

HOUSEHOLD INTENSIFICATION AND AGRARIAN STATES: EXCAVATION OF
HOUSES AND TERRACED FIELDS IN A MIXTEC CACICAZGO

by

VERÓNICA PÉREZ RODRÍGUEZ

(Under the Direction of Stephen A. Kowalewski)

ABSTRACT

This is a study of agricultural intensification on the household scale in a Mixtec cacicazgo of Oaxaca, Mexico, during the Postclassic period (AD 800-1521). Through archaeological, ethnohistorical, and ethnographic methods this study investigates the roles of the state and the independent farming household in the emergence and operation of intensive agricultural systems—agricultural terracing. It is argued that Robert Netting's agrarian smallholder model may characterize the social organization of intensive agricultural production in Prehispanic Mixtec society, and that intensification may have functioned without state direction. The application of the agrarian smallholder model in Prehispanic Mesoamerica is significant in that it suggests that long-lasting and environmentally sustainable methods of intensive agricultural production may operate at the household and community levels. This study followed a program of mapping, surface collecting, and excavation at a rural agricultural settlement, part of the Prehispanic kingdom of Teposcolula. Two houses, twenty contour terraces, and one lama-bordo (agricultural) terrace were excavated. The artifact and architectural data are reported fully in this dissertation. The results suggest that Mixtec commoners had an independent and active role in agricultural intensification. Commoners enjoyed residential stability and had access to some luxury items, suggesting they had well-established usufruct or tenure rights over their houses and lands, and were able to benefit from their own production. Excavations show that the lama-bordo terraces could have been built through household-level labor and organization. This study is the first systematic excavation of non-noble Postclassic Mixtec households and lama-bordo terraces. The excavations revealed information on terrace construction. The household artifact assemblage represent a specific, single-component occupation probably dating to the latest Postclassic. The results of this study compliment archaeologically our understanding of the cacicazgo as a prevalent political institution in Mesoamerica.

INDEX WORDS: Archaeology, complex societies, Mesoamerica, Oaxaca, agricultural intensification, terraces, city-states, household.

HOUSEHOLD INTENSIFICATION AND AGRARIAN STATES: EXCAVATION OF
HOUSES AND TERRACED FIELDS IN A MIXTEC CACICAZGO

by

VERÓNICA PÉREZ RODRÍGUEZ

B.A., University of Texas El Paso, 1997

B.A., University of Texas El Paso, 1999

A Dissertation Submitted to the Graduate Faculty of The University of Georgia in Partial
Fulfillment of the Requirements for the Degree

DOCTOR OF PHILOSOPHY

ATHENS, GEORGIA

2003

© 2003

Verónica Pérez Rodríguez

All Rights Reserved

HOUSEHOLD INTENSIFICATION AND AGRARIAN STATES: EXCAVATION OF
HOUSES AND TERRACED FIELDS IN A MIXTEC CACICAZGO

by

VERÓNICA PÉREZ RODRÍGUEZ

Major Professor: Stephen A. Kowalewski

Committee: Alexandra Brewis-Slade
David Hally
Charles Hudson

Electronic Version Approved:

Maureen Grasso
Dean of the Graduate School
The University of Georgia
August 2003

DEDICATION

Dedico este trabajo a mis padres, Rosa Maria y Sergio Edgardo, a mis abuelitos, Rolando, Lolita, y Eloy, a mi hermana Rosely, a mi asesor Steve, y a mi Manotas.

ACKNOWLEDGEMENTS

This study was made possible with the funding support of the National Science Foundation, the Wenner-Gren Foundation, the Foundation for the Advancement of Mesoamerican Studies, and the Center of Latin American and Caribbean Studies at the University of Georgia. I was able to get up to the point of doing this study thanks to the encouragement, patience, and advice of my committee members past and present Brent Berlin, Alexandra Brewis-Slade, David Hally, Charles Hudson, Claudio Saunt, and specially Stephen A. Kowalewski. My life in graduate school and beyond (as to go through with this study) has been made possible by the help, encouragement, love, and friendship of family, friends, and mentors, Rosita, Edgardo, Chelito, Rolita, Lolita, Maru, Tia Chata, Tio Quique, Carlos, Mon, Vere, Rebeca, Ron, Tom, Sammy, John, Andres, Roge, Amanda, Jackie, Charlotte, and Juana, and the very important dogs Monte, Rabbit, Petus, Cosme, and Manotas who all (humans and dogs) are currently dispersed in the various regions of the Americas. Lastly, my life in the field was lovely and enriching thanks to the family and friends in San Juan Teposcolula—especially Lulu, Yadi, Giova, Cris, Don Esau and Lágrima, and my crew Jorge, Lupe, Lupita, Ohemi, Idalia, Omar, Don Cristino, Raul, Barbara, Dai, Chingon, Chente, Nobu, and Gaby. I want to thank the people of San Juan for letting me work in their town and study their past.

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS.....	v
LIST OF TABLES	vii
LIST OF FIGURES	xi
CHAPTER	
1 INTRODUCTION	1
2 THE MIXTECA ALTA: ITS LAND AND PEOPLE.....	21
3 METHODS.....	41
4 HOUSE 1	69
5 HOUSE 2	115
6 POSTCLASSIC MIXTEC HOUSES	141
7 LAMA-BORDO EXCAVATION	153
8 TEST EXCAVATIONS	170
9 CONCLUSIONS	191
REFERENCES	204
APPENDICES.....	214
A EXCAVATION DESCRIPTIONS	214
B ARCHITECTURE.....	220
C ARTIFACTS	234
D BURIALS.....	368

LIST OF TABLES

	Page
Table 1.1: Archaeological parameters to determine household social-status.....	18
Table 2.1: Mesoamerica, Oaxaca, and Mixtec Chronology	34
Table 3.1: Lithic and ceramic contents in 5-m ² collection areas.....	57
Table 3.2: Coordinates of each excavation area datum point	58
Table 4.1: Ceramic distribution in the sector east of House 1	94
Table 4.2: House 1 ceramic type distributions by room or feature	95
Table 4.3: House 1 feature ceramic artifact contents	95
Table 4.4: Utilitarian versus luxury ware frequencies of Nicayuhu houses compared to Yucuita and Chachoapan houses	96
Table 4.5: Obsidian artifacts by house and room, not including plow zone	96
Table 4.6: House 1 lithic material distributions by room or feature	96
Table 4.7: Carbon sample information and radiocarbon dating results.....	97
Table 5.1: House 2 ceramic type distribution by room or feature	128
Table 5.2: House 2 feature ceramic artifact contents	129
Table 5.3: Utilitarian versus luxury ware frequencies of Nicayuhu houses compared to Yucuita and Chachoapan houses	129
Table 5.4: House 2 lithic material distribution by room or feature	129
Table 6.1: Location and material culture markers of different social-class residential occupations.....	149
Table 6.2: Nicayuhu, Chachoapan, and Yucuita house artifact assemblages compared	150

Table 6.3: Utilitarian versus luxury ware frequencies of Nicayuhu houses compared to Yucuita and Chachoapan houses	151
Table 7.1: Area 3 ceramic artifact assemblage by type and vessel form.....	164
Table 8.1: Excavation areas compared by ceramic and lithic artifacts	181
Table A.1: Excavation area descriptions.....	216
Table A.2: Soil layer descriptions by excavation area	217
Table C.1: Ceramic type descriptions	245
Table C.2: Ceramic categories compared	246
Table C.3: Master bag list information	274
Table C.4: Ceramic vessel forms.....	286
Table C.5: Surface Sandy Cream wares.....	287
Table C.6: Surface Fine Cream wares.....	287
Table C.7: Surface Coarse Tanwares.....	288
Table C.8: Surface Fine Tanwares.....	289
Table C.9: Surface Fine Gray and Coarse Graywares	289
Table C.10: Surface Yanhuitlán Red on Cream.....	290
Table C.11: Surface Graphite on Orange and Orange wares	290
Table C.12: Surface Cacique Burnished and Polychrome.....	290
Table C.13: Area 1 Sandy Cream wares	291
Table C.14: Area 1 Fine Cream wares.....	296
Table C.15: Area 1 Coarse Tanwares.....	302
Table C.16: Area 1 Fine Tanwares	309
Table C.17: Area 1 Orange wares.....	312
Table C.18: Area 1 Coarse gray wares	313
Table C.19: Area 1 Fine Gray wares.....	314
Table C.20: Area 1 Yanhuitlán Red on Cream	317

Table C.21: Area 1 Graphite on Orange	320
Table C.22: Area 1 Cacique Burnished.....	320
Table C.23: Area 1 Polychrome.....	320
Table C.24: Area 2 Sandy Cream wares	321
Table C.25: Area 2 Fine Cream wares.....	321
Table C.26: Area 2 Coarse Tanwares.....	322
Table C.27: Area 2 Fine Tanwares	322
Table C.28: Area 2 Coarse Gray, Fine Gray, and Orange wares	323
Table C.29: Area 2 Yanhuitlán Red on Cream	323
Table C.30: Area 3 Sandy Cream and Coarse Tanwares	323
Table C.31: Area 3 Fine Tan, Fine Gray, and Fine Cream wares.....	324
Table C.32: Area 4 Sandy Cream wares	324
Table C.33: Area 4 Fine Cream wares.....	326
Table C.34: Area 4 Coarse Tanwares.....	329
Table C.35: Area 4 Fine Tanwares	332
Table C.36: Area 4 Coarse Gray ware	333
Table C.37: Area 4 Orange wares.....	334
Table C.38: Area 4 Fine Gray ware	334
Table C.39: Area 4 Yanhuitlán Red on Cream	335
Table C.40: Area 4 Graphite on Orange	336
Table C.41: Area 4 Cacique Burnished.....	336
Table C.42: Area 4 Polychrome.....	337
Table C.43: Area 5 Sandy Cream wares	337
Table C.44: Area 5 Coarse Tan and Fine Tanwares	337
Table C.45: Area 5 Coarse Gray and Fine Gray ware.....	337
Table C.46: Area 5 Orange ware and Yanhuitlán Red on Cream	337

Table C.47: Area 6 Sandy Cream wares	338
Table C.48: Area 6 Fine Cream wares.....	338
Table C.49: Area 6 Coarse Tanwares.....	338
Table C.50: Area 6 Coarse Gray ware	339
Table C.51: Area 6 Orange and Graphite on Orange.....	339
Table C.52: Area 6 Fine Tanware	339
Table C.53: Area 6 Fine Gray ware	339
Table C.54: Area 6 Yanhuitlán Red on Cream	340
Table C.55: Area 6 Polychrome	340
Table C.56: Lithic artifact types	341
Table C.57: Basalt	342
Table C.58: Obsidian	344
Table C.59: Chert	349
Table C.60: Chalcedony	355
Table C.61: Other materials	359
Table C.62: Un-worked bone	362
Table C.63: Worked bone.....	367

LIST OF FIGURES

	Page
Figure 1.1: The Mixteca Alta in Mesoamerica.....	19
Figure 1.2: Prehispanic lama-bordo terraces currently farmed in Huamelulpan	20
Figure 2.1: The Mixteca Alta in Mesoamerica.....	35
Figure 2.2: The Teposcolula Valley seen from El Fortin.....	36
Figure 2.3: Cruz period settlement patterns in the Central Mixteca Alta	37
Figure 2.4: Ramos period settlement patterns in the Central Mixteca Alta	38
Figure 2.5: Las Flores period settlement patterns in the Central Mixteca Alta	39
Figure 2.6: Natividad period settlement patterns in the Central Mixteca Alta	40
Figure 3.1: Terraced hill of Nicayuhu	58
Figure 3.2: Cruz period settlement patterns in the Teposcolula Valley	59
Figure 3.3: Ramos period settlement patterns in the Teposcolula Valley	60
Figure 3.4: Las Flores period settlement patterns in the Teposcolula Valley	61
Figure 3.5: Natividad period settlement patterns in the Teposcolula Valley	62
Figure 3.6: Mapping with total station	63
Figure 3.7: Topographic map of site showing site sectors	64
Figure 3.8: Topographic map of site with all mapped cultural features	65
Figure 3.9: Cruz period occupation at Nicayuhu.....	66
Figure 3.10: Collection area locations across the site	67
Figure 3.11: Excavation area locations	68
Figure 4.1: Location of Excavation Area 1 on northeast slope of Nicayuhu	98
Figure 4.2: Terrace 66 prior to excavation of House 1	99
Figure 4.3: Initial state of Area 1 excavations	99

Figure 4.4: East wall of Structure A as seen when first found	100
Figure 4.5: Plan view of House 1	101
Figure 4.6: House 1 from the northwest after it was completely exposed.....	102
Figure 4.7: Area 1 profile	103
Figure 4.8: Profile view of Intrusion 2 beyond the southeast corner of the temazcal	104
Figure 4.9: Burial 4 in Intrusion 2	104
Figure 4.10: Intrusions 1 and 3 when first encountered	105
Figure 4.11: Burial 2 completely exposed	105
Figure 4.12: Post mold of layer IV into layer V.....	106
Figure 4.13: Stone-lined hearth, Feature 1 in Structure C.....	106
Figure 4.14: Heat-reddened basalt from hearths	106
Figure 4.15: Endeque wall, the east wall of Structure B.....	107
Figure 4.16: Modern raised door step in San Juan Teposcolula.....	107
Figure 4.17: Structure A seen from the south	108
Figure 4.18: Underlying stucco block wall in Structure A	108
Figure 4.19: Interior Feature 2 in central room of Structure A.....	108
Figure 4.20: Comal recovered in Feature 2	109
Figure 4.21: Temazcal in Structure A seen from the south	109
Figure 4.22: Basalt and broken metate fill in temazcal hearth	110
Figure 4.23: East room of Structure B seen from Terrace 62.....	110
Figure 4.24: Structure B east room when first found in excavation	111
Figure 4.25: Structure C with hearth in the background and West room of Structure B in the foreground	111
Figure 4.26: West room of Structure B seen from the patio	111
Figure 4.27: Superimposed stucco floors in West room of Structure B.....	112
Figure 4.28: The remains of Structure D on the front edge of the terrace	112

Figure 4.29: Uncovering the stone slab layer on southeast edge of patio	113
Figure 4.30: Layer IIc, the black soil layer, on the center of patio.....	113
Figure 4.31: Jar fragments found on temazcal floor	114
Figure 4.32: Green stone pendant from East room of Structure B.....	114
Figure 4.33: Sharpening or abrading stone	114
Figure 5.1: Location of Excavation Area 4 on northeast slope of Nicayuhu	130
Figure 5.2: House 2 when first discovered in Area 4 test excavations.....	131
Figure 5.3: Plan view of House 2	132
Figure 5.4: House 2, completely exposed, seen from the next terrace up.....	133
Figure 5.5: East structure on the front of the terrace seen from the south.....	133
Figure 5.6: Door step of the East structure.....	134
Figure 5.7: Hearth, Feature 1, on East structure seen from next terrace up	134
Figure 5.8: North structure to the left	134
Figure 5.9: Two-puppy offering being excavated outside northwest corner of North structure.....	135
Figure 5.10: South structure seen from above the hollow to the west	135
Figure 5.11: Entrance to the hollow beyond the South structure seen from the East structure	136
Figure 5.12: People working in hollow seen from the South structure	136
Figure 5.13: Northwest structure in the foreground	137
Figure 5.14: West structure seen from the next terrace up	137
Figure 5.15: Metate fragment as found in southwest corner of West structure	138
Figure 5.16: Top view of the temazcal as seen from the next terrace up	138
Figure 5.17: Stacked basalt inside temazcal hearth	139
Figure 5.18: Patio of House 2 seen from the north behind the North structure	139

Figure 5.19: Metate and agave scraper fragments found directly on the floor next to Feature 4 in the North structure	140
Figure 5.20: Figurine fragment found in the hollow	140
Figure 6.1: Location of excavated houses on northeast slope of Nicayuhu.....	151
Figure 6.2: Location of Nicayuhu in relation to nearby Natividad period settlements and the Pueblo Viejo of Teposcolula.....	152
Figure 7.1: Lama-bordo terraces in Nduatijubacu seen from the north on an adjacent terrace on Cueva del Coyote.....	164
Figure 7.2: View of Area 3 trench, seen from the west when it was first plotted.....	165
Figure 7.3: Location of Area 3 excavation in the drainage of Nduatijubacu.....	166
Figure 7.4: Deep trench excavation at Area 3	167
Figure 7.5: Area 3 profile	168
Figure 7.6: Detail of stratigraphic profile in S1W3, note soil color differences	169
Figure 7.7: Terrace wall façade in Nduatijubacu, where Area 3 was located seen from the East.....	169
Figure 8.1: Excavation area locations throughout the site.....	182
Figure 8.2: Excavation Area 2 location on northeast slope of Nicayuhu	183
Figure 8.3: Profile of Area 2 excavation	183
Figure 8.4: Burial 3 when fully exposed	184
Figure 8.5: Plan view of Burial 3.....	184
Figure 8.6: Location of Area 4 on northeast slope of Nicayuhu	185
Figure 8.7: Profile of Area 4 excavations	186
Figure 8.8: Location of Excavation Area 5 on northeast slope of Nicayuhu	187
Figure 8.9: Exposed stone foundation in Area 5.....	187
Figure 8.10: Location of Area 6 on south-southeast slope of Nicayuhu.....	188

Figure 8.11: Exposed stucco floor and stone foundations found on Terrace 126 in Area 6 excavations	189
Figure 8.12: Profile of Area 6 excavations	190
Figure B.1: Contour and lama-bordo terraces at Nicayuhu	227
Figure B.2: Domestic structure.....	227
Figure B.3: Domestic structure walls.....	228
Figure B.4: Rooms.....	228
Figure B.5: Patio	228
Figure B.6: Worn door step	229
Figure B.7: Raised entryway	229
Figure B.8: Modern raised entryway in San Juan Teposcolula	229
Figure B.9: Stucco floors	230
Figure B.10: Stone-lined box hearths.....	230
Figure B.11: Temazcal	231
Figure B.12: Access way into House 2	231
Figure B.13: Walls restricting access into House 1	232
Figure B.14: Drain channels in temazcal stucco floor of House 2.....	232
Figure B.15: Intrusions into natural sterile soil layer V in Area 1	233
Figure B.16: Midden fill in crevice	233
Figure C.1: Utilitarian rough ware paste.....	247
Figure C.2: Utilitarian rough ware jar	247
Figure C.3: Large coarse tanware tecomate or neck-less jar.....	248
Figure C.4: Rough outside finish flat plate	248
Figure C.5: Semi-hemispherical bowl, coarse tanware paste	249
Figure C.6: Out-leaning wall bowl profiles	250
Figure C.7: Comal.....	250

Figure C.8: Short neck flared short rim jar profiles	251
Figure C.9: Straight to long-and-flared rim jar profiles	251
Figure C.10: Pronounced flared to everted rim jar profiles	252
Figure C.11: Flared rim wider bottom jar profiles	252
Figure C.12: Fine Cream paste out-leaning wall bowl	253
Figure C.13: Yanhuitlán Red on Cream designs on bowl fragments	253
Figure C.14: Yanhuitlán Red on Cream in tecomate (neck-less jar) vessel form	254
Figure C.15: Graphite on Orange designs on bowl fragments	254
Figure C.16: Composite silhouette bowl profiles	254
Figure C.17: Composite silhouette bowl	255
Figure C.18: Composite of Fine Cream ware ladles	255
Figure C.19: Miniature jar and bowl	256
Figure C.20: Candy dish profiles	256
Figure C.21: Brazier fragment in coarse orange to tanware paste with worn incised decoration	257
Figure C.22: Zoomorphic figurine fragment	257
Figure C.23: Ladle censer fragment in coarse tanware paste	258
Figure C.24: Figurine fragment from hollow in House 2	258
Figure C.25: Fine gray ware zoomorphic support of serpent effigy	259
Figure C.26: Almena support	259
Figure C.27: Polychrome bowl fragment	260
Figure C.28: Polychrome pitcher	260
Figure C.29: Cacique burnished candy dish bowl fragment	261
Figure C.30: Candy dish bowl	261
Figure C.31: Chert flake	262
Figure C.32: Unifacially retouched chert flake	262

Figure C.33: End-scraper	263
Figure C.34: End-scraper with cortex.....	263
Figure C.35: Stemmed projectile point	264
Figure C.36: Projectile point and axe	265
Figure C.37: Agave scraper.....	266
Figure C.38: Basalt cylinder	266
Figure C.39: Green obsidian blades	266
Figure C.40: End-scraper	267
Figure C.41: Projectile point recovered in excavation	267
Figure C.42: Triangular and corner-notched points	268
Figure C.43: Very worn metate recovered from basalt rock layer in temazcal hearth of House 1.....	269
Figure C.44: Square mano for one-hand grinding	269
Figure C.45: Long mano for two-hand grinding	269
Figure C.46: Doughnut stone, function unknown.....	270
Figure C.47: Long, worn mano used in two-hand grinding.....	270
Figure C.48: Thermally altered basalt from hearths	270
Figure C.49: Stacked basalt lining in temazcal hearth in House 2	271
Figure C.50: Remains of a skunk found in hollow of House 2.....	271
Figure C.51: Remains of an opossum found in hollow of House 2	271
Figure C.52: Xoloitzcuintle mandible (absence of pre-molars) found in Area 1].....	272
Figure C.53: Cut view of cooked deer bone from Layer III in Area 1].....	272
Figure C.54: Possible burin, broken, made out of a human long bone, displays signs of cutting (from Area 1)	272
Figure C.55: Possible piscador, shows signs of polishing and erosion caused by fine roots, from Area 1	273

CHAPTER 1

INTRODUCTION

Using survey, excavation, and archival modes of investigation this study focuses on agricultural intensification on the household scale in the Mixtec *cacicazgo* of Teposcolula in Oaxaca, Mexico, during the Postclassic period (AD 800-1521; Figure 1.1). In Mesoamerica during the Postclassic, after the fall of Teotihuacan (AD 800) and up to the time of Spanish contact (AD 1521), prominent local polities known in the anthropological literature as *cacicazgos* dominated the regional socio-political climate. In the Mixteca Alta, a highland region of west and northwest Oaxaca—the ancestral home of the ethnic Mixtec—the *cacicazgo* reached its maximum splendor. Mixtec *cacicazgos* are conceived as agricultural powerhouses that modified their mountainous environment and intensified production through terracing (Spores 1969; Balkansky et al. 2001; Pérez 2001) (Figure 1.2).

Agricultural intensification has been variously attributed to population pressure, socio-political demands, and uncertain environmental conditions (e.g. Boserup 1965; Denevan 1987; Fedick 1989; Kirch 1994; Morrison 1994, 1996). Some anthropologists argue that state-level initiatives are required in the initial conception and operation of agricultural intensification systems (e.g. Sanders, Parsons and Santley 1979; Kolata 1986, 1991; Parsons 1991). Others, however, suggest that food-producing households can build and operate intensification systems without state-level intervention under some circumstances (e.g. Evans 1990; Netting 1990, 1993; Erickson 1994; Smith and Price 1994). To understand better the social organization of intensive agricultural production in the Postclassic (AD 800-1521) Mixteca Alta (Figure 1.1), this study asks

several interrelated questions: If commoners were the main agricultural producers, what was the form and function of the Mixtec commoner household? How was commoner household production organized, and how did it fit in the broader system of intensive agriculture? Were state-level initiatives required in the conception and operation of such intensive agricultural systems?

For centuries, prehispanic Mixtec farmers have built stepped agricultural terraces or *lama-bordos* in mountain drainages to collect eroding soils and humidity, mitigate environmental degradation, and create rich agricultural lands in drainages and steep slopes (Spores 1969). *Lama-bordo* terracing was an arguably brilliant agricultural practice that harnessed what would have normally been a problem—erosion—to create productive agricultural lands in otherwise useless gullies. *Lama-bordo* terraces are as productive as valley bottomlands, producing up to two tons of corn per hectare (Kirkby 1972:47). Terraced fields thus became key economic resources, and access to them was a source of social power. Interpretations of ethnohistorical accounts of the Mixteca Alta have suggested that the commoners were the main agricultural producers, but the inherent elite bias in the documents leaves their role in processes of production and intensification ill defined (Spores 1983a). Thus, the commoner class and its relationship to the land and agricultural production have not been studied previously archaeologically.

I first became interested in *lama-bordo* terraces and terrace farmers in 1999, when participating in the Central Mixteca Alta Survey Project (CMASPP). Living in the heart of Mixteca Alta, I noticed that the regional landscape was dramatically shaped by terracing, and that this transformation dated to the rise of urbanism in the region (300 B.C.). Terraces had been and still are central to Mixtec society and economy. During this dissertation project I lived with a family on the moderately steep eastern slope of the hill of Diquino in the town of San Juan Teposcolula. They had carved a home for

themselves on Diquino, the hill east of the study site. We lived on modern terraces. The productive vegetable garden in front was a raised terrace filled with river mud, gravel, and organic soil, all brought from the forested peaks to the west. During my 10 months in San Juan I saw how the modern day inhabitants of the Mixteca work, live, and maintain their homes and lands, including form new and prehispanic terraces, but how had this way of life functioned before the intervention of Western civilization?

In this study, to address this basic question, I look specifically at the food-producers—the commoners—and their relationship to the productive resource of agricultural land—specifically the agricultural terraces known as *lama-bordos* (Figure 1.2). To achieve this, I excavated a *lama-bordo* terrace and contiguous residential areas, including two houses and their surrounds. The aim was to use evidence from the excavation to determine the social status of those who lived adjacent to *lama-bordos*, and specifically determine if the commoner class was closely associated with these key economic resources. Excavation would also provide information on how *lama-bordo* terraces were constructed, especially whether or not *lama-bordo* terraces may have been built through a process of accretion by household-scale labor investment or by state-organized construction projects. Lastly, the case of the Postclassic Mixtec *cacicazgo* specifically allows testing of the broader proposition that intensive agriculture can function without direct state-level involvement.

A general proposition of this study is that Mixtec terrace farmers played an active role in mediating the demands of elites and feeding the populace, creating and independently operating intensive agricultural production at the household and community level. Netting's (1993) agrarian smallholder model describes dense populations practicing intensive agriculture and organizing in household groups. Smallholder access to productive resources is potentially somewhat unequal, and ownership or other well-defined tenure rights are long-term or heritable. This smallholder

pattern can be economically effective, however sustainable, and is thus found in societies with varied degrees of political centralization. Netting's (1993) model may explain some aspects of the Mixtec *cacicazgo*; thus a specific test applied is whether Netting's (1993) agrarian smallholder pattern characterized the social organization of the Mixtec system of intensive agricultural production. This is assessed by learning about the Mixtec commoner household, its socio-economic standing, and its relationship to agricultural terracing and terrace production.

The household is a ubiquitous social group central to society and to this study. The household may vary in form, being monogamous or polygynous, patrilocal or matrilocal, nuclear or extended, with or without servants. However, what all households have in common, regardless of their form is that they serve the functions of distribution (pooling, sharing, exchange, and consumption), transmission (trusteeship and intergenerational transfer of property), biological and social reproduction, and co-residence (shared activity in construction, maintaining, and occupying a dwelling) (Netting 1993:58-59; Wilk and Netting 1984:5-19). It is these basic household functions, central to all societies and their economy that make it such a powerful unit of study.

Agrarian States and the Peasantry: Models of Intensification

This study draws and fits within broader anthropological research that has focused on the causal factors of agricultural intensification and the social organization of intensive agricultural production. Although traditionally it has been assumed that intensive agriculture originated with state-level organization, recent cross-cultural studies of intensive agricultural societies suggest that agrarian smallholders have great organizational and labor potential to independently create and adopt intensive agriculture. This study contributes to this debate by investigating the proposition that the food-producing peasant household could have independently operated the Postclassic

Mixtec system of intensive agricultural production—*lama-bordo* terracing. To do this, I archaeologically determine the degree to which Netting's (1993) agrarian smallholder pattern can be used to characterize the role of the peasant household in the Postclassic Mixtec system of intensive agriculture.

Netting's (1993) exemplification of the agrarian smallholder pattern was extensively documented with cross-cultural ethnographic cases of past and present-day agrarian societies. By comparing ethnographic data from his research among the stateless modern-day Kofyar peasants of Nigeria to other ethnographic and archival case studies, such as the Swiss farmers of Törbel or the Medieval peasants of Imperial China, Netting (1993:28-57) proposed that households adopt intensive agriculture and other diverse subsistence strategies as demographic and socio-political conditions change. He argued that smallholders create and adopt technologically simple, yet economically effective and environmentally sophisticated agricultural practices. Smallholder intensive agriculture produces more per unit area, with greater energy efficiency, and less environmental degradation than large or industrial agriculture practiced in the same environments.

Cross-cultural examples of agrarian state societies provide models to study the social organization of intensive agricultural production (Brumfiel 1991; Evans 1990; Netting 1993; Parson 1976, 1991; Smith 1994). These models indicate social patterns where a communitary social institution, a middle-tier of organization, links the food-producing household to the state. In these cases intensive agricultural production operates and is primarily organized below the state-level. In the Aztec Empire the *calpulli* linked the community to the regional state system by regulating local economic production, resource allocation, and communal labor organization; the *ayllu* played a similar role in the Inka Empire (Gibson 1964; Brundage 1967; Silverblatt 1987; Parsons 1991; Moseley 1992; Davies 1995). Parsons' (1976, 1991) and Brumfiel's (1991) work

on chinampas at Chalco-Xochimilco and at Xico explored the organizational alternatives for harnessing peasant labor through state and community-level *calpulli* initiatives. They found that the state and community-sponsored labor groups coexisted and in turn allowed for a level of production able to supply Tenochtitlan's massive population (Calnek 1972). In fact, they argued that chinampas were first implemented at a time when Aztec State involvement had not yet reached the Chalco-Xochimilco and Xico regions. This means that chinampa agriculture was first originated and organized at the household and community levels.

In the Maya area, archaeological excavations at Tamarindito suggested, based on the spatial proximity of elite residential areas to intensive agricultural features that the elite was directly involved in agricultural production (Beach and Dunning 1997). In Classic Maya society, it has been argued that the lineage group was a central supra-household social and economic unit. Elite and commoner lineages alike used social and ideological strategies to secure resource access, and in turn to secure production and legitimize authority (McAnany 1995). While McAnany (1995) championed the importance of the lineage, Gillespie (2000) argues that the house—*sna*—was the most basic social institution of production in Classic Maya society. Although these examples vary in their historical form, the food-producing peasant household is fundamental to all these systems of intensification (D'Altroy 1994; Johnson and Earle 2000:315-329).

In the Mixteca Alta, the middle-tier social institution that organized labor and production was the *siqui*. This ethnohistorically identified institution was residential, like a neighborhood or *barrio* (Spores 1967; Pastor 1987:34; Terraciano 2000). A *siqui* produced for its members, the market, and the *cacique*. The *siqui* may have organized or guaranteed access to land and production, but ethnohistorical accounts also report that the individual household was the basis of production (Pastor 1987:38; Terraciano 2001:201) and that some commoner households held rights to some plots of land. The

archaeological identification of a *siqui* has proven to be problematic. One could tentatively interpret a system of interconnected residential terraces with shared retention walls as a *siqui*. But in order to have a firm archaeological basis for this study I chose to focus on the archaeologically visible unit of the household (Allison 1999; Ashmore and Wilk 1998; Flannery 1976; Wilk and Netting 1984; Winter 1976).

Evans' (1990) work on the Aztec period village of Cihuatecpan, in the Teotihuacan Valley, attests to the importance and effectiveness of peasant labor in constructing rich agricultural landscapes in marginal environments, enabling the village to support itself and produce surplus foods. Aztec city-states (e.g. Hodge 1984; Hodge and Smith 1994; Charlton and Nichols 1997) "rested on a base of peasant productivity" (Evans 1990:118). In Aztec period Cuexcomate and Capilco, Morelos, terracing was an important feature in the community's system of agricultural intensification (Price 1988; Smith 1994; Smith and Price 1994), and householders were responsible for terrace construction and use. Smith argues that the Morelos cases fit Netting's (1993) agrarian smallholder pattern. He states, however, that the Morelos cases do not support the idea that population pressure and in turn agricultural intensification lead to political centralization. Thus, Smith severs centralized state-level organization from the system of agricultural intensification.

These cross-cultural examples demonstrate that independent commoner households have the organizational and labor capabilities to create, manage, and operate systems of intensive agricultural production; and these capabilities may flourish in a variety of political and environmental settings.

Prehispanic Mixtec Society: Models of Land Tenure, Social Class, and Agriculture

At the time of Spanish contact (AD 1521) Mixtec society was ruled by a political institution known as the *cacicazgo*, its characteristic local polity. *Cacicazgos*, have been

described as petty kingdoms, states, or city-states (Caso 1962; Spores 1967, 1974, 1983a, 1983b, 1993; Monaghan 1994; Redmond and Spencer 1994; Lind 2000), and in historical texts as a powerful political system that fostered social differentiation, where the lordship consisted of a combination of traditional rights, privileges, obligations, properties, and lands pertaining to the *cacique* (the ruler, *yya canu*). The remaining population was divided into two classes, nobles (*dzaya yaa*) and commoners. The massive commoner class was further divided into *ñandahi*—land-owning farmers—and *tay situndayu*, comprising landless farmers, servants, and slaves who were temporarily assigned to work the ruler's lands (Spores 1967:9,117, 175; Pastor 1987:19-61; Sepúlveda y Herrera 1999; Terraciano 2001:133-157). Ethnohistorical accounts depict the Mixteca Alta as a rich agricultural area (Burgoa 1671; Dahlgren 1963, 1990; Spores 1984; Pastor 1987), where the main resources were people, their labor, and agricultural land. However, this rich agricultural landscape was an anthropogenic one purposefully modified to increase agricultural productivity through the construction of agricultural terraces, especially *lama-bordo*.

Lama-bordos were agricultural terraces built in mountain drainages, where they collected eroding soils and moisture to mitigate environmental degradation and create productive lands on steep slopes, (similar to cross-channel terraces but larger, Denevan 2001; Figure 3 in Spores 1969; Figure 1.2). Chains of terraces, a “system”, may run continuously for as long as one to four kilometers. Archaeological and geomorphological studies of the Mixteca Alta have revealed Postclassic Mixtec *cacicazgos* as investing considerable labor to transform a mountainous region into a rich agricultural landscape through such terracing (Spores 1969; Kirkby 1972; Flannery 1983; Balkansky et al. 2001; Pérez Rodríguez 2001). Studies have described the technology of terracing and erosion control, and they attempted to date the incidence of *lama-bordo* terracing by association with prehispanic sites (Spores 1969; Kirkby 1972; Flannery 1983; Balkansky

et al. 2001). But until this present study, no terraces had been excavated, and the associated households have not been studied systematically.

In 1999, the CMASPP generated a regional database of prehispanic settlement patterns and *lama-bordo* terrace distributions; recording 749 sites and 501 *lama-bordo* systems in an area of approximately 1300 km² (Balkansky et al. 2001). My analysis of the distribution of *lama-bordos* and Postclassic Mixtec settlements corroborated the regional importance of *lama-bordo* farming in Postclassic Mixteca Alta (Pérez Rodríguez 2001). The spatial analysis of the distribution of Postclassic settlements and the field-recorded *lama-bordos* revealed that populations were concentrated in and around valley-bottoms and *lama-bordos*. Moreover, ethnohistorically identified core *cacicazgo* territories in the Mixteca Alta had two to four times greater *lama-bordo* densities than other areas (Pérez Rodríguez 2001).

Burgoa describes the seventeenth-century *lama-bordos* in the town of Tilantongo:

[H]aving to my back, towards the North, a mountain range so thick with forest that not even hunters trek in it today, and all the hills and gullies are today marked by embankments running up and down, like stone lined steps, that were the measures given by the lords to soldiers and commoners, for planting of their seeds, according to the family of each and they have lasted until today, the embankments running continuously, although robbed in the gullies by the growing floods of the streams...

(Burgoa 1671, Chapter XXIII [translated from Spanish by Verónica Pérez Rodríguez]).

Spores' (1984:131) study of Early Spanish Colonial land classification showed that *lama-bordo* land was considered to be as desirable and productive as valley-bottom land—what he terms “class A” land. He lists five types of Colonial land ownership:

Church, Spanish, aristocratic, community, and commoner lands. Those significant for prehispanic study are aristocratic, community, and commoner lands. Aristocratic lands are often discussed in ethnohistorical accounts that emphasize the *cacique's* control over some or all of the agricultural resources; however, this information is from elite-biased documents created in the Colonial period for specific legal purposes. Communal lands, *ñuhu siña*, were not agricultural lands, but forested areas found at the outskirts of towns, used for hunting and wild food and wood gathering. In Colonial times (after AD 1521), communal lands became highly disputed grazing lands (Spores 1984:131). Ethnohistorical accounts of commoner lands relate that although these tended to be smaller, scattered, and less productive, some class A lands were owned by *ñandahi* commoners. These lands were located at the margins of aristocratic lands.

Terraciano (2001:198-224) further corroborates the notion that commoner households held some tenure or usufruct rights over their house (*ñuhu huahi*), patrimonial (*ñuhu chiyo*), and agricultural lands. Terraciano (2001:199) argues that the “*Ñudzahui* [Mixtec] system of land tenure and use was based primarily on the household”. He finds that although most *ñandahi* households had access to only a few plots of land, in the Early Colonial period on average a *ñandahi* household possessed 3.8 parcels of land and one main *huahi* or house. These figures are quite telling considering that they come from a time when indigenous rights and land tenure were facing Spanish intervention and as a result were on a decline (Terraciano 2001:216).

Terraciano's (2000, 2001) work on Early Colonial Mixtec documents demonstrates the potential of discussing concepts of land tenure and economic and agricultural production in relation to the commoner household. His argument that land tenure was based on the *huahi* or house, is comparable to a pattern identified by Gillespie (2000) in Classic Maya society where the ‘*sna*’ (the house) was the main organizing principle of social organization and production. Land held by a household was

called in Mixtec *ñuhu huahi*, this being the best and oldest plot of land that contained the family house, which was passed down through generations. House land was usually also associated with *ñuhu chiyo* or “patrimonial land,” considered to be the patrimony of the household, not of an individual. In ethnohistorical documents this pattern was reproduced in the language used when discussing *ñuhu aniñe*, the palace lands, which were the *cacicazgo*’s patrimony and not the *cacique*’s lands. Mixtec conceptions of land were also categorized linguistically in terms of productivity. Sixteenth-century documents (e.g. Alvarado 1593; Pastor 1987:52) talk about land (*ñuhu*), fertile land (*ñuhu coco*, *ñuhu quaha*, *ñuhu nuhu caa caha*), sterile land (*ñuhuundachi*, *ñuhu teSaha*, *ñuhu teyaa*), irrigated land (*ñuhundoyo*), and cultivable land (*ytu*) (Terraciano 2000).

My preliminary study of sixteenth-century ethnohistorical sources at the National Archives in Mexico City corroborates the fact that the house and the orchard (*huerto*) were separate but inextricably linked components of the household’s estate (AGN Indios vol. 4, exp 933, foja 249 vta. 1590). Early Colonial land grants attest to the importance of having land rights for subsistence. These documents, however, present an intricate system where the term “private property” does not apply because, although a piece of land could be owned and inherited, it could not be held as property if it was not put to use, nor could it be sold (AGN Mercedes vol. 12 f. 81 1584; AGN Mercedes vol. 15 f. 205 1590). This meant that householders reinforced their tenure or usufruct rights through the use, maintenance, and occupation of houses and plots of land. Fortunately, these tenure or usufruct reaffirming acts may be visible in the archaeological record.

Some Mesoamerican ethnohistorians argue (Gruzinski 1993) that such documents and categories are not sufficient to establish that these concepts of value, property, inheritance, or usufruct predate Spanish contact. But others such as Lockhart propose that during the earliest years after conquest, even up to 1640, there was a great deal of cultural and linguistic continuity. Lockhart (Karttunen and Lockhart 1976;

Lockhart 1991, 1992) also points out that linguistic categories typically go through a cycle of use before being institutionalized in official language and subsequently in writing. Given that change in spoken language is usually faster than change in written language, the institutionalized, legal categories and concepts evident in early Colonial records may be some of the most reliable information on Prehispanic categorizations. In addition, there are Early Colonial documents that ask for the creation of titles for lands held by naturales (locals), nobles, and *caciques* from communities across the Mixteca Alta. This suggests that ownership of these lands predates the Colonial documentation that legally institutionalized it (AGN Mercedes, vol. 5, exp. 1, 1560; AGN Mercedes, vol. 5, exp. 2, 1560).

In sum, the information presented here paints a picture of Prehispanic Mixtec society that may have interesting parallels with Netting's (1993) agrarian smallholder pattern. In addition, the combined archaeological, ethnohistorical, and linguistic records indicate the prominence of *ñandahi* commoners and *lama-bordos* in the Postclassic Mixtec physical and socio-economic landscape. Learning about *lama-bordo* farmers and their production is thus central for understanding Postclassic Mixtec society.

Research Design

This study aims to understand how the commoner household and its labor fit into the process of agricultural intensification, and in turn, how this supported the Mixtec system of social stratification. This study tests the proposition that the food-producing peasant household could have independently operated the Postclassic Mixtec system of intensive agricultural production, a pattern that would parallel Netting's (1993) agrarian smallholder pattern.

The smallholder pattern would be archaeologically supported in the Postclassic Mixtec Alta by finding evidence that suggests that *ñandahi* commoners functioned as

agrarian smallholders having tenure or usufruct rights of their houses and the *lama-bordo* terraces they farmed and constructed. The first supporting evidence would consist of finding evidence for a *ñandahi* commoner class occupation at the residential terraces adjacent to the *lama-bordos*. Second would be to find out if *lama-bordo* construction was consistent with gradual accretion of household labor, whereby *ñandahi* households could have secured their tenure rights through occupation, use, and maintenance of *lama-bordos* and associated residential areas.

Determining the Social Status of *Lama-bordo* Terrace Farmers

To determine whether a continuous commoner class (*ñandahi*) occupation was found at the residential terraces adjacent to the *lama-bordos*, I excavated residential contexts that were spatially close to and associated with a *lama-bordo*. I assumed that those who used, worked, and maintained *lama-bordo* terraces inhabited the residential areas that are spatially close to them (Drennan 1988; e.g. Beach and Dunning 1997).

I established a set of parameters of what I would expect to find in the residential occupations of the various Mixtec social classes (Table 1.1). Essentially I would determine the household social status based on the continuity of occupation and the quality and richness of the house and associated artifact assemblage. A noble class occupation would show traits similar to those found in previously excavated noble class residences at Chachoapan and Yucuita (Lind 1977, 1979, 1987; Robles García 1981). Commoner class occupations would show a different pattern, such as a more limited number of different raw materials and lesser frequencies of artifact types that are generally associated with noble class activity such as obsidian, greenstone, ritual paraphernalia, and luxury ceramic wares. To differentiate between the different kinds of commoner class occupations, however, I used information provided by the ethnohistorical record. For example, according to Spores (1967), *tay situndayu*

temporarily worked assigned plots of the *cacique*'s lands. This would produce an archaeological record of short-lived occupations characterized by low socio-economic status markers in highly coveted residential and productive locations. In contrast, *ñandahi* commoners worked their own lands, held tenure or usufruct rights over their house, and were involved in the household production of commonly needed domestic items (Spores 1984:131). As such, in a *ñandahi* occupation I would expect to find a wider range of economically useful artifacts, a commoner class artifact assemblage, and a considerable length of continuous residential occupation.

I judged whether an occupation was continuous by testing for archaeological deposits consistent with multiple stages of construction and then assessed the material continuity between the different levels of occupation. The parameters that I used to establish material continuity are similarity in artifact assemblages, re-use of activity areas, toss zones, and burial locations, and continuity in the household layout, maintenance, use, and construction (Feinman et al. 2001). Evidence of material and residential continuity would suggest that the household inhabitants used and maintained a particular residential area and its associated productive land for a considerable length of time, providing circumstantial archaeological evidence for heritable property or usufruct rights.

I would rate the functional variability, quality, and rarity of the excavated artifacts and house architecture to establish the socio-economic standing of the household inhabitants (Smith 1985). This method of analysis has been successfully used in other Mixtec residential contexts (Robles García 1981; Lind 1977, 1979, 1987). Ceramic materials were identified using the regionally established ceramic typologies (Caso et al. 1967; Spores 1972; Lind 1987). Since all obsidian, shell, and semi-precious green stone must be imported into the Mixteca Alta, their distribution was tabulated. I recorded the functional variability of the artifact assemblages and created a composite of the

household artifact assemblage and economic activities. I rated architectural features according to the quality of construction and materials (e.g. Abrams 1994; Caso 1962, 1992; Healan 1989; Smith et al. 1999). Finely cut stone construction and plaster floor finish will rate the highest, followed by fine *endeque*¹/adobe construction, crude stone or *endeque*/adobe construction, and lastly, wattle and daub on stone/adobe foundation construction.

Lama-bordo Terrace Construction

To obtain information about how *lama-bordo* terraces were constructed and determine whether or not *lama-bordo* construction and maintenance was consistent with gradual accretion of household labor, I trenched a *lama-bordo* terrace. The excavation and the recorded profiles allowed me to determine if *lama-bordos* were constructed through a gradual process of household-level labor investment, innovation, and maintenance (e.g. Dunning and Beach 1994). Gradual *lama-bordo* terrace construction would suggest that the particular plot of land was used long enough to accumulate household labor and capital investment, suggesting a potential for usufruct or heritable rights of particular households over *lama-bordo* terraces. This kind of construction would be identified by trench profiles that reflect gradual, unplanned building. In this mode of construction, large stones, most of them uncut, would be placed at ground surface level and additional stones would be added only when the previous stones have been completely covered by sediment.

However, if the excavation revealed that the terrace was constructed in more massive single episodes requiring a greater amount of concentrated labor (e.g., the

¹ Endeque is also known as calcrete or caliche. It is calcium carbonate. It has the texture of soil when beneath the surface and once it is exposed to the air it becomes a rock-like material as it dries. It is easily shaped and cut and used for construction (Kirkby 1972:12).

bench terraces in Denevan 2001), it would suggest state-planned terrace construction and labor organization. This latter option would not provide evidence to support household-level heritable property or usufruct right to *lama-bordos*; instead it would support the notion that such major agricultural assets were communal (*siquis*) or held by the *caciques*. This type of construction would be identified in the profile by massive additions of well-cut stones that were brought in and arranged into alignments that would exceed the ground surface and sediment level. In this case, additional sediment may have been carried in or the stone alignments might have been left freestanding until the sediment level caught up to the retention wall. Sediment may have been purposefully packed in to prepare a flat terrace surface. This kind of terrace construction would compare to that of Inka terraces (Denevan 1987:1-43, 2001:170-184; Mandel and Bettis 2001).

The Role of the Commoner Household in Agricultural Intensification

Using this study's results, the comparative anthropological examples, and the available archaeological and ethnohistorical data, I determine whether Netting's agrarian smallholder pattern characterizes the socio-economic organization of the Mixtec *cacicazgo* and its system of agricultural intensification. In addition this study's results provide a more refined model of the Mixtec *cacicazgo*, where the agriculturally productive commoner class may independently build and operate intensive agricultural terrace production.

However, beyond testing Netting's (1993) model, my expectation is that the data generated by this study advances our understanding of agrarian societies worldwide. I hope that the data I present here transcends the particular theoretical framework of this study. But at the same time I hope that my chosen framework helps in advancing the idea that subsistence decisions have had a great impact on society, the environment,

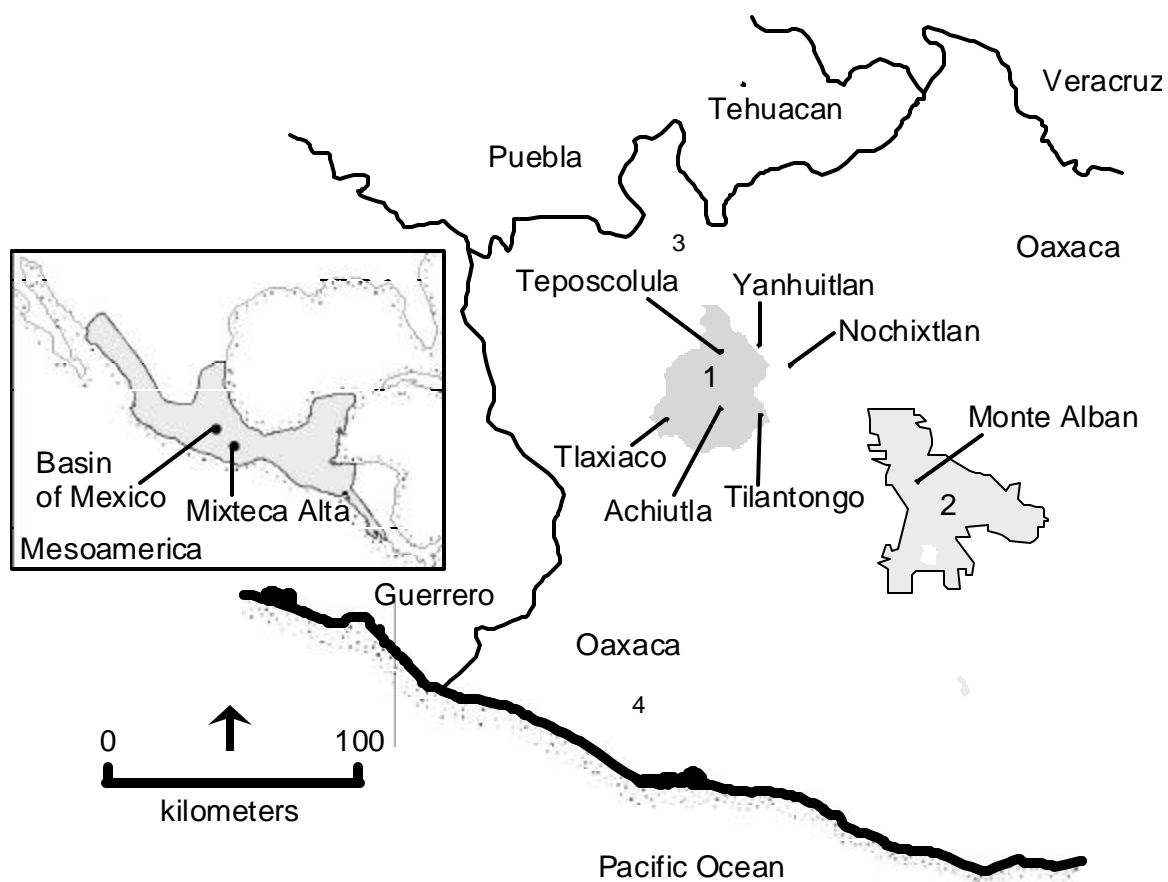
and entire regional landscapes. I am interested in learning about case studies where intensive agriculture may have been organized from a bottom-up level, where the local communities have direct control to make environmentally informed decisions that not only affect their own lives, but also the environment and the livelihood of future generations.

Structure of this Dissertation

In chapter 2 I describe the Mixteca, its geography, history, and prehistory. I also outline what was known before this study about Postclassic Mixtec society and the role of the commoner class in the *cacicazgo*. In chapter 3 I outline the methods used to obtain the data needed to answer this study's research questions. In chapters 4 and 5 I describe in detail the findings from the two house excavations at the study site of Nicayuhu, providing information on household social status and continuity of occupation. In chapter 6 I compare this study's house excavation findings to data from previously excavated noble and commoner class occupations. Through the comparison I establish the social status of the house inhabitants at Nicayuhu. In chapter 7 I present the results from the *lama-bordo* terrace excavation and propose a model for how it was constructed. In chapter 8 I present the results from four additional test excavations that provide information about the possible functions of different sectors of the site. In chapter 9 I present the conclusions of this study's, how the information about household status and *lama-bordo* terrace construction allows me to assess whether Netting's (1993) agrarian smallholder pattern could have functioned in Postclassic Mixtec society. In this concluding chapter I present a picture of the Mixtec *cacicazgo*, considering the new information provided by this study and discuss its anthropological, social, and environmental significance. The appendices contain detailed information on the excavation results, architecture, raw artifact counts, and burials.

Table 1.1 Archaeological parameters used to determine household social-status.

	Artifacts & Architecture	Continuity of occupation	<i>Lama-bordo</i> construction
Nobles	<ul style="list-style-type: none"> ▪ High status, rare valuable artifacts. ▪ High quality construction and construction materials. ▪ Artifact assemblages comparable to noble house excavation data from Yucuita and Chachoapan. 	<ul style="list-style-type: none"> ▪ Continuous occupation ▪ High investment in household construction and maintenance with high quality construction materials. 	<ul style="list-style-type: none"> ▪ Construction in more massive single episodes of construction (state-imposed construction).
<i>Ñandahi</i>	<ul style="list-style-type: none"> ▪ Artifact assemblages, construction and construction materials that reflect various degrees of quality, rarity and status. ▪ Wider ranges of economically useful artifacts reflecting a greater involvement in household agricultural and craft production. ▪ Investment in household construction and maintenance 	<ul style="list-style-type: none"> ▪ Continuity of occupation ▪ Investment in household construction and maintenance ▪ Continuity in household layout, reuse of toss-zones, work areas, burial areas. ▪ Architectural homogeneity between different layers of occupation 	<ul style="list-style-type: none"> ▪ <i>Lama-bordo</i> construction and maintenance that reflects gradual accretion by household-scale labor investment ▪ Non-directed construction
<i>Tay situndayu</i>	<ul style="list-style-type: none"> ▪ Low status, low value, common or expedient artifact assemblages. ▪ Low quality construction and construction materials 	<ul style="list-style-type: none"> ▪ Short-lived and interrupted occupation ▪ Little investment in household construction and maintenance 	<ul style="list-style-type: none"> ▪ Construction in more massive single episodes of construction (state-organized construction).



1. Central Mixteca Alta survey
2. Valley of Oaxaca survey
3. Mixteca Baja
4. Mixteca de la Costa

Figure 1.1 The Mixteca Alta in Mesoamerica.



Figure 1.2 Prehispanic *lama-bordo* terraces currently farmed in Huamelulpan.

CHAPTER 2

THE MIXTECA ALTA: ITS LAND AND PEOPLE

The Mixteca Alta: Its Land

The Mixteca is a rugged mountainous region, part of the Sierra Madre del Sur. The region covers the easternmost edge of the modern state of Guerrero, the southwest part of the state of Puebla, and the western third of the state of Oaxaca (Figure 2.1). In the Mixteca we find people who are ethnically Mixtec, Chocho, and Triqui. The Mixtec people, at least those who still speak the Mixtec language, use the term *Ñudzahui*—people of the rain place—to refer to themselves (Arellanes Meixueiro 1996:19; Kirchoff; Palerm and Wolf 1957). Geologically, the region is made out of mostly metamorphic and sedimentary rock (Alvarez 1998:130), and it extends across the territory of the Papaloapan, Balsas, and Verde River basins. The Mixteca is divided into three parts: the Alta—a cold zone consisting of high mountains and narrow valleys; the Baja—also mountainous though lower in elevation; and the Costa—or low-lying coastal zone. The Oaxacan part of the Mixteca is divided into several political districts, among them Coixtlahuaca, Huajuapam, Juxtlahuaca, Nochixtlán, Silacoyoapan, Teposcolula, Tlaxiaco, and Putla (Alvarez 1998:89-90). The work presented here took place in the Mixteca Alta, specifically in the municipality of San Juan Teposcolula (Figure 2.2).

Climate and Topography

The Mixteca Alta extends between 16° and 18° north latitude and 96°45' and 97°45' west longitude, located south of the Mixteca Baja and north of the Mixteca de la Costa. Although the region falls well within the tropics, its elevation gives it a dry

temperate climate, with a summer rain season, and common winter frosts between the months of October and March. The median annual temperature is about 17° C, with maximum temperatures of 37° C and minimum temperatures of -8° C (Robles García 1988:2-3; Alvarez 1998:106, 109-111; Arellanes Meixueiro 1996:26-27).

The Mixteca is characterized by high rugged mountains with a few narrow valley pockets spread among them. The main valley pockets are Nochixtlán, Achiutla, Tlaxiaco, Coixtlahuaca, Juxtlahuaca, Tamazulapam, and Teposcolula (Dahlgren 1979:17). Among these valleys the largest one is by far the Nochixtlán Valley (15 x 15 km approximately), which is itself made up of several sub-valleys. However, the entire area of the Nochixtlán Valley does not compare to the size of the Valley of Oaxaca, much less the Valley of Mexico.

In the past the emergence of social complexity in the Valley of Oaxaca and Valley of Mexico was thought to be a result of these valley environments, where nearby lakes or high water tables enabled the adoption and development of plant domestication and agriculture (Palerm 1955, 1966, 1972; Palerm and Wolf 1957, 1961; Parsons et al. 1983; Rojas Rabiela 1991). It was doubted that social complexity could independently emerge in a place such as the Mixteca Alta. Scholars believed that the Mixteca did not favor the emergence of social complexity and that its urban revolution was a direct result of outside influences or Zapotec conquest from the Valley of Oaxaca (Flannery 1983a). Recent archaeological survey data suggest that the mountainous environment did not hinder early development of social complexity in the region and that in Middle to Late Formative times population densities and social complexity in the Mixteca Alta equaled and in some respects surpassed that in the Valley of Oaxaca (Balkansky et al. 2001). The ancient Mixtec developed social organization and economies equivalent in scale and complexity to the other 'high civilizations' of Mesoamerica; in the Mixtec codices and

the ethnohistorical record, there appear nobles, commoners, *tay huisi tacu* (those who made codices; Codex Vidobonensis 1963), traders, and craft specialists.

In the Mixteca Alta, the highest peaks are up to 3,200 m above sea level; at these elevations the median annual precipitation is about 800 mm. Although at these elevations there is more rainfall, there is a much higher risk of freezing, and most farmers do not plant corn at such high elevations. The valleys bottom lands are at about 2,100-2,200 m above sea level; at this elevation the average annual rainfall is at about 500 mm, minus an evaporation rate that at times may be greater than the rainfall rate itself (Robles García 1988:3; Alvarez 1998:89-90). Alluvial soils are scarce across the region. Farmers have compensated for this scarcity by constructing terraces on the hillsides and in drainages. Despite terrace construction, planting corn or other native cultigens is always a risk. Farmers also try to buffer crop failure by planting various crops at different times during the year in order to have sequential harvests. Some crops will fail, some will not.

Hydrology

The rivers that cross the Mixteca are the Papaloapan that leads to the Gulf, and the Balsas and Verde rivers that lead to the Pacific. In the Papaloapan basin, the main rivers are the Apoala, San Pedro, and Tomellin; these drain the northeast sector of the Mixteca. The Balsas basin has the Mixteco and Santo Domingo rivers draining the northwest sector and the Cuchara, Peñoles, and Sordo rivers that are part of the Verde basin to the south (Robles García 1988:3; Arellanes Meixueiro 1996:23). The Mixteca Alta covers 6,000 km² in the upper Balsas and Atoyac-Verde river basins. None of the rivers in the Mixteca are navigable and in the region there were no lacustrine environments that could have been exploited as in the Valley of Mexico (Sanders et al. 1979; Rojas Rabiela 1991).

Erosion

The mountainous terrain has undergone and is currently undergoing severe erosion due to a combination of soil composition, topography, and ill-conceived land use practices (Kirkby 1972:1; Alvarez 1998:124). The Mixteca used to be completely forested but much of the forest cover has been cut down throughout human history for agriculture and firewood (Kirkby 1972). Other detrimental land use practices, such as the introduction of grazing animals and the abandonment of terraces after Spanish contact, have exacerbated erosion. Today the Mixteca Alta has some of the highest measured rates of erosion anywhere in the world. This study tries to contribute by learning how the ancient Mixtec made and used agricultural terraces. Regional settlement pattern data suggest that terracing and the social organization of terrace agriculture were a long and stable way to live and produce in this area (Balkansky et al. 2000). The question remains: How did the ancient Mixtec organize their society and agricultural production?

Flora and Fauna

Up until A.D. 1950, the Mixteca Alta was mostly covered by coniferous forest (Alvarez 1998:152-174). Unfortunately much of this has changed due to erosion and deforestation. However, in the Mixteca Alta today we can still find evergreen or holm oak (*Quercus sp*); pine (*Pinus sp*); juniper (*Juniperus flaccida*); ailes (*Alnus acuminate spp*); Spanish moss (*Tillandsia usnoides*); moral (*Morus celtidifolia*); biznaga (*Ferocactus pringlei*); nopal or prickly pear (*Opuntia streptacantha*, *huajuapensis*, *macdougaliana*); nopal de Castilla (*Opuntia ficus indica*); and maguey or agave, among other plant species. Some of these and other plants are used as firewood, food, medicine, or for animal grazing (Alvarez 1998: 152-174). Today, people grow corn, beans, and squash, planting mostly right before the rainy season starts in the early summer.

Common fauna are rabbits and hares (*Lagomorph, Leporidae*); various rodent species; squirrels (*Sciuridae*); opossums (*Marsupials didelphidae*); coyotes (*Canidis latrans*); *Procionidae* (tejon); skunks (*Mustelidae*); and up to early Colonial times, wild deer (*Ocodoileus virginianus*), among other wild bird and reptile species. There are also domesticated animals such as dogs, turkeys, chickens, goats, sheep, donkeys, and horses (Alvarez 1998: 189-212). All of the domesticated animals, except for dogs and turkeys, were not present prior to Spanish contact.

The Study Area

The municipality of San Juan Teposcolula is at the northeast edge of the Teposcolula Valley, one of the more extensive valley pockets in the Central Mixteca Alta (Figure 2.2). The locality has a valley elevation of about 2200 m above sea level, while the highest local peak, the hill of Yucudaa, is at 2870 m above sea level. San Juan Teposcolula controls a sizable amount of the valley bottom lands (1600 ha), as well as surrounding mountain forests peaks that are still exploited for firewood. In the town of San Juan Teposcolula we find small creeks that have water year around, and others that run dry in the winter (Figure 2.2). The creeks irrigate most of the flat valley bottom lands and a couple of the springs irrigate *lama-bordo* terrace lands, but for the most part ancient and modern day agriculture in San Juan relies on the rains. The town is also blessed with at least four well-known and other lesser-known springs that supply the entire modern day population of San Juan with all the water it needs now.

The Mixteca Alta: Its People, Today

The Mixteca Alta has been the home of the *Ñudzahui*—the Mixtec, for at least 1,000 years. The *Ñudzahui* have undergone great cultural transformations and suffered great consequences from Spanish contact since early on in the Colonial period. It is

estimated that about 700,000 people inhabited the Mixteca Alta in the late Postclassic period. By A.D. 1590 it is estimated that the population was reduced to 57,000 and then to 30,000 by A.D. 1670 (Cook 1998:60-70, 97; Cook and Borah 1968; Spores 1965; Terraciano 2001:3). The way of life of those who survived was greatly altered. The Spanish Christianized the Mixtec and imparted the knowledge of the Spanish language. Many people in the region today just speak Spanish, but there are still a large number of people—approximately 350,000—that are native Mixtec speakers (Alvarez 1998: 292).

The Europeans also changed indigenous subsistence practices (Borah and Cook 1963; Spores 1965), introducing cattle donkeys, horses, goats, and sheep; as these grazing animals—both new or at least reintroduced to the American continent—consumed the grass cover, soils eroded even more heavily than before. Historically and up to the present day, goat and sheep grazing has been an important part of the community-level economy (Alvarez 1998:370). Most of the population still practices subsistence agriculture. There are a few job opportunities in subsistence agriculture, commerce, lime production, and manufacture of traditional crafts and goods, there are little economic opportunities overall (Alvarez 1998: 388-389, 400). Many people have to migrate to places like Mexico City or the United States to find work. An important source of revenue today comes from money sent by family members who live and work elsewhere in Mexico or the United States.

The Mixteca Alta: Its People, in the Past

Research and Settlement History

Apart from its physical beauty and heartbreaking reality, the Mixteca Alta is perhaps best known for its rich late Prehispanic and Colonial past. The earliest archaeological studies of the region were done by Eulalia Guzmán (1934), Alfonso Caso

(1938, 1942, 1956, 1962, 1967, 1977), Ignacio Bernal (1949), Jorge Acosta, and Javier Romero (1992) who in the early twentieth century made breakthrough studies on the Mixtec writing system and a few main civic-ceremonial centers (Coixtlahuaca, Tilantongo, Monte Negro). Decades after these pioneering projects, Barbro Dahlgren (1954) wrote a definitive study of the Mixteca, its culture and prehispanic history. In this volume Dahlgren described Mixtec society based on information from Early Colonial sources, codices, and in later editions, new information coming out of recent archaeological projects. By the 1960s and 70s, drawing from the interest and techniques of New Archaeology, regional, site-level archaeological and ethnohistorical studies done by Ronald Spores advanced our knowledge of Mixtec prehistory. It was Spores (1967, 1969, 1972, 1974, 1983a, 1984) who established the first and only ceramic sequence and typology for the Mixteca, did a regional survey of the Nochixtlán Valley, and identified *lama-bordo* terracing as a distinctive cultural and agricultural practice.

After Spores' work in the Nochixtlán Valley excavations done at Yucuita (Spores 1974; Winter 1994; Lind 1979; Robles García 1988) and Huamelulpan (Gaxiola 1984) focused on exploring monumental architecture, learning about the Mixtec early urban centers, and the nature of early states in the region. Kirkby's (1972) geomorphological study of the Nochixtlán Valley environment drew from Spores' study of prehispanic terracing and crystallized the idea that *lama-bordo* terracing was an innovative solution to a big environmental problem. Later regional surveys done by Byland (1980), Byland and Pohl (1994), Balkansky (1998), and Stiver (2001) recorded the settlement history of the Tamazulapam and Teposcolula Valleys, and the areas surrounding Tilantongo, and Huamelulpan. These regional surveys recorded the location and name of main prehispanic civic-ceremonial centers and also tried to take a broader look at Mixtec prehistory recording not only the location of primary urban centers, but also of their Terminal Formative period antecedents. In 1999, the Central Mixteca Alta Settlement

Pattern Project (CMASPP) systematically surveyed a 1300 km² area linking the territories of the previous surveys. This project created a large database on the settlement history and settlement patterns in the region, including the location of *lamba-bordo* terrace systems (Balkansky et al. 2000). This study builds on previous research. For example, I use Stiver's and CMASPP data to find a suitable study site and then provide a broad regional and temporal context for my findings, allowing me to make more meaningful statements about the representativeness of this study's results.

Through these successive studies we know more about the full time-depth of human habitation in the Mixteca Alta. Regional survey data trace the first evidence of human occupation in the Mixteca Alta back to the Archaic. The first sedentary villages date from 1350 B.C., in the Early Cruz phase (Spores 1984:18-19; Figure 2.3; Table 2.1). At that time, clusters of settlements were found in the localities of Etlantongo, Yucuita, Tilantongo, Yodobada, Yosojica, Tayata, and Xacani (Figure 2.4; Balkansky et al. 2000; Spores 1972). By 1000 B.C., settlement hierarchies and internal differences within sites suggest ranked societies. In fact, there was a great deal of demographic and political growth in the Mixteca Alta comparable to that found at the time in the Etlá branch of the Valley of Oaxaca. At this point in prehistory, the Formative up to about 500 B.C., the Mixteca Alta seems to have been a key area of human habitation and cultural development in Oaxaca; this would change with the establishment of Monte Albán (Blanton et al. 1999).

By the Late and Terminal Formative, Ramos phase (300 B.C.-A.D. 200; Table 2.1), the first urban centers arose in the Mixteca (Figure 2.4). The now urban center of Yucuita emerged in the same location as its Cruz phase antecedent (Plunket 1983; Spores 1972, 1983). In other cases (e.g., Huamelulpan), urban centers were founded 5-10 km away from the earlier Cruz phase centers that were abandoned (Balkansky 1998). These urban centers would surpass earlier Cruz-phase villages in architectural and

settlement complexity and in number of inhabitants. The new Ramos centers were densely populated terraced hilltops. One of the key cultural transformations that date from this time period was the construction of *lama-bordo* terraces, chains of terraces that often can be seen beginning within the urban centers, as at Huamelulpan and Monte Negro. At this time, Monte Albán was beginning to influence or even conquer regions outside the Valley of Oaxaca (Spencer and Redmond 1997), and it is perhaps for this reason that newly founded Ramos sites in the Mixteca were located in clearly defensive much higher locations (Balkansky et al. 2000). The co-occurring emergence of defensive urban centers and *lama-bordo* terraces during times of political unrest could suggest that intensive agricultural terracing was a defensive measure, a measure that allowed food production within city walls.

Few Ramos-phase urban centers persisted into the Classic period, as Monte Albán did (Figure 2.5). By the beginning of the Las Flores phase or Classic period (A.D. 300-800/1,000; Table 2.1), several of the earlier Mixtec urban centers were abandoned (e.g., Monte Negro). However, many new urban centers were established across the entire expanse of the Central Mixteca Alta (e.g., the western part of the Teposcolula valley and southern sector of the CMASPP study area between Tlaxiaco and Yucuañe). Las Flores phase centers surpassed their Ramos antecedents at least in public building construction. Settlement hierarchies were more complex, and four levels of civic-ceremonial political centers were recognized. These new centers held sway in every valley pocket, and these would become the core territories of the Postclassic *cacicazgos*. We believe that at this time, the Classic period, the *cacicazgo* settlement pattern, though perhaps not all its institutions, was first established (Balkansky et al. 2000).

The Natividad or Postclassic period (A.D. 800-1521; Table 2.1), was not only the peak time of the Mixtec *cacicazgo*, but was also the time of the greatest population

density ever seen in the Mixteca Alta (Figure 2.6). The region was covered with extensive urban and rural settlements found in every valley pocket. The sixteenth century *cacicazgos* of Achiutla, Tilantongo, Yanhuitlán, and Teposcolula were identified archaeologically in the regional settlement patterns. However, these places showed significant variation in terms of their civic-ceremonial elaboration, settlement history, and scale (Balkansky et al. 2000).

In Stiver's (2001) survey of the Teposcolula Valley she estimated the Postclassic population somewhere between 20,000 to 44,500 people, based on the size and density of sites recorded within her study area. Stiver's survey extended from San Juan Teposcolula to the east, to San Miguel Tixa and Ixtapa to the west, Yucunama to the north, to the southern side of the Teposcolula Valley roughly in the area where the main town of San Pedro and San Pablo Teposcolula is located. Borah and Cook (1960) estimated, using the ethnohistorical record alone, a population of about 11,474 at A.D. 1569. However, Borah and Cook estimates originate from Colonial documents that probably included demographic information from a different territorial unit than that of Stiver's survey. Colonial documents probably only record information from the main towns that were by then included into the Colonial system of governance. Although the definite figures vary, it is clear that the Teposcolula Valley along with the entire Mixteca Alta was one of Mesoamerica's more densely populated regions.

The Mixtec *Cacicazgo*

Mixtec *cacicazgos*, as they have been understood through the study of the ethnohistorical record, have been called states, city-states, or petty kingdoms. They were small polities governed by male or female *caciques*, who inherited their position as rulers (Spores 1967, 1974; Smith 1973; Lind 2000). *Cacicazgos* typically were located approximately 30 km apart. Their core territories focused in and around the small valleys

of this mountainous terrain (e.g., Spores 1972, 1983; Stiver 2001). *Cacicazgo* rulership could be inherited through either the male or the female line. Marriage alliances could unite *cacicazgos*, and there was a rather well-developed pattern of warfare between them as well. *Caciques* resided in a capital town, a *cebecera* or *yuhuitayu*. The *cabecera* was the top level of settlement, followed by the *sujeto* (subject) communities. All settlements were known as *ñuu* (Terraciano 2001:107). All Postclassic *ñuu*, whether *cabecera* or a *sujeto*, were sub-divided into *barrios*, neighborhoods or *siqui* (c.f. *calpulli*).

Postclassic Mixtec people practiced intensive agriculture, but also hunted, gathered wild plants, and obtained other goods and services at periodic markets. Markets enabled the exchange of lowland and highland products while at the same time allowing the procurement of staple goods, such as corn, at times when these goods may have been scarce or in greater demand in areas with differing harvest schedules (e.g., Monaghan 1994).

Society was divided into two classes, nobles and commoners. Among the noble class there were two groups, the ruling-caste family and a supporting contingent of hereditary nobles who could function as administrators, advisors, priests, or merchants. The remaining bulk of the population constituted the commoner class, which was composed of the *ñandahi*—free land-owning farmers, traders, and artisans, and the *tay situndayu*—landless farmers, servants, and slaves. Social classes were endogamous, at least theoretically. Class endogamy was perhaps more important among the ruling caste. From ethnohistorical data we have strong evidence that parallel and cross-cousin marriages were common.

Spores (1967:10) argues that there were two key features in Prehispanic Mixtec social organization, the community (the *ñuu*) and the household. He contends that daily activities were framed within the context of these two units. This is a particularly important statement since these two social units may be identified archaeologically. The

community may be identified through regional settlement pattern data and the clues that the ethnohistorical record provides. San Juan Teposcolula's community, for example, is identifiable in two ways. First, sixteenth century documents discuss a distinct community, political unit, or sujeto of the *cacicazgo* of Teposcolula known as San Juan Teposcolula. Second, the settlement pattern data show a clear cluster of Postclassic settlements along the north and northeast fringes of the Teposcolula valley, close to the modern day town of San Juan Teposcolula. This means that this study's findings fit within the context of the Postclassic *ñuu*, helping us learn more about the nature of this key feature of Mixtec social organization.

The archaeological identification of the household rests on the fact that in the Mixteca Alta one can witness a great deal of cultural continuity that extends from prehistory up to the present. From ethnohistorical and ethnographic studies we know that Mixtec families live in adjoining rooms placed around a central patio area. While a family may start out with a single room house, as their situation improves and as the family grows more rooms are built in and around a central patio or activity area. While living in San Juan Teposcolula I lived in such a house compound. The entire house complex started with a single room. Later rooms were added around a patio. As the family grew and the children married their new families occupied the newly built structures. When such a room pattern is identified archaeologically one can then talk about a family or even a possible extended family group.

Colonial Mixtec Society

Early Colonial documents written in both Mixtec and Spanish give us other glimpses of Mixtec society after European contact, such as the importance of long distance trade and markets in Mixtec society, or the indigenous notions of land tenure and usufruct (Spores 1967; Terraciano 2000). In the ethnohistorical record one may find

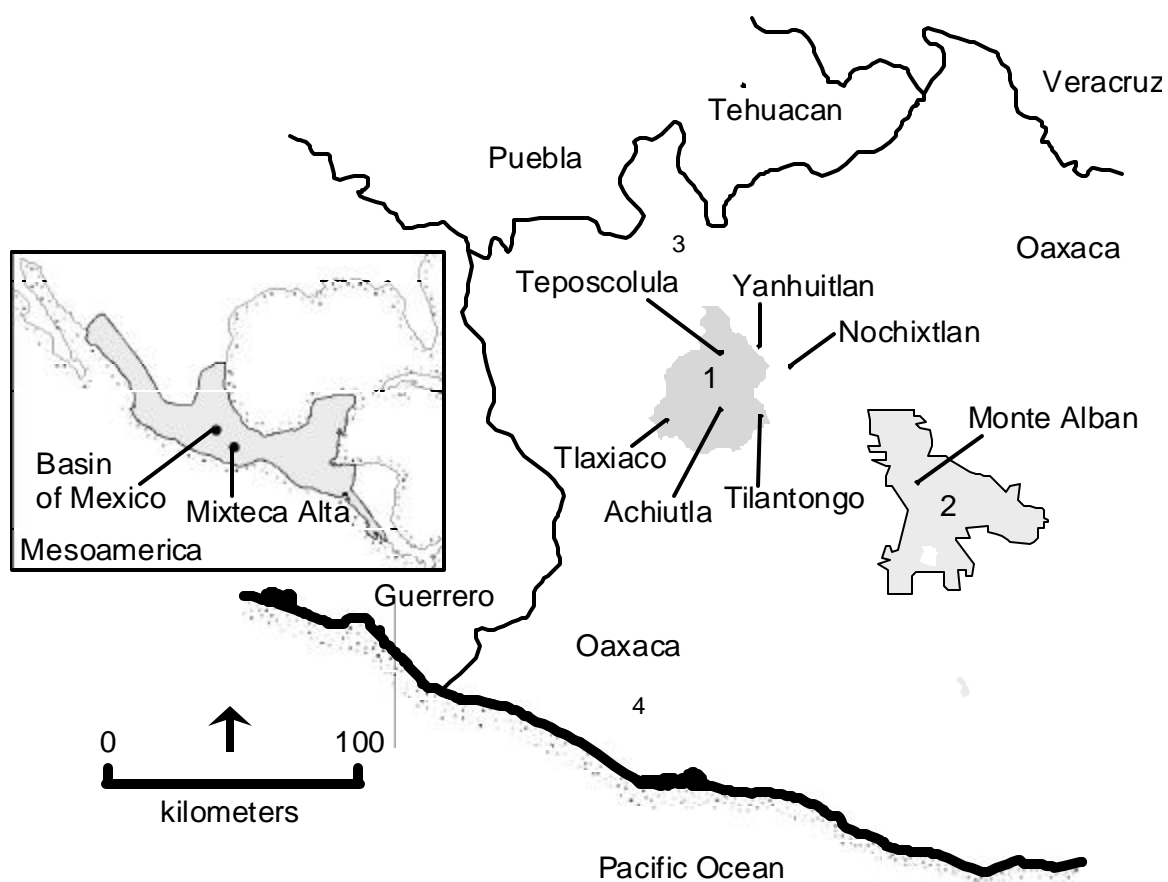
brief references to the common people; some accounts mention that free commoner farmers held rights to some plots of land (Spores 1984:131). In my preliminary study of sixteenth-century ethnohistorical sources at the National Archives in Mexico City I found few references to commoner's staking claim over a house and adjoining orchard. These documents, however, present an intricate system where the term "private property" in the Capitalist sense of the word does not apply because, although a piece of land could be owned and inherited, it could not be held as property if it was not put to use, nor could it be sold (AGN Mercedes vol. 12 f. 81 1584; AGN Mercedes vol. 15 f. 205 1590). This suggests that the act of continuous use and occupation of a plot of land and house secured tenure over them.

However, the ethnohistorical record is biased, written in the Colonial period to meet specific legal needs for the noble classes, and mostly focusing on the noble class privileges that were under attack under Spanish rule. The ethnohistorical record, including the codices of course, tells us little about the Mixtec commoners, their everyday way of life, and their contribution to the Mixtec *cacicazgo*. Our knowledge of the Colonial Mixtec Alta continues to suffer from the information gaps in the ethnohistorical record. We know that in A.D. 1521 the Spanish arrived in the region and shortly after that conquest, colonization, and religious conversion began. We know that most of the indigenous population fell prey to Old World diseases, and that there were episodes of Indian resistance. However, in time the Mixteca Alta fell under Spanish rule. The Mixteca was one of the earliest regions to be colonized in Mesoamerica. The Dominican orders Christianized the Mixtec and the events of this period are still visible in the sixteenth-century Dominican convents found across the region in Achiutla, Coixtlahuaca, Teposcolula, and Yanhuitlán (Romero Frizzi 1990:51). In terms of settlement patterns and material culture the effects of conquest are evident. People moved down from the dispersed settlements that spread across the hills and into

European style settlements found in the valley bottoms. New settlements such as the present day city of Tlaxiaco were founded. The abandonment of the Prehispanic pattern of dispersed hilltop occupations focused near and on contour and *lama-bordo* terraces, resulted in the eventual deterioration of Prehispanic terraces that mitigated erosion at a regional scale (Kirkby 1972). This study of *lama-bordo* terraces and the way of life of those who worked these lands hopes to learn about how this highly effective and environmentally sound way to make a living in the Mixteca Alta functioned.

Table 2.1 Mesoamerica, Oaxaca, and Mixtec Chronology.

YEARS	MESOAMERICA	VALLEY OF OAXACA	MIXTECA ALTA
AD 1500	HISTORIC		
1400		MONTE ALBAN V	NATIVIDAD
1300	LATE		
1200	POSTCLASSIC		
1100			
1000	EARLY	MONTE ALBAN IV	
900	POSTCLASSIC		
800			LAS FLORES
700	LATE CLASSIC	MONTE ALBAN IIIB	
600			
500			
400	EARLY CLASSIC	MONTE ALBÁN IIIA	
300			(TRANSITION)
200			
100		MONTE ALBÁN II	
—	LATE/TERMINAL		RAMOS
100	FORMATIVE	MONTE ALBÁN	(EARLY)
200		I C	
300		MONTE ALBÁN	
400		I A	
500	MIDDLE	ROSARIO	LATE
600	FORMATIVE		CRUZ
700		GUADALUPE	
800			
900			
1000		SAN JOSE	
1100	EARLY		EARLY
1200	FORMATIVE		CRUZ
1300		TIERRAS LARGAS	
1400			
BC 1500		ESPIRIDIÓN	



1. Central Mixteca Alta survey
2. Valley of Oaxaca survey
3. Mixteca Baja
4. Mixteca de la Costa

Figure 2.1. The Mixteca Alta in Mesoamerica and the location of sites, towns, and regional survey areas referred to in the text.



Figure 2.2. The Teposcolula Valley seen from El Fortín. Modern town of San Juan Teposcolula to the right.

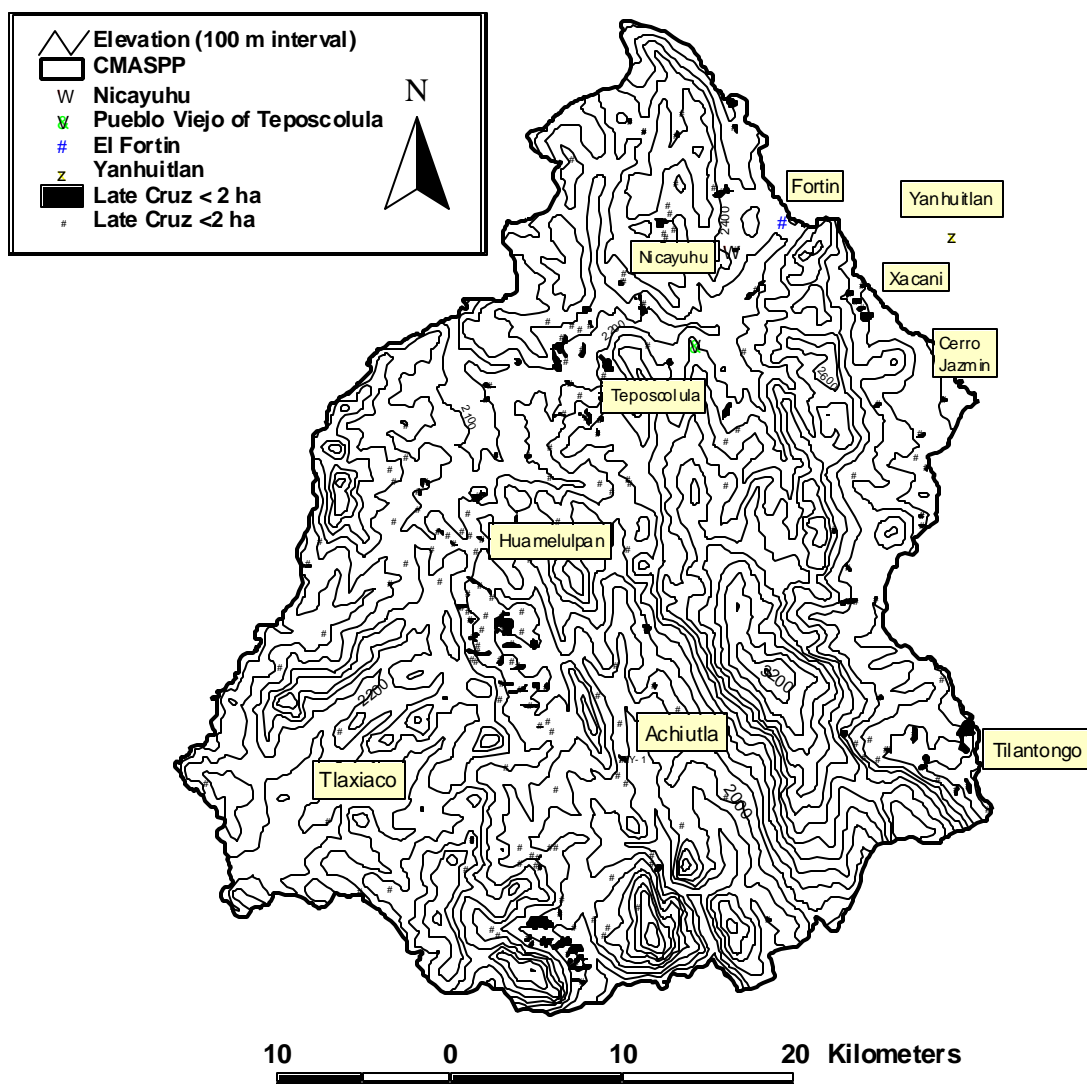


Figure 2.3 Cruz period settlement patterns in the Central Mixteca Alta survey area (see Balkansky et al. 2000).

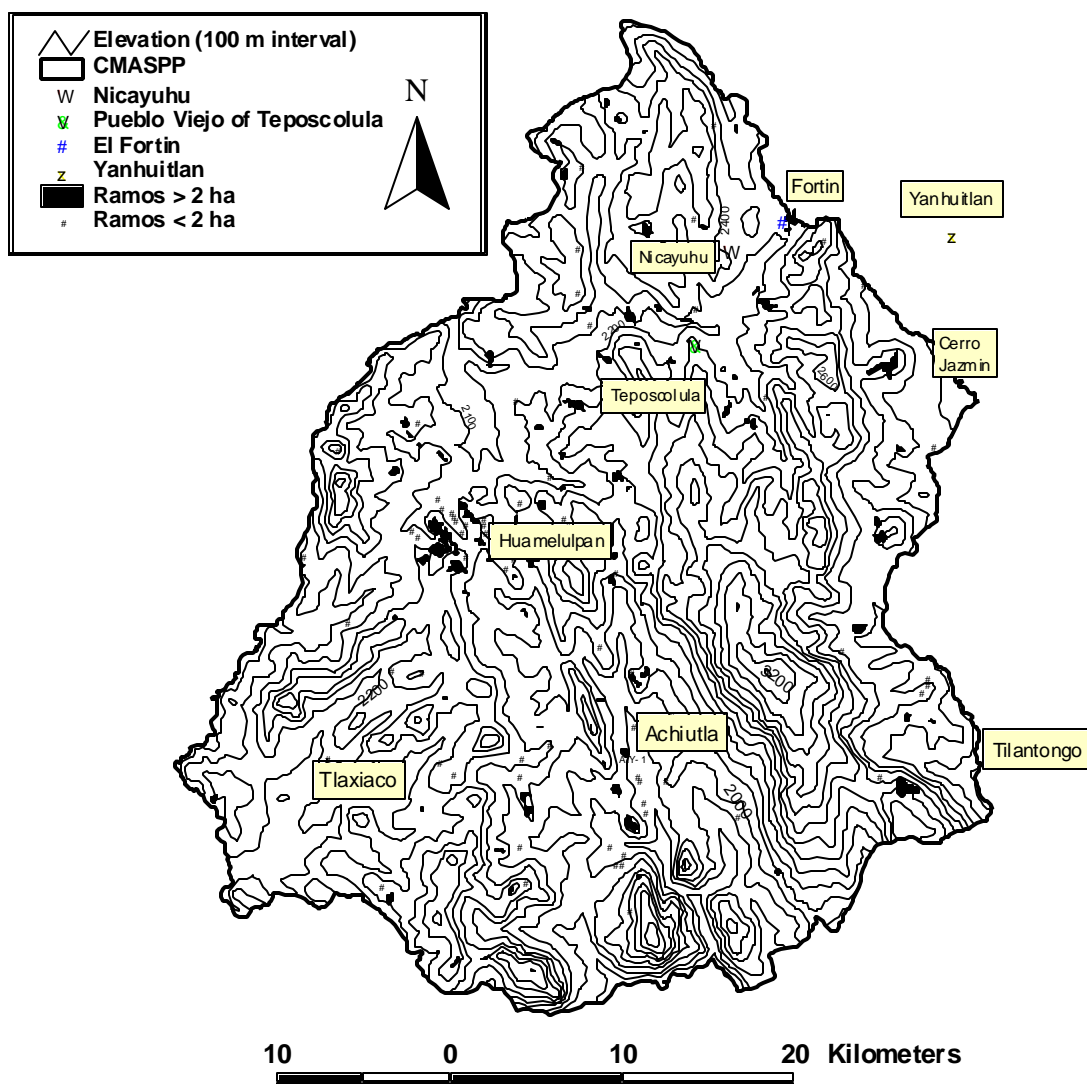


Figure 2.4 Ramos period settlement patterns in the Central Mixteca Alta survey area (see Balkansky et al. 2000).

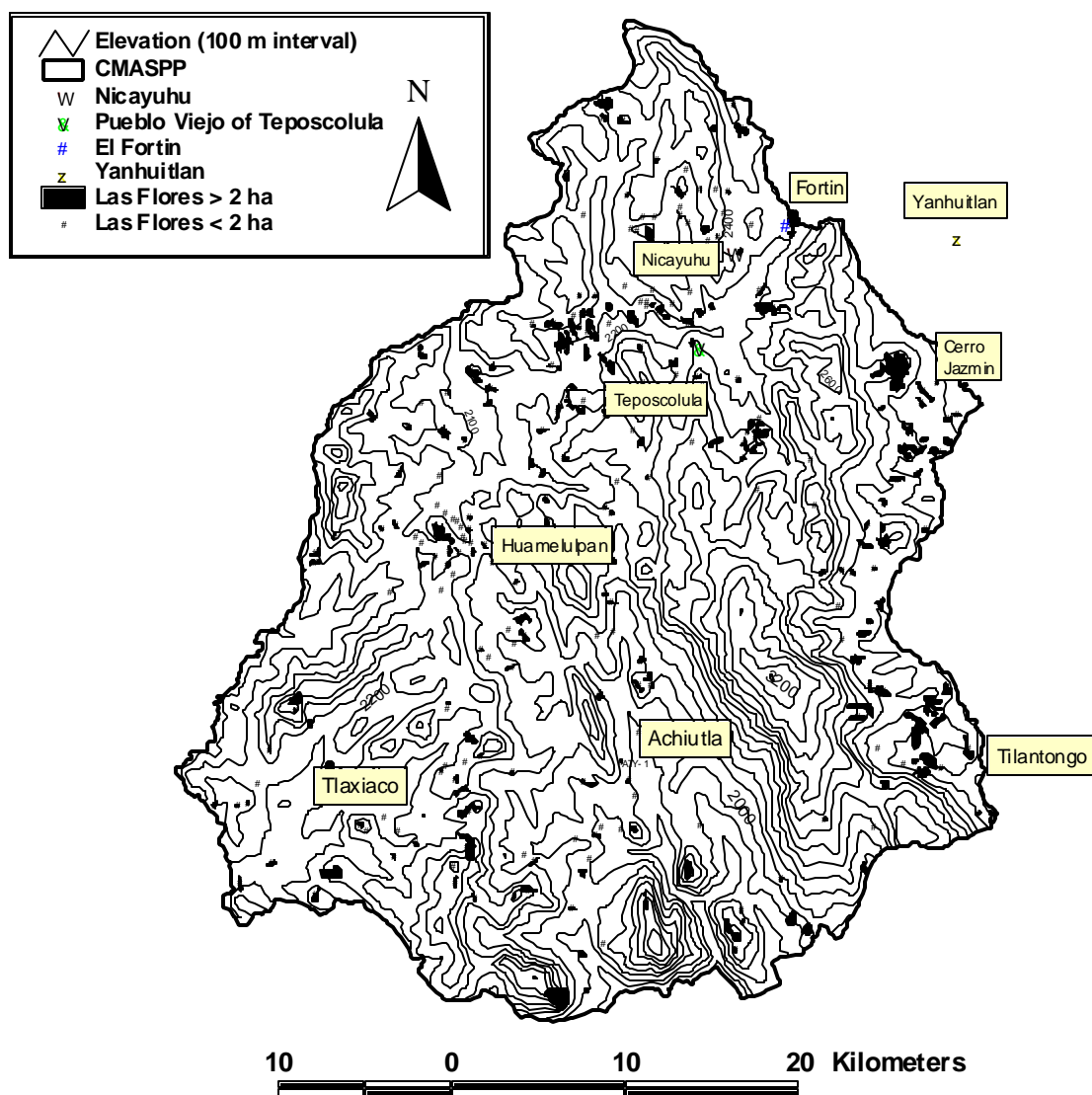


Figure 2.5 Las Flores period settlement patterns in the Central Mixteca Alta survey area (see Balkansky et al. 2000).

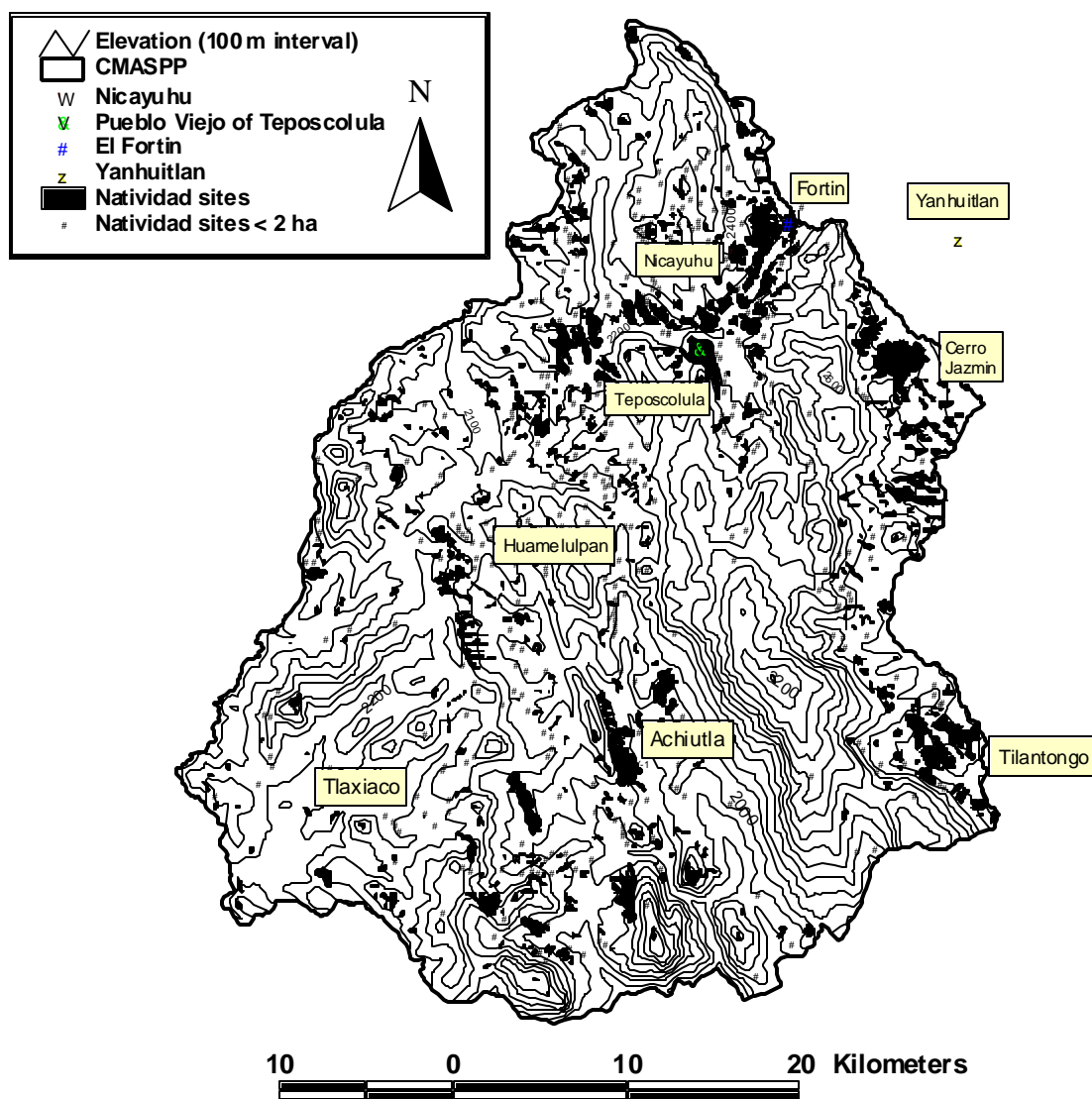


Figure 2.6 Natividad period settlement patterns in the Central Mixteca Alta survey area (see Balkansky et al. 2000).

CHAPTER 3

METHODS

In this chapter I explain the methods I used to find a suitable research site and obtain the data needed to answer the research questions outlined in Chapter 1. To learn about how commoners lived, what their role was in the system of intensive agricultural production, and how the agricultural terraces were built I needed to find commoner houses and associated agricultural terraces. Initially, I used the Central Mixteca Alta Settlement Pattern Project (CMASPP) regional database to locate suitable rural agricultural settlements (Kowalewski et al. 1999). The regional settlement pattern data revealed that low-level rural settlements with little civic-ceremonial architecture were the most common Postclassic settlement. From these rural sites I wanted to locate one surrounded by agricultural terraces and within the territory of a *cacicazgo*. Once I located such a settlement I used the regional settlement pattern data to understand the site's temporal and regional context. At the site-level I mapped, surface collected, and excavated agricultural and residential areas to obtain information about house construction, length of residential occupation, and associated artifact assemblages and about methods of agricultural terrace construction. In this chapter I describe these methods in greater detail.

The Study Area

Given the research objectives outlined above, I needed to find an agricultural settlement that belonged to a well-known *cacicazgo*. I also wanted to be able to draw from ethnohistorical information. I set some parameters for how I would identify an

agricultural settlement archaeologically. An agricultural settlement suitable for my study would show evidence of: (a) residential habitation; (b) agricultural terracing; (c) proximity to agricultural resources (water, land, terraces, workers); (d) considerable distance from civic-ceremonial main centers (over 2 km); (e) good state of preservation. The reason why I wanted to study an agricultural settlement located some distance from a capital center was that I wanted to locate and learn about the commoner household. Working at an agricultural settlement away from the *cacicazgo* capital would increase my chances of finding a common household that would have little to do with the top-level political activities that take place in capital centers.

From the regional settlement pattern data (Balkansky et al. 2000; Stiver 2001); I located four sites that appeared to meet my list of requirements. Although the kind of agricultural settlement I was looking for was common in Postclassic times, due to severe erosion and the spread of modern roads and settlements few of these sites remain in good 'excavatable' condition. Fewer still are those sites found within an ethnohistorically known *cacicazgo*. In the summer of 2001, I visited the four candidate sites to see their state of preservation and accessibility, and talked to the various local authorities to get an idea of the political and social climate in which I would be working. After these visits, I decided to work at the terraced hill-site of *Nicayuhu* in the municipality of San Juan Teposcolula.

The settlement where I conducted this study extended over four hills, one being *Nicayuhu* (Figure 3.1). Although the other three hills had undergone massive trenching as part of a government program to stop soil erosion, *Nicayuhu* had been left intact. From here on I will use the name of *Nicayuhu* to generally refer to the entire site, except when discussing particular named sectors, such as the drainage of *Nduatijubacu*. Apart from its good state of preservation, *Nicayuhu* could be one of dozens of low-level rural settlements with little civic-ceremonial architecture that dominate the regional Mixtec

landscape in the Postclassic period. *Nicayuhu* was part of the well-known *cacicazgo* of Teposcolula. At the site I found several dozen contour and *lama-bordo* terraces in a very good state of preservation. In most sectors of the site the surface material suggested a Postclassic occupation only. *Nicayuhu* was accessible, being only a 30-minute walk from a road, and access with workers and equipment would not be difficult. The authorities and most people in San Juan Teposcolula were very friendly and open to having an archaeological study done in their town.

Before starting fieldwork at *Nicayuhu* I talked to the authorities in a “*junta de jefes*” (meeting of community leaders) and to the entire town at an “*asamblea general*” (general assembly). I also decided to live in town to avoid any suspicions that I was looting or robbing the community. In time I made friends in San Juan. During my excavations I had many visits from community leaders and even from the local junior high school. At the end of my project I spoke again to at a “*junta de jefes*” and a general assembly. The town was concerned about the final destination of the artifacts recovered in excavation and we reached an agreement with the INAH authorities in Oaxaca that if the town organized to build a community museum I would help them put together an exhibit with the artifacts and information recovered from this project. Part of my agreement with the community is to write a project report for the local authorities, schools, and library. I will also talk at a general assembly in December 2003 to give a full report of my study showing pictures, maps, and results. The town is currently working on building the museum.

Study Area Regional Context and Settlement History

Nicayuhu and the surrounding hills were part of the Natividad settlement cluster of the *ñuu* of San Juan Teposcolula, a key demographic center of the *cacicazgo* of

Teposcolula. San Juan, as I will refer to it from here on, is found in the northern sector of the Teposcolula Valley and in prehispanic times it was a distinct community from surrounding clusters of Postclassic settlement. People here identified themselves as a distinct socio-political unit since at least the sixteenth century (AGN Tierras 24, esp.6). *Nicayuhu* was not at the center of political or economic decision-making, the site was located six kilometers away from *cacicazgo* capital, instead it appears to have been an important demographic and agricultural settlement. *Nicayuhu* and its surrounds united all the resources needed for high yield intensive agricultural production: flat valley bottom land, year-around springs that provide water, contour and *lama-bordo* terraces, and people. The lands and springs that surround *Nicayuhu* are still used for agriculture, grazing, and for drinking water. On top of that *Nicayuhu* was in a key location along the connecting corridor with the adjoining Nochixtlán and Tamazulapan valleys, and their independent *cacicazgos*.

The regional settlement data show that human occupation in San Juan Teposcolula has been continuous since the era of the earliest villages during the Late Cruz phase (700-300 B.C.). A Cruz period occupation was located on the hill of *Nicayuhu* in the hilltop sector of the site (Figure 3.2). The Cruz phase site at *Nicayuhu* measured approximately 7.74 ha and it was located to the west of the San Juan branch of the Teposcolula valley, in the direction towards Yucunama. The Cruz phase settlements in San Juan may have been part of a settlement cluster found between the modern day towns of San Juan Teposcolula, Yodobada, and Yucunama.

At the onset of the Ramos phase (300 B.C.), local Cruz phase settlements were abandoned and in turn new terraced hilltop urban centers were established nearby (Figure 3.3). This was the case in the Teposcolula Valley where human occupation now focused in the newly founded Ramos terraced hilltop site of El Fortín. El Fortín is in the northeastern fringe of the Teposcolula Valley, at the natural pass between this and the

adjoining Nochixtlán Valley. This site was never a primary center. It was a local capital for the San Juan locality, and likely a secondary center to Cerro Jazmín, a primary urban center located across the mountain divide in the western side of the Nochixtlán valley. El Fortín continued to be the local capital well into the Las Flores phase (Figure 3.4). In the Natividad phase the local center of settlement occupation shifted again. Renewed population growth and changed residential occupation then focused on the western side of the valley in the hills of *Diquino*, *Nicayuhu*, and surrounding areas (Figure 3.5).

Stiver (2001) reported that *Diquino* was the largest and most densely populated Natividad phase settlement in the Teposcolula Valley. *Diquino* was clearly a main demographic center and part of the almost continuous cover of Postclassic occupation that extends west onto the hills of *Nicayuhu*, *Sasná*, *Cueva del Coyote*, *Loma San Mateo* and *Yu'uki*, the study site. This cluster of settlements may be considered a single site if it were not for two important facts. First, the natural terrain, drainages, and narrow slivers of valley bottom land separate the terraced hills. Second is the fact that so far the Natividad phase extends for about a 700-year period due to the lack of ceramic chronological refinement. The settlements found throughout the hills mentioned above may not be contemporaneous, yet we are unable to identify this based on surface ceramic materials alone. I envision the cluster of Natividad settlement found in San Juan Teposcolula as a long-lived community with periods of growth and decline. Settlement in one sector of a hill may have flourished before or after another sector in the same or an adjoining hill.

Mapping

The first step of my fieldwork was to map the entire settlement of *Nicayuhu* and its surrounds including *lama-bordo* terrace systems and some of the surrounding topography. With a Topcon GTS-225 total station I mapped all natural and cultural

features. I began work in the second week of July 2002 and finished mapping and surface collecting by the last week of August 2002 (Figure 3.6).

To map the site I established an arbitrary grid where the first mapping station, or primary datum point (PDP), had E 1000 N 1000 and elevation 1000 m coordinates (Figure 3.7). I oriented the grid to magnetic north. GPS readings for the PDP gave the following UTM coordinates: E 665520 N 1940440 and elevation 2382 m above sea level. This primary datum point was permanently marked by a nail hammered in an outcrop of bedrock on the hilltop of *Nicayuhu*. Consequently as we moved the location of the mapping station we marked all station points with nails and markings on the ground or on bedrock outcrops. We did this so that the mapping points could be retraced in the future. In addition, as we established areas for excavation we marked the datum points for each excavation area with a nail that was left on the ground even after we finished working in an area. The location of each of the excavation area datum points was also recorded with the total station and integrated with the master site map as well.

I mapped taking measurement points along all cultural features such as the top and base of all terrace walls, the perimeter of structures, and bell-shaped pits. I also took measurement points for the natural slope and terrain, the perimeter of eroded areas, and collection area locations. We took 4688 measurement points. All measurement and notebook data were downloaded, transformed, and manipulated using Surfer 7.0 and Arcview 3.2 software. I generated topographic contour maps in Surfer, which I later exported to Arcview. In Arcview, I drew along the measured points the shape and extent of terrace walls, structures, bell-shaped pits, collection, and excavation areas (Figure 3.8).

The site extends over the hills of *Yu'uki* to the south, north through *Cueva del Coyote*, *Nicayuhu*, and further north to *Sasná* and *Loma San Mateo* (Figure 3.7). *Lama-bordo* terrace walls were found and mapped in all the drainages that divide these hills. I

was able to obtain the names of two of these drainages, *Nduatijubacu* and *Nduanuntoto*. Across *Nicayuhu* to the east there is a large hill called *Diquino*. Although *Diquino* has suffered massive erosion, we still found evidence of Postclassic residential occupation on it. I did not include *Diquino* in my map because it is beyond *Nicayuhu* to the east across an area of flat bottom-land and because residential sectors at *Diquino* were for the most part too eroded to consider for excavation.

I mapped a total of 52.25 hectares, the full extent of the continuous Natividad period settlement. In this area I mapped 285 terrace walls. Among these there were 5 *lama-bordo* terrace systems. We also located and mapped 39 structures, 14 bell-shaped pits, and 15 collection areas. While mapping, I took photos and notes on terraces and structures, conditions of preservation, surface artifacts, and excavation potential.

Surface Collections

The surface collecting phase of this study served two purposes. The first was to identify residential areas that might have been good candidates for excavation based on their state of preservation and their representativeness of the residential occupations found throughout the site. The collected artifact assemblages provided information on the artifact inventory ranges of the various residential areas. By comparing these ranges I was able to assess the representativeness of the various residential occupations found, allowing me to argue that the excavations done in this study were of residential areas representative of the occupations found at *Nicayuhu*. Second, through surface collections I wanted to identify and map the extension of different temporal occupations found at the site. Based on the surface collections I identified an earlier Cruz period occupation on the hilltop of *Nicayuhu* (Figure 3.9). I mapped the full extension of the Cruz phase settlement and the later Postclassic occupation that extended to the adjacent hills from *Nicayuhu*.

We made controlled-area collections. Each collection block covered a 5-m² area. Once an area was decided upon and delimited we collected all surface artifacts found within. Collection area locations were determined in two ways. First, I randomly placed collection areas across the various sectors of the site as they were being mapped. Second, I placed collection areas in places where I suspected earlier occupations, or special activity areas, also in areas where severe erosion allowed us to obtain larger collections that showed us what lay underneath the surface. While surface collecting we also took notes on the excavation possibilities of a given place as well as on the surface indications of a residential occupation. We took 16 controlled-area collections (Figure 3.10) and 31 opportunistic collections of highly diagnostic or rare artifacts, such as chert end-scrapers or projectile points.

The data generated by the surface collections allowed me to identify several patterns. First, the overall densities of lithic artifacts in the 5-m² collection areas were quite telling, especially after lithic artifact excavation data was obtained and compared (Table 3.1). Collection areas located near the hilltop of *Nicayuhu*, on the adjacent saddle leading up to *Cueva del Coyote*, and near the Cruz period occupation on *Nicayuhu*'s north slope revealed a high density of lithic artifacts. The surface recovered lithic artifacts showed great variety in terms of raw material. Chert dominated the lithic assemblage; we collected a great variety of chert types and colors. In contrast, obsidian was rather rare on surface. The house excavations, on the other hand, did not reveal such great densities and variety chert raw material and artifacts. The lithic results suggests that the hilltop and north slope of *Nicayuhu* sector of the site, especially those areas close to where Cruz phase diagnostic ceramics were found, may have seen local lithic tool production or raw material procurement and exchange at some point in the prehispanic past. Additional site-intensive study in these areas of high lithic artifact densities would clarify my proposition in the future.

The surface ceramic artifact results revealed the presence of rough tanware everted rim bowl fragments (Cruz period diagnostic types) on the hilltop and north slope of *Nicayuhu*, and the nearby saddle leading up to *Cueva del Coyote*. Beyond the Cruz phase materials, most surface collected ceramics were either Natividad period diagnostics (sandy cream, fine cream, and Yanhuatlán Red on Cream vessels) or undiagnostic utilitarian types in vessel forms that could fit well with a Natividad period occupation. Throughout the site the most common ceramic artifacts were coarse tanware and sandy cream jar and fine cream bowl fragments. Near the hilltops, where the remains of destroyed structures were still visible we found a slightly higher frequency of fine cream and fine gray bowl fragments from out-leaning wall and semi-hemispherical bowls. On surface we only collected a single fragment of a *cacique* burnished vessel and a piece of polychrome pottery (Table 3.1; Appendix C).

The surface ceramic data indicates that throughout the entire Natividad period settlement there are only slight differences in material culture indicators of social status. The most common ceramic types encountered were utilitarian coarse paste vessels, mostly jars and finer paste bowls. This basic surface artifact assemblage was representative of the occupations that covered the majority of the site. Only slight differences could be detected among the artifact assemblages from hilltop locations, where the Cruz phase occupation and the destroyed Natividad phase structures were located. These differences were the presence of Cruz phase diagnostics and a slightly greater number of fine cream and gray paste bowl fragments. From these results I knew I would avoid excavating hilltop locations that were associated with civic-ceremonial structures and the earlier Cruz occupation. Beyond these areas I could excavate a number of different residential terraces, but focusing on those that showed additional signs of residential occupation such as a high density of construction materials on surface, ground stone fragments, and visible stone alignments.

Nicayuhu After Mapping and Collecting

From the mapping and surface collection phase of the study I was able to identify seven distinct sectors or areas of the site (Figure 3.7):

1. The five *lama-bordo* terrace systems are considered a sector because they were agricultural, surface materials were few except in areas of severe erosion, also the *lama-bordo* terraces could be quite wet.
2. The second area consisted of the hilltops of *Nicayuhu*, *Cueva del Coyote*, *Yu'uki*, *Loma San Mateo*, and *Sasná*. On each of these hilltops we found large mounds and exposed stucco floors or bell-shaped pits (sótanos). These buildings could be either local temples or high-end domestic structures of local leaders.
3. Area 3 is rather arbitrary, created by the land conservation projects done on the slopes of *Cueva del Coyote*, *Loma San Mateo*, and *Sasná* 30 years ago. This land conservation project involved digging trenches and creating small soil ridges on the hill slopes to retain soil and humidity and mitigate erosion. These modifications exposed sótanos and destroyed structures and terraces. Most of the terraced area was for my purposes unexcavatable, but from the surface collections most of these terraces appear to have been residential areas.
4. The fourth area was near the top to the North-Northeast slope of *Nicayuhu*. This part of the site was characterized by narrow, medium-length, and dense residential terraces. Destroyed structures and domestic artifacts suggested a residential area. This sector of the site is closely associated with hill-top structures at *Nicayuhu*.
5. This sector consists of long and wide terraces found halfway down the north-northeast and east slope of *Nicayuhu*. One of the excavated terraces (Terrace 66) was in this sector 5.
6. Sector 6 was further down the slope from sector 5. This area consisted of long, narrow terraces that lead into a narrow valley, where two *lama-bordo* terrace

systems come together dividing *Nicayuhu* from *Diquino*. We test excavated twenty-one terraces in this sector as part of Excavation Area 4.

7. The seventh area I identified was much like the fourth except that it was found on the South slope of *Nicayuhu* across the lower slopes of *Yu'uki*. This sector consisted of narrow, medium-length, dense terraces that showed surface remains suggestive of domestic occupation. This sector was spatially close to the fifth sector discussed, and it was surrounded by bedrock to the west and destroyed *lama-bordo* terraces and bedrock to the south. As part of Excavation Area 6 eleven terraces in this sector were test excavated.

Excavations

The aim of this phase was to excavate at least one house to completion and test trench one *lama-bordo* terrace to learn about the commoner household and the nature of *lama-bordo* terrace construction.

Choosing areas for excavation

To locate a residential area for excavation I looked for surface artifacts of a domestic nature such as comal, jar, *mano*, or *metate* fragments, as well as surface indications of structures such as stone alignments or the presence of a lot of construction material. I identified areas that may have some depth and some protection from erosion, such as having a retaining terrace wall in good shape. I chose excavation areas that had common locations that is, not on the hill-tops where I found evidence of more massive construction. The first excavated house, House 1, was found mid-way down the north-northeast slope of *Nicayuhu*, and House 2 was found further down the east slope (Figure 3.11).

I chose a *lama-bordo* terrace for excavation that was west and up-hill from the two excavated houses (Figure 3.11). I chose this terrace because this *lama-bordo* system, *Nduatijubacu*, was very well preserved and its terrace walls were still mostly intact. Within the *Nduatijubacu lama-bordo* terrace system I chose a terrace whose wall and soil were held in place by a series of agave plants.

Excavation methods

Each excavation area was laid out initially as a trench divided into 2-x-2-m excavation units. For each excavation area I established a datum point independent of the full-site grid. This datum point was used to lay out the grid for the excavation area. Later on this point and the full extension of the opened excavation area were recorded with the total station; it was then that the datum points of all excavation areas were integrated into the full-site map (Table 3.2 and Figure 3.11). In total we excavated in six areas. Once an excavation area was laid out we established a second point that would serve as the arbitrary zero elevation point; this was always independent from the excavation area datum point. The zero elevation point was used to record all excavation levels using a line-level; this allowed us to quickly establish relative levels for the surface and subsequent layers and features. We usually picked a zero elevation point somewhere on top of the excavated terrace given the need for flexibility to move up and down in terraced terrain. From the zero elevation point we obtained a relative elevation for the excavation area datum point and as the datum point was integrated into the full-site grid using the total station we obtained excavation level information in relation to the entire site map.

Each 4-m² excavation unit on a grid had a unique name (e.g. S1E1, N8W3). We initially excavated in arbitrary 10-cm levels; once the natural stratigraphy of a place was understood we proceeded in natural stratigraphic layers. I used the term level to talk

about the depth measurements taken throughout the excavation, and the term layer for the natural stratum. I enumerated each stratigraphic layer using Roman numerals and recorded their level, i.e. their depth in relation to the zero elevation point for that particular excavation area.

We excavated with shovels and trowels for the most part, and dental picks and brushes when excavating burials or special features. In each area we excavated to the natural, sterile soil layer first to see the full depth of the stratigraphy. The natural sterile soil layer at *Nicayuhu* was a distinctive calcium-rich, pink, silt that was sculpted to create flat living surfaces that underlie all house construction. In other areas of the site, the natural soil layer was bedrock. For all cultural and natural soil layers we noted the texture, color (using a Munsell color chart), consistency, distribution, depth, thickness, artifact density, and the presence of roots and/or burrows.

The plow zone and its materials were excavated and processed in the field and laboratory as all other soil layers and excavation materials. All excavated soils were sifted in a ¼" mesh. Artifacts (ceramic, lithic, bone) were bagged, and labeled. Fifty-one carbon and three stucco floor samples were collected with a clean trowel and stored in aluminum foil and then in small, hard plastic containers (Appendix C; Table C.3). We collected 17 soil samples, stored in double 2-4 kg plastic bags (Appendix C; Table C.3). All bags were labeled with information about the site, sector, excavation area, excavation unit, layer, level or depth of the deposit, initials of the excavators, and date of excavation. Back at the field house we would re-bag and re-tag damaged bags. We assigned each bag a control number and we then entered the bag number along with all the tag information into a master bag list (Appendix C; Table C.3). All artifacts, except for soil, stucco, bone, or carbon samples, were washed and stored for analysis.

The location of all recovered artifacts and architectural features was recorded in our notes and drawings according to excavation unit (X and Y coordinates) and level or

depth (Z coordinates). We made scale drawings of profiles and plan views, and video taped and took slide and digital photography of all architecture, features, and soil types encountered in excavation.

Artifact Analysis

Most analysis of the archaeological materials, except for the human bone, took place at the field laboratory in San Juan Teposcolula, Oaxaca.

Ceramics

We tabulated ceramic materials by first processing them and sorting them by paste or ceramic type (Appendix C). We used the existing ceramic typology for the region. Pastes and types were Fine Cream, Sandy Cream, Yanhuitlán Red on Cream, Rough Tanware, Fine Tanware, Fine Gray Ware, Coarse Gray Ware, Orange Ware, Graphite on Orange, *Cacique* Burnished, and Polychrome (Lind 1987; Spores 1972). For each artifact bag we counted and weighed rims and body sherds according to type and paste. We then tried to ascertain the number of different vessel forms, such as bowls, jars, or comals, for each paste ware or type. I separated the best examples of each type of vessel form, type, and paste for drawing and photography. In Appendix C the pottery tabulations are given by excavation area, house, structure, room, feature, and the whole ceramic inventory—all ceramic pastes and types.

Lithics

Barbara Katéri Elizalde Carbajal, graduate from the National School of Anthropology and History in Mexico City (ENAH) classified the lithic materials by raw

material, form, and tool type (Appendix C). For each artifact bag we counted and weighed all lithic artifacts according to raw material—basalt, obsidian, chert, chalcedony, or other. We then tried to sort the material by form, or tool type. I separated the best examples of each tool or form type for drawing and photography. I divided the results by excavation area, house, structure, room, and feature to look at the entire lithic inventory—all forms and tool types—in these units of analysis. I describe in detail the results of this analysis in the lithics section of Appendix C.

Bone

Zooarchaeologist Gilberto Pérez Roldán, graduate from the National School of Anthropology and History in Mexico City (ENAH) studied all bone material not associated with a human burial at the field laboratory in San Juan Teposcolula. His study consisted of taxonomic identification, physical and anatomical description, and an assessment of signs of human modification such as cutting, chewing, or cooking (Appendix C). Most recovered bone was non-human although a few pieces of human bone were identified. One piece of human bone showed signs of cutting and was catalogued as bone tool production debitage. These data are presented in the non-burial bone section of Appendix C.

Human Bone

Physical anthropologists Juan Alberto Román Barrelleza and María Guadalupe Martínez Guzmán, graduates from ENAH, inspected all human bone excavated in burial contexts at the physical anthropology laboratory of the Templo Mayor Museum in Mexico City. Their study consisted of a detailed description and anatomical identification of all human bone, and the identification of sex, age, and pathologies (Appendix D). The human bone consists of seven individuals that come from four burials encountered,

excavated, and salvaged (in the case of burial 1) during the fieldwork season. Appendix D contains the original physical anthropological study report written by the Templo Mayor investigators.

Soil, Stucco, and Carbon Samples

Three carbon samples, all from House 1 excavations, were sent to Beta Analytic for AMS dating. I discuss these radiocarbon dates as they become pertinent to the understanding of House 1 in Chapter 4. Additional carbon, soil, and stucco floor samples are stored for future analysis. All materials are under the legal control of INAH and are currently housed in Tlaxiaco, Oaxaca.

Table 3.1 Lithic and ceramic contents in 5-m² collection areas and association with structures or Cruz period sectors of the site.

Bag #	Col. Area	Natividad Diagnostic				Cruz Diagnostics Cruz C Tanware	Undiagnostic Types			Lithic					Assoc.	
		S Cream	F Cream	YRC	F Gray	Natividad Luxury	C	F Tan	Orange	Basalt	Obsidian	Chert	Chalcedony	Other	Str.	Cruz
1	col 1	90	36	2				19	0			6	6		x	
2	col 2	4	1	8				89	4							x
3	col 3	10	2	0				33	2			17	30	6		x
4	col 4	116	5	0			3	102	0			8	15	3		x
8	col 5	64	84	13			8	209	45			3	46	54	3	x
14	col 6	48	99	3			1	175	50	1	1	2	5	5		
13	col 7	26	68	2				85	27	5	1	2	2			
15	col 8	29	19	1			1	95	9			3	4			x
16	col 9	22	26	1				56	18			3				
17	col 10	59	39	7		1	1	35	0		4	5	6	1	x	
20	col 11	59	57	3				164	73			5	2			x
24	col 12	22	6	0		1 c		46	9			4				
41	col 17	129	46	25				59	0	5		6	2		x	
42	col 18	17	25	2			2	59	0			3	1		x	
43	col 19	9	10	1			1	31	0			1	6	4		
32	T 143	20	13		3			34	3			4	1			
31	Str 22	73	40	6	6			28			1				x	

Table 3.2 Coordinates of each excavation area datum point according to the site's arbitrary grid.

Excavation Area	East	North	Elevation
1	1171.53	1187.93	961.73
2	1260.06	1238.99	938.83
3	742.43	589.16	1002.14
4	1295	1214.3	938.31
5	1278.15	1188.22	945.59
6	1289.84	937.03	948.44



Figure 3.1 Terraced hill of *Nicayuhu* seen from the northeast, from the hill of *Diquino*. This shows terraces of sectors 5 and 6.

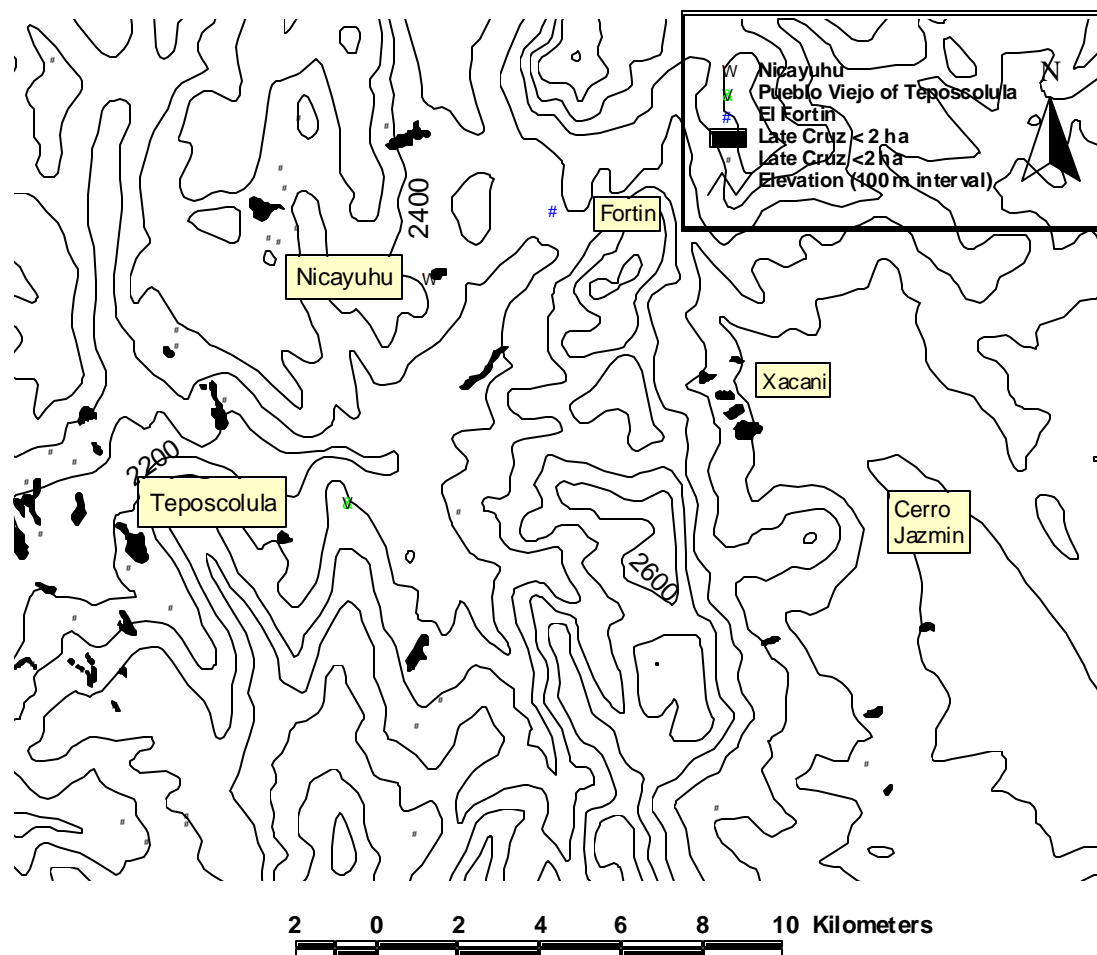


Figure 3.2 Cruz period settlement patterns in the Teposcolula Valley (from Balkansky et al. 2000; Stiver 2001).

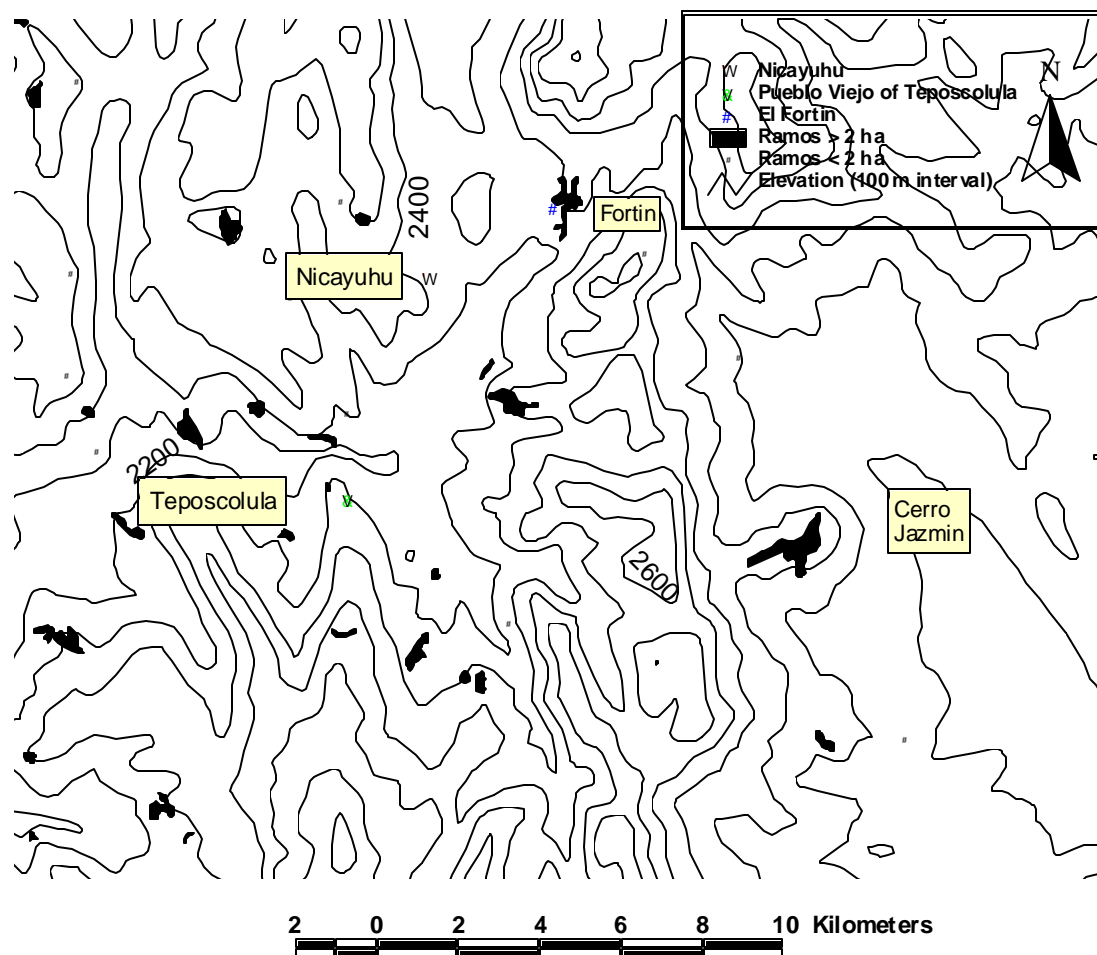


Figure 3.3 Ramos period settlement patterns in the Teposcolula Valley (from Balkansky et al. 2000; Stiver 2001).

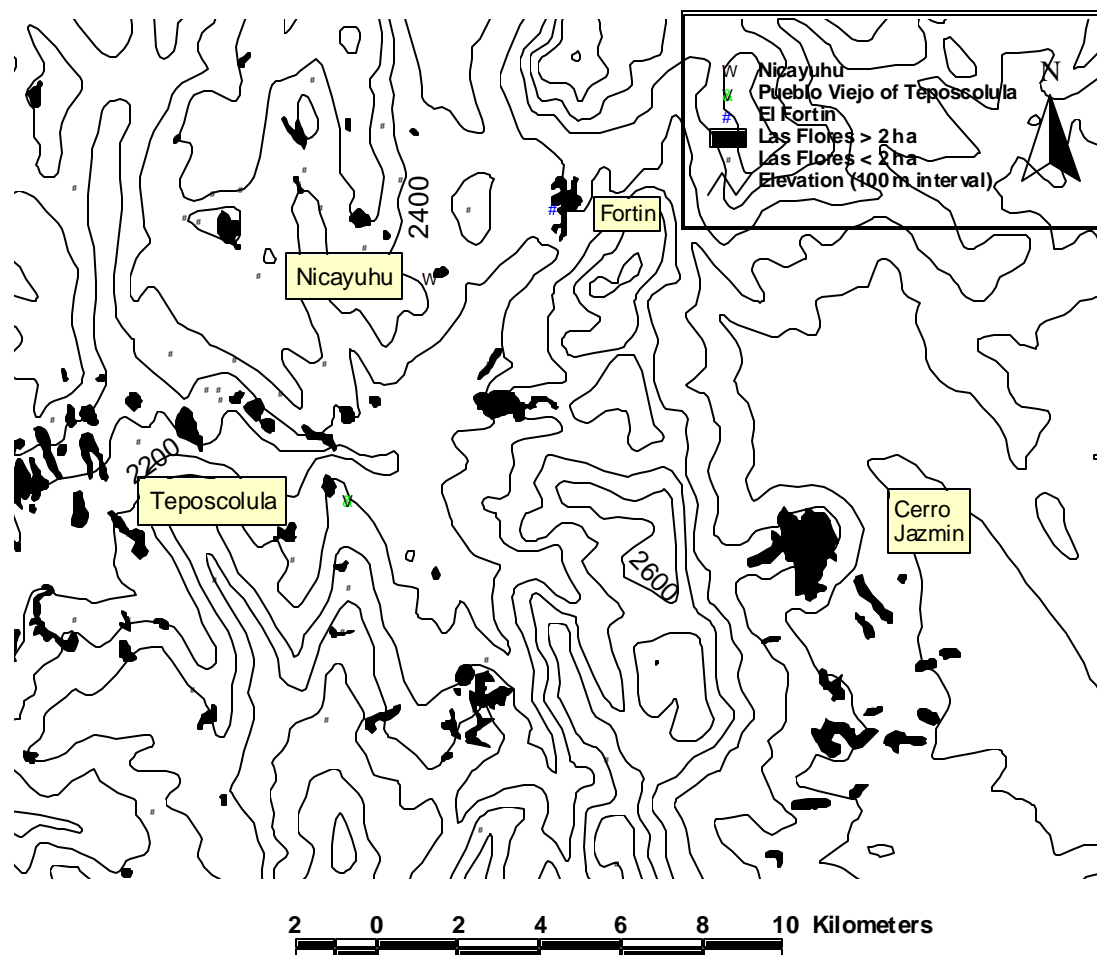


Figure 3.4 Las Flores period settlement patterns in the Teposcolula Valley (from Balkansky et al. 2000; Stiver 2001).

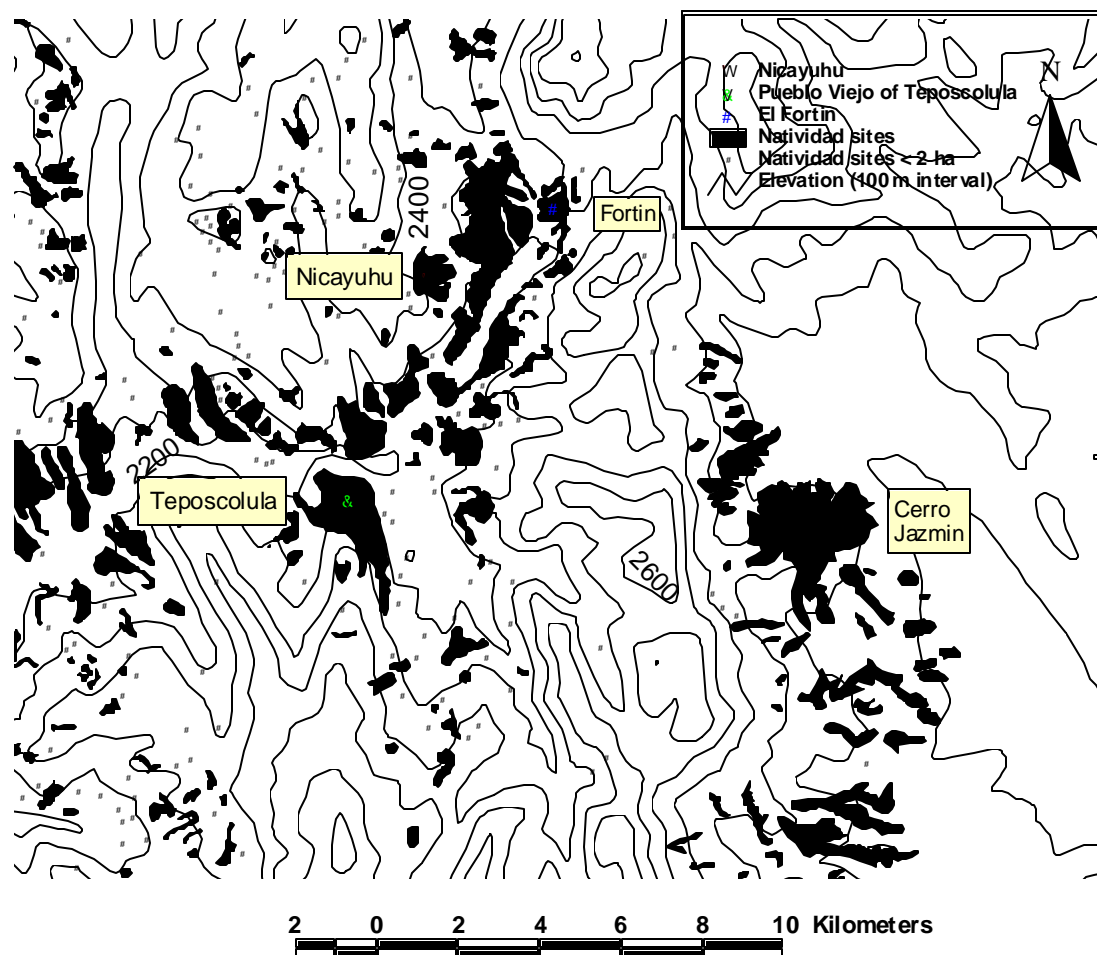


Figure 3.5 Natividad period settlement patterns in the Teposcolula Valley (from Balkansky et al. 2000; Stiver 2001).



Figure 3.6 Mapping with total station on the hilltop of *Nicayuhu*.

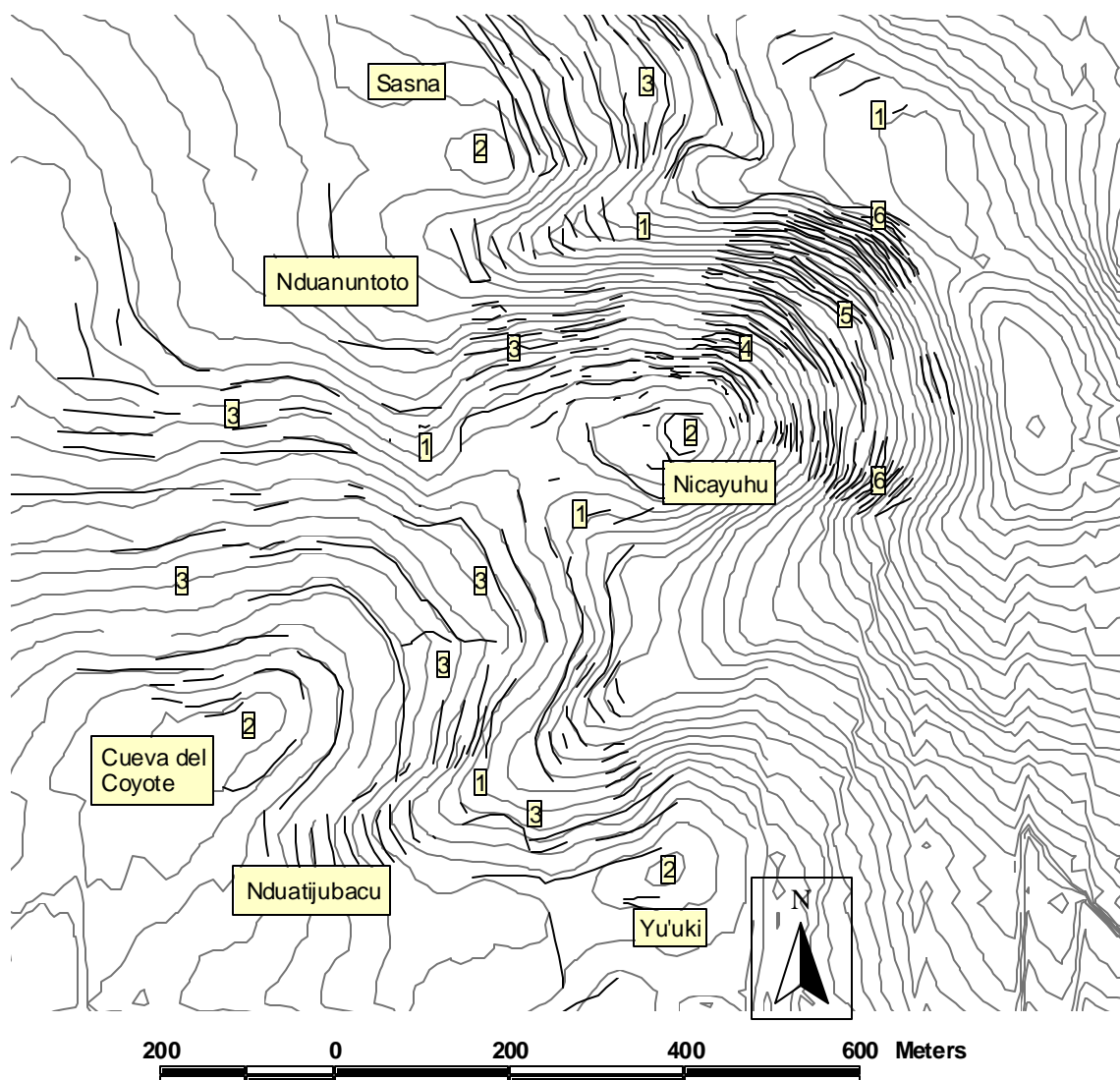


Figure 3.7 Topographic map of site showing the different site sectors.

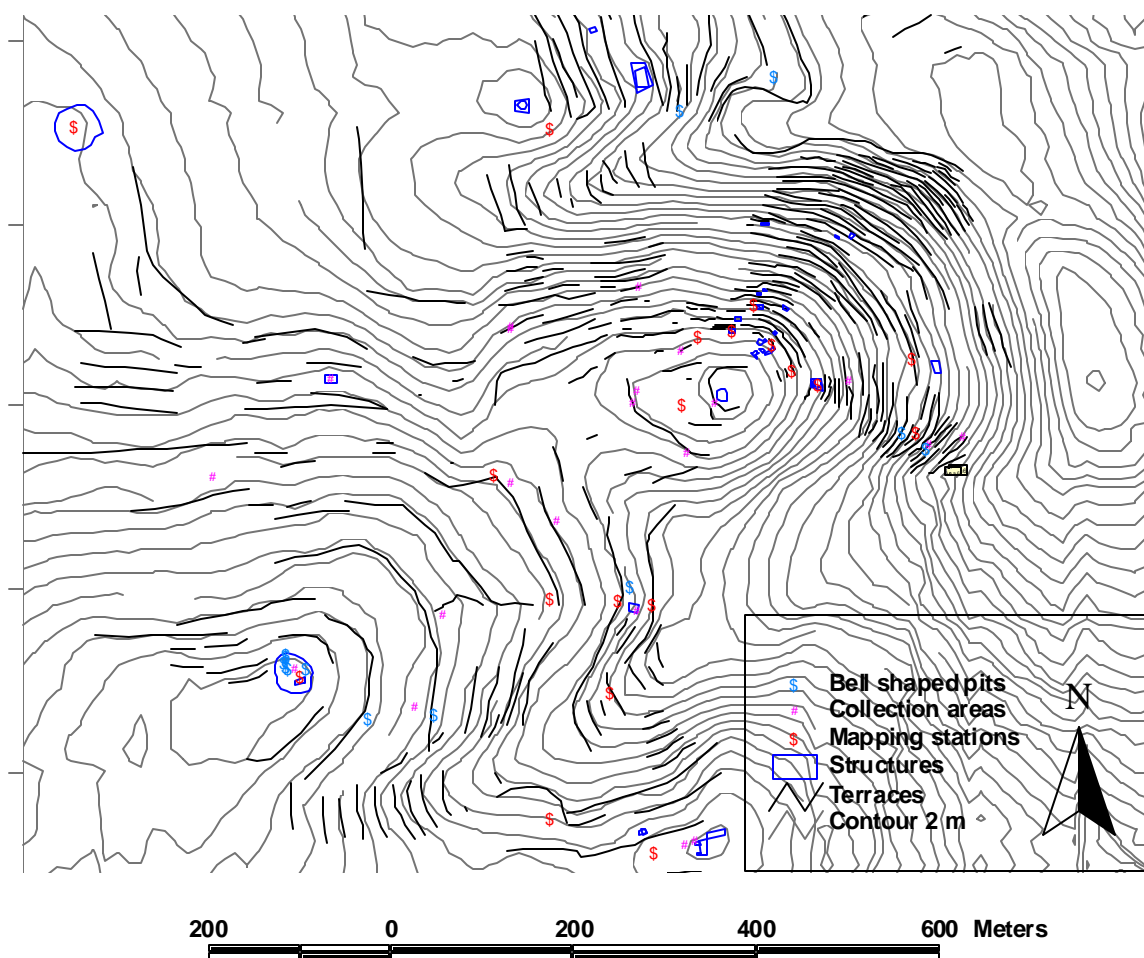


Figure 3.8 Topographic map of the site along with all the mapped cultural features.

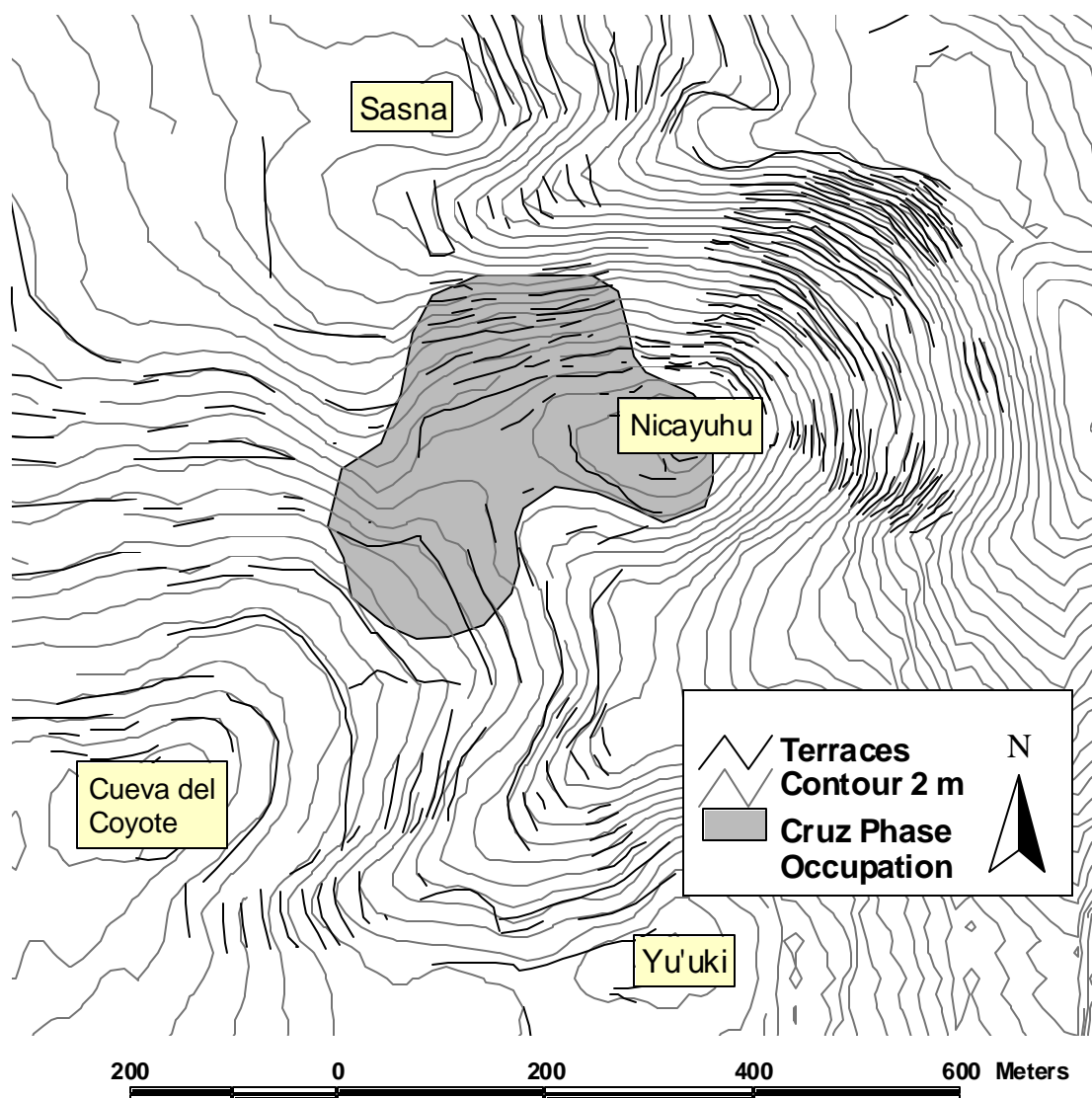


Figure 3.9 Cruz period occupation at *Nicayuhu*.

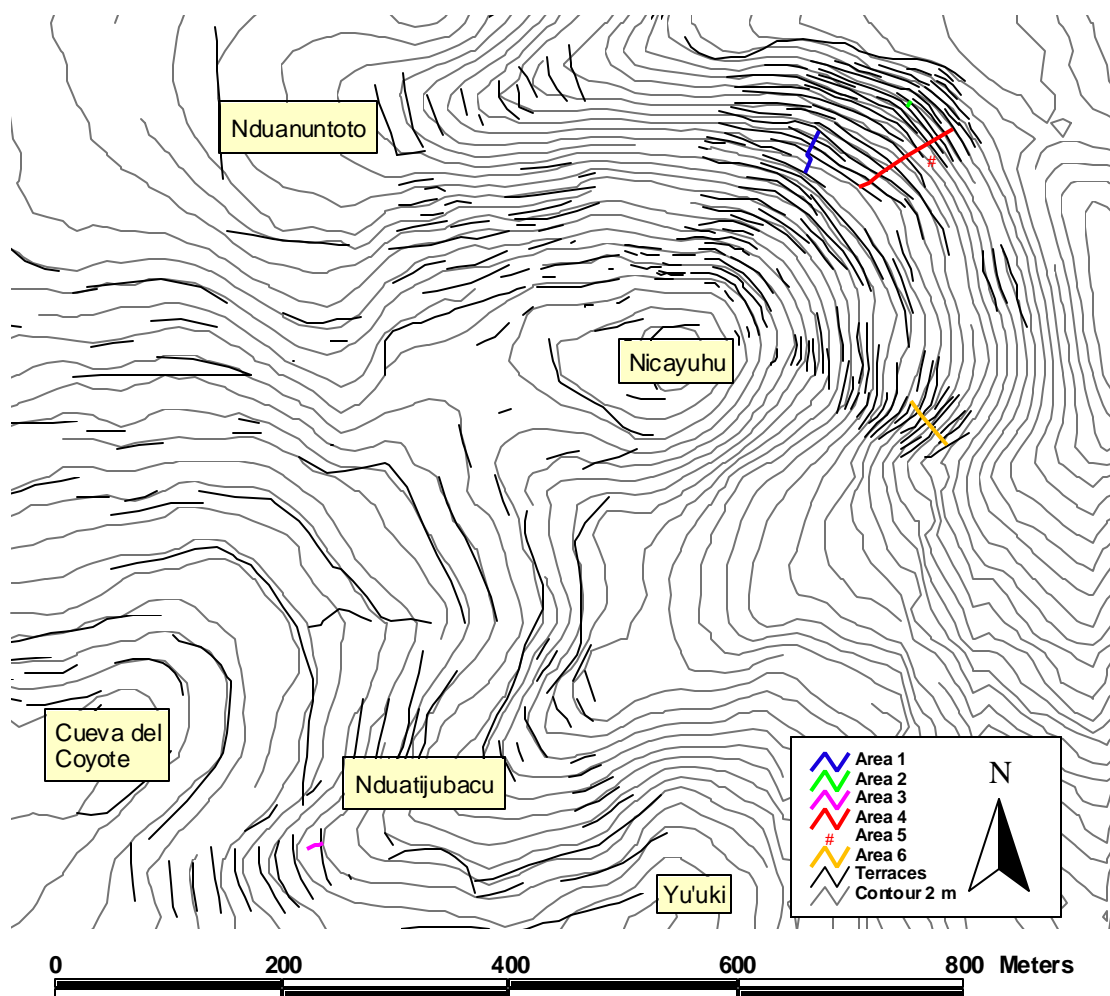


Figure 3.11 Excavation area locations.

CHAPTER 4

HOUSE 1

The primary purpose for excavating residential areas at *Nicayuhu* was to locate and learn about commoner households at an agricultural settlement in the *cacicazgo* of Teposcolula. The excavation data would provide information on the socio-economic standing of the house inhabitants; determine whether they were nobles, free land-owning commoners (*ñandahi*), or landless commoners, servants or slaves (*tay situndayu*). In determining who the common *Nicayuhu* inhabitants were, I would establish if the agrarian smallholder pattern may have been in place in the Mixtec *cacicazgo* as the organizing principle of intensive agricultural production. I found and excavated two houses at *Nicayuhu*.

In this chapter I summarize the results from House 1. I discuss its relevance in answering the main research questions outlined in Chapter 1. I establish the socio-economic standing of the house inhabitants based on how my house excavation results compare to previous archaeological and ethnohistorical studies. More detailed information on excavation results, architecture styles and features, artifact assemblage descriptions, and tables of raw data are available in Appendices A, B, and C.

Extensive Horizontal Excavation Methods

House 1 was found in a test excavation at Area 1 (Figure 4.1). Once we identified a residential occupation and signs of construction, we extended our initial test trench into more extensive and horizontally broad excavation blocks. The purpose of expanding our excavations horizontally was (a) to better understand the entire house complex; (b) get

an idea of what construction and features may have been contemporary; and (c) get information on the timing of structure construction (i.e., what structures were added on to earlier ones).

When we expanded our excavation blocks we used 2-x-2-m excavation units that could be excavated whole, in half as a 1-x-2-m unit, or as a 1-x-1-m quarter of an excavation unit. By the time we extended test excavations into these larger blocks we had a good idea of the natural stratigraphy of the place and so excavated in natural stratigraphic layers. During these extensive horizontal excavations we tried to expand our excavation coverage to delimit the full extent of structures and features. In many cases we did not expose the entire feature or structure to avoid further deterioration, but we always identified and exposed the corners of the structures. As part of Area 1 excavations we opened a total of 230 m².

Location

House 1 was located on Terrace 66, midway down the northeast slope of *Nicayuhu* (Figure 4.1). Terrace 66 measured 110 x 14 m. I identified this terrace as a possible area for excavation because of the number of construction materials found on surface and because toward the back of the terrace I identified and mapped a square stone alignment, Structure 13. We began excavations at Area 1 because I initially thought that Structure 13 was a stone foundation for a domestic structure (Figure 4.2).

Finding House 1

Initially I set up a trench that would dissect the stone alignment, Structure 13, as well as the terrace walls for Terrace 66 and the next terrace up, Terrace 62 (Figure 4.3). The trench was divided into 2-x-2-m excavation blocks. I opened every other excavation block to approach Structure 13. Structure 13 was a rectangular bed or rock pile, 4.5 x 2

m and 0.5 m deep. Excavation units around Structure 13 started to turn up human bone as well as large quantities of ceramic artifacts. At the western profile of the next excavation block to the west we found an *endeque* (calcrete, Kirkby 1972:12) block wall, the eastern wall of Structure A (Figure 4.4). The excavation area was expanded unit by unit to define the full extent of Structure A; as we did this, more structures were identified and excavated. In time we would expose the entire extension of House 1, 14 x 13.5 m—189 m² (Figures 4.5 and 4.6).

Area 1 Stratigraphy South and East of House 1

In Area 1, the first excavated sector was east and southeast of the House 1 complex. This sector had a more complex stratigraphy than the rest of the excavation area (Figure 4.7). The more complex stratigraphy underlies and extends to the south and east of Structure A. I describe this sector's stratigraphy first.

Layer I was the plow zone that extended across the entire surface of the terrace. It was a firm to very hard medium brown (5 YR 4/4 reddish brown) loam that had a lot of roots and insect burrows. This layer had a lot of mixed rock and gravel; it was about 20-30 cm thick and it followed the natural slope of the terrace surface. The plow zone had a medium to high concentration of ceramic and lithic artifacts. These artifacts do not have a clear cultural context, so they were not taken into consideration in the house artifact assemblage analysis. They do, however, help us date the overall occupation of the terrace to the Postclassic period. Most ceramics from the plow zone were known Postclassic types such as Sandy Cream, Fine Cream, and Yanhuitlán Red on Cream vessels.

Layer II was a dark brown, gray to black (5 YR 2.5/1) organic soil that originated just outside of the southeast corner of structure A as a 20 cm thick layer that spread and faded to the east (from the S4W1 to the S2E1 excavation units). This layer had a lot of

roots and insect burrows and a medium to high artifact density. I especially noted a concentration of bone and obsidian blade fragments in this layer. I believe this layer was perhaps the result of burning and tossing of ash, charcoal, and trash producing a midden in this area of the house most likely after its abandonment. Although the extent of this layer is smaller (approximately 2 m³) than the following layers, it displayed a high ceramic artifact content mostly dominated by rough tan ware and sandy cream jars and fine cream bowl fragments (Table 4.1).

Layer III was a 30-40-cm thick hard clay loam of medium to dark brown color (5 YR 3/2 dark reddish brown). It had a medium density of artifacts, few roots, and few insect burrows. As in Layer II, the ceramic artifact types that dominated in this layer were utilitarian jars and bowls (Table 4.1). The layer roughly begins slightly below and in some areas at the same level as Structure A's stone foundations. It then extends across the excavated units adjacent and directly four meters east of Structure A and in the area between Structure A and the East room of Structure B, beyond the southeast corner of the House 1 complex. While Layer III was right at the level of Structure A's stone foundations in the area east of the house, to the south this layer was higher, at the level of the stone foundations, structure walls, and 30 cm up. In this same area this layer was associated with Intrusion 2, a destroyed bell-shaped pit midden. Given this layer's stratigraphic context I believe that layer III was composed of some primary refuse deposited by the house inhabitants in Intrusion 2 mixed with secondary refuse deposited after House 1 was abandoned. In the area of contact between Layer III and Intrusion 2 we collected human bone fragments of at least three individuals, suggesting that layer III was a mixed layer of primary and secondary refuse and burial deposits that were probably disturbed in prehispanic times.

Intrusion 2 was part of layer III as it intruded into layer V in the area west of Structure 13, east of Structure B and south of Structure A in excavation blocks S4W1,

S4W2, S5W1, and S5W2. The intrusion was an ancient bell-shaped pit that was dug into layer V. I initially thought this intrusion may have been some sort of midden (Figure 4.8). As we excavated the intrusion we found that the bell-shaped pit had been filled with a very high concentration of uncut chert mixed with small and very deteriorated pieces of human bone. Most of the identifiable human bone fragments were of an adolescent male. In addition we found a small and virtually destroyed burial, Burial 4, on the south wall of the intrusion on excavation units S5W1 and S5W2. In Intrusion 2 we recovered a good deal of sandy cream, rough and fine tan wares, and fine cream ceramic artifacts, mostly of jars and bowls. Here we also retrieved Yanhuatlán Red on Cream examples as well as a single Fine Gray bowl fragment, confirming that the primary refuse dates to the Postclassic period (Figure 4.1).

Burial 4 was found in Intrusion 2 and it consisted of partly articulated fragments of two infants (a 1 and a 5 year old approximately). The bone was found on the south-southeast edge of intrusion 2 as it met layer V (Figure 4.9). The material was very deteriorated and showed signs of having contact with roots. Since intrusion 2 was filled with chert rocks, it is possible that these burials were further destroyed by the weight and pressure from the soil and rocks. Given the bad state of preservation no clear position for this burial was ascertained; however I can say that this was not a primary burial, no articulated bones were found (see Appendix D).

Layer IV was a 10-30 cm thick hard dark brown to reddish pink (10 R 4/4 weak red) silty clay soil that underlied Structure A and laid directly on top of Layer V, the sterile natural layer that makes up the entire hill of *Nicayuhu*. Layer IV had a medium density of ceramic and lithic artifacts and a very low density of bone material. It had few root and burrow intrusions and a low density of mixed gravel. During our excavation of Layer IV as it extended for at least four meters east of Structure A we found several features, intrusions of Layer IV into Layer V (Intrusions 1 and 3, and Burial 2; Figure 4.10).

Whereas the contact surface between layers IV and V was at -4.0 m (from Area 1's zero elevation point), intruding features extended to -4.3 m. It appears that ancient inhabitants of this area of the site dug "cavities" into Layer V to use for burial, hearth, or midden accumulation. Later on Layer IV is deposited, perhaps as a terrace fill layer that created a higher flat living surface on which Structure A was built. I sent a carbon sample from Layer IV to the lab obtained a date of 1150 ± 40 B.P., which calibrated gave a calendrical date in the cal. A.D. 878-979 range.

Intrusion 1 started at the point of contact between Layer IV and Layer V and it intruded into Layer V for approximately 30 cm to end at the -4.3 level, or -1.1 below the surface (Figure 4.10). Intrusion 1 had a roughly circular shape of 0.75×0.87 m. The intrusion had the same characteristics as Layer IV except that it also had a high concentration of charcoal, burnt soil, and rock. I initially identified this feature as a destroyed hearth, and later human bone fragments started to appear among the rock. As we continued excavating and taking out the stone blocks we found Burial 2 at the bottom. The most common artifacts recovered in Intrusion 1 were sandy cream and rough tanware jar fragments. In this context we retrieved a single piece of the rare Graphite on Orange pottery and no examples of the rather common (in this part of the Mixteca Alta) Yanhuitlán Red on Cream type (Table 4.1).

Burial 2 consisted of a child, approximately 8 years of age, found in fully flexed fetal position facing left (Figure 4.11). The body laid among stones and directly on the contact surface with layer V. Next to burial 2 we found a single fragment of basalt ground stone. The infant did not have any other offerings. This burial was later covered by midden and the hearth. Portions of the bone show signs of temporary exposure to fire supporting the identification of the top ash and charcoal layer as a hearth. Preliminary results of physical anthropological studies report that the individual from Burial 2 suffered from anemia and hyperostotic osteoporosis (see Appendix D).

Intrusion 3 was part of Layer IV as it intruded into Layer V. The intrusion followed an irregular shape roughly 1.75 m long by 1.12 m wide and was directly east-southeast of the east wall of Structure A in excavation unit S3W1. This intrusion had the same characteristics as layer IV except that it also had a high concentration of charcoal, burnt soil, and rock, which suggests that it was a disturbed hearth that was then turned into a midden. This feature may be the result of primary refuse from the initial occupation of Terrace 66, before Structure A was built, or even perhaps before the terrace wall was built. Intrusion 3 may also be the result of a later period of occupation when Layer IV was deposited as terrace fill for Structure A's construction. The most common artifacts retrieved from Intrusion 3 were Sandy Cream and Rough Tan ware jars fragments, thus dating the feature to the Postclassic period (Table 4.1).

We also identified two postmold features that were part of Layer IV as it intruded into Layer V, ending at the -4.3 m level, and forming a perfectly circular shape (Figure 4.12). These postmold features may have formed a pattern of the wall and roof supporting beams of a structure. However, I was unable to completely uncover the pattern formed by these postmold features because Structure A laid on top of Layer IV and other possible postmold features.

Layer V was a white to light pink (10 R 7/4 pale red) sterile and natural soil layer that makes up the core of the entire hill of *Nicayuhu*. This layer consisted of a soft silt soil with high calcium content. This layer was easily sculpted to create a flat surface on which the first residential occupation of Terrace 66 rested. Modern inhabitants of San Juan Teposcolula still sculpt flat surfaces or even stairways onto this soft pink soil layer.

House 1 Sector Stratigraphy

In the area where House 1 was located we found a simpler stratigraphy consisting of two cultural layers that lay on top of the final construction stage of the house.

Layer I on the House 1 sector was the same Layer 1 described above—the plow zone. Artifacts from this layer were not taken into consideration in the house artifact assemblage analysis because I consider the plow zone to be a disturbed cultural layer. I used the plow zone artifacts to date the occupation of the terrace.

Layer IIb was a 30-50 cm thick fine light cream (5 YR 7/2 pinkish gray) silty loam with a lot of debris such as large rocks and cut *endeque* blocks from wall and perhaps also roof collapse. This layer lay directly on top of all stucco floors both in structures and on the patio and extended only as far as the structures of House 1 did. It had a few roots and insect burrows and a medium to low artifact density, much lower than that of Layer I. Layer IIb contained artifacts that were at some point in the past, either during House 1 occupation or after its abandonment, in the general proximity of the house itself. The recovered artifacts were discarded within the walls and roofs that later collapsed and locked them in place. Also, this layer was relatively intact from plow disturbance and for these reasons I included the artifacts from this layer in the house artifact assemblage analysis, keeping in mind that their presence in the house may be due to post-abandonment processes.

Layer IIc was a 15 cm thick black (5 YR 2.5/1) hard organic clay soil layer that laid directly on top of the stucco floor in the central area of the patio. It had a very low artifact and bone density and it was not found anywhere outside the central patio area. I collected a soil sample from this layer and hope to study it in the future in order to get information on what this layer may represent and how it got to be in the center of the patio. Layer IIc may represent remnants of a midden or of a fallen thatched roof that may

have covered part of the central patio. An alternative idea is that after House 1 abandonment and once the drains that kept water out of the patio were clogged water accumulated in the center of the patio along with post-abandonment refuse creating a mud puddle that turned into rich organic soil layer.

Stratigraphic Insights

Upon identifying the full stratigraphy of Area 1, I am able to make some general statements on the history of use and occupation of this terrace. It appears that initially Layer V was dug and shaped to create a level living surface on which at some point Burial 2 was deposited. Middens and at least one hearth later covered Burial 2 and other cavities that were dug into Layer V. After this point the wall of Terrace 66 was probably built. I believe the wall was built higher than the then existing living surface and this resulted in Layer IV being deposited as fill to bring the living surface on the terrace up to level. The Layer IV fill secured the terrace wall and created a higher and flat living surface on which to build Structure A. It is for this reason that Layer IV underlies Structure A, extending east of this structure for at least four meters.

After Structure A was built its inhabitants may have used the top of Layer IV as a living surface. Some debris from this occupation may be mixed with the terrace fill artifact contents. To the west of the House 1 complex test explorations showed that by the time that House 1 was expanded to the western Structure C, structures were built directly on top of Layer V, which was found much closer to the surface level on this part of the terrace. Structure B located to the back of the terrace was built also right on Layer V. Layer V was clearly shaped to create a lower flat surface on which to lay the stone foundation. Right next to the stone foundation further back on the terrace, Layer V was at a higher layer, building a small ridge that protected the base and walls of Structure B.

At some point during and after House 1 occupation Layer III gets deposited as a mix of primary and secondary refuse that result in the mix of midden containing disturbed human bone fragments of at least three different individuals. Terrace 66 is near dense residential sectors and it is possible that after House 1 was abandoned this area was scavenged and used as a midden; this may have also formed Layer II. This intruding soil layer contained burned debris, and ceramic, lithic, and bone materials that formed a rich organic soil layer found mostly beyond the southeast corner of Structure A. Terrace 66 was then covered with a thick layer of eroding soils and deposits from further up slope. However, erosion and modern grazing and agriculture have created a thinner top plow zone layer of disturbed and eroding archaeological deposits that still covered the entire surface of the terrace.

General Description of House 1

House 1 consisted of a group of at least four structures that flanked a central patio on all sides. The House 1 complex covered a 14 x 13.5 m area (189 m²) that extended over the full width of the terrace. Structure A, the first one found, defined the patio to the east, Structure B to the south or back of the terrace, Structure C to the west, and Structure D to the north or front of the terrace (Figure 4.5). Each structure consisted of between one and three rooms. Most rooms had one and up to two stone-lined box hearths (Figure 4.13). The stone used to line the box hearths was invariably large slabs of volcanic rock, basalt or tezontle that showed signs of having been subjected to high heat (Figure 4.14).

All structures part of the House 1 complex were built in a similar fashion. All structures had stone foundations topped by two-faced *endeque* block walls filled with stone and mud (Figure 4.15). The quality or refinement of *endeque* block work—how the blocks were cut and fitted—could vary. House 1 did not have clear or worn doorsteps to

enter the rooms. I believe that in House 1 there were raised entryways like the ones commonly found in the Mixteca Alta today, devised to keep water out of the indoor living areas (Figure 4.16).

Description of Rooms and Features

In this section, I break down the organization of House 1 into its constituent rooms and features.

Structure A consisted of three rooms that divided the structure into south, central, and north areas (Figure 4.17). I believe this was perhaps the oldest or longest-lived structure in the entire House 1 complex. We found an underlying cultural layer, evidence of an earlier residential occupation. In addition, the central room of Structure A was the one with the greatest number of super-imposed stucco floor layers (3) that rested on top of an even earlier construction marked by two stucco block walls (Figure 4.18). The artifact densities coming from the structure are greater than those of all other individual structures (Table 4.2), excluding the patio, which covered a much larger area (7.12 x 7.12 m) and was a place that may have served as a midden in the past.

The North Room of Structure A covered an area of 2.12 x 3.0 m. This room was virtually destroyed since it was at the front of the terrace; only half of the remaining stucco floor was found. The rest of the structure walls and stucco floors had undoubtedly eroded downhill. For what we were able to see of the remaining floor, this room did not have a hearth.

The Central Room of Structure A measured 3 x 5 m and had a partly destroyed stucco floor that showed the underlying stone layer that served as the foundation for stucco floors (Figure 4.18). Underneath this stone layer was an earlier construction represented by two *endeque* block walls coming together into a corner. Much of this

earlier structure may have been re-used to build the later version of Structure A that we saw in excavation.

Next to the north wall of the central room, the wall that divides the central and north rooms, we found a stone-lined box hearth—Feature 2—that contained the remains of two underlying red stucco floors and two ash layers, each delimited by a layer of broken but arranged ceramic sherds that seemed to contain each ash layer (Figure 4.19). The ceramic sherds were parts of a large broken comal (Figure 4.20). The remains of the two underlying red stucco floors found inside Feature 2 suggest that the central room had at least three floor layers. This may suggest that the hearth was a later added feature on this part of the room.

The South Room of Structure A or Temazcal was toward the back of the terrace. I recognized this feature as a *temazcal* or sweatbath because of the elements that made up the room (Figure 4.21). The room had two parts to it. First, there was a small room (1.6 x 1.5 m) with a slanted stucco floor and a drain that diverted water and humidity to the patio to the west. Next to the small stucco floor room there was a smaller area (1.8 x 0.5 m) where we did not find a stucco floor. Instead we found an area lined with neatly stacked volcanic rock. The center of this hearth area had been filled with a 35-cm thick, fine ash layer covered by a thick layer of basalt and broken basalt artifacts such as *manos* and *metates* (Figure 4.22). This set-up is the same found in modern-day *temazcalli* in Teposcolula. The volcanic rock is heated until red-hot and then water is thrown on to it to produce steam. One sits in the adjoining room and receives the much awaited steam bath.

A radiocarbon sample taken from under the *temazcal* hearth ash layer gave a date of 320 ± 40 B.P. When calibrated this gave us a calendrical date range somewhere in the 1500's with a 30% chance of falling in the Prehispanic period (Table 4.7).

The East Room of Structure B measured 5.5 x 2.6 m and was directly across the southwest corner of Structure A (Figure 4.23). Structure B was the second structure found during excavation (Figure 4.24). As we excavated this structure we found that the stucco floor in this room was at a much lower level than that of other stucco floors in adjacent structures. Another distinct feature of this room is that it was the only one to have two stone-lined box hearths, one next to the east wall—Feature 3—and the other across the room next to the west wall—Feature 4.

Structure C lined the patio to the west; it measured 5.75 x 3 m, and its construction restricted access to House 1 from the lower and higher terraces to the west (Figure 4.25). The location of Structure C was the natural access way to Terrace 66. A little over 50 years ago, when the terraces at *Nicayuhu* were still farmed, the plow had to be dragged across this part of the house. The stucco floors in Structure C clearly showed the damage caused by the plow. The northern wall and corners of Structure C were never clearly defined, due to erosion and plowing. Instead, we found several stone alignments and corners that correspond with the possible location of the north wall of Structure C (Figure 4.5). Next to the south wall of Structure C we found another stone-lined box hearth—Feature 1.

The West Room of Structure B was a later addition to Structure C and the east room of Structure B (Figure 4.26). This room measured 4.37 x 3.25 m. For this west room no north wall and east walls were constructed; instead the existing walls of the adjoining structures were used. This was the only room that did not appear to have a stone-lined hearth. Instead we found a square area on the floor, near the southwest corner of the room that was not covered with stucco. The floor level in this west room was much higher, 40 cm higher, than the floor level in the adjoining east room. We explored the northwest corner of the west room and discovered an underlying stucco floor level that better corresponds with the floor level in the west room (Figure 4.27).

These super-imposed stucco floors are one of the best examples of architectural continuity where the structures were maintained and re-modeled following a similar house layout. This suggests that at House 1 we found evidence of a long lasting residential occupation that used the house and the various rooms in similar fashion.

Structure D measured 7.5 x 2.12 m and was found on the north side of the patio, defining the living space to the front of the terrace and closing the patio area from the view of terraces further down (Figure 4.28). This structure was almost entirely destroyed, we were only able to find half of the remaining stucco floor and half of a stone-lined box hearth—Feature 5.

The Patio was the central focal point of the house complex (Figure 4.6). All structures lined the patio on all sides and all room entrances were from the patio. The patio is a broad area of 7.12 x 7.12 m, covered by a highly deteriorated stucco floor. The patio floor was slanted to divert water away from the living areas and out of the house complex through the northwest corner. All structures and indoor living areas were at a higher level than the patio. Entering all structures required going up and over a step and a doorstep; this kind of doorstep may have also served to prevent flooding inside structures.

In excavation we found that the eastern edge of the patio, as it met with Structure A, was covered with a layer of large stone blocks that extended from the southeast to northeast corner of the patio, but in no place as far as the center of the patio (Figure 4.29). I am uncertain about what purpose this stone layer had, but I believe this layer was intentionally placed to close access to the house from the southeast corner of the patio or to close off the Structure A section of the house in the process of house abandonment.

In the central portion of the patio directly over the stucco floor was a hard black organic soil, Layer IIc, (Figure 4.30) and at the very center a post mold that appeared as

an intrusion of the black soil into the stucco floor. As I noted earlier there are several ideas of what this soil, Layer IIc, may represent. It may be the remnants of a midden, or a fallen thatched roof, or a mud puddle that contained secondary refuse after House 1 was abandoned.

Towards the northwest corner of the patio we found the base of two walls that appear to have been built to restrict access into the house from the northwest corner of the patio (Figure 4.5). After the construction of these walls the stucco floor on this portion of the patio was re-finished to even out the stucco floor levels. These walls are one of the best clues suggesting that the more formal access to the house, at least at a later point in the occupation, was through the northwest corner of the house complex.

Many activities may have taken place in the patio of House 1, as they do now in modern day solares or patios in San Juan. Part of the patio area may have been covered by a thatched roof to create some shade. This is also common in modern day patios because most people rather work in the cool shade. Great care was put in covering the patio with a stucco floor that still had some remnants of red paint near the edges. The patio area was probably intensively used and periodically swept clean. However, soon before and after its abandonment the thatch roof over the patio may have fallen or this area may have been flooded and used as a midden, producing the rich organic soil layer (IIc) we find right on top of the stucco floor in the middle of the patio. After this, another layer of wall and roof fall from the surrounding structures covered the patio area (IIb).

Architecture Results

House 1 shows evidence of a continuous and stable residential occupation marked by capital and labor investment in house construction, maintenance, and expansion. There was an initial residential occupation on Terrace 66 in the area where

House 1 would be; this occupation may have been partly identified through the features (Intrusions 1 and 3, and Burial 2) that underlie Layer IV. I am unable to tell whether the wall of Terrace 66 existed at the time of these possible initial occupations, but nonetheless people were living on this sector of the site before House 1 was constructed. At some point the terrace wall is built and Layer IV is deposited as terrace fill to create a higher living surface on which House 1 is initially built.

As House 1 was built, I believe the construction started in the eastern part of the complex, where we find an older and more complex stratigraphy underlying Structure A, then that underlying the western part of the complex. Structure C, for example, rests directly on the natural sterile soil layer. After House 1 was constructed we found evidence that the overall house layout grew gradually as more rooms and structures were added on or remodeled. Throughout the various periods of remodeling and change it appears that the overall house layout remained constant.

House 1 Artifacts

As in all excavations the artifacts retrieved in House 1 are the result of ancient cultural activities, but also of historical and modern disturbances and natural taphonomic processes. Although I cannot state that the entire artifact assemblage in a given house or room is characteristic of the activities that took place there in ancient times, I do believe some portion of the assemblage may be a result of ancient activity. The artifacts collected from Layer IIb contained artifacts that were at some point in the past in the general proximity of the house, since they were discarded within or right on top of the walls and roofs that later collapsed and locked them in that place. Although the artifact contents of this layer only provide clues to the possible consumption practices of the nearby inhabitants that lived in this sector of the site and dumped their refuse in this house, the characteristics of the assemblage do exemplify the sector of the population

associated with this part of the site and house. Having excavated Layer IIb I know that it was undisturbed by modern agriculture; this layer was beyond the plow zone. In House 1 artifact analyses I disregarded artifacts coming from the plow zone layer. The statements I make about the house artifact assemblages come from the artifacts data obtained from Layer IIb, the interior of hearths, and floors.

Artifact assemblage data from the house excavations provides information on the household consumption practices and in turn about householder activities and their socio-economic status (Smith 1985). Most of the artifacts obtained in House 1 excavations came primarily from the top plow zone layer, secondly from an underlying roof or wall fall layer IIb, thirdly from adjacent middens (Layer II, Intrusion 3), and the least number of artifacts were found in hearths and directly on floors. For the main analysis of House 1 and the room-by-room assessment of artifact inventories (Table 4.2) I disregarded artifacts recovered in Layer I.

In this section I argue that the overall characteristics of the artifact assemblage obtained from House 1 excavations suggest that this sector of the site and the house was a *ñandahi* occupation. In chapter 6 I present my argument in greater detail comparing House 1 to data from other excavated Postclassic Mixtec residences. It is known that no luxury or “elite” categories were exclusive to noble or royalty houses. Previous excavations in noble and commoner class contexts reveal that luxury wares, such as Polychrome and *Cacique* Burnished wares, are present in all contexts (Lind 1987; Spores 1974). What indicates differences in socio-economic status is the relative frequency of luxury versus utilitarian wares (Lind 1987:Table 29).

Artifact Descriptions by Room and Feature

Given the nature of the archaeological deposit formation processes most statements I make about the artifacts associated with House 1 are general. Most

artifacts mentioned come from Layer IIb, a layer that may contain mostly secondary refuse and fallen wall material deposited in House 1 after its abandonment. So, in a general sense, the artifacts found in Layer IIb represent the kind of materials owned and discarded by that part of the prehispanic population, nobles or commoners that had access to this sector of the site. Much fewer artifacts were found inside hearths and directly on stucco floors. But when artifacts were retrieved in these contexts, it gave me much better basis to associate the recovered artifacts with the particular structures.

The most common artifact types found across all structures were coarse paste jar and fine paste bowl and comal fragments. For example, the Central room of Structure A was the single structure to reveal the greatest number of utilitarian jars, bowls, and comal fragments, suggesting that cooking and food serving activities took place somewhere around or in the house. In the *temazcal*, as we were uncovering the stucco floor, we found an entire utilitarian jar placed directly on the stucco floor as if blocking the drain (Figure 4.31). The jar was complete, but it had broken and collapsed into itself. Inside the jar we found a large piece of cut *endeque*, perhaps this rock was part of a wall or roof and it broke the jar in place as the roof or wall collapsed. This jar is one of the few complete vessels and one of the few artifacts found directly on a stucco floor. This may suggest that the jar was used in the sweat bath itself. Today bathing requires the storage of water, and the jar may have been used to store or collect water for the bath.

In the eastern part of the East room of Structure B, near Feature 3 and directly on the stucco floor, we found an irregular chert core and a single greenstone pendant (Figure 4.32). Feature 3 contained only 11 sandy cream body sherds, while Feature 4, also in the East room of Structure B, had higher artifact concentrations. Feature 4 contained 15 sandy cream, 9 fine cream, and 51 tanware fragments of jars and bowls (Table 4.3). In this room we also found the highest number of obsidian blade fragments and the smallest number of jars, bowls, and comals, when compared to other rooms in

the house (Table 4.2). This is the only room in House 1 that I suspect may have served as a special activity area or communal structure, whose function required two hearths, but perhaps these hearths were used to heat the room and not as hearths for cooking.

In Structure C, Feature 1 was the only firebox that contained fine gray ceramic fragments. From the ceramic contents of Feature 1 we were able to identify eight jar, three semi-hemispherical bowl, and five out-leaning wall bowl fragments (Table 4.3), suggesting food serving. Information on Structure D comes from the excavation of Feature 5. From the interior of Feature 5 we retrieved three sandy cream, six rough tanware, and five Yanhuitlan Red on Cream ceramic sherds (Table 4.3). From the area on top and directly surrounding the surface of Feature 5 we retrieved four *manos* for *metates* and one fragment of a mortar. This artifact assemblage suggests that maize processing, cooking, and food serving took place somewhere near the house.

Lastly, the patio had the highest numbers of artifacts. However, these higher numbers are deceptive because not only does the patio cover a much larger area than any other structure, it is also an area that may have served as a midden at some point during or after House 1 occupation. Some or even most artifacts recovered in the patio may not have been used in this part of the house at all, but were tossed there as trash. A single complete chalcedony ear spool was recovered during the entire excavation season, and it came from this patio. I am unable to tell how this object came to be in this context. It came from a roof or wall fall layer, suggesting that it may have been used and then lost, misplaced, or tossed by a *Nicayuhu* inhabitant.

House 1 Socio-economic Status

Out of 40,061 total sherds retrieved during House 1 excavations, only 56 were fragments of luxury ware vessels, *Cacique* Burnished or Polychrome types (Table 4.4), and no complete vessels were found. In addition, I did not find any Aztec ceramics or

Aztec-inspired ceramic styles, which have been found as part of noble and royalty house ceramic assemblages (Lind 1987:110). Artifact assemblages and relative luxury versus utilitarian ware frequencies at House 1 were similar to those presented by Lind (1987:81) as indicators of commoner class occupation. The House 1 residential occupation was a commoner class occupation.

The most common ceramic artifacts in House 1 were utilitarian jars, followed by finer utilitarian bowls, utilitarian bowls, and comals (see Appendix C). Ceramic artifacts that were much less common were fine cream paste ladles, finer utilitarian jars, special forms with ritual functions such as ladle censers and braziers, fine gray ware bowls (G3M), and luxury wares such as Polychrome and *Cacique* Burnished pottery (Table 4.4).

House 1 inhabitants were able to obtain obsidian (Table 4.5). However, *Nicayuhu* commoners obtained their obsidian already in blade form, since most obsidian material recovered were fragments of blades and virtually no obsidian flakes or cores were found. Once the house residents obtained an obsidian blade it was used extensively until exhausted. Some exhausted blades would later be reshaped to extend their usefulness. House 1 residents had access to some exotic lithic materials, such as obsidian, but not enough as to be wasteful or take the material for granted. Jade or greenstone has a long history in Mesoamerica as special, exotic material. In House 1 we only found a single greenstone pendent associated with the east room of Structure B. Overall the lithic material suggests that House 1 inhabitants or nearby neighbors had access to exotic materials, but at much lower levels than the noble classes.

House 1 Activities

The artifact assemblage found in the excavation of House 1 suggests that the inhabitants or nearby neighbors may have been commoners that engaged in non-

specialized domestic and subsistence activities, most likely farming. These activities would have included cooking; storing and grinding corn; shredding agave to obtain and weave its fibers; carrying and storing water; hunting; informally producing expedient stone tools and arrow shafts; and working or scrapping wood or leather. Other domestic activities that may not be identified archaeologically, but nonetheless may have been common among Postclassic Mesoamerican households, would have been palm weaving, to produce goods such as baskets, sandals, rope, or straw mats (Sahagún 1981 [1569]).

The most common ceramic artifacts were jars, bowls, and comals, implements commonly needed for cooking, and food and water serving and storing. Lind (1987) proposed that sandy cream jars were for water storage, and rustware jars (comparable to my coarse tanware category) were mainly for cooking. I was unable to tell how Lind made this differentiation, but at House 1 I found both tan and sandy cream jars.

In House 1 we retrieved only a single fragment of a ladle censer and one brazier fragment, suggesting that no specialized ritual activity took place at house. This result also corresponds with Lind's (1987) expectations of commoner class ritual. The *temazcal* or sweat bath has a long history in Mesoamerica as a healing and also ritual practice. The *temazcal* at House 1 may have been used for ritual purposes, but nothing suggests that this practice may have gone beyond the household level.

The artifact data suggests that inhabitants of this sector of the site or of House 1 did not specialize in ceramic, cloth, or lithic tool production. No spindle whorls were retrieved in the House 1 excavations, suggesting that thread was not produced in the house. We did not find any evidence of pottery kilns, or pottery production byproducts either (e.g., Balkansky et al. 1997; Feinman et al. 1993; Robles García 1988). In terms of lithic production we found only 15 irregular cores and a greater but still meager number of flakes (Table 4.6). The lithic artifacts indicate that some informal expedient

tool production may have taken place in House 1, but the amount of lithic artifacts retrieved were nowhere near the quantities found in lithic tool production areas (Brumfiel 1986; Burton 1987; Clark 1986; Pastrana 1990; Soto de Arechavaleta 1990).

The most common informal lithic tool found in House 1 was the expedient flake. The most common formal chipped stone tools were the obsidian blade and the chert scraper (see Appendix C). In the case of scrapers, the word common would be a relative term because only five scrapers were found in House 1. I found no projectile points associated with the house, but I did find an abrading or sharpening stone suggesting that House 1 inhabitants or neighbors used and sharpened cutting tools (Figure 4.33). Basalt ground stone implements were also important and commonly used in House 1. We found *metates* and *manos*, in greater concentrations in the front area of the terrace and house complex, around feature 5 in Structure D.

Dating of House 1

We collected carbon samples throughout the excavation. In November 2002 I was able to send three samples to Bata Analytic (Table 4.7). One sample came from an older cultural layer—Layer IV that underlies Structure A (sample # 197). The second sample came from inside the stone-lined hearth—Feature 1 found in Structure C (sample #279). The third sample came from underneath the basalt and ash layers inside the oven area of the *temazcal* (sample #340).

I present the laboratory results in Table 4.7. After calibrating the results using the 1140, 340, and 330 corrected dates respectively, the results suggest that the most likely calendrical dates for the oldest sample are around 878-979 cal A.D. (sample # 197; $p = 0.956$) and the two later dates fall in 1491-1604 cal A.D. (sample # 279; $p = 0.777$) and 1495-1600 cal A.D. (sample # 340; $p = 0.8$) (Calibrated at 2 sigma with the program CALIB 2.0 [Stiuvver and Reimer 1986]; Table 4.7).

The results suggest that a residential occupation that underlies Layer IV may date to the latest Classic and earliest Postclassic period (878-979 A.D.), and the later occupation of the House 1 complex dates to the very late Postclassic to early Colonial period (1491-1527 A.D.). There are, however, other factors to consider in dating House 1. Upon comparing the artifact assemblages associated with the three carbon samples I found little difference in ceramic styles; they can all be catalogued as characteristically Prehispanic and Postclassic. There were no Colonial sherds. I also asked the opinion of other knowledgeable archaeologists who visited my excavations about the date(s) of the ceramic materials, and all concurred that the site dated exclusively to the Postclassic. In fact, there were few stylistic differences between the various excavated layers, suggesting that we were indeed working within a single period (Andrew K. Balkansky, Stephen A. Kowalewski, and Ronald Spores, in separate personal communications).

In addition, the faunal analysis showed that there was no post-contact animal bone found in intact cultural layers at House 1 (see Appendix C). All animal bone recovered in intact cultural layers in House 1 corresponds with indigenous species present in the Mixteca prior to Spanish contact, such as dog, turkey, opossum, and deer.

There are several possible explanations for these findings:

- 1) All the phases of occupation both within and under House 1 were Prehispanic only—dating from the early through the late Postclassic period—indicating that the Postclassic Mixtec ceramic tradition remained virtually unchanged throughout the entire 700-year Postclassic period.
- 2) Some of the House 1 occupation may in fact date to the early Colonial period, but at this point there is no change in the ceramic tradition at this level of the settlement hierarchy, and the ceramic tradition remains constant throughout a long period of time. Arguments for ceramic tradition stability beyond the point of Spanish contact are discussed in Lind (1987) and Spores (1972).

- 3) Carbon samples were contaminated, or the laboratory results for either the earlier or later set of dates was flawed, or both.

It seems unlikely that a ceramic tradition would remain so stable and unchanging throughout such a long period of time. It may be the case that I was unable to retrieve a large enough ceramic assemblage dating to the earlier Layer IV, underlying Structure A that produced the earlier radiocarbon date. However, the earlier date from Layer IV may be due that this terrace fill layer contained Early Natividad material brought into this part of the site from somewhere nearby. Perhaps there are ceramic differences that may be identified in larger samples. I propose that additional excavations are needed in cultural deposits that are suspected to date to the Late Classic to Early Postclassic transitional period in order to obtain a larger ceramic assemblage that can be compared with my more extensive collection of Late Postclassic ceramic materials.

For now I think that the two later dates, which both correspond closely in time, may be correct and taking into consideration the entire ceramic and faunal record I believe that the House 1 occupation dates to the late Postclassic period. However, additional radiocarbon dates must be obtained before I can make a definitive statement about the dating of the excavated contexts.

House 1 as a *Nandahi* House

The architectural and artifact data from House 1 and its excavations reveal clear signs of house construction, expansion, and maintenance. Structures were built with stone foundations and two-faced *endeque* walls. Structures were added to the overall house complex as the household grew or its economic position improved. Existing rooms were renovated with new additions and stucco floors. Artifact assemblages were dominated by utilitarian and diverse economically useful tools. The overall results suggest a stable commoner class occupation. According to ethnohistorical sources that

describe early Colonial Mixtec society we know that among the commoner class there was a group of free land-owning commoners who owned their houses and lands—*ñandahi*.

Table 4.1 Ceramic distributions in the sector east of House 1.

Utilitarian wares	Sandy Cream		Rough Tan		Fine Tan		Rough Tan		Orange	
	#	Gm	#	gm	#	gm	#	gm	#	gm
Layer II	668	3805	884	4065	198	725	3	19	1	13
Layer II b	1125	7687	986	7550	325	1771	10	52	7	40
Layer III	909	3857	985	4519	132	519	4	24	0	0
Layer IV	567	3113	824	4501	108	518	2	9	0	0
Str. 13	210	1033	113	727	15	52	0	0	0	0

Finer wares	Fine Cream		YRC		Fine Gray		G/O	
	#	Gm	#	Gm	#	Gm	#	gm
Layer II	567	2016	18	85	36	169	4	23
Layer II b	813	5291	92	770	19	235	0	0
Layer III	623	2224	21	154	18	66	0	0
Layer IV	215	1008	30	201	4	17	0	0
Str. 13	93	549	6	78	0	0	1	7

Luxury wares	<i>Cacique</i>		Polychrome	
	#	gm	#	Gm
Layer II	1	9	0	0
Layer II b	8	102	7	68.5
Layer III			2	29
Layer IV	0	0	2	7
Str. 13	0	0	0	0

	Sandy Cream		Fine Cream		YRC		Rough Tan		Fine Tan	
	#	gm	#	G m	#	G m	#	gm	#	gm
Intrusion 1	23	112	4	41	0	0	15	141	0	0
Intrusion 2	76	491	6	27	7	73	93	795	9	42
Intrusion 3	25	215	5	27	3	44	35	302	5	20

[illegible]

TABLE 4.2 House 1 ceramic type distributions by room or feature.

House 1									
Ceramic types	1	2	3	4	5	6	7	8	9
Str. A	51	43	23	2	3	74	1	0	2
Str. B east room	10	12	4	0	0	17	0	0	0
Str. B west room	20	36	15	4	0	41	1	0	0
Str. C	31	35	4	2	3	61	3	1 s	0
Str. D	41	47	17	2	10	59	0	0	1
<i>Temazcal</i>	48	37	8	1	10	73	8	1 b	1
Patio	101	84	40	6	13	140	2	0	4
Total # sherds	302	294	111	17	39	465	15	0	8

Type 1 Utilitarian jars

Type 2 Utilitarian bowls

Type 3 Comals

Type 4 Ladles

Type 5 Finer utilitarian jars

Type 6 Finer utilitarian bowls

Type 7 Fine Gray bowls

Type 8 Special forms, braziers and ladle censors

Type 9 Luxury wares, *Cacique* Burnished and Polychrome

Table 4.3 House 1 feature ceramic artifact contents.

[illegible]

Table 4.7 Carbon sample information and radiocarbon dating results.

Bag #	Site	Sector	Unit	Provenience	Level	Dating results	Calibrated dates
197	Nicayuhu	Cala 1	S3W1	Layer IV	(-4.0 to -4.1)	1140 +/- 40 B.P $\delta^{13}\text{C} = -4.0/00$	878-979 cal A.D.
279	Nicayuhu	Cala 1	S3W7 & S3W8	Feature 1 <i>Temazcal</i> oven under	(-3.6 to -3.7)	340 +/- 40 B. P $\delta^{13}\text{C} = +35.0/00$	1464-1643 cal A.D.
340	Nicayuhu	Cala 1	S3W2 <i>temazcal</i> annex	ash and basalt layer	(-3.6 to -3.8)	330 +/- 40 B. P $\delta^{13}\text{C} = +6.0/00$	1472-1646 cal A.D.

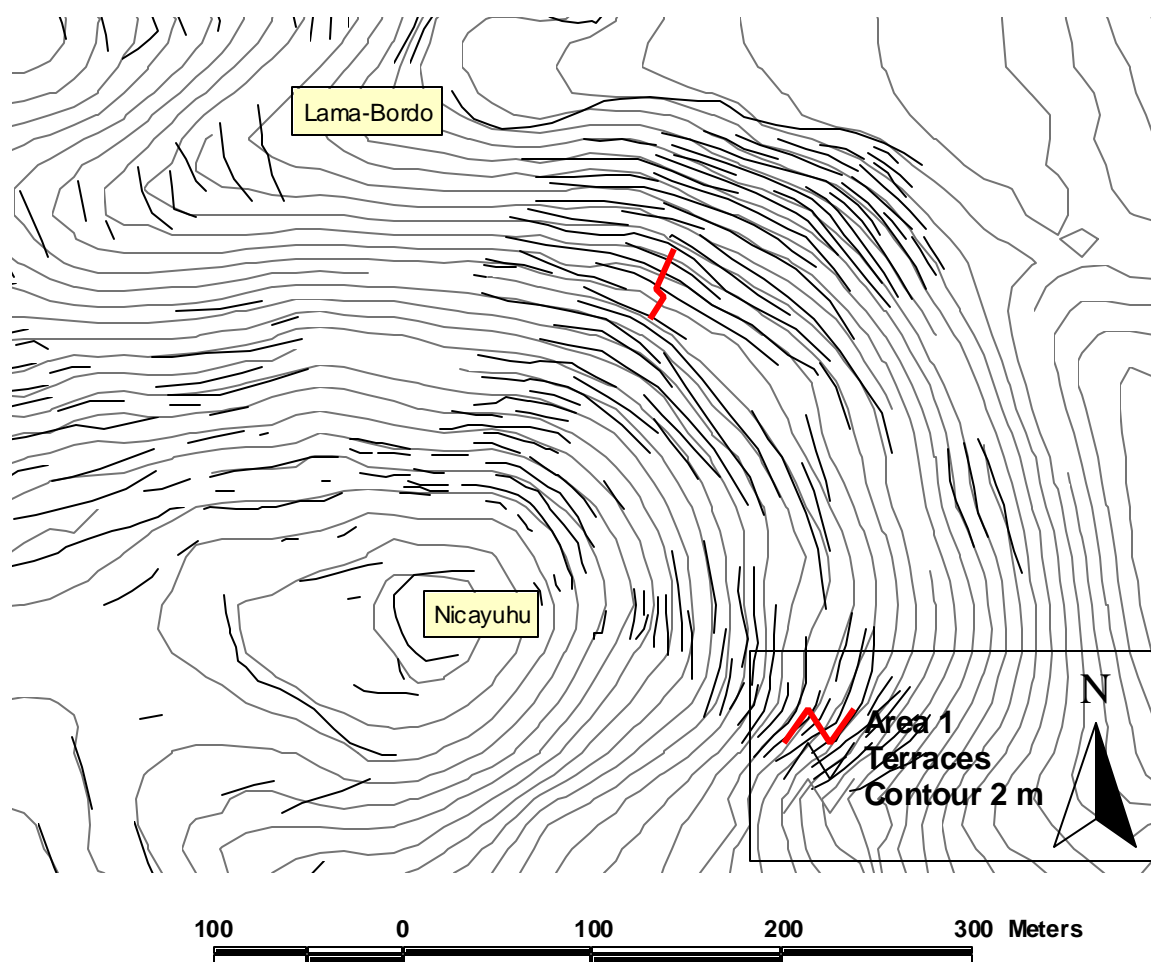


Figure 4.1 Location of Excavation Area 1 on northeast slope of *Nicayuhu*.



Figure 4.2 Terrace 66 prior to excavation of House 1.



Figure 4.3 Initial stage of Area 1 excavations. Structure 13 in the front and wall of Terrace 62 to the back.



Figure 4.4 East wall of Structure A as seen when first found.

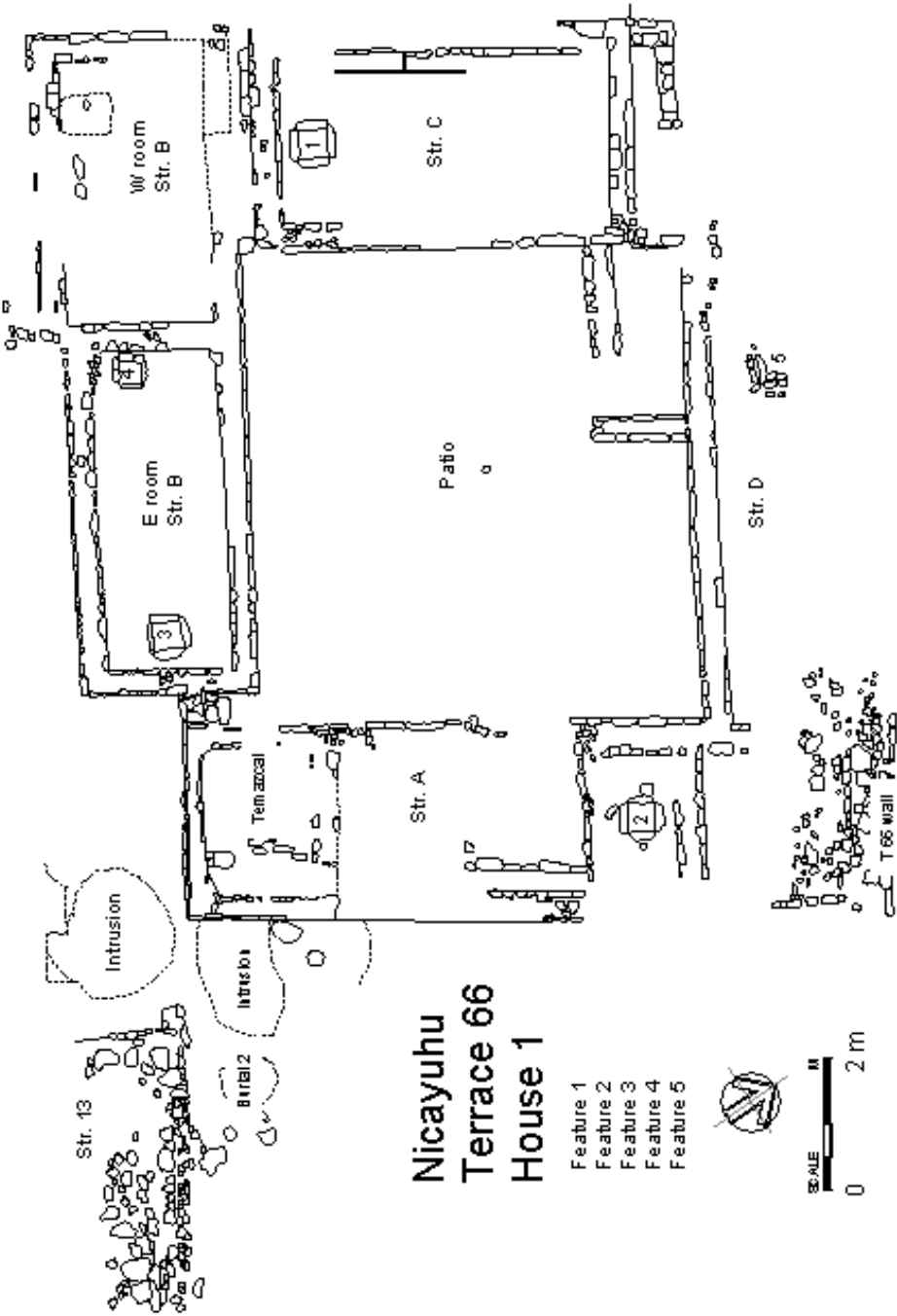


Figure 4.5. Plan view of House 1.



Figure 4.6 House 1 from the northwest after it was completely exposed.

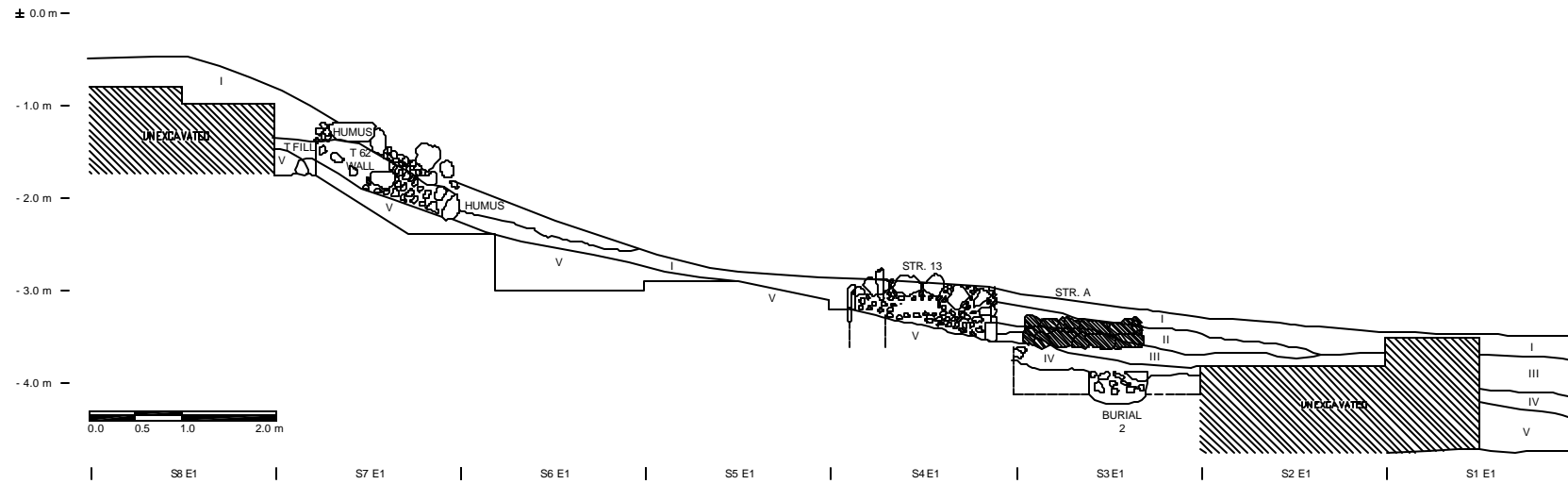


Figure 4.7 Area 1 profile.



Figure 4.8 Profile view of Intrusion 2 beyond the southeast corner of the *temazcal*



Figure 4.9 Burial 4 in Intrusion 2.



Figure 4.10 Intrusions 1 (left) and 3 (right) when first encountered at -4.0 level.



Figure 4.11 Burial 2 completely exposed, -4.3 level.

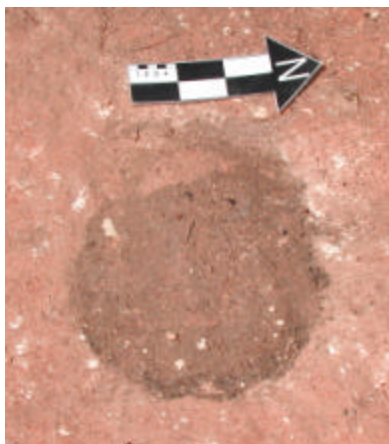


Figure 4.12 Post mold of layer IV into layer V.



Figure 4.13 Stone-lined hearth, Feature 1 in Structure C.



Figure 4.14 Heat-reddened basalt from hearths.



Figure 4.15 *Endeque* wall, the east wall of Structure B.



Figure 4.16 Modern raised doorstep in San Juan Teposcolula.



Figure 4.17 Structure A seen from the south.



Figure 4.18 Underlying stucco block wall in Structure A.



Figure 4.19 Interior Feature 2 in central room of Structure A.



Figure 4.20 Comal recovered in Feature 2.



Figure 4.21 *Temazcal* in Structure A seen from the south.



Figure 4.22 Basalt and broken *metate* fill in *temazcal* hearth.



Figure 4.23 East room of Structure B seen from Terrace 62.



Figure 4.24 Structure B east room when first found in excavation.



Figure 4.25 Structure C with hearth in the background and West room of Structure B in the foreground.



Figure 4.26 West room of Structure B seen from the patio.



Figure 4.27 Superimposed stucco floors in West room of Structure B seen from the west.



Figure 4.28 The remains of Structure D to the front edge of the terrace as seen from Terrace 62.



Figure 4.29 Uncovering the stone slab layer on southeast edge of patio. Corner between the *temazcal* and the east room of Structure B on the background.



Figure 4.30 Layer IIc, the black soil layer, on the center of patio.



Figure 4.31 Jar fragments found on *temazcal* floor.



Figure 4.32 Green stone pendant from East room of Structure B.



Figure 4.33 Sharpening or abrading stone.

CHAPTER 5

HOUSE 2

Location

House 2 was located on Terrace 82, further down from House 1 on the east-northeast slope of *Nicayuhu* (Figure 5.1). The house was on the south end of Terrace 82, in a place where the terrace widens, from 4 to 12 m, and connects with an adjacent terrace further north and up slope. Terrace 82 extended for 123 m in a sector of the site characterized by long (up to 150 m) and narrow (2-4 m) terraces, which I sampled to assess whether or not they were residential in function. The excavation results indicate that the long and narrow terraces were not lived on, and instead were used for farming, as access ways, or as landscape engineering features that retained soil and diverted rain water away from the residential areas and into farm lands at the base of the hill.

Finding House 2

House 2 was found in test excavation units S1W20 and S1W21 of an ambitious sampling trench—trench 4—that dissected twenty-one terraces in the lower east-northeast slope of *Nicayuhu*. The trench was set up to be one meter wide and was divided into 2-x-1-m excavation units. We opened at least one excavation unit in each of the terraces dissected by the Area 4 trench. When we were sampling Terrace 82 we found a stucco floor and an *endeque* wall no more than 15 cm below surface level (Figure 5.2). I decided to expand the trench to open up the entire extent of the house, and this became an excavation block of 14 x 12.5 m.

House 2 Stratigraphy

The sector of Excavation Area 4 or trench 4 where we found House 2 had the following stratigraphy.

Layer I was the plow zone. It was a firm to very hard medium brown (5 YR 4/4 reddish brown) loam that had a lot of roots and insect burrows, and mixed rock and gravel. The layer was about 10-20 cm thick and it followed the natural slope of the terrace surface. It had a medium to low concentration of ceramic and lithic artifacts. Unfortunately, these artifacts do not have a clear cultural context and they were disregarded for the room-by-room artifact assemblage analysis. They do, however, help us date the overall occupation of the terrace to the Postclassic period.

Layer IIb was a 20-70 cm thick fine light cream (5 YR 7/2 pinkish gray) silty loam mixed with large blocks of rock and cut *endeque*. The layer was made of a lot of debris from wall and perhaps also roof collapse. It had a medium to low artifact density, much lower than that of layer I. This layer laid directly on top of all stucco floors both inside structures and out on the patio; it was up to 70 cm thick towards the back of the terrace and it thinned out to the front. It had a few roots and insect burrows. This layer is relatively intact from plow disturbance. Artifacts from this layer were used for the house artifact assemblage analysis.

Layer III was a white to light pink (10 R 7/4 pale red) sterile and natural soil layer that makes up the core of the entire hill of *Nicayuhu*. This layer consisted of a soft silt soil with high calcium content and was same as Layer V in excavation Area 1, commonly called tepetate. Test excavations in areas adjacent to House 2, specifically explorations south of the South structure and north of the North structure showed that these rooms had been built directly on layer III. However, explorations in Feature 2 in the East structure suggest that at least that part of the structure was built on a layer of terrace fill, much in the way that Structure A was built on layer IV in House 1. Beyond the data from

Feature 2 it appears that the rest of the House 2 structures were probably built directly on layer III.

General Description

House 2 covered the entire width of the terrace, an area of 14 x 12.5 m, 175 m² (Figures 5.3 and 5.4). The layout of House 2 followed the natural contour of the terrace, which roughly aligned all structures to the cardinal directions. The house consisted of a complex of structures that flanked a central patio area, and given the terrace and house orientation, I divided the house into South, North, East, Northwest, and West structures, in addition to a *temazcal* built between the South and West structures.

Detailed Description

The East Structure measured 3 x 11 m and it was at the front of the terrace (Figure 5.5). Because of this location almost half of it had eroded downhill and few artifacts can be attributed to this structure. The stucco floors of the East structure were almost on the surface and the eastern walls and corners were already gone. Entrance to the East structure was from the patio, marked by a large worn limestone slab door step 1.12 m long (Figure 5.6). The East structure had limestone foundations and a wall made of smaller cut limestone slabs. I believe that the East structure was one of the first ones built in the entire house complex. The long west wall of the East structure was used as the west walls for the North and South structures. The walls of these other structures are simply added on the west wall of the East structure.

The East structure was divided later on in its life into two rooms, a north and a south room. The two rooms were divided by a superficial dividing wall also made with a limestone foundation. We found a small part of the north room and half of a stone-lined box hearth—Feature 3 (Figure 5.7) at the front of the terrace. The south room was

uncovered almost to its entirety (9.2 x 3 m). Another stone-lined hearth (Feature 2) was excavated in this south room of the East structure. The excavation of Feature 2 did not reveal any other underlying stucco floor levels. It did however reveal that the front sector of the terrace had a considerable depth (1.15 m) before reaching the sterile layer. This suggests that the East structure, which may arguably be the oldest structure in the house 2 complex was built on a terrace fill layer. It may be the case that the initial construction technique for House 2 was similar to that of House 1. The sterile soil layer, layer III, was shaped as a basin or crevice that was then filled to create a higher flat living surface that supports not only the East structure, but also secures the back of the terrace wall.

The North Structure, measuring 6 x 2.6 m, was added on to the East structure and it blocks the access to the House 2 complex from the adjacent lower terrace—the extension of Terrace 82 (Figure 5.8). The eastern corners of this structure were destroyed by the plow, only the northwest and southern corners were found. Right outside the northwest corner limestone foundations we found a small offering of two puppies accompanied by sandy cream and rough tanware ceramic fragments and two pieces of broken *Cacique* Burnished pottery (Figure 5.9; Table 5.2). Inside the structure, next to the western wall, there was another stone-lined hearth—Feature 4. A small exploration near the east wall of the structure revealed no underlying stucco floor layers. My preliminary findings suggest that the North structure only had a single stucco floor layer. Entrance to this North structure was from the patio, through a worn stone slab and stucco-covered entryway.

The South Structure measured 6.5 x 2.75 m and for its construction part of the natural hill slope was carved out (Figure 5.10). This ended up protecting the south wall of the structure; the south wall is over a meter high and still standing, resting against the carved slope. The South structure's position in the back of the terrace protected it from

erosion. The north wall of the South structure was an addition to the west wall of the East structure. Entrance to this South structure was from the patio, through a well-worn large stone slab doorstep. As one entered the South structure one would find a stone-lined hearth—Feature 1, to the left, next to the northeast corner. No underlying stucco floor layers were found as part of the excavation of Feature 1. To the right, to the end of the structure, instead of finding a western wall, the room leads into a small hollow that was also carved out of the natural slope (Figure 5.11).

The Hollow was a small round crevice (approximately 2.24 x 2.56 m and 1.17 m high); in it you can fit two or three sitting adults (Figure 5.12). The hollow was almost entirely filled with debris and the hollow's own roof fall. Among the fragments of ceramics found in the fill we also found the remnants of opossums, skunks, mice, and squirrels that used this hollow as their burrow, probably after House 2 was abandoned since their presence would have put the house's stored food supplies in danger.

Modern San Juan farmers recognize this kind of hollow as a feature used to store palm to keep it moist for weaving throughout the dry season. This may have been the case in House 2, but no palm fibers survived and none were recovered. Given that the hollow is a clear extension of the South structure I argue that it was used most likely for storage during House 2 occupation.

The Northwest Structure measured 3.5 x 3.25 m and it was towards the back of the terrace on the northwest corner of the patio (Figure 5.13). Since the Northwest structure did not share a wall with any other structure I am unable to tell when it was built in relation to the rest of the House 2 complex, if it was an initial structure or a later addition. The structure was at the back of the terrace, where its location protected its walls. We found standing walls over a meter high. The walls showed an intricate pattern of fit and cut rock. We did not find any clear entryways to this structure, but the different cut stone patterns of the south wall suggest that an earlier entry way was later blocked

closing down the northwest structure. This room had a very well preserved stucco floor and no signs of a stone-lined hearth.

The West Structure appears to have been built along with the *temazcal* (Figure 5.14). The room measured 3.75 x 3.5 m; it had meter-high standing stone walls and a very well preserved stucco floor. The West structure walls showed an irregular pattern of large, roughly square limestone blocks. This room did not have a stone-lined hearth; however, a small *metate* fragment was found leaning against the inside southwest corner of the structure (Figure 5.15).

The West structure appears to also have blocked access from the patio to another small hollow found to the back of the terrace. This hollow was not explored due to time constraints. While the South, East, and North structures were found a step higher than the patio level, the West structure floor was at the same level as the patio.

The Temazcal was between the West and South structures (Figure 5.16). The south and west walls of the *temazcal* were built in their entirety up against the existing north wall of the South structure and the west wall of the West structure; the result was a very wide double stone wall. The *temazcal* walls were entirely made out of limestone. The west wall consisted of a lower row of long and narrow stone slabs followed by another layer of larger irregularly square slabs, after which the standing remains of the wall end. The *temazcal* of House 2 was similar to that of the first house excavated; it consisted of two parts. One part was a small room (1.62 x 1.25 m) with a stucco floor and a well-demarcated drain adjacent to a smaller rectangular area (1.5 x .5 m) that was lined with neatly stacked volcanic rock and filled in the center with ash and irregular chunks of basalt used for heating (Figure 5.17). Water from the *temazcal* came out through the drain channels, passed the eastern wall and across the patio area to flow into a drain located in the northeast corner of the patio. The drain diverted water out of

the patio, and probably to the next terrace down, through a channel located underneath the North structure.

The Patio, 6.75 x 6.5 m and 6.5 x 3.25 m, was the central focal point of the entire house. It was an opened stucco floor area slanted (26 cm elevation difference) to the divert water down to the northeast, out of the house and into the next terrace down (Figure 5.18). The state of preservation of the stucco floor, especially when compared with the indoor structure stucco floors, suggest that this floor was exposed to the elements. Unlike the patio in House 1, artifact densities in the House 2 patio were much lower and we did not find a black organic soil layer or post molds directly on the patio floor; there was no evidence that would suggest that a midden or thatch roof ever covered this patio.

House 2 Architecture Results

The architecture of House 2 reveals that the house complex grew in its overall layout. The architectural remains suggest that the House 2 complex was initially composed of the East, then the North, and South structures. This house layout may or may not have included at that time the Northwest structure. At that point the patio was an irregular, somewhat square shape, 6.75 x 6.5 m (Figure 5.3). Later the West structure and the *temazcal* were built in the patio area, using existing walls for their construction. The two later structures reduced the size of the patio, turning it into a rectangular patio, 6.5 x 3.25 m (Figure 5.18). The later addition of the West structure and the *temazcal* suggest that House 2 inhabitants were running out of areas to expand their house. They had to use an area that was already part of their estate, even if this meant reducing the size of their patio. Unlike House 1, in House 2 we do not find series of super-imposed stucco floors that would tell us of numerous episodes of remodeling, however the addition of rooms next to earlier ones does provide evidence of house expansion. This

may be interpreted as evidence that House 2 had a stable and continuous but shorter-period occupation.

House 2 Artifact Assemblage

As in all excavations the artifacts retrieved in House 2 are the result of ancient cultural activities, and also historical and modern disturbances and natural taphonomic processes. Although I cannot state that the entire artifact assemblage in a given house or room is characteristic of the activities that took place in ancient times, I do believe some portion of the assemblage may be the result of ancient activity. For the artifact assemblage analysis I used materials found in Layer IIb. This layer did contain artifacts that were at some point in the past in the general proximity of the sector of the site, since these artifacts were discarded within the walls and roofs of House 2 that later collapsed. This layer was undisturbed by modern agriculture; it was beyond the plow zone. In House 2 artifact analyses I disregarded artifacts coming from the plow zone (layer I) to make my work comparable to that of House 1; this made my work in House 2 even harder since this house was almost at surface level in some areas. The statements I make about the house artifact assemblages comes from the artifacts and data obtained from Layer IIb, the interior of hearths, and floors.

I used House 2 artifact data to propose possible household consumption practices, domestic activities, and overall household socio-economic status (Smith 1985). As in House 1, House 2 artifact assemblages suggest a stable commoner class occupation—*ñandahi*. House 2, however, had much lower volume of artifacts than House 1; for example we only retrieved a total of 6,658 sherds in House 2 excavations, compared to the 40,061 sherds of House 1 (Tables 5.1 and 5.3). From the test excavations of Area 4 beyond House 2 we learned that no houses were near House 2, on the other hand right up slope from House 1 a dense area of residential terraces leads

to the hilltop. This is relevant in discussing the total number of retrieved artifacts. Since most excavated artifacts are most likely the result of secondary post-abandonment refuse, having more neighbors nearby would increase the amount of post-abandonment refuse produced by nearby neighbors as they dumped their trash in the abandoned houses. In addition, the lower artifact volumes in House 2 may also be in part due to a shorter occupation, suggested by the architectural data.

Artifact Descriptions by Room and Feature

Given the nature of the archaeological deposit formation processes most statements I make about the artifacts associated with the House 2 excavation are general. Most artifacts mentioned come from layer II b, a layer that contained fallen wall material and post-abandonment refuse. Much fewer artifacts were found inside hearths or directly on stucco floors. However, finding artifacts in these contexts gives me much better basis to associate a recovered artifact with the particular structure, providing better clues on the possible activities that took place at the house. For this reason, I indicate when artifacts were found directly on the floors.

The most common artifact types found across all structures were coarse paste jar and finer paste bowl and comal fragments. For example, in the South structure the most common ceramics were utilitarian jars and finer utilitarian bowls, suggesting food storage, preparation, and serving (Table 5.1). To the end of the South structure we found a hollow that revealed the only figurine fragment associated with a house, plus 43 utilitarian jar and 49 bowl fragments. Due to the number of jar and bowl fragments recovered from the hollow I propose that this feature could have been used for storage (Table 5.1). However, as noted earlier the deposits found in this hollow were greatly altered by post-abandonment animal activity.

To the front of the terrace the East structure presents the least number of artifacts; this is due to the severe erosion that has virtually destroyed over half this structure (Tables 5.1). Fortunately in this East structure, Feature 2 and its contents were still intact. Feature 2 revealed the greatest number of ceramic artifacts; this was the only feature to contain Fine Gray and Yanhuatlán Red on Cream ceramics, diagnostic Postclassic types (Table 5.2). These finer paste vessels mostly come in bowl form, used mainly for food serving. The excavation of Feature 2 also revealed that the East structure rests on a terrace fill layer that goes for at least 70 cm below the surface level.

In the North structure, right on the stucco floor next to Feature 4 we found the fragments of an agave scraper and a small *metate* (Figure 5.19). Further back on the terrace the Northwest structure was well protected from erosion; this resulted in the finding of artifact rich archaeological deposits. The Northwest structure had the greatest number of definable vessels, especially bowls (Table 5.1). Whereas in the hollow we found 49 bowl fragments, in the Northwest structure 65 bowl fragments were recovered, in rough and fine paste wares. The fact that this Northwest room was closed out, that it did not have a hearth, and that it revealed the greatest number of jar and bowl fragments than any other room in House 2 may suggest that it served as a storage room, much in the way that smaller rooms without hearths were used for storage among the Pueblos (Hill 1968).

The patio of House 2 revealed much lower artifact densities than the patio of House 1. This may be due in part to the fact that the patio of House 2 was found closer to the surface and that most artifacts recovered in the patio area came from the plow zone, which was disregarded for the analysis. In the later added West structure a small *metate* fragment was found leaning against the inside southwest corner of the structure (Figure 5.17). It is noteworthy that this room revealed the least number of ceramic and lithic artifacts. Although I don't have a clear reason for this occurrence I wonder if this

room was swept clean or scavenged after House 2 was abandoned. Since the West structure was at the same floor level than the patio this may have facilitated the constant movement of debris out of this room. Right next to the West structure, the *temazcal* was the room that revealed the greatest number of luxury ware ceramic fragments, the meager number of six—further proof that luxury type densities were generally low in House 2.

House 2 Socio-economic Status

Out of 6,658 total number of sherds retrieved during House 2 excavations, only 30 were fragments of luxury ware vessels; again, no complete vessels were found (Table 5.3). In addition I did not find any Aztec ceramics or Aztec-inspired ceramic styles as the ones found in noble and royalty house ceramic assemblages at main capital or sujeto centers (Lind 1987:110). Relative frequency between luxury and domestic wares is comparable to those in previously excavated and analyzed commoner contexts in the Mixteca Alta (Lind 1987). Although the House 2 artifact assemblage contained a proportion of Fine Gray and Luxury wares greater than that of House 1, the overall House 2 assemblage still fits well within the bounds of a commoner class artifact assemblage. The most common ceramic artifacts were utilitarian jars and bowls, and finer utilitarian bowls. Compared with the House 1 assemblage, House 2 had much lower volumes of artifacts (which may represent a shorter occupation), but the two artifact assemblages are almost entirely utilitarian and represented common domestic and subsistence activities.

In terms of lithic indicators of socio-economic status we found only found obsidian in House 2 and no green stone or jade (Table 5.4). Inhabitants of this sector of the site or of House 2 used and had access to obsidian. As in House 1 the sector of the population associated to House 2 obtained their obsidian as blades, and then used them

extensively until exhausted. House 2 excavations revealed much lower artifact volumes overall, and this included obsidian artifacts. A total of 32 obsidian fragments were retrieved in House 2 excavations, again excluding those found in the plow zone.

As explained above, when one compares these artifact assemblages to those obtained from noble class houses and palaces (Lind 1987:87), one can clearly see the difference in socio-economic standing as is expressed in the material culture. Whereas a 24.9% of the total ceramic artifact assemblage in Lind's noble houses consisted of luxury wares, in commoner contexts at *Nicayuhu* luxury wares only constitute 0.17% of the total assemblage (Table 5.3).

House 2 Activities

The overall artifact assemblage of House 2 excavations suggest that the neighbors or inhabitants were commoners involved in non-specialized domestic and subsistence activities, i.e. most likely farming. The main vessel forms and types were the utilitarian jars and finer utilitarian bowls. Clearly the main activities taking place at House 2 were of a domestic nature: cooking, storing food and water, processing domesticated and wild goods for household consumption, and serving food.

The most common informal lithic tool found in House 2 was the expedient chert flake, indicating that some informal expedient tool production may have taken place in the house (Table 5.4). We did not find a sufficient number of lithic artifacts or production debris as is expected in lithic tool production workshop areas (Burton 1987; Pastrana Cruz 1990; Soto de Arechavaleta 1990). The most common formal flaked lithic tools were the obsidian blade and the chert scraper. I found eight scrapers and no projectile points associated with House 2. This house also revealed a good deal of ground stone artifacts used to grind corn, roots, or seeds, and to unthread maguey stalks to obtain its fibers.

As in House 1, in House 2 we did not find any evidence of pottery kilns or pottery production byproducts (e.g., Balkansky et al. 1997; Feinman et al. 1993; Robles García 1988); there were no spindle whorls that would indicate cloth production, or lithic raw materials and debris commonly present in lithic tool production areas (Brumfiel 1986; Burton 1987; Clark 1986; Pastrana 1990; Soto de Arechavaleta 1990). In terms of ritual specialization, House 2 excavations did not reveal any braziers or ladle censers fragments. In House 2 only a single figurine fragment (Figure 5.20) was retrieved in the hollow adjacent to the South structure. However, this single fragment gave no clear indication of specialized ritual practices. Thus there was no evidence of ritual activity beyond the household level and possible ritual use of the *temazcal*. Certainly any ritual activity that took place in House 2 was only at the household level.

Dating of House 2

Although we collected carbon samples from various contexts at House 2, so far none of the samples have been sent to the laboratory for dating. Instead dating of House 2 is done through the use of the known ceramic typology (Spores 1972; Lind 1987) and the comparison of House 2 artifacts to the House 1 assemblage that dates to the Late Postclassic. According to these methods House 2 also dates to the Late Postclassic period. In House 2 all the recovered artifacts fit well within the Natividad period ceramic types, including diagnostic types such as Mixteca Polychrome, Fine cream, and Yanhuitlán Red on Cream wares. Given that the Natividad period, at least ceramically, extends for a 700-year period, future radiocarbon dating will be needed to obtain a more exact date for House 2.

House 2 as a *Ñandahi* House

The architectural and artifact data from House 2 indicate that there was some degree of labor and capital investment in house construction, expansion, and maintenance. Structures were built and added to the overall house complex. Utilitarian wares and a diverse array of economically useful tools constituted the bulk of the house artifact assemblage. These results suggest a stable commoner class occupation that would correspond with the ethnohistorically defined *ñandahi* class; these were the farmers who may have lived as agrarian smallholders. They had ownership over their plots of land and houses and organized their agricultural production and consumption as independent household groups, only contributing a portion of their agricultural goods or labor as tribute (Terraciano 2001:137-140, 199-205).

TABLE 5.1 House 2 ceramic type distribution by room or feature.

House 2									
Ceramic types	1	2	3	4	5	6	7	8	9
South room	17	14	7	0	0	21	3	0	2
North room	16	15	10	2	1	16	1	0	4
East room	9	4	0	0	0	5	1	0	0
Northwest room	34	40	9	2	5	25	8	0	4
West room	3	0	0	0	0	2	0	0	0
<i>Temazcal</i>	20	16	6	1	1	12	1	0	6
Hollow	42	32	8	3	1	17	5	0	1
Patio	2	1	0	0	0	4	0	0	0
Total # sherds	143	122	40	8	8	102	19	0	17

Type 1 Utilitarian jars

Type 2 Utilitarian bowls

Type 3 Comals

Type 4 Ladles

Type 5 Finer utilitarian jars

Type 6 Finer utilitarian bowls

Type 7 Fine Gray bowls

Type 8 Special forms, braziers and ladle censers

Type 9 Luxury wares, *Cacique* Burnished and Polychrome

Table 5.2 House 2 feature ceramic artifact contents.

House 2	Sandy Cream #	Gm	Fine Cream #	Gm	YRC #	Gm	Rough tan #	Gm	Fine tan #	Gm	Fine gray #	Gm	Rough gray #	Gm	Polychrome #	Gm	<i>Cacique</i> #	Gm
Feature 1			1	101			3	9										
Feature 2	27	22	14	80	3	18	142	908	6	45	3	17.5						
Feature 3							6	20										
Feature 4	1	4					5	20										
Offering 1	3	2	1	16			9	81	1	1							2	11

Table 5.3 Utilitarian versus luxury ware frequencies of *Nicayuhu* houses compared to Yucuita and Chachoapan excavation data from Lind (1989:Table 29).

	<i>Nicayuhu</i>		Yucuita & Chachoapan	
	House 1	House 2	Peasant Midden	Noble Midden
Utilitarian wares	40005	6628	1328	2457
Polychrome	26	18	2	127
<i>Cacique</i>	30	12	0	1460
burnished				
Total # sherds	40061	6658	1330	4044
	House 1	House 2		
Utilitarian wares	99.86%	99.53%	99.85%	60.76%
Luxury wares	0.14%	0.57%	0.15%	39.24%

Table 5.4 House 2 lithic material distribution by room or feature.

House 2	Basalt		Obsidian		Chert		Chalcedony		Other	
	#	Gm	#	gm	#	Gm	#	gm	#	gm
Hollow	0	0	3	5	1	7	2	15	3	367
NW room	1	750	4	9	6	103	3	18	4	68
NW access	2	2050	0	0	4	72	5	122	1	5
W room	0	0	1	1	0	0	0	0	1	17
<i>Temazcal</i>	5	2306	1	2	2	16	3	58	1	90
Patio	2	1459	0	0	0	0	1	28	1	18
E room	0	0	0	0	0	0	4	86	5	34
N room	0	0	3	13	1	3	0	0	1	137
S room	1	800	3	7.5	2	254	4	1657	1	151

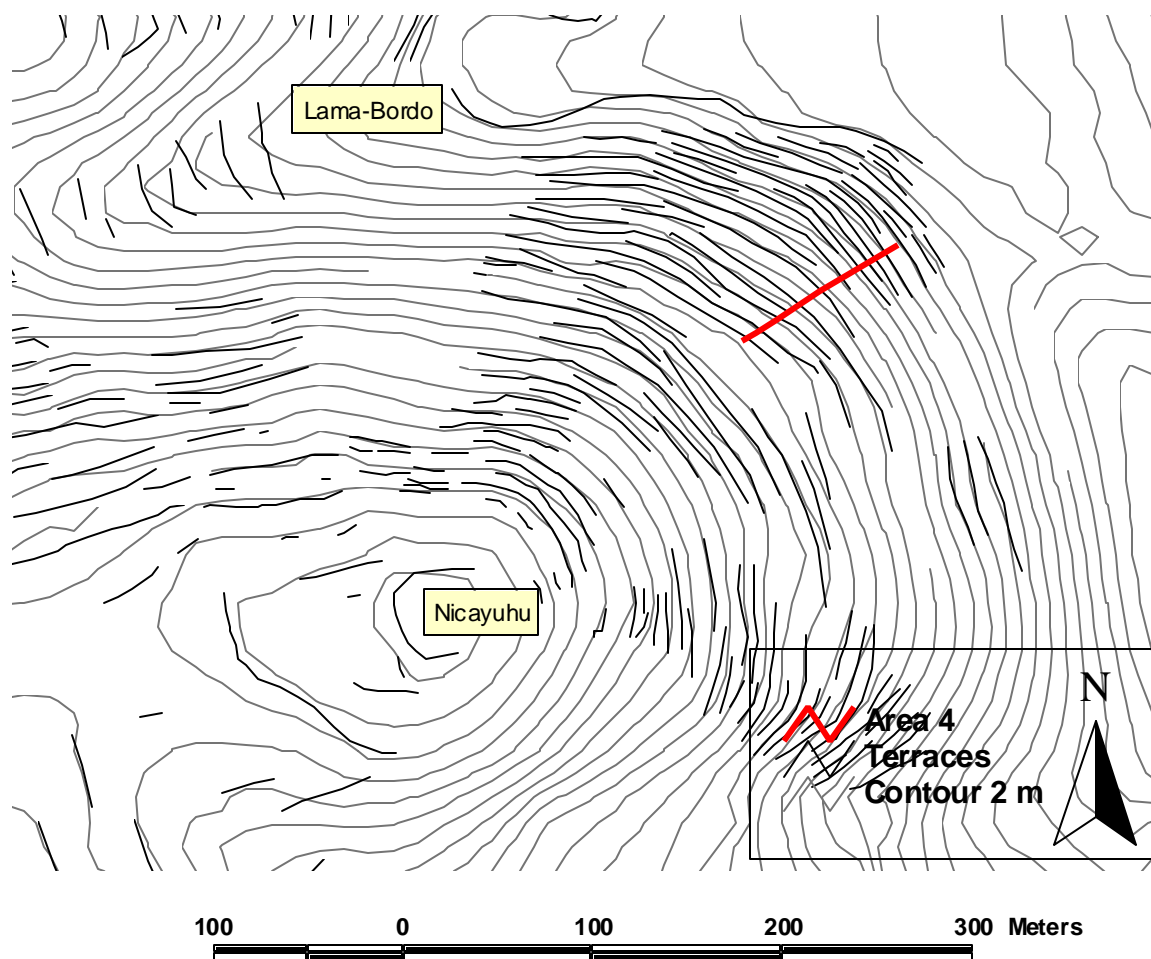


Figure 5.1 Location of excavation Area 4 on northeast slope of *Nicayuhu*.



Figure 5.2 House 2 when first discovered in Area 4 test excavations.

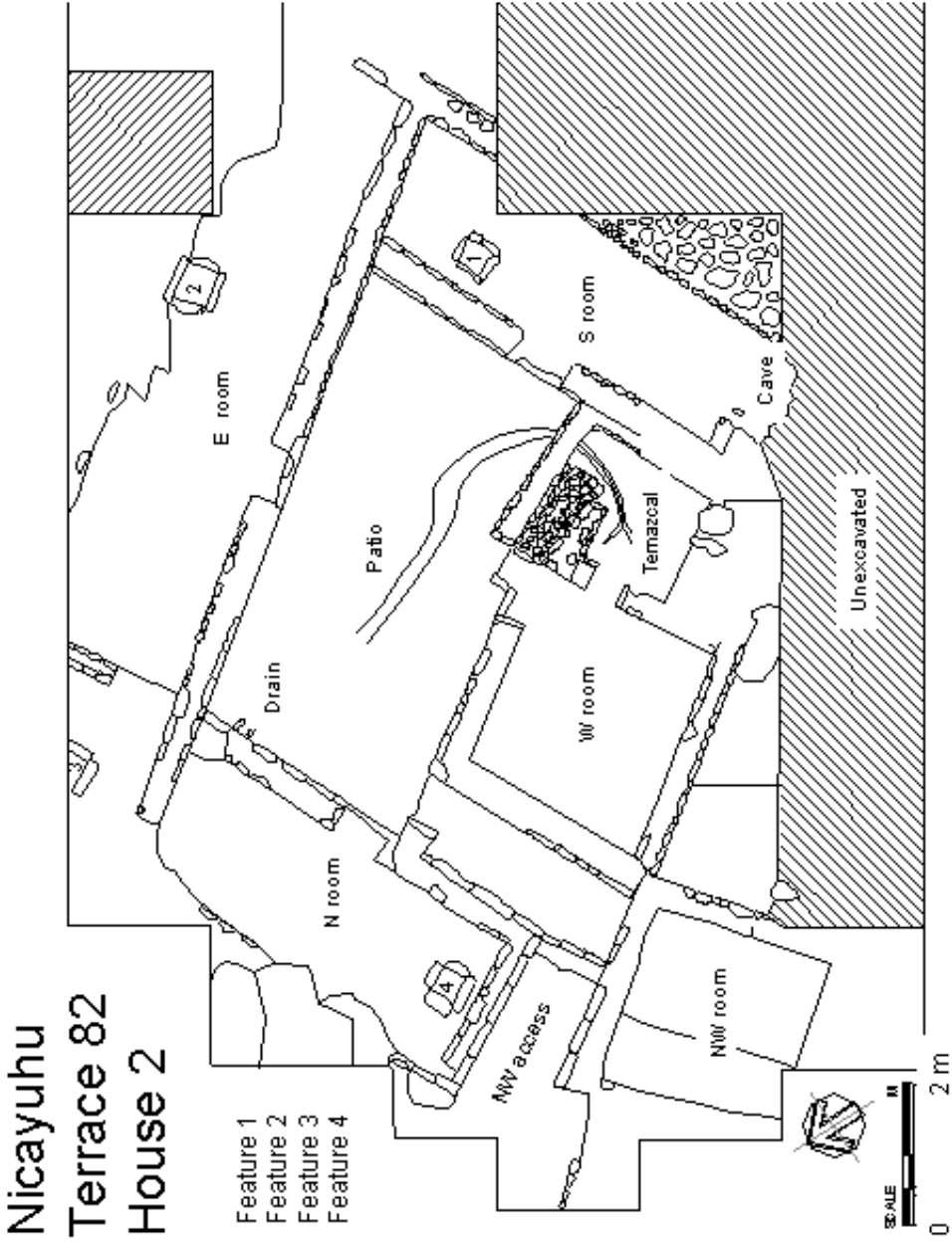


Figure 5.3 Plan view of House 2.



Figure 5.4 House 2, completely exposed, seen from the next terrace up.



Figure 5.5 East structure on the front of the terrace seen from the south.



Figure 5.6 Doorstep of the East structure.



Figure 5.7 Hearth, Feature 1, on East structure seen from next terrace up.



Figure 5.8 North structure to the left.



Figure 5.9 Two-puppy offering being excavated outside northwest corner of North structure.



Figure 5.10 South structure seen from above the hollow to the west.



Figure 5.11 Entrance to the hollow beyond the South structure seen from the East structure.



Figure 5.12 People working in hollow seen from the South structure.



Figure 5.13 Northwest structure in the foreground. Note the south wall to the Northwest structure and the different patterns in the rock wall where closed off entry way opened to the south.



Figure 5.14 West structure seen from the next terrace up.



Figure 5.15 *Metate* fragment as found in southwest corner of West structure.



Figure 5.16 Top view of the *temazcal* as seen from the next terrace up.



Figure 5.17 Stacked basalt inside *temazcal* hearth after central ash and basalt fill was emptied out.



Figure 5.18 Patio of House 2 seen from the north behind the North structure. Note the eroded channel across the center of the patio.



Figure 5.19 *Metate* and agave scraper fragments found directly on the floor next to Feature 4 in the North structure.



Figure 5.20 Figurine fragment found in the hollow. The only figurine fragment associated with a house at *Nicayuhu*.

CHAPTER 6

POSTCLASSIC MIXTEC HOUSES

Nicayuhu Houses and the Ethnohistorical Mixtec House

The physical characteristics of the two excavated houses at *Nicayuhu* closely correspond with what ethnohistorical sources say about what the contact period Mixtec house should look like (Table 6.1). According to Terraciano (2001:199) common Mixtec houses are composed of several structures or *huahi* arranged around a patio. Each *huahi* may house an independent adult family member or a nuclear family. Different *huahi* may serve different functions such as the *huahi yocuvuihuaha sacasi* (house where food is cooked) or *huahi ñehe* (sweat bath house or *temazcal*). A single *huahi* was not an entire house, but it was contemplated by the Colonial Mixtec as a piece of a house. A house was composed of one to several *huahi*, arranged around one or several patios, the contents and movable goods of the house, the surrounding lands, and the economically useful plants (maguey/agave or fruit trees) found within; this was the entire household estate. "Multiple houses organized around a shared patio constituted one household and tribute-paying unit" (Terraciano 2001:201).

Ñandahi Houses at Nicayuhu

In this chapter I make the argument that the two houses explored in *Nicayuhu* were inhabited by *ñandahi* commoners. I believe this is the case because I found clear indications of long or at least continuous and stable residential occupations marked by clear labor and capital investments and episodes of house construction, expansion, and maintenance. Both houses were multiple structure complexes that centered on a patio.

Most rooms had stone foundations and *endeque* or limestone walls and contained stone-lined hearths. In the past this type of house construction alone had been interpreted as evidence of noble class occupation (Lind 1979:17-31). Recently, Terraciano (2001:201) has argued that *ñandahi* houses can be composed of a patio surrounded by multiple *huahi*. In this work I contend that although the *Nicayuhu* houses had multiple structures, their artifact assemblages show a clear dominance for utilitarian ceramic types, denoting common domestic and subsistence activities. To determine socio-economic status of house inhabitants one must also take into account the associated artifacts and the regional context of the site, the house, and the sector of the site where the house is found.

Socio-Economic Indicators of the Mixtec Household

In Lind's (1979:17-28, 63-72) interpretations of house excavations at Chachoapan and Yucuita, he contends that hilltop houses with limestone foundations and *endeque* wall construction are indicators of noble status. I believe that the noble status of Lind's houses is clearly proved only when one takes into consideration not only their architecture, but also their artifact assemblages, and their site and regional context. Lind argues that houses composed of a single room and an adjacent outside activity area are commoner houses, whereas multiple room houses with plaster floors and limestone and *endeque* walls are noble houses. He explains that when cut *endeque* paneling is found in a single room house, it represents a commoner household trying to imitate noble style house construction. Lind, however, was working under the assumption that Postclassic Mixtec society only had three social classes: royalty, nobility, and peasantry. Since Lind's study more work has been done on the Mixtec ethnohistorical record, and we now know that there was a greater range of variation among the Prehispanic Mixtec commoners. I worked under the assumption that Mixtec

commoners could belong to two different groups: *ñandahi* or *tay situndayu*. Drawing from this new ethnohistorical insight we are now able to make a more detailed interpretation of house socio-economic status based on the house regional and site context, the house layout and construction style, and the artifact assemblage associated with the house.

Patio size data have also been used to indicate socio-economic status. In Blanton (1978:96-100) he presents a histogram of patio areas from excavated and unexcavated residences associated with Monte Albán's IIIb-IV occupation. Although this particular study focuses on Classic period Zapotec houses, his use of patio size as a socio-economic indicator is relevant to this study. Blanton identified six patio size modes spanning from less than 38 m² to over 600 m². *Nicayuhu's* patio sizes would fit well below the 100-m² category with 50.6 m² for House 1 and 43.87 and 21.12 m² for House 2. Using patio size as a socio-economic indicator, *Nicayuhu's* houses fall well within the commoner class house category. Although these methods provide a point of reference, I chose to refine my study by integrating other socio-economic indicators used in previous studies.

Single-Room Mixtec Houses

Lind (1979), in his discussion of Postclassic Mixtec houses found in Chachoapan and Yucuita, mentions in passing the existence of single room houses that he contends were commoner houses. In relation to these houses, he argues that the limestone used in the noble house construction at Yucuita comes from a source found on the hill where these commoner houses are located. He argues that this is evidence that the commoners who inhabited these houses quarried and worked the limestone for the construction of the Yucuita noble houses. Although I do not have more detailed information on these houses, it appears that they may represent a *tay situndayu*

occupation—a land-less farmer, servant, or slave class occupation. According to ethnohistorical accounts the *tay situndayu/dzaya/daha saha* did not own their land, house, or freedom; they just temporarily worked different plots of the *cacique*'s lands, the best lands in the region. These people were household dependents or temporary workers of the noble's lands. Archaeologically their residential occupations are expected to be short-lived and interrupted, marked with little investment in house construction and expansion. The fact that single room houses were found may be a function that extended families were unable to stay together at this social class level, that these land-less laborers were just adjuncts of noble houses, or that the *tay situndayu* were not free to expand on the houses they occupied to accommodate their own growing family. Single room house construction would then be a function of socio-economic well-being and the system of tenure.

House Regional and Site Context

The noble Chachoapan and Yucuita houses studied by Lind were found on hilltop locations and in sites that were known to be the rural or capital centers of the cabecera and sujeto towns of the *cacicazgo*. On the other hand, the two houses explored at *Nicayuhu* were not in a privileged hilltop location. House 1 was midway down the slope and House 2 was even further down slope (Figure 6.2). Their location was not extraordinary in any way, and the location of the entire site at a regional level was also common. *Nicayuhu* was a common agricultural settlement part of a sujeto community located well away from the *cacicazgo* capital and the political dealings that went on at the Pueblo Viejo of Teposcolula (Figure 6.3).

House Layout

Multi-structure house complexes are not automatically representative of noble class residential occupations. Terraciano (2001:198-203) found that multi-structure houses were the norm among the early Colonial Mixtec. I believe that multi-room houses that center on a single shared patio may be either noble or commoner occupations, depending on the nature of the house regional and site context, and the associated artifact assemblage. On the other hand, *cacicazgo* palaces or *aniñe* show a much more complex layout where multiple *huahi* or structures are arranged around several shared patios.

Cross-cultural studies of peasant communities show that multi-structure houses are a norm (Blanton 1994:21-75). Peasant households usually expand beyond the single structure house at points when it is required in their household growth cycle (Wilk 1984). As the children of a nuclear family grow-up and marry, additional structures may be built nearby or even next to an existing structure to house the now extended family. As new houses and nuclear families are added on so are hearths, archaeologically thought to represent kitchens and new semi-independent nuclear family units (Bender 1967). Expanding into additional structures then, is not a function of status, but of growth and reproduction of the household, perhaps more so among landed than among landless peasants. In modern day Mixteca Alta, this pattern is quite common. All peasant families expand their house layout, some more successfully than others perhaps, as the family grows. Some structures are later abandoned as the family declines.

House Construction Style

In the two houses excavated at *Nicayuhu* I find that all structures were made with stone foundations topped by limestone or *endeque* walls. Some structures presented finer *endeque* block construction, showing a fine pattern of cut and fitted *endeque*

panels. However, walls displaying fine *endeque* patterns can be part of the very same structure that displays a much rougher *endeque* block construction style on an adjacent wall.

In terms of construction materials used, one must look at the raw materials available in the area. The most readily available construction materials in the San Juan community are limestone and *endeque*. Also, by Natividad times, most Mixtec people would have had a long history of experience in using and shaping these raw materials for house construction. In fact, one of my local workers showed me how easy it is to shape *endeque* into beautifully square blocks, since it is as soft as chalk sometimes (Kirkby 1972:15). Lind (1979:70) argued that limestone is perhaps even easier to work than *endeque*. So, the house construction styles and materials used do not automatically indicate a noble or commoner class occupation. One must take into consideration the artifact assemblages associated with the house.

House Artifact Assemblages

In Lind's (1987:12) analysis of the Chachoapan and Yucuita excavations he presents a more credible argument that these houses were noble class occupations. He based this argument not only on architectural data but also on "elite" versus "common" ceramic ware frequencies. Out of 8,737 rim sherds collected he finds a total of 1,916 *Cacique* Burnished sherds, 232 Polychrome sherds, and 33 burnished red sherds. This means that a total of 2,181 sherds, 24.9% of the sample, are of ceramic types that Lind considers luxury wares. When I compare these frequencies to those of the two houses excavated at *Nicayuhu* I find that out of a total of 46,719 sherds recovered from both houses, only 42 were *Cacique* Burnished and 44 were Polychrome sherds—a total of 82 luxury ware sherds or 0.17% of the sample (Table 6.3). Clearly there is a marked

difference in luxury versus utilitarian ware frequencies from both houses that represent socio-economic status differences.

Lind (1987:87, Table 29) then provides “elite” versus “commoner” ware frequencies in commoner class middens and occupation layers. In Lind’s peasant household middens only 0.15% of the sample is of a luxury ware, Mixteca Polychrome pottery. In noble households, the luxury wares Polychrome and *Cacique* Burnished constitute 24.9% of the total sample. Lind’s peasant household luxury ware frequency of 0.15 % is comparable with *Nicayuhu*’s 0.17% frequency.

The Postclassic Commoner Mixtec House Artifact Assemblage

Lastly, from the artifact assemblage data obtained from the two excavated houses at *Nicayuhu* I am able to provide a list of the commoner Mixtec household artifact assemblage.

Common and Required Items

Ground stone: *metates* and *manos*

Lithic tools: agave scrapers, obsidian blades, irregular chert chunks cores for expedient flake tool production, and end-scrapers.

Utilitarian pottery or cooking ware: sandy cream and coarse tanware jars, water jugs, and comals.

Finer utilitarian pottery or dinnerware: fine cream, fine tanware or Yanhuatlán Red on Cream bowls, plates, and ladles.

Other common and required items that must have been part of the household assemblage but are hard to find archaeologically are perishable items such as petates, baskets, palm woven items, agave fibers, rope, sandals, leather and wood items.

Special and Optional Items:

Special items or ritual or recreational ware: ladle censers, braziers, miniature vessels, and figurines. Lithic tools: projectile points, sharpening or abrading stone, formal knives.

Lithic costume items: nose ornaments.

Table 6.1 Location and material culture markers of different social-class residential occupations.

Social Class	Region	Locality	Architecture	Artifacts	References
Nobles	Main and rural capital centers	Hilltop location	Multi-structure multi-patio houses, large patio sizes (> 50-100 m ²), limestone and endeque construction	40% luxury ware frequencies, greater frequencies of dinner and ritual wares, greater frequencies of dinner over kitchen wares	Lind 1987; Blanton 1978
<i>Ñandahi</i> Commoners	Main centers and rural settlements	Below hilltop on slope	Multi-structure single patio houses, smaller sized patios (< 50 m ²), limestone and endeque construction, temazcal	Lower luxury ware frequencies (< 1%), lesser frequencies of dinner and ritual wares, few luxury materials	Lind 1987, Terraciano 2001; Blanton 1978
<i>Tay situndayu</i> Commoners	Main centers and rural settlements	Below hilltop on slope	Single structure house, single small patio or small open area on the side of a structure, endeque or thatch construction, no temazcal	Lower luxury ware frequencies (< 1%), virtually no dinner and ritual wares, no luxury materials	Lind 1987, Terraciano 2001

Table 6.2 *Nicayuhu*, Chachoapan, and Yucuita house artifact assemblages compared. For Lind's data I only listed data provided in Lind 1987:Table 29.

		<i>Nicayuhu</i>		Yucuita & Chachoapan	
Ceramic types		House 1	House 2	Peasant Household Midden	Noble Household Midden
Utilitarian Wares	Sandy Cream #	12190	1367	389	415
	weight grams	79172	12381		
	Rough tanware #	15312	3435	187	85
	weight grams	102750	32250		
	Coarse gray ware #	141	18		
	weight grams	894	163		
	Orange ware #	393	46		
	weight grams	2510	354		
Finer Utilitarian Wares	Fine tanware #	2627	654		
	weight grams	14275	4586		
	Fine Cream #	8145	845	703	1822
	weight grams	40622	5569		
	Fine gray ware #	544	189		
	weight grams	3328	1298.5		
	YRC #	606	73	49	1822
	weight grams	4980	669		
	Graphite on orange #	17	1		
	weight grams	91	3		
Luxury Wares	<i>Cacique</i> burnished #	30	12	0	1460
	weight grams	391	104		
	Polychrome #	26	18	2	127
	weight grams	361.5	205		
Lithic materials		House 1	House 2		
	Obsidian #	27	15		
	weight grams	68.5	37.5		
	Chert #	49	16		
	weight grams	1091.5	455		
	Chalcedony #	27	22		
	weight grams	994	1984		
	Other materials #	57	18		
	weight grams	1525	887		
	Basalt #	39	11		
	weight grams	14741	7365		

Table 6.3 Utilitarian versus luxury ware frequencies of *Nicayuhu* houses compared to Yucuita and Chachoapan excavation data from Lind (1989:Table 29).

	<i>Nicayuhu</i>		Yucuita & Chachoapan	
	House 1	House 2	Peasant Midden	Noble Midden
Utilitarian wares	40005	6628	1328	2457
Polychrome	26	18	2	127
<i>Cacique</i>	30	12	0	1460
burnished				
Total # sherds	40061	6658	1330	4044
	House 1	House 2		
Utilitarian wares	99.86%	99.53%	99.85%	60.76%
Luxury wares	0.14%	0.57%	0.15%	39.24%

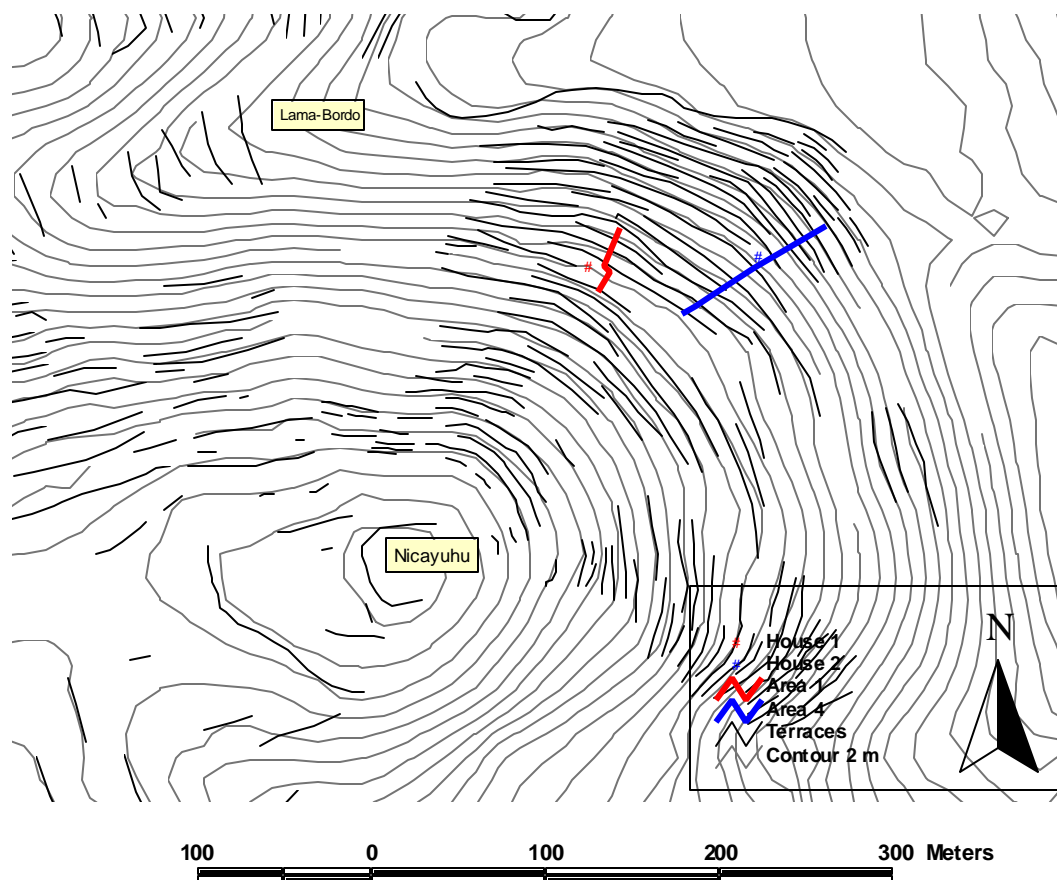


Figure 6.1 Location of excavated houses on northeast slope of *Nicayuhu*.

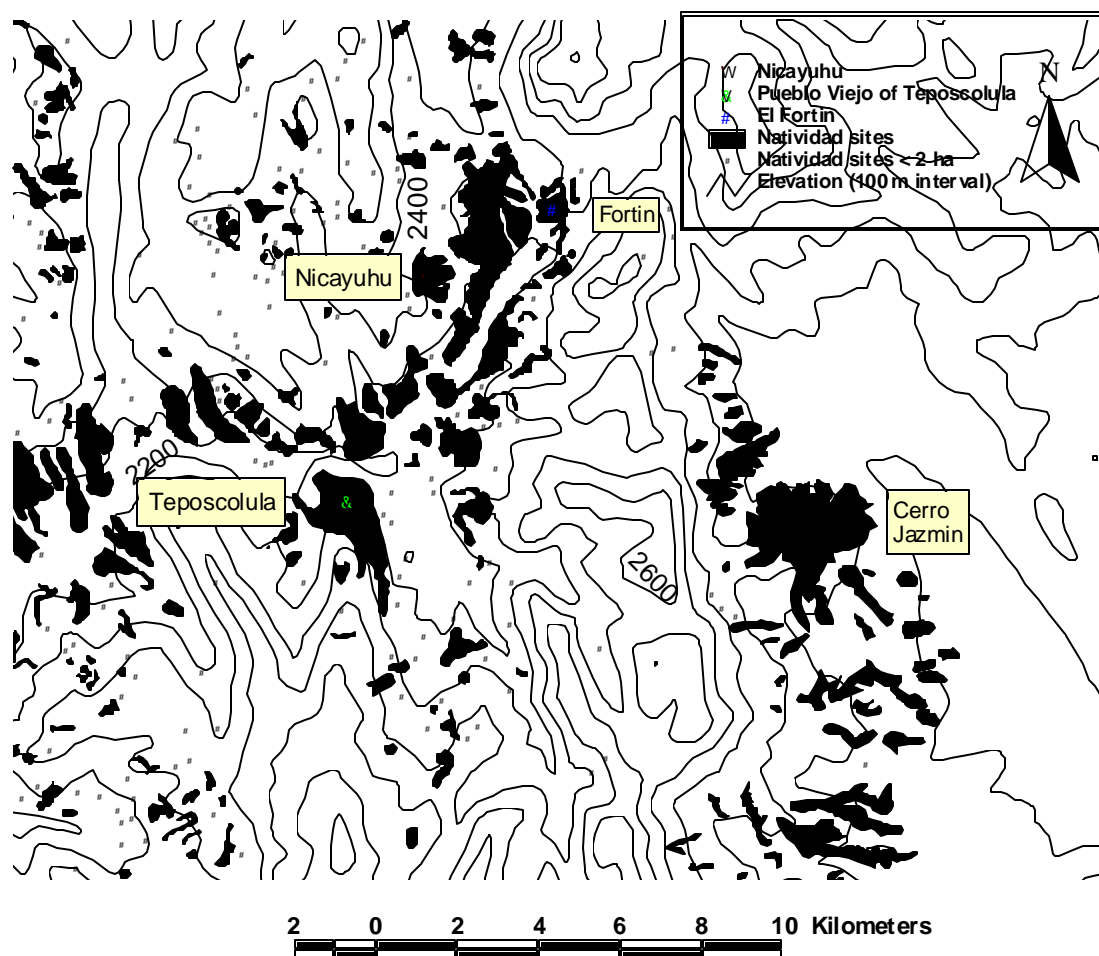


Figure 6.2 Location of *Nicayuhu* in relation to nearby Natividad period settlements and the Pueblo Viejo of Teposcolula (from Balkansky et al. 2000; Stiver 2001).

CHAPTER 7

LAMA-BORDO EXCAVATION

Excavation Area 3

The primary purpose for excavating a *lama-bordo* terrace was to learn about *lama-bordo* terrace construction. Through the excavation we obtained a long stratigraphic profile of the terrace showing how it was constructed. The aim was to determine if *lama-bordo* terraces were built as large, engineered, and labor-intensive, state-planned construction projects as in other intensive agricultural systems (e.g. Kolata 1991; Sanders et al. 1979), or through the gradual accretion of household capital and labor investment (e.g., Erickson 1994; Smith and Price 1994). If the *lama-bordo* terrace excavations suggest that these features were built as household projects, that result would support Netting's (1993) agrarian smallholder pattern. *Nicayuhu* farmers would have been in direct control over *lama-bordo* terrace construction and use, suggesting that they were *ñandahi*, or free-land owning farmers, who had well-established rights over the lands they farmed and whose production was mainly intended to meet their own needs. This being the case, the act of construction, use, and maintenance of a *lama-bordo* terrace would have reinforced tenure or usufruct rights of that household over the plot of *lama-bordo* terrace land.

Lama-bordo Terraces and Agricultural Intensification

The origins of agricultural intensification, how it began and why, have been central questions in anthropology for decades (Boserup 1965; Denevan 1987; Fedick 1989; Kirch 1994; Morrison 1994, 1996). A key issue has been whether or not state-level

involvement is required in the creation and adoption of intensive agriculture. The classical view has been that agrarian communities intensify only when they are forced to by a state-level organization that creates the intensification methods and then extracts the surplus as tax or tribute to increase its own power (Kolata 1986, 1991; Parsons 1991; Sanders et al. 1979; Wittfogel 1957). More recent studies have explored the innovative and productive potential of the independent farming households or agrarian smallholders to create and implement systems of intensive agricultural production for the purpose of meeting their own needs (e.g. Evans 1990; Netting 1990, 1993; Erickson 1994; Smith 1994).

In the Mixteca Alta the main intensification method was agricultural terracing—especially, *lama-bordo* terracing. *Lama-bordos* were first described by Spores (1969) and were later studied by Kirkby (1972). They found that these terraces were a well-thought out and environmentally sound cultural innovation. *Lama-bordos* are essentially terraces built in the drainages where the eroding soils from the adjacent hills fill these terraces with new soils continuously (Figure 7.1). Through *lama-bordo* terrace construction, the ancient Mixtec farmers were able to harness an environmental problem and turn it to their advantage. My study on the distribution of *lama-bordo* terraces in relation to Postclassic settlements at the regional level showed that settlement clustered around agricultural lands, valley bottom lands, and *lama-bordo* terraces (Pérez Rodríguez 2001). In addition I found 2-to-4 times the density of *lama-bordo* terraces inside a *cacicazgo*'s core territories than in any other parts of the region, suggesting that *lama-bordos* were a central feature of intensive agricultural production. By learning how these terraces were built I wanted to be able to assess if state-level involvement was required in the creation, construction, and use of *lama-bordo* terraces in the Mixteca Alta.

Excavation Method

To excavate a *lama-bordo* terrace I used a deep trench excavation method. This method was aimed at obtaining a long profile view of *lama-bordo* terrace construction; this would allow me to see if terraces had been built gradually through the accretion of household labor, rock piling, and natural sedimentation or as planned and distinct formal construction episodes that required a higher and more concentrated amount of labor organized above the household level.

Lama-bordo terraces are rather large and deep features, and our labor power did not allow very large or wide trench excavations, so for safety we plotted a 16-m long and 1-m wide trench (Figure 7.2) and then opened every other excavation unit to keep the trench stable and prevent wall collapse. We initially excavated in arbitrary 20-cm levels and then in natural levels as we learned more about the natural stratigraphy of the terrace. *Lama-bordo* terrace soils were very moist and compact silty clays, so in order to sift them we first had to let them sit out in the sun to dry.

Excavation Area 3 in *Nduatijubacu*

I set up Excavation Area 3 on the ninth terrace from the top of *lama-bordo* terrace system 5, in the drainage of *Nduatijubacu*, between the hilltops of *Yu'uki* and *Cueva del Coyote* (Figure 7.3). Although my initial intention was to excavate a *lama-bordo* terrace directly adjacent to an excavated house I opted for this location, away from the two excavated houses, for several reasons. The *lama-bordo* terraces found in close proximity to the two excavated houses at *Nicayuhu* are either severely eroded due to their location further down slope or part of a small sliver of flat land that is the point of convergence of several *lama-bordo* terrace systems. The problem with excavating these bottom lands was that these deposits were moist or even wet year-round, and that the

depth of deposits was much greater than other parts of the site. These factors made the goal of obtaining a clear dissection of an agricultural terrace much more complicated.

At *Nduatijubacu* the *lama-bordo* terraces were in much better shape, especially as one moved up slope. Terrace walls were still standing in their entirety. A concern with excavating a *lama-bordo* terrace further up slope, close to the hilltops, was that these terraces might be associated with higher-level houses found on the hilltop sectors of the site. If my aim was to see how *lama-bordo* terraces might be constructed through commoner household labor, excavating at a higher *lama-bordo* terrace was a riskier proposition. But if *lama-bordo* terraces were built as household-level projects, all *lama-bordo* terraces should reflect this, even the terraces located further up hill. I decided that if I was able to find that *lama-bordo* terraces located further up hill were built through the gradual accretion of household labor, I would have much stronger evidence that this might have been a widespread practice among Postclassic Mixtec *cacicazgos*.

General Description of Excavation Area 3

I set up Excavation Area 3 on terrace 9 of *lama-bordo* terrace system 5, in the drainage of *Nduatijubacu*. The excavation area was a trench, oriented at 84° and running perpendicular to the 52-m long terrace wall (Figure 7.4). The trench was 1 m wide and 16 m long, dissecting a little over half the width (22 m wide) of the *lama-bordo* terrace including the terrace wall. We divided the trench into 2-x-1-m excavation units. As we excavated the trench we opened every other excavation unit to ensure that the entire trench would remain stable, especially given the depths that were reached during excavation. In Area 3 we opened 11 m².

We set up an arbitrary 0-level to anchor our excavation and excavated initially in arbitrary 20 cm levels to get an idea of the natural stratigraphy; we followed natural

layers after that. We excavated with pick and shovel because the soils were very hard and compact. Five stratigraphic layers were identified in Area 3. The profile walls of excavation unit S1W3 were used to describe and obtain soil samples of each layer (Figures 7.5 and 7.6).

From Trench 3 we only retrieved ceramic artifacts, there were no lithics. The recovered artifacts were bagged and tagged, separated by excavation unit, layer, and depth. We drew profiles and took video tape and photographs of the excavation units and their stratigraphic profiles.

Lama-bordo Terrace Stratigraphy

Layer I was a 50 cm thick organic brown soil layer (5YR 3/2 dark brown) with sandy texture and loose consistency. The layer had many roots from the top grass cover and it presented a much lower artifact density than the surface.

Layer II is divided in two sub-layers, IIa and IIb. IIa is a 25 cm thick black organic soil layer (7.5 YR ¾ dark brown) with roots, sandy texture, and firm consistency. Layer IIb was a 30 cm thick layer with the same characteristics of layer IIa except that it was mixed with white gravel especially in the base of the layer. Layer II had a much lower artifact density. Artifacts retrieved in this layer were essentially found in the point of contact between layers I and II.

Layer III was a 50 cm thick reddish soil layer (7.5 YR 3/2 dark brown) without root intrusions, with a clay sand texture and firm consistency. This layer did not have any artifacts. However, we collected a carbon sample in this layer in the first excavation block S1W1.

The Gravel layer was a thin 10 cm layer characterized by black gravel (7.5 YR ¾ dark brown). The gravel (0.2 cm) was very abundant. The soil had a clay sand texture and loose consistency. We did not find any artifacts in this layer.

Layer IV was a 50-60 cm thick reddish soil layer (7.5 YR 3/4 dark brown), without intrusions, clay silt texture, and firm consistency. This layer did not have any artifacts.

Layer V was a 60-70 cm thick black organic soil layer (7.5 YR 3/2 dark brown), without intrusions, sandy clay texture, and firm consistency. In this deep layer we found ceramic material. At this level in excavation unit S1W1 we collect a carbon sample from the lower levels, roughly 3 m below the surface and close to the bedrock layer; this sample may serve to date the terrace wall construction.

Area 3 Excavation Units

During trench 3 excavations we opened 5 excavation units S1W1, S1W3, S1W5, S1W7 and S1E1.

Unit S1E1 was right below or in front the terrace wall. This unit was opened to get a view of where the wall took off from the ground. We found that we reached the base of the terrace wall at -2 m from the surface. Ceramic materials from this unit come from within the terrace wall (Table 7.1).

Unit S1W1 was right above and behind the terrace wall. Excavation of this unit begins at -30 cm and ends at about -3.42 m when we reached bedrock. In this unit we obtained ceramic samples in layers I, IIb, and V. In Layer V we also collected a charcoal sample that may be used to date terrace construction.

In S1W3 we found and described the five natural soil layers and used this unit's profile to obtain the soil samples. As in the previous unit we obtained ceramic samples in layers I, IIb, and V where we obtained a charcoal sample that may be used to date terrace construction.

In S1W5 we were able to observe the stratigraphic continuity in the profile. Excavation of this unit begins at about -2 m and ends at -2.72 where we reached

bedrock again. In this unit we find the beginning of the gravel layer, which later extends to eastern units already described above.

Unit S1W7 was the western most unit found roughly in the middle of the terrace. Stratigraphy in this unit was rather jumbled and bedrock is reached at -2.0 m only. As in all other units, ceramic materials were found only in layers I and V.

Lama-bordo Terrace Wall

As part of Area 3 excavations we opened excavation units adjacent to the terrace wall, unit S1W1 right above and unit S1E1 right below the terrace wall to get a profile view of its construction (Figure 7.5). We found that terrace wall construction was rather informal rock piling with a more formal-looking wall façade built to the front (Figure 7.7). The terrace wall façade stood 1 m high above the surface level. As we reached lower levels behind the terrace wall, 2.4 m below the surface, we were able to see that the wall began as a wide rock pile made out of small (5-10 cm) to medium sized (10-30 cm) rocks that kept growing as the terrace filled up. The rock pile wall was wider at the base, tapered to the top and finished with a formal rock façade added on to the front. The rocks used to build the wall façade were larger, 40-50 cm wide, and the stone, mostly limestone, could be found locally. The stone was uncut and unfitted. Rocks were simply piled on and none were stuck together with mortar.

Lama-bordo Artifact Assemblage

Area 3 excavations revealed only a very small number of artifacts, only ceramic materials—a total of 103 sherds (Table 7.1). Archaeological materials were only retrieved in Layers I, IIb, and V. Clear Postclassic ceramic types, such as fine cream bowls, were only found for Layers I and IIb. The lower Layer V only provided a small

ceramic sample of un-diagnostic rough tan ware body sherds and bowl rim sherds that may date to various Prehispanic time periods.

In Layer I, we found the greatest number of sherds, 75, but only 10 of which were identifiable as out-leaning wall, semi-hemispherical, or composite silhouette bowls. Layer IIb revealed 19 sherds, although none were rims. As part of layer V we retrieved 9 sherds, one was a rim sherd identified as a rough tan ware water jug rim. Given the low density of ceramic materials retrieved from Trench 3 we can say that the ancient Mixtec did not live on these terraces and that artifacts found in this terrace most likely were washed down from adjacent terraces.

Dating the *Lama-bordo* Terrace

Area 3 excavations yielded few artifacts overall and only ceramics. However, all artifacts found even in the lower levels of the terrace appear to be prehispanic. None display features of post-contact pottery such as glaze or green and blue on white colors. Carbon samples from these lower levels were taken and I hope to obtain an absolute date for the terrace in the future. For now, I date the feature according to the diagnostic ceramic materials (Table 7.1). In Layers I and IIb we found clear Postclassic period diagnostic sherds, such as fine cream composite silhouette bowls, and semi-hemispherical bowls. Among the rocks and soil fill of the terrace wall, associated with Layer IIb, we found six rough tanware body sherds and a single fine cream ladle censer body sherd that displayed perforations. In Layer V we obtained a more reduced number of coarse tanware body sherds and a single rim of a rough tanware water jug. Although these tanwares could date to a number of prehispanic time periods, I can say that the paste is not like that of coarse tanwares of the Cruz period (Spores 1972), and that there are no Ramos or Las Flores phase occupations close to this sector of the site.

Although the diagnostic ceramic evidence is meager, definite dating of the terrace feature will have to be based, for now, on the few diagnostic sherds found. However, I will also argue that if the terrace had been built in historical or modern times, its deposits would have revealed some evidence of post-contact pottery or other artifact types. No definite post-contact artifacts were found. In addition, no other prehispanic occupation, other than that dating to the Postclassic period, is found near or around this *lama-bordo* terrace system. So, for now, I propose that the *lama-bordo* terrace dates to the Postclassic period.

Informal Interviews

Given the great cultural continuity found in the Mixteca Alta I decided to interview some modern San Juan Teposcolula farmers and elders about what they knew of *lama-bordo* terraces. From them I obtained information on how *lama-bordo* terraces (or retenes) are built, and about how traditional Mixtec houses are built and different activity areas used. I chose my interviewees according to their age, their close relationship to agricultural or residential features I was interested in, and their disposition to talk to me. I interviewed people who had had first hand experience in terrace or house construction. My interviews were informal, not structured. My questions were guided by what they were telling me. What they told me provided a ethnographic model of how *lama-bordo* terraces are constructed.

San Juan farmers called these terraces retenes and they had much to say about how these terraces were built. According to modern Mixtec farmers, *lama-bordos* or retenes are very easy to build. You get a family work group together. The family goes to the chosen drainage where the terrace will be built at some point during the rainy season. Among the family work group there are at least four men and at least two

women whose job is to go to the work site to cook and feed the family. The men pile rocks a meter high and wide and then cut brush and pile it right behind the rock pile so that the coming of the water does not knock down the newly formed rock pile wall. The family can do this work in a day, a hard day's work. They then wait for a big downpour, one of those that usually occur during the summer rainy season. The natural run-off that occurs after a big rain rapidly fills in the terrace with new soil. According to modern farmers, one can build a 2 m deep terrace within a couple of rainy seasons.

Lama-bordo Terrace Mode of Construction

The excavation results indicate that *lama-bordo* terraces at *Nicayuhu* could have been built through the gradual accretion of household labor, suggesting that the average *Nicayuhu* residents could have built these key agricultural features needing no more than their own labor force and ingenuity; this supports the ethnographic model of “retén-building.” The terrace wall profile revealed that the wall was essentially a rock pile that grew in time forming a pyramid shape, with a wide base that tapers to the top. As the natural run-off filled the terrace, additional rock was piled increasing the size of the terrace wall. Later on, a more formal rock wall façade was added on to the top and front of this rock pile, giving the terrace a more polished look. Excavation Area 3 stratigraphy showed that the terrace was filled by multiple erosion events where locally found soils washed down from the adjoining hills. The soil was not carried in nor was it leveled after it filled in the terrace. The soil profiles show a sloping profile where eroded soils were not leveled once they reached the terrace. Instead, the natural shape of the soil layers shows that terrace fill was not even, matching the natural slope of the deposition. Soil layers were wider towards the edge of the terrace, where it was first deposited and they were narrower towards the center where deposition was more indirect. Although five

different soil layers were identified (Appendix A) we find that these soils are similar in color and texture.

Future Studies

This study has done the first intensive archaeological study and excavation of a *lama-bordo* terrace; this unfortunately means that no comparable datasets are available at this time. However, there are several additional studies that may stem from this study and excavation. For example, flotation and phosphate analyses done on the soil samples we obtained may tell us about what the Mixtec farmers planted and sowed on these lands, and what kind of soil preparation techniques were used to increase the soil's productivity. Radiocarbon dating on the samples obtained from the lowest and oldest soil layer, Layer V, may help date the feature. Future studies that may draw more *lama-bordo* terrace profiles, be it from excavation or erosion cuts, will give us a basis for comparison on terrace mode of construction. This study of *lama-bordo* terrace construction through excavation is only a beginning.

Table 7.1 Area 3 ceramic artifact assemblage by type and vessel form.

Area 3	Sandy cream		Fine cream		Rough tanware		Fine tanware		Fine gray	
	#	Gm	#	Gm	#	Gm	#	gm	#	gm
Surface	1	6	0	0	0	0	6	52		
Layer I	31	253	3	26	31	152	0	0	2	11
Layer II	2	8	1	4	17	140	0	0		
Layer III	0	0	0	0	0	0	0	0		
Layer IV	0	0	0	0	0	0	0	0		
Layer V	0	0	0	0	9	102	0	0		

Area 3	Total # sherds	Out-leaning wall bowl	Semi-hemispherical bowl	Composite silhouette bowl	Water jug
Layer I	75	5	4	1	0
Layer II	19	0	0	0	0
Layer III	0	0	0	0	0
Layer IV	0	0	0	0	0
Layer V	9	0	0	0	1

Figure 7.1 *Lama-bordo* terraces in *Nduatijubacu* seen from the north on an adjacent terrace on *Cueva del Coyote*.



Figure 7.2 View of Area 3 trench seen from the west when it was first plotted.

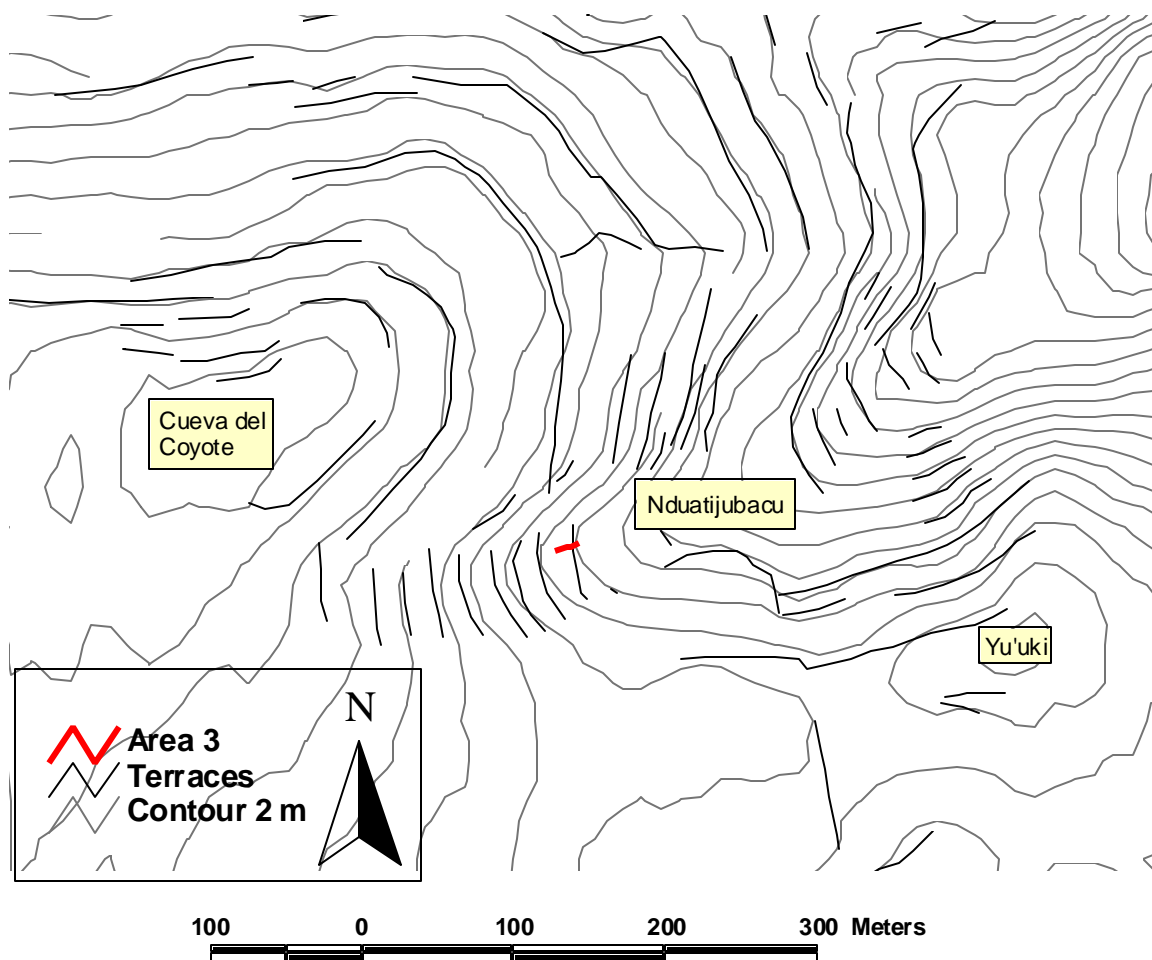


Figure 7.3 Location of Area 3 excavations in the drainage of *Nduatijubacu*.



Figure 7.4 Deep trench excavation at Area 3, note the people inside the excavation units.

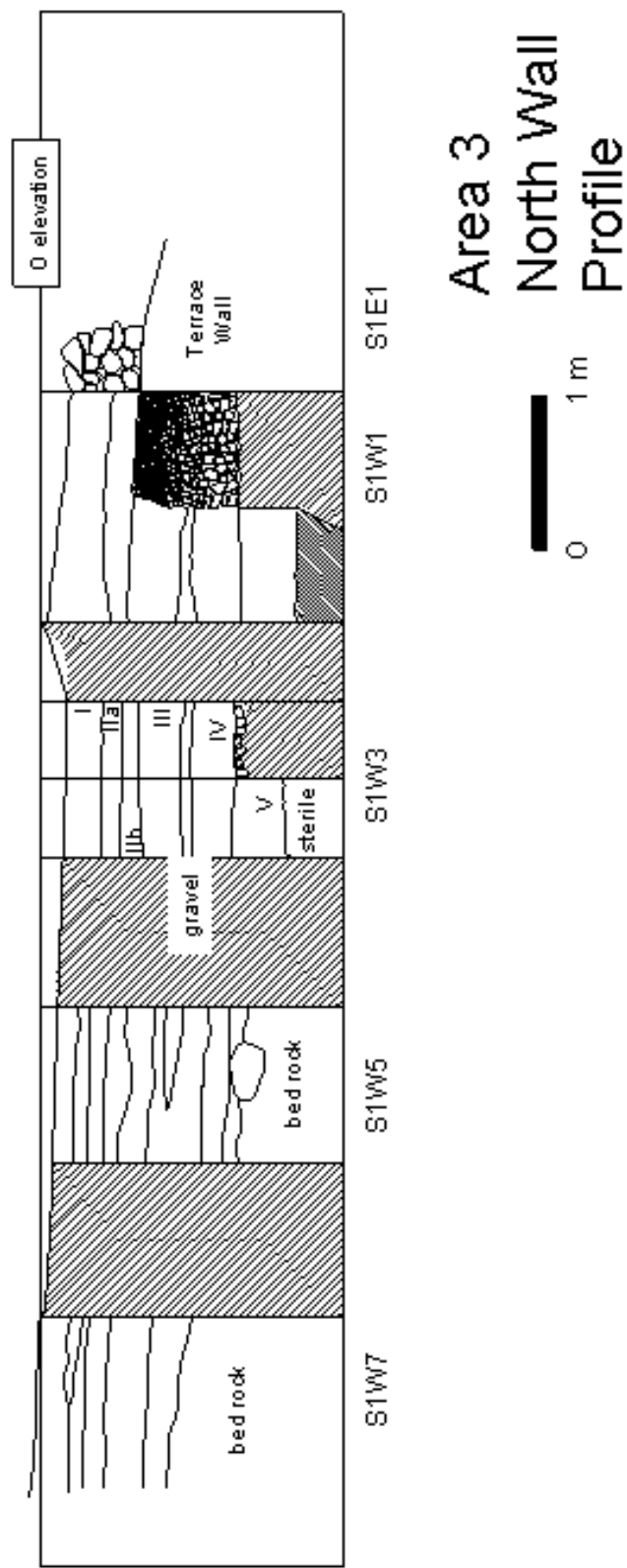


Figure 7.5 Area 3 profile.



Figure 7.6 Detail of stratigraphic profile in S1W3, note soil color differences.



Figure 7.7 Terrace wall façade in *Nduatijubacu*, where Area 3 was located. Seen from the east.

CHAPTER 8

TEST EXCAVATIONS

I conducted several test excavations in the vicinity of House 1 and House 2 to sample and learn about the different types of terraces at *Nicayuhu*, assess the depth, condition, and nature of sub-surface contexts and natural deposits. I sampled the long (150 m) and narrow (2-6 m) terraces found mostly at the base of the slope and the broader (8-12 m wide) terraces found further upslope. I tested a total of 11 terraces in the lower east-northeast slope of *Nicayuhu*, and 8 terraces on the lower south slope (Figure 8.1). Out of the 19 sampled terraces, 3 revealed evidence of houses and residential occupations dating to the Postclassic period.

The excavations provide clues on the nature of the Postclassic period settlement at *Nicayuhu*. I wanted to know if different sectors of the site had different functions, such as residential, funerary, ritual, political, productive, commercial, or agricultural. The excavations not only tell us about the various uses given to different sectors of the site, they also teach us about the history of human habitation in this locality. More detailed information on the test excavation results can be found in the Appendices section of this document.

Test Excavation Methods

We opened 68 m² in 6 test trench excavation areas (Figure 8.1). I used test excavation techniques to sample a large number of contour terraces along the northeast and south slopes of *Nicayuhu*. In Excavation Areas 1, 2, 4, and 6 we laid out a long trench grid of 2-x-1-m units that dissected, 5, 2, 21, and 11 contour terraces respectively.

Test excavations were used to get information on artifact densities across the different sampled terraces and to identify residential occupations and house construction. We identified house constructions in three of the test excavation trenches, in Areas 1, 4, and 6. When time allowed I expanded the test trenches to fully excavate the house found.

Excavation Area 2

Excavation Area 2 was a 2-m wide trench that dissected the broadest area and terrace wall of Terrace 89 following a 142° direction (Figure 8.2). Terrace 89 extended 77 m long and 2-4 m wide. In excavation Area 2 we uncovered a total of 18 m². Terrace 89 and most surrounding terraces in this sector of the site, the lower eastern slope of *Nicayuhu*, are very long (100-150 m) and narrow (2-6 m). Given the terrace size and shape we had many questions about them. What was their function? Why are these terraces so narrow? Were they residential areas, access ways, agricultural lands, engineering projects to stabilize and control soil erosion, some of the above, or all of the above? The purpose of this excavation area was to find out whether or not there was a residential occupation on this terrace and obtain information about other possible functions these terraces had. This information would also help in the interpretation of other sites that contained similar terraces and layouts.

Area 2 Stratigraphy

Layer I was the plow zone. It was a soft to firm medium brown (10YR 3/2 very dark grayish brown) sandy loam that had a lot of roots. This layer had a lot of mixed rock and gravel. The layer was about 20-30 cm thick and it followed the natural slope of the terrace surface. It had a medium to high concentration of ceramic and lithic artifacts. Unfortunately, these artifacts do not have a clear cultural context.

Layer IIa was a 10-30 cm thick dark (10YR 3/1 very dark gray) organic soil layer only found behind and above the wall of Terrace 89 (Figure 8.3). This soil layer was hard and compact and it mixes with a uniform layer of gravel serving as terrace fill right behind the terrace wall façade.

Layer IIb was a white to light pink (10R 7/4 pale red) sterile and natural soil layer that makes up the core of the entire hill of *Nicayuhu*. This layer consisted of a soft silty loam with a high calcium concentration (Figure 8.3).

Layer III was a 20-70 cm thick brown (10YR 4/2 dark grayish brown) sandy loam layer that was hard and compact. The layer contained gravel-sized *endeque* bits and it laid directly on the natural sterile soil, Layer IIb. It was an intrusive layer that filled a modified bell-shaped pit feature that was dug into Layer IIb, where we found Burial 3.

Underlying the wall of Terrace 89 we found Burial 3, the best-preserved burial of the entire project (Figure 8.4). Burial 3 was found in what appears to have been a bell-shaped pit dug into the natural sterile soil layer (Layer IIb in Area 2) that was later cut down to half its depth to make room for Terrace 89 wall construction. In Burial 3 we found two adults placed directly on the sterile layer in fully flexed fetal position turned left (Figure 8.5). The two individuals had few offerings. Individual one (left) had a single limestone flake and an obsidian blade fragment next to the skull. Individual two (right) had a small semi-hemispherical fine cream bowl to the left of the skull and a fragment of a small basalt *metate* by the feet (Appendix D).

Area 2 Results

Area 2 excavations provide clues about the history of land use of this part of the site. In excavation Area 2 we did not find any evidence of a house or any other kind of informal residential occupation on Terrace 89. I do not believe that there was ever a formal house structure on this sector of the terrace. Initially in this area bell-shaped pits

were dug for funerary purposes (Figure 8.3, profile of Layer IIb). Later on, the hill slope was cut and shaped to construct step-like surfaces on which terraces and terrace walls were built. Layer IIa, the terrace fill, would date to this time, when the series of long and narrow terraces were built on the lower northeast-east slopes of *Nicayuhu*. These terrace walls end roughly coinciding with the end of the next terrace walls up and down slope, creating a switchback pattern where one can climb from one terrace to the next.

The overall lay out of Terrace 89 and surrounding terraces appears to be of a switchback walk-way to enter the site, a channel that may have diverted the run-off water during the summer rainy season, and a method for preventing erosion in heavily trafficked areas. Having a zig-zag layout of long and narrow terraces allows for the water to run across all the terraces, perhaps irrigating some lands, while diverting all excess water downhill to prevent water saturation and flooding in the houses. In addition, artifacts recovered in Area 2 were highly eroded suggesting that these lands may have been farmed and that these artifacts have been ‘tumbled’ and eroded as the soil gets turned up by the plow over a long period of time.

The fact that we found a burial, such as Burial 3 underneath the wall of Terrace 89 makes me wonder if this was a common cultural practice to secure tenure or usufruct rights over the terrace. Other cases where burials were placed in terraces have been found in Prehispanic Oaxaca (Feinman and Nicholas 2001; Feinman et al. 2002). It is not uncommon cross-culturally to find that people stake claims over the lands where their ancestors were buried. Surely the ancient Mixtec who constructed the wall for Terrace 89 knew about the presence of that burial underneath. The stone foundations for the wall were laid almost directly on top of the second individual’s skull. Additional comparable data would be needed to prove or disprove this proposition; for now, it just remains an intriguing possibility.

Excavation Area 4

Excavation Area 4 was a 100 m long by 1 m wide trench that dissected a total of 11 terraces starting from midway down the slope to the base of the hill on the east side of *Nicayuhu* (Figure 8.6). In Area 4 excavations we uncovered a total of 166 m². The purpose of this trench was to excavate at least one excavation unit per terrace and test a number of long (up to 150 m), narrow (2-6 m) contour terraces that are only found in this sector of the site. I wanted to obtain information about their possible function. I detected a residential occupation in one of the tested terraces, in a slightly wider part (12.5 m wide) of Terrace 82, where we horizontally expanded Area 4 excavations to fully explore the House 2 complex. Excavation Area 4 also tested part of Terrace 66, the terrace where House 1 was found, where it converges into an open area where several terraces converge.

Area 4 Excavation Beyond House 2

All terraces sampled in Area 4 excavations, except for Terrace 82 revealed a simple stratigraphy consisting of only one or in a few cases two layers (Figure 8.7). This stratigraphy is representative of excavation units S1W1, S1W3, S1W8, S1W11, S1W14, S1W20, S1W21, S1W25, S1W31, S1W38, S1W45, and S1W50.

Layer I was the plow zone. It was a firm to very hard medium brown (5YR 4/4 reddish brown) loam that had a lot of roots and insect burrows. This layer had a lot of mixed rock and gravel. The layer was about 10-20 cm thick and it followed the natural slope of the terrace surface (Figure 8.7). It had a medium to low concentration of ceramic and lithic artifacts.

Layer II was a 10-cm thick deep brown to black (5YR 2.5/1) organic soil layer that underlay the plow zone. Layer II was found in S1W1 excavation block only (Figure 8.7).

This layer was very hard, dark, and moist so it was sampled for flotation. Flotation results are still unavailable.

Layer III was the sterile natural soil layer that made up the entire hill—same as Layer V in excavation Area 1, commonly called tepetate (Figure 8.7).

Area 4 Results

In the plow zone, Layer I, we found highly eroded sherds that if anything helped date the occupation to the Postclassic period. A second, dark rich organic soil layer was found only in the bottom-most terrace sampled. This organic soil layer appears to have been rich and water logged even during our dry-season excavations. We took a sample of this soil for later study. However, finding this soil layer suggests that at least some of these long (up to 150 m) and narrow (2-6 m) terraces may have had a high agricultural potential.

The excavation results suggest that the long and narrow terraces (150 x 2-6 m) were not residential in function. Only wider (10-12 m) flat areas found among the long, narrow terraces had houses on them (e.g., Terrace 82). The long and narrow terraces that surrounded the few houses and that dominate this part of the site had several possible functions, not all of which were mutually exclusive. These terraces may have been used as farmland, as access ways from the residential areas to the agricultural valley bottomlands and surrounding communities, or as engineering projects designed to control erosion, divert and manage rain water flow, and stabilize soils and higher terraces for safe residential use.

Excavation Area 5

Excavation Area 5 was a small exploration of an exposed stone foundation that was slightly downhill from House 2 (Figures 8.8 and 8.9). The exploration was a small

continuous block 4 x 4 m in area. Unfortunately in this Area 5 excavation was not too successful since we were unable to find the other corners of what we thought was an exposed structure.

Layer I was the plow zone. It was a firm to very hard medium brown (5YR 4/4 reddish brown) loam that had a lot of roots and insect burrows. This layer had a lot of mixed rock and gravel. The layer was about 10-20 cm thick and it followed the natural slope of the terrace surface. It had a medium to low concentration of ceramic and lithic artifacts.

Excavation Area 6

Excavation Area 6 was a 50 m long and 1 m wide trench that dissected a total of eight terraces (up to 88 m long and 4-6 m wide) on the south slope of *Nicayuhu* (Figure 8.10). In Area 6 excavations a total of 16 m² were uncovered. The purpose of this trench was to test a number of terraces in order to obtain information about their possible function and to be able to compare the results of this sector to those of Excavation Area 4. In Excavation Area 6 I identified a residential occupation on one of the tested terraces, Terrace 126 (Figure 8.11). The construction that appeared in Terrace 126 consisted of a stucco floor that ended where two structures met in a corner. I suspect that the exposed stucco floor was the northeast corner of a patio, where it is defined by two structures that line the patio to the east and north. Due to time constraints we did not explore this third house, but its location is now noted for future study. In the future, the excavation of this third house would contribute to building a now growing body of robust data on late Prehispanic houses and the commoner's lives.

Area 6 Stratigraphy

The excavation units opened as part of Area 6 excavations were N1W1, N5W1, N9W1, N11W1, N14W1, N18W1, N21W1, and N25W. These excavation units had only a single soil layer—the plow zone that lay directly on the natural sterile tepetate soil layer (Figure 8.12).

Layer I, the plow zone, was a firm to very hard medium brown (5YR 4/4 reddish brown) loam that had a lot of roots and insect burrows. This layer had a lot of mixed rock and gravel. The layer was about 10-20 cm thick and it followed the natural slope of the terrace surface. It had a medium to low concentration of ceramic and lithic artifacts.

Area 6 Results

In Area 6, in the plow zone, we found mostly eroded ceramic artifacts that date the occupation on this sector of the site to the Postclassic period. In addition, the ceramic and lithic artifact inventories (Table 8.1) and their state of preservation suggest that near this sector of *Nicayuhu* the ancient inhabitants engaged in common domestic activities.

Other noteworthy results included the following. First, although Area 6 excavations uncovered a smaller area than Area 4 (16 m² in Area 6 and 26 m² for Area 4), in Area 6 we find a greater number of ceramic and lithic artifacts (Table 8.1). Second, the terraces sampled below Terrace 126, where the third house was found, revealed higher densities of lithic materials than any other terraces sampled in Area 2 and Area 4 excavations. It is from the lower terraces of Area 6 excavations that we recovered the only prismatic obsidian core found at *Nicayuhu*, suggesting that the inhabitants of the third house may have been able to produce their own obsidian blades from a prepared core. In the lower terraces excavated in Area 6 we find a greater number of chert cores, chunks, and flakes. I suspect that some form of supra-household level lithic tool

production may have been taken place either on the house located on Terrace 126 or in nearby areas. Future more intensive studies and excavations conducted in this sector of the site would prove or disprove my suspicions.

Nicayuhu's Sectors and Functions

The data obtained from the test excavations provides some insight into what may have been going on at the different sectors of the site, sectors first identified during the mapping stage of the project. The hilltop sectors of the site were marked by remnants of structures (Figure 3.8), deteriorated mounds that may have been community temples or the homes of the local nobility. This sector was only studied through mapping and surface collections. However, it is safe to say that these parts of the site were perhaps the places for residence of higher socio-economic families.

The *lama-bordos* were studied during the mapping process and then again during the Area 3 excavations. These excavations revealed that *lama-bordo* terraces were most likely agricultural terraces only. The scarcity of materials recovered from the *lama-bordo* excavations suggests even that these terraces were not used for trash disposal.

The sector located midway down the east-northeast slope of *Nicayuhu* was studied in the Area 1 excavation. The findings suggest that this area of the site, marked by large (up to 110 m) and broad (12-14 m) terraces had a perhaps long-lived residential function.

Below the midway point of the east slope of *Nicayuhu* we find ourselves in another sector of the site, one marked by long (up to 150 m) and narrow (2-6 m) terraces. Excavations in Areas 2 and 4 explored this sector of the site revealing that the long narrow terraces did not have a residential function. Instead, these terraces could have been used as farmlands, and possibly access ways that connected the residential

areas further up slope with other surrounding communities. In addition, these terraces may have served to mitigate erosion and stabilize the slope for the safety of residential occupations further up. Finding that the lower flanks of *Nicayuhu* first used as funerary areas marked with bell-shaped pit construction were later modified to house the system of long narrow terraces suggests that these terraces are a later addition to the site layout. These terraces may have been built as population growth at the site created the need for additional agricultural lands and soil stabilization projects.

The long and narrow terraces that characterize this sector of the site do not appear to have been residential in function. Our new understanding of this sector of the site is a significant contribution to regional studies where these kinds of terraces have been identified, not just in the Mixteca Alta. This new information allow us to reevaluate site and community function and make more precise population estimates for hilltop terraced sites across Highland Mesoamerica. In the past, it was a point of debate whether or not these terraces should be included as residential sectors for estimating population size at a site. From this study we know that the terraces alone must not be included to produce population estimates. Instead, broader (10-12 m) areas where terraces intersect must be identified and clear signs of ancient construction, such as surface remains of construction materials, must be found before an area is considered to be residential.

On the lower south slope of *Nicayuhu* we find another sector of the site. This area is marked by the crowded layout of mid-sized (up to 80 m long) terraces that were wider (5-12 m) and shorter than those found in the previous site sector. Excavations at Area 6 revealed that this sector was close to an area of dense residential occupation. The greater densities of lithic artifacts recovered from the test excavations in this area also suggest that some kind of lithic production was occurring at this sector. Comparing the lithic artifact densities retrieved from terraces surrounding the house identified in

Area 6 to those retrieved from areas surrounding Houses 1 and 2, I suspect that there was a greater degree of involvement in lithic production in and around Area 6. Perhaps lithic production occurring at the house in Area 6 surpassed the expedient tool production that occurred at the two excavated houses. In the lower south slope sector of *Nicayuhu* we may have some level of lithic production above the household level. Additional site-intensive study is needed to resolve this issue.

Table 8.1 Excavation areas compared by ceramic and lithic artifacts.

	Ceramic types	Area 2	Area 4	Area 6
Utilitarian Wares	Sandy Cream #	877	1147	840
	Weight grams	4467	5255	5455
	Rough tanware #	730	1293	1668
	Weight grams	3810	6246	8895
	Coarse gray ware #	1	12	7
	weight grams	11	48	58
Finer Utilitarian Wares	Orange ware #	5	35	27
	weight grams	38	179	290
	Fine tanware #	34	99	170
	weight grams	183	407	675
	Fine Cream #	371	564	710
	weight grams	1856	2068	3338
	Fine gray ware #	10	26	81
	weight grams	25	117	480
	YRC #	36	37	47
	weight grams	297	182	480
Luxury Wares	Graphite on orange #	0	3	11
	weight grams	0	24	32
	<i>Cacique</i> burnished #	0	1	0
	weight grams	0	1	0
	Polychrome #	0	1	4
	weight grams	0	7	31
	Lithic materials	Area 2	Area 4	Area 6
	Obsidian #	7	12	18
	weight grams	10	17.5	26
	Chert #	7	14	41
	weight grams	66.5	338	429
	Chalcedony #	18	13	16
	weight grams	247	109	383
	Other materials #	8	2	6
	weight grams	75	166	62
	Basalt #	1	1	2
	weight grams	478	56	864

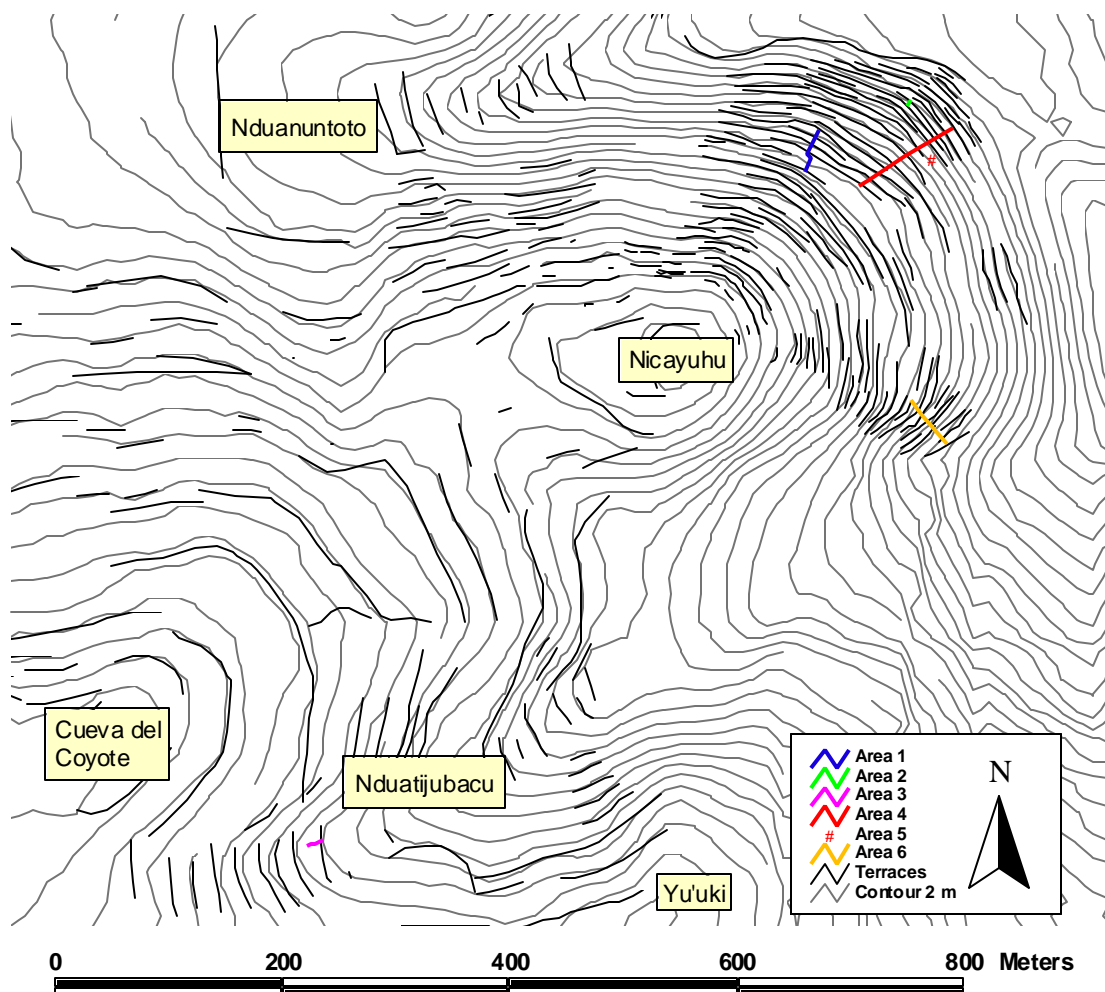


Figure 8.1 Excavation area locations throughout the site.

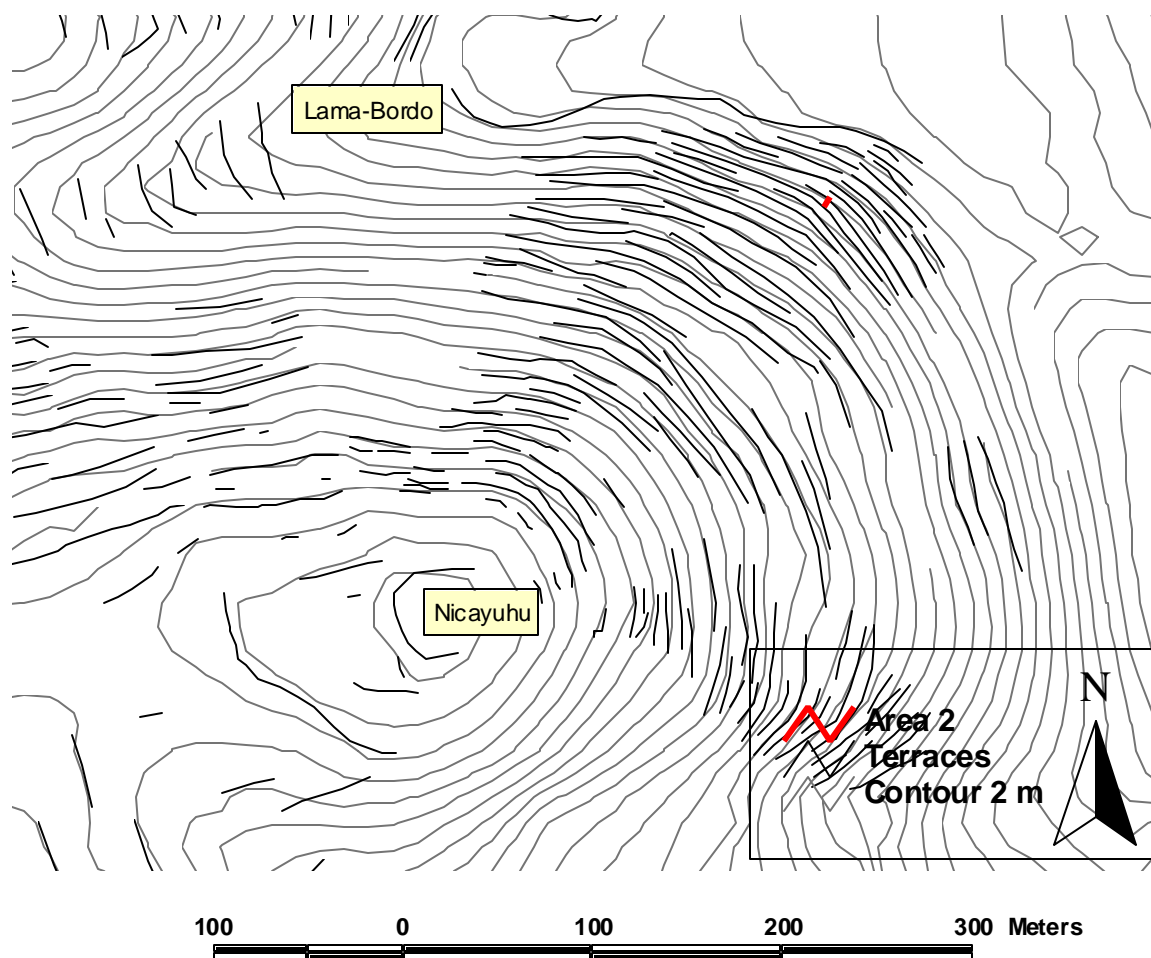


Figure 8.2 Excavation Area 2 location on northeast slope of *Nicayuhu*.

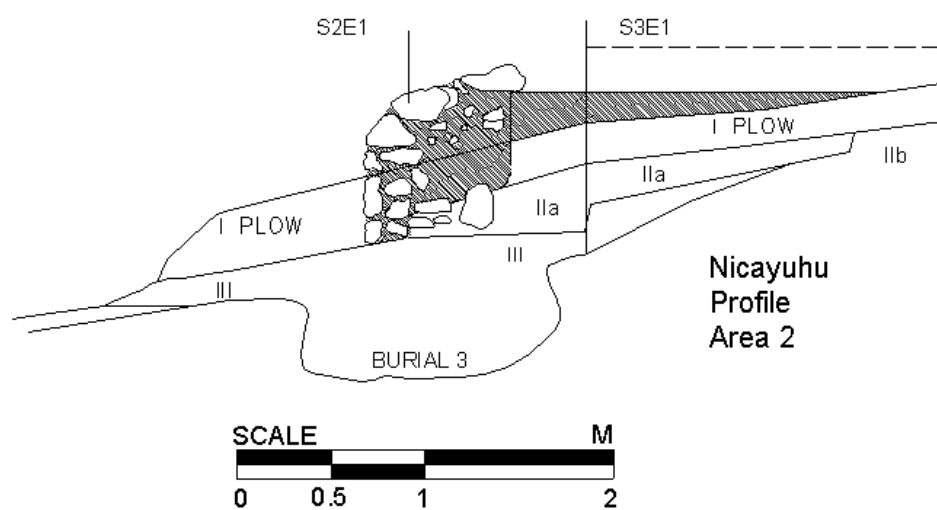


Figure 8.3 Composite profile of Area 2 excavation, shaded profile shows the terrace wall and terrace surface levels adjacent and slightly beyond the Area 2 trench.



Figure 8.4 Burial 3 when fully exposed.

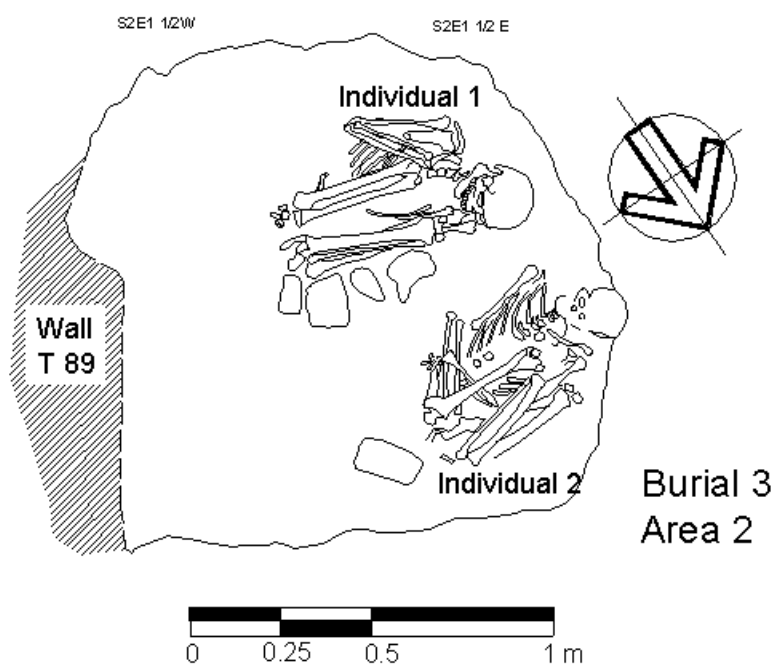


Figure 8.5 Plan view of Burial 3.

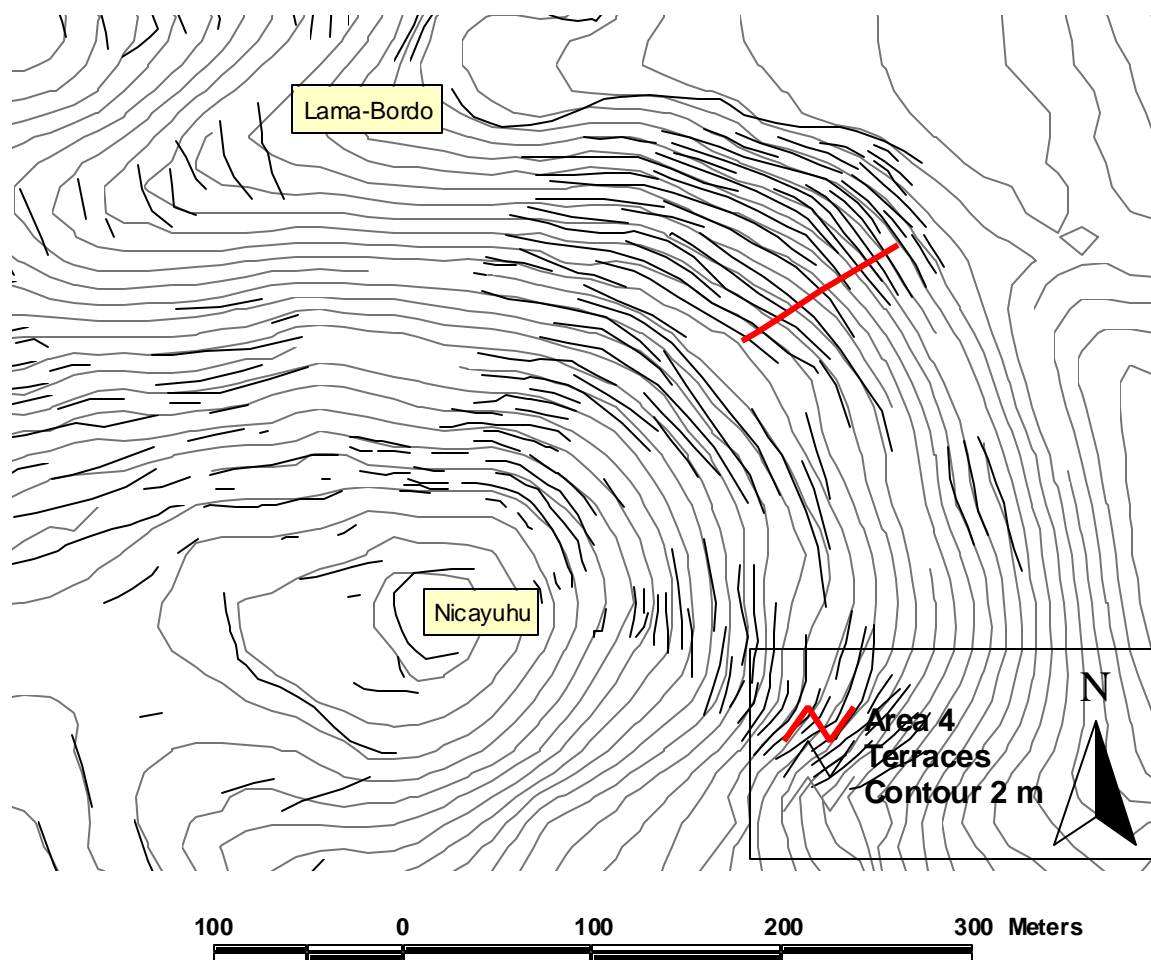


Figure 8.6 Location of Area 4 on northeast slope of *Nicayuhu*.

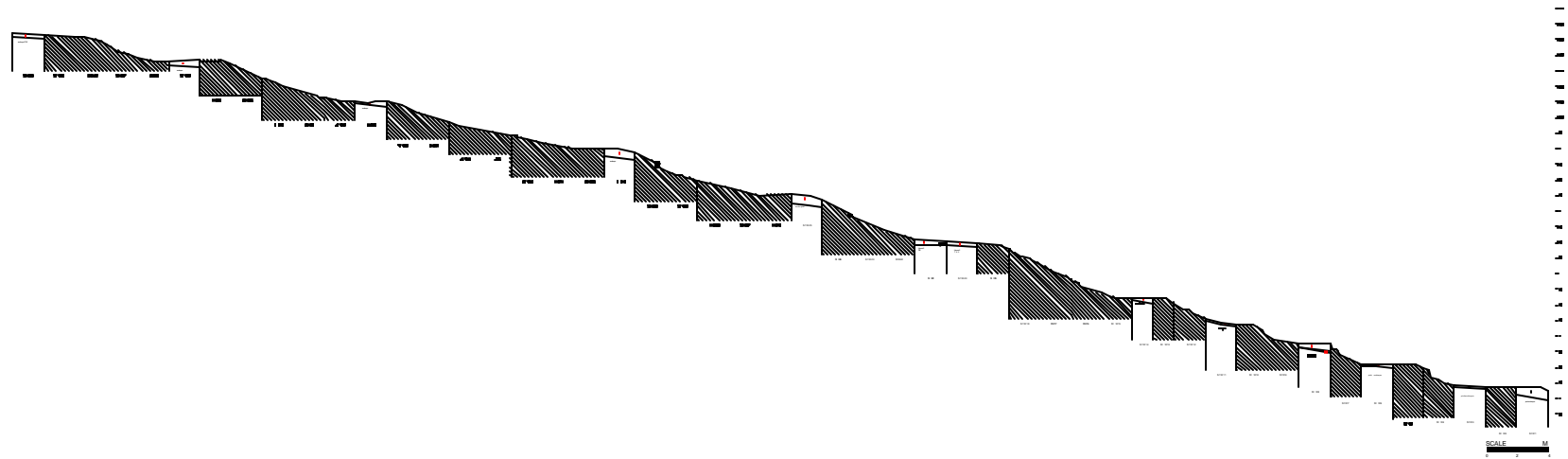


Figure 8.7 Profile of Area 4 excavations.

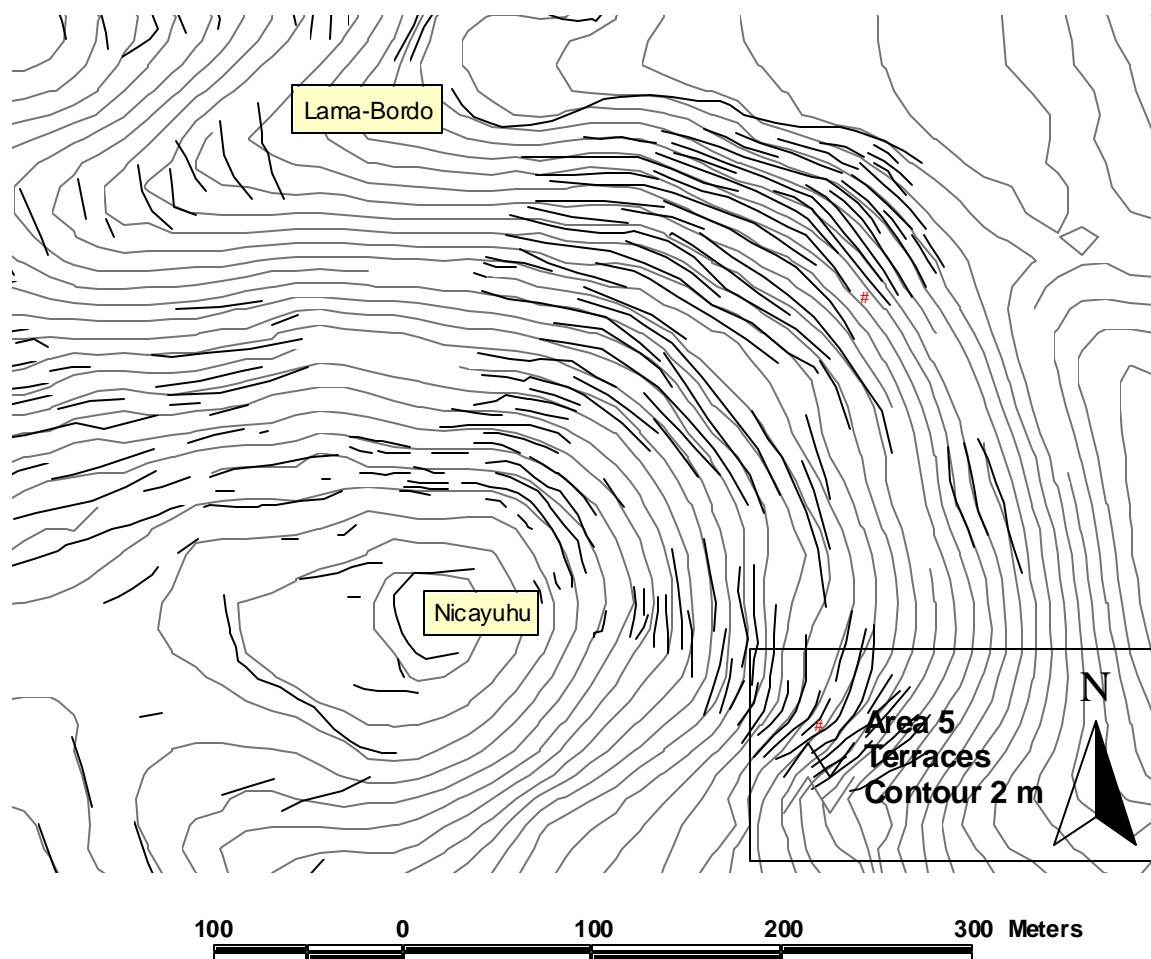


Figure 8.8 Location of Excavation Area 5 on northeast slope of *Nicayuhu*.



Figure 8.9 Exposed stone foundation in Area 5.

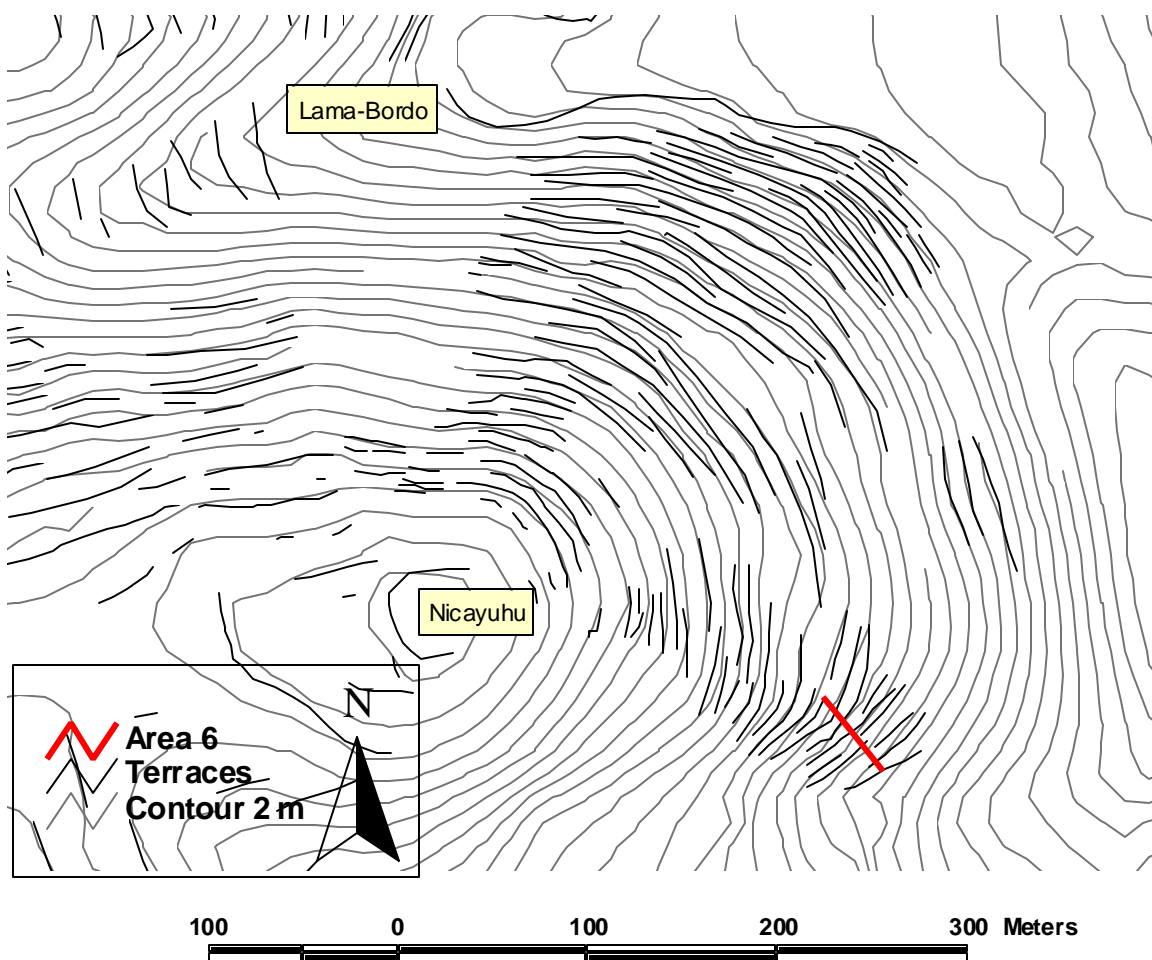


Figure 8.10 Location of Area 6 on south-southeast slope of *Nicayuhu*.



Figure 8.11 Exposed stucco floor and stone foundations found on Terrace 126 in Area 6 excavations.

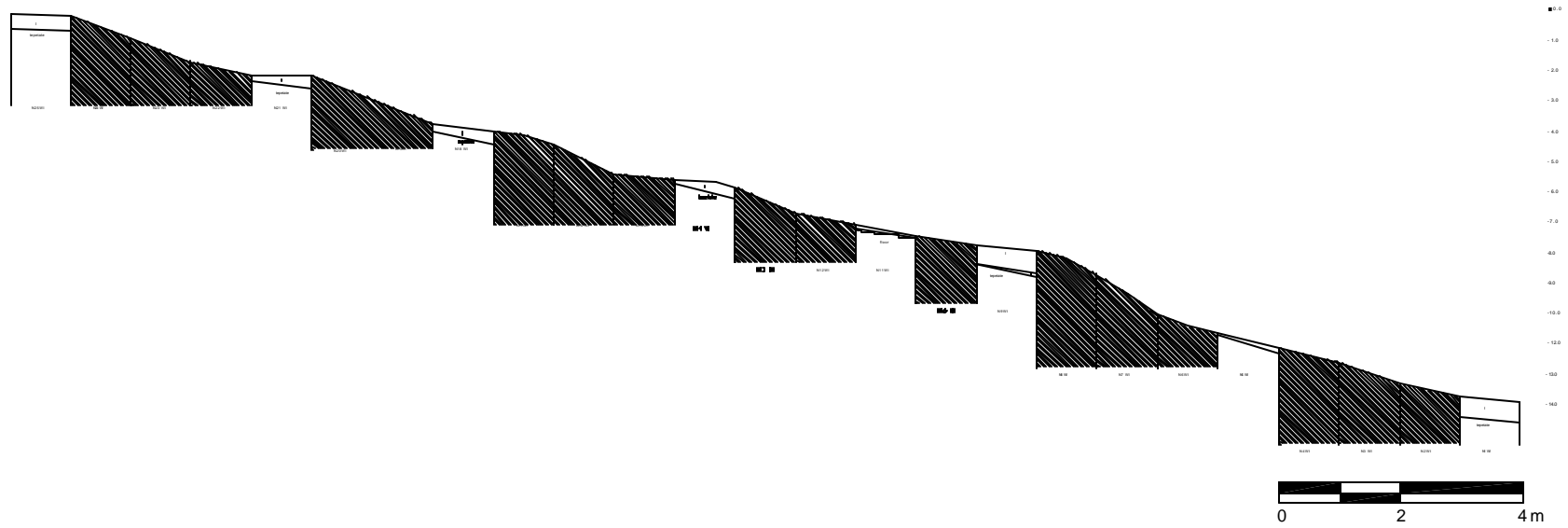


Figure 8.12 Profile of Area 6 excavations

CHAPTER 9

CONCLUSIONS

Models of Agricultural Intensification

In this study my primary goal was to investigate, through the case of the Postclassic Mixtec *cacicazgo*, whether agricultural intensification may function independently of state-level organization and involvement. Initially the emergence of intensive agricultural systems, for example irrigation, was thought to be the result of state power and intervention (Wittfogel 1957). After a closer look, researchers have learned that intensive agricultural systems may function by means of the labor of farming households alone and that systems of intensive production, even irrigation, can be found in societies with varied degrees of socio-political centralization (S. Fish and P. Fish 1990, 1994; Guillet 1987; Hunt 1972; Kirch 1994).

Recent anthropological studies had explored the organizational and labor capabilities of common farming households to create and operate systems of intensive agricultural production (Evans 1990; Netting 1993; Smith 1994). The results of this study not only provide a more complete picture of the social system known as the Mixtec *cacicazgo*, and it additionally provides of a case study where the independent farming household had a central and active role in the process of intensification.

The *Ñuu*, the Household, and the Mixtec *Cacicazgo*

The integration of data from regional and site levels (supplemented with ethnographic and ethnohistorical data) allows me to piece together a more complete picture of the Mixtec *cacicazgo* as it may be understood through the study of one of its

constituent parts, the *ñuu* (Terraciano 2001:102-107). By learning about the *ñuu*, we can more easily focus on the commoner households, and how their role in agricultural production supported Mixtec civilization and the socio-political organization that characterized Postclassic life in Mesoamerica.

My discussion of the Mixtec *cacicazgo* will move from the regional to the household levels and my understanding of the *ñuu*, in particular the *ñuu* of San Juan Teposcolula, is based on the archaeological and ethnographic data from the site of *Nicayuhu* and the study of the ethnohistorical record (Spores 1967, 1983b, 1984; Lind 2000). An essential conclusion is that ethnohistorical and archaeological information suggest that the Mixtec *cacicazgo* and the *ñuu* were at their very core divided and organized into household groups. In turn, these household groups were the main agricultural producers and this production may have been the result of community and household level socio-economic organization. Information on the common Mixtec households suggests that the agrarian smallholder pattern may have functioned as the organizing principle of intensive agricultural production in Postclassic Mixtec society.

In the past, ethnohistorical and codice studies provided a definition of the Mixtec *cacicazgo* where the rulership, ritual, warfare, and marriage alliance took central role. Now, through the integration of regional and site-specific archaeological data we are able to see the *cacicazgo* at a higher resolution. In this new definition we see the central importance of agriculture and domestic production in supporting not only the ‘famous traits of the *cacicazgo*’, but also the underlying system of social stratification. Being a Mixtec *cacicazgo* not only meant having a ruler and a territory, but participating in a regional system of production, trade, and cultural interaction. In what follows, I will describe in greater detail this refined understanding of the *cacicazgo* starting at the regional level.

Regional Insights

There is no question that regional settlement pattern data can provide important information on the nature and regional structure of Prehispanic societies (e.g. Kowalewski et al. 1989). In a similar fashion, analyses of the regional context of the Central Mixteca Alta during the Postclassic period (Balkansky et al. 2000; Pérez Rodríguez 2001; Stiver 2001; Chamblee 2000) demonstrate that distinct, clearly demarcated sites found away from other settlements were the exception. Instead, and in strong contrast to earlier time periods with more discrete site boundaries, Postclassic sites stretched over successive hilltops far into the countryside. In Ramos times, for example, we have distinct terraced hilltop or walled settlements located some distance away from the next settlement, sometimes a valley over. In the Postclassic, dispersed settlements were continuous or nearly so and punctuated with focal points of more densely populated terraced sites. *Nicayuhu* was one of the more populous focal points, or high-density nodes within the much larger Teposcolula Valley settlement system. On the regional level, low-level rural sites with little civic-ceremonial architecture dominated the settlement hierarchy. These settlement patterns correspond with ethnohistorical accounts that describe the Mixteca Alta as a densely populated, agriculturally rich region where most places were a *ñuu*, a settlement or community (Terraciano 2001:103).

When looking at *Nicayuhu* at a regional level, we see that it is just a part of that continuous residential occupation that extends across the entire Teposcolula Valley. I nonetheless describe the locality of San Juan as a distinct community or *ñuu* within the broader settlement system because the ethnohistorical record assures us that San Juan was a *sujeto* community, and thus a distinct *ñuu*, within the *cacicazgo* of Teposcolula. Beyond in the people's own recognition of San Juan as a distinct community, I find little in the regional settlement patterns to differentiate between where the *cabecera* or *yuhuitayu* ended and the *sujeto* or *ñuu* began.

Taking into consideration the fact that San Juan was a distinct locality, I looked at the local settlement patterns and the characteristics of the local sites and their surroundings to come to a conclusion about the nature of this specific community. From Stiver (2001) I learned that the sites found in San Juan were among the major population centers in the entire Teposcolula polity. In addition, San Juan's location as a gateway to the adjacent valleys and its water and agricultural resources made this community an important point for travel and agricultural production. Surely the San Juan community was an important economic and demographic component of the *cacicazgo* of Teposcolula.

At the Community Level

I learned from the settlement patterns in the locality and my first-hand knowledge from living in San Juan that this community was and can still be a highly productive agricultural town. The rich agricultural resources—sometimes scarce in the Mixteca—such as water and flat land, converge to create an environment that has invited human occupation since Formative times. The ancient and modern community of San Juan Teposcolula enjoys wide access to the northern edge of the Teposcolula valley. This in itself meant having more flat land than most Mixtec communities. However, to maximize agricultural production in the locality, a great deal of labor and capital was invested in creating large expanses of agricultural terraced lands. The combination of the local environment plus the human investment in terrace construction resulted in a strong agricultural economy that in Prehispanic times was able to support between 11,000-20,000 people (Borah and Cook 1960:53; Stiver 2001); a population that has subsequently not been reached in the region.

San Juan Teposcolula today is a distinct municipality that is part of the greater district of Teposcolula. San Juan Teposcolula has its own sixteenth-century church and

convent and has its own political apparatus. I believe that something similar to this may have been the case in Postclassic times. Throughout the entire Natividad settlement system in the San Juan locality, we find remains of modest yet still noticeable monumental architecture—1 to 3 mounds (approximately 15 x 13 m) on all the occupied hilltops. These constructions may be the remains of local temples or the homes of the local nobility and leaders. Beyond this local top-level of ritual or socio-political authority we have evidence of a large agriculturally productive population marked by large areas of Natividad residential occupation interspersed among features for intensive agricultural production. It is these main components of the Prehispanic Mixtec community—the agriculturally productive population and the intensive agricultural features they farmed—which were the focus of this study.

At the Site Level

Understanding the Postclassic Mixtec *cacicazgo* through study of the *ñuu* of San Juan Teposcolula follows from establishing a greater than expected population, which I argue was mostly composed of commoner households. The aim was to learn about the commoners and the agricultural terraces they farmed. The site-specific data generated by this study provides new information about the Postclassic commoner household and its role in intensive agricultural production, further refining our understanding of the *cacicazgo*.

The site of *Nicayuhu*, as insured from its regional context, was a common agricultural settlement and part of the *cacicazgo* of Teposcolula. As such, the site was surrounded with those things necessary for intensive agricultural production: land, water, and people. The agricultural lands in *Nicayuhu* were natural flat lands, the *lama-bordo*, and contour agricultural terraces built in the drainages between the terraced hills made

up the entire residential settlement. Dispersed among the terraces were residential sectors, where the average commoner in the San Juan community lived.

The house excavations revealed that most if not all *Nicayuhu* residents were probably commoners. Ethnohistorical sources describe Postclassic Mixtec society as being composed of mostly commoners, but in this commoner class we could find *tay situndayu* (servants, land-less farmers, and slaves); or *ñandahi* (land-owning free commoners that worked their own lands). Based on the house excavation data that shows that both houses had long, stable, and continuous residential occupations I argue that the house inhabitants were free land-owning commoners, part of the *ñandahi* commoner class, who had well-established rights over their house (*huahì*) and house lands (*ñuhu huahì*).

House artifact assemblage data also supports this argument. We found at both houses small yet still present quantities of luxury items such as obsidian blades, green stone pendants, *cacique* burnished, and Mixteca polychrome pottery. This suggests that the house inhabitants, although they were commoners, produced enough and were able to keep enough of their surplus to trade and obtain some luxury items through the well-developed Mixtec market system. The *Nicayuhu* house excavation data suggest that the average household in the Postclassic Mixtec community was composed of free land-owning farmers who had to pay some tribute but nonetheless were in charge of their own agricultural production, enough to be able to keep some surplus. The house inhabitants had well established tenure rights over their house and house lands sufficient to enable them to live in their house possibly for generations. The house and the house land was part of the family patrimony and as such the household did not hesitate in investing time, capital, and labor in its construction and maintenance.

Data from contour and *lama-bordo* terrace excavations provide additional insight into yet another aspect of the Postclassic Mixtec community: agricultural production. The

excavations revealed that terrace construction was an informal process that could be easily achieved with the pooling of household labor. Agricultural terrace walls were basically rock piles with a more formal rock wall façade built in strategic places where the natural run-off and erosion filled these features with soils. This new information suggests that commoners, as integral members of the Postclassic Mixtec community, may have built, farmed, and managed their own agricultural terraces. Through the very act of terrace construction, maintenance, and use, the agrarian smallholder household secured its usufruct rights over these highly productive agricultural lands, allowing the household to control its own agricultural production.

As I explained in chapter 3, the methods used to select the study site were to ensure that this study's findings are representative of the Postclassic *cacicazgo* as a whole. For this reason, I argue that the regional, community, and site-specific 'insights' just described are relevant to our understanding of the *cacicazgo*. Among these new 'insights' is the clear understanding that the *cacicazgo* is first and foremost an agrarian society. This society relied heavily on household labor and innovation to construct complex anthropogenic landscapes that still shape the Mixteca today. These landscapes were aimed at intensively producing not only to enrich the rulership, but also to ensure the continuation of the productive base, the peasantry, and the regional system of trade that has survived and still connects the Mixteca today.

Household Based Intensification and Social Complexity

The main argument of this study is that the house and terrace excavation data from *Nicayuhu* suggest that the average Postclassic Mixtec household was composed of free land-owning commoners whose role in the system of intensive agricultural production was as agrarian smallholders. As agrarian smallholders, the commoner household would have been in charge of constructing, maintaining, and farming their

own *lama-bordo* terrace lands. As is suggested in the ethnohistorical record, the agricultural goods obtained from the *lama-bordo* terrace would have been used to pay tribute, but surely some or most of this production was used to meet the household's needs; the remaining surplus would have allowed the household to obtain rarer luxury items that met the household's ideological but not physical needs.

The socio-economic standing of the *Nicayuhu* householders compares to that of Aztec period Yautepec terrace farmers (Smith 1994). In the case of Yautepec, Smith (1994) was the first to suggest that common terrace farmers may have been directly responsible for terrace use and construction, recognizing Netting's (1993) agrarian smallholder pattern as a useful paradigm to model the inner workings of Postclassic Mesoamerican intensive agriculture.

As I noted in chapter 1, the capabilities of the farming household to build, maintain, and produce in intensive agricultural systems have been noted in cases that range from terrace farming in Aztec period Morelos (Smith 1994) to rice paddy agriculture in Indonesia (Geertz 1963). However, it was Netting (1993) who ultimately recognized the importance of the agrarian smallholder not only as a socio-economic pattern but also an effective form of political organization. The smallholder's political effectiveness not only relies on the fact that it creates complex and highly productive anthropogenic landscapes, but also because it is able to withstand political fluctuations and cycles of warfare or expansion. This fact is corroborated when one looks at the Mixteca Alta. While codices and ethnohistorical documents pertain to change in political prominence through warfare, lawsuits, and alliance, the archaeological record shows a long-standing and rather unchanging pattern of dispersed residence associated with terrace agriculture.

While states, rulers, and empires come and go (e.g. Classic Maya or Chinese dynastic cycles, or short-lived empires such as the Inka and Aztec to name a few), it is

the productive base that works at the community and household level that keeps society alive or at least fed enough to prevail until the next period of political rise and fall. If we approach the study of social complexity by looking at the longevity of the most basic building blocks of society we see the central importance of productive householders in the development of complexity. It is when a society enjoys a degree of economic stability that it may focus on activities that meet needs beyond the physical. In the past it was thought that traits of 'high civilization', such as specialization, writing, ethno-science, or architecture, came about as intensification allowed societies to produce enough to have some free time and surplus to spare. This production and the new traits of 'high civilization' were thought to be the result of state emergence. However, if archaeological and ethnographic cases, such as that of the Mixtec *cacicazgo*, suggest that intensive agriculture may function outside of state-level involvement, we open the possibility to thinking that it may have been the stability of household production that could have enabled the emergence of intensification in the first place.

Smallholder Intensification and the Environment

I argue that the average commoner household in the *ñuu* of San Juan was an agrarian smallholder household. The next part of my argument is that the agrarian smallholder pattern may have been the organizing principle for intensive agricultural production in Postclassic Mixtec society. Netting argues that the agrarian smallholder pattern is an economically effective and environmentally sustainable mode of intensive agricultural production. He finds that the agrarian smallholders are caring and well-informed managers of their farmlands because they view them as a patrimony that should provide for future generations. They make decisions based on first-hand knowledge of their local environment and what is needed to make ends meet. Over the long term this translates to a social organization of agricultural production and

consumption that intensifies productivity while mitigating erosion and lessening its detrimental effects on the environment.

Regional settlement and agricultural terrace data shows that in the region there are still-standing agricultural terraces that were built at least since Postclassic times (500 years ago or more) and at the most since the eve of the urban revolution in the region (over 2000 years ago). Agricultural terracing was an ancient Mixtec innovation that has stood the test of time. Terracing in the Mixteca was a way to harness what would normally be an environmental problem, erosion, and convert it into an opportunity to increase agricultural production. *Lama-bordo* terracing was an innovative practice that made sense for the Mixtec environment. The inception of *lama-bordo* terracing may have originated from farmers' first-hand experience with the environment and with what was needed to feed a household in the Mesoamerican highlands.

Similar examples where a high level of ecological sophistication and ingenuity applied to agricultural intensification have been found in Indonesian rice terracing (Geertz 1963:12-37), or Aztec period chinampa agriculture (Brumfiel 1991; Palerm 1973; Parsons 1976, 1991; Rojas Rabiela 1991). Although the degree of intensification followed in the case of chinampa agriculture at the time of Aztec intervention may have not been sustainable in the long-term, their initial conception and use at a much smaller community scale was. What lies beyond speculation is that the particular method of intensification, the technique, was an ingenious technological achievement in its use of the local environment and social resources, which initially rely on the labor of household or cooperating household groups. These environmentally 'smart' intensification techniques appear to be the result of first-hand knowledge of the local environment.

After Spanish contact subsistence practices changed in Mesoamerica. New methods of production, and grazing animals were introduced. The Mixteca Alta would never be the same. Much of the Mixtec population died, and those who stayed alive had

to change how and where they lived. Dispersed settlement that sought proximity to water and terraces changed to nucleated settlement around European-style towns. For the first time, the Mixtec implemented subsistence practices that were not generated by the Mixtec farmer's first-hand knowledge of their environment. Instead farmers started to use subsistence strategies from outside societies who had developed in a different environment and who had very different cultural values. Indigenous knowledge about what were the best strategies to subsist in the Mixtec environment was put aside and instead emulation of Spanish life-ways resulted in the misuse and abandonment of terraces, overgrazing, and massive erosion. This tragic story is similar to that of Indonesia's agricultural involution (Geertz 1963).

The case of Postclassic Mixteca Alta joins other ethnographic case studies where subsistence practices that originate and are implemented through bottom-up decision making have diametrically different results when top-down decisions are made about very local issues of subsistence and sustainability. Bottom-up decisions based on first-hand knowledge of the environment resulted in agricultural practices that if not sustainable, were at least more environmentally sound and sustainable over the long term. Top-down implemented subsistence practices that did not originate in real experience with the particular environment resulted in errant land use practices that have only exacerbated erosion, environmental degradation, and poverty.

Limitations of this study

Since this is the first systematic study of non-noble residences and *lama-bordo* terraces, the interpretation of the results is limited by the scarcity of comparable data. The possible patterns identified in this study are not testable until additional non-noble Postclassic houses are excavated. My discussion on *lama-bordo* terrace construction is not definitive until additional *lama-bordo* excavations and dissecting profiles become

available. Stratigraphically, it was hard to associate artifact assemblages to particular structures and the statements I make about the nature of non-noble household activities are limited by the site's state of preservation. In addition, the ceramically defined 700-year long Postclassic period in the Mixteca leaves many questions unanswered about the contemporaneity of my results. Although I can argue that the excavated houses and *lama-bordo* terraces date to the Postclassic period, I am unable to make a definite statement on whether these houses and terraces were directly associated or were in use at the same time. In addition the ethnohistorical record does not relate how many fields a single house may have worked. For now, it is impossible to know how many terraces were associated to a single household and vice versa.

In my discussion of state versus household-organized terrace construction I only briefly mention the possibility that an intermediate level of socio-economic and labor organization could have functioned above the household and below the state levels. The Mixtec ethnohistorical record talks about the *siqui* as a middle social tier similar to a neighborhood through which household labor could have been organized and pooled to construct and maintain community landscape transforming projects such as terraces. Since I was unable to generate clear archaeological markers for this middle tier of labor and social organization in terms of terrace construction I decided to limit my discussion to the amount of labor organization required to construct terraces in the fashion shown by the terrace wall profiles. Although it is possible that state-level organization could have created the excavated *lama-bordo* terrace at Nicayuhu, the terrace profile and ethnographic information available suggest that the amount of labor required for its construction could be met by one or few cooperating households.

In this study I argue that state-level organization was not needed in the operation of intensive agricultural systems. Although based on this project's data I can argue that Mixtec intensification could have function at the hands of the independent agrarian

smallholders, I am unable to make a definitive statement on whether the state motivated or imposed the initial adoption of intensive agriculture. In the future, additional systematic study of agricultural terraces, terrace construction, and commoner households in primary state-level polities could provide information on the causes of intensification.

Future Directions

It is the environmental success of the indigenous Mixtec agricultural practices that also supports the idea that the agrarian smallholder pattern may have been an organizing principle of intensive agricultural production for a long time. Netting (1993) proposed that the agrarian smallholders could be highly effective creators and managers of sustainable agricultural practices. This apparently sustainable and environmentally brilliant cultural innovation of *lama-bordo* terracing is first detected in the region along with the first urban centers. I argue that *lama-bordo* terracing comes from household-level innovation and the wisdom of the agrarian smallholder. If *lama-bordo* terraces were built during the time of the Mixtec urban revolution, I expect agrarian smallholders to be present as well. To test this proposition I must conduct a similar study earlier in the Mixtec Prehispanic sequence, at the eve of Mixtec urbanization when large terracing projects first transformed the Mixtec landscape. The aim is to see if this initial transformation occurred through the work and innovation of hundreds of generations of agrarian smallholders.

REFERENCES

DOCUMENTARY SOURCES

AGN (Archivo General de la Nación), México D.F.

Indios vol. 4, exp 933, foja 249 vta. 1590

Mercedes, vol. 5, exp. 1, 1560

Mercedes, vol. 5, exp. 2, 1560

Mercedes vol. 12 f. 81 1584

Mercedes vol. 15 f. 205 1590

Tierras vol. 24, esp. 6

Codex Vindobonensis

1963 Codex Vindobonensis Mexicanus I. Commentary by O. Adelhofer. Graz, Austria: Akademischhe Druck – u. Verlaganstalt.

REFERENCES CITED

Abrams, E. M.

1994 *How the Maya Built Their World: Energetics and Ancient Architecture*. University of Texas Press, Austin.

Acosta, J. R., and J. Romero

1992 *Exploraciones en Monte Negro, Oaxaca: 1937-1938, 1938-1939 y 1939-1940*. Instituto Nacional de Antropología e Historia, México.

Allison, P. M. (editor)

1999 *The Archaeology of Household Activities*. Routledge, London.

Alvarado, Fray F. de

1962 (1593) *Vocabulario en Lengua Mixteca*. Instituto Nacional Indigenista e Instituto Nacional de Antropología e Historia S. E. P., México, D. F.

Alvarez, L. R.

1998 *Geografía General del Estado de Oaxaca*. 3rd ed. Carteles Editores, Oaxaca.

Arellanes Meixueiro, A.

1996 *Geografía y Ecología de Oaxaca*. Carteles Editores, Oaxaca.

Ashmore, W., and R. Wilk

1988 Household and Community in the Mesoamerican Past. In *Household and Community in the Mesoamerican Past*, edited by R. Wilk, and W. Ashmore, pp. 1-27. University of New Mexico Press, Albuquerque.

Balkansky, A. K.

- 1998 Origins and Collapse of Complex Societies in Oaxaca (Mexico): Evaluating the Era from 1965 to the Present. *Journal of World Prehistory* 12(4):451-493.

Balkansky, A. K., G. M. Feinman, and L. M. Nicholas

- 1997 Pottery Kilns in Ancient Ejutla, Oaxaca, Mexico. *Journal of Field Archaeology* 24:139-160.

Balkansky, A. K., S. A. Kowalewski, V. Pérez Rodríguez, T. J. Pluckhahn, C. A. Smith, L. R. Stiver, D. Beliaev, J. F. Chamblee, V. Y. Heredia Espinoza, R. Santos Pérez.

- 2000 Archaeological Survey in the Mixteca Alta of Oaxaca, Mexico. *Journal of Field Archaeology* 27(4):365-389.

Beach, T., and N. P. Dunning

- 1995 Ancient Maya terracing and modern conservation in the Petén rain forest of Guatemala. *Journal of Soil and Water Conservation* 50(2):138-145.
1997 An Ancient Maya Reservoir and Dam at Tamarindito, El Petén, Guatemala. *Latin American Antiquity* 8(1):20-29.

Bender, D. R.

- 1967 A Refinement of the Concept of Household: Families, Co-residence, and Domestic Functions. *American Anthropologist* 69:493-504.

Bernal, I.

- 1949 Exploraciones en Coixtlahuaca, Oax., *Revista Mexicana de Estudios Antropológicos* 10:5-76.

Blanton, R. E.

- 1978 *Monte Albán: settlement patterns at the ancient Zapotec capital*. Academic Press, New York.
1994 *Houses and Households a Comparative Study*. Interdisciplinary Contributions to Archaeology. Plenum Press, New York.

Blanton, R. E., G. M. Feinman, S. A. Kowalewski, and L. M. Nicholas

- 1999 *Ancient Oaxaca. Case Studies in Early Societies*. Cambridge University Press, Cambridge.

Blanton, R. E., S. A. Kowalewski, G. Feinman, and J. Appel

- 1982 *Monte Alban's Hinterland, Part I: The Prehispanic Settlement Patterns of the Central and Southern Parts of the Valley of Oaxaca, Mexico*. Memoirs of the Museum of Anthropology University of Michigan Number 15. University of Michigan, Ann Arbor.

Borah, W. and S. F. Cook

- 1960 *The Population of Central Mexico in 1548: An Analysis of the Suma de visitas de pueblos*. University of California Press, Berkeley.

Boserup, E.

- 1965 *The Conditions of Agricultural Growth*. Aldine, Chicago.

Brumfiel, E. M.

- 1986 The Division of Labor at Xico: The Chipped Stone Industry. In *Research in Economic Anthropology, supplement 2*, edited by B. Isaac, pp. 245-279. JAI Press, Greenwich, Conn.
- 1991 Agricultural Development and Class Stratification in the Southern Valley of Mexico. In *Land and politics in the Valley of Mexico: a two-thousand year perspective*, edited by H. R. Harvey, pp. 43-61. University of New Mexico Press, Albuquerque.

Brundage, B. C.

- 1967 *Lords of Cuzco: A history and description of the Inca people in their final days*. University of Oklahoma Press, Norman.

Burgoa, Fray F. de

- 1989 (1671) *Geográfica Descripción*. Editorial Porrúa, México D.F.

Burton, S. S.

- 1987 Obsidian Blade Manufacturing Debris on Terrace 37. In *Ancient Chalcatzingo*, edited by D. C. Grove, pp. 321-328. University of Texas Press, Austin.

Byland, B. E.

- 1980 *Political and Economic Evolution in the Tamazulapan Valley, Mixteca Alta, Mexico: A Regional Approach*. Ph.D. dissertation, Department of Anthropology, Pennsylvania State University, University Park. University Microfilms, Ann Arbor.

Byland, B. E. and J. Pohl

- 1994 *The Archaeology of the Mixtec Codices In the Realm of 8 Deer*. University of Oklahoma Press, Norman and London.

Calnek, E. E.

- 1972 Settlement Pattern and Chinampa Agriculture at Tenochtitlan. *American Antiquity* 37(1):104-115.

Caso, A.

- 1938 *Exploraciones en Oaxaca Quinta y Sexta Temporadas 1936-1937* 34. Instituto Panamericano de Geografía e Historia, Tacubaya D.F. México.
- 1942 *Culturas Zapoteca y Mixteca*. Ediciones Encuadernables El Nacional, México.
- 1956 La Cruz de Topiltepec, Tepozcolula, Oax. In *Estudios Antropológicos publicados en homenaje al doctor Manuel Gamio*, pp. 171-182. UNAM Sociedad Mexicana de Antropología Dirección General de Publicaciones, México.
- 1962 The Mixtec and Zapotec Cultures: The Mixtecs. *Boletín de estudios oaxaqueños* 22.
- 1967b La época de los señoríos independientes. *Revista Mexicana de Estudios Antropológicos* XX:147-152.
- 1977 *Reyes y Reinos de la Mixteca*. Fondo de Cultura Económica, México.
- 1992 *Reyes y Reinos de la Mixteca*. Fondo de Cultura Económica, México.

Caso, A., I. Bernal, and J. R. Acosta

- 1967 *La Cerámica de Monte Albán*. Memorias del Instituto Nacional de Antropología e Historia XIII. Instituto Nacional de Antropología e Historia, México.

- Chamblee, J. F.
2000 *The Classic-Postclassic Transition in the Central Mixteca Alta, Oaxaca*. Master's thesis, Department of Anthropology, University of Arizona, Tucson.
- Charlton, T. H., and D. L. Nichols
1998 The City-State Concept: Development and Applications. In *The Archaeology of City-States Cross-Cultural Approaches*, edited by D. L. Nichols, and T. H. Charlton, pp. 1-14. Smithsonian Institution Press, Washington, D. C.
- Clark, J. E.
1986 From Mountains to Molehills: A Critical Review of Teotihuacan's Obsidian Industry. In *Research in Economic Anthropology, supplement 2*, edited by B. Isaac, pp. 23-74. JAI Press, Greenwich, Conn.
- Cook, N. D.
1998 *Born to Die: Disease and New World Conquests, 1492-1650*. New Approaches to the Americas. Cambridge University Press, Cambridge.
- Cook, S. F. and W. Borah
1968 *The Population of the Mixteca Alta 1520-1960*. University of California Press, Berkeley.
- Dahlgren, B.
1963 *La Mixteca: su cultura e historia prehispánicas*. UNAM, México.
1990 *La Grana Cochinilla*. Universidad Nacional Autónoma de México, México.
- D'Altroy, T. N.
1994 Public and Private Economy in the Inka Empire. In *The Economic Anthropology of the State*, edited by E. M. Brumfiel, pp. 169-222. Monographs in Economic Anthropology No. 11. University Press of America, Lanham, MD.
- Davies, N.
1995 *The Incas*. University Press of Colorado, Niwot.
- Denevan, W., K. Mathewson, and G. Knapp (editor)
1987 *Prehistoric Agricultural Fields in the Andean Region*. British Archaeological Reports International Series 359(i), Oxford.
- Denevan, W. M.
2001 *Cultivated Landscapes of Native Amazonia and the Andes*. Oxford University Press, Oxford.
- Drennan, R. D.
1988 Household Location and Compact Versus Dispersed Settlement in Prehispanic Mesoamerica. In *Household and Community in the Mesoamerican Past*, edited by R. R. Wilk, and W. Ashmore, pp. 273-293. University of New Mexico Press, Albuquerque.
- Dunning, N. P., and T. Beach
1994 Soil Erosion, Slope Management, and Ancient Terracing in the Maya Lowlands. *Latin American Antiquity* 5(1):51-69.

- Erickson, C. L.
 1994 Methodological Considerations in the Study of Ancient Andean Field Systems. In *The Archaeology of Garden and Field*, edited by N. F. Miller, and K. L. Gleason, pp. 111-152. University of Pennsylvania Press, Philadelphia.
- Evans, S. T.
 1990 The Productivity of Maguey Terrace Agriculture in Central Mexico During the Aztec Period. *Latin American Antiquity* 1(2):117-132.
- Fedick, S. L.
 1989 The Economics of Agricultural Land Use and Settlement in the Upper Belize Valley. In *Research in Economic Anthropology Supplement 4. Research Annual Prehistoric Maya Economies of Belize*, edited by P. A. McAnany, and B. L. Isaac, pp. 215-253. JAI Press, Greenwich.
- Feinman, G. M., and L. M. Nicholas
 2001 Excavations at El Palmillo: A Hilltop Terrace Site in Oaxaca, Mexico. In *The Field* (March-April):2-5.
- Feinman, G. M., L. M. Nicholas, and H. R. Haines
 2002 Houses on a Hill: Classic Period Life at El Palmillo, Oaxaca, Mexico. *Latin American Antiquity* 13:251-277.
- Feinman, G. M., L. M. Nicholas, and W. Middleton
 1993 Craft Activities at the Prehispanic Ejutla Site, Oaxaca, Mexico. *Mexicon* 15:33-41.
 2001 Informe preliminar del proyecto "El Palmillo": una perspectiva doméstica durante la época clásica en el Valle de Oaxaca. Temporada 2001. Informe preliminar técnico al Instituto Nacional de Antropología e Historia, Centro Oaxaca.
- Fish, S. K. and P. R. Fish
 1990 An Archaeological Assessment of Ecosystems in the Tucson Basin of Southern Arizona. In *The Ecosystem Approach in Anthropology From Concept to Practice*, edited by E. F. Moran, pp. 159-187. University of Michigan Press, Ann Arbor.
- Flannery, K. V. (editor)
 1976 *The Early Mesoamerican Village*. Academic Press, New York.
- Flannery, K. V.
 1983a Precolumbian Farming in the Valleys of Oaxaca, Nochixtlán, Tehuacán, and Cuicatlán: A Comparative Study. In *The Cloud People: Divergent Evolution of the Zapotec and Mixtec Civilizations*, edited by K. V. Flannery, and J. Marcus, pp. 323-339. Academic Press, San Diego.
 1983b Monte Negro: A Reinterpretation. In *The Cloud People: Divergent Evolution of the Zapotec and Mixtec Civilizations*, edited by K. V. Flannery, and Joyce Marcus, pp. 99-104. Academic Press, New York.
- Gaxiola, M.
 1984 *Huamelulpan: un centro urbano de la Mixteca Alta*. Colección Científica. INAH, México.

- Geertz, C.
1963 *Agricultural Involution: The Process of Ecological Change in Indonesia*. University of California Press, Berkeley.
- Gibson, C.
1964 *The Aztec Under Spanish Rule: A History of the Indians of the Valley of Mexico 1519-1810*. Stanford University Press, Stanford.
- Gillespie, S. D.
2000 Rethinking Ancient Maya Social Organization: Replacing "Lineage" with "House". *American Anthropologist* 102(3):467-484.
- Gruzinski, S.
1993 *The Conquest of Mexico. The Incorporation of Indian Societies into the Western World, 16th-18th Centuries*. Translated by E. Corrigan. Polity Press, Cambridge.
- Guillet, D.
1987 Terracing and Irrigation in the Peruvian Highlands. *Current Anthropology* 28(4):409-430.
- Guzman, E.
1934 *Exploración arqueológica en la Mixteca Alta*. Secretaria de Educación Pública. Publicaciones del Museo Nacional de México, México.
- Healan, D. M.
1989 House, Household, and Neighborhood in a Postclassic City. In *Households and Communities*, edited by S. MacEachern, D.J.W. Archer, and R. D. Garvin, pp. 416-429. Proceedings of the 21st. Annual Chacmool Conference. University of Calgary Archaeology Association, Calgary.
- Hill, J. N.
1968 Broken K Pueblo: Patterns of Form and Function. In *New Perspectives in Archaeology*, edited by S. R. Binford, L. R. Binford, pp. 103-142. Aldine Publishing Company.
- Hodge, M. G., and M. E. Smith (editor)
1994 *Economies and Politics in the Aztec Realm*. Institute for Mesoamerican Studies, Albany.
- Hodge, M. G.
1984 *Aztec city-states*. Museum of Anthropology Memoirs 18. University of Michigan, Ann Arbor.
- Hunt, E.
1972 Irrigation and the Socio-Political Organization of Cuicatec *Cacicazgos*. In *The Prehistory of the Tehuacán Valley Chronology and Irrigation*, edited by F. Johnson, pp. 162-259. vol. Four. University of Texas Press, Austin.
- Johnson, A. W., and T. Earle
2000 *The Evolution of Human Societies From Foraging Group to Agrarian State*. Second ed. Stanford University Press, Stanford.

Karttunen, F., and J. Lockhart

- 1976 *Nahuatl in the Middle Years, Language Contact Phenomena in Texts of the Colonial Period*. University of California Publications in Linguistics 85. University of California Press, Berkeley.

Kirch, P. V.

- 1994 *The Wet and the Dry: Irrigation and Agricultural Intensification in Polynesia*. University of Chicago Press, Chicago.

Kirchhoff, P.

- 1943 Mesoamerica, sus límites geográficos, composición étnica y caracteres culturales. *Acta Americana* 1:92-107.

Kirkby, M.

- 1972 *The Physical Environment of the Nochixtlán Valley, Oaxaca*. Vanderbilt University Publications in Anthropology 2. Vanderbilt University, Nashville.

Kolata, A. L.

- 1986 The Agricultural Foundations of the Tiwanaku State: A View from the Heartland. *American Antiquity* 51(4):748-762.
1991 The Technology and Organization of Agricultural Production in the Tiwanaku State. *Latin American Antiquity* 2(2):99-125.

Kowalewski, S. A., G. M. Feinman, L. Finsten, R. E. Blanton, and L. M. Nicholas

- 1989 *Monte Alban's Hinterland, Part II Prehispanic Settlement Patterns in the Tlacolula, Etla, and Ocotlán, The Valley of Oaxaca, Mexico*. Memoirs of the Museum of Anthropology University of Michigan Number 23. University of Michigan, Ann Arbor.

Kowalewski, S. A., A. K. Balkansky, D. Beliaev, J. Chamblee, V. Heredia, V. Pérez Rodríguez, T. Pluckhahn, Roberto Santos Pérez, C. A. Smith, L. R. Stiver.

- 1999 Informe técnico final. Recorrido regional en la Mixteca Alta, Oaxaca. Manuscript on file. Instituto Nacional de Antropología e Historia, Centro Regional de Oaxaca, México.

Lind, M. D.

- 1977 *Mixtec Kingdoms in the Nochixtlán Valley: a Preconquest to Postconquest Archeological Perspective*. Ph.D., University of Arizona.
1979 *Postclassic and Early Colonial Mixtec Houses in the Nochixtlán Valley, Oaxaca*. Publications in Anthropology 23. Vanderbilt University, Nashville.
1987 *The Sociocultural Dimensions of Mixtec Ceramics*. Publications in Anthropology 33. Vanderbilt University, Nashville.
2000 Mixtec City-States and Mixtec City-State Culture. In *A Comparative Study of Thirty City-State Cultures*, edited by M. H. Hansen, pp. 567-580. The Royal Danish Academy of Sciences and Letters, Copenhagen.
2001 Lambityeco and the Xoo Phase (CA. A.D. 600-800): The Elite Residences of Mound 195. In *Memoria de la Primera Mesa Redonda de Monte Alban: Procesos de cambio y conceptualización del tiempo*, edited by N. M. Robles García, pp. 112-127. CONACULTA INAH, Mexico D. F.

Lockhart, J.

- 1991 *Nahuas and Spaniards Postconquest Central Mexican History and Philology*. Nahuatl Studies Series Number 3. Stanford University Press, Stanford.
- 1992 *The Nahuas After the Conquest. A Social and Cultural History of the Indians of Central Mexico, Sixteenth Through Eighteenth Centuries*. Stanford University Press, Stanford.

Malpass, M. A.

- 1987 Prehistoric Agricultural Terracing at Chijra in the Colca Valley, Peru: Preliminary Report II. In *Prehispanic Agricultural Fields in the Andean Region*, edited by W. M. Denevan, K. Mathewson, and G. Knapp, pp. 45-66. BAR International Series 359(i), Oxford.

McAnany, P.

- 1995 *Living with the Ancestors: Kinship and Kingship in the Ancient Maya Society*. University of Texas Press, Austin.

Misner, E. J.

- 1993 *The Stone Tools of Monte Alban: Surface-Collected Lithics from a Prehistoric Urban Context*. Ph. D., University of Georgia.

Monaghan, J.

- 1994 Irrigation and Ecological Complementarity in Mixtec *Cacicazgos*. In *Caciques and Their People A Volume in Honor of Ronald Spores*, edited by J. Marcus, and J. F. Zeitlin, pp. 143-161. Anthropological Papers. vol. 89. Museum of Anthropology University of Michigan, Ann Arbor.

Morrison, K. D.

- 1994 The Intensification of Production: Archaeological Approaches. *Journal of Archaeological Method and Theory* 1(2):111-159.
- 1996 Typological Schemes and Agricultural Change: Beyond Boserup in Precolonial South India. *Current Anthropology* 37(4):583-608.

Moseley, M. E.

- 1992 *The Incas and Their Ancestors: The Archaeology of Peru*. Thames and Hudson, London.

Netting, R. M.

- 1990 Population, permanent agriculture, and polities: unpacking the evolutionary portmanteau. In *The Evolution of Political Systems Sociopolitics in Small-Scale Sedentary Societies*, edited by S. Upham, pp. 21-61. Cambridge University Press, Cambridge.
- 1993 *Smallholders, Householders: Farm Families and the Ecology of Intensive, Sustainable Agriculture*. Stanford University Press, Stanford.

Nieto Calleja, R., and F. Lopez Aguilar

- 1990 Los Contextos Arqueológicos en Yacimientos de Obsidiana. In *Nuevos Enfoques en el Estudio de la Lítica*, edited by M. d. I. D. Soto de Arechavaleta, pp. 177-214. UNAM, México D.F.

Padró, J.

2002 *La industria del hueso trabajado en Teotihuacan*. Doctoral, UNAM.

Palerm, A.

1955 The Agricultural Basis for Urban Civilization in Mesoamerica. In *Irrigation Civilizations: A Comparative Study*, edited by J. H. Steward. Social Science Monographs I. Pan American Union, Washington D. C.

1966 The Agricultural Basis of Urban Civilization in Mesoamerica. In *Ancient Mesoamerica Selected Readings*, edited by J. A. Graham, pp. 60-74. Peek Publications, Palo Alto, CA.

1972 *Agricultura y sociedad en Mesoamérica* No. 55. Sep-setentas, México.

1973 *Obras hidráulicas prehispánicas en el sistema lacustre del Valle de México*. Seminario de Etnohistoria del Valle de México. INAH Centro de Investigaciones Superiores, México.

Palerm, A., and E. Wolf

1957 Ecological Potential and Cultural Development in Mesoamerica. In *Studies in Human Ecology*. Social Science Monographs III. Pan American Union, Washington D. C.

1961 La agricultura y el desarrollo de la civilización en Mesoamerica. *Revista Interamericana de Ciencias Sociales Segunda Época* 1(2).

Parsons, J. R.

1976 The Role of Chinampa Agriculture in the Food Supply of Aztec Tenochtitlan. In *Cultural change and continuity: essays in honor of James Bennett Griffin*, edited by C. Cleland, pp. 233-257. Academic Press, New York..

1991 Political Implications of Prehispanic Chinampa Agriculture in the Valley of Mexico. In *Lands and politics in the Valley of Mexico: a two-thousand year perspective*, edited by H. R. Harvey, pp. 17-42. University of New Mexico Press, Albuquerque.

Parsons, J. R., Keith W. Kintigh, Susan A. Gregg

1983 *Archaeological Settlement Pattern Data from the Chalco, Xochimilco, Ixtapalapa, Texcoco and Zumpango Regions, Mexico*. Museum of Anthropology, The University of Michigan Technical Reports Number 14 Research Reports in Archaeology Contribution 9. University of Michigan, Ann Arbor.

Pastor, R.

1987 *Campesinos y reformas: la mixteca, 1700-1856*. Colegio de México, Centro de Estudios Históricos, México, D.F.

Pastrana Cruz, R. A.

1990 Producción de Instrumentos en Obsidiana División del Trabajo. In *Nuevos Enfoques en el Estudio de la Lítica*, edited by M. d. I. D. Soto de Arechavaleta, pp. 243-296. Universidad Nacional Autónoma de México, México D.F.

Pérez Rodríguez, V.

2001 Achiutla and Yanhuitlán: history and configuration of two *cacicazgos*. Paper presented at the Society for American Archaeology Conference, New Orleans.

- Plunket, P. S.
1983 *An Intensive Survey in the Yucuita Sector of the Nochixtlán Valley, Oaxaca, Mexico*. Ph.D., Tulane University.
- Price, T. J.
1988 *Investigation of Agricultural Features at Two Rural Late Postclassic Sites in Western Morelos, Mexico*. M.A., University of Georgia.
- Redmond, E. M. and C. S. Spencer
1994 The *Cacicazgo*: An Indigenous Design. In *Caciques and Their People A Volume in Honor of Ronald Spores*, edited by J. Marcus, and J. F. Zeitlin, pp. 189-225. Anthropological Papers. vol. 89. Museum of Anthropology University of Michigan, Ann Arbor.
- Robles García, N. M.
1981 *Unidades domésticas del preclásico superior en la Mixteca Alta*. Tesis Licenciatura, ENAH.
- Rojas, T.
1988 *La siembra del ayer. La Agricultura indígena del Siglo XVI*. SEP/CIESAS, México D.F.
- Rojas Rabiela, T.
1991 Ecological and Agricultural Changes in the Chinampas of Xochimilco-Chalco. In *Land and Politics in the Valley of Mexico: A Two Thousand Year Perspective*, edited by H. R. Harvey, pp. 275-290. University of New Mexico Press, Albuquerque.
- Romero Frizzi, M. d. I. A.
1990 *Economía y vida de los españoles en la Mixteca Alta: 1519-1720*. First ed. Colección Regiones de México. Instituto Nacional de Antropología e Historia, México D.F.
- Sahagún, B. d.
1981 *Historia General de las Cosas de Nueva España [1569]*. Biblioteca Porrúa 8. Editorial Porrúa, S. A., México D. F.
- Sanders, W. T., J. R. Parsons, and R. S. Santley
1979 *The Basin of Mexico Ecological Processes in the Evolution of a Civilization*. Academic Press, New York.
- Sepúlveda y Herrera, M. T.
1999 *Procesos por idolatría al cacique, gobernadores y sacerdotes de Yanhuatlán 1544-1546*. Serie etnohistoria. Instituto Nacional de Antropología e Historia, México.
- Silverblatt, I.
1987 *Moon, Sun, and Witches: Gender Ideologies and Class in Inca and Colonial Peru*. Princeton University Press, Princeton.

- Smith, M. E.
 1973 *Picture Writing from Ancient Southern Mexico Mixtec Place Signs and Maps*. University of Oklahoma Press, Norman.
- Smith, M. E., and T. J. Price
 1994 Aztec-Period Agricultural Terraces in Morelos, Mexico: Evidence for Household-Level Agricultural Intensification. *Journal of Field Archaeology* 21:169-179.
- Smith, M. E.
 1985 Household Possessions and Wealth in Agrarian States: Implications for Archaeology. *Journal of Anthropological Archaeology* 6:297-335
 1994 Economies and Politics in Aztec-Period Morelos: Ethnohistoric Overview. In *Economies and Politics in the Aztec Realm*, edited by M. G. Hodge, and M. E. Smith. Studies on Culture and Society. vol. 6. Institute for Mesoamerican Studies, Albany.
- Smith, M. E., C. H. Smith, and L. Montiel
 1999 Excavations of Aztec urban houses at Yautepec, Mexico. *Latin American Antiquity* 10(2):133-150.
- Soto de Arechavaleta, M. de los Dolores
 1990 Áreas de actividad en un taller de manufactura de implementos de piedra tallada. In *Nuevos Enfoques en el Estudio de la Lítica*, edited by M. d. I. D. Soto de Arechavaleta, pp. 215-242. Universidad Nacional Autónoma de México, México D.F.
- Spencer, C. S., and E. M. Redmond.
 1997 Archaeology of the Cañada de Cuicatlán, Oaxaca. Anthropological Papers, no. 80. New York: American Museum of Natural History.
- Spores, R.
 1965 The Zapotec and Mixtec at Spanish Contact. In *The Archaeology of Southern Mesoamerica. Handbook of Middle American Indians* 3, part 2, edited by G. R. Willey, 962-987. University of Texas Press, Austin.
 1967 *The Mixtec Kings and Their People*. University of Oklahoma Press.
 1969 Settlement, Farming Technology, and Environment in the Nochixtlán Valley. *Science* 166(3905):557-569.
 1972 *An Archaeological Settlement Survey of the Nochixtlán Valley, Oaxaca*, Nashville.
 1974 Marital Alliance in the Political Integration of Mixtec Kingdoms. *American Anthropologist* 76:297-311.
 1983a Postclassic Mixtec Kingdoms: Ethnohistoric and Archaeological Evidence. In *The Cloud People: Divergent Evolution of the Zapotec and Mixtec Civilizations*, edited by K. V. Flannery, and J. Marcus, pp. 227-237. Academic Press, New York.
 1983b The Origin and Evolution of the Mixtec System of Social Stratification. In *The Cloud People: Divergent Evolution of the Zapotec and Mixtec Civilizations*, edited by K. V. Flannery, and J. Marcus, pp. 255-259. Academic Press, New York.
 1984 *The Mixtec in Ancient and Colonial Times*. University of Oklahoma Press, Norman.

- 1993 Tututepec: A Postclassic-Period Mixtec Conquest State. *Ancient Mesoamerica* 4:167-174.

Stiver, L.

- 2001 *Prehispanic Mixtec Settlements and the State in the Teposcolula Valley of Oaxaca, Mexico*. Ph.D. dissertation, Department of Anthropology, Vanderbilt University, Nashville.

Terraciano, K.

- 2000 The Colonial Mixtec Community. *Hispanic American Historical Review* 80(1):1-42.
 2001 *The Mixtecs of Colonial Oaxaca: Nudzahui History, Sixteenth Through Eighteenth Centuries*. Stanford University Press, Stanford, California.

Wilk, R. R.

- 1984 Households in Process: Agricultural Change and Domestic Transformation among the Kekchi Maya of Belize. In *Households: Comparative and Historical Studies of the Domestic Groups*, edited by R. Netting, R. Wilk, E. Arnould, pp. 217-244. University of California Press.

Wilk, R., and R. Netting

- 1984 Households: Changing Forms and Functions. In *Households: Comparative and Historical Studies of the Domestic Group*, edited by R. Netting, R. Wilk, and E. Arnould, pp. 1-28. University of California Press, Berkeley.

Winter, M.

- 1976 The Archeological Household Cluster in the Valley of Oaxaca. In *The Early Mesoamerican Village*, edited by K. V. Flannery, pp. 25-31. Academic Press, New York.
 1994 The Mixteca Prior to the Late Postclassic. In *Mixteca-Puebla Discoveries and Research in Mesoamerican Art and Archaeology*, edited by H. B. N. and E. Q. Keber, pp. 201-221. Labyrinthos, Culver City.

Wittfogel, K.

- 1957 *Oriental Despotism*. Yale University Press, New Haven.

APPENDIX A

EXCAVATION DESCRIPTIONS

Table A.1 Excavation area descriptions.

Excavation Area	Sq. m	Location	Layers	Construction or features found
Area 1	230 m ²	T 66	I, II, II b, II c, III, IV, V	House 1, walls T66, T 62
Area 2	18 m ²	T 89	I, II a, II b, III	Burial 3, wall T 89
Area 3	11 m ²	T9 <i>Lama-bordo</i> 5 T93,90, 88, 87, 82, 80, 77, 74, 73, 67, 66	I, II a, II b, III, IV, V	<i>Lama-bordo</i> terrace wall
Area 4	166 m ²	below T82	I, II, II b, III	House 2
Area 5	16 m ²	T114, 120, 121, 123, 126, 127, 128, 129	I, II (tepetate)	Exposed stone foundation
Area 6	16 m ²	129	I, II (tepetate)	House 3

Table A.2 Soil layer descriptions by excavation area.

Area 1												
Layer	Texture	Consistency	Color	Artifacts	Intrusions	Structure	Location	Distribution	Thickness	Associated features	Level	Nature
I	Loam	Firm to very hard	5 YR 4/4 reddish brown	high density lithics and ceramics	roots and burrows	medium density of gravel	entire T 66 originates on southeast corner Str. A	Continuous	20-30 cm	Modern surface	surface (-3.28) - 3.52 cm	cultural plow zone
II	Organic soil	Firm and gummy	5 YR 2.5/1 black	ceramics, lithics, and bone	roots and burrows	low density gravel	S4W1 to S2E1	Un-even and fading	20 cm	SE corner Str. A	(-3.52 to -3.66)	cultural
II b	Silty loam	Soft and crumbly	5 YR 7/2 pinkish gray	ceramics, lithics, and bone	roots and burrows	high density rock and construction materials	On House 1 only	Restricted to House 1	30-50 cm	House 1 stucco floors	(-3.52 to -3.82/-4)	cultural, possible wall/roof fall
II c	Organic soil	Hard and very compact	5 YR 2.5/1 black 5 YR 3/2 dark	ceramics, lithics, and bone	few roots and burrows	low density gravel	central House 1 patio area	Restricted to central patio area	15 cm	Central patio stucco floor	(-3.52 to -3.7/3.9)	cultural
III	Clay loam	Firm and crumbly	reddish brown	ceramics, lithics, and bone	roots and burrows	low density gravel	east and south of Str. A	Continuous	20-40 cm	Intrusion 2	(-3.66 to -3.8)	cultural
IV	Silty clay	Firm and sticky	10 R 4/4 weak red	ceramics, lithics, and bone	roots and burrows	low density gravel	east and under Str. A	Continuous	10-30 cm	Intrusions 1 & 3 and burial 2	(-3.8 to -4.3)	cultural
V	Silty loam	Soft	10 R 7/4 pale red	sterile	none	endeque blocks	sterile soil makes up entire hill	Continuous	N/A	First occupation of layer IV and burial 2	(-4.0 on)	natural

Area 2												
Layer	Texture	Consistency	Color	Artifacts	Intrusions	Structure	Location	Distribution	Thickness	Associated features	Level	Nature
I	Loam	Firm to very hard	10 YR 3/2 very dark grayish brown	high density lithics and ceramics	roots and burrows	medium density of gravel	entire T 89	Continuous	20-30 cm	Modern surface	surface 0-.2/.3 cm	Cultural plow zone
II a	Organic soil	Loose	10 YR 3/1 very dark gray	medium density lithic and ceramics	few roots	uniform fill of gravel	fill behind wall of T89 sterile soil	Wall fill	10-30 cm	Wall T89	.2/.3-.3/.6 cm	Cultural wall fill
II b	Silty loam	Soft	10 YR 7/4 pale red	none	few roots	endeque fragments	makes up entire hill	Continuous	N/A	Burial 3	.3/.6 on	Natural
III	Sandy loam	Hard and compact	10 YR 4/2 dark grayish brown	ceramics, lithic, and bone	roots and burrows	Low density gravel	S2W1 1/2 E-S2E1 1/2 W	Sloping	20-70 cm	Matrix of Burial 3	.3/.6-.5/.1.3 cm	Cultural
Area 3												
Layer	Texture	Consistency	Color	Artifacts	Intrusions	Structure	Location	Distribution	Thickness	Associated features	Level	Nature
I	Sandy loam	Loose	5 YR 3/2 dark brown	Ceramics	Roots	Medium gravel	Entire Lama-bordo	Continuous	40 cm	Modern surface	surface 0-.40 cm	Cultural plow zone
II a	Sandy loam	Firm and compact	7.5 YR 3/4 dark brown	Ceramics	Roots	Few specs of gravel	Entire area 3	Continuous	28 cm	N/A	.40-.68 cm	Cultural
II b	Sandy loam	Firm and compact	7.5 YR 3/4 dark brown	Ceramics	Roots	High density of white gravel	Entire area 3	Continuous	26 cm	N/A	.68-.94 cm	Cultural
III	Sandy clay	Hard and compact	7.5 YR 3/2 dark brown	N/A	Roots	Few specs of carbon	Entire area 3	Continuous	72 cm	N/A	.94-1.66 cm	Cultural
Gravel layer	Sandy loam	Firm and compact	7.5 YR 3/4 dark brown	N/A	Roots	High density of black gravel	Entire area 3	Continuous	10 cm	N/A	1.66-1.76 cm	Cultural
IV	Silty clay	Firm and compact	7.5 YR 3/4 dark brown	N/A	N/A	Low density gravels	Entire area 3	Continuous	50-60 cm	N/A	1.76-2.26 cm	Cultural
V	Sandy clay	Firm and compact	7.5 YR 3/2 dark brown	Ceramics	N/A	Low density gravels	Entire area 3	Continuous	60-70 cm	N/A	2.26-2.96 cm	Cultural

Area 4												
Layer	Texture	Consistency	Color	Artifacts	Intrusions	Structure	Location	Distribution	Thickness	Associated features	Level	Nature
I	Sandy loam	Very hard	5 YR 4/4 reddish brown	Medium density ceramics and lithics	Roots and burrows	Low density gravel	Entire area 4	Continuous	10-20 cm	Modern surface	surface 0-.1/.2 cm	Cultural plow zone
II	Organic	Very hard, compact, and moist	5 YR 2.5/1 black	Low level ceramics	Roots and burrows	Low density gravel	S1W1 only	Restricted	10 cm	N/A	.1/.2-.2/.3 cm	Cultural
II b	Silty loam	Soft and crumbly	5 YR 7/2 pinkish gray	ceramics, lithics, and bone	roots and burrows	High density rock and construction materials	On House 2 only	Restricted to House 2	40-60 cm	House 2 stucco floors	.1/.2-.5/.8 cm	cultural, possible wall/roof fall
Area 5												
Layer	Texture	Consistency	Color	Artifacts	Intrusions	Structure	Location	Distribution	Thickness	Associated features	Level	Nature
I	Sandy loam	Very hard	5 YR 4/4 reddish brown	Medium density ceramics and lithics	Roots and burrows	Low density gravel	Entire area 4	Continuous	10-20 cm	Modern surface	surface 0-.1/.2 cm	Cultural plow zone
Area 6												
Layer	Texture	Consistency	Color	Artifacts	Intrusions	Structure	Location	Distribution	Thickness	Associated features	Level	Nature
I	Sandy loam	Very hard	5 YR 4/4 reddish brown	Medium density ceramics and lithics	Roots and burrows	Low density gravel	Entire area 4	Continuous	10-20 cm	Modern surface	surface 0-.1/.2 cm	Cultural plow zone

APPENDIX B

ARCHITECTURE

In this section I will describe in detail all architectural features found and identified in the excavations. I divide this section into the two types of architecture found, terrace and domestic architecture. In the domestic architecture section I start off describing the various types of architectural features and then give a full architectural description of the excavated houses, House 1 and House 2.

Terraces Architecture

The information I present here on terraces and their construction comes from the trench excavations of four different terraces at *Nicayuhu* and the surrounding hills. The terrace wall trenches allowed me to obtain a profile view of their construction. The overall and most important find was that terrace construction was not too complicated at *Nicayuhu*. I divide this section into two terrace types, contour terraces and *lama-bordo* terraces.

Contour Terraces

Contour terraces were built on the hill slopes and their shape and direction follow the natural contour of the hill (Figure B.1). Contour terraces can be residential, agricultural or engineering projects used as access ways or as soil stabilizing shelves that protect residential sectors of the hill. Contour terrace walls were made of uncut

stones that were just sorted and made to roughly fit. These rock walls were sometimes stuck together by mud made of locally available soils. Normally a terrace wall face was made from roughly fitted and stacked rock. Behind this wall face we found a layer of smaller irregular shaped cobbles. This cobble layer may have allowed moisture to escape from the terrace, thus preventing flooding of houses and crops on top the terraces.

Lama-bordo Terraces

Lama-bordo terraces (Spores 1969) on the other hand, are agricultural terraces and they are built in the drainages-cañadas between the hills (Figure B.1). These terraces capture eroding soils and moisture coming from the hills and because of this they are very rich and productive agricultural lands. *Lama-bordo* terrace walls were also built of uncut stones that were sorted to fit. However, unlike contour terrace walls *lama-bordo* walls are taller and more massive and as we dug deeper behind the walls we found that these are in effect rock piles broad at the base and narrower on top. *Lama-bordo* terrace walls also had a formal wall-face, like contour terraces, and broader wall pile laid behind this wall-face.

Domestic Architecture

Information on domestic architecture comes from the excavation of two Postclassic to Early Colonial period houses at *Nicayuhu*. Both houses were located on contour terraces on the east-northeast slope. The two houses occupied the entire width of their terrace and they consisted of rooms or structures that flanked a central patio on

all of its sides. I will describe the various types of architectural features that made up these houses.

Structures

All house complexes were made out of a number of structures built around a central patio. All structures had stone foundations and single-sided rock walls or two-sided cut and fitted *endeque* (caltrite) walls filled with rock and dirt (Figure B.2). The different house structures that made up a house would correspond to the ethnohistorically known category of the *huahi* (Terraciano 2001:199-201). Structures and their living floors were usually built at a higher level than the patio.

Walls

Structure walls are between 35 and 50 cm wide (Figure B.3). The quality of structure wall construction varied greatly from long flat square *endeque* blocks that fit beautifully into square patterns to irregular more round and small blocks that did not fit each other but were just stuck together with mortar instead. I found clear differences in wall construction not only between structures but also within a single one. I believe these differences are due to the timing of room and house construction, maintenance, and expansion.

Rooms

I called rooms the different living spaces within structures (Figure B.4). Some times a structure only had a single room in it, but in other cases structures would be subdivided into different rooms with the use of inside dividing walls. It is with rooms that we

may see some variation in house layout remodeling, while structures may stay constant later dividing wall additions may create more rooms as needed.

Patios

The patios were open areas with stucco or crushed *endeque* floors (Figure B.5). The patios measured 7 x 7 m and 6.75 x 6.5 m in area. I know they were open patios because of their poor state of conservation, especially when compared to that of indoor room floors. Patio floors were slanted or had drainage channels built into them to divert water out of the house and down to the next terrace. Patio floors always showed water or erosion damage and the patio area was always the largest single living or activity area in the entire house.

Room Entryways

All house structures and rooms had entryways that lead to the patio. At House 2 we found clear door steps, marked by long slabs of worn stone between 75 and 112 cm long (Figure B.6). At House 1 we did not find worn slabs of stone, but instead raised door steps that had to be stepped or jumped over to enter the room (Figure B.7). Some modern houses in San Juan Teposcolula still have some of these kinds of door steps (Figure B.8). According to modern day people this type of entrance is built this way to not let water to enter and flood rooms.

Floors

All rooms had 2-3 cm wide stucco or crushed *endeque* floors (Figure B.9). Stucco floors rested on a firm rock layer between 20 and 40 cm wide. This stone layer

raised rooms higher than the patio; this may have served to prevent flooding. While some floors showed remains of red paint, most floors appeared to be white or off-white in *endeque* color.

Hearths

In both excavated houses most rooms had one and in one case two stone-lined hearths (Figure B.10). Hearths were roughly square, between 55 to 87 cm long and wide. These hearths may have been used for heating and cooking. The hearths were mostly square, though some could be irregular in shape and lined on all four sides by large and square slabs of volcanic rock that showed clear signs of having resisted high heat. Inside all of these hearths we found ash layers and bits and pieces of broken pottery, mostly from comals, but also from semi-hemispherical bowls and in one hearth—feature 2 of House 1—a single piece of polychrome pottery.

Sweat Bath, *Temazcal*, or *Huahi Ñehe*

Both houses had a special room or feature that consisted of a small stucco floor room adjacent to a floor-less area (1.8 x .5 m) filled with ash and neatly stacked volcanic rock that showed clear signs of having resisted high heat (Figure B.11). The small stucco floored rooms covered approximately a 1.25 x 1.625 m area and had clearly defined drain holes and channels. I believe these features were *temazcalli*, sweatbaths, or *huahi ñehe* given their similarity to sweatbaths found in the Mixteca Alta today. Modern or recently abandoned *temazcalli* are small dome shaped rock structures that are attached to houses. The *temazcal* consists of a small area where one to two people can fit sitting down, next is a small area that contains neatly stacked volcanic rock (piedra de hormiguero). This small stacked rock area has an opening to the inside of the adjacent house, from it one can place lit coals onto the rock to heat it up. One throws

water on to the hot rock to create steam. Interestingly modern *temazcales* are essentially the same as those that were found during the house excavations.

House Access Ways

Both houses appeared to be mostly closed to the surrounding terraces and the outside world. Access to the house was only through a single route that had to come into the patio area first (Figure B.12). Only after reaching the patio first one could access the other house rooms. An access way to the houses may have existed in the front part of the terraces, where the houses had eroded. It is possible that clearly marked access ways into the houses may have existed but that these were not preserved enough to be found. I did find some possible access ways.

House 1 may have had an open access way to the southwest corner of the patio prior to the time when the west room of structure B was built. Later in the occupation of the house the access way may have been at the northwest corner of the house complex given that at a later time two walls were built to restrict access to the patio (Figure B.13).

The access way to House 2 may have been to the northwest corner of the patio. This access was a hard-packed floor walkway between the North and Northwest rooms. We found a worn stone slab door step at the packed dirt floor level that leads to the patio floor level as well. This access way would have lead into an adjacent higher terrace to the north-northwest.

Special Features

In addition to the standard architectural components of the houses we also found several special features such as drains (Figure B.14), and inclusions (Figure B.15),

some of which had the shape of bell-shaped pits, hearths, or possible middens. I will describe these features as architectural elements of the house complex that had particular functions. A physical description of these inclusions will be given as part of the soil and layer descriptions that are part of the excavation description Appendix A.

At House 1 we found only one example of a drain as part of the stucco floor of the *temazcal* (Figure B.14). This floor was slanted and had a drain hole drilled into a stone of the west wall. From here the water drains into the patio and the patio floor itself had a slight but noticeable incline to the north-northwest corner of the patio. No formal drain was found at this northwest corner; however this part of the terrace was mostly eroded. I believe that the water from the patio would have drained down to the next terrace down.

House 2 had an example of a more formal drainage system. The *temazcal* stucco floor had well marked channels that drained water under and across a stone wall and out to the patio. The patio displayed a worn informal channel that moved the water towards the northeast corner of the patio where a small stone-lined drain diverted the water out of the patio, underneath the north room and down to the next terrace below perhaps.

The other kind of special feature was only found as part of Area 1 excavations. These consisted of cavities carved into the underlying sterile soil—Layer V in Excavation Area 1 (Figure B.16). These cavities were then used as storage areas, hearths, or places for burial.

In the case where these cavities were used as hearths these cavities are simply covered or filled with charcoal, ash, fire cracked rock, large rocks used to line the fire, and broken pieces of lithic or ceramic artifacts. When these cavities were used for storage they tend to be larger intrusions that were bell-shaped pits filled with broken pieces of lithics, pottery, ash, charcoal, or unused pieces of raw lithic and construction

material such as chert and limestone. In two instances I found evidence of these 'cavity' features being used for burial, Burial 2 in Area 1 and Burial 3 in Area 2. When this occurred it appears as though the ancient Mixtec dug into the sterile natural soil layer to make a circular bed for the body, which was placed in fully flexed fetal position. The body was later covered with debris, either naturally occurring deposition or the cultural use of the burial cavity as a trash midden. It appears that this kind of burial practices was wide spread in the Mixteca, fortunately this burial practice preserves human remains.



Figure B.1 Contour and *lama-bordo* terraces at Nicayuhu.



Figure B.2 Domestic structure.



Figure B.3 Domestic structure walls.



Figure B.4 Rooms.



Figure B.5 Patio.



Figure B.6 Worn door step.



Figure B.7 Raised entryway.



Figure B.8 Modern raised entryway in San Juan Teposcolula.



Figure B. 9 Stucco floors.



Figure B.10 Stone-lined box hearths.



Figure B.11 *Temazcal*.



Figure B.12 Access way into House 2.



Figure B.13 Walls restricting access into House 1.



Figure B.14 Drain channels in *temazcal* stucco floor of House 2.



Figure B.15 Intrusions into natural sterile soil layer V in Area 1.



Figure B.16 Midden fill in crevice.

APPENDIX C

ARTIFACTS

Ceramics

In this section I describe the ceramic wares and types identified and used to catalogue all the ceramic materials recovered in the excavations at *Nicayuhu*. Although there were certain ceramic types, such as the rough tanware jar for example, that could be attributed to different time periods, it is the overall ceramic inventory, all the associated diagnostic and un-diagnostic sherds that date an entire assemblage to a particular time period.

My work builds on earlier works by Spores (1972) and Lind (1987) on Prehispanic Mixtec ceramics and their function. Spores (1972) defined the basic ceramic types and pastes that I use here. Lind (1987) later categorizes these types and pastes according to function. I use Spores' type and paste categories and then grouped them in functional categories drawing from Lind's ideas about function, but modified his categories slightly to be broader and more suitable to the commoner household (Table C.1). Whereas Lind (1987) divided all artifacts into dinnerware, kitchenware, ritual, recreational, costume, and production ware categories, my categories are somewhat different (Table C.2) yet still roughly coincide with his groupings. Kitchenware would constitute utilitarian jars, utilitarian bowls, ladles, and comals. In my categorization, Lind's (1987) dinnerware would be the finer utilitarian bowls, finer utilitarian jars, and luxury wares used for serving. Ritual wares were the same as my special form category that covers censer bowls, ladle censers, braziers, and figurines. Recreational wares would be miniatures, which Lind contends were objects used as toys. Costume ware

were ear spools only, and production wares would be figurine molds and spindle whorls. No ear spools, figurine molds, or spindle whorls were found during excavations.

Utilitarian Pottery

Among the utilitarian ceramic types there are several wares and pastes: sandy creams, rough tanwares, rough orange wares, and rough graywares. These wares or types are the same identified and classified by Spores (1972:34-35, 52-58, 64-67). In fact all of these types and pastes can be considered to be different parts of a continuum of a rough paste. The color of these wares can go from a peach or pale pink color of the sandy cream, to tan, gray-tan, gray, and red brick color paste of tanwares and graywares. In some cases the difference between a sandy cream and a tanware or grayware paste is in the eye of the beholder. What is characteristic about this pottery is that it is rough, with visible sand, mica, limestone fragment, or other miscellaneous gritty particles as temper. It feels rough to the touch and the forms made in these pastes are mostly big, and for utilitarian use (Spores 1972; Lind 1987; Figure C.1).

Utilitarian pottery comes in the following forms: jars (Figure C.2), pitchers, neckless jars (Figure C.3), water jugs, duck-shaped jars, flared vases, cylindrical vases, flat plates (Figure C.4), semi-hemispherical bowls (Figure C.5), out-leaning wall bowls (Figure C.6), and comals/flat tortilla griddles (Figure C.7). In Lind's (1987) classification this utilitarian pottery in these forms was part of the kitchen or dinner ware category. According to Lind sandy cream jars were for water storage, all other jars and comals were used for cooking, and bowls and plates were for serving. It is to note that the greatest variability in ceramic forms is seen in the jar and bowl categories (Figures C.8, C.9, C.10, C.11). For purposes of presenting ceramic data on tables I divide the utilitarian pottery category into utilitarian jars, utilitarian bowls, and comals.

Finer Utilitarian Pottery

Fine cream, fine gray, fine orange wares, Yanhuítlán red on cream, and Graphite on Orange pastes and wares constitute the finer utilitarian pottery category. These categories are the same ones used in Spores (1972:26-33, 37-47, 63, 64-66). Among the finer utilitarian pottery we have pottery that is different in paste—fine creams, fine orange ware, and fine gray, and pottery that is different in surface finish—Yanhuítlán Red on Cream and Graphite on Orange.

The paste of the fine creams, fine orange wares, and fine gray wares is much finer; the paste shows little or no temper (Figure C.12). The pottery is smooth to the touch and often it was fired at higher temperatures giving it a metallic sound when hitting a hard surface. Sometimes the difference between these three fine wares was in the eye of the beholder because the color of the paste could go anywhere in a continuum between cream, tan, light orange, tan-gray, and gray color.

In the case of Yanhuítlán Red on Cream (YRC) wares we had a fine cream pot that was later painted red in characteristic lines or designs (Figures C.13 and C.14). Graphite on Orange pottery as well is either a fine cream or fine orange ware paste that is later smoothed, sometimes slipped orange and then painted with a graphite black color in characteristic lines (Figure C.15).

The finer utilitarian types come in a more restricted array of shapes: semi-hemispherical bowls, composite silhouette bowls (Figures C.16 and C.17), “candy dishes”, out-leaning wall bowls, ladles (Figure C.18), miniature jars (Figure C.19), small jars, and pitchers. Candy dishes are a kind of bowl that displays a distinctive profile (Figure C.20) with a marked basal angle that then turns into an in-leaning wall and rim. The rim may end leaning in creating a circumference smaller than that of the base or slightly flaring at the end creating a rim circumference equal or slightly greater than that of the base. Miniature fineware jars and bowls (Figure C.19) would correspond with

Lind's (1987) recreational category; he argues these objects were toys. I include in this category also fine cream paste ladles (Figure C.18), because as Lind (1987) argued, I believe these ladles were used to cook and serve food, serving a utilitarian function. All bowls and ladles were in the dinnerware category; they were used for serving food. For purposes of presenting ceramic data on tables I divide the utilitarian pottery category into finer utilitarian jars, finer utilitarian bowls, and fine grayware bowls.

Special Forms

Special forms were braziers, figurines, ladle censers, and zoomorphic or almena supports (Figures C.21, C.22, C.23, C.24, C.25, C.26). These forms came in sandy cream, rough tanware, and fine grayware pastes. Special forms were very uncommon. These forms correspond with Lind's ritual and recreational ware categories. However, since my artifact assemblages contained such meager numbers of braziers, figurines, and ladle censers, I considered it wasteful to separate these types when discussing the excavation results at *Nicayuhu*.

Luxury Types

The types I described a luxury wares were initially identified and catalogued as such first by Spores (1972:48-49) and then by Lind (1989:14-30, 45). Luxury types were polychrome, and *cacique* burnished pottery. Polychrome pottery is perhaps the flashiest and best known Mixtec ceramic type (Figure C.27). At *Nicayuhu* this pottery was made of a fine orange paste that was later completely slipped white and then painted with at least three different colors. The most commonly used colors were red, black, orange, and brown. Polychrome pottery only came in the following forms: out-leaning wall bowls, semi-hemispherical bowls with a ring base and a long and narrow neck flower vase (Figure C.28). Lind found that even commoner class occupations had few examples of

Mixteca polychrome pottery. *Nicayuhu* data also confirms that commoner class occupations contain few fragments of polychrome pottery.

Cacique burnished pottery at *Nicayuhu* was made of a high-fired fine gray paste that was later finished with a highly burnished black slip (Figure C.29). *Cacique* burnished pottery, when it was not too eroded, felt soapy or waxy to the touch. This type was most commonly found in the form of small to medium sized candy dishes (Figure C.30). According to Lind (1989:45) *cacique* burnished wares are exclusive of noble class residential occupations. As I argue in chapter 4, House Excavations, I believe that although we find few fragments of *cacique* burnished pottery in the two excavated houses, these are representative of a nanday commoner class occupation. I argue that the nanday farmers were able to access small amounts of these luxury items through the well-developed Mixtec market system.

Lithics

In this section I describe the different types of lithic materials found during the project. I will differentiate between the materials found on surface and those that were found in excavation. This is because during the surface collection phase of the study I found that there were higher surface concentrations of lithic materials in particular sectors of the site, these being the hilltops and the south-southeast slope of *Nicayuhu*. I suspect that during different Prehispanic periods lithic tool production took place in these sectors. The hilltops of the settlement may be associated with an earlier Late Formative settlement and for this reason the discussion of these materials does not pertain to the Postclassic houses on which this dissertation focuses.

I divide the lithic artifact description by raw material, then by core, debitage and chunks, flake, and tool categories. Cores are either irregular or blade cores. Debitage and chunks are simply small (< 2 cm) and medium sized (> 2 cm) tool production waste.

Flakes can be primary (cortex on an entire side), secondary (little to no cortex and > 2 cm; Figure C.31), and tertiary flakes (no cortex and < 2 cm) that may or may not present use ware. Tools can be unifacially retouched flakes (Figure C.32), bifacially retouched flakes, scrapers (Figures C.33 and C.34), blades, knives, projectile points (Figures C.35 and C.36), axes, agave scrapers (Figure C.37), *manos*, and *metates*. An “other” category accommodates two peculiar lithic artifact finds. One was a ground basalt cylinder (Figure C.38), a basalt abrading or sharpening stone, and a bifacially retouched crescent moon shaped chalcedony artifact that may have been a nose ornament.

Obsidian

There are no indigenous sources of obsidian in the state of Oaxaca. All obsidian was brought from Hidalgo, Michoacán, the Basin or Mexico, or Guatemala. We collected transparent gray, green, and gold-dust green obsidian; the later two types coming from sources in Hidalgo (Nieto Calleja and Lopez Aguilar 1990). Obsidian materials were entirely associated with Natividad materials either in surface collections and excavation. The most common obsidian artifact was the blade (Figure C.39). Blades most often than not showed use ware patterns and at times were re-sharpened and re-shaped to extend their usefulness.

From the house excavations we know that the inhabitants had access to obsidian coming from different sources. However, their access to this material was probably limited given the fact that people used obsidian blades until exhausted and even after that they were re-shaped and re-sharpened. The inhabitants of the two excavated houses did not take their obsidian for granted.

Chert and Chalcedony

Chert and chalcedony are perhaps the most common lithic raw materials used, and given the variety in color and quality we found these raw materials probably came from various locations. Chert and chalcedony materials came in the following colors: white, translucent white, gray, pink, red, and wine color. The most common artifacts were flakes and irregular chunks and cores. Many flakes showed use-wear and could be catalogued as expedient tools. Previous studies (Misner 1993) on Oaxaca lithics argue that the expedient tool was also the most common lithic artifact in Monte Alban. Aside from flakes and irregular chunks and cores I found other formal tool types. The rarest chalcedony artifact found a bifacial moon-shaped nose ornament.

The end-scraper was one of the formal lithic tool types found at the site. Overall we collected on the surface or in excavation a total of 30 end-scrappers (Figure C.40). Most were found near the hill-tops or eroding nearby areas. These tools may have been for wood or leather working.

Projectile-points were the other formal lithic tool type found. All but one of the points was found in excavation (Figure C.41), fortunately the other projectile points were found in sectors that dated solely to the Natividad time period. Projectile points were made only of high quality white chert or chalcedony. The points showed some morphological variation such as triangular shape with a flat base or ogival shape with corner or side-notching (Figure C.42).

Basalt

There are no formal studies done of the sources of basalt in and around the state of Oaxaca. However, the Mixteca Alta is surrounded by volcanic areas to the north in the Basin of Mexico and Puebla and basalt could have been easily obtained from these

areas. Basalt artifacts were commonly found. I will divide my description of basalt materials by function and artifact types.

Ground stone is perhaps the most common type and use given to basalt. Ground stone may come in the form of *metates* (Figure C.43), rectangular *manos* (Figure C.44), long *manos* (Figure C.45), and doughnut stones (Figure C.46). All of these artifact types were found in excavation.

Metates were often tripod *metates* with two supports in the front and one in the back (Figure C.43). A complete *metate* broken in two and showing extreme signs of wear was found in House 1 as part of the volcanic rock fill in the oven area next to a sweat bath. As I will explain in chapter 4 volcanic rocks were often heated to produce steam in sweat baths. *Metates* are most commonly used to grind maize and produce the nixtamal for the tortillas, however, many other materials such as nuts or roots could have been ground in these *metates*.

Manos come in different forms. Long narrow *manos* are used in the *metate* to grind maize (Figure C.45). While using these *manos* the women in modern-day Mexico place their hands on each end of the *mano*, in time the center of the *mano* gets worn while the end remains whole and wide (Figure C.47). A second form of a *mano* is that of a smaller square or rectangular *mano* that is held entirely in one hand. This *mano* would be used for finer grinding (Figure C.44).

Agave scrapers are long rectangular pieces of finer basalt that are sharpened on one side (Figure C.37); these are used to get the fibers out of the maguey stalk. The basalt used for these tools is much finer than that of ground stones. These tools were found during the excavation of House 1 and suggest that the house inhabitants not only exploited corn but also locally available maguey.

Basalt was also used as a construction material and for heating in hearths and *temazcales* (sweatbaths). Excavation at the two houses showed that most rooms had a

volcanic slab lined square box hearth. The slabs of basalt that lined these hearths showed clear signs of having resisted high heat and fires (Figure C.48). In addition the excavations of the two *temazcal* features found at both houses showed that part of the *temazcal* construction consisted in having a small addition to the sweat bath room where neatly stacked basalt or tezontle was heated and then soaked to produce steam (Figure C.49). Modern Teposcolula inhabitants call this rock, the one used in fires and *temazcales*, *piedra de hormiguero* (ant hill rock) because it is a porous rock that resists well to heat and when found in the fields and turned over it often has an ant hill underneath.

The last basalt artifact type I describe is based solely on one artifact found that I could not identify. This artifact was found during the excavation of a collapse layer of rock and soil (Layer IIb) found in the middle of the patio of House 1. The artifact is a cylinder that is wider on one end and broken on the other. The wider end shows a semi-circular shaping of the edge giving it the look of an 'elephant's foot' (Figure C.38). I may speculate that this basalt cylinder may be an architectural component to the house.

Other Lithic Materials

The remaining lithic materials found in excavation were made out of dolomite, limestone, olivine, *endeque* or calcrete, fibrous quartz, quartzite, granite, river pebbles, and jasper. The most common artifacts were flakes, irregular chunks, and cores. Some of the more rare artifacts found were a limestone end-scraper from the cave of House 2, an olivine axe fragment from the North structure of House 2, and a jade pendant from the East room of Structure B of House 1.

Bone

Most bone materials found in excavation were non-modified non-human bone. We also found a small quantity of modified bone and human bone fragments not associated with formal burials. Bones from burials are discussed in Appendix D—Burials.

The most common species represented in the non-modified bone material assemblage found in the various soil layers of the House 1 and House 2 excavations were *Canis familiaris* (common dog), *Homo sapiens sapiens* (human), *Odocoileus virginianus* (white-tail deer), *Meleagris gallopavo* (turkey), *Lepus callotis* (jackrabbit), and *Ranas SP* (frog). The faunal analysis of these materials provides information on the fauna and environment of the Prehispanic Mixteca Alta. For example, no post-contact species were found in intact cultural layers at both houses.

At both houses we find non-human bone remains in disturbed cultural layers that give us clues on the post-abandonment processes and environmental conditions. In the hollow of House 2 we find that after the abandonment of the house the crevice was used as a midden by skunks (Figure C.50), oposums (Figure C.51), squirrels, rodents, and raccoons. The presence of oposums in the locality tell us of a very anthropogenically disturbed environment where agricultural products, especially corn, attracted these kinds of animals, usually treated as vermin.

An interesting find was that of an *ixquincalli*, Aztec hair-less dog, right outside the southeast corner of Structure A in House 1. This kind of dog was specially breed for itsd consumption and it is reported (Sahagún) that it was widely traded in Postclassic Mesoamerica. The *ixquincalli* is easily recognized by its distinctive dental pattern where the premolars are missing (Figure C.52).

From the modified bone we get some idea of subsistence practices. In Layer III of House 1 we found a cooked deer bone, characterized by the consistency of the bone

where the core areas of the bone that normally look spongy or porous are compacted and appear fused (Figure C.53). I believe Layer III is associated with the main occupation of House 1. This evidence suggests that House 1 inhabitants had some access to venison for their consumption.

We retrieved only four artifacts of modified or worked bone representing the following taxa: Artiodactylae (deer or berrendo), Canidae, *Homo sapiens sapiens*, and Mammal. These artifacts displayed signs of sectioning through indirect percussion, polishing, and ware from cutting (Figure C.54). The artifacts were either bone tool production debitage or tools. We found one possible awl or a piscador (Figure C.55). A piscador is along rectangular highly buffed bone tool that is wider on one end and finer in the other. According to Rojas (1988:171) and Padró (2002:72) these tools are used to open the stalk of corn and from it extract the cob during harvest. A piscador would be similar to an awl except that it is flatter and more square on one tip, like the piscadores described in Rojas (1988:171) and Padró (2002:72).

Table C.1 Ceramic type descriptions

Category	Ceramic paste and type	Forms	Paste characteristics	Possible functions
Utilitarian	Sandy cream, coarse tanware, coarse gray ware	jars, neck-less jar, flared flower vase, duck-shaped jar, pitcher, water jug, cillindrical vase, semi-hemispherical bowl, out-leaning wall bowl, candy dish, composite sillhouette bowl, comal, plate, ladle	Rough to touch, visible temper, continuom between cream to chocolate brown	cooking, food-serving, and water storage
Finer Utilitarian	Fine cream, fine tanware, fine gray, Yanhuitlan Red on Cream, graphite on orange	small jar, cillindrical vase, semi-hemispherical bowl, out-leaning wall bowl, candy dish, miniature, composite sillhouette bowl, plate, ladle	Fine and smooth to the touch, temper not visible, may be high fired and have metallic sound	food-serving, recreational (toy)
Special Forms	Sandy cream, coarse tanware, fine cream	Miniatures, figurines, brazier, ladle censer	Fine and smooth to the touch, temper not visible, may be high fired and have metallic sound	Ritual, recreational (toy)
Luxury	<i>Cacique</i> burnished, polychrome	Small jar, narrow long neck jar, semi-hemispherical bowl, out-leaning wall bowl, candy dish	Fine cream or orange paste, slipped black and burnished or slipped white and then painted with at least 3 colors	Ritual and fancy food serving

Table C.2 Ceramic categories compared

Lind (1989)	Pérez (2003)	Description
Kitchenware	Utilitarian jars	Sandy cream, rough tanware jars
	Utilitarian bowls	Sandy cream, rough tanware bowls
	Comals	Tanware and fine cream comals
	Ladles	Fine cream ladles
Dinnerware	Finer utilitarian jars	Fine cream and fine gray jars
	Finer utilitarian bowls	Fine cream, Yanhuitlan Red on Cream bowls
	Fine gray bowls	Fine gray bowls
Ritual ware	Special forms	Sandy cream and rough tanware braziers and ladle censers
Recreational ware		Sandy cream figurines or fine cream miniature bowls
Dinnerware	Luxury wares	<i>Cacique</i> burnished and polychrome jars and bowls
Production ware	N/A	Spindle whorls and figurine molds (I found none)



Figure C.1 Utilitarian rough ware paste.



Figure C.2 Utilitarian rough ware jar.

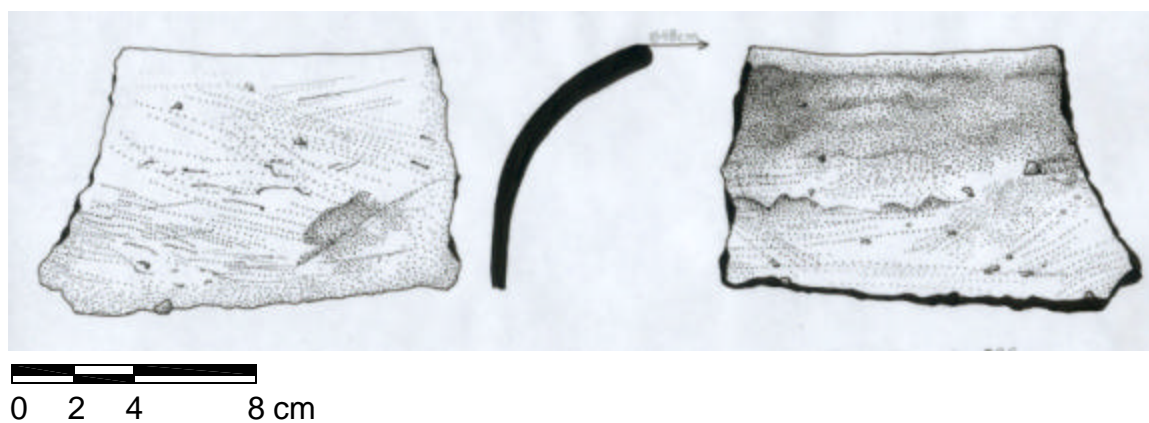


Figure C. 3 Large coarse tanware tecomate or neck-less jar (all are the same artifact).

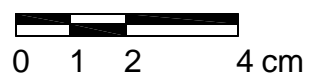
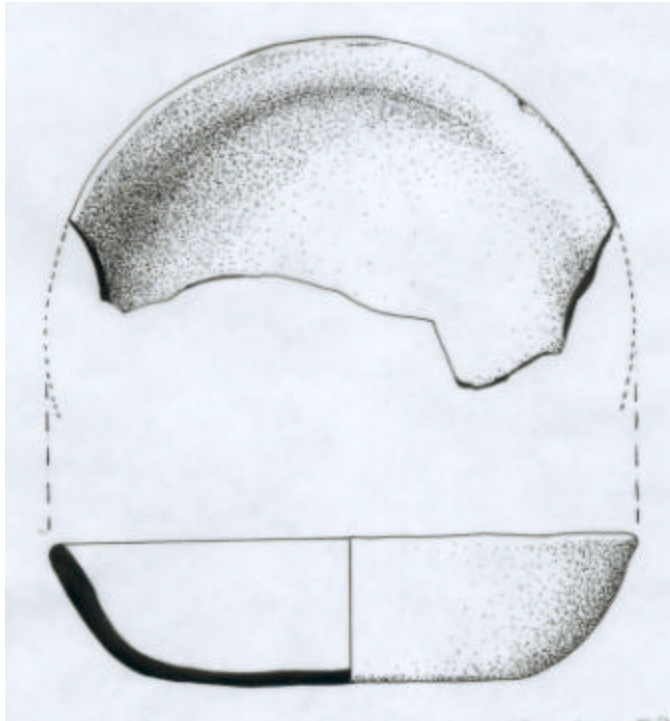


Figure C.4 Rough outside finish flat plate.



0 2 4 8 cm



Figure C. 5 Semi-hemispherical bowl (same bowl), coarse tanware paste.

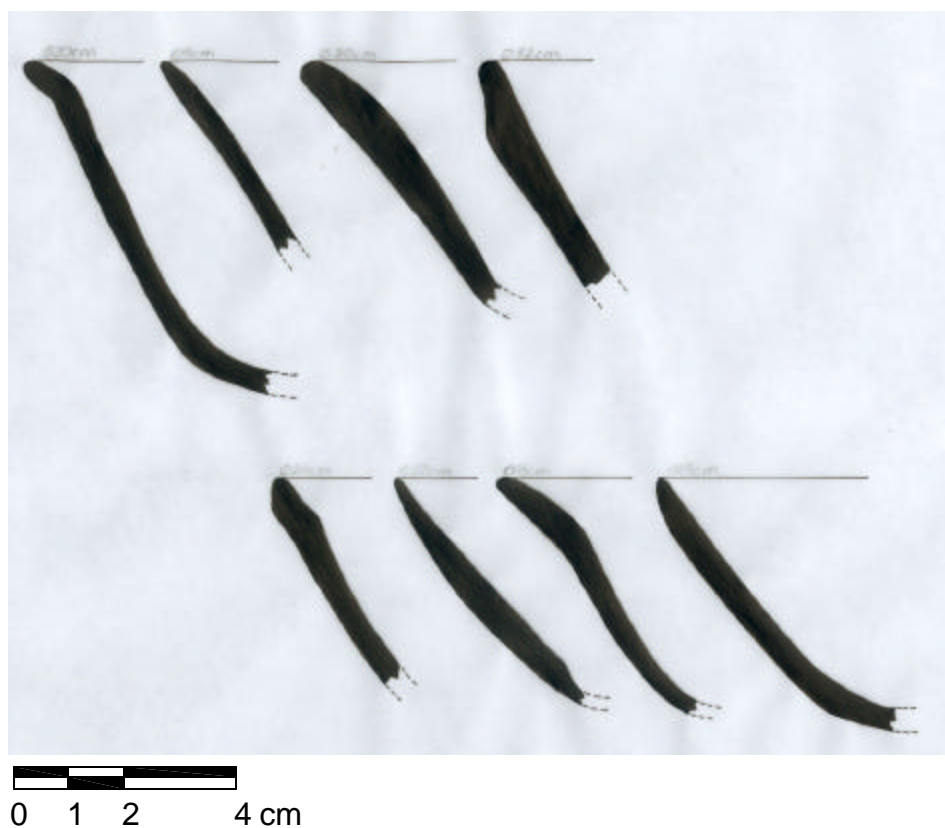
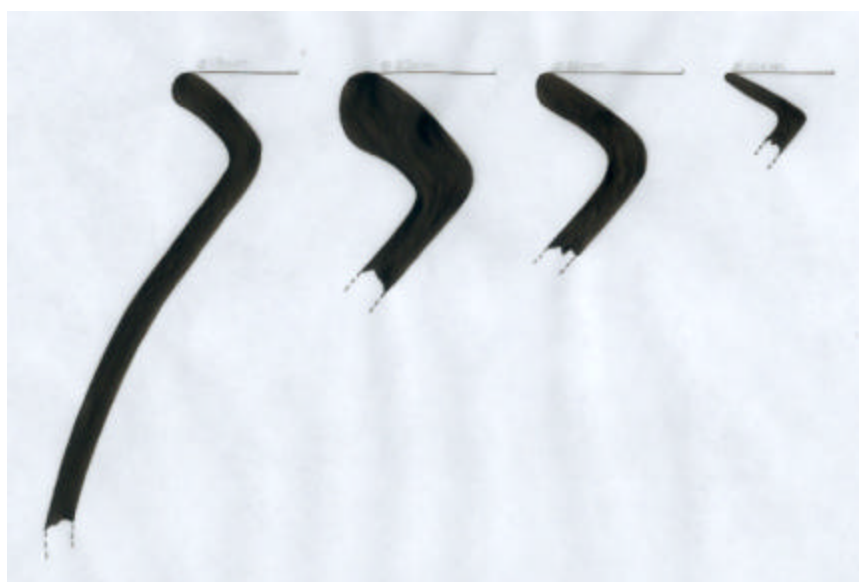


Figure C.6 Out-leaning wall bowl profiles.

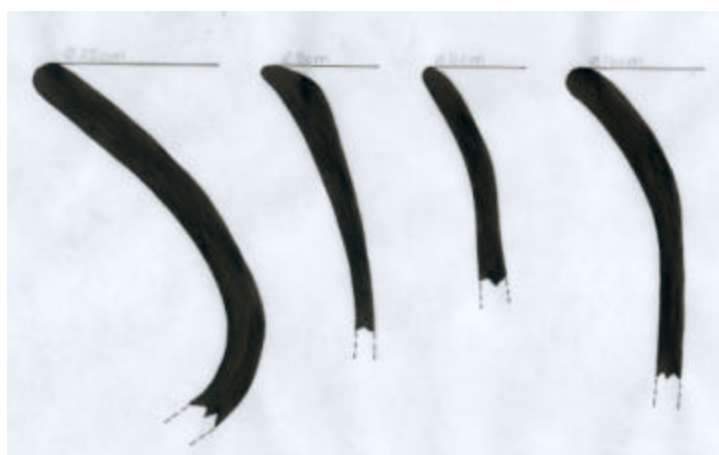


Figure C.7 Comal.



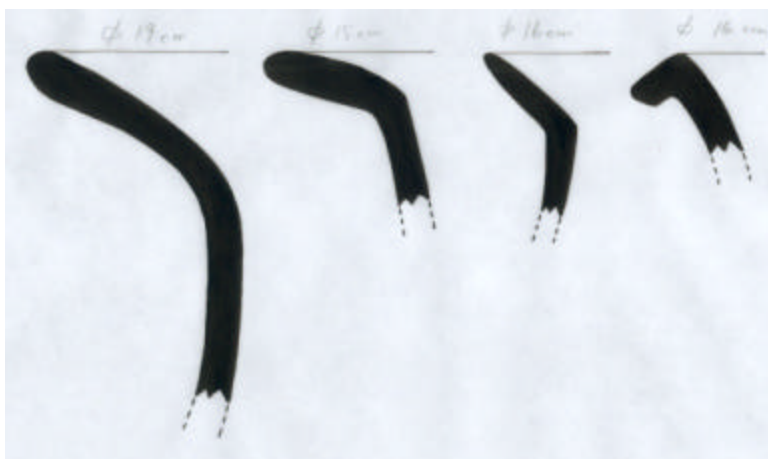
0 1 2 4 cm

Figure C.8 Short neck flared short rim jar profiles.



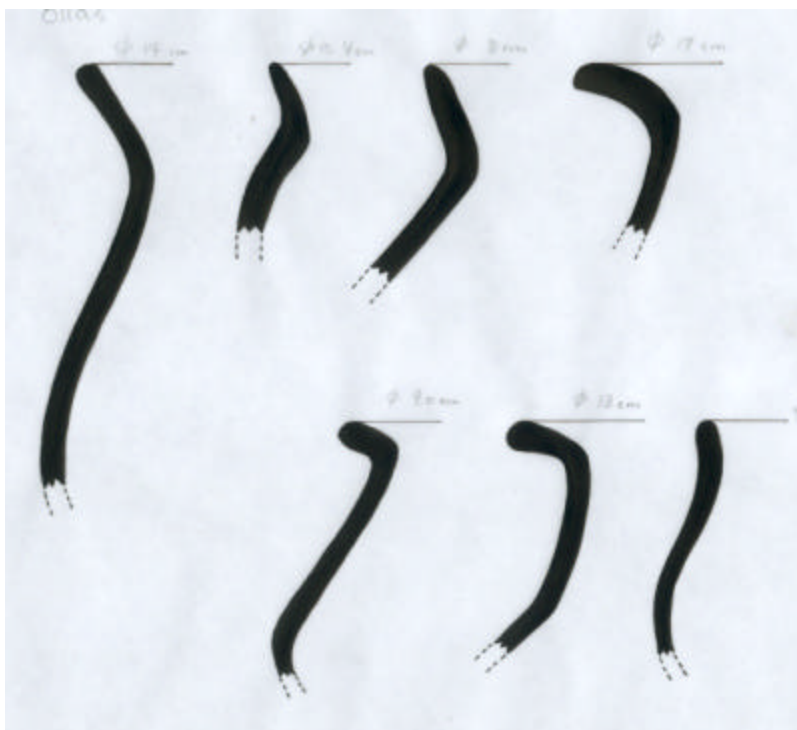
0 1 2 4 cm

Figure C.9 Straight to long-and-flared rim jar profiles.



0 1 2 4 cm

Figure C.10 Pronounced flared to everted rim jar profiles.



0 1 2 4 cm

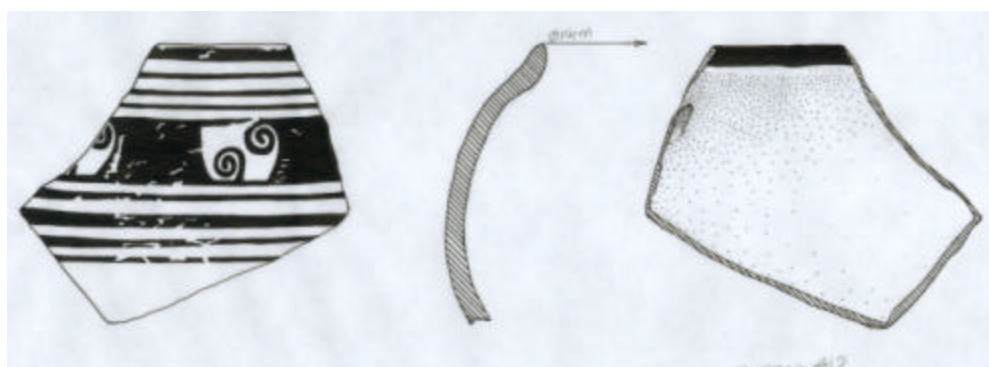
Figure C. 11 Flared rim wider bottom jar profiles.



Figure C.12 Fine Cream paste out-leaning wall bowl.



Figure C.13 Yanhuatlán Red on Cream designs on bowl fragments, top left is an example of a channel rim bowl.

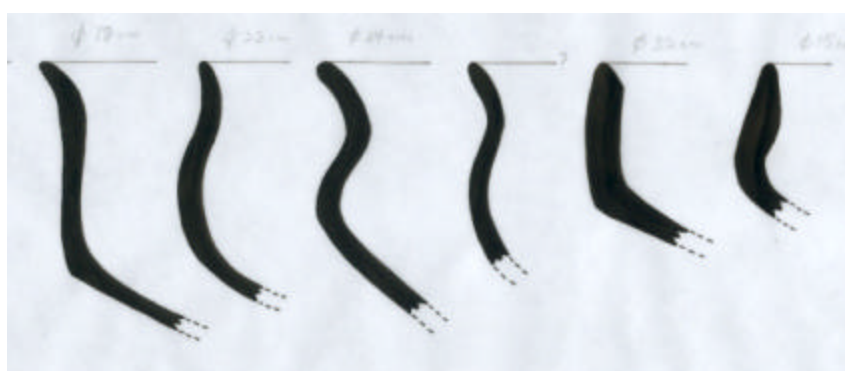


0 1 2 4 cm

Figure C.14 Yanhuitlán Red on Cream in tecomate (neck-less jar) vessel form.



Figure C.15 Graphite on Orange designs on bowl fragments.



0 1 2 4 cm

Figure C.16 Composite silhouette bowl profiles.

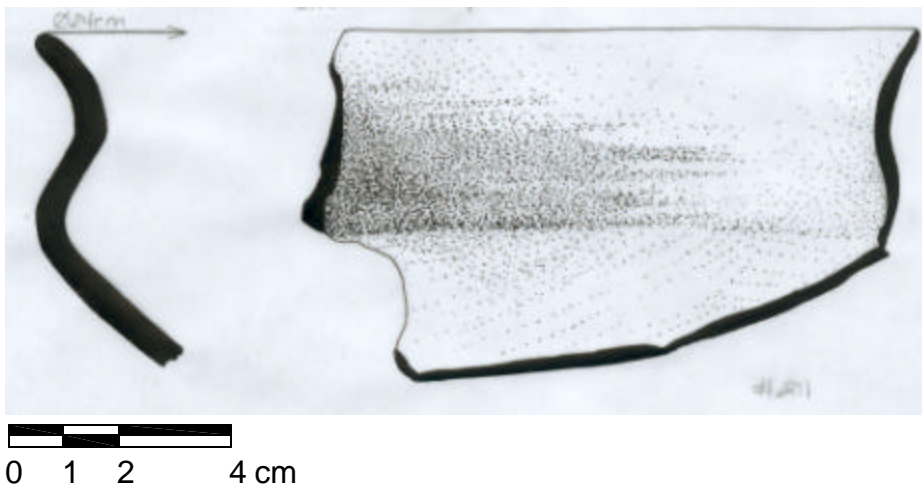


Figure C.17 Composite silhouette bowl.

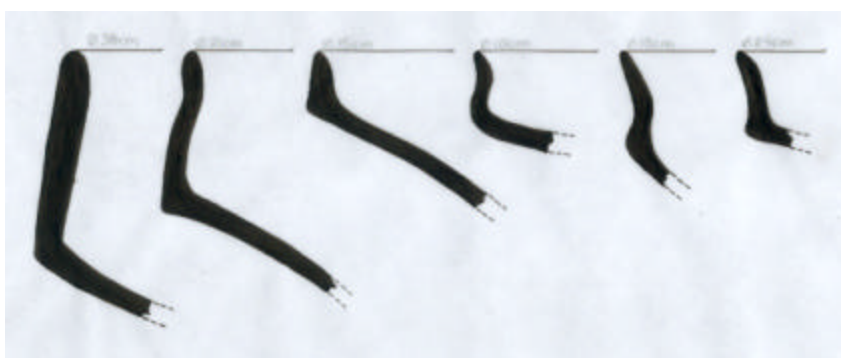


Figure C.18 Composite of Fine Cream ware ladles



0 1 2 4 cm

Figure C.19 Miniature jar and bowl.



0 1 2 4 cm

Figure C. 20 Candy dish profiles, note basal angle.



Figure C.21 Brazier fragment in coarse orange to tanware paste with worn incised decoration.



Figure C.22 Zoomorphic figurine fragment.



Figure C.23 Ladle censer fragment in coarse tanware paste. The left part of the fragment is the bowl-like receptacle that held the burning timber or copal and to the right the hollow handle.



Figure C.24 Figurine fragment from hollow in House 2.



Figure C. 25 Fine gray ware zoomorphic support of serpent effigy.

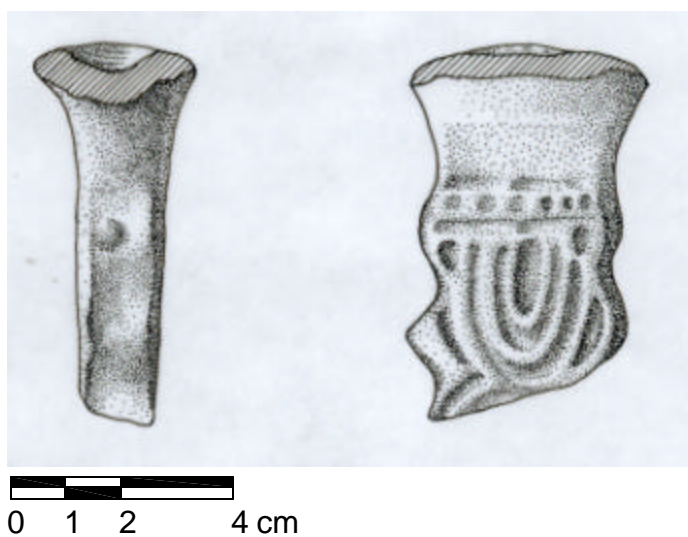


Figure C.26 Almena support.



Figure C.27 Polychrome bowl fragment.

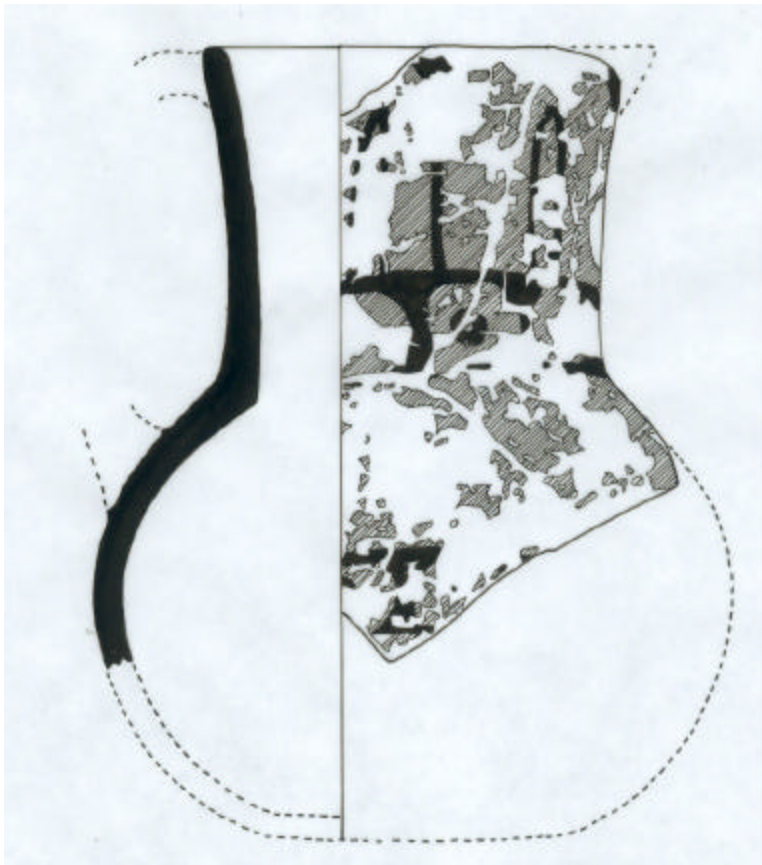
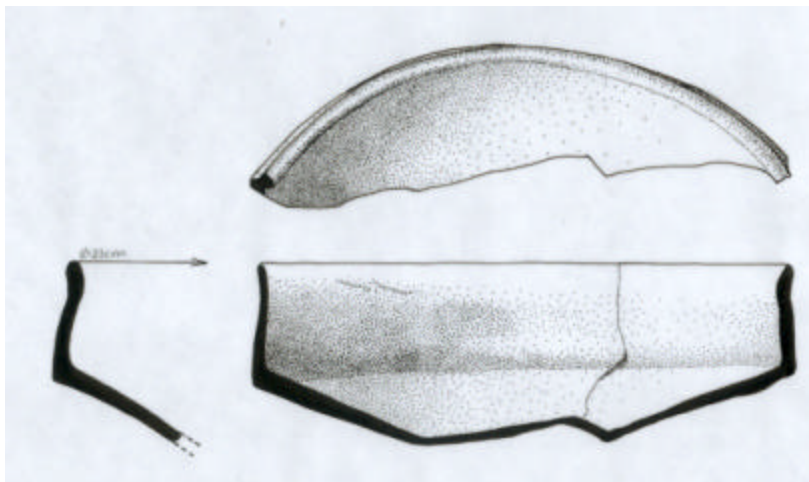


Figure C.28 Polychrome pitcher.



Figure C.29 *Cacique* burnished candy dish bowl fragment.



0 2 4 8 cm

Figure C.30 Candy dish bowl.

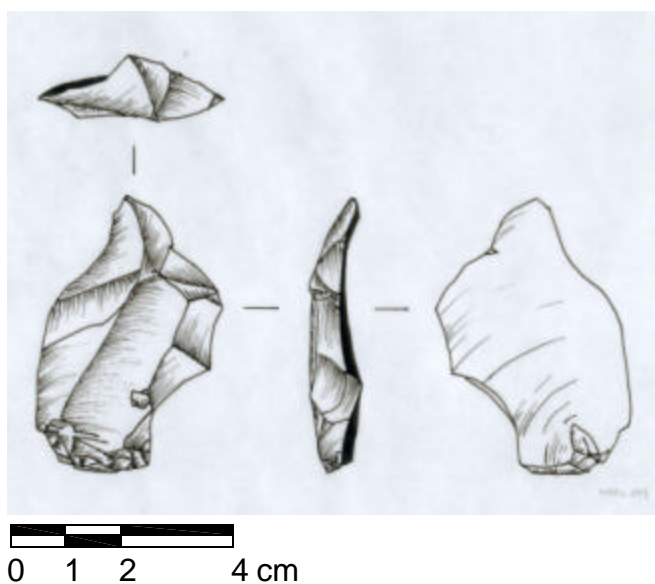


Figure C.31 Chert flake.

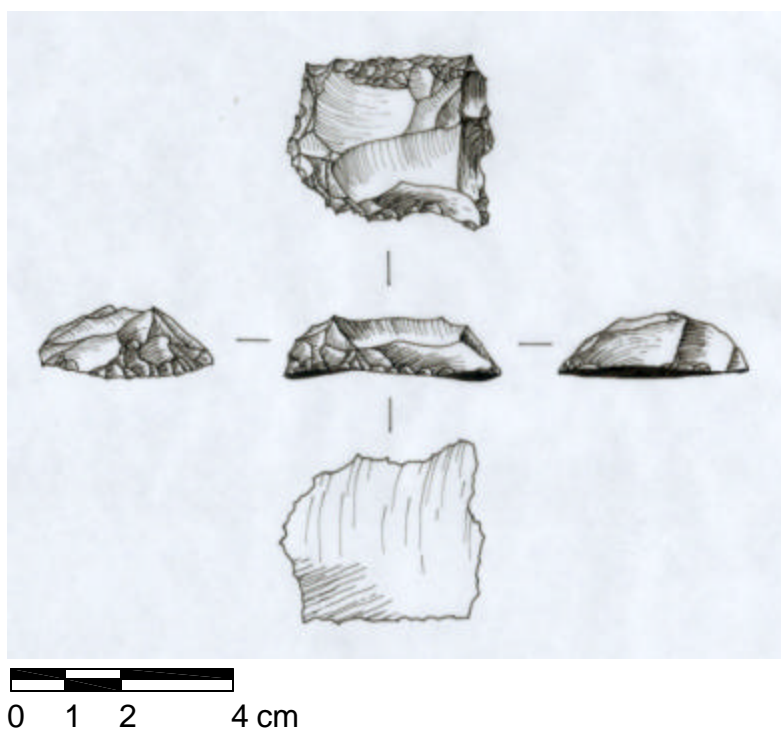
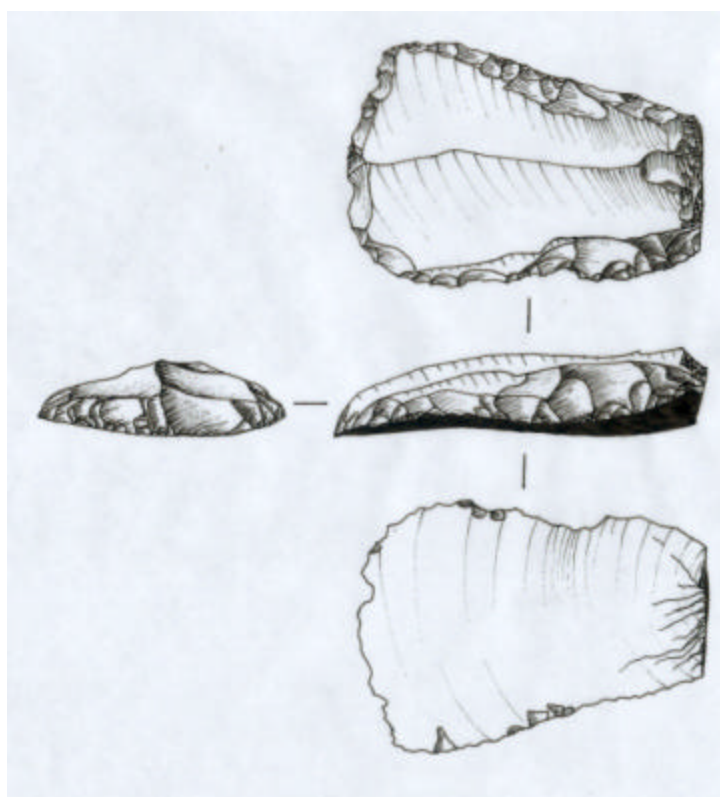
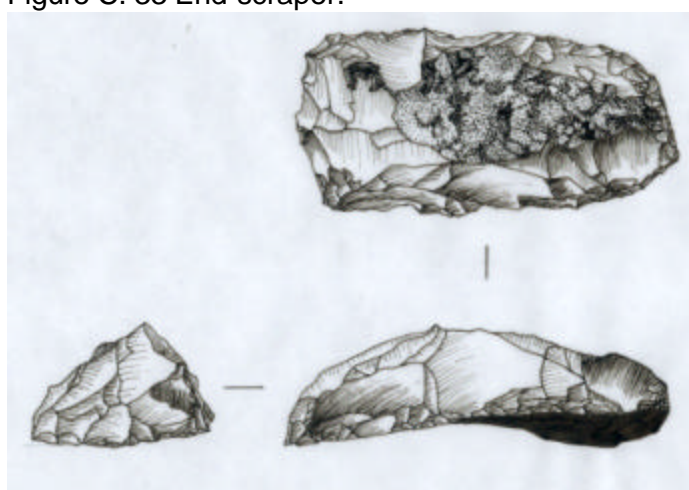


Figure C. 32 Unifacially retouched chert flake.



0 1 2 4 cm

Figure C. 33 End-scraper.



0 1 2 4 cm

Figure C. 34 End-scraper with cortex.

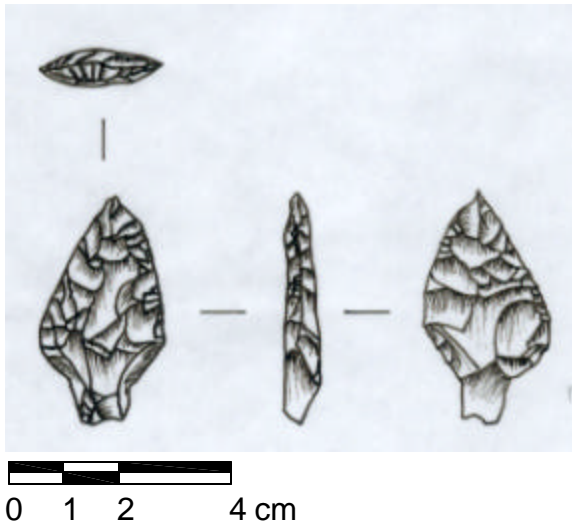


Figure C.35 Stemmed projectile point.

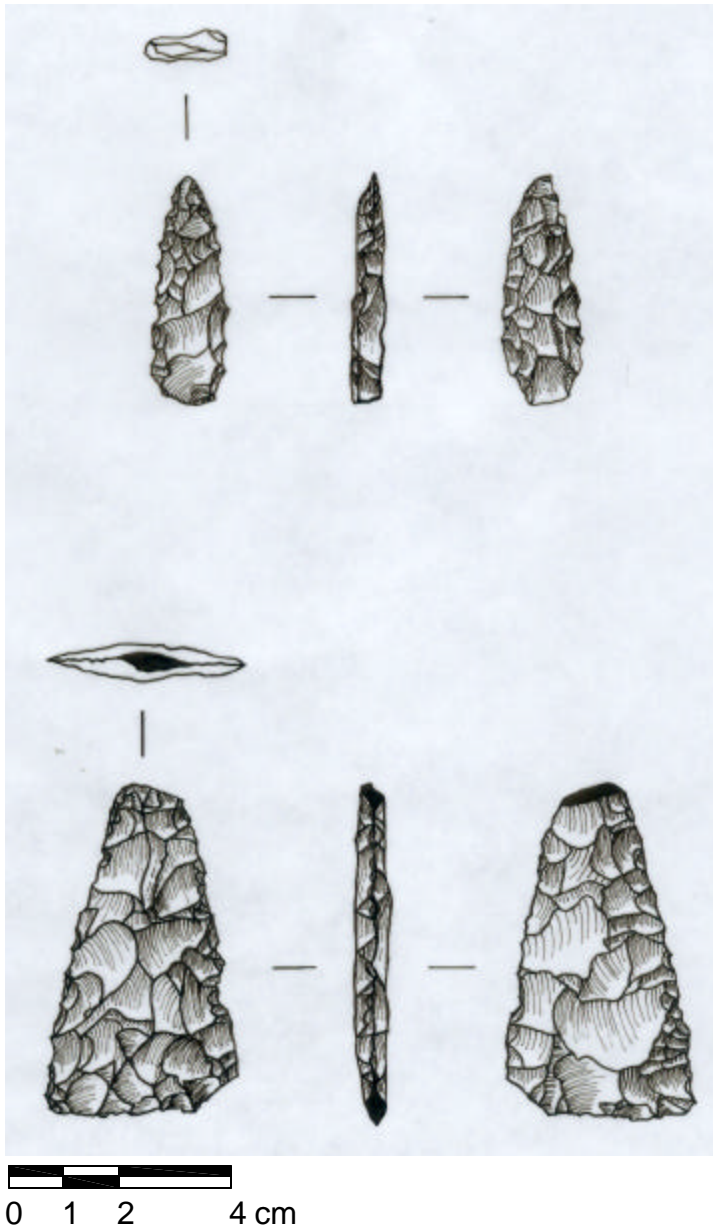


Figure C.36 Projectile point (top) and axe (bottom).



Figure C.37 Agave scraper.



Figure C.38 Basalt cylinder

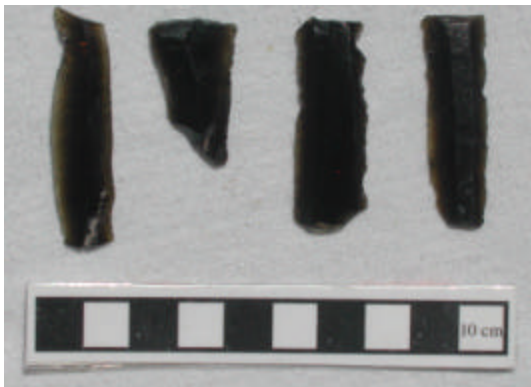


Figure C.39 Green obsidian blades



Figure C.40 End-scraper.



Figure C.41 Projectile point recovered in excavation.

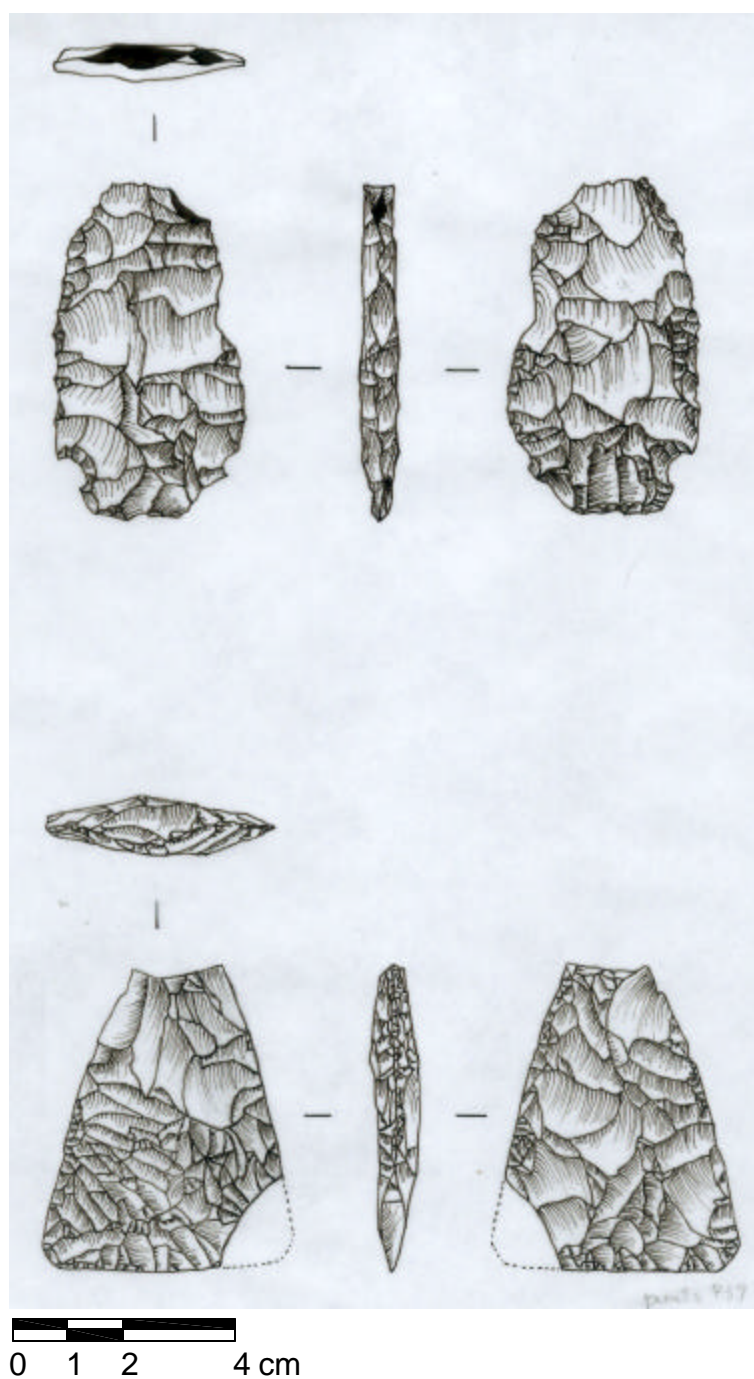


Figure C.42 Triangular (bottom) and corner-notched (top) points.



Figure C.43 Very worn *metate* recovered from basalt rock layer in *temazcal* hearth of House 1.



Figure C.44 Square *mano* for one-hand grinding.



Figure C.45 Long *mano* for two-hand grinding.



Figure C.46 Doughnut stone (function unknown).



Figure C.47 Long, worn *mano* used in two-hand grinding.



Figure C.48 Thermally altered basalt from hearths.



Figure C.49 Stacked basalt lining in *temazcal*/ hearth of House 2.



Figure C.50 Remains of a skunk found in hollow of House 2.



Figure C.51 Remains of an opossum found in hollow of House 2.

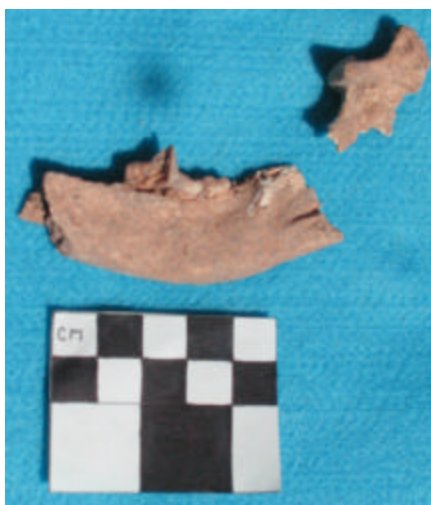


Figure C.52. Xoloitzcuintle mandible (absence of pre-molars) found in Area 1.



Figure C.53 Cut view of cooked deer bone from Layer III in Area 1.



Figure C.54 Possible burin, broken, made out of a human long bone, displays signs of cutting (from Area 1).



Figure C.55 Possible piscador, shows signs of polishing and erosion caused by fine roots, from Area 1.

Raw artifact data

The artifact content information is presented in its entirety organized by bag number. I first present the master bag list table, which contains the tag information of all the artifact and sample bags collected throughout this study. I then present the ceramic data tables according to surface or excavation area and then by ceramic type. A ceramic vessel type table is presented at the start of the ceramic data section. The lithic data are just divided by raw material type and at the beginning of the lithic artifact section I present a lithic artifact type table. Lastly, bone material is presented in two tables; one for un-worked bone and a second for worked bone all found outside of burial contexts. For all artifact tables I just list the bag number as provenience. For additional information on provenience you must refer to the Master Bag List Information table. In addition, when a bag did not contain a particular artifact type I simply did not list this bag in the table in order to save paper.

Table C. 3 Master bag list Information

Bag #	Site	Sector	Unit	Provenience	Date	Level
1	Nicayuhu	T1	col 1	col 1	17-Jul-02	
2	Nicayuhu	T1	col 2	E de T1 col 2	17-Jul-02	
3	Nicayuhu	str. 1	DS str. 1	col 3	17-Jul-02	
4	Nicayuhu	T 4	col 4	col 4	19-Jul-02	
5	Nicayuhu	junto est. 1			19-Jul-02	
6	Nicayuhu	artefacto 1		SE est. 1	19-Jul-02	
7	Nicayuhu	LB 2	erosion	col 5	20-Jul-02	
7	Nicayuhu	LB 2	erosion	col 5	20-Jul-02	
8	Nicayuhu	LB 2	erosion	col 5	20-Jul-02	
9	Nicayuhu	LB 1 y 2	montura		20-Jul-02	
10	Nicayuhu			col 7	24-Jul-02	
11	Nicayuhu	col 7		col 7	5-Aug-02	
12	Nicayuhu	col 7		col 7	5-Aug-02	
13	Nicayuhu	col 7		col 7	24-Jul-02	
14	Nicayuhu	T 16 str. 2		col 6	24-Jul-02	
15	Nicayuhu	T 35		col 8	25-Jul-02	
16	Nicayuhu			col 9	1-Aug-02	
17	Nicayuhu			col 10	1-Aug-02	
18	Nicayuhu			str. 8	1-Aug-02	
19	Nicayuhu				2-Aug-02	
20	Nicayuhu			col 11	2-Aug-02	
21	Nicayuhu		area figurilla	surface	3-Aug-02	
22	Sasna	entre TA8 y TA9		surface	15-Aug-02	
23	Nicayuhu	T 12			15-Aug-02	
24	Nicayuhu			col 12	15-Aug-02	
25	Nicayuhu	T 116			19-Aug-02	
26	Nicayuhu	desplante T 127			19-Aug-02	
27	Nicayuhu	MT 126		col X	19-Aug-02	

Bag #	Site	Sector	Unit	Provenience	Date	Level
28	Nicayuhu	Bajo T 112			20-Aug-02	
29	Nicayuhu	T 106 y 108			20-Aug-02	
30	Nicayuhu		erosion de lama bordo 2		20-Jul-02	
31	C coyote	Str. 22			22-Aug-02	
32	C coyote	T 143		surface	22-Aug-02	
33	C coyote	T 12		surface	22-Aug-02	
34	C coyote	cima		surface	22-Aug-02	
35	C coyote	?		Superficie	22-Aug-02	
36	C coyote	T 144		Superficie	22-Aug-02	
37	Nicayuhu	T 10		Erosion sobre T 10	23-Jul-02	
38	Nicayuhu	erosion on T10		Superficie	23-Jul-02	
39	Yu'uki	cima		surface	26-Aug-02	
40	C coyote	PT 5		col 17	26-Aug-02	
41	C coyote	PT 5		col. 17	26-Aug-02	
42	Yu'uki	cima		col 18	26-Aug-02	
43	C coyote	T 14		col 19	27-Aug-02	
44	C coyote	T 18		surface	27-Aug-02	
45	C coyote	T167 y T 168		surface	29-Aug-02	
46	Nicayuhu	Area 1	S2E1	surface	10-Sep-02	(-3.27/-3.42)
47	Nicayuhu	Area 1	S3E1	capa I	11-Sep-02	33 (-3.2 on)
48	Nicayuhu	Area 1	S1E1	capa I	11-Sep-02	36 (-3.45 a -3.72)
49	Nicayuhu	Area 1	S3E1	capa I	11-Sep-02	33 (-3.2 on)
50	Nicayuhu	Area 1	S1E1	capa I	10 y 11-sep-02	34 (-3.45 a -3.72)
51	Nicayuhu	Area 1	S2E1	capa I	10-Sep-02	33-34 (-3.28 a -3.64)
52	Nicayuhu	Area 1	S2E1	capa I	11-Sep-02	35 (-3.28 a -3.64)
53	Nicayuhu	Area 1	S2E1	capa I	12-Sep-02	36 (-3.28 a -3.64)
54	Nicayuhu	Area 1	S1E1	capa I	11-Sep-02	35 (-3.45 a -3.72)
55	Nicayuhu	Area 1	S1E1	capa I	12-Sep-02	37 (-3.45 a -3.72)
56	Nicayuhu	Area 1	S1E1	capa II	12-Sep-02	38 (-3.72 a -3.89)
57	Nicayuhu	Area 1	S1E1	Capa II	12-Sep-02	39 (-3.72 a -3.89)
58	Nicayuhu	Area 1	S3E1	Capa II	12-Sep-02	32 (-3.3)a (-3.52 a -3.66)
59	Nicayuhu	Area 1	S3E1	Capa II	12-Sep-02	33 (-3.4)a (-3.52 a -3.66)
60	Nicayuhu	Area 1	S4E1	surface	12-Sep-02	29 (-2.84/-2.96)
61	Nicayuhu	Area 1		str. 6	15-Sep-02	
62	Diquino	Entierro 1	terrazza assoc. a entierro	entierro 1 surface	17-Sep-02	surface
63	Diquino	Entierro 1	terrazza assoc. a entierro	entierro 1 surface	17-Sep-02	surface
64	Diquino	Entierro 1	terrazza assoc. a entierro	material asoc. A entierro	17-Sep-02	
65	Diquino	Entierro 1	terrazza assoc. a entierro	material asoc. A entierro	17-Sep-02	
66	Diquino	Entierro 1	terrazza assoc. a entierro	material asoc. A entierro	17-Sep-02	
67a	Diquino	Entierro 1	entierro 1		17-Sep-02	
67b	Diquino	Entierro 1	entierro 1		17-Sep-02	
67c	Diquino	Entierro 1	entierro 1		17-Sep-02	
67d	Diquino	Entierro 1	entierro 1		17-Sep-02	
67e	Diquino	Entierro 1	entierro 1		17-Sep-02	
67f	Diquino	Entierro 1	entierro 1		17-Sep-02	
67g	Diquino	Entierro 1	entierro 1		17-Sep-02	
67h	Diquino	Entierro 1	entierro 1		17-Sep-02	
67i	Diquino	Entierro 1	entierro 1		17-Sep-02	
68	Nicayuhu	Area 1	S2E1	capa I	11-Sep-02	37 (-3.28 a -3.66)
69	Nicayuhu	Area 1	S3E1	Capa II	17-Sep-02	
70	Nicayuhu	Area 1	S2E1	Capa II	17-Sep-02	36 (-3.52 a -3.66)
71	Nicayuhu	Area 1	S4E1	Capa I	17-Sep-02	30 (-2.84/-2.96 on)
72	Nicayuhu	Area 1	S2E1	Capa II	17-Sep-02	37 (-3.52 a -3.66)
73	Nicayuhu	Area 1	S2E1	limpieza de perfil	17-Sep-02	
74	Nicayuhu	Area 1	S3E1	limpieza de perfil	17-Sep-02	
75	Nicayuhu	Area 1	S4E1	interior str. 13	17-Sep-02	29 (-2.9 on)
76	Nicayuhu	Area 1	S2E1	Capa III	17 y 18/sep/2	37 (-3.66 a -3.8)
77	Nicayuhu	Area 1	S4E1	Capa II exterior str. 13	18-Sep-02	31 y 32
78	Nicayuhu	Area 1	S3E1	capa I	18-Sep-02	(-3/-3.26)
79	Diquino	Entierro 1		entierro 1	17-Sep-02	

Bag #	Site	Sector	Unit	Provenience	Date	Level
80	Diquino	Entierro 1		entierro 1	17-Sep-02	
81	Diquino	Entierro 1		suelo debajo de entierro 1	23-Sep-02	
82	Diquino	Entierro 1	muestra suelo	suelo debajo de entierro 1	23-Sep-02	
83	Nicayuhu	Area 1	S4E1	Capa Ib sobre str. 13	18-Sep-02 (-2.9 on)	
84	Nicayuhu	Area 1	S3E1	Capa II	18-Sep-02 32 y 33	
85	Nicayuhu	Area 1	S3E1	capa III	19-Sep-02	35
86	Nicayuhu	Area 1	S3E1 mitad E	Capa III	19-Sep-02 32, 33 y 34	
87	Nicayuhu	Area 1	S3E1 mitad W	capa II	19-Sep-02	34
88	Nicayuhu	Area 1	S4W1	surface Ic interior str. 13	23-Sep-02	29
89	Nicayuhu	Area 1	S3E1	Capa III	23-Sep-02	35
90	Nicayuhu	Area 1	S4E2	Capa Ib	23-Sep-02	31
91	Nicayuhu	Area 1	S4W1	surface y capa Ic exterior str. 13	23-Sep-02 (-2.9 on)	
92	Nicayuhu	Area 1	S5E1	surface	23-Sep-02 (-2.6/-2.84)	
93	Nicayuhu	Area 1	S4E2	surface y capa Ib interior str. 13	23-Sep-02	28
94	Nicayuhu	Area 1	S4W1	surface y capa I exterior str. 13	23-Sep-02 30 y 31	
95	Nicayuhu	Area 1	S5E1	Capa Ib	24-Sep-02 27 y 28 (-2.6 a -2.7)	
96	Nicayuhu	Area 1	S6E1	capa humus	24-Sep-02 19-26 (-1.96/-2.6 a -2.16/-2.6)	
97	Nicayuhu	Area 1	S4E3 mitad S	surface y capa Ib interior str. 13	24-Sep-02	29
98	Nicayuhu	Area 1	S4W1	Capa Ic	24-Sep-02 29-30 (-2.9 a -3.1)	
99	Nicayuhu	Area 1	S4E2	exterior str. 13 capa I	24-Sep-02	32
100	Nicayuhu	Area 1	S4E2	capa I exterior str. 13	24-Sep-02	31
101	Nicayuhu	Area 1	S4E2	capa Ic interior str. 13	24-Sep-02	28
102	Nicayuhu	Area 1	S5E1		24-Sep-02 27-28	
103	Nicayuhu	Area 1	S4E2	Capa Ib interior muro str. 13	24-Sep-02	
104	Nicayuhu	Area 1	S4W1	Capa Ic	24-Sep-02 29-30	
105	Nicayuhu	Area 1	S7E1	2nda capa	25-Sep-02 12 (-1.2)	
106	Nicayuhu	Area 1	S1E1	entre Capa IV y V intrusion 1	25-Sep-02 42 (-4.17 a -4.33)	
107	Nicayuhu	Area 1	S3E1 Quad NW	Capa III	25-Sep-02 ???	
108	Nicayuhu	Area 1	S5E1 Quad NW	Capa VI	25-Sep-02 29-31	
109	Nicayuhu	Area 1	S7E1	capa humus	25-Sep-02 17 a 07	
110	Nicayuhu	Area 1	S6E1	humus	25-Sep-02 19-26	
111	Nicayuhu	Area 1	S3E1	Capa III	25-Sep-02 35-38 en lado N	
112	Nicayuhu	Area 1	S3E1	Capa IV	25-Sep-02 35-39	
113	Nicayuhu	Area 1	S1E1	Capa II	25-Sep-02 39 (-3.62 a -3.89)	
114	Nicayuhu	Area 1	S1E1 Quad NW	Capa IV/V	25-Sep-02 41-42 (-4.04 a -4.33)	
115	Nicayuhu	Area 1	S3E1 Quad SW	Capa IV/V	25-Sep-02	39
116	Nicayuhu	Area 1	S1E1	Capa II	25-Sep-02 39 (-3.62 a -3.89)	
117	Nicayuhu	Area 1	S3E1 Quad SW	Capa III	25-Sep-02	38
118	Nicayuhu	Area 1	S4W1	Capa Ic	26-Sep-02	30
119	Nicayuhu	Area 1	S4W1	Capa I sobre muro	26-Sep-02 31 y 32	
120	Nicayuhu	Area 1	S8E1 mitad E	capa 1era en T62	26-Sep-02 4 a 8	
121	Nicayuhu	Area 1	S3E1 mitad W	dentro de intrusion 1	26-Sep-02 38-39	
122	Nicayuhu	Area 1	S7E1 mitad W	2nda capa en T62	26-Sep-02 12 a 13	
123	Nicayuhu	Area 1	S3E1 Quad NW	Capa IV	26-Sep-02 38-39	
124	Nicayuhu	Area 1	S4W1	Capa Ic	26-Sep-02	31
125	Nicayuhu	Area 1	S4W1	Capa Ic	26-Sep-02	30
126	Nicayuhu	Area 1	S4W1	Capa Ic	26-Sep-02	30
127	Nicayuhu	Area 1	S4W1	Capa I	26-Sep-02 31-32	
128	Nicayuhu	Area 1	S3E1 mitad W	dentro de intrusion 1	26-Sep-02 38-39	
129	Nicayuhu	Area 1	S3E1 Quad NW	Capa IV	26-Sep-02 38-39	
130	Nicayuhu	Area 1	S4W1	capa 2nda.	27-Sep-02	32
131	Nicayuhu	Area 1	S7E1 mitad E	capa humus	27-Sep-02 7 a 17	
132	Nicayuhu	Area 1	S8E1 mitad E	1era capa en T62	27-Sep-02	7
133	Nicayuhu	Area 1	S7E1 mitad E	1era capa en T62	27-Sep-02	7
134	Nicayuhu	Area 1	S3W1	surface	27-Sep-02 (-3.0/-3.26)	
135	Nicayuhu	Area 1	S3E1 mitad W	intrusion 1	27-Sep-02 39-40	
136	Nicayuhu	Area 1	S3E1 mitad w	intrusion 1	27-Sep-02 39-40	
137	Nicayuhu	Area 1	S3WE1 mitad W	intrusion 1	27-Sep-02	40
138	Nicayuhu	Area 1	S4W1	1era capa en este cuadro	27-Sep-02	32
139	Nicayuhu	Area 1	S3W1	I	28-Sep-02	33
140	Nicayuhu	Area 1	S7E1		28-Sep-02 13-18	
141	Nicayuhu	Area 1	S7E1 1/2 W	capa humus sobre muro	26-Sep-02 (-1.2/-1.8)	

Bag #	Site	Sector	Unit	Provenience	Date	Level	
142	Nicayuhu	Area 1	S3W1	II	30-Sep-02		34
143	Nicayuhu	Area 1	S3W1	?	30-Sep-02		34
144	Nicayuhu	Area 1	S6E1	capa superior humus	23-28-Sep-02	(-1.86/-2.6 a -2.16/-2.6)	
145	Nicayuhu	Area 1	S4W1	I	23-28-Sep-02		
146	Nicayuhu	Area 1	S3E1	III	23-28-Sep-02		
147	Nicayuhu	Area 1	S3E1	IV	23-28-Sep-02		
148	Nicayuhu	Area 1	S1E1	IV	23-28-Sep-02	(-4.04 a -4.33)	
149	Nicayuhu	Area 1	S1E1	III	23-28-Sep-02	(-3.8 a -4.04)	
150	Nicayuhu	Area 1	S3W1	?	30-Sep-02		34
151	Nicayuhu	Area 1	S4E1	interior str. 13 lb	18-Sep-02 ??		
152	Nicayuhu	Area 1	S7E1	surface humus	27-Sep-02	(-1.2/-1.8)	
153	Nicayuhu	Area 1	S7E1	surface humus	23-28-Sep-02	(-1.2/-1.8)	
154	Nicayuhu	Area 1	S8E1	surface humus	23-28-Sep-02	(-.64 a -.8)	
155	Nicayuhu	Area 1	S6E1	capa VII?	23-28-Sep-02		
156	Nicayuhu	Area 1	S4W2 1/2 E	capa II b cerca intrusion 3	1-Oct-02		28
157	Nicayuhu	Area 1	S3W1		1-Oct-02		34
158	Nicayuhu	Area 1	S7E1	limpieza material entre muro	1-Oct-02		
159	Nicayuhu	Area 1	S3W2 1/2 E		1-Oct-02		29
160	Nicayuhu	Area 1	S3W1	capa II material en tierra negra	1-Oct-02		35
161	Nicayuhu	Area 1	S3W2	I plow	1-2-Oct-02		31
162	Nicayuhu	Area 1	S4W2		1-2-Oct-02		31
163	Nicayuhu	Area 1	S3W1		2-Oct-02		35
164	Nicayuhu	Area 1	S4E1 1/2 W	dentro str. 13	2-Oct-02		31
165	Nicayuhu	Area 1	S3W1		2-Oct-02		35
166	Nicayuhu	Area 1	S4W2		-3.2 2-Oct-02	(-3.2) 31	
167	Nicayuhu	Area 1	S4E1 1/2 W		-3.3 2-Oct-02	32 (-3.3)	
168	Nicayuhu	Area 1	S3W2	I	2-Oct-02		33
169	Nicayuhu	Area 1	S4E1	material entre estructura 1er nivel	2-Oct-02	28-31	
170	Nicayuhu	Area 1	S3W1	I	2-Oct-02	???	
171	Nicayuhu	Area 1	S4W1	I frente al muro	2-Oct-02	32-35	
172	Nicayuhu	Area 1	S3W1	capa café junto a muro	2-Oct-02	35 (a -3.54)	
173	Nicayuhu	Area 1	S4W1	derrumbe de muro	2-Oct-02		
173	Nicayuhu	Area 1	S4W1	derrumbe de muro	2-Oct-02		
174	Nicayuhu	Area 1	S3W1		2-Oct-02		36
175	Nicayuhu	Area 1	S4W2 1/2 E	I	2-Oct-02		32
176	Nicayuhu	Area 1	S4W2 1/2 E	surface	3-Oct-02		33
177	Nicayuhu	Area 1	S4W1	Derrumbe al norte del muro	3-Oct-02	32-33	
178	Nicayuhu	Area 1	S4W1	capa superior I plow	3-Oct-02		33
179	Nicayuhu	Area 1	S3W1	contacto III-IV	3-Oct-02	(-3.53 a -3.7)	
180	Nicayuhu	Area 1	S4E1 1/2 W	bajo str. 13	3-Oct-02		
181	Nicayuhu	Area 1	S4W2	II	3-Oct-02		34
182	Nicayuhu	Area 1	S3W2	I plow	3-Oct-02	31-32 a -3.23	
183	Nicayuhu	Area 1	S3W2	I plow	3-Oct-02	(-3.0-3.1)	
184	Nicayuhu	Area 1	S3W2	I plow	3-Oct-02		32
185	Nicayuhu	Area 1	S4E1 1/2 W	bajo str. 13	3-Oct-02	32-33	
186	Nicayuhu	Area 1	S3W1	III	3-Oct-02		36
187	Nicayuhu	Area 1	S4W1	derrumbe	3-Oct-02		36
188	Nicayuhu	Area 1	S3W1	III a IV	4-Oct-02	hasta -3.8	
189	Nicayuhu	Area 1	S4W2	I	4-Oct-02	31 al 3.2	
190	Nicayuhu	Area 1	S4W2 1/2 W	I	4-Oct-02	29-30 (-2.9 a -3.1, -2.8 a -3.0)	
191	Nicayuhu	Area 1	S3W1 1/2	IV a V	4-Oct-02		38
192	Nicayuhu	Area 1	S3W2 1/2 W	II	8-Oct-02	32 (3.11)	
193	Nicayuhu	Area 1	S4W3 1/2 E	I	8-Oct-02	30-32	
194	Nicayuhu	Area 1	S4W3	I	8-Oct-02	30-32	
195	Nicayuhu	Area 1	S3W1	IV	8-Oct-02	(-3.9 a -4.0)	
196	Nicayuhu	Area 1	S3W1	II	8-Oct-02	34-35 (-3.35 a -3.5)	
197	Nicayuhu	Area 1	S3W1	IV intrusion	4-Oct-02		41
198	Nicayuhu	Area 1	S4W1	II	9-Oct-02	34-35	
199	Nicayuhu	Area 1	S4W2	II	9-Oct-02	33 (-3.1 a -3.2)	

Bag #	Site	Sector	Unit	Provenience	Date	Level	
200	Nicayuhu	Area 1	S4W3 1/2 E	II	9-Oct-02	32 (-3.1)	
201	Nicayuhu	Area 1	S4W4	I	9-Oct-02	30-31	
202	Nicayuhu	Area 1	S4W3 1/2 E	II	9-Oct-02	32 (-3.1)	
203	Nicayuhu	Area 1	S3W1	IV	9-Oct-02	39 (1.30???)	
204	Nicayuhu	Area 1	S4W3 1/2 W	II	9-Oct-02	32 (-3.1 a -3.2)	
205	Nicayuhu	Area 1	S4W3 1/2 W	II	9-Oct-02		32
206	Nicayuhu	Area 1	S4W3	II	10-Oct-02	29 (-2.3 ??)	
207	Nicayuhu	Area 1	S4W4 1/2 W	I	10-Oct-02	30-32 (-2.9 a -3.1)	
208	Nicayuhu	Area 1	S3W3	I	10-Oct-02	31-34 (-3.07 a -3.21)	
209	Nicayuhu	Area 1	S3W4	I	10-Oct-02	31-34 (-3.06 a -3.19)	
210	Nicayuhu	Area 1	S4W3	II	10-Oct-02	29 (-3.3??)	
211	Nicayuhu	Area 1	S3W3	I	10-Oct-02	31-34 (-3.06 a -3.3)	
212	Nicayuhu	Area 1	S3W1	tierra rosa	1-Oct-02		35
213	Nicayuhu	Area 1	S7E1	II entre humus y muro	23-28-Sep-02	S/N	
214	Nicayuhu	Area 1	S3W3	II	11-Oct-02	34 (-3.27 a -3.37)	
215	Nicayuhu	Area 1	S3W3	II	11-Oct-02	34 (-3.27 a -3.37)	
216	Nicayuhu	Area 1	S3W3	II	11-Oct-02		34
217	Nicayuhu	Area 1	S3W4	II	11-Oct-02	34 (-3.3 a -3.4)	
218	Nicayuhu	Area 1	S3W4	II	11-Oct-02		34
219	Nicayuhu	Area 1	S4W3	II	11-Oct-02	34-36 (-3.3-3.45)	
220	Nicayuhu	Area 1	S4W3	II	11-Oct-02	34-36 (-3.3 a -3.45)	
221	Nicayuhu	Area 1	S4W3 1/2 W (.25)	I	11-Oct-02	29-31 (-2.8 a -3.0)	
222	Nicayuhu	Area 1	S4W4 (.25) al sur	I	11-Oct-02	29-31 (-2.8 a -3.0)	
223	Nicayuhu	Area 1	S4W4	interior de muro	14-Oct-02	34 (3.1 a -3.3)	
224	Nicayuhu	Area 1	S5W4 (.25)	II	14-Oct-02	32 (-3.0 a -3.1)	
225	Nicayuhu	Area 1	S3W3 1/2 W	interior cuarto str. A	14-Oct-02	35 (-3.37 a -3.5)	
226	Nicayuhu	Area 1	S5W5 (.25)	I	14-Oct-02	30-32 (-2.9 a -3.1)	
227	Nicayuhu	Area 1	S5W3 (.25)	II	14-Oct-02	32 (-3.0 a -3.1)	
228	Nicayuhu	Area 1	S3W4	II	14-Oct-02	35 (-3.4 a -3.58)	
229	Nicayuhu	Area 1	S4W5	I	14-Oct-02	30-32 (-2.89 a -3.1)	
230	Nicayuhu	Area 1	S3W5	I	14-Oct-02	31-34 (-3.06 on)	
230	Nicayuhu	Area 1	S3W5	I	14-Oct-02	31-34 (-3.06 on)	
231	Nicayuhu	Area 1	S2W3 1/2 S	I	14-Oct-02	33-35 (-3.26 a -3.4)	
232	Nicayuhu	Area 1	S2W3	I a piso estuco	15-Oct-02	35 (-3.4 a -3.50)	
233	Nicayuhu	Area 1	S4W6	I	14-Oct-02	29-31 (-2.8 a -3.0)	
233	Nicayuhu	Area 1	S4W6	I	14-Oct-02	29-31 (-2.8 a -3.0)	
234	Nicayuhu	Area 1	S5W6	I	14-Oct-02	29-31 (-2.8 a -3.0)	
234	Nicayuhu	Area 1	S5W6	I	14-Oct-02	29-31 (-2.8 a -3.0)	
235	Nicayuhu	Area 1	S3W1	III a IV	15-Oct-02	37-38	
236	Diquino	grab bag	surface		15-Oct-02	surface	
237	Nicayuhu	Area 1	S4W1	intrusion 3	15-Oct-02	3.3 a 3.5 (33 y 34)	
238	Nicayuhu	Area 1	S3W1	IV	15-Oct-02	40 (-4.05)	
239	Nicayuhu	Area 1	S4W1	II b y V rosa	15-Oct-02	37 (-3.75)	
240	Nicayuhu	Area 1	S3W1 1/2 W	Capa IV	15-Oct-02	38 (-3.8-3.9)	
241	Nicayuhu	Area 1	S2W2	II c dentro str. A	16-Oct-02	35 (-3.4-3.5)	
242	Nicayuhu	Area 1	S5W6	I plow	16-Oct-02	30-31 (-2.95-3.0)	
243	Nicayuhu	Area 1	S4W1	II c dentro str. B	16-Oct-02	29-31 (-2.9-3.0)	
244	Nicayuhu	Area 1	S3W1	post mold IV -V	17-Oct-02	(-4.05-4.17)	
245	Nicayuhu	Area 1	S1W3	I	18-Oct-02	33-35 (-3.2-3.4)	
246	Nicayuhu	Area 1	S4W7	II c	17-Oct-02	?? A -3.22	
247	Nicayuhu	Area 1	S3W7	I plow	18-Oct-02	32-33 (-3.27 a 3.3)	
248	Nicayuhu	Area 1	S5W8	relleno detras esq.	18-Oct-02	33-36 (-2.91 a 3.5)	
249	Nicayuhu	Area 1	S5W8 mitad N	I plow	17-Oct-02	29-30 (-2.88 a 3.0)	
250	Nicayuhu	Area 1	S2W2	I plow	18-Oct-02	33-35 (-3.2-3.4)	
251	Nicayuhu	Area 1	S3W6	I plow	17-Oct-02	31-32 (-3.07 a 3.2)	
252	Nicayuhu	Area 1	S1W2	I plow	18-Oct-02	33-35 (3.2-3.4)	
253	Nicayuhu	Area 1	S3W1	intrusion 3	17-Oct-02	41 (-4.0 a 4.1)	
254	Nicayuhu	Area 1	S4W7	I plow	17-Oct-02	(-3.1 a -3.2)	
255	Nicayuhu	Area 1	S3W8	I plow	18-Oct-02	31-35 (-3.27 a 3.47)	
256	Nicayuhu	Area 1	S4W8	I plow	17-Oct-02	30 (-2.94 a -3.1)	
257	Nicayuhu	Area 1	S3W7	I plow	18-Oct-02	31-32 (-3.07 a -3.27)	
258	Nicayuhu	Area 1	S3W1	intrusion 3	17-Oct-02		-4
259	Nicayuhu	Area 1	S3E1 mitad W	entierro 2 intrusion 1	17-Oct-02		-4
260	Nicayuhu	Area 1	S3E1	intrusion 1 assoc. entierro 2	17-Oct-02		-4
261	Nicayuhu	Area 1	S3E1	entierro 2	18-Oct-02		-4
262	Nicayuhu	Area 1	S3E1	entierro 2	18-Oct-02		-4
263	Nicayuhu	Area 1	S3E1	entierro 2	18-Oct-02		-4

Bag #	Site	Sector	Unit	Provenience	Date	Level
264	Nicayuhu	Area 1	S3E1	entierro 2	18-Oct-02	-4
265	Nicayuhu	Area 1	S3W7 y S3W8	elemento 1	21-Oct-02	36 (-3.45 to -3.5)- 3.45
266	Nicayuhu	Area 1	S3W1	intrusion 3	21-Oct-02	-4
267	Nicayuhu	Area 1	S3W1 mitad W	ll c	21-Oct-02	(-3.57 a -3.7)
268	Nicayuhu	Area 1	S1W2	l plow	21-Oct-02	(-3.36 a -3.5)
269	Nicayuhu	Area 1	S2W7	l plow	21-Oct-02	(-3.38 a ??)
270	Nicayuhu	Area 1	S1W1 mitad W	l plow	21-Oct-02	(-3.3 a -3.52)
271	Nicayuhu	Area 1	S1W3 mitad E	capa empedrado piso	21-Oct-02	(-3.54 a 3.76)
272	Nicayuhu	Area 1	S3W7	l c sobre piso	21-Oct-02	(-3.55 a -3.6)
273	Nicayuhu	Area 1	S2W8	lc plow	21-Oct-02	(-3.57 a -3.65)
274	Nicayuhu	Area 1	S2W3 mitad W	capa empedrado piso	21-Oct-02	(-3.48-3.76)
275	Nicayuhu	Area 1	S3W1	Postmold IV-V	21-Oct-02	(-4.0-4.13)
276	Nicayuhu	Area 1	S1W3 mitad E	piso estuco rojo	21-Oct-02	(-3.54)
277	Nicayuhu	Area 1	S3W1	intrusion 3	21-Oct-02	(-4.)
278	Nicayuhu	Area 1	S3W1 esq. NW	intrusion 3	21-Oct-02	(-4.0-4.1)
279	Nicayuhu	Area 1	S3W7 y S3W8	elemento 1	21-Oct-02	(-3.6 - 3.7)
280	Nicayuhu	Area 1	S2W1 mitad w	2nda/3era capa	22-Oct-02	(-3.7)
281	Nicayuhu	Area 1	S2W2	l plow a firme de piedra	22-Oct-02	(-3.28 a -3.38)
282	Nicayuhu	Area 1	S2W1 1/2 W	2nda	22-Oct-02	-3.51
283	Nicayuhu	Area 1	S1W1 mitad W	2nda	22-Oct-02	(-3.52-3.72)
284	Nicayuhu	Area 1	S2W1 mitad w	l plow	22-Oct-02	(-3.28 a -3.51)
285	Nicayuhu	Area 1	N1W3	l plow	22-Oct-02	(-3.29-3.53)
286	Nicayuhu	Area 1	N1W3	2nda	22-Oct-02	(-3.53 a -3.69)
287	Nicayuhu	Area 1	S1W1 mitad W	l plow a 2nda capa rosa	22-Oct-02	(-3.3 a -3.52)
288	Nicayuhu	T 70	T 70	surface	22-Oct-02	surface
289	Nicayuhu	Area 1	S4W1	ll c sobre piso W de str. A	23-Oct-02	(xxx a -3.28)
290	Nicayuhu	Area 1	S3W3 fuera str. A y B	ll c a firme de piedras sobre patio	23-Oct-02	(-3.6 a -3.7)
291	Nicayuhu	Area 1	S3W3 fuera str. A y B	ll c a firme de piedras sobre patio	23-Oct-02	(-3.6 a -3.7)
292	Nicayuhu	Area 1	S3W2	str. A cuarto E relleno de piedra	23-Oct-02	(-3.2 a -3.5)
293	Nicayuhu	Area 1	S3W6	l plow	23-Oct-02	(-3.3 a -3.8) floor - 3.7- -3.8
294	Nicayuhu	Area 1	S3W7 1/2 E fuera Str. C	ll c	23-Oct-02	?? A -3.82
295	Nicayuhu	Area 2	S1E1	l plow	22-Oct-02	(-3.35/-3.82 a -3.65/- 3.9)
296	Nicayuhu	Area 2	S2E1	l plow	22-Oct-02	(-3.1/-3.34 a -3.45)
297	Nicayuhu	Area 1	S3W6	ll c a piso	23-Oct-02	(?? A -3.84)
298	Nicayuhu	Area 1	S1W4	l plow	24-Oct-02	34-37 (-3.3 a -3.6)
299	Nicayuhu	Area 1	S1W3	l plow	24-Oct-02	34-37 (-3.3 a -3.6)
300	Nicayuhu	Area 1	S1W3	ll	24-Oct-02	37-38 (-3.6 a -3.7)
301	Nicayuhu	Area 2	S2E1	l plow	24-Oct-02	(-3.1/-3.34 a -3.45)
302	Nicayuhu	Area 1	S1W5	l	24-Oct-02	(-3.3 a -3.6)
303	Nicayuhu	Area 1	N1W7 mitad E	l plow	25-Oct-02	(-3.5 a -3.75)
304	Nicayuhu	Area 1	S1W5 mitad S	l plow	25-Oct-02	(-3.5 a -3.7)
305	Nicayuhu	Area 1	S3W2 E annex str. A	relleno piedra tezontle	25-Oct-02	33-36 (-3.2 a -3.5)
306	Nicayuhu	Area 1	N2W3	l plow	25-Oct-02	(-3.4 a -4.05)
307	Nicayuhu	Area 1	S1W7 mitad N	l plow	25-Oct-02	(-3.46 a -3.7)
308	Nicayuhu	Area 1	S1W5 mitad S	llc sobre piso de patio	25-Oct-02	(-3.7 a -3.85)
309	Nicayuhu	Area 1	S1W7 mitad E	llc sobre piso de patio	25-Oct-02	a -3.85
310	Nicayuhu	Area 1	S1W5 mitad S	llc sobre piso de patio	25-Oct-02	(-3.7 a -3.85)
311	Nicayuhu	Area 1	N1W6 1/2 S	l plow	28-Oct-02	-3.4
312	Nicayuhu	Area 1	S1W6 1/2 N	l plow a patio	24-Oct-02	(-3.41 a -3.92)
313	Nicayuhu	Area 1	S2W1 1/2 N	III a IV	28-Oct-02	(-3.8 a -3.9)
314	Nicayuhu	Area 1	S3W2	relleno tezontle en annex	28-Oct-02	(-3.45 a -3.57)
315	Nicayuhu	Area 1	S2W5 1/2 E	l plow	28-Oct-02	(-3.28)
316	Nicayuhu	Area 1	S2W1 1/2 W	III	28-Oct-02	(-3.66 a -3.8)
317	Nicayuhu	Area 1	S1W6 1/2 S	2nda capa café claro/rosa	28-Oct-02	(-3.67 a -3.8)
318	Nicayuhu	Area 1	N3W3	l plow y surface	28-Oct-02	(-4.05/-5.07 a -5.06/- 4.13)
319	Nicayuhu	Area 1	S2W1 1/2 W	IV a contacto c/V	28-Oct-02	-3.9
320	Nicayuhu	Area 1	N1W7 mitad E	l plow	25-Oct-02	(-3.5 a -3.75)
321	Nicayuhu	Area 1	S1W5	ll d capa negra sobre patio	28-Oct-02	(-3.7 a -3.85)
322	Nicayuhu	Area 1	S2W5	ll d capa negra sobre	28-Oct-02	(-3.68/-3.62 a -3.88)

Bag #	Site	Sector	Unit	Provenience	Date	Level
323	Nicayuhu	Area 1	S3W2 anexo E str. A	patio piedras y ceniza	28-Oct-02	(-3.4 a -3.65)
324	Nicayuhu	Area 1	S1W5 1/2 S	postmold 2	28-Oct-02	(-3.9 a -4.1)
325	Nicayuhu	Area 1	S1W1 mitad W	III a IV	28-Oct-02	(-3.7 a -3.94)
326	Nicayuhu	Area 1	S1W1 mitad W	IV a contacto c/V	29-Oct-02	(-3.9 a -4.1)
327	Nicayuhu	Area 1	S3W2	anexo E str. A capa ceniza	29-Oct-02	(-3.35 a -3.6)
328	Nicayuhu	Area 1	N1W2	I plow a empedrado y elemento 2	29-Oct-02	(-3.35 a X)
329	Nicayuhu	Area 1	S3W4	II c a piso de patio	30-Oct-02	(-3.4 a -3.8)
330	Nicayuhu	Area 1	S1W4 1/2 S	I plow a II negra sobre patio	30-Oct-02	(-3.26 a -3.52)
331	Nicayuhu	Area 1	S3W4	II c a piso de patio	30-Oct-02	(-3.4 a -3.8)
332	Nicayuhu	Area 1	N2W2	I plow a piso o MT66	29-Oct-02	(-3.36/-4.0 a -3.66)
333	Nicayuhu	Area 1	N3W2	I plow tepetate	29-Oct-02	(-4.0/-5.03 a -5.03)
334	Nicayuhu	Area 1	S3W5	II c a piso de patio	30-Oct-02	(-3.2 a -3.76)
335	Nicayuhu	Area 1	S5W8	limpiando esq. SW de Str. B	30-Oct-02	??
336	Nicayuhu	Area 1	S1W4 1/2 S	II c	30-Oct-02	(-3.52 a - 3.67)
337	Nicayuhu	Area 1	N1W6 1/2 S	2nda fuera de muro	28-Oct-02	-3.7
338	Nicayuhu	Area 1	S2W1 1/2 W	IV a contacto c/V	28-Oct-02	-3.94
339	Nicayuhu	Area 1	S1W1 mitad W	III	28-Oct-02	-3.8
340	Nicayuhu	Area 1	S3W2 anexo E str. A	bajo capa de ceniza	29-Oct-02	(-3.6 a -3.8)
341	Nicayuhu	Area 1	S2W6 1/2 W	I plow a piso	31-Oct-02	-3.84
342	Nicayuhu	Area 1	S1W4 1/2 S	II d capa negra sobre patio	30-Oct-02	(-3.52 a -3.67)
343	Nicayuhu	Area 1	S2W4	I y II c a II d capa negra sobre patio	30-Oct-02	(-3.26 a - 3.56)
344	Nicayuhu	Area 1	S1W6 1/2 S	I plow a piso	31-Oct-02	-3.86
345	Nicayuhu	Area 1	S2W4	II d capa negra sobre patio	31-Oct-02	(-3.70 a -3.84)
346	Nicayuhu	Area 1	S1W7 1/2 S	capa I plow	1-Nov-02	(-3.48 a -3.65)
347	Nicayuhu	Area 1	N1W6 1/2 N	I plow	1-Nov-02	(-3.3 a -3.8)
348	Nicayuhu	Area 1	N1W71/2 W	I plow	1-Nov-02	(-3.5 a 3.7)
349	Nicayuhu	Area 1	N1W8	I plow	1-Nov-02	(-3.48 a -3.65)
350	Nicayuhu	Area 1	N1W5 1/2 W	I plow	1-Nov-02	(-3.42 a -3.7)
351	Nicayuhu	Area 1	N1W7	capa II segunda	1-Nov-02	(-3.7 a -3.8)
352	Nicayuhu	Area 1	S1W8	I plow	1-Nov-02	(-3.48 a -3.65)
353	Nicayuhu	Area 1	N1W7 N de muro de str. C	capa relleno a V	4-Nov-02	(-3.75 a -3.95)
354	Nicayuhu	Area 2	S3W1	I plow	4-Nov-02	(-2.44 a -2.84/-2.4)
355	Nicayuhu	Area 1	N1W8	?	4-Nov-02	(-3.68 a -3.83)
356	Nicayuhu	Area 2	S2E1 1/2 W	capa 1 y relleno grava tras MT89	4-Nov-02	(-2.44 a -3.0)
356	Nicayuhu	Area 2	S3E1	Relleno muro 1/2 W MT89	4-Nov-02	(-2.44 a -3.0)
357	Nicayuhu	Area 1	S3E6	I plow	4-Nov-02	(-3.0 a 3.1)
358	Nicayuhu	Area 1	N1W8	II	5-Nov-02	(-3.93 a -4.0)
359	Nicayuhu	Area 2	S2W1 1/2 W	I plow a endeque base	5-Nov-02	(-3.34 a -3.6)
360	Nicayuhu	Area 1	N1W8	II a contacto c/III	5-Nov-02	(-4.08 a -4.33)
361	Nicayuhu	Area 1	S1W8 1/2 W	I-II	5-Nov-02	(-3.78 a -3.9)
362	Nicayuhu	Area 1	N1W7	II c ??	5-Nov-02	(-3.91 a -3.99)
363	Nicayuhu	Area 2	S3W1 1/2 E	II	5-Nov-02	(-2.66 a -3.2/-2.8)?
364	Nicayuhu	Area 1	N1W8	limpieza pared N	5-Nov-02	surface (-4.08)
365	C coyote	S slope	Ladera sur	surface	5-Nov-02	surface
366	Nicayuhu	Area 1	N1W2	interior elemento 2	5-Nov-02	-3.43
367	Nicayuhu	Area 1	S1W2 1/2 N	empedrado cuarto N str. A	5-Nov-02	-3.4
368	Nicayuhu	Area 1	N1W2	capa ceniza dentro elemento 2	6-Nov-02	-3.69
369	Nicayuhu	Area 1	S2W8 1/2 W	I muro W str. C	6-Nov-02	(-3.68 a -3.9)
370	Nicayuhu	Area 1	S1W2 1/2 N	capa empedrado cuarto N Str. A	6-Nov-02	-3.4
371	Nicayuhu	Area 1	N1W2	elemento 2 entre tierra café	6-Nov-02	(-3.5 a -3.83) ?
372	Nicayuhu	Area 1	N1W2	elemento 2 a piso de estuco	6-Nov-02	(-3.5 a -3.83) ?
373	Nicayuhu	Area 2	S2W1 1/2 E	II negra	7-Nov-02	(-2.66 a -3.2/-2.8)

Bag #	Site	Sector	Unit	Provenience	Date	Level
374	Nicayuhu	Area 2	N2W3 1/2 W	surface capa I	7-Nov-02	(-4.37 a -4.86?)
375	Nicayuhu	Area 1	S2W8 1/2 W	II bajo plow fuera str. C	7-Nov-02	(-3.8 a -4.0)
376	Nicayuhu	Area 1	S1W8 1/2 W	II bajo plow fuera str. C	7-Nov-02	(-3.8 a -4.0)
377	Nicayuhu	Area 1	S1W3 esq. NE	empedrado cuarto N str. A	7-Nov-02	-3.4
378	Nicayuhu	Area 1	S1W2	capa IV cuarto N str. A	7-Nov-02	(-3.68 a -4.18)
379	Nicayuhu	Area 1	S2W8 1/2 W	capa II bajo plow fuera str. C	7-Nov-02	(-3.8 a -4.0)
380	Nicayuhu	Area 1	N1W2	elemento 2 capa ceniza II	7-Nov-02	(-3.5 a -3.83) ?
381	Nicayuhu	Area 2	S2W1 1/2 E	III	7-Nov-02	(-3.26 a - 3.80)
382	Nicayuhu	Area 1	N1W5 y W6	II reverso de muro	8-Nov-02	-3.59
383	Nicayuhu	Area 1	N1W5 1/2 E	II c	8-Nov-02	-3.65
384	Nicayuhu	Area 1	N1W5 1/2 E	I plow	8-Nov-02	-3.4
385	Nicayuhu	Area 1	S1W8	II	7-Nov-02	(-3.8 a -4.0)
386	Nicayuhu	Area 2	S2E1 1/2 W	material de MT89	8-Nov-02	(-2.4 a -3.06)
387	Nduatijubacu	Area 3	S1W1	I	8-Nov-02	hasta -1.2
388	Nduatijubacu	Area 3	S1W3	I	8-Nov-02	hasta -1.2
389	Nduatijubacu	Area 3	S1W5	I	8-Nov-02	(-0.15 a -0.2)
390	Nicayuhu	Area 4	S N6????	I	8-Nov-02	???
391	Nicayuhu	Area 4	S1W3	I	8-Nov-02	(-7.1 a -7.34)
392	Nicayuhu	Area 2	S3W1 1/2 E	III café/rosa	5-Nov-02	(-2.9/-3.08 a -3.36/-3.0)
393	Nicayuhu	Area 1	S1W8 1/2 W	I plow sobre muro Str. C	6-Nov-02	(-3.73 a -3.84)
394	Nicayuhu	Area 2	S2W1 1/2 S	I plow	6-Nov-02	(-2.62/-3.1 a -2.9/-3.39)
395	Nicayuhu	Area 2	N1W3 1/2 W	I plow	6-Nov-02	(-4.1 a -4.51)
396	Nicayuhu	Area 2	S3W 1/2 E	III café/rosa	7-Nov-02	-3.24
397	Nicayuhu	Area 1	N1W5	IIc sobre piso de patio	8-Nov-02	(XXX a -3.81)
398	Nicayuhu	Area 1	sobre piso estuco	cuarto E str. B ceniza sobre piso	11-Nov-02	(-3.37 a -3.42)
399	Nicayuhu	Area 1	Anexo E cuarto str. A	bajo ceniza de tierra quemada-V	11-Nov-02	(-3.55/-3.66 a -3.8)
400	Nicayuhu	Area 1	N1W6	liberando acceso patio entre rocas	11-Nov-02	(XXX a -3.81)
401	Nicayuhu	Area 1	S3W8	piso estuco esq. NW W room Str. B	11-Nov-02	-3.05
402	Nicayuhu	Area 4	S1W11	I	11-Nov-02	(-2.85 a -3.43)
403	Nicayuhu	Area 4	S1W1	I	11-Nov-02	(-7.25 a -7.8/-8.18)
404	Nicayuhu	Area 4	S1W1	I	11-Nov-02	(-7.25 a -7.29)
405	Nicayuhu	Area 1	Cuarto W str. B esq. NW	II c	11-Nov-02	(-3.4)
406	Nicayuhu	Area 1	Cuarto E str. B	II c	11-Nov-02	(-3.05 a -3.22)
407	Nicayuhu	Area 1	S5W3 1/2 E	Intrusion 2	12-Nov-02	(-3.0 a -3.3)
408	Nicayuhu	Area 1	S5W2 1/2 W	Intrusion 2	12-Nov-02	(-3.0 a -3.3) o (-2.85 a -3.43)
409	Nicayuhu	Area 1	N2W4 1/2 S	I plow a piso de estuco	12-Nov-02	??? Lupe
410	Nicayuhu	Area 4	S1W14	I	12-Nov-02	(-1.33 a -1.59)
411	Nicayuhu	Area 4	S1W1	I hasta tepetate	12-Nov-02	(-7.25 a -7.8/-8.13)
412	Nicayuhu	Area 1	Anexo E cuarto str. A	bajo ceniza de tierra quemada a V	12-Nov-02	(-3.55/-3.66 a -3.8)
413	Nicayuhu	Area 1	anexo E str. A	bajo capa negra area sur de anexo	12-Nov-02	(-3.43/-3.57 a -3.8)
414	Nicayuhu	Area 1	Str. B elemento 3	surface	12-Nov-02	(-3.42 a -3.47)
415	Nicayuhu	Area 1	Str. B elemento 4	interior elemento 4	12-Nov-02	-3.44
416	Nicayuhu	Area 1	Str. B elemento 3	capa 2 ceniza	12-Nov-02	(-3.47 a -3.63)
417	Nicayuhu	Area 1	Str. B elemento 3	capa 2 ceniza	12-Nov-02	(-3.47 a -3.63)
418	Nicayuhu	Area 1	Str. B elemento 4	capa ceniza	12-Nov-02	(-3.52 a -3.79)
419	Nicayuhu	Area 1	Str. B elemento 4	capa ceniza	12-Nov-02	(-3.52 a -3.79)
420	Nicayuhu	Area 1	Str. B elemento 4	capa café	12-Nov-02	(-3.79 a -4.13)
421	Nicayuhu	Area 1	N2W6 1/2 S	surface	13-Nov-02	(-2.4 a -3.8)
422	Nicayuhu	Area 1	N2W5 1/2 S	surface	13-Nov-02	-3.4
423	Nicayuhu	Area 4	S1W8	surface capa I	11-Nov-02	(-4.43 a -4.63)
424	Nduatijubacu	Area 3	S1W3	Capa IV	13-Nov-02	-2.6
425	Nduatijubacu	Area 3	S1W5	I	11-Nov-02	-0.73
426	Nduatijubacu	Area 3	S1W2 1/2 E	surface	12-Nov-02	-0.22
427	Nduatijubacu	Area 3	S1W3	I	11-Nov-02	-1.1
428	Nduatijubacu	Area 3	S1W2 1/2 E	III	13-Nov-02	-1.58
429	Nduatijubacu	Area 3	S1W3	V	13-Nov-02	-2.58
430	Nicayuhu	Area 4	S1W8	II T 89	12-Nov-02	(-4.71/-4.3 a -4.97/-5.1)

Bag #	Site	Sector	Unit	Provenience	Date	Level
431	Nicayuhu	Area 4	S1W14	II café obscuro	12-Nov-02	(-1.51 a -1.95)
432	Nicayuhu	Area 4	S1W8	II intrusion	12-Nov-02	-4.58
433	Nicayuhu	Area 4	S1W21	II	13-Nov-02	(-2.0 a -2.25)
434	Nicayuhu	Area 4	S1W20	I	13-Nov-02	(-1.95 a -2.23)
435	Nicayuhu	Area 4	S1W21	I	13-Nov-02	(-2.09 a -2.43)
436	Nicayuhu	E-SE slope	surface		13-Nov-02	surface
437	Nduatijubacu	S slope C coyote	Entre Area 3 y Pt. 5		13-Nov-02	surface
438	Nicayuhu	Area 1	N5W3 1/2 W	I	14-Nov-02	(-5.25/-5.53 a -5.68/-5.76)
439	Nicayuhu	Area 1	S2W6 1/2 E	I plow	14-Nov-02	(-3.22 a -3.75)
440	Nicayuhu	Area 1	N5W3 1/2 W	I	14-Nov-02	(-5.25/-5.53 a -5.68/-5.76)
441	Nicayuhu	Area 1	N8W3 1/2 W	I plow	14-Nov-02	(-6.9/-7.1 a -7.03/-7.3)
442	Nicayuhu	Area 1	N8W3 1/2 W	I plow	14-Nov-02	(-6.9 a -7.3)
443	Nicayuhu	Area 1	S2W5 1/2 W	II c	14-Nov-02	(-3.68/-3.78 a -3.84/-3.87)
444	Nicayuhu	Area 1	N1W4	II c	14-Nov-02	(-3.6 a -3.8)
445	Nicayuhu	Area 1	S2W5 1/2 W	I plow	14-Nov-02	(-3.22 a -3.62)
446	Nicayuhu	Area 1	N12W3 1/2 W	3er capa	14-Nov-02	(-8.95)
447	Nicayuhu	Area 1	S2W6 1/2 E	II c	14-Nov-02	(-3.67/-3.75 a -3.85/-3.87)
448	Nicayuhu	Area 1	S3W5 1/2 W	2nda negra	14-Nov-02	(-3.59/-3.62 a -3.68/-3.78)
449	Nicayuhu	Area 1	N8W3 1/2 W	2nda negra	14-Nov-02	(-7.03/-7.3 a -7.17/-7.43)
450	Nicayuhu	Area 1	N5W3 1/2 W	1er capa	14-Nov-02	(-5.68 a -5.76)
451	Nicayuhu	Area 1	N12W3 1/2 W	1er capa	14-Nov-02	(-8.86 a -8.74)
452	Nicayuhu	Area 1	N1W4	I plow	14-Nov-02	(-3.35 a -3.6)
453	Nicayuhu	Area 1	N1W4	II c	14-Nov-02	(-3.6 a -3.8)
454	Nicayuhu	Area 1	N12W3 1/2 W	2nda negra	14-Nov-02	(-8.74 a -8.95)
455	Nicayuhu	Area 1	N1W4	2nda negra	14-Nov-02	(-3.6 a -3.8)
456	Nicayuhu	Area 1	S3E3	I	15-Nov-02	(-3.15 a -3.35)
457	Nicayuhu	Area 1	S4W1 y S4W2	Intrusion 2	13-Nov-02	(-3.33 a -3.7)
458	Nicayuhu	Area 1	S2E3	surface capa I	15-Nov-02	(-3.35 a -3.45)
459	Nicayuhu	Area 1	N5W3	II	15-Nov-02	(-5.68/-5.76 a -5.95)
460	Nicayuhu	Area 2	entierro 3	IV	15-Nov-02	(-3.74 a -3.98)
461	Nicayuhu	Area 1	N5W3 1/2 W	III color ladrillo	15-Nov-02	(-5.95 a -6.2)
462	Nicayuhu	Area 1	N10W3	I	15-Nov-02	(-8.29 a -8.62)
463	Nicayuhu	Area 1	S1W2 1/2 W	café/rosa chiclosa, posible IV	15-Nov-02	(-3.49 a -3.82)
464	Nicayuhu	Area 1	S1W2 1/2 S	piso firme empedrado	15-Nov-02	(-3.49 a -3.76)
465	Nicayuhu	Area 1	S1W2 1/2 W	capa café bajo firme empedrado	15-Nov-02	(-3.76 a -3.79)
466	Nicayuhu	Area 1	N12W3 1/2 W	I	15-Nov-02	(-9.2 a -9.35)
467	Nicayuhu	Area 2	??	Entierro 3	15-Nov-02	(-3.74 a -3.98)
468	Nicayuhu	Area 2	??	Entierro 3	15-Nov-02	(-3.74 a -3.98)
469	Nicayuhu	Area 1	S1W2 1/2 W	empedrado debajo de piso	18-Nov-02	(entre -3.42 y -4.0)
470	Nicayuhu	Area 1	S1W2 1/2 W	II debajo de piso	18-Nov-02	(entre -3.42 y -4.0)
471	Nicayuhu	Area 1	S1W2 1/2 W	perfilado del cuadro material revuelto	18-Nov-02	S/N
472	Nicayuhu	Area 1	S1W3 1/2 NE	II c a ask stair	18-Nov-02	(-3.78 a -3.83)
473	Nicayuhu	Area 1	S2E3	II	18-Nov-02	(-3.8 a -3.9)
474	Nicayuhu	Area 1	S2E3	I plow	18-Nov-02	(-3.35/-3.66 a -3.8)
475	Nicayuhu	Area 1	S3E3	I plow	18-Nov-02	(-3.66 a -3.8)
476	Nicayuhu	Area 1	S3E3	II	18-Nov-02	(-3.66 a -3.8)
477	Nicayuhu	Area 1	S5E6	I	18-Nov-02	(-2.98 a -3.05)
478	Nduatijubacu	Area 3	S1W1	III	19-Nov-02	-1.89
479	Nicayuhu	Area 5	S1W2	surface capa I	19-Nov-02	(-2.28 a -3.21)
480	Nicayuhu	Area 5	S2W2	surface capa I	19-Nov-02	(-2.22 a -3.14)
481	Nicayuhu	Area 5	S1W1	surface capa I	19-Nov-02	(-3.21 a -3.79)
482	Nicayuhu	Area 5	S2W1	surface capa I	19-Nov-02	(-3.14 a -3.7)
483	Nicayuhu	Area 1	S1W3	capa café chiclosa posible IV	21-Nov-02	(-3.83/-4.03 contact V)
484	Nicayuhu	Area 1	S1W3	ceniza en capa cafe bajo empedrado	21-Nov-02	-3.87
485	Nicayuhu	Area 1	S1W3	capa café bajo	21-Nov-02	(-3.83 a -4.03)

Bag #	Site	Sector	Unit	Provenience	Date	Level
486	Nicayuhu	Area 1	Anexo E Str. A	empedrado	21-Nov-02	(-3.55/-3.66 a -3.8)
487	Nicayuhu	Area 1	S1W3 1/2 S	capa bajo ceniza capa café/rosa chiclosa posible IV	21-Nov-02	-4.16
488	Nduatijubacu	Area 3	S1W1	V	21-Nov-02	-3.3
489	Nduatijubacu	Area 3	S1W5	II	21-Nov-02	-0.77
490	Nduatijubacu	Area 3	S1W7	contacto I-II	21-Nov-02	-0.4
491	Nduatijubacu	Area 3	S1W1	V	21-Nov-02	-3.2
492	Nicayuhu	Area 5	S1W2 y S2W2	??	21-Nov-02	(-2.28 a -3.21)
493	Nicayuhu	Area 1	N2W6 1/2 S	I sobre piso	22-Nov-02	(-3.5 a -3.9)
494	Nicayuhu	Area 1	N2W6 1/2 S	piso destruido nivel elemento manos	22-Nov-02	-3.8
495	Nicayuhu	Area 1	N2W6 1/2 S	elemento manos	22-Nov-02	(-3.8 a -4.2)
496	Nduatijubacu	Area 3	S1W4 1/2 W y S1W5	II	22-Nov-02	-1.15
497	Nduatijubacu	Area 3	S1W4 1/2 W y S1W5	II sobre piedras	22-Nov-02	-0.77
498	Nduatijubacu	Area 3	S1W7	contacto I-II	22-Nov-02	-0.43
499	Nicayuhu	Area 4	S1W38	I	22-Nov-02	.4 a .18
500	Nicayuhu	Area 4	S1W50	I	22-Nov-02	15.5 a 15.13
501	Nicayuhu		surface		23-Nov-02	surface
502	Fortin	Surface			23-Nov-02	surface
503	Nicayuhu	Area 1	N2W6 1/2 E	elemento 5	25-Nov-02	-3.76
504	Nicayuhu	Area 1	S5W6 1/2 N	??	25-Nov-02	-4.32
505	Nicayuhu	Area 1	S5W6 1/2 N	justa constructiva	25-Nov-02	-3.1
506	Nicayuhu	Area 1	S5W6 1/2 N	justa constructiva	25-Nov-02	-3.11
507	Nduatijubacu	Area 3	S12 1/2 E y S1W3	V	25-Nov-02	(-2.5 a -3.1)
508	Nduatijubacu	Area 3	S1W4 1/2 W y S1W5	II	25-Nov-02	(-.80)
509	Nduatijubacu	Area 3	S1E1	I	25-Nov-02	-0.39
510	Nduatijubacu	Area 3	S1W7	V	25-Nov-02	-1.03
511	Nicayuhu	Area 1	S1W2 1/2 W	bajo empedrado	18-Nov-02	(-1.33 a -1.53)
512	Nicayuhu	Area 4	S1W25	I	21-Nov-02	(5.22 a 4.26)
513	Nicayuhu	Area 4	S1W31	I	21-Nov-02	(8.1 a 7.32)
514	Nicayuhu	Area 4	S1W45	I	22-Nov-02	13.76 a 13.3
515	Nicayuhu	Area 1	N1W7	??	25-Nov-02	-4.42
516	Nicayuhu	Area 1	N1W7	capa café chiclosa	25-Nov-02	(-4.3 a -4.42)
517	Nicayuhu	Area 1	N2W6	posible elemento, a la mitad	25-Nov-02	(-3.76 a -3.85)
518	Nicayuhu	Area 1	N2W7	surface capa I	25-Nov-02	-3.89
519	Nicayuhu	Area 1	N1W7	mancha ceniza	25-Nov-02	-4.24
520	Nduatijubacu	Area 3	S1W7	capa I	26-Nov-02	-2
521	Nduatijubacu	Area 3	S1W3	I	26-Nov-02	(-.27 a -.82)
522	Nduatijubacu	Area 3	S1W3	II a	26-Nov-02	(-.82 a -1.04)
523	Nduatijubacu	Area 3	S1W3	II b	26-Nov-02	(-1.04 a -1.36)
524	Nduatijubacu	Area 3	S1W3	III	26-Nov-02	(-1.36 a -1.89)
525	Nduatijubacu	Area 3	S1W3	gravilla	26-Nov-02	(-1.89 a -1.96)
526	Nduatijubacu	Area 3	S1W3	IV	26-Nov-02	(-1.96 a -2.54)
527	Nduatijubacu	Area 3	S1W3	V	26-Nov-02	(-2.54 a -3.16)
528	Nduatijubacu	Area 3	S1W5	V	26-Nov-02	-2.37
529	Nduatijubacu	Area 3	S1W7	V	26-Nov-02	-1.25
530	Nicayuhu	Area 1	S5W6 1/2 N	justa constructiva	25-Nov-02	S/N
531	Nicayuhu	Area 1	S5W6 1/2 N	Intrusion a capa V	25-Nov-02	-3
532	Nicayuhu	Area 1	S5W6 1/2 E	justa constructiva	25-Nov-02	-3.06
533	Nicayuhu	Area 1	S6W6 1/2 E	Intrusion a capa V	25-Nov-02	-3.37
534	Nicayuhu	Area 1	S2W2	firme empedrado	26-Nov-02	(-3.5 a -3.7)
535	Nicayuhu	Area 1	S5W6 1/2N	Intrusion a capa V	26-Nov-02	-3.42
536	Nicayuhu	Area 1	N1W8	capa ceniza	26-Nov-02	-4.22
537	Nicayuhu	Area 1	N1W8	capa café	26-Nov-02	-4.27
538	Nduatijubacu	Area 3	S1E1	I	27-Nov-02	-1.83
539	Nduatijubacu	Area 3	S1W7	V?	27-Nov-02	-1.87
540	Nicayuhu	Area 4	N1W20	I	27-Nov-02	(+2.16 a +1.93)
541	Nicayuhu	Area 4	N3W20	I	27-Nov-02	-2.13
542	Nicayuhu	Area 4	N4W21	I	27-Nov-02	-2.2
543	Nicayuhu	Area 4	N5W20	I	27-Nov-02	-2
544	Nicayuhu	Area 4	N2W21	I	27-Nov-02	2.23 a 1.83
545	Nicayuhu	Area 4	N2W21	I	27-Nov-02	2.23 a 1.83
546	Nicayuhu	Area 4	N2W21	II	28-Nov-02	1.83

Bag #	Site	Sector	Unit	Provenience	Date	Level	
547	Nicayuhu	Area 4	N3W21	I	28-Nov-02	2.12 a 1.9	
548	Nicayuhu	Area 4	N1W20	I	28-Nov-02	2.1 a 1.87	
549	Nicayuhu	Area 4	N3W21	II	28-Nov-02	1.9 a 1.7	
550	Nicayuhu	Area 4	N3W21	III	28-Nov-02	1.7 a 1.63 piso	
551	Nicayuhu	Area 4	N1W20 1/2 S	I	27-Nov-02	2.22 piso?	
552	Nicayuhu	Area 4	N4W21	I	28-Nov-02	2.2 a 1.75	
553	Nicayuhu	Area 4	N1W23	I	29-Nov-02	2.78 a 2.39	
554	Nicayuhu	Area 4	N1W23	II	29-Nov-02	2.39 a 1.98	
555	Nicayuhu	Area 4	N1W21	I	29-Nov-02	wall 2.15-2.02 patio 2.13-1.7	
556	Nicayuhu	Area 4	N4W20	I	29-Nov-02	2.05 a 1.9	
557	Nicayuhu	Area 4	N1W21	I	29-Nov-02	2.23 a 1.83	
558	Nduatijubacu	Area 3	S1E1	I	28-Nov-02	(-1.5 a -2.5)	
559	Nicayuhu	Area 4	S1W21 1/2 S	I	27-Nov-02		2.5
560	Nicayuhu	Area 4	S1W21 1/2 S	II	29-Nov-02		2.1
561	Nicayuhu	Area 4	S1W21 1/2 S	III	29-Nov-02		1.8
562	Nicayuhu	Area 4	N1W22	II	29-Nov-02	2.16 a 1.97	
563	Nicayuhu	Area 4	N2W23	I over cave entrance	29-Nov-02	3.37 a 2.5	
564	Nicayuhu	Area 4	N2W23	II	29-Nov-02	2.37 a 1.9	
565	Nicayuhu	Area 4	N2W23	II	29-Nov-02	2.37 a 1.9	
566	Nicayuhu	Area 4	N4W20	II	29-Nov-02	1.9 a 1.54	
567	Nicayuhu	Area 4	S1W25	I	19-Nov-02	5.21 a 4.36	
568	Nicayuhu	Area 4	N3W22	I	2-Dec-02		2.23
569	Nicayuhu	Area 4	N1W23	I	2-Dec-02	3.04 a 2.5	
570	Nicayuhu	Area 4	N1W23	II	2-Dec-02	2.5 a 1.95	
571	Nicayuhu	Area 4	N2W22	I	2-Dec-02	2.38 a 2.16	
572	Nicayuhu	Area 4	N4W20	II a piso	2-Dec-02	1.9 a 1.54	
573	Nicayuhu	Area 4	N1W22	I	27-Nov-02	X a 2.16	
574	Nicayuhu	Area 4	N2W22	II	2-Dec-02	2.3 a 1.48 piso	
575	Nicayuhu	Area 4	N1W21	II	2-Dec-02	2.02 a 1.73	
576	Nicayuhu	Area 4	N4W20	II a drenaje	2-Dec-02	1.31 a 1.28	
577	Nicayuhu	Area 4	N2W22	II	3-Dec-02		2.16
578	Nicayuhu	Area 4	N1W23	I	3-Dec-02	3.04 a 2.5	
579	Nicayuhu	Area 4	N2W23	II a piso o muro	3-Dec-02	2.37 a 1.9	
580	Nicayuhu	Area 4	N1W21	Capa I elemento Freddy 1	3-Dec-02		1.85
581	Nicayuhu	Area 4	N1W23	I	3-Dec-02	3.71 a 2.78	
582	Nicayuhu	Area 4	N1W23	I	3-Dec-02	3.71 a 2.78	
583	Nicayuhu	Area 4	N3W23	II	3-Dec-02	2.03/1.2	
584	Nicayuhu	Area 4	N3W23	I	3-Dec-02	2.9/ 2.4	
585	Nicayuhu	Area 4	N3W23	I	3-Dec-02	2.9/ 2.4	
586	Nicayuhu	Area 4	N3W23	II	3-Dec-02	2.4 a 2.3	
587	Nicayuhu	E slope	surface		3-Dec-02	surface	
588	Nicayuhu	Area 4	N5W21	I	4-Dec-02	2.17/1.9	
589	Nicayuhu	Area 4	N5W21	II	4-Dec-02	1.9/1.6	
590	Nicayuhu	Area 4	N3W19	I a piso	4-Dec-02	2.07/1.89	
591	Nicayuhu	Area 4	N3W19	II a piso	4-Dec-02	1.89/1.85	
592	Nicayuhu	Area 4	N1W19	I	4-Dec-02	2.13/1.98	
593	Nicayuhu	Area 4	N2W19	I	4-Dec-02	2.07/1.88	
594	Nicayuhu	Area 4	N4W19	I	4-Dec-02	2.04/1.85	
595	Nicayuhu	Area 4	N4W19	II	4-Dec-02	1.85/1.81	
596	Nicayuhu	Area 4	N4W22	I	4-Dec-02	2.22/2.04	
597	Nicayuhu	Area 4	N4W22	I	4-Dec-02	2.22/2.04	
598	Nicayuhu	Area 4	N4W22	II	4-Dec-02	2.04/1.66	
599 A	Nicayuhu	Area 4	N1W19	capa II de elemento 2	4-Dec-02		2.27
599 B	Nicayuhu	Area 4	N1W19	capa II de elemento 2	4-Dec-02	1.98/1.72	
600	Nicayuhu	Area 4	N1W19	capa I de elemento 2	4-Dec-02	2.13/1.98	
601	Nicayuhu	T6		surface	4-Dec-02	surface	
602	Nicayuhu	Area 4	N1W19	I	4-Dec-02		1.98
603	Nicayuhu	Area 4	N5W22	I	5-Dec-02	2.21 a 2.13	
604	Nicayuhu	Area 4	N5W22	II	5-Dec-02	2.13/1.77	
605	Nicayuhu	Area 4	N1W19	III en elemento 2	5-Dec-02	1.27/1.15	
606	Nicayuhu	Area 4	N6W20	I	5-Dec-02	1.87/1.79	
607	Nicayuhu	Area 4	N4W23	I atras muro W	5-Dec-02	2.44/2.2	
608	Nicayuhu	Area 4	N5W20	hoyo en piso cuarto norte	5-Dec-02	1.79/1.50	
609	Nicayuhu	Area 4	contenido frente cueva	surface al W cuarto sur	5-Dec-02	(2.46 a 2.0)	
610	Nicayuhu	Area 4	N4W23	I	5-Dec-02	2.44/2.2	
611	Nicayuhu	Area 4	N4W23	II	5-Dec-02	2.2/1.77	
612	Nicayuhu	Area 4	N5W19	I de elemento 3	5-Dec-02	1.8/1.5	

Bag #	Site	Sector	Unit	Provenience	Date	Level
613	Nicayuhu	Area 4	N5W19	I	4-Dec-02	1.99/1.73
614	Nicayuhu	Area 4	N5W22	II	5-Dec-02	2.13/1.77
615	Nicayuhu	Area 4	N4W23	II	5-Dec-02	2.2/1.77
616	Nicayuhu	Area 4	surface al W cuarto sur	cueva 1 surface	5-Dec-02	(2.46 a 2.0)
617	Nicayuhu	T115	surface		6-Dec-02	surface
618	Nicayuhu	Area 4	N3W19	surface	6-Dec-02	2.07
619	Nicayuhu	Area 4	cueva 1	capa I (relleno)	6-Dec-02	(2.46 a 1.68)
620	Nicayuhu	Area 4	cueva 1	capa I (relleno)	6-Dec-02	(2.46 a 1.68)
621	Nicayuhu	Area 4	cueva 1	capa I (relleno)	6-Dec-02	(2.46 a 1.68)
622	Nicayuhu	Area 4	N4W23	I relleno detras del muro	6-Dec-02	2.44 a 2.2
623	Nicayuhu	Area 4	N5W23 1/2 E	II	6-Dec-02	2.08/1.63
624	Nicayuhu	Area 4	N5W23 1/2 E	II	6-Dec-02	2.08/1.63
625	Nicayuhu	Area 4	N5W23 exterior str.	II	6-Dec-02	2.68/1.63
626	Nicayuhu	Area 4	N5W23 exterior str.	II	6-Dec-02	1.9
627	Nicayuhu	Area 4	N5W23 1/4 SW	I	6-Dec-02	2.41/2.09
628	Nicayuhu	Area 4	N5W23 1/4 SW	I	6-Dec-02	2.41/2.09
629	Nicayuhu	Area 4	N5W23 1/4 SW	I ?	6-Dec-02	2.41/2.09
630	Nicayuhu	Area 4	N5W23 1/4 SW	I ?	6-Dec-02	2.41/2.09
631	Nicayuhu	Area 4	N5W23 1/2 E	I	6-Dec-02	2.41/2.09
632	Nicayuhu	Area 4	N5W23 1/2 E	II	6-Dec-02	2.09/1.6 piso
633	Nicayuhu	Area 4	N5W23	II	6-Dec-02	2.08/1.63
634	Nicayuhu	Area 4	N5W23	II exterior	6-Dec-02	2.08/1.63
635	Nicayuhu	Area 4	N6W20	II	6-Dec-02	1.66 a 1.22/1.59
636	Nicayuhu	Area 4	N6W20	II	6-Dec-02	1.66
637	Nicayuhu	Area 4	N6W21	I	6-Dec-02	1.98-1.94/2.05
638	Nicayuhu	Area 4	N6W21	II	6-Dec-02	1.94/2.05 a 1.77/a piso
639	Nicayuhu	Area 4	N6W21	piso	6-Dec-02	1.77
640	Nicayuhu	Area 4	N6W22	I	6-Dec-02	2.34-2.08
641	Nicayuhu	Area 4	N6W22	II	6-Dec-02	2.08 a 1.77
642	Nicayuhu	Area 4	cueva 1	capa I (relleno)	9-Dec-02	2.46-1.68
643	Nicayuhu	Area 4	cueva 1	capa I (relleno)	9-Dec-02	2.46-1.68
644	Nicayuhu	Area 4	cueva 1	capa I (relleno)	9-Dec-02	2.46-1.68
645	Nicayuhu	Area 4	cueva 1	capa II	9-Dec-02	(1.68 a 1.48)
646	Nicayuhu	Area 4	cueva 1	capa II	9-Dec-02	(1.68 a 1.48)
647	Nicayuhu	Area 4	N6W21	Feature 4 contacto capa ceniza	9-Dec-02	1.68 a 1.65
648	Nicayuhu	Area 4	N6W21	Feature 4 capa 2 bajo ceniza	9-Dec-02	1.65-1.57 a 1.43
649	Nicayuhu	Area 4	N6W21	Feature 4 capa 2 bajo ceniza	9-Dec-02	1.63
650	Nicayuhu	Area 4	N6W21	Feature 4 capa 2 bajo ceniza	9-Dec-02	1.63
651	Nicayuhu	Area 4	N7W21 1/2 S	I	9-Dec-02	1.9 a 1.77
652	Nicayuhu	Area 4	N7W21 1/2 S	II	9-Dec-02	1.77 a 1.47
653	Nicayuhu	Area 4	N7W21 1/2 S	II	9-Dec-02	1.55
654	Nicayuhu	Area 4	N7W21 1/2 S	ofrenda 1	9-Dec-02	1.55 a 1.47
655	Nicayuhu	Area 4	N7W21 1/2 S	ofrenda 1	9-Dec-02	1.55 a 1.47
656	Nicayuhu	Area 4	N7W22	I	9-Dec-02	2.48/2.7 a 2.3
657	Nicayuhu	Area 4	N6W23	I	9-Dec-02	2.37 a 2.2
658	Nicayuhu	Area 4	N7W22	II	9-Dec-02	2.3 a ?1.98?
659	Nicayuhu	Area 4	N6W23	II	9-Dec-02	2.2 a 1.98
660	Nicayuhu	Area 4	N6W23	III	9-Dec-02	1.98 a 1.6
661	Nicayuhu	Area 4	N6W23	III	9-Dec-02	1.98 a 1.6
662	Nicayuhu	Area 4	N6W23	III	9-Dec-02	1.67 a 1.6
663	Nicayuhu	Area 4	N6W24	I	10-Dec-02	2.75/3.55 a 2.22/3.43
664	Nicayuhu	Area 4	N6W24	II	10-Dec-02	3.43/2.22 a 1.74
665	Nicayuhu	Area 4	N6W24	III	10-Dec-02	1.74 a 1.6
666	Nicayuhu	Area 4	N7W21	I (cimiento de muro)	10-Dec-02	2.48/2.7 a 2.3
667	Nicayuhu	Area 4	N7W23 1/2 S	I	10-Dec-02	2.7/2.48 a 2.1/1.8
668	Nicayuhu	Area 4	cueva 1	II	10-Dec-02	1.68 a 1.48
669	Nicayuhu	Area 4	cueva 1	III	10-Dec-02	1.48 a 1.35
670	Nicayuhu	Area 4	N6W24	III	10-Dec-02	1.74 a 1.6
671a	Nicayuhu	Area 6	N5W1	I	13-Dec-02	(-12.15 a -11.74)
671b	Nicayuhu	Area 6	N5W1	I	13-Dec-02	(-12.15 a -11.74)
672a	Nicayuhu	Area 6	N1W1	I	13-Dec-02	(-13.75 a -14.58)

Bag #	Site	Sector	Unit	Provenience	Date	Level
672b	Nicayuhu	Area 6	N1W1	I	13-Dec-02	(-13.75 a -14.58)
672c	Nicayuhu	Area 6	N1W1	I	13-Dec-02	(-13.75 a -14.58)
672d	Nicayuhu	Area 6	N1W1	I	13-Dec-02	(-13.75 a -14.58)
673	Nicayuhu	Area 6	N14W1	I	16-Dec-02	(-6.62 a -7.28)
674a	Nicayuhu	Area 6	N18W1	I	16-Dec-02	(-4.78 a -5.45)
674b	Nicayuhu	Area 6	N18W1	I	16-Dec-02	(-4.78 a -5.45)
675	Nicayuhu	Area 6	N9W1	I	16-Dec-02	(-8.32 a -9.42)
676	Nicayuhu	Area 6	N21W1	I	16-Dec-02	(-3.18 a -3.63)
677	Nicayuhu	Area 6	N11W1	II	16-Dec-02	(-8.23 a -8.63)
678	Nicayuhu	Area 6	N11W1	I	16-Dec-02	(-8.11 a -8.23)
679	Nicayuhu	Area 6	N9W1	II	16-Dec-02	(-9.42 a -9.87)
680	Nicayuhu	Area 6	N25W1	I	16-Dec-02	(-1.15 a -1.65)
681	Nicayuhu	Area 4	N2-3W23	Fogon temazcal	16-Dec-02	(+1.57/1.76 a +1.53/1.46)
682	Nicayuhu	Area 4	N2-3W23	Capa ceniza	16-Dec-02	(+1.3/1.46 a + 1.37)
683	Nicayuhu	Area 2	S2E1 1/2 W y S2W1 1/2 E	Intrusion 1 w/burial 3	9-Nov-02	
684	Nicayuhu	Area 1	entierro 4		18-Nov-02	
685	Nicayuhu	Area 2	entierro 3?	Capa III	10-Nov-02	
686	Nicayuhu	Area 2	entierro 3		13-Nov-02	

Ceramic Data

Table C.4 Ceramic vessel forms.

#	Description
1	Jar
2	Neck-less jar
3	Flared rim flower vase
4	Duck-shaped jar
5	Water jug
6	Pitcher
7	Cylindrical vase
8	Semi-hemispherical round base bowl
9	Out-leaning wall flat base bowl
10	Candy dish
11	Everted rim bowl
12	Miniature jar or bowl
13	Composite silhouette bowl
14	Comal
15	Flat plate
16	Brazier
17	Ladle censer
18	Ladle
19	Support
20	Handle
21	Undifferentiated rim
22	Decorated body sherd
23	Other

F Cream Bag #	# Rim	Rim gm	# Body	Body gm	1	6	8	9	10	12	13	14	17	18	20	21	Notes
7	12	232	18	81			2	4	1	1				3			1 cajete chico
8	14	162	20	102			5	7			1						1 figurilla de mujer para foto
27	2	18	8	29				1					1				
40	17	252	6	89			9	4			2			1	1		
41	7	94	16	120			2	3							1	1	
3			2	5													
31	17	165	23	236	1		6	4	1					1		4	
502	3	91	1	23		1		1								1	jarra decorada con rayas en el cuello, borde aciento de una taza?
43	9	76	1	5	2		2	3			1			1			
32	6	90	7	35			2	2						2			borde de cuenco poco profundo tal vez plato
36	1	39								1							ollita de dos bocas para verse
14	20	103	79	168	5		5	5			3				2		bordes miniatura
15	4	17	15	50	2		2										
4	1	6	4	20	1											1	borde decorado
1	5	20	31	83			4	1									
2			1	9													
16	20	182	6	34			3	15						2			
17	16	120	23	111	1		3	8			1				1	2	
18	10	89	5	26	1		2	2						1		4	
20	16	129	41	210			2	8		1	1			4			1 cuenco borde acanalado
24	2	35	4	28			1	1									
501	2	28									1			1			
35	1	37								1							ollita completa para foto

Table C.7 Surface Coarse Tanwares

C Tan Bag #	# Rim	Rim gm	# Body	Body gm	1	2	5	8	9	11	13	14	19	20	21	22	Notes
42	22	550	37	481	16				2					2	2		de ollas 4 son bases de olla y bordes son minatura
13	23	400	62	595	9	1						4	1	4	4		cuellos
63	3	36	30	141	1										2		bordes miniatura
79	2	7	96	278					2								
236	1	14	6	39	1												
7	8	33	103	288	1			1	4			2					
7	10	152	37	443	4				4					1	1		
8	8	10	43	390	6							1		1			
27	4	44	16	108	3								1				soporte circular raro, debo verlo
40	8	187	23	205	5		1	1			1						posible botellon, debo verlo
41	3	59	25	301	1			4							2		
3	11	151	22	362	9							2				1	cuerpo para foto, inciso
31	6	173	22	329	5									1			
502	1	57	3	102	1											2	1 cuerpo decorado con pintura roja y un cuerpo con pintura naranja y desgrasante de mica
37	1	44															figurilla animal para foto
43	12	195	19	202	6								1	2	3		bordes miniaturas y en cuerpos hay uno color naranja en la superficie y pasta dudosa, no creo sea natividad
32	12	328	22	205	9							1		2			
14	15	162	160	700	7				1			1		1	5		bordes miniaturas

C Tan Bag #	# Rim	Rim gm	# Body	Body gm	1	2	5	8	9	11	13	14	19	20	21	22	Notes
15	15	140	80	342	8				1			1			5		
4	8	84	94	664	1				3						3		1 pedazo y figurilla
1	3	30	14	60	3												
2	13	227	76	268	10	3											
601	10	211	2	17					1	9						1	cuerpo pintado rojo
16	6	63	50	448	5									1			
17	5	75	30	151	3				1					1			
18	2	21	32	103	2												en ollas es un cuello de olla
20	28	445	136	1130	15				1			12					
21	2	145							1					1			
24	3	95	43	542	1	1						1					1 cuello recto de vaso o botellon, debo verlo
501			1	5													
28	1	9										1					

Table C.8 Surface Fine Tanwares

F Tan Bag #	# Rim	Rim gm	# Body	Body gm	1	5	7	8	9	10	13	14	17	19	21	22	Notes
13	10	195	16	146	2	1		1				1	1	1	3		borde decorado y un soporte hueco, en ollas un cuello
79			16	37													
7			13	30													
7	5	77	13	85					3	1	1						
8	3	40	11	70					3								
3	1	8	1	24			1										vaso chico debo verlo
502	3	97	5	141	1				2						5		5 cuerpos decorados con pintura roja
32	1	10	2	20					1								
14	5	18	45	115				3	1						1		borde miniatura
15			9	34													
2	4	34							1	3							
10	1	781			1												
16	9	106	9	55					1	8							
18	1	5	7	30					1								
20	20	179	53	271					12	4	2	1		1		1	un soporte o asa y un cuerpo pintado rojo
24	1	9	8	75					1								

Table C. 9 Surface Fine Gray and Coarse Graywares

Bag #	F Gray # Rim	Rim gm	# Body	Body gm	1	5	8	9	10	13	19	21	Notes	C Gray #	Body gm
13			1	9											
79			4	16											
7			1	24											
8														2	26
27	3	37	3	20							2	1			
40	2	72	4	51					1				1		borde raro posible florero
41			3	49											
3	4	63							4						
31	1	34	5	28								1			1 soporte como cuerno
502	4	176								1	3			1	52

[illegible]

Table C.10 Surface Yanhuítlán Red on Cream

YRC Bag #	# Rim	Rim gm	# Body	Body gm	8	9	13	21	Notes
42	2	20				2			
13	2	7			1		1		borde miniatura
63	2	17	1	6	1		1		borde miniatura
236	4	48				4			
7			3	6					
7	3	39	2	22		3			1 cajete borde acanalado
8	2	37	3	16		2			
27	1	6				1			
40	6	142	3	29	1	5			
41	11	151	5	43	4	7			
31	5	42	1	11		3		2	
502	8	43	2	21	3	3	2		
43	1	6				1			
14	3	19			2	1			
15	1	9				1			
1			2	13					
2	5	39	3	22	1	4			
16			1	5					
17	6	63	1	3	2	4			
20	1	6	2	24	1				

Table C.11 Surface Graphite on Orange and Orange wares

Bag #	G/O #	Rim gm	# Body	Body gm	21	Orange #	Rim gm	# Body	Body gm	1	20
	Rim					Rim					
13									5	29	
27									1	5	
40						3	37	2	20	2	1
502	2	7	2	27	2						
14						1	77				1

Table C.12 Surface Cacique Burnished and Polychrome

[illegible]

S Cream Bag #	# rim	rim gm	# body	body gm	1	2	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Notes
140	12	141	33	309	4	1					2	3			1	1										chilmolera body
141	7	57	26	145	1						3	3														
142	20	146	100	513	4		1				5	5				1	3							1		
143	8	187	31	26	4						1	3														
145	3	18	11	52								1										1		1		
146	3	18	27	125	1						2															
147			8	29																						
148			3	10																						
149	1	3	6	20	1																					
151	4	43	17	61	1						3															
152	1	20	10	161	1	1				1																flat base
153	1	10	1	17		1																				
154	15	93	47	191	2						9		1				1							2		
155	3	11	46	174	1						2															
156	25	181	83	450	3						4	5				1	5							7		
157			1	196																						
158			8	65																						
159	9	77	64	333	2						4	2	1													
160	4	29	13	71	1							2					1									
161	2	23	38	126							1	1														
162	20	154	86	415	4						8						5					1		2		hollow support
167	1	10	5	12								1														
168			2	19																						
169	2	58	12	82	1										1											
170	10	100	21	97	2						1	3												1		water jug base
171			14	106																						
172	7	130	64	328	5						1	1														
173	9	173	49	428	7						1									1			1			red paint censer
173	7	35	28	178	1						1	1					1							3		miniature rim
174	19	180	84	333	9						2	3					2							3		miniature rim
175	19	222	229	1000	6						8					1	2					1		1		hollow support
177	6	37	21	150							2	2									2					
179	15	101	136	600	8						1	1					3					2				ball support
181	3	33	11	100		1					1					1										
182	2	18	65	334	1																1					
183			57	300																						
184	8	46	52	300	2						4	1					1									
188	7	126	71	350	2												1						1	3		
189	3	56	17	126	1												1									
190	3	30	20	170	1						2															
192	18	292	70	42	2						4	2				3	2						3			
193	13	80	76	497	4						2		1			3								3		
194	9	137	14	63	3						1	1												1		chilmolera body, cone support
195	2	33	21	70		1					1															
196	2	17	29	162																		1	1			
198			6	55																						flat base
199	26	397	123	653	8	2				1	5	7												3		
200	4	57	92	450	1						2										1					
201	10	126	31	169	4						1					1	4									
202	3	15	17	163							3											1				horn support
203	2	6	88	260	1						1															
204			31	187																						
205	2	23	32	359	1											2										
206	10	103	100	450	2						7												1			
207	7	65	14	90	3						1	1					2			1						
208	25	296	110	736	9							1				2	4									
209	26	217	144	627	9						8	4					1						4			
210	5	43	48	202	1							4														
211	12	112	38	165	2						5						4					1		1		body w/holes, pos. modern

S Cream	#	rim	#	body	1	2	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Notes
Bag #	rim	gm	body	gm																						
213	8	92	36	224	1	3					1							3								jar
214	9	87	80	391	5						2													1	1	candy dish base
215	4	23	46	342	2							1		1												
217	3	28	39	149	1												2									
219	5	83	33	225	1						2						1								1	channel rim bowl
220	5	114	13	90	3						1	1														
221	3	44	13	127	1						1	1														
222			26	89																						
223	1	6	4	31	1																					
224	6	60	116	565	2						3						1									
225	6	59	26	408	4							1					1									
226	12	91	30	142	7							1					1		1			2				cilindrical support
227	8	161	30	320	1	2						4											1			
228			2	11																						
229	3	41	24	155							2												1			
230	3	31	39	363	1						1						1									
230	5	41	32	235																					5	
231	10	73	59	366	4						4	1										1				
232	8	48	35	126	6																			2		
233	13	179	60	334	3						2	3					2						1	1		cone support
233	3	50	10	176	2												1									
234	7	100	28	193	1	3					2						1									orange paint comp. sil.
234	1	12	4	24							1															
235	5	54	14	60	1						1	1				1								1		
237	5	46	8	57	1												2					2				
240	15	141	42	319	7						1	3			1		1	1					2			whole miniature jar
241	17	136	88	356	6						1	1					4					2	1	2		
242	10	181	69	422	6						2	2											1			
243	1	1	1	12	1																					
244	1	6	3	8	1																					
245	9	97	58	324	3	2						1					3									
246	4	29	5	63																						
247	3	30	9	71	1						1												1			
248	16	247	34	240	3						5	2				1	3	1						1		tubing pitcher or tubing
249	11	178	29	310	2						5				1								2	1		
250	8	123	27	224	1	3											1						2	1		
251	15	274	24	157	4						5	2					1					2	1			triangular support
252	13	181	48	295	6						1	2					3						1			
253	1	20	4	66							1															
254	4	25	16	96	2												2									
255	12	124	65	363	1						3						1						1	6		
256	2	31	48	203	2																					
257			30	159																						
265	4	122	13	122	4																					
266	4	22	11	56	1						2	1														
267	2	19	11	85								1					1									
268	4	25	34	197	1										1		2							1		
269	9	84	50	270	1	1						2			1	3							1			
270	3	25	6	85	1						1				1											
271	1	5	23	157								1														
272	2	12	12	70	2						1															
273	10	65	33	165	4						3	2					1								4	3 painted body, 1 mica temper
274	7	94	33	191	3						3												1			jar base
275	1	12			1																					
280	6	54	27	196	2						1	2					1									
282	6	66	16	75	1						2						2						1			
283	9	77	29	255							6	3														
284	3	30	4	32	3																					

S Cream	#	rim	#	body	1	2	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Notes
Bag #	rim	gm	body	gm																						
285	8	86	35	295	2	1					3												2			
286	3	68	9	137													3									
287	2	15	3	13								1					1									
289	2	17	2	21	1						1															
290	5	38	14	122	2												2						1		3	
291	6	82			3						1	2														
292			3	24																						
293	6	138	15	99	1	3						1					1									
294			6	29																					1	
298	26	322	151	827	#						3						4						1			
299	16	150	27	191	6	1					1	2					2						2	1		
300	2	37	4	58		1																				eroded rim
302	5	75	5	34	2						1												2			
303			4	18																						
304	5	49	45	236	2							2											1			
305	3	238	15	90	2						1															2 large jars
306	8	104	14	122			1					4				1	1						1			
307	5	67	23	159	2							2											1			
308	1	15	8	58		1																				
309	1	74	2	20	1																					
311	10	91	45	312	7						1						1						1			
312	8	104	22	142	2	1					1	2					1						1			
313	4	38	28	105								2								1					1	censer handle red pain brazier
314	14	196	56	379	6						2	2					2		1				1	2		
315	1	7	15	93	1																					
316	15	137	74	314	2						13														2	
317			6	42																						
318	21	676	109	1975	7						7	1	1				3						2		3	thick bodies and candy dish
319	8	44	48	174	4						4															
320	5	37	16	89	3						2															
321	1	15	3	17							1															
322			7	60																						
323	2	22	7	31	2																					
325	14	152	98	608	5	2						6								1						decorated brazier
326	2	15	10	93								2														
328	32	351	87	844	#						10	5					4						2	2		
329	4	107	17	450	4																					
330	13	171	65	361	2	3					1	3	1										3			decorated bowl rim
331	8	145	61	400	4						2												2			
332	5	84	22	201	2																		1			
333	6	63	44	315	3							2					1									
334	2	11	20	134							1										1					ladle w/mica
335	1	4	5	52							1															
336			6	39																						
341	8	85	23	158	2						1	2											2	1		weird rim
342	4	25	11	62	1						2						1									
343	42	573	190	1092	#						12						7						2	7		cilindrical support, tubing bodies
344	16	166	79	616	5						5	1					2						2	1		
345	3	36	11	65		2						1														
346	15	128	54	370	2		2				5												2	2		cillindrical support
347	5	38	13	80		1						4														
348	10	76	18	126	7							3														
349	13	135	26	153	4						1						1	4					1	2		
350	6	71	24	163	2						1	2											1			
351	7	77	8	79							3	3											1			
352	8	102	32	226	1							6											1			foot-like support
353	1	31	5	53							1															

S Cream Bag #	# rim	rim gm	# body	body gm	1	2	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Notes
355	1	11	4	24								1														
357	11	82	51	255	8						3															
358	6	66	9	95	1						2	3														
360	2	16	23	191	1						1															
361			10	68																						
362	19	220	80	689	6	1					5	4											2			
364	5	49	12	46							3	1										1				
366			12	126																						
367	1	10											1													
369	14	177	40	271	8						5													1		
375	3	32	16	59									3													
376	12	73	87	416	2						7	2										1		1		
378	8	51	20	71							4	4													1	
379	4	20	15	37																		1	3			square support
382	2	34	5	25	1							1														
383	2	21	8	95								1											1			
384	6	44	32	209	2	1							3													
385	3	47	5	20	1	1							1													
393	1	21	5	29		1																				
399	1	9	2	10							1															
400			3	23																						
401	3	58	9	65	2								1													jar bodies
406	6	88	40	191	2			1			3															jar pos. pitcher
407	10	97	22	91	1	1					6						1						1			
408	5	48	12	76	1						2	1				1										
409	3	22	33	280									3													
412	4	23	25	84							2	1										1				
413	4	33	69	231	3	1																			1	
416			11	58																						
419	1	56	5	167	1																					
420	1	14	8	40							1															
421	10	98	43	238	8													2								
422	3	26	2	22		1						1				1										
438	26	180	67	425	7						15						1						2	1		incised rim
439	16	211	47	330	7						2	1						6								
440	27	167	146	650	7	3					11					1		5								
441	54	374	203	920	#						16	6			1			2					1			
442	19	82	85	408	7						9											2	1			cilindrical support pos. censer
443			6	52																						
445	7	86	26	146	1						3	1				1								1		
446	4	40	23	153	3							1													1	pos. sealed base
448	1	11	1	6							1															
449	10	150	76	350							2	6											2			
450	16	92	61	266	4						11						1									
451	3	34	43	186	1																		2			
452	5	38	19	95	1	1					1						1					1				cilindrical support
453	1	11	12	164																		1				
454	4	42	44	184	1	1						2														pos. everted rim
455	1	10									1															
456	27	227	108	415	8						7	8					3						1			
457	2	31	13	108					1															1		
458	26	284	90	464	7						6						6					1	6			
459	21	168	54	296	7			1		1	3						2					1	2	4		eroded handle w/paint
461	4	15	20	84	1						3															
462	22	207	83	454	8						6	3										1	1			hollow support, red paint bowl
463			7	41																						
464			3	9																						

F cream Bag #	# rim	rim gm	# body	body gm	1	2	3	4	6	7	8	9	10	12	13	14	15	16	17	18	19	20	21	22	Notes
84	22	70	105	225							14	2			2								4		horn-like decoration channel rim
85	3	6	56	92								3													
86	11	76	32	95							5	2			1							1	2		
88	24	163	78	300	6	1		1			4	1		1	6					1					
89	21	93	73	258							12			1	4	1								3	
90	2	3	2	58																			2	1	miniature rims
91	8	34	24	150							1	1										1	5		miniature rims
92	3	30	3	7	1						1	1													
93	5	21	8	18	2						1												2		miniature rim, jar w/lines
95	2	7	3	11							1												1		miniature rim
96	1	6										1													
97	1	9	11	26								1													
98	5	53	28	71							3	1								1					
99	4	74	9	54	1						1	2													red spec bowl
100			12	35																					
101			6	33																					
109	6	21	10	48							4	1			1										
110	4	28	6	32							2	1								1					
111	7	74	9	35							3	3								1					channel rim
113	4	33	8	25							3				1										
114	2	13	3	14							2														ceramic marble
118	4	27	7	26							1	3													
119	5	27	10	31							3	2													
120	2	14	4	22								1			1										
121	1	39																			1				hollow support
123	1	5	2	5								1													
130	14	71	24	108	1						5	2	1		1								4		miniature rims, red paint bowl
131			5	22																					
132	5	42	4	34							1	4													
134	4	26	6	25							2		1										1		
138	4	20	11	38								2			2										
140	3	35	13	97								3													
141	9	94	27	124							3	6													channel rims
142	10	51	24	70							3	5	1		1										
143	4	28	14	92							1	3													
145	2	10	12	23							1									1					
146			4	18																					
147			1	2																					
148			6	15																					
149	1	11	5	11												1									
151	11	73	27	114							4	5			2										
152	4	72	4	44							1	3													channel rim
154	1	2	6	20							1														
155	2	4	2	3							1				1										
156	33	173	63	298							14	10		2	1					1			5		miniature rim, circles
157			3	7																					
158	5	30	17	62							4					1									
159	6	44	19	81							4				1								1		
160			4	13																					
161	4	23	45	113								3										1			channel rim
162	21	155	31	122							5	8		1	4			1		1	1				hollow support

F cream Bag #	# rim	rim gm	# body	body gm	1	2	3	4	6	7	8	9	10	12	13	14	15	16	17	18	19	20	21	22	Notes
228	1	2																					1		
229	10	69	33	179							7	3													
230	6	46	9	38							2	1	1							1		1			
230	9	41	20	71							4	1			2	1					1				
231	16	113	56	245							10	2	1		1					2					
232	7	24	15	46							2	1								1			3		
233	6	40	10	41								3			1		2								
233	3	25	5	36								2					1								
234	14	90	43	166							4	7			3										channel rim
234	1	8	4	25							1														
235			2	6																					
237	8	60	18	78							7													1	figurine
240	5	49	12	52							3					1				1					
241	19	106	94	226	2						12	3			1					1					
242	17	167	23	112							5	5			5					1				1	
243	2	13	5	35	1						1														
244			1	2																					
245	14	88	60	215	3						3	8													
247	4	30	4	19							2	2													
248	5	48	15	73							2	2								1					
249	22	275	41	264				1			14				4	3									
250	16	141	63	338	1						3	5			4	2						1			
251	7	42	19	129							5	2													
252	20	138	30	173							14	5								1					
253			3	10																					
254	3	16	11	85	1						1	1													
255	17	96	79	293	2						13	2													
256	5	52	30	127							2	2									1				cilindrical support
257	10	47	69	306							4	5			1										
260			3	2																					
265	8	160	12	52	2						2	2				2									
266	1	9	1	8								1													
267	2	12	13	66							1	1													
268	10	54	46	195							1	9		1											3 channel rims
269	7	36	21	107							3	1								1		1	1		
270	3	29	1	2							2											1			
271	4	26	13	34							3				1										
272	4	20	6	17							3												1		
273	13	58	46	184							12					1									
274	8	56	14	81							5	1			2										
280	5	42	23	112							3				1					1					
282	8	39	34	124							3	2			3										
283	13	114	8	83							8	3								1	1				
284	6	88	19	90								1			1					4					
285	2	41	15	82								2												1	lip in body
286			5	43																					
287	1	6										1													
289	1	4																					1		
290	7	87	24	106	1						3	2			1										
291			3	25																					
292	1	4	1	1											1										
293	6	66	10	104							3	1				1				1					
294	2	9																							

F cream Bag #	# rim	rim gm	# body	body gm	1	2	3	4	6	7	8	9	10	12	13	14	15	16	17	18	19	20	21	22	Notes
298	17	94	40	151	3						13												1		
299	15	112	33	146	1						10		1		3										
300	1	6	3	24								1													
302	3	20	4	20	1						1												1		
303	2	13	1	7							1	1													
304	8	46	27	90							3	4								1					
305	1	3	1	4							1														
306	5	39	19	149							2	1			1					1					
307	13	91	24	112	1						8	1			3										
308	1	4	5	23							1														
311	10	42	23	86							7	3													
312	4	17	17	74							2	1	1												
313	2	13	18	71							1	1													
314	29	215	97	446	6	1					13	5	2		2										
315	7	58	16	74							2	2								3					
316	10	50	27	100							8	1			1										
317	2	11	5	32																			2		
318	22	318	20	130	3						7	2	3		3					2		2			
319	16	84	17	53	1						12	3												2	
320	5	10	11	35	1						3												1		
321			2	10																					
322	3	36	4	16							1									1			1		rim w/texture
323	3	14	21	112							1	2													
324	1	5	1	3											1										
325	28	145	48	224	3	2					5	14			3						1				
326	4	27	4	25							1	1			2										
328	28	178	45	179							20	6	1								1				
329			14	110																					
330	8	44	21	102							1	3			2						2				2 hollow supports
331	2	15	21	196							2														
332	9	55	6	31	1						7	1													
333	12	104	15	74							1	6	2		1							1	1		
334	2	8	9	27								1		1											
335	1	18																							
336	1	9	2	9											1										
341	10	96	21	109							2	6								1			1		orange paint bowl
342	1	3	1	16							1														
343	37	201	24	244	3			1			22	7											4		
344	24	207	73	355	5						9	1			7							1	1		
345			2	6																					
346	11	78	23	105	2						8		1												
347	2	41	7	19																2					
348	8	61	11	47		1					2	2	1							1	1				incomplete support
349	11	54	28	127							6	1	1		2					1					
350	6	48	16	77							3	1			1							1			
351	9	93	16	116							3	5												1	
352	9	55	13	84							3	4								2					
353	3	63	2	28																3					red paint ladle
355	4	20	6	32								3								1					
357	22	108	34	128	1						17											1	3		miniature jar
358	2	18	13	84							1	1													
360			5	18																					

F cream Bag #	# rim	rim gm	# body	body gm	1	2	3	4	6	7	8	9	10	12	13	14	15	16	17	18	19	20	21	22	Notes
361	5	45	6	20							4				1										
362	4	24	8	30							3	1													
364	4	23	4	17							3	1													
366			2	4																					
367	2	20	1	4							2														
369	9	137	11	63							7				2									1	
371	1	14				1																			
375	8	66	11	61							2	4								1			1		
376	26	148	32	152		1					6	7			5					1	1	1	4		red paint ladle
378	1	2	3	14							1														
379			6	19																				1	orange paint body
382	1	23	2	10											1										
383	2	21	1	3								2													
384	7	72	1	7	1	1						4								1					
385	1	12	2	18								1													
393	2	15	3	11								2													
400	1	23										1													channel rim red paint
401	5	24	1	4							2	1			2										
406	12	49	34	104							6				1						1		4		miniature rim, square support
407	1	1	1	1							1														
408	3	22	1	3							2				1										
409	1	6	4	24								1													
412			8	22																				1	incised
413	1	17	2	32							1														
419			3	25																					
420	4	42	2	7								4													
421	7	59	10	45							5	1											1		weird jar rim
422	2	15	4	33								2													
438	22	108	19	91	3	1		1			11	5			1						1			1	cone support
439	27	158	35	161	1						14	4	2		2					3			1		
440	34	190	150	502	2	1					16	5	3		3							1	4	1	body red paint
441	46	218	101	411							33	7			1	1				2	1	1			
442	23	80	23	29	1						15	5	1											1	
443			1	2																					
445	29	153	28	116							15		3		4					2	2		3		
446	8	72	23	122							3	3			1						1				cilindrical support
447	2	34										1								1					
448	3	14	2	7							2	1													
449	4	27	69	262							1				1						2				small cilindrical support
450	22	89	22	90							12	5	1		1								3		
451	16	64	69	262	2	1					5	2			2								4		
452	12	80	28	128	2						2	6								2					
453	1	1	1	7							1														
454	11	52	48	205							2	6			2					1					
455	2	12	1	5								2													
456	18	109	38	144							14	2			1							1			
458	25	120	45	203							17	8													
459	23	115	21	106	1				2		15	2											3		3 bowls paint
461	2	5	6	38							2														
462	6	39	1	15							3	3													
463			1	1																					

C Tan	#	rim	#	body	1	2	3	4	5	6	7	8	9	10	12	13	14	16	17	18	19	20	21	22	Notes
Bag #	rim	gm	body	gm																					
74			11	42																					
75			3	12																					
76	1	32	176	494									1												
77	4	89	38	200	1							1	1			1									
78	6	59	86	295	3												3								
84	2	20	67	148	2																				
85	2	13	85	307	2																				
86	12	124	73	323	4				1				1				4						2		cuello de botellon y base de olla
88	11	150	89	400	4	1						2					1				2		4	2	soporte conico y semiesferico
89	9	88	133	573	2								3				2						2		
90			7	64																					
91	11	158	32	223	5					1			1				1						3		una base de olla y dos cuellos en olla, un probable haciendo de jarra, base mas plana y bordes miniatura cuello de olla
92	1	25			1																				
93			19	51																					
94	2	18	8	14	1												1								
95			5	34																					
96			4	14																					
97	1	16	24	52																		1			
98	2	37	106	478								1					1								
99	1	8	14	85	1																				
100	1	8	67	266	1																				
101	1	14	6	20													1								
105	1	11	2	9	1							1													1 cuello de olla
109	7	151	28	207	4												3								
110	4	60	32	263	3							1													
111	7	86	99	443	3							1	3												
113			21	72																					
114			13	40																					
118	7	92	39	262	4	1											2								
119	2	77	25	136	1							1													
120	1	22	10	63																		1			
121	1	20	2	21													1								
122	2	13	5	40	1							1													
123	1	11	16	157											1										ollita rara, verla
130	8	62	70	329	3								2								1		2		2 cuellos olla y bordes miniatura
131	3	43	16	62																			2	1	borde de bottellon o florero verlo
132	3	80	11	77	1												1					1			
133			1	36																					
134	3	24	13	80	1																			2	
135			3	12																					
138	6	51	50	298	2								3									1			
140	28	941	37	574	17				1			1	2				4	1			1	1			1 soporte plano, y un borde de botellon muy bueno para foto

C Tan	#	rim	#	body	1	2	3	4	5	6	7	8	9	10	12	13	14	16	17	18	19	20	21	22	Notes
Bag #	rim	gm	body	gm																					
141	4	55	79	376	1												3								boca de olla pa foto
142	11	146	72	479	3							3	2			1						1			labo decorado con pintura roja e incisiones, tal vez bracero? Para foto
143	6	17	100	633	5	1																			
145	1	17	15	72	1																				
146	2	19	19	88								1					1								
147			4	18																					
148	1	4	4	13	1																				
149			23	75																					
151	6	118	34	193	1	1							2									1	1		
152	1	24	16	268		1																			
153	3	40	4	25	3																				
154	3	32	23	109								2					1								
155	1	2	25	81								1													
156	18	237	115	915	6							3	4				3				1		1		base y cuello de olla
157			1	2																					
158	5	51	26	221	2												1		1				1		en cuerpos 3 cachos chilmolera y un colador o sahumador
159			37	218																					
160	3	58	16	112	1	1											1								
161	2	26	127	560													2								
162	5	61	116	550	3												1					1			
167	1	3	4	29																			1		
168			2	10																					
169			13	31																					
170	4	26	36	198									1				3								
171	6	186	40	446	5																	1			
172	7	74	115	611	2												1	2				1		1	cuerpo con hoyos sahumador o coladera y cuerpos burnished outside brown
173	7	219	95	733	6												1								
173	9	185	20	157	7								2												ollas es una base y un cuello
174	28	209	148	794	12							1	1				6				2	2	4		una olla pa foto, y bordes miniaturas
175	6	51	103	488	2								2				2								
177	5	34	34	200	2	1											2								
179	10	58	134	600	2							3	1				3						1		
181			39	200																					
182	2	14	35	176								1								1					
183	11	146	40	350	6								1				2				1	2			
184			15	93																					
188	7	51	92	400	2								1		1						1	2			soporte semiesferico
189	2	32	38	203								1					1								
190	2	15	20	112										1			1								
192	6	163	117	680	1							2		1			1					1		1	cuerpo pintado rojo

C Tan Bag #	# rim	rim gm	# body	body gm	1	2	3	4	5	6	7	8	9	10	12	13	14	16	17	18	19	20	21	22	Notes
193	16	160	69	890	5	1						1	3	3					1				1		1 cajete borde acanalado
194	5	40	90	402	3								1			1									1 cajete borde acanalado
195			20	96																					
196	7	48	26	137	4									2							1		1		
199	1	11	40	310													1								
200	9	98	102	900	1											1	1							2	
201	2	25	49	270													1					1			
202	2	129	20	320								2													1 base de olla
203	4	54	111	377	2							1				1									
204	2	9	67	503		1						1													
205	4	80	25	103	1								1				2								
206	8	89	67	454	3	2						1	1									1			
207	4	59	38	238								1					2						1	1	borde puede ser sahumador o un cuerpo decorado?
208	4	29	72	331		1										1	2								
209	14	104	76	389	4	3					1	4					2								
210			132	605	1							1													asa o soporte?
211	6	259	47	308	5																	1			asa posiblemente moderna
213	1	15	14	102	1																				
214	3	13	26	119	2								1												
215	6	182	112	1550	5																				
217	4	36	55	217	3								1												
219	3	42	18	110	1												2								
220	1	15	30	240									1												1 cajete con pintura en el borde
221			19	93																					
222	8	101	106	572	3												4					1			
223	1	18	6	44													1								
224	3	27	88	321								1	1				1								
225			33	159																					
226	6	68	125	689	3												1					2			
227	3	33	40	316		1											2								
229	4	79	19	158	1							1											2		
230	8	79	50	288	2							3					2					1			
230			12	106																					
231	7	70	27	195													2						2		1 borde probablemente olla por lo ancho
232	2	17	38	265	1																1				
233	3	29	25	153	1							1			1										
233	1	9	8	83	1																				
234	5	48	108	408		1						2					1	1							
234			4	56																					
235			4	16																					
237	2	25	3	43		2																			
240			47	216																					
241	11	94	39	242	4	1						2	2				1					1			
242	10	63	35	187																					
243	1	23	1	6		1																			
244	1	3	1	1								1													
245	5	27	82	364	2								1				1	1							
246	1	8	2	22																			1		

C Tan	#	rim	#	body	1	2	3	4	5	6	7	8	9	10	12	13	14	16	17	18	19	20	21	22	Notes
Bag #	rim	gm	body	gm																					
247	2	12	9	89																		2			
248	7	126	85	784	3							1	1			1	1								
249	7	188	33	355	2							2	3												
250	1	20	59	241	1																				
251	11	109	55	408	5												5					1			
252	9	104	30	256	1								2				2					3	1		cuerpo c/ labio
253	2	16	13	87								1					1								
254	3	33	9	100	1							2													
255	10	90	53	360	4								1									5			
256	7	108	150	1000	4							2					1								
257	4	34	83	331	2	1						1													
260			9	88																					
265			4	46																					
266	1	3	19	179																		1			
267			43	31																					
268	10	85	38	218	2	1			1				1				4					1			1 cajete pintado café por dentro, botellon cuello recto
269	7	146	92	537	2																	3	2		
270	1	6	6	45																			1		
271			15	90																					
272			1	6																					
273			30	190																					
274	2	27	20	179	1							1													
275			2	11																					
280	2	25	27	190													2								
282			7	51																					
283	5	66	22	183	2												2					1			
284	7	136	36	224	4	1											1						1		
285	3	34	17	124									1				1					1			
286			21	569																					
287			2	11																					
289	1	10															1								
290			5	54																					
291	9	226	85	1000	1							1					7						2		bodies brown paint
293			19	99																					
298	4	36	45	301	3												1								
299	3	20	24	153	2	1																			
300	1	15	8	75	1																				
302	1	5	6	41										1											
303	5	36	20	163	5																				
304	26	299	137	726	11	1											8					1	5		
305			6	42																					
306			10	208																					
307			13	107																					
308	1	15	11	40													1								
309			2	43																					
311	2	11	23	143	2																				
312	5	52	28	184	2	1											1						1		
313	8	66	127	523	2								2				1					3			
314	11	178	52	437	4	1															1	2	3		1thick jar
315	9	163	77	506	6	1																			
316	6	64	72	447	3							3											2		
317			6	65																					
318	11	378	92	1043	6	2																1	2		jar bases

C Tan Bag #	# rim	rim gm	# body	body gm	1	2	3	4	5	6	7	8	9	10	12	13	14	16	17	18	19	20	21	22	Notes
319			31	133																					
320	2	19	3	11	2																				
321	1	6	5	35	1																				
322			4	53																					
323	10	129	74	447	4	1											1					3	1		
325	22	233	174	1000	9											1	8				1	2		1	
326	8	117	76	535	4								2				1						1		
327			10	23																					
328	4	27	49	323	2							2													
329	1	41	5	93													1								
330	6	91	36	233	4												1					1			
331	5	82	25	440	2								1									1	1		
332	3	64	23	292	1																		2		
333	3	67	41	526		1						1									1	1			generic support
334	6	69	70	444	4								1									1			
335	1	9	1	38	1												1								
336			2	18																					
341	12	124	115	745	6	2											4								
342			16	94																					
343	11	78	81	514	3							4					3						1		pos. patojo
344	7	137	53	499	4												1					2		1	
345	12	330	48	410	4												2								tubing
346	3	37	21	99		1						1									1				cilindrical support
347	15	161	68	185	5	2							2				4					1	1		
348	9	125	47	316	1	1							3				1					3			
349	4	51	25	242	1								1				1					1			
350	2	17	10	75	1																		1		
351	10	234	62	700	3	2											2							3	
352	16	204	88	542	8							1	3				3					1			
353	7	117	41	316	4							1					2								
355	14	238	80	560	5	1							1				3				3	1			tubing
357	7	72	31	168	2	1							1				1						2		
358	12	192	112	910	6	3					2						1								5 sherds same vase
360	1	9	16	130																	1				
361	5	85	14	76								1										4			
362	3	41	44	418	1												1					1			
364	1	15	5	25																		1			
366	2	88	12	61													2								
367	3	23	9	73	1								1				1								
368	3	97	93	1150													3								
369	4	43	39	301	1							2					1								
371	1	13	8	45																			1		
375	3	28	73	379	2								1												
376	13	104	74	462	2	1							5				1					1	3	1	censer body
377			1	5																					
378			8	27																					
379	2	20	8	38	2																				
380			12	59																					
382	4	79	21	276	2								1				1								
383	2	22	15	136	2																				
384	8	84	18	103	4	1							1				1	1							brazier decorated lip
385	2	17	14	75									1				1								
393			18	110	1	23	3	9					1												
398			1	6																					
399			4	12																					

C Tan Bag #	# rim	rim gm	# body	body gm	1	2	3	4	5	6	7	8	9	10	12	13	14	16	17	18	19	20	21	22	Notes
400			1	4																					
401	4	44	50	410	2							1							1					1	censer decorated body
406	4	25	48	284	1								2				1								
407	1	5	6	64	1																				
408	6	79	33	260								2	1										2		support or handle
409	9	194	105	1008	5												4								
412	3	29	15	75	1																1	1			hollow support
413	1	9	48	190													1								
414			5	16																					
415	1	5	1	2								1													
419	2	8	3	15	2																				
420			1	4																					
421	7	55	49	275	5							1					1								
422			32	219	1												2						1		thick rim
438	7	43	53	367	1							3					3								
439	4	24	83	616	2							1										1			
440	22	203	188	1000	9								1				5					3	5		
441	15	213	91	476	6							2	3				2				2				2 cilindrical support
442	11	52	63	275	2							9													
443			12	55																					
445	17	208	50	370	6							1	4				4					1	1		
446	6	56	90	433		1							2		1	2									
447	3	40	20	114		1											1					1			
448	1	16	15	177																		1			
449	20	250	284	1017	9	1							6			1	2					2			
450	9	76	68	372	3							5					1								
451	24	189	114	353	10							2	1				4					1	6		jar neck for lid
452	8	111	93	583	4	2																2			
453			1	5																					
454	15	109	153	614	8	2						2					1					2			
455			20	142																					
456	4	20	37	159								2	1									1			
457	6	56	41	331									1									2	3		bowl with handle
458	5	31	19	97								1					3						1		
459	13	87	122	630	6							2	1				2					1	1		comal handle w/hole
461	2	15	27	159											1							1			candy dish base
462	2	21	24	207													2								
463	2	6	19	45								1	1												
465	2	28	44	182								1										1			
466			2	15																					
469			5	16																					
471			7	30																					
472			4	38																					
473	1	5	19	56											1										
474	28	165	156	850	9							8	2				1	2					6		miniature rims
475	7	242	74	445	2												4						1		
476	2	11	19	123								2													
483			17	68																					
485	1	11	60	229	1																				
486			23	72																					
493	3	19	25	51	1							2													
494	1	32	30	178	1																			1	black paint body

C Tan Bag #	# rim	rim gm	# body	body gm	1	2	3	4	5	6	7	8	9	10	12	13	14	16	17	18	19	20	21	22	Notes
503	1	11	3	10													1								
511	2	28	25	98	2																				
515	13	173	170	1268	6	2						1			1		1					2			
516	10	84	82	458	5	2						1										2			
517			2	8																					
518	11	180	99	767	7												1					3			
519			1	5																					
530	7	106	78	498								2					2				1	1	1		pos. patojo
531	1	12	27	220																		1			
532	7	287	51	386	3	1							1				2								
533	2	14	26	258								2													
534	6	75	21	128	3												1						2		
536	1	26	26	237	1																				
537	6	66	56	419	4												2								
684	3	56	14	62	1							1										1			

Table C.16 Area 1 Fine Tanwares

F tan Bag #	# rim	rim gm	# body	body gm	1	2	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Notes	
48			3	9																				
49			7	22																				
50	3	20	21	75					2					1										
51			24	79																				
52	3	20	15	33				2	1															
54			2	10																				
55			3	16																				
56			8	34																				
57	2	11	5	27				1	1															
58	1	5	30	107					2															
60			6	8																				
69	8	26	58	96					2												6			miniature rim
71			6	17																				
72			37	87																				
73	1	1	3	17																	1			
74			8	11																				
76			41	154																				
78	2	7	6	26					2															
85	4	17	21	59					2							1					1			brazier and bowl incised
86			10	25																				
88			45	150																				
91			25	128																				
96	1	3									1													
97			1	6																				
98	4	40	14	77				1	2	1														
100	1	5	2	12					1															
110	1	7	2	35					1															
111			14	53																				
114			2	10																				
118	4	57	4	31					4															
119			2	29																				
120	1	13						1																
123			5	11																				
130			36	106																				
132	2	9	1	4					2															
138	3	20	3	25				1	1											1				cone support
141	4	45	22	147				1	1	1	1													everted bowl polished brownware finish

C gray Bag #	# Rim	Rim gm	# Body	Body gm	1	8	9	13	14	15	21	Notes
203			1	3								
214	1	1	12	24								
220			5	25								
222	1	5										
227	1	7						1				
230			1	6								
232			6	16								
233	3	26	8	52	1	2						
241			2	5								
243			1	4								
245			4	7								
250			5	30								
252			5	29								
255			7	53								
256			2	5								
265	1	4	8	35								
267			1	6								mica temper
268			2	9								
273			1	2								
285	1	11	2	2		1						
286	2	83	2	16	1				1			
293			1	6								
298	2	15	4	14								
302			1	4								
316	1	8	2	13		1						
319			1	5								
320	2	15										
326				1	5							
343	1	3	4	31		1						
347			1	5								
382			2	10								
383			1	7								
408			1	3								
421	1	8	1	4	1							
442	1	3	1	2							1	
452			1	7								mica temper
453	1	3				1						
456			2	17								
458			1	3								
474			6	41								
475			2	13								
531			2	28								

Table C.19 Area 1 Fine Gray wares

F gray Bag #	Rim #	Rim gm	# Body	Body gm	1	2	4	8	9	10	13	14	19	20	21	Notes
47			2	18												
51	4	25	3	13					2	1	1					
54			2	13												
55			2	4												
58			2	4												
70			3	15												
73			2	10												
78			3	8												
88	1	3	0	0							1					
89	3	15	7	20						1					2	

F gray Bag #	Rim #	Rim gm	# Body	Body gm	1	2	4	8	9	10	13	14	19	20	21	Notes
90			2	9												
96			3	9												
98			3	27												
100			2	6												
110			6	35												
118	1	15								1						
119			1	9												
120	1	11	1	6				1								
138	4	61	6	29	1	1			2							
140			1	8												
142	6	23	17	71				1		2					3	
143	1	14	5	21							1					
146	1	3	2	6				1								
154	1	6	4	11				1								
156	1	19	4	48					1							
158			1	7												
159	2	8	4	21				2								
160	1	16								1						
161			6	20												
162	2	24	8	60				1	1							
172			2	14												
173			2	20												
174			1	12												
175	3	39	3	15				2	1							
177			1	4												
183			3	11									3			hollow support
189			5	15												
190			1	7												
192	2	17	5	25						2						
193	1	32	6	35										1		
194			4	9												
196			2	7												
200	1	61	1	21				1								
204	1	42	2	29				1								
205			1	3												
206	2	15	3	12	1				1							
208			78	231												
209	6	27	14	56					3			1			2	
214	3	12					1	2								
215	1	7	2	5						1						cacique-like candy dish
217			7	32												
219	1	6	2	8				1								
220			1	7												
221			2	4												
222			1	3												
225	1	13	4	25							1					
230	1	2	4	19											1	
231			2	12												
232	1	15	2	11					1							
233			3	26												
233	1	24	1	8				1								mica temper zoomorph support
234	2	96						1					1			
235			3	13												
242	1	7	1	3				1								

F gray Bag #	Rim #	Rim gm	# Body	Body gm	1	2	4	8	9	10	13	14	19	20	21	Notes
245	1	3	20	72				1								
248	1	4	1	6					1							
250			4	21												
255			5	43												
256			2	3												
257	4	69	3	8					2		2					
265	3	24	6	46					3							
269			4	20												
273	2	11						2								
283	2	18	3	15						2						
284			2	10												
285	1	6	4	20						1						
287			1	7												
291			2	19												
293	2	34	1	15		1				1						candy dish base
298	3	7	4	10				3								
299			1	12												
304	3	22	3	13												
305	2	119	4	25						2						
306			1	2												
308			2	13												
311	2	15	2	8					1	1						channel rim bowl
313	1	4								1						
315			2	9												
316			3	8												
317			8	27												
318	1	6	2	7						1						
320			3	10												
328	3	15	7	26				2		1						
330			7	51												
333			6	30												
334	1	5	2	5								1				
341	1	5	3	29					1							
342			1	1												
344			5	33												
347	1	4							1							
355			2	7												
357			2	8												
360			4	20												
369			2	6												
375	1	59														
376			1	16												
377			2	9												
384			6	32												
385			2	6												
400			2	5												
408			1	7												
409			2	10												
421			3	8												
422	1	7							1							channel rim bowl
438			1	4												
440			10	58												
441			4	15												
445	1	9	2	7								1				
446	1	2								1						

[illegible]

Table C.20 Area 1 Yanhuitlán Red on Cream

[illegible]

YRC Bag #	# Rim	Rim gm	# Body	Body gm	1	6	8	9	10	11	12	13	15	19	21	22	Notes
204	1	9						1									channel rim
206	1	15						1									
208	1	1							1								
210	4	34	1	4				1	2								miniature bowl
213	2	7						1					1				
214			2	21													
219	5	83	5	37				2	3								
222	1	9	2	9					1								
224	1	10						1									
225	1	14															
227	2	15	40	316					2								channel rim
229	1	14	1	5				1									
230			6	30													
231	1	9	1	11				1								1	
232	1	10							1								channel rim
233	3	32						1		2							
235	1	3	1	15					1								
240	2	6	4	32				1	1								
241			1	2													
242	1	10						1									
246			1	4													
248	4	36						1	3								
249			1	4													
250			1	8													
252			2	16													
255	2	24	1	11				2									
256	3	42						1	2								channel rim
266	2	37	1	7				1	1								
267	1	4	1	11					1								channel rim
268	1	2	1	11					1								
269	4	26	2	17				1	3								2 channel rims
271	1	5	1	5											1	1	
280	2	8						1	1								
282	1	13	1	7				1									
284	1	14	1	6		1											pos. pitcher
285	3	50	1	6					3								2 channel rims
290	7	161						7									
291	1	5	1	9					1								
293			2	13													
298	1	1	1	1				1									
300	1	10							1								YRC on sandy cream
303			2	28													
304	2	20							2								
305	1	3	1	3				1									
306	1	15						1									
312	1	6				1											
313	1	3	4	22					1								
315	1	4	1	5					1								
316	2	16						1	1								
320			1	9													
323	1	9							1								channel rim
325	2	11							2								2 channel rims
326	1	5	1	6					1								
328	2	21	3	8				2									
330	2	12						1	1								1 channel rim
333			1	5													

YRC Bag #	# Rim	Rim gm	# Body	Body gm	1	6	8	9	10	11	12	13	15	19	21	22	Notes
503	3	21	2	12				3									channel rims
511	2	9	1	12				2									
515	17	275	17	95				5	12								
516	4	25	9	55				1	3								
530			1	7													
531			1	16													
532	6	69	1	5				1	5								
533	6	140						6									
534			2	13													
537	12	106	14	97				5	7								

Table C.21 Area 1 Graphite on Orange

G/O Bag #	# Rim	Rim gm	# Body	Body gm	1	8	9
121			1	9			
145	1	7					1
156			1	5			
188			1	1			
203			1	3			
318			1	2			
362			1	7			
369			1	6			
459	1	7	2	6		1	
474			5	28			
515	1	10				1	

Table C.22 Area 1 Cacique Burnished

Cacique Bag #	# Rim	Rim gm	# Body	Body gm	1	8	9	10	19	22	Notes
162	1	9	1	8			1				
175	2	114	4	19			1		1		zoomorph support
181	1	12	1	6		1					
189	1	7									
190	1	8							1		sparkle red
194			3	23							
199	2	65	1	5			2				
219			3	14							
245	1	2						1			w/incising outside
282	1	9					1				
293	1	33						1			
318	2	38						2			
332			2	9							
333			1	1							
494			1	9							

Table C.23 Area 1 Polychrome

Polychrome Bag #	# Rim	Rim gm	# Body	Body gm	1	5	7	8	9	12	19	22	Notes
118	1	10						1					
138			2	19									
158			1	14								1	
179	1	10					1						
199	1	12	1	6					1				
202	2	42							1				
204			2	8									
206			1	0.5									
234	1	62							1				ring base

Polychrome Bag #	# Rim	Rim gm	# Body	Body gm	1	5	7	8	9	12	19	22	Notes
291	3	93			1								foto
293			1	4									
309	1	4										1	body of jar neck
313			1	6									
316			1	19									
323	1	4								1			
325	1	1										1	foto
328			1	18									
368	1	16									1		hollow support
380			1	6								1	
518	1	15									1		zoomoph support
537	1	6			1								

Area 2 Ceramic Data

Table C.24 Area 2 Sandy Cream wares

S cream Bag #	# Rim	Rim gm	# Body	Body gm	1	2	5	8	9	13	14	19	20	21	22	Notes
295	6	44	92	459	2	1		1					2		1	red painted body
296	22	201	144	531	4			7				2	3	3		2 cilindrical supports
301			1	7												
354	18	121	46	245	7	2		4	4	1						
356	16	164	23	195	1	2		2	10			1	1			
356	7	118	41	237	4									3		
359	2	8	12	107	1			1								
363	3	17	27	126	2						1					
373	1	11	7	39									1			
374	17	91	90	471	13			1	1	1						1 figurine frag
381	19	103	74	270	7			12								
386	5	28	19	73	1			2				1		1		
392	2	12	9	12					1	1						
394	9	59	17	53	5			2						2		
395	2	11	9	34	2											
396	7	17	5	16				6	1							
683	12	119	103	445	3		2	3	1					2	1	
685			8	20												
686			2	3												

Table C.25 Area 2 Fine Cream wares

F cream Bag #	# Rim	Rim gm	# Body	Body gm	1	2	8	9	10	13	19	21	Notes
295	5	31	38	131				5					
296	32	135	48	246	1		20	2				9	
354	11	83	22	110		1	1	7	2				
356	10	114	14	134			1	8			1		1 cilindrical support, 2 channel rim bowls, 1 bowl exterior decoration
356	11	78	13	79			2	9					
359			3	14									
363	4	15	9	52			3	1					
373	1	6	8	26								1	
374	18	103	23	92			1	16				1	

F cream Bag #	# Rim	Rim gm	# Body	Body gm	1	2	8	9	10	13	19	21	Notes
381	25	122	10	32			23	2					
386	6	38	12	43			5			1			
394	8	32	23	80			5			3			
395	1	5	12	33			1						
396	3	11					3						
683	1	11											

Table C.26 Area 2 Coarse Tanwares

C tan Bag #	# Rim	Rim gm	# Body	Body gm	1	2	8	9	13	14	20	21	22	Notes
295	5	34	40	124		1	1	1		2				1 comal raro para foto
296	12	9	78	336	4		4	1				3		
301	4	27	14	62	2						2			
354	12	117	53	275	11	1								
356	13	158	58	466	10	3						1		borde de un cajete pequeno o un botellon
356	10	102	73	406	6	1			1	1	1			
359	1	12	5	30			1							
363	2	28	11	56			1				1			
373	4	26	39	169	3			1						
374	14	117	60	275	7		4	2			1			
381	13	50	44	174	3		7	3						
386	4	31	11	94			1	1				2		
392			12	38									1	cuerpo con hoyos
394	7	36	20	84	2		1			1	1	2		
395	3	25	11	65	3									
396			7	11										
460	2	22	10	36	2									
683	2	11	69	269							1	1		
685			6	31										
686			1	4										

Table C.27 Area 2 Fine Tanwares

F Tan Bag #	# Rim	Rim gm	# Body	Body gm	3	9	19	21	Notes
295			2	15					
301			3	10					
354	1	7	1	6				1	
356									
356	2	16	1	4		2			out-channel rim
373	1	4	6	22		1			
374	1	37			1		1		weird support
386			8	35					
394			8	27					

Table C. 28 Area 2 Coarse Gray, Fine Gray, and Orange wares

Bag #	C gray # Body	Body gm	F Gray # Rim	Rim gm	# Body	Body gm	8	Orange # Body	Body gm
295					2	5			
356								4	32
356								1	6
381			2	6	6	14	2		
683	1	11							

Table C.29 Area 2 Yanhuatlán Red on Cream

YRC Bag #	# Rim	Rim gm	# Body	Body gm	8	9	22	Notes
296	3	25	8	64	2	1		
354	4	33	2	9	4			2 channel rim bowls
356	3	48			2	1		
356	1	38	3	21	1			
381			1	4				
394			1	2				
683	3	28	6	21	3			
685			1	4				

Area 3 Ceramic Data

Table C.30 Area 3 Sandy Cream and Coarse Tanwares

Bag #	S Cream # Rim	Rim gm	# Body	Body gm	8	9	C Tan # Rim	rim gm	# body	body gm	5	9
387	1	14	2	13	1							
388			7	45								
389			1	16								
425									7	28		
426			1	6								
427			2	6					2	7		
488									4	41		
489			1	5					4	10		
497									6	59		
498			1	3					1	4		
507									1	4		
508									7	71		
509	2	33	4	13		2			5	20		
510									1	2		
520			2	6					4	23		
528							1	22			1	
529									1	22		
538			4	22			2	14	6	27	2	
539									1	11		
558	2	10	4	75	1	1			4	29		

Table C.31 Area 3 Fine Tan, Fine Gray, and Fine Cream wares

Bag #	F tan # rim	Rim gm	# Body	Body gm	8	F gray # body	Body gm	F cream # Rim	Rim gm	# Body	Body gm	8	13	22
388	1	28	1	4	1									
497										1	4			1
520								2	24			1	1	
538			2	10										
558			2	10		2	11			1	2			

Area 4 Ceramic Data

Table C.32 Area 4 Sandy Cream wares

S Cream Bag #	# Rim	Rim gm	# Body	Body gm	1	2	5	8	9	12	13	14	18	19	20	21	22	Notes
390	4	28	15	68	3										1			
391			6	25														
402	3	15	37	141	1			1				1						
403	25	169	150	692	12			12				1						
410	13	90	64	195	7			4							1			1 borde con desgrasante de mica
411			21	67														
423	5	45	110	324		3									2			
430	5	24	27	75				1			2	1				1		
431	20	131	123	379	9			9	1						1			
432	1	2	3	13				1										
433			2	13														
434	9	102	28	135	4			3	1			1						
435	1	30	2	12	1													
499	13	97	46	176	1	2			4			2		1	3			
500	12	43	26	85				3				1				8		bordes miniaturas
512	5	68	25	122	2					1				1	1			1 soporte con desgrasante mica y probablemente una boca de jarra con asa
513	16	127	89	496	6			4	2			3			1			
514	20	129	80	328	7			6				5		1	1			soporte cilindrico
540			6	27														
541			2	43														
542	3	72	9	44	1	1			1									
543	5	44	9	52	2			2							1			
544	4	33	19	110				1			1	1	1					
546			6	47														
547	6	57	11	99	1			3	1						1			
548			5	90														
549			5	20														
550			2	16														
551	3	31	8	50	2							1						
552			3	10														
553	2	66	13	72					2									borde esta muy tendido como plato, debe examinarse
554	1	10	3	14				1										
555			1	9														
556	1	11	2	11	1													
557	6	92	7	47	3			1							2			
559	4	71	6	49				1							3			

S Cream Bag #	# Rim	Rim gm	# Body	Body gm	1	2	5	8	9	12	13	14	18	19	20	21	22	Notes
632	1	13	11	61					1									
633	3	85	23	214	1			1	1									
634	6	47	31	249				3			1	2						
635	7	62	32	165	2			2			1	1				1		2 cuerpos de olla
637			3	25														
638	5	53	9	75				1				3				1		
640			11	69														
641	1	6							1									
642			4	30														
645	6	127	14	90	5	1												
646	1	52																figurilla pa foto
648			1	4														
651	2	14	2	21	1				1									
652	5	29	8	65	1				1		1							
654			3	2														
656	3	21	18	129				1	2									
657	4	36	23	132	1		1		1			1						
658	1	21			1													
659			3	23														
660	14	200	58	463	7			3	2		1	1						
661	1	5	8	88					1									
663			14	97														
664			5	34														
665	3	25	8	43	1				2									
666	1	7			1													
667	10	104	76	452	8			1				1						
668	2	125	7	83	1			1										bordes para foto
682	1	28	4	21	1													
599 A	1	12	8	50		1												
599 B	4	56	7	82	1			1	1							1		

Table C.33 Area 4 Fine Cream wares

F Cream Bag #	# Rim	Rim gm	# Body	Body gm	1	2	4	8	9	10	11	12	13	14	17	18	19	20	21	22	Notes
390			7	26																	
391	1	6																			
402	3	10	10	27				2	1												
403	11	45	33	105				8	3												
410	2	6	9	33				2													
411	6	45	13	48				4					1						1		
423	8	43	67	215				3	3				2								
430	8	43	18	51				6					1						1		
431	5	19	26	67				3	2												
432	2	9						2													
434	3	8	4	18				3													
435	1	6	1	2					1												
499	6	14	14	33				4					2								
500	20	78	40	80				11	3				1	1		1			3		bordes miniaturas
512	1	6	3	17					1												borde acanalado
513	16	128	23	113				10	4	1							1				

F Cream Bag #	# Rim	Rim gm	# Body	Body gm	1	2	4	8	9	10	11	12	13	14	17	18	19	20	21	22	Notes
514	16	95	22	84				12	3								1				soporte cilindrico
540	1	2	5	27					1												
541	2	39	2	12		1										1					
542	3	29	9	35				2								1					
543	4	15	3	16				3											1		
544	2	6	8	36					1			1									
546	3	39							2											1	cacho de adorno posiblemente zoomorfo de animal peludo, por las rayitas
547	6	48	10	57	1			3		1									1		
548			3	18																	
549	1	7	1	3															1		asa pintada rojo
551	4	19	2	8				2		1			1								
552	2	16	1	6					1										1		asa decorada con pintura negra café
553	3	25						1	2												
554	1	15	2	16					1												
555			1	4																	
556			1	5																	
557			2	10																	
559	3	13	4	7				1	2												
560			3	8																	
561			3	9																	
562	1	4						1													
563	2	22	5	27	1												1				
564	1	7							1												
565	9	123	10	97				7		2											
566	1	15						1													
567	1	25	18	70					1												
568	5	30	12	65				1	4												1 cajete borde acanalado
569	9	70	11	47	2			3	1	2			1								2 bases de dulcero y 1 de cajete
570	2	11	5	27				2													
571																					
572	1	3	4	16									1								
573			1	5																	
574	2	23	3	17				1	1												
575	2	15						1	1												
577	3	21	1	3					1								1	1			soporte zoomorfo
579	1	14						1													
580	1	101							1												cajete para foto
581	2	13	10	61	1			1													
582	13	83	14	121				12								1					
583	2	13	3	11				1	1												
584	5	35	18	109					4				1								
586	3	24	3	2				2					1								
588	8	68	11	62	1			4	1				1						1		
589	2	24	2	9					1								1				

F Cream Bag #	# Rim	Rim gm	# Body	Body gm	1	2	4	8	9	10	11	12	13	14	17	18	19	20	21	22	Notes
590			2	7																	
591	1	1						1													
592	2	13	6	20					1				1								debo ver el cajete
593	1	5	2	9					1												
595	2	5	1	12					2												
596	8	67	6	25				5	2							1					
603	6	32	7	35				4								2					
604	4	25							3								1				soporte pintado color naranja
605	2	8						2													
606	1	10	5	22												1					
607	13	150	3	16				3	5							5					
608			1	9															1		
609	8	62	23	100				2	4				1			1					cajete borde acanalado
610	8	39	23	108	1			3	3				1								
611			4	27																	
613	2	10	4	24	2					1											base de dulcero
621	8	64	16	65				2	5							1					
622	6	56	1	7	1			4		1											
624	18	202	14	69	2			6		5		1	1			1	1				soporte mamiforme
625	14	122	16	94				3	12												
628	4	34	4	26					4												
629	3	40	3	16			2		1												patojo raro debo volver a ver cajete con pintura roja con specs de brillo
631	1	6							1												
632			4	20																	
633	12	93	8	24				4	6				1				1				cuenco para foto
634	10	63	11	59				7	2				1								
635	17	106	35	165		1		8	2	1			2				1		2		
637	1	6	4	17					1												
638	3	33	4	18				1	1									1			
640	6	32	16	69	1			4					1								
641	1	10	2	5				1													
642			2	17																	
645	5	126	10	34	1				3							1					
651			1	3																	
652	3	20											1			1					
654	1	16														1					
656	6	36	8	29					3				2			1					
657	4	14	8	52				2	2												
658	3	19	2	18						2			1								
660	9	110	6	70	1	1		5	1				1			1					1 cuello de olla
661	2	11							2												
663	22	189	32	219	2	1		10	5	1		1	1					1			ollita con asa de hoyo
665	3	15							3												
667	9	56	7	36	1			5		1						2					cuenco miniatura con pintura roja y brillitos

C Tan Bag #	# Rim	Rim gm	# Body	Body gm	1	2	3	5	6	8	9	10	12	13	14	17	18	19	20	21	22	Notes
567	8	106	94	503	5										3							
568	8	143	37	247	3	1									2				2			
569	10	131	20	154	5										3				1		1	cuerpo base de olla
570	3	70	33	282	1										2							
571	10	72	29	195	4					1				1	2				1			1 base de olla
572			27	205																		
573			2	6																		
574	3	32	18	122	2	1																
575			5	29																		
577	4	46	40	346	1	1							1		1							
579	1	8	11	99							1											cajete borde acanalado
580			3	9																		
581	7	89	11	97	2										2				3			1 base de olla y un cuello de olla
582	2	15	23	201													1		1			cuchara esta rara, pide opinion, maybe weird patojo, no se
583	8	223	82	1000	4									1	1				2			
584	13	262	153	1400	7	1				1	3								1			cajete raro que podria ser plato
585	1	26	15	160	1																	
586	4	92	26	296	3										1							
588	9	115	25	169	4	1													3		1	cuerpo posible base de olla
589	3	44	18	105		1					2											
590			9	57																		
591			3	19																		
592			27	85																		
593	3	48	17	112	1						1										1	cuerpo base de olla
594	1	15	10	83							1											
595			4	12																		
596	3	32	17	151	1						1								1			
598			8	96																		
600	2	31	25	265	2																	
603	5	50	16	109	3					1	1											
604	2	13	11	101	2																	1 cuerpo con desgrasante de mica
605			9	28																		
606	4	43	12	84					1						3							jarra con boca con probable asa
607	5	60	87	905	2										2				1			
608			3	31																	1	
609	29	418	187	1435	14	4					7				4							
610	23	391	64	472	13						4				1				1	2	2	bordes miniaturas, una base de olla y un cuello de olla

C Tan Bag #	# Rim	Rim gm	# Body	Body gm	1	2	3	5	6	8	9	10	12	13	14	17	18	19	20	21	22	Notes
611	6	149	6	105	2						2				2							1 cuello de olla
612			6	20																		
613			9	60																		
621	8	138	100	506	3	1					1				2				1			
622	3	54	9	109	1										2							
624	3	28	60	648	2										1							
625	17	231	100	775	6	2				1	1				4			1	2			soporte mamiforme
628	1	6	20	266	1																	
629	7	111	42	311	6														1			1 cuerpo de olla
631	6	89	5	32	4	2																
632	5	50	59	386						1					4						1	cuerpo decorado como sellado
633	8	125	118	1007	5	1					1				1							
634	7	83	32	263	3					2					2							
635	14	203	118	688	8						1				5							de ollas 3 son cuellos
637	4	62	20	149	2										1				1			
638	2	31						1		1												
640	11	191	22	134	4					2								1	1	3		1 cuerpo de cuchara, 2 bordes miniatura, 1 borde base de jarra
641			11	89																		
642			5	63																		
645	7	88	47	406	5										2							
647			3	15																		
648			2	5																		
651	3	36	10	78							1				2							
652	2	17	15	131										1	1							
654	1	9	8	72							1											
656	11	132	71	495	7										3				1			
657	10	111	50	323	6										3				1			
658	3	87	17	136	2						1											1 olla es cuello de olla
659	2	18	16	289	1										1							
660	8	81	61	637	4					1	3											
661	12	340	56	830	7					1					3				1			
663	14	130	84	792	5					1	4			1	1				2			2 ollas son bases
664	2	9	15	134	1						1										1	cuerpo con labo pintura rojo y negra y aplicado
665	1	32	49	502															1			
666			5	17																		
667	10	107	45	306	6						1			1					2			
668	5	358	35	327	4			1														
681			4	29																		
682	1	12	1	4											1							
599 A			22	117																		
599 B	5	68	78	391	4															1		borde de

C Tan Bag #	# Rim	Rim gm	# Body	Body gm	1	2	3	5	6	8	9	10	12	13	14	17	18	19	20	21	22	Notes
618	1	33			1																	cajete o comal, raro, velo

Table C.35 Area 4 Fine Tanwares

F Tan Bag #	# Rim	Rim gm	# Body	Body gm	1	8	9	10	13	14	15	17	18	19	20	21	22	Notes
423	5	25	32	111			2		3									
430			8	28														
431			3	11														
435			6	22														
499			1	3														
500			23	60														
512			1	9														
514	1	10	4	15		1												
540	1	4	4	22			1											
541			4	23														
542	10	62	14	71		4	3	1	1						1			1 decoracion de trenza
543	2	12			1													
544			2	20														
549	1	3	1	10			1											cajete con decoracion pintada
552			1	2														
556	1	4						1										
557			1	4														
559	1	43						1										
563	5	67	9	54		1		4										
564	2	11	1	12				2										
565			6	29														
567	8	53	6	17		1	5		1						1			
568	2	10	11	64			1			1								
569			4	19														
570	3	32	10	59			2	1										
572			7	31														
574	2	6	1	9			2											
575	2	10				1	1											
577	6	38	2	18		1	3	1								1		
583	3	22	17	112				3										
584	3	26	15	83			2								1			
585			4	50														
588			11	51														
589			1	1														
590	1	11	2	14						1								
594	1	7	3	11				1										
595			1	5														
598	4	158			3										1			
604	1	10				1												
607	16	177	22	149		3	7	2	2				1	1				
609	8	55	34	183	1	2	4		1									
610	4	38				1								1	1		1	cuerpo decorado probablemente sahumador o coladera

F Tan Bag #	# Rim	Rim gm	# Body	Body gm	1	8	9	10	13	14	15	17	18	19	20	21	22	Notes
611			6	36														
621	4	46	13	48			4											
624	1	15					1											cajete borde acanalado
625	12	145	30	149	1	3	8											
628	3	52	12	37		2											1	raro, como de circulos concentricos alzados, debo ver para foto
629	3	24	11	75			2	1										
631			1	7														
632	4	44	11	87		1	2					1						
633	18	163	28	158		3	9	2	2		2							
635	6	43	44	206			3		1					1			4	soporte de ceramica trenzada, y un dije o cuenta para foto, y cuatro cuerpos lisos de un lado
637	1	7	2	12			1											cajete borde acanalado
638			1	10														
641			3	17														
645			9	61														
651			3	12														
654	1	1					1											
656	4	18	15	64		2	1	1										
657	2	19	4	28					1	1								
658			14	96														
660			5	31														
661	9	108	10	91		1	3	3	1					1				soporte hueco con decoracion aplicada, verlo o foto
663	15	182	37	247	2	5	7		1									1 olla posible botellon para foto
664	2	17	1	6			1	1										
665	9	94	10	55	1	1	1	4		2								
668	4	62	4	20			2	2										
682			3	14														
599 A			3	15														
599 B			3	30														

Table C.36 Area 4 Coarse Gray ware

C gray Bag #	# Rim	Rim gm	# Body	Body gm	8	9	10	13	19	22	Notes
403			1	2							
410	4	15	1	5		2	1		1		
423			4	16							
513			2	10							
541			1	6							cuerpo c/desgrasante de mica
565	1	8	1	4		1					
588			2	25							
608			1	9					1		
609			1	6							cuerpo con desgrasante mica
624	1	4	1	4		1					
625			1	26							
652			1	7							cuerpo con desgrasante de mica
660	3	23	2	33			1	2			

F Gray Bag #	# Rim	Rim gm	# Body	Body gm	1	2	8	9	10	13	19	20	22	Notes
609	4	68	11	56				2		2				
610	2	14	3	10				1	1					
621	1	6	5	24						1				
622	10	30	6	36			2		8					
624	7	91	12	65					7					
625	6	33	3	30				1	5					
628	3	18	3	29					3					
629			1	2										
632	1	22							1					
633	2	7	7	59					2					
634	4	49	9	35			1		2	1				
635	1	9							1					
640	1	13	3	15						1				
645			3	10										
651			1	9										
657	3	14	9	56				2				1		cuerpo decorado como sello
658	2	34	1	9	1					1				1 olla es base de olla soporte hueco
660	2	52	3	39						1	1			
661			2	13										
663	4	43	1	7			1		1		1	1		
665	1	12	8	29	1									
667	1	3	4	21					1					
682	1	5						1						
599 A			1	0.5										
599 B			1	13										

Table C.39 Area 4 Yanhuatlán Red on Cream

YRC Bag #	# Rim	Rim gm	# Body	Body gm	8	9	13	21	Notes
390	2	16	1	6	1	1			
402	2	15	3	8	2				
403	1	3			1				
410	3	14	3	20	1	2			
411	1	11			1				
423	2	9	3	10	1	1			
431	4	24	1	5	4				
434			1	5					
499			2	3					
500	2	10	2	5		2			1 cuerpo decorado es raro, como gris con pintura roja encima
512	2	9			1	1			
541	1	3				1			
542	1	40	2	25	1				
547	1	4					1		
549	1	6				1			
553	1	6				1			
556			2	6					
559	1	3				1			
562	1	6				1			
563	2	19	1	5	1	1			

YRC Bag #	# Rim	Rim gm	# Body	Body gm	8	9	13	21	Notes
565			1	14					
569	1	14			1				
570	2	14	2	13		2			
581	1	19						1	
584	1	8	3	26		1			
585	2	23	1	12		2			
586			1	12					
588			1	6					
589	1	5	1	3		1			borde acanalado
590	1	14				1			
592	3	20	1	5		1	2		
594	1	6				1			
595			1	7					
596	1	7				1			
604	1	6				1			
606	1	8				1			
607	1	15	1	32		2			1 cajete borde acanalado, y una base decorada para foto
609			1	9					
611	1	13				1			
613	1	4						1	
625	1	14				1			cajete borde acanalado
629			1	6					
633			2	40					
634	2	18				1		1	
637	3	19				1	2		
640	1	5				1			
656	1	8	1	5		1			
658	1	6				1			
660	1	6				1			
663	3	49				1	2		
682	2	10				2			
599 A	2	7				2			
599 B			1	11					

Table C.40 Area 4 Graphite on Orange

G/O Bag #	# Rim	Rim gm	# Body	Body gm	9
410			1	12	
430			2	12	
657	1	3			1

Table C.41 Area 4 Cacique Burnished

Cacique Bag #	# Rim	Rim gm	# Body	Body gm	10	14	22	Notes
560			1	1			1	raro un cuerpo muy plano y delgado, muy liso y acabado de un lado y burdo del otro
583			1	20				
606			1	5				
625	3	37				2	1	
645			1	10				
654	2	11				2		

Cacique Bag #	# Rim	Rim gm	# Body	Body gm	10	14	22	Notes
660			2	16				
666			1	4				

Table C.42 Area 4 Polychrome

Polychrome Bag #	# Rim	Rim gm	# Body	Body gm	9	19	22	Notes
410			1	7				
565			1	7				
577			2	13				
583	1	8	2	6	1			
607			1	19				
611			1	1				
622	2	44				2		
625			1	5				
633			1	20	1			cuerpo base de cajete
634	1	18	1	12			1	pa foto
635			1	9				
652			1	8				*para foto
665	2	35				2		soportes huecos

Area 5 Ceramic Data

Table C.43 Area 5 Sandy Cream wares

S Cream Bag #	# Rim	Rim gm	# Body	Body gm	1	2	8	9	13	14	19	20	21	Notes
479	2	32	18	62		1	1							
480	13	66	14	79	3	4	2	1	1			1	1	asa con hoyito
481			4	17										
482	3	33	5	24				1			1	1		
492	2	18	38	187				2						1 cajete con borde acanalado

Table C.44 Area 5 Coarse Tan and Fine Tanwares

Bag #	C tan # Rim	Rim gm	# Body	Body gm	1	8	9	14	20	21	F tan # Rim	Rim gm	# Body	Body gm	8	9
479	7	116	110	365	2	1	1	1		2	1	6	10	32		1
480	9	53	53	301	2	2	1	3	1				18	49		
481			40	161									3	10		
482			5	18												
492	12	125	309	1551	6	1	2	3			6	42	30	103	3	3

Table C.45 Area 5 Coarse Gray and Fine Gray ware

Bag #	F gray # Rim	Rim gm	# Body	Body gm	8	C gray # Rim	Rim gm	# Body	Body gm	9	Notes
492	2	5			2	1	4	6	28	1	mica temper

Table C.46 Area 5 Orange ware and Yanhuatlán Red on Cream

Bag #	YRC # Body	Body gm	Orange # Body	Body gm
480	1	6	1	6

C Tan Bag #	# Rim	Rim gm	# Body	Body gm	1	2	8	9	14	19	20	21	22	Notes
671b	13	90	303	911	7			1	2		3			
672a	28	249	225	1000	16	3	3	1	5					
672b	8	70	82	381	5		1		2					
672c	19	141	98	400	12				2	1	1	3	2	1 cuerpo decorado con rayas y el otro alizado de un lado. Borde miniatura o probable botellon chico y soporte en forma de pie
672d	8	70	82	381	5		1		2					
674a	6	99	45	568	2		2		1		1		2	
674b	19	205	105	525	8	1	1		5	1	2	1		soporte de brasero creo, verlo

Table C.50 Area 6 Coarse Gray ware

C Gray Bag #	# Rim	Rim gm	# Body	Body gm	14	Notes
673			1	6		mica temper
675	2	14			2	
671b			2	6		
672b			1	16		
672d			1	16		

Table C.51 Area 6 Orange and Graphite on Orange

Bag #	Orange # Rim	Rim gm	# Body	Body gm	1	8	19	Notes	G/O # Body	Body gm
680	1	8	3	12	1					
671a			4	38						
671b	1	8			1					
672d	3	38	8	29	2		1	soporte globular		
674a	3	69	2	78	2	1				
674b			2	10						

Table C.52 Area 6 Fine Tanware

F Tan Bag #	# Rim	Rim gm	# Body	Body gm	8	9	10	14	21
673	7	35	10	48		6	1		
675	1	4	4	24		1			
676	6	36	9	56		3			3
680			5	18					
671b	3	22	77	201		2		1	
672a	6	47	27	132		6			
674b	2	12	13	40	1	1			

Table C.53 Area 6 Fine Gray ware

F Gray Bag #	# Rim	Rim gm	# Body	Body gm	1	8	9	10	13	22	Notes
673			2	17							
675			11	69							
676	2	14	6	29				2			
678			5	18							
680	1	17	2	12	1						
671a			6	22							
671b			9	29							
672a	2	15	10	43			2				

F Gray Bag #	# Rim	Rim gm	# Body	Body gm	1	8	9	10	13	22	Notes
672b	2	9	7	43		1			1		
672d	2	9	7	43		1			1		
674a	3	71	2	9					3		
674b			2	11						1	cuerpo decorado como sello, parece petate

Table C.54 Area 6 Yanhuatlán Red on Cream

YRC Bag #	# Rim	Rim gm	# Body	Body gm	8	9
673	1	10				1
675	8	153	10	105	4	4
676			1	9		
671a	1	22				1
671b	2	21			2	
672a	7	43	3	23		7
672b	3	15			1	2
672c	2	12	1	5	1	1
672d	4	28	2	18	1	3
674a	1	13			1	
674b	1	3				1

Table C.55 Area 6 Polychrome

Polychrome Bag #	# Rim	Rim gm	# Body	Body gm	8	9
675	4	31			1	3

Lithic Data

Table C.56 Lithic artifact types

<u>#</u>	<u>Description</u>
1	Irregular chunks
2	Debitage
3	Irregular core
4	Blade core
5	Blade
6	Re-touched blade
7	Primary flake
8	Secondary flake
9	Tertiary flake
10	Unifacially retouched flake
11	Bifacially retouched flake
12	Knife
13	Projectile point
14	Raedera
15	Scraper
16	Preform
17	Agave scraper
18	Mano
19	Metate
20	Temolote
21	Molcajete
22	Doughnut stone
23	Hammer stone
24	Other
25	Ground stone
26	Cut stone

Table C.57 Basalt

Basalt																						Notes
Bag #	#	gm	Color	1	2	3	7	10	11	14	15	17	18	19	20	21	22	24				
13	1	350	dark gray										1									
14	1	800	dark gray											1								
31	1	400	black										1									
65	1	622											1									
92	1	385		1															raw material			
142	1	200											1									
156	1	9	gray				1															
237	1	380															1					
261	1	659	gray										1									
272	1	900	dark gray										1									
306	1	197	gray				1															
318	1	190	gray											1								
333	1	554	dark gray										1									
334	1	6	gray				1															
335	1	700	dark gray										1									
346	1	8																1	hearth lining			
350	1	750	dark gray										1									
354	1	700	dark gray										1									
359	1	282	dark gray									1										
398	1	1490	gray										1									
422	1	440	black									1										
423	1	395	black										1									
501	1	56	black				1															
506	1	2250	brown										1									
507	1	900	gray										1									
519	1	606	dark gray										1									
532	1	132	gray										1									
535	1	477	gray										1									
542	1	850	gray										1									
547	1	1,450	gray										1									

Basalt																					
Bag #	#	gm	Color	1	2	3	7	10	11	14	15	17	18	19	20	21	22	24	Notes		
567	1	800	gray										1								
573	1	9	gray				1														
585	1	392	brown												1				cone shape		
589	1	371	dark gray														1				
633	1	670	light gray										1						rectangular mano		
658	1	85	gray									1									
662	1	750	light gray										1								
663	1	2700	dark gray												1						
682	1	6	gray				1														
672	1	860	brown										1				1				
672	1	4	black				1														
9	2	2000															2				
			light gray, dark																		
319	2	1536	brown										1					1	arrow shaft straightener		
407	2	1000	gray										1						1 ball		
578	2	1,000											2								
587	2	1300	dark gray															1	ceramic polisher		
615	2	2050	light gray										2								
616	3	1950	light gray	1									1	1							
619	3	2650	brown, dark gray												2			1	ceramic polisher		
17	4	2800	dark gray										2	2							
293	5	77	dark gray				5														
496	6	5700	gray										4								
328	7	34					7														
315	9	2854	brown, gray	1			7								1						

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Table C.60 Chalcedony

[illegible]

[illegible]

[illegible]

[illegible]

Bag #	Other #	Gm	Material	Color	1	2	3	5	7	8	9	10	11	12	13	14	15	16	25	26	24	Notes
191	1	9	limestone	café					1													
237	1	331	limestone	café claro													1					
254	1	10	limestone	gris					1													
295	1	3	limestone	café claro						1												
316	1	20	limestone	café claro					1													
329	1	15	limestone	café claro						1												
366	1	24	limestone	café claro													1					raspador para foto posible materia prima para desgrasante
368	1	29	fibrous quartz	blanco	1																	
383	1	10	limestone	gris					1													
386	1	6	limestone	blanco							1											
445	1	2150	endeque	rosa																1		es 1 roca con huellas de desprendimientos, posiblemente se estaba probando el material, y por ello casi toda su superficie es cortex materia prima en f. de micro cristales fibrosas de dureza casi nula.
459	1	117	limestone	beige			1															
467	1	9	quartzite	blanco																		
496	1	200	river pebble	gris														1				polisher
501	1	15	limestone	blanco							1											
531	1	8	limestone	café claro					1													
550	1	18	dolomite	gris						1												
561	1	151	granite	gris																	1	
596	1	17	limestone	café claro						1												
605	1	5	limestone olivine	blanca						1												
607	1	137	serpentinitico	verde oscuro															1			1 hacha frag. raspador a partir de lasca simple
610	1	13	limestone	gris													1					

Bag #	Other #	Gm	Material	Color	1	2	3	5	7	8	9	10	11	12	13	14	15	16	25	26	24	Notes
672	3	26	limestone	café claro	1					1	1											procedentes de fogon, a causa del calentamiento se desprenden en forma de laminas. Se distinguen por el color rojizo con negro.
159	4	60	burnt basalt		4																	
3	6	47	dolomite, quartzite, calcite							2	4											
306	9	51	dolomite; limestone	gris; rosa y gris		1			2	5	1											
293	15	854	dolomite	gris	1		3		5	6												
315	15	347	dolomite	gris			1		5	7	2											

Bone Material Data

Table C.62 Un-worked bone

Bag #	Taxa	Description	Anthropogenic marks	Notes
450	Artiodactyla (pezunnas, venado a berrendo hasta una vaca comun)	Esquirla de diafisis probable femur	Cocido	
643	Bos taurus (vaca)	1 falangina	cocción	
643	Sciurus aureogaster (ardilla arborea)	1 mandibula superior incompleta derecho presenta 1/P, 1/M, 2/M, completo 1 humero izq, completo ulna der, 1 vertebra dorsal completa	coccion	
643	Didelphis marsupialis (tlacoache)	extremidad distal humero izq, extremidad distal radio izq, epifisis proximal femur der, tibia derecha, frag pelvis izq, rama dentario der presenta C/x, P/1, p/2, p/3, m/1 rama dentario izq presenta i/1, i/2, i/3, i/4, i/5, C/x, p/1, p/2, p/3, M/1, 1 sola cria	coccion	
643	Canis SP	epifisis distal femur izq, joven	N/A	
643	Didelphis marsupialis	vertebra cervical	N/A	

Bag #	Taxa	Description	Anthropogenic marks	Notes
644	Bulimulus SP o Drymacus SP	phylum:mollusca, clase: gasteropoda, familia:bulinulidae	N/A	especie autoctona vive en troncos y raices, se encuentra en derrumbes y amontonamientos de piedra
76	Canis familiaris	1 pieza dentaria c/x, canino inferior derecho	N/A	
76	Mamifero pequeno (conejo, tlacoache, ratones)	esquila hueso largo	cocido	
91	Canis familiaris	Epifisis proximal ulna izquierda, juvenil	N/A	
178	Canis familiaris	Rama del dentario izquierdo, presenta M-1, M-2 molar 1 y 2, Xoloitzcuintle	N/A	
200	Canis familiaris	2-P premolar superior derecho	N/A	
206	Canis familiaris	3 frag. craneos y los 2 condilos occipitales, adulto	N/A	
226	Canis familiaris	Epifisis proximal ulna izquierda, joven	N/A	
545	Canis familiaris	1 esquila de diafisis de humero derecho, adulto	N/A	
570	Canis familiaris	1 tibia izquierda de cria	N/A	
630	Canis familiaris	Diafisis extremidad distal humero derecho, juvenil	N/A	
668	Canis familiaris	Cuerpo de costilla derecho	N/A	
655	Canis familiaris 2 individuos	1 craneo completo presenta rama del dentario izq presenta i/2/3 c/x p/1 p/2 p/3, ademas presenta 1/m izq, de igual forma se presenan escapula, humeros de ambos lados; ulna y radio izquierda; femur derecho, epifisis proximal del femur izquierdo. Iliaco de pelvis izquierda y derecha; cuatro costillas izquierdas y cinco costillas derechas, junto con cinco cuerpos; un calcaneo y astragalo izquierdo. Se presenan vertebras: 5 cervicales, 2 dorsales y 4 lumbares, junto con 14 cuerpos de	N/A	Edad de 4 a 6 meses

Bag #	Taxa	Description	Anthropogenic marks	Notes
655	Canis familiaris	costillas. Este material es de un individuo de 4 a 6 meses aproximadamente, de cria. Extremidades distales de escapulas de ambos lados, diafisis de humeros de ambos lados, epifisis proximal de ulnas de ambos lados, junto con sus respectivos radios incompletos. Diafisis de las tibias de ambos lados con perone izquierdo; calcaneo derecho. Se presenta un craneo incompleto. Pelvis de ambos lados. Siete costillas del lado izquierdo, cinco costillas del lado derecho y cuarenta y ocho fragmentos de cuerpo de las costillas. Epifisis de femur derecho. 67 cuerpos de vertebras, 2 lumbares, 1 cervical, 11 metapodiales, 13 falanges. Cria de 2 a 3 meses de edad aproximadamente.	N/A	Edad de 2 a 3 meses
655	Musteridae (tejon, zorrillo, comadreja)	1 vertebra cervical	N/A	
151	Canis SP	Diafisis de humero	N/A	
571	Canis SP	diafisis de un femur	N/A	
468	Cricetido	l/x izquierdo, diafisis del humero y fragmento de pelvis de adulto	N/A	
468	Homo Sapiens Sapiens	tres fragmentos de tarsos		
468	mamífero pequeño	extremidad proximal de costilla izquierda		
468	Ranas s/p	diafisis probable de ulna-radio		
597	Equus SP (caballo, mula o burro)	Extremidad proximal del segundo metacarpo derecho	N/A	
537	Homo sapiens			
98	Homo sapiens sapiens	5 frag frontales	N/A	
126	Homo sapiens sapiens	Rama ascendente del dentario izquierdo presenta M/2, individuo femenino de entre 12-13 annos	N/A	
130	Homo sapiens sapiens	1 epifisis distal humero derecho, 1 primer molar inferior izq, 1 cuerpo costilla derecho, (probable misma individuo que bolsa 126)	aplastado, tafonomico, caida muro	

Bag #	Taxa	Description	Anthropogenic marks	Notes
136	Homo sapiens sapiens	cachos de craneo, 2 frag occipitales, y 3 frag temporales	N/A	
173	Homo sapiens sapiens	misma muchacha bolsa 126, frag hueso largo probable ulna o radio	N/A	
196	Homo sapiens sapiens	frag probable clavícula	N/A	
199	Homo sapiens sapiens	1 fragmento temporal craneo, y frag borde supraorbital	N/A	
322	Homo sapiens sapiens	Ulna, juvenil o adulto	N/A	
322	Mamifero mediano (perro, coyote, lobo, gatos moteses)	esquirlas de probable femur	N/A	
383	Homo sapiens sapiens	primera falangeta, (third row/distal falange) big toe, right foot	N/A	
457	Homo sapiens sapiens	1 frag condilo occipital der, frag occipital, frag zygomatic, frag 6 temporales	N/A	
457	Odocoileus virginianus	cuerpo costilla izq	N/A	
585	Lepus callotis (jackrabbit)	1 escapula izquierda de juvenil	N/A	
578	Lepus callotis (wite-sided jackrabbit)	1 epifisis distal de fumur derecho incompleto y 1 tibia derecha completa, individuo adulto	N/A	Si
623	Meleagris gallopavo (guajolote)	Diafisis humero derecho adulto	N/A	
623	Odocoileus virginianus	Cuerpo de escapula izquierda	N/A	
626	Meleagris gallopavo (guajolote)	Diafisis coracoide izquierdo, adulto	N/A	
626	Canis familiaris	Metatarsos 5to derecho y 3er derecho	N/A	
88	Odocoileus virginianus	Epifisis proximal ulna derecha, adulto	N/A	
616	Odocoileus virginianus	fragmento craneo condilo occipital joven	probable cocido	
616	Canis s/p	fragmento de pelvis de lado izquierdo, cria	n/a	
616	Procyon lotor (racoona)	femur izquierdo, ulna derecha y radio derecho de cria	n/a	
616	Cricetido	craneo presenta todas las piezas dentarias	N/A	
616	mamifero mediano	epifisis distal tibia derecha adulto	n/a	
616	Didelphis marsupialis (tlacoache)	Rama dentario derecho presenta p/1, p/3, m/3, m/4, 1 femur izq, patologia de un trauma no curado y se hincho el hueso y deforma patologia en epifisis proximal, adultos	cocidos	

Bag #	Taxa	Description	Anthropogenic marks	Notes
616	<i>Spilogale augustifrons</i> (spotted skunk)	3 humeros 1 der/2 izq crías, 4 femures (2 der/2 izq de cria), 1 ulna izq cria, 1 radio izq cria, 1 tibia izq cria, 1 frag pelvis izq cria, 3 costillas der, 2 vertebras dorsal y lumbar cria, 1 vertebra caudal, 2 ramas del dentario (2 tamannos las 2 crías) la izq presenta m/1 y la derecha i/5, c/x	N/A	
616	<i>Sylvilagus cunicularius</i>	1 humero izq, 1 tibia izq, 1 femur izq, cria	N/A	
616	<i>Sciurus aureogaster</i> (ardilla arborea)	Rama dentario derecho presenta i/x, p/1, m/1, m/2, m/3, 1 humero der, 1 escapula derecha todos adulto, 1 metatarso izq joven	probable cocido	
620	<i>Odocoileus virginianus</i>	epífisis distal del húmero izquierdo		
620	Mamífero mediano	cuerpo de pelvis		
620	<i>Spilogale augustifrons</i> (spotted skunk)	rama del dentario derecho presenta m/1, dos fémures de lado derecho, una tibia del lado derecho, dos radios de lado derecho, dos vértebras cervicales, dos lumbares, tres dorsales, dos costillas de lado izquierdo y tres de lado derecho de crías (dos crías).		
620	<i>Didelphis marsupialis</i> (opossum)	cráneo completo presenta de ambos lados: 1/p, 2/p, 3/p, 1/m, 2/m, 3/m, 4/m; rama del dentario izquierdo presenta p/3, m/1, m/3, m/4; húmero de ambos lados, radios de ambos lados, escapula derecha, fémur derecho, pelvis derecha, tres vértebras cervicales, dos vértebras dorsales, cuatro vértebras lumbares, una vértebra caudal, tres costillas del lado derecho de individuo juvenil		
620	<i>Sciurus poliopus</i> (ardilla arborea)	fémures de ambos lados, tibia izquierda, ulna de lado izquierdo, dos radios de ambos lados		
620	<i>Sciurus poliopus</i> (ardilla arborea)	húmero izquierdo, ulna derecha, fémur izquierdo, escapula izquierda, pelvis completa izquierda e incompleta derecha de adulto.		
620	<i>Procyon lotor</i> (raccon)	el cráneo presenta 2/m, 3/p, 1/m del lado izquierdo; rama del dentario de ambos lados: en el lado derecho presenta l/3, c/x, p/3 y en lado izquierdo presenta i,d/3, c/x, p/4, m,d/1; ulna izquierda, escapulas de ambos lados, tibias de ambos lados, fémur derecho, isquion de ambos lados, dos vértebras caudales, de juvenil.		
620	<i>Spilogale augustifrons</i> (spotted skunk)	cráneo con piezas dentales completas, dela rama del dentario izquierdo y derecho no presenta los caninos ni m/2 derecho, tampoco i/1, i/3;escapula izquierda, húmero derecho, ulna y radio de ambos lados, fémur y tibia de ambos lados, pelvis del lado derecho, vértebra caudal, dos costillas del lado derecho y una costilla del lado izquierdo de adulto.		
620	Leporidae	escapula izquierda, vértebra lumbar		
620	Unglado doméstico	epífisis distal del fémur izquierdo de	presenta marcas ocasionadas por	

Bag #	Taxa	Description	Anthropogenic marks	Notes
620	Unglado doméstico (vaca, caballo, burro)	adulto. falange de extremidad inferior de adulto.	incisivos de roedor	
627	<i>Odocoileus virginianus</i>	Extremidad distal de escapula izquierda, adulto	N/A	presenta marcas ocasionadas por incisivos de roedor.
277	<i>Odocoileus virginianus</i> (venado cola blanca)	1 diafisis radio derecho	Cocido	

Table C.63 Worked Bone

Bag #	Taxa	Descripción del hueso oseo	Sectioning Technique	Surface Technique	Prob Funcion	Notas
277	Artiodactylae (venado o berrendo)	fragmento cocido diafisis humero	No presenta	Pulimento	Cuerpo de un probable punzon	Foto
597	Canidae	Epifisis proximal metatarso trabajado como punzon o pixcador	percusion indirecta	pulimiento	punzon o piscador	Foto,
537	<i>Homo sapiens</i>	1 esquirla de diafisis de probable humero	Desgaste por corte	N/A	Desecho objeto automorfo	
406	Mamífero	1 frag. Esquirla de Hueso largo	N/A	Pulimento	Objeto de uso ornamental, varilla (parte distal puntiaguda)	

APPENDIX D

BURIALS

**INFORME DEL ANÁLISIS ANTROPOFÍSICO DE LOS ENTIERROS PROCEDENTES
DE *NICAYUHU*, OAXACA.**

Museo del Templo Mayor/INAH

POR:

Antropólogo Físico: JUAN ALBERTO ROMÁN BERRELLEZA

Pasante de A. F: MARÍA GUADALUPE MARTÍNEZ GUZMÁN

Introducción

Los entierros reportados en el presente informe provienen de la excavación realizada en *Nicayuhu*, Oaxaca; México, en el periodo comprendido entre los meses de septiembre - diciembre del 2002, por parte de la Arqueóloga Verónica Pérez Rodríguez Investigadora y estudiante de Doctorado de la Universidad de Georgia.

Los materiales óseos posteriormente fueron trasladados al Museo del Templo Mayor en la Ciudad de México, donde se llevo a cabo su conservación, consolidación y estudio, como parte del análisis Antropofísico.

El análisis antropofísico comprende una serie de acciones que involucra el proceso de limpieza, conservación, restauración, recuperación y marcado, así como la identificación de características como son sexo, edad y estatura aproximada. Además se infiere si en vida tuvo alguna enfermedad reflejada en el material óseo, huellas de actividad, o bien si fue sometido a algún tratamiento el cadáver.

La técnica empleada para la estimación de edad al momento de la muerte, se toma en cuenta la unión de diáfisis y epífisis, es decir se tiene presente los centros secundarios osificación de crecimiento dentro de las diferentes etapas de vida, formando a partir de cartílago el hueso, por lo que se habla de edad ósea, otro dato importante son los cambios que sufre la sínfisis púbica desde la adolescencia hasta la madurez (Krogman 1978:94; Krogman e Iscan 1986:151). Además se toma en cuenta la atrición o desgaste dental, la pérdida *antemortem* de dientes y la reabsorción alveolar, tanto en mandíbula como en maxilar (Ubelaker 1978). Para los individuos infantiles se toma como marcadores importantes la erupción dental, calcificación de la piezas dentales (Bass, 1987) y la aparición de los centros secundarios de osificación.

Para la identificación del sexo se toman en cuenta todas aquellas características en las que se acentúan los rasgos sexuales secundarios, como lo es tamaño, la robustez en los huesos (Ferembach et al 1979:921; Salas, 1982:29), las huellas de

inserción musculares, el tamaño de los cóndilos. Así como la forma y características generales de la pelvis (White 1991:323), el cráneo, entre otros, esto se aplica en individuos adultos. Para la identificación del sexo en los individuos infantiles, la técnica más confiable es la que se realiza a través del DNA.

La estatura es una característica métrica donde se hace uso de equipo antropométrico con el fin de estimar una estatura aproximada a partir de los huesos largos. Se emplean las tablas para la estimación (estadística) de la estatura de Santiago Genovés, las más adecuadas para población mexicana. Cabe señalar que la estatura es un indicador influido por el sexo del individuo y es necesario tomar en cuenta las condiciones del material óseo.

Antecedentes de los entierros

Los datos a continuación citados de manera sucinta, fueron proporcionados por la Arqueóloga Verónica Pérez Rodríguez.

Entierro 1: localizada en el cerro de *Diquino*, conformado por tres individuos de diferentes edades en mal estado de conservación, los cuales se encontraban en suelo arcilloso con densidad media de gravas de color rojo, se tienen pocos datos del contexto ya que fue alterado por los pobladores del lugar, sin embargo se encontraron cuencos de cerámica que data del posclásico.

Entierro 2: Excavación 1, Cuadros S3E1, S3W1, se localizo articulado en posición decúbito lateral izquierdo flexionado, perteneciente a un individuo infantil, entre el carbón y la ceniza, a un metro de profundidad entre la capa IV de arcilla firme y pegajosa de color 10 R 4/4 weak red; y un fogón.

Entierro 3: Excavación 2, Cuadros S2W1 ½, E-S2E1 ½ W, conformado por dos individuos adultos en buen estado de conservación localizados entre la capa III, a una profundidad de 70 – 80 cm. de la superficie, en una matriz de arcilla arenosa de color

10YR 4/2 dark grayish brown de consistencia dura compacta y la capa natural. Se tienen elementos asociados a los individuos.

Entierro 4: Excavación 1, Cuadros S5W1 y S5W3, concentración de materiales óseos localizados en la intrusión dos, no fue posible identificar la posición del entierro por el estado deficiente del material, se localizo una alta concentración de material sílex sin manufacturar.

Preparación de los restos óseos para su estudio

Un requisito indispensable antes de realizar un análisis osteológico en el laboratorio es la preparación de los materiales para su estudio, incluye un conjunto de acciones que comprenden procesos de limpieza, conservación, unión de fragmentos y marcado. A continuación se describen cada uno de ellos.

Limpieza: El proceso de eliminación de residuos de arcilla o lodo, mediante el uso de hisopos impregnados con agua destilada, la utilización de pinceles, cepillos dentales, agujas de disección e instrumental dental, el procedimiento es de manera mecánica.

Conservación: Se tiene un deterioro importante en los entierros 1, 2 y 4, sin embargo no se consolido por no presentar problemas durante el análisis. En lo que se refiere al entierro 3, en su mayoría no tenían problemas de deterioro, aun con ello fue necesario consolidar algunos elementos óseos (tibia, ambos iliacos y fragmentos de cráneo) del individuo 1 antes de su traslado al Templo mayor, al presentar fragilidad para su traslado, por lo que fue necesario aplicar una dilución de acetato de polivinilo (resistol 850), al 10 % en agua destilada, la cual se aplico en goteo y con pincel, dejándose secar por un lapso corto, ya que era necesario su embalaje.

Unión de fragmentos: Una vez limpio el material se realizó la unión de fragmentos. Este proceso consiste en identificar cada una de las partes

correspondientes a una determinada pieza ósea y unirla, de esta manera dejarla lo mas completo posible el material óseo conforme a su morfología biológica. Tiene gran importancia ya que de él se deriva el inventario y se determina el número mínimo de individuos presentes.

Marcado: A cada unidad ósea se le coloco la procedencia, la fecha, número de entierro, esto se hizo con tinta china.

Análisis antropofísico

Para la antropología física es importante la identificación de sexo del individuo, la estimación de su edad al momento de la muerte, así como otras particularidades de interés, entre las que se encuentran las patologías óseas, huellas de diversos tratamientos a los el cadáver pudo haber sido sometido.

Para la identificación del sexo se toman en cuenta todas aquellas características en las que se acentúan los rasgos sexuales, como la robustez, las huellas de inserción muscular, algunas de estas son las apófisis mastoides, las órbitas, arco cigomático, mandíbula y el tamaño de los cóndilos, entre otras, lo anterior determina el sexo en individuos adultos. Sin embargo, en los restos infantiles también se puede identificar sexo a partir de mandíbula y de pelvis, en un 70-90% de confiabilidad, por ello se sugiere la técnica más confiable, es decir el estudio del DNA. Para estos individuos infantiles no fue posible identificar el sexo debido al estado de conservación que presentan.

La estimación de la edad, se considera varias factores como son la aparición de los centros de osificación secundarios, los cuales dan un margen de crecimiento y desarrollo en las diferentes etapas de la vida, de igual manera el brote dentario, también otro punto de gran importancia para determinar la edad estimada son los cambios que sufre la sínfisis púbica desde la adolescencia hasta la madurez, otros factores

importantes es la atrición y desgaste dental, la pérdida antemortem de las piezas dentales y reabsorción alveolar, tanto a nivel de mandíbula como en maxilar.

La estatura aproximada es una característica que nos proporcionar la estatura del o los individuos, esta se estima a partir de la medición de huesos largos como son: húmero, cúbito, radio, fémur, peroné y tibia, una vez promediadas estas medidas se consultan las tablas de Santiago Genovés para la estimación de la estatura.

Para realizar un estudio antropofísico se toman las tres características anteriores, en las que también hay que tomar en cuenta las diferencias que presenta el material óseo al observar alteraciones, ya sea por patologías, entesopatias, actividad cotidiana, ritos o sacrificios, por mencionar algunos factores que pudieron dejar huellas en el hueso, las cuales pueden ser promovidas por factores de índole biológico-ambientales y culturales.

Resultados

Entierro: 1

Localización: Cerro de Diquino

**Individuo: A-1*

Sexo: Indefinido

Edad ósea: 6 años de edad, aproximadamente.

Conformado por esqueleto postcraneal como son huesos fragmentados de clavícula (sin lateralizar), cúbito y radio derechos; ambos peronés.

Se tienen marcas producidas por raíces, sin ningún orden en la superficie de los huesos (periostio).

Entierro: 1

**Individuo: A-2*

Sexo: Indefinido

Edad ósea: 4 años de edad, aproximadamente.

Conformado por esqueleto postcraneal como son huesos incompletos o fragmentos de ambos húmeros, radio izquierdo, de fémur y Peroné sin lateralizar.

Entierro: 1

**Individuo: B*

Sexo: Indefinido

Edad ósea: 15 años de edad, aproximadamente.

Conformado por el cráneo, el cual se presenta de forma incompleta, ya que falta la porción facial, también conocida como esplanocráneo

El esqueleto postcraneal está conformado por fragmentos de clavícula derecha, ambos ilíacos, húmeros, fémures y tibias; y por elementos incompletos de ambos radios y cúbitos. Se tienen dos falanges completas, las cuales corresponden a la *mano* y al pie.

El Fémur derecho presenta alteración de roedor (tafonomía). En general los materiales óseos presentan marcas de raíces impresas en la superficie del hueso.

Entierro: 1

**Individuo: C*

Sexo: Masculino

Edad ósea: 35 años de edad, aproximadamente.

Presenta cráneo incompleto.

Mandíbula incompleta en la cual se observa destrucción del cuerpo y pérdida antemortem de piezas dentales.

En general el esqueleto postcraneal está presente de forma incompleta o por fragmentos, esto debido al deterioro. Es necesario mencionar que se identificaron tres

escafoides, donde dos pertenecen al presente individuo y el escafoides de más a otro individuo, al cotejar con los demás individuos del entierro 1, no pertenece a estos.

Se observan alteraciones a nivel de la superficie de los huesos largos, posiblemente por roedor, por las marcas tan características que dejan estos.

Se tiene material asociado a este individuo (fragmento pequeño de obsidiana, fragmento de cerámica).

Entierro: 2

**Individuo: A*

Cala: 1

Nivel: 3

Sexo: Indefinido

Edad ósea: 8 años de edad, aproximadamente.

Huesos presentes: fragmentos de cráneo y costillas, ambos fémures, tibias, fíbulas, húmero izquierdo, cubito derecho, radio izquierdo, iliacos y algunas vértebras (lumbares incompletas, dorsales y cervicales completas).

Sé aprecia una vértebra cervical, un metatarso y en algunas falanges una exposición temporal al fuego, no obstante esta exposición no es homogénea, solo en diminutas porciones.

Se observa lesiones de criba orbitaria de tipo A en la órbita derecha, además de presentar osteoporosis hiperostósica en la porción superior del área lambdoidea del occipital.

Se tiene material asociado al entierro 2 (huesos de animal, posiblemente de roedor).

Entierro: 3

**Individuo. A*

Cala: 2

Sexo: Masculino

Edad ósea: 30 – 35 años de edad, aproximadamente.

Cráneo: Presenta deformación de tipo tabular erecto.

Se observa la porción facial, en maxilar pérdida postmortem de incisivos (de dos centrales y lateral izquierdo), pérdida postmortem del segundo premolar (ambos lados) y del tercer molar de la parte izquierda. Las piezas dentales muestran un desgaste oclusal moderado.

Presencia de sarro en primera fase en todos los dientes, así como caries de tercer grado en el primer molar izquierdo y caries de primer grado en el primer molar derecho. La mandíbula tiene pérdida antemortem del segundo molar izquierdo, ya que se aprecia una reabsorción alveolar la cual no se completo, en los incisivos centrales, porción lingüal, existe mayor acumulación de sarro, la mandíbula tiene un desgaste oclusal moderado.

En vértebras se observa espóndiloartrosis de primer grado, la cual es una patología degenerativa. Hay que tomar en cuenta que en vértebras cervicales se observa un desgaste inicial moderado.

Se tiene un excrescencia ósea en el segundo metatarsiano (hueso del pie).

En todo el esqueleto existe una serie de marcas irregulares ocasionadas por las raíces de los árboles, o arbustos.

El estado de conservación en su mayoría es bueno (fémures, tibias, cúbitos, radios, ilíacos, quince vértebras, coxal, huesos del pie, etc.). Sólo se observa en costillas y en algunas vértebras un mal estado de conservación.

Como material asociado al individuo se localizaron dos huesos pequeños de animal, no fue posible determinar con exactitud su origen, sin embargo es posible que sean de roedor.

Determinación de estatura Ind. A, Ent. 3

	Medidas	Estatura aprox.
Húmero:	30.3	159.0
Cúbito	25.8	162.0
Radio:	24	162.0
Fémur:	42.9	160.5
Tibia:	36	161.5

		$804.5/5=160.9$

Por lo tanto la estatura aproximada es de 160.9 cm. para el individuo masculino del entierro 3.

Entierro: 3

**Individuo: B*

Cala: 2

Sexo: Femenino

Edad ósea: 25 – 30 años de edad, aproximadamente.

Cráneo con deformación de tipo tabular erecto.

En la parte posterior del cráneo, a nivel de occipital se aprecian dos protuberancias óseas (inflamación del periostio) probablemente causado por un traumatismo, sin ser ésta la causa de muerte.

En el maxilar hay pérdida postmortem de piezas dentales, correspondientes al tercer molar y de los incisivos centrales y lateral derecho, así como de los dos premolares, el canino y el segundo incisivo del lado izquierdo. Además presenta caries

en segundo grado en el cuello de la pieza dental en primer y segundo molar derechos, así como en los tres molares derechos.

En la mandíbula existe una perdida postmortem de los incisivos centrales y de un desgaste oclusal moderado tanto en el maxilar como en la mandíbula. Presenta criba orbitaria generalmente relacionada con anemia, en grado o tipo A.

En todo el esqueleto se aprecian una serie de marcas dejadas por las raíces de los árboles o arbustos.

El material óseo que conforma el individuo B es cráneo con mandíbula, y parte del esqueleto postcraneal (excepto algunos elementos del pie derecho: ambos cuboides, escafoides, cuneiformes, metatarsianos y falanges).

En general su estado de conservación es bueno, solo existen fracturas transversales en los huesos, lo cual fue causado por la misma presión del suelo. Se localizaron fragmentos de cerámica asociados al individuo.

Determinación de estatura Ind. B, Ent. 3

	Medidas	Estatura aprox.
Húmero:	26.8	150.5
Cúbito	23.1	150.5
Radio:	21.3	143.5
Fémur:	38.0	145.5
Tibia:	32.2	148.0
Peroné	31.3	148.0

$886.0/6=147.8$		

Por lo tanto la estatura aproximada es de 147.8 cm. para el individuo B del entierro 3, femenino.

Entierro: 4

**Individuo: A*

Cuadro: S3 E1

Sexo: Indefinido

Edad ósea: 1 año +/- 3 meses aproximadamente (por las extremidades inferiores – ambos fémures).

Los materiales óseos localizados y denominados como individuo A del entierro 4 esta conformado por el cóndilo derecho de la mandíbula, fragmentos de huesos largos (ambos húmeros y radios, un fragmento de cúbito, fémur y tibia), además de fragmentos de huesos irregulares (costillas, vértebras, clavícula e iliaco).

Presenta alteraciones de raíces en la capa externa denominada periostio.

El estado de conservación es malo, tomando en cuenta que al tratarse de un individuo infantil de aproximadamente un año, los materiales óseos son frágiles y propensos a la destrucción promovida por las condiciones del suelo.

Entre los materiales se localizó un fragmento de lítica.

Entierro: 4

**Individuo: B*

Cuadro S3 E1

Sexo: Indefinido

Edad ósea: 5 años de edad, aproximadamente (conforme a los resultados obtenidos del brote dental).

El cráneo incompleto, le falta la porción facial y fragmentos de mandíbula (cuerpo), donde tiene un incisivo central, un premolar y molar derecho, los dos primeros dientes presentan un pequeño desgaste oclusal.

Se observa en el occipital y parietales un puntilleo marcado que manifiesta la patología denominada osteoporosis hiperostósica y en la área de las orbitas presenta inicios de criba orbitaria de tipo A, la cual nos habla de problemas en la dieta o anemia por deficiencia de vitaminas o proteínas.

Falta gran parte del esqueleto potscraneal.

Se presentan alteraciones por raíces en la capa externa del hueso a nivel general.

Las condiciones de conservación son malas por la fragilidad que presenta el material óseo.

DEPARTAMENTO DE ANTROPOLOGÍA FÍSICA
LABORATORIO DE OSTEOLÓGIA TEMPLO MAYOR

CEDULA DE INVENTARIO INDIVIDUAL

PROCEDENCIA Nicahuyu *TEMP.* *CRONOLOGÍA*
SEXO Indefinido *EDAD* 6 años *ENT.* 1 *IND.* A-1
ANOTO J. L. Salinas U. *FECHA* 28/05/2003 *No. CATALOGO*
 Ma. Gpe. Martínez G.

PARTES DEL ESQUELETO PRESENTES

	C	I	F		C	I	F
Cráneo				Vértebras cervicales			
Mandíbula				Vértebras dorsales			
Hioides				Vértebras lumbares			
Esternón				Sacro			
				Coxis			
	Der	Izq	SL/F		Der	Izq	SL/F
Clavícula			X	Fémur			
Omóplato				Rótula			
Ilíaco				Tibia			
Costillas				Peroné	F	F	
Húmero				Calcáneo			
Radio	F			Astrágalo			
Cúbito	F			Cuboides			
Carpianos				Escafoides			
Metacarpianos				Cuneiformes			
Falanges				Metatarsianos			
				Falanges			

OBSERVACIONES:

Los elementos óseos marcados son fragmentos.
 Presentan marcas de raíces de donde fue el rescate

SL/F: elementos sin lateralizar o fragmentos. *SL:* elementos sin lateralizar.
F: fragmentos.

I: incompleto
C: completo.

DEPARTAMENTO DE ANTROPOLOGÍA FÍSICA
LABORATORIO DE OSTEOLOGIA TEMPLO MAYOR

CEDULA DE INVENTARIO INDIVIDUAL

PROCEDENCIA Nicahuyu *TEMP.* *CRONOLOGÍA*
SEXO Indefinido *EDAD* 4 años *ENT.* 1 *IND.* A-2
ANOTO J. L. Salinas U. *FECHA* 30/05/2003 *No. CATALOGO*
Ma. Gpe. Martínez G.

PARTES DEL ESQUELETO PRESENTES

	C	I	F		C	I	F
Cráneo				Vértebras cervicales			
Mandíbula				Vértebras dorsales			
Hioides				Vértebras lumbares			
Esternón				Sacro			
				Coxis			
	Der	Izq	SL/F		Der	Izq	SL/F
Clavícula				Fémur			X
Omóplato				Rótula			
Ilíaco				Tibia			
Costillas				Peroné			X
Húmero	F	F		Calcáneo			
Radio		F		Astrágalo			
Cúbito				Cuboides			
Carpianos				Escafoides			
Metacarpianos				Cuneiformes			
Falanges				Metatarsianos			
				Falanges			

OBSERVACIONES:

Ambos húmeros aunque fueron lateralizados son fragmentos.

SL/F: elementos sin lateralizar o fragmentos. SL: elementos sin lateralizar. I: incompleto
F: fragmentos. C: completo.

DEPARTAMENTO DE ANTROPOLOGÍA FÍSICA
LABORATORIO DE OSTEOLÓGIA TEMPLO MAYOR

CEDULA DE INVENTARIO INDIVIDUAL

PROCEDENCIA Nicahuyu *TEMP.* *CRONOLOGÍA*
SEXO Indefinido *EDAD* 6 años *ENT.* 1 *IND.* B
ANOTO J. L. Salinas U. *FECHA* 28/05/2003 *No. CATALOGO*
Ma. Gpe. Martínez G.

PARTES DEL ESQUELETO PRESENTES

	C	I	F		C	I	F
Cráneo			X	Vértebras cervicales			X
Mandíbula				Vértebras dorsales			
Hioides				Vértebras lumbares			
Esternón				Sacro			
				Coxis			

	Der	Izq	SL		Der	Izq	SL/F
Clavícula	F			Fémur	F	F	
Omóplato				Rótula			
Ilíaco	F	F		Tibia	F	F	
Costillas				Peroné			
Húmero	F	F		Calcáneo			
Radio	I	I		Astrágalo			
Cúbito	I	I		Cuboides			
Carpianos				Escafoides			
Metacarpianos				Cuneiformes			
Falanges			1	Metatarsianos			
				Falanges			

OBSERVACIONES:

Falta la porción facial del cráneo.

Presenta alteraciones de raíces en al superficie del Fémur.

SL/F: elementos sin lateralizar o fragmentos. *SL: elementos sin lateralizar.* *I: incompleto*
F: fragmentos. *C: completo.*

DEPARTAMENTO DE ANTROPOLOGÍA FÍSICA

LABORATORIO DE OSTEOLOGIA TEMPLO MAYOR

CEDULA DE INVENTARIO INDIVIDUAL

PROCEDENCIA Nicahuyu TEMP.

CRONOLOGÍA

SEXO Masculino

EDAD 35 años

ENT. 1

IND. C

ANOTO J. L. Salinas U.

FECHA 28/05/2003 No. CATALOGO

Ma. Gpe. Martínez G.

PARTES DEL ESQUELETO PRESENTES

	C	I	F		C	I	F
Cráneo			X	Vértebras cervicales	4		
Mandíbula		X		Vértebras dorsales		7	
Hioides				Vértebras lumbares		4	
Esternón				Sacro			
				Coxis			
	Der	Izq	SL		Der	Izq	SL
Clavícula	I	I		Fémur	F	F	
Omóplato	I	I		Rótula		I	
Ilíaco	I	I		Tibia	F	F	
Costillas	F	F		Peroné			
Húmero	I	I		Calcáneo		I	
Radio	F	F		Astrágalo		I	
Cúbito	I	I		Cuboides	I		
Carpianos	3	2		Escafoides	2	1	
Metacarpianos		3	1	Cuneiformes	2	1	
Falanges			12	Metatarsianos			1C-4I
				Falanges			3

OBSERVACIONES:

La mandíbula presenta destrucción y pérdida de las piezas dentales antemortem.

Hay un escafoides derecho de otro individuo.

Presenta alteraciones en la superficie de los huesos largos.

Presento materiales asociados como un fragmento muy pequeño de

Obsidiana y fragmentos de cerámica.

SL/F: elementos sin lateralizar o fragmentos.

SL: elementos sin lateralizar.

F: fragmentos.

I: incompleto

C: completo.

DEPARTAMENTO DE ANTROPOLOGÍA FÍSICA

LABORATORIO DE OSTEOLOGIA TEMPLO MAYOR

CEDULA DE INVENTARIO INDIVIDUAL

PROCEDENCIA Nicahuyu *TEMP.* *CRONOLOGÍA*
SEXO Indefinido *EDAD* 8 años *ENT.* 2 *IND.* A
ANOTO J. L. Salinas U. *FECHA* 28/05/2003 *No. CATALOGO*
 Ma. Gpe. Martinez G.

PARTES DEL ESQUELETO PRESENTES

	C	I	F		C	I	F
Cráneo			X	Vértebras cervicales	2	3	
Mandíbula		X		Vértebras dorsales		7	
Hioides				Vértebras lumbares	3		
Esternón		X		Sacro			
				Coxis			
	Der	Izq	F		Der	Izq	SL/F
Clavícula		1		Fémur	1	I	
Omóplato		I		Rótula			
Ilíaco	1	1		Tibia	1	I	
Costillas	6F	2/I	X	Peroné	1	I	
Húmero		I		Calcáneo	1	1	
Radio		I		Astrágalo	I	1	
Cúbito	I			Cuboides	1	1	
Carpianos	6	3		Escafoides			
Metacarpianos	3	4		Cuneiformes	1	3	
Falanges	6	6		Metatarsianos	5	5	
				Falanges	8	8	

OBSERVACIONES:

Los huesos presentan marcas de dientes de roedor en al superficie (periostio).
 Presenta materiales óseos de roedor.

SL/F: elementos sin lateralizar o fragmentos. *SL: elementos sin lateralizar.* *I: incompleto*
F: fragmentos. *C: completo.*

LABORATORIO DE OSTEOLOGIA TEMPLO MAYOR

CEDULA DE INVENTARIO INDIVIDUAL

PROCEDENCIA Nicahuyu TEMP.

CRONOLOGÍA

SEXO Masculino

EDAD 30-35 años

ENT. 3

IND. A

ANOTO J. L. Salinas U.

FECHA 28/05/2003 No. CATALOGO

Ma. Gpe. Martínez G.

PARTES DEL ESQUELETO PRESENTES

	C	I	F		C	I	F
Cráneo		X		Vértebras cervicales	6	1	
Mandíbula	X			Vértebras dorsales	4	6	
Hioides			X	Vértebras lumbares	5		
Esternón				Sacro		X	
				Coxis			
	Der	Izq	SL		Der	Izq	SL
Clavícula	I			Fémur	1	1	
Omóplato	I	I		Rótula			
Ilíaco	1	I		Tibia	1	I	
Costillas	10/I	11/I	X	Peroné		I	
Húmero	1	I		Calcáneo	1	1	
Radio	1	I		Astrágalo	I	1	
Cúbito	1	1		Cuboides	1	1	
Carpianos				Escafoides		1	
Metacarpianos				Cuneiformes		2	
Falanges			1	Metatarsianos	4	4	
				Falanges			11

OBSERVACIONES:

Presenta material asociado de animal (roedor).

Presenta varias patologías (hiperostosis osteoporótica, espóndiloartrosis, criba orbitaria)

Excrecencia ósea en el 2do. Metatarsiano.

Presenta deformación craneal.

SL/F: elementos sin lateralizar o fragmentos.

SL: elementos sin lateralizar.

I: incompleto

F: fragmentos.

C: completo.

DEPARTAMENTO DE ANTROPOLOGÍA FÍSICA

LABORATORIO DE OSTEOLOGIA TEMPLO MAYOR

CEDULA DE INVENTARIO INDIVIDUAL

PROCEDENCIA Nicahuyu TEMP.

CRONOLOGÍA

SEXO Femenino

EDAD 25-30 años

ENT. 3

IND. B

ANOTO J. L. Salinas U.

FECHA 28/05/2003 No. CATALOGO

Ma. Gpe. Martínez G.

PARTES DEL ESQUELETO PRESENTES

	C	I	F		C	I	F
Cráneo		X		Vértebras cervicales	7		
Mandíbula	X			Vértebras dorsales	10	2	
Hioides				Vértebras lumbares	4	1	
Esternón	X			Sacro		X	
				Coxis			
	Der	Izq	SL		Der	Izq	SL
Clavícula	1	1		Fémur	1	1	
Omóplato	1	1		Rótula	1	1	
Ilíaco	1	1		Tibia	1	1	
Costillas	12/F	12/F		Peroné	1	1	
Húmero	1	1		Calcáneo	1	1	
Radio	1	1		Astrágalo	1	1	
Cúbito	1	1		Cuboides			
Carpianos	5	4		Escafoides		1	
Metacarpianos	5	3		Cuneiformes		3	
Falanges	14	9		Metatarsianos		5	
				Falanges		13	

OBSERVACIONES:

El astrágalo se encontró entre los materiales del individuo A del entierro 3

Presenta material asociado (cerámica).

Presenta varias patologías (osteoporosis hiperostósica)

Presenta dos protuberancias en el occipital.

SL/F: elementos sin lateralizar o fragmentos.

SL: elementos sin lateralizar.

I: incompleto

F: fragmentos.

C: completo.

DEPARTAMENTO DE ANTROPOLOGÍA FÍSICA

LABORATORIO DE OSTEOLOGIA TEMPLO MAYOR

CEDULA DE INVENTARIO INDIVIDUAL

PROCEDENCIA Nicahuyu TEMP.

CRONOLOGÍA

SEXO Indefinido

EDAD 1 año +/- 3 meses ENT. 4 IND. A

ANOTO J. L. Salinas U.

FECHA 30/05/2003 No. CATALOGO

Ma. Gpe. Martínez G.

PARTES DEL ESQUELETO PRESENTES

	C	I	F		C	I	F
Cráneo				Vértebras cervicales			X
Mandíbula			X	Vértebras dorsales			X
Hioides				Vértebras lumbares			X
Esternón				Sacro			
				Coxis			
	Der	Izq	SL		Der	Izq	SL
Clavícula		F		Fémur	F		
Omóplato				Rótula			
Ilíaco	F			Tibia	F		
Costillas	5/F	5/F	X	Peroné			
Húmero	F	F		Calcáneo			
Radio	F	F		Astrágalo			
Cúbito			X	Cuboides			
Carpianos				Escafoides			
Metacarpianos				Cuneiformes			
Falanges				Metatarsianos			
				Falanges			

OBSERVACIONES:

Presenta material asociado (fragmento de lítica).

SL/F: elementos sin lateralizar o fragmentos.

SL: elementos sin lateralizar.

I: incompleto

F: fragmentos.

C: completo.

LABORATORIO DE OSTEOLOGIA TEMPLO MAYOR

CEDULA DE INVENTARIO INDIVIDUAL

PROCEDENCIA Nicahuyu *TEMP.* *CRONOLOGÍA*
SEXO Indefinido *EDAD* 5 años *ENT.* 4 *IND.* B
ANOTO J. L. Salinas U. *FECHA* 28/05/2003 *No. CATALOGO*
 Ma. Gpe. Martínez G.

PARTES DEL ESQUELETO PRESENTES

	C	I	F		C	I	F
Cráneo			X	Vértebras cervicales			
Mandíbula		X		Vértebras dorsales			
Hioides				Vértebras lumbares			
Esternón				Sacro			
				Coxis			
	Der	Izq	SL		Der	Izq	SL
Clavícula				Fémur			
Omóplato		I		Rótula			
Ilíaco				Tibia			
Costillas				Peroné			
Húmero				Calcáneo			
Radio				Astrágalo			
Cúbito				Cuboides			
Carpianos				Escafoides			
Metacarpianos				Cuneiformes			
Falanges				Metatarsianos			
				Falanges			

OBSERVACIONES:

Falta la porción facial del cráneo.
 Presenta varias patologías (osteoporosis hiperostósica)

SL/F: elementos sin lateralizar o fragmentos. *SL: elementos sin lateralizar.* *I: incompleto*
F: fragmentos. *C: completo.*

Patologías

Las patologías son las enfermedades presentes en el individuo, visibles en el material óseo, que nos puede hablar de las condiciones de salud del individuo. Entre las más comunes se encuentra las caries, atricción (desgaste oclusal), acúmulo de sarro y abscesos.

Caries es un proceso patológico que inicia a partir de esmalte, presenta una destrucción gradual del diente profundizando hasta afectar a la pulpa dentaria, promoviendo la destrucción de la pieza.

La *atricción* es un problema de desgaste leve o severo de la superficie oclusal de los dientes, siendo un proceso cotidiano originado por el proceso de masticación, que varía en función del tipo de dieta del grupo.

Acúmulo de sarro es el depósito de sales calcáreas presentes en las piezas dentales.

Absceso de origen dentario se presenta en consecuencia de la infección dental, presente después del desgaste oclusal o caries de la pieza dentaria.

Criba orbitaria de tipo A lesión que predomina en el tercio anterior del techo superior de la órbita, el tipo está dado por el grado de afectación que presenta la lesión, para este caso la caracterización es de pequeños orificios finos dispersos.

Osteoporosis hiperostósica presente a nivel de cráneo, generalmente se presenta en frontal, en la parte posterior de los parietales, occipital, es de aspecto granular dando una imagen radiográfica espiculosa en cepillo.

Estas dos últimas patologías están generalmente relacionadas con la anemia, cabe aclarar que no es la única causa de afectación.

Artrosis es una patología predominante en los procesos degenerativos, Campillo menciona “*acentuándose las lesiones por diversos factores: microtraumatismos, sobrecarga articular...*” presente “*a partir de los cuarenta años de edad, en mayor o*

menor grado, casi todos los individuos tienen", esta enfermedad tiende generalmente a presentarse en los puntos de la morbilidad a nivel de la porción cervical (últimas) y lumbar por lo que se denomina *Espóndiloartrosis la cual además* promueve el desgaste de la columna vertebral y origina osteofitos. Por las características que presenta el material podemos hablar de grado, y corresponde a una lesión de primer grado, al observarse un ligero labio en los bordes (superior e inferior).

Tafonomía

La tafonomía es la disciplina que "estudia los cambios que sufre el individuo después de muerto", transición de cadáver a esqueleto, donde intervienen diversos factores que a la postre resultan en cambios del material óseo.

Los huesos sufren transformaciones diagenéticas, al haber una modificación en su morfología como podemos observar la acción desbastante de los roedores que acarrean y mordisquean los huesos, dejando un patrón distinto de surcos hechos por los incisivos.

Las características propias del suelo son importantes para su conservación o destrucción del tejido óseo, interviene la textura del suelo, compactación, mineralización y acidez, además de la humedad, los cambios de temperatura y la profundidad de enterramiento, son factores que promueven la destrucción o conservación del material óseo, por lo que observamos fracturas, cuarteaduras y en algunos casos se llega a la desintegración de los materiales.

Las plantas buscan agua y nutrientes distribuyendo en el suelo sus raíces, las cuales alteran la superficie de los huesos dejando un patrón similar a una red, algunos autores les denominan canales dendríticos, en el interior del hueso podemos observar raíces que lo penetran y se distribuyen en el canal medular, promoviendo la destrucción del material óseo.

Consideraciones finales

Los datos arrojados del material analizado nos proporcionan lo siguiente:

Para los individuos infantiles no fue posible determinar su sexo, por lo que se sugiere someter dichos materiales a pruebas de DNA, sin embargo a pesar de las condiciones de conservación de dichos materiales podemos hablar de individuos infantiles con problemas de anemia inicial, ya que en el entierro 4, individuo B se observa lesión de mayor grado de osteoporosis hiperostótica a la altura de la sutura labdoidea, el individuo A, entierro 2; presenta criba orbitaria de tipo A la cual es de primer estadio, que indica ser una patología inicial, lo cual nos muestra que posiblemente tenía una anemia por deficiencia de vitaminas y proteínas, la cual comenzó a dejar marcas a nivel óseo, sin ser esta la causa de muerte. Cabe mencionar que la edad de los individuos infantiles se determinó de la siguiente manera: en el individuo 1 del entierro 4 por hueso largos, lo cual nos indica que los restos óseos pertenecen a un individuo infantil de aproximadamente 1 año de edad, en el individuo 2 de éste mismo entierro se determinó la edad a través del brote dental el cual pertenece aun infante de aproximadamente 5 años, mientras que en el individuo 1 entierro 2 se determinó una edad aproximada de 8 años; las edades de los individuos A-1 y A-2 infantiles del entierro 1 se determinó revisando el poco material óseo, por ello no se consideraron éstas edades como confiables, pero si estima que sean infantes de diferentes edades..

En lo que se refiere a los datos proporcionados por los materiales de los individuos adultos del entierro 3, donde ambos tienen deformación craneal, nos muestra una característica cultural de los pueblos mesoamericanos. Los datos morfológicos nos proporcionan características masculinas para el individuo A de aproximadamente 30-35 años de edad aproximada y una estatura promedio de 160.9 cm; mientras que para el individuo B, en un 90% de características morfológicas determinan que se trata de un individuo del sexo femenino de entre 25-30 años de edad, con una estatura promedio

de 147.8 cm., para dichos indicadores se tomaron en cuenta los rasgos de las piezas dentales (desgaste) y numero de piezas presentes, además se observó la rugosidad de la sínfisis púbica, la cual se verificó y nos proporcionó dicha edad y, con la huesos largos se determinó la estatura. Cabe mencionar que no se determinó edad a partir de las suturas, ya que por la presencia de deformación cultural en el cráneo, ésta modifica la edad de cierres de las suturas.

Las patologías observadas en el individuo A entierro 3, nos indica desgaste en columna, el cual pudo ser ocasionado por la actividad a la que se sometía el cuerpo, sin embargo este problema se presenta en personas con edades a partir de los 40 años, por lo que no hay que descartar dicho factor debido al rango de edad, por lo que se puede hablar de una lesión propia de la edad. No hay que olvidar que ambos individuos del entierro tres presentan osteoporosis hiperostótica, la cual es causada por problemas metabólicos, es decir un desajuste en vitaminas y proteínas, algunas veces provocado por la dieta. La patología presente en el individuo B entierro 3 es muy marcada, ya que se tiene formación de hueso o absceso en occipital promovido por la inflamación del hueso provocada por un traumatismo, posiblemente era el inicio de la formación de un tumor en cráneo.

La edad está dada a partir de las referencias consultadas con un margen de error de más/menos 3 meses, por lo que no se habla de edades absolutas.

Es importante mencionar que la tafonomía juega un papel importantísimo en la conservación del material, por lo que en su mayoría se encuentra con una gran cantidad de canales dendríticos ocasionados por las raíces, promoviendo la destrucción del hueso, dejando además impresiones muy marcadas de las mismas; también los roedores contribuyeron con éste acontecimiento ya que dicho animal roe o mordisquea el hueso dejando ciertas marcas, lo cual puede ser confundido con marcas de corte, en

este caso se puede hablar que las marcas impresas en el material óseo se ha identificado como promovidas por este factor biológico y no cultural.

Creo oportuno mencionar que el emprender investigaciones de las poblaciones prehispánicas, del área cultural de donde provienen los presentes entierros, pueden aportar valiosa información de índole cultural y de tipo biológico que permitiría llenar ciertas interrogantes en la historia de las poblaciones pretéritas y en el haber bibliográfico de las comunidades aledañas al lugar como parte de su identidad cultural y, porque no, como parte de la historia adaptativa de las poblaciones al ambiente.

BIBLIOGRAFÍA

Bass William M.

1987 "Human osteology". A Laboratory and Field Manual, Columbia, Missouri, Archaeological Society.

Berry A. C. y R. J. Berry

1967 "Epigenetic variations in the human cranium", J. Anat. 10 (2): 361-379.

Campillo, D.

S/F "Paleopatología, los primeros vestigios de la enfermedad". Primera parte. Colección histórica de ciencias de la Salud. Fundación Uriach 1838, Barcelona.

Campillo, D.

S/F "Paleopatología, los primeros vestigios de la enfermedad". Segunda parte. Colección histórica de ciencias de la Salud. Fundación Uriach 1838, Barcelona.

Ferembach, D.; I. Schwidetzky y M. Stloukal.

- 1978 "Recommandations pour déterminer 1° age et le sex sur le squelette"
Bulletin et memories de la Société d' Anthropologie de Paris, 6, w ; 7-45.

Miguel C. Botella, Inmaculada Alemán y Sylvia A. Jiménez

- 1999 "Los huesos humanos". Manipulación y alteraciones. Bellaterra. México
Págs. 69 – 113.

Ortner, D. J. y W. C. J. Potschar

- 1981 "Identification of pathological conditions in human skeletal remains" en
Smithsonian Contributions to Anthropology. Num 28.

Ubelaker, D. H.

- 1978 "Human Skeletal Remains, Excavation". Analysis interpretation, Chicago.

White, T. D.

- 1991 "Human Osteology". Academic. Press, Inc, San Diego