times. Cloves were mentioned in Chinese chronicles over two thousand years ago as courtiers were required to freshen their breath by chewing on cloves before council with the emperor. However, it is unlikely that Galvao's excerpt relates to that early Han period but may relate to a much more recent period (Song-Yuan). There are too few Chinese artifacts to verify direct trade prior to the 12th to 14th centuries. Some

evidence from Banda may hint at earlier trade (Lape 2000). Also, the Chinese play an important role in oral history as far south as Aru (see Dolcemascolo 1996 for instance). Direct or indirect trade is unknown, but most of the Central Malukan evidence from other sites reconnoitered thus far indicates only Song to Yuan period at the earliest. For instance, no Tang ceramics have yet to be recovered.

The consistent agreement that there was a lengthy time lapse outside of the presumably two or three generation memory is interesting. What exactly caused the disruption in direct Chinese trade is unknown. It could be a change in Chinese direct trading interests in Maluku, possibly less interested in spices or more interested in trading with the western entrepôts (probably in response to overall economic efficiency as a larger repertoire of desired items would be located in these ports). It is possibly due to changes in Chinese overseas trade policy. It is well known that lengthy episodes in the Ming period witnessed periods of enforced trade isolationism. The paucity of artifacts in Central Maluku dating from the early to middle Ming period testifies that this may be a significant factor. An estimation from Galvao's summation of local testimony vis-à-vis the archaeological record suggests the fifteenth century. Not unexpectedly, this is when many 15th century Thai and Vietnamese ceramics emerge in Maluku's archaeological record. More will be discussed below on these issues.

The mention of clove and nutmeg in early accounts, however, may as well be a reference to the geographic place now known as Maluku because clove and nutmeg are considered to be indigenous to Maluku and New Guinea. In fact, domesticated varieties are thought to be exclusively indigenous to Maluku, with cloves thought to be exclusively indigenous to Northern Maluku and nutmeg thought to be exclusively indigenous to Central Maluku, particularly the Banda Islands. However, assumptions of such extremely geographically restricted loci may be erroneous² (Yen pers. comm.).

Maluku likely commanded a relatively important position in early trade spheres as evidenced by the occurrence of several Dongson drums (especially in Central Maluku). These drums were undoubtedly an extremely valuable and symbolically important item during the late first millennium B.C. and early first millennium A.D. It is doubtful that these drums arrived in Maluku by accident or at a time that dramatically postdated their manufacture. The occurrence of these drums and connectedness within a large trade sphere also suggests that the late prehistoric socio-political organization in Maluku may have been more akin to a 'complex powerful chiefdom' rather than the several disarticulated 'tribal' or 'band-like' foraging communities often attributed to Malukans prior to the Colonial era. That is, the acquiring parties were likely complex polities worthy of such recognition by a power with the

technological sophistication and widespread Southeast Asian influence (attested by the distribution of Dongson artifacts) that the Dongson polity had. Whether or not the receivers were allied chiefdoms, federations or kingdoms is not likely relevant as all three indicates social political complexity and significant power.

Over the centuries from the first millennium A.D., there are many historic references to Maluku and spices (among other commodities) in Indonesian, Chinese, Indian and other sources, eventually as far as Europe. By the 14th or 15th centuries there may have existed Javanese or other west Indonesian trade settlements in Central Maluku and sporadic Chinese contacts in Northern and possibly Central Maluku. Several place names are mentioned in the *Desawarnana* as mentioned above, with the majority falling in Central Maluku and neighboring Irian Jaya. The Portuguese finally arrived in the early 16th century and the Dutch took over the spice monopolies in the early 17th century. Thus, the rest is history.

History of Archaeological Research in Central Maluku and Neighboring Areas

The following section is primarily designed as a brief review of the history of archaeology in Central Maluku. Lape's (2000a) Banda research, the only other major archaeological project conducted in Central Maluku to date, is vitally important towards a greater understanding of Central Malukan protohistory. Syntheses are provided throughout the discussions and interpretations rather than providing a separate summary. Additionally, excessive details of previous and/or ongoing archaeological work conducted in Northern Maluku, Irian Jaya, Southeastern Maluku, Sulawesi, Near Oceania and the southern Philippines are omitted to avoid thinning the main topic, Central Maluku. The numerous projects and research results are useful for assessing Central Maluku's place in the greater region and will be integrated in the discussion section rather than summarized here.

The history of modern archaeological research in Central Maluku is rather short and limited. There have been only a handful of studies and publications to date. Only three sites in Central Maluku have been systematically excavated to my knowledge (Stark 1995), although this number does not include the work that Peter Lape recently completed in Banda (Lape 2000a, 2000b, 1998). Lape identified 20 sites during his surveys on three islands in the Banda group. Most were tested for subsurface remains, although less were targeted for more intensive excavation and data recovery.

Earlier archaeological works that mention eastern Indonesia include van Heekeren (1957, 1958) and Röder (1959, 1940, 1938). Röder's work was conducted during 1937-38 and included an excavation at Dudumunir Cave, Arguni Island in the MacCluer Gulf (Ellen & Glover 1974:370). The excavation yielded over three meters of stratigraphy which included an upper layer with glazed ceramics and local earthenwares, underlying layers with earthenwares and lithic tools, and finally a pre-ceramic layer with numerous lithic tools. Unfortunately, all excavated materials were lost and no dates are available. It is unknown whether the glazed ceramics were European, Ming, Song-Yuan, Vietnamese, Thai, earlier Chinese wares extending back to the Tang period, or any combination of these. Based on general trends during recent archaeological work, however, anything predating the Song-Yuan periods is unlikely. The fact that there are three meters of stratified deposits with a preceramic layer is exciting and the site should be re-explored if possible.

Röder (in Bintarti et al. 1977:3) noted archaeological sites in Seram. Röder mentioned large caves and a very large site next to the Tala River in southwest-south-central Seram. The latter site was not re-identified during Bintarti et al.'s (1977) investigation and this site has not been investigated further. Although brief surveys were conducted in interior portions and branches of the Tala River during recent ethnographic and archaeological surveys, no archaeological sites such as the one described by Röder were noted.

As for modern archaeology, a significantly greater amount of research has been undertaken in Northern Maluku primarily due to the admirable projects launched by Peter Bellwood (Bellwood 1998, 1987, 1985; Bellwood and Koon 1989; Bellwood et al. 1998; Bellwood et al. 1994). Matthew Spriggs, among others, has taken a keen interest in Malukan archaeological studies since the 1970s and has conducted, promoted and aided several projects throughout the various Malukan regions (Spriggs 1990, 1994). Recently, East Timor has been targeted by the ANU teams with Spriggs' involvement and future publications of the findings will certainly be useful for comparing Malukan patterns.

D.D. Bintarti (Bintarti 1996; Bintarti et al. 1977) has maintained long-term interests in Maluku with special attention given to bronze drums, gongs and other metal-age objects scattered throughout Maluku. Bintarti (1996:1) notes that *nekara perunggu* (bronze kettledrums; generally Heger Type I) have been recorded in Leti, Luang, Kei, Kur, Serua, Buru, and Gorom Islands.

Bintarti et al. (1977) surveyed areas in Seram and Ambon during the mid-1970s. Bintarti's team visited caves in Rohuwa (Gua Morsegu; *Marsego=bat*, i.e., the 'Bat Cave'), Seram with little

success, although flake and blade scatters were noted 40 m west of the Upa Stream.³ Ceramic scatters were noted at Gua Hao Pinato (also Gua Batu Piring) 3.0 km west of Masohi in Seram. A 35 x 35 x 50 cm test pit was excavated which produced uninformative results. The team also searched for but did not find/reconfirm two other Seram sites; Negeri Lama Waraka (the Ancient/Old Village of Waraka, although, oral records suggest that there were seven past re-locations of Waraka) and Situs di Sepanjang Sungai Tala (the Site along, or as long as, the Tala River; an attempt to find Röder's site). Informants, however, stated that there were ceramic scatters at these sites with the latter containing a golden gong. The latter is unlikely, but it could be a reference to a bronze gong which would be less unexpected.

Two sites were also visited on Ambon Island by the same team. The first site is the Situs Negeri Soya which contains megalithic remains such as an alter stone and dolmen-like stone arrangements (i.e., *batu meja*). The second site is Negeri Amahu which contains one *batu meja* (literally 'table stone')⁴, four *batu pemali* (sacred stones), and a test unit '*liar*' (unauthorized)⁵ which may have contained some ceramics. Though interesting, these sites and the available information do not significantly contribute to the main topics of the thesis, but they should be archaeologically evaluated further which may in turn aid the current concerns greatly.

Sue O'Connor, Matthew Spriggs and Peter Veth, among others, recently conducted detailed research in Southeast Maluku (primarily the Aru Island group)(O'Connor et al. 1998). Their research has revealed Pleistocene human occupation at Lemdubu Cave and a significant record of faunal remains useful for ecological and environmental reconstructions. From personal communications, several historic and possible protohistoric sites were noted in surveys, but publications detailing these sites are not yet available.

Santoso Soegondho (Santoso 1998, 1995) heads the Balai Arkeologi in Manado and Diman Suryanto heads the recently formed Balai Arkeologi in Ambon (which is now likely defunct due to the current civil war). Both were promoting and conducting archaeological research in Maluku at the time that I was conducting my field research, although work in Maluku has undoubtedly slowed or ceased due to current social and economic troubles. R.P. Soejono has also maintained long-term interests in Malukan archaeology in order to integrate Malukan prehistory into a broader Island Southeast Asian perspective. There are many other Indonesian and foreign researches with interests in Northern Maluku (e.g., Mahirta 2000, 1998; Tanudirjo 1998) and Southeastern Maluku, however, further discussion will be restricted due to current lack of access to reports and theses covering the historic and protohistoric

sites they researched (Daud's and Mahirta's theses at ANU have been difficult for NUS to acquire despite requests lasting two to four years). Based on personal communications, their findings will be useful for integrating the data in this thesis into a more holistic understanding of protohistoric Maluku. Bill Dickinson's research into pottery petrography suggests a protohistoric and historic connection to throughout Northern, Central and Southeastern Maluku as well (discussed in further detail below).

Wilhelm Solheim (Solheim 1990, 1989) conducted preliminary work in Maluku (mainly Irian Jaya and Northern Maluku), although a large-scale project was never undertaken. Cave paintings and/or rock art has attracted the attention of some scholars and other enthusiasts (see Ballard 1988). Ian Glover and Roy Ellen (Glover & Ellen 1975, 1977; Ellen & Glover 1974) have provided useful publications regarding lithic tools and ceramic production/exchange in Central Maluku. Ken Stark (1995; see also Stark & Latinis 1996, 1992; Latinis & Stark 1998) oversaw excavations of the Labarisi Site in Buru, the Batususu Site in Ambon, and the Hatusua Site in Seram. Miller and Spriggs (Miller 1976; Miller & Spriggs 1976; Spriggs 1990; Spriggs & Miller 1979) conducted archaeological surveys in Central Maluku and also ethnoarchaeological studies concerning pottery manufacture (primarily in Ouw [Ouh] Village, Saparua) resulting in observations and interpretations that are extremely valuable. Wanda M. Hiariej (1981) also conducted an ethnoarchaeological exercise directed at cross-regional comparisons of modern pottery manufacturing practices in Saparua and Mare (the latter is located in northern Maluku).

Ongoing ethnographic, archaeological, and ecological research in Seram, and to a lesser degree in Ambon and Buru, continues as part of the more holistic ecological, archaeological and historic research that will hopefully continue in the future once the region stabilizes politically. The research targets settlement, land/resource use and management, subsistence, and site formation/abandonment within the traditional arboreal-based subsistence economies (Latinis 2000, 1999, 1998, 1996; Latinis & Stark 1998) as well as change during the late prehistoric, protohistoric and early historic periods. The current thesis is based on the protohistoric archaeological aspect of the larger research project. Unfortunately, as stated, the larger project has been forced to pause due to the violent situation in Maluku at present but it is hoped that research can be continued in the near future if and when the civil unrest subsides.

The works of Roy Ellen (2003, 1993a, 1993b, 1990, 1988, 1986, 1979, 1978) are invaluable resources for those interested in Malukan history, prehistory and ecology. Ellen (1990) assessed the history of nested exchange spheres in Maluku which are classified as local, intermediate, regional and

long-distance. Ellen lists exchange resources and notes that pottery plays a significant role. Ellen further notes the occurrence of several local exchange networks nested within larger spheres, although the circulation of prestige items in conjunction with utilitarian items and foodstuffs is not detailed other than implications that non-local porcelains and stonewares, gongs, metals as well as perishable materials such as textiles may have been part of the exchange of prestige items.

Sago for pottery trade is suggested in some historic sources from the eastern Seram area, but little mention is made of exchange networks in the very early historic sources nor are specific details provided. Sago and pottery exchange in the form of sago stored in locally made pottery would be an interesting topic, although Malukans currently prefer to use *tumang* (banana or palm leaf storage containers), even for long trips to Java and elsewhere (non commercial ventures where travelers will take Malukan wet sago in *tumang* for consumption at distant locales as witnessed on multiple occasions by the author while traveling on various ships throughout Indonesia).

One of the most complex historic trading regions according to Ellen's map (1990:211) occurs in Central Maluku. The boundaries and interactiveness of these networks should be partly reflected in the material culture, especially the earthenware assemblages.

Ellen (1979) has also assessed changes in Malukan subsistence, production, exchange and settlement in relation to changes in spice trade and Colonial impacts. His ideas are relevant for understanding protohistoric Maluku through the archaeological record as well.

Gasser (1969) compiled observations on pottery making throughout Indonesia that have implications concerning archaeology in Maluku (his maps include information from the Philippines and Taiwan, but apparently not the Bird's Head of Irian Jaya unless he was unable to find any potting centers during his research). Gasser's 'Plan 1' (insert map; Gasser 1969) highlights four traditional potting centers in Central Maluku; Saparua, Seram, Buru and Watubela (the latter is near Gorom, east of Seram), though he apparently only visited Saparua for detailed study. Gasser only noted twelve potting centers in all of Maluku from Leti (off the east coast of Timor) to Mare in Halmahera. Incidentally, Mare was listed as the only potting center in Northern Maluku. Additionally, only one potting center was noted in the Raja Ampat Islands near the Bird's Head of Irian Jaya.

Not listed on Gasser's map or discussed in detail elsewhere are additional villages in Central Maluku that specialize in the production of bricks, sago molds and other specialty items. Informants noted several of these areas during recent excursions throughout Central Maluku. It could be argued

that the production of bricks, sago molds, etc. in these areas may be closer to household production such that the products are rarely distributed beyond the local community and are not produced for extra-local exchange. However, there are several brick-making communities that market their products to a sizeable consumer population well beyond the neighboring villages, and there are other villages well known for the quality and style of the sago molds that they produce and market throughout the region. Although this type of ‘complementary specialization’ production at the intra- and inter-village level could be a recent phenomenon, it was likely established at least by the late prehistoric and protohistoric periods.

Nevertheless, the less obvious kinds of production centers appear to have not been the primary target of Gasser’s research agenda and were thus ignored or never given detailed attention, perhaps because bricks, sago molds and the like were considered too common, utilitarian and mundane at that time. Alternatively, specialization in ceramic production with few centers servicing a large area (Mare, Saparua and Kei for Northern Maluku, Central Maluku and Southeastern Maluku respectively) may be a purely historic development. East Seramese and Kei potters are thought to have immigrated from Banda in the 1600’s after the Bandanese were largely evicted from the islands (Ellen 2003). If early production among prehistoric, protohistoric and early historic communities were common with little inter-settlement demand, intensification and development of larger and fewer potting centers as well as inter-community exchange may have been hindered. Further considerations regarding the economics and ecology are discussed below.

Spriggs and Miller (1979) studied seven villages that had some form of contemporary pottery manufacturing tradition. The villages include: Ouh Village on Saparua Island, Oma and Haruku Villages on Haruku Island, Mamala, Morela and Larike Villages on Ambon Island, and a village in Tual on Kei Kecil Island (see Spriggs and Miller 1979:33, Table 1 for a condensed summary of pottery manufacture techniques). Again, details will be highlighted in following sections.

Maluku has been an important region for Southeast Asian historians due to Maluku’s role as a ‘spice source’ for at least two millennia and probably longer, although numerous other terrestrial and marine resources were vitally important (see Swadling 1995). A number of historians have focused intensively on Maluku (e.g., Andaya 1993). There are numerous ethnographic studies, historical works, and historic documents concerning Maluku that are also useful for the archaeologist in Central Maluku (see also Horvatich 1993 for an annotated bibliography). Numerous other historic documents and

historical works are valuable resources. These are discussed throughout the text rather than listed here. A large number of sources are listed above.

It is also important to note that the recent OXIS project in Sulawesi conducted by David Bulbeck has provided a wealth of prehistoric and historic data that is helpful for understanding Maluku as well. Details from the East Timor projects will be important as well. Research in Near Oceania, such as Summerhayes (Summerhayes 2000) Lapita pottery research is also relevant.

As a final note, most research conducted thus far has focused on ceramics in Maluku. Very few studies have incorporated extensive survey of particular sites and their possible surface features. Historic sources and some archaeologists have briefly mentioned hilltop or mountain fortresses (in rarer cases walled fortifications), but there is very little description beyond this. There has been some marginal work on megaliths, but megaliths are not the main focus of this thesis and few if any were encountered.

Further Considerations Regarding Archaeological and Ceramic Studies in Central Maluku

Two studies deserve additional commentary because they relate significantly to the current study. The first is Ellen and Glover's (1974) article concerning pottery manufacture in Central Maluku. One of their primary topics centers on the possibility of an indigenous pottery tradition in Central Maluku prior to about the 12th century.⁶ Ellen and Glover concluded that prehistoric pottery manufacture more likely occurred somewhere in Central Maluku. This is readily supported by Peter Lape's recent work in Banda, which dates locally manufactured earthenwares in and below deposits dated to 3100 years ago (Lape 2000a, 2000b) and current radiocarbon dates from Seram that places the lower level Hatusua Site ceramics clearly in the 8th-10th century A.D. range.

Ellen and Glover's research also launched ethnoarchaeology in Central Maluku through their analysis of pottery manufacture in Ou (Ouh) Village, Saparua Island, thus, leading a series of ethnoarchaeological studies conducted in the same area. They also provided an excellent historic backdrop and discuss issues of exchange, diffusion, copying or replication of non-local design elements and vessel forms, etc. Finally, Ellen and Glover introduced ecological and economic issues that have implications concerning the development of potting centers.

Nevertheless, the prehistoric nature of pottery production in Central Maluku remains elusive at present. What were and where were the demands for pottery (i.e., where, who and how extensive was

the consumer market and what kinds of ceramics were in demand; utilitarian and/or ritual or prestige items)? Who filled the demands for pottery production and why did certain groups fill this demand? In essence, what was the evolutionary trajectory of pottery production in Central Maluku? How does this inform about settlement and other issues?

Pottery production and craft specialization is not frequently viewed as a ‘last resort’ option for survival in a degrading subsistence environment, although Ellen and Glover (1974) more or less raised this issue. It is seldom realized that potters must frequently exert taxing efforts to produce, market and sell their goods. Also, a strong demand for ceramic utilitarian wares (storage and cooking vessels in particular) rather than organic substitutes is often assumed (i.e., ceramics are not often regarded as a lesser quality and less economical substitute for organic vessels).⁷ Additionally, it is not known whether or not earthenware ceramics were in demand for utilitarian purposes, or for ritual and symbolic, and/or prestige purposes (as porcelains were from the early historic period until the present day), or both, though it is possible that all of these applied to protohistoric Malukan earthenwares at the local level.

The few early historic accounts of Maluku do not mention earthenware production, or any sizable consumption or high demands for earthenware vessels. Pigafetta’s accounts from the Philippines to Maluku (Nowell 1962) describe the occurrence of foreign porcelains, although mention of earthenware vessels or potting centers is virtually absent. However, this may be due to the ‘commonness’ of earthenware vessels at that time. Pigafetta may have assumed the reader had knowledge of its existence. Porcelain and glazed wares on the other hand were still considered highly valuable commodities both to the Europeans and to Southeast Asians at that time.

Galvao (Jacobs 1970) hints at the existence of some form of ceramic tradition in Maluku during the 16th century. However, Galvao (Jacobs 1970:141) relates that the early 16th century northern Malukans, “make little use of pots; for they cook meat, fish, and all the other necessaries in vessels of cane [bamboo],” which suggests no demand, or at best a relatively low demand for earthenware cooking vessels. In fact, the most prominent use of earthenware vessels according to Galvao (in Jacobs 1970:141) was storage containers for the elite to keep their valued goods; “They [the Malukans] keep them [coins, jewels, objects of gold, Javanese gongs, copper basins, pieces of ivory, porcelain, fine silk and cotton fabrics] stored in earthen vessels and hidden in the mountains, buried under the ground so that no one may know of it except two or three slaves who carry it there during the night.”

Additionally, Malukans almost assuredly did not export their earthenwares to a larger, extra-Malukan consumer market. All surrounding regions have evidence of early pottery manufacture with some exceptions in New Guinea. The only imaginable way that Malukan earthenwares were exported in considerable quantities would be as **containers** for extra-regional export commodities (perhaps foodstuffs, marine products, spices, bird skins, etc.), although organic and wooden containers could have easily served the same purpose (perhaps more effectively as they are less prone to breakage but more prone to faster degradation, possible infestation and may have a less desirable result on the items stored within).

Although there are several areas in New Guinea and Near Oceania that store sago and other foodstuffs in earthenware containers, Central Malukans generally store and transport their raw sago in *tumang*, containers made of woven palm leaves. However, it is known from historic accounts that sago, spices and other products were frequently and widely traded (Ellen 2003). It is possible that some of these items may have been stored in earthenware containers for inter-island shipment. It is also possible that formal exchanges of prestige items, trade commodities and foodstuffs were also accompanied by an exchange component involving earthenware pottery (and other items) that was considered so mundane that it was not mentioned in early historic accounts.

It is known that there was and still is a high demand for importing foreign stonewares and porcelains, especially when these items came to fulfill the role of *pusaka* and *harta* (family heirlooms, material wealth and items for marital exchange). According to oral history (perhaps a bit romanticized), severed human heads filled this role prior to the introduction of porcelains and celadons, although it cannot be ruled out that some earthenware vessels may have filled the *pusaka/harta* role prior to the demand for foreign stonewares and porcelains.

Nevertheless, based on the above assumptions there does **not** appear to have been a particularly heavy consumer market for earthenwares, although there may have been adequate local demand in certain places, particularly coastal or near-coastal sites as indicated by archaeological evidence in the form of abundant and dense earthenware scatters in some coastal and near coastal sites. Currently, pottery production is a somewhat poorly ranked economic pursuit and very few people obtain any significant wealth or prestige from manufacturing earthenware in Maluku today. However, many prominent potters and potting villages have rights (*hak*) to produce pottery and also frequently have traditional customers, thus, perhaps indicating that potters may have had a higher level of prestige,

respect and income in the past. When Spriggs and Miller investigated Central Maluku in the 1970s, this latter scenario seemed more apparent than recent observations suggest.

One hypothesis explored raised in this thesis (see also Latinis and Stark 2003) suggests that ceramic production was initially **not** economically lucrative in Central Maluku, but was rather a low ranking option vis-à-vis economic, subsistence or other related stress. Environmental degradation and/or population increase may play a role. Both factors force carrying capacity to be reached by increasing resource scarcity, thus increasing ‘stress’. This may have led some groups to alleviate stress by intensifying subsistence production, moving to better locations, or seeking other options to augment subsistence demands such as ceramic production in exchange for food resources or items that could be exchanged for food resources. Spriggs and Miller (1979:27) noted that potting villages were frequently located in environmentally degraded areas (i.e., deforested, especially sago poor areas, as well as fish poor areas) and that there was usually some form of food exchange involved (pots move from sago poor to sago rich areas).

If the hypothesis is true, some communities in smaller islands with limited terrestrial and/or marine resources and areas of higher population density would be expected to resort to ceramic production and exchange. This may also include communities in certain areas on larger islands that have comparatively larger and/or denser populations (e.g., southwestern Seram), or communities on larger islands that for various reasons have limited resources.

People in areas with ubiquitous and cheaper organic ‘substitutes’ and an adequate resource potential regardless of location or population density would not likely resort to ceramic production or exhibit a demand for ceramic products, unless required for ritual or other related purposes. It could be argued that communities with neither subsistence stress nor lack of organic substitutes may have engaged in pottery production and exchange because there was less risk involved. Thus, if they failed to market their goods successfully they still had food on the table. This may very well have been the case, but at present it could be viewed unlikely especially if there was very little demand for pottery in general.

Groups with ubiquitous organic substitutes, however, may resort to ceramic production to supply outside demands in exchange for needed resources if they experienced stress related to lack of adequate subsistence resources. Such areas may occur in some interior highlands and coastal areas on larger islands, although the former case in Central Maluku is relatively rare if not altogether absent.

Interestingly, because organic substitutes may be more economical for these groups, demand for ceramics would be reduced further as there would be no added internal demand, thus further diminishing the economic advantage of ceramic production and exchange compared to groups who take advantage of both internal and external demands.

Groups in areas with limited and ‘expensive’ organic substitutes but sufficient subsistence resources may exhibit at least an internal demand for earthenwares and may opt to engage in ceramic production. Interestingly, there would be no need to export or sell their goods to supplement subsistence resource repertoire and the nature of ceramic assemblages from one site to the next may be highly variable. However, due to the nature of most Central Malukan ecosystems few places truly lack ubiquitous organic substitutes. Parts of the north coast of Buru and a few highly degraded small islands are the few examples that are imaginable at present with the high degradation of many of the small islands possibly a more recent historic phenomenon.

Areas with low population density such as the lowland interior areas in most of Maluku and New Guinea likely have larger total resource environments and the communities can more readily opt to move to more favorable areas in times of environmental degradation and/or related subsistence and economic stress. Thus, there would be no need to develop a compensating production and exchange industry. Additionally, non-marine oriented lowland groups (i.e., groups living on the coast that engage in a terrestrial arboreal-based subsistence economy) may utilize a more environmentally conservative subsistence strategy. Again, such groups would not likely experience enough subsistence stress pushing them to resort to ceramic production and exchange as a form of subsistence stress relief.

Ellen and Glover (1974:365) suggested a very similar if not identical hypothesis to the one mentioned briefly in the first case above:

No single or simple explanation will adequately explain the irregular distribution of pottery in eastern Indonesia and Melanesia, rather we must look for multiple explanations which apply to differing extents in various cases. Certainly resources are unevenly distributed... some small communities may well have perished through disease, starvation and war. But economic and demographic factors must be stressed; where pottery or other craft products were regularly made for export to neighboring communities there was commonly an import of food (Brookfield with Hart 1971:327; Groves 1960:5). For small islands which have outgrown their subsistence resources economic specialisation may often be a more acceptable alternative to emigration or the intensification of food production; and such trading links with neighboring communities to exchange craft products, ornaments, fish, vegetables, salt and pigs yielded social dividends, perhaps more valued than the goods exchanged. Moreover, the very fact of water communication makes long-distance trade possible...

In partial support of the proposed hypothesis, pottery production of the last century in Maluku has been relatively restricted to small islands (Ellen & Glover 1974:364, 365, 367; Gasser 1969; Spriggs & Miller 1979; see also Ellen 2003 and 1990 concerning the role of small islands as crucial trading nodes and production centers). According to Gasser (1969), most of the potting centers in islands like Timor, Sulawesi, Borneo, Java, Sumatra and most islands in the Philippines are rather evenly distributed, while Malukan potting centers appear patchy and restricted to smaller islands with the exception of an interior potting center in Buru and a potting center on the north coast of Seram. However, 1) due to the sago-based economies, which provide an almost endless amount of cheaply processed starch, 2) adequate protein, fat and food variety in the local diet (Latinis 1999), 3) environmentally conservative subsistence practices (Latinis 1999), and 4) an historically low population density, it remains debatable whether or not small islands or more densely populated areas on larger islands in Maluku ever experienced severe stress, especially prior to the 17th century.

The few recently surveyed protohistoric walled settlements may suggest otherwise as the occurrence of fortified sites in areas such as Oceania are frequently assumed to indicate high population density, resource stress and competition/warfare related to environmental degradation, resource scarcity, etc. Nevertheless, it has yet to be determined if these ‘possibly fortified’ sites in Central Maluku were a) trade settlements inhabited by non-locals, b) settlements under frequent attack by headhunting or war parties, c) settlements that exhibited walls as a symbolic feature, or d) some other unknown factor unrelated to resource scarcity (there is always the possibility of soil capture, moisture retention or wind erosion reduction as in parts of Hawaii, but this is highly unlikely in Central Maluku).

Alternatively, one could argue that it was the attraction of pottery production and exchange (possibly for exotic goods, possibly for food, or both) as a desired economically and socially enhancing pursuit that led to increased emigration and population density in production and trade centers. Increased population density resulting in greater food demands from a limited terrestrial environment as well as high fuel costs for maintaining pottery production may have subsequently led to environmental degradation. In this scenario, the degradation is the result of pottery production and trade rather than the cause.

Additionally, the ‘food for pottery’ relation needs further examination. Was food in demand in potting centers, or did potting centers in Central Maluku generally have sufficient subsistence resources? The importation of food may have been a result of food being the only surplus item or

currency that some local groups could accumulate to purchase pottery. Was the food in turn traded elsewhere; perhaps for raw materials and fuel, exotic goods, etc.? It is possible that sago was traded for pottery to the potting/trade centers and that sago was subsequently traded as supplementary payments to trading vessels for exotic goods, etc.—thus, the vessels did need to stock foodstuffs for their return voyage back to the entrepots to the west and sago was a key starch staple. Despite all of the potential problems that need to be addressed when examining these issues, however, the hypotheses remains intriguing and worth future attention in the future. The various case scenarios above should be partially discernable through increased survey, excavation and analysis especially of the earthenware ceramic assemblages (or lack thereof).

Finally, it should be briefly mentioned that the ‘uneven distribution of potting centers’ and the sometimes seemingly erratic distribution of goods may have been due to many social factors such as alliance relations, religion, traditional production/distribution/consumption rights, village or potter movement, etc. (see Spriggs & Miller 1979). Additionally, inland sites are less likely to have intensively produced (at least for an extra-local market) or consumed pottery due to high distribution costs (no roads or pack animals other than humans), while coastal sites are more easily supplied, etc. due to water transport being a more efficient means of distribution (Spriggs and Miller 1979).

The second important research program in Maluku that deserves additional consideration is Spriggs’ and Miller’s project in Central Maluku (see Spriggs 1990). Their work represents the first truly systematic and research question oriented archaeological survey in Central Maluku. Spriggs and Miller attempted to examine the antiquity of earthenware traditions in Central Maluku and subsequently explore Central Maluku’s position within Austronesian history, initially using Ellen and Glover’s work as a launching point.

During their field research, Spriggs and Miller identified twenty *negeri lama* sites (literally old settlements; 38 sites according to Miller 1976), one of which was the Amatomu site (probably part of the larger Tomu Site described below) and eleven cave or cave-complex sites, one of which was the Hatuhuran Cave Site (now known to be part of the larger Hatusua Site). *Negeri lama* sites (initially defined above) generally refer to a number of abandoned protohistoric and historic open-air sites that are often ancestral settlements of nearby villages and sometimes contain dense earthenware scatters with varying percentages of foreign stonewares and porcelains. However, many *negeri lama* as defined by the local inhabitants generally fall into the category of multiple successive ancestral settlements, many

of which have no easily discernable archaeological signatures. Most, however, are generally historic and include sites like Kapahaha near Mamala and Morela on Ambon Island which only has a 17th century and later visible surface assemblage. Although it is possible that the antiquity of such sites could date back further, they would not likely have existed as a large settlement, but rather more likely as an agroforestry, hunting or retreat area used intermittently with perhaps sporadic campsites.

Spriggs (1990:50) also suggests that there was an historic settlement movement towards the coast and that, "this change in settlement pattern reflected the desire of the colonial powers to remove villages from easily defendable and inaccessible positions to controllable (and taxable) sites along the coastal communication routes." Such a settlement shift at the hands of Colonial forces is true for many villages. However, many movements arguably occurred prior to the Colonial period, and possibly prior to Javanese or other non-Malukan presence (perhaps by several centuries). Some of the earlier large sites appear to have been wholly abandoned and all but forgotten around or before the 14th-15th centuries (e.g., the Hatusua Site). Needless to say, significant settlement shifts did occur in the early historic era.

Thus, at least some of the more coastally oriented *negeri lama* sites and some of the historic/late prehistoric village movements probably reflect a settlement shift during or prior to the 13th-16th centuries, perhaps related to increased trade connections and demands for spices and other commodities, or possibly due to disruptions in the trade. According to Rijali in the *Hikayat Tanah Hitu* (Manusama 1977 as mentioned above), four of the dominant coastal villages in Ambon on the Leihitu peninsula were formed by non-local settlers as early as the 13th and 14th centuries, one of which was supposedly from Java (although foreign emigration may be more myth than reality). That is, some of the settlement shifts may also reflect the appearance of emigrant non-Malukan communities (e.g., Javanese, Malay, Butonese or Bugis among others). On the other hand, settlement shifts and village fissioning are common in Malukan land use and settlement patterns for ecological, subsistence and social factors. (It is clear, and stated above, that historic references, oral history, and evident economic and social disruption factors indicate that the late protohistoric period was a time of resettlement, significant social and economic changes and much movement of people.)

Interestingly, the immediate boundaries of many ceramic bearing *negeri lama* sites can be effectively discerned through the distribution of earthenware ceramics. This is true for both the Tomu and Hatusua Sites. Additionally, if useful seriations can be derived, *negeri lama* sites may be more readily dated and more easily arranged temporally. Thus, ceramic assemblages can help elucidate the

patterns of settlement shift over time. However, it must be reiterated that ceramic bearing sites likely form only a small percentage of Malukan sites, and, although many of the historic and protohistoric *negeri lama* sites contain ceramic scatters, not all *negeri lama* sites bear ceramics.

Regarding earthenware ceramics found in many *negeri lama* and other sites, Spriggs and Miller note that the often red-slipped and incised/impressed earthenwares fit well within the island Southeast Asian Neolithic and Metal Age sequence (Spriggs 1990:52, 55). Spriggs and Miller further discuss the occurrence of ‘ridge-rims’ (prominent exterior ridges, flanges or ‘collars’ that are located near the rims of the vessels). Ridge-rim earthenwares may have parallels from areas east in Humboldt Bay and the MacCluer Gulf, and north in Mindanao, but apparently not in Sulawesi or Timor (Spriggs 1990:55). However, based on extensive surveys during the current investigation, the occurrence of ridge-rims is rather geographically restricted to the Piru Bay and Leihitu Peninsula areas on Seram and Ambon respectively, and temporally restricted to the late prehistoric, protohistoric and early historic periods.

Peter Bellwood recently commented that they were unknown or uncommon to many Northern Malukan sites (Bellwood pers. comm.). Miller and Spriggs (1976) noted a slightly wider distribution of ridge rims on Ambon and some on sites in Haruku noted in recent surveys. Interestingly, they did not observe ridge rims in the Kai (Kei) or Banda islands, although survey in these locales was much more limited. During recent surveys, ridge rims were rare or absent in sample assemblages observed from east Seram; Geser, Gorom and Buru Islands; as well as recent assemblages post-dating the 18th century, including museum collections in the Siwa-Lima museum, other community museums and personal collections representing earthenware traditions throughout Maluku (most of which are 19th and 20th century).

Incised designs on most of the decorated earthenware sherds have similarities with an Austronesian tradition that covers a much more extensive area and temporal sequence, some of which seem relatively similar to Kalumpang designs from Sulawesi while others seem to display more affinity to New Guinea and Near Oceanic design traditions. Most designs seem to fit well within a ‘Sa-Hyunh Kalanay’ tradition characteristic of the late first and early second millennia AD. Finally, some designs seem loosely similar to Lapita traditions. Nevertheless, at a more refined level of analysis, many of the motifs or design combinations from the assemblages described in further detail below seem totally localized to Central Maluku and many appear further restricted to the Piru Bay-Leihitu Peninsula area in

West Seram and Ambon, although there is little question that the design elements reflect a broader Austronesian-like heritage.

Incidentally, although Miller and Spriggs (see Miller 1976) analyzed 1,357 earthenware sherds, it is presently difficult to incorporate the classification scheme into the current database except at a coarse level. Nevertheless, attempts will be made to accommodate the data in the future. Also, many of the assemblages that were analyzed by Miller may be more recent historic examples than those that are targeted for current research.

Finally, Spriggs and Miller also conducted ethnoarchaeological assessments of the Ouh (Ouh) potting center and suggest that the Ouh Village pottery tradition may in fact be a relatively recent phenomenon. They further suggest that there are some indications which point to an ancestral potting tradition in central to western Seram (e.g., the style of pottery from Hatuhuran, Seram and oral testimonies suggest that two villages with ancestral roots in Seram emigrated from Seram while maintaining their pottery tradition).⁸

Notes:

1. Early groups in the region may be ancestral to the indigenous non-Austronesian peoples in the area today (e.g., Papuans). However, it is not likely that only one initial migration took place. Whether or not multiple migrations occurred sporadically, in systematic waves, or were relatively continuous is unknown.
2. Botanical evidence (often based on historic assumption) indicates that domesticated varieties of cloves and nutmegs grown today and during Maluku's colonial period are indigenous to Northern Maluku and Banda respectively. However, wild and intermediate varieties are less geographically restricted and may be indigenous to New Guinea or at least a larger region encompassing New Guinea and parts of Wallacea (Yen pers. comm.). Furthermore, islands such as Ambon, Seram and Buru were certainly capable of sustaining clove and nutmeg production (as they are today), but were not recognized as areas where these plants could have been 'domesticated' from very early times. The explanation may be because Banda, Ternate and Tidore became important trade nodes for the acquisition of the spices and thus became synonymous with the spice producing islands. This in turn may have perhaps erroneously led many researchers to think of these specific islands as the 'only' islands that produced spices. There are currently very few, if any, data to support or refute such claims.
3. Surface lithic scatters (most of which are likely natural) are somewhat common and more visible in central and eastern Seram and Gorom. Although many appear strikingly archaeological, caution is warranted against assuming that these were tools or manufacturing debitage without further archaeological assessment. Most scatters that were examined during the course of fieldwork were natural rather than anthropogenic.
4. Most indigenous villages have a *batu meja* which is associated with or considered a physical manifestation of a variety of things relating to the village's origin, history, leadership, and social and physical stability. The *batu meja* are not typically cut, carved, shaped or altered in any unique way, but are often natural large stones that are arranged in unique manners.

Some are left in the *negeri lama* (old villages), while others are moved with successive movements of the central village or hamlet.

Some East Indonesian villages have extensive megalithic remains or actively engage in quite large megalithic traditions. For the most part, there is currently limited evidence of this practice in most parts of Central Maluku and limited with the exception of platforms, batu *meja* and what may have been seats, symbolic monoliths and other enigmatic and generally small scale remains; nothing at the scale of megalithic remains found in Sulawesi, Sumatra and elsewhere in Southeast Asia. The 'age' of any megalithic tradition in Central Maluku remains unknown.

The batu *meja* and other megalithic-like remains likely served as some form of ritual area where offerings were placed and rituals performed in connection with animistic beliefs and/or a form of ancestor worship. They may have also served as 'seats' of some sorts for chiefs during important addresses, ceremonies and/or council meetings. These interpretations are purely speculative at present.

The only confirmed interpretation is that modern villagers feel that these stones are part of their settlements' histories, that the stones are connected with past ancestors/spirits, and that the stones are often connected with magic or power that can either be benevolent or harmful.

Many informants relayed stories of how sacred stones magically returned to their original spots when removed. There are also many stories describing how photos taken of these objects and other mysterious stones and rock formations fail to develop when the photo is processed.

Again, the dates of inception or abandonment of these quasi-megalithic remains, any associated rituals or beliefs, etc. remain unknown.

5. An **unconfirmed** (and it is stressed that it is very much 'unconfirmed') accusation by the same team pointed at Miller for the unauthorized excavation unit. It is feasible that the disturbed area may be the remains a looter's pit, however. As elsewhere, throughout all of Southeast Asia, there has been and is an increasing problem with artifact looting. Grave goods and 12th to 19th century glazed ceramics as well as shipwreck cargoes are heavily targeted in Central Maluku.
6. The 'late prehistoric period' (protohistoric) was probably around the time of regular Javanese commercial contacts with Maluku as detailed above, although, as to when the Javanese presence was established in Central Maluku varies; e.g., see Andaya 1993:2 & 1991 who suggests the late 14th and 15th centuries, Manusama 1977 who suggests Javanese presence by at least the mid 15th century, and Pigeaud 1962 listing several Malukan place names in the *Desawarnana* suggesting Javanese presence/contacts may have been well established by the mid-14th century. Recent radiocarbon analysis and the long history of Eastern Indonesian artifacts distributed elsewhere coupled with non-local artifacts found in Eastern Indonesia suggests contact with Western Southeast Asia in the Dongson, Funan and particularly Srivijayan periods.
7. For example, in many ways the apparent durability of bamboo surpasses that of ceramics. If one were to drop a ceramic container on rocks, it would likely break; a bamboo container would likely not. The ceramic vessel may last longer if handled properly, but this may not be a concern to the buyer, especially if the former (bamboo) is cheaper and ubiquitous. As for cooking vessels, ceramics are far more reusable than organics (e.g., bamboo). However, does this mean that they are more preferable? Several upland Central Malukan informants have not hesitated to offer that food cooked in bamboo, "tastes better." Also, what was the nature of most of the cooking? Cooking over direct heat, smoking, steaming, adding hot rocks to substances in a container, adding hot water to a substance, eating raw food, etc.? Malukans have perhaps more historic and extant cooking methods than many neighboring regions (also an interesting observation noted by Charles Lamareux, pers. comm.).
8. Seram Island, however, is known as the 'Mother Island' in Central Maluku. Many oral histories generally suggest that everything including plants, animals, traditions, all villages and ethnic groups derives from Seram (e.g., the Nunusaku story roughly parallels a Garden of Eden story with Nunusaku playing the role of the mythical source that existed somewhere in highland central to west Seram; many informants claiming around the vicinity of Manusa

Village). However, the *Hikayat Tanah Hitu* (Manusama 1977) suggests that there are Seram origins for many of the current Malukan villages on Ambon's Hitu Peninsula facing Seram sometime prior to the 14th or 15th centuries, although there were certainly people on Ambon prior to outside immigration. Furthermore, Seram (among other places in Maluku; some of which may refer to Seram, places in Seram or islands such as Geser and Gorom, adjacent to Seram) is specifically mentioned in the *Nagarakertagama/Desawarnana* (Pigeaud 1962:33-34) as a Javanese tributary by the 14th century, thus further suggesting that Seram may have been a somewhat important place at that time. This somewhat counters Ellen's (2003) interpretations that eastern Seram and the immediately adjacent islands were more prominent in early history and late protohistory than western Central Maluku.

Chapter 4: Survey, Site Description and Sampling

This chapter details original and subsequent field surveys and sampling strategies during the course of several field seasons in Central Maluku from 1992 to 1997. As goals for each of the several projects which allowed supplementary archaeological fieldwork were different, a single systematic approach was not possible. Nevertheless, the archaeological research that was completed provides a useful holistic approach which undoubtedly adds to the understanding of Malukan protohistory. Survey areas and sites in the following paragraphs are clustered by geographic area, field excursion periods and sites that received more intensive investigation.

Luhu and the Hoamoal Peninsula

One of the central purposes of the initial field investigations in Luhu and Hoamual was to survey and assess protohistoric sites throughout an adequately large area in Central Maluku including Seram, Buru, Ambon, Haruku, Saparua and Gorom Islands in order to sample Central Maluku—not an easy task with a limited field crew (two persons). The goal was to sample different areas less intensively rather than a single area intensively. Small surface collections were occasionally acquired at some sites when possible. The most promising sites were revisited for further assessment.

A brief survey was made to the Hoamoal Peninsula on Seram in 1994. The areas intended for survey included Luhu, Waiputih and Tanjung Sial (Tanjung Siyal). These locations are all on the eastern or southern part of the peninsula (i.e., the Piru Bay area). Many place names are frequently mentioned in historic sources and some were identified as fairly important locations during the early colonial period. The survey was conducted by the author and one assistant, Henry Pasilan, from 23 June 1994 to 25 June 1994. Subsurface testing and collection of surface scatter samples were not permitted at that time.

Luhu currently consists of a small fishing and horticulture/agroforestry village, supplemented by household *minyak kayu putih* industries (eucalyptus oil). Numerous raised limestone formations exist in the mixed forest and secondary growth areas around and behind the village. Most of the vegetation consists of fruit and nut bearing trees with numerous garden plots. The topography is fairly steep in many locations. There are numerous limestone caves in the area and several intermittent streams.

Informants claimed that the original settlement (*negeri lama*) was located in the hinterland mountains prior to the arrival of the Portuguese. The informants did not specifically note a village, only that the people had lived throughout the forest. The informants further stated that the inhabitants were eventually forced to the coast during confrontations with the Portuguese and Dutch. Certainly, this is partially corroborated with historic sources regarding the Dutch conflicts in the area, although it is not clear whether or not the initial inhabitants 1) lived in the hinterland areas permanently, 2) maintained a retreat settlement/fortress in the hinterland to be used in times of conflict or danger from raiding war parties, or 3) lived in garden houses throughout the area with a separate settlement located elsewhere.

Many of the caves adjacent to the Luhu area contain earthenware ceramic sherd scatters, varying percentages of non-local glazed porcelains and stonewares, and shell remains eroding out of deposits. Whether or not the tradewares are more recent colonial and late Ming era wares is unknown, although many appeared Chinese and have the characteristic cobalt blue on white designs that generally indicate a mid to late colonial context. At that time, field identification of the exact nature of the non-local ceramics was not possible.

A cave known locally as Gua Marsego was visited (literally ‘Bat Cave’-a common name throughout the region for many caves due to the presence of bats). The cave contains a limited amount of historic pottery sherds as well as many bats and considerable deposits of bat droppings. Although the cave has a high ceiling and an overall area of approximately 100m by 20m (2000m²), the deposits were wet, thick and composed mostly of bat guano. Incidentally, caves with wet deposits generally have few archaeological remains with the exception of the Hatuhuran caves near Hatusua in Seram. Caves with dry deposits more frequently exhibit archaeological pottery scatters. This pattern is not surprising as damp caves provide little incentive for temporary habitation or other use.

The local roads contain red sandy clay deposits with no visible artifacts eroding from the surveyed locations. There seems to be a fair amount of quartz-like and waterworn stream cobbles as well as limestone rocks on one side of the road, however. Nevertheless, whether or not this is unusual or natural is unknown.

There are several flat manuport stones in the area that may serve as whetstones. Similar whetstones are still in continual use today for sharpening *parang* (bushknives or machetes). They do not exhibit any evidence that they were ever used as stone adze or axe grinding stones, however.

The crew visited the Huamual (also Buamual-?) Fort in Luhu which is claimed to be a Portuguese era fort/ruins close to the beach. There were many earthenware sherds with thick rims that had moderately flat and undecorated rims and generally expanded in thickness considerably from the neck to the lip. The sherds are generally reddish, many of which have a red slip with a gray splotchy appearance (perhaps the gray splotches were accumulated as a post-depositional process, mold or even lime deposits). Most of the sherds have a white peppery appearance, perhaps an additive composed of shell inclusions or perhaps the foraminifera marl characteristic of the Ouw produced pots from Saparua. The sherds are dense and undecorated with occasional occurrences of incised designs. It is doubtful that the assemblage predates the colonial period. It is unknown if a buried assemblage continues and how old buried artifacts are if they do indeed occur.

The field crew was taken to a site known as the *mesjid lama* ‘old mosque’. There are dense scatters of earthenware sherds covering a large area. Some of the rim sherds are decorated. There are some foreign tradewares as well, some of which are possibly 15th century Vietnamese or Chinese (blue and white), but most are likely more recent mid to late colonial artifacts.

The team explored numerous areas continuing south along the coast. Dense vegetation cover precluded good artifact visibility. The crew did not encounter any additional ceramic scatters or archaeological remains. It was not possible to continue the survey all the way to Tanjung Sial. It is suspected that there are several archaeological scatters (colonial and pre-colonial) that exist, although the crew did not have the time or money at that date to conduct additional survey.

A return trip was planned for 1999 to resurvey the area more systematically and to include Tanah Goyang, Ketapang and Kaibobo (the latter on the east side of Piru Bay). Unfortunately, this survey was unable to be carried out due to the ongoing violence. Another assistant, Yonki Tupamahu, and I did manage to resurvey parts of Piru during 1998. This will be discussed separately below.

Yonki Tupamahu managed to visit the west coast of the Hoamoal Peninsula in 1998. He surveyed much of the area en route and conducted intensive survey on Pulau Kelang, but did not encounter any sites. It is expected that at least a few sites exist and future survey is warranted. The areas at the far south end around Tanjung Sial (the point of ill fate or point of misfortune) are rocky and steep with few soil deposits of any considerable depth. Yonki did not encounter any ceramic bearing sites, but noted that the locals commented on many natural rock features where boats and cannons had supposedly turned to stone by magic (turning to stone myths are common in Maluku). There is also

reportedly an old *kramat* nearby, but Yonki was unable to visit the site. Incidentally, one elder in Hatusua remembered part of a legend that relates Hatusua with Tanjung Sial, but he had forgotten the entire story and most details, only intimating that there was an ancient connection in the oral history. Yonki did manage to find what he believes to be colonial era *tiong* (tall stacks of rocks used as markers), perhaps *batu pemali* (generally ancestor stones, but often attributed to various real and mythological heroes and sometimes confused as *kramat*). Yonki encountered a ceramic bearing site at Wayasi which may have some potential. A surface collection was not made and Yonki believes the site to be historic.

Again, there are likely sites that were missed due to poor visibility and lack of a more intensive sampling procedure. This is not unexpected. It must be noted that it is possible that the Hoamoal Peninsula may not have been a popular location for larger settlements defined by large ceramic scatters during the protohistoric period. The area may very well contain poor bays or ports as well. It is also possible that such sites do exist but they lay under heavy soil and detritus overburden as well as being masked by the forest. Many of the current residents are Sulawesian migrants and know very little of the local history.

It is suspected that most of the sites and artifact scatters described above represent colonial period sites rather than protohistoric sites. However, Peter Lape's recent work on Banda revealed pre-colonial strata underneath colonial/historic sites, although the pre-colonial strata were not generally earlier than late first or early second millennium A.D. Nevertheless, the Banda Islands are small and volcanic with much less habitable land. Settlement may have necessitated continual use of the same locations, while on the larger islands such as Seram this may have not been the case. Above and below it is argued that the characteristic prehistoric pattern of settlement in the larger islands was likely more of a shifting nature spatially and temporally (i.e., few sites are expected to have been intensely occupied for more than a few hundred years maximally).

As a final note, the mention of many boats turning to stone around Tanjung Sial may indicate that there may be shipwrecks in the narrow water corridor between the small islands off of Asilulu on Ambon and the Tanjung Sial on Seram. One day, it may prove to be worth underwater archaeological exploration. Additionally, it should be emphasized that Malukan waters have a high potential for historic and protohistoric shipwrecks.

Piru

The village of Piru at the northern end of Piru Bay was surveyed in the 1992 and 1998 field seasons. No sites other than what appear to be occasional recent historic scatters were noted. Beach, mangrove and some inland areas were surveyed but briefly and sporadically due to time constraints. Piru does have historic importance, however. It is likely that there are some earlier settlements in the area that may have been related to protohistoric trade, as with the Tomu and Hatusua sites discussed below. There is a high probability that somewhere near Piru, Kaibobo, Rumakai and the Huamoal Peninsula there are similar walled settlements with high concentrations of earthenware ceramics.

Lumoli and Hinterland

A 1992 survey was conducted with Ken Stark and Yunus Metiari from Piru to Lumoli further in the interior of Western Seram. No sites were noted on route. Lumoli and the surrounding area did not appear to have any visible archaeological deposits. Informants discussed the existence of several *negeri lama* but were partially reluctant to escort the team to the sites and partially confused as to how to get to them. The team traveled to one location further upland. A stacked stone wall that appeared to be defending a hillslope retreat was noted. It was intermittent and at least 10 meters long but difficult to estimate the true length due to dense vegetation. It was said to be the location of a Portuguese battle. A few ceramic sherds (earthenware) were scattered about but may very well have been more recent remains. No other features were noted.

The team continued upslope to a rock overhang which had a wooden and split bamboo sleeping bench and other scattered remains. These were said to be very old but seemed very recent (Photo 18).

Lohiatala and Hinterland

While conducting ethnographic work in Lohiatala intermittently from 1992-1998, several excursions were made around near village, in the hinterlands, to Gunung Selau, various *negeri lama* and forest *walang* (Photos 19a-21). Several forest, cave, *negeri lama*-like areas, and *walang* were surveyed. No definitive sites or ceramic scatters were noted. Occasionally, recent and late historic ceramics and ceramic sherds were noted, but never in any great density and never in caves or riverbanks. Perhaps larger older deposits exist and are buried under soil and detritus, but surface scatters are rare. Interestingly, many of the *walang* had tools that were clearly bark cloth beaters (multiple grooved

Photo 18: Lumoli Hinterland Site, Probably Recent.



stones) and adzes/adze fragments. These were said to have been collected by friends or relatives or left by older generations. Adzes are often referred to as *batu guntur* (thunder rocks) and most locals knew little about them except that they were said to have been formed of thunder. The existence of these artifacts in modern contexts likely indicate that valuable artifacts were retained for long periods of time and that there is a possibility of inland sites in the area that have low surface visibility. Although no archaeological sites were discovered, the excursions provided a wealth of ethnoarchaeological data.

Rambatu, Rumberu, Manusa and Hinterland

During ethnographic excursions to Ramberu (Rumberu), Rambatu and Manusa in the Western Seram Highlands, archaeological survey was conducted with Yonki Tupamahu during March of 1998 (Photos 22-24). The team managed to visit several *negeri lama* as well as current villages, forest plots and numerous *walang*. No sites visited contained any ceramic scatters of any significant antiquity or high density. Occasional *batu meja*, most of which appear more natural than anthropogenic, were noted, but no other features. No caves were visited. Again, the ethnoarchaeological data was excellent.

Many residents of Manusa claim to have only started to use ceramics or metal containers/cookware for common use only in the last 30 years. They continue to frequently cook with and store items in bamboo (Photos 25-27). However, some residents disclosed that they do have ceramic family heirlooms (mainly for marriage exchanges), some of which date to the 14th and 15th

Photo 19a: Lohiatala Garden and Forest.



Photo 19b: Lohiatala Village.



Photo 20a: Walang in Lohiatala.



Photo 20b: Walang in Lohiatala.



Photo 21: Walang in Lohiatala Lama.



Photo 22: View of Mountains from Rambatu-Resource Environment.



Photo 23: Hike from Rambatu to Manusa-Managed Bamboo Grove.



Photo 24: Manusa Village-3000-3500 ft amsl.

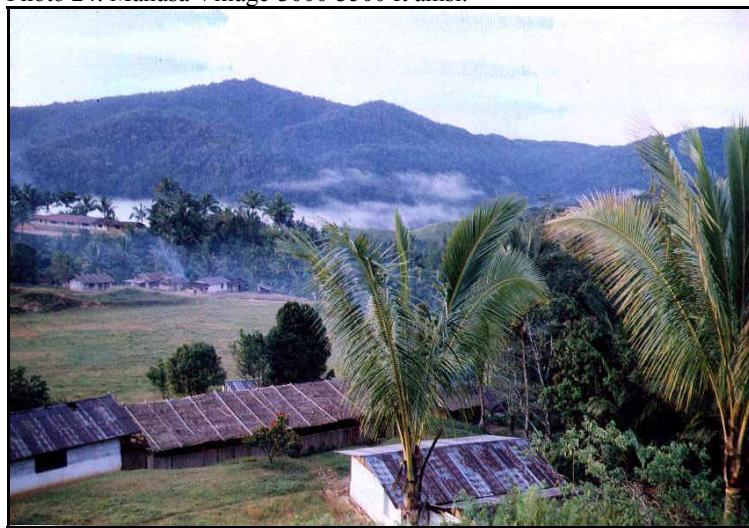


Photo 25: Cooking in Bamboo.



Photo 26: Cooking in Bamboo.



Photo 27: Cooking in Bamboo.



centuries. This was also true of most other villages visited with the exception of various migrant villages (e.g., Butonese).

Rambatu and Ramberu continue to collect and stockpile *damar* resin. This was an important trade commodity historically and probably the protohistoric period as well. Their forested resource environments are dominated by the *Agathis damara* variety from which they extract the *damar* (Photos 28-31).

Sawai, Masihulan and Hinterland

A brief visit was made to Sawai, Masihulan and their hinterlands in north central Seram in February 1998 (Photos 32-34). No archaeological sites were noted in the forest or several caves in the forest behind Sawai which were explored. However, the limestone cliffs a few kilometers to the west of Sawai village have red negative hand print stencils and some other markings (in red ochre presumably at least 10-30 meters up the rock face which drops vertically into the bay (Photos 35a-35c)). These resemble many cave paintings throughout eastern Indonesia and elsewhere. However, it was impossible to climb to the location without ropes. There are likely caves in the formation, some of which may have more paintings. Why these particular markings are on the outside of the rock formation and how they managed to stay preserved is yet another mystery. Ballard (1988) suggests they may have been a form of communication in the form of symbols to people on boats in the vicinity. The rock overhang leans out and may indeed effectively protect the markings. Local informants claimed that they were giant ancestors or ancestors during the prehistoric period who put them there and that they were made with blood during the *perang suku* period.

Beneath the coastal half of Sawai that is built over the water, there are large deposits of remains. The uppermost material is likely recent. However, Sawai was prominent in the early historic period and probably the protohistoric period. Sawai was also involved in trade relations with groups as far as Biak during the early historic period (Galvao in Jacobs 1970). The beach area is small and immediately slopes to the rather steep hills behind the village. The bay area is very calm and there is an easy entry by small boats over the rather productive reef. There is also a comparatively large river mouth with sago, nipa, mangrove and *pandanus* dominated flats that is navigable by small boats for some length. This area deserves further testing and could perhaps yield much older deposits, although

Photo 28: Damar Forest in Rambatu.

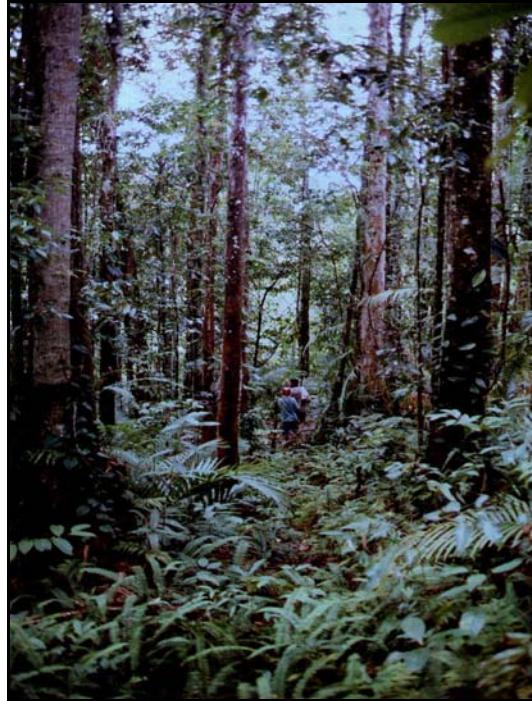


Photo 29: Damar Tree.



Photo 30: Damar Resin.

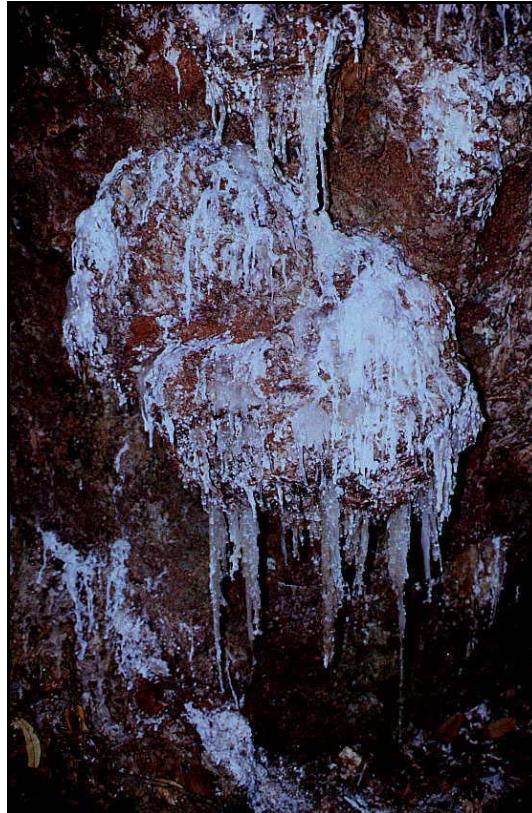


Photo 31: Chunk of Damar.



Photo 32: Sawai Village, North Seram.



Photo 33: Sawai River.



Photo 34: Sawai/Masihulan Forest Gardens.



Photo 35a: Sawai Cliffs.

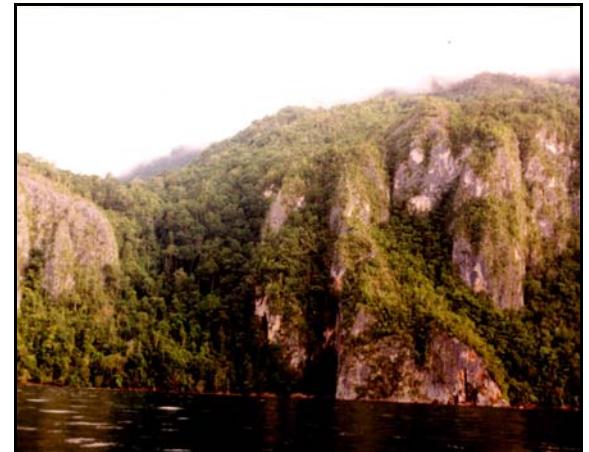


Photo 35b: Cliff Paintings.



Photo 35c: Hand Stencil on Cliff Face Near Sawai.



many may be deeply buried or under water. There is also a potential for geoarchaeological and palynological work in the area.

Masohi

A three day visit was made to Masohi, southcentral Seram. However, survey beyond the immediate settlement was not possible. The local area around Masohi yielded nothing visible of any apparent antiquity beyond late colonial times. Nevertheless, there are many other areas that have high potential. Ellen (2003) mentions the possibility of Hindu or Buddhist artifacts in the region, but none were verified.

Gorom and Geser

A visit was made to Gorom (also Goram, Goran, Gorang, Gorong or Goron) and Geser Islands off eastern Seram in October 1998. Geser is little more than a sandbar and lagoon with many government buildings, shops and houses built on piles. Nothing archaeological was noted, although some areas in the sand dunes may have potential. Nevertheless, the scatters that are apparent seem recent. See Ellen (2003) for a detailed history of the area.

Peter Lape had conducted survey on eastern Seram so it would have been redundant to cover that area. His observations are presented in his dissertation (Lape 2000). The information he presents on the area is not directly applicable to this thesis.

A brief visit was planned to video document the Heger I style drum housed in Kataloka, Gorom (originally recovered in between Namalean and Kinali as it washed out of the river or ‘magically emerged’ as local folklore suggests) around 1930 (Video Clips 1 and 2). The drum is currently housed in Kataloka and the manner in which it finally rested in the raja of Kataloka’s possession is purposefully unclear by the locals. An attempt was made to survey the location of the discovery in hopes to identify archaeological deposits. However, the area had flooded at that time and relations between Kataloka and many other villages are strained at best, apparently a long enduring conflict, as well as relations between Kinali and Namalean.

Incidentally, Namalean means ‘big harbour’ (Tom Goodman provided this information) and was likely the first port of entry for sailors of the northwest monsoon who would eventually work their way around to Kataloka and Ondor. Tom further intimated that western treasure hunters in a helicopter have cleaned the place of numerous gold artifacts in the area of several eastern villages. The antiquity

and type of these artifacts, and sadly all of their proveniences, may unfortunately remain a mystery forever.

Stories about the drum from local informants revolve around a common theme though there is much variability. Supposedly, the drum had magically emerged from the earth. It was discovered by a man who was immediately frightened and ran away. Either that man or someone else came with a bush knife and then struck the drum. Originally it had a covering which then magically disappeared. Nobody knows who it belonged to or where it came from. The local residents know it is old but are not knowledgeable of its true antiquity.

Fortunately the Gorom excursion was unavoidably extended for three weeks due to lack of ships coming from Irian Jaya. This allowed an opportunity to conduct additional survey.

The team managed to identify significant scatters and remains of both local and foreign ceramics in Kataloka and two locations in Ondor, mostly eroding from the roads and around houses. Small surface collections were made for cross-dating, SEM and EDXRF analyses. Most of these are fairly recent historic wares probably not predating the 18th century. Some of the earthenware ceramics may be older, but it is impossible to determine at present. Buried deposits may be significantly older and they are worth testing. If soil deposition has been rapid and increased due to local land clearance, anything of any significant antiquity may be very deeply buried.

The hills behind these two villages yielded interesting ceramics in a local farmer's field, although no surface collection was made. The farmer also disclosed that human bones occasionally erode from the soil, though the field is not known to be a burial ground at present. A cave visited further upslope yielded nothing. The bones may suggest that the site is located on an ancient cemetery. It is worth further testing, although the possibility of human remains was unconfirmed with visual evidence.

Survey along the road and coast several kilometers west and north of the villages produced no discernable archaeological remains. However, brownish chert chunks and some chalcedony chunks are naturally strewn in some areas, many of which look like stone tools but do not exhibit any true useware or formal knapping traces. They are most likely natural, but can easily fool an untrained eye.

The path to Kilaler from Ondor yielded one and perhaps two scatters of earthenware sherds on a limestone hillslope about 30-75 meters above the rocky shoreline (Dulak I and Dulak II). The scatters are not dense, although deposits are a little thicker than similar sites in similar locales which are usually

in a state of more rapid accumulation of soil due to upslope exposure and more rapid erosion. The antiquity of the earthenwares are unknown, but they are probably not particularly old. No datable foreign sherds were noted. The size of the site(s) remains unknown, and they may be part of the same site, although poor visibility precludes discerning whether or not there are continuous artifact scatters. No artifacts were noted along the coast in the area. Small surface samples were collected for analyses. No oral history was collected from the area as local informants seem to associate the area with nothing other than garden plots.

Further survey in Kilaler produced negative results.

The survey team was taken to a site in the mountains where legend has it that the original settlement existed before it fragmented into all the current villages along the coastal area. The first site encountered during the ascent was a large limestone cobble wall about 1.0-2.0 meters high and about 1.5 meters wide. It is said to have been around 1.0 km long. Local informants claimed that it was a defensive wall during past wars. It certainly fits the profile of a defensive wall rather than a garden wall. The antiquity remains unknown and no ceramic scatters were noted.

About an hour's hike later, the team came to several large areas that had been cleared of all trees that was being converted to community and joint family garden plots. This provided an opportunity for discussions with the workers and the collection of ethnoarchaeological data.

The team proceeded to the Giru Gaja(h) Site, which is said to have been the site of the original mosque. Oral history states that the seas were much higher in the past and the area around Giru Gaja(h) was the only land. As the seas subsided, people moved towards the coast in all directions and the separate villages were formed.

As a note, it is common in most Malukan and neighboring mythologies that the original settlers of coastal villages descended from the mountains. That mountains or hills are often seen as the location of the ancestors in much Austronesian cosmology may partially explain the mountain origin myths to some degree. If the ancestors are associated with the mountains, so too might the place of origin be associated with the mountains. Additionally, it may support some earlier claims that many Malukan groups had diverged in the distant past through subsistence system diversification, and a terrestrial economy dominated—many of the groups living in more interior and mountainous areas (Latinis 1999). As trade and desire for exotic goods increased, or as population density and resource depletion increased, many groups may have moved to coastal locations or immigrated to coastal settlements.

There were signs of a foundation at the Giru Gajah Site (a stone square alignment/perimeter about 7.0 X 7.0 meters) enclosing an earth mound with a few large waterworn schist stones in the center, and a few scatters of earthenware ceramics and foreign ceramics, most of which are late Ming. A very small surface collection was obtained. There were also several stones of significance which could have once been *batu meja*, *batu pemali*, or other important ‘megalithic’ remains (though quite small), none of which were worked or shaped but rather natural (probably manuports). The elevation of the site is difficult to estimate, but at least a few hundred meters above sea level. The area is maybe 20 by 20 meters (Video Clips 13 and 14).

As the team hiked through the forest a kilometer of two beyond the site, one assistant noted a scatter of earthenware ceramics in the forest, along a ridgeline/hillcrest. This area is known as Gru, Geriu or Giru (multiple names were given, but seems to have been ‘Giru’ from ‘Giru Gaja(h)’. The local informants seemed to know little of the site (or were not forthcoming with information), but a few people stated that it could be associated with an ancient village. Some claimed that it was pre-Portuguese while others suggested it existed in the Portuguese period. None claimed that it was a *negeri lama*. A very small collection of the earthenwares was taken, including a few pieces of 12th to 14th century Chinese ceramics (one or two of which appear to be from around the 11th-12th century), a *kenari* pounder, and several small enigmatic stone features were noted. The Chinese ceramics occur in extremely low percentage. Several *kenari* cracking stones were noted scattered about the site, but not collected.

The visible site scatter stretches for 50-100 meters and is fairly narrow (20-50 meters maximum). However, only along the crest of the ‘ridge’ are sherds visible (perhaps due to more recent erosion) and the site may be significantly larger though hidden by detritus and soil accumulation.

Several *batu pemali* or *batu meja* were located nearby.

As a final note, the Gorom informants were either extremely unaware of any of the sites’ oral histories, documented histories (if there are any), age and size, or they were extremely hesitant about yielding information. Most village headmen, informants, etc. throughout Maluku (especially West Seram, Ambon, Buru and Saparua) have been extremely open and proud of their oral histories, etc. throughout the course of surveys. However, the family of the Raja of Kataloka and many of the residents and informants seemed extremely hesitant to provide information or help. It is common also that many Malukans are reluctant to give away names, words or histories of some sacred words, places

or events to non-locals as the power or sacredness may diminish or vanish. Additionally, something supernaturally bad may occur to the person who gives away such information. It should be noted that the author was in Gorom for slightly less than a month, while years of friendship and trust with informants in West Seram, Buru and Ambon had been established. This may explain part of the reluctance.

Mamala, Morela and Hinterland

The Batususu Site is located between Morela, Mamala and Kapahaha. For full details see Ken Stark's dissertation (1995). The Batususu Site was video documented during a hike to Kapahaha. The site is extremely damp and wet and there are serious reservations that the site was anything but a temporary stopover/rest site or minor processing site. There are local earthenware ceramics dating to at least 800 years ago (Stark 1995) and some other artifactual, faunal and floral remains, most of which are *kenari* shells. The Batususu Site likely could have been a *kenari* processing site, perhaps also related to the local production of nutmeg (*kenari* trees are the traditional shade trees of *pala*—nutmeg).

When *pala* is in full fruit, many local *walang* are constructed to prevent predation from animals or theft from humans. These *walang* also provide convenient workstations for other activities and for collecting and storing *pala*. The *pala* is actually de-fruited (defleshed) by cutting the semi-hard fruit with a knife or *parang* and exposing the mace covered nut. This is almost always conducted near the trees where the *pala* is collected, and large heaps of the fleshy outer fruit are piled up. The processing is not usually done in a *walang* but usually at the tree site as the discarded fruit attracts many insects and other animals. However, stores of mace and nutmeg are often taken to the *walang*, sometimes for partial drying. Here they are accumulated and bagged. Later they are taken down to the coast and sold to local or Chinese buyers who frequent the coast in *perahu* or boats. These are then taken to Ambon City to be further dried, sorted and sold. Often, the still undried nutmeg and mace is taken to the village for further drying on mats rather than sold in a semi-dried state. Fully dried mace and nutmeg can be sold for a higher price.

The slopes/mountains behind Morela and Mamala have many clove and nutmeg trees and it is obvious that these have been tended for generations. Nutmeg and clove production in this area seems to be important and has a significant antiquity. Many *durian* and *kenari* trees pepper the area so the forests seem dominated by *durian*, nutmeg, clove and *kenari* trees. *Durian* is a valuable commodity for the

locals in this area as well, and serves also as a good shade tree for nutmeg as do the *kenari* trees. There are also numerous sago and sugar-palm trees all the way to the base of the Kapahaha site, important for starch, sugar, construction material and fermented beverages.

A number of *kenari* cracking stones and very large rocks (*kenari* cracking anvils) with dozens of *kenari* cracking depressions was noted. Unrequested, the local guides immediately took up defleshing and cracking *kenari* nuts as a snack. They also collected several more nuts to be processed later for the hike up to Kapahaha. The gratuitous ethnoarchaeology data parallels the morphological and use damage data from archaeological remains.

As for other features, there is a well kept *kramat* on a small hill near Morela village. There is also a well kept *kramat* on the mountain before one enters Kapahaha. Both are associated with historic heroes. The latter *kramat* has an interesting goblet-like earthenware vessel that could be early colonial.

Near the coast, but still on the mountain slopes, there are several intermittent stone wall sections running in an upslope-downslope direction. Most appear to resemble the older style rather than recent garden walls. The sections closer to the coast are constructed of waterworn pebbles, cobbles and boulders (mostly andesitic rocks), while the sections further upslope are constructed of limestone cobbles. These were not investigated further and how far upslope they continue remains unknown. Two parallel walls about 150 meters apart are bisected by the coastal path.

No ceramic or other artifact scatters were noted except at Kapahaha (none of which seems to have predated the colonial period) and Batususu. Both villages of Morela and Mamala display artifact scatters, most of which appear very recent, but there is always the potential of older deposits which may be closer to the ancient beach berms now likely under thick deposits due to soil accumulation and coastal progradation.

Kapahaha

In conjunction with the Morela and Mamala surveys, a trip was made to Kapahaha in mid-September 1998. The site was visited also in 1993 while excavating the Batususu Site, but only briefly assessed it. Kapahaha is said to be the last ‘stronghold’ of the Hitu rebels who were at war with the Dutch in the 17th century. It was said to be a mountain retreat/fortress. Here the Hituese were finally defeated in a battle described very differently in the local oral histories, the Hikayat Tanah Hitu (Manusama 1977), and Dutch sources (see Rumphius 1910).

The *kramat* at the base of the Kapahaha Site is a low double-walled wooden structure with a roof. There are several apparently more recent Islamic style graves made of small rectangular cobble and fill platforms generally with two upright stones. There are some sherds in these features that are clearly historic, including many European vessels.

There are only one or two manageable entrances to the Kapahaha Site (one on the coastal side, the other on the mountain side). Both are very steep and the inland entrance (towards the mountains) is extremely dangerous (incidentally, a round trip hike to Kapahaha and back may take six or seven hours of steep hiking-the site being 500-700 meters or more above sea level).

All sides of the site with the exception perhaps of the main entrance are steep limestone cliffs (although the hike to the entrance is exceptionally steep). The site is a limestone karst formation with sharp rocks, many sinkholes and several caves. However, there are plenty of level areas once inside the site perimeter. It is a naturally fortified location.

The soil is a reddish clay and there is much thick black rotting organic detritus on the forested floor. There are no apparent springs or streams as expected and the soils are well drained, but the area enjoys frequent rains and water catchment could maintain a sizeable population. The site is bigger than the Tomu Site, perhaps 20-50 hectares in totality, although this is a very rough estimate.

The site contains some very large trees and many saplings and younger trees. However, the site does not appear to be worked as a *dusun* or garden, although the many younger trees suggest that is was in the past. There are many ground ferns, but the forest floor is fairly visible and ‘clean’ of secondary vegetation. Commanding views abound on all sides.

The site contains at least one to two dozen stacked limestone cobble features which appear to be Islamic style graves like the others but could be older. They often have stone enclosures or platforms, with what appear to be schist-like or andesite *pemali* or marker stones, some of which resemble double head-foot stones placed upright. Most have single stones. These could be the graves robbed by treasure hunters several years ago from Hatu Village, two of whom were beaten to death for the crime.

There are numerous flat areas (perhaps anthropogenic clearings for houses) and several stone platforms that may possibly relate to residential remains. Many of the graves are located near these features. There are also many stone facings on terrace-like features. All are composed of stacked limestone cobbles. There are perhaps some wall fragments as well.

There are many flat waterworn andesitic or schist-like stones. These are obvious manuports.

Some may be related to *batu meja*, etc.

Artifacts scattered around the site included many 17th century and later foreign ceramic sherds (e.g., Swatow, European, etc.), but very few local earthenwares. There were no celadons or other Yuan/Song ceramics and seemingly few or no late Thai and Vietnamese ceramics. There are some large thick stoneware jars probably dating to the colonial period. There was one interesting earthenware spout that was collected. Whether or not this was a piece to a *kendi* remains a mystery, but it is possible.

Most of the scatters are visible in flat areas and around the presumed graves. A small collection was acquired but not from any of the grave sites. It is clear that the earthenware component plays a statistically minor role (20-30% maximum based on visual surface scatter assessment).

Most of the samples were collected from a nearby *moleo* (megapode) mound and were thus exceptionally disturbed and out of context. The assemblage seems to resemble the historic Fort Amsterdam assemblage (discussed below). The high percentage of foreign ceramics may indicate that the residents who took refuge in this ‘last fortress’ brought their valuables here to store them. At that time, Malukan valuables consisted heavily of foreign produced porcelain and stoneware ceramics, textiles and metals.

It is doubtful that there is any permanent settlement of Kapahaha predating the 16th-17th centuries. The possible habitation sites there probably only indicate part time residency while under attack or siege. Certain rituals may also have been performed there. Protohistoric and prehistoric campsites and workstations located in the area are highly probable, however, their physical remains may be difficult to discern archaeologically.

Liang

Sites around Liang village were originally surveyed in 1992 by the University of Hawaii team (Stark 1995). At the time, there was difficulty getting permission to survey so the surveys were rather brief.

There is an abandoned airstrip from the WWII period nearby. Some artifacts are eroding from the footpaths nearby. These include slipped, incised, scalloped and notched rim sherds and a few

painted sherds with red and white geometric designs similar to Kei/Tanimbar wares. Most of these are likely late historic, although some may be quite old.

Several limestone caves in the vicinity of Liang (predominantly behind the village) produced some artifactual and skeletal remains. The caves are often difficult to access, however, most of which have quite small entrances. One cave contains human cranial and long bone remains with slipped and incised earthenware ceramics. The overall assessment is that these are very much like the Hatuhuran Caves in Hatusua and Waipirit, but currently more difficult to access. No samples were collected due to permission problems.

The team was led to one or two *kramat* and another location up the mountain following a stream course in the ravine. It was unclear what the latter site is supposed to be (perhaps the *negeri lama*). After surveying nearby Rahban several years later, a local informant disclosed that there are indeed two *kramat* on the way to the *negeri lama* which is located in the mountains behind Liang towards Tanjung Setan. It is likely that it was the *negeri lama* that we were taken to in 1992. No archaeological sites were noted at the location in 1992.

The ferry terminal (which goes to Waipirit near Kairatu in Seram) is located next to Liang and the low flat field area containing the terminal and progressing inland is called Honimoa (also Hunimua). No significant artifact scatters were noted.

Oral records indicate a great battle that took place there during the *zaman perang suku* (tribal wars) which many claim predates the colonial era. Actually, it is often stated to be less of a massive battle but more of a fight between two important rulers. According to a local version, the ‘captains’ would fight against each other one at a time in decreasing rank order. It was the top ‘captain’ who managed to cut the chicken feather off the headdress of the opponent which thus led to victory.

This battle indeed may have been the event described in the *Hikayat Tanah Hitu*, but according to Rijali’s account (Manusama 1977), this was after the Portuguese had arrived. Nonetheless, Rijali collected stories/accounts as told by local elders for his earlier chapters and it is possible that this conflict may have actually predated the Portuguese arrival and was later retold as post Portuguese. Additionally, it is said that there is a *kramat* nearby.

Rahban

Rahban (probably not the original place name) is located behind and to the south of Liang Village, on the hill and hillslopes about 50-100 meters above sea level in what is now several *dusun* (mixed orchard and garden plots). Several earthenware sherds and some foreign ceramics (probably 14th century Chinese ceramics) are eroding from the limestone surface. There are several *kenari* cracking stones as well. A small surface collection was obtained.

Local informants knew very little of the site's history. They had no idea whether or not it had ever been a walled settlement. One informant did suggest that it had once been walled and that there is also a *kramat* nearby.

Rahban fits the profile of other earlier sites, however. It is situated on a limestone hilltop or hillslope not far from the coast with a commanding view of Amaheru, Hunimua and Liang. It is primarily eroding and the likelihood of finding stratified deposits is low. Earthenware ceramics dominate. There are pre-16th century foreign ceramics in small quantities but even less post 16th century foreign ceramics. Several *kenari* cracking stones are scattered throughout. Whether or not the site truly ever had an encircling wall and other features is difficult to determine and is not visibly evident.

Amaheru

Amaheru (literally 'new *negeri*/settlement') is located on the hilltop to the Southeast of Liang across the low intervening flat land. It is now cultivated by groups from the *pendatang* village of Wainuru, with Lagera and Lagera Lama as offshoot hamlets higher up on the hillslope. It was said by one informant that Wainuru was a very old settlement, although it is suspected that the *pendatang* settlement does not likely predate the late colonial era. The greater area is also known as Tanah Merah (red earth) due to the red iron rich soil.

The hilltop itself reaches a maximum of about 215 meters asl and at least a few hundred meters in diameter. It is composed of extremely jagged and sharp limestone and is covered with trees.

Gardens extend to about 150-180 meters asl, with some light earthenware scatters. Numerous earthenware ceramic scatters are located among the few traversable paths. However, it is difficult to imagine that the uppermost area was inhabited by a large number of people and it may have only been used as a retreat.

Around the hilltop are some large wall fragments 1.0-2.0 meters high and 1.0-2.0 meters wide. There are numerous modern garden walls, however, and much of the material for the garden walls may have been obtained from the larger, probably earlier, wall(s). Fifty meters or so below the hilltop, the terrain flattens and is currently cultivated. There are occasional scatters of earthenware ceramics, but deposits are thicker than at other sites and there may be buried artifacts beneath a significantly thick deposit. Some foreign ceramics were also noted, but in extremely small quantities. The foreign ceramics also may have been more recently deposited and some appear fairly modern. Small collections were taken from the hilltop and the hillslope. It was disclosed that a local farmer had unearthed a large celadon bowl or platter while gardening one day. He described a celadon with a raised whitish double fish motif which is likely a Song or Yuan Dynasty Celadon (probably 13th-14th century). It was retrieved whole.¹

A strange walled cut in the hill was noted. The wall forms an almost defensive barrier to a small cut in the hillslope. The type of construction does not seem to be recent, although it could be a WWII feature. No artifacts were noted.

Sites AMQ12 and AMQ13 (the latter a small cave in the hillside, both surveyed in 1992) are likely part of the larger Amaheru Site.

The team only surveyed the slope facing Liang and Rahban. There was no time for survey of the coastal side. This was unfortunate as local informants upon realizing what the team was searching for (earthenware scatters rather than porcelain bowls) intimated that dense scatters could be found on the hillslopes on the coastal side of the hill. Whether or not this is true remains unknown.

No other unique features were noted.

Hila

Hila is mentioned considerably in the *Hikayat Tanah Hitu* and is also the location of the early Dutch Fort, Fort Amsterdam. Incidentally, the fort had been recently restored during the last visit and a small visitor gallery with archaeological and historic artifact displays had been set up.

Areas in and around the fort were surveyed including a long strip down the beach. Artifacts (dominated by Chinese and European porcelains from mainly the 18th-20th centuries) were scattered in moderate densities and seemed to be the only foreign wares (besides roof tiles) in the flat areas above

the wave cuts and eroding from the wave cuts. There is a small percentage of earthenware sherds in the deposits. It is doubtful that any predate the 17th century.

A small sample of various foreign ceramics was collected for dating. Interestingly, there seems to be a fair number of various colored transfer wares (of Scottish origin; Crookshank pers. comm.) that seem to have been popular in Southeast Asia with varieties produced specifically for the Southeast Asian market.

It is likely that somewhere in the Kaitetu and Hila vicinity, probably upslope, protohistoric sites exist.

Kaitetu

The area around Kaitetu was surveyed. No archaeological sites were noted, although the team was not able to survey much of the hinterland area. The coastal area yielded virtually nothing. An area near Kaitetu is where the last family to settle Leihitu settled (originally from Gorom), as related in the *Hikayat Tanah Hitu* (Manusama 1977). The leader's name was Kyai Pati, but he was also known as Patituban because he supposedly studied Islam in Tuban (Ziwar Effendi 13; some have taken the name to mean that he was of Javanese origin). It is highly probable that there are protohistoric sites in the area. Surveys were planned to further study this area and other potential areas all the way to Asilulu. Plans were abandoned due to the violent events from 1998. It is highly probable that several protohistoric sites similar to the Tomu Site (below) exist along the route to Asilulu. Most will probably fit the profile of the Tomu Site and will be located on hillslopes or hilltops, perhaps walled, and contain dense earthenware scatters, some stone features and a small percentage of 12th-16th century non-local ceramics.

Haruku

A survey trip was made to Haruku to check the potential for contemporaneous protohistoric sites such as the Tomu Site in Hitu and the Hatusua Site near Hatusua. The team visited Pelaauw Village which is next to the Dutch fortification, Fort Hoorn (Photo 36). In and around the fort, historic porcelains, stonewares, glass and local earthenwares are eroding out of the ground and beach. Most of them appear to be contemporaneous with those noted at Fort Amsterdam, and as expected mostly

contain 18th-20th century wares. It is doubtful in any of the surface remains predate the 17th century.

The assemblage was dominated by Chinese and European wares as well as historic glass.

The team then visited the *negeri lama* (or one of the *negeri lama*), a site of an old mosque and a few *kramat* located inland. There is some potential at the *negeri lama* although only a few visible artifacts were noted, most of which are probably historic. However, nothing similar to the other abovementioned protohistoric sites were noted.

It is interesting that Haruku still maintains its *uli* cosmology quite strongly, both in belief and the physical manifestations/layout of the various villages.

Photo 36: Artifacts from Fort Hoorn.



Saparua

A visit was made to Saparua in 1992 with the University of Hawaii and Indonesian crews. The team visited the village of Ouh which is now the current producer of most of the ceramics circulating throughout Central Maluku, at least to eastern Seram. Several ethnoarchaeological studies have been conducted regarding ceramic production in the village beginning with Ellen and Glover (1977).

Exactly when and why Ouh began to monopolize ceramic production remains unknown. They seem to have been prominent pottery producers post WWII, but how long prior is unknown. More

recent Dutch colonial records may help resolve this issue, but it does not appear to have been early historic or protohistoric based on current evidence. EDXRF analyses described below suggests that it may be more of a recent historic phenomenon with several different villages producing pottery during historic times.

It is obvious, however, when comparing protohistoric earthenware assemblages, with the pottery produced in Ouh and subsequently shipped elsewhere (primarily to Ambon), that a fair degree of simplification of form and design and standardization has occurred. This is not unexpected as their industrial level production seems to have risen over the decades while the number of potting centers has decreased. This is common phenomenon in many potting areas throughout the world.

It should be emphasized, however, that most ethnoarchaeological ceramic studies are conducted on production and less frequently on subsequent distribution and ceramic ‘lifespan’. The numerous Kalinga studies in the Philippines are a good example. However, few studies have focused on what a pottery producing village’s physical nature is vis-à-vis other villages in the region (i.e., what is the physical nature of the pottery producing village and its surrounding environment and how does it change over time?). A study of this nature in Ouh may prove very useful. Also, are these family or household operations with household firings or are they community based? That is, is there household production yet communal firings? How does this affect the physical appearance of the village? Is the environment in danger of intensive degradation due to high wood fuel costs for firing? How would the extra-village environment be affected over time? These are only a few interesting questions which, if answerable, could help the archaeologist immensely.

Buru

In 1992 the University of Hawaii and Indonesian team surveyed the north coast of Buru from Namlae to Waeplau Villages. Namlae may have some historic deposits but did not seem particularly promising. Jika Merasa also may have some potential but no surface scatters were noted. The team was more focused on locating cave and Rockshelter sites at that time. Waeplau Village yielded a promising site which was excavated the following year (the Labarisi Cave or Labarisi Rockshelter Site; although there are additional sites in the same limestone formations). The Labarisi Rockshelter Site is a large limestone cliff overhang probably formed from wave cut action, but is now located a kilometer or more inland. The topography from the site to the coast is relatively flat. There are limestone terraces worth

further geological and archaeological investigation and the site certainly has the potential to yield more and very promising archaeological data.

The Labarisi Site consists of two ceramic bearing layers and two underlying preceramic (or aceramic) bearing layers, predominated by small amorphic lithic tools, tool fragments or debitage. Details can be found in Ken Stark's Ph.D. dissertation (Stark 1995).

The site is included here as relevant comparative analysis with the ceramic assemblage elsewhere in Maluku have been conducted (detailed below). The ceramics are unusual in that they are a hard, paddle and anvil formed, bluish gray earthenware with evidently a large amount of sizable and variant inclusions that look more like crushed angular and plate-like/laminar rock; completely unlike anything seen in Maluku, Sulawesi, the Philippines, greater Southeast Asia and the Pacific (confirmed by Dickinson's 2004 petrographic report and EDXRF analysis described below). The ceramics indicate very thin vessels, but few diagnostic sherds were recovered to determine possible forms. One partial round bottomed bowl (although it could be a lid) with an inverted incised and red-painted rim was retrieved from a surface collection (the composition of which is undeniably related to the excavated assemblage).

Radiocarbon samples were collected but all proved contaminated. It is possible that the preceramic layers are of Pleistocene origins as many Pleistocene sites in island Southeast Asia have similar assemblages. Ken Stark has recently tested shell samples which date to the mid-Holocene, but specific details are not yet published.

At the end of the excavation season in 1993, a small team surveyed the coastal areas from Air Buaya to Fogi along the north coast. Fogi is an area near to a claimed Srivijayan inscription was recovered (see Miksic 1996:83), although this was not confirmed on the field excursion. The team found nothing of archaeological significance. However, in 1998 when assessing the earthenware assemblage from the Hatusua Site, there was a chance meeting with the Raja (Warhangan) of Hatawano Village on Buru, the third village west of Waeplau. They were struck by the similarities in 'broken pot' scatters located within a stacked stone walled site behind their village known as Benteng Latamiha with the collection being analyzed in Ambon. They claimed that the Benteng Latamiha Site had a large gate with a giant snake or *naga* head. Other than that, they had no idea how old the site was and agreed that it could have been a *negeri lama* but not the *negeri lama* they normally associate with their village.

Certainly, this site deserves further investigation to determine the antiquity and nature. It very well could be contemporaneous with the protohistoric sites described in this thesis.

Interestingly, the Raja claimed to have a unique ‘extra-pela’ relationship with Seram that was a *kakak-adik* relationship (older sibling-younger sibling) in which Buru played the older sibling role. This phenomenon deserves further ethnographic attention which may in turn prove useful for historical and archaeological studies.

As a final note, most of Buru is archaeologically unexplored and holds tremendous potential. Additionally, Danau Rana (Lake Rana) encircled by mountains in the middle of the island would provide an excellent area to possibly collect palynological and paleobotanical remains. Buru was once home to penal colonies in the recent past and very little research of any kind has allowed on the island.

Lastly, the north coast is dry and scrub-like, dominated by a dwarf eucalyptus variety (perhaps an *E. deglupta* variant). This area is one of the largest producers of the highest quality *minyak kayu putih*, a eucalyptus oil prized for its medicinal qualities throughout Indonesia. Some *minyak kayu putih* producers in Luhu have claimed that the Buru residents learned the processing technique from them long ago and were originally from Seram and subsequently moved to Buru. The antiquity and validity remains unknown. Archaeological, paleobotanical, trace element and botanical studies could shed light on the antiquity but have not been conducted thus far.

Hitu

Hitumessing and Hitulama

Both the current villages of Hitulama (Photo 37) and Hitumessing do not yield evidence of any surface scatters older than the 18th century based on cursory survey. Several beach/coast areas also indicate likewise. Most of the artifacts eroding from various deposits or scattered around are 19th-20th century artifacts. There is a possibility that older deposits occur at lower levels that contain protohistoric material. Many of the villagers still possess 14th century Chinese ceramics that were reputedly handed down over the generations.

Tomu/Amatomu

The Tomu Site (Photos 38 and 39) is one of the most important archaeological data sources for this thesis. Therefore, it is significantly described in more detail than the previous sites.

Photo 37: Hitu and Tomu from Hitu Pier.



Photo 38: Tomu from Hitu (Tomu the Flat Area in the Background Upslope and Behind the Village).



The Tomu Site is almost unquestionably the Amatomu Site originally recognized by Spriggs and Miller in the 1970s (Spriggs 1990). It is located between about 100-150 meters above sea level (300-400 ft amsl) behind the current village of Hitulama almost a kilometer inland on a limestone hillslope that is relatively flat where the actual site is located. The hillslope continues up beyond the site

several hundred meters before dropping down towards Durianpatah, Negerilama and Paso villages the latter of which is where the two ‘geologic sections’ of Ambon are connected. The current road leading to Hitu from Ambon City passes close to the uppermost extent of the site. It is the lowest, fastest and easiest land route to cross to the other side of Ambon Island to get to Ambon Bay from Hitu or almost anywhere on the Leihitu peninsula for that matter.

Photo 39: View of Hitu, Tanjung Setan and Kapahaha from Tomu Site.



The site was not surveyed in 1992 or 1993. However, a small team conducted several surveys after 1996, mapped a small portion of the site in 1998 and collected a few surface samples for further analysis. The site is currently devoid of large trees and covered in dense secondary and pioneer growth. It is the location of occasional garden plots that are repeatedly fired (mostly worked by the immigrant Sulawesian neighbors who live to the northeast of the site).

The Tomu Site is partially if not fully encircled by what appears to be a protohistoric wall (Photos 40-42) constructed of limestone cobbles and pebbles—the wall is roughly 1.0-2.0 meters wide and 1.0-2.0 meters high. The wall construction is much different than modern garden wall constructions of either the Hituese gardeners or the Butonese gardeners who farm the site. The wall is constructed of base slabs and core filled. There is no mortar nor any remnant earth fill or packing (although the latter could have been applied though now all traces have eroded away). Whether or not there were additional

wooden structures, fences, supports, palisades, etc. associated with the wall is unknown, though a possibility. If so, these probably would have been burnt or rotted away long ago. Unfortunately, the wall has been disassembled in places; the cobbles used in modern road construction or the construction of modern garden walls. Modern garden walls are usually less than 1.0 meter high and only one to two courses wide, only intended to mark or moderately protect a garden plot. The Sulawesian immigrants

Photo 40: Tomu Wall-Coastal Segment.



Photo 41: Back Wall in Tomu-Side View.



Photo 42: Back Wall in Tomu-Top View.



who practice an *umur pendek* gardening form of subsistence generally construct such walls whereas Malukans typically do not.

The site has a commanding view of Piru Bay, Kapahaha, Mamala, Morela and Hila, Kaitetu, etc. The site is located in a very strategic position (i.e., easily defendable, in the middle of the easiest land access to the other side of the island, good visibility for seafaring traffic, nearby freshwater resources and a respectably safe and decent bay/harbor).

Currently, the site appears to be eroding in most places and stratified deposits are probably limited to only a few locations where soil capture has unintentionally occurred. Thus, some artifacts may significantly predate others but it is virtually impossible to determine with accuracy. The current gardening practices and deforestation has contributed to the rapid erosion. Before, the site was said to be forested by large trees and deep soils. One informant said that the area was cleared of most of the large trees during the Japanese occupation. He was very certain of the fact.

Large fruit and nut trees downslope and closer to Hitu indicate that the site could have been heavily forested in the past. Now, it is constantly fired as part of the Butonese *umur pendek* farming system and the current vegetation consists of dense secondary growth and pioneer species that range from 2-3 meters in height. Unfortunately, this obscures visibility and makes adequate survey and mapping almost impossible. The effect that the repeated firing may have on earthenware artifacts is further discussed below.

The soils are brown, rocky, friable, not particularly deep and obviously well drained (clay-loam 5YR2.5/2). Some areas to the northeast in front of the coastal wall segment seem to have fairly thick deposits of soil, however, probably due to the wall acting as a soil retaining device (although it is very doubtful that this was ever the intended function). On the northeast side of the site there is also a stream with much sago, other palms, and fruit trees in a ravine-like drainage area (less steep on the northeast side of the stream). There are also numerous limestone cave formations many of which reputedly have artifacts but most of which are difficult and dangerous to access.

The most striking aspect is the large amount of earthenware ceramic sherds within the site and the almost complete absence of sherds outside the walls (Photo 43). The ceramic sherds indicate a wide variety of vessels, decorative designs and functions with a very Central Malukan ‘character’. These are very similar to those recovered in the Hatusua Site’s surface collection described below. Two test units of 1.0^2 meter each at a depth of 5-10 centimeters were placed in the northwest corner spaced about 30 meters apart near the large platform to allow recovery of surface artifacts (described below). As most soils have eroded away, there are really no subsurface artifact deposits in those locations.

As a small percentage of Chinese, Thai and Vietnamese ceramics are present in the site.

Several samples were collected from all around the site to aid in dating the site's occupation (i.e., survey was conducted to specifically retrieve diagnostic foreign ceramics for dating purposes) as the likelihood of retrieving adequate radiocarbon samples is near impossible. Additionally, diagnostic earthenware sherds were collected to determine the morphological, decorative and functional variability present in the earthenware assemblage. The two test units are intended to give a general picture of the density and relative percentage of sherd forms, non-local sherds, and other artifacts.

The non-local sherds indicate a period of occupancy around the 13th-15th centuries, perhaps a little earlier (assessed by the author and John Miksic, a leading expert in the field). It is possible that this may represent the site's full occupation period, although it could easily represent a terminal occupation period with the site's initial occupation and formation period significantly predating the 13th-15th centuries. It is also possible that the site has been occupied and abandoned several times, although current data is unable to resolve this issue.

The local earthenwares are composed of plain, red slipped, red painted, burnished and decorated earthenwares (often incised) with a high percentage of rim sherds. Unfortunately, the surface sherds have been fired repeatedly due to the gardening practices. They are heavily eroded due to exposure to fire, rain, dryness, etc.

The Tomu Site is approximately 200-300 meters wide (coastal-mountain) and 500-700 meters long (southwest to southeast-paralleling the coast) as indicated by the distribution of sherds. The exact measurements will require significant clearance or specialized satellite imagery and GPS mapping. Thus, the site's dimensions could be greater but not likely significantly small. Current estimates indicate that the site is about 10-20 hectares in size, not a small site for that time period by all means especially in Eastern Indonesia (see Miksic 2000 which would place the Tomu Site at around half to two-thirds the size of Singapore in the 14th century, Singapore being a sizable contemporaneous trade center site with an estimated 6,000 residents).

Interestingly, the Tomu Site contains hundreds if not thousands of *kenari* cracking stones and shattered *kenari* cracking stone fragments (Photo 43); an estimated one per square meter. Most of these are made from andesitic stones (Gunung Salahutu must have volcanic origins as andesitic stones are prevalent in many streams, although limestone formations still dominate the area; see also Dickinson 2004 and 2002 for further geologic information). Many of the stones could also have been used for

processing *kemiri* (*Aleurites moluccana*) (Photos 44-46), a hard nut whose meat is used for condiments, cooking oils and illuminant oils (popularly called the candlenut).

Photos 44-46 highlight aspects of an *A. moluccana* experiment conducted in Hawaii. Details can be found in Latinis 1999. It is interesting how the processing, tools and use damage parallel *kenari* processing. The results of the experiment were most informative. The experiment strongly supports that the use damage and morphology of the *kenari* cracking stones resulted from processing a hard nut and/or were intended for processing a hard nut. The distributions of shell remains and artifacts are similar to those found at the Batususu Site. As with most anvil and hammer-like tools, however, they may have served several additional specific functions.

Photo 43: *Kenari* Cracking Stones.



Photo 44: *Kemiri* Cracking Experiment.



Photo 45: *Kemiri* Cracking Experiment-Shell and Meat Distributions.



Photo 46: *Kemiri* Cracking Experiment-Tool Damage.



Also of interest, the *kenari* tree is often the traditional shade tree for cultivating nutmeg trees.

So, either the inhabitants were processing a lot of *kenari* as it was important food product (of which it surely was being high in fat, protein and calories), or a lot of *kemiri* (an important source of oil as well a cooking ingredient, relish and medicinal ingredient), or both *kenari* and *kemiri*. Alternatively, the residents could also have been cultivating a lot of nutmeg and the large amount of *kenari* cracking stones indirectly indicates a significant level of protohistoric nutmeg production as well. The latter interpretation is feasible and interesting.

Most understand nutmeg as only a ‘Banda Islands domesticate and product’ and clove as only a ‘Northern Malukan Islands domesticate and product’. This interpretation is rather unacceptable. These spices are so easily grown in almost all Malukan Islands and neighboring Irian Jaya/Papua New Guinea that one should be hesitant to claim that they were restricted to such small locations, especially during the protohistoric period. It is doubtful that the spices were ever truly excluded to any particular sets of islands. Botanical evidence has also not satisfactorily identified any particular island to be the place of

domestication. The protohistoric and historic redistribution centers came to be known as the sole producers. During the early Dutch period, it is likely that additional genetic modifications of the gene pool occurred in places like Banda with the *perkiniers*. However, a detailed botanical and paleobotanical study is needed before any definite conclusions can be drawn.

The Tomu site contains a large number of other physical features, although only a few could be mapped (Figure 8). In the Northwest corner of the site, there is a large limestone pebble and cobble platform (Photo 47) about 9.5 X 8.5 meters (0.8 meters high). The feature abuts the existing coastal wall and has a large hole in the middle which is probably a looter's pit. Some earthenware sherds and *kenari* cracking stones were found imbedded within the architecture.

Three rectangular stone features are located near the platform. The coastal most feature has a coral slab perimeter and is about 80 cm high with sand fill, and two coral/limestone head stones that are indicative of an Islamic grave. Unfortunately, there is a tree growing in the middle of the platform. The next is located about 4.0 meters southeast of the first and consists of a limestone/coral pebble and cobble pile. The third is almost connected with the second and located to the southeast. It has been made into a modern cement grave, but most informants suggest that it is very ancient. Field informants had no idea who is buried there or what the significance of the site is. The presumed graves are frequently cleaned and rebuilt by the local caretakers of the various *kramat*. Local informants knew nothing about the features but assumed that they were very ancient and related to a number of historic heroes who fought the Dutch, Portuguese, Javanese or other pre-colonial foes. Some informants offered explanations which were obviously *post hoc* created mythologies that almost undeniably have nothing to do with the origins of the features. The features could easily be protohistoric or relatively recent, however. It is difficult to determine without archaeological testing and dating.

It is possible that many informants do have reliable information, but are hesitant to disclose the information (discussed above regarding Gorom). It is also possible that informants have purposefully altered the truth to protect the 'power' of the associated mythologies, something quite possible, but not likely during the investigation. Again, it should be reiterated that some languages, words, names and knowledge in many parts of Maluku are intentionally kept secret to protect their power or to prevent non-locals from being endangered by the power.

Figure 8: Tomu Field Plan of Northwest Section.

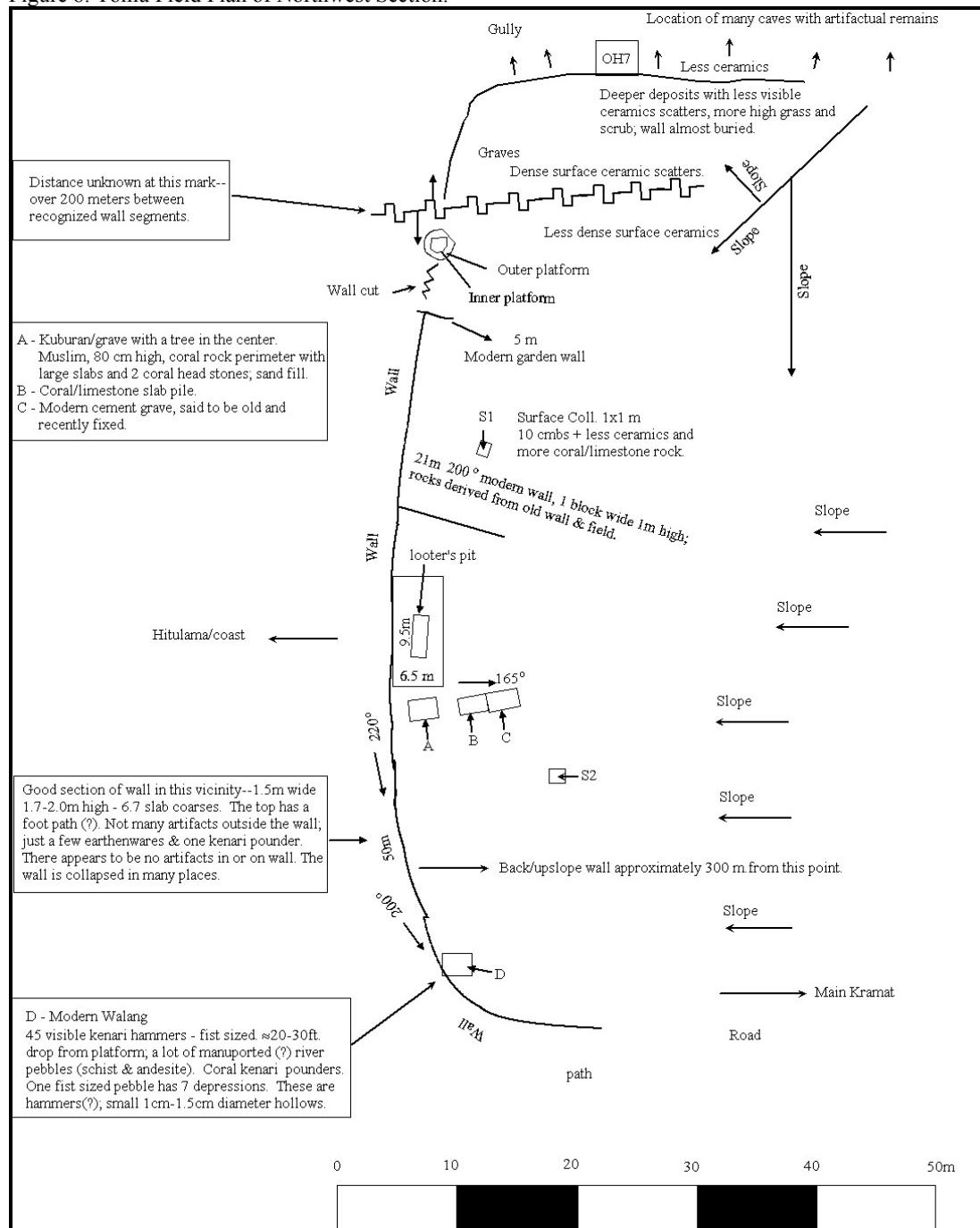


Photo 47: Platform at Tomu.



Some earthenware sherds were embedded within the features. If the features were built prior to significant deposits of earthenware ceramics, this would be unexpected. However, whether or not the construction of the features occurred contemporaneously with the sherd deposition or significantly post dated sherd deposition is unknown.

About 40 meters to the east of the large platform is a break in the wall. It may be a recent access cut, but there are some unusual built features in the wall at this point that could no be clearly mapped or photographed. One feature appears rounded and is built into the wall and downwards. It is fairly well buried and covered in thick vegetation.

At least three perpendicular wall segments jut out from the large wall's interior. The first is 12 meters east of the platform and extends about 21 meters at 200 degrees (magnetic north). It is probably a modern garden wall. The next is about 20 meters to the east and is about 9 meters long. It seems to have collapsed near the larger wall. The third is about 5 meters long and close to the wall cut.

About 70 meters east of the large platform is a stacked stone feature not described to occur elsewhere in Central Maluku (Photos 48 and 49; Video Clips 3 and 4). It is adjacent to the wall on the interior side and may have once been connected with it. The wall in this section is very low and almost totally buried. The front side is difficult to discern due to the thick vegetation.

Photo 48: Two Tiered Platform Feature at Tomu



Photo 49: Two Tiered Platform Feature at Tomu



The stacked stone feature is somewhat difficult to describe due to the excessive overgrowth of secondary growth on it, further precluding the ability to properly map the feature. The feature appears to be a two tiered stacked platform (wedding cake-like shape). It is built out of limestone cobbles. The lower platform is a somewhat circular platform about 1.5-2.0 meters high and 3.0-4.0 meters wide but may actually be a square or triangle rounded at the corners (i.e., tapered corners, apparently intentional). The upper platform is the same but only about 2-3 meters or less in diameter. As previously mentioned, similar constructions are unreported in the immediate region. There are only a very few earthenware ceramics and a few *kenari* pounding stones imbedded in the feature. It seems to be connected to the wall, although the wall is almost buried and/or missing along this section. The feature could thus have originally been as much as one to two meters higher.

The local caretaker of the *kramat* intimated that the feature was used by the ancient *raja* (*iking*) in the pre-Portuguese and pre-Islamic times when men were still ‘cannibals’ and were reputedly very tall. He suggested that the *raja* would stand on the feature and magically call allies during times of attack or need. Any ally or former resident would be compelled to return. One other informant suggested that it was a WWII feature (e.g., a large gun support), but there is no evidence to indicate that this was its use.

Beyond the two tiered feature to the north are several more small rectangular platforms (many of which appear to be Islamic graves with two stones at either end. Some of these are quite built up and have large long stones about 0.5-1.0 meters in length. They stand upright as if grave markers, although they could be *batu pemali*. There is also another platform of considerable size towards the far end of the site. None of the local informants knew anything about them, except that they may be *kramat*. Several

are probably relatively recent (i.e., historic period) as they are in less eroded/collapsed and appear to be a more recent historic construction in general. The potential for many additional undetected limestone slab, cobble and pebble features in the site is extremely high.

There is a large well kept *kramat* along or near the wall in the southwest corner of the site (Photos 50 and 51). The caretaker claimed that the *kramat* emerged on its own before the colonial times. He did not know of any particular individual it was associated with and said that it was a powerful place. An interesting earthenware vessel is placed in front of the shrine that may be of significant antiquity (Photos 51a-51c).

Photo 50a: Kramat at Tomu-Modern Staircase
Leading to the Shrine.



Photo 50b: Kramat at Tomu.



Some Comments on Relevant Oral History and Further History Related to the Tomu Site

Both the *kramat* caretaker and another local informant separately disclosed a 'legend' surrounding the site. The legend is as follows and both informants intimated almost identical versions. Interestingly, the caretaker was reluctant to be filmed only while relating the story. The second informant is deaf and unable to speak clearly so his version was written rather than spoken. What is particularly interesting is the almost identical and far more complete version of the story that was told to me by some Hatusuan elders regarding the Hatusua Site described in the following subsection. The Tomu version is as follows:

In the times before the Portuguese and Dutch and the Islamic faith, men were much larger and ate their enemies (i.e., cannibals). There was much war and conflict. However, Tomu was an important kingdom with many different peoples from all over the islands; even Chinese. There was much trade in textiles, metals, gold, beads, spices, pearl shell, *damar*, *gharu* wood (an aromatic incense like wood), *tripang*, birds and all kinds of riches. The *raja* was powerful and commanded a magnificent fleet and fierce warriors who lived in the mountains. He had several sons and one prized daughter whom he loved very much [generally six or seven sons and one daughter].

Photo 51a: Kramat Shrine.



Photo 51b: Earthenware Vessel at Kramat Shrine.



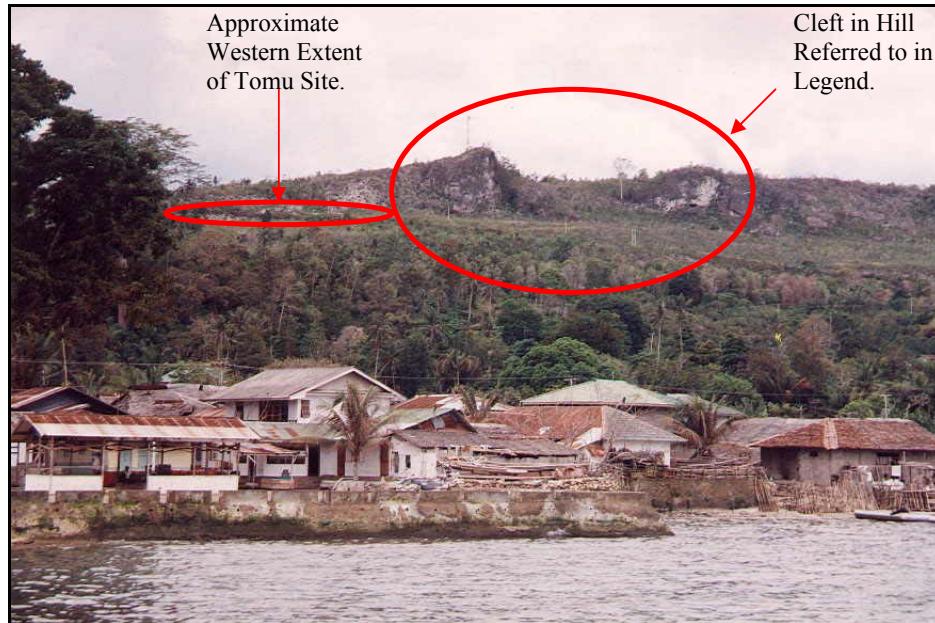
Photo 51c: Earthenware Vessel at Kramat Shrine.



The overseer or minister of trade and foreign residents was a non-local [not a *syabandar* which is often a non-local harbormaster of sorts]. He had lustful intentions for the daughter. She, of course, rejected his advances. One day, the minister kidnapped her and took her into the forest and raped her. Fearing the consequences of his lustful actions, he killed her and buried her.

The raja discovered the plot and went into a rage. Upon stamping his foot he split the mountain in two forming the distinctive cleft in the cliffs behind Tomu (Photo 52). One version suggests that he also separated Ambon from Seram with the same stamping of his foot. The Kingdom was thus destroyed.

Photo 52: Cleft in the Mountain behind Tomu



As a final note, Tomu is said to have been one of the original settlements in Leihitu according to Ziwar Effendi (1987:12):

Orang yang lebih dahulu bermukim di jazirah Hitu adalah orang-orang Alifuru, diantaranya kelompok atau clan-clan Tomu, Hunut dan Mosapal. Mereka ini menguasai daerah antara negeri Hitumessing, Wakal dan Rumahtiga, diantaranya daerah yang bernama Telaga Kodok dan sekitarnya di puncak bukit antar Teluk Ambon dan pantai Utara jazirah Hitu di Selatan Seram. Rumatau-rumatau yang masih ada sampai sekarang pecahan dari clan Hunut adalah rumatau Lessy, rumatau Nasela dan rumatau Anggoda Usman.

[The earlier (earliest) people to reside in the Hitu peninsula were Alifuru; among them the clans of Tomu, Hunut and Mosapal. They ruled over the communities from Hitumessing, Wakal and Rumatiga, and Telaga Kodok and its vicinity from the top of the hill between Ambon Bay and the north beach on Hitu at the southern extent of Seram (precisely where the Tomu Site is located—between the top of the hill and the beach). The remaining *rumatau* that still exist are decedents from the Hunut clan; Lessy, Nasela and Anggoda Usman.]

Where Ziwar-Effendi got his information is not stated. However, it can be distilled from this statement that Tomu was an earlier indigenous settlement and that the descendants no longer exist or have been absorbed into other social groups. Furthermore, Tomu was located somewhere between the

hill separating Ambon Bay from the north beach on the Leihitu peninsula. Indeed, this is where the Tomu site is located. Tomu is also mentioned in the *Hikayat Tanah Hitu* (Manusama 1977, Miksic n.d.), but according to the introduction, little is known of Tomu except that they joined the higher level *uli* of Hitu probably postdating Portuguese arrival and that there was a leader named Seatoulan (?).

The four main immigrants that became the four *perdana* at a latter date were Totohatu, Tanihitumessing, Nusatapy and Patituban. Totohatu was the first to arrive (15th century-?, possibly earlier; although it is also somewhat unclear where they came from or if they were always there according to Ziwar Effendi (1987:12-13)). According to the *Hikayat Tanah Hitu* (Manusama 1977), the first to arrive were two Javanese brothers and their sister, Kyai Tuli, Kyai Dau and Nyai Mas. They captured a dog and tied a bundle around its neck to inform the local residents that they had arrived, presumably in peace.

Following Ziwar Effendi's account, Tanihitumessing was the second to arrive. According to Ziwar Effendi (1987:13) they were from Java, a family member of the *raja* Tuban under the leadership of Pattikawa. They moved to the north near the Waipaliti stream at the base of Paunusa Mountain. Their first leader was Sepamole. They were also called Zamanmulai (beginning of the era) because they were the first to dare to move into an area also inhabited by the dangerous *alifuru*.

The third were from Jailolo under the leadership of Jamilu, a prince of Jailolo. They moved to Latim on Hitu which is now known as Hitulama, although it is odd that Hitulama would become the name as "lama" (ancient, old, past) is frequently attached to village names when describing their *negeri lama*. Jamilu is also known as Tahalele Ela and also Patinggi (more as titles than names perhaps). The last of the four was from Gorom led by Kyai Pati. They moved to Nukuhaly Point at the mouth of Olang Stream which is near Kaitetu. Oddly enough, Kyai Pati was also known as Patituban because he studied Islam in Java. These issues have been discussed above, so there is no need to discuss them further here. The main point is that there are some discrepancies between Ziwar Effendi's recounting and those in the Miksic (n.d.) and Manusama (1977) *Hikayat Tanah Hitu* manuscripts.

Hatusua

The Hatusua Site

The Hatusua Site (also referred to as the Serapi Site) consists partly of the Hatuhuran Caves Site noted by Spriggs and Miller in the 1970s (Spriggs 1990) as well as additional caves and a large

open site. Credit should be attributed to Spriggs and Miller for recognizing the site's potential for archaeological research, although the full extent of the site was unknown at that time. After recent survey it is now known that the site includes a number of additional caves and a large, once walled, open site of considerable size beginning from the south side of Hatusua Village and extending towards Waipirit (the current ferry terminal for boats from Hunimua (Liang), Ambon). The Butonese immigrant settlements of Serapi Laut and Serapi Darat are also located on the site.

In 1992, the University of Hawaii survey team noted surface scatters of earthenwares along the hillslope where the then uncompleted trans-Seram highway was being constructed near the coastline. The team also noted several ceramic, bone and shell assemblages in many of the coastal and inland caves. Some of the caves were further explored and a few small samples were collected and stored at Universitas Pattimura.

Interestingly, many of the caves contain large scatters of human long bones and cranial bones. A few relatively complete skulls had been placed in niches in some of the caves. Some earthenware sherds are also placed in the niches, although it did not appear that the bones had been placed in jars. Most of the bones lay on the floor amidst scatters of broken earthenware. One cave's human remains had been encased in lime (from the limestone dissolving with water percolation and subsequently dripping on the floor scatters, rehardening after). Many broken earthenware pots and thousands of sherds were noted. Red slipping, incised designs, burnishing and some painted decorations were common on the observed pieces. Only a few samples were collected, however, and the team avoided further sampling to refrain from further disturbing the human remains. Because of tectonic activity the sites are dangerous due to the possibility of collapse (several entrances had collapsed since the initial 1992 surveys). The antiquity was unknown during initial surveys and none of the local residents knew anything about the skeletal material nor claimed any connection with their own ancestors. One assistant suggested that they were Japanese killed by Malukans during WWII, but it is quite obvious the remains are much older.

Whether or not these caves, the human remains and the earthenware sherds are similar to and perhaps contemporary with archaeological materials in jar burial caves like those found in Sulawesi, Talaud and the Philippines remains unknown (i.e., was it part of a much more widespread cave and jar burial tradition?). However, it is possible that it may be part of related traditions and communication

among Austronesians in the past two thousand years unrelated to initial Austronesian expansion. As previously emphasized, no bones were actually found in any jars.

The jars, however, may have been intentionally smashed in antiquity (i.e., as part of a burial or reburial ritual). This seems to have been a common practice in nearby areas (Bellwood 1976). Alternatively, as no other mortuary goods (e.g., beads, glass, gold, bronze, non-local valued ceramics, etc.) were noted, and a considerable amount of antiquities looting occurs in Maluku as elsewhere, jars could have been smashed and goods plundered in antiquity or relatively recently. However, one would expect a few items to have remained (e.g., broken porcelains, a few beads, etc.) had such items been present. Only further investigation will allow more secure explanations.²

In 1993 a joint University of Hawaii and Indonesian team excavated a large block and trench at the base of a slope near one of the caves and several one square meter test units that were evenly spaced out by several meters into the cave (Figure 9; Photos 53-55; Table 6). The original notes and plans were archived at Universitas Pattimura but have since been destroyed (mostly lost, burnt during the late 90s violence, or eaten by termites). Intensive study of remaining notes from Stark and Latinis has allowed a decent reconstruction of the original excavation, although the original unit labeling system has caused some confusion. The original collections were moved unbeknownst to any of the archaeological crew probably due to a termite infestation in the original storage area. It is suspected that some material and most of the notes were lost or thrown out during this move. Recent violent events in Maluku has resulted in the loss of what remains at Universitas Pattimura.

The current map is reconstructed based on memory and notes including reconstruction of test units based on artifact, soil sample and faunal remains bags from the excavation. Besides the loss of some of the artifact storage bags, it is likely that several bags were mislabeled in the field due to the labeling system. However, it is definite that all analyzed material is from the same excavation and site. Survey collections were stored separately and the Labarisi Cave and Batususu Sites' collections were taken to the University of Hawaii for further analyses or stored separately as well. There is no site assemblage mixing.

Initially, there were reasons to suspect that the Hatusua Site assemblage was redeposited from an initial upslope context. There was only one true artifact bearing stratigraphic layer (i.e., an unstratified site or single stratigraphic layer). It is quite possible that the artifacts washed out of the slope and accumulated in their location towards the base of the slope. However, recent radiocarbon

Figure 9: Plan view of Hatusua excavation.

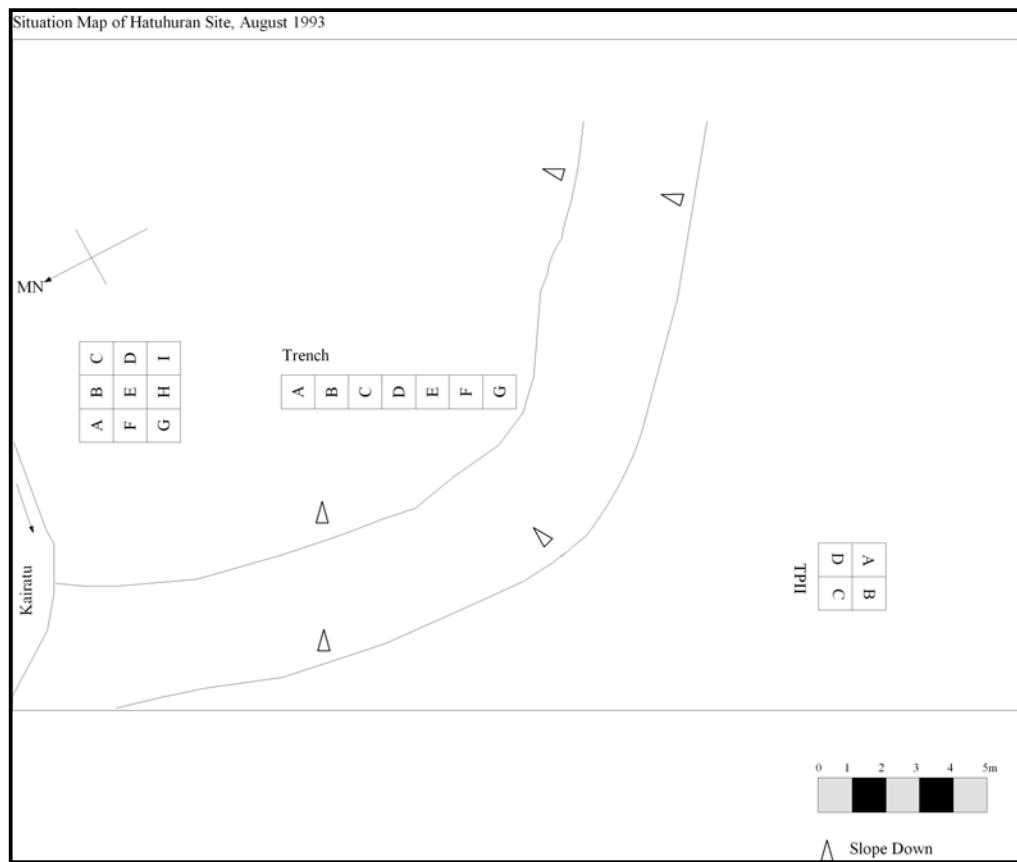


Figure 9 (continued): Ground plan of Hatusua excavation.

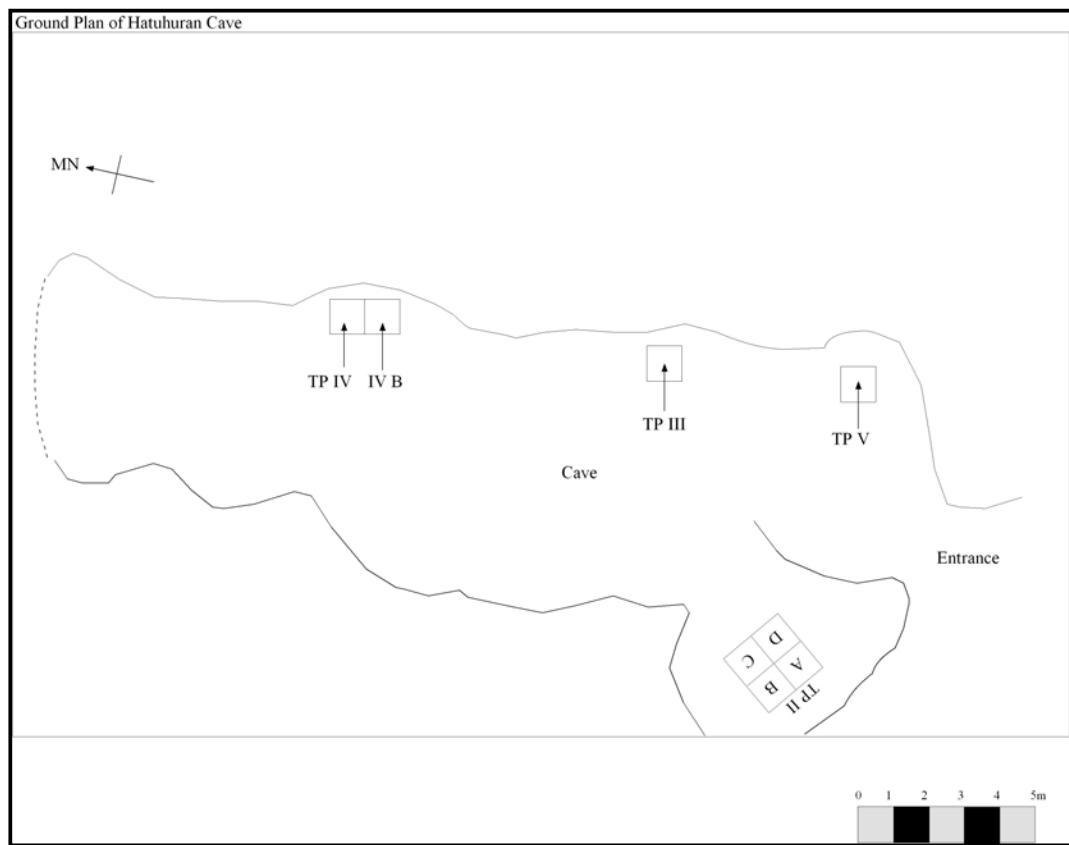


Photo 53: Hatusua Excavation.



Photo 54: Hatusua Excavation.

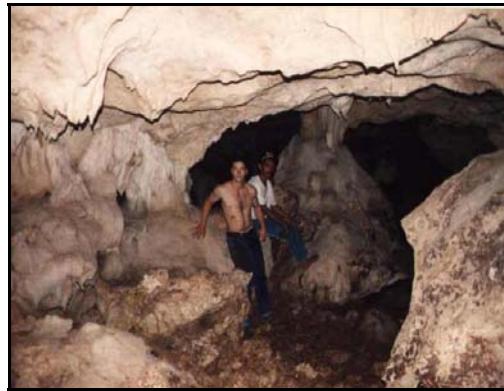
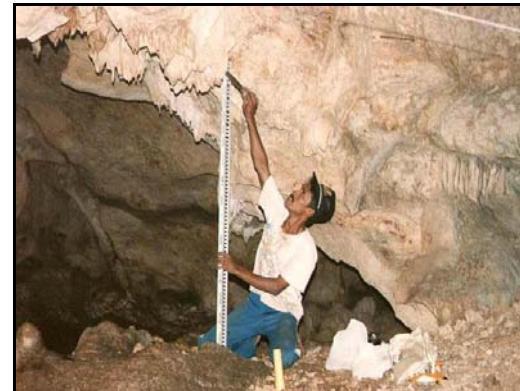


Photo 55: Hatusua Excavation.



dates suggest otherwise. The lower levels are older than the upper. Also, the excavations are not dispersed enough to adequately assess internal site variation except between open air and cave contexts. The excavations were originally part of Ken Stark's dissertation research which included the Batususu Site in Ambon and the Labarisi Cave/Rockshelter Site in Buru (near Waeplau Village). A few sketches were made of some of the ceramics in the field by the Indonesian counterpart, Goenadi, although none were ever published (until Latinis and Stark 2003) and a detailed report was never filed. The collections

were stored at Universitas Pattimura in Ambon in 1993. No further analysis was conducted at that time as Ken Stark's thesis focused attention on the Batususu and Labarisi assemblages.

Table 6: Reconstructed Units, Layers and Levels from Hatusua Site Excavation.

Units	Bags (Layer/Level)	Estimated Max Depth cms
1A	I/1, I/2, I/3, I/4, II/5, II/6, II/7, II/8	80
2A	I/1, I/2	20
1B	I/1, I/2	20
2B	I/4	40
4B	I/1, I/2, I/3, I/4, II/5, II/7, III/5	70
1C	I/1, I/2, I/3	30
2C	I/1, I/2, I/3	30
1D	I/1, I/2, I/3, I/4, II/3	40
2D	I/1, I/2, I/3	30
1E	I/1, I/2, I/5	50
1F	I/1, I/2, I/3, I/4, I/5	50
1G	I/1, I/2, I/3, I/4	40
1H	I/1, I/3, I/4, I/5	50
1I	I/1, I/2, I/3, I/4	40
TP 1		
TP 2		
TP 3	I/2	20
TP 4	I/1, I/2, I/3	30
TP 5		

The deposits were screened with $\frac{1}{4}$ inch mesh. Ten centimeter arbitrary levels were excavated and, where appropriate, separation by stratigraphic layer was conducted. Some soil samples were collected but only basic analyses were performed several years after their storage. Most were thrown out or lost while in storage.

Artifacts include thousands of earthenware sherds, three stoneware sherds (probably of 14th century or earlier Chinese origin), a blue triangular sectioned glass bangle fragment (probably Chinese), three badly oxidized fragments of iron, two small semi-tubular fragments of tin or bronze, some shell, some animal bones, some human bones, a crude *tridacna* chopper or scraper, a water worn natural but anthropogenically damaged stone that is morphologically similar to a lenticular sectioned adze (although there is no evidence of grinding or flaking, the edge damage at the distal bevel-like end suggests some kind of use for pounding, but the edge could not have been used for sharp chopping similar to an adze or axe), a few amorphous chunks of local chert and three schist *gacuk* (coin sized worked stone disks, one of which has evidence that indicates there may have been an attempt to perforate the middle)(Photos 56-58). The latter artifacts have said to be used for tokens, gaming pieces, etc. but there is no conclusive evidence and no ethnographic analogy to support this for Maluku. No

post holes or charcoal remains were recovered. Botanical remains include a few *Celtis* seeds and many different species in the upper levels (most likely recent).

Non-shell faunal remains were sparse, amounting to only 227 grams (Tables 7 and 8, Graphs 1 and 2). Most of the remains are mammalian and the largest amount are human. All of the remains except the human, though possible food items, could have been naturally deposited. The lack of dense faunal remains is informative. It suggests that the site was not likely used as a habitation site and further indicates that it is possible that some of the assemblage may have been redeposited after eroding from the hillslope.

The human remains are interesting (Table 8). The mandible fragment contains three molars (M1-M3) with the M3 small and not at all worn, and the other two molars very mildly worn (probably a young to middle aged adult). An isolated unworn adult premolar was also recovered. Finally, a massively worn adult molar (M1 or M2) was also recovered (either very old or reflects some unusual processing behavior as the molar is worn completely down to the dentin below the gum having a concave bowl like appearance). The mandible fragment is likely part of burial remains. Whether it was redeposited is unknown.

The remaining human material consist largely of foot bones and probably lower leg long bones (tibia and fibula) as well as some flat bones and rib bones. They clearly come from a sizeable adult. These are likely burial remains as well. Whether or not they were redeposited or were originally placed there is unknown. Also, the relation between the mandible and isolated teeth is unknown. Finally, the cause of death or date of original death of the individual(s) remains unknown.

Marine shell remains are relatively sparse as well (Table 9) and hardly indicate intensive occupation. These could represent food remains. Scatters of shell remains occur throughout the open site and in many caves and it is suspected that they are remnant meals or perhaps food offerings. No large or dense shell middens were noted however. The shell remains display a fairly wide variety of species common to the area, although nautilus shells are usually found in deeper waters. Almost all types of marine, coastal, brackish, estuarine, mangrove and other environments can be found in the area. None of the shell remains are particularly unexpected. None of the shell or other faunal remains are worked or otherwise artifactual (e.g., used as ornaments or tools). Of possible interest are the opercula which are relatively uniform (about 1 gram each and approximately the same diameter). It is possible that these could have been used as tokens, gaming pieces, ornaments, etc.

Photo 56a: Hatusua Excavation Stone Tools.



Photo 56b: Hatusua Excavation Stone Tools.



Photo 57a: Hatusua Excavation Gacuk.



Photo 57b: Hatusua Excavation Gacuk.



Photo 58a: Hatusua Excavation Glass Bangle.



Photo 58b: Hatusua Excavation Glass Bangle.



Table 7: Faunal Remains from Hatusua Site Excavation.

Faunal Category	Count	Mass g
Human	73	142.5
Pig Tooth	1	3
Large Mammal	4	12
Med-Large Mammal	31	43
Med Mammal	5	7
Med-Small Mammal	7	4.5
Small Mammal	5	2
Unknown Mammal	2	1
Bird (medium)	1	3
Bird (small)	5	2
Crab Claw	11	4
Fish Vertebrae (med to small)	2	1
Turtle	1	5
Totals	148	230

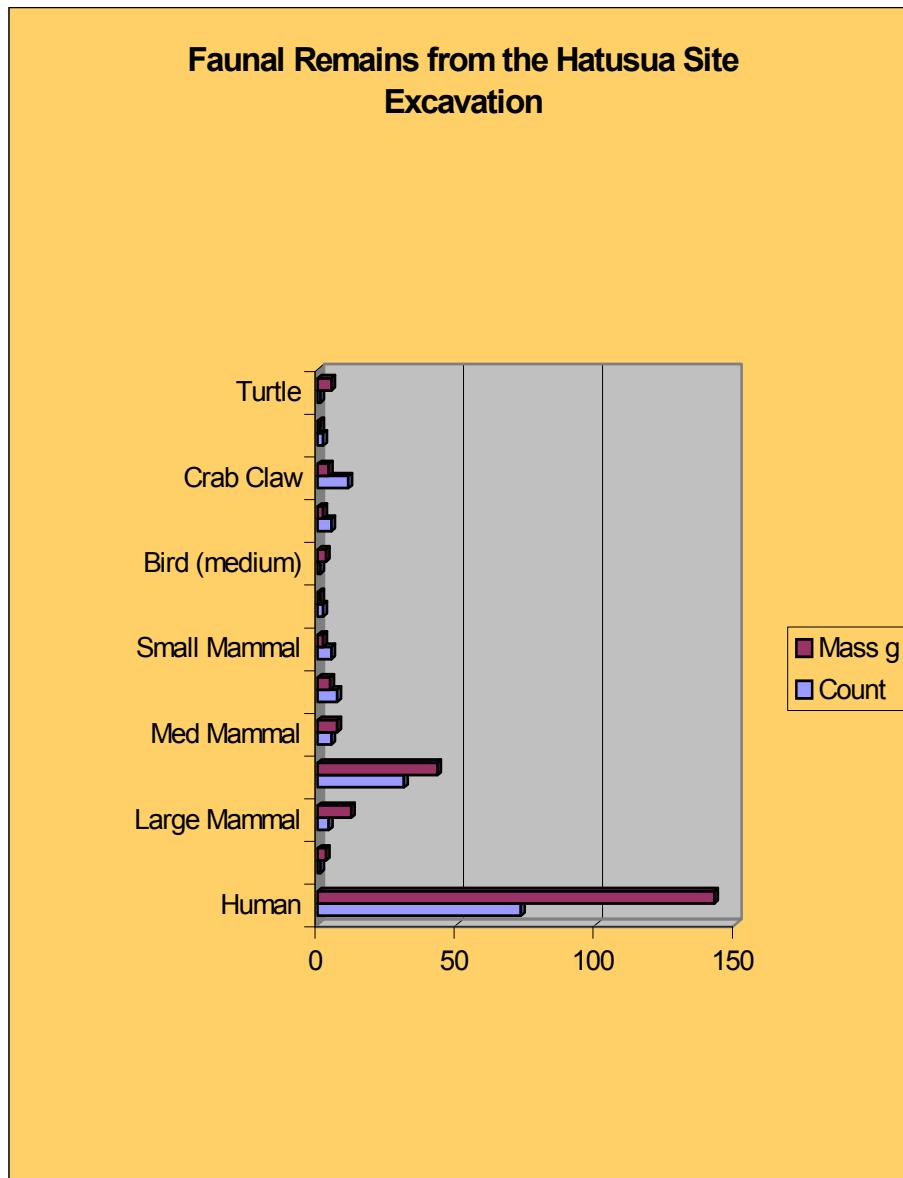
Table 8: Human Skeletal Remains from Hatusua Site Excavation.

Bone	Count	Mass g
Mandible	1	12
Teeth	2	5
Tarsals/Phalanges	22	41.5
Foot Bones	2	20
Long Bone Fragments (tibia/fibula-?)	40	57
Ribs	3	4
Flat Bones	3	3
Totals	72	142.5

Table 9: Shell Remains from the Hatusua Site Excavation.

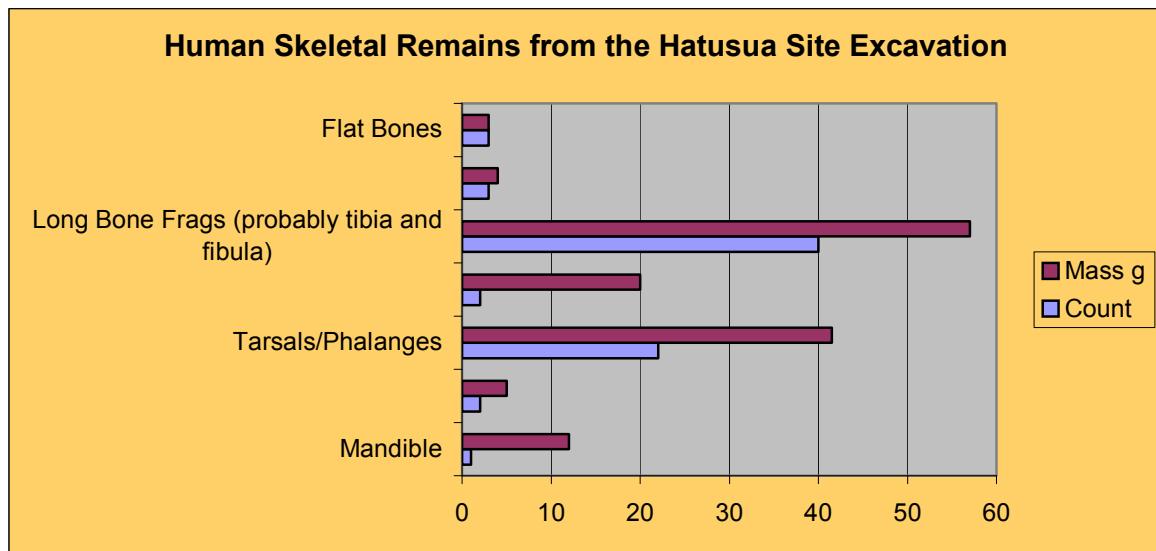
	Count	Mass g
Archidae	4	51
Cardiidae	20	89.5
Conidae	25	121
Cypraeidae	5	11.5
Fissurellidae	1	3
Lucinidae	13	33
Nautilus	1	31
Neritidae	16	13.5
Oyster-?	2	40
Strombidae	10	190
Tellinidae	3	4.5
Terebridae	3	3
Trochidae	14	64.5
Tridacna	15	244
Turbinidae	15	107.5
Turritellidae	5	4
Opercula	16	11.5
Gastropod	14	21.5
Bivalve	22	31
Land Snail	96	30
?	59	35
Totals	359	1140

Graph 1: Faunal Remains from the Hatusua Site Excavation.



The soil deposits were not discernibly stratified except at the base of the cave (probably weathered limestone and culturally sterile with any artifacts likely intrusive from the upper layer)(Table 10). Table 10 indicates that separate strata recognized in the field for each individual unit were composed of the same soils with primarily the same content and color. For instance, Trench A's three layers are virtually identical. The same could be argued for 4B's four layers, 1I's three layers and Test Pit 3's three layers. It is doubtful that field differentiation of identified strata are geologically or archaeologically valid.

Graph 2: Human Skeletal Remains from the Hatusua Site Excavation.



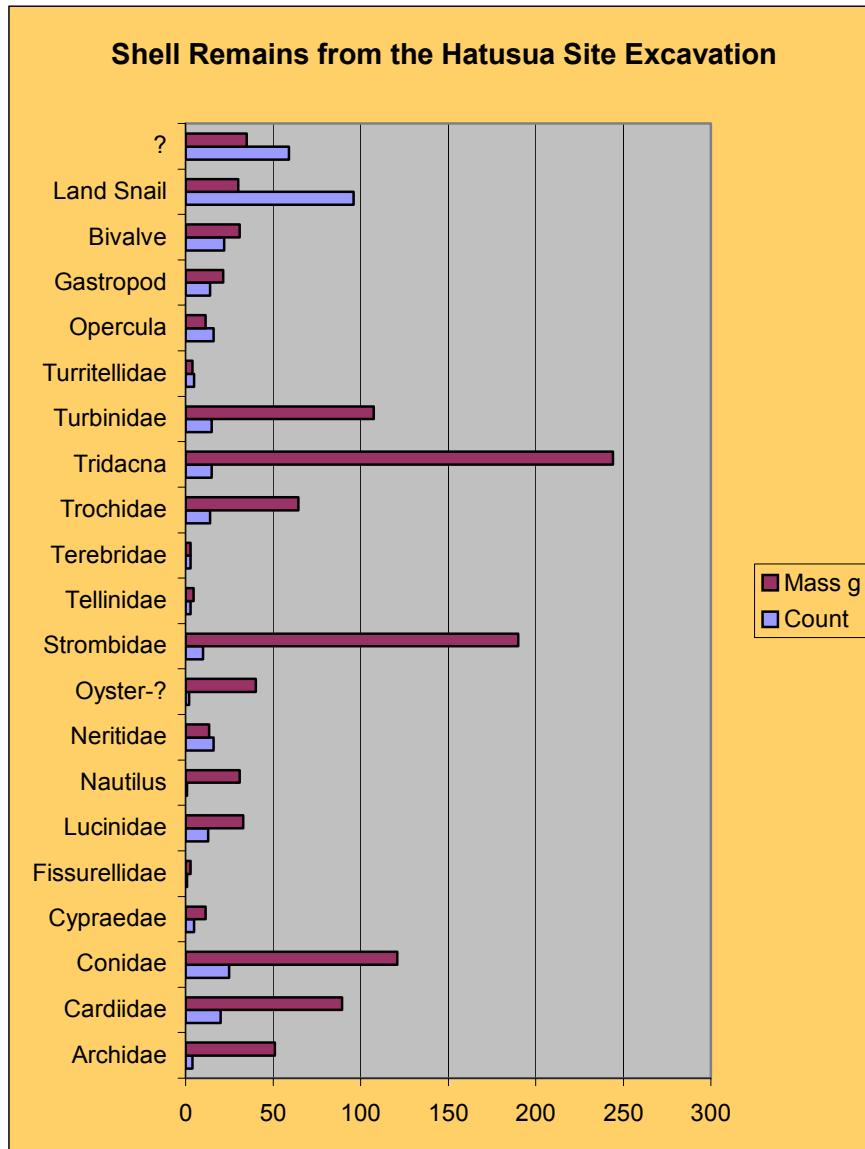
Culture bearing levels rarely exceed 50 centimeters. The sandy deposits below the single cultural strata in the large block unit and units outside the cave grade continuously from the cultural strata, eventually becoming culturally sterile and lighter.

Fortunately, three reliable charcoal samples were available for accelerated mass spectrometry (AMS) radiocarbon dating analyses. These are Beta-181923, 2 Sigma Cal A.D. 775 to 980 (conventional radiocarbon age: 1160 +/- 40 B.P.); Beta-181924, 2 Sigma Cal A.D. 765-970 (conventional radiocarbon age: 1180 +/- 40 B.P.); and Beta-181925 (116.9 +/- 0.6 pMC—conventional radiocarbon age 117.4 +/- 0.6 pMC). These dates 1) clearly place the artifact bearing deposits in the 8th-10th centuries A.D. (possibly as early as the late 7th century) and 2) strongly suggest that the deposits were not inverted due to redeposition as the upper layer is clearly more recent. It could be argued that the charcoal samples were from old wood, but this would only indicate a slightly later date of 100-200 years maximum (not likely as the samples do not seem to be from large and old tree wood), and this still confirms that the buried deposits clearly predate the 14th-16th century terminal surface dates as indicated by the ceramic analysis of non-local surface sherds.

The silty sand and sand deposits characterize the large block excavation closest to the coastline. This was likely the old beach berm or coast prior to more recent progradation, possibly formed during the mid Holocene high sea levels. However, there are several streams in the area and the movement of stream courses over the last thousand years in the area is difficult to determine including the effect such action would have on the nature of sand and soil deposition. The other units contain more silt, loam and clay in increasing amounts further inland. Test Pits 1-5 are closest to the cave (furthest inland) or in

the cave and contain the highest clay content. Pebble fragments and limestone chunks could represent some form of pavement or fill, although this is unlikely.

Graph 3: Shell Remains from the Hatusua Site Excavation



As mentioned above most of the excavated area is at the base of the slope. It is quite possible that some of the artifacts have eroded from upslope and subsequently re-accumulated in their current location. Numerous ceramic sherd conjoins were located in strata differing by 50 cm in depth and several meters in distance, supporting that indeed redeposition is a possibility.

The ceramic assemblage is described in further detail in the following chapter. At present, it is reasonable and perhaps analytically best to treat the various levels and most of the test units as one sample, especially due to the loss of the original plan diagrams and other information. Furthermore,

Table 10: Soil Descriptions from the Hatusua Site Excavation.

Test Pit	Layer	Soil	Color	Other
1A	I	Silty sand (fine grained and rounded, very little silt content, some small pebbles, limestone fragments and schist chunks)	2.5Y6/2 Grayish brown – 4Y4/2 Olive gray.	Slight marine sand content and few organic remains.
1A	II	Silty sand (fine grained and rounded, very little silt content, some small pebbles, limestone fragments and schist chunks)	2.5Y6/2 Grayish brown – 4Y4/2 Olive gray.	Slight marine sand content and few organic remains.
2A		No information		
Trench A (perhaps a mislabel for 1A or 2A)	I	Loamy or silty sand (fine grained and rounded, some small water worn pebbles)	5Y4/1 Dark gray	Rootlets, but otherwise few organic remains.
Trench A (perhaps a mislabel for 1A or 2A)	II	Loamy or silty sand (fine grained and rounded, some small water worn pebbles)	5Y4/1 Dark gray	Less rootlets than Layer I, but otherwise few organic remains.
Trench A (perhaps a mislabel for 1A or 2A)	III	Alluvial and marine sand (fine to medium grained and rounded, some small water worn pebbles)	5Y5/2 Olive gray	No rootlets and no organic remains.
1B		No information		
4B	I	Silty clay with a large sand content (soil sample indicates that the deposit is chiefly composed of limestone chunks and waterworn pebbles)	10YR4/3 Brown to dark brown	Some organic material.
4B	II	Silty clay (sticky with some limestone, waterworn pebbles and sand content, slightly friable in some parts but easily forms balls and blocks)	7.5YR4/6 Strong brown	Some organic material and landsnails.
4B	III	Silty loam with medium to fine grained sands content (soil sample indicates that the deposit is moderately composed of limestone chunks and waterworn pebbles, with a higher clay content than adjacent Layers)	10YR5/3 Brown	No organic material.
4B	IV	Silty clay with a large sand content (soil sample indicates that the deposit is chiefly composed of limestone chunks and waterworn pebbles, but slightly more clay than Layer I)	7.5YR4/3 Brown to dark brown	Some organic material and medium to large land snail shells.
1C		No information		
2C		No information		
1D		No information		
2D		No information		
1E		No information		
1F		No information		
1G		No information		
1H		No information		
II	I	Silty sand (fine grained, rounded)	7.5YR3/2 Dark brown	Many rootlets and recent decomposing organic matter.
II	II	Silty sand (fine grained, rounded)	10YR4/1 Dark gray	Basically the same as Layer I with less organic matter.
II	III	Sand (fine grained and rounded with very little silt and higher marine sand content)	5YR6/2 Light olive gray	Basically the same as Layers I and II without organic matter.
Test Pit 1	I	Exposed limestone		
Test Pit 2	I	Silty clay (sticky with moderate limestone and slight sand content, slightly friable in some parts but easily forms balls and blocks)	7.5YR4/6 Strong brown	No organic material.
Test Pit 3	I	Silty clay (sticky with some limestone and sand content, slightly friable in some parts but easily forms balls and blocks)	7.5YR4/6 Strong brown	No organic material.
Test Pit 3	II	Silty clay (sticky with some limestone and sand content, slightly friable in some parts but easily forms balls and blocks)	7.5YR4/6 Strong brown	No organic material.
Test Pit 3	III	Silty clay (sticky with some limestone and sand content (slightly more sand than Layer II), slightly friable in some parts but easily forms balls and blocks)	7.5YR4/6 Strong brown	No organic material.
Test Pit 4		No information		
Test Pit 5	I	Silty clay (sticky with some limestone and sand content, slightly friable in some parts but easily forms balls and blocks)	7.5YR4/6 Strong brown	No organic material.

differentiation of artifacts produced few discernable statistical variance other than 1) an expected decrease in artifacts from upper to lower per level, 2) a slight difference between open deposits and cave deposits, and) a greater abundance of incised designs in buried artifacts presumably from the 7th-10th centuries.

Further Survey and Sampling of the Hatusua Site

The years after the 1993 excavation witnessed the continued deforestation of the area and increased *umur pendek* gardening practices of the Butonese immigrant community in Serapi. Both processes have drastically altered the vegetation and ecosystem. Unfortunately for the forest and ecosystems but fortunately for the archaeologist, the deforestation and continued firing results in greater site visibility but increased site erosion. It was during ethnographic and nutrition research in 1996 and 1997 that it was realized that the surface scatters were dense and large.

A survey was instigated at the site to collect various surface scatters to assess the earthenware assemblage variability. Identical forms, incised motifs, locations of designs and use of slipping and burnishing were noted in both the Hatusua and Tomu surface assemblages. Morphologically and stylistically, the ceramic assemblages are indistinguishable, although design variability in the excavated Hatusua assemblage from lower levels and caves is greater. This latter phenomenon could relate to sampling error as more artifacts from the Hatusua Site were analyzed. It may, however, be an important change through time, distinguishing the 13th-15th century upper layers from the clearly earlier lower layers.

Unlike Tomu, however, the Hatusua Site yielded far fewer *kenari* cracking stones and identifiable surface features (although there probably are similar stacked stone features; acknowledged by local informants). There are significantly greater amounts of shell remains (presumably food remains) scattered throughout the Hatusua Site. Additionally, the Hatusua Site is apparently far larger than the Tomu Site. Finally, the Hatusua excavated assemblage is in many regards extremely similar to both surface assemblages from Hatusua and Tomu but differs in some aspects that may be meaningful, such as the abundance of *kenari* cracking stones in Tomu and a wider incised ceramic design repertoire (discussed above) in Hatusua. It should also be mentioned that the few collected cave sherds indicate a strong affinity in form, morphology and design treatment with the excavated Hatusua assemblage and both the Hatusua and Tomu surface assemblages.

The Hatusua Site contains foreign stonewares, glazedwares and porcelains like the Tomu Site, but seemingly less dense distributions. The sherds are of Chinese, Thai and Vietnamese origin dating from perhaps as early as the 12th century to the 15th or early 16th centuries but probably mostly restricted to the latter 13th century to 15th century. As with the Tomu Site, both diagnostic earthenwares and non-local ceramics were collected to assess variability and dates of occupation. Again, this approach allows far more revelation of the richness or breadth of variability of the assemblage.

It was later realized after much forest clearance and repetitive firing of parts of the site by the Butonese *pendatang* that the surface scatters, caves, inland cave scatters, etc. were part of a much larger continuous site (mentioned above).

In 1992 the survey team noted a few large wall segments but it was assumed that these were modern. Upon further inquiry over the course of ethnographic research, it was disclosed by many informants that a large wall had encircled the site many years ago (in ancient times) but had been totally disassembled for construction material in the last few years (the remaining segments from 1992 had totally disappeared by 1997). Informants stated that the wall must have been very ancient and that they did not know who built it or why it was built. Some informants just assumed that their ancestors built the wall for some kind of protection.

All informants consistently claimed that the wall was built out of limestone pebbles and cobbles and was between one to three meters in height and one to two meters wide. What was described by the informants is identical to the Tomu Site's wall. Additionally, informants disclosed that there were several built up areas that they presumed were gates including one large main gate near the coastal extent. As all informants were independently consistent, there is little reason to doubt them. One Hatusuan assistant visited Tomu to check 1) the recent garden walls (of which he knew exactly what they were, when they were built and who built them) and 2) the protohistoric wall. He stated that the Hatusua Site's wall was identical in construction to the protohistoric Tomu wall, only slightly bigger. Incidentally, none of the modern villages build encircling settlement walls and most Malukans rarely use garden walls. Garden walls are far more commonly built by the Sulawesian *pendatang*, although this may be different in eastern Central Maluku (see above).

One of the local informants who knew the wall's original specific locations helped re-identify approximately where the wall used to be located. He spent much time playing on it while younger and his family had many gardens in the vicinity. The circumference was surveyed to collect GPS

coordinates and check for consistent ceramic scatters. The site appears to be quite large based on what seems to be a fairly continuous earthenware assemblage (at least 1.0 square kilometer or 100 hectares including the cave sites along the coast). There is also the possibility that the site could be even larger based on the occurrence of ceramic scatters beyond what was shown to be the wall's circumference; as large as 200 hectares, although this is questionable and the larger area may represent two or more separate assemblages. It remains difficult to determine. If the site is 200 hectares in size, this would be exceptional thus far from what would be expected of the region and time period.

The deposits to the east and northern parts of the site are significantly thicker (i.e., have accumulated) and ceramic scatters appear less dense and are less visible. It cannot be discounted that there is more than one site even within the wall's supposed circumference. However, without intensive survey and test excavation sampling, it is difficult to determine. Nevertheless, it is a comfortable estimate to assume that the Hatusua Site is minimally two to three times the size of the Tomu site.

Differing from the Tomu Site, the Hatusua Site extends to the coast (Tanjung Hatuhuran where the Hatuhuran Caves are located). However, like the Tomu Site, the Hatusua Site is mostly located on an uplifted limestone hill that is relatively flat which extends inland quite some distance. The site has no uniform shape and mainly follows local topography, mostly located on the high ground between 50-300 ft amsl. There is a stream to the north of the site and a stream some distance to the south (closer to Waipirit but outside of the site's borders). Needless to say, the larger region is one of the heavier sago producing areas with many freshwater streams coming from the mountains. Hatusua's potential for significant sago, forest product, strand product and marine resource production may have played a role in the protohistoric site's founding and formation. That is, was this a significant sago production community who may have supplied other settlements with large sago shipments?

The Hatusua Site has a commanding view of Ambon, Piru Bay (at least to Kaibobo), and the Huamual Peninsula. Again, this is consistent with the Tomu Site. The Hatusua Site is also eroding in many areas as it is currently located on a very exposed limestone hillslope or hilltop. There are some accumulated deposits at the southeast region where the Serapi Darat hamlet is located, but again, this may be related to more recent unintentional soil capture. The rocky limestone nature of the site also hinders identification of any wall base remnants, surely of which some must remain although the upper courses may have been disassembled. Several platforms, *batu meja* and *batu pemali* features are said to be located in the site, but none were identified, other than a natural boulder which is now encased in

cement (i.e., locally enshrined). This boulder is associated with Hatusua's cosmology like the *batu meja* located towards the coast at the north end of the village. Some natural geologic features which were claimed to be people or mythical beings turned to stone were also noted. None of these appear to have undergone any significant human modification in antiquity.

The soils are rocky, well drained, eroding, shallow in most places, loamy and friable. The current vegetation is mainly secondary and pioneer growth two to three meters high and very dense, again, precluding decent archaeological survey and good visibility except in cleared and fired plots. No andesitic rock was noted locally (expected, although there could be imported andesitic tools from Ambon and elsewhere), although there is a lot of schist-like rock, much of which is waterworn, obviously deriving from streambeds. Limestone formations dominate the region. There are fine to course riverine and beach sands nearby which are fairly well rounded and geologically complex. Although the topography appears relatively flat in the greater area around Hatusua from most maps which support dense sago and forest stands based on ground survey, it is actually quite undulating and variable. The foothills and base of the high Seram mountains can easily be reached within several hours of hiking.

Nevertheless, compared to the highland villages, the local vicinity is relatively flat. Two transmigrant wet rice farming villages are located to the north and south of Hatusua's total resource environment which constantly encroached on their 'territory'. The beach area provides easy landing and the waters are relatively calm. The Waipirit ferry landing is nearby and the antiquity of the area for a landing/pier is unknown.

Of interest, Hatusuans do not often engage in fishing despite being a coastally oriented village. Only a few times a week relatively few of the residents will paddle a two long boats off the coast with a large net which is then hauled in, mostly by interested children and young females and males. The catch is divided relatively equally and anyone is welcome to join. Most of the residents engage in agroforestry and there is a considerable amount of palm wine production (Latinis 1999). Hatusua was once known for heavy palm sugar production (both produced from *Arenga* exudates).

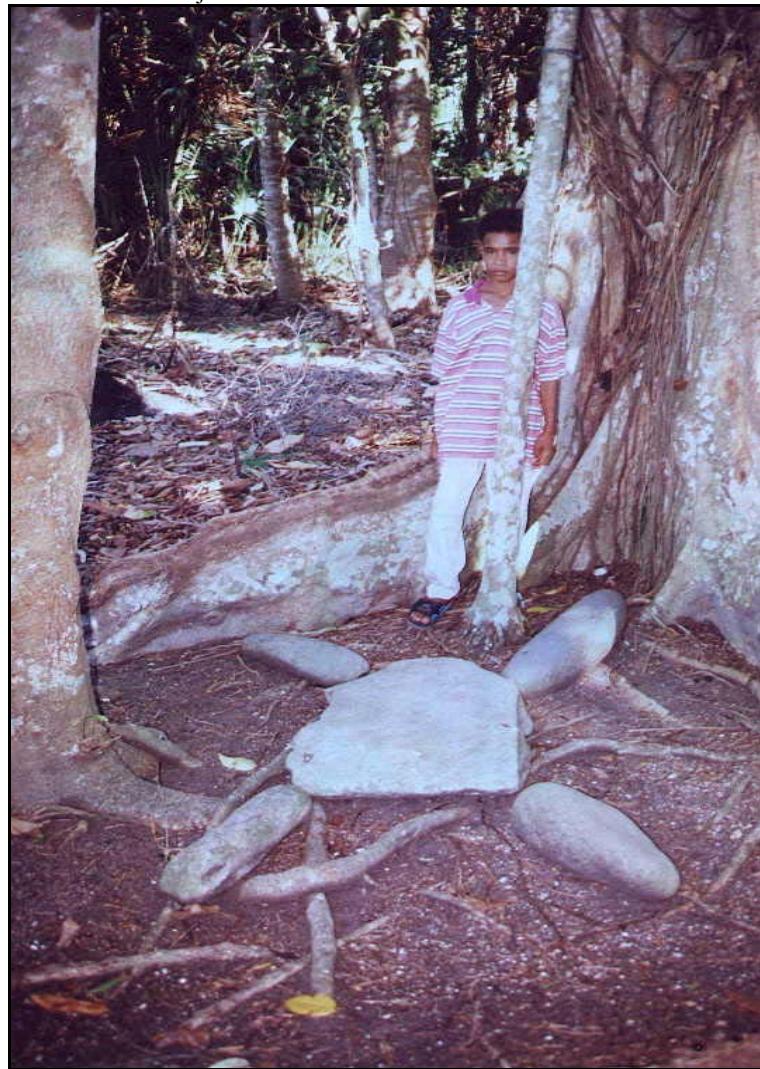
Interestingly, the languages of West Seram and Piru Bay are closely related to those of the Leihitu Peninsula. This seems odd if the 15th-16th century settlers of these areas were originally foreign residents form outside of the Piru Bay and Ambon-Lease as suggested by the *Hikayat Tanah Hitu*. As with the OXIS research (described above), however, it may indicate a cultural interaction sphere.

Leveling, interaction and time may have caused the similarity, but it strongly indicates that the original settlers in protohistoric times may have come from somewhat more local origins. Hatusuan language, unlike many inland groups, do not belong to Alune or Wemale, but have much in common with Kaibobo, Piru Bay and Luhu and surrounding villages. At a larger scale they are related to Leihitu, Haruku and Saparua languages. The language similarity indicates a significant sphere of interaction.

Hatusua Lama

Finally, Hatusua Lama (at the north coastal end of the village) was surveyed. There is a *batu meja* (photo 59) and some artifact scatters. However, the artifacts consist of historic glass bottles (though likely pre-20th century—see added images in CD insert), some earthenware sherds and a few recent historic porcelains. There are numerous sherds along the beach that are very waterworn.

Photo 59: Batu Meja in Hatusua



Further Comments on Oral History and History Surrounding the Hatusua Site

Firstly, Hatusua could translate into Batu Soa (the ancestor's stone(s) or the stone(s) of the clan). However, little is locally remembered of Hatusua's early history. It is said that they were bad people and had deviated far from acceptable behavior. Thus, the village was divinely destroyed by the 1889 *tsunami* as a punishment. Supposedly, only the preacher survived. Also, one informant disclosed that Hatusuans have lost their history (i.e., it was not properly kept, although they did have a rich history before) and that they have lost their language, a necessary requirement for being able to remember the history (traditional language said to have somewhat magical properties). It is also said that history and language were lost because they broke the taboo forbidding them to eat dog.

It is said that a large red magical dog (as big as a horse) had helped them in the past and they were never again supposed to eat dog (the dog becoming almost totemic) otherwise they would lose their identity and something bad would happen. It is interesting that the dog mythology is prevalent among one of the first immigrants in Hitu according to the *Hikayat Tanah Hitu* (Manusama 1977) and in other oral histories in the area. In Hitu it was a dog who helped the first people when they landed. The dog, in a sense, bridged the gap between the local residents and the newcomers. The first newcomers (Javanese according to the *Hikayat Tanah Hitu* but realistically, probably other Malukans) hung a bundle of objects around the dog's neck letting the local residents know that they had arrived and presumably intended no harm. Dogs are important elements in mythology throughout many parts of the Austronesian speaking world, so it is not necessarily an unusual coincidence, but could indicate some kind of ancient relation.

The Tanjung Hatuhuran caves could also be translated as Batu Bulan (moon rocks/cliffs/point). However, it is unknown if this has any historic significance. Serapi is merely the name of the immigrant Butonese community who arrived in the 20th century, probably post WWII. The two closest settlements or place name areas to Hatusua are Waipirit to the south (where the ferry terminal is; also the name of the stream) and Waesamu to the north, a village presumably named after the stream. *Wai* or *wae* in both cases refers to water or stream. None of these place names appear in any early historic documents predating the Dutch.

Wallace stayed in Hatusua in the mid 19th century where a fellow European kept a plantation. He commented on the paucity of the insect populations, but made no reference to any ruins of sorts.

Additionally, he did not mention that Hatusua was particularly important or prominent, but implied that it was a small, rural, and predominantly locally inhabited place.

As mentioned above, one of the most interesting aspects of the oral record is the similar “ancient kingdom” myth as was recounted separately by different informants about the Tomu Site. I shall repeat the story as it was disclosed to me by one of the village elders. It is significantly more detailed than the Tomu story. The degree of modern embellishments is unknown.

Long ago in the ancient times there was a great and powerful *raja* from Seram. This was a time many thousands of years ago when the old tribes and ancestors fought great battles, often between the Wemale and Alune (and many other groups), before there was any *pela* (or *kandung*), which once enforced, solidified stability, respect, *adat* and ended the wars.

The *raja* ruled a fortress which had a great wall [implying the wall that once encircled the Hatusua Sites]. The wall was built by the 99 *suku* [ethnic groups; probably referring to linguistic or separate *adat* groups but also non-Malukans] who lived and traded in the great village [often referred to as *kota* which could be city or fort]. The fortress housed numerous *bangsa* [nationalities] from all over the world (including Chinese and maybe Indians or Arabs). They also had a Javanese market within the fortress. The *raja* could see all who approached his fortress whether local or foreign from his vantage point, and the *raja* had many magical powers. The fortress was impenetrable [and some say the residents have the power to make it disappear or become invisible to those who approach with ill intentions].

During those times, Ambon was part of Seram and there was only a small lake where Piru Bay is located with a safe and small access to the ocean for trade vessels. Every kind of ship could be found there. Also, every kind of tree grew in the forests and there was no lack of all kinds of food, even rice, although the Malukans who resided there only ate sagu.

The *raja* and his people were two to three meters tall with huge feet and small tails at the base of their spines. They, like all people of Maluku, had descended from the mountains of Seram, a place called Nunusaku [the Nunusaku myth is similar to a garden of Eden origin myth in which the precise location is said to be somewhere near Manusa, although the Manusans fear disclosing the location to outsiders].

The *raja* had a golden table, golden throne and golden crown of great beauty and wealth. The *raja* also had a magic golden chicken that would disclose important information, such as when enemies were to attack or who was untrustworthy. The *raja* also had good relations with the fierce mountain people who would supply him warriors when needed. In fact, one of his most trusted captains was from the mountains. Additionally, the *raja* had a minister (foreign trade master) that came from a land far away. He managed the business in the kingdom and was also very powerful.

The *raja* had a favorite beautiful daughter among his seven princesses and one prince [some versions claim seven princes and one princess]. One time a trade ship came to the kingdom and the foreign *raja* of that trade vessel gave the princess some extraordinarily beautiful clothes [likely silks or cottons in high demand, though most versions suggest silks] to show his goodwill to the *raja*. At that time, the *raja* and his people only wore red cloth on their heads, cassowary or chicken feathers in their hair or headdresses, and *cawats* [a type of loin cloth] made of pounded tree bark as it was the local *adat*.

One day, the *raja*'s minister became infatuated with the princess. Over time, he became crazy with lust for her, and her new clothes only drove him to further madness. Although he tried to charm her many times, she only rejected his advancements. One morning as she was strolling about near the sea, he snuck up and seized her. He carried her off to the forest and in a fit of madness raped her and killed her [some suggest that she was killed first and then raped]. Realizing his crime, he buried the body in the forest and returned to pretend as if nothing happened.

When his favorite daughter did not return, the *raja* became quite distressed and worried. Eventually, he set out with his trusted friends to find her with no success. After requesting aid from his captain, he was able to locate a place that felt and smelled bad, the very

spot where she had been secretly buried. He knew there had been foul play and she was likely lost or killed.

He then proceeded to drive his staff in the ground. If there was a sign, then he would know that she had been murdered and buried. After he drove his staff into the ground, a giant blue fly emerged [bad sign] and then a maggot crawled up his staff [another bad sign]. At this point he knew all the evil that had transpired.

The *raja* then went mad with rage. The evil doings were fully discovered [exactly how is unknown, by admission or magic divination]. The minister was beheaded, although this did nothing to suppress the *raja*'s insanity and rage.

A foreign boat then arrived to take the enraged *raja* away [from where or why is unclear, although it is consistently stated that it was not a local boat; whether or not it was foreign or supernatural is also unknown]. As the *raja* stepped into the boat, he had one foot on the ground and one in the boat. From the powerful enraged force of the *raja*, the boat immediately sank. His other foot left a permanent footprint imbedded in rock which can still be seen today. His golden throne, crown and table also turned to stone.

The force of his enraged step [more like a forceful stamp of the foot] then cleaved Tanjung Sial from Tanjung Hatuhuran. Ambon was also split from Seram. The kingdom was destroyed and everyone perished, including the other *raja* from all over Maluku.

Interestingly, the fortress is said to have contained its own *batu meja* and seven caves for the seven princesses (in some versions princes) who were supposedly buried there. It is said that there were once a *kramat* for each, but they have all disappeared. Additionally, it is also said that none of the princesses ever died, but merely disappeared or took on other forms. Sometimes they are said to occasionally appear. Most are harmless, but there is one dangerous one. This individual is only dangerous to people who have wronged other people. For example, one informant claimed that a Hatusuan was wrongly beaten by a policeman. The policeman returned to Kairatu and met the princess and was mysteriously beaten to death.

The site is also said to contain seven batu *alasan* [stones that would basically lead villages to their next movement (i.e., appear in the future locales before a village movement commenced, in a sense directing the village where to go)]. Within these batu *alasan* were monstrous diamonds [informants might be referring to geodes]. Warriors would be called with a giant shell (conch) when needed from these batu *alasan* locations. It is said that once a Korean and an Indian tried to steal the diamonds but they died and the stones magically reappeared.

Another important legend is that some elders claim that Hatusua was an important political center prior to the *tsunami*. There were three important *raja* who ruled together at that time, not just one. No other information about this story was known.

Others have also suggested that Hatusua was a central place of ancient importance (not to be confused with Nunusaku though). Some suggest that all the sago trees were originally dispersed from

Hatusua. There is some corroboration from legends that were retold in Rambatu, Rumberu and Manusa, that indeed, Hatusua was the source of their current sago trees.

The dog symbolism and myth have been previously mentioned. However, there is another incomplete legend that suggests that a dog originally selected the location for a village. Additionally, a red dog and a white dog (both as big as horses) are supposed to relate to something about past warfare. The details of the story was unclear to the informant, however.

Another story mentions a relationship between Tanjung Sial and Hatusua from long ago. The *raja* from Hatusua shot an arrow to Tanjung Sial. A grove of bamboo magically appeared and the grove is still there today. The informant recalled that it was ‘something-*putih*’ which could refer to Waiputih. There are other important details about the bamboo stand, but the informant could not remember the story.

Interestingly, the Hatusua Site is considered haunted or dangerous by many informants. People avoid walking past it alone or at night. There are few additional explanations other than ‘that is what they have always done’.

Lastly, many residents of Western Seram described a relationship with Buru that was super-*pela*-like as well. However, most Seramese viewed themselves as taking the older sibling role, while the residents of Buru insist that they have the older sibling role.

Summary

Rather than summarizing and discussing the surveys and sampling in detail here, I will only briefly mention a few obvious patterns and reserve more intensive discussion for the final chapters.

Firstly, it is evident that there are several settlement types. One is the inland village of which very little physical remains likely exist (i.e., archaeologically invisible). One of the reasons is the higher use of organic rather than ceramic vessels. The other may be increased residential time in forest and garden *walang* rather than village ‘houses’. Another is likely the high costs of purchase and transport of non-local items that may last longer in the archaeological record (especially ceramic cooking and storage vessels). Also, the inland villages are seemingly more fluid in movement and thus have a shifting settlement pattern that is more accentuated, effectively decreasing archaeological visibility.

Another settlement type is the protohistoric walled settlement with high densities of earthenware sherds and a low percentage of Chinese, Thai and Vietnamese pottery (less than one

percent) dating from as early as the 11th-12th centuries, but more likely from the 13th-late 15th centuries (possibly early 16th century). These sites are frequently located on karstic hillslopes or hilltops with commanding views, appear comparatively large, and seem to have been abandoned prior to Portuguese arrival. Radiocarbon dates suggest the site was occupied as early as the 7th-8th centuries.

Another settlement type is the colonial era mountain fortresses/retreats (e.g., Kapahaha) which are in easily defendable and difficult to access. Pires mentions these for Banda and other places (Cortesao 1944). These probably served as retreats in times when tensions escalated during the colonial period, but were likely known before. It is doubtful that most were permanent settlements. There are often low densities of artifact scatters and possible habitation features, and, the ceramics are dominated by 17th century and later non-local ceramics. Platforms, however (such as those noted as Kapahaha), may indicate more long-term occupation (although a permanent foundation or base platform for a habitation structure does not necessarily equate to long-term occupation). Whether or not they were habitation platforms or were used for other functions is unknown.

Historic coastal villages seem to have been more permanent, but surface artifact scatters and artifact scatters in wave cuts do not indicate a significant pre-17th century intensive occupation. Many of these villages may have resulted from colonial relocations, although many were settled not by force but out of choice to move from the interior to the coast or from one part of Maluku to another. It is evident in the *Hikayat Tanah Hitu* that Hitu was intensively settled only in the late protohistoric and early historic period, primarily from outsiders according to the stories told to Rijali. There is also a possibility that the Hatusua Site predicated the Tomu Site and late protohistoric sites in Leihitu may have emerged due to migration from Seram.

The *negeri lama* is another repertoire of site types that have been adequately described above. Some of these may overlap with the site types described above adding slight complications when trying to specifically separate some site types. Additionally, there are colonial fort sites, but will not be discussed in detail here due to the lack of current relevance to the protohistoric settlement pattern. As mentioned above, there are 1) other site types (e.g., fishing villages), 2) variations in site types due to the nature of production (e.g., some villages specialize in pottery production while others distill palm wine), and 3) boundaries may be very diffuse (e.g., *negeri lama* may refer to a number of these sites, and occupation of any one particular site probably continued to some degree after an ‘abandonment’ phase). However, the main intention is to distinguish the protohistoric walled settlements from the other

site types at present as these are the most mysterious of those surveyed and specifically addresses the problem of protohistoric settlement. The surveys have adequately accomplished these distinctions. However, there are undoubtedly additional sites and a full picture will not be available until further research is completed.

One final note before proceeding to the next chapter should be addressed. It is interesting that the Tomu and Hatusua Sites have comparatively dense artifact assemblages. When compared to neighboring villages like Hitu, Mamala, Morela, Hila, Kaitetu or Hatusua, Waihatu, Waisamu, etc., the walled protohistoric archaeological sites discussed above seem to have much more physical remains especially in the form of pottery. Some of these villages have been sessile for several hundred years (e.g., Hitulama). Nevertheless, surface artifact deposits are far less dense in these areas.

One explanation is that many of these villages are now on the coast and deposits are likely accumulating which thus decreases the artifact density by increasing soil volume. Also, the archaeological sites are eroding thus increasing artifact density by decreasing soil volume. In addition, artifact lifespan has likely increased in the colonial and modern periods as iron and metal cookware have likely replaced a significant amount of protohistoric ceramic cookware. Nevertheless, it seems that the density of artifacts in the protohistoric archaeological sites are exceptionally high despite these processes, indicating either long occupation, high population density, or shorter artifact lifespan equating to higher volume of artifact turnover and accumulation.

Notes:

1. It is not unusual that occasional finds of this nature are made. Many Malukans prefer to bury similar valuables (even if to protect them from accidental breakage) in gardens or forest plots. It is quite common to bury them in bamboo or earthenware pots. Many informants intimated that they continue to do so. Even Galvao (Jacobs 1970:141) suggests that this was a common practice in Northern Maluku:

They treasure these [Chinese and other foreign currency] up, and also jewels, objects of gold, Javanese gongs, copper basins, pieces of ivory, porcelain, fine silk and cotton fabrics; all of this comes from abroad in exchange for clove because none of it is natural to the country. They keep them stored in earthen vessels and hidden in the mountains, buried under the ground so that no one may know of it except two or three slaves who carry it there during the night.

It is interesting that these occasional discoveries often produce whole pieces or pieces that have been broken in only a few places. One might expect that time, postdepositional stress and movement, and even the high tectonic nature of the area would surely break the porcelains, not to mention the turning of the soil itself for agricultural purposes. However, the bamboo

and/or ceramic containers probably protect the porcelains quite well. Furthermore, due to the rocky nature and steep inclines, soil is often turned rather than plowed and it would be quite easy to accidentally turn up a whole pot or platter.

Incidentally, I have rarely encountered a story where jewels, gold, copper, bronze, etc. have been unearthed in a similar manner (except a few questionable stories of gold artifacts magically emerging). If this has occurred, I strongly doubt the discoverer would report such a find to anyone. It is known, however, that such items do erode out of sites (often claimed to have magically emerged) such as the Dongson drum in Kataloka previously described.

2. Of interest, many exotic goods such as non-local pottery (especially antique porcelains), textiles, beads and various metal objects are used for marital exchanges and is not exactly the property of any individual, rather the property of the family, clan, male lineage members, etc. (Jim Hagen pers. comm.). Many such items are necessary for marital exchange and thus unlikely would be included with funerary goods. It is known that many celadons and blue and white porcelains from the Song (possibly), Yuan and Ming periods are still in circulation. In fact, marital and family disputes are often exacerbated if these items have not yet been exchanged. Frequently the only way to resolve such disputes is to deliver the required goods.

There is the possibility that fakes may enter the circulation. However, the genealogy and history of exchanges of many pieces are well known (at least to the older generations) and the curious appearance of new items could cause problems unless it was known to have been recently purchased. Regardless of the possibility of fakes, however, there is still a massive symbolic and cultural value placed on these objects. In fact, males could not have been able to marry in most cases without them (though there are other options for marriage (see Ziwar Effendi 1987 for specific details)).

Additionally, it is not just the monetary equivalent, but the object itself that is needed. For instance, a friend whose father was Butonese and mother was Seramese was married to a local Seramese woman and had two children. A dispute involving his sister and his mother in law caused a problem that escalated significantly. The in laws took the children and refused to return them. The mother was thus forced to return to her family. In return for the children and to make amends for the dispute, the family demanded a massive celadon platter (at that time worth about a million *rupiah* in an Ambon antique store). My friend's father being Butonese had no such items in his family nor a local male lineage in which to provide the necessary payment. Additionally, it was not the one million *rupiah* that was demanded (although the family could have used the cash far more than a celadon platter), but the actual platter.

Of course, it could be argued that the mother's family was asking an impossible request and that they wanted to keep the children and forgo dispute resolution, thus, requesting a platter that may not be available even in Ambon. However, this seemed less likely as they also demanded that they had to follow local *adat* and if that was not followed, further problems would occur. It had to be a platter. Indeed, one of the children subsequently died of a fever and the explanation was that *adat* had not been followed, thus resulting in tragedy.

The main point is that these objects play such an important role in marital exchanges (and perhaps dispute resolution), that their inclusion with burial goods would be unexpected, else the population of these goods would dwindle, unless they were constantly replenished (how importation/purchase, breakage and potential use as burial goods affects the total population of such goods at any given time is not well understood). Additionally, they are not necessarily personal property. One would expect personal items to be included with funerary goods, but not necessarily family or clan property needed for ritual exchanges.

Nevertheless, with changes in religious practices and a disruption of *adat* in the colonial period, the inclusion of grave goods was and is more common. It is known that many historic graves are plundered for their occasional Ming and later period porcelains, although few likely contain the 13th-15th century non-local pottery. Evidence from Sulawesi (Nayati pers. comm.; Polanyi pers. comm.) may suggest otherwise, however.

Chapter 5: Ceramic Assemblages

This chapter is designed to describe the ceramic assemblages in further detail. The bulk of this chapter can be found in a synthesized version in Latinis and Stark (2003). Although primarily descriptive and heavily focused on the Tomu and Hatusua Site's surface collections as well as the Hatusua Site's excavated assemblage, the main point is to demonstrate a relationship based on similarities among the protohistoric assemblages and a distinction between the protohistoric assemblages and the non-protohistoric assemblages. Additionally, the non-local datable ceramics provide a temporal framework which can partially place the protohistoric earthenware assemblages in a temporal context. Non-local ceramics also represent the existence and relative volume of exotic prestige items that are important towards understanding the development and nature of the protohistoric sites in relation to demand for exotic goods, trade and exchange. Lastly, detailed description of the protohistoric ceramic assemblages provides a platform in which to understand the evolution of pottery production and exchange in the region.

The SEM (scanning electron microscopy), EDXRF (energy dispersive X-Ray fluorescence) and petrographic analyses (Dickinson 2004; 2002) have been omitted from this section and are placed in a subsequent chapter.

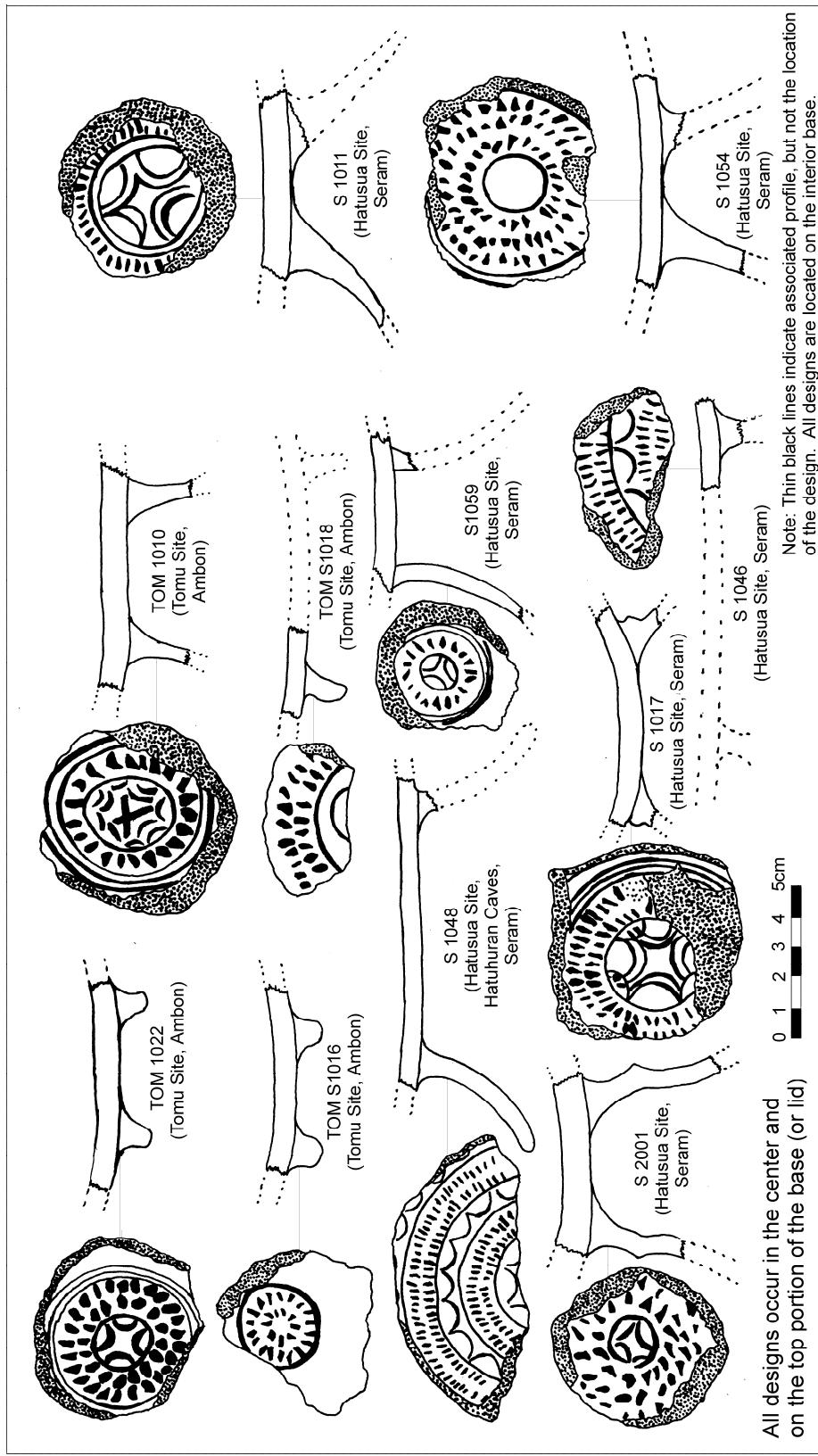
The Assemblages

As mentioned above, the descriptions below apply primarily to the Tomu and Hatusua assemblages. Collections from Sites AMQ 12, AMQ 13 and Labarisi Cave will be briefly discussed in an *ad hoc* manner for comparative purposes and also to demonstrate the range of variation elsewhere in the survey area. They have not been adequately sampled or analyzed to contribute anything further to the central questions in this thesis. Minor attention is given to the various Goram/Goram sites as only limited samples were collected which are hardly enough to describe the true richness or variety. The samples from Gorom, however, play a more important role in the SEM, EDXRF and petrographic analyses. These should contribute to Ellen's (2003) greater understanding of the history of east Seram and neighboring islands. Incised designs and forms are particularly informative (Figures 10a-10c).

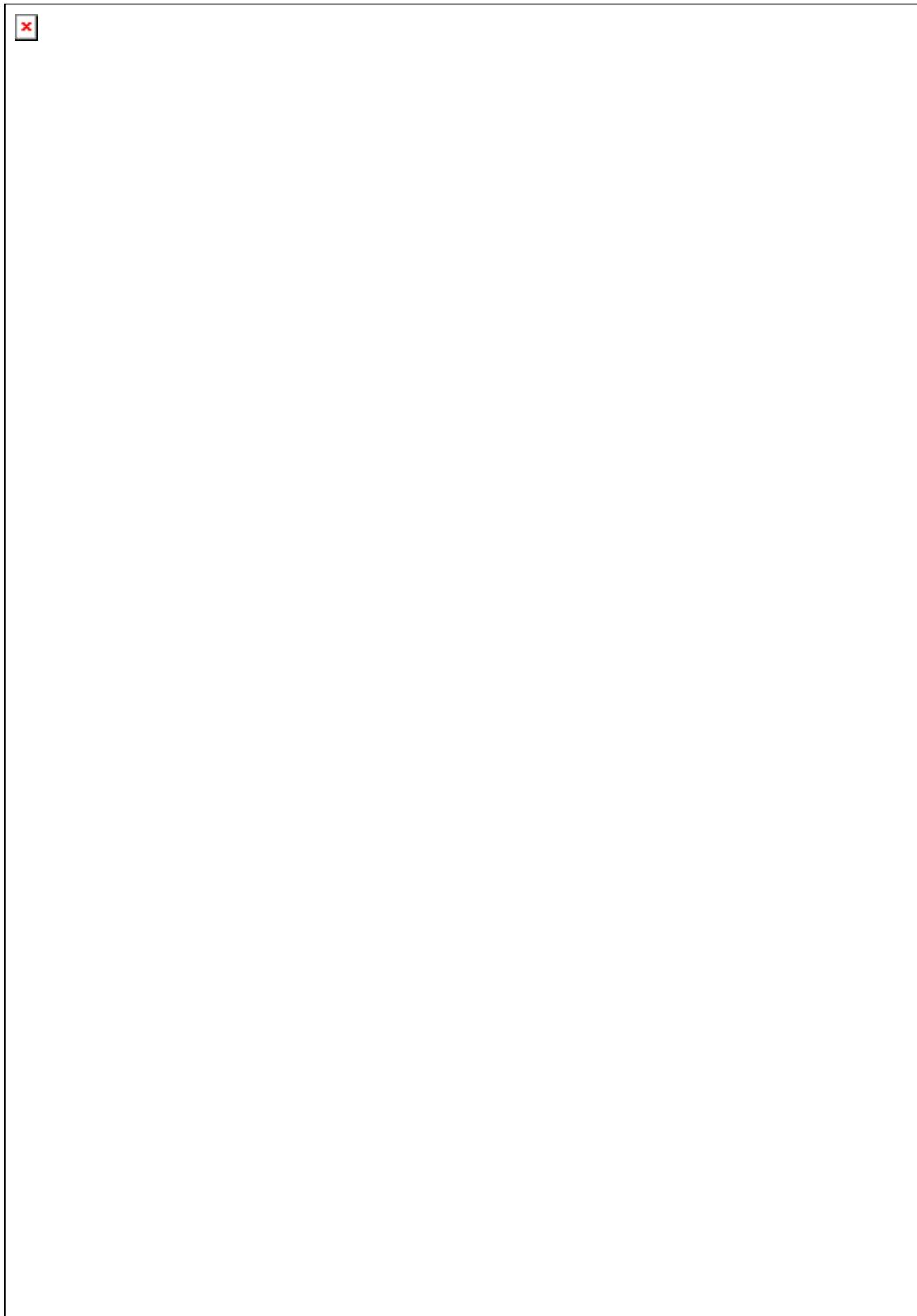
Figure 10a: Incised/Impressed Designs and Motifs from Sites in Ambon and Seram Discussed in the Text.



Figure 10b: Similar Forms of Earthenware Bases (Possible Lids) with Similar Incised/Impressed Designs from both the Tomu and Hatusua Sites.



All designs occur in the center and on the top portion of the base (or lid)



The Clay

Almost all interior paste colors range from dark brown and/or gray to a brick red/orange color (occasionally black cores occur). The brick red color is the most common. Exterior clay colors range considerably and red slips and/or paints are common. Clay sources are probably local and appear relatively similar throughout all archaeological assemblages with the exception of the Labarisi Site assemblage. Roughly, the Tomu and Hatusua surface sherds seem very similar, while the excavated mid to lower level sherds from Hatusua seem slightly different vis-à-vis morphological and stylistic variables as well as ratio of morphological types present. The sherds from East Seram and Gorom sites differ and were likely made from different sources, although the pastes visually seem similar to the others, again, with the exception of the Buru examples.

The archaeological sherds (surface and excavated) are visually different from those characterizing modern pieces collected from Ouh (also Ou; modern Ou wares are currently widespread in Central Maluku and have come to monopolize the Central Malukan market). Ou wares are generally lighter (less dense), thicker, more brittle, more easily broken and usually have plain straight rims and relatively few embellishments or decorations. Ou wares are also often easily characterized by a whitish peppery foraminifera appearance (having a foraminifera marl), perhaps part of a filler/temper added during clay preparation, but perhaps part of clay sources in some areas.¹

Some sherds from surface collections in most sites, however, visually appear similar to Ou sherds. Nevertheless, it must be stressed that many of the sites are still temporarily occupied for gardening with occasional *walang*, or used intermittently for other reasons, and recently broken Ou wares are occasionally mixed in with older scatters.

It is possible that the surface assemblages from the Hatusua and Tomu Sites derive from one source area (i.e., were produced by one potting village or guild of potting villages), although due to a few broad-level similarities in local geology throughout several areas in Central Maluku, visually similar clays with similar additives, inclusions or tempering can be recovered in many of the islands (Dickinson 2004; 2002). On the other hand, Malukan geology is complex (Dickinson 2004, 2002); containing recent volcanics, raised ocean floor and karstic formation as well as older continental fragments in some places. Therefore, sensitive characterization studies will undoubtedly be informative; partially explored in the following chapter.

The clays, although probably slightly silty in their raw state, almost always contain fine calcareous beach or alluvial sand additives. It is possible that the sand content is a deliberately added temper, but it could easily occur naturally in many clay sources as well. No definite sources have been identified thus far so it is currently difficult to determine. Other inclusions have been noted; often fine reflective and non-reflective black particles, red hematite-like particles, and occasionally sand particles of medium to large grain size, and rarely, crushed clay or grog. Very rarely, charcoal or carbonized organic matter is evident. Crushed shell may also have been used. Dickinson (2002) notes that samples from Ambon and Haruku generally have volcanic inclusions, while those from Seram generally have non-volcanic inclusions. A few exceptions in sampled sites (a separate sample set given to Dickinson from Spriggs' earlier surveys) from these islands suggest "ceramic transfer." A sample from Seram also indicated "a different volcanic sand temper imbedded in ash-rich clay paste thought provisionally to be diagnostic of wares made within the Halmahera island group far to the north" (Dickinson 2002:6). A similar sherd was recovered from the Giru Gaja site in Gorom (discussed below).

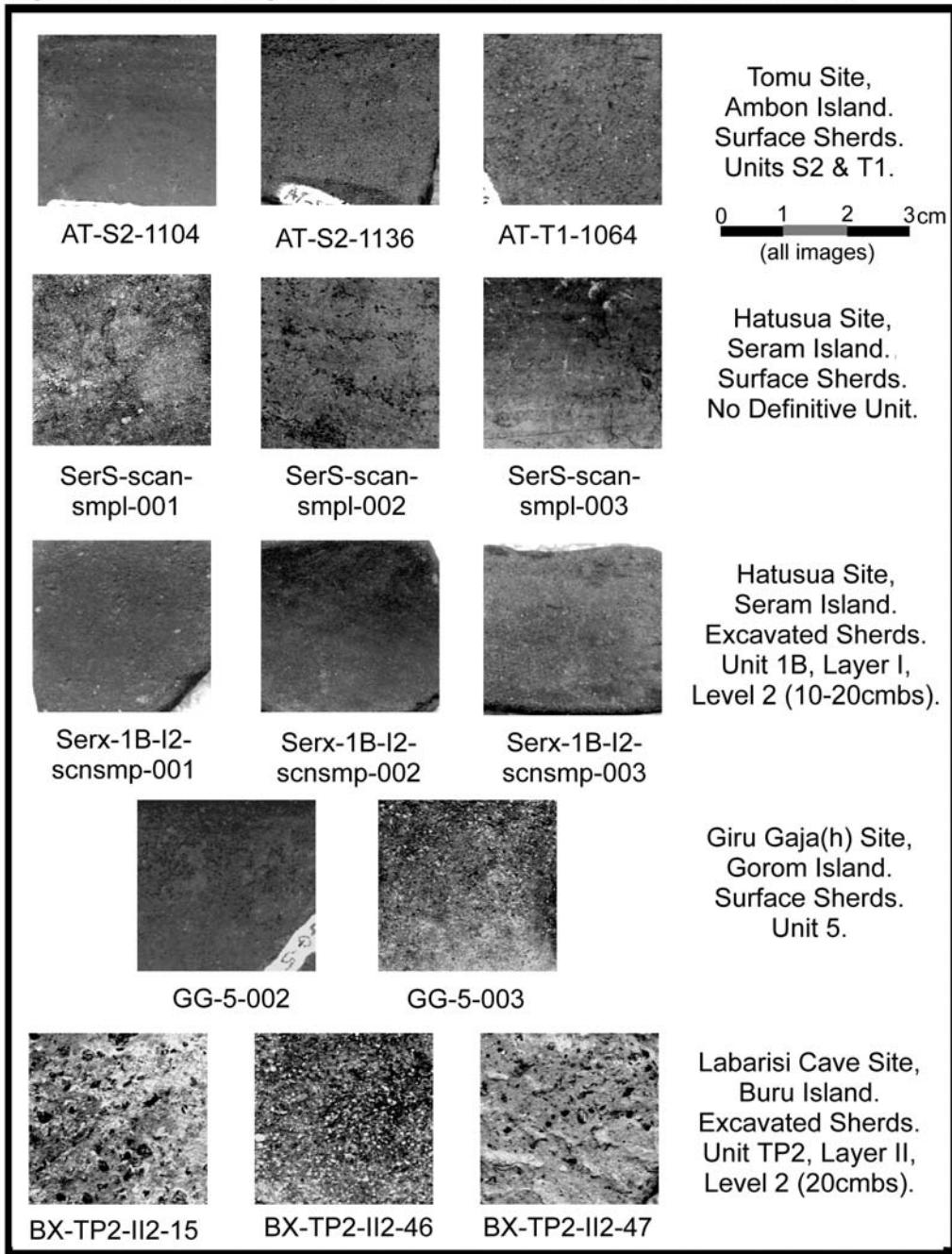
Generally, thick sherds display inclusions that are fine, medium and large grained (occasionally very large and presumably intentionally added), while thin sherds rarely have large inclusions. Large inclusions in thick sherds also include quartz-like inclusions and more frequently larger red chunks of mineral, although some of these chunks may be small particles of grog.

The Labarisi sherds vary significantly from all others (Dickinson 2004). The blue to gray wares from Labarisi tend to exhibit a heavy concentration of medium to coarse grained angular sand particles and other platy inclusions (see Figure 11). Dickinson (2004:2) notes that "The composition of the Buru temper, so rich in detritus from metamorphic rocks, is unique to date in Oceania, and implies a local indigenous origin for the Buru sherds..." The paste color and texture is very unlike the Tomu or Hatusua sherds when assessed visually, the Labarisi ware being bluish gray.

Production Techniques

It remains unknown where and how raw clay was collected and prepared. No archaeological sources have been identified. Beach and/or alluvial sand was likely added to the clay as an additive/temper, although the source clay may naturally contain fair amounts of silty inclusions. Sand particles are well rounded due to alluvial and beach action, but obviously derive from a complex geologic mosaic of parent material.

Figure 11: Surface Images of Sherds from Select Sites in Central Maluku.



The images are fairly representative of what is visible with no or moderately low magnification. Note the significant differences between the Labarisi sherds and all others. Note also that the excavated Hatusua sherds have few large inclusions (light or dark) and seemingly less variation.

Round vessels were probably coil and/or slab built and many vessels may have been worked on a rotating board (but not a true wheel) as evidenced by parallel striations and depressions on many sherds. Most rounded vessel sherds exhibit at least some evidence of paddle and anvil formation from

uneven anvil depressions on interior surfaces, particularly round jars and bowls. Some vessels such as sago molds (*forna, forno, porno*) and other molds must have been hand built from slabs, cutout from blocks, or both. These sago mold forming methods are still practiced.

Again, rounded vessels were likely further worked with a paddle and anvil as suggested through ethnographic accounts and archaeological evidence as witnessed by the author. Only one thin body sherd without additional surface treatment appears to have cord-marked paddle impressions. Cord wrapped paddles may have been prevalent, but evidence may be frequently obliterated due to heavy use of smoothing, wiping and burnishing. Cord wrapped or decorative carved paddle impressions characteristic of earthenware vessels from western Southeast Asia (e.g., the Malaysian peninsula and Singapore) and fine paste wares also characteristic of western and particularly mainland Southeast Asia are entirely absent.

Appliquéd knobs, collars (flanges or ridges), and handles are fairly numerous, although loop handles are relatively rare. Some pieces indicate that the flanges were attached after impressing a number of wedge-like depressions into the main body, subsequently attaching the flange. This technique is common among modern potters to increase surface area and topography to strengthen the attachment (author's personal observations).

A fair number of vessels exhibit burnishing or rubbing in a horizontal fashion near the rim and shoulders (burnish striations and impressions are frequently parallel to the rims), although a few vessels have perpendicular burnish striations on the body and none seem to have circular burnishing striations. Many vessels were obviously rubbed or intensely wiped or smoothed, although a true intensive burnishing is not necessarily evident on these pieces.

Many vessels were wiped or smoothed on the interior and exterior surfaces. Many vessels appear to have been slipped and/or painted on exterior and interior surfaces with a red slip or paint. Painted designs (generally red and white) characteristic of vessels from Southeastern and sometimes Central Malukan historic potting centers (noted in the Siwalima Museum collection), were not encountered in any of the assemblages. Incidentally, at least part of East Seram and Kei pottery traditions may have derived from Banda as many of the Bandanese who escaped the 17th century Dutch massacre fled to these areas and reestablished settlements there.

Other decorative treatments are restricted to impressed and/or incised lines and designs. Only one 'cutout' or punctured hole design was represented, although Miller and Spriggs (1976) noted

several cutout sherds in many other sites in Ambon and Seram. Also, Lape (2000) recovered cutout earthenware sherds from sites in Banda. Cutout sherds are common to the north, especially in many Philippine sites frequently associated with iron, beads and human remains.

Incised designs generally occur around the exterior rim, neck, and shoulder of jars and bowls and often at the interior base of shallow ring-footed dishes, platters or bowls (although no fully reconstructed piece is available, it seems likely that they are mostly shallow dishes). Many of the thick *tungku* or *anglo* sherds (clay ‘stoves’) also have exterior incised designs (often geometric). Incised designs are rarely located on the ring-feet of vessels. A small proportion of rims are scalloped, notched, flattened into unique shapes at regular intervals or designed with somewhat complex lip forms. Complex lip forms and designs are fairly common on earth ovens, however.

The pottery is low-fired and was almost certainly fired in open air fires for relatively short durations. Whether or not only wood fuel or a combination of wood, grass, bamboo, dried leaves, palm ribs, etc. was used is unknown. Most of the sherds are soft (Moh’s hardness of 2.5 or less), and snap and erode easily. Burnished sherds are notably harder. Dark firing clouds are evident on some of the burnished sherds. Post firing treatments include painting (typically but not exclusively red paint) and possibly *damar* sealing (an exudate from the *Agathis* sp. tree).

Damar sealing is the use of *damar* resin immediately after firing while the vessel is still hot. *Damar* resin is melted into the interior of bowls and jars. The result leaves a thin waxy to plastic-like translucent coating. *Damar* sealing is a common practice used throughout Central Maluku on modern *sempe* (sago porridge vessels). Only slight inconclusive evidence of *damar* treatment was observed in the archaeological sample collections, although it would be remarkable if evidence would survive in the surface samples due to constant garden firing. Informants in the Ambon market suggested *damar* was exclusively used for *sempe*, but *damar* sealing was noted on other vessels in Ouh.

Only the Labarisi gray and blue sherds have a seemingly greater hardness and strength. Many Labarisi sherds appear smooth and burnished, but have deeper anvil depressions on interior surfaces, thus exhibiting inconsistent thickness. The inclusions in the Labarisi sherds include a medium to coarse grained, often angular sand (and perhaps crushed rock) unlike that seen in all other assemblages (discussed above; see also Dickinson 2004). Inclusions frequently exceed 3.0 mm in diameter and the inclusions account for well over 50 per cent of the overall matrix. The actual clay itself is also quite different (Dickinson 2004).

Vessel Forms, Vessel Part Forms and Decoration Represented in Surface and Excavated

Assemblages

A wide range of vessel forms, decorations and surface treatments are represented in both surface and excavated assemblages. However, few semi-complete vessels have been recovered or reconstructed and the examples that are fairly complete derive primarily from surface scatters in cave contexts. Most of the following forms or ‘classes’ of forms are either inferred from sherd morphology based on typical vessel forms or are analogous to museum and extant forms (e.g., sago molds). Many of the following categories result from collapsed classes. This section is designed as a general description of the assemblage variability.

1) **Globular, cylindrical or conical jars and flasks with restricted necks:** These forms generally exhibit everted rims and occasional straight rims. Some cases exhibit inverted lips on otherwise everted rims. Some forms may have multiple carinated or ribbed necks and there is a possibility that many have carinated bodies as evidenced by the numerous carinated and inflected body sherds. Some vessels probably have base rings or conical ring-feet.

Decorations/treatments include red slip (interior and exterior), red paint (interior and exterior—post-firing and perhaps pre-firing), surface wiping (interior and exterior), burnishing (interior and exterior), appliquéd knobs, and incised and/or impressed designs. Designs of this nature are generally restricted to the exterior of the rims, necks and shoulders. Only a few rims have incised/impressed designs on the lip (Figure 12).

Interestingly, at least one conical but fairly parallel sided jar (actually a parallel sided vessel and not really restricted neck vessel) with an everted rim shows change in design pattern around the rim (Photos 60-62). The pattern is a series of incised crescents for part of the circumference but then abruptly changes to a zig-zig or triangular pattern. Also, the appliquéd knobs change from a single half circle shape to a double nubbin. The knobs also demarcate where the incised pattern changes.

The interesting point from this example is that one must be cautious when assessing designs and motifs from earthenware assemblages. This piece, if broken further, might be interpreted as two separate pieces with two separate design elements rather than one piece with alternating designs. This could alter statistical evaluation significantly. Perhaps it was common practice to change designs on the same vessel, although no other evidence is conclusive. Alternatively, there is no evidence that suggests

the same pattern had to be maintained on the complete circumference of any vessel, with the exception of the incised base patterns on the shallow dishes.

Some pieces have scroll like designs with curved arrows. Some appear to be scroll-like or even imitations of floral designs, although there is no conclusive evidence to suggest copying from forms with floral neck and rim designs like Chinese vessels. Other sherds have designs that were formed of depressions from a blunt nosed tool rather than deeper incisions or punctations.

Thickness and size vary considerably especially towards the rim and lip on these categories of vessels, although body thickness is usually restricted to within 3.0 to 7.0 mm. Because the clay generally fires to a reddish color, wiped or smoothed surfaces frequently appear slip-like. Thus, in several cases, it is difficult to determine if a true slip occurs. Also, due to weathering, some surface treatments are heavily deteriorated and difficult to determine. There seems to be no significant difference between the Tomu and Hatusua surface forms, although the Tomu sample appears less diverse/rich possibly a result of more limited sampling.

2) Unrestricted jars and deep bowls: These forms usually exhibit slightly everted rims and a large percentage of ‘ridge rims’ (i.e., ridges, collars or flanges located on the exterior of the vessel). The same basic descriptions for restricted jars apply here, except for overall form. Incised decorations are less common and actually quite rare. Some ridges were apparently formed by the original clay when the vessel wall was formed. Other ridges were clearly made from appliquéd coils that were added after the vessel wall was built; some from multiple coils. Double ridges are sometimes present and a few examples display triple ridges. These vessels generally have moderately thin bodies and do not exhibit significant variation in body thickness, although rim thickness varies tremendously; occasionally very thick and protruding up to several centimeters. Many are red slipped or painted red, often on interior and exterior surfaces.

Tomu and Hatusua varieties are almost identical. However, estimates from surface scatters in both the Hatusua and Tomu Sites tentatively contain more ridge rims than the excavated lower assemblage from the Hatusua Site. This could easily be a result of sampling error, although it should not be discounted that this may reflect a temporal trend.



Photo 60: Jar from Hatuhuran Cave.



Photo 61: Jar from Hatuhuran Cave.



Photo 62: Jar from Hatuhuran Cave.



Determining the intention of the ridge rims and flanges is an interesting problem. This could be a purely decorative treatment (i.e., stylistic). However, it is highly possible that the flanges and ridge rims have a functional purpose. If functional, was it for pre-firing, firing or post-firing purposes? Were these protruding ridges and flanges useful for stacking or better firing? Were they designed to fit another vessel for some specific processing purpose (e.g., distilling palm wine, reducing palm sugar, stacked vessels for specialized cooking to reduce direct heat like a double boiler, etc.)? At present, it is difficult to determine. There is no use wear indications for use in stacking or composite vessel processing, but some standardization that seems evident and the large protruding nature of the flanges

and ridge rims could as easily suggest a functional explanation. Also, the large flanges apparently were not used as base rests (as with ring feet). The curvature betrays that such a function was not likely possible unless the vessel was intended to rest in some form of depression or stacked within another vessel.

3) Unrestricted bowls, shallow jars, dishes, plates and possible lids: The same basic descriptions for unrestricted jars and deep bowls apply here, with the exception of overall form (much more shallow). However, a large percentage of these sherds appear to be burnished, red slipped and red painted. The bowls are often fairly large in diameter and the rims almost always have prominent ridges or flanges. The ridges or flanges are often doubled and appear wedge-shaped or triangular in cross-section (see discussion above in category 2). Some examples display triple ridges. A few large bowl sherds have large appliquéd knobs at the rims. Several bowl sherds have prominent appliquéd ridges or collars which may have effectively served as a stand or support, although most sherds obviously could not have functioned in such a way as the flange curvature suggests the inability to act as a support. The ridges or collars could also have enabled the vessel to possibly serve as a lid. A few sherds exhibit step-like ridges. There is significant similarity between Hatusua and Tomu forms.

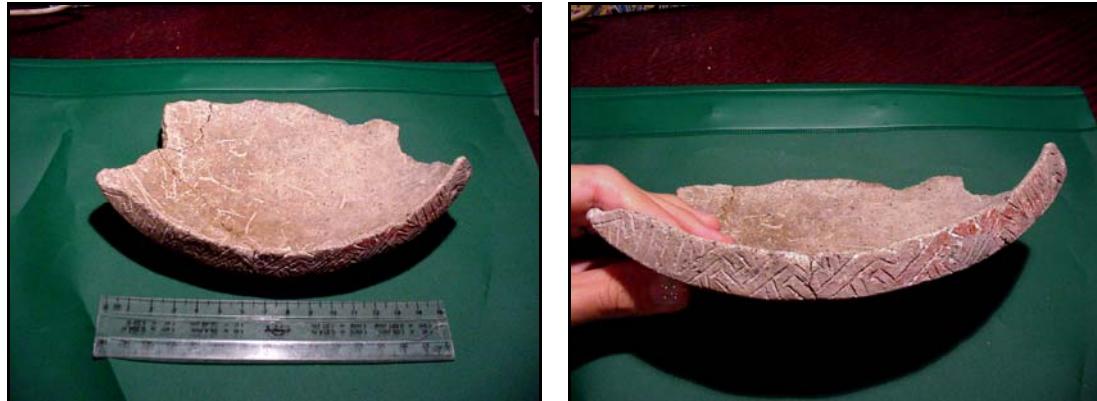
Interestingly, the double wedge shaped ridge rims appear fairly standardized and occur mainly if not exclusively on large shallow bowls. This may be a purely functional trait (mentioned above) and has nothing to do with any kind of stylistic desire of the artisan. The large flanges on some of the bowls also seem curiously functional in nature rather than decorative or stylistic (also mentioned above).

What was the functional nature if so? Were these used for a specific processing activity in the past as items such as *kuali* (wok) are now? Could these have been for a specific kind of food processing, or even palm sugar or palm wine production? Without further evidence, it is difficult to determine. However, the ridge rims seem to be an exclusively Central Malukan and perhaps Southwest Seram and Leihitu production. No other rims of this nature have been recorded to my knowledge outside of the Ambon-Southwestern Seram (i.e., Piru Bay) region. There were some ridge-rim-like sherds noted in Gorom, but nothing as prominent as in Ambon and Seram.

4) Unrestricted bowls or jars with inverted rims: Only a few cases of this form and rim type are evident thus far. A bowl from the Labarisi Site has an inverted rim apparently painted red with an incised design (Figure 12; Photo 63). This is one of the most unique pieces in all assemblages assessed to date. It very well could be a lid, but such a function seems unlikely. The geometric design is similar

to designs throughout Island Southeast Asia (Bellwood, Bulbeck and Solheim pers. comm.). The paste and inclusions are unique to Buru (Dickinson 2004).

Photo 63: Buru Bowl



Additionally, one sherd from the Hatusua Site probably represents an odd vessel with an inverted rim similar to a cocktail shaker with a large hole in the center. It is possible that this latter piece may have served as a cover or lid, although this seems unlikely as suggested by the curvature on several parts of the sherd. It is also possible that it may have been a replica of the 14th century stoneware Chinese mercury jars (described below).

5) Shallow bowls, dishes or plates on ring-stands/feet: Many of these examples may represent a form of offering dish (see Santoso 1995:2, 60, 72, 79) or a ritually important plate, dish, bowl, incense burner, etc. used for important ceremonies, feasts or possibly to symbolize elite status or alliances with other communities/polities. No complete vessel has been adequately reconstructed to determine exact shape. Some of the examples may represent various forms of jar lids, but it seems more plausible that the sherds derive from shallow bowls or dishes. Some sherds appear to have formed large goblet-like vessels. There are about an equal number of plain and decorated examples, although this pattern could result from sampling bias. Additionally, there may be two or more forms actually represented; one form being the often incised/impressed dish, while the other a bowl or jar.

Decorations include incised and impressed designs at the interior base of the dish sections (see Figures 10a-c). There is some variation in design, but the most common motif follows a standard pattern of alternating concentric circular bands filled with crescents and rows of punctations. Most of these designs are very similar to traditional Seram tattoo, bark cloth, and carved/decorated bamboo

container designs, one of which is almost identical to a traditional West Seram tattoo design (S1010)(Hukom and Lilipaly-de Voogt 1985).

There are a few interesting design variations that may reflect attempts to copy foreign design elements. Other designs are geometric (some symmetrical, some asymmetrical), while others are irregular and some appear almost scroll or script-like within rectangular fields. A few designs may represent animals or even humans. Incised ‘skeletal’ designs (e.g., representation of animals such as reptiles in a skeletal but non-anatomically correct style) like those seen in some Southeast Asian cave art designs may be represented as well. Circular or oval designs with contained fields of repeating wavy lines are common.

The same standard concentric circle designs occur in both Tomu and Hatusua Site surface assemblages, but are almost non-existent in the excavated assemblage. The excavated examples display quite an array of geometric, script-like and circular-curvilinear designs.

Some pieces appear to have been slipped and/or painted (red), particularly the concentric circle examples in surface assemblages. Most examples have been smoothed, wiped or burnished. Black burn marks are evident at the interior base of the bowl sections on some of the pieces. What this may indicate is speculative, and it should be restated that most samples have been exposed to repetitive firings among a variety of organic materials.

Sooty material or coatings are common on the excavated sherds yielding a dark or grayish color. Whether or not this was a result of cooking methods, other uses, firing techniques, post firing treatment, or post-depositional processes is unknown at present.

Ring-stands/feet attached to the dishes are often burnished, painted and/or slipped or smoothed on the exterior. Some ring-stands may reach up to 10.0 cm in height while others are only 1.0 to 2.0 cm high, little more than a base ring. One ring-foot has been morphologically altered to form a geometric design while another is uniquely stylized. Some bases are also uniquely carinated or possibly ribbed. Such pieces could be necks similar to some *kendi* forms, but not likely as *kendi* spouts and other diagnostic *kendi* features are absent in the absemblages. No incised designs other than occasional concentric lines occur on the ring-stands.

Overall vessel diameter is difficult to estimate because all pieces are broken just beyond the base area on the dish, plate or bowl section. Estimated diameters range from about 10.0-30.0 cm or more, but generally fall between about 12.0-17.0 cm. These are the most unique and diagnostic

examples in all assemblages. Whether or not some of the designs are iconographic and possibly represent alliances is completely unknown. It could be that one stylistic tradition derived from another or that potters were exchanged and continued to use traditional design repertoires. However, there is no doubt that the designs are indicative of some form of social relationship between the Tomu and Hatusua Sites (Spriggs also recorded a similar form with identical incised designs from a site not far from Hitu-Keitetu; site unidentified in plate).

6) Ring-stands/feet: These pieces accord with the description above for ring-stands on shallow bowls/dishes. However, some pieces may have derived from other vessel forms such as cups, plates, goblets, larger bowls, jars, ceramic boxes or molds. The collections at the Siwalima Museum in Ambon demonstrate that many food molds (e.g., sago molds) and other vessel forms typical of Maluku also have similar ring-stands. The parent forms of the vessels are impossible to determine for almost all of the examples in the archaeological assemblages, however. As described above, some ring-feet examples do have unique designs or forms (Figure 12).

7) Molds: Almost all mold sherds are box-like and probably derived from sago molds used for cooking the hard, biscuit-like *sagu lempeng* and other mixed sago products (Figure 12, Photo 64-67). Most examples appear to have been rather informally crafted by a slab-building technique. Rectangular slot walls were apparently either applied to slabs, or, slots were cut out of a clay block. Mold fragments are often thick but thickness is rarely consistent. A few examples may represent an ‘open’ form, perhaps used in conjunction with a separate piece (i.e., a multiple piece mold with a separate base plate, or male-female counter mold).

Almost all examples are smoothed but not slipped, painted or decorated. There is at least one example from the Hatusua Site which was well made with consistent thickness and very smooth surfaces. Some were very coarsely or haphazardly made, perhaps reflecting a desire for expedience.

Additives/inclusions usually include fine, medium and large-grained sand particles. Two badly weathered pieces from Tomu may represent a different type of mold, perhaps for something other than sago, as they are shallow with many comparatively small slots (Figure 12). It is possible that a variety of relatively standardized sized sago molds were used to produce *sagu lempeng* as a food currency of sorts. Sago was commonly traded especially to trade centers and long distance cargo vessels (Ellen 2003).

Photo 64: Modern Sago Mold.



Photo 65: Sago Molds Recovered from Surface Collections.



Photo 66: Sago Molds Recovered from Surface Collections.



Photo 67: Smaller Molds Recovered From Surface Collections.



Some researchers (Peter Bellwood pers. comm.) have commented that sago molds may be a relatively recent phenomenon (see also Spriggs & Miller 1979:31). There were no sago molds that have been unequivocally recovered from pre-European contexts until recently, mold fragments from the Hatusua Site. The true antiquity of sago molds and sago processing in general remains unknown, but it is suspected that a local protohistoric origin rather than foreign historic introduction is likely and that sago processing dates well into the prehistoric period (Latinis 1999).

Sago molds are characteristically East Indonesian (particularly Malukan). There are no other archaeological sago molds reported elsewhere in Southeast Asia from the protohistoric or prehistoric periods. New Guinea, Mindanao and Sulawesi are areas where sago is processed. One can find similar molds today in these areas, though not as frequently, and none have been reported in archaeological sites. Incidentally, Miller (1976, and Spriggs pers. comm.) noted considerable variation among sago molds in surface assemblages, although modern production seems to be more standardized in West Seram and Ambon (this could be a result of the trend towards decreased production areas, intensification of production in Saparua, and standardization of forms as a response to intensification).

The sago mold in Central Maluku is currently called *forno, forna, porno* or *porna*. The terms are suspected to be of Portuguese origin (Bellwood pers. comm.). Some have intimated a Portuguese origin for the slatted molds (Bellwood pers. comm.). Archaeological and historic evidence suggests a pre-Portuguese origin.

For instance, Galvao (Jacobs 1970:135) notes:

When they ready it [sago] for use, they dry it and grind it in *supus*, which are like sieves. They bake it in small clay ovens which have some ridges that divide it into strips. They eat it warm because it is sticky when cold. It is easy to digest, and it does not become doughy like our bread. Another kind is baked as a biscuit in the shape of a brick; they call it *sagu maruku*. When kept dry it lasts ten or twelve years.

If Galvao, a seemingly well informed individual especially about the very mundane aspects of life in Maluku, were familiar with the sago mold because it was a Portuguese introduction, why did he not use a typically Portuguese term? That is, it is clearly evident that what he describes is unique to him; not a typically familiar item to the Portuguese. Granted, the sago mold could have been quickly introduced and quickly widespread. However, why was it restricted to Maluku and seemingly unfamiliar to early Portuguese chroniclers? Additionally, there is no evidence of such molds being an early Dutch introduction as well.

Based on current evidence, a Malukan origin for the invention of the sago mold is favored, although it may not significantly predate the late protohistoric period. This is not necessarily unusual as organic vessels could have easily sufficed prior to protohistoric times. However, the baking into bricks for long term storage may have been important for protohistoric surplus food production and long term storage, both important qualities for long distance traders. Perhaps sago became an important exchange commodity and the invention of sago molds and this manner of cooking were a response to increased demand, or even use as a food currency. The description of various molds will continue below, but it is important to emphasize the Malukan uniqueness of this very interesting artifact.

8) ***Anglo* or *tungku*:** The modern Chinese versions of these ‘charcoal and/or wood-stove’ vessels are generally cylindrical and sometimes bend towards the middle displaying an hourglass or spool-like profile (i.e., waisted), or bulge outward like a barrel (Figure 13; Photo 68). The pre-Chinese versions (Austronesian-?) are often iron-shaped or anvil-shaped and much more shallow. Spoehr’s (1973) examples from the Southern Philippines highlight a very stylized and decorated variety, perhaps used for ritual occasions during important feasting or other ceremonies, or serving symbolic purposes such as alliance relations. Malukan examples appear to be highly decorated. One Malukan type of *anglo* is specifically used for an important ritual relating to the cutting of the umbilical cord (PPPM 1981/82).

A detailed study of Southeast Asian pre-Chinese forms is much needed. The earliest of the Southeast Asian-like style examples come from the Hemudu Site in Zhejiang, China around 4500 BC (Bellwood 1997:337). Decorated and plain forms have been recovered from Vietnamese and Sumatran sites (Glover pers. comm.; Manguin pers. comm.) and this tradition extends to at least Maluku. None have been reported, however, from Cambodian sites including Angkor Borei, and this may indicate a somewhat exclusive coastal and island distribution.

Almost all *anglo* generally have three knobs, both Chinese and Southeast Asian varieties, although this similarity is almost assuredly related purely to an obvious practical engineering solution for increasing support stability (three knobs give the greatest support much like a tripod) rather than indicating any diffused influence. The knobs serve as pot rests. Common knobs represented in surface assemblages are the ‘pig’s tongue’ variety (Figure 13; Photo 69). These examples look like a thick tongue, often with impressed ridges and hollows on the upper surface. Pig’s tongue knobs are by far the thickest sherds in all assemblages frequently exceeding several centimeters.

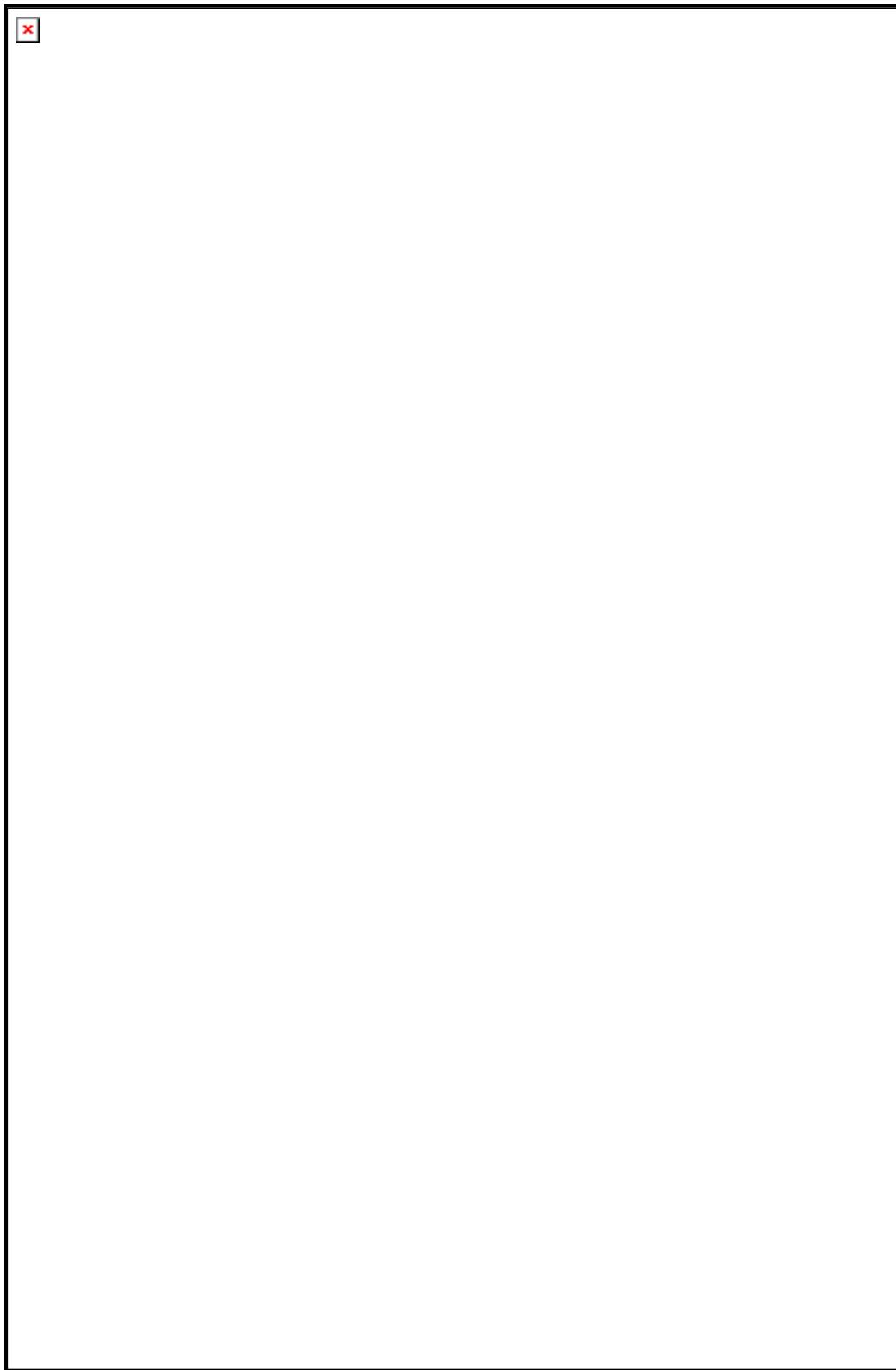


Photo 68: Tungku/Anglo Frags.



Photo 69: Pig's Tongue Anglo Knob.



Anglo/tungku body pieces are very thick as well. They are frequently designed with incised and impressed motifs on the upper exterior surface, have scalloped or pie-crusted rims, and sometimes exhibit incised or impressed designs on the lips (Figure 13). Most of the samples appear to have been smoothed but probably not slipped, burnished or painted. These vessels may have served as cooking stoves to 1) prevent unwanted fires aboard fishing vessels or in other wooden structures, 2) reduce wind impediments, 3) concentrate heat, and 4) provide a convenient base or cooking rest for cooking pots.

The reasons for decoration on such seemingly utilitarian forms remain enigmatic. Perhaps these vessels were more than just utilitarian stoves as mentioned above and served feasting purposes.

Solheim (1990:16) suggests that some of the Site III pottery (a site in Makbon, Sorong Island, West Papua Province), “is likely to be from pottery stoves, but none of these pieces show evidence of close exposure to continuing high heat... this, in turn, has suggested the possibility to me that some of the unusual angular pieces could have been made to decorate the gable ends of roofs or other corners of otherwise wooden structures.”

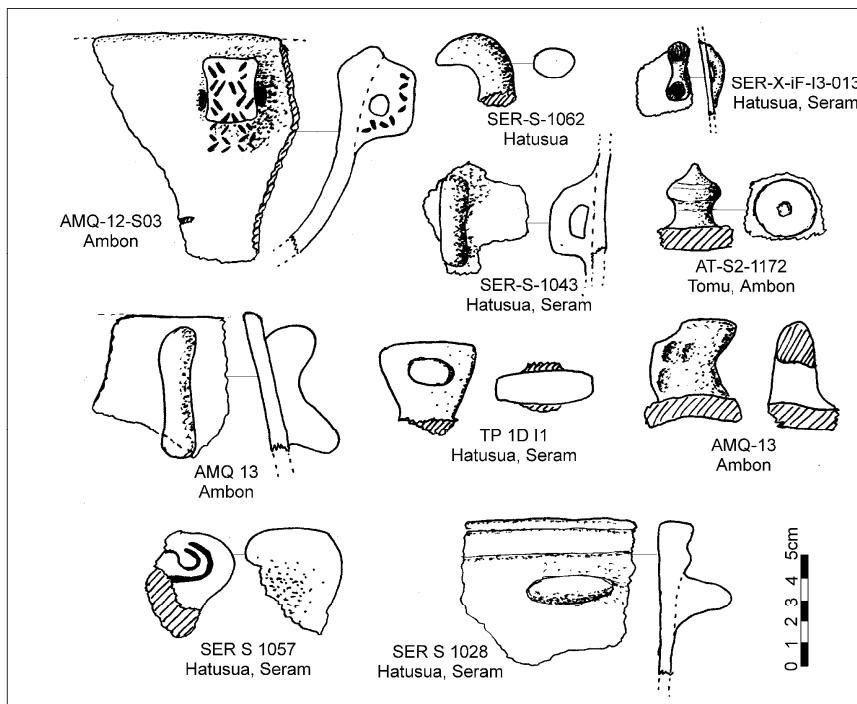
Alternatively, it is possible that decorated *anglo* were used for ritual activities, feasting, demarcating elite status, symbolizing alliances, etc.

There is a possibility that some forms of *anglo* represented in the archaeological assemblage resemble forms of footed *anglo* known as *anglo tapak gajah* and *anglo kran* characteristic of historic forms noted from South Sumatra and elsewhere (PPPL 1985/86). These types of *anglo* are initially pressed into a clay form or mold called a *cetakan*, and it is possible that both the *cetakan* and *anglo* are represented in the Malukan assemblages. Incidentally, the *anglo kran* is an elongated boat or iron-shaped form, also used as and referred to as a *tungku*, and is specifically used on boats.

9) Knobs: There are a variety of knobs, but surprisingly few loop handles. Knobs range in shape and thickness; many of which are squarish to very irregular (Figure 14). AMQ 12 and AMQ 13 display the most unique knobs among the assemblages. AMQ 12 yielded a cubical knob on a bowl with a unique impressed design, a hole running parallel to the rim through the knob (presumably for a strap), and is painted red (Figure 14-AMQ 12-S03). AMQ 13 yielded a knob that appears roughly similar to a bird's head shape (Figure 14). Similar bird's head pieces occur in the Banda sites that were recently excavated (Lape pers. comm., 2000). However, the majority of Banda pieces are clearly more ornate. Many pieces curiously have designs on only one side of the head.

Incidentally, Bellwood (1988:201,206) noted bird's head finials from the BAT1 Site in eastern Sabah and Solheim (pers. comm.; 1990:16-17) noted a bird's head motif from sites in Irian Jaya and Maluku. More specifically, Solheim (1990:16-17) notes that Site III (Makbon) yielded, "several birds' heads [earthenware], representations of two complete birds, one in the round and the second as an incised decoration on a small vessel, a possible dog and other animals in the round... an eight pointed star and an uncircumcised penis, both having been applied to something else." It is unknown how similar the Makbon birds' head pieces are with those recorded in Central Maluku.

Figure 14. Unique Handles and Knobs from the Central Malukan Assemblages.



Bird's head motifs seem to be common to a broader region extending from parts of mainland Southeast Asia to New Guinea, although the likelihood of any relation to the Malukan examples may be purely coincidental. It is tempting, however, to suggest that this may be a trait related to a larger trade network, very general social affiliation, use of a common icon/symbol, or even a common belief at a broader regional level.

10) Oil lamps: Several possible oil lamp fragments were noted, most of which occur in the Hatusua excavation assemblage. They are shallow dishes with pinched V-shaped 'spouts' (presumably where the wick was laid)(Figure 15; Photo 70). Numerous examples appear to have been burnished, but do not otherwise appear to have been decorated, with perhaps one exception noted in the excavated Hatusua assemblage (Figure 10a-S-X-1F-I4-01). The examples seem to fit within the variation noted in simple earthenware oil lamps characteristic of other Southeast Asian sites (e.g., Majapahit sites (see Santoso 1995:86)). Some sherds may well have derived from more complex lamp forms or other vessel

Figure 15: Possible Oil Lamp Fragments from the Hatusua Site, Seram.

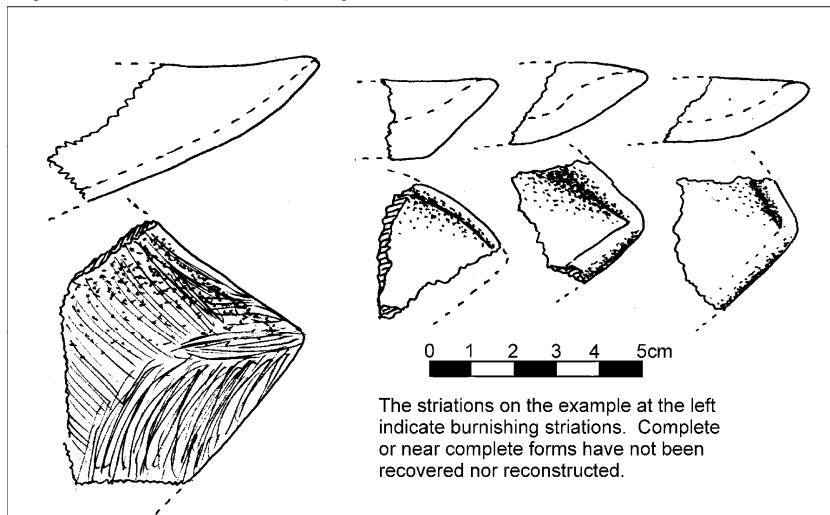


Photo 70a: Oil Lamp Frags.



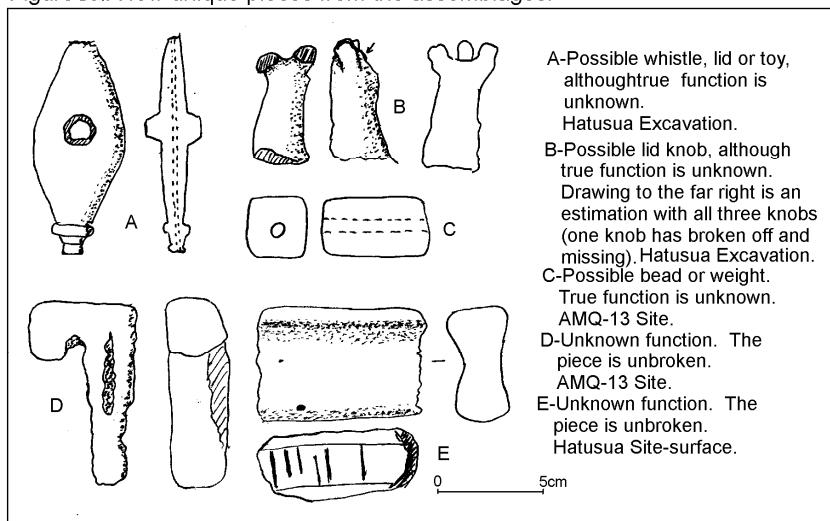
Photo 70b: Oil Lamp Frags.



forms (e.g., *cetakan anglo kran*). There are several sherds with odd carinations and inflections that appear similar in thickness, color, treatment and paste composition with the presumed oil-lamp sherds. At present, however, it is difficult to comfortably determine with any accuracy the true form from which these sherds derived.

11) Mystery pieces. There are a number of mystery pieces, which could be fragments from stands, spacers, props, pot-rests, stamps, weights, tools, ornaments, whistles or other musical instruments, etc. One rectangular piece is pierced along the long axis as if it were intended to be a large bead (from AMQ 13)(Figure 16), but was probably not intended as a spindle whorl. Many oddly angled body sherds appear to be located at the inflection points of carinated vessels. Some necks and ring-feet appear to be carinated or ribbed

Figure 16:A few unique pieces from the assemblages.



as well. Some unique earthenware sherds from the Hatusua excavations and cave collections may derive from non-local vessels.

Two of the most unusual pieces come from the Hatusua excavations (Figure 16; Photo 71).

One is roughly fish-shaped when viewed from the profile and was suggested by a colleague to resemble a type of northern New Guinea clay whistle. Other informants and local Malukan colleagues have suggested that it is a specialized lid or cap for a *sirih* (betel-nut) container. The second piece may be a knob but has two knobbed projections at one end and the broken base stump of a third. The function is unknown.

Photo 71: Unique Pieces from Hatusua Excavation.



Discussion of Vessel Form and Decoration

Jars and bowls appear to be the most numerous forms in all assemblages. There are many similar New Guinea vessel forms that are used for sago storage jars, but Central Malukans typically store wet sago in woven palm leaf containers known as *tumang*. Most of the examples may represent liquid storage containers, cooking vessels, and some ritual/prestige vessels. The shallow possibly offering dishes on ring-stands seem fairly numerous, although this undoubtedly reflects sampling bias as recovery of these items was intentional due to their highly diagnostic designs.

Tentatively it appears that the Tomu and Hatusua surface assemblages were derived from the same production area or same tradition, as evidenced by similar morphologies, treatments, designs, design and treatment locations and assemblage richness. Perhaps the same manufacturers produced both assemblages. Assemblages from outside of Central Maluku or even outside the Piru Bay and Leihitu region appear adequately different to suggest that Tomu and Hatusua shared a unique local tradition. However, this may be an unwarranted assumption at present due to the lack of statistically significant patterns and limited samples from other sites in the immediately neighboring areas. The recovery of similar forms and designs in other parts of Ambon, particularly the Hila-Kaitetu area, by Spriggs and Miller (Miller 1976; Miller and Spriggs 1976; Spriggs 1990; Spriggs and Miller 1979) suggest that there may have been additional settlements involved in the relationship. Tentatively, the Banda assemblages (Lape 2000), although showing some similarities, seem sufficiently different based on the available information of the earthenware assemblage to merit their exclusion from the Tomu and Hatusua tradition.

The impressed and incised dishes on ring-stands could possibly represent elite or chiefly motifs and forms, perhaps reserved for ritual activities, feasting, important ceremonies or symbolizing status, prestige and possibly an alliance between separate communities or settlements. Alternatively, one settlement may have controlled or ruled the other, although non-explicit federated-like relationships based on mutual agreements, common goals, and a variety of traditional alliances characterizes the typical relationship between Malukan settlements rather than direct control of one settlement over another with the exception of mutual hostile relations—still, seldom does one settlement then ‘control’ the other. On the other hand, many villages claim older sibling-younger sibling relations with other villages and it is plausible that the symbols emphasized or at least were related to such a relationship (see discussion above concerning the possible fractal nature of Malukan villages being a larger replication of the household pattern both socially and physically).

The occurrence of highly decorated vessels at the Tomu and Hatusua Sites (Photos 72a-72d) may also indicate that these two locations were also fairly prominent political centers. However, these possibilities are based on the assumption that decorated vessels and certain vessel forms are associated with a particular social, political and/or economic class, etc. Caution is advised when accepting such assumptions as facts without adequate support. It is difficult to prove that these were exclusive property of the politically/socially prominent and elite and little is known of true ‘class divisions’ or ‘class categories’ in protohistoric times. Nonetheless, based on early historic descriptions (Jacobs 1970, Manusama 1977) it is safe to assume there were some forms of social, economic and power divisions.

Interestingly, at least one rim type (wedge rims, discussed below) and the possible oil lamp fragments noted in the excavated assemblage from the Hatusua Site are almost totally absent in surface collections. Only a few wedge-shaped rims are present in a surface unit (Test Unit 1) from the Tomu Site. Additionally, the excavated Hatusua assemblage, although very similar to surface collections from both sites, does appear to differ in form and design style (although basic design elements and design locations are virtually identical) which may suggest a yet unknown degree of change through time or space. For example, the excavated assemblage contains sherds with encircled motifs composed of repeating wavy lines, boxed motifs with scroll-like designs and even curvilinear arrow designs. These motifs are not clearly represented in the surface scatters and may be totally absent, although the use of simple design elements such as crescents, triangles, parallel fields, concentric circles, zig-zags, etc. are common. A similar repertoire of simple design elements are common throughout many Austronesian

Photo 72a-72d: Incised Bases from Tomu and Hatusua Sites.

A-Hatusua Site Surface-Incised Bases.



B-Hatusua Site Cave-Incised Base.



C-Tomu Site-Incised Base.



D-Hatusua Site Surface-Incised Base.



traditions, however (Bulbeck pers. comm.). It is usually the combinations into more complex motifs that differ from one social group to another and one time period to the next.

Overall, a considerable amount of design variation is represented, however. Some designs may reflect attempts to copy patterns from foreign vessels or other objects. As mentioned, many incised designs have a ‘skeletal’ appearance, a feature of rock art sites in Kei (Ballard 1988). Perhaps skeletal motifs are a regionally important tradition, although it is not particularly uncommon in other parts of the world.

The AMQ 12 and AMQ 13 Site assemblages (probably part of the Amaheru assemblage) have a slightly different appearance than the Hatusua or Tomu surface assemblages, but seem to fit within a similar tradition.

The Labarisi assemblage, especially the blue/gray wares, appears significantly different from all others. East Seram and Gorom site assemblages, although readily different from all assemblages, appear more related to West Seram and Ambon assemblages than either are to the Buru assemblages.

This could be a result of geologic similarities in clay sources rather than indicating tighter social and exchange relations.

Other sites such as Rahban, Amaheru, Liang, etc. were only targeted for small collections and little can be said of the assemblage richness or similarity to the other assemblages except stating that there is a broad similarity that superficially fits within a larger regional tradition.

The Excavated Hatusua Assemblage and the Tomu Samples

The excavated Hatusua assemblage predominantly derives from one stratigraphic layer, although often two and sometimes three layers were recorded. Radiocarbon dates are presented above and suggest an occupation dating as early as the late 7th-8th centuries. The samples were collected from low level, mid level and upper level artifact bearing levels. The surface sample dates to the modern period, but this was expected and used to demonstrate that the assemblage did not necessarily erode and redeposit in a temporally inverted manner.

It appears that the site was abandoned or fell into obscurity by the time the Portuguese arrived. Chinese, Vietnamese and Thai surface sherds dating from the 12th through 15th centuries, though less than one percent of the entire ceramic assemblage, indicate that these centuries may have been a terminal period of significant occupation.

An initial sort was conducted in the field for a sample of 12 units (1A, 2A, 1B, 1C, 2C, 2D, 1E, 1F, 1H and 1I). Only weights for each artifact category were recorded and the samples were then bagged and labeled. Table 11 lists the initial sort.

Upon opening the bags, it was realized that many artifacts were clearly mis-categorized. Additionally the diversity of forms, designs, types and styles were clearly underrepresented. A second sort was then conducted (Table 12) on a sample of the seven most prolific and/or complete units (1A, 1F, 1G, 1H, 1I, 4B and Test Pit 4). Upon further examination, the database was still considered unsatisfactory.

Table 13 lists the results from a third sample of the excavated Hatusua assemblage (from the seven 1.0 m² units for which the Table 12 data represents). The final sort is much more satisfactory, although it clearly under-represents the richness of the assemblage and number of incised pieces. Part of this problem is due to an initial storage problem that was only discovered after the third sort.

Table 11: Initial Sort Sample from the Hatusua Site Excavation.

	Mass g
Oil Lamp Frags	75
Concave/Convex Body Sherds	280
Lid Frags	25
Incised Sherds	285
Decorated Bases	20
Bases	435
Body Sherds (Red/Red)	10,448
Body Sherds (Black/Black)	7544
Body Sherds (Black/Red)	6265
Body Sherds	45
Tungku Knobs	35
Tungku Frags	2465
Sago Molds	125
Mystery Pieces (Rim)	20
Ridge Rims	35
Plain Rims	7515
Decorated Rims	205
Rims for Globular Vessel	3725
Odd Rims/ Lids	25
Necks for Globular Vessel	4192
Inflected Body Sherds (e.g., carinations)	3765
Total	47,529

Apparently, most of the incised pieces had been stored separately at Universitas Pattimura, as many were removed from their original bags during the excavations for further assessment and drawing presumably in 1993-1994. These sherds were discovered by chance in another storage area related to the Sago Project.

The inclusion of all three tables demonstrates the effectiveness of multiple reassessment. Unfortunately, there have been no ceramic seriation and other similar analytical methods applied to Central Malukan ceramic assemblages than what has been described above. Spatial and temporal seriation in the future will prove to be extremely valuable.

Fortunately permission was given to briefly assess the diagnostic sherds and conduct analyses on some of them. I am not fully confident that the proveniences are correct and many had no provenience information at all. However, confidence is high in assuming that they derive from the Hatusua Site Excavation. They could not come from anywhere else as no other site assemblages were stored in the buildings. Many examples are listed in Figures 10-16 and many images are archived in the CD insert by their presumed provenience. Samples that were submitted for EDXRF are archived in a separate folder, but their presumed provenience information is also recorded. If the initial drawings were published in a report, it is unknown to LIPI, Pusat Penelitian Arkeologi or the author. An estimated minimum of 231 decorated sherds (almost all incised) at a mass of 1,859.5 g were recovered

Table 12: Second Sort of Seven Units from the Hatusua Site Excavation.

	Count	Mass g
Oil Lamp	2	70
Incised Shoulder (Globular Vessel)	1	20
Handle	1	15
Incised Base	2	35
Base	2	60
Body (Red/Red)	1537 (estimate)	6260
Body (Black/Black)	1410 (estimate)	5269
Body (Black/Red)	948 (estimate)	4260
Body	9	25
Tungku Knob	1	30
Tungku Frag	48	1820
Tungku/Mold ?	1	30
Sago Mold	2	50
Protruding Lip Rim (Poss Tungku)	1	30
Protruding Lip Rim	12	85
Base Rim	78	502
Plain Lid Rims	2	35
Plain Lid Rims ?	1	10
Lid Rim	1	10
Plain Rims	356	2464
Plain Wedge Rims	133	1277
Plain Rims (Possible Lid)	2	20
Carinated Plain Rims (Oil Lamps)	2	40
Decorated Rim	1	10
Globular Vessel Plain Rims	61	600
Globular Vessel Plain Rims ?	2	50
Globular Vessel Wedge Rims	184	1760
Wedge Rims	23	290
Odd Rims/ Lids	7	135
Base with Rim Part	11	115
Globular Vessel Neck & Rim	1	160
Globular Vessel Necks	291	1815
Globular Vessel Necks (Single Ridge)	19	160
Globular Vessel Necks (Double Ridge)	6	65
Globular Vessel Necks (Triple Ridge)	1	30
Globular Vessel Wedge Rim Necks	4	15
Ridge Necks	7	30
Single Ridge Necks	88	515
Double Ridge Necks	11	120
Triple Ridge Necks	2	10
Single Ridge Necks on Globular Vessel	47	370
Double Ridge Necks on Globular Vessel	12	130
Stepped Necks	2	10
Inflected	167	1190
Inflected ?	2	15
Carinated	86	790
Carinated Rim	3	55
Carinated Rim (Oil Lamps?)	5	45
?	1	30
Totals	5597.428	30932

Table 13: Third Sort of a Seven Unit Sample for the Hatusua Site Excavation.

Sherd Form/Type	Total Count	Total Mass (g)	Avg. Mass (g) per sherd	Percent Mass of Total
Anglo/Tungku	55	1965	36	6.4
Knob	1	30	30	>0.5
Body Fragment	54	1935	36	6.3
Base	93	712	7.7	2.3
Rim (predominantly ring foot sherds)	78	502	6.4	1.6
Base Fragment	4	95	23.8	>0.5
Plain	2	60	30	>0.5
Incised	2	35	17.5	>0.5
Rim + Base Fragment	11	115	10.5	>0.5
Body (counts estimated from random sample)	3800	15,474	4.1	50.0
Black Interior and Black Exterior	1427	5279	3.7	17.2
Red Interior and Red Exterior	1391	6260	4.5	20.4
Red Int. and Black Ext. or Black Int. and Red Ext.	973	3910	4.0	12.7
Carinated (mostly body/rim but possibly some ring feet)	95	910	9.6	3.0
Body (?)	85	760	8.9	2.5
Rim	10	150	15.0	0.5
Handle	1	15	15.0	>0.5
Inflected (significant change in curvature)	169	1220	7.2	4.0
Oil Lamp (?)	2	70	35.0	>0.5
Mold (sago)	2	50	25.0	>0.5
Neck (restricted; likely globular vessel with everted rim)	317	1972	6.2	6.4
Plain	293	1857	6.3	6.0
Ridge/Collar/Flange	17	70	4.1	>0.5
Wedge	4	15	3.8	>0.5
Stepped	2	10	5.0	>0.5
Incised (on shoulder)	1	20	20.0	>0.5
Rim (excluding base rims)	947	8326	8.8	27.1
Plain	419	3339	8.0	10.9
Plain (vessel morphology indeterminate)	357	2479	6.9	8.1
Plain (globular vessels with restricted necks)	61	700	11.5	2.3
Irregular (globular vessels with restricted necks)	1	160	160.0	0.5
Plain with Protruding Lip (curved outward and rounded)	13	115	8.8	>0.5
Plain (on circular or disk-like lid)	13	210	16.2	0.7
Ridge/Collar/Flange (vessel morphology indeterminate)	183	1410	7.7	4.6
Single Ridge/Collar/Flange	151	1055	7.0	3.4
Double Ridge/Collar/Flange	29	315	10.9	1.0
Triple Ridge/Collar/Flange	3	40	13.3	>0.5
Wedge	318	3242	10.2	10.5
Wedge (vessel morphology indeterminate)	143	1452	10.2	4.7
Wedge (on globular vessel with restricted neck)	175	1790	10.2	5.8
Decorated	1	10	10.0	>0.5
Unknown	1	30	30.0	>0.5
Total Sherds (sum of all rows in bold print)	5482	30,744	5.6	100.0

Table 14: Tomu Surface Assemblage Sample (Unit S-1).

Sherd Form/Type	Total Count	Total Mass (g)	Avg. Mass (g) per sherd	Percent Mass Of Total
Anglo/Tungku	5	120	24.0	5.1
Base	15	136	9.1	5.8
Rim (predominantly ring foot sherds)	7	51	7.3	2.2
Base Fragment	8	85	10.6	3.6
Body	322	1085	3.4	46.5
Neck (restricted; likely globular vessel with everted rim)	9	50	5.6	2.1
Rim (excluding base rims)	65	738	11.4	31.6
Plain (vessel morphology indeterminate)	21	57	2.7	2.4
Ridge/Collar/Flange (vessel morphology indeterminate)	32	546	17.1	23.4
Single Ridge/Collar/Flange	28	473	16.9	20.3
Double Ridge/Collar/Flange	4	73	18.3	3.1
Plain with Protruding Lip (curved outward and rounded)	4	25	6.3	1.1
Stepped	4	85	21.3	3.6
Wedge	4	25	6.3	1.1
Stoneware/Celadon	8	81	10.1	3.5
Unknown (earthenware)	25	125	5.0	5.4
Total Sherds (sum of all rows in bold print)	449	2335	5.2	100.0

Table 15: Tomu Surface Assemblage Sample (Unit S-2).

Sherd Form/Type	Total Count	Total Mass (g)	Avg. Mass (g) per sherd	Percent Mass Of Total
Anglo/Tungku	5	203	40.6	9.0
Body	1	17	17	0.7
Frag	4	186	46.5	8.0
Base	20	786	39.3	35.0
Ringstand and Base	17	744	43.8	33.1
Ringstand Lip/Rim	2	38	19	1.7
Decorated (incised) Base	1	4	4	<0.5
Body	7	93	13.3	4.1
Gacuk	1	14.5	14.5	0.6
Knob (rectangular)	1	11	11	0.5
Neck	4	88	22	3.9
Neck on Globular Vessel	2	49	24.5	2.2
Neck for Single Ridge Rim (rim and lip missing)	2	39	19.5	1.7
Rim	38	981	25.8	43.7
Plain Rim	1	113	113	5.0
Lip	1	19	19	0.8
Ridge/Collar/Flange	28	743	26.5	33.0
Slight Single Ridge (1-3mm protrusion)	7	235	33.6	10.4
Single Ridge (3-5mm) with an expanding flat lip	15	387	25.8	17.2
Prominent Single Ridge on bowl with square flat lip	5	98	19.6	4.3
Double Ridge	1	23	23	1.0
Unique/Indeterminate Rims	7	94	13.4	0.6
Incised Rim	1	12	12	0.5
Sago Mold Frag	2	61	30.5	2.7
Stoneware Body Sherd-dark brown glaze (14th century)	1	9	9	0.4
Total Sherds (sum of all rows in bold print)	79	2246.5	28.4	100

from the excavated assemblage. Using the initial sort's mass, this indicates that almost four per cent of the sherds are decorated.

Two test unit excavations/collection were conducted at the Tomu Site for comparative purposes (both units were unstratified and only about 5-10 cm in depth until 'base rock' was reached—more like limestone gravel, pebbles and cobbles). Tables 14 and 15 list the details of the sort. Unit S-2's counts are lower as small sherds were not collected. Many sherds also had slipped deeply into the eroding limestone cracks and were unable to be retrieved. However, the mass per square meter is about the same. The units were approximately 70 meters apart. The reason for smaller more numerous sherdage in S-1 could relate to increased garden use, trampling, etc. This would also explain the large number of body sherds. S-2 was in an area that appears to be less intensively gardened.

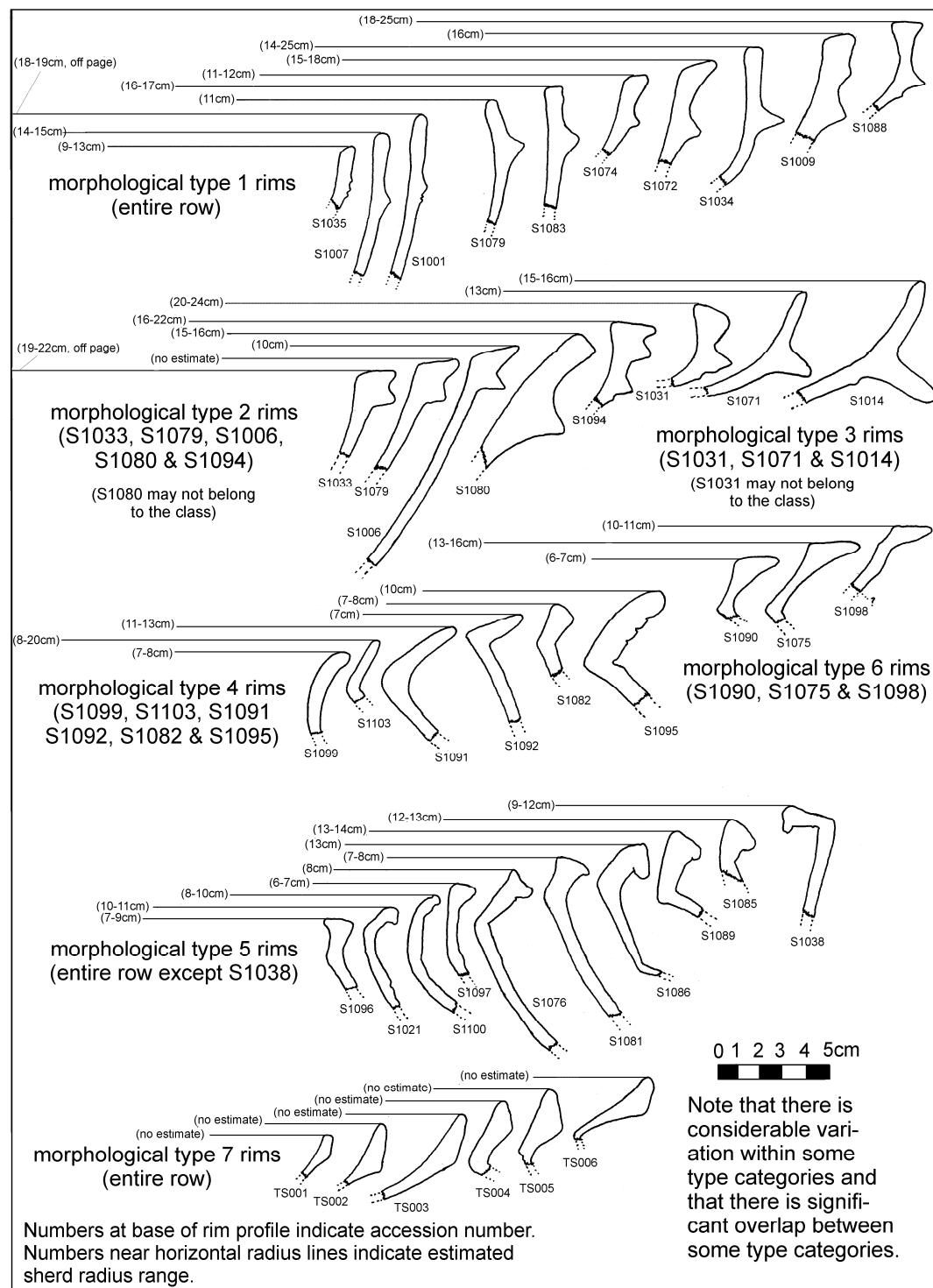
Interestingly, a large amount of base sherds were recovered in S-2. Also, an earthenware *gacuk* or disk was recovered (4.5 cm diameter)(presumably worked from a broken sherd) along with a stone/schist *gacuk* (6.0 cm diameter) that was broken in half and may have been used as a scraper of sorts as indicated by some possible use ware. Schist *gacuk* were also recovered from the Hatusua Site.

About seven relatively distinct classes of rim forms based on profile morphology exist in both excavated and surface assemblages, excluding base or ring stand rims, plate rims and lid rims which are generally plain or slightly wedge shaped and tapered but with rounded lips (Figure 17). An initial classification scheme has been collapsed for practical purposes here (note that Tables 13-15 represent collapsed rim classes and Figure 17 actually highlights rim class richness better). Transitions from one morphological class to the next, however, are far from abrupt.

Ridge, collar or flanged rims are the most striking, and presently seem to represent distinctively Central Malukan traits. The first type looks like a slight exterior bump to a distinct triangular projection on an otherwise plain rim sherd when viewed from the cross section. These could easily be classed into two or more classes for more fine-grained analysis. The second type is often doubled and sometimes tripled and looks like triangular or wedge-like projections in cross section. The third type appears either as triangular when viewed from the cross section or as a true ring, flange or collar. These latter examples may have effectively served as rests or supports for shallow bowls or dishes but may have served as cover ridges or stacking supports. It is presently difficult to determine the function, if any.

Ridge rims apparently occur on globular vessels with restricted necks, parallel bodied jars with everted or straight rims, conical jars, bowls, dishes, plates and possibly lids. Ridge, collar or flange rims

Figure 17: Rim Profiles from Sites Discussed in Text.



make up 4.6 per cent of the entire assemblage by weight (17 per cent of rim sherds by weight) in the excavated Hatusua assemblage, while they compose almost 25 per cent in the Tomu sample from Unit S-1 and 33 per cent from Unit S-2 (although the Tomu sample is comparatively small and thus more prone to significant deviation from the expected norm). Single ridges are the most common while triple ridges are rare.

The fourth rim type, plain rims for jars, bowls, plates, etc., are the most common at almost 11 per cent of the excavated Hatusua assemblage by weight (about 40 per cent of all rim sherds by weight). A fifth rim type is characterized by an exterior protruding lip, which is either rounded or flattened. These are fairly prolific in surface collections but relatively rare in the excavated assemblage (less than 0.5 per cent by weight of the entire excavated Hatusua assemblage and 1.4 per cent of rim sherds). The sixth rim type includes a triangular or wedge-like rim which tapers outwards, generally on restricted globular vessels with everted rims. These are adequately numerous in surface collections but relatively rare in the excavated sample.

The seventh rim type is virtually a reverse of the sixth type. This is labeled 'wedge' rims in Tables 13, 14 and 15. The excavated Hatusua assemblage yielded 318 sherds thus far of this rim type, which is almost 11 per cent of the entire assemblage by weight and 39 per cent of the rim sherds by weight. Although the Tomu sample yielded a few similar rim sherds, this morphological type is almost non-existent in surface collections.

As for other trends, *anglo/tungku* sherds by weight make up 6.4 per cent of the assemblage, but these are by far the heaviest sherds in the assemblage, primarily due to their thickness (frequently exceeding 2.0 mm in thickness). Base sherds mainly derive from ring-feet and account for 2.3 percent of the assemblage by weight. Although there is a considerable amount of decorated sherds visible in the assemblages, the sample tabulations thus far indicate a fairly low percentage of decorated sherds in any given test unit (note, however, that the counts, weights and percentages of decorated sherds per category are not listed in the tables with only one exception and the under-representation problem has been discussed above). The high count for decorated surface sherds is greatly a result of sampling bias as diagnostic sherds were targeted. Patterns/motifs are very similar in both excavated and surface samples and the location of incised designs is consistently on bases, rims, necks and shoulders in all cases. However, the excavated assemblage appears to exhibit a greater richness of designs.

Body sherds are relatively small and thin. These compose half of the excavated assemblage.

Most exhibit similar paste composition including similar types and concentrations of inclusions/temper, although there are possibly two general paste variations (see Dickinson 2004, 2002 for further details, although some sherd types have not yet been analyzed). Many sherds are black on both surfaces, red on both surfaces or black on one surface and red on the other. The significance of the coloration, if any, remains enigmatic, although many of the dark sherds may have absorbed the color from soot or dirt.

Most body sherds do not appear to be slipped, painted, incised or decorated in any other way other than possible slight burnishing, wiping and smoothing. Red slip and paint is far more prominent in the surface collections from both sites.

Carinated and inflected sherds contribute to a small portion of the excavated assemblage (3 and 4 per cent by weight respectively). Carinated sherds include those which were part of a carinated body but also may have been part of a carinated or ribbed ring-stands or necks. Many inflected sherds have bends or angles that continue at odd angles not expected for typical carinated vessels. These examples are similar to what appear to be possible oil lamp sherds, but may also have derived from odd shaped *anglo* (like the *anglo kran* discussed above) or otherwise unidentified forms. I believe many of the rim sherds are from oil lamps and oil lamps are thus under-represented in the tables.

The assemblages have a rather rich representation of vessel forms. Diversity is probably higher than what is described here as categories were collapsed significantly in order to reduce an already lengthy description. Additionally, Malukans tend to categorize similar vessel forms into different classes (often characterized by different names) depending on size and function. This further adds depth to the locally perceived richness of the assemblage.

Further Discussion

Most of the discussion has been provided in the paragraphs above. However, it is necessary to briefly comment further on a few trends and subsequently pose a few questions.

The assemblages appear to reflect a unique Central Malukan potting tradition. With regular trade contacts beginning anywhere from 2000 years ago or longer, it is possible that the protohistoric potting tradition may have been of extra-local origin (although an earlier Austronesian introduction could also be considered non-local) and possibly extra-local production, especially by the time of

inferred consistent trade contacts with the Javanese and other non-local traders. The Javanese or any number of non-Malukan groups may have even established trade settlements in the area.

However, design elements and unique area-specific ceramic types like sago molds imply a Malukan origin and character. It is doubtful that any of the forms or designs are of extra-local influence or production. These particular design combinations have not been witnessed elsewhere, especially on earthenware vessels, excepting a few Kalumpang-like and Lapita-like designs (probably coincidence). Even if the settlements are non-local (e.g., Javanese) or ceramic production technology was non-local, the potting tradition reflected in the protohistoric sites is most likely local in origin.

Whether or not the late prehistoric Central Malukan tradition evolved from an unbroken initial Austronesian tradition in Central Maluku remains unknown, although the sequences of earthenware ceramics beginning some 3100 years ago from the Banda excavations (Lape 2000) supports claims for a continuous potting tradition at least in some areas of Central Maluku. Nevertheless, many areas in Central Maluku (particularly inland areas) likely dropped or never acquired potting traditions. The loss of pottery production among many Oceanic groups over time is not unusual. And, lowland New Guinea hardly has any archaeological evidence of a tradition of prehistoric pottery production at all despite contact and communication with many Austronesian pottery producing groups for a very long time (Terrell pers. comm. has noted that there may be a Lapita tradition in the coastal Sepik area).

The similar assemblages from the Tomu and Hatusua Sites hint at the existence of a localized trade sphere or at least an important interaction and identity sphere in the Piru Bay area which certainly seemed to exist in historic times, but obviously having roots in at least the protohistoric period (dating as early as the 7th-10th centuries according to radiocarbon data). It is possible that one production center produced both assemblages, although vessel forms, styles and designs could easily have been copied and. It is suspected that multiple production areas of the same forms and designs existed. It is also possible that a settlement shift occurred and the pottery from Tomu is actually a slightly later assemblage produced from a descendent community whose predecessors produced the Hatusua assemblage and migrated from Seram. Additionally, the similarities could reflect social arrangements in which potters from one area moved (ie, married into) the other community.

Ellen (1990:209-211; see also Ellen 2003) notes that Ambon-Lease and West Seram constitute a regional exchange sphere and an intermediate exchange sphere. Ellen further suggests that there is a local level exchange sphere centered in Piru Bay and its highland environments (perhaps centering

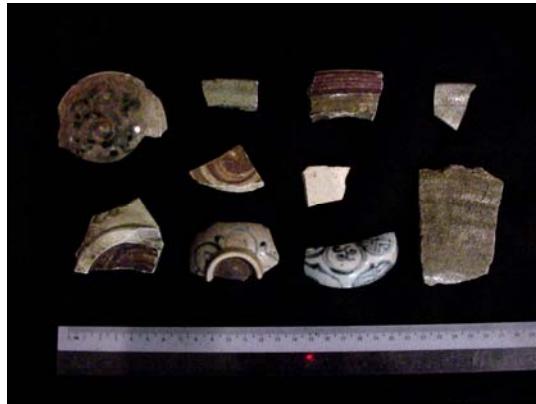
around a *damar* trade), while Amahai-Elpaputih Bay (south-central Seram) and Manipa-Kelang-Boana (islands on the west side of Seram) constitute two other local exchange spheres. These exchange spheres are deduced from historic data, but were perhaps in existence for centuries earlier. It is interesting, and supportive of Ellen's assertions, that *damar* production is highly important in the West Seram area (mainly upland) and also sago production is very important. It could be argued that the existence of sites like the Hatusua Site was an important trade node or redistribution center with these forest products being exported in return for the importation of luxury/prestige items. Unfortunately, there is little hard data to support such a claim at present.

It is possible that the Tomu and Hatusua assemblages reflect an earthenware trade that occurred within the Ambon-Lease and West Seram regional level or intermediate level exchange sphere. However, whether or not pottery itself was a trade commodity, only a vessel for other commodities, or both, remains unknown.

Both utilitarian and what appear to be ritual or prestige-like pottery constitute both the earthenware and non-local pottery assemblages in both the Tomu and Hatusua Sites. The footed earthenware dishes, bowls or plates with the unique incised and/or impressed designs seem to represent something other than utilitarian wares, and were perhaps ritual offering dishes or dishes used in important events such as feasting. The highly decorated vessels (and perhaps the decorated *anglo* vessels) may have also been prestige items or ritual items used for special occasions. Obviously other vessels were used as cooking vessels, cooking molds, storage vessels, perhaps eating vessels, etc. (i.e., very utilitarian). That a wide range of utilitarian vessels and prestige/ritually important vessels are represented in all assemblages has a high degree of confidence. Most earthenware produced now is primarily utilitarian by contrast.

The non-local stonewares and porcelains also seem to represent utilitarian and prestige items (Photos 73-76). There are some very exquisite bowls, platters, boxes, etc. represented that were certainly unlikely to have been used as utilitarian vessels in the area, especially during the protohistoric period. However, there are what appear to be very mundane storage jars and even mercury jar vessels that suggest some degree of utilitarian use of foreign vessels. It is possible that such vessels were also considered prestigious, but it is hardly suspected that jars such as the mercury vessels would be considered highly prestigious.

Photo 73: Vietnamese Wares-Surface Collection.

Photo 74: Mixed Non-Local pre-16th Century Sherds.Photo 75: Pre-15th Century Chinese Storage Jar.Photo 76: 14th Century Chinese Mercury Jars.

On the other hand, foreign vessels, though very utilitarian, are thought to sometimes contain beneficial properties that would place them in a class of importance beyond basic utilitarian use. There are several 15th century and later large stoneware storage jars that are commonly used to store *sopi* (distilled palm wine) and other liquids that are said to preserve the flavor and potency as well as keep it ‘magically’ cool. Interestingly, deer fetus and other unusual additives are also kept in the distilled palm wine, although pickled animals in distilled spirits as an ‘enhancer’ is not unusual in many parts of Southeast Asia. However, it has been intimated that only stoneware jars had the power to bring out the potency by many Malukan informants. Contrarily, some informants disclosed that it is only myth and simply view the jars as decent storage vessels.

The mercury jars themselves are an interesting component. It is thought that these distinctive, heavily ribbed (interior surface) conical stoneware vessels were used for the storage and shipment of mercury (Miksic pers. comm.). These were definitely manufactured in China. Mercury, though poisonous, was highly valued as a medicinal ingredient in East and Southeast Asia at that time. The

existence of such vessels could indicate the demand for mercury as a medicine. By extension, this also could support that there was a demand for exotic prestige commodities.

Alternatively, mercury is commonly used for gold processing and it could indicate a substantial amount of gold processing in the region. It has been claimed that there are potentials for gold mining in the area. There are some modern mines in Maluku which would indicate the metal extraction potential, although the potential for **gold** extraction in Maluku more or less remains unknown. Unlike New Guinea and the Philippines, however, Maluku probably has very little potential for massive extraction.

Lastly, the jars could have been used for the storage of other liquids. The small aperture and overall morphology indicate that it was specifically engineered for liquid storage. Other liquids could include oils, alcoholic beverages, etc.

As for the earthenware assemblages, the almost identical similarities in the assemblages, especially the motifs on the bases of the presumed ring-stand dishes, could also symbolize an alliance between the two settlements. The problem is that there is no way of currently knowing whether or not the motifs and design clusters represent an iconographic symbol or merely a popular fashion. Also, were the producers of the design elements from the same area (e.g., women potters marrying into non-local communities who continued to maintain their design traditions). At present, it is difficult to assume more than just some currently ambiguous kind of relationship, although the social connections must have been strong in one way or another.

Nevertheless, the true nature, function or purpose of these decorated vessels remains unknown. Did imported porcelains and stonewares, which later formed part of bride wealth and family wealth (*harta, pusaka*, etc.), replace earthenware vessels? Again, it is often suggested that human heads were the pre-existing item of importance for brideprice, etc., but earthenware vessels could have been at least part of the package (e.g., a head on an earthenware platter). One of the initial readers has commented that earthenware vessels are important in this sense (see initial review comments), but this was not witnessed during field research or disclosed by informants. The exceptions were earthenwares at *kramat* sites.

The fact that a significant number of highly decorated vessels as well as significantly large amounts of sherdage at both sites suggests that the two sites may have been politically/economically important centers, or ‘chiefly’ centers.² That is, the large walled settlement and high density ceramic assemblage nature (with a significant amount of highly decorated vessels) indicates a significantly

intensive and/or long occupation unlike the material remains left behind in modern and historically important villages.

By the 15th-16th centuries Hitu had become a quite large multiple settlement federation-like entity. Luhu on Hoamoal in Seram also achieved a considerably powerful and federated-like complexity by the colonial era. Unfortunately, the degree of complexity of these polities prior to Portuguese arrival, and the degree of economic, social and class differences in local populations, or the status and influence of paramount chiefs and title holders, remains obscure at best for most of Central Maluku. Can the archaeological assemblages help sharpen the blurry image?

However, the socio-political scene in late prehistoric times may have been far more complex and sophisticated than what is commonly assumed as evidenced by the archaeological data thus far; certainly not the ‘bands of hunter-gatherers’ often implied for east Indonesia, New Guinea and Melanesia.

One thing that the earthenware assemblages do suggest is that large settlements (often walled) occurred prior to Colonial presence. At least three of these sites may range from 20-100 hectares or larger in total area. This type of settlement hardly characterizes small mobile foraging groups. However, it is reasonable to suggest that several varyingly integrated settlement forms co-existed forming a mosaic of settlement types during the late prehistoric period much like the scenario today.

Additionally, inferring from the occurrence of Dongson drums and historic references indicating foreign demands for spices, bird feathers and other commodities (Swadling 1995), it is likely that fairly powerful polities with a significant role in trade and exchange of both exotic goods and common commodities occurred from as early as 2000 years ago—quite possibly earlier. Dongson drums were not likely acquired by or handed over to small bands of foragers or even tribal aggregates. They were likely imbued upon powerful chieftains or kings. However, the natures of power, leadership, alliance, allegiance and control were likely different from polities in western and mainland Southeast Asia for a variety of reasons; but, perhaps more similar to those found in New Guinea and Melanesia. Because Maluku is still physically, environmentally, socially, etc. a fusion, crossroads and “crash zone” of east and west vis-à-vis Southeast Asia, New Guinea and Oceania, it is highly probable that their socio-political systems were no less of a fusion, mosaic or entirely different from any model yet created.

As for Dongson sites, there are no sites related to the Dongson period yet discovered in Central Maluku. It is possible that some of the sites like the Hatusua Site may have been occupied during a

contemporaneous period, but there are no relative or absolute dating samples to corroborate such a speculation. It is also difficult to imagine an occupation sequence of over 1500 years for the sites as well, especially vis-à-vis typical Malukan subsistence and settlement practices. On the other hand, if these were trade settlements occupied seasonally by locals and non-locals such as Dobbo described by Wallace, it is feasible that the same site was re-used for very long periods of time.

Once seriations are complete and enough material is adequately dated with absolute methods, the earthenware assemblages will allow researchers to better sequence and date assemblages. Here, only ‘ball park’ dates can be offered with the exception of the Hatusua Site’s radiocarbon dates. One trend from the past to modern era, however, appears to be a reduction in the number of vessel forms and complicated designs that are produced, a reduction in the number of potting centers, adoption of non-local forms (e.g., flower pots, cups, tea pots, etc.), and changes in raw material. This may indicate a trend towards increased specialization, intensification and standardization; not an unusual or unexpected trend from the late prehistoric to historic and then modern periods.

However, the reduction in forms and simplification of design or loss of intricate designs may be a result of the possible replacement of locally manufactured earthenware ritual and prestige items with imported ceramics (primarily celadons and porcelains). The excavated Hatusua assemblage hints at changes over time in some rim forms, decorations, frequencies, etc. but further analysis is needed before any definitive conclusions can be drawn. The differences may just as easily reflect spatial variance or sampling error.

Earthenware assemblages in Central Maluku are also helpful for determining site size as mentioned above and even the location of particular boundaries, such as walls that no longer exist. This information is important for settlement studies. Thus far, the evidence indicates that Maluku contained some fairly sizeable settlements during the late prehistoric period/early protohistoric period. Most of the sites occur in relatively coastal areas, although they appear to take a protected position with commanding views on nearby karstic/limestone hilltops or hillslopes. At present these sites appear to be fairly dispersed rather than clustered. The total number of late prehistoric settlements appear to be far less than those represented by historic or modern villages, or historic *negeri lama*. It must be emphasized, however, that there were likely a wide variety of settlement types, many of which leave few traces behind after abandonment, thus, perhaps resulting in an under-estimate of late prehistoric and protohistoric sites by comparison.

It is possible that the Tomu and Hatusua Sites represent part-time trade settlements mentioned several times above. These may have been locations where groups would annually aggregate to engage in local and extra-local trade for anywhere from a few weeks to several months. Wallace noted such occurrences in Aru during the mid 1800s (Wallace 1989:327-330). It is also possible that the Tomu and Hatusua Sites were permanent trade settlements occupied by foreign residents (e.g., Javanese communities) throughout the entire year. The seemingly Central Malukan designs on many sherds indicate a strong Malukan presence, however. Nevertheless, it could be argued that Malukan potting centers filled the ceramic demands of foreign residents.

Earlier, the nature of demand for pottery in Central Maluku was questioned. The existence of large sites with relatively dense pottery scatters indicates that there was indeed a significant demand for pottery, at least in some places. Whether or not the demand came from foreign traders, maritime groups and trade vessels, or from local populations, it is apparent that opportunities arose for Malukan groups experiencing stress or even Malukan entrepreneurs to find a niche in pottery production and exchange. The high occurrence of *anglo/tungku*, normally associated with boats, suggests the possibility that sea-faring groups and trade vessels may have been a stable market, or minimally that the settlements were somehow involved with sea-faring and maritime economies.

As for the ‘potting centers emerging on small environmentally degraded islands, etc.’ hypothesis briefly discussed above (environmental degradation or population increase, both of which may have caused stress, may have pushed some communities most likely on small islands to develop potting traditions as a last resort and perhaps risky business option, rather than as a lucrative vocation, in order to supplement income and allow purchase/trade to acquire food), it is presently difficult to support or refute the hypothesis with the data recovered thus far.

However, a trend not discussed above may have occurred in Central Maluku. It is possible that potting centers emerged (and continued) in many locations on both small and large islands and in various communities regardless of any form of economic, environmental or subsistence stress that initially drove them to ceramic production and exchange (i.e., stress may not have been a factor). These potting centers may have found favorable markets in trade communities, perhaps even leading to greater scale, specialization and/or intensification of production. Even the emergence of sago molds may have been a means to produce baked sago that would last a long time in order to stock leaving ships with food—the sago being a sort of currency to add in with their normal trade. Later, during times of

economic or trade disruption or even heavy local marketing competition (either way, stress—perhaps even environmental stress like droughts, etc.), potting communities that had access to larger and less degraded resource environments could opt to simply return to a purely ‘horticultural/arboricultural’ way of life; or at least spend more time engaged in subsistence related activities. Potting centers on small islands and/or areas with limited resources, less space and perhaps a more degraded resource environment, however, would not be able to return to a purely horticultural way of life. This may have resulted in the historic and current distribution of most potting villages in Maluku (i.e., generally restricted to small islands).

One question not asked earlier is whether or not the Tomu and Hatusua Sites were potting centers, thus explaining the large accumulation of ceramics. It seems reasonable to assume that they were, but there is no conclusive evidence. Unfortunately, most ethnoarchaeological studies focus on acquiring, producing and firing vessels with a heavy emphasis on production techniques and tools; or on marketing and subsequent distribution of styles, and even less on distribution and consumption. Very few studies target what a potting settlement in a similar context looks like in regards to workshop locations, firing locations, waste disposal locations, living quarters locations, storage and acquisition of fuels, environmental degradation/management, etc. With the evidence accumulated thus far, it remains difficult to determine if Tomu and Hatusua were potting centers, especially due to the lack of easily identifiable features such as formal kilns (probably never used in Maluku) and high frequencies of wasters. If clay sources can be identified in the respective proximate locations, it is possible to suggest that they were indeed potting centers as raw clays and additives/tempers do not usually travel far from their sources. If it can be determined that these sites were prehistoric potting centers, a claim that potting centers occurred on both large and small islands during the proto-historic or prehistoric periods can be made.

Notes:

1. Some archaeological sherds appear to have a ‘foraminifera’ appearance discussed by Ellen and Glover (1974) and Spriggs (1990:53). Spriggs suggests that foraminifera temper is characteristic of Ouw Village ceramics and that the Ouw potting tradition may be 100 or so years old. According to Spriggs (1990:53) older pottery and pottery manufactured in different areas contain primarily beach and alluvial sand temper.
Ellen and Glover (1974:375) describe the foraminifera temper in the following passage: “This sand is, in fact, almost entirely composed of planktonic foraminifera characteristic of the Plio-Pleistocene boundary in Eastern Indonesia. The foraminifera are not

cemented, which suggests that they have been washed out of a marl by the women potters rather than obtained in a concentrated form from a calcareous sand. The ethnographic, as opposed to the laboratory, evidence is unclear on this point. Such marls are common in Indonesia but this is the only instance so far known to us where a filler of this nature has been regularly used. As well as the modern clay and filler samples from Ouh, all the sherds from surface collections and recently made pots on Saparua which have so far been examined have the same type of filler, a point which may be of great future use in determining the distribution of Moluccan made pottery. We wish to thank Mr. D. Carter of the School of Mines, Imperial College, London for making the identifications.”

2. I repeat that many would certainly agree that the ‘band, tribe, chiefdom, state’ classificatory framework should not be used as a rigid definitive model rather than a diffuse set of conventional categorical and analytical constructs. However, I wish to emphasize that it is unlikely that the evolution of subsistence, settlement and socio-political systems in Maluku followed the trajectory often implied through this model/framework in regards to increasing complexity. Adherence to this kind of framework has resulted in frequent preconceived and unsupported misconceptions concerning Malukan prehistory and history. Some of these misinterpretations even have serious repercussions on the future of Maluku vis-à-vis development decisions.

Chapter 6: Compositional Studies

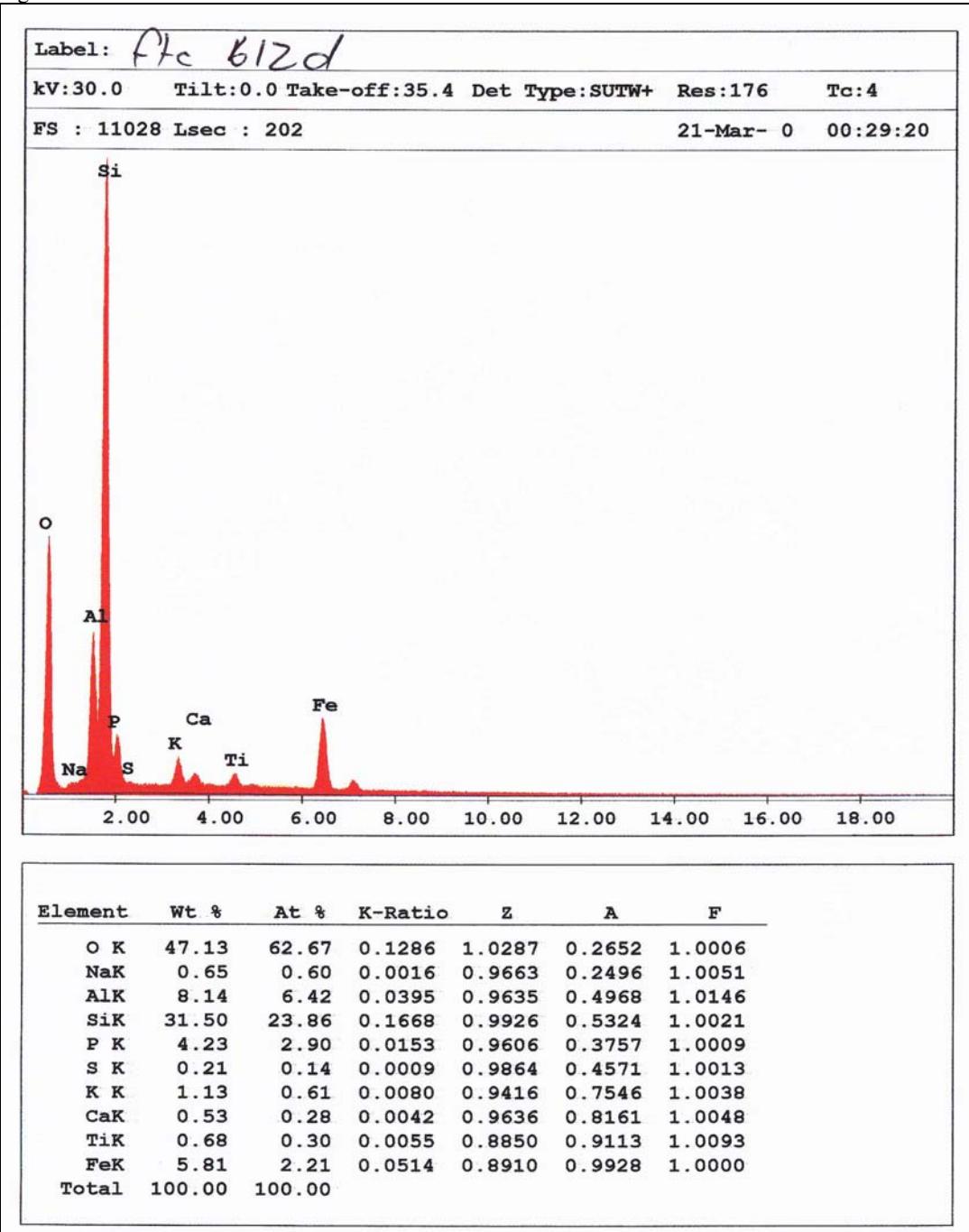
The following chapter is primarily concerned with compositional studies conducted on ceramic artifacts; approximately 330 samples of earthenware sherds. More samples are run each day and the database is continually expanding. The results here are merely part of a preliminary database for Southeast Asia and the Pacific—part of a larger ongoing project (Miksic, Latinis and Chhem--National University of Singapore). The database thus far includes sites from Eastern Indonesia, Western Indonesia, Burma, Cambodia, and Vietnam. Samples are currently being sought from several sites in the Philippines and various sites in Near and Remote Oceania. It is hoped that successful results will stimulate interest in and enhance a regional database.

Although there are limitations with comparing compositional data from different testing methods, it is hoped to cross check the EDXRF results with synchrotron light source testing, proton/particle induced x-ray emission, petrographic and other methods in the future in order to resolve cross comparability problems, a theoretical possibility without having to standardize samples through destructive approaches. Absolute measurements are currently only available if samples are standardized for surface area and topography. However, relative amounts can produce ratios that are comparable and thus far informative.

Both Scanning Electron Microscopy (SEM) and Energy Dispersive X-Ray Fluorescence Spectrometry (EDXRF) are employed. SEM can yield adequate compositional data (Figure 18) but is more widely used to assess micro-structure and provide micro-images. EDXRF is employed to retrieve a ratio of element components including minute trace elements which results in an ‘atomic fingerprint’. Samples vary mostly with source clay and secondarily with non-plastic inclusions (although the non-plastic inclusions can shift the ‘fingerprint’ substantially depending on a variety of factors).

The SEM work was postponed for some time due to lab access problems. However, the samples that were completed accord with the results from the other analyses. Interestingly, it was found that there was no need to gold-coat earthenware ceramics to reduce electron ‘piling’ (which distorts the image and information), and several small samples could be analyzed on a single sample tray which significantly reduces handling time (Photo 77). It was possible to retrieve clear images and data without the necessity of gold plating. The images were also helpful for distinguishing paint from slip on the

Figure 18: SEM Readout for Select Elements.



highly eroded pieces, the angularity, roundness or basic shape of tiny non-plastic inclusions, porosity, etc.; most of which can be determined under a normal microscope, although such facilities normally associated with a typical geology or archaeology lab for such analyses are unfortunately unavailable or inaccessible at the National University of Singapore. Data was analyzed using EDAX software.

Photo 77: Mounted SEM Samples.



As can be seen in the EDAX SEM graph printout (Fig 18), course element analyses can be conducted. After several tests, it was deemed that the elemental analysis of all samples accorded with that of the EDXRF sampling strategy. However, the EDXRF proves to be much more sensitive and accurate.

The EDXRF analyses were conducted with the Physics Department at the National University of Singapore. The lab was previously designed and used by Professors John Miksic and Yap Choon Teck for the analysis of ceramic material. They successfully achieved meaningful results with earthenware archaeological samples (Miksic and Yap 1992; see also Latinis 2002, 2004; Steponaitis et al. 1996; Yap 1992, n.d.; Yap and Vijayakumar 1992; Yap and Tang 1985a, 1985b).

The benefit of the EDXRF analysis is that it is nondestructive and can provide information on the concentrations of numerous major and trace elements using a variety of radioactive sources (different radioactive sources will allow data collection of different sets of elements). A radioactive cadmium source (CD-109) was used to excite the samples. Each sample was run for 50,000 seconds, which more than assures that thorough data was collected for each sample. Time tests suggest that 5000-10,000 seconds is sufficient to achieve 90% or above accuracy compared to 50,000 second tests. Also, surface area correction tests suggested that surface area does not heavily affect results.

The process simply stated notes that atoms/electrons composing the sample are excited and the resulting energy released after electrons replaced vacant spots was measured, amplified and digitized. Each element has a different energy profile that is easily recognized.

The data was then converted and analyzed with AXIL (Analysis of X-ray spectra by Iterative Least-squares Fitting) software to determine the ratio of element concentrations from Calcium to Lead. Data was then entered into SPSS software which allowed Principal Component analysis of the samples. Details regarding principal component analysis and the exact procedure for initial data collection from the samples can be found in Miksic and Yap (1992). Their initial summary is provided here:

The objective of principal component analysis is to take multiple variables (in this case the concentrations of the [multiple] trace elements identified above) and find linear combinations to produce new variables, known as principal components, that are uncorrelated, with principal component 1 having the largest variance, principal component 2 the second largest variance, and so on. Therefore, if the data are highly correlated, positively or negatively, we can reduce the number of dimensions drastically from 12 to as few as 2 or 3 depending on the data. In general, there is a good deal of redundancy among most compositional variables, because they are measuring similar things—in this case a few clay sources.

Some of the problems with the nondestructive technique relates to the total area (spot) and topography of the part of the sample being tested, the penetration, and the nature of non-plastic inclusions, among other variables. To correct for this and acquire actual element concentrations (for the clay) rather than relative concentrations, samples would be ground up, the non-plastic inclusions removed, and the surface topography and spot standardized—something wished to be avoided for obvious reasons. In particular, the non-plastic inclusions can greatly alter the ratio of element concentrations depending on the nature of the inclusions. For inclusions that are predominantly composed of elements lighter than calcium or containing elements not included in the principal component analysis, there is little effect on the final data. Thus, most sand temper does not significantly affect the final results.

It is unknown whether or not the non-plastic inclusions were added as a temper and/or occur as part of the clay source (probably both). Also, the nature of the non-plastic inclusions can often be more informative. Generally, analyses such as thin-section petrography are appropriate for non-plastic inclusions (see Dickinson 2004, 2002 for petrographic results on Malukan earthenware samples). Visually, only three distinct types of clay and inclusions were noted for the Central Malukan wares; the Buru blue-gray paste with large grain and platy inclusions, the modern Ouh red paste with a foraminifera marl, and the archaeological samples which are generally red with varying concentrations

of fine alluvial and calcareous fine to medium-grained sand inclusions and black reflective platy particles. Of the latter, all samples had at least some of each of the inclusions, though in varying concentrations. The concentrations, however, do not visually appear to form distinctive classes. The only notable pattern was that thicker sherds often had larger sand grains. Dickinson (2004, 2002) noted that a sherd from Seram and a sherd from Giru Gajah (Gorom) contained a signature with probable origin in Halmahera and characteristic of some samples from Halmahera, Seram, Gorom and Aru (probably produced in Halmahera and shipped to these other locations; i.e., indication of a trade and exchange network). Visually, these are difficult to determine from other Central Malukan sherds.

The spot area was increased to between one and two centimeters with a penetration of up to a few millimeters. Thus, what is actually being tested is both clay and non-plastic inclusions samples over a circular spot area with a diameter ranging between one and two centimeters. The large spot generally prevents any particular large non-plastic particle from skewing a sample, such as a single sand grain representing an entire pot.

However, it is hypothesized that the variance for a particular clay source in Maluku will be increased due to the variant concentrations of non-plastic inclusions. That is, a scatter plot of the first two principal components plotted on the X and Y axes for a set of a particular type of Malukan sherds should be more ‘cloud-like’ and broad rather than concentrated in a very tight cluster. It is also expected, though, that distinct meaningful classes will result as geology in Central Maluku is complex and two clay sources even in close proximity may have very different signatures.

What then is the utility of EDXRF analysis? Firstly, it can be used to verify or contradict the validity of different clay source classes determined by other means. Additionally, EDXRF can be used to determine if non-local vessels are included within a locally made assemblage (i.e., help elucidate issues related to trade, exchange, distribution, etc.). Likewise, the geographical distribution of a particular ware can be determined which will also aid in understanding when and where certain producers came to dominate larger areas or vice versa. By extension, more confident inferences can be made regarding social interactions and the existence of various relationships between separate settlements. Minimally, if non-locally made vessels are found in a particular assemblage, at least some form of relationship can be inferred. Alternatively, if all assemblages are distinct, at least one can infer patterns relating to ceramic production and exchange (i.e., lack of distribution/exchange and interaction).

In the following paragraphs, patterning and a variety of explanations to the patterning will be provided. Not all samples were assessed. Some data had to be excluded due to problems with either data collection or data entry. These samples clearly had some form of error in the steps from EDXRF exposure to SPSS principal component analysis. In no way were they excluded to fit predicted results.

Due to high porosity, the problem of local soil absorption could be a significant factor. All samples were boiled in pure water, washed, and subsequently placed into distilled water baths. They were then soaked in acetone and dried before testing. In other tests (Latinis 2004), local soil absorption did not seem to be a major factor.

Amaheru, Kapahaha, Rahban, Buru, Dulak, Giru Gajah, Kataloka, Ondor and Sri Kshetra

These sites are introduced here as they present some interesting patterns that are more easily assessed. The Tomu, Hatusua surface and Hatusua excavation assemblages are far more difficult to assess, probably due to the larger and more diverse sample set as well as the possibility of many more non-local samples in the assemblage, many of which may derive from sites not yet discovered and certainly not part of the current sample set. Sri Kshetra is a Pyu site in Burma, but is included (with extensive gratitude to Shah Alam Mohamed Zaini for allowing the use of the data) to demonstrate an example of a tightly clustered sample set and to also demonstrate that slip does not necessarily affect the EDXRF and principal component analysis.

Graph 4 below highlights the distribution of nine sites; Amaheru, Kapahaha, Rahban, Buru, Dulak, Giru Gajah, Kataloka, Ondor and Sri Kshetra. Table 16 lists the details of the principal component analysis. It is unnecessary to repeat the details for each scatterplot, but the elements included in the principal component analysis for each are listed. Several combinations for each analysis need to be conducted in order to find the most clear and meaningful distributions with the most appropriate combinations of elements. Occasionally, some elements create unnecessary noise while others are essential. These are not necessarily the same combinations for each case. It greatly depends on the variability of a particular element in the local geologies. Discerning appropriate combinations is not an easy task with 15 or more elements. The possible permutations are extremely numerous. As an added note, it is currently unknown how age and decay of isotopes affect the final results.

Graphs 4a and 4b (4a displays the data before grouping circles are drawn) include principal component analysis on Calcium (Ca), Titanium (Ti), Manganese (Mn), Iron (Fe), Cobalt (Co), Nickel

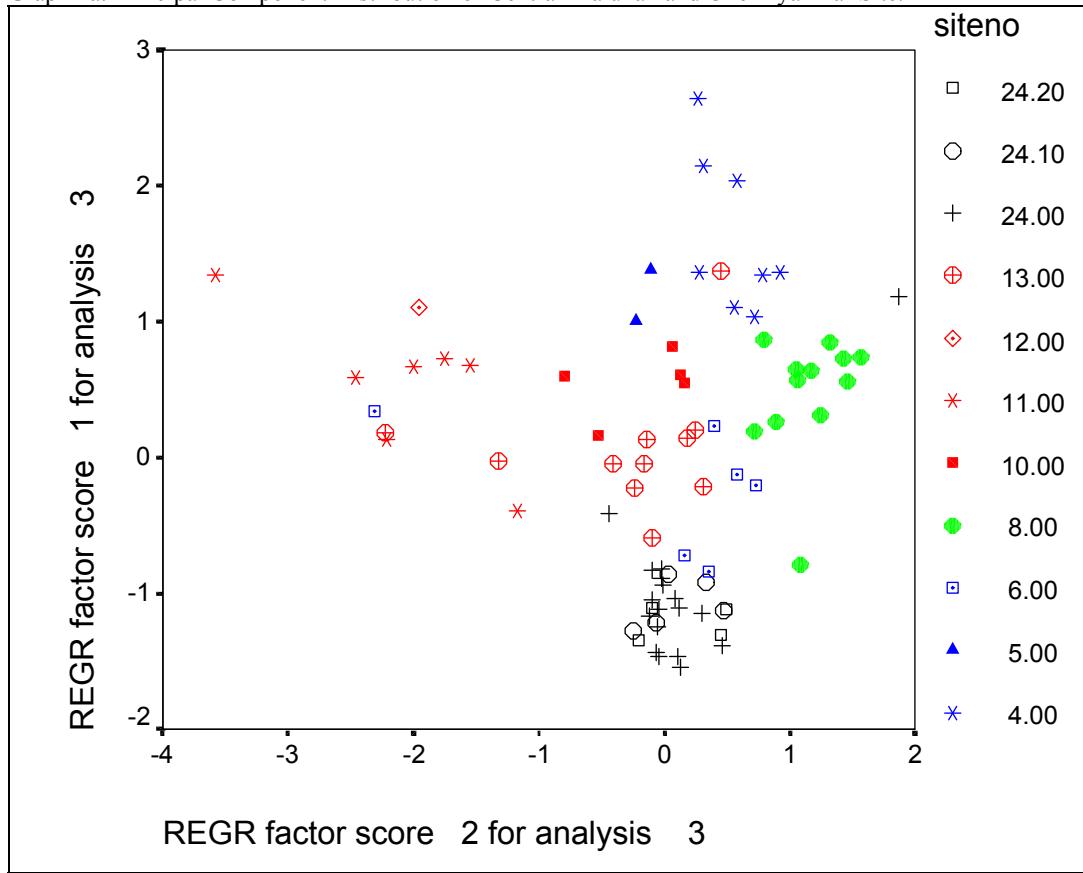
(Ni), Copper (Cu), Zinc, (Zn), Gallium (Ga), Rubidium (Rb), Strontium (Sr), Yttrium (Y), Zirconium (Zr), Niobium (Nb) and Lead (Pb). During the initial AXIL analysis, all significantly negative values were given zero status. Negative values occur occasionally for non-existent elements as the area under the curve is analyzed for all elements in one trial. Thus, non-existent elements sometimes return a negative value, especially if next to a curve with a high positive value. These have been rechecked, however, to make sure that very trace amounts which may come up negative have not been missed.

The most obvious trend highlighted by the black dashed circles is that Sri Kshetra (24, 24.10. and 24.20) and Buru (8) sherds are tightly clustered with little overlap. The likelihood that Pyu sherds made it to Maluku (the two Rahban Site sherds (6) fall within the variability) is very small, so the two blue squares included are likely only part of Rahban assemblage variation. Hypothetically, if Sri Kshetra were supplying Maluku with pottery, there should be some Malukan samples contained within its zone. Overlap may indicate problems that will need to be addressed when comparing larger regional data.

Likewise, and more meaningful, is the fact that the Buru sherds seem to be about as isolated and clustered as the Sri Kshetra sherds. The Buru sherds from the Labarisi and proximate sites (mostly the gray paste large platy inclusion ware) seem to not have been distributed to any of the listed Ambon or Gorom protohistoric and historic sites (so far confirmed with Dickinson's petrographic analyses). Whether or not this is due to non-contemporaneous comparisons of sites, or reflective of the fact that North Buru was not in any kind of ceramic distribution relationship with the other sites, remains unknown. Probably a little of both. Dickinson (2004) noted that the Buru sherds come from a northeast Buru source and are very unique in Oceania. However, one sherd tested did have a very different composition, though not necessarily indicative of non-local origin.

Interestingly, 24.20 and 24.10 are same samples where 24.10 represents the interior non-slipped surface and 24.20 represents the exterior slipped surface. At least in the case with Sri Kshetra, slipping has little effect on skewing EDXRF analysis. Slips are usually made from local clay and this is not unexpected. The same trend was observed with the Hatusua sherds, although only a few samples were run. Further testing may suggest otherwise.

Graph 4a: Principal Component Distribution of Central Malukan and One Myanmar Site.

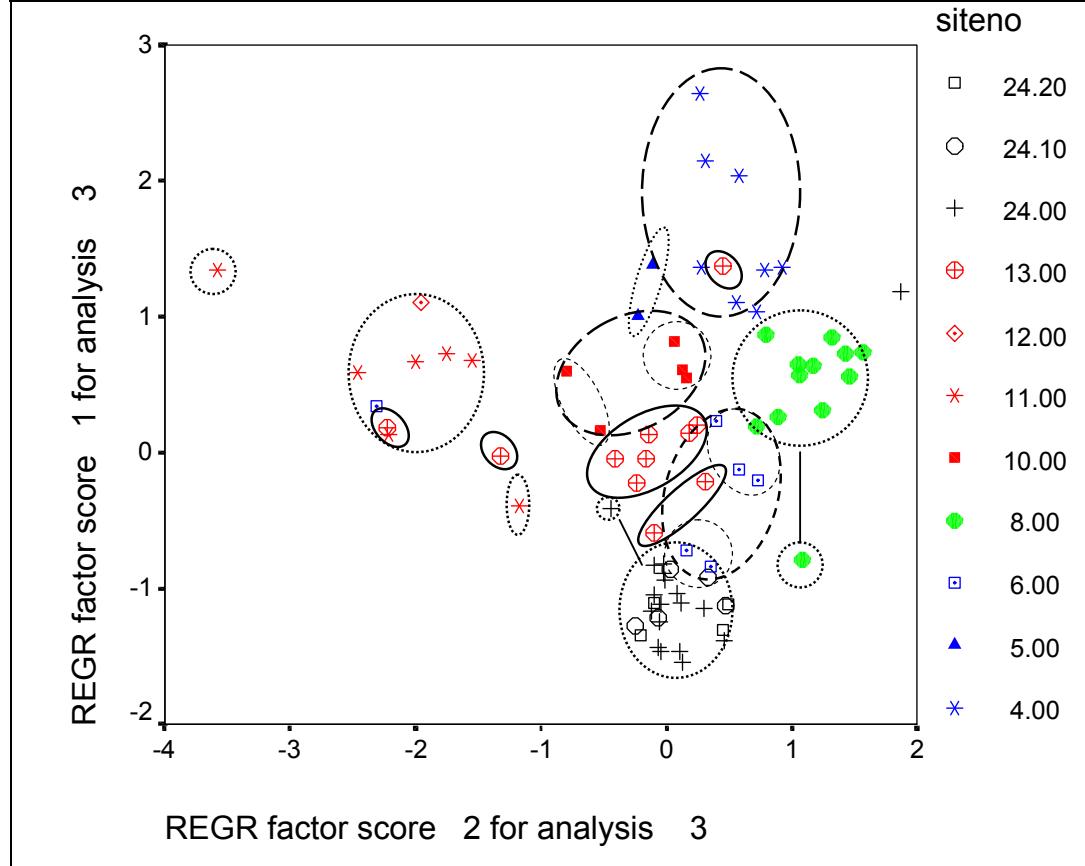


4=Amaheru, Ambon; 5=Kapahaña, Ambon; 6=Rahban, Ambon; 8=Labarisi Site and surrounding area, Buru; 10=Dulak, Gorom; 11=Giru Gajah, Gorom; 12=Kataloka, Gorom; 13=Ondor, Gorom; 24, 24.1, 24.2=Sri Kshetra, Myanmar.

The remaining sites seem to adequately cluster in separate areas, which suggests that different sites were producing their own ceramics with little to no import. The main exception is Ondor. Ondor appears to have a central cluster, but it also is evident that the site received earthenware vessels from Giru Gajah, Rahban, Amaheru and at least two possibly unknown sites. Oddly, there seems to be very little overlap with their neighbors at the Dulak Site. Is this evidence of trade competition, etc. or merely a sign of non-contemporaneous comparison? It is difficult to determine at present, but both sites were likely contemporaneous at least for some time.

The Giru Gajah cluster suggests that the residents are receiving very little from the outside except at possibly two unknown locales represented by the red stars well outside the home cluster. However, they seem to have supplied vessels to Rahban and Ondor and possibly Kataloka (unfortunately represented by only one sherd). However, there is the possibility that several sources are represented in the circle.

Graph 4b: Principal Component Distribution of Central Malukan Sites and One Myanmar Site.



4=Amaheru, Ambon; 5=Kapahaha, Ambon; 6=Rahban, Ambon; 8=Labarisi Site and surrounding area, Buru; 10=Dulak, Gorom; 11=Giru Gajah, Gorom; 12=Kataloka, Gorom; 13=Ondor, Gorom; 24, 24.1, 24.2=Sri Kshetra, Myanmar.

Table 16: Principal Component Analysis Details.

Giru Gajah is interesting in that it contains exotic Chinese, Vietnamese and Thai sherds dating to the 13th-15th centuries. Dickinson (2004) also noted the exotic earthenware sherd of probable Halmahera origin. This may suggest a north to southeast trade corridor which included earthenware ceramics in protohistoric times.

Rahban also seems to be receiving very little from elsewhere; if anything perhaps one sherd from Ondor, and there is also a possibility of multiple sources at Rahban. Likewise, Dulak, Kapahaha and Amaheru seem to have received little, if anything, from outside in regards to earthenware ceramics.

Unfortunately, it is a distinct possibility that several clusters like the Dulak and Rahban clusters for instance may represent two or more clay sources and that some of the sources may derive from a yet unknown sites. As one can easily visually assess, only a few samples were run and it might prove to be particularly interesting to increase the sample size and conduct more discriminatory and detailed analyses.

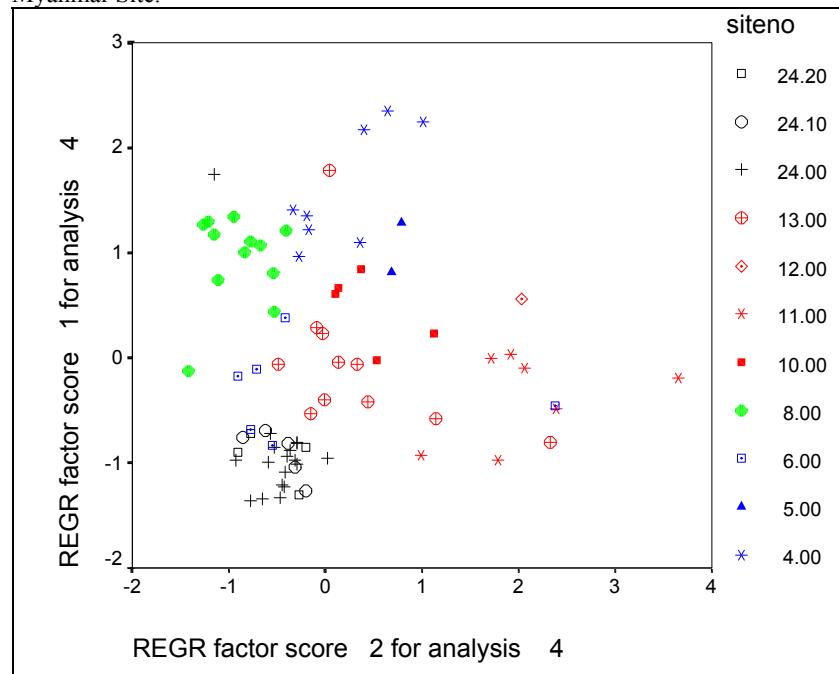
At present, only certain speculations can be offered. It seems as if Ondor, the current main harbor and pier, may have been receiving quite a variety of earthenware ceramics from sites not only on Gorom, but Ambon as well. It is expected to be the same for other sites on Gorom, such as Namalian and Kataloka during the historic period and late protohistoric period as these were prominent trade locales.

The Tomu and Hatusua sites may have been supplying other sites as well, and probably receiving quite an extensive variety of earthenwares from around the region. The assemblage variability suggests that this is a possibility, but the current ‘spread’ and ‘noise’ precludes decent placement of the Ondor samples in these sites or the Tomu and Hatusua samples in the Ondor site.

Graph 5 which includes the elements Ca, Ti, Mn, Fe, Cu, Zn, Ga, Rb, Sr, Y, Zr and Nb seem to produce similar results, as well as Graphs 6 and 7 which have removed the Sri Kshetra Site. All other tested permutations accorded with these graphs (albeit less clearly). Interestingly, the possibility of two clay sources for the Amaheru and Dulak sites seem highly possible. Whether or not their potters were retrieving clay from two sources or this represents some form of trade remains unknown. Another interesting fact is that the analysis suggests that there are many more historic and protohistoric sites that have yet to be discovered or at least analyzed. Currently, pottery is manufactured by only three major potting centers throughout Maluku; Kei, Saparua and Mare. The data suggests that the drastic reduction

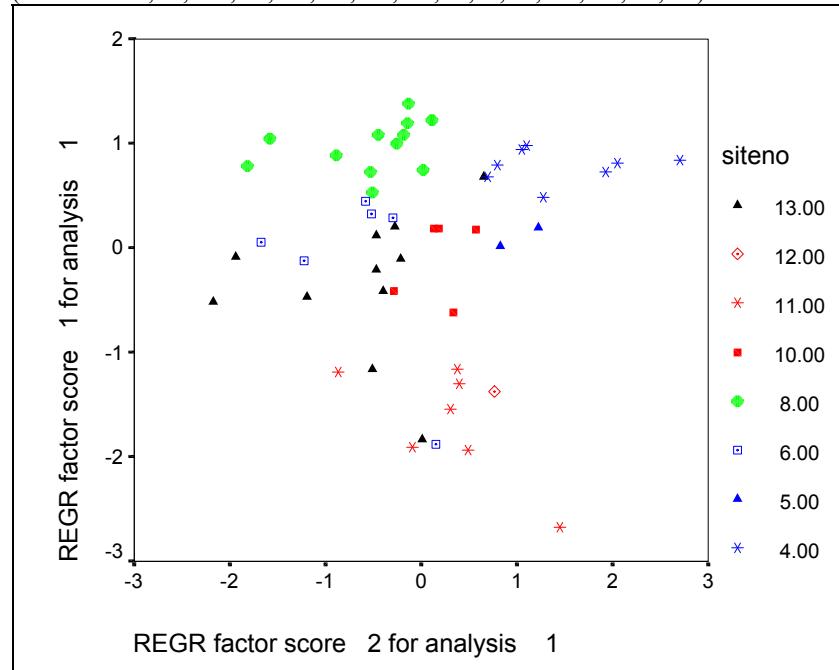
of earthenware potting centers seems to be a historic phenomenon postdating the 15th century and perhaps even the 17th century.

Graph 5: Principal Component Distribution of Central Malukan Sites and One Myanmar Site.



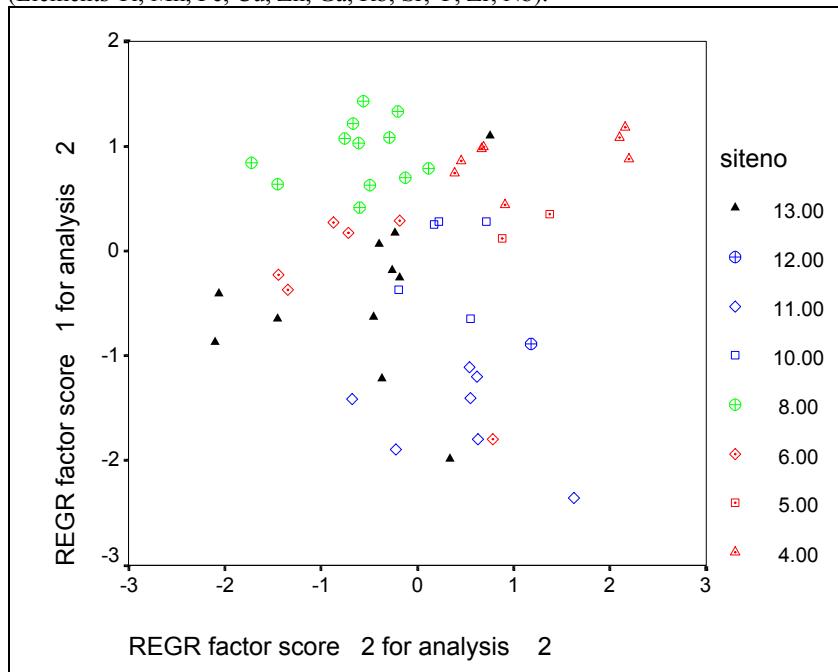
4=Amaheru, Ambon; 5=Kapahaha, Ambon; 6=Rahban, Ambon; 8=Labarisi Site and surrounding area, Buru; 10=Dulak, Gorom; 11=Giru Gajah, Gorom; 12=Kataloka, Gorom; 13=Ondor, Gorom; 24, 24.1, 24.2=Sri Kshetra, Myanmar.

Graph 6: Principal Component Distribution of Central Malukan Sites (Elements Ca, Ti, Mn, Fe, Cu, Zn, Ga, Rb, Sr, Y, Zr, Nb, Co, Ni, Pb).



4=Amaheru, Ambon; 5=Kapahaha, Ambon; 6=Rahban, Ambon; 8=Labarisi Site and surrounding area, Buru; 10=Dulak, Gorom; 11=Giru Gajah, Gorom; 12=Kataloka, Gorom; 13=Ondor, Gorom.

Graph 7: Principal Component Distribution of Central Malukan Sites
(Elements Ti, Mn, Fe, Cu, Zn, Ga, Rb, Sr, Y, Zr, Nb).



4=Amaheru, Ambon; 5=Kapahaha, Ambon; 6=Rahban, Ambon; 8=Labarisi Site and surrounding area, Buru; 10=Dulak, Gorom; 11=Giru Gajah, Gorom; 12=Kataloka, Gorom; 13=Ondor, Gorom.

Tomu and Hatusua

This section is devoted to the analyses of the Tomu and Hatusua Sites' surface collections as well as the Hatusua Site's excavated assemblage. The results were rather unexpected and there is some difficulty trying to make sense of the distributions (Graphs 8a-8d). It is clear that the distributions are patterned, but attempting to explain the pattern is where the difficulty lies. Several random tests were run to check distribution patterns with the same number of samples, and it is clear that the distribution is far from random, or that the possibility of achieving such a pattern randomly is so infinitesimally small that it is next to impossible. Also, due to the much larger sample size it was predicted that more variation would be represented which would subsequently increase the size of the scatters. Indeed, this does occur.

Graph 8a highlights that there are possibly at least two major divisions with significant variability on either side (represented by zones A and B). The Hatusua excavated assemblage and the Tomu surface assemblage are composed of at least two major overlapping sources. It is more likely that

pots moved rather than clay, so this does indicate some kind of relation, perhaps exchange of pots or exchange of goods contained in pots.

The most striking interpretation is that the Tomu assemblage and Hatusua excavated assemblage show two overlapping sources. As the Hatusua Site's dates are early (7th-10th century) this may indicate an early trade relation which later decreased or disappeared (assuming that Hatusua's surface assemblage is 13th-15th century). Thus, Tomu may date as early as the excavated Hatusua assemblage. The differentiation, though stylistic similarity later (if the Hatusua surface assemblage is later) could indicate a consolidation or movement of production centers at a later time, although the data is still contradictory at present, albeit there is a unique pattern deserving further analysis.

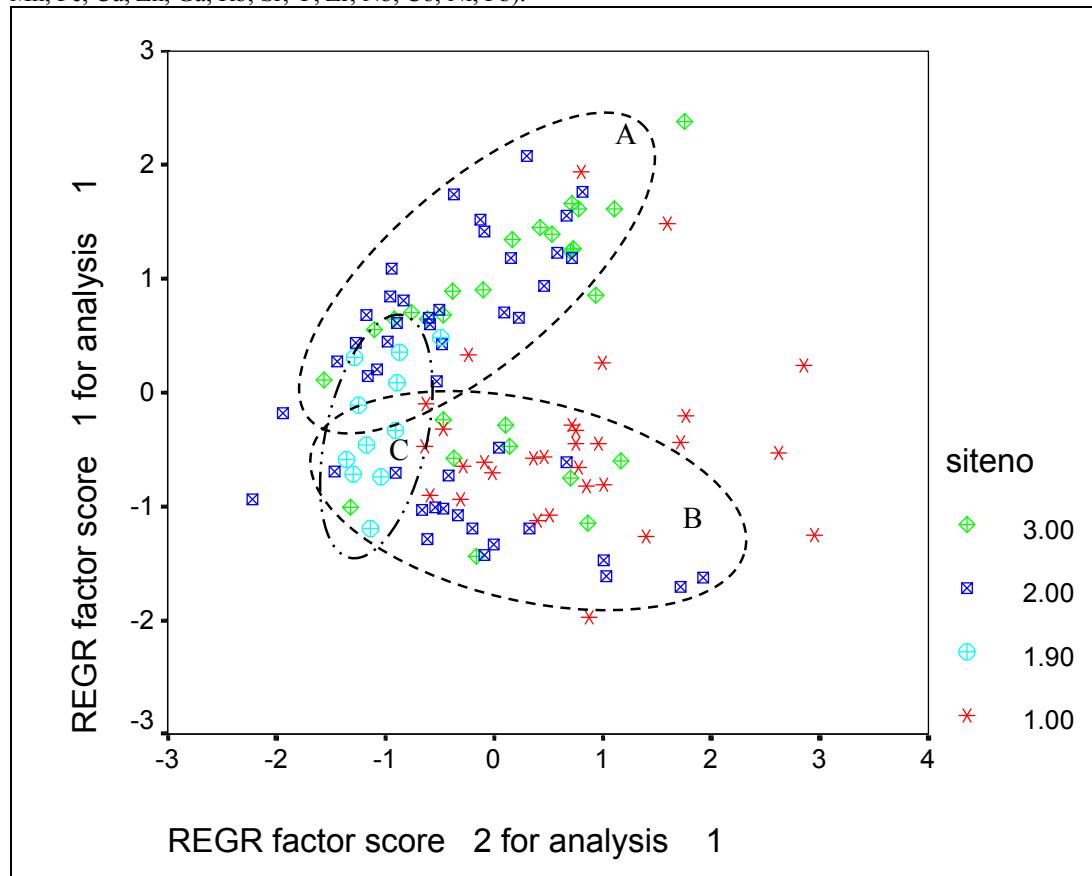
Returning to the exchange relation argument, it would be tempting to suggest that the exchange relation could be sago from the sago rich Hatusua area in exchange for resources acquired or produced around Tomu. However, most of the vessels do not seem to be sago storage vessels and sago is generally stored dry or cooked (*sagu lempeng*) in boxes, bamboo or baskets and stored wet in banana leaf *tumang* containers.

The light blue circles with crosses (1.9 in zone C) are a specific type of pottery based on a medium amount of small white particles (either shell, limestone, calcareous sand or a high amount of other calcareous components—plenty available in the area) and small black reflective particles. Almost all sherds have these non-plastic components and they gradually vary rather than fall into distinctive classes.

As is obvious, zone C may be a single source which overlaps in both zones A and B. Two possibilities arise. The first is that the broader variability in zones A and B may reflect different amounts of non-plastic inclusions (although pulling out the calcium variable in the factor analysis suggested otherwise at least for the white particles—Graph 8d).

Graph 8d represents an interesting experiment. The calcium values were zeroed in class 1.91 which means there was not a uniform reduction in value as some values were in the hundreds while others exceeded 10,000. This had little affect on the distribution, almost none. On the other hand, class 1.92 doubled the values for Ca for each sample, and again, there was little impact to the original distribution. It is clearly some other element or combination of elements that affect this clustering.

Graph 8a: Principal Component Distribution of the Tomu and Hatusua Assemblages (Elements Ca, Ti, Mn, Fe, Cu, Zn, Ga, Rb, Sr, Y, Zr, Nb, Co, Ni, Pb).

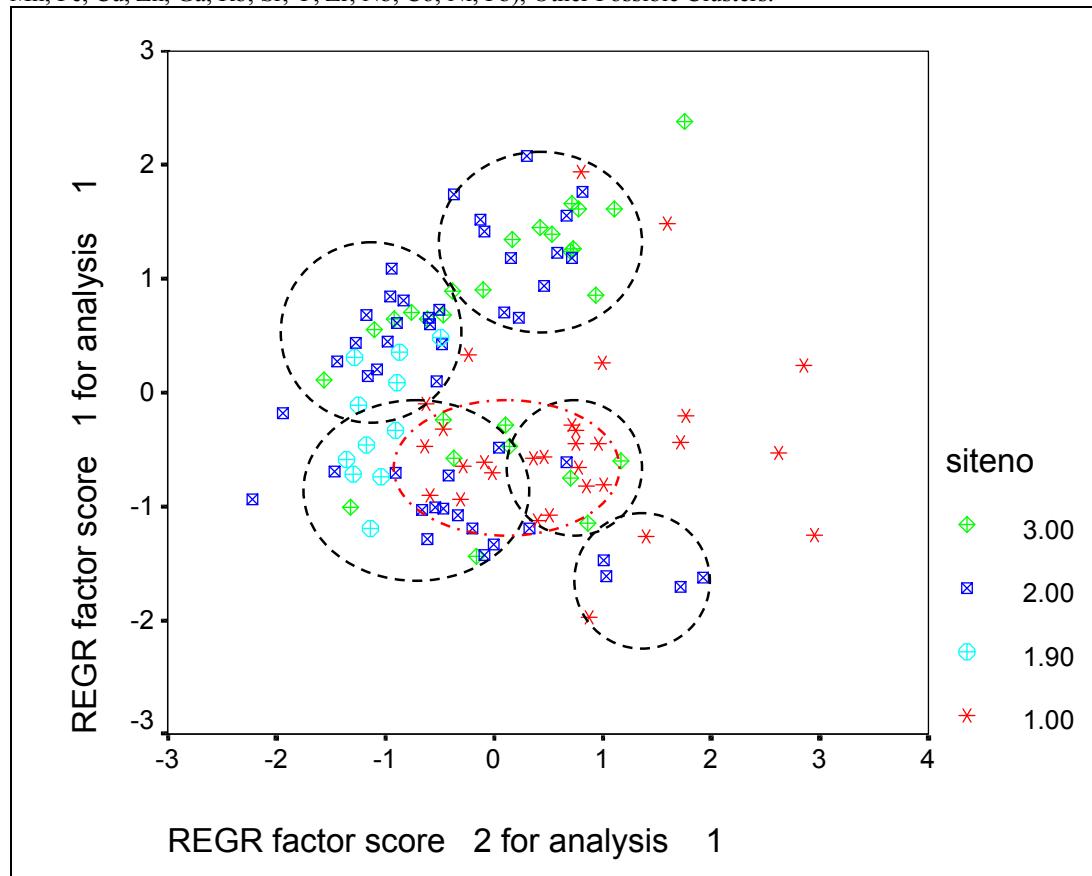


1=Hatusua Surface Samples, 1.9=Specific Type of Sherds (thin bodied with moderate amounts of small white and reflective black inclusions) from the Hatusua Excavation, 2=Hatusua Excavation Samples, 3=Tomu Surface Samples.

The other interpretation of the large areas in zones A and B is that there are several sources of clay represented in both zones A and B. If this is true, then Tomu and the Hatusua excavated assemblages are receiving contributions from many places including each other.

The strange fact is that the excavated assemblage from the Hatusua Site and the Tomu surface assemblage are stylistically different but compositionally similar—at least the overlap distributions are similar (mentioned above). Rim morphology and design combinations seem to be quite different and red slipping is almost absent in the Hatusua excavated assemblage. The Hatusua excavated assemblage also shows more

Graph 8b: Principal Component Distribution of the Tomu and Hatusua Assemblages (Elements Ca, Ti, Mn, Fe, Cu, Zn, Ga, Rb, Sr, Y, Zr, Nb, Co, Ni, Pb), Other Possible Clusters.

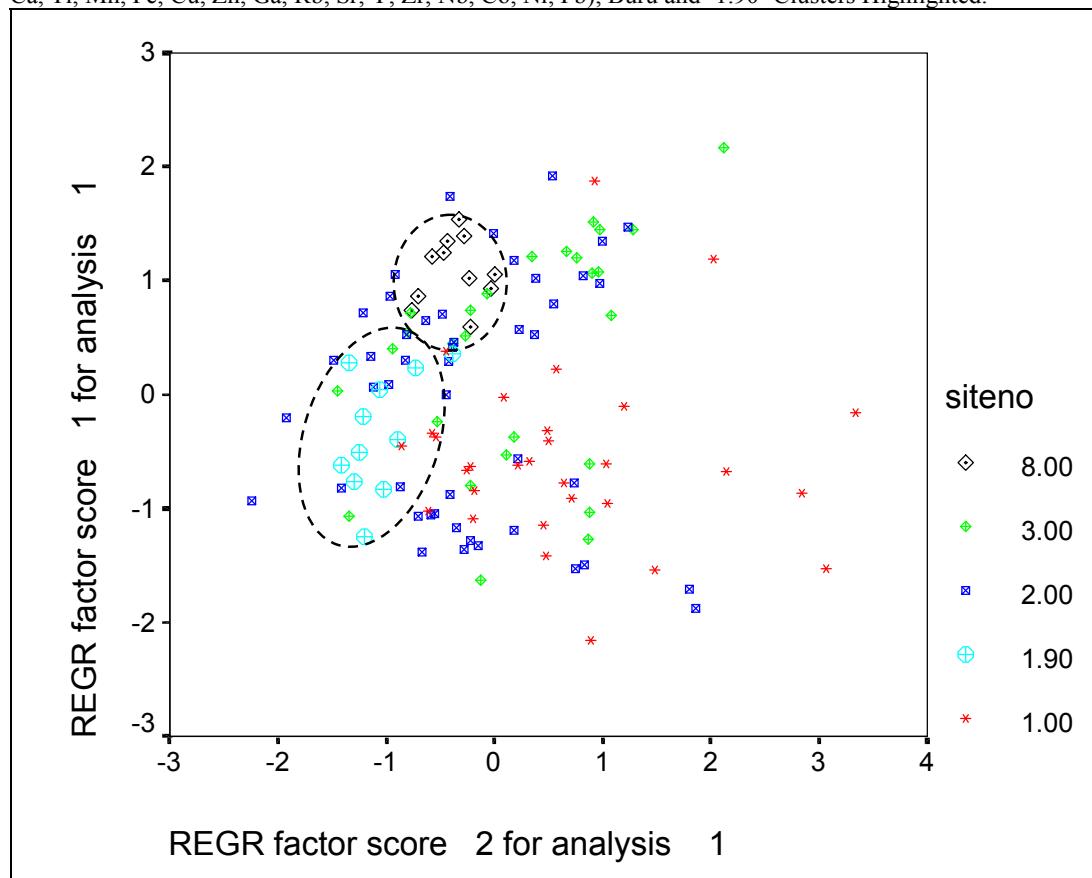


1=Hatusua Surface Samples, 1.9=Specific Type of Sherds (thin bodied with moderate amounts of small white and reflective black inclusions) from the Hatusua Excavation, 2=Hatusua Excavation Samples, 3=Tomu Surface Samples.

design variability although the placement area on particular forms (neck, shoulder, rim, base) and basic design elements overlap. Forms are also different with very few or no oil lamp sherds represented in either surface collections. There may be significant functional variability between the Hatusua excavated and Tomu assemblages. However, the assemblages are clearly related when compared to non-Central Malukan assemblages (i.e., they belong to closely related traditions).

This could represent temporal variability if the excavated assemblage is older or younger than the other assemblage (remember, the Hatusua excavated assemblage was possibly redeposited and could be much younger than either surface assemblage even though cursory interpretation would suggest that it is much older just because it is buried, coupled with the radiocarbon data that suggests the buried deposits are older). Pots are still moving back and forth, although designs and forms may change over time. This may show long-term interaction if so.

Graph 8c: Principal Component Distribution of the Tomu, Hatusua and Buru Assemblages (Elements Ca, Ti, Mn, Fe, Cu, Zn, Ga, Rb, Sr, Y, Zr, Nb, Co, Ni, Pb), Buru and '1.90' Clusters Highlighted.

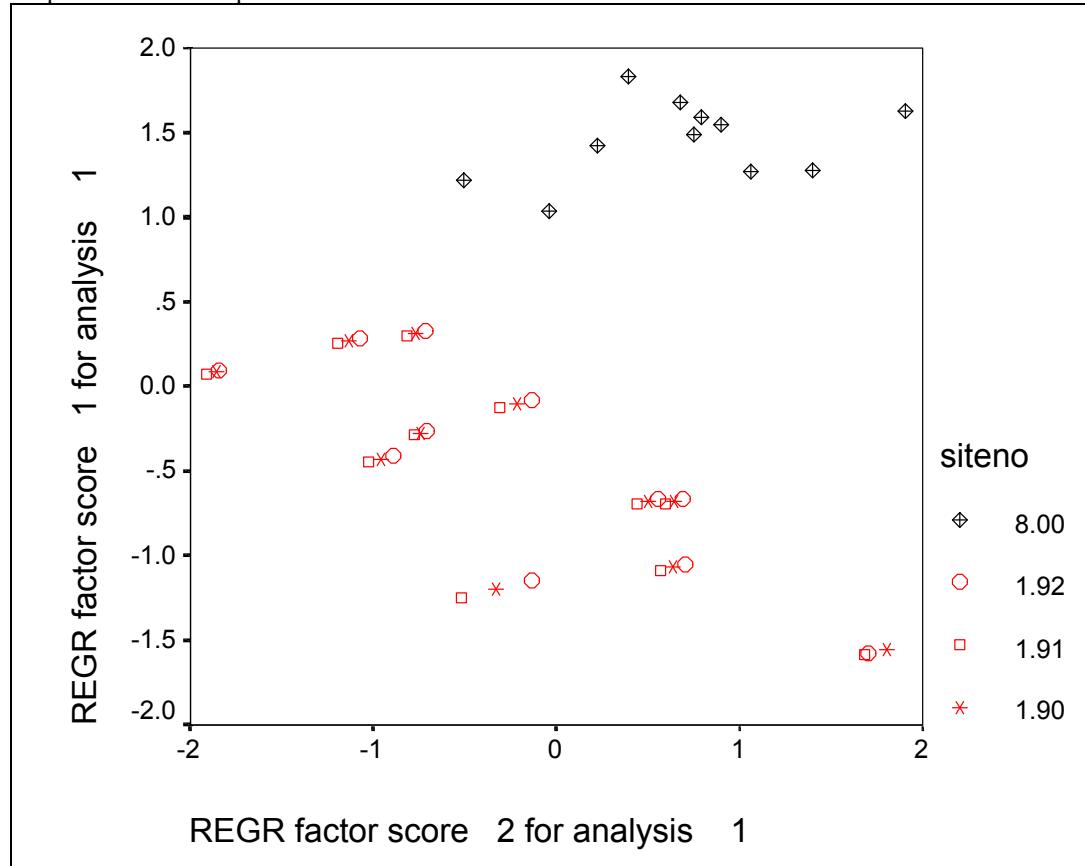


1=Hatusua Surface Samples, 1.9=Specific Type of Sherds (thin bodied with moderate amounts of small white and reflective black inclusions) from the Hatusua Excavation, 2=Hatusua Excavation Samples, 3=Tomu Surface Samples, 8=Buru Site.

Another possibility is that the Hatusua excavated assemblage may be a poor representation of the site and further excavated sampling may display more affinities between both assemblages. The presence of human bones and proximity to a cave with scattered human remains may suggest a specific function to the locale and subsequently this may explain the unique designs, higher variance in designs and presence of oil lamps and other very unique pieces.

The Hatusua surface samples are poorly represented in zone A at the top, but seem to have a core cluster in zone B. The Hatusua samples also seem to have much variability outside the zones which could be interpreted as an input of pottery from numerous undiscovered sources (i.e., many outside groups bringing pottery or clay (not likely) into the site. This could also suggest that there may be significant variability in clay and/or non-plastic inclusions in the assemblage, a plausible possibility worth further testing.

Graph 8d: Calcium Experiment on Distributions.



1.9=normal values for Ca, 1.91=Ca set at zero for all samples, 1.92, Ca doubled for all samples, 8=Buru samples (for comparative purposes).

It appears that the Hatusua surface sherds are well distributed among zones A and B (if the cluster of red asterisks in Graph 8b reliably represents a Hatusua source), which at least suggests that they are found in both the excavated assemblage from Hatusua (not surprising at all especially if intermixing and redeposition occurs) and the Tomu assemblage. However, it appears that the inhabitants were not receiving much from sites represented by the other zones, but receiving a substantial amount from unsampled and/or undiscovered sites as evidenced by the numerous red asterisks in Graphs 8a-8c peppered at the right hand quadrants of the scatterplots.

It is possible, though, that compensating for spatial sampling error might indicate otherwise. Hypothetically, certain families may have certain trading relations with other families from various places. Family H1 from Hatusua might have a partnership with family T1 from Tomu, while Family A2 from Hatusua may have a similar arrangement with family R1 from Rahban, and so forth and so on. Thus, sampling specific areas of various sites may be extremely misleading. Future testing will need to compensate for this possibility.

Zone C seems isolated from the core zone of the Hatusua surface assemblage, which suggests that zones A and B likely do contain multiple sources (see Graph 8b for some possibilities). Thus, it seems that several sites were in some form of complex interaction which is still difficult to disentangle at this juncture. Other site assemblages and clay source (as well as temper sources) will need to be analyzed.

Bizarrely, the Tomu and Hatusua surface collections are almost morphologically, decoratively and stylistically identical. According to Graphs 8a-8c, one of the few ways to interpret this is that the Tomu surface collection (at least what seems to be identical among the assemblages) may have derived from the source which provided the Hatusua surface assemblage. The clusters also represent similar sources and not sites. The sources could be from sites elsewhere.

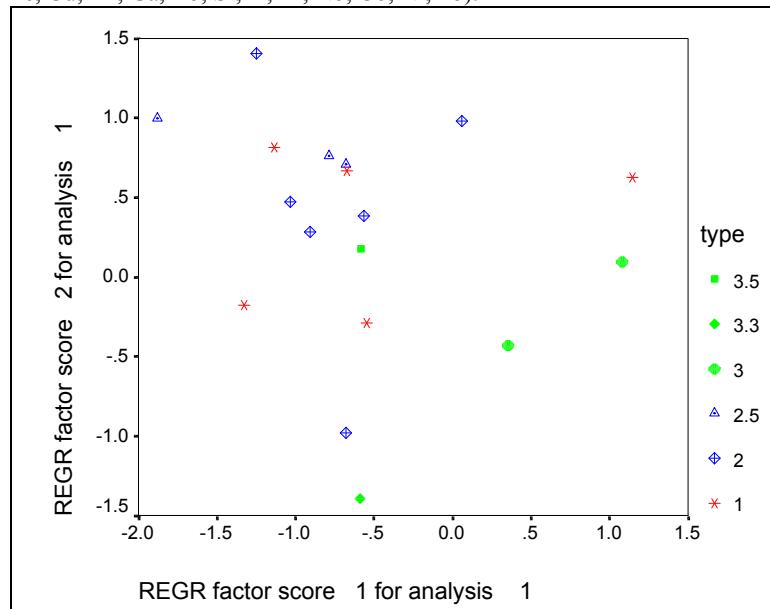
It is difficult to exactly interpret the distributions at present other than to state the obvious: that there is a lot of exchange between many sites represented by the distributions in Graphs 8a-8c and that there are also some other possible one-way or directional distribution patterns that need further investigation (e.g., pottery from one site moving to select others and vice versa). It may represent a shift in trade, exchange, alliance and production over time.

As stated, it is entirely possible that some or all of the assemblages actually came from a clay source not in the proximity of the site from which they were recovered. However, this is unlikely. In order to test this hypothesis, the clay from possible clay sources needs to be analyzed.

Fortunately, it is possible to test the distributions on what appear to be morphological and stylistically identical samples from different sites. Indeed, this led to some interesting results. Graphs 9a and 9b highlight the distributions of many of the unique bases with the incised ‘sunburst’-like designs composed of concentric fields of crescents and punctuations, as well as a few other similar forms with similar design locations but different design elements. The designs unquestionably come from the same tradition, and one might easily expect that all were manufactured in the same place or at least by potters trained in the same area.

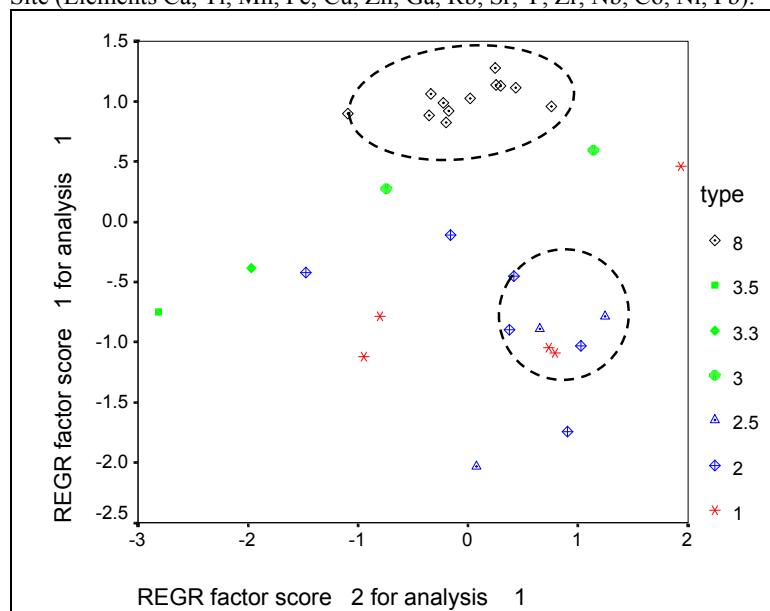
Interestingly, the distribution comes out fairly scattered, or much more evenly distributed, among sites rather than tightly clustered. The exception is the Hatusua excavated assemblage which appears a little isolated from both surface assemblages and perhaps quite diverse in

Graph 9a: Distribution of Incised Bases from the Hatusua and Tomu Surface Assemblages and the Hatusua Excavated Assemblage (Elements Ca, Ti, Mn, Fe, Cu, Zn, Ga, Rb, Sr, Y, Zr, Nb, Co, Ni, Pb).



1=Tomu Site, 2=Hatusua Site Surface, 2.5=Hatusua Site Surface (thick red slipped variety),
3=Hatusua Excavation (incised zig-zag or similar design), 3.3=Hatusua Excavation (incised diamond with enclosed fields of curvy zig-zag design), 3.5=Hatusua Excavation (unique geometric design with fields of incised dashes—could be a lid rather than a base).

Graph 9b: Distribution of Incised Bases from the Hatusua and Tomu Surface Assemblages, the Hatusua Excavated Assemblage and Samples from the Buru Site (Elements Ca, Ti, Mn, Fe, Cu, Zn, Ga, Rb, Sr, Y, Zr, Nb, Co, Ni, Pb).



1=Tomu Site, 2=Hatusua Site Surface, 2.5=Hatusua Site Surface (thick red slipped variety),
3=Hatusua Excavation (incised zig-zag or similar design), 3.3=Hatusua Excavation (incised diamond with enclosed fields of curvy zig-zag design), 3.5=Hatusua Excavation (unique geometric design with fields of incised dashes—could be a lid rather than a base), 8=Buru Site.

regards to source as well. Minimally this indicates that different places were manufacturing similar forms and designs and that these were also circulating among various sites. There are clusters for sure (Graph 9b) but who made what and then distributed to where cannot be determined until the sources themselves are tested in this particular case. Nevertheless, similar things produced in different areas are moving around. Additionally, as women are usually potters, this pattern could reflect the movement/marital exchange of women to new locales perhaps even further indicating marital alliances among the various communities.

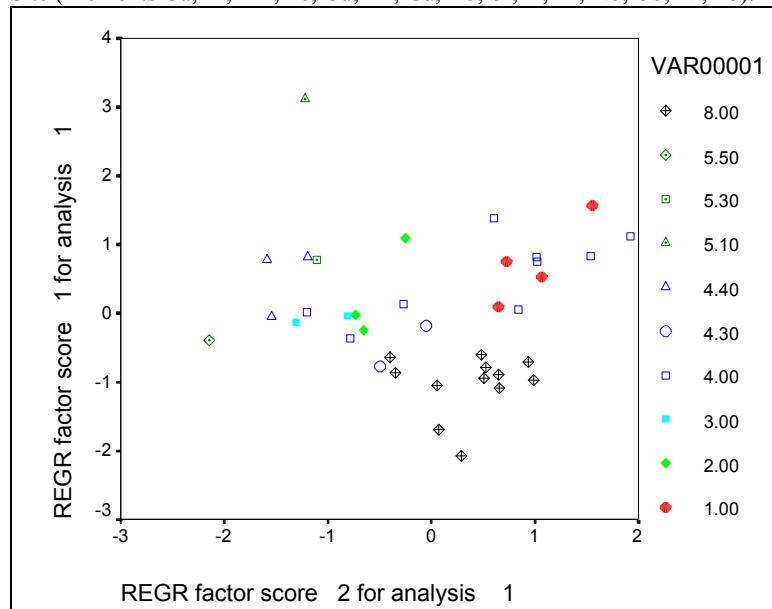
Graphs 10a and 10b represent a similar experiment with ridge rims. Likewise, there are some distinct clusters but it is also apparent that there are different places making similar forms that are redistributed among many sites. Interestingly, the double and triple ridge rim samples may have come from the same source (Graph 10b). Also, the Amaheru and Rahban samples (the sites are geographic next door neighbors) seem to cluster separately. Were these areas producing independently and supplying to Tomu?

In summation, it is clearly evident that there are many different clay sources, which subsequently indicates that there are many different pottery producing communities (perhaps certain families within a particular community) during both protohistoric and historic periods. It is also clear that these items were circulating in perhaps systematic patterns among many sites. It is also possible to discern that there are undiscovered sites represented in the distributions, which are part of the interaction sphere.

Whether or not one can definitively determine inter-community ‘chiefly alliances’ or only some obscure form of trade interaction is difficult. Some may like to assume that the highly decorated and presumably more ‘ritual and prestige’ items reflect a certain degree of alliance, etc. However, gauging from the early historic period in Ternate, Tidore, Banda and Hitu, trade and exchange continued despite bitter rivalries, warfare and even intense sieges. Spices (and presumably other commodities) continued to be ‘shipped out’ and goods continued to be ‘shipped in’ and redistributed.

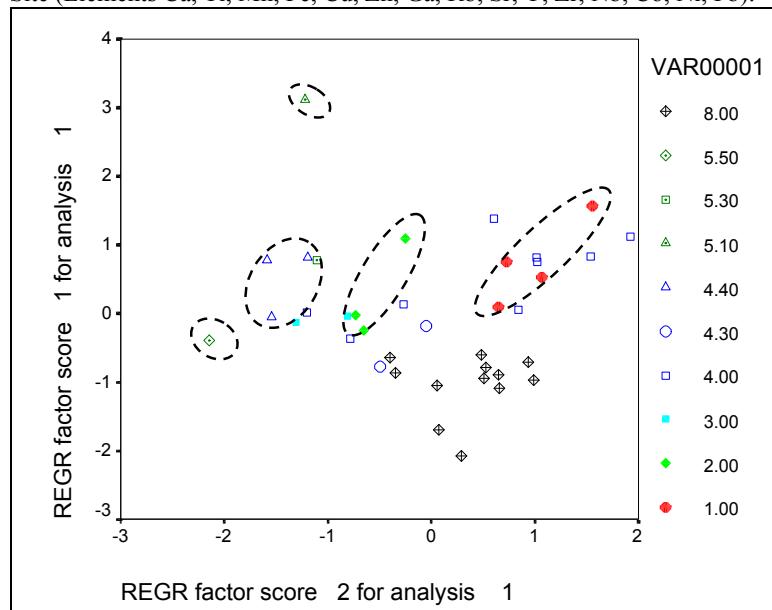
In the future with additional sampling and testing and better temporal context placement, it may be possible to determine the nature of the interaction spheres. Were they unidirectional for certain objects (as in the Kula Ring)? Did they circulate to certain sites and not others? Were products being moved around almost randomly or haphazardly, or were they moved more systematically? Did certain

Graph 10a: Distribution of Ridge Rims from the Hatusua and Tomu Surface Assemblages, the Hatusua Excavated Assemblage and Samples from the Buru Site (Elements Ca, Ti, Mn, Fe, Cu, Zn, Ga, Rb, Sr, Y, Zr, Nb, Co, Ni, Pb).



1=Amaheru Samples, 2=Rahban Samples, 3=Ondor Samples, 4=Tomu Samples, 4.3=Tomu Samples with Distinct White Particles in High Density (probably shell, limestone, foraminifera or some form of calcium carbonate), 4.4=Double Ridge Rims, 5.1=Hatusua Samples, 5.3=Triple Ridge Rim, 5.5=Heavily Slipped Prominent Ridge Rim, 8=Buru Samples.

Graph 10b: Distribution of Ridge Rims from the Hatusua and Tomu Surface Assemblages, the Hatusua Excavated Assemblage and Samples from the Buru Site (Elements Ca, Ti, Mn, Fe, Cu, Zn, Ga, Rb, Sr, Y, Zr, Nb, Co, Ni, Pb).



1=Amaheru Samples, 2=Rahban Samples, 3=Ondor Samples, 4=Tomu Samples, 4.3=Tomu Samples with Distinct White Particles in High Density (probably shell, limestone, foraminifera or some form of calcium carbonate), 4.4=Double Ridge Rims, 5.1=Hatusua Samples, 5.3=Triple Ridge Rim, 5.5=Heavily Slipped Prominent Ridge Rim, 8=Buru Samples.

items or types move one direction, i.e., were certain kinds of pottery exchanged while others were not (for example, many communities still make their own sago molds but purchase *sempe* and other cookware and containers from central markets)? Were there a number of production communities feeding a larger market, etc.? Many more intriguing questions can be asked and tested through continued sampling and analyses.

Interestingly, Ellen's interaction/trading spheres in Maluku model (Ellen 1990) could be corroborated with such evidence and extended back to the protohistoric period. As it stands now, Ellen's models seem to fit quite well with the rather limited but increasing archaeological data thus far, including Buru's exclusion from various "nesting Moluccan trading networks" (Ellen 1990:211). However, it is clear that the Piru Bay region (Ambon and western Seram) was significantly important and had access to exotic goods as early as Srivijayan times and continuing to the 15th and early 16th centuries, something somewhat contradictory to Ellen's (2003) conclusions.

As a final note, it must be emphasized that there are many plausible alternative interpretations regarding the results of the compositional testing. A parsimonious approach towards interpretation is chosen here in the sense that one should exclude the least likely or least plausible explanations first and narrow interpretations to logical and reasonable possibilities.

As a final note, the compositional analyses were pleasantly more successful than the original expectations. Additionally, experiments that intentionally manipulated the data (Graph 8d-the same results were obtained for all single elements and several tested pairs and triads) as well as double testing many artifacts indicates that the results from the EDXRF testing are quite accurate and precise and indeed provide useful data for the archaeologist. Lastly, the petrographic analyses conducted by Dickinson (2004, 2002) conforms strongly to the EDXRF results, thus reaffirming the validity and usefulness of the approach.

Chapter 7: Conclusion

Most details, points and counterpoints have been highlighted throughout the text. Detailed discussions of many issues have been placed in the body of the text where appropriate. The following paragraphs summarize the general conclusions, problems, and unanswered questions. As with many research projects of this nature, there are more questions than answers at the end of the day. This is fuel for future research and hypothesis testing.

Many of the results were rather unexpected, beginning from initial fieldwork throughout the various laboratory analyses. Most surprising were the radiocarbon dates which suggest that the Hatusua Site and, by extension, the Tomu Site may date back as far as the early 8th or even 7th centuries but were certainly settled by the 9th-10th centuries. This is comparable in age with the emergence and dominance of Srivijaya as the maritime trade entrepôts. This, and the demand for spices and other Malukan resources may have played a factor in stimulating these types of settlements within the larger and undoubtedly diverse settlement nebula in Maluku.

There are also Dongson objects distributed throughout Maluku that predate the Srivijayan period to a time of 2000 or more years ago. None have been recovered in a dated archaeological context, however. Nevertheless, this is an indication that the East Indonesian scenario over the last 3000 years is probably far more complex than most imagine.

It is clearly evident through historic records that there were demands on Malukan (at least East Indonesian) products from 2000-2500 years ago (notably, but not exclusively, the spices: clove, mace and nutmeg). The existence of Dongson drums and other artifacts support claims for exchange contacts from around that time. As evidenced through the existence of various artifacts in numerous sites throughout Southeast Asia, such as Indian ‘rouletted wares’ in Bali, Talasea obsidian in Borneo, and Dongson Drums throughout Indonesia, it is reasonable to conclude that there was a sizeable and probably very complex exchange network/sphere spreading from the Mid-East to Near Oceania (including South and East Asia) from as early as 2000-3000 years ago, probably earlier. Undeniably, the exchange network had numerous nodes separated by relatively short distances, the intricacies of which may never be known. Nevertheless, as archaeological and linguistic evidence indicates in places like Near Oceania and the Pacific, it is quite possible that long distance contacts may have been maintained for various lengths of time as well.

Most of the exchange commodities were likely perishable and have not easily survived the destructive nature of time. Although spices dominate the ‘conceptualization’ of Malukan history, it must be emphasized that the spices were likely only a few of the many important commodities produced and transshipped throughout the region.

As for cloves, nutmeg and mace, the only undisputable evidence of these items in an archaeological context to my knowledge comes from a Missouri River pre-Civil War riverboat wreck in North America (identified by the author at the Arabia Archaeology Museum in Kansas City, Kansas) and possibly the Butuan Boat Sites in Mindanao, Southern Philippines (identified by the author in Butuan, Philippines). All other evidence thus far is disputable or not readily available despite the possibility that cloves may have been recovered from a 3700 year old commoner’s pantry in Terqa (Syria)(Buccellati and Buccellati 1983). The Terqa data is questionable, however, and has not been corroborated with other evidence. Interestingly, for such an important commodity it is surprising that there is very little archaeobotanical evidence.

It is unknown how indirect trade links were. It seems reasonable to infer that Malukans were not the transshippers. That is, it is doubtful that Malukans took their products to the entrepôts elsewhere in Southeast Asia, with perhaps the exception of the 14th-16th century Bandanese who did manage to send cargo ships to the western ports (Pires in Cortesao 1944).

Specific Malukan place names do not appear until the 14th century *Desawarnana* (*Negarakrtagama*), although spices from Maluku had long been referenced by then. There are some suspects for Malukan place names in Chinese and other pre-Portuguese texts, but nothing unambiguous (i.e., names that could refer to a number of different places or names that may not refer to any known place). Foreign texts, particularly Chinese, will benefit from further scrutiny by qualified specialists and historic geographers to determine if other ancient place names in Maluku are identifiable. The possibility of the Chinese visiting Northern Maluku during pre-Portuguese times is significantly high. Galvao’s (Jacobs 1970) recount of the local story that the Chinese traded with Ternate and then a long time passed before they came again, suggests that the Chinese may have traded direct in the 13th-15th centuries or possibly earlier although there are no known pre-late Song ceramics in archaeological contexts known to date in Maluku that may indicate an earlier contact period (see Lape 2000 for possible contradictory data from Banda). Interestingly, this was a time when the maritime entrepôts in the Straits region were shifting every century. The Chinese seemed to have returned only around the

time of Portuguese arrival or later. However, the possibility of the Chinese directly visiting Central Maluku seems more remote (again, see Lape 2000 for possible contradictions). However Chinese absence in Maluku is not unexpected because it would have been much more cost effective to send boats to the western entrepôts rather than go direct to each source. At the entrepôts they could acquire goods from many places rather than specific goods from one. The possible presence of Chinese in Maluku during protohistoric times needs further exploration and the connection with the Philippines deserves further attention as well. Also, it seems reasonable that Malukan spices and other products were delivered by non-Malukan groups as tributary trade goods to China.

The existence of Dongson artifacts and the mention of Malukan spices in foreign sources indicates that Maluku was probably more socio-politically sophisticated and certainly more involved in trade than what some models imply, however. It can be reasonably assumed that such magnificent drums were either captured by or imbued upon fairly powerful persons, thus indicating that wealthy and powerful individuals did exist and that there was some form of social stratification. Without further archaeological evidence, however, such reconstructions of the socio-political nature of 2000 year old Central Malukan society remain speculations. Additionally, what was the nature of power in Central Maluku? It may have been based more on mutual interests rather than unquestioned authority as discussed in preceding chapters, or, a hybrid form of political organization based on Southeast Asian and Oceanic concepts.

However, one thing seems very evident: at least some Malukan societies were well beyond the band and tribe level of socio-political organization and probably similar to the many cases of complex chiefdoms or kingdoms elsewhere. It is also possible, like so many civilizations throughout the ancient world, that Malukan socio-political complexity may have waxed and waned throughout time (possibly several times). Nevertheless, there does not exist the monumental architecture and other features characteristic of complex civilizations elsewhere in the ancient world, although this could well be a factor of Malukan religion/beliefs at that time, material culture and settlement rather than a lack of cohesion to a large socio-political structure of comparable size. After all, powerful sultanates were formed in Northern Maluku during or before early colonial times, yet, as again described by Galvao (Jacobs 1970) they lived in villages rarely exceeding 2000 people yet had powerful control and access to large naval fleets, etc.

Peter Lape's work in Banda may shed some evidence on Bandanese settlement, trade, etc. from around 3000 years ago until the historic period. However, most of his research highlights the early historic period and Islamization. Additionally, Banda may not be a good representative of Central Maluku. Rather, Banda may be a good representative of Banda. Banda is unique in the sense that they had a different political structure and also engaged directly in trade to the western entrepôts rather than engage in more of a tributary trade like the Northern Malukan sultanates (see Lape 2000 for further details).

Likewise, it is difficult to determine whether or not the previous chapters detailing Leihitu and the Piru Bay area represent Central Maluku and the variability in settlement, etc. or merely the sites that were described (Hatusua and Tomu notably) and nothing else. Nonetheless, the attempt has been one to elucidate the broader settlement picture with the inclusion of some historic and ethnographic data as well as a broad area survey and sampling strategy.

Lape's work was particularly focused on Islamization and faunal remains that may have indicated pig eating versus non-pig eating settlements (i.e., Muslim vs non-Muslim settlements and the change in this dietary indicator over time). Although, some settlements that do not eat pig are not necessarily non-Muslims as there may be a totemic or other ancestral taboo against pig consumption. Lape also noted early trade contact and settlement change which is largely corroborated by the data presented in this thesis.

The archaeological evidence in this thesis covers the protohistoric to early historic periods. Based on the foreign ceramics present in several assemblages a terminal period of intense occupation can be placed around the 15th to early 16th centuries. Some of the foreign ceramics may have been produced as early as the 12th and 13th centuries. The radiocarbon dates indicate settlement development at these sites as early as the late 7th-10th centuries. Whether or not the settlement was continuous occupied or periodically reoccupied is unknown, although stratigraphic evidence suggests continual deposition of artifacts through time.

Why was there an abandonment period in the 15th-early 16th centuries is unknown. It could relate to the Chinese 'disappearance' from Maluku or perhaps other Central Malukan settlements outcompeted the Hatusua and Tomu settlements causing them to disband, disperse and return to a forest subsistence economy as well. Internal disruptions may also be part of the equation. They may have simply become internally unstable at that time.

The Tomu and Hatusua sites indicate that large, walled settlements located on karstic hilltops or hillslopes with commanding views of Piru Bay evolved during the protohistoric period and seem to have been abandoned by the early historic period. It is suspected that there are many more settlements like the Tomu and Hatusua Sites that remain to be surveyed. It is thus quite possible that the Tomu and Hatusua Sites are not necessarily special cases.

It is doubtful that the Hatusua and Tomu Sites represent the full repertoire of Central Malukan settlement types at that time. As mentioned in chapter two, several kinds of settlements existed in Maluku and many of these settlement ‘types’ continue to exist. Tomu and Hatusua are one of many types, although they are perhaps the most archaeologically visible.

The walls indicate some need (real or imagined) for contained settlements. The walls and site locations also suggest a need for fortification. By extension, fortification indicates conflict. Whether or not the threats were from neighboring groups or outsiders is unknown.

However, assuming that the walls necessarily indicate fortification may be unwarranted. The walls were unlikely built for soil capture or other purposes (agricultural features), but may have symbolically defined a group or zone and may have also only symbolically played a role as a barrier to the outside, untamed and dangerous world of nature and spirits. The walls may have also been built as a sign of chiefly power.

Other features of the sites include platforms, graves, *batu meja*, *kramat* and mysterious stacked stone features. The original nature of most of these features remain unknown. Also, the *kramat* and graves may have been rebuilt or reused from other features. It is unlikely that the platforms were common features such as house foundations. If they were household foundations, they would likely occur in a much higher quantity and density throughout the site. Rather, the platforms probably had some kind of ritual significance.

The large earthenware assemblages indicate substantial habitation. That is, it appears that a sizeable population lived in these sites for rather long durations. It is possible that the sites were seasonally occupied like the Dobbo example described by Wallace. However, there is no evidence to conclude if they were periodically/seasonally occupied each year. Generally, the assumption is that such large assemblages indicate continuous and permanent occupation. Again, Maluku may prove to be a uniquely different case.

The lack of earthenware scatters outside of the walls indicates that people did not likely settle outside of the settlement walls. The abrupt cessation of scatters may indicate settlement boundaries in places where the walls no longer exist, such as evidenced by the Hatusua Site.

The very local nature of the assemblages (design, morphology, richness, etc.) indicates that the sites were inhabited by Malukans and not Javanese or other groups outside of the region. The richness, unique designs and unique forms clearly sets Maluku, Central Maluku and in particular, the Piru Bay-Leihiu area, apart from most other contemporary Southeast Asian and Oceanic traditions, although red-slipping, incised designs, the repertoire of design elements and other aspects fit within a broader Austronesian tradition. Some examples fit within the range of variation noted among Kalumpang, Lapita and some Philippine traditions, although the overlap of the total assemblage from Central Maluku with those from other regions is slight. It is possible that some of the earthenwares may have arrived from areas outside of Central Maluku.

It is also possible that outside groups such as the Javanese may have made up a component of the settlements. If they lived in specific quarters of the settlement, the material culture difference may reflect such arrangements. A broad area sample survey of the entire settlement in the future may reflect different ethnic group quarters.

The earthenware assemblages are composed of utilitarian as well as seemingly ritual or prestige-like items. Earthenwares are also found in caves with human remains. Whether or not there was a protohistoric jar burial practice, however, is unknown with the available evidence. However, it is suspected that cave burials were common to most of the protohistoric walled settlements. The bones may be secondary burials with the jars smashed intentionally in antiquity, not an uncommon practice in Island Southeast Asia (Bellwood 1997).

The similarities in the earthenware assemblages demonstrate a strong relationship between the Tomu and Hatusua protohistoric settlements. Sourcing studies suggest that similar forms and designs were produced from many sources and were circulating throughout the settlements. Sourcing studies indicate that there are many more sources which further suggests that there are many more protohistoric sites that have yet to be documented.

The reasons behind the emergence of many potting centers is inconclusive. However, many centers appear to have existed even throughout the early historic period and it is possible that the reduction in potting centers occurred more recently (i.e., the latter historic period). Nevertheless, some

households and villages maintain specialized potting traditions (e.g., sago molds, bricks) for local use outside of the main potting centers in Kai, Saparua and Mare.

That earthenwares were circulating among many sites indicates that the settlements were involved in some form of exchange relations (probably trade and marital exchanges) and that they were possibly allied. Future studies may even allow the determination of allied versus non-allied studies. There is some slight indication thus far, but further testing is needed for conclusive evidence. Whether or not the occurrence in various sites of the highly decorated, ritual/prestige-like vessels indicates some kind of formal ‘chiefly’ alliance remains unknown, but a distinct possibility. It is plausible that the designs were iconographic.

The existence of a low percentage of 12th to 15th century Chinese, Thai and Vietnamese ceramics strongly supports that there was a significant demand for exotic goods (also metals, glass, cloth, etc.). The small percentage in sharp contrast to the large percentage in contemporary trade emporia to the west such as 14th century Singapore suggests that these sites were not a major trade node in the larger multi-regional trade sphere. Rather, they are likely more better defined as an outpost or trade node for intermediate multiple transshipment to Sulawesi, Java, Sumatra and so on vis-à-vis the India to China trade sphere. However, they were likely considered major trade nodes in local exchange spheres.

Some of the foreign ceramic samples may have derived from utilitarian wares, but others are clearly items of value and wealth. There is no doubt that these items became vitally important for marital exchanges. It is quite conceivable that these items were obtained by Malukans from non-Malukans in various Malukan trade centers in exchange for Malukan commodities. It remains doubtful that the Malukans were obtaining these items directly from non-local trade entrepots with perhaps the exception of the Bandanese. Subsequently, the items were redistributed. Were they re-exchanged for local commodities or were they given by powerful and wealthy people in order to maintain alliances? It is possible that both occurred, but there is no archaeological evidence to shed light on the nature of redistribution at present other than it did occur.

The abundance of *kenari* cracking stones supports that *kenari* (and possibly *kemiri* or candlenut) was an important product. *Kenari* is rich in protein, fats and calories and stores well when processed in various ways. *Kenari* is also a common shade tree for *pala* production. Thus, indirectly the occurrence of so a vast number of nut cracking stones may indicate that nutmeg production was not

restricted to only Banda in the protohistoric period. Perhaps Leihitu was a major producer and/or distribution node as well. As for spices in general, I have always suspected a larger area of spice production than what has been assumed; nutmeg restricted to Banda and clove restricted to four or five islands in Northern Maluku (see Andaya 1993 for further details). These latter areas likely became early historic redistribution centers and subsequently production centers and then became known as the sole producers of spices and areas of domestication.

It is far more prudent to assume that spice production occurred throughout Maluku and Irian Jaya, but not at an intensive plantation farming level until the historic period, and then, in only a few locations. As indicated through subsistence studies and some historic records, it is doubtful that Malukan agriculture and/or arboriculture of spices and other important products were ever systematically plantationized until the arrival of the Dutch. Mixed tree-cropping is still the most common form of forest product production, although one can currently find many more plantation-like groves of spices in Ambon than what probably existed in the past. Spice production in much of Seram remains part of the multi-cropping species-dispersed and household production system.

The historic sites and defensive ‘retreat’ sites such as Hila, Hitu, Pelauw, Kapahaha, Ondor, Kataloka, etc. certainly have a much different physical appearance and very different assemblages than the protohistoric sites. Why was there a transition to a different settlement pattern(s)? Is it a factor of conflict with the colonial powers who wanted to control the spice trade and Malukans? Perhaps. However, it cannot be discounted that the historic sites are much older than what their surface assemblages indicate? It is possible that the shift was a result of predominantly colonial and other factors related to colonialism such as missionization. It could also result from regional conflict or interethnic tension with the influx of many non-Malukan groups who immigrated in greater numbers and densities to major trade settlements during the colonial period. It is interesting that the Tomu and Hatusua Sites seem to have been abandoned prior to any heavy colonial presence. This suggests that other factors were involved in settlement changes. It is suspected several variables are responsible; economic, social, internal, external, etc. which will be disentangled with future investigations.

The late protohistoric and early historic periods seem to have been a time of conflict and movement. Was this always the case in Maluku or did something significant occur towards the 15th and 16th centuries that caused such unrest? Was it related to the spice trade and trade disruptions? Oral, historic and archaeological evidence, however, do converge to suggest that the 14th-17th centuries were a

very dynamic time of change and movement due in part but not exclusively to colonial presence. Other factors extra-regionally, within the region and locally need consideration. It would be a mistake to periodize these centuries, particularly the late protohistoric prior to European arrival, as a static unit.

The transition to the historic period witnessed several new changes as well. Firstly, it was the first time outside colonial forces tried to control and monopolize spice production. Simultaneously, despite 1500 years of resistance to Buddhism and Hinduism (or non-interest), Islam and Christianity became rapidly popular. Was it a response to outside colonial control in order to organize, resist and form new alliances, or do other factors need consideration? It could be that greater efforts were made to missionize the area and gain converts for religious, cultural and economic alliance formation reasons.

The nature of warfare and conflict changed dramatically. It is probable that events like the various massacres, sieges, ambushes, forced relocation, etc. were completely new to the Malukans. Their ‘rules of conflict engagement’ and the reasons behind them undoubtedly were severely affected by the colonial forces, although there was a previous concept of organized warfare and a substantial military force (see Galvao in Jacobs 1970). Another factor that needs consideration is what were the differences in pre-colonial local goals and the colonial period foreign and local goals and how did this affect the nature of warfare. Perhaps the pre-colonial scenario was one of demonstrating power, exacting retribution or recruiting people, while the latter was one of controlling resources and highly valued commodities.

Additionally, it is quite evident that the nature of some settlements changed. The emergence of colonial forts and towns and forced relocations undoubtedly altered the Malukan way of life and their settlement patterns. Also, the nature of trade and exchange vis-à-vis the spice trade dramatically changed.

It is almost unnecessary to mention that material culture and access to different kinds of foreign and exotic goods changed as well. For instance, European pottery (interestingly, a lot of Scottish transfer wares) is abundant in the historic sites, although the existence of Late Ming and later period Chinese pottery indicates that Chinese ceramics were still in demand.

Social practices, values, roles etc. were impacted. For instance, new titles, offices and duties were adopted as well as injected into Malukan society. Some agricultural practices changed, such as the introduction of plantation systems. The introduction of new plants, particularly New World species, also altered the subsistence systems as well as the introduction of a variety of new animals.

Additionally, new religions altered subsistence practices such as animal husbandry practices among the Muslims.

The multitude of other changes during the middle to late colonial period is covered elsewhere and not the central issue of this thesis. The point has been sufficiently made that the transition to the early historic period likely came with some abrupt and significant changes. What led to the emergence and demise of the protohistoric walled settlements still remains speculative. Though many mysteries remain and many more have emerged throughout the research, the project has been successful in the sense that there is now more archaeological evidence to help better speculate on what was previously virtually unknown period in Central Maluku. Further archaeological research is needed to understand the diachronic nature of settlement continuity and change in Central Maluku, however. Nevertheless, despite past and current problems in Maluku, it is quite surprising how resilient Malukan culture is and how much constancy in areas such as *adat* belief systems, material culture and subsistence economies that exists. As a concluding remark, I hope that the Malukans are able to maintain their resiliency and that their future will be as rich and intriguing as their past.

References

- Abdurachman, Paramita R.
- 1981 New Winds, New Faces, New Forces (Ambon Island). Manuscript on file at the LIPI offices in Jakarta. Paper presented at the Symposium concerning 'responses to intrusions from the west'; sponsored by the British Institute in Southeast Asia. 27-30 January, Singapore.
 - 1978 Moluccan responses to the first intrusions of the west. In *Dynamics of Indonesian History* (eds) H. Soebadio & C.A.d. Marchie. New York: North Holland Publishers.
- Allen, Harry
- 1991 Stegodonts and the dating of stone tool assemblages in Island Southeast Asia. *Asian Perspectives* 30(2):243-265.
- Andaya, L. V
- 1993a *The World of Maluku: Eastern Indonesia in the Early Modern Period*. University of Hawaii Press, Honolulu.
 - 1993b Centers and peripheries in Maluku. *Cakalele* 4:1-22.
 - 1991 Local trade networks in Maluku in the 16th, 17th, and 18th centuries. *Cakalele* 2(2):71-96.
- Audley-Charles, M.G.
- 1981 Geological history of the region of Wallace's Line. In, T. Whitmore (ed.), *Wallace's Line and Plate Techtonics*. Oxford: Clarendon Press:24-35.
 - 1991 Techtonics of the New Guinea area. *Annual Review of Earth and Planetary Science* 19:17-41.
 - 1993 Geological evidence bearing upon the Pliocene emergence of Seram, an island colonizable by land Plants and animals. In, Edwards, Ian Darwin, Alastair A. MacDonald and John Proctor (eds.) *Natural History of Seram, Maluku, Indonesia*. Intercept Ltd., England:13-18.
- Bacus, E
- 1997 The Unto Site: excavations at a late first millennium BC and mid-second millennium AD habitation site in southeast Negros Island. *Asian Perspectives* 36:106-141.
 - 2003 Styles of alliance?: decorated earthenwares in late prehistoric and protohistoric Philippine polities, in Miksic (ed) *Earthenware in Southeast Asia*:39-51..
- Ballard, C.
- 1988 Dudumahan: A rock art site on Kai Kecil, Southeast Moluccas. *Bulletin of the Indo-Pacific Prehistory Association* 8:139-161.
- Bellwood, Peter
- 1998 The oldest ceramics in the Moluccas, and questions of continuity and intrusion. Paper presented at the 16th Indo-Pacific Prehistory Association Congress, Melaka, 1-8 July, 1998. *Bulletin of the Indo-Pacific Prehistory Association* 17:23.
 - 1997 *Prehistory of the Indo-Malaysian Archipelago*. University of Hawaii Press, Honolulu.
 - 1987 The prehistory of island Southeast Asia: a multi-disciplinary view of recent research. *Journal of World Prehistory* 1(2):171-224.
 - 1985 (Revised 1996/97) *Prehistory of the Indo-Malaysian Archipelago*. Sydney: Academic Press.

- 1976 Archaeological research in Minahasa and Talaud Islands, Northeastern Indonesia. *Asian Perspectives* 19(2):240-288.
- Bellwood, Peter & P. Koon
 1989 Lapita colonists leave boats unburned!: the question of Lapita links with Island Southeast Asia. *Antiquity* 63:613-622.
- Bellwood, Peter et al.
 1998 35,000 years of prehistory in the northern Moluccas. *Modern Quaternary Research in Southeast Asia*. 15:233-74.
- Bellwood, Peter, Agus Waluyo, Gunadi, Gunadi Nitihaminoto and Geoffrey Irwin
 1994 Archaeological research in the Northern Moluccas; interim results, 1991 field season. *Indo-Pacific Prehistory Association Bulletin* 13:20-33.
- Bintarti, D.D.
 1996 Nekara perunggu dari Maluku. Paper presented at the 4th International Maluku Research Conference. 9-13 July 1996. Ambon.
- Bintarti, D.D., J. Indraningsih and S. Kosasih
 1977 Laporan hasil survai kepurbakalaan di daerah Maluku Tengah (Pulau Ambon, Seram dan sekitarnya). Jakarta. Pusat Penelitian Purbakala dan Peninggalan Nasional Departemen P & K, *Berita Penelitian Arkeologi* No. 8.
- Bronson, Bennett
 1977 Exchange at the upstream and downstream ends: notes towards a functional model of the coastal state in Southeast Asia. In, K. Hutterer (ed.), *Economic Exchange and Social Interaction in Southeast Asia: Perspectives From Prehistory, History and Ethnography*. Michigan Papers on South and Southeast Asia 13, Ann Arbor:39-52.
- Buccellati, G. & M.K. Buccellati
 1983 Terqua: the first eight seasons. *Les annales archeologiques arabes syriennes: reue di archeologie et d'histoire* 32(2):46-67.
- Bulbeck, D. and I. Caldwell
 2000 *Land of Iron: The historical archaeology of Luwu and the Cenrana valley:results of the origin of complex society in South Sulawesi (OXIS)*, The Centre for South-East Asian Studies, The University of Hull.
- Cembrano, Margarita R.
 1998 *Patterns of the Past: The Ethnoarchaeology of Butuan*. National Museum of the Philippines, Butuan.
- Cooley, F.L.
 1962a Ambonese kin groups. *Ethnology* 1:102-112.
 1962b *Ambonese Adat: A General Description. Cultural Report Series No. 10*. Yale University. Cellar Book Shop, Detroit.
- Dewar, Robert E.
 2003 Rainfall variability and subsistence systems in Southeast Asia and the Western Pacific. *Current Anthropology* 44(3):369-388.
- Dickinson, B.
 2004 Petrographic Report WRD-232. Petrography of temper sands in sherds from Buru and Gorom.

- 2002 Petrographic Report WRD-223. Petrography of sand tempers in modern and prehistoric potsherds and ceramic raw materials from Maluku Tengah (Central Molucca Islands), Indonesia.
- Dix-Grimes, Barbara
 1994 Buru inside out. In Visser, L. (ed.) *Halmahera and Beyond: Social Science Research in the Moluccas*. KITLV Press, Leiden:22-33.
- Dolcemascolo, G.
 1996 Foreign encounters in an Aruese landscape. *Cakalele* 7:79-92.
- Ellen, R. F.
 1993a Human impacts on the environment of Seram. In, Edwards et al. (eds.), *Natural History of Seram, Maluku, Indonesia*. Intercept Ltd., England:191-205.
- 1993b Faded images of old Tidore in contemporary Southeast Seram: a view from the periphery. *Cakalele* 4:23-38.
- 1990 Trade, environment and the reproduction of local systems in the Moluccas. In, Moran (ed.), *The Ecosystem Approach in Anthropology: From Concept to Practice*. University of Michigan Press, Ann Arbor:191-227.
- 1988 Foraging, starch extraction and the sedentary lifestyle in the lowland rainforest of central Seram. In, T. Ingold *et al.* (eds.), *Hunters and Gatherers I: History, Evolution and Social Change*. Berg Publishers, Oxford:117-134.
- 1986 Conundrums about Panjandrumns: on the use of titles in the relations of political subordination in the Moluccas and along the Papuan coast. *Indonesia* 41:47-62.
- 1979 Sago Subsistence and the Trade in Spices: A Provisional Model of Ecological Succession and Imbalance in Moluccan History. In, Burnam & Ellen (eds.), *Social and Ecological Systems. Association of Social Anthropologists Monograph* 18. Academic Press, London.
- 1978 *Nuaulu Settlement and Ecology: An Approach to the Environmental Relations of an Eastern Indonesian Community*. Verhandelingen van het Koninklijk Instituut voor Taal-, Land en Volkenkunde 83. Martinus Nijhoff, The Hague.
- Ellen, Roy F. and Ian Glover
 1974 Pottery manufacture and trade in the Central Moluccas: the modern situation and the historical implications. *Man* 9(3):353-379.
- van Fraassen, Ch.F.
 1994 Ternate and its dependencies. In, Visser, L. E. (ed) *Halmahera and Beyond: Social Science Research in the Moluccas*. Pp 23-34. KITLV Press, Leiden.
- 1987 Ternate, de Molukken en de Indonesische Archipel; Van soa-organisatie en vierdeling; Een studie van traditionele samenleving en cultuur in Indonesië. 2 vols. Ph.D. thesis, Leiden University.
- Flannery, T.
 1995 *Mammals of the South-West Pacific & Moluccan Islands*. Reed Books, Australia.
- Flannery, T. & J.P. White
 1991 Animal Trans-locations. *National Geographic Research & Exploration* 7:96-113.
- Gasser, S.A.
 1969 *Das Töpferhandwerk von Indonesien* (Basler Beitr. Ethnol. 7). Basel: Pharos-Verlag, Hans Rudolph Schwabe.

- Glover, Ian and Roy F. Ellen
 1975 Ethnographic and archaeological aspects of a flaked stone collection from Seram, Eastern Indonesia. *Asian Perspectives* 18(1):51-61.
- 1977 A further note on flaked stone material from Seram, Eastern Indonesia. *Asian Perspectives* 20(2):236-240.
- Groube, Les
 1995 The impact of diseases upon the emergence of agriculture. In *The Origins and Spread of Agriculture in Eurasia* (ed D. R. Harris). London: UCL Press:101-29.
- Hanna, W. A.
 1991 *Indonesian Banda: Colonization and its Aftermath in the Nutmeg Islands*. Yayasan Warisan dan Budaya Banda Naira, Moluccas, Indonesia.
- 1978 *Indonesian Banda: Colonization and its Aftermath in the Nutmeg Islands*. Institute for the Study of Human Issues, Philadelphia.
- Hanna, W. A. and Des Alwi
 1990 *Turbulent Times Past in Ternate and Tidore*. Yayasan Warisan dan Budaya Banda Naira, Moluccas, Indonesia.
- Heeckeren, H.R. van
 1957 (1972 2nd edition) *The Stone Age of Indonesia*. The Hague. Martinus Nijhof.
- 1958 *The Bronze-Iron Age of Indonesia*. The Hague: Martinus Nijhof.
- Hiariej, Wanda M.
 1981 *Tradisi Pembuatan Gerabah di Daerah Maluku*. Tesis Sarjana Muda Ilmu Purbakala. Univeristas Gadjah Mada, Indonesia.
- Hirth, F. and W. W. Rockhill
 1911 (reprinted 1970) *Chua Jukua-His Work on the Chinese and Arab Trade in the Twelfth and Thirteenth Centuries*. St. Petersburgh, reprinted in Taipei.
- Horvatich, Patricia
 1993 Maluku: *The History, Societies, and Cultures of an Indonesian Province: A Bibliography of Texts in the English-Language*. Southeast Asian Paper No. 7. Center for Southeast Asian Studies, School of Hawaiian, Asian and Pacific Studies, University of Hawaii at Manoa, Honolulu.
- Hukom, C. and A. Lilipaly-de Voogt
 1985 *Amaone: Molukse Handvaardigheid in de Praktek*. Christelijk Pedagogisch Studiecentrum, Hoevelaken.
- Hutterer, K. L. and W. K. Macdonald (eds.)
 1982 *Houses Built on Scattered Poles: Prehistory and Ecology in Negros Oriental*. University of San Carlo Press, Cebu City.
- Jacobs, Hubert (ed., trans., annotated)
 1970 *A Treatise on the Moluccas (c. 1544): Probably the preliminary version of Antonia Galvao's lost Historia Das Molucas*. Jesuit Historical Institute, St. Louis, Missouri.
- Junker, Laura L.
 1999 *Raiding, Trading, Feasting: The Political Economy of Philippine Chiefdoms*. University of Hawaii Press, Honolulu.
- 1993 Craft good specialization and prestige goods exchange in Philippine chiefdoms of the fifteenth and sixteenth centuries. *Asian Perspectives* 24:167-209.

- 1991 The organization of intra-regional and long-distance trade in Prehispanic Philippine complex societies. *Asian Perspectives* 24:167-209.
- 1990 Long-distance Trade and the Development of Socio-political Complexity in Philippine Chiefdoms of the First Millennium to Mid-second Millennium AD. Ph.D. dissertation. Department of Anthropology, University of Michigan, Ann Arbor.
- Junker, Laura Lee, Karen Mudar and Marla Schwaller
 1994 Social Stratification, household wealth, and competitive feasting in the 15th/16th-century Philippine chiefdoms. *Research in Economic Anthropology* 15:307-358.
- Knapp, Gerrit J.
 1992 Crisis and failure: war and revolt in the Ambonese Islands, 1636-1637. *Cakalele* 3:1-26.
- Lape, Peter
 2000a Contact and conflict in the Banda islands, eastern Indonesia 11th-17th centuries. PhD dissertation. Brown University, Rhode Island.
- 2000b Political dynamics and religious change in the late pre-colonial Banda Islands. *World Archaeology* 32(1):138-155.
- 1998 Settlement, trade and subsistence in late pre-Colonial (13th-17th C) Banda Islands, Maluku, Indonesia. Paper presented at the 16th Indo-Pacific Prehistory Association Congress, Melaka, 1-8 July, 1998. *Bulletin of the Indo-Pacific Prehistory Association* 17:49.
- n.d. Political dynamics and religious change in late pre-colonial Banda Islands, Eastern Indonesia. Department of Anthropology, Brown University.
- Lapian, A.B.
 1994 Bacan and the early history of North Maluku. In, Visser, L. E. (ed) *Halmahera and Beyond: Social Science Research in the Moluccas*. Pp 11-22. KITLV Press, Leiden.
- Latinis, D. Kyle
 2000 The development of subsistence system models for Island Southeast Asia and Near Oceania: the nature and role of arboriculture and arboreal-based economies. *World Archaeology* 32(1):41-67.
- 1999 Subsistence system diversification in Southeast Asian and the Pacific: where does Maluku fit? Ph.D. dissertation, University of Hawaii, Honolulu.
- 1998 Ethnoarchaeology and modeling of prehistory in central Maluku. Paper presented at the 16th Indo-Pacific Prehistory Association Congress, Melaka, 1-8 July, 1998.
- 1996 Hunting the cuscus in western Seram: the role of the Phalanger in subsistence economies in Central Maluku. *Cakalele* 7:17-32.
- Latinis, D. Kyle & K. Stark
 2004 EDXRF Report 001: American Samoa Pottery Samples. On file with Mike Carson and IARII, Honolulu.
- 2003 "Roasted dirt: assessing earthenware assemblages from sites in Central Maluku, Indonesia." In, J. Miksic (ed), *Earthenware in Southeast Asia*. Pgs 103-135. Singapore University Press, Singapore (primary author, co-authored by Ken Stark).
- 2002 Compositional, Stylistic and Functional Analyses of SEA Earthenwares. 9-15 Sept. 2002, Indo-Pacific Prehistory Association congress in Taiwan-Academia Sinica.
- 1998 Prehistory, Subsistence and Arboriculture in Central Maluku. In, S.

- Pannell & F. Von Benda-Beckmann (eds.), *Old World Places, New World Problems: Exploring Issues of Cultural Diversity, Environmental Sustainability, Economic Development and Local Government in Maluku, Eastern Indonesia*. Centre for Resource and Environmental Studies, Australian National University, Canberra.
- Leirissa, R. Z.
 1990 Masyarakat Halmahera dan Raja Jailolo; Studie tentang sejarah masyarakat Maluku Utara. Ph.D. thesis, Universitas Indonesia, Jakarta.
- Loth, V. 1995b. Pioneers and Perkeniers: The Banda Islands in the 17th century. *Cakalele* 6: 13-35.
- Longacre, William A.
 2000 Book review of *Raiding, Trading, Feasting: The Political Economy of Philippine Chiefdoms* (Junker 1999). *Asian Perspectives* 39(1-2):190-193.
- Mahirta
 2000 The development of Mare pottery tradition in the northern Moluccas. *Bulletin of the Indo-Pacific Prehistory Association* 20, *Indo-Pacific Prehistory: The Melaka Papers: Volume 4* (eds. Bellwood et al):124-132.
- 1998 The development of the Mare pottery tradition in the Northern Moluccas. Paper presented at the 16th Indo-Pacific Prehistory Association Congress, Melaka, 1-8 July, 1998. *Bulletin of the Indo-Pacific Prehistory Association* 17:54.
- Manusama, Z.J.
 1977 *Hikayat Tanah Hitu*. Ph.D. dissertation, University of Leiden.
- Malinowski, Bronislaw
 1922 Argonauts of the Western Pacific. E.P. Dutton, New York (1961 reprint).
- Meilink-Roelofsz, M.A.P.
 1962 *Trade and European Influence in the Indonesian Archipelago Between 1500 and 1630*. The Hague: Martinus Nijhoff.
- Miksic, John N.
 2000 Heterogenetic cities in premodern Southeast Asia. *World Archaeology*:106-120.
- Miksic, J.N. (translated into English from the Malay version)
 n.d. *Hikayat Tanah Hitu*. Unpublished manuscript translation.
- Miksic, J.N. (ed.)
 1996 (reprinted 1999) *Ancient History*. Indonesian Heritage series volume 1. Archipelago Press, Singapore.
- Miksic, J. N. and C. T. Yap
 1992 Compositional analysis of pottery from Kota Cina, North Sumatra: implications for regional trade during the twelfth to fourteenth centuries A.D. *Asian Perspectives* 31(1):57-76.
- Miller, D.M.S.
 1976 Preliminary report on archaeological fieldwork carried out in Central Maluku, eastern Indonesia. Dissertation submitted for Paper 5 of the *Archaeology and Anthropology Tripos*, Part 2, Group 2, University of Cambridge.
- Miller, D.M.S. and M. Spriggs
 1976 *Preliminary archaeological inquiries in Central Maluku, Eastern Indonesia*. Report prepared for the Australian National University, October 1976.

- Nishimura, Masao
 1992 Long Distant Trade and the Development of Complex Societies in the Prehistory of the Central Philippines: The Cebu Central Settlement Case. Ph.D. dissertation. Department of Anthropology, University of Michigan, Ann Arbor.
- Novotny, R. and Rumalatu, F.
 1995 Dietary Diversity in Western Seram. *Cakalele* 6:37-42.
- Nowell, Charles E. (ed.)
 1962 *Magellan's Voyage Around the World: Three Contemporary Accounts*. Northwestern University Press, Evanston.
- O'Connor, Sue, M. Spriggs and P. Veth
 1998 Recent results from Lemdubu Cave, the Aru Islands, Maluku, Indonesia. Paper presented at the 16th Indo-Pacific Prehistory Association Congress, Melaka, 1-8 July, 1998. *Bulletin of the Indo-Pacific Prehistory Association* 17:58.
- Ollier, Cliff D.
 1985 The geological background to prehistory in island Southeast Asia. *Modern Quaternary Research in Southeast Asia* 9:25-42.
- Oppenheimer, S.J.
 1998 *Eden in the East*. Weidenfeld and Nicolson, London.
- Pigeaud, T.G.
 1962 *Java in the 14th Century: A Study in Cultural History: The Nagara Kertagama by Rakawi Prapapanca of Majapahit*, 1365 A.D. The Hague: Martinus Nijhoff.
- Purchas, S. & R. Hakluyt
 1625 *Purchas his Pilgrimes. In five books*. London: Printed by William Stansby for Henrie Fetherstone.
- Purchas, S., R. Hakluyt & H. Society
 1905 *Hakluytus Posthumus, or Purchas his Pilgrimes: Contayning a history of the world in sea voyages and lande travells by Englishmen and others*. Glasgow: James MacLehose and Sons.
- Pires, T. & F. Rodrigues
 1944 *The Suma Oriental of Tomé Pires, An account of the East, from the Red Sea to Japan, written in Malacca and India in 1512-1515, and The book of Francisco Rodrigues, rutter of a voyage in the Red Sea, nautical rules, almanack and maps, written and drawn in the East before 1515* (trans.) Armando Cortesão. London: The Hakluyt Society.
- PPPM (Proyek Pengembangan Permuseuman Maluku)
 1981/82 *Gerabah Lokal: Siwalima*. Siwalima Museum, Ambon.
- Ptak, Roderick
 1992 The northern trade route to the Spice Islands: South China Sea-Sulu Zone-North Moluccas (14th to early 16th century). *Archipel*:27-56.
- Ptak, Roderick (ed)
 1999 *China's Seaborne Trade with South and Southeast Asia, 1200-1750*. Aldershot; Brookefield, Vt.: Ashgate.
- Ricklefs, M.C.
 1993 *A History of Modern Indonesia Since c. 1300*. London: Macmillan.
- Reid, Anthony
 1993 *Southeast Asia in the Age of Commerce, 1450-1680*. Vol II. Yale University Press, New Haven.

- 1988 *Southeast Asia in the Age of Commerce, 1450-1680.* Vol I. Yale University Press, New Haven.
- Robson, Stuart (trans. And commentary, original author Mpu Prapanca)
 1995 *Desawarnana (Nagarakrtagama).* KITLV Press, Leiden.
- Röder, J.
 1938 Die Felsbilder im Fluszgebiet des Tola, Sud West Ceram. *PAIDEUMA* 1:19-28.
- 1940 Ergebnisse einer Probegrabung in der Höhle Dudmunir auf Arguni, MacCluer-Golf (Holländisch West Neu-Guinea). *Nova Guinea* (N.S.) 4:1-10.
- 1959 *Felsbilder und Vorgeschichte des MacCluer-Golfs, West Neu-guinea* (Ergebnisse der Frobenius Expedition 1937-8 in die Molukken und nach Holländisch Neu-Guinea 4). Darmstadt: Nittich.
- Rumphius, Georgius Everhardus
 1910 *De Ambonsche Historie.* Bijdragen tot de Taal-, Land- en Volkendunde van Nederlandsch-Indie. Martinus Nijhoff.
- Santoso Soegondho
 1998 Sulawesi and the Moluccas: a prehistoric bridge to the Pacific. Paper presented at the 16th Indo-Pacific Prehistory Association Congress, Melaka, 1-8 July, 1998.
- 1995 *Tradisi Gerabah di Indonesia: dari Masa Prasejarah hingga Masa Kini.* Himpunan Keramik Indonesia, P.T. Dian Rakyat, Indonesia.
- Smith, M.A. and N.D. Sharp
 1993 Pleistocene sites in Australia, New Guinea and island Melanesia: geographic and temporal structure of the archaeological record. In, M.A. Smith, M. Spriggs & B. Frankhauser, *Sahul in Review: Pleistocene Archaeology in Australia, New Guinea and Island Melanesia.* Occasional Papers in Prehistory, No. 24, Australian National University (Department of Prehistory, Research School of Pacific Studies), Canberra:37-58.
- Solheim, Wilhelm II
 1990 Provisional report to LIPI on archaeological research program in eastern Indonesia. Typescript.
- 1989 The Moluccas and movement into the Pacific. Typescript.
- Spoehr, A.
 1973 *Zamboanga and Sulu.* Ethnology monograph 1, Department of Anthropology, University of Pittsburgh.
- Spriggs, Matthew
 1994 Research questions in Malukan Archaeology. Typescript and paper presented at the 3rd International Maluku Research Conference. July, 1994. Division of Archaeology and Natural History, Research School of Pacific and Asian Studies. Australian National University. Canberra.
- 1990 Archaeological and ethnoarchaeological research in Maluku 1975 and 1977: an unfinished story. *Cakalele* 1:47-60.
- Spriggs, Matthew and Miller, D.M.S.
 1979 Ambon-Lease: a study of contemporary pottery making and its archaeological relevance. In, *Pottery and the Archaeologist*, ed. By M. Millet. *Institute of Archaeology Occasional Publication* 5. London: Institute of Archaeology.

- Stark, Ken
 1995 (also listed as 1996) *Alternative Rainforest Economies of Maluku, Indonesia: A Reply to the "Wild Yam Hypothesis" from the Archaeological Record*. Ph.D. dissertation, University of Hawaii, Honolulu.
- Stark, Ken and D. Kyle Latinis
 1992 The archaeology of sago economies in Central Maluku: an initial sketch. *Cakalele* 3:69-86.
 1996 The response of early Amboinese foragers to the Maluku spice trade: the archaeological evidence. *Cakalele* 7:51-67.
- Steponaitis, Vincas P., M. J. Blackman and H. Neff
 1996 Large-scale patterns in the chemical composition of Mississippian pottery. *American Antiquity* 6(3):555-572.
- Summerhayes, Glenn
 2000 *Lapita Interaction*. Department of Archaeology and Natural History and Centre for Archaeological Research, Australian National University, Canberra.
- Swadling, P.
 1995 *Plumes from Paradise*. Brisbane: Robert Brown and Associates.
- Tanudirjo, Daud
 1998 Archaeological research in the northeast Indonesian archipelago. Paper presented at the 16th Indo-Pacific Prehistory Association Congress, Melaka, 1-8 July, 1998.
- Valentine, F.
 1724-26 *Oud en Nieuw Oost-Indien; Vervattende een naauwkeurige en uitvoerige verhandelinghe van Nederlands mogentheyd in die gewesten*. Amsterdam: Van Braam, Onder de Linden. 5 Vols.
- Verstappen, H.T.
 1975 On paleo climates and landform development in Malesia. *Modern Quarternary Research in Southeast Asia* 1:3-36.
- Villiers, J.
 1990 The cash crop economy and state formation in the Spice Islands in the fifteenth and sixteenth centuries. In *The Southeast Asian Port and Polity: Rise and Demise* (eds) J. Kathirithamby-Wells & J. Villiers. Singapore: Singapore University Press.
 1981 Trade and society in the Banda islands in the sixteenth century. *Modern Asian Studies* 15: 723-750.
- Walker, D.
 1982 Speculations on the origin and evolution of Sunda-Sahul rain forest. In, G.T. Prance (ed.), *Biological Diversification in the Tropics*, Columbia University Press, New York:554-575.
- Whitmore, T.C. (ed.)
 1981 *Wallace's Line and Plate Techtonics*. Claredon Press, Oxford.
- Wolters, O. W.
 1967 *Early Indonesian Commerce*. Cornell University Press, Ithaca.
- Yap, Choon Teck
 1992 Multi-variate analysis of trace elements from XRF studies for classification according to origin. *Applied spectroscopy* 46(5):843-847.

n.d. Analysis of recent Chinese ceramic glazes by energy-dispersive X-ray fluorescence spectrometry. On file with the Department of Physics, National University of Singapore, Singapore 0511.

Yap, Choon Teck and S. M. Tang

1985a Quantitative XRF analysis of trace barium in porcelains by source excitation. *Applied Spectroscopy* 39(6):1040-1043.

1985b Energy-dispersive X-ray fluorescence analysis of Chinese porcelains using AM-241. *Archaeometry* 27(1):00-00(1-3).

Yap, Choon Teck and V. Vijayakumar

1990 Principal component analysis of trace elements from EDXRF studies. *Applied Spectrometry* 44:1080-1083.