Traditional Land Use and Resistance to Spanish Colonial Entanglement: Archaeological Evidence on Guam

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ABSTRACT

Documenting the continuity of traditional land use practices on Guam, from before Spanish Contact in 1521 to after the Colonial La Reducción ca. 1700, is provocative. La Reducción refers to a period after Spanish settlement in 1668 when all indigenous inhabitants of northern Guam were removed from their traditional homes and sent to six southern villages under the watchful eye of administrative and religious authorities, except those residing on the island of Rota. Recent geoarchaeological excavations at Site 66-08-0141, located on the northern plateau in South Finegayan, have exposed at least two *latte* sets or pre-Contact habitations with traditional Micronesian earth ovens post-dating Spanish settlement. Artifacts included Latte Period pottery, marine shell adzes, a limestone sling stone, and historic to modern refuse from WWII to the modern era. Microfossil evidence of pandanus, coconuts, and likely cultivation of rice and taro have expanded our understanding of subsistence farming in micro-environments within the tropical forest a generation or more after 1700 and La Reducción. This suggests that archaeological evidence of land use continuity and indigenous resistance and accommodation to Spanish Colonial entanglement exists, while challenging prior historiography across the Pacific; such sites hold much potential to bring native voices to early communities long disenfranchised by the colonization experience. Keywords: entanglement, Guam, Spanish Contact, *latte*.

INTRODUCTION

The archaeological expression of resistance to dominance is not always observable in the material record, "but rather can be an intent, a state of mind, and a rationale" (Hodder 2004:32, quoted in Liebmann and Murphy 2010:5). Moreover, while archaeological evidence of resistance to repression can come in many forms from defensive architecture to offensive weaponry, it can just as easily be masked by inaction or subterfuge. Such alternative strategies have been noted in reference to the "*subaltern* . . . [or] those persons who are unable to access dominant forms of representation" in the face of socio-political hegemony (Liebmann 2012:11, italics in original).

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Persistence of tradition as one response to oppression is now recognized archaeologically. Examples of maintenance of indigenous practices are found in the archaeological records of early colonial North America of the sixteenth to seventeenth centuries C.E. (Hass 2014; Lightfoot 2005; Panich and Schneider 2014), in eighteenth to nineteenth century C.E. Africa and Southeast Asia (Acabado 2012, 2016; Lapena and Acabado 2017; Miller et al. 1989), and in the twentieth century C.E. post-colonial dictatorships of Latin America (Funari et al. 2010; Wernke 2007). Indigenous agency and adaptive resistance have also been recognized from the Colonial census records on Guam intended to produce "organs of power, prestige, and control through military titles and offices that were active until 1791" (Atienza 2014:31). It is at this contentious juncture between resistance and accommodation in the archaeology of early colonial Guam and the indigenous Chamorro people that this study lies.

The Mariana Islands were colonized at least 3000 years before European contact by settlers who probably became the ancestors of the people who met Ferdinand Magellan's ship when it made landfall on Guam in 1521 before sailing westward to its place in history (Carson 2014) (Fig. 1). This latter time frame is referred to by archaeologists as the Latte Period, in reference to the stone columns (*latte*) and their capstones that supported raised habitations in coastal settlements after ca. 1000 C.E. (Kurashina 1991; Laguana et al. 2012; Thompson 1940). This was accompanied by an additional shift from the Latte Period ca. 1000 C.E. until after Contact toward inland and upland settings to exploit arable soils and productive native forests as shorelines gradually receded due to a drop in sea level (Moore 2005, 2015).

Traditional Chamorro agricultural and aboricultural land use on Rota was first described by Franciscan Fray Juan Pobre de Zamora with considerable detail in 1602 (Driver 1983, 1993), decades before initial Spanish settlements appeared on Guam in 1668 (Coomans 1997 [1673]; de Viana 2004). The role of land use practices as a form of resistance to Colonial entanglement and the forced removal of people from their native homelands (i.e., La Reducción [The Reduction]) after ca. 1700 went largely unrecorded even by later Jesuit observers, however. After over a century of periodic visits by Manilla Galleons to the islands, Father Diego Luis de Sanvitores and four Jesuit missionaries and a few Spanish soldiers arrived from Acapulco in Mexico to found a mission on Guam in 1668 (Corte y Ruano Calderón 1875; Ibañez y García 1992 [1887]; Pigafetta 1874). Assisted by Quipuha, a chief of the village of Agana, they began trying to convert the Chamorro to Christianity, although conflict between other Chamorro lineages and the Spanish eventually led to violence (Driver 1983, 1988, 1993). Isolated native Chamorro villages on the coast of Guam were burned under a Spanish directive in 1678 (Carucci 1993), but some were reoccupied a year or two later (Bulgrin 2010; Dixon, Schaefer et al. 2010). The Spanish then instituted a policy of La Reducción, deliberately depopulating outlying villages and those of northern Guam plus most other Northern Mariana Islands between 1686 and the early 1700s (Hezel 1989; Lévesque 1992, 1995a, 1995b, 1995c). After the forced removal from their homes by the Spanish military, almost all the remaining Chamorro in the archipelago were resettled into six parish villages on Guam (Driver 1991; Garcia 1985 [1683]), except those residing on the island of Rota.

This time frame from the cusp of European exploration in the Pacific at 1521 to the globalization of Spanish Colonialism, including the Manila Galleon trade from 1565 to 1815, is termed "Early Modern" by Southeast Asian historians (Berrocal and Tsang 2017; Bulgrin 2017; Giraldez 2015; Reid 2015). To distinguish the Early Modern from

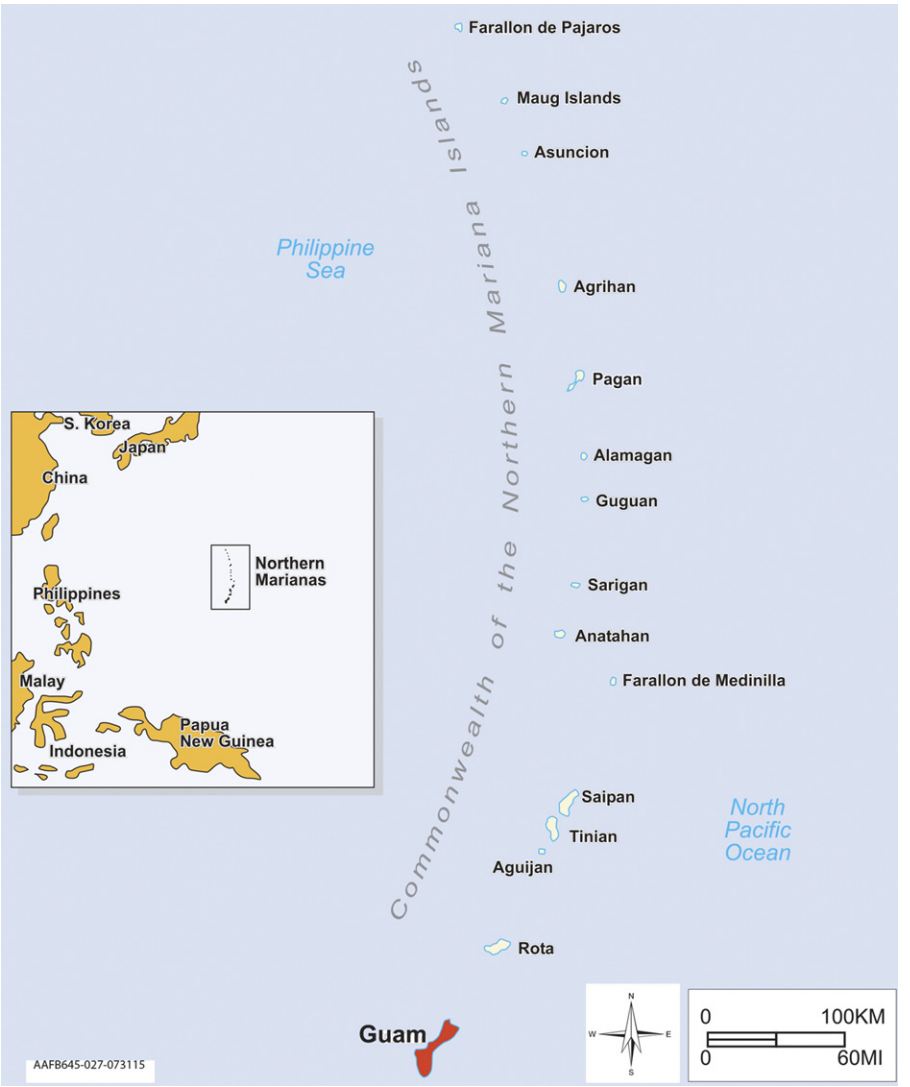

Fig. 1. Guam and the Commonwealth of the Northern Mariana Islands (from Dixon, Rudolph et al. 2017:1–2, fig. 1-1).

later modern periods, most world historians "commonly cite the expansion of international commerce and maritime trade, a rise in population, a more intensified use of land, the diffusion of new technologies, the growth of regional centers, the rise of urban commercial centers, the rise of urban commercial classes, religious revival, and missionary movements, and a more pronounced incidence of peasant unrest" (Andaya and Andaya 2015:8). All of these attributes, many in nascent form, could be applied to the Mariana Islands after the first Jesuit missionaries arrived to stay in 1668. However brief and bellicose the initial encounters between the Spanish and the native population, Guam was certainly a seasonal nexus for Spanish trans-Pacific shipping during the early galleon trade between Acapulco and Manila (Seijas 2014:65). Many

historians in the past have referred to alleged Spanish atrocities of this era as the "Leyenda Negra" or Black Legend (Hezel 2015). Historians today see this label as "historical propaganda that describes the Spanish Empire enterprise in the Modern Era as having been extremely cruel, genocidal, and exploitative" (Atienza 2013:13).

This article first presents an overview of native peoples' resistance to Colonial entanglements elsewhere in the Spanish world to place Guam and the Mariana Islands in their broader cultural and temporal contexts in Early Modern times. This time period is here defined as the late fifteenth, sixteenth, and seventeenth centuries C.E. of Spanish Colonialism (Monton-Subias, Berrocal, and Ruiz 2016:1). Traditional Chamorro land use changes and continuity are then discussed in sufficient detail to provide a backdrop for understanding the subtleties of the island archaeological record and local site landscape described later. A number of interpretive contexts from early ethnohistoric accounts and later Spanish colonial documentation after initial Contact (1521) and subsequent Colonial settlement (1668) are presented to aid in interpreting the archaeological and geoarchaeological results presented. Finally, the results of investigations at Site 66-08-0141, located on the northern Guam plateau in South Finegayan, including its association with two *latte* sets and traditional habitations with Micronesian earth ovens, are presented to demonstrate the potential of such sites for shedding light on the critical juncture between Contact and Colonial era acculturation.

NATIVE RESISTANCE TO SPANISH COLONIAL ENTANGLEMENT

In considering the possible implications of various observations of traditional landscape change and Colonial land use to the archaeological record of Site 66-08-1041, it is imperative to first define the term 'entanglement' as used here. Since this perspective is new to the literature of Guam, a definition is borrowed from a recent corpus of scholarship on the beginning of the Late Mississippian world in the Southeast United States and eventual contact between the Mississippian people with early Spanish Colonial people, which is not dissimilar to the initial encounters in the Mariana Islands. King and colleagues (2017:236) state that:

> Entanglement focuses on the intertwining of things, people, and practices, and in particular allows for things to be agents of change. Entanglement recognizes that social life is defined and practiced through relations with things as well as people. It also recognizes that the meaning and role of things are defined by their relationships with people, as well as with other things. Meaning, identity, and history are continually defined through the entangled relations of people and things.

Following this conceptual perspective, we explore how various scholars have approached the study of native resistance to Spanish and other Colonial entanglements in the Pacific and beyond.

The archaeological interpretation of Native American sites of the historic sixteenth and seventeenth centuries C.E. began with the identification of towns, forts, and Spanish missions such as St. Augustine in Florida in the 1960s (Deegan 2010). Field verification of early explorer *entradas* (expeditions), such as that of Hernando de Soto across the southeastern region of North America (Blair and Thomas 2014) and Vasques de Coronado across the southwest (Lycett 2014), then began with the advent of settlement pattern investigations. More recently, the academic focus has shifted from the Spanish actors and their agendas to the effects of early missionization and forced

enculturation programs on native actors and their responses in rebuilding their own identities under siege (Panich and Schneider 2014). Forms of resistance to Spanish Colonial influences varied in the Americas (Gruzinski 2014; Hass 2014; Liebmann 2012; Marceaux and Wade 2014; Moore and Jeffries 2014; Voss 2010; Walter and Hester 2014), but usually involved maintaining native foodways in coastal California Franciscan missions. For example, "European-introduced foods . . . were prepared and cooked . . . according to traditional native prescriptions;" this practice has been supported archaeologically "by the large quantities of fire-cracked rocks . . . [that] resulted from neophytes cooking food in watertight baskets, hearths, and earth ovens" (Lightfoot 2005:196). Finding new ways to use European objects was another method of resisting European influence. For example, instead of using European "ceramic and glass tableware" as intended, "people transformed them into native objects such as pendants, beads, scrapers, and projectile points" (Lightfoot 2005:196). While traditional political structures and marriage patterns did change as native populations suffered catastrophic mortality rates from introduced diseases, religious dances continued and many Catholic symbols and rituals were incorporated into native belief systems (Lightfoot 2005, 2014).

Spielmann and colleagues (2006) working in the Salinas Pueblo region of New Mexico have recently identified stylistic differences in iconography on ceramic wares as "public" and "hidden" images that constituted a form of resistance to Spanish colonial subjugation in the seventeenth century. The authors explain that Spanish colonial efforts to acculturate indigenous populations promoted significant differences in the way that women decorated glaze and white ware vessels between northern and southern Salinas pueblos. Specifically, women who created glaze ware vessels and lived under the direct purview of Spanish missionaries appear to have deliberately simplified and hidden significant religious iconography into their design motifs. The women who made white ware vessels lived in areas without Spanish missionaries in residence; at the outset of colonial efforts to acculturate indigenous populations, they began to create increasingly expressive vessels that depicted religious motifs in order to reinforce their own beliefs and maintain cultural knowledge. Both communities of practice responded to attempts by Spanish missionaries to exert control over traditional cosmologies in different ways in order to either mask and maintain or express and promote their important craft skills.

Recent investigations of the Ifugao agricultural terrace system in the northern Philippines island of Luzon convincingly documents the expansion of wet-rice terracing ca. 1600 as economic intensification and political consolidation occurred in response to Spanish *entradas* into native Ifugao lands (Acabado 2012). Increased use of domestic pig in rituals and feasts of the Ifugao is also postulated to be an organizing factor for the successful resistance to Spanish influence (Lapena and Acabado 2017). On the opposite side of the Pacific world in highland Peru, analyses of faunal remains from an early Spanish doctrinal settlement demonstrate that, in spite of changes in architecture and community patterns associated with religious conversion, the Spanish clergy was unable to transform the traditional pre-Contact rearing and consumption of camelids by introducing Eurasian animals to the native diet (de France et al. 2016) These research projects and others like them "add to the increasing evidence of the false differentiation of the colonized and the 'uncolonized'" (Acabado 2016:1).

The recognition of similar trajectories in the archaeological record across the early Spanish Colonial frontiers of sixteenth and seventeenth century C.E. Latin America

(Liebmann and Murphy 2010; Wernke 2007) and both Atlantic (Miller et al. 1989) and Equatorial Africa (Monton-Subias et al. 2016) also suggest that resistance and subsequent revitalization movements took many forms, both passive and active. During the Early Modern Period in the western Pacific, the effects of the Manila Galleon trading monopoly on peoples of the Philippines (Acabado 2012; Andaya and Andaya 2015) and Taiwan (Berrocal 2016) were negotiated by the missions, merchants, and local political authorities. Indirect impacts of such accommodations were felt by local communities attempting to maintain traditional fishing practices in Guam (Dixon 2017; Dixon, Gilda et al. 2013). All populations were vying for control over natural resources contested with other European powers in the face of a dwindling labor supply and deteriorating public health. In the southwestern Pacific, later Spanish Colonial experiments in settling and exploiting Vanuatu (Flexner et al. 2016), the Soloman Islands (Gibbs 2016), and Pohnpei (Hezel 1983) met with commercial failure and were eclipsed by other European intrusions attempting to establish empires in the Australian subcontinent and adjacent archipelagos.

GUAM LAND USE CHANGES AND CONTINUITY

In this section, we discuss traditional Chamorro land use changes and continuities to provide a context for understanding the archaeological record and local landscape of Guam.

Pre-Contact Land Use

The Latte Period (800–1668 C.E.) is distinguished from the preceding Pre-Latte Period (1500 B.C.E.–800 C.E.) by the presence of *latte* or stone structure supports found on all major Mariana Islands (Carson 2014; Hornbostel 1924–1925; Laguana et al. 2012; Morgan 1988). The roughly 5 m (16.4 ft) tall House of Taga on the southern coast of Tinian is the largest example (Russell 1998; Spoehr 1957), although *latte* sets in the Fena basin of southern inland Guam were also of considerable height (Thompson 1932, 1940). Concurrent with these architectural changes from wooden posts to stone columns were apparent increases in population (i.e., many more sites) and the expansion of settlement and land use to areas outside of the optimal coastal environments over time (Reinman 1966, 1977). The ubiquitous Latte Period pottery scatters and scattered soil mounds on the northern Guam plateau also suggest this region was likely to have been a resource reservoir of forest products and arable soil for coastal communities, especially critical in times of drought or major typhoons (Bulgrin 2006, 2009; Olmo et al. 2000).

In such inland areas, swidden farming plots and harvestable native trees appear to have been exploited from small and periodically shifting field camps (Dixon and Schaefer 2014; Dixon, Walker et al. 2011; Manner 2008). Such a pattern is reminiscent of a collecting strategy (exploiting food sources at campsites and processing stations) in contrast with more mobile foraging strategies (frequently moving between the food resources) recorded elsewhere among pre-agricultural societies in much larger-scale environments. Such patterns of land use presumably developed long before the arrival of ancestral Chamorro to the Mariana Islands as part of a survival kit from their Southeast Asian island homelands (Peterson 2009). In northern Guam, such campsites have been identified by their dark organic midden soils and diversity of stone and shell

tools within larger pottery scatters. Some dark soils on Tinian have been found to harbor possible planting features and post moulds (Dixon, Bartow et al. 2011), suggesting they were "satellite" locations used by coastal groups for "limited activities that may have involved seasonal gardening and harvesting of forest resources as well as food preparation and sheltering overnight" (Hunter-Anderson 2005:45).

The native forest species of value included banyan (*Ficus* sp.), *Pisonia grandis*, Screwpine or *kafu* (*Pandanus fragrans*), Mariana Breadfruit or *dokdok* (*Artocarpus mariannensis*), and the *ifit* tree (*Intisia bijuga*); all had traditional uses in native construction of homes and watercraft and many bore fruit or nuts that were used in Chamorro foodways (Moore 2015; Safford 1905). Epiphytic ferns, cycads (*Cycas circinalis*), and Sea Hybiscus or *pago* (*Hibiscus tiliaceus*), commonly found at the edge of the upland savannahs, also had household uses. Besides native forest trees with domestic uses, some of the indigenous foods that were offered to Captain General Ferdinand Magellan's sailors when they visited Guam for the first time in 1521 included coconuts (*Artocarpus altilis*, *Artocarpus ariannensis*), taro (*Colocasia esculenta*, *Alocasia macrorrhiza*), sugarcane (*Saccharum officinarum*), bananas (*Musa paradisiaca*), and yams (*Dioscorea* spp.) (Barratt 2003). Visitors were later offered rice and non-indigenous sweet potatoes. Other plants such as betelnut (*Areca cathechu*) were shared amongst the native Chamorro (Russell 1998), while many lesser known herbs and plants had medical uses not shared with the Spanish.

One suggested impetus for Latte Period inland expansion is the deliberate spread of rice production (Butler 1990). Other archaeologists believe this inland expansion was an inevitable manifestation of population growth and increasing territoriality over agricultural soils (Graves 1986; Hunter-Anderson 1994). However, it is apparent from the paucity of *latte* villages on the northern plateau that such pressures did not always precipitate the major settlement shifts reported in southern Guam (Dixon and Gilda 2011; Dye and Cleghorn 1990). The lack of fresh water sources and thin soil cover beneath the tropical forest on top of the limestone plateau certainly made sustained farming a challenge. Many multi-habitation village sites below the plateau during the Latte Period contained basalt *lusong* (large mortars) used historically to hull rice and some large farming sites on the plateau have also been found to contain numerous *lusongs*, but few signs of permanent habitation indicate labor intensive rice cropping (Dixon and Schaefer 2014; Pollock 1983). Changes in ceramic vessel forms and sizes also suggest an increasing dependency on boiling grains or tubers, which probably enabled increased capacity for storage as well as feasting (Butler 1990; Graves et al. 1990; Moore 1994, 2005; Moore and Hunter-Anderson 1996).

Slash-and-burn techniques known as swidden farming appear to have been the norm since the Pre-Latte Period, with little evidence of landscape improvements above coastal settlements on the plateau until the Contact Period (Dixon, Schaefer et al. 2010). It has been argued that changes in subsistence and land use indicate a replacement of the earlier Pre-Latte society by a new cultural complex introduced from Island Southeast Asia (Thompson 1947, 1971 [1945]). However, Peterson's (2009) recent examination of seventeenth to nineteenth century C.E. ethnohistoric accounts and tropical plant biology suggests that contact was also maintained with Carolinian voyagers who presumably had had centuries of indirect contact with Polynesian groups and acquired domesticated crops such as the sweet potato (*Ipomoea batatas*) and seedless breadfruit (*Artocarpus communis*) from the south Pacific (Rainbird 1994). Whether this contact was the case during the Latte Period remains to be confirmed archaeologically.

Bi-parental analysis of living Chamorro mtDNA and Y-DNA suggest both trajectories may have been correct at different points in time, with new arriving populations mixing with earlier inhabitants in the archipelago (Vilar et al. 2013).

Colonial Land Use

Colonial land use between Ferdinand Magellan's initial landfall in Guam on 6 March 1521 and the establishment of a permanent Spanish presence in Hagatna on 16 June 1668 is often referenced in the historical and archaeological literature of the islands (Brunal-Perry 2009; Graves 1986; Hunter-Anderson 1994; Peterson 2009), although the material record for such early interaction is quite sparse (Dixon, Jalandoni, and Craft 2017). Earlier maritime contact with mainland Asia or the islands of Southeast Asia before 1521 has been hinted at over the years and is suggested by the brisk exchange of food and fresh water, given to Magellan's crew by native Chamorro inhabitants for bits of Spanish iron to be fashioned into utilitarian tools (Farrell 2011; Quimby 2011). Other land use practices involving large scale clearing and construction of semi-permanent planting features and near-coastal fish weirs imply considerable flexibility during the early 1600s, perhaps in response to increased resupply demands from early European sailing vessels and /or inter-group competition over trade goods (Dixon 2017; Dixon, Gilda et al. 2013; Dixon, Schaefer et al. 2010).

In 1602, Franciscan Fray Juan Pobre de Zamorra and his companion Fray Pedro de Talavera jumped ship on Rota and remained there for seven months before being returned to the ship. This was not the first such incident, but Pobre de Zamorra was the first to record land use practices in detail, observing that the "most common crops are tubers, of which there are four types," and that people baked breadfruit "as a kind of pie, which they called *tazca* or *tazga*" (Driver 1993:16). Pobre de Zamorra also observed that women "work in the garden plots, tilling and planting" with the use of a digging stick "shaped like a knife that projects to one side or to the other of the stick and is three fingers wide and two hands long . . . which they called *bonga*" (Driver 1993:17). Pobre de Zamorra mentioned the consumption of yams which he recognized as *camotes*, the preparation of confections or a drink from rice flour and coconut mixed in a *mortero* (mortar), and the chewing of betelnut (Driver 1993:30). Pobre de Zamorra also made ethnobotanical contributions of his own to the Marianas, when he went "up into the hills or to the farm plots where he planted a few grains of corn among his master's tubers," much to the delight of the rat population (Driver 1993:12).

The historic system of rural subsistence farming on Guam is focused today on the *lancho* (ranch or farmstead) (Rogers 1995; Safford 1905; Thompson 1947). These small farms are still found in the neighboring northern Mariana Islands of Rota, Tinian, and Saipan. The *lancho* has long been associated with La Reducción and the introduction of non-native crops; the Chamorros were "taught to grow corn, cotton, and other necessary crops for their use" so they would be "well occupied for the improvement of these islands" (Garcia 1985 [1683], quoted in Spoehr 1957:27). The implementation of the *lancho* (sometimes pronounced *lanchu*) system was undoubtedly encouraged by the Spanish Colonial government and Jesuit clergy as a means of collecting produce from agricultural farms and wood from nearby forests during the week (Freycinet 2003 [1819]; Madrid 2006). It also ensured that all indigenous residents returned to their towns on Sundays for Mass, while their children remained at religious schools in town

to be indoctrinated before entering the labor pool at a young age (Farrell 2011). According to Hezel (2015:48), "The populations of the tiny hamlets surrounding each of these towns" had been "consolidated . . . with the understanding that people could retain their land in the interior and use it for farming . . . Thus was introduced the split settlement system" that forced people to divide "their time between their home and their *lanchu*, or farmstead" (Hezel 2015:48).

In his tour of the island in 1833, Governor Francisco de Villalobos mentions ranches with chickens, pigs, and gardens at Tarague, Jinapson, and Ritidian to Ache Point. By what route he arrived at the coast is not apparent, but he describes the road from Santa Rosa on the plateau that passes Upi, Lafac, and Anao as "narrow, bordered by thicket on both sides, and the path overgrown by roots . . . so a guide is completely necessary for those who do not know the place well" (de Villalobos 1979 [1833]:29). The historic land use system of ranches or *lanchos* today is remarkably similar to what appears to be the pre-Contact relationship of rural farming and forest gathering to coastal residency in northern Guam (minus the chickens and pigs). The results of our archaeological investigations at Site 66-08-0141 demonstrate this.

INTERPRETIVE CONTEXTS FOR THE SITE

Before we address the archaeological dataset, several research issues need to be discussed. This section provides the context for meaningful interpretation of Site 66-08-0141, with broader utility for understanding the region during the critical period of Contact and acculturation during the late seventeenth and early eighteenth century.

Missionization in the Marianas

The missionization of the Marianas was unlike any other religious effort by the Roman Catholic church in the "Spanish Lake of the Pacific" or even in the broader colonialization of the Americas between its inception in 1492 and the end of Spanish hegemony in 1821. In the Viceroyalty of New Spain (in the Americas), religious conversion followed conquest and colonization, after coercion alone had failed miserably in the Caribbean. In Guam and the northern Mariana Islands in 1668, however, the Jesuit clergy were at the vanguard of sustained culture contact, beginning with a small contingent of non-military Filipino supporters (de Viana 2004). This mission was the culmination of five years of letter writing by Fray Diego Luis de San Vitores, who had previously stopped in Guam in 1662 while on assignment to Manila. In contrast to the Philippines *entrada*, which had been yet another example of Gold before God (as in Mexico and Peru), Fray San Vitores' family connections to the Spanish Court enabled him to win the support from the Queen Regent of Spain, Mariana of Austria, who authorized and funded his mission to the islanders (Hezel 2015). The renaming of the islands from Los Ladrones to the Marianas has been described as "a smart political move that won [Queen Mariana's] patronage for this new mission" (Lévesque 1995a:276, quoted in Diaz 2010:10).

After arriving on Guam in June of 1668, initial success with the baptism of children and higher-ranking Chamorro families in the native community of Hagatna would have been gratifying to the Spanish. Internal tensions over access to the newly arrived foreigners and cultural misunderstandings between the Jesuits and local villagers soon erupted, however (Coomans 1997 [1673]). Tensions simmered until 1672, when Fray

San Vitores was killed by Matapang, the *magalahi* (leader) of the nearby community of Tumon, while he was attempting to baptize the leader's ailing child. A Spanish galleon that arrived from Acapulco in early 1674 accidentally stranded Damian de Esplana, a trained military officer from Chile, but this was fortuituous for the Spaniards in Guam, who soon reorganized their militia to go on the offensive (Hezel 2015).

Over the next three decades, a period of conflict known as the Spanish-Chamorro wars, all inhabitants of the Mariana archipelago were forced to submit to the Catholic faith and Spanish law (Russell 1998). A newly fortified *presidio* (garrison) was built in Hagatna in 1676 and fresh troops were brought from Manila to reinforce the position. By that time, Spanish churches and Chamorro villages on the Orote peninsula had been burned (Farrell 2011); others were burned to the north in Ritidian in 1675 and again in 1682 (Jalandoni 2011). This period of conflict was not just between Chamorro warriors and Spanish soldiers. Some scholars have perhaps more aptly called it civil war, as long-term rivalries between various individuals or clans boiled over into organized acts of violence between villages or communities (Bulgrin 2010).

By the end of La Reducción ca. 1700, most interior villages in south Guam and most coastal villages in the north had been consolidated into six southern villages under Spanish church and civilian rule. By then, the mission in the Marianas had become a distant outpost of Manila, resupplied by the yearly galleon from Acapulco (Hezel 2015). Ironically, most of the remaining Chamorros had to support their conquerors by accommodating their crops and foodways into their traditional land use practices. Others chose to remain outside the Colonial orbit and presumably continued their traditional land use practices, however; according to La Gentil de la Barbinas, in 1716 there still existed "other settlements among the mountains, where those Indians live who either never submitted to the Spaniards, or have thrown off their yoke" (Lévesque 1998:673).

No Encomienda *and Limited In-kind Taxation*

Another difference between the mission to the Mariana Islands and the conquest and colonization of the Americas and the Philippines was the absence of the *encomienda*. The *encomienda* was a land use and tenure system in which privileged members of high standing with the Crown in Spain were sometimes awarded large tracts of land and any native inhabitants of the land were forced into indentured labor in perpetuity (Freycinet 2003 [1819]). Few soldiers of high status or with royal family connections arrived in Guam during the seventeenth through nineteenth centuries C.E. Most members of the military posted to the island were single men of Mexican or Filipino heritage; they intermarried with local women and remained on the island with their *mestizo* (mixed Spanish and indigenous) families to work at their family's *lanchos*. With so few troops, enforcing an *encomienda* with indentured labor would have been difficult even on such a small island, and would have threatened the royal *haciendas* (plantations) as well as the Jesuit mission, which maintained its own land holdings with farmers to support the churches and governor (Flores 2011).

Until the late eighteenth century, Chamorros and *mestizo* civilians were not allowed to legally trade with passing ships, so exchange with sailors as barter without cash was conducted for food, crafts, and services rendered (Arago 2013 [1823]). Governors of Guam attempted to get their projects completed by taxing people for labor, mostly to no avail. Paid employment was almost non-existent beyond the governor's

administration and the community of Hagatna could hire very few construction (carpenters and masons) or craft (cobblers and tailors) specialists. Roads and bridges thus remained in disrepair for decades as able-bodied village residents returned to their *lanchos* every week to grow or harvest just as much food crops as needed, shirking duty on the few public works projects initiated by the governor (Flores 2011).

The Situado

In the absence of taxable *encomiendas* and wage labor, the *situado* was instituted to provide a stipend for mission and crown representatives in the Mariana Islands. Paid in Mexican or Peruvian silver coins and cloth, brandy, wine, sugar, flour, and tobacco, the stipend was delivered once a year from Acapulco on the Manila-bound galleons. Beginning with Damian de Esplana, the governors of Guam established Umatac as their *almacen* (store and warehouse) so they could monopolize incoming *situado* galleon supplies and any resulting local trade (Farrell 2011). They then resold the goods and the *aguardiente* (liquor) distilled by local owners of coconut groves to the soldiers and their families at inflated prices, which left their customers with increasing debt for the next year. They frequently recaptured the entire amount of the military salaries when it arrived from Acapulco by subtracting what each soldier or government employee owed the *almacen*. In lieu of cash, military personnel were often paid in cheap cloth that arrived on the *situado*, but because of their mounting debt, by 1711 it had become "a common sight to see shirtless and shoeless soldiers in the islands" (de Viana 2004:77).

Since the governor was the administrator of all products that arrived with the *situado* from Acapulco (or had been ordered from Manila and supplied less frequently by a ship from Cavite), little was left over for Chamorro consumption or Filipino and Mexican soldier redistribution after the collection of annual debts. Consequently, people on board the Manila-bound *situado* ships from Acapulco (which by the 1580s was an annual visit) and the 24 Dutch and English vessels that visited by 1686 noted the worsening health of the dwindling inhabitants of Guam (Lévesque 1995a), primarily caused by diseases introduced with the Spanish and foreign ships (Hezel 2015).

Circulation of Western and Asian Goods

The quantity of artifacts from sixteenth to eighteenth century C.E. archaeological contexts is generally quite sparse, reflecting the low circulation of Western and Asian materials in Guam and the Commonwealth of the Northern Mariana Islands (CNMI) (Dixon, Jalandoni, and Craft 2017). This is to be expected given the low level of colonial investment from Spain in the Marianas colony and the resulting amalgamation of Chamorro and Spanish material culture. As mentioned above, trade with the Manila-bound galleons and occasional European vessels was strictly forbidden until the late eighteenth century C.E., which allowed the governors to concentrate all material wealth in their *almacen* in Umatac (Arago 2013 [1823]; van Dyke 2008). Wealthy urban dwellings outside Umatac are rare, though the Rosario House (occupied during the mid-nineteenth century C.E. whaling period) in Hagatna, with its range of imported ceramics, is a notable exception (Bulgrin 2017).

In 1801, visitors to the more rural settings of central Guam found the farmers' houses to be "small but very cleanly . . . [with] two or three Hammocks of Net work and the same number of Mats, a Chest, one frying pan, a Large Copper Pan and a few

earthen jars" (Haswell 1920 XI:1, quoted in Flores 2011:79). Fragments of earthen jars and a few sherds of porcelain and glass or metal have been recorded archaeologically at abandoned *latte* sets near Acapulco (local placename) in the middle of the Talofofo drainage, indicating some degree of continuity in settlement patterns beyond the Conquest (Dixon, Jalandoni et al. 2014). The material record there does not indicate any high level of affluence, however.

Foodways

It has been noted that anthropologists often treat food as a code that reflects "different degrees of hierarchy, inclusion and exclusion, boundaries and transaction across . . . boundaries" (Douglass 1971:61, quoted in Watson 2004:105). Observations of traditional land use at the cusp of the nineteenth century indicate that an amalgamation of imported and indigenous plants and foodways was already well underway within a few generations of La Reducción ca. 1700. For example, at a Royal Farm established at Dandan in the same hills above Inarajan as Acapulco, another visitor found farmers raising "corn, onions, tubers, and greens and to pasture the King's cattle, pigs, and fowl" (per Sanz 1992 [1827]:17, in Flores 2011:79). The produce and animals being raised for the government there sound almost exactly like the products put on board *Le Uranie* by its purser to supply meals for the crew and officers on its next voyage beyond the Marianas (Arago 2013 [1823]).

Also related to the transition from traditional pre-Contact to Colonial foodways is the manufacture and use of domestic ceramic cooking vessels from the end of the Latte Period to beyond La Reducción. Latte Period ceramics from Colonial dated contexts (such as at Site 66-08-1041) also lack the range of diversity sometimes found in the northern Guam plateau. This phenomenon may be explained in terms of Practice Theory, which suggests that "communities of ceramic practice . . . reflect an underlying tendency of household potters to conform to the existing practices of the neighboring potters with whom they interacted most regularly, or whose pots they saw or used routinely" (Worth 2017:146). Such interactions would be expected to have occurred at the six Colonial villages to which Chamorro families (including their female potters) from across the Marianas were consolidated on Guam after ca. 1700.

The mode of cultural transmission for craft techniques has been shown to occur primarily via vertical transmission, that is, with most craft skills passed on generationally from parents to same-gender offspring (Shennan and Steele 1999:376). Vertical transmission of craft skills leads to a high degree of conservatism in morphological innovation as the social pressure to maintain existing traditions and accepted ways of working is strong between parents and their offspring (Hosfield 2009:53). The marked uniformity in the "community of ceramic practice" illustrated in the Colonial contexts at Site 66-08-1041 is interpreted as an intentional attempt to retain the techniques and traditions learned by earlier generations. Lack of innovation within a system of European ceramic wares reflects a conscious effort to persist with tradition and maintain Chamorro identity.

Poverty in the Marianas

The lack of a cash economy, limited taxation, the ability to forage in addition to subsistence farming, and the end of the galleon trade after 1821 (following Mexican

independence from Spain and a greatly reduced *situado*) could only lead in one direction: poverty. Slaves from India and SE Asia purchased in Manila were still in high demand in Mexico until well after they were declared Indian vassals of the crown in 1672 (Seijas 2014), but were never needed for the small land holdings on Guam. Instead of slavery, debt peonage emerged in the Marianas by the end of the nineteenth century C.E., as landless farmers fell deeper into debt to the government *almacen* [store], the church, and by taking loans or leasing land from families with large *haciendas* [landed estates]. In the absence of a cash economy, "debts were normally paid off by labor, resulting in peonage for many of the poorest people from one generation to the next" (Rogers 1995:105). By the time the first American Naval administration and William Safford arrived in 1899 (following the departure of the last Spanish and Filipino political prisoners in 1889), working off debt with labor had become entrenched in Guam's economy, to the detriment of the Chamorros (Leon-Guerrero 2016; Madrid 2006).

Socio-economic mobility was also stifled as few Chamorro lay-assistants to the church were able to pursue careers as ordained priests and the status differences between landed gentry of mixed Spanish ancestry and the landless peasants became more pronounced. Wealthy individuals retained the majority of political appointments. Access to church and crown lands was restricted and obtaining an education beyond parochial primary school was but a dream for most children. Medical attention and western medicine were also restricted to those who could afford them; for the majority, health care remained in the hands of family *suruhanus* (traditional curers).

In the face of cultural repression and the poverty of the general Chamorro populace, popular stories about a humble folk hero named Juan Malo evolved. By outwitting the venal governor and *magalahi* with nothing but cleverness and his stolid carabao (water buffalo), he became the "prototype of the Chamorro people, forced into lying and mischief in order to live, but managing to maintain, even under the heavy discipline of the conqueror, their own droll sense of humor and love of fun" (van Peenan 2008:28). Thus, Juan Malo became "the living symbol of Chamorro pride and patriotism" (van Peenan 2008:36). Despite church teachings to the contrary, stories of *taotaomona* (ancestral beings) operating beyond the power of the Spanish realm also persisted well after contact; however, they were increasingly told by the impoverished common people alongside new stories (condoned by the clergy) about the appearance of the Virgin and her miracles.

ARCHAEOLOGICAL INVESTIGATION AND LAND USE ON SITE 66-08-0141

Recent archaeological studies at the South Finegayan *latte* Site 66-08-0141 reported here were predicated upon a pioneering excavation by the University of Guam (UOG) during the early 1970s, when a U.S. Navy housing development was being constructed there (Birkedal and McCarty 1972). The UOG team identified three activity areas presumed to be associated with the intact habitation supports (i.e., *latte*) found there (Fig. 2, Fig. 3).

When a new U.S. Navy housing development in the area was contemplated, there was concern that it might affect the subsurface remains at the site. The original authors of the excavation report then prepared a National Register of Historic Places application for the site that became known as the South Finegayan Latte Stone Park. Much later, a detailed research design including site map, methods, questions, and

Fig. 2. South Finegayan Latte site (66-08-0141), view to the south (photograph by Boyd Dixon).

Fig. 3. South Finegayan Latte site (66-08-0141), view to the east (photograph by Boyd Dixon).

recommendations for site treatment was prepared for the U.S. Navy by the Micronesian Anthropological Research Center (MARC) at the UOG (Griffin et al. 2013). Following the research design, a ground-penetrating radar (GPR) survey was conducted by SEARCH Inc. of the three previously identified artifact-bearing deposits to determine their depth and likely distribution (DeFant and Altes 2015).

The present excavations by Cardno were directed toward determining whether the three areas identified by SEARCH (A, B, and C) represented additional *latte* sets, activity areas such as earth ovens, refuse or kitchen middens, or burial zones (Dixon, Rudolph et al. 2017). Geoarchaeological evaluation of the soils within and outside each activity area was critical for assessing the degree to which they have been manipulated culturally, either by earlier agricultural pursuits and household activities by the inhabitants or by WWII combat and later construction activities. No excavation was conducted within the walled-off habitation area itself (see Fig. 2) and archaeologists were accompanied by AMPRO safety escorts to avoid any Metal of Explosive Concern (MEC) anomalies and buried utilities. Geographic data including all excavations were provided in World Geodetic System of 1984, Universal Transverse Mercator (UTM) Zone 55 North, using a Trimble Geo 7X with sub-meter accuracy.

Geoarchaeological Analysis of the Site Setting

Area A — The findings of geoarchaeological trenching within Area A show that the original Latte Period activity surface had been buried by a natural hillslope-related layer of colluvium originating from the distant hillslope above Area C and infilling a shallow basin predating the settlement in Area A and Area B. Later construction fill covered much of the southern and eastern portions of the original site surface. The adjacent hillslopes have been graded away and are likely the sources of current construction-related fill used to raise the level of houses and driveways.

A large earth oven feature (Feature A1) was present adjacent to the northern portion of the *latte* stone structure. It was excavated from two trenches located within and just to the north of the concrete wall surrounding the former interpretive sign (see Fig. 2) for the Latte Stone Park and measures approximately 8 m (26.2 ft) north to south and 1 m (3.3 ft) east to west (Fig. 4). Feature A1 is a burned rock oven with associated limestone cobbles, artifacts, burned coconut shells, and charcoal staining (midden). Excavation of shovel test pits (STPs) and test units (TUs) in Area A confirmed that much of the site farthest from the walled-in Latte Stone Park (see Fig. 2) had been highly disturbed by modern construction. Although portions of Feature A1 were disturbed, much of the feature contained archaeological artifacts in primary stratigraphic contexts, including levels likely predating the erection of the *latte* set. The entire oven and the full extent of its raked-out midden remain to be defined archaeologically, but appear well preserved.

The modern 10 cm (3.9 in) thick pea gravel landscaping fill on top of the feature was removed by the backhoe. The midden matrix was scraped to 30 cmbs (11.8 in) with a flat blade in 10 cm (3.9 in) levels due to dense burned rocks. The soil was then shoveled into 0.318 cm (0.125 in) screens down to the subsoil.

Feature A1 was further excavated by hand to its bottom at 48 cmbs (18.9 in) at the south end of trench A-TR-N1 (Fig. 5). The lens of charcoal-stained, organically-enriched soil spanned the 5.5 m (18.04 ft) length of the unit and was present continuously from 10 to 30 cmbs (3.9–11.8 in). A deeper, and likely older, portion of

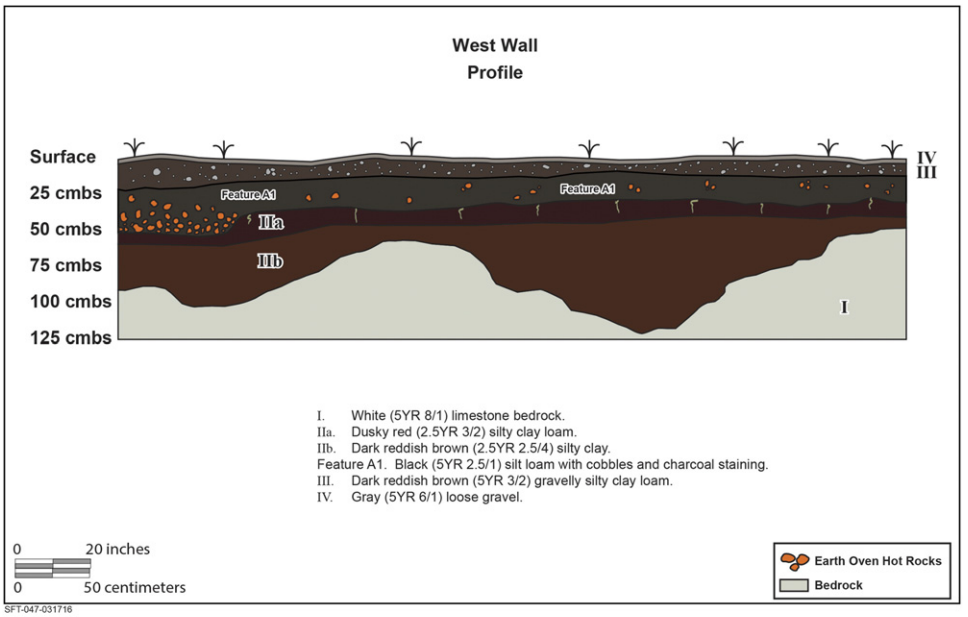

Fig. 4. Profile of trench A-TR-N1: Feature A1 oven; IIa and IIb top soils; III sheet wash; IV surface (from Dixon, Rudolph et al. 2017:4–25, fig. 4.1–15).

Fig. 5. Feature A1 at southern end of trench A-TR-N1, facing west; scale increment 20 cm (7.9 in) (from Dixon, Jalandoni, and Craft 2017:4–26, fig. 4.1–16).

Feature A1 extended 75 cm (29.5 in) north from the south trench wall and reached a depth of 50 cmbs (19.7 in). This portion of Feature A1 consisted of an excavated fire pit that had been dug into the soil of Stratum II by Latte Period occupants. The deeper portion of Feature A1 included a higher volume of burned limestone cobbles than the surrounding cobble-rich feature fill. Charcoal specimens and soil samples were collected for radiocarbon dating, microfossil analysis, and soil chemistry characterization.

Area B — Area B included a bulldozed pile in the northeastern portion of a playground which may contain remnants of limestone *latte* stones. Dark, organically-stained archaeological deposits were present below the modern surface and included faunal remains in sheet trash contexts. Multiple shallow bulldozer cuts and a mechanically-scraped area measuring approximately 4 × 3.5 m (13.1 × 11.5 ft) were placed in the vicinity of Area B.

Geoarchaeological information collected at Area B focused specifically on determining: (1) the likelihood that limestone boulders within the bulldozed pile represent remnants of a Latte Period residential structure; (2) the temporal setting and spatial relationships between buried sheet trash, archaeological features, and architectural remains; and (3) the boundaries of recent site disturbance as it relates to overall site condition.

Feature B1 is an earth oven of oval shape measuring 2.5 × 0.75 m in size in a shallow basin 23 cm deep. The density of burned rock is highest nearer the surface, with burned soil and coconut shells thicker near the bottom of the feature. The coconut shells could be indicative of a fuel source. Rocks appear to have been roughly fist-sized before heating, with 90 percent fractured and 50 percent of the fragments under 5 cm diam. Rock density clustered near the feature center in the upper elevations. The soil matrix was black, organic, and greasy with almost blue-colored burned limestone chunks situated near the surface in a shallow swale below the root mat. Removal of feature fill in the west wall uncovered the shallow basin, which extended only another 15 cm into the side wall. The artifacts collected in the feature include marine shell, rodent bone, and two Latte Period ceramic sherds (one Type B rim). A sample of burned soil was taken from the side wall for radiocarbon assay and further analysis.

Feature B2 is an earth oven of oval shape measuring 100 × 120 cm in size with a shallow basin-shaped profile 10 cm deep. The soil matrix was black, organic, and greasy with almost blue-colored burned limestone chunks under fist-sized. The burned rocks were roughly fist-sized to smaller where heat fractured, with 90 percent fractured and 50 percent under 5 cm diam. The burned rock density was highest nearer the surface; mostly burned soil with carbonized coconut shell was found near the bottom. As with the prior features, coconut shell may infer a source for fuel. The artifacts collected from Feature B2 were pottery sherds, marine shells, and coconut shells and a burned soil sample was taken for radiocarbon dating and residue analysis.

Feature B3 was a low mound 16 × 11 m in size and 1 m high and contained at least two possible *latte* elements that appeared to be upright but buried. During the excavation of TU 3, the base of a large stone was exposed at 40 cmbs within a loose fill matrix that was redeposited in modern times. The stone was identified as not in a primary intact setting; given its rough shaping, it may have been a disturbed *latte* stone. As McCarty and Birkedal (2016) noted, the fill contained numerous bits of modern metal nails, bottle glass, roof tiles, ceramic tiles, and plastic toy fragments. The modern debris retrieved from this fill indicates a prior structural demolition event before the

1970s when the construction of the housing area first occurred. However, the pre-Contact pottery and possible cut limestone shafts imply former proximity to a *latte* set, as do the nearby cooking features B1 and B2.

Feature B4 is a small shallow-basin fire hearth measuring 15 cm in the trench wall and 10 cm deep, without burned rocks in its matrix. This feature was found beneath two layers of construction fill, including playground gravel at the surface. The hearth matrix was sampled because two Latte Period pottery sherds had been found in the surrounding buried A-horizon and subsoil immediately below the feature and a fragment of brown Duraglass beer bottle had been found just above in disturbed context. The small size of this feature and the lack of rake-out midden suggest a one-time cooking event. A sample of burned soil was taken from the side wall for radiocarbon assay and further analysis.

Area C — Area C trenching revealed that the landform no longer represents an area of Latte Period activity. Instead, 1970s construction-related activities appear to have scoured the original surface and added approximately 2 m of imported boulder and crushed limestone fills with previous construction debris. This large scale landscaping was presumably done to reduce surface runoff behind and into the housing units of Area A and form a more gradual slope suitable for road construction to the north.

Radiocarbon Dating

Systematic excavation within the subject area collected a total of seven ($N = 7$) specimens for radiocarbon age determination (Table 1, Fig. 6). The collection of dates included three age determinations from Feature A1 within Area A and four determinations from Area B. The radiocarbon dates from Area B included two assays from Feature B1, one date from Feature B2, and one date from Feature B4. Thin feature profiles (the result of mechanical scraping) precluded the ability to attain upper, middle, and lower stratigraphic samples for testing. The result of systematic collection methods, the reported dates all come from discrete areas of Latte Period activity and reflect the actual event date for documented features rather than ambiguous dates for portions of soil. Since the dates provided describe the timing of actual activity events, a discussion of changes in the intensity of activity over time and temporal change in spatial patterning of activity areas is achievable. The timing of initial and subsequent land use and the diachronic change toward residential occupation within the subject area are discussed below.

Radiocarbon age determinations from Area A indicated the presence of three temporal components within the large earth oven and ash throw lens of Feature A1. The oldest radiocarbon age determination (Sample A1.2, 610 ± 30 B.P.; Beta-430839) offers the date for initial formation of the cooking feature atop Stratum II at Area A within Feature A1. This portion of the feature yields a calibrated date of 1295–1404 cal. C.E. ($p = .95$). A later date exists within a subsequent cooking pit that truncated the initial ash layer. The cooking basin dug into the initial ash lens yielded an uncalibrated radiocarbon age of 470 ± 30 B.P. (Sample A1.3; Beta-430840) and provides a 2-sigma calibrated date of 1410–1457 C.E. A third and final age range of activity exists above the two older dates and is representative of the last period of use for

Table 1. Radiocarbon Age Ranges and Supplemental Data for Features at Area A and Area B

Beta # Submitter #	Provenience	Material: Pretreatment	$^{13}C/^{12}C$ ratio (‰)	Conventional radiocarbon age (years B.P.)	2-sigma calibration (years C.E.)
430844 S.FIN-Fea.B4.1	Trench B-TR-S6 Feature B4 45–50 cmbs	Organic sediment: acid washes	−24.0	180 ± 30	1652–1696 (19.1%) 1726–1815 (51.9%) 1836–1877 (4.1%) 1917–present (20.4%)
?? 430843 S.FIN-Fea.B2.1	Trench B-TR-S2 Feature B2 40 cmbs	Organic sediment: acid washes	−23.0	104.1 ± 0.3	Modern (post-C.E. 1950)
430842 S.FIN-Fea.B1.2	Trench B-TR-W2 Feature B1 40 cmbs	Organic sediment: acid washes	−23.3	190 ± 30	1648–1694 (21.7%) 1727–1813 (52.7%) 1917–present (21.0%)
430841 S.FIN-Fea.B1.1	Trench B-TR-W3 Feature B1 10–20 cmbs	Charcoal: acid/alkali/acid	−23.7	160 ± 30	1664–1707 (16.7%) 1719–1826 (47.4%) 1832–1884 (12.6%) 1814–present (18.6%)
430840 S.FIN-Fea.A1.3	Trench A-TR-N1 Feature A1 42 cmbs	Organic sediment: acid washes	−25.0	470 ± 30	1410–1457 (95.4%)
430839 S.FIN-Fea.A1.2	Trench A-TR-N1 Feature A1 35 cmbs	Organic sediment: acid washes	−25.0	610 ± 30	1295–1404 (95.4%)
430838 S.FIN-Fea.A1.1	Trench A-TR-N1 Stratum III, 18 cmbs	Organic sediment: acid washes	−24.5	200 ± 30	1646–1690 (24.9%) 1729–1810 (51.2%) 1926–present (19.3%)

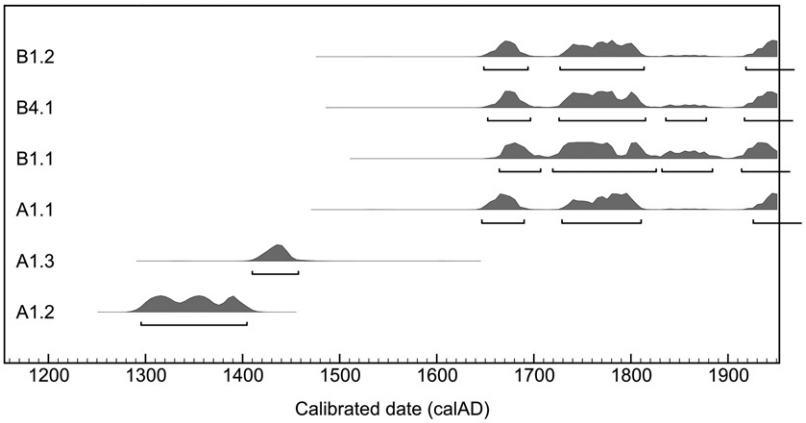

Fig. 6. Radiocarbon dating probability distributions for site 66-08-1041 (assays by Beta Analytic using OxCal v4.2.4 [Bronk Ramsey 2017]; r:5 IntCal13 atmospheric curve [Reimer et al. 2013]) (from Horrocks SFT-107-031616, Dixon, Rudolph et al. 2017:4–81, fig. 4.1–58).

Feature A1. The upper date (Sample A.1.1; Beta-430838) provides several intercepts with the radiocarbon curve and offers three potential calibrated age ranges. The three possible calibrated age ranges are 1646–1690 cal. C.E. ($p = 0.249$), 1729–1810 cal. C.E. ($p = 0.512$), and 1926-modern cal. C.E. ($p = 19.3$). The probability distribution is highest between the 1729–1810 cal. C.E. range ($p = 0.512$).

Analysis of the two early dates from Feature A1 was conducted using the calibration and analysis program Oxcal (version 4.2). An RCombine analysis, including a Ward and Wilson (1978) test shows a statistically significant difference between the uncalibrated radiocarbon ages of samples taken from the surface of Stratum II (Sample A1.2, 610 ± 30 B.P.) and within the basin intrusion (Sample A1.3, 470 ± 30 B.P.) (X^2, df = 1, $T = 10.88$, $p < .05$). As such, the two samples do not share a consistent ^{14}C content as would be the case for organic-rich deposits created in relatively rapid succession. While the uncalibrated radiocarbon ages are mutually exclusive, the calibrated outer and inner date range at the 2-sigma level suggests the potential for contemporaneity.

To clarify the temporal relationship between actual calendar dates, further analysis used the "Combine" feature in the radiocarbon analysis software OxCal (version 4.2). This test of agreement helps to define the likelihood that the intrusive basin portion of Feature A1 (Sample A1.3, 470 ± 30 B.P.) actually represents a distinguishably different period of site use upon Stratum II. The test for calendar date agreement confirms the assertion that the date of organic soil within the intrusive cooking feature (Sample A1.3) is indeed younger than the organic material deposited on the surface of Stratum II (Sample A1.2) and that the outer and inner calibrated age ranges do not overlap in calendar age. Specifically, the combined calendar date ranges offer poor agreement ($n = 2$ Acomb = 16.0% [An = 50.0%]), where the agreement index threshold of 50 percent fails to be met by the low observed index of 16 percent. The result of this comparison provides strong evidence that temporally discrete periods of site use exist below the ca. 1729–1810 cal. C.E. portion of Feature A1 (Birkedal and McCarty 1972)

and affirms the hypothesis that three separate events are present within Feature A1. The calibrated dates collected from Feature A1 show that three discrete periods of activity are present, including initial use at ca. 1295–1404 C.E., with subsequent use appearing ca. 1410–1457 C.E., and a final period of use occurring ca. 1729–1810 C.E. This indicates that Area A was initially a location of possible non-residential use prior to advent of the residential *latte* habitation and was then reused after the abandonment of the *latte* structure.

Colonial dates from the site (samples A1.1, B4.1, and B1.2) were subjected to Bayesian overlap phase modelling, Span analysis, and Combine commands in Oxcal to gain a clearer understanding of start dates, end dates, duration of activity, and overall timeframe for use during the period of Spanish colonial entanglement. Modeled dates under the Bayesian Phase model exceeded the acceptable agreement index of 60 percent, offering an overall agreement index of 108.6 percent. The high agreement index shows that the dates used overlap sufficiently and provide necessary values for confident interpretations. The modelled start date for Colonial activity at Site 66-08-1041 rests between cal. 1700–1791 C.E. at the 1 sigma confidence level. The modelled end date for activity lies between cal. 1749–1860 C.E. at the 1 sigma confidence level. The modelled data at the 1 sigma confidence level indicates a duration of less than or equal to 54 years. The Combine function also offered a strong index of agreement ($n = 3$ Acomb = 129.9% [An = 40.8%]) and suggests that Colonial activity occurred for a duration of up to but not exceeding 54 years between cal. C.E. 1736 and 1805.

Microfossil Analysis

A soil sample and a sample of scrapings of blackened residue from six ceramic sherds recovered from the uppermost use level of Feature A1 (radiocarbon dated ca. 1729–1810 C.E.) were analyzed for plant microfossils to provide a record of past vegetation, environments, and human activity (Horrocks this issue). Both samples were analyzed for phytoliths and starch, and the soil sample was also analyzed for pollen. Based on this analysis, large amounts of microscopic fragments of charcoal were found in the pollen sample and in the starch extractions of both samples which reflects intensive human activity at the site including hearth fires and burning of vegetation (Dixon, Rudolph et al. 2017).

The pollen assemblage of the soil sample profile was dominated by coconut (*Cocos nucifera*) and ferns (Fig. 7). The fern spore types are from ground fern species, in large part reflecting landscape disturbance. Cheo-Am pollen found in the soil sample also reflects disturbance. A small amount of pollen of the subsistence taxon *Pandanus* also featured. The phytolith assemblage of the soil sample was almost entirely dominated by palms (Arecaceae), most likely coconut given the large amount of coconut pollen detected (Fig. 8). One type of starch was detected within the soil sample, which was from a single clump of degraded cf. taro (*Colocasia esculenta*) starch grains. Taro, a pre-Contact introduction to Guam, is a member of the aroid family (Araceae). The soil sample also contained a large amount of degraded fragments of calcium oxalate crystals (raphides and druses). Aroids contain high concentrations of such crystals in their tissues (Sunell and Healey 1979). The cf. taro starch and evidence of calcium oxalate

Fig. 7. Pollen percentage diagram from South Finegayan Latte Stone Park (from Horrocks 2016: fig. 1).

crystals suggests that the sampled deposit was associated with taro cultivation or processing.

The ceramic sherd sample was dominated by phytoliths of palms and grasses (Poaceae). The latter includes a small amount of bulliform leaf phytoliths of the Oryzeae sub-tribe of grasses, which comprises 11 genera. In the current study, this phytolith type is presumably from introduced rice (*Oryza sativa*), as studies of Pacific grass distributions imply that this crop species is the sole member of this sub-tribe on Guam (Clayton and Snow 2010). Other types of biogenic silica were found during the ceramic sherd analysis. These types are radiolarian fragments and sponge spicules which indicate that the ceramic sherd came from a pot that held sea food or sea water.

The study of plant microfossil remains at South Finegayan Latte Stone Park includes results from two specimens associated with Feature A1. The two specimens include a sample of organic-rich soil (FS# 41) and ceramic sherds with residue (FS# 11). The organic-rich soil sample was collected *in situ* at a depth of 18 cmbs. A portion of this soil sample was also sent to Beta Analytic for radiocarbon age determination (Sample A1.1;

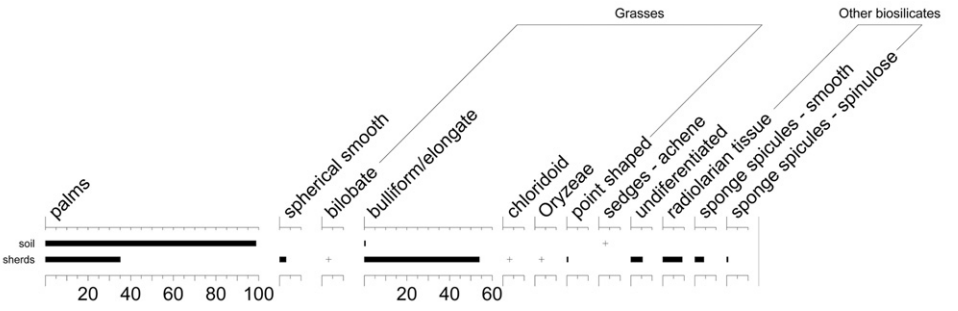

Fig. 8. Phytolith percentage diagram from South Finegayan Latte Stone Park (+ = found after count) (from Horrocks 2016: fig. 2).

Beta-430838). The ceramic sherds with blackened residue were recovered within Feature A1 at a depth of 20–25 cmbs, directly below the area of sampled organic-rich soil. Both specimens are associated with the upper component, or most recent period of use, of Feature A1. The sampling strategy allows for a direct date for the observed plant microfossils, as investigations tested portions of the same soil sample for plant microfossils and radiocarbon age. No stratigraphic horizons were present to indicate separate temporal contexts within the 2 cm of feature fill that separated the soil sample and radiocarbon date from the ceramic artifacts. As a result, the ceramic sherds, plant microfossils, and radiocarbon date are all part of the same event and combine to illustrate synchronic aspects of chronology, material culture, and subsistence. A previous Guam and Saipan microfossil study also indicated the use of several subsistence taxa, including banana (*Musa*) and up to three yam (*Dioscorea*) species (Horrocks et al. 2015). That study similarly found radiolarian fragments on the inside surface of a potsherd, reflecting the use of marine resources.

Artifact Analysis

Artifacts recovered from trenches, TUs, and STPs were relatively sparse given the volume of soil investigated. This was expected since there had been no recent subsurface investigations within the *latte* set and immediate walled vicinity. As all TUs, STPs, and features were screened through 0.318 cm (0.125 in) wire mesh, while trench fill was only randomly sampled, the total artifact count recovered at Area A was 16 pieces of ceramic, 3 adze fragments, marine shell, and a slingstone. The artifacts of modern recent refuse (modern plastic, metal, and glass artifacts) from non-feature contexts were recorded, but not saved.

The largest pre-Contact artifact type was ceramics ($n = 16$, 69% of total assemblage), followed by marine shell fragments ($n = 3$, 13%), adze fragments ($n = 3$, 13%), and a limestone sling stone ($n = 1$, 1%). Ceramics were found in STPs 1, 2, 4, and 5 and Feature A1. The majority of the 16 ceramic fragments recovered were non-diagnostic body sherds ($n = 13$, 81% of total ceramics), while thickened rims from inwardly curving jars of the Type B Latte Period tradition were far fewer ($n = 3$,19%). Of this assemblage (Fig. 9), one rim (33% of the total) was incised with horizontal lines perpendicular to the lip (Fig. 10). Rim thickness ranged from 20 to 22 mm (0.79–0.87 in) and vessel body wall thickness ranged from 6 to 13 mm (0.24–0.51 in). Rim diameter at the vessel mouth was impossible to estimate due to the small sherd size, but appeared no wider than 30 cm (11.8 in) in diameter. Ceramics were tempered with both volcanic sand and calcareous sand.

The artifacts specifically collected in the Feature A1 oven and midden were combed and brushed Late Latte Period (1350–1521 C.E.) sherds, three *tridacna* shell adzes (Fig. 11), marine shell food fragments, modern faunal bone, and burnt coconut shells. The paucity of shell fragments noted during screening of midden features suggests that neither large-scale import of marine resources nor *in situ* tool manufacture and repair occurred at the site. Burned ceramic sherds were submitted for starch residue analysis in combination with nearby soils submitted for pollen and phytolith analyses.

The one limestone slingstone recovered during screening of Feature A1 was smaller in size and weight than many found in Latte Period sites in the Mariana Islands (York and York 2011) (Fig. 12). However, it was badly eroded, perhaps from previous exposure to the elements before reburial. This artifact was manufactured from

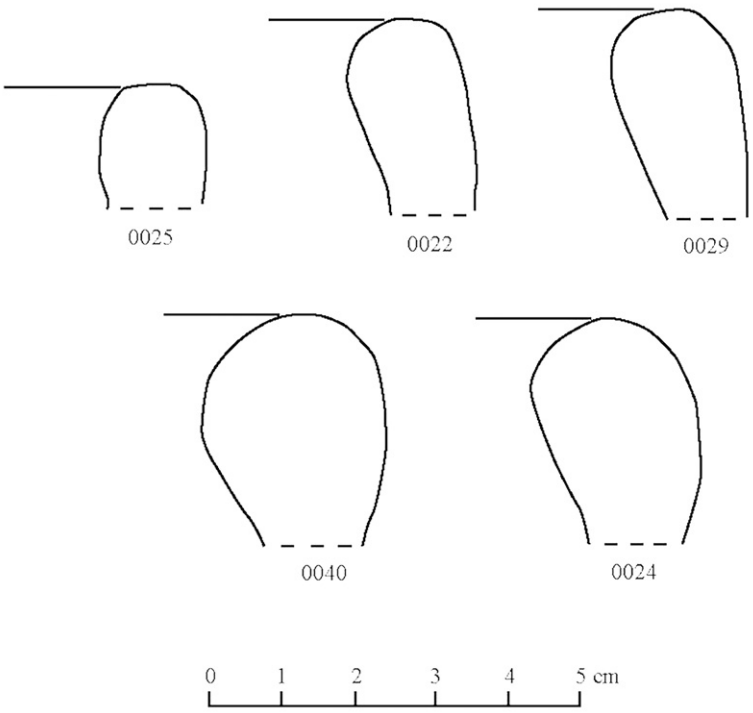

Fig. 9. Latte Period Type B rim forms from Area A (artifact nos. 22, 24, 25, 29, 40) (courtesy of Jacy Moore Miller).

geological materials commonly associated with the northern Guam plateau. Also present in the cooking and midden Feature A1 were burned limestone fragments, heat spalls, and charred coconut nutshell fragments.

Preservation of the Latte *Set and Later Use*

Results of these archaeological investigations suggest that, after La Reducción ca. 1700 and the consolidation of northern Guam families into southern villages, many former rural *lanchos* on the plateau at greater distances from Hagatna may have been abandoned, while other ancestral land use claims came under dispute. Site 66-08-1041 had one saving virtue in its relative proximity to the Spanish capitol on Guam, which was at most a half days walk away. Indeed, higher status Chamorro families living in Tumon may well have preserved oral claims to planting areas and rural habitation sites in Finegayan that had served their members as natural resource procurement reservoirs for generations prior to Contact.

Firewood, construction materials, tree crops, planted tubers, and medicinal herbs were likely still available near the site for family members with a memory of traditional land use practices. While little cash was available or of any practical use for such products in the village of Tumon, exchange of forest commodities with family

Fig. 10. Latte Period incised Type B rim form from Area A, STP 5, 28 cmbs (artifact no. 25.02); scale increment 1 cm (0.39 in) (from Dixon, Rudolph et al. 2017:4–75, fig. 4.1–55).

members or Spanish-Filipino neighbors might have garnered useful iron objects and cloth, and perhaps a pair of chickens or young pigs to return to the *lancho.*

One part of establishing a claim to a rural farm and its surrounding trees and planted crops after La Reducción would likely have been the maintenance of a roofed *latte* set home for regular family visits. After Spanish vernacular style houses (with vertical wooden walls, framed windows or doors, and steps) became the norm in Hagatna and outlying villages, rural *latte* sets such as at Site 66-08-1041 may have been modified over time. Shade and rain catchment from the roofline would still have been important, as would maintaining some space above barnyard animals recently acquired from town. Moving cooking ovens and hearths a little further away from the house would also have been necessary, although multiple pre-Contact radiocarbon dates from Feature A1 to the north suggest such safety considerations had long been recognized.

Fig. 11. Tridacna adzes and fragments from A-TR-1 within Feature A1: (left to right) artifact nos. 13.01, 13.03, 13.02; scale increment 1 cm (0.39 in) (from Dixon, Rudolph et al. 2017:4–77, fig. 4.1–56).

Landscape Change

The South Finegayan standing *latte* set is located on an area of bedrock created by the geologic uplift of formerly-active reef facies sediments. Differences in sedimentation regimes during reef formation, such as those present within lagoon setting and reef margins, created a banded patchwork of consolidated and relatively loose sediments within the carbonate platform. As the result of initial parent materials, the bedrock below South Finegayan is composed of well cemented coral and algal rock where recrystallization filled pores with calcite to create a layer of hard limestone (Tracey et al. 1964:46). The hardness of reef margin bedrock in the vicinity of the South Finegayan *latte* site lies in stark contrast to adjacent inland facies where bedrock is composed of detrital materials that originated within an ancient lagoon setting. These lagoon deposits formed behind the active reef edge and now exhibit relatively permeable (well-drained) granular limestone and loose coral heads and coral conglomerates.

The topography of Guam's northern plateau formed as the result of dissolution of limestone by running water and from the initial topography present on the active carbonate platform prior to uplift (Mylroie et al. 1999). Wherever vertical drainage paths such as deep fissures or voids exist within the epikarst, infiltration into the bedrock becomes easier than drainage out of it. This phenomenon focuses the action of chemical weathering upon the surrounding limestone to form a dissolution depression. Dissolution features are often clustered around deep faults or voids within the bedrock and are identifiable as groups of funnel-shaped, deep depressions that are small in area

Fig. 12. Limestone slingstone from Area A STP 2, Feature A1 at 17 cmbs: artifact no. 19.01; scale increment 1 cm (0.39 in) (from Dixon, Rudolph et al. 2017:4–78, fig. 4.1–57).

and roughly circular in plan (Taborosi 2006:48). While these features do retain water, their sharp relief inhibits soil accumulation sufficient for horticulture and imposes less than ideal qualities for crop maintenance.

Closed contour depositional depressions, on the other hand, include internal drainage and are modified by karst processes, yet the majority of their morphology is the result of initial depositional structure rather than subsequent dissolution (Taborosi 2006:57). Depositional depressions within the South Finegayan area are found to be broad and shallow, rather than deep and funnel-shaped, and indicate origins from depositional topography with secondary modification by dissolution (Mylroie et al.

1999). Closed contour depositional depression features are well documented within the Finegayan area and offer a topographic low point in which water may accumulate as the result of precipitation (Taborosi 2006:58). Shallower depressions, such as those within the South Finegayan standing *latte* set, were likely formed by small amounts of dissolution over time acting upon the original undulating topography of a former reef zone. Residual soils present across the South Finegayan *latte* site are the result of in situ weathering of the uplifted reef and lagoon limestone (Young 1988). Soil depths follow the catena model where thin soils exist on hill slopes as the result of sediment erosion and transport by sheetwash and thick deposits are present in topographic swales where slope wash materials are deposited within low energy settings. In comparison to surrounding dissolution karstic features with poor soil formation and steep relief, the closed contour depositional depressions present across Site 66-08-1041 offered an attractive topography, since water intermittently collected in wide shallow basins filled with thick soils atop hard limestone. The area also included gentle slopes for cultivation and required no extraneous physical effort to access.

Creation of Desirable Location

By the 1700s, the colonial landscape of Guam is known to have become a patchwork of domination, accommodation, and negotiation as native inhabitants exerted a variety of strategies for adapting to the colonizing and evangelizing efforts of the Spanish. While active and passive persistence to colonial oppression may take many forms, including refusal, feigned ignorance, dissimilation, or overt resistance, the secretive nature of such actions leaves only minimal archaeological evidence across the social and physical arenas in which they occur (Liebmann and Murphy 2010). While artifactual evidence of overt or open rebellion toward the Spanish Crown may be sparse, latent evidence of cultural continuity and persistence in the face of oppression and starvation may be evidenced by diachronic shifts in the attributes of soil morphology and microfossils contained within the stratigraphic record at the South Finegayan *latte* site. Specifically, if cultural continuity was implicitly expressed at the site, the combined attributes contained within the stratigraphic record provide strong evidence of slash and burn horticulture, the continued cultivation of traditional crops, traditional food preparation, and the use of traditional ceramic vessels as means for maintaining cultural identity during a period of economic centralization and domination by external forces.

As the radiocarbon dates from secure stratigraphic contexts illustrate landscape use during a known time of domination, close scrutiny of the soil stratigraphy may be studied in terms of sediment "life histories," as each soil profile contains evidence of the interactions between landscape-forming processes and horticultural practices. Soil attributes contained within stratigraphic profiles allow for an understanding of sediment source, transport history, depositional environment and post-depositional processes. Diachronic changes between suites of attributes offer the ability to infer behavioral differences that led to the accumulation of patterned sediment matrices.

As a case study, the stratigraphy present within Area A (Feature A1) is assessed to further describe the latent attributes of subsistence activities and determine secure stratigraphic contexts for the use of traditional ceramics during a time of widespread cultural domination. Within Trench A-TR-N1, organic staining, well-sorted soil particles, development of soil structure, and organic mineral leaching within Stratum

IIa and IIb are all attributes that indicate long-term topsoil stability upon a residual soil that formed from uplifted weathered limestone bedrock (Young 1988). Landscape stability appears to have continued through the initial period of site use upon Stratum IIa, evidenced by *in situ* artifacts on the surface of a fine-grained (0.125–0.001 mm [0.0049–3.94 in]) residual soil with no evidence of high intensity depositional events such as poorly-sorted gravels. The soil morphology of Stratum IIa suggests that slope wash from the hillslope at Area C did occur, yet was gradual and of low-intensity during initial *latte* set construction and use of Feature A1. No natural gravel fans are present and no course fraction was observed in the soil (excluding remnant cooking stones), indicating low-intensity sediment accumulation across the area (Goldberg and Macphail 2006).

In contrast, larger limestone grain size (8–32 mm [0.31–1.26 in]) suspended within the gravelly silty clay loam of Stratum III, associated with post ca. C.E. 1730 radiocarbon dates, indicates that changes occurred between sediment source and depositional environment after the use of Feature A1 ceased. A higher volume of sediment, dense accumulations of microscopic charcoal, and larger particle grains were carried by erosion and downslope transport towards Area A. Laminated and platy soil structure within Stratum III indicates intermittent sheetwash events, likely resulting from reduced vegetation cleared by surface fires. Higher transport velocity during sheetwash events, also likely due to slash and burn clearing of surface vegetation, allowed for the entrainment and transport of larger sediments, which resulted in a coarse, poorly-sorted soil matrix (Goldberg and Macphail 2006; Stein and Farrand 2001). Microfossil remains of traditional cultigens present within the soil matrix dated to after ca. C.E. 1730 attests to the maintenance of traditional crops on the slope above Area A. Regarding the depositional environment of ceramic artifacts within Area A, ceramic sherds were observed resting horizontally within a matrix exhibiting a laminated soil structure. This relationship between cultural materials and sediment accumulation suggests primary contexts for the artifacts, where sediment gradually accumulated as the result of intermittent low energy slope wash rather than stratigraphic inversion by slope failure or mass wasting of an older deposit upslope.

CONCLUSIONS

In conclusion, it is within this comprehensive regional context of land use upheaval and acculturation, with native Chamorro society on Guam undergoing the Spanish Colonial siege of La Reducción in the late seventeenth and early eighteenth century C.E., that results from archaeological investigations at the South Finegayan Latte Site 66-08-0141 are interpreted here. Documenting the continuity of subsistence practices before and after initial Contact and the apparent resistance of Chamorro farmers to La Reducción is challenging given the limited archaeological evidence of culture contact in verifiable contexts.

The forced removal of all native inhabitants on northern Guam to southern villages by the Spanish military and clergy during the missionization period may well have discouraged the curation of foreign heirlooms of value, especially given the limited in-kind tax imposed upon native inhabitants and their limited access to the *situado.* Families already reeling from disbelief that their culture was being systematically dismantled also had to contend with disease, poverty, Eurocentric food ways, newly imposed burial and marital customs, resettlement patterns, and alien clothing. Even

though much of the South Finegayan *latte* set remains unexcavated, there is little reason to expect many Spanish or Asian Colonial artifacts will be found at this small rural habitation site on the northern plateau.

Elsewhere in Northern Guam, specifically at the much larger village site of Ritidian, farming of imported plants such as sweet potato alongside traditional subsistence crops such as taro, breadfruit, and yams have been identified archaeologically in microfossil remains on burned Latte Period pottery deposited before the 1668 arrival of Jesuit missionaries (Carson 2014). The production of native tools such as fishhooks and cutting implements using imported materials such as forged iron nails were also indicated at the site (Bayman 2017; Bayman et al. 2012; Bayman and Peterson 2016), as were Venetian glass beads and sherds of East Asian porcelain. Latte Period pottery jars with thickened Type B rims were also present at a Colonial component of the site and sherds coated with burned lime mortar used in *mamposteria* (stone, mortar, and wooden posts) construction were found alongside small fragments of hand-made brick (Jalandoni 2011). Other artifacts of probable early Contact Period origin have been found on Guam and in the CNMI (Dixon, Jalandoni, and Craft 2017), but generally in surface proveniences or subsurface burials and caches lacking radiocarbon dated contexts.

The South Finegayan Latte Site 66-08-0141 therefore appears to represent a return to inland land use areas by Chamorro populations removed from the northern plateau ca. 1700. It may also reflect resistance to the Spanish resettlement policy and its imposed changes in subsistence and habitation practices. The intact *latte* set in Area A combined with the presence of Latte Period style ceramics with burned rice leaf residue and nearby taro phytoliths indicate survival of traditional subsistence activities and related crafts for over a generation after indigenous culture had been severely impacted by La Reducción policy and practices. Investigation of two cooking ovens near the disturbed *latte* set in Area B found both features to date exclusively to the Colonial Period, indicating that not only was the site revisited after La Reducción, but traditional construction elements continued to be used for rural housing, although their exact form is no longer evident.

Resistance and accommodation to Spanish entanglement is therefore encoded in the resilience of native land use and subsistence practices into the early eighteenth century. The continued use of specific settings for agriculture on the northern plateau of Guam such as Site 66-08-0141 thus emphasizes the longevity of cultural memory encoded in land use practices from pre-Contact to Colonial times even in the face of sustained Colonial enculturation. Archaeological data suggest that Chamorro farmers began (or continued to maintain) the rural farming practice known as the *lancho* not because it was thrust upon them by Colonial policy (Hezel 2015), but to accommodate Spanish repression.

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NOTE

1. Please note that this research was conducted privately by the author and does not represent the opinion or the policy of the U.S. Navy.

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