



10-1987

# The Uses of Maya Structures: A Study of Architecture and Artifact Distribution at Sepulturas, Copan, Honduras

Julia A. Hendon  
*Gettysburg College*

Follow this and additional works at: <https://cupola.gettysburg.edu/anthfac>

 Part of the [Archaeological Anthropology Commons](#), [Indigenous Studies Commons](#), [Latin American History Commons](#), [Latin American Studies Commons](#), and the [Other History of Art, Architecture, and Archaeology Commons](#)

**Share feedback about the accessibility of this item.**

---

Hendon, Julia A., "The Uses of Maya Structures: A Study of Architecture and Artifact Distribution at Sepulturas, Copan, Honduras" (1987). *Anthropology Faculty Publications*. 32.  
<https://cupola.gettysburg.edu/anthfac/32>

This is the author's version of the work. This publication appears in Gettysburg College's institutional repository by permission of the copyright owner for personal use, not for redistribution. Cupola permanent link: <https://cupola.gettysburg.edu/anthfac/32>

This open access dissertation is brought to you by The Cupola: Scholarship at Gettysburg College. It has been accepted for inclusion by an authorized administrator of The Cupola. For more information, please contact [cupola@gettysburg.edu](mailto:cupola@gettysburg.edu).

---

# The Uses of Maya Structures: A Study of Architecture and Artifact Distribution at Sepulturas, Copan, Honduras

## **Abstract**

This dissertation presents a compositional analysis of the architecture and a distributional analysis of the associated artifacts resulting from excavation of some ninety buildings dating from the Late to Terminal Classic Period at the Maya site of Copan, Honduras. The study of all artifacts recovered from primary contexts, both in situ and redeposited, focuses first on a determination of their function, second on an analysis of their distribution within the site, and third on their associations with one another in order to identify the kinds of activities carried out at various locations. A second line of evidence used is the construction, dimensions, orientation, furnishings, and other traits of the buildings with which the artifacts are associated.

A variety of methods is employed including statistical techniques where appropriate. They reveal not only differences in where different activities occurred, including among others food preparation, ritual observances, and craft production, but also a patterned relationship between these activities and certain kinds of rooms and buildings. Most but not all of the buildings prove to be residences or non-residential domestic structures. In addition to the in-depth examination of structure use and activity distribution, certain preliminary observations are offered on the social organization of the occupants of these structures.

## **Keywords**

Maya architecture, Honduras, Copan Site, antiquities, Late Classic Period, Terminal Classic Period, excavation

## **Disciplines**

Archaeological Anthropology | Indigenous Studies | Latin American History | Latin American Studies | Other History of Art, Architecture, and Archaeology

## **Comments**

Professor Hendon's doctoral thesis, written in fulfillment of the requirements for the degree of Doctor of Philosophy in the subject of Anthropology from Harvard University.

THE USES OF MAYA STRUCTURES:  
A STUDY OF ARCHITECTURE AND ARTIFACT DISTRIBUTION  
AT SEPULTURAS, COPAN, HONDURAS

A thesis presented

by

Julia Ann Hendon

to

The Department of Anthropology

in partial fulfillment of the requirements

for the degree of

Doctor of Philosophy

in the subject of

• Anthropology

Harvard University

Cambridge, Massachusetts

October 1987

© 1987 by Julia Ann Hendon  
All rights reserved.



## ABSTRACT

This dissertation presents a compositional analysis of the architecture and a distributional analysis of the associated artifacts resulting from excavation of some ninety buildings dating from the Late to Terminal Classic Period at the Maya site of Copan, Honduras. The study of all artifacts recovered from primary contexts, both in situ and redeposited, focuses first on a determination of their function, second on an analysis of their distribution within the site, and third on their associations with one another in order to identify the kinds of activities carried out at various locations. A second line of evidence used is the construction, dimensions, orientation, furnishings, and other traits of the buildings with which the artifacts are associated.

A variety of methods is employed including statistical techniques where appropriate. They reveal not only differences in where different activities occurred, including among others food preparation, ritual observances, and craft production, but also a patterned relationship between these activities and certain kinds of rooms and buildings. Most but not all of the buildings prove to be residences or non-residential domestic structures. In addition to the in-depth examination of structure use and activity distribution, certain preliminary observations are offered on the social organization of the occupants of these structures.



## TABLE OF CONTENTS

Table of Contents .....	iv
List of Tables .....	ix
List of Figures .....	xix
Acknowledgements .....	xxi
1. Approaches to the Question of Structure Use in Maya Studies ..	1
The Objective of this Dissertation .....	1
The Current View of the Nature of Late Classic Maya Society ..	2
Previous Research on Settlement Pattern and Structure Use ....	5
Settlement Pattern Studies .....	6
Classification of Structures and the Question of "Palaces" ..	8
The Analysis of Palaces on the Basis of Large-Scale Excavation .....	10
The Approach Used in this Study .....	16
2. The Physical and Cultural Setting .....	26
Physical Setting .....	27
Historic and Modern Occupation .....	41
Summary of Previous Archaeological Work at Copan .....	46
Investigations prior to the Peabody Museum Expedition .....	46
Alfred Maudslay and the Peabody Museum Expedition (1881-1895)	47
Sylvanus Morley .....	49
Carnegie Institution of Washington (1935-1942, 1946) .....	49
Harvard University Copan Valley Settlement Pattern Project (1975-1977) .....	51
Proyecto Arqueológico Copán Primera Fase (1977-1980) .....	55

Proyecto Arqueológico Copán Segunda Fase (1981-1984) .....	57
Prehistoric Occupation: Chronological Sequence .....	58
Coner Phase Settlement Patterns .....	59
Copan and the Maya "Frontier" .....	65
3. The Artifact Distribution Database .....	72
Description of PAC II Excavations .....	75
Construction of the Artifact Distribution Database .....	83
The Selection of Lots for Inclusion .....	83
The Grouping of Artifacts by Spatial Association .....	96
Modification of the Artifact Classification System .....	98
Architectural Data .....	99
The Analysis of Artifact Distribution .....	100
The Representativeness of the Surviving Set of Artifacts ...	101
The Statistical Analysis of Archaeological Data .....	104
Analysis of Artifact Function .....	116
Associations between Structures and Activities .....	119
4. Description of Structures and their Associated Loci .....	120
Sepulturas Architecture and the Terminology Used to	
Describe It .....	121
Description of Structures and the Associated Loci .....	125
Gr 9N-8 Patio A .....	127
Gr 9N-8 Patio B .....	148
Gr 9N-8 Patio C .....	167
Gr 9N-8 Patios D, I, and K .....	178
Gr 9N-8 Patios E and F .....	199
Gr 9N-8 Patio H .....	214
Gr 9N-8 Patio Alpha .....	247

Central Platform .....	252
Gr 9M-22 Patio A .....	255
Gr 9M-22 Patio B .....	276
Gr 9M-24 .....	288
5. Analysis of Artifacts and their Functions .....	298
Discussion of Artifact Classes .....	302
Lithics (Class 01) .....	302
Ground Stone (Class 02) .....	307
Stone Ornament (Class 03) .....	311
Ceramic Rims (Class 04) .....	314
Bone (Class 06) .....	361
Shell (Class 07) .....	370
Turtle (Class 10) .....	371
Other Ceramic Artifacts (Class 13) .....	372
Figurines (Class 14) .....	377
Whole Ceramic Vessels (Class 24) .....	380
Discussion of Artifact Associations .....	381
Features .....	381
Statistical Analysis .....	390
6. The Spatial Distribution of Activities .....	413
Synthesis of Architectural Patterns .....	414
The Distribution of Architectural Units Across Groups .....	415
Superstructure Types and their Distribution Across Groups ..	418
The Distribution of Construction and Decoration Traits	
Across Groups .....	429

Comparisons on the Basis of Room Furniture and Room	
Measurements .....	432
The Distribution of Elevated Terraces in Relation to Patios	440
Comparison of Locus Types .....	444
Primary Deposits (Locus Types 2, 3, 4, 6, and 7) .....	456
Refuse Deposits (Locus Types 1, 8, and 9) .....	480
Structure Comparisons .....	488
Gr 9N-8 Patio A .....	492
Gr 9N-8 Patio B .....	494
Gr 9N-8 Patio C .....	497
Gr 9N-8 Patios D and I .....	498
Gr 9N-8 Patios E and F .....	500
Gr 9N-8 Patio H, Str 9N-78, and Patio K .....	503
Gr 9N-8 Patio Alpha .....	505
Central Platform .....	506
Gr 9M-22 Patio A .....	507
Gr 9M-22 Patio B .....	509
Gr 9M-24 .....	512
7. The Uses of Structures at Sepulturas .....	515
Results of the Study of Architectural Patterns .....	515
Results of the Study of Artifact Distribution .....	519
Activities Indicated by Features .....	519
Activities Associated with Primary Use-Related Contexts ...	525
Activities Associated with Structures .....	526
The Uses of the Structures in the Three Groups Studied .....	527
Ancillary Structures .....	528
Rooms without Benches .....	530

Rooms with Benches .....	533
Special Structures .....	535
General Conclusions about the Nature of the Sepulturas	
Settlement .....	546
Observations about Social Organization .....	548
Bibliography .....	550





## LIST OF TABLES

2.1	Copan Ceramic Phases .....	58
3.1	Context Types (Locus Types) .....	86
3.2	Coner Phase Ceramic Types .....	88
3.3	Continuing Ceramic Types .....	89
3.4	Unspecified Categories .....	90
4.1	Structure 9N-80 Architecture .....	130
4.2	Locus Associated with Structure 9N-80 .....	130
4.3	Structure 9N-81 Architecture .....	133
4.4	Loci Associated with Structure 9N-81 .....	134
4.5	Feature 9 (Locus 0804.9) .....	135
4.6	Structure 9N-82 Central Superstructure Architecture .....	139
4.7	Structure 9N-82 Western Superstructure Architecture .....	140
4.8	Structure 9N-82 Corridor Rooms Architecture .....	140
4.9	Structure 9N-82 Eastern Superstructure Architecture .....	141
4.10	Loci Associated with Structure 9N-82 .....	142
4.11	Feature 2 (Locus 0822.9) .....	144
4.12	Structure 9N-83 Architecture .....	146
4.13	Loci Associated with Structure 9N-83 .....	147
4.14	Structure 9N-73 Architecture .....	151
4.15	Loci Associated with Structure 9N-73 .....	152
4.16	Structure 9N-68 Architecture .....	153
4.17	Loci Associated with Structure 9N-68 .....	154
4.18	Feature 7 (Locus 1612.2) .....	155
4.19	Structure 9N-67 Architecture .....	156

4.20	Loci Associated with Structure 9N-67 .....	157
4.21	Structure 9N-74 Northern and Southern Superstructures Architecture .....	158
4.22	Structure 9N-74 Central Superstructure Architecture .....	159
4.23	Loci Associated with Structure 9N-74 .....	161
4.24	Structure 9N-75 Architecture .....	166
4.25	Locus Associated with Structure 9N-75 .....	166
4.26	Structure 9N-69 Architecture .....	170
4.27	Structures 9N-70 and 9N-71 Architecture .....	172
4.28	Structure 9N-72 Architecture .....	173
4.29	Structure 9N-73 Northern End Architecture .....	174
4.30	Loci Associated with Patio C .....	176
4.31	Op 16 Feature 10 (Locus 1618.2) .....	178
4.32	Structure 9N-60 (A and B) Architecture .....	182
4.33	Loci Associated with Structures 9N-60A and 9N-60B .....	182
4.34	Structure 9N-111 Architecture .....	184
4.35	Loci Associated with Structure 9N-111 .....	185
4.36	Structures 9N-61A, 9N-61B, and 9N-61C Architecture .....	185
4.37	Loci Associated with Structures 9N-61A, 9N-61B, and 9N-61C .	186
4.38	Structures 9N-63 and 9N-105 Architecture .....	188
4.39	Loci Associated with Structure 9N-63 .....	189
4.40	Locus Associated with Structure 9N-105 .....	190
4.41	Structure 9N-65 Architecture .....	191
4.42	Loci Associated with Structure 9N-65 .....	191
4.43	Structure 9N-104 Architecture .....	192
4.44	Loci Associated with Structure 9N-104 .....	193
4.45	General Midden and Patio Loci .....	194

4.46	Loci Associated with Patio I .....	195
4.47	Structures 9N-106 and 9N-107 Architecture Patio K .....	197
4.48	Loci Associated with Patio K .....	198
4.49	Features in Locus 1502.1 .....	200
4.50	Structures 9N-95 and 9N-97 Architecture .....	202
4.51	Loci Associated with Structure 9N-97 .....	203
4.52	Structure 9N-96 Architecture .....	204
4.53	Loci Associated with Structure 9N-96 .....	205
4.54	Structure 9N-93N Architecture .....	206
4.55	Structure 9N-93S Architecture .....	207
4.56	Loci Associated with Structures 9N-93N and 9N-93S .....	207
4.57	Structures 9N-92 and 9N-108 Architecture .....	209
4.58	Loci Associated with Structure 9N-92 .....	210
4.59	Loci Associated with Structure 9N-108 .....	211
4.60	Structure 9N-91 Architecture (Patio F) .....	212
4.61	Loci Associated with Patio F .....	212
4.62	Loci Associated with Structure 9N-64 .....	220
4.63	Structures 9N-115A and 9N-76 Architecture .....	222
4.64	Loci Associated with Structures 9N-115A and 9N-115B .....	223
4.65	Structure 9N-110A Architecture .....	225
4.66	Loci Associated with Structure 9N-110A .....	226
4.67	Structure 9N-110B Architecture .....	228
4.68	Loci Associated with Structure 9N-110B .....	229
4.69	Structure 9N-110C Architecture .....	233
4.70	Loci Associated with Structure 9N-110C .....	233
4.71	Loci Associated with Structure 9N-76 .....	235

4.72	Structure 9N-78 Architecture — Three Alternative Reconstructions .....	237
4.73	Loci Associated with Structure 9N-78 .....	240
4.74	Loci for the Area South of Structure 9N-76 .....	241
4.75	Mann-Whitney <i>U</i> and Kruskal-Wallis ANOVA Statistics for Loci Associated with Str 76, Str 78, and Midden South of Str 76 for Various Combinations of Artifact Categories .....	246
4.76	Patio Alpha — Structure 9N-7A Architecture .....	248
4.77	Patio Alpha — Structures 9N-65 and 9N-110B Architecture ...	250
4.78	Loci Associated with Patio Alpha and Str 110B Rm 6 .....	251
4.79	Loci Associated with the Central Platform .....	254
4.80	Locus Associated with Structure 9M-242 .....	258
4.81	Structure 9M-194B Architecture .....	258
4.82	Loci Associated with Structures 9M-194A and 9M-194B .....	259
4.83	Structure 9M-195B Architecture .....	261
4.84	Loci Associated with Structures 9M-195A and 9M-195B .....	262
4.85	Structures 9M-245B and 9M-246 Architecture .....	263
4.86	Structures 9M-196, 9M-197, and 9M-199 Architecture .....	264
4.87	Loci Associated with Structures 9M-196, 9M-245A, 9M-245B, and 9M-246 .....	265
4.88	Loci Associated with Structure 9M-197 .....	266
4.89	Loci Associated with Structure 9M-199 .....	267
4.90	Loci Associated with Structure 9M-244 .....	268
4.91	Loci Associated with Structure 9M-200 .....	268
4.92	Structure 9M-193A Architecture .....	270
4.93	Structure 9M-193B Architecture .....	271
4.94	Loci Associated with Structures 9M-193A and 9M-193B .....	272

4.95	Feature 1 (Locus 1002.1) .....	274
4.96	Locus Associated with Gr 9M-22 Patio A .....	276
4.97	Structures 9M-189 and 9M-240 Architecture .....	277
4.98	Loci Associated with Structure 9M-189 .....	279
4.99	Loci Associated with Structure 9M-240 .....	280
4.100	Locus Associated with Structure 9M-241 .....	280
4.101	Loci Associated with Structure 9M-192 .....	281
4.102	Structures 9M-191N, 9M-191W, and 9M-190 Architecture .....	283
4.103	Loci Associated with Structures 9M-191N and 191W and Attached Platforms .....	284
4.104	Loci Associated with Structure 9M-190 .....	286
4.105	Locus Associated with Gr 9M-22 Patio B .....	287
4.106	Structure 9M-211 Architecture .....	290
4.107	Loci Associated with Structure 9M-211 .....	291
4.108	Structures 9M-247 and 9M-248 Architecture .....	292
4.109	Loci Associated with Structure 9M-248 .....	292
4.110	Loci Associated with Structure 9M-247 .....	293
4.111	Structures 9M-212 and 9M-213 Architecture .....	294
4.112	Loci Associated with Structure 9M-213 .....	295
4.113	Loci Associated with Structure 9M-212 .....	296
4.114	Loci Associated with Gr 9M-24 Patio .....	297
5.1	Categories for Lithic Artifacts .....	303
5.2	Types of Lithic Artifacts in Total Sample .....	306
5.3	Chert and Obsidian Artifacts in Total Lithic Sample .....	306
5.4	Categories for Ground Stone Artifacts .....	307
5.5	Types of Ground Stone Artifacts in Total Sample .....	310
5.6	Categories for Stone Ornaments .....	311

5.7	Stone Ornaments by Material and Form in Total Sample .....	313
5.8	Ceramic Type Groups .....	315
5.9	Whole Vessel Characteristics .....	320
5.10	Functions of Sepulturas Vessel Forms on the Basis of Form and Ethnographic Analogy .....	352
5.11	Distribution of Ceramic Rims in the Artifact Distribution Database .....	354
5.12	Forms Present in each Ceramic Type Group .....	356
5.13	Dominant Forms in each Type Group .....	361
5.14	Categories for Worked and Unworked Bone .....	362
5.15	Awls .....	364
5.16	Needles and Pins .....	365
5.17	Tubes and Rings .....	366
5.18	Worked Bone Artifacts in Total Sample .....	369
5.19	Kinds of Awls Present .....	369
5.20	Kinds of Needles and Pins Present .....	370
5.21	Categories for Shell Artifacts .....	370
5.22	Shell and Turtle in Total Sample .....	371
5.23	Categories for Turtleshell .....	371
5.24	Categories for Other Ceramic Artifacts .....	372
5.25	Spindle Whorls .....	374
5.26	Round Perforated Disks .....	375
5.27	Other Ceramic Artifacts in Total Sample .....	377
5.28	Categories for Figurines .....	377
5.29	Figurines in Total Sample .....	379
5.30	Whole Ceramic Vessels in Total Sample .....	380

5.31	Distribution and Content of Features by Patio for Gr 9N-8 and Gr 9M-22 Patio A .....	382
5.32	Categories used in Principal Components Analysis and Cluster Analysis .....	397
5.33	Rotated Component—Variable Correlations .....	400
5.34	Category Variance for Rotated Components .....	401
6.1	Frequency of Buildings and Components by Groups .....	416
6.2	Weighted Frequencies of Buildings and Components by Groups .	417
6.3	Definition of Superstructure Types .....	420
6.4	Classification of Gr 9N-8 Superstructures .....	425
6.5	Classification of Gr 9M-22 and Gr 9M-24 Superstructures ....	426
6.6	Distribution of Superstructure Types by Group .....	426
6.7	Distribution of Superstructure Types by Groups Expressed as Percentage of Total Superstructures in Group .....	428
6.8	Comparison of Elements of Superstructure Types .....	428
6.9	Comparison of Constructional Details across Groups (Percent of Total Superstructures in Each Group) .....	430
6.10	Location and Type of Sculptural Decoration .....	431
6.11	Distribution of Benches, Other Furniture, and Niches by Groups .....	433
6.12	Mean Room Area, Bench Area, and Bench Height .....	433
6.13	Analysis of Variance of Room and Bench Areas Across Groups .	440
6.14	Location and Dimensions of Elevated Terraces .....	441
6.15	Distribution of Elevated Terraces .....	443
6.16	Material Codes by Locus Types .....	445
6.17	Lithic Artifacts by Locus Type .....	445
6.18	Ground Stone Artifacts by Locus Type .....	446

6.19	Stone Ornaments by Locus Type .....	447
6.20	Ceramic Rims by Locus Type .....	448
6.21	Unworked Bone and Bone Artifacts by Locus Type .....	449
6.22	Worked Bone Artifacts by Locus Type .....	450
6.23	Unworked and Worked Shell and Turtle by Locus Type .....	450
6.24	Other Ceramic Artifacts and Figurines by Locus Type .....	451
6.25	Distribution of Lithic Artifacts across Locus Types .....	451
6.26	Distribution of Ground Stone Artifacts across Locus Types ..	452
6.27	Distribution of Stone Ornaments across Locus Types .....	452
6.28	Distribution of Ceramic Rims across Locus Types .....	453
6.29	Distribution of Unmodified Bone and Bone Artifacts across Locus Types .....	454
6.30	Distribution of Shell and Turtle across Locus Types .....	455
6.31	Distribution of Other Ceramic Artifacts and Figurines across Locus Types .....	455
6.32	Distribution of Lithic Artifacts across Locus Types 2, 3, 4, and 7 .....	456
6.33	Distribution of Ground Stone Artifacts across Locus Types 2, 3, 4, and 7 .....	457
6.34	Distribution of Stone Ornaments across Locus Types 2, 3, 4, and 7 .....	457
6.35	Distribution of Selected Ceramic Forms across Locus Types 2, 3, 4, and 7 .....	458
6.36	Distribution of Unmodified Bone and Bone Artifacts across Locus Types 2, 3, 4, and 7 .....	458
6.37	Distribution of Shell and Turtle Shell across Locus Types 2, 3, 4, and 7 .....	459



6.38	Distribution of Other Ceramic Artifacts and Figurines across Locus Types 2, 3, 4, and 7 .....	459
6.39	Chi-square Analysis of Lithic Categories across Locus Types 2, 3, 4, and 7 .....	462
6.40	Chi-square Analysis of Selected Ground Stone Categories for Locus Types 2, 3, and 7 .....	465
6.41	Chi-square Analysis of Selected Ceramic Forms for Locus Types 2, 3, 4, and 7 .....	467
6.42	Chi-square Statistics for Comparisons of Locus Types 2, 3, 4, and 7 .....	471
6.43	Contents of Loci of Locus Type 6 .....	474
6.44	Patio Loci (Locus Type 1) in Groups 9N-8, 9M-22, and 9M-24 .	481
6.45	Location of Deposits of Locus Type 8 in Groups 9N-8, 9M-22, and 9M-24 .....	482
6.46	Middens (Locus Type 9) in Groups 9N-8, 9M-22, and 9M-24 ....	483
6.47	Distribution and Density of Middens Compared .....	487
6.48	Variables used in Chi-Square Comparison of Structures within Patios .....	490
6.49	Chi-square Statistics for Comparison of Structures within Patios .....	492
6.50	Suggested Activities for Structures in Gr 9N-8 Patio A .....	494
6.51	Suggested Activities for Structures in Gr 9N-8 Patios B and Alpha .....	495
6.52	Suggested Activities for Structures in Gr 9N-8 Patio C .....	497
6.53	Suggested Activities for Structures in Gr 9N-8 Patios D and I .....	499

6.54	Suggested Activities for Structures in Gr 9N-8 Patios E and F .....	501
6.55	Suggested Activities for Structures in Gr 9N-8 Patios H and K .....	504
6.56	Suggested Activities for Area of Central Platform between Patios A and B, Gr 9N-8 .....	506
6.57	Suggested Activities for Structures in Gr 9M-22 Patio A ....	509
6.58	Suggested Activities for Structures in Gr 9M-22 Patio B ....	511
6.59	Suggested Activities for Structures in Gr 9M-24 .....	512
6.60	Distribution of Activities within Patios of Gr 9N-8 .....	513
6.61	Distribution of Activities within Patios of Gr 9M-22 and Gr 9M-24 .....	514
7.1	Kinds of Activities Represented in Features .....	521
7.2	Distribution of Activities Indicated by Features across Superstructure Types .....	522
7.3	Location of Activities Indicated by Features .....	522
7.4	Distribution of Activities across Loci by Patio .....	527
7.5	Characteristics of Rooms without Benches .....	531
7.6	Benchless Rooms with Artifact Features in Gr 9N-8 .....	532
7.7	Features of Dominant Structures .....	536
7.8	The Association of Food Preparation Loci with Dominant Structures .....	538

## LIST OF FIGURES

2.1	Map of the Modern Nations of Central America .....	28
2.2	Map Showing Major Sites and Rivers Mentioned in Text .....	30
2.3	Map of the Physiographic Zones in the Copan Valley .....	36
2.4	The Main Group at Copan .....	60
2.5	The Inner Zone of Dense Settlement around the Main Group including El Bosque, Las Sepulturas, and the Comedero-Salamar Area .....	63
3.1	Map of Sepulturas Showing the Location of the Groups Mentioned in the Text .....	76
4.1	Map of Excavated Structures in Gr 9N-8 .....	126
4.2	Map of Gr 9N-8 Patio A .....	128
4.3	Map of Gr 9N-8 Patios B and Alpha .....	150
4.4	Map of Gr 9N-8 Patio C .....	168
4.5	Map of Patios D, I, and K in Gr 9N-8 .....	180
4.6	Map of Gr 9N-8 Patios E and F .....	201
4.7	Map of Gr 9N-8 Patio H and Str 9N-78 .....	216
4.8	Map of Gr 9M-22 Patio A .....	256
4.9	Map of Gr 9M-22 Patio B .....	278
4.10	Map of Gr 9M-24 .....	289
5.1	Schematic Drawings of Ceramic Vessel Forms .....	330
5.2	Dendrogram of Average-Link Cluster Analysis of 17 Artifact Categories .....	410
6.1	Schematic Drawings of the Ten Superstructure Types .....	421

6.2	Histogram of the Distribution of Superstructure Types in each Group Studied .....	427
6.3	Stem and Leaf Plot of Room Areas for Gr 9N-8 .....	434
6.4	Stem and Leaf Plot of Room Areas for Gr 9M-22 .....	434
6.5	Stem and Leaf Plot of Room Areas for Gr 9M-24 .....	435
6.6	Stem and Leaf Plot of Bench Areas for Gr 9N-8 .....	435
6.7	Stem and Leaf Plot of Bench Areas for Gr 9M-22 .....	436
6.8	Stem and Leaf Plot of Bench Areas for Gr 9M-24 .....	436
6.9	Stem and Leaf Plot of Bench Heights for Gr 9N-8 .....	437
6.10	Stem and Leaf Plot of Bench Heights for Gr 9M-22 .....	438
6.11	Stem and Leaf Plot of Percent Room Occupied by Bench for Gr 9N-8 .....	438
6.12	Stem and Leaf Plot of Percent Room Occupied by Bench for Gr 9M-22 .....	439
6.13	Stem and Leaf Plot of Percent Room Occupied by Bench for Gr 9M-24 .....	439
6.14	Stem and Leaf Plot of Elevated Terrace Areas .....	442
6.15	Stem and Leaf Plot of Elevated Terrace Heights .....	442
6.16	Histograms of Representation of Ceramic Forms in Locus Types 2, 3, 4, and 7 .....	475
6.17	Histograms of the Distribution of Ceramic Forms across Locus Types 2, 3, 4, and 7 .....	476

## ACKNOWLEDGEMENTS

The data that form the basis of this dissertation have been used with the permission of the Instituto Hondureño de Antropología e Historia. I would like to thank the Instituto, in particular its former director, Lic. Ricardo Agurcia Fasquelle, its current director, Lic. Victor Cruz, and Lic. Vito Véliz R. for the many ways in which they have helped and encouraged me. I want to give special thanks to Dr. William T. Sanders who, as director of the Proyecto Arqueológico Copán Segunda Fase, gave me the opportunity to work at Copan and graciously made available to me the results of excavations other than my own.

My research was funded in part through a National Science Foundation Dissertation Improvement Grant and grants from the Owens Fund, Peabody Museum, Harvard University. I am grateful to both sources for making it possible for me to conduct my research at Copan.

I am deeply appreciative of the interest shown by my thesis committee, Prof. Gordon Willey, Dr. Rosemary Joyce, and Prof. Izumi Shimada. Their many helpful comments and criticisms have improved both the content and the structure of this study immensely. I would like to add that it has been a great honor to have been a student of Prof. Willey.

Prof. George Cowgill read an earlier version of some of the statistical studies incorporated in Chapters 5 and 6 of the present work. I have benefited greatly from his comments. However, he should not be held responsible for any shortcomings in my use of statistical techniques.

I have learned a great deal from my association with the many members of the Copan Project as well as the people of the Copan. I would particularly like to thank William Fash, Andrea Gerstle, Ann Freter, and Rebecca Storey for their friendship and intellectual stimulation which helped shape my ideas about Copan.

I owe a special debt of gratitude to Meli Diamanti for her assistance in getting copies of the Copan Project's computerized artifact databank created at the Pennsylvania State University and in resolving various problems connected with the use of the databank. In addition, her always prompt and cheerful response to my constant requests for maps, drawings, information, etc. as well as her advice have been of inestimable help in the completion of this thesis.

Finally, I acknowledge with gratitude and affection the innumerable ways in which my parents, Rufus S. and Jane B. Hendon, have helped me throughout my studies and the writing of this dissertation. My father provided concrete assistance in the form of a variety of computer programs, editorial advice, and intellectual discussion. Furthermore, their support in all matters has been constant, prompt, and sincere.

## CHAPTER 1

### APPROACHES TO THE QUESTION OF STRUCTURE USE IN MAYA STUDIES

This dissertation deals with the question of how the activities that took place in buildings and other kinds of structures can be identified on the basis of information recovered by excavation — the question, in other words, of how to determine *structure use* or *function*. The study concentrates on the Maya site of Copan, and uses as its data the results of the excavation of one section of the valley-wide settlement system known as the Sepulturas zone.

### THE OBJECTIVE OF THIS DISSERTATION

The objective is to analyze the entire corpus of relevant information on architecture and artifacts in order to identify the kinds of activities that were carried out at Sepulturas and to establish the uses of structures revealed by the distribution of artifacts. Although a more precise understanding of what buildings were used for can lead to inferences about social organization, including differences in wealth, status, and power, it must be emphasized that this dissertation focuses on the determination of structure use rather than questions of social organization. I hope that it will demonstrate the feasibility of analyzing large masses of archaeological data and the usefulness of the particular techniques I have employed to investigate and interpret the distribution of architectural features and artifacts.

In this chapter I will first summarize the current view of the nature of Late Classic Maya society, with particular reference to the questions of residence pattern and social organization. This will be followed by a review of previous research on the problem of determining structure use, with special attention to settlement pattern studies and the excavations of the Mayapan and Tikal projects. In the final section, I will discuss in an introductory way the approach to this problem taken in this study.

#### THE CURRENT VIEW OF THE NATURE OF LATE CLASSIC MAYA SOCIETY

Concomitant with the increasing emphasis on the reconstruction of ancient behavior and the cultural systems framing that behavior (Binford 1962, 1965, 1983a; Dunnell 1986; Hammond 1983) have been advances in hieroglyphic interpretation and a greatly enlarged corpus of both settlement survey and site excavation data. These together have brought about a major revision of many accepted views on ancient Maya socio-political, economic, and religious organization (Becker 1971, 1979; Willey 1981, 1984; Willey and Shimikin 1973; Sabloff 1985; Coe and Haviland 1982; Sanders 1981b). In brief, the model of a relatively small, dispersed population of swidden agriculturalists ruled by an even smaller group of pacific priests devoted primarily to religious rather than political activities carried out in ceremonial centers with few permanent residents has been gradually but completely replaced in the last two decades. Sufficient evidence on population size, environmental exploitation, interregional trade, intersite conflict, economic specialization, and the nature of the ruling elite has accumulated from



archaeological and epigraphic sources to effect this replacement (Schele and Miller 1986; Kelley 1962b; Netting 1977; Turner 1978; Sanders 1977; Kurjack 1974; Becker 1983; Hammond 1983; Webster 1977; Rathje 1977; Willey 1981; Tourtellot and Sabloff 1972).

To some degree, this model of the Maya as a hierarchically organized, populous society based on a combination of intensive agricultural production, some economic diversification, and interregional conflict and exchange, supported by an underlying religious validation (Adams and Culbert 1977:4-6; Willey 1982), is neither completely new nor based solely on new data. Earlier archaeological work (e.g. Merwin and Vaillant 1932; Tozzer 1911; E. Thompson 1892; Ricketson and Ricketson 1937) and many of the ethnohistoric investigations of Postclassic to postconquest Yucatan (Chamberlain 1948; Roys 1943) presaged the current shift (cf. Marcus 1983 for a somewhat more critical interpretation). It is also true that the importance of these various factors to the development, maintenance, and destruction of Late Classic Maya society as well as the degree of structural complexity achieved by the society itself are still subject to debate (Adams and Culbert 1977:17-22; Webster 1985; Sanders 1973; Webb 1973; Willey 1986a).

It has been suggested above that the degree of social ranking will be important to a study of residence patterns and social organization. The Late Classic Maya, for instance, are believed to have had a society marked by distinctions in social rank (Sabloff 1985; Hammond 1982; Morley et al. 1983; Adams and Smith 1981). The degree of ranking has been the subject of some debate over the years (Webster 1985; Sanders 1973:343-346) although its existence has not. This is one area where the modern situation is of limited usefulness as a source of analogy.

The modern cargo system, in which ritual positions are held for a specific term, are rotated among a group of people, and leave the incumbent impoverished, has been proposed as a model of Late Classic ceremonial and social organization (Vogt 1961, 1983; Willey 1956a; Bunzel 1952; Sanders 1973:346-347). However, the modern Maya are more comparable to only one segment of Late Classic society, that of the non-elite (Gifford 1978). The Spanish Conquest and subsequent events have effectively destroyed the elite part. Furthermore, how could this type of organization be reconciled with the complex calendrical system, the great variety in burial style and contents, and the elaborateness of the art style and architecture of the large sites, all of which point to a strong differentiation between rulers and ruled (Gifford 1978)? This is further supported by the diversity of political and religious roles in Postclassic and Conquest-period Yucatan and Highland Guatemala (Tozzer 1941; Chamberlain 1948; Roys 1943; Farriss 1984; Carmack 1981; Haviland 1968; Edmonson 1981). More general models of social organization and development of hierarchies are also in conflict with the modern Maya model (Sanders 1981a). Finally, the interpretation of hieroglyphic inscriptions from a number of sites has demonstrated that at least the highest political office was restricted to members of specific lineages and passed on from one generation to the next (Proskouriakoff 1960, 1963, 1964; Kelley 1962a; Houston and Mathews 1985; Mathews 1980; Jones 1977; Lounsbury 1974). The exact system of inheritance is not completely understood as yet although it is clearly related people who inherit. New interpretations presented by Fox and Justeson (1986) based on the texts at Piedras Negras suggest that the right of succession was based in part on the mother's patriline, indicating a more bilateral

system. They also suggest that a more strictly patrilineal system may have prevailed in the lower ranks of the society (see also Edmonson 1981; Eggan 1934).

#### PREVIOUS RESEARCH ON SETTLEMENT PATTERN AND STRUCTURE USE

The use of structures and the nature of sites are such obviously fundamental questions that they have been discussed since the earliest investigations into the archaeology of the Maya area (E. Thompson 1892; Gordon 1896; Hewett 1912). From the beginning, the problem of how to determine what structures were used for was also recognized. The criteria of size, design, associated artifacts of interpretable function, the presence of burials or caches, and possible similarity to modern or historic structures were variously employed (E. Thompson 1892; Wauchope 1934, 1938; Satterthwaite 1937; Haviland 1968, 1985; Coe 1965a). Also used were depictions of buildings or scenes of daily life in the form of graffiti, murals, painted ceramic vessels, or figurines (Wauchope 1977). Changing conceptions of Maya society, however, also influenced interpretation since the amount of work actually done on this problem was limited in quantity and the resulting data often ambiguous (Pollock 1954). Several earlier scholars, relying in part on Conquest-period accounts, conceived of the Maya sites as essentially urban settlements with both residences and public buildings (Tozzer 1911; Spinden 1913; Merwin and Vaillant 1932). Later, the concept of the empty ceremonial center became widely accepted (J. Thompson 1954a; Vogt 1964; Pollock 1965; Becker 1979), and as a result structures previously interpreted as residences were now seen as administrative buildings of

unspecified use or having some purpose connected with the ceremonial function of the site.

### Settlement Pattern Studies

Since the introduction of settlement pattern studies to the Maya area some three decades ago (Willey et al. 1965), large-scale mapping of mounds has furnished a wealth of new insights into the organization and extent of Maya settlement (Kurjack 1974; Ashmore 1981a; Haviland 1963; Leventhal 1979). Integral to these studies has been a consideration of function and social organization (Bullard 1964; Tourtellot 1983b; Fash 1983b; Ashmore and Willey 1981). The perception that previous studies of Maya sites had been marked by too great an emphasis on the large ceremonial centers resulted in a focus on house mounds and their distribution across the landscape (Willey 1956b:108; Ashmore 1981b; Leventhal 1979). House mounds were seen as the remnants of the dwellings of the non-elite segment of the population, a segment necessarily much larger than that of the elite. The few early excavations and ethnographic work on these structures and their modern counterparts suggested this interpretation (Wauchope 1934, 1938, 1977; Ricketson and Ricketson 1937). The advent of surveys added the "principle of abundance", first made explicit by Bullard (1960), to the existing evidence supporting the equation of house mounds with non-elite residences (Haviland 1985:98; Leventhal 1979). Associated excavations have essentially confirmed this (Willey and Bullard 1965; J. Thompson 1939, 1940; Willey et al. 1965; Haviland 1963; A. Smith 1962; Kurjack 1974). They have also revealed a certain amount of functional specificity to the structures, suggested

originally by modern analogy, which should preclude interpreting all mapped house mounds as residences *sensu stricto* (Haviland 1985; Tourtellot 1983a; Wauchope 1934). Since there is no one-to-one relationship between number of mounds and number of structures used for sleeping, the total number of mounds cannot be considered exactly congruent to the size of the population.

At the same time, the survey data have been especially suited to consideration of large-scale patterns of settlement distribution. The spatial organization of mounds in clusters of increasingly larger size and complexity and their relationship to the "ceremonial centers" have been established throughout the Maya Lowlands (Willey and Bullard 1965; Bullard 1964; Hammond 1975). This organization has in turn been interpreted, in light of modern spatial patterning (Vogt 1964; Leventhal 1981; Fash 1983b; Bullard 1964), as reflecting a hierarchy of units based in part on kinship (extended family, lineage group) and in part on other kinds of social structures (patron-client, community) (Ashmore 1981b; Sanders 1973).

Related to, and in part the cause of, the growth in survey and settlement pattern studies, has been the emphasis on "small structures" (Haviland 1963; Leventhal 1979). The early focus on the large sites, or major centers, was succeeded by a reaction against concentrating solely on the monumental architecture and impressive sculptural remains. If, as was the accepted model within which these studies were first carried out, the centers were primarily loci of religious and administrative activities with a very small resident population, then their study would fail to elucidate most aspects of Maya societal organization. It was necessary to examine "the peasant segment of society, represented

archaeologically by modest ruin mounds of domestic houses" (Willey and Bullard 1965:360). If, however, as postulated under the empty ceremonial model, there was a rural-dwelling elite (Willey and Bullard 1965:29-30), the twin problems of where their residences were and how to recognize them do not seem to have been considered to any great extent. Bullard (1960:360), for example, suggested, very tentatively, that some structures in the minor ceremonial centers might have been residences. He also noted:

It is reasonable to suppose that Major Ceremonial Centers had cadres of priests, administrators, and others. It seems probable that these lived in the often enormous palace-type buildings which are usual features of the Major Centers.... But it also seems probable that many of the Maya leaders lived scattered among the rest of the population... [Bullard 1960:369]

This same problem exists even after modification of the dominant model of the nature of Maya sites. In fact, once the emptiness of the centers, the degree of dispersion of the population, and the number of people have been seriously called into question by the settlement pattern studies, it becomes even more important to consider the nature of elite residential patterns and how to discover them.

#### **Classification of Structures and the Question of "Palaces"**

This leads directly into a consideration of the kinds of structures found at these centers and their inferred functions. In his summary article for the *Handbook of Middle American Indians*, Pollock (1965) dealt with what he considered to be the religious and civic/ceremonial architecture in contradistinction to the domestic architecture and settlement discussed by Willey and Bullard (1965). He

listed the following kinds of structures as found in ceremonial centers: temples, shrines, palaces, ballcourts, sweat houses, and ceremonial platforms. Special burial structures were also mentioned, but these were found inside other structures. A final category, oratory, was confined to the Postclassic Period. Temples and shrines were interpreted as dedicated to the celebration of rituals of varying kinds. The identification of their function was primarily based on their limited interior space and "exalted locations" (Pollock 1965:409).

Of most concern to this study, since the label could be applied to most of the structures from Sepulturas to be discussed<sup>1</sup>, is the category of palace. As Pollock made clear, there was no real consensus on either the form or the function of palaces:

The term is used primarily for multiroomed structures that most often rest on relatively low substructures..., but it has tended to be a catch-all designation for buildings that fit into no other class [Pollock 1965:411].

Although originally intended to indicate "that such structures were residences of the priests and nobility" (Pollock 1965:411), the term was applied to other structures lacking evidence of habitation.

The changing views of palace structures have been thoroughly reviewed by Harrison (1970:203-227), who shows that there was an initial assumption of use as elite residences (e.g. Tozzer 1911; Spinden 1913; A. Smith 1950) in light of Spanish references to *palacios* in which the nobles in Yucatan lived. This was followed by a gradual but almost

---

<sup>1</sup> In a recent paper listing a series of "Maya" and "non-Maya" traits at Copan, Leventhal et al. (1982) cite the rarity of palace structures as one of the non-Maya characteristics of the area. Nevertheless, the majority of the structures studied in the following chapters from the Sepulturas Zone conform, in my opinion, to Pollock's definition as given above even if they are not actually identical with Peten palaces.

complete shift away from this idea based on the lack of any clear-cut evidence in its favor and the perception that the rooms were uncomfortable (J. Thompson 1954a). More recently, a more mixed interpretation has prevailed, according to which some such structures perhaps were residences while others were not (see also A. Smith 1982:229-232). In short, the term subsumes such formal and, probably, functional variety as to have limited effectiveness as a designation for a type of Maya structure, although it has continued in use. The term "range-type structure" introduced by Coe has the advantage of less confusing associations (Harrison 1970:204).

#### The Analysis of Palaces on the Basis of Large-Scale Excavation

It is clear that the problem of identifying structure use on the basis of form cannot be definitively resolved except through large-scale excavation. The most extensive excavations of palace-type structures to date have been conducted by the University of Pennsylvania at Tikal and, but to a much lesser extent, by the Carnegie Institution of Washington at Mayapan. Detailed architectural study of several such structures at Uaxactun has also been made (A. Smith 1950). Since work at Mayapan preceded that at Tikal, it will be discussed first.

##### *Mayapan*

The Mayapan project was intended to study questions about the chronology of the period, the presence or influence of non-Maya peoples, and the organization of Late Postclassic society. The availability of written accounts of the city and the people by Landa and others was seen as providing a rare opportunity to integrate textual and archaeological



data (Pollock 1962). Both mapping and excavation were seen as critical to estimating population, studying distribution of structures, and identifying differences in wealth or status (Pollock 1954:263-264).

A great number of structures was indeed excavated (cf. Pollock, ed. 1952-1954; Pollock, ed. 1954-1957) and discussed in two reports, one on the religious structures (Proskouriakoff 1962b) and the other on the residential buildings (A. Smith 1962). The distribution of some of the pottery sherds and their relationship to various structures were discussed separately (R. Smith 1971).

The main justification for the assignment of a structure to a domestic or ritual category was its resemblance to the kinds of buildings described by Landa and other Colonial-period chroniclers (A. Smith 1962:169-171, 179-184). The identification of most of the visible structures as dwellings occurred prior to excavation on the basis of an examination of the survey map and some surface artifacts (cf. Jones 1952:5). "In general these dwellings follow closely Landa's description of house construction in Yucatan" (Ruppert and Smith 1951:231). Most of the structures mapped were small with only a few rooms and were seen as lower-class houses. Roughly fifty, however, being larger, better constructed, and nearer the center of the city and having more rooms, columns, and beam and mortar roofs, were interpreted as elite residences (A. Smith 1962:218-219; see also J. Thompson 1954b; Thompson and Thompson 1955; Proskouriakoff and Temple 1955). Features common to both elite and non-elite houses were benches, dedicatory caches, and simple burials below room or courtyard floors. The entire project appears to have accepted quite uncritically the functional interpretations based on

Landa prior to conducting and interpreting the excavations. These documentary data are used to identify the meaning of the architectural features and associated artifacts (cf. Pollock, ed. 1952-1954, 1954-1957). There is thus no real test of the written evidence (Harrison 1970:212).

A study of the proportional distribution of certain functional classes of ceramics by Robert Smith (1971) was carried out independently of the earlier architecture analysis. Two large classes were created, utilitarian and ceremonial, each containing a variety of vessel forms. These two large groupings were assumed to reflect different activity sets and functions. The utilitarian pottery was also divided into bowls versus jars, believed to indicate a somewhat different range of activities (R. Smith 1971:103-105). The different structure types based on architecture, such as kitchens, ordinary houses, elite houses, oratories, shrines, colonnaded halls, and temples (see Proskouriakoff 1962b; A. Smith 1962) were compared on the basis of their proportions of utilitarian and ceremonial sherds and of jars and bowls. Assemblages from kitchens and dwellings were predominantly utilitarian while those from colonnaded halls and temples were mainly ceremonial. The material from shrines and oratories was less congruent with the established interpretation (R. Smith 1971:107-109).

The context of the deposits from which the sherds came is not clear. R. Smith (1971:106) states that the comparisons used the material from "surface collections immediately involved with a certain building or special room.... It would have been interesting to distinguish the fall from material resting on the floor of a room or

platform at the time of collapse, but this separation was rarely made." Middens were also not included although they did exist.

### *Tikal*

Despite acceptance of the conclusions assigning residential functions to large and small Mayapan structures reached on the basis of the architectural (A. Smith 1962) and ceramic (R. Smith 1971) analyses in light of Landa's accounts, there was a certain reluctance to apply these results to the bulk of Lowland Maya sites because of the Late Post-classic date of Mayapan and the possibility of a Mexican-influenced settlement pattern and social structure (Pollock 1962:15-17; Willey 1956b:109). For this reason, the results of the Tikal Project's excavations are of special significance.

As part of the program of small-structure excavations carried out around the monumental center of Tikal (Coe and Haviland 1982:26), several small (although not equally so) "palaces" or range-type structures were investigated. The formal characteristics of these buildings vary but may include partially or fully masonry walls, vaulted roofs, multiple rooms arranged along the length of the substructure, and interior platforms — i.e. benches (Haviland 1963:272-273). Such benches have been used as prime indicators of residence at many sites (Becker 1971:186; Adams 1974). Both structures described in detail in Haviland's dissertation, Str 4E-16 and Str 4E-50, were identified as probable residences of elite families on the basis of the presence of associated debris, albeit in small amounts, containing utilitarian artifacts around the structures and, in one case, inside a room, as well as

by the lack of center-line burials or dedicatory caches (Haviland 1963:493-494)<sup>2</sup>.

A more recent study focuses explicitly on what would be termed, in Bullard's (1960) classification, a minor ceremonial center (Haviland 1981:90). Group 7F-1, lying 1.25 km from the Great Plaza, contains a number of structures. Two of them are small vaulted "palaces" — 7F-29 and 7F-32. The excavated data used to identify them as residences include their size, floor plan, lack of ceremonial deposits, and the association of midden-like deposits made up mostly of utilitarian artifacts. The only burial found was unelaborate (Haviland 1981:table 5.1). Other structures appear to be residences as well but of less elaborate construction. The difference in construction of the same type of structure in the same group is interpreted as indicative of the presence of lower-rank retainers or servants unrelated to the elite occupants of Strs 7F-20 and 7F-32 (Haviland 1981:101). These excavations, however, did not clear all of the buildings and little interpretation of artifact patterning has been offered.

Another type of structure discussed by Haviland (1963, 1981) and more fully by Becker (1971) will be mentioned briefly here. These are religious buildings or temples. The identification of this sort of structure at Tikal was based primarily on the high substructures, the arrangement of rooms, and the presence of caches and burials generally along the center axis (Becker 1971:176). Such structures are sometimes built on the east side of a patio, the remaining sides of which usually contain range-type structures assumed to be residences. This layout has

---

<sup>2</sup> Note, however, that the Mayapan dwellings did have caches (A. Smith 1962).

been called Plaza Plan 2 (1971:177-182). Another possible religious form is a range-type structure with one long room lacking an interior bench. These do not necessarily occupy the east side of the plaza (1971:183).

One set of large palaces in the center itself, bordering on the Great Plaza, was studied by Harrison (1968, 1970). These are very large multiroomed, often two-storied vaulted structures constructed around a series of courtyards. The entire complex is labeled the Central Acropolis. The amount of excavation done coupled with a fair degree of preservation allowed a comprehensive study of architectural traits and their possible bearing on function. The presence and location of curtain holders, sub-spring beam holes, and benches indicated to Harrison the segregation both of rooms and of benches within rooms, suggesting a desire for privacy and the possible use of the benches as beds (Harrison 1970:172-177). There was little in the way of associated Late Classic artifact deposits with the exception of one midden. It contained manos and metates, cooking and storage vessels, and other artifacts which relate to food preparation (1970:245). The conclusion he reached is that at least some of the structures, specifically those with rooms arranged perpendicularly to one another (tandem/transverse), were residences used for sleeping. Str 5D-131, associated with the midden, may have been a kitchen area for the group as a whole (1970:250-253). The general lack of associated artifacts severely limits the kinds of inferences possible.

A residential function has also been suggested for another group of large palace-like structures, Group 5E-11, although the details supporting the interpretation are not given (Orrego and Larios

1983:238). It may well be that analogy to the Central Acropolis is the main determinant.

*Comments on Results of the Mayapan and Tikal Projects*

From the foregoing discussion it is evident that those palaces subjected to study at Mayapan and Tikal have been assigned, in the main, a residential function (Haviland 1963:17-18, 1982:427). This does not preclude the possibility of other uses for other similarly labeled structures at the same sites (Ford and Arnold 1982:437). Studies from both sites are not without problems. The Central Acropolis structures largely lacked an associated artifact sample to provide additional information on function. The palaces away from the center did have such material, although complete analysis of it has not yet been published. Not all structures discussed by Haviland were completely excavated and it is possible that some details of size and form have been missed. The Mayapan Project apparently recovered a great deal of artifactual material but the kinds of contexts represented are unclear. Furthermore, the written descriptions of the site were used as the primary indicator of function without, apparently, much testing of the identifications so provided. Despite these drawbacks, it is clear that a residential function should not be rejected out of hand for multiroomed structures on low platforms of varying degrees of architectural complexity.

**THE APPROACH USED IN THIS STUDY**

The work of these investigators and others cited earlier has yielded important information supporting a residential function for many

of the house mounds and indicating that the palace structures had a more varied functional range than had previously been supposed. However, none of these studies goes very far in utilizing archaeological data to arrive at a specific determination of the various kinds of activities carried out in a structure. Two principal factors appear to have impeded research to date. The first is a tendency to forget that, necessary as a model of structure function and Maya social organization is as a source of hypotheses, such hypotheses have no a priori validity, but must be tested by confrontation with archaeological data. The second factor hampering research has been the lack of a large enough body of artifactual data.

From the review of previous work it is apparent that the aim has generally been to show that particular sites or structures fall into one of a set of very broad categories of use, such as "residential", "ceremonial", or "administrative" (cf. Harrison 1970; Leventhal 1979; Ashmore 1981a). In the determination of the classification of a structure, the emphasis has typically been on architectural characteristics. When artifacts have been taken into account, consideration has largely been confined to certain kinds of easily recovered artifacts with what were felt to be self-evident functions, either utilitarian as in the case of manos and metates (cf. E. Thompson 1892) or ceremonial as in the case of stone "altars" (cf. Satterthwaite 1937). One result of this focus on a very general characterization of the functions of structures has been that the occurrence of specific kinds of activities in a given structure tends to be inferred from the label given to the structure rather than demonstrated on the basis of the evidence of architecture and artifacts.

In contrast, the point of view taken here is that an analysis of the function of Maya buildings must focus on the identification of the specific activities actually carried out in them (Haviland 1985). Of necessity such an analysis cannot be based solely on the form or distribution of the structures themselves but must also, and primarily, concentrate on an adequate collection of associated artifacts.

For the Sepulturas settlement a large database is available which incorporates a wealth of architectural and artifactual information on the excavated structures. My investigation differs from previous studies in the comprehensiveness of its utilization of the available data. I have used *all* artifacts from primary contexts whether in situ or redeposited. The study concentrates on comparison of the contents of these deposits. Both the kinds of artifacts found and their spatial distribution in and around structures will be considered.

In many of the studies discussed above the presence of a midden adjacent to a structure was interpreted as evidence that the structure was a residence. Fewer attempts have been made to assess the contents of these deposits. I am interested in using in situ and redeposited material more completely to indicate what took place in and around the associated domestic structure. Analysis of redeposited material is of course complicated by possible differences in the length of time over which the midden accumulated (Tourtellot 1983b). To avoid this problem to the extent possible, I have restricted my use of midden material to that associated with the final phase of the structure. Another problem is that sometimes the location of a midden makes it difficult to be sure of its association with a particular structure. This is not so serious



at Sepulturas because in almost all cases the middens found were immediately adjacent to only one structure. For this reason it seems reasonable to suppose that the refuse in the midden originated from that structure. In any case, I use the in situ primary deposits as the primary indicator of activities and the middens only for secondary confirmation.

I also place less reliance on the presence of burials and caches as determinants of function. Deposits of these kinds will be mentioned whenever they appear to provide pertinent information, but I view them as in general more relevant to a study of social organization than to one of activity distribution. Furthermore, because burials and caches have been used to classify some buildings as houses but other buildings as temples (Becker 1971; Haviland 1985; A. Smith 1962; Willey and Leventhal 1979), their presence, in the absence of other evidence, cannot be taken as a sure indicator of structure use.

Although the analysis of architectural traits and artifact types can lead to inferences about many different aspects of ancient society, two have most commonly been addressed. One, the focus here, is the study of activity distribution and the determination of structure use. The second is the identification of social hierarchy. It has been shown cross-culturally that status, power, and wealth are often expressed in certain elements of architectural form, construction, and decoration (Haviland 1981; Netting 1982; Wilk and Rathje 1982). One problem encountered in previous work on structures at Copan and other Maya sites is the failure to distinguish between those traits or lines of evidence relating to differences in use and those relating to differences in status. This failure is more serious when dealing with socially diverse

residential areas, since certain basic activities (food preparation, sleeping) and kinds of structures will probably occur at all levels of the social hierarchy.

On the basis of settlement pattern research and the kind of model of Maya society outlined above, the Sepulturas area has been considered by a number of researchers to be a residential area inhabited mainly by members of the upper echelon of Copan society (Leventhal 1979; Fash 1983a; Willey and Leventhal 1979; Leventhal et al. 1982; Sanders 1981b, 1986; Fash et al. 1981). Taking this as a reasonable hypothesis as to the nature of the Sepulturas settlement, I have paid special attention to determining the extent to which this assumption can be supported by the artifact distribution data. This has entailed deciding what kinds of activities constitute valid evidence for a residential function. In most general terms, residential as a category of settlement implies the household, defined by Wilk and Rathje (1982:618) as follows:

...the most common social component of subsistence, the smallest and most abundant activity group. This household is composed of three elements: (1) *social*: the demographic unit, including the number and relationships of the members; (2) *material*: the dwelling, activity areas, and possessions; and (3) *behavioral*: the activities it performs.

As they make clear, although the social and behavioral aspects of the household are of most interest in the reconstruction of ancient society, only the material remains survive to be excavated. These must then be interpreted to identify the behavioral and social components.

The ability to identify activities will, however, depend on the nature of the activities themselves and their resulting material-cultural correlates (Binford 1962). Related to this are the problems of preservation and subsequent modifications of deposits, and the fact that

"the archaeological record represents a massive palimpsest of derivatives from many separate episodes" (Binford 1983a:231; cf. also Schiffer 1976, 1985; Cowgill 1970; Clarke 1978). Also of importance is that the research design and methodology used be suited to recovery and analysis of the data relevant to the identification of function (Dunnell 1970, 1971; Carr 1984; Cowgill 1986). Furthermore, discussion of social organization based on a set of structures and associated artifacts will be constrained not only by the segment of the settlement system studied but also by the relationship between the kind of organization present and its expression in that system (Ashmore 1981b).

For the purposes of testing the hypothesis outlined above I have concentrated on six groups of activities which can be considered to be good indicators of residential occupation. These groups are not intended to be exhaustive but to serve as a heuristic way to organize the archaeological data, especially the artifacts, into larger activity units. They are also tailored to the realities of ancient Maya technology and the environmental conditions of the study area, the Copan Valley. Five of the groups can be considered "active" in that they involve people producing or using something. The sixth group is "passive" in that no direct human involvement is necessary to define the "activity".

(1) The first activity, sleeping, is the only one that does not necessarily involve any artifacts. More precisely, it may not involve any artifacts likely to be preserved given the environmental conditions of the Copan area. Thus, although sleeping can be considered one of the prime identifiers of residential function (Satterthwaite 1937), it is also one of the most difficult activities to establish directly. Adams

(1970) has argued that most of the benches, which are platforms built into many of the rooms found in Maya sites, served, at least part of the time, as beds. Although largely based on inferences, the various lines of evidence he considers do present a strong case for this interpretation. Since benches occur in a number of the rooms excavated in Sepulturas, this interpretation will be of importance to my study.

(2) The second group of activities is made up of those connected with food preparation. This subsumes such related activities as butchering, maize grinding, other kinds of processing, and cooking. An ancillary aspect is the necessity of holding food before, during, and after cooking.

(3) The third group encompasses food consumption and serving. Although both this and the previous group involve food-related activities, preparation and serving/consumption can take place in separate locations and/or involve a distinct set of utensils.

(4) The fourth group relates to production — the manufacture of items, utilitarian or not. Stone tools, cloth and clothing, leather goods, pots, and jewelry are examples of possible products. Of the many discussions of specialized production presented for the Late Classic Maya (Adams 1970; Becker 1973; Fry 1979; Shafer and Hester 1983; Spink 1983; Mallory 1981; Beaudry 1984; Sabloff et al. 1982; Hammond 1981), many have focused more on resource acquisition or item distribution than on manufacture itself. Those that have claimed to identify the location of manufacturing activity have relied mainly on inferential evidence. For manufacture to be distinguishable from use requires that there be a certain level of production and complexity of organization that are reflected in the archaeological deposits. Thus a residential area may

or may not have been the site of production depending on the degree of economic differentiation present in the society.

(5) The fifth group comprises activities related to ritual observances. Once again the kind of organization present in the society will affect the distribution of this activity. It has been included here because the corporate nature of the household or residential group often extends to ritual beliefs and practices. The belief system and the nature of the religious organization dictate whether or not ritual activity is found at the household level or in residential areas. If such activities involve specialized artifacts or structures, their distribution may be of use in their identification.

(6) The final group, which is "passive", is storage. It is called a passive activity because it can occur or be present without requiring constant human involvement. Storage is often divided into various types based on the length of time or the kinds of items stored. It is also possible that utensils or tools used in food production or serving, ritual observances, production of goods, or other kinds of activities would be stored. Their presence still indicates the potential for that activity, however. Distinguishing between the storage and the use of such items will depend primarily on contextual associations.

These groups of activities, especially two through six, will be emphasized in my analysis because some of their material-cultural correlates are likely to be preserved at Copan and their social-behavioral ones can be delimited with the aid of ethnographic studies. Wilk and Rathje (1982:619) state that this sort of study "must be the source of inferences about causes of household variation in past societies."

Studies of present-day Maya groups and writings

from the Conquest period provide a rich source of information on which such inferences can be based (these sources are reviewed among others by Haviland [1963, 1985:98-101] and A. Smith [1962]). Certain types of evidence, based on analogy with the modern and historic Maya, have emerged as of importance to the identification of residential structures or areas. Satterthwaite (1937) early on emphasized the activities of eating (subsuming in reality a cluster of related activities — preparation, serving, cooking, etc.) and sleeping as two basic identifiers of Maya residences. Both of these are primary behavioral components of modern Maya households which are also related to the social organization of the resident group.

Chapter 2 provides information on the area in which the excavations took place, the Copan Valley. Since the structures discussed form part of a much larger settlement system, I have tried to characterize both the environmental and cultural features of this system, concentrating on those elements deemed most important to my topic. Because Copan has long been a focus of research, some of which pertains directly to my analysis, I have also reviewed earlier efforts and summarized the traditional model of Copan cultural development.

The nature of the database used here is discussed in Chapter 3. Some of the problems inherent in the interpretation of artifact distribution patterns as reflections of activities will be covered along with measures I have taken to control or mitigate them. Chapter 3 serves as an introduction to the descriptive and analytical sections, Chapters 4-6, which consider the architectural and artifact distribution patterns and the kinds of activities they imply. The final chapter, 7, uses the results of the distributional analysis as the basis for a more general

discussion of structure use and certain aspects of the organization of the resident society.

## CHAPTER 2

### THE PHYSICAL AND CULTURAL SETTING

This chapter will review certain information on the location, environment, and cultural sequence of the Copan Valley. The temporal framework and certain characteristics of the settlement system in the Late and Terminal Classic will be discussed. This material, although not directly related to my specific topic, serves as an introduction to Copan.

The site of Copan — specifically the civic/ceremonial center, hereafter referred to as the Main Group — has long been of interest to Maya scholars. This interest owes much to the presence of certain distinctively Classic Maya characteristics, most notably the hieroglyphic writing system, calendar, and iconography, at some physical remove from the center of Classic Maya development and florescence, the Southern Maya Lowlands. In fact Copan represents the farthest extent of the cluster of traits used to define the Maya Lowlands as a separate culture area. Research on Copan therefore has focused to a great extent on this question of the Maya "frontier" and on Copan's role as a frontier outpost. This research has emphasized four basic questions: 1) the reasons for a Maya settlement at such a remove, 2) the nature of the interaction between Maya Copan and its non-Maya neighbors in Honduras and El Salvador, 3) the degree and kind of contact maintained between Copan and other parts of the Maya area, especially the closest major site, Quirigua, and 4) the ethnic or linguistic composition of the Copan Valley population itself — was it all Maya or was there a substratum of



indigenous non-Maya, possibly Lenca, speakers conquered in the Early Classic Period by immigrating Maya elite?

However, despite a long-standing perception of Copan as a major Maya site important for its inscriptions, apparent sociopolitical complexity, and location, the first steps towards a detailed reconstruction of the specifics of the settlement system through time and space were not taken until the 1970's. Thus, despite the fact that field work dates back to the previous century many questions remain about the length of occupation, the nature of contacts with other areas, and the kind and complexity of sociopolitical organization. The recent work in the Copan Valley, building on the earlier excavations, coupled with the upsurge in research in other parts of Honduras hitherto ignored or surveyed in only the most cursory manner (see Glass 1966; Strong 1963), has the potential to address these questions in great detail. In this chapter I will review the earlier projects that have worked in the valley to show what sorts of information was obtained. The chapter concludes with a brief characterization of the traditional model of Copan occupation and development.

#### PHYSICAL SETTING

The modern Republic of Honduras is located between Guatemala to the west, El Salvador to the southwest, and Nicaragua to the south and east (Figure 2.1). It is oriented with its greatest length east to west. A long coastline is found on the north bordering the Caribbean Ocean. In contrast, only a very small area borders on the Pacific Ocean at the Gulf of Fonseca between El Salvador and Nicaragua. Most of the



Figure 2.1: Map of the Modern Nations of Central America

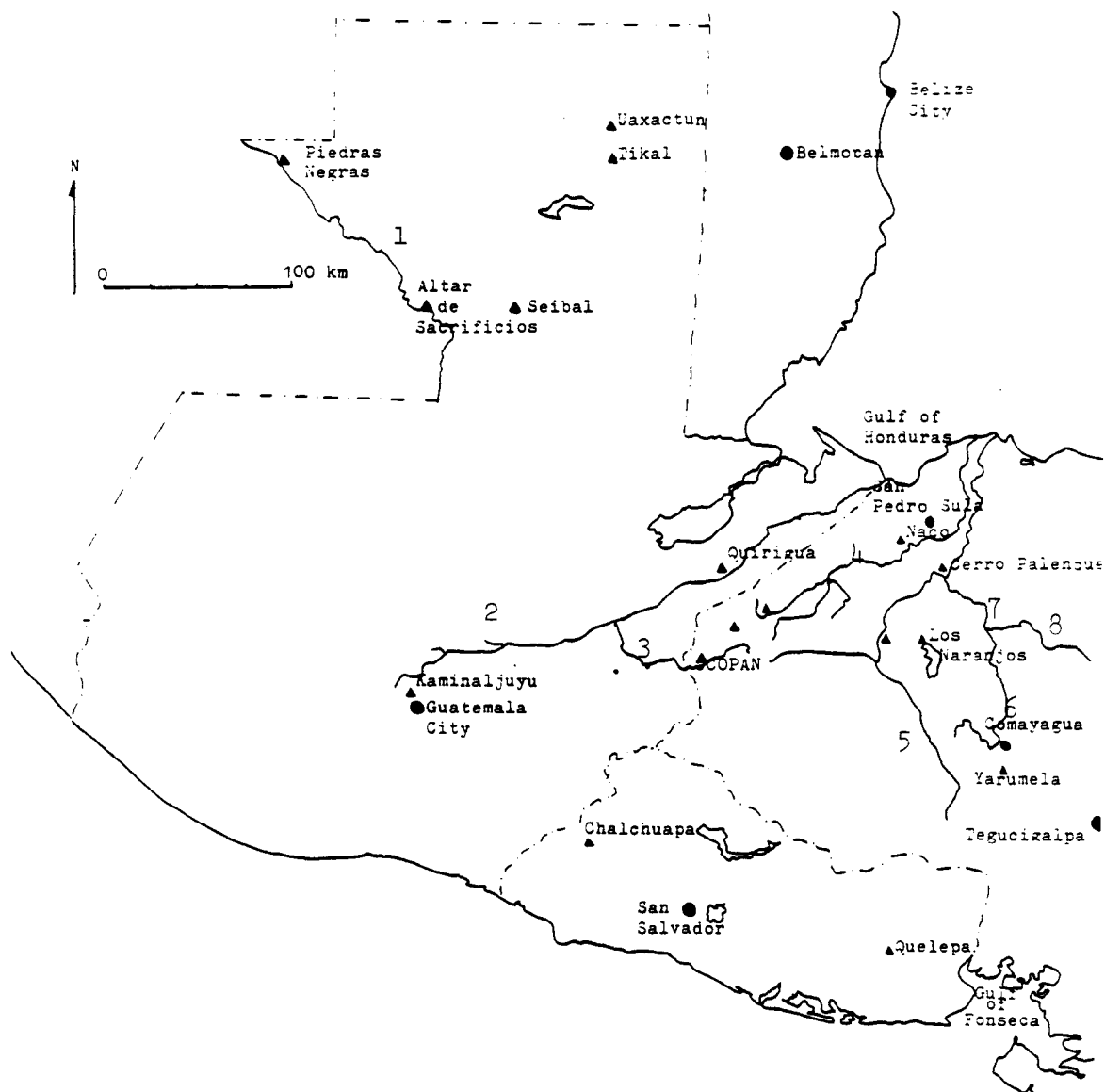
country is traversed by a series of mountain ranges which are intercut by river valleys of varying widths at elevations ranging from 300-900 meters. These valleys have been major foci of settlement. Most of the major rivers flow out of the mountainous interior along the northern coastal plain, resulting in fertile soil conditions (Healy 1984:113-115).

In a recent review, Healy (1984) has defined six regions which have distinctive archaeological and geographic characteristics. (Other summaries include Glass 1966 and Strong 1963.) The Far West region consists essentially of the Copan Valley and immediately surrounding areas in the departments of Copan and Santa Barbara, including the upper reaches of the Chamelecon River. The Lake Yojoa region is centered on the lake of that name located some 140 km due west of Copan<sup>1</sup>. The main site is Los Naranjos (Baudéz and Becquelin 1973). (See Figure 2.2 for the location of sites and geographic features discussed here.)

Between these two regions and continuing north of Lake Yojoa lies the Ulua-Chamelecon-Sula region, which includes the valleys of the Ulua and, further west, Chamelecon Rivers. These rivers flow north out of the mountains of the western and central parts of the country, eventually emerging into the coastal plain. The broad, extremely fertile zone formed here is the Sula Plain. Included in this region are the Naco, Santa Barbara, and Ulua Valleys, all of which had substantial pre-Hispanic populations. In reality, it would be better to subdivide this region into 1) the lower Chamelecon including the Naco Valley and eastward to the upper section of the Ulua River and Santa Barbara Valley

---

<sup>1</sup> As the crow flies. It is considerably longer by road.



#### RIVER NAMES

- |                |               |
|----------------|---------------|
| 1 - Usumacinta | 5 - Ulua      |
| 2 - Motagua    | 6 - Humuya    |
| 3 - Copan      | 7 - Comayagua |
| 4 - Chamelecon | 8 - Sulaco    |

Figure 2.2: Map Showing Major Sites and Rivers Mentioned in Text

and 2) the lower Ulua, especially past its confluence with the Comayagua River, and the Sula Plain. These two areas differ in terms of ceramic spheres, settlement, external ties, and possibly linguistics (Joyce 1985). Recent archaeological work in Subarea 1 has been carried out in the Naco Valley (Henderson et al. 1979; Urban 1986), where the major Late Classic site is La Sierra, and in the Santa Barbara region (Ashmore et al. 1984; Schortman et al. 1986), which is dominated by the site of Gualjoquito. The Proyecto Arqueológico Valle de Sula has focused on Subarea 2, conducting survey and excavations in the Ulua Valley (Joyce 1985) and further east on the Sula Plain (Robinson 1985, 1986). Some of the major sites in Subarea 2 are Santa Rita, Travesia, Cerro Palenque, Santa Ana, and Playa de los Muertos (Glass 1966).

Healy next defines the Central Honduras Region, consisting chiefly of the Comayagua Valley, watered by the Humuya River. This valley is located in the mountains west and south of Lake Yojoa. Another major river is the Sulaco, located north of the Humuya. The Comayagua Valley contains the large Preclassic site of Yarumela. Late Classic occupation in the valley is also known (Agurcia F. 1986; Glass 1966:174-176). The area north of the confluence of the Sulaco and Humuya Rivers, not mentioned by Healy, should also be included in this region. It has been investigated by the Proyecto Arqueológico El Cajón, which excavated several sites (Benyo 1986; Lara P. and Sheptak 1985; Hasemann 1985; Robinson et al. 1985).

The remaining two regions are the Southern Pacific, on the Gulf of Fonseca, and the Northeast, along the Caribbean coast and the Bay Islands. Neither will be considered more fully here.

Before discussing the Copan Valley proper, brief mention will be made of some other sites in the Far West region of Honduras. By and large these sites are known from reconnaissance and rapid survey only<sup>2</sup> (Morley 1920; Strömsvik 1952; Leventhal 1979; Pahl 1977; Vlcek and Fash 1986). They are all linked to Copan by their ceramics, construction style, or hieroglyphic inscriptions. One especially glaring gap in this discussion will be the eastern part of Guatemala immediately across the border. Since the Honduran sites extend up to the border and in view of the cultural similarities between western Honduras and eastern Guatemala from Colonial to modern times, it is probable that the Guatemalan mountains contained additional Late Classic sites affiliated culturally and politically with the inhabitants of the Copan Valley. West of the valley the most prominent site is found at Hacienda Grande in the vicinity of Stela 19. This is quite close to the west end of the Copan Valley. To the north, at least two major areas of settlement exist, one in the intermontane basin of Llano Grande and a second along the Managua River further north. The main site here is called Agua Sucia. The two large sites of El Paraíso and El Cafetal lie some 23 km northwest. To the southeast, the site of La Unión, some 35 km away, has, in addition to similar ceramics, a ballcourt modeled after the one in the Main Group (Strömsvik 1952). Even further away across the Sierra del Gallinero on the upper Chamelecon River or its tributaries are several large sites: Zumbadora, La Florida, and La Entrada. On-going research by the Proyecto La Entrada of the Japanese Mission has shown that this area was

---

<sup>2</sup> Part of this area has been surveyed more closely and test-pitted by the second phase of the Proyecto Arqueológico Copán. The results will be presented in another dissertation (Freter n.d.).

densely occupied and ceramically very similar to Copan. The known outer limit of Copan-related sites is Los Higos, also on the Chamelecon and some 80 km northwest of the section of the Copan Valley called the Copan Pocket (see below). This site has a stela with an inscription (Pahl 1977).

The Valley of Copan is in the mountainous western part of Honduras near the Guatemalan border at an elevation, for the valley floor, of 600 m above sea level. The valley, trending roughly east to west, is watered by the Copan River. This river, which provides a permanent albeit seasonally fluctuating water source, flows from east to west-southwest (Willey and Leventhal 1979:7-8). The river begins in the hills known as Sierra del Gallinero, located to the east, which separate its drainage system from that of the other major rivers in this part of Honduras, the Chamelecon and the Ulua. The Copan, which is called the Amarillo in these upper reaches, flows west into Guatemala, changing its name once again, to Camotan. It eventually joins the Motagua River, which flows northeast into the Caribbean Ocean. A number of seasonal streams, known locally as *quebradas*, drain the surrounding hillsides and slopes during the rainy season. A few of these streams maintain some water year round. The Copan River is not navigable except for short distances and cannot be viewed as a significant means of transport or communication (Turner et al. 1983:41-42; Morley 1920).

There are essentially two seasons, a rainy season from May to January, with the greatest amounts of rain falling between May and October, and a dry season. A short dry period, known locally as *la canícula*, is often experienced in July (Willey and Leventhal 1979). There is no frost and temperatures vary more diurnally than seasonally.

At several spots along the valley's length its walls converge noticeably. This has the effect of decreasing its width (north-south) and isolating somewhat the areas in between. These areas have been labeled *pockets* (Leventhal 1979). The one of interest here is the Copan Pocket<sup>3</sup>, which contains all of the sites to be discussed. The others<sup>4</sup> also contain substantial remains of prehistoric settlement. Some of the larger sites in these pockets include El Raizal, Los Achiotes, Río Amarillo (also known as La Canteada), and Piedras Negras. The modern town of Santa Rita covers what was probably a large site as well. Both it and Río Amarillo had sculpted monuments with hieroglyphic inscriptions (Pahl 1977).

The Copan Pocket measures 12.5 km east to west and 2-4 km wide. Willey and Leventhal (1979:78) give this description of its topography:

In generalized cross section the Copan pocket consists of a flood plain, of varying width, immediately adjacent to the stream channel; directly above this flood plain, on both sides of the river, are somewhat higher flat bottomlands which we will refer to as the "second terrace"; back of this second terrace, on both sides of the valley, low foothills gradually rise up to the high hills or small mountains which compose the outer borders of the valley catchment basin. The only exception to this rather regular transect is in the western section of the Copan pocket, where a short range of east-west hills rises out of the valley floor to create a little division in the bottomlands on the north bank of the river.

The Copan Pocket is better suited to agriculture than the others for several reasons. There is an east to west gradient in amount of

---

<sup>3</sup> What has been traditionally referred to by archaeologists as the Copan Valley is in fact this subsection or pocket. The Copan Pocket is of course itself a valley but it is not *the* Copan Valley.

<sup>4</sup> To the west of the Copan Pocket: Ostuman, sometimes considered an intermontane area part of the Copan Pocket; to the east: Santa Rita, El Jaral, Lower Río Amarillo, Upper Río Amarillo.



annual rainfall along the length of the Copan Valley and continuing into Guatemala. The entire section in Honduras receives adequate rainfall for cultivation, but the easternmost pockets — the Lower and Upper Río Amarillo — have poorly draining soils. El Jaral and Santa Rita have better drainage but are much smaller than the others.<sup>5</sup> The Copan Pocket has the most favorable combination of arable land, good drainage, and sufficient water to allow productive agriculture. West of this pocket, into Guatemala, the lesser amount of rainfall becomes a limiting factor (Turner et al. 1983:55).

Turner et al. (1983:105-107) have divided the pocket into five physiographic zones based on soil type, dominant vegetation, relief, and other characteristics. They will be described briefly here (Figure 2.3). Willey and Leventhal (1979), in an earlier publication, also defined five zones which divide up the area somewhat differently because they combine physical factors with features of the settlement system and degree of survey carried out.

**Physiographic Zone 1** includes the valley floor and the alluvial terraces (*vegas*). The area is generally flat with a deep accumulation of alluvial soil of extremely high fertility and good drainage. Both these factors decline with increasing distance from the river. The dominant vegetation, before clearing for agriculture, has been reconstructed as a mixed deciduous forest marked by several species of large trees such as the *Ceiba*. Little of this forest remains now in the pocket except in the national park around the Main Group. Pollen

---

<sup>5</sup> Willey et al. (1976:18) provide the following dimensions: Santa Rita: 2.0 km long × 0.5 km wide; El Jaral: 2.0 km long × 1.0 km wide; Río Amarillo (Upper and Lower): 7.0 km long × 1.0 km or less wide.

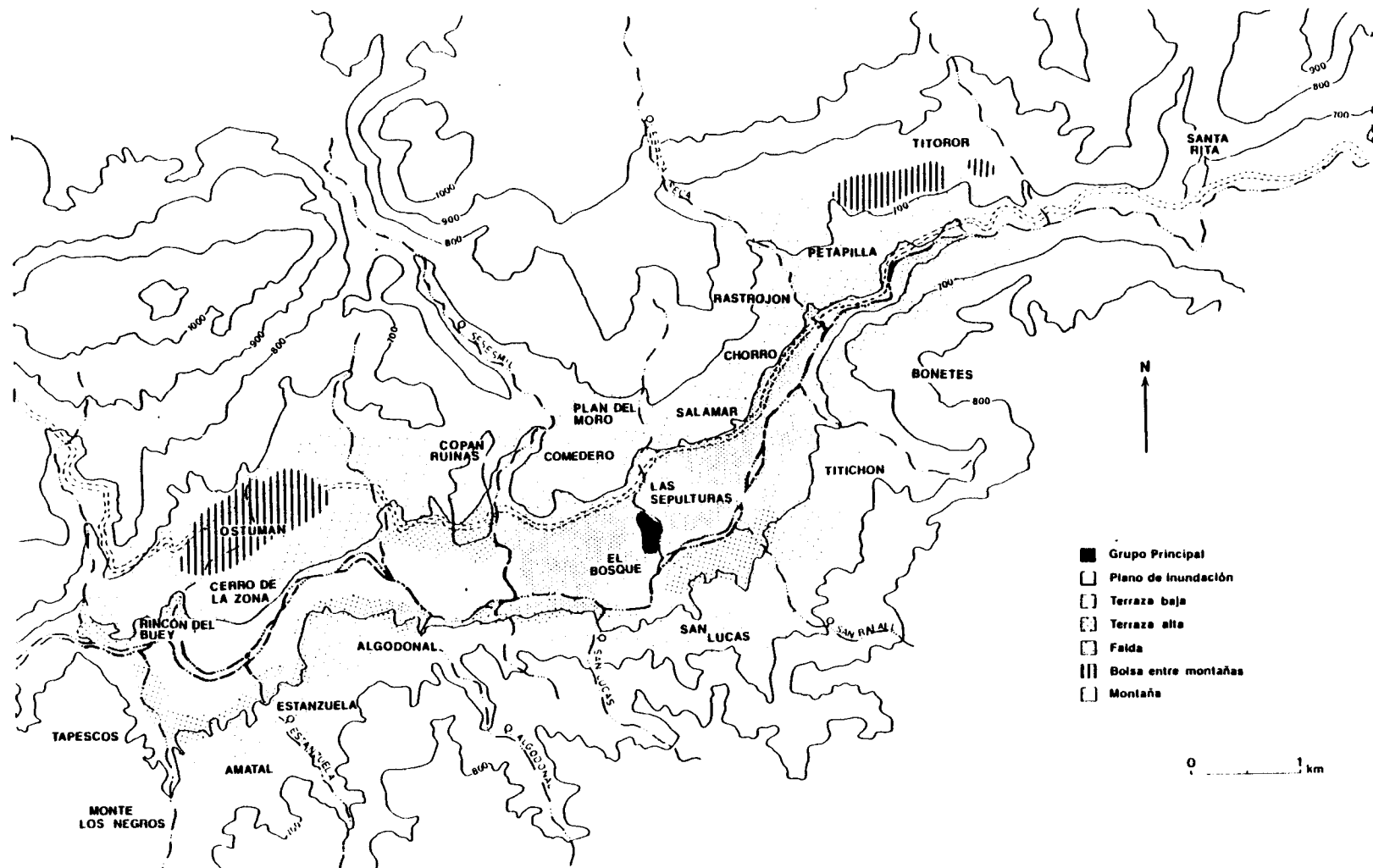


Figure 2.3: Map of the Physiographic Zones in the Copan Valley

evidence suggests that similar clearing of these bottomlands took place during the period of Late Classic occupation.

Included here are Zones 1 and 2 of Willey and Leventhal (1979:86-87). Their Zone 1 corresponds to the first river terrace, which is flooded periodically by the river. Zone 2, the second or upper river terrace, lies north of the river in the central to eastern part of the pocket. The Main Group, Sepulturas, and other areas of dense occupation (see below) are built on this terrace. The degree of occupation of the first or lower terrace is unknown due to the periodic flooding of the river which, as well as accounting for the high fertility, has either deeply buried or removed any traces of habitation.

**Physiographic Zone 2** refers to the bottoms of the tributary valleys. These are the narrow valleys cut in the hills by the quebradas. This zone is also quite fertile with good drainage although with greater variation than Physiographic Zone 1.

**Physiographic Zone 3** includes the foothills surrounding the valley bottom. A number of declivities and natural terraces can be found at various points in the hills as a result of differential erosion of the bedrock. In general, soils are shallow and of variable fertility. Erosion and water retention are both problems.

**Physiographic Zone 4** is defined as the intermontane basins. These are substantial, flatter areas found amongst the foothills. The flatter grade makes possible greater soil deposition and retention. The fertility may be quite high.

Physiographic Zones 2-4 were probably marked by a mixed deciduous forest of generally smaller and hardier trees. Very little of this remains due to the expansion of milpa fields and cattle pastures into

almost every possible corner of usable land. The pollen evidence indicates that a similar reduction took place during the Classic Period as agriculture gradually expanded away from the river.

These physiographic zones correspond to Zones 3-5 of Willey and Leventhal (1979:87-88) but do not match exactly. Their zone 3 refers to the foothills north of the river and the second vega (Physiographic Zone 2) and is about 6-7 km long. Their Zone 4 takes in all of the southeastern part of the pocket without differentiating physiographic changes. It is south of the river and its southern terrace. Finally, they assign Zone 5 to the western end of the pocket, including the area around Ostuman, which is considered a separate pocket by Turner et al.

**Physiographic Zone 5** comprises the mountains behind and above the foothills. These slopes have thin and infertile soils with poor water retention. The dominant vegetation now and in the past is an oak-pine forest.

A great deal of the variability in fertility within or between zones is caused by the kind of bedrock present, of which five different sorts have been identified: blue-gray limestone, reddish fine and coarse-grained sandstones, unconsolidated tuff, weathered mafic volcanics, and multi-colored, nodular, and fine-grained sandstones (Turner et al. 1983:58-59). Areas with limestone bedrock are quite fertile. Reddish sandstone alone produces very poor soils; when found interbedded with limestone, however, its fertility is improved. The third type, tuff, erodes easily, weathering into clay which can impede drainage. The other kind of volcanic, the mafic rocks, results in better soils than does the tuff. The final class of bedrock also yields fertile soil, especially when found with limestone.

The geologic processes active in the Copan Valley over time provided a number of raw materials (Turner et al. 1983:59-62). Chert and various cryptocrystalline silicates are found throughout the valley. Most of the chert used for tools is of a butterscotch-yellow color. It occurs generally as nodules in limestone. The greatest abundance of this kind of chert is found in the flat tableland and intermontane basin in the foothills northwest of the Main Group known as the Petapilla region. A fair amount gets transported downstream (towards the densest area of occupation) by the river as well. Basaltic and siliceous rocks, mostly rhyolite used for grinding stones, are also found in this area (see Spink 1983). Basaltic igneous outcrops are known from the adjacent pocket of Santa Rita as well. Clay sources used by modern potters are scattered in isolated spots in the foothills or mountains in both pockets. One such source is known to lie north of the modern town of Santa Rita. Another source is found at Llano Grande, north of the modern town of Copán Ruinas. The other major geologic resource is the green consolidated tuff used for the ashlar masonry and for sculpture of all kinds. A substantial supply of this rock lies about one kilometer northwest of the Main Group. The remains of quarrying activity were noted by various early explorers (Morley 1920:6). There is no source of obsidian or jade in any of the pockets.

Present-day commercial agriculture in the valley focuses on tobacco, which is grown in the bottomlands. There are some coffee and orange groves in the foothills. Cattle raising is another important commercial activity. In and around these fields and pastures, all available arable land is devoted to subsistence milpa farming of maize, beans, and squash. Morley (1920:2-4) gives a long list of plants found

in the region at the time of his visits. Besides the ubiquitous triad, he mentions chile, avocado, various fruits including zapote, jocote, pineapple, guava, and papaya, and several palms. Cacao, copal, cotton, tobacco, bottle gourd, and rubber tree (*Castilla* sp.) were also found. Another detailed list of more recent date is available in Appendix A and Figure T-27 of Turner et al. (1983). Which of these plants were present and used in pre-Hispanic Copan is unclear. Pollen analysis was difficult due to poor preservation and soil disturbance by river action. Few macrofossils survived. However, certain information is available. Ramon seeds and burned pieces of cacao, guava, and copal were identified. Soil from the grinding face of a metate contained maize pollen, "lo cual confirma lo obvio: a saber que en la región se cultivaba ese grano" (Turner et al. 1983:110).<sup>6</sup> Cotton pollen was found in other deposits but no trace of tobacco. Whether the cotton was wild or domesticated is uncertain. Other pollen evidence, as mentioned earlier, indicates a gradual but increasing deforestation of the pocket through time, suggesting the encroachment of agricultural fields into formerly wooded areas.

Pending final analysis of excavated faunal collections, even less can be said about indigenous fauna. Morley (1920:4-5) mentions deer, both Virginia and brocket, peccary, tapir, agouti, two kinds of monkey, various birds and small mammals, and several varieties of feline as presently or formerly inhabiting the valley. None of these is found now except for some very small mammals such as rabbits and squirrels and some birds. Maudslay (1889-1902) found a jaguar skeleton in one of his

---

<sup>6</sup> It would also seem to support the traditional interpretation of metates as grinding stones.

excavations. Beyond the fact that many of the bones from middens excavated to date are obviously those of deer, however, the topic cannot be explored further.

Man-made terraces have been found in several parts of the pocket. Coupled with the evidence for decreasing forests from the pollen analysis and the evidence for expanding settlement through time revealed by the settlement pattern survey and test-pitting, these terraces indicate to Turner et al. (1983:126-127, Appendix C) that by the Late Classic Period agriculture had expanded into all available areas and become more intensive, including the possible application of various techniques no longer detectable.

#### HISTORIC AND MODERN OCCUPATION

The Postclassic and Colonial periods in the Copan Valley and, in general, western Honduras-eastern Guatemala have received little attention. Such lack of interest follows the general trend of Maya research which until recently remained relatively uninterested in the post-Collapse period in the Southern Maya Lowlands (including Copan). This is in sharp contrast to the rest of Honduras, where a consideration of the linguistic and cultural affiliations of the populations of these periods has been seen as a necessary preliminary to any archaeological work on the Classic Period.

In general, the delineation of post-Classic linguistic boundaries in Honduras has received more attention to date than has the detailed reconstruction of the sociocultural organization of the various groups. This is without doubt related to the two most frequent foci of research,

until recently, in this area: determining the locations of the Maya and Mesoamerican frontiers. Such studies have been hindered by the vagueness and inaccuracy of the Spanish sources to the point that even the form of the linguistic map at the time of and immediately after contact is subject to dispute (compare Longyear 1947 with Henderson 1977). When considering the Late Classic Period, the difficulty is compounded first by population movement, economic or political realignments, and other changes known to have taken place (Johnson 1977:91) and second by the hoary but still robust problem of equating archaeological (material) cultures with linguistic groups (Campbell 1976). The major interpretations are outlined below. As I do not see the question of what the linguistic map of western Honduras looked like circa A.D. 800 as vital to the study of structure function carried out here, I do not propose to dwell on the issue.

There is a consensus in the sources reviewed that the Copan Valley was inhabited by Maya speakers in the Late Postclassic to early Colonial times (Longyear 1947; Johnson 1977). Most are willing in fact to identify the language as one of the Cholan subgroup (Chol, Chontal, Chorti) (Fought 1972:6-7) and more specifically as Chorti, during the Colonial period. This would be extended backward into the Late Classic for at least the elite sector of the society on the basis of the hieroglyphic inscriptions (Wisdom 1940:3; Henderson 1977:368, 1978:245; Martinez G. 1980:231; Feldman 1983). The question of the non-elite sector will be deferred until the end of this chapter. Some Cholan language, possibly Chorti, was probably spoken in the upper Chamelecon drainage as far as Los Higos (one stela) (Longyear 1947:fig. 2). This may have continued as far north as the Naco Valley (Feldman 1983) or the lower Chamelecon



and Ulua drainages into the Sula Plain (Henderson 1977:368; Johnson 1977; Wonderly 1984).

Eastern El Salvador, southern Honduras west of the Gulf of Fonseca and extending north to Lake Yojoa and the upper drainage of the Humuya River around the city of Comayagua may have been occupied by speakers of Lenca (Longyear 1947; Campbell 1976) or Care and Lenca, two related languages (Feldman 1983). Lenca may have been in use in the Cajón region (Benyo 1986:10-11), on into the Ulua Valley (Joyce 1985:18-19) or all the way to the Caribbean coast (Longyear 1947). It may also have extended west as far as the Chamelecon (Longyear 1947) or only the eastern edge of the Sula Plain (Henderson 1977). Related to the placement of the limits of Lenca is the question of the location of Jicaque speakers. Campbell (1976) would place them on the coast, including in the Sula Plain. Henderson (1977:368) places them further east but also on the coast.

Studies of documents relating to the Copan Valley have been few. It appears that, at the time of the Conquest and immediately before, the Copan Valley was controlled by a "cacique", who appears to have had connections with others in the region. Tribute or trade relations were maintained with areas to the south, east, and north (Martinez G. 1980:217-218). A sharp decline in population followed the Conquest. Subsequent occupation of the area was by people of Spanish or Ladino background with no prior ties to the area (Feldman 1983).

It is difficult to use the post-Conquest data to reconstruct the earlier agricultural and exchange system. This is due to the establishment of the encomienda system in the sixteenth century followed by the introduction of tobacco, the indigo plant, and cattle as dominant

elements of the commercial production system. However, based on documents relating to the parish of Jocotan (eastern Guatemala and western Honduras) during the 16th and 17th centuries, Feldman (1983:157-158) has identified the tribute from this area. It included a number of agricultural products such as maize, beans, chile, honey, and cacao. Also required were wax, woven mats (*petates*), cloth, and turkeys. The exact role played by the Copan Valley is not certain; however it does seem to have been responsible for such tribute.

The standard ethnographic study of the Chorti Maya was carried out by Wisdom (1940). Other sources are Girard (1949) and Reina (1969). Linguistic studies have been done by Fought (1972). At the time of Wisdom's field work, most of the Chorti speakers lived in the mountainous area around the towns of Jocotan, La Unión, Camotan, San Juan Hermita, Olopa, and Quetzaltepeque. These are all in Guatemala between the border and the large town of Chiquimula. A smaller group of Chorti speakers lived in Honduras in the Copan Pocket and western area. Separating these two groups was a zone of monolingual Spanish speakers. In broad terms, the Chorti have a bilateral kinship system and a prohibition on cousin, especially cross-cousin, marriage (Wisdom 1940:253-265). Inheritance is not restricted to eldest son or resident children (Wisdom 1940:383). All children can inherit, although it is more common for land to be inherited by those residing with the parents and movable property to go to the children living elsewhere. As the tendency is for postmarital residency to be with the man's family, land thus generally goes to the sons and portables to the daughters. The residence groups cooperate closely in economic, social, and ritual matters (Wisdom 1940:246). Membership in various kin units, including both the nuclear

family and larger ones, is recognized and indicated by a system of shared last names (Wisdom 1940:250-252). Reverence for and appeasement of the dead, whose spirits can cause illness (Wisdom 1940:312-314; Fought 1972:265-266), is an important part of ritual life.

Most of the present-day inhabitants of the Copan Pocket are either descended from or are themselves immigrants from eastern Guatemala. This influx, which began in the 1850's, continues to the present and is due mainly to a scarcity of arable land across the border (Gordon 1896:1; Schumann de Baudez 1983). The immigrants have settled either in the only town, Copán Ruinas, located about one and a half kilometers west of the Main Group and founded around 1870 (Longyear 1952:2), or in a number of more or less isolated hamlets (*aldeas*) throughout the pocket (see Schumann de Baudez 1983 for a description of some of these settlements).

Whether or not any of the people in Honduras should be considered or consider themselves to be Chorti is an open question. Fought (1972:5), working some twenty-five years after Wisdom, estimated that there were some 20-30,000 bilingual Chorti and Spanish speakers in Guatemala. He does not mention any in Honduras. Schumann de Baudez (1983) claims that the language is completely lost. Certainly all residents are fluent in Spanish and no one wears the typical costume (*traje típica*). This contrasts with eastern Guatemala, where the *traje* is still worn by a segment of the population. Given the use of Spanish in Guatemala for all official business and in contact with non-Indians, the extremely limited amount of ethnographic or linguistic research, and the generally denigrating attitude on the part of the Ladino population in Copan towards all aspects of *modern* Indian behavior and culture, it

seems to me that we really have no solid data on which to decide one way or the other.

#### SUMMARY OF PREVIOUS ARCHAEOLOGICAL WORK AT COPAN

A great deal has already been published about the history of archaeological work at Copan (e.g. Morley 1920; Longyear 1952; Leventhal 1979; Baudez 1983; Fash 1983c). As pointed out by Baudez (1983:21), work prior to the Harvard Project in the mid-70's focused principally on the Main Group and its immediate surroundings. As outlined earlier, this interest related directly to the desire to establish the Maya-ness of the site and hence the large monumental structures and stelae received the most attention. My review will mention briefly these previous projects and their accomplishments but will discuss in detail only those aspects especially relevant to the topic of this dissertation.

#### Investigations prior to the Peabody Museum Expedition

Prior to the 1890's, there were a number of references to the ruins in the Copan Valley starting in the 1500's, including references by various Spanish officials such as García de Palacio and Fuentes y Guzmán (Morley 1920:14-21). John Stephens and Frederick Catherwood visited the site around 1839 (Stephens 1969). Stephens' account and Catherwood's drawings sparked wider interest in Copan, leading directly to the initiation of archaeological and epigraphic studies.

### Alfred Maudslay and the Peabody Museum Expedition (1881-1895)

Scientific investigation really began with the advent of Alfred Maudslay who, in a series of visits between 1881 and 1895, produced the first accurate map of the site, made casts and drawings of many of the major monuments, took photographs of monuments and structures in the Main Group, and carried out excavations in Strs 16, 22, and 4 (Maudslay 1889-1902). His photographic and cartographic work takes on special significance because the river changed course afterwards, moving further west and eroding away a sizable section of the east side of the Main Group. Thus Maudslay and Gordon (1896) provide the only record of several structures of the East Court (Baudez 1983:28; Hohmann and Vogrin 1982).

Part of Maudslay's work in Copan was under the aegis of the Peabody Museum Expedition, which ran from 1891-1895 and was directed variously by Marshall Saville, John Owens, and finally George Gordon. A number of structures were excavated to some degree, including Str 50, an L-shaped building located north of Str (or Temple) 16 (Gordon 1896). Str 50 has several rooms which contained interior benches and niches. Str 21 on the north side of the East Court was cleared. In the process Str 21A was discovered.

In addition, some structures in the Cementerio zone<sup>7</sup> south of the Acropolis — Strs 32, 36, and 41 — were examined. They are long, multi-roomed stone structures on relatively low platforms grouped in

---

<sup>7</sup> A local name reflecting the large numbers of burials found there. The area is not really a formal cemetery, however, but rather a collection of structures in and around which were buried a number of individuals. The part of the valley studied here is known locally as Las Sepulturas for the same reason. It too is not a separate burying area.

rectangular formations (see also Hohmann and Vogrin 1982). A number of burials were found in and around them. Two observations are pertinent to the question of structure function. Owens' notes on Str 36 mention finding large amounts of "what appeared to be a heap of refuse mingled with cobble-stones and earth" (Gordon 1896:26) on the plaster paving on top of the structure. There were quantities of plain and fancy sherds, some whole pots, obsidian knives (blades?) and projectile points, and human bone. Animal bone and bone tools were also found. Layers of ash were mixed in. As it is impossible to tell where exactly the material came from, it is impossible to determine from the description whether or not the artifacts were partly mixed with the fill of the substructure, or if they represent the remnants of a post-abandonment re-use of the structure. Work on Str 41 revealed two stone-lined pits, one 9.8 m by 12.3 m<sup>8</sup> behind the building. They may have been hearths — at least their interiors were burned and contained sherds (Gordon 1896:28).

Other major results were the discovery of the Hieroglyphic Staircase (Gordon 1902), the description of some of the monuments (Gordon 1896), and the investigation of caves in the surrounding valley which yielded Preclassic ceramics and burials (Gordon 1898a). Gordon's discussion of the expedition's activities does not rise above the descriptive. He does not consider to any great extent why these structures were built or what kind of site the Main Group represents. Given that archaeological research in Mesoamerica, and especially on the Maya, was in its infancy it is useless to belabor this point or to bemoan the fact that many of the artifacts recovered, some of which may have had

---

<sup>8</sup> 32 ft x 40 ft.

some kind of primary association with the structures, ended up in the river. The main results of their work was the establishment of Copan's claim to be an important Maya site through the exposure of several monuments, including the Hieroglyphic Staircase, and preliminary descriptions of the architecture.

### **Sylvanus Morley**

Between 1910 and 1919, Morley made a series of visits to the valley. The main focus of his research was on the monumental inscriptions, which he catalogued and dated (Morley 1920), providing the first concrete information on the temporal sequence. In addition, however, he compiled a great deal of information on the natural environment, the distribution of settlement, and the present population which remains of value today. As a result of his interest in finding as many inscriptions as possible, he was the first to report a number of outlying sites including Santa Rita, Llano Grande, and Los Higos. In short, Morley was the first person to look beyond the Main Group in any detail, providing the beginnings of a cultural and spatial context.

### **Carnegie Institution of Washington (1935-1942, 1946)**

This project, directed by Gustav Strömsvik, concentrated on the Main Group. A number of structures were excavated and restored (Longyear 1952:4-6), including the Hieroglyphic Staircase, Str 22 (Triak 1939) and the Jaguar Stairway in the East Court, Str 11, and the Ball Court (Strömsvik 1952). The fallen stelae were righted and reset. This operation led to the discovery and excavation of a number of substela

caches (Strömsvik 1941a). The river was diverted away from the Acropolis. Several tunnels were excavated into the interior of the Acropolis to look for earlier construction phases under Str 11 and the Hieroglyphic Staircase. Another large concentration of burials was found further south of the Main Group beyond the Cementerio zone where the Peabody Museum had worked. Work on the valley included a map of the visible mounds and the excavation of test pits for ceramic collections. These activities were oriented towards reconstruction of the sequence of occupation and history of development of the Main Group.

Aside from the citations above, a great deal of the work remains unpublished or was described only briefly in the annual reports of the Division of Historical Research of the Carnegie Institution (Strömsvik 1934, 1936, 1937a, 1938, 1940, 1941b, 1942; Kidder 1939). The one exception is the publication by Longyear (1952) on the Copan ceramics. Besides creating the first ceramic sequence and typology, he described other classes of artifacts from the excavations and a number of burials, including those excavated by the Peabody Museum. All subsequent ceramic studies, whether based on test pits or extensive excavations, have continued to rely heavily on Longyear's work and descriptions. In addition to this descriptive contribution, Longyear was concerned with interpretation of the ceramic data, specifically in relation to the cultural affiliations of the resident population, the origins of Copan Valley occupation, and the Maya frontier (1952:67-71; 1977). Nevertheless, most of the work of the Carnegie project contributed more to the physical restoration of the Main Group than to an improvement in the understanding of Copan society or settlement. A great deal of



recorded but unprocessed information remains from the project which could be used to address these questions.

#### **Harvard University Copan Valley Settlement Pattern Project (1975-1977)**

Settlement pattern research began in the 1970's with this project under the direction of Gordon Willey. The project wished to establish the extent of occupation and eventually to reconstruct its nature. Two preliminary surveys confirmed the widespread distribution of settlement and a preliminary typology of site size and arrangement was created (Willey et al. 1976; Leventhal 1979:23-24). Following this initial reconnaissance, all visible structures within a specified subsection of the pocket, which included the Sepulturas zone on the vega, the foothills drained by the Comedero and Salamar quebradas, and the area between the Main Group and the modern town, were mapped using a transit (Leventhal 1979:26). In addition, the remaining areas were intensively surveyed.

As part of the survey and mapping, a grid system was imposed (Leventhal 1979:31-32) which divided the valley into squares measuring 500 m on a side. Each square was labeled by a letter (east-west) and a number (north-south). Structures within each square were numbered in sequence, starting from one. This allows any structure to be designated by a prefix consisting of the letter and number of its square (e.g. 9N) followed by its serial number. Clusters of structures, believed to represent a unit or site, were assigned sequential numbers with the prefix CV (Copan Valley) (see Leventhal 1979:Appendix 2).

The basic configuration of mounds in the pocket conforms to the plaza or plazuela arrangement identified throughout most of the Maya Lowlands (Bullard 1960; Willey and Bullard 1965; Ashmore 1981b), in which a rectangular courtyard area is surrounded on all four sides by structures oriented inwards (Willey and Leventhal 1979:81). The stereotypical Lowland Maya plaza has one building per side and thus four buildings in all. The Copan plaza units do have certain atypical features (Leventhal et al. 1982; Fash 1983c:448-449). They are more likely to have several structures to a side as well as platforms set back somewhat from the patio in a peripheral location. The average size of the substructures is smaller than in the lowlands. Clusters of several patio units, often appearing to share one or more structures, are known. Finally, there are a large number of cases where mounds are clustered together without constituting a formal patio unit.

Classification of the unexcavated sites in the pocket was first based primarily on number of mounds, size, and inferred differences in function and/or status (Willey and Leventhal 1979). As defined by Leventhal (1979:42-44) and Willey and Leventhal, the following types were created:<sup>9</sup>

- **Small isolated platforms** are very low (20-30 cm) and poorly defined remains. They occur in the more remote parts of the pocket away from the vega zone.

- **Small platform clusters** are made up of informal conjunctions of several mounds. Their arrangement fails to define any obvious courtyard

---

<sup>9</sup> Subsequent survey work has added another level, that of the non-mound site, defined by the occurrence of artifacts only.

space. Once again, these sites are more common in the foothill zone, often being built on one of the natural terraces found in the area.

- **Type I** is the first relating to the plazuela type of arrangement and is the most frequent type in the valley. There are two to five mounds, ranging in height from 0.30 to 1.5 m, around one small courtyard. Construction was probably a mixture of perishable materials and river cobbles.

- **Type II** sites have one or two plazas, six to nine mounds with a maximum height of 2.5-3.0 m, and a greater use of quarried and shaped stone in their construction. Such sites are known from all physiographic zones with traces of occupation.

- **Type III** sites are very like the preceding type in number of plazas, number of mounds, and distribution. The maximum height has increased to 4.75 m. Also the buildings are constructed with more dressed stone.

- **Type IV** includes the largest sites aside from the Main Group. They are characterized by multiple plazas, mounds up to 10 m high, and a more diverse and complex arrangement. Structures are built primarily of tuff ashlar and may have vaulted roofs. Some of these buildings were decorated with sculpture as well. Almost all of these sites are found on the vega. This and Type III were referred to as minor ceremonial centers in an earlier discussion (Willey et al. 1976:18-19).

- **Major centers** are what have been variously called ceremonial centers, civic-ceremonial centers, etc. They are the focal point of a regional system, the culmination of the hierarchy of sites. The Main Group is of course the only site of this type in the pocket.

On the basis of this typology, a series of sites was defined by the Harvard Project for the pocket. The majority of the sites found were posited to be residential clusters. The differences signaled by the site typology were seen as resulting from unequal distribution of wealth or status (Leventhal 1979:60-61). In order to test these ideas, the final stage of the project excavated three sets of structures in the Sepulturas zone, CV-43 and surrounding CV-44 to CV-47, CV-20, and CV-16. These excavations are discussed by Leventhal (1979:82-105; 1981, 1983) and Willey and Leventhal (1979).

Two types of structures were identified on the basis of these excavations. All of the buildings in CV-16 and most of the ones in CV-20 and CV-43 to CV-47 were interpreted as residences. The criteria used include multiple rooms, benches, evidence for periodic rebuilding and expansion, and the presence of trash deposits behind structures containing a high proportion of utilitarian ceramics, grinding stones, and some simple burials. Variations in size, quality of construction, and location for otherwise similar structures are attributed to differences in social rank or position. The smaller northern plaza of CV-20, for example, may have housed retainers of the main family residing in the larger structures around the main plaza. The possibility that some of these smaller buildings might have served as kitchens or storage areas is also raised although little direct evidence was available to resolve the question.

One building in CV-20 (Str B) and one in CV-43 (Str A) have been assigned a different function. They are considered to be ritual structures (shrines) or possibly administrative structures. These structures

are distinguished by a higher substructure, better construction, plastered floors, and less rebuilding. Str B of CV-20 had a smaller superstructure and an elaborate Early Classic burial within its fill. There do seem to be trash deposits behind the structure; their nature is not described. Str A of CV-43 has a three-roomed superstructure. The bench of the center room had been carved with a hieroglyphic inscription (see Chapter 4). In addition, several different colors of paint were apparently used on the plaster.

#### **Proyecto Arqueológico Copán Primera Fase (1977-1980)**

This project — PAC I — began under the direction of Claude F. Baudez after the Harvard Project ended. It was part of a large-scale development plan for the region which was intended to preserve the ancient remains, increase tourism, and aid the economic development of the area. Among the more specifically archaeological goals of PAC I were the study of the settlement pattern through time and space, testing for the "invisible universe" of buried structures, refinement of the ceramic chronology, analysis of the environmental parameters of the Copan Valley, acquisition of more information on the growth and development of the Main Group, iconographic and epigraphic studies, and a consideration of relevant ethnohistoric and ethnographic data (Baudez 1983:17-24). Also of concern was restoration of various buildings in the Main Group.

The question of settlement was in part addressed by an extension of the intensive mapping begun by Willey and Leventhal into the foothills and intermontane basins. In addition, a test-pitting program

was initiated to gather data on function, via pits in back of mounds, and on buried structures and chronology, via pits between mounds and in patios. A stratified sampling system was employed that covered the major physiographic zones of the valley. As a result of this work a great deal of information was collected on the kind of sites found in the valley. The test pitting yielded ceramic collections dating back to the Early Preclassic (Fash 1983c).

The excavation data of the Harvard Project and the expanded survey coverage led to a partial redefinition of what constituted a site or a structure cluster in the Copan Pocket. The typology as originally defined was seen as too divisive (Baudez 1983:21-22). It appeared to Baudez and Fash (Fash and Long 1983) that what had been identified as separate plaza units of possibly different types might actually turn out to be a single complex of structures and plazas. At the same time, such clusters of plazas were clearly separated from others by some degree of apparently uninhabited space. Therefore a new system of defining sites was developed based in part on an application of the nearest neighbor statistic. Structures or plazas within a distance of 10 meters or less were combined into a larger unit labeled a *group*. The CV nomenclature was abandoned. Groups were defined for the entire mapped area and numbered, like the structures, within grid units. Each group is identified by the prefix Gr, its grid location (e.g. 9N-), and its number. As a result of the 10 m rule, many of the groups contain more than one CV site and more than one type of site (Fash and Long 1983:18-19). The pertinent results of these studies are discussed below in the section on Coner phase settlement patterns.

### Proyecto Arqueológico Copán Segunda Fase (1981-1984)

PAC II, the second phase of the Proyecto Arqueológico Copán, was directed by William T. Sanders. It was designed to focus more specifically on the Late Classic Period in the Copan Valley in order to "reconstruir las características institucionales, sociales, económicas, políticas y religiosas de la civilización de los Mayas de Copán en la época Clásica Tardía" (Sanders 1986:15). To this end, the survey and test-pitting program was extended beyond the pocket into the western and northern areas and the other pockets to the east. In addition, extensive, long-term excavations were carried out in Sepulturas on a number of different groups. These excavations are described briefly in Chapter 3 and analyzed in the remainder of this work. Studies of the obsidian industry (Mallory 1981, 1984), the ground stone industry (Spink 1983), and the energetic investment in stone construction (Abrams 1984, 1987) have already been carried out. A series of volumes describing the excavations and the architecture is in the process of publication. In the past few years, a separately funded project directed by David Webster has conducted excavations in several sites in the foothill zone of the pocket (Webster 1986). More recently as well, the Proyecto para el Estudio y Catalogación de la Escultura Mosaica Copaneca, directed by William L. Fash, has concentrated on reconstructing the sculptural façades of Strs 10L-22 and 10L-26 as well as on extending the tunnels of the Carnegie Institution into the Hieroglyphic Staircase.

# PREHISTORIC OCCUPATION: CHRONOLOGICAL SEQUENCE

Occupation in the Copan Pocket can be traced as far back as the Early Preclassic Period. The phases and their suggested dates are given in Table 2.1 (Fash 1983a:153). Most of the dates result from ceramic cross-ties.

Table 2.1: Copan Ceramic Phases

Phase Name	Suggested Dates	Chronological Period
Rayo	1050-900 B.C.	Early Preclassic
Gordon <sup>a</sup>	900-600 B.C.	Early Middle Preclassic
Uir	900-300 B.C.	Middle Preclassic
Chabij	300 B.C.- A.D. 0	Late Preclassic
<u>      </u> <sup>b</sup>	A.D. 0-200	Protoclassic?
Bijac	A.D. 200-400	Early Classic
Acbi	A.D. 400-700	Middle Classic
Coner	A.D. 700-850	Late Classic
Ejar	A.D. 850-1200	Postclassic

<sup>a</sup> This is apparently a funerary sub-complex.

<sup>b</sup> Possible Protoclassic based on certain material of poor provenience.

My analysis of structure use will focus exclusively on Coner phase material. Discussion of the phases will be found in Fash (1983a:155-169, 1983c:432-457, also 1985) and Viel (1983:533-543). From earliest times there is a concentration of settlement in the vega or river terrace zone. In periods of apparently reduced population (Chabij, Bijac), the only traces found come from this zone. The greatest expansion occurs in the Coner phase. The ceramic affiliations of Coner will be discussed in Chapter 3. The earlier phases are marked by a greater resemblance to contemporary complexes in western El Salvador (e.g. Chalchuapa), central Honduras (e.g. Los Naranjos), and, especially in the Acbi phase, highland Guatemala (e.g. Kaminaljuyu) than to those of the Maya Lowlands proper (see also Willey and Leventhal 1979).



## CONER PHASE SETTLEMENT PATTERNS

Visible remains of settlement, in the form of mounds and some monuments, cover much of the vega and foothill zones on both sides of the river. The density of occupation has impressed researchers from the beginning of serious work in the valley (Gordon 1896:28). Morley (1920:14), for example, wrote:

...every available spot in the valley was intensively occupied in ancient times. Wherever one strays from the beaten tracks, one encounters the vestiges of former occupation: fallen buildings, fragments of elaborate sculptural mosaics, pyramids, platforms, terraces, and mounds. It seems probable...that future investigation will bring to light still other groups, until it will be found that practically the entire valley from Santa Rita at the eastern end to Hacienda Grande at the western end was one continuous settlement, one city.

Mapping carried out in the past two decades has indeed confirmed the wide extent of the settlement pattern. Associated test-pitting and surface collections have shown that the majority of visible remains are of Late Classic construction (Willey et al. 1978; Fash 1983c). Not all Late Classic structures, however, are visible. Various natural and human actions such as erosion, deposition, stone robbing, agriculture, and decay of perishable materials have combined to destroy or bury architectural remains. Excavation of previously mapped areas has also revealed more than one structure underneath a single mound (see Chapter 3). These factors combine to create an invisible universe of structures which must be made part of any consideration of density or population estimates (Fash 1983c).

The overall settlement pattern has been divided by Fash (1983c:452) into three concentric zones. The innermost one consists of the Main Group (see Figure 2.4). This complex, which has been well

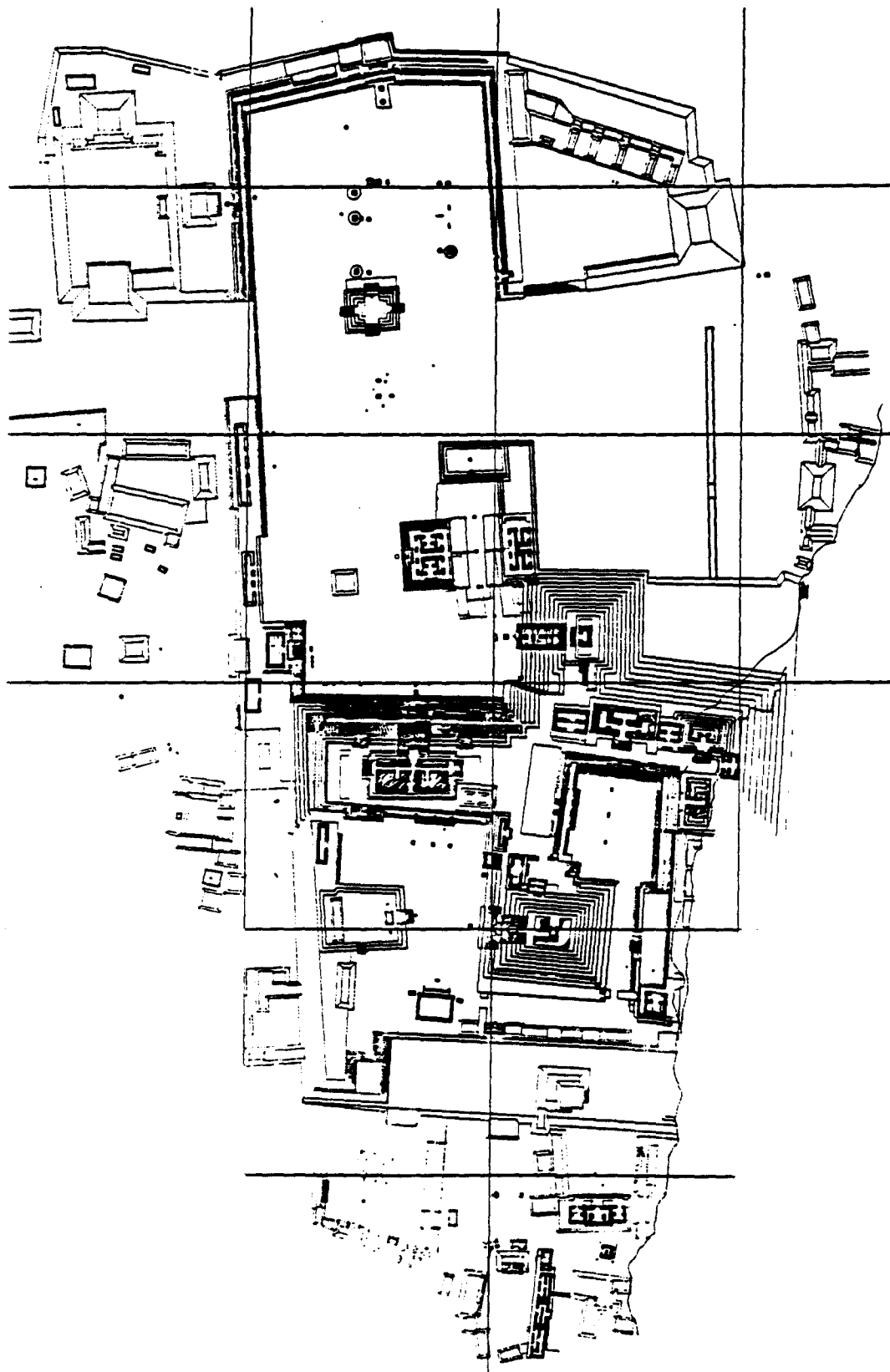


Figure 2.4: The Main Group at Copan

described by Morley (1920), Gordon (1896), Longyear (1952), and more recently by Hohmann and Vogrin (1982) among others, is made up of a core area consisting of a large open area to the north called the Great Plaza and, to the south, a high artificial platform, called the Acropolis, supporting on its summit two large courtyards surrounded by buildings (see Hohmann and Vogrin 1982; Morley 1920).

The Great Plaza can actually be divided into two sections, the larger of which is to the north where most of the stelae and altars now stand. This area contains only one structure, Str 10L-4, a square structure with four staircases. The placement of the ballcourt and Strs 10L-9 and 10L-10 near the southern end serves to isolate a section which is bounded by the Hieroglyphic Staircase on the east and the immense stairs leading up to the Acropolis on the south. This area is referred to as the Court of the Hieroglyphic Staircase and contains Stelae M and N.

The summit of the Acropolis is divided into the East and West Courts with the tall pyramidal structure, 10L-16, in between. The West Court is dominated by Str 10L-11 on the north. The East Court contains several smaller but highly decorated structures, the most elaborate of which is Str 10L-22 (see Trik 1939). Str 10L-18, at the southern end, was excavated and restored by PAC I. The extensive damage caused by the river is most evident here: the entire eastern edge has been destroyed and several structures have been lost. Immediately south of the Acropolis, at a much lower level, are found several clusters of structures. This area, known as El Cementerio because of the number of burials recovered, is described by Gordon (1896), Longyear (1952), and Hohmann and Vogrin (1982). These structures represent, at least

formally, a completely different kind of area from the Acropolis or the Main Plaza, being much smaller although still well-built multi-roomed structures on low platforms arranged in typical plaza unit form. In other words, they seem to be extremely elaborate examples of the group pattern.

The next zone is made up of the vega and lower part of the foothills within a one-kilometer radius of the Main Group, measured from the ballcourt (Figure 2.5). This 2.1 km<sup>2</sup> area contains around 1500 structures. All but three of the Type IV sites known from the pocket are found here. Three subgroups of structures have been identified:

- The first, called El Bosque, lies west and south of the Main Group. A second, smaller ballcourt has been found in this area (Fash and Lane 1983).

- The second subgroup lies to the north in the extreme lower section of the foothills traversed by the Comedero and Salamar quebradas. The modern highway cuts between this area and the Main Group. It is probable that settlement originally continued south up to the Main Center and the northern edge of El Bosque. Two stelae, 5 and 6, are found about one kilometer east of the Main Group (measured from the ballcourt) within this area. The remnants of a *sacbe* — a raised roadway — running north-south have been identified; it is assumed that it originally continued south into the area immediately around the Main Group.

- The final subgroup is found to the east of the Main Group and is known as Las Sepulturas. It too had a *sacbe* running from the eastern edge of the Main Group east-northeast as far as Gr 8N-11. Sepulturas covers an area of approximately 0.4 km<sup>2</sup>. In this area are preserved

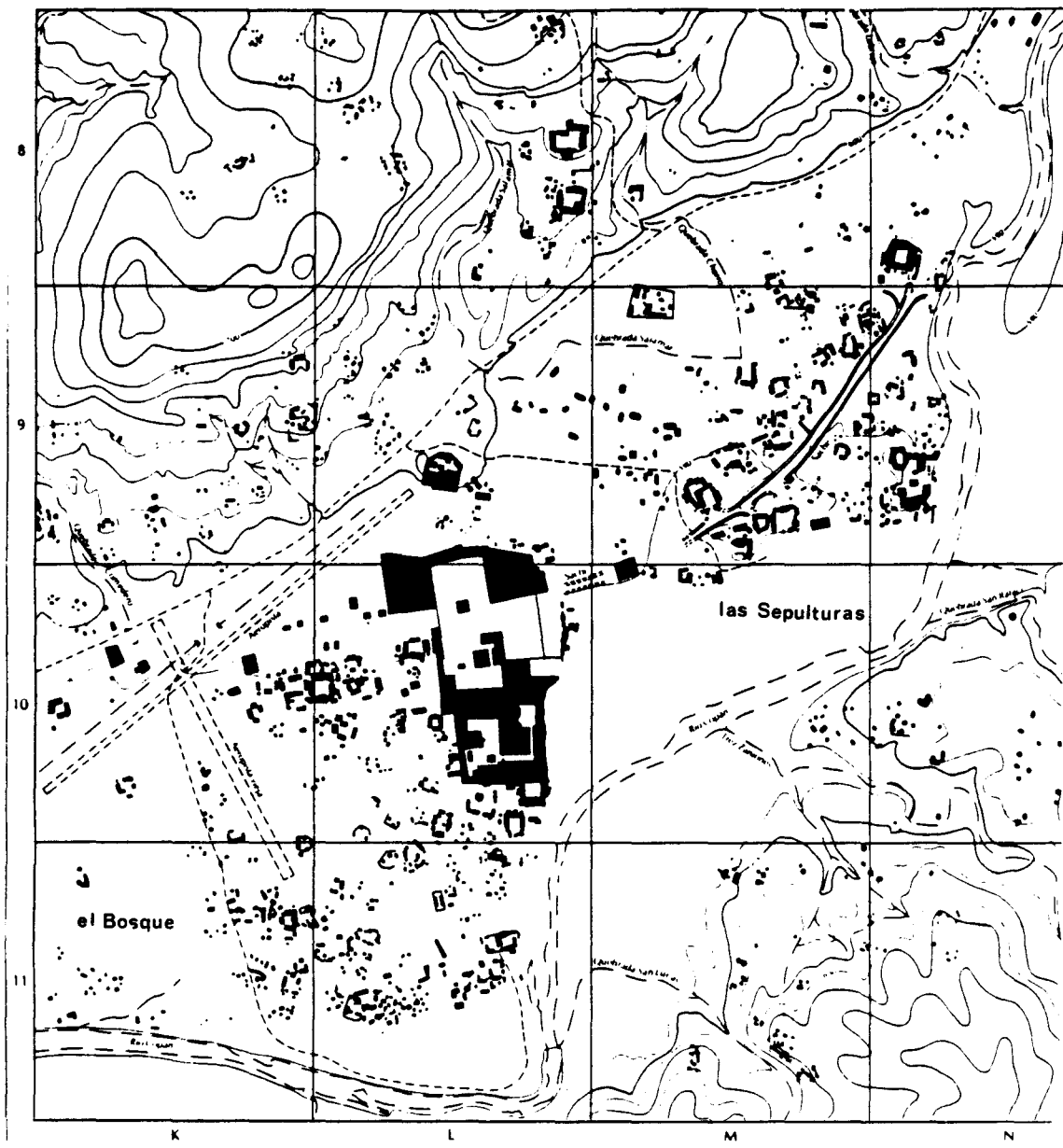


Figure 2.5: The Inner Zone of Dense Settlement around the Main Group including El Bosque, Las Sepulturas, and the Comedero-Salamar Area

more than 300 mounds which have been clustered into fifty-six groups (Hendon 1985b). The data used in the present study come from certain Sepulturas groups; these groups will be described in the following chapter.

Fash's third zone takes in the rest of the settled area of the pocket. It can, however, be subdivided on the basis of geographic location and differences in proximity of structures or groups. One such subdivision about which there is little information is that of the present-day town. It is known from local accounts and the discovery of sculpture that the site of Copán Ruinas was once occupied by a number of structures and stelae (Morley 1920:5). The early dates of the monuments indicate the importance of the area in the Acbi phase (Fash 1983a:211). Extensive discussion of these subdivisions and their possible socio-cultural interpretations will be found in Leventhal (1979, 1981, 1985), Fash (1983a, 1983b), and Freter (n.d.).

At the extreme eastern and western ends of the pocket stand seven stelae. The easternmost one, Stela 23, was probably originally erected in or near the modern town of Santa Rita, technically just outside the Copan Pocket proper. Moving west, one comes to the Stela Centinela, which has no inscription. Next comes Stela 13 and another plain one, Stela Petapilla. Across the river is Stela 12. West of the Main Group are Stela 10 in Ostuman and Stela 19 in Hacienda Grande. All the ones with inscriptions were erected on or (in the case of Stela 19) near the date 9.11.0.0.0 by the twelfth ruler of Copan, Smoke-Jaguar (Fash 1983a:220-226; see also Baudez 1986).

The large number of sites dating to the Coner phase, interpreted on the basis of form, abundance, and associated artifacts from test

pits, indicates a substantial population in the pocket. Coupled with this dispersion is the variation in site size and construction, measured qualitatively by the Harvard typology, and in location. These kinds of data, along with other lines of evidence such as the Main Group, have been interpreted as the physical reflections of a fairly large and hierarchically organized population during the Late Classic Period. The settlement zones described above have been regarded in light of this model as reflecting a distinction between elite and non-elite occupation. Sepulturas specifically, along with El Bosque and the Comedero-Salamar area, would be where the upper echelon of society, second only in importance to the ruler's immediate circle, lived. In a recent study, Fash (1983a) has argued for the achievement of a state level of organization during this period from the time of the rule of Smoke-Jaguar. Despite the persuasiveness of Fash's argument and of his interpretation of the data, a great deal of work remains to be done to elucidate the nature of the Coner phase society through a series of in-depth studies on particular issues (e.g. Abrams 1984; Mallory 1984; Spink 1983). The present study forms another such examination.

#### COPAN AND THE MAYA "FRONTIER"

As suggested earlier in the discussion of linguistic groups, much of the research in Honduras has focused on the nature of interaction across the boundaries of the Southern Maya Lowlands and of Mesoamerica. It is really only within the past several decades, however, with the advent of several long-term, large-scale, and methodologically sophisticated projects in central and northern Honduras (Naco Valley, Sula

Valley, Santa Barbara, El Cajón) that a solid body of data has begun to emerge. Associated with this has been the development of less naive notions of the correlation between ethnic, linguistic, and archaeological groups, and a rejection or at the least a modification of the core-periphery paradigm dominating much of the earlier research. The relationship of Copan with these neighboring but distinctive archaeological cultures has naturally been of concern. These issues do not impinge directly on the question of structure function on which my study is focused, and the kind of data that I will be presenting are not particularly suited to their discussion, even though the results of the Harvard Project and the two phases of PAC do in fact include data relevant to these issues. The results of my work, however, could be helpful. I will review briefly the conventional interpretation of Copan's cultural affinities and *raison d'être* in order to indicate the traditional interpretation of Copan. The Coner phase ceramic evidence will be discussed in more detail in Chapter 3.

Copan, specifically the Main Group, has usually been considered a part of the Southern Maya Lowlands. In a recent discussion of geographical regions within the lowlands, for example, Culbert (1973:8) included both Copan and Quirigua but created a special zone for them. This zone, the Southeastern, includes Copan and the northwestern part of Honduras as well as the lower Motagua River Valley where Quirigua is located. This approach was based on the generally accepted notions of Maya culture.

Identification of the Copan Main Group as a Lowland Maya site was based mainly on the presence of certain material-cultural traits which in turn reflect certain behavioral and ideological patterns (Glass 1966;



Longyear 1952). These include not only the use of the writing and calendric systems but also the recording of information on stone monuments (stelae, altars, monumental stairs, building façades). Other traits are the corbel arch and large monumental constructions such as the Acropolis. The iconography shares many images, symbols, and themes with the lowland area. The art style, although distinctive, is also seen as fundamentally part of the same tradition (Baudez 1986). Ballcourts and the implied emphasis on the ballgame are also mentioned (e.g. Glass 1966). Ballcourts per se, however, have a much wider distribution across Mesoamerica and beyond. It is the ballcourt markers which define the Copan ballcourt as Maya. These markers contain hieroglyphic inscriptions, dates, and iconography squarely within the Lowland Maya tradition (Baudez 1984).

Such traits all date primarily from the Classic Period and are manifestations of sociopolitical control and formal ideology — usually subsumed in the literature under the term "elite activity". Interest in Copan has always, therefore, been due at least in part to its geographic/cultural position on the outermost limits of the Southern Maya Lowland culture area. In essence, the following questions have been asked explicitly or implicitly (Longyear 1952:9; Leventhal et al. 1982): How Maya was it? When did the Maya get there? Why did they come? Who was there before?

The most generally accepted response for Copan (and Quirigua) is that an influx of Lowland Maya took place around the beginning of the Classic Period into the already populated Copan and lower Motagua Valleys. After establishing control over the older inhabitants, the

region, and its resources,<sup>10</sup> they then concentrated on trade with, in the case of Copan, northwest to central Honduras (Sharer 1978a; Schortman 1986; Jones and Sharer 1986; Willey 1986b; Baudez 1983, 1986; Longyear 1952).

In part, this interpretation, only broadly sketched here, is based on differences between the ceramic complexes of Copan and the lowlands. The Preclassic Period in the Copan Valley is dominated by the Usulután tradition, emanating from western El Salvador and highland Guatemala, which is also widespread in parts of Honduras (Demarest and Sharer 1986; Viel 1983). Two potbellied sculptures, another Late Preclassic link with western El Salvador, have also been found at Copan (Baudez 1986; Demarest and Sharer 1986). There is in effect no resemblance to the Mamom-Chicanel tradition of the Peten in the Preclassic Copan ceramics.

During the Classic Period, strong links continue with the southern highlands and parts of Honduras (Viel 1983:535-543). The Bijac and Acbi phases especially are marked by similarities to Kaminaljuyu ceramics. The degree of continuity between the Late Preclassic and Early Classic complexes is uncertain. In addition, however, certain Peten imports begin to appear in the Early to Middle Classic, specifically basal flange bowls, including Dos Arroyos polychrome. It was these bowls which were interpreted by Longyear (1952) as signaling the arrival of the "stela cult" and its practitioners.

The Coner phase, according to Viel (1983), is marked by a drop in the direct importation of Maya ceramics of both lowland or highland

---

<sup>10</sup> The various ways this might have been effected will not be considered here because the question, at least for Copan, has not received much attention to date.

origin. This is borne out by the PAC II excavations. He does note the development of a carved brown ware (Surlo) which is in the Peten tradition but is of local manufacture. The bulk of Copan's polychromes are of local manufacture (Copador and Gualpopa) and distinct from those of the Peten. The decorative elements of Copador are reminiscent of Maya pottery. On the other hand, so is one subtradition of the Ulua-Yojoa polychrome tradition (Joyce 1985). Therefore, although there does appear to be a change in the ceramic complexes, it seems to represent greater highland than lowland Maya influence. As Viel states, "[e]n el transcurso de su historia cerámica, Copán parece haber contraído con el Petén sólo lazos muy tenues" (1983:543).

The earliest constructions so far published from the Main Group date to Bijac times and include the earliest version of the ballcourt (Baudez 1983:31-32; Cheek 1986). PAC I found the earliest stela as well, Stela 35. It has no date but resembles the Leyden plaque stylistically, leading Baudez (1983:31; 1986) to date it around A.D. 400. Stela 29, the earliest dated monument, carries the date of 9.2.10.0.0 or A.D. 485. Baudez interprets Stela 35 as indicating the appearance of the intrusive elite in the area.

The nature of the Preclassic population which became the Classic Period non-elite stratum is almost impossible to determine without more data on the earlier period. Most scholars seem to favor a non-Maya, possibly Lenca-speaking, group (Longyear 1952; Viel 1983). However, the possibility of a Maya-speaking population which did not participate in the lowland Preclassic sphere should also be considered.

Copan was certainly involved in trade with western El Salvador and

parts of Honduras during the Late Classic Period based on the distribution and compositional analysis of Copador (Bishop et al. 1986; Beaudry 1984; Schortman et al. 1986) in these areas. At Copan, the large sample of Ulua-Yojoa polychromes and figurine-whistles confirms the Honduran part of the relationship. There is little evidence for trade with Quirigua (Schortman 1986; Jones and Sharer 1986; Sharer 1978a), Naco Valley (Urban 1986), or the Ulua Valley (Joyce 1985). Imports from the Peten are limited to a small quantity of vessels, judging by the material excavated from Sepulturas, and figurines. All of the obsidian analyzed to date comes from the Ixtepeque source, which indicates another highland connection although the route it took to Copan is unknown. Other items of Copan material culture that are imported but whose source has not been determined are jade, shell, and probably the stamped flasks (see Chapter 5). Perishable trade goods such as cacao or feathers may have also been of importance but cannot be discussed for lack of evidence.

Some epigraphic evidence augments this set of connections. The best understood inscription that has been published concerns the capture and execution of 18 Rabbit, Copan's thirteenth ruler, by the ruler of Quirigua on 9.15.6.14.6 6 Cimi 4 Zec or A.D. 737 (Riese 1986). Other ties before this event are mentioned briefly by Riese. Emblem glyphs of some Peten sites are known to occur (Fash 1983a). Pending publication of full and accurate translations, however, nothing more can be said.

In short, there is some evidence to support the idea of an intrusion in Early Classic times, either of people or ideas (cf. Willey 1986b). There is a great deal more evidence to indicate the presence of

trade links between Copan and its neighbors to the southeast and northeast. The scale of this exchange, however, remains uncertain. All evidence available on actual loci of production in the Copan pocket show a pattern of small-scale and dispersed activities focused mainly on utilitarian items (Mallory 1981; 1984; Spink 1983) with little indication of centralized control or standardization. Such evidence as available from Sepulturas, presented in Chapters 4 and 6 (see also Hendon 1987) also indicates small scale but more varied production of ornamental and utilitarian items. We still lack any evidence for how or where the ceramics exported to El Salvador and Honduras were produced. Contact with the Peten area seems very limited on the basis of artifact comparisons. Certainly the possibility of perishable trade items moving between Copan and both the Peten and Honduras cannot be ruled out. The difficulty of bulk transport of most such goods would seem to me to limit the amount of material moved. One possible conclusion from the above synthesis is that, although their cultural identity as Maya may have been very important to the Copan Valley ruling elite, they were not interested in maintaining economic ties with the lowlands. The exchange networks established with western El Salvador and west and central Honduras were sufficiently active to satisfy elite needs.

## CHAPTER 3

### THE ARTIFACT DISTRIBUTION DATABASE

As pointed out in Chapter 1, archaeologists have used several different kinds of data to address the related but distinct questions of structure use and social organization. These types of data can be broadly characterized as settlement patterns, architecture, artifacts, and burials. Most studies using data from Maya sites, whether derived primarily from survey or from excavation, have generally concentrated on formal patterns of site layout and differences in the size and number of mounds or sites. Furthermore, these studies have been content to establish the use of the structures or the nature of the sites in gross terms on the basis of a limited amount of data before moving on to a consideration of social organization.

I believe that the detailed study of structure or site function has generally not received sufficient attention. If our ultimate goal is the reconstruction of the ancient household or, more broadly, of the ancient society and its organization in its full complexity, then the identification of the kinds of activities occurring in the settlement units cannot be slighted. If we do so we run the risk of producing not only a less precise reconstruction but also a less accurate one.

In order to carry out such a detailed reconstruction, I have focused specifically on structure use rather than on social organization. However, the results of this study can make an essential contribution to eventual investigations of social organization.

The structures considered in this study are those built during the Coner phase in the Sepulturas zone of the Copan Pocket and excavated by PAC II from 1981 to 1984. The data recovered by these excavations can be broadly subsumed under the categories of architecture, artifacts, and burials. The distribution of artifacts and of some architectural traits will be the main source of information about structure use used here. Although a large collection of burials exists from the excavations, they will not be considered in depth here for two reasons. First, the analysis of the various traits of these burials — grave type, location, contents — would be more relevant to an investigation of social organization than to the present study, which is focused on structure use. Second, any discussion of these traits would in any case be premature pending completion of the study of the skeletal material still in progress.<sup>1</sup>

Definition of a structure's use depends on the identification of the kinds of activities taking place in and around it. In order to study the activities that were carried out in a particular structure, I have focused mainly on artifacts. Artifacts were made and used for various but specific purposes and are thus the physical remnants of activities. If one can identify the functions of artifacts one can also identify the activities present, and from the distribution of artifacts it is possible to identify the locations where activities took place. The fact that activities often involve several different types of artifact means that examination of the co-occurrence of artifacts can also

---

<sup>1</sup> This study, conducted by Rebecca Storey, will when finished provide as complete an inventory as possible of age and sex as well as information on disease, nutrition, and paleodemography.

be a valuable tool in the identification of activities. Another important aspect of the distributional study is the possible association between certain kinds of architectural units (e.g. rooms, benches, terraces) or traits (e.g. size, construction material, location) and certain activities. The various architectural features do not, however, have equal importance in this regard, and I have therefore ignored those which seemed unlikely to provide much evidence regarding activities.

Since more than one kind of activity can occur in the same space, it is important to realize that structures may not necessarily have single or exclusive functions. Any and all of the six activities defined in Chapter 1, for example, could be performed within the same building. Nor are these six activities the only ones that could occur. They are, however, among those most indicative of residences and most accessible given the kinds of cultural material preserved and recovered.

A study of this sort requires a body of data consisting of artifacts of known function excavated from deposits of appropriate context, with well-defined structural associations and from the same temporal segment. The PAC II excavations produced a wealth of information from which a suitable collection of data can be extracted. This chapter will first describe the excavations and the creation of the PAC II computer databank in which information about the recovered artifacts was recorded. I will then describe how the data in this general-purpose databank were used to construct a special database satisfying the criteria just mentioned and organized to facilitate the study of the distribution of artifacts. This will be followed by a brief discussion of the sources for the architectural data to be used in this study. Finally, I will discuss, with special emphasis on certain general



issues, the methods employed in the analyses of artifact function and distribution the details of which will be presented in Chapters 5 and 6.

#### DESCRIPTION OF PAC II EXCAVATIONS

The excavations discussed here were carried out in three groups (as defined in the preceding chapter) in Sepulturas (Figure 3.1). The largest one, Gr 9N-8, is in fact one of the largest known in the entire valley. It is a Type IV in the mound typology system of the Harvard Project and was originally assigned the CV number 36. Oriented north-east to southwest, it is located at the eastern edge of the Sepulturas zone next to the Copan River and about 250 m east of the sacbe bisecting the zone and leading into the Main Group (Hendon 1985b).<sup>2</sup> From the survey map the overall area of the group, including structures, courtyards, and other open spaces, can be estimated at 1.89 hectares (see Fash and Long 1983:map 15). All or part of twelve patios were worked on by the project. They have been given the letter designations A-F, H-K, M, and Alpha. There are at least two more patios identifiable without excavation (G and L). The survey mapped approximately thirty separate mounds, numbered 9N-34 through 9N-38 and 9N-53 through 9N-57. Excavations revealed that this count underestimates the actual number of structures for several reasons. Some structures were completely invisible on the surface but were revealed during excavation (cf. Fash and Long 1983). In other cases what appeared as a single mound during survey turned out upon excavation to be more than one substructure. In

---

<sup>2</sup> Distances, unless otherwise specified, are measured from the approximate center of Patio A in the case of Gr 9N-8 and Gr 9M-22, from the approximate center of the largest patio in the case of the other groups.

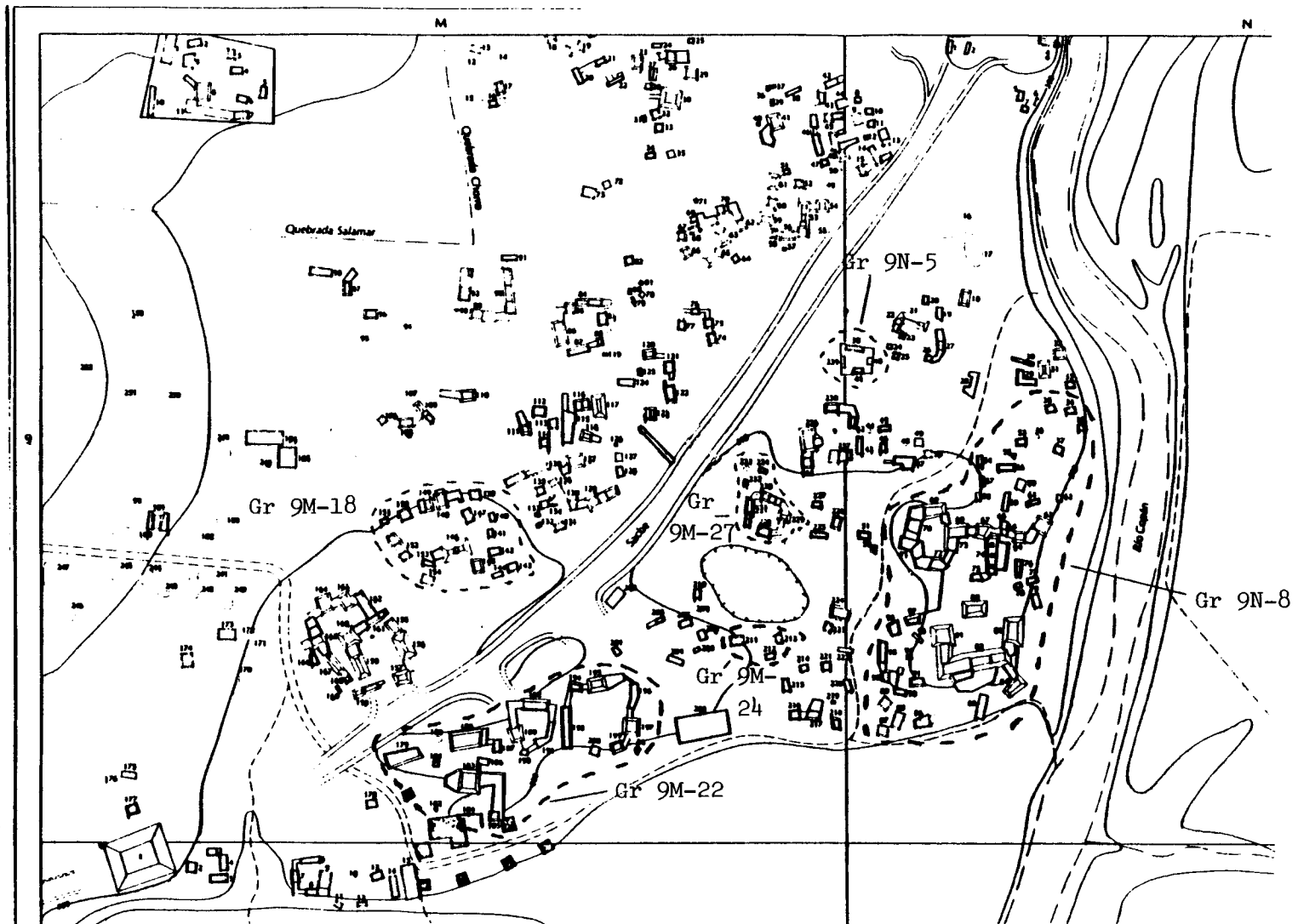


Figure 3.1: Map of Sepulturas Showing Location of the Groups Mentioned in the Text

addition, constructions on the east and south sides of the group have probably been destroyed by river action. The partially eroded condition of the structures in Patio K, the easternmost patio excavated, strongly suggests that the rest of that patio was destroyed by the river. Finally, some mounds may have been lost through the construction of a road leading out to the main highway which skirts the present-day western edge of Patios C and E. Of the twelve patios excavated, all but Patio J will be discussed here, although differences in preservation and amount of excavation will affect the coverage. I have excluded Patio J because of the uncertainty of its temporal relationship with the rest of the group, a problem not resolved by the excavations carried out.

The second group considered is Gr 9M-22. It is located approximately 250 m west of Gr 9N-8 and lies along the southern side of the sacbe near its western end. There are in fact arms running off from the sacbe into two of the patios of this group. Gr 9M-22 has at least three patios, A-C, plus several peripheral mounds. A total of twenty-two mounds was mapped (9M-179 to 9M-200) covering an area of approximately 1.53 hectares (Fash and Long 1983:map 15). Only Patios A and B were excavated. Once again several invisible structures were discovered. It is also likely that construction of tobacco-drying barns south of the group as now defined contributed to the destruction of some mounds. Each of these patios was given a separate CV number by the Harvard project with Patio A/CV-26 being considered a Type III and Patio B/CV-30 a Type II. They were later merged into a single group, which should be considered a Type III (Hendon 1985b; Fash and Long 1983; Sanders 1986).

The final group excavated, 9M-24 (CV-34), has only one patio (which has not been given a letter designation) with five structures,

three of which were mapped by the settlement pattern survey. They were numbered 9M-211 to 9M-213. The group, a Type I, is located roughly 135 m west of Gr 9N-8 and 115 m east of Gr 9M-22 to the south of a large depression. It is considerably smaller than Gr 9N-8 or Gr 9M-22, with an approximate overall area of only 800 m<sup>2</sup> (0.08 hectares) (Hendon 1985b; Fash and Long 1983:map 15).

Before continuing with the description of the excavations, certain observations are in order on the choice of groups for excavation and the fact that not all patios from Gr 9M-22 and Gr 9N-8 are used here. The original excavation plan proposed by Sanders (1986) included the complete horizontal excavation of at least one site of each type (I-IV) in Sepulturas in order to examine a set of sites covering the spectrum of size, kind of construction, and presumed social differentiation. Two factors interfered with the complete accomplishment of this goal. The first was the fact that the universe of Sepulturas sites from which the ones to be excavated were chosen was that created by the Harvard Project rather than that of PAC Phase I. I have already discussed in Chapter 2 the effect the change in the basic criteria of site definition had on the number, extent, and location of sites in the Copan Pocket. To reiterate, the newer groups often amalgamate several CV site units. CV-36/Gr 9N-8 and CV-34/Gr 9M-24 remained the same. What had been CV-26 and CV-30, two separate sites pertaining to two distinct levels of the site typology, became part of one group, 9M-22. Their merger meant that instead of excavating a Type II and a Type III site, the project had partially explored a Type III and lacked any Type II-related material.

The other hindrance to complete excavation of any group except 9M-24 was that more time was needed than originally thought necessary to

carry out the excavation using the desired methodology and recovery techniques. This was due in part to the richness of the artifact deposits and the quantity of burials and in situ material requiring careful excavation. Another factor was the presence of many structures and even patios (I, K, M, Alpha) undetected by the survey which also needed to be excavated. At the same time, weather and financial limitations together reduced the length of the field seasons.

Which shortfall — failure to excavate examples of all four levels of the hierarchy or failure to excavate completely two of the three groups — has the more serious implications for research depends of course on the specific orientation of one's study. In terms of a test of the Harvard Project's site hierarchy, the lack of a Type II represents a serious gap. This is less important for my study: although different types of sites may have had different functions, I am not proposing to test such a hypothesis. This study focuses on structures and their associated artifacts, and hence the emphasis is really on the individual building and on the patios. Patios form spatially discrete units within all groups above the level of Type I (where group = patio). The inward orientation of the structures, the small, variable, but usually present separation of structures in adjacent patios, and the presence of walls or other barriers preventing movement between patios all contribute to the definition of the patio as a distinct physical entity. The fact that some structures within a patio were not excavated is thus the more serious problem from my point of view. Such incomplete excavation affects the study of artifact distributions and hence of activity distribution. Fortunately, most of the patios included in this study were completely cleared. The only exceptions are F, I, K, and M.

Patio K was partly destroyed by the river. Patio F was also poorly preserved. The existence of the other two was only discovered during the excavation of Patios D and E. Lack of time and money prevented their complete exposure. However, despite the fact that PAC II did not fully meet its goals and some excavations were incomplete, the data available are adequate for the kind of study undertaken here.

Four other groups where work has been carried out will be mentioned briefly here, even though I have not used data from these groups in my analysis. Three of these were excavated by the Harvard Project (Leventhal 1979; Willey and Leventhal 1979; Hendon 1985b) and were discussed briefly in Chapter 2. They include Gr 9M-18 (CV-43 et al.), a Type III, lying on the northern side of the sacbe roughly 150 m away from Gr 9M-22. Gr 9M-27 (CV-20), a Type II complex, is found south-southeast of the sacbe and north of the depression mentioned above. It is approximately 150 m from the center of its main patio to that of Patio A of Gr 9N-8. The third group, 9N-5 (CV-16), is located some 100 m northeast of Gr 9M-27 on the same side of the sacbe. A Type I, it is also about 185 m northwest of Gr 9N-8. The fourth group, 8N-11 (CV-68), was excavated for a short period by students from the Universidad Nacional Autónoma de México under the direction of Evelyn Rattray. Another Type IV complex, it lies at the northern edge of the Sepulturas zone where the sacbe ends, 420 m north of Gr 9N-8 (Hendon 1985b; Fash and Long 1983:map 16).

The PAC II excavations, despite being spread over a period of four years under the direction of some eleven different excavators, including myself, were oriented towards a common set of goals and employed a common methodology. Emphasis was placed on complete exposure of the

final architectural phase rather than on extensive trenching. This was accomplished by the removal of all overburden, including collapsed architecture. In order to test the possibility of the presence of middens and in situ materials, care was taken to discover any existing deposits stratigraphically below collapsed wall material and to keep these different sorts of contexts separate (Sanders 1986). Some structures, although by no means all, had associated material of this sort. The result of this type of excavation is information on a series of architectural units in association with contextually distinct sets of artifacts spanning a relatively short time period over a relatively large physical space.

A standard set of excavation and recording techniques was used. The patios were overlaid by a  $2 \times 2$  m grid which, in the case of Gr 9N-8, was extended along the same bearing for all excavations undertaken. This grid was subdivided as needed both vertically and horizontally in order to keep material from different contexts or locations separate (see Sanders 1986 for fuller discussion of the methodology). A modified version of the operation-lot system of provenience recording, originating with the Tikal project and widely adopted in subsequent excavations in the Maya area (Coe and Haviland 1982:42-44; Adams 1971:12), was used. It was intended to assign a separate operation number to each patio. However, since the affiliation of some structures was found, after excavation, to be with a different patio than had been assumed on the basis of surface indications, some operation numbers really refer to parts of more than one patio. For this reason, the patio letter rather than the operation number will be emphasized here as the primary identifier of location. Suboperations were not used. In

situ material, burials, caches, architectural units of uncertain relationship, and any other items of interest were designated *features* and were assigned feature numbers at the discretion of the individual excavator. Burials were also numbered separately. Each excavator produced a report with detailed descriptions of the architecture as well as more preliminary discussions of feature and burial location (Webster et al. 1986; Hendon et al. n.d.a; Hendon et al. n.d.b; Gerstle and Webster n.d.; Diamanti n.d.; Widmer n.d.; Sheehy n.d.; Mallory n.d.; Murillo n.d.; Gerstle n.d.). The reports do not describe the artifacts recovered.

Information about artifacts was recorded in the field for eventual transfer to a computer databank. The PAC II databank includes all excavated artifacts that were classified.<sup>3</sup> The classification system divided the artifacts first into broad classes based primarily on raw material and/or process of manufacture (e.g. lithics, ground stone). Within each class a series of categories recorded a variety of information on form, decoration, specific material, condition, use, quantity, and weight. In the databank the information was organized first by operation and, if applicable, by year, then by class, and finally by lot. The one exception was the class of ceramic rims (the most numerous class overall), which was sorted by type and vessel form rather than by lot.

---

<sup>3</sup> In ideal terms. As with any archaeological project, some artifacts were lost, mislabeled, or overlooked at various points in the processing.



## CONSTRUCTION OF THE ARTIFACT DISTRIBUTION DATABASE

From this large PAC II databank I constructed a smaller database containing information on artifacts from lots considered suitable for use in the investigation of the functions of structures and contemporaneous with one another. This database, which will be referred to as the *Artifact Distribution Database*, contains information on 78,945 artifacts. To create this database the following manipulations of the data provided by the PAC II databank were necessary: (1) selection of the lots to be included, on the basis of their contexts and dating, (2) reorganization of the entries by spatial association to bring together all artifacts from the same lot and all lots associated with the same structure, and (3) modification and simplification of the artifact classification system to eliminate irrelevant information and focus more closely on form and function. These operations are discussed here; a detailed description of the Artifact Distribution Database will be found in Chapter 4.

### The Selection of Lots for Inclusion

To be included in the Artifact Distribution Database, a lot had to satisfy two criteria. The first was that the lot must come from a primary context belonging to the set of primary contexts that can be related most directly to the study of activities. The second criterion was that the lot must be datable to the Coner phase, to ensure that all selected lots would be contemporaneous.

*The Criterion of Context*

Fundamental to the kind of study undertaken here is the existence of primary contexts associated with deposits of material that can be used as the basis for inferences about activity distribution and human behavior. Such contexts are of two sorts: *use-related* and *redeposited*. In the case of use-related contexts, the context is the original location where the associated material was used. This material is thus in situ. Redeposited contexts are special locations to which material was brought from elsewhere for disposal. Deposits associated with both sorts of contexts were found in our excavations, but not every structure had recognizable associated primary material. In some cases there probably never was any; in others erosion may have removed what deposits there were. In general, however, the thickness of the overburden has kept erosion to a minimum.

The use-related primary contexts were identified by their stratigraphic position below and unmixed with collapsed construction and in contact with horizontal construction surfaces (floors) as well as by the intact (i.e. either whole or broken but reconstructable) nature of many of the artifacts. Redeposited primary contexts were recognized by their lack of wall fall, a rich and varied inventory of cultural material and bone, the presence of ash, carbon, or other signs of burning, and, to a lesser extent, reconstructable artifacts. It should be noted that the practice of using refuse deposits as a source of construction fill for substructures, known from many Maya sites in the Lowlands proper (e.g. Harrison 1970; Haviland 1985), does not appear to have been as common among the builders of the Sepulturas buildings. The fill does not have, by and large, the characteristics of a refuse deposit.

I have further subdivided these two basic kinds of primary context by general architectural association or location. The use-related contexts have been split up into the following types: room interiors, terrace surfaces on top of substructures, niches, and platform surfaces. Another type, room/terrace, applies only to Gr 9M-24/OP 18, where the excavator failed to excavate the room and terrace areas separately.<sup>4</sup> Platforms are those raised constructions for which there is no evidence of a walled superstructure, whether built of perishable material or of stone. It is possible that these platforms were roofed. It is also possible that they did have superstructures of which there is no trace. Material from substructures with perishable superstructures, as evidenced by the recovery of chunks of burned clay with pole impressions, post holes (rare), or the remnants of a stone bench face, was classified as being from terraces.

The redeposited material was mostly classified as middens. Exceptionally light deposits around structures lacking especially bone and evidence of burning were kept separate from the middens. Material recovered from above the patio floor was generally redeposited from adjacent structures. Such deposits were sometimes classified as middens, while in other cases they were kept distinct.

This system is adapted from the one used by PAC II excavators, which also included types for secondary contexts such as collapsed wall material and structure fill. Burials and caches were likewise part of the original system. Since these contexts will not be considered here, I have eliminated them from my classification. Table 3.1 is a complete

---

<sup>4</sup> Saúl Murillo lot cards on file at the Centro de Investigaciones, PAC, Copan, Honduras.

list of *context types*, including those excluded from this study. The code numbers assigned to each of the types used here are shown in the table. For reasons which will become clear shortly, these context types are also referred to as *locus types*.

Table 3.1: Context Types (Locus Types)

• Primary contexts used in this study

Location	Architectural Association	Code No.
Redeposited	Above patio paving	1
In situ	Inside room	2
In situ	Above terrace	3
In situ	Room or terrace	4
In situ	Inside niche	6
In situ	Above platform surface	7
Redeposited	Light refuse near structure	8
Redeposited	Heavy refuse near structure	9

• Additional primary and secondary contexts (not used)

Type of Context	Description	Code No.
Primary — in situ	Cache or burial	None
Secondary	Collapsed construction	None
Secondary	Structural fill	None

*The Criterion of Contemporaneous Dating to the Coner Phase*

In constructing the Artifact Distribution Database, control of the temporal dimension was also important. Since dating of the excavated material from Sepulturas is primarily by ceramic phase, I have been forced to define contemporaneity in terms of phase. The present analysis has been restricted to Coner phase levels as indicated by the presence of certain diagnostic ceramic types and the relative scarcity or complete absence of earlier or later types. This section reviews the definition of the Coner phase, the possible absolute dates it spans, its relationship with other complexes in the Maya and non-Maya areas, and certain problems related to these topics.

Viel (1983:538) has defined the Coner ceramic complex as follows:

...el Complejo Coner se distingue en primer lugar por la presencia del policromo *Copador*. De importancia también están el grupo *Surló* que sigue parcialmente la tradición *Melano de Acbi*, el tipo *Cruz inciso* y el tipo *Casaca estriado*. Los policromos *Tepeu 2* del Petén son muy escasos, en cambio los policromos de Honduras Central no son infrecuentes en las sepulturas [burials]. Las escudillas policromadas con reborde basal han desaparecido así como las formas teotihuacanoides. La decoración Usulután asociada a una pintura positiva persiste pero su importancia va disminuyendo. Debe anotarse la ausencia de los rasgos *Tepeu 3*, en particular el *Anaranjado fino*.

Certain ceramic types, however, span several of the ceramic phases. The excavation lots used here contain types unique to Coner or present in Coner even if present in other phases as well; they do not come from levels below the wall bases of the final phase substructures nor are they in any other way associated with earlier construction.

Table 3.2 is a list of the types considered here to be exclusively or primarily of the Coner phase, based in part on the typological definitions in Viel (1983:502-526, fig. Y-16). This publication of Phase I does not, unfortunately, contain all the types used by PAC Phase II and listed here. New types were defined by Viel and others in the course of analysis of the large amount of material from the Sepulturas excavations. Other sources of phase placement are indicated in the list as appropriate.

The transition from the preceding phase, Acbi, to Coner is not an abrupt one. "Por doquiera, la Fase Coner sucede a la Acbi sin discontinuidad aparente..." (Viel 1983:499). Thus a certain overlap between Acbi and Coner types is to be expected. However, the proportions of these continuing types by and large decline in the later phase. If these types were present in small quantities in the absence of any

Table 3.2: Coner Phase Ceramic Types

Type Name	Source for Dating
Aquino Café	5
Arambala Polychrome	1; 2; 3
Arturo Incised	1; 6
Babilonia Polychrome	1; 3
Black on orange	7
Cancique Polychrome	1; 8
Capulin Cream	8; 7
Casaca Striated	1; 4
Caterpillar Polychrome	1; 3
Cementerio Incised	1, fig. Y-16
Chilanga Chilanga	1; 3
Chilanga Osicala Variety	1; 3
Copa	8; 7
Copador Polychrome	1; 4; 3
Cruz Incised	1
Gatito Polychrome	6, lab example
Gualpopa Polychrome	1; 3
Iotampoco	1, fig. Y-16
Lorenzo Red	1
Peten polychrome	—
Polished orange	7
Raul Red	1
Red and buff	7
Red gouged/incised	7
Red on cream	7
Red slipped	7
Reina Incised	1
Sepultura	6
Sisero	6
Surlo Ardilla	1
Surlo Besal Incised	1
Surlo Grooved	1 <sup>a</sup>
Surlo Macanudo	1
Surlo Madrugada	1
Surlo miscellaneous	1
Surlo Orange-brown	1
Surlo Red on white	—
Surlo Tasu Fluted	—
Surlo Yoki	—
Titichon	6
Ulua Polychrome	1; 3
Zico	6

<sup>a</sup> If the same as Surlo Sacoman acanalado.

References: (1) Viel 1983; (2) Sharer 1978b; (3) Beaudry 1984; (4) Longyear 1952. Personal communications: (5) W. Fash; (6) R. Viel; (7) J. Sheehy; (8) R. Joyce; (9) G. Willey.

stratigraphic indicators of earlier placement, the lots were considered to be Coner. Some of these continuing types are presented in Table 3.3.

Table 3.3: Continuing Ceramic Types

Type	Source for Dating
Arroyo Red	1
Arroyo Red Sopi Variety	1
Antonio	7; 9
Cocorico Red on orange	1, Fig. Y-16
Eroded fine ware	
Favela Red on cream	1
Hastalgorro Pebble Polished	1, Fig. Y-16 <sup>a</sup>
Hijole Brown	1, Fig. Y-16
Mapache Grooved	1
Usulután (Izalco)	1

<sup>a</sup> Viel's type description lists this as dating to Bijac and mainly Acbi (Viel 1983:511). The description of burial I-2, however, lists the presence of one hemispherical bowl of this type. The burial is dated to the Coner phase on the basis of "la cerámica y la estratigrafía" (Viel and Cheek 1983:556).

References: see Table 3.2.

Finally, some categories were created during sherd analysis which are not congruent with the basic typological sequence. They are types in the sense that they have a set of necessary and sufficient attributes defining presence in the groups. However, they also represent an inability to fit a certain set of sherds into one of the usual types, either because the sherds have unusual features or because the analyst was inexperienced. In the hands of either a more experienced or a less discriminating person, the sherds would most likely have been fitted into some pre-existing type. In some cases, these types were created by J. Sheehy, who has given me a phase placement based on his analysis of Op 10 ceramics (Gr 9M-22 Patio A). Those placed in the Coner phase by Sheehy were incorporated in Table 3.2. The remaining ones are listed in

Table 3.4 along with other completely residual categories such as burned or eroded.

Table 3.4: Unspecified Categories

Burned	Orange paste
Cream slipped	Orange self slipped
Eroded	Other
Fine paste, unidentified	Slipped
Imported	Unslipped
Miscellaneous	Unspecified

As in the case of the continuing ceramic types, if lots contained a large proportion of known Coner types these unspecified categories were also considered to refer to Coner phase material.

The Coner phase is held by Viel to be the local manifestation of the Late Classic period:

Coner es un complejo del Clásico Tardío, equivalente a los complejos Payú de Chalchuapa y Yojoa de Los Naranjos. La presencia de rasgos y hasta algunos tiestos policromados Tepeu 2, confirma esta interpretación [Viel 1983:538].

Ceramic links with areas outside of Copan may be discussed in terms of actual movement of ceramic vessels or in terms of local variants of widespread decorative and formal modes. Ceramics imported from the Central Maya Lowlands are very rare in Coner contexts at Sepulturas. The bulk of the foreign material found there consists of Babilonia/Ulua polychromes, which are the predominant decorated pottery at Los Naranjos and other Lake Yojoa sites as well as at other sites in Central Honduras such as in the Naco Valley or in the area around Santa Barbara (Viel 1981; Henderson et al. 1979; Beaudry 1984; Joyce 1985). Arambala Polychrome, often called "False Copador", is rare at Copan and may be an import from Chalchuapa or some other part of El Salvador (Sharer 1978b; Beaudry 1984; Longyear 1952).



Exported ceramics are Copador Polychrome and Gualpopa Polychrome vessels which have long been known to have a wide distribution in parts of Honduras and El Salvador (Viel 1981; Longyear 1952). Chalchuapa (Sharer 1978b), the Zapotitan Valley, Gualjoquito (Schortman et al. 1986; Ashmore et al. 1984), and La Sierra in the Naco Valley (Henderson et al. 1979) are some of the major sites or areas with Copador and/or Gualpopa ceramics which, based on Beaudry's (1984) analysis of chemical composition, were produced in a single area, most probably the Copan Valley. Not all examples of Copador or Gualpopa Polychromes were produced in this one area, however. Furthermore, Copador is not found in any appreciable quantities at other sites in the Naco Valley (Urban 1986) or at Los Naranjos (Viel 1981) despite other artifact or decorative similarities between their assemblages and those of Copan.

In terms of decorative or formal "affinities", despite a similarity between the Tepeu 2 ceramic group Tialipa at Uaxactun and the Surlo types (Viel 1983; see also Leventhal et al. 1982), most links are to Honduras and El Salvador. Such Copan types as Chilanga Red-on-Usulután, Cruz Incised, and Reina Incised have counterparts at various sites including Los Naranjos — Vijagual Trichrome and Masica Incised (Viel 1983), Gualjoquito — Masica Incised local variant (Schortman et al. 1986; Ashmore et al. 1984), and sites in the Ulua Valley — Masica Incised local variant (Joyce 1985:295-299). Other relationships recorded for the Ulua Valley ceramic collections are to Gualpopa Polychrome, the various Surlo types, and Chilanga. Despite the lack of Copador Polychrome at these sites, Joyce (1985:295-299) notes that some of the local polychromes appear to imitate Copador in their designs or forms or in the use of specular hematite paint. This same sort of

affinity or influence is mentioned briefly by Henderson et al. (1979) for both polychrome and utilitarian ceramics belonging to the Late Classic Naco Valley complex.

It is important to note that the initial appearance and/or duration of some of these shared ceramic types is not necessarily the same for all these sites or areas. Such types as Cancique, Ulua/Babilonia, and Gualpopa or Gualpopa-like polychromes are found at Lake Yojoa, in the Ulua Valley, or at Santa Barbara sites in Early/Middle Classic (at Copan, Acbi phase) contexts but do not become popular at Copan until the Coner phase, based on published examples (R. Joyce, personal communication 1987; Joyce 1985). Gualpopa and Chilanga (among others) do appear in Acbi phase deposits at Copan as well, but they continue to be found in Coner levels in moderate to substantial quantities in association with Copador sherds (Viel 1983; Beaudry 1984). For this reason, I have considered them to be Coner types in my analysis here.

Dates for Coner have traditionally been estimated on the basis of the dates of the monuments whose caches contained Coner ceramics and of comparison with related complexes at other sites. Viel (1983:538) suggests A.D. 700-850. This would correspond to the Copador Phase of Willey and Leventhal (1979:90) and Longyear's (1952) Full Classic. Leventhal (1981:194) defines a Terminal Late Classic phase at Copan which spans the period from A.D. 650 to 800, essentially the same range.

These widely accepted dates for Coner have recently been brought into question by obsidian hydration dates obtained from sites both in the foothills and at Sepulturas. The dates suggest a later occupation of Sepulturas or at least a longer one. It has been suggested that occupation at Sepulturas continued into the latter half of the ninth

century A.D. and on into the tenth century (Diamanti 1986; Freter n.d.). These dates were calculated using an estimated hydration rate based on data from Guatemala without radiocarbon dates for comparison. Further work is planned to derive a Copan Valley-specific hydration rate and run carbon samples for comparison (Freter 1986). Until these steps have been taken, the absolute dates must be considered tentative. They remain suggestive, however, of a continued occupation in the Valley.<sup>5</sup>

Recently Joyce (1986) has re-examined the material that Longyear (1952) labeled Postclassic (corresponding to Viel's [1983] Ejar complex) and assigned a date of A.D. 900-1200 to it. Longyear's dating was based to a significant extent on the presence of Tohil Plumbate, a Mixteca-Puebla censer, and a Nicoya Polychrome effigy in Tomb 10. Another component was "coarse brown jars with 'combed' (multiple-toothed-instrument incised) designs and red zones" (Joyce 1986:317) as well as possible Fine Orange pottery. Similarities with Cerro Palenque in the Ulua Valley, Seibal in Guatemala, and Quelepa in El Salvador lead Joyce to propose subdividing Longyear's Postclassic into two parts, a Terminal Classic component and an Early Postclassic one. On the basis of these ceramic relationships, dates of ca. A.D. 850-1000 are suggested (Joyce 1986:313). Although this reanalysis appears to be in line with Freter's obsidian hydration dates, the material described by Longyear and considered by Joyce comes only from the Acropolis and Tomb 10. Another late location is Ball Court B described by Fash and Lane (1983:539-540), also close to the Main Group. The material is, overall, small in amount and

---

<sup>5</sup> A series of archaeomagnetic dates has been run by Daniel Wolfman on burned clay constructions. The results are not yet available.

scattered, suggesting a small and impermanent occupation (Joyce 1986; Fash 1983a:198-199; Longyear 1952).

Viel (1983:542) mentions that the upper levels of his trenches apparently contained less Copador Polychrome although certain more utilitarian types (Casaca, Raul, Cruz, Zico, Lorenzo) continued. He raises the possibility that these levels represent a last subphase of Coner that is characterized by a decline in the production and use of polychrome ceramics. He assigns tentative dates of A.D. 800-850 for the subphase. Another possible explanation for the decline is the extremely eroded condition of the sherds from these upper levels. (See also Fash 1983a:182.) No mention is made of any corresponding increase in fine-paste ceramics, although a sherd of Fine Orange-like pottery, reminiscent of Pabellon Modeled-Carved, is reported from Ball Court B (Fash and Lane 1983:540). It should be noted as well that ceramics from the fill of the building of Str 10L-18, one of the last built in the Acropolis, are reported to be exclusively Coner and included Copador (Becker and Cheek 1983:430), whereas the ceramics from the fill of the tomb of Str 10L-18 contained, in contrast, proportionally much less Copador (Becker and Cheek 1983:437). This may be another instance of a "post-Copador" subphase of Coner. There is thus little substantial evidence at this time for the sort of large-scale shift from polychrome ceramics to unpainted, sometimes mold-made, fine-paste wares (local variants or imports) noted in the Lowland Maya area and at Cerro Palenque (Willey et al. 1967:301-303; Adams 1971; Sabloff 1975; Joyce 1985, 1986).

Evidence from Sepulturas for Terminal Classic or Postclassic ceramics is also slight. A partial Fine Orange pyriform vessel was found in Gr 9N-8 Patio E "on the surface of Str. 9N-93, the western

structure of Court E, in an ambiguous context that could have indicated either the continuous occupation or the abandonment and reoccupation of this structure" (Diamanti 1986:8-9). Excavation in Gr 9M-22 Patio A recovered some plumbate sherds. What kind of plumbate these sherds are is unclear. The original ceramic classification listed them as Tohil. More recently, Mallory and Sheehy (1986) have called them "San Robles-like". As there is no San Robles type of plumbate, one can only assume they have conflated the Robles and San Juan types to indicate generally that it is not Tohil Plumbate (Joyce, personal communication 1987). At any rate, the context was ambiguous or indicative of later activity. Since the plumbate from the Main Group has been classified as Tohil Plumbate (Longyear 1952; Viel 1981, 1983) its relationship to the material in the Sepulturas deposits is unclear. The reduction of Copador or possibly of polychromes in general posited by Viel has not been apparent here. However, no one has looked at this question carefully or at the larger one of refinement of the Coner phase. It is always possible that Copador and other polychromes continued in use at Sepulturas even while declining at the Main Group: the occupational trajectories of the two areas are not necessarily identical or coterminous. Therefore it is possible that Sepulturas occupation relates to a Terminal Classic or — in my view, less likely — Early Postclassic time frame as suggested by obsidian hydration dating. Greater work on the ceramic question is clearly needed. For this study, however, the section of the Coner phase associated with the final construction phase of the structures will serve in the absence of any finer chronological control.

### The Grouping of Artifacts by Spatial Association

The collections of all lots of the same context and from the same area make up the basic analytical units of the study. Such a unit will be called a *locus*. It is defined as the cultural material from a particular location within a patio group which can be assigned to one of the primary contexts.

Loci were established in two stages. The first step was to determine where deposits of the sort just described had been found. I did this by reviewing field notes, lot cards, and preliminary reports for the excavations with which I had not been personally concerned to find out what interpretation the excavators had put on the various deposits encountered. These interpretations were recorded in the form of a one-digit code later used in the computer coding for context<sup>6</sup> and were also written out as part of the lot (excavation unit) description. This review yielded a list for each operation of lots considered to represent primary contexts.

Ambiguities or discrepancies in the descriptions and coding occurred. There are cases of lots that represent a mixing of secondary and primary contexts. Sometimes refuse reused as structural fill was coded as primary rather than secondary material. Midden deposits found below the wall base of substructures were properly coded as such but were not appropriate for inclusion in this study, which is limited to material associated with the final phase of construction. Resolution of these problems, based on discussions with excavators, my personal

---

<sup>6</sup> The codes I use for context and locus types (Table 3.1) are adapted from this system.

assessment, and an examination of the range of ceramic types, led to the elimination of some potential contexts or lots due to contamination by structural fill or wall debris.

The next stage, after lists of primary lots for each operation had been compiled and sorted by deposit type within each operation, was to group lots into loci. I wished to group together excavation units of the same deposit type that shared an architectural and spatial association (cf. Haviland 1985:161). In other words, I wanted to locate the lots in space and link them to some structure if possible. This was a relatively straightforward but time-consuming task using the site grids and excavation maps. These spatially distinct collections of excavation lots of identical context and common architectural association (when present) are the loci. (Figures for locus size and volume, generated from the lot dimensions recorded as part of the excavation, are given in the next chapter.)

Interpretation of the primary material found in situ (i.e. in use-related contexts) differs from that of the refuse material. Identification of the location of the activity is much more precise for the in situ deposits since they are, by definition, where they were left (for whatever reason). Refuse deposits may yield indications of a greater range of activities by virtue of their usually larger size and greater variety, but they could also be a collection of material from several sources (i.e. structures) and represent a longer span of time (Binford 1983a).

Although the number of loci is, in theory, equivalent to the number of different locations in the excavated patio groups, some of these locations yielded no artifacts. This fact is of interest, since

it indicates either that the area was unused, that it was used but cleaned thoroughly, or that it was not considered a proper place for disposal of refuse. This study, however, concentrates on the locations with artifacts. As already pointed out, some loci with artifacts could not be used because of contamination. After the elimination of such problem loci and loci without artifacts, 280 loci are left from all fourteen patios. The loci are numbered separately for each patio with the appropriate field operation number serving as the prefix. Locus type (which is the same as the context type) is also shown by adding a period followed by the code given in Table 3.1 for the context type. Thus the designation "Locus 0801.9" indicates that the locus is from Operation 8 (Gr 9N-8 Patio A), is the first locus defined for that operation, and is of locus type (context type) 9 (heavy refuse deposit); it refers to certain specified lots from west of Str 9N-80.<sup>7</sup>

#### Modification of the Artifact Classification System

The creation of the Artifact Distribution Database involved not only the selection and reorganization of material from the PAC II databank but also certain changes in the classification system. The ultimate goal of my reclassification was to produce a set of artifact categories reflecting primarily functional criteria. The first step was to review the original system and eliminate all extraneous information which introduced unnecessary subdivisions. Since the PAC II system was

---

<sup>7</sup> Because the processes of defining and refining loci overlapped, some loci were dropped after the initial numbering had been established. I decided not to renumber the loci, and hence there are discontinuities in the lists. Also, as discussed earlier, the same operation number can refer to structures from more than one patio.



designed as a general-purpose databank, a broad range of information was included, some of which was irrelevant for my purposes. Furthermore, its use over four years by various people had resulted in the gradual accretion of redundant and overlapping categories. Also, many distinctions were based on features of production or decoration which I considered to have less pertinence to the analysis of artifact function. For these and similar reasons, it was necessary to eliminate certain categories and to merge or rework others in order to obtain a set of categories better suited to the requirements of this study. In some cases combining or eliminating categories sufficed to achieve the desired result. In the case of ground stone artifacts, ceramic vessels, bone tools, other ceramic artifacts, and figurines, re-analysis of the actual artifacts proved to be the most efficient way to produce a more coherent and usable set of categories. I carried out this re-analysis for the ceramic vessels, other ceramic artifacts, and figurines. The reclassification of the bone tools and the ground stone, specifically those artifacts other than manos and metates, was performed by Andrea Gerstle.<sup>8</sup>

#### ARCHITECTURAL DATA

Although the primary emphasis of this study is on artifact distribution, it is also necessary to describe those architectural traits which may relate to functional differences. The excavation methods used by PAC II revealed a great deal more of the structures — and especially

---

<sup>8</sup> I bear sole responsibility for all interpretation and manipulation of Gerstle's work in this study.

of the superstructures — than is usually the case in the Maya area. For this reason I have concentrated on certain characteristics of the superstructures which are not usually considered, such as room area, bench area, the kind of room access and orientation, and terrace features. Certain kinds of architectural data traditionally used to differentiate structures, such as mound height, substructure area, and wall thickness, have not been considered important here because of the availability of greater information about rooms and superstructure layout. Furthermore, although I do pay attention to certain aspects of construction and decoration, they are considered in relation to the discussion of structure use and not, as is usually the case, to the question of social status or economic wealth as expressed in architectural gradations.

Most of the architectural data is derived from the individual excavation reports mentioned earlier, supplemented by their antecedents (field notes, lot cards, drawings) and my own observations. Since so far only one of these reports has been published (Webster et al. 1986), most of the information remains at present inaccessible to non-members of the project. I have therefore included in Chapter 4 a detailed description of the structures and the patio layouts.

#### THE ANALYSIS OF ARTIFACT DISTRIBUTION

In this section I will discuss in a general way certain matters related to the methods I used in analyzing the distribution of the artifacts included in the Artifact Distribution Database and drawing inferences about the activities associated with artifacts. Since everything

depends on the validity of the database as an adequate reflection of activities engaged in by the inhabitants of the settlement, I will begin by considering the question of the degree to which the surviving artifacts can be assumed to represent the total set of artifacts associated with ancient activities. Questions concerning the use of statistical techniques for the analysis of archaeological data will then be discussed. I will next describe the means I have used to identify the activities associated with artifacts. The final topic will be the establishment of associations between structures and activities.

### The Representativeness of the Surviving Set of Artifacts

Ideally, a locus would correspond to what Cowgill (1970:163) has called the *physical finds population*:

This is the population of all those physical consequences of human behavior which are still present and detectable (by means at our disposal) in a site or in some distinct contextual unit or set of units within a site, such as a stratigraphic layer, a structure, room, hearth, burial, or other "feature".

The physical finds population is thus the preservable and recoverable part of the *physical consequences population*, which in turn results from but does not equal human behavior and associated events. This physical consequences population consists of

...objects and physical structures produced or acquired; wear, damage, and alteration of these objects and structures due to use; effects on plants, animals, natural features, and climate as a result of human activity; and the spatial and contextual relationships between all these manifestations [Cowgill 1970:162].

Cowgill further points out that exigencies of time, money, and manpower

generally result in incomplete recovery of the physical finds population, thus limiting even further the representation of the physical consequences population.

As with the interpretation of all archaeological material, the question of the relationship between the physical finds population and the physical consequences population must be raised. It is quite apparent that the organic and perishable constituents of the latter population are no longer present. At Copan and specifically at Sepulturas, most organic material has simply not been preserved. Bone and shell, however, survived quite well. Animal bone and shell from the primary contexts were not friable. Human bone, both from burials and primary contexts, was less well preserved, and required a great deal more care to recover. Most durable were, as usual, the stone and clay artifacts. Thus we are undoubtedly missing an entire sector of the original repertoire of material culture consisting of wood, textiles, palm, reed, gourd, bark, and other organics. That such raw materials were widely used by the inhabitants can be inferred from the portraits on the stelae and the scenes on Lowland Maya polychrome vases (Mahler 1965; Graham and von Euw 1977; Maudslay 1889-1902; Ruppert et al. 1955), from ethno-historic and ethnographic accounts (Tozzer 1941; Osborne 1975:14-24), and from such cases of fortuitous preservation as those reported from Río Azúl (Hall 1986; Carlsen 1986) and Kaminaljuyu (Kidder et al. 1946).

Also missing is that part of the material record which was not discarded at the site because of deliberate conservation for practical or (in the case, for example, of heirlooms or burial offerings) sentimental reasons or because of use and discard elsewhere. It is unlikely that items exhausted or broken during such activities as farming,

hunting, or raw material procurement, all of which took place elsewhere, would, if not considered worth saving, have been brought back to Sepulturas for disposal (cf. Binford 1982; Hayden and Cannon 1984). Thus the physical finds population is systematically skewed by differential preservation and disposal. Consequently it will reflect those activities or behaviors related to or involving artifacts of stone, clay, bone, or shell that took place in or near the site.

With regard to just the preserved part of the material-cultural inventory, the sample achieved by the excavations and later manipulations is only a fraction of what is potentially available. In the first place, of the fifty-six groups at Sepulturas, PAC II has excavated only three, or slightly over 5% of the total number. (This leaves out of consideration, of course, the earlier excavations.) With regard to the three groups excavated, all of Gr 9M-24 was excavated, 67% of Gr 9M-22 (two of three patios), and 86% of Gr 9N-8 (twelve out of fourteen patios). As for artifacts, the avowed intent of the project was to recover all the in situ material, and to this end as many of the structures and intervening spaces as possible were cleared (Sanders 1986). However, the actual recovery falls short of this goal of 100% coverage, in part due to limitations imposed by our techniques and errors made during excavation or processing (lost or confused tags, illegible markings, etc.).

Factors such as these — the differential preservation of materials of different kinds, the fact that only a few groups were excavated and that the excavation of some of the selected groups was incomplete, and the failure to achieve 100% recovery of artifacts — make interpretation of the excavated material in terms of human behavior more

difficult and force caution in the scope of generalization attempted (Clarke 1978; Schiffer 1976; Carr 1984). However, most of the patios that the project did excavate were excavated completely; this, together with the quantity and quality of the data, convinces me that the sample is adequate for the purposes of reconstructing the activities associated with the excavated structures.

### **The Statistical Analysis of Archaeological Data**

The application of statistical techniques to archaeological data has become increasingly common in recent decades (Clark and Stafford 1982). Although questions can be legitimately raised concerning the appropriateness of applying particular statistical procedures to archaeological data, it is clear that the use of statistics can yield real descriptive and interpretive gains. The careful use of statistical techniques makes possible the comparison of larger amounts of data and can contribute to a finer-grained description of patterns present in the data. The choice of technique and the interpretation of results are always, of course, guided by the original ideas, assumptions, and hypotheses that one has about the topic of research, as well as a recognition of the limitations, advantages, and assumptions of a given statistical test when applied to a particular kind of data (Doran and Hodson 1975; Thomas 1976, 1978; Cowgill 1968b, 1977; Vierra and Carlson 1977; Harris 1975; Scheps 1982).

Several kinds of multivariate statistical techniques were applied to the Artifact Distribution Database with a view to facilitating the

recognition and description of patterns within the data. These techniques and the patterns they revealed are described in Chapters 5 and 6. It seemed reasonable to expect that differences in the location, kind, and intensity of activities involving the use of artifacts would be manifested in differences in artifact representation in different loci or different contexts (i.e. locus types). The main technique used is that of multi-way chi-square tests, with special focus on the resulting standardized residuals. I have also applied principal components analysis and cluster analysis to the ceramic rims and a few other artifact categories in order to investigate the distributional associations among categories.

Further discussion of the specific procedures employed will be deferred to Chapters 5 and 6. Here I will say something about a couple of general issues in the use of statistical methods for the analysis of archaeological data. The first concerns the factors that affect the applicability of statistical techniques to such data. The second question relates to the kinds of uses to which the results of statistical analysis can be put. I will then deal with the question of the applicability of statistical methods to the Sepulturas data in particular. I will conclude by discussing some more specific questions dealing with the conversion of the information contained in the Artifact Distribution Database to numerical form for statistical processing.

### *The Applicability of Statistical Techniques*

Whether or not a given statistical procedure can be legitimately applied to a particular set of data depends on the extent to which the data satisfy the assumptions the procedure makes regarding the variables

it deals with. These include assumptions about (1) the level of measurement, (2) the nature of the underlying statistical distribution, and (3) the degree to which the set of data can be regarded as a random sample of the population from which it is drawn. Different statistical methods make different assumptions. A common distinction is between parametric techniques, which make quite strong assumptions, in particular with regard to the distribution involved (it is assumed to be normal), and nonparametric techniques, which make fewer assumptions, and in particular do not presuppose a normal distribution. Nonparametric procedures can therefore be used in situations in which parametric procedures cannot be employed because of violations of their assumptions.

(1) The first issue is the question of what is called the level of measurement, about which there is a certain amount of disagreement in the statistical literature. Some authors (Siegel 1956:21-30; Blalock 1979:15-24; Thomas 1976:18-34; Doran and Hodson 1975:37-38) place great emphasis on the importance of specifying the kind of measurement represented by the variables under study and the limitations that the level of measurement imposes on the possible range of statistical tests and applications. Briefly, they distinguish four levels, which use respectively nominal, ordinal, interval, and ratio scales. Nominal scale variables are "a set of mutually exclusive subclasses" whose membership is determined by the presence or absence of one or more traits (Siegel 1956:22-23). Ordinal scale variables can be ordered relative to one another in some way (Siegel 1956:23-26). Interval scale variables are "characterized by a common and constant unit of measurement which assigns a real number to all pairs of objects in the ordered set" but



the scale's "zero point and unit of measurement are arbitrary" (Siegel 1956:26-27). Finally, ratio scale measurement employs an interval scale with a true zero point (Siegel 1956:28-29). The number and variety of arithmetic operations possible increase as one moves from a nominal to a ratio scale.

In contrast to this concern with the limits the level of measurement achieved places on the applicability of particular techniques, other authors feel that other issues are more important (Marascuilo and McSweeney 1977:14-19). Although recognizing the differences among the kinds of scales, they are more willing to allow the application of statistical techniques such as Pearson's  $r$  to lower-order scales. They demonstrate, for example, that the use of standard alternatives to this coefficient with less restrictive requirements of scale, such as Spearman's  $\rho$ , the point biserial correlation coefficient, the biserial correlation, the phi coefficient, and the tetrachoric correlation, yields very little or no increase in accuracy or significance over Pearson's  $r$  when applied to data measured on an ordinal or nominal scale, even though these other statistics are generally deemed more appropriate for such data (Harris 1975:225-227). However, they do recognize the importance of measurement level "in considering the kinds of *theoretical statements* [original emphasis] and generalizations [made] on the basis of [the] significance tests" (Harris 1975:228).

(2) Another important factor to be considered is the nature of the statistical distribution assumed to characterize the population. Parametric statistics, by definition, assume a normal population, whether univariate, bivariate, or multivariate (Siegel 1956:19; Blalock 1979). It is likely that this assumption is frequently or even always violated

by archaeological data (Doran and Hodson 1975:127-129). Support for the application of certain parametric techniques or statistics, such as Pearson's  $r$ , to data with a non-normal distribution can be found in the literature (e.g. Harman 1976:24-25; Anderson 1984:3-5; Harris 1975:231), on the grounds that the procedures are sufficiently robust to remain useful even in such cases. Nevertheless, violation of the underlying assumptions or requirements of a technique may vitiate both its effectiveness and its interpretability (cf. Kendall 1980:1-11; Siegel 1956). The usual solution adopted when it is known or suspected that the distribution is not normal is to use one or more of the various non-parametric or distribution-free (assumption-free) statistics, which make no stringent assumption about the shape of the underlying distribution (Siegel 1956:31; Marascuilo and McSweeney 1977; Bølviken et al. 1982:41-42); the most frequently used statistic of this sort is chi-square.

(3) Random sampling is another basic assumption of parametric statistics that is often invalid for archaeological data (Siegel 1956; Blalock 1979; Henkel 1976). This assumption requires that the set of data to be analyzed be drawn in a purely random manner from the larger population the sample is intended to represent. In archaeology, even if, as is sometimes the case, true random samples have been created from some set of sites, excavation units, or artifacts, the fact remains that the population from which they were drawn is itself most likely a non-random or incomplete reflection of the original population (Doran and Hodson 1975:94-97; Thomas 1978:442-444).

### *The Purposes for which Statistical Procedures Can be Used*

There are two general kinds of use to which statistical procedures can be put. They can be used for the purpose of making inferences about the larger population of which the set of data analyzed is a sample; in many other fields this is probably the most common use of statistical methods. But statistical analysis can also be a valuable tool simply for the description, categorization, or ordering of a set of data (Harris 1975:5-6; Blalock 1979:4-7; Sload 1982:92-95). This is a major function of statistics in archaeology.

It is important to realize that departures from a normal distribution and the absence of random sampling or of any sampling at all are more serious concerns when one wishes to use the results of statistical tests to make inferences about the source population of the sample with reference to some previously specified hypothesis (Henkel 1976:8). When statistical analysis is used for descriptive purposes, some deviation from the assumptions underlying the technique used may be more tolerable; some techniques have been shown to be quite robust in this regard.

### *The Applicability of Statistical Techniques to the Sepulturas Data*

It is clear that a number of problems concerning the applicability of statistical techniques arise in connection with the data in the Artifact Distribution Database. I will discuss these and describe the strategies I have used to minimize their effects.

With regard to the level of measurement, the situation is fairly good. The data used in the statistical tests described in subsequent chapters are counts, or proportions calculated from these counts, for a

series of artifact categories measured across a series of loci or excavated assemblages. The categories themselves are not the variables: their frequencies are (Sload 1982:71). Therefore they qualify as discrete quantitative variables with an infinite range of integer or proportional values possible (Marascuilo and McSweeney 1977:14-17). At least an interval scale of measurement has thus been obtained.

The question of statistical distribution is related to the null hypothesis tested by a statistical procedure. In the present case, the null hypothesis is always that the spatial distribution of artifacts is due to chance or to random behavior (Henkel 1976:85-86), unaffected by the association of artifacts with activities and of activities with particular locations. It might not be unreasonable to suppose that if the null hypothesis is true the result of such random factors would be a normal distribution, but it is perhaps unsafe to assume that this is the case.

As for random sampling, the actual population-in-hand is not being sampled at all in a statistical sense, since *all* the data that fit the criteria of contextual and temporal relevance are included in the database. It is true that for purposes of making inferences about the Sepulturas settlement as a whole or about wider areas the data from the three excavated groups can be regarded as a sample of some kind. But, as was discussed earlier, the collection of loci is an incomplete and non-random sample of a series of inaccessible populations (in the sense of Cowgill [1970:162-163]), each more limited than the last as a result of accidents of cultural behavior, preservation, and recovery.

In light of the foregoing, I have deemed it prudent to employ primarily nonparametric rather than parametric procedures in order to

avoid the more stringent requirements imposed on the data by the latter. I have made extensive use of the nonparametric statistic chi-square, and have based cluster analysis on Kendall's  $\tau_b$ , which is nonparametric, rather than on a parametric coefficient of correlation. For principal components analysis I have had to use a parametric statistic, Pearson's  $r$ , but in this case I have relied on the fact that there is support from statisticians for the view that this statistic is sufficiently robust to permit valid use even when the usual assumptions are not fully satisfied. I believe that the use of nonparametric statistics and the general robusticity of the techniques chosen adequately counteract any problems arising from questions about the statistical distribution or the lack of random sampling (Harris 1975:18, 231-233; Cowgill 1977:351-352).

It is also important to point out that statistical techniques are used in this study for descriptive purposes rather than in order to make inferences about a population. Both the principal components analyses and the cluster analyses to be presented later emphasize the descriptive use of the techniques as devices for making clearer the variation present in the data set itself (Cowgill 1968b:367; Harman 1976:24-25). In the case of the various chi-square analyses, where the attempt to evaluate differences among loci or locus types involves rejecting or accepting a statistic on the basis of some predetermined level of significance, the emphasis is still on assessing a descriptive statistic and its variation across the population (Doran and Hodson 1975:96).

Although statistical methods are used in this investigation for descriptive purposes, the results inevitably carry certain implications

for a larger population. Cowgill (1977:366-367) has made the point that, in dealing with whole samples,

any proposed explanation — except perhaps explanations which account for phenomena by asserting that they are outcomes of the idiosyncratic wills of human or supernatural agents — implies an infinite population. This population consists of all events implied by the proposed explanation. The fact that some finite and quite possibly small set of events are the only instances there actually are, or ever *will be* [original emphasis], of events in accord with the specified set of probabilities is immaterial.

Thomas (1978:443-444) makes a somewhat similar statement (also cf. Doran and Hodson 1975:95-97). Of more direct interest, however, is the fact that the excavations on which my analysis is based involved sites which are part of the Sepulturas settlement, which in turn is a part of a valley-wide system. It is clear, therefore, that there are indeed larger populations about which one would like to speculate. Inferences about these populations can be made on the basis of the analysis of this restricted body of data. However, it will then be necessary to exercise caution in interpreting the statistical confidence intervals or significance levels in light of the possible violations of the assumptions of the techniques (Sload 1982:94-95).

#### *Questions Concerning the Numerical Representation of Information*

The analysis of the information contained in the Artifact Distribution Database operates on numbers, which are either counts of artifacts or proportions derived from these counts. Two questions that have been raised in the literature require some comment. The first is the validity of using proportions rather than actual counts. The other concerns the treatment of counts in which the items counted are fragments of artifacts.

(1) In most of the discussions to follow, comparisons are based on the proportions of the total number of artifacts in a locus represented by the count of a particular category in that locus. In some cases, the proportions have been calculated across loci on the basis of the total number of artifacts belonging to the particular category. As a result, the variables used in the cluster analysis and principal components analysis are actually "percent of category x".

The use of percentages or proportions is both common and the subject of criticism in archaeology. To a certain extent it is a question of the nature of one's data. Percents make more sense than counts for the data analyzed here because locus size varies considerably. Some loci have considerably more artifacts overall than others. This is due to a diversity of factors — length of excavation, artifact density (in turn resulting from a variety of causes including time, rate of discard, and population), and locus size or volume — which are incidental to or a distraction from the focus of the study. Any analysis based on raw counts will be concerned with differences in the number of artifacts, which, other things being equal, will primarily reflect differences in the size of the loci being compared; differences in locus size will therefore tend to overpower other differences which are of greater interest. The tendency for locus size to swamp other factors was demonstrated by one principal components analysis, not reported here, in which raw counts were used. Only one component was generated, which was in effect defined as the difference in size (but cf. Lischka 1978; Hill 1968). The objective is not to discover which loci have similar total numbers of artifacts but to see which ones have similar proportions or similar relationships among proportions of certain artifact categories

(Sload 1982:72; Cowgill 1968a, 1968b:372; Cowgill et al. 1984:182; Orton 1980:161-162). It is for this reason that I have generally worked with the percentages rather than the counts.

It should be noted that Hayden and Cannon (1984:23-25; Cannon 1983) have argued in favor of using absolute frequencies rather than proportions. If ratios must be used instead of absolute figures, they prefer scaling by length of occupation, rate of refuse disposal, or some such factor — none of which can be calculated for this set of data. While I recognize the cogency of some of their arguments, the archaeological situation discussed here does not lend itself to the adoption of their recommendations (see also Rosen 1986).

(2) Related to this question is that of what kind of entity these counts actually represent. Table 3.5 shows the distribution by class (material code) of the 78,945 artifacts in the Artifact Distribution Database. It is evident that ceramic rims and lithic artifacts comprise almost all of the database (93.4%). For ceramic rims and to a lesser extent for lithics, each unit in the count does not necessarily correspond to a separate item. For whole vessels, on the other hand, each unit in the count represents a unique pot. The other classes of artifacts — ground stone, stone ornament, bone, shell, turtle, other ceramic artifact, and figurine — fall somewhere in between these two extremes. The smaller number of artifacts in these classes made it possible, during initial classification, to match up pieces from the same item. For this reason it is more likely that the counts, although possibly referring to fragments, correspond to the number of unique artifacts.



Table 3.5: Artifact Totals by Class for Total Sample  
(N=78945)

Class	Quantity	% of Total Sample
04 (Ceramic Rims)	40739	51.6
01 (Lithics)	32985	41.8
06 (Bone)	3283	4.2
07 (Shell)	695	0.9
02 (Ground Stone)	640	0.8
13 (Other Ceramic)	227	0.3
14 (Figurines)	129	0.2
24 (Whole Vessels)	97	0.1
10 (Turtle)	83	0.1
03 (Stone Ornament)	67	0.1

Given these differences in what the counts represent, the question of comparability arises. The problem of using ceramic rim counts has been recognized before and various solutions proposed (Braun 1980; Orton 1982; Doran and Hodson 1975; Cowgill et al. 1984). The kind of information necessary to derive, for example, "estimated vessel equivalents" (Orton 1982) is simply not available in the Artifact Distribution Database or in the PAC II databank from which it is derived. A review of my descriptions of reconstructable vessels from Op 16 features (Hendon n.d.) suggested that six to seven rim sherds per vessel might be a possible average with the exception of the narrow-, medium-, and large-necked jars, which seemed to break into only 4.5 rim sherds per rim. (This appears to give some support to the idea that thinner and more open forms will tend to break into more pieces than restricted, heavier forms [Braun 1980].) However, these figures were derived from incomplete information and only a small number of vessels was involved. Hence any use of them in the way proposed by Orton would be very questionable.

The lithic assemblage, as will be seen in Chapter 5, is almost entirely obsidian blades or blade fragments. Mallory (1984:90), in his

examination of the Copan lithic assemblage, states that "the average original whole blade broke into three or four pieces, based on estimates derived from the few whole blades recovered, and whole core lengths."

In his analysis, however, Mallory (1984:112-113) emphasizes other methods of whole blade estimation, namely counting only bulb ends or estimating core diameters to get the number of blades produced per core.

After careful consideration, I decided not to divide the total number of rim sherds or obsidian blades by some constant (be it 6.5, 4.5, or 3.5), since such constants would not be based on any sort of specific study and could only be derived from incidental and incomplete information on a small subset of the total sample. Although ceramic rim quantities are not directly comparable to quantities in other classes, within the class quantities are comparable across loci. Since the bulk of my analysis looks at specific classes of artifacts separately, I decided that attempting to estimate original numbers of vessels or blades based on the available data would only introduce more inexactness and uncertainty into the sample.

### **Analysis of Artifact Function**

The possible uses to which artifacts of various kinds were put will be considered in Chapter 5. This is a necessary preliminary to any discussion of structure use since it is through the artifacts that the activities and hence the functions of structures will be identified. The attempt to determine the activities in which artifacts were used will focus first on individual artifacts, after which the patterns of co-occurrence of artifacts will be examined.

*The Functions of Individual Artifacts*

Inferences about the functions of individual artifact categories were based on formal criteria, analogy with ethnographic groups, and a limited amount of information on such physical features as wear patterns. (Since few analyses of these physical features were carried out, they could not play a significant role in the investigation.)

This use of analogy, mainly with modern and historic Maya groups, is not without problems. As with any modern group the socioeconomic framework within which the present-day Maya operate differs considerably from that of pre-Conquest times. In addition, the position of the Maya in modern society is marginal, which restricts their access to certain sorts of resources. As suggested in Chapter 1, these differences affect our ability to retroject with confidence modern sociopolitical or religious organization to ancient times. On the other hand, this very marginality has resulted in a great deal of obvious continuity in the formal and technological characteristics of the material culture from pre-Conquest to modern times. In many cases, the similarities are so strong that functional continuity seems reasonable. The use of manos and metates to grind maize, the techniques of making pottery, and the kinds of vessel forms used are some of the best documented continuities. As the work of Hayden and Cannon (1984) has shown, the manufacture and use of tools of bone and chipped stone (nowadays also chipped glass) as well as other forms of traditional technology have continued (also O'Neale 1945).

*Inferences about Activities from the Co-Occurrence of Artifacts*

The associations between artifacts and activities were also investigated through the search for consistent co-occurrences establishing sets of artifacts which may relate to the same activity. Two kinds of co-occurrence will be defined here: physical and statistical. The first refers to the primary deposits which are not only in situ but represent a coherent assemblage of related artifacts. These deposits, generally referred to as features, are distinct from other primary use-related deposits because they were deposited in a shorter period of time and are not refuse. Analysis concentrated especially on those features with more than one artifact in order to shed light on which artifacts were used together, presumably in the same activity.

The second kind of co-occurrence, statistical, was examined by the application of several multivariate techniques to the entire Artifact Distribution Database to discover which categories tend to occur together. This sort of analysis is necessary for two reasons. Although the features provide a more direct way of studying patterns of co-occurrence, they are rare. Most of the primary material from the excavations, as at any archaeological site, is refuse, whether in situ or redeposited. Furthermore, the size of the database and the large number of categories, even after the classification system has been streamlined as much as possible, make the recognition of patterns by visual inspection difficult or impossible. If due respect is paid to the requirements and assumptions of the statistical techniques, they can provide a powerful and objective way to reveal subtle associational patterns.

## Associations between Structures and Activities

Chapter 6 will consider the spatial distribution of activities. The first step will be a brief analysis of architectural traits believed to be related to the use of the structures. This is based on material presented in Chapter 4 and will serve to point out certain regularities and differences across groups. It will also pave the way for the later comparisons.

The next section will concentrate on comparing the kinds of artifacts found in the four primary use-related locus types — rooms (2), terraces (3), rooms/terraces (4), and platforms (7). Since each of these locus types corresponds to a type of primary context, such an analysis will show if variation exists among these contexts. In addition, since each locus type is confined to a specific kind of structure (i.e. the platforms) or portion of a structure (i.e. the rooms or the terraces), such variation can indicate differential use of space.

The final part of Chapter 6 will focus on the structures within each patio. Here the occurrence of features will serve to suggest specific activities for those rooms, terraces, or platforms with which they are associated. In addition, the comparison of the composition of the loci associated with each structure will indicate which areas have greater evidence for certain activities based on the other in situ deposits and the redeposited ones. This represents the most specific level of analysis and interpretation.

The concluding chapter, 7, will bring together the results of these various analyses to illuminate some more general patterns of structure use within and across patios and groups.

## CHAPTER 4

### DESCRIPTION OF STRUCTURES AND THEIR ASSOCIATED LOCI

The purpose of this chapter is to provide metric data and architectural descriptions for the structures included in this study and to describe the loci that constitute the Artifact Distribution Database. A descriptive catalog of the structures is necessary because almost no architectural information from the Sepulturas excavations has been published. The Artifact Distribution Database is the corpus of data on which my analysis of the distribution of artifacts and the association of activities with structures depends; it is therefore essential to show how the artifact inventory is organized into loci in the database and to describe the artifacts assigned to each locus in a fairly detailed way. This information on structures and loci is bulky, but it is essential to present it, since it provides the factual basis for the analyses to be discussed in subsequent chapters.

I will begin with a general account of Sepulturas architecture in which the terminology to be used will be defined. This will be followed by a section containing the architectural descriptions of structures and, for each structure, a listing and description of the loci associated with that structure in the Artifact Distribution Database. Certain architectural features such as type of construction, decoration, room layout, and room orientation are found throughout the sample of excavated structures. These patterns will be discussed in Chapter 6 as a prelude to the study of artifact spatial distribution.

## SEPULTURAS ARCHITECTURE AND THE TERMINOLOGY USED TO DESCRIBE IT

Certain terms will be used throughout the chapter to refer to various architectural units. Although these terms are by and large in common use in Maya archaeology (cf. Pollock 1965), I would like to review my usage of them in order to avoid confusion. In the process I will give an overview of the construction of the excavated structures.

The open, paved, and usually plastered area around which the structures were built is the *patio* or *courtyard*. *Substructure* refers to the solid square or rectangular foundation which, rising above ground level, consists of four stone retaining walls enclosing a mass of dirt and cobbles and often covers earlier structures. This substructure served as the support or base for a superstructure. This function distinguishes them, in my usage, from *platforms*, which are also elevated constructions with stone walls and surface but lack evidence of a superstructure. The walls of the substructures or platforms may either rise upwards in a single vertical line or be broken up into a series of *terraces*, broad step-like constructions. Most substructures have *projecting staircases* built against the retaining wall that faces the patio.

The *superstructure*, the main focus of interest here, refers to the collections of rooms built on the substructure, the paved top of which forms open *terrace* areas around the rooms. In most cases the level of the room floor is higher than that of the exterior terrace surface. This effect is achieved for many superstructures by the construction of a *building platform* (Pollock 1965). The room walls are built of a variety of materials. Stone construction ranges from ashlar of tuff,

referred to here as *dressed tuff masonry*, to faced but otherwise unworked river cobbles. At times less well-formed pieces of tuff were also used. These different sorts of stone materials can occur in the same structure and even in the same wall. For this sort of mixed construction, the tuff ashlar are usually concentrated in the door jambs, front superstructure wall, or front corners. A number of buildings had walls made out of poles to which clay was applied in a process known as wattle and daub, the local term for which is *bajareque*. The numerous pieces of burned clay with pole impressions of various sizes associated with some structures attest to this sort of construction. In general, these perishable walls were built on top of a low foundation of faced cobble or tuff walls. This sort of combination of materials has been well illustrated by Wauchope (1938). The use of stone foundation courses also means that post holes or molds were not necessary. Roof types also varied. Vaulted roofs have been identified based on the presence of a fair number of dressed tuff blocks with one beveled face amongst the collapsed wall debris in conjunction with thick masonry walls. If a corbel vault was constructed using unbeveled rectangular blocks (often referred to as a *step vault*) it is difficult to distinguish vault stones from wall material. The preference at Copan, based on the Main Group (Strs 10L-9 and 10L-10 of the ballcourt notwithstanding) and Sepulturas, appears to have been for smooth, i.e. beveled, vaults (cf. Hohmann and Vogrin 1982). In some cases, a flat roof made of beams covered with thick plaster, found mixed with fallen wall stones, may have been used. Thatched roofs appear to have been the most common type even for structures with walls built entirely of masonry. The evidence for this sort of perishable roof is generally



derived from the lack of vault stones and the nature of the walls, which are either stone walls too narrow to have supported the weight of a stone roof or bajareque walls.

One feature of the rooms discussed extensively below is the *bench*. Benches are, in a sense, built-in furniture, constructed of a dirt and cobble fill retained by at least one stone wall and with a cobble-paved upper surface. Most benches discussed here have only one retaining wall, which forms the front of the bench. The other three sides are formed by the interior room walls. However, there are some cases of benches with two or even three retaining walls. These are usually referred to as *free-standing benches*. The front retaining wall often has an outset upper course. The vast majority of the retaining walls are built of dressed tuff even if the superstructure itself is predominantly of cobbled or perishable construction. Benches come in three shapes: rectangular, L-shaped (rectangular plus one perpendicular extension), and U-shaped (rectangular plus two perpendicular extensions placed opposite one another). I have distinguished between a single bench of L or U shape and cases in which two or three benches happen to be placed perpendicularly to one another. In order for a bench to be considered L-shaped, for example, it must have been built in a single construction episode. If a small rectangular bench was added at a later date at right angles to the original rectangular bench, I have considered the room to have two rectangular benches. Occasionally a similar sort of construction, roughly rectangular in shape, is built outside the superstructure on the terrace surface. These *exterior benches* or *elevated terraces* will be discussed separately.

Other sorts of built-in features found in rooms include *ledges*, which are very narrow, and ambiguous constructions which I have called *projections*. These are too large to be ledges but are smaller and different from the general bench pattern. *Niches* (or cupboards, cf. J. Thompson 1939) are found in some room walls or bench retaining walls. They may also occur in the retaining walls of the substructure. Many rooms have *cordholders*, also called curtain sash holders, placed in the interior front wall flanking the doorway. Items of this kind, used to fasten some sort of curtain or covering over the door, have become widely known at Maya sites, representing a standard element of the architecture of the region (cf. Tozzer 1913; A. Smith 1937; J. Thompson 1939; Pollock 1965:405-406; Harrison 1970). More recently, Hohmann and Vogrin (1982) have discussed curtain holders in the buildings of the Main Group. Generally, the Sepulturas cordholders were formed by drilling holes into a building stone or cutting away its corners. In some rooms with well-preserved walls we can see that there were four such items, two on each side of the door. In most cases, however, only two are present. Sometimes, from their relatively low position on the wall, it can be inferred that there were originally four. Other rooms, however, seem to have had only two cordholders. There are examples of manos or doughnut stones set into walls for this purpose in some of the less well-built buildings but no instances of bone as reported from San Jose (J. Thompson 1939).

*Plaster* or *stucco* refers to a coating of a cement-like material made from lime mixed with small pebbles applied to any of various horizontal or vertical surfaces including floors, walls, bench surfaces, bench retaining walls, terraces, stairs, roofs, niches, etc. These

coatings were smoothed and polished; some were painted red or blue. Not all rooms or structures had plastered surfaces.

#### DESCRIPTION OF STRUCTURES AND THE ASSOCIATED LOCI

This description of the architecture of the structures and the loci associated with them in the Artifact Distribution Database is organized by group, then by patio, and then by individual structure. Discussion will begin with the ten patios in Gr 9N-8 that were at least partially excavated by PAC II. Description of the two excavated patios of Gr 9M-22 will be next, followed by Gr 9M-24. The location of these groups in Sepulturas and their overall spatial patterning were discussed in Chapter 3. I have retained the structure and room numbers assigned by the individual excavators whenever possible without trying to regularize inconsistencies. Some structures have only one room; it has been called Rm 1 in my discussion. The only major exception is in the case of Gr 9M-22 Patio B (OP 9), where the excavator used letters to designate his rooms. I have replaced these by numbers.

A table for each structure gives measurements and descriptive information about such things as the division of the structure into rooms, the orientation of the rooms, the presence of benches, and certain aspects of construction, such as material, roofing, the use of plaster, and the presence of sculpture or other decoration. The information on room configurations and dimensions is drawn from the final excavation maps, the excavation reports and field notes, my own observations, and the findings and conclusions of the project's restorer, C. Rudy Larios. The activities of the restoration team in some cases

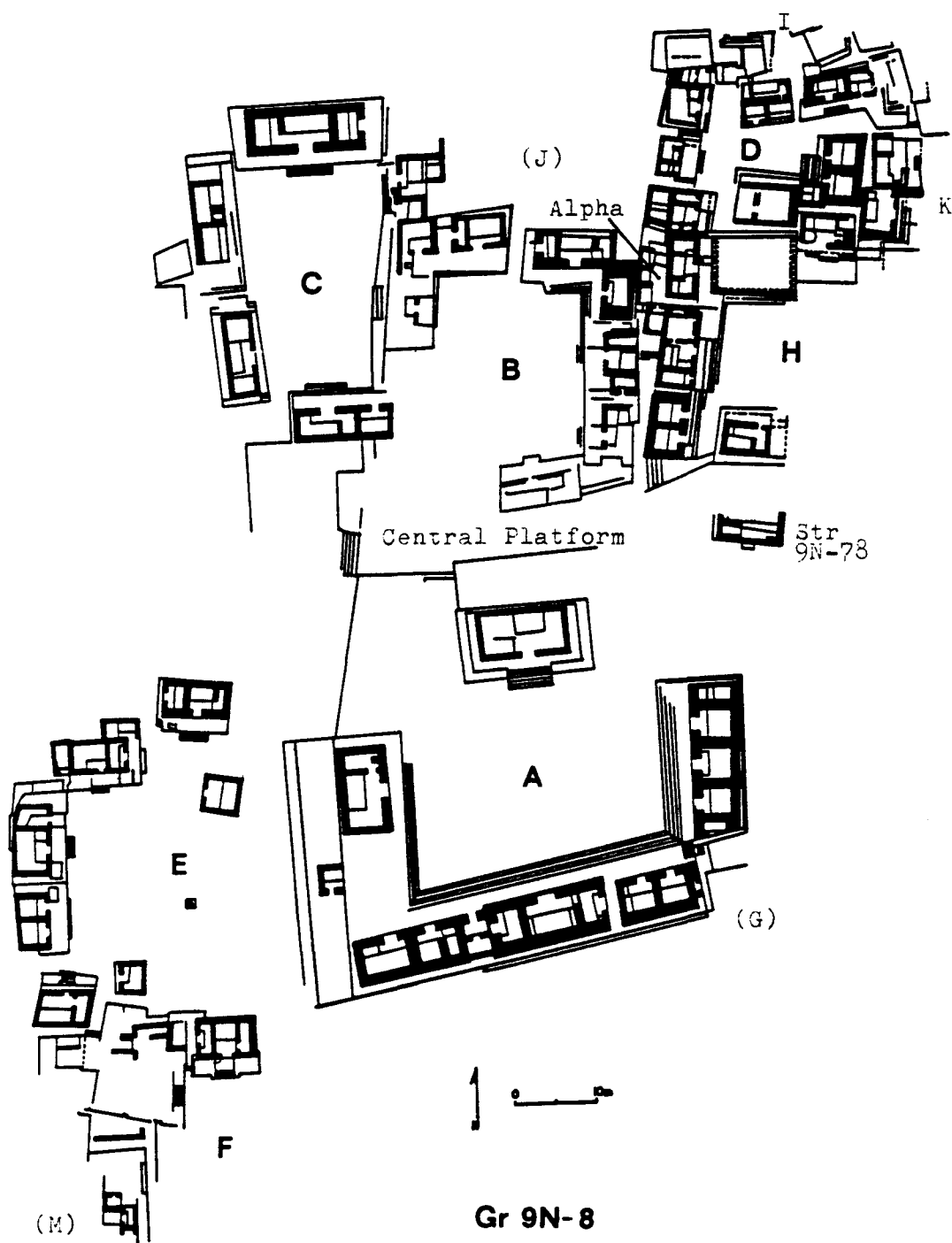


Figure 4.1: Map of Excavated Structures in Gr 9N-8

revealed new evidence about structure size, shape, and detailing. The maps that I have used are reproduced as Figures 4.1 to 4.10. For structures with missing or poorly preserved walls, certain estimates of wall thickness and sometimes location had to be made. The room dimensions which to be discussed are total room area, bench surface area, and floor area. The latter two added together equal the first. None of these areas includes the section of floor that lies between the two door jambs. This area, called the *vestibule*, is considered a separate space from the interior floor area since it would have been cut off from the room if the doorway was covered by a cloth or fiber mat or screen.

In the descriptions of loci, the revised system of artifact categories to be described in Chapter 5 is used. The artifacts found inside the rooms, on the terraces or platforms, or around the substructures that were in situ non-refuse deposits are discussed separately, because of their special importance: such finds, usually but not always given feature numbers, represent our most direct artifactual evidence for activities associated with buildings.

#### Gr 9N-8 Patio A

- Operation number: 8
- When excavated: 1981-1982
- Excavators: David Webster, William Fash, Jr., Elliot Abrams
- Report: Webster et al. 1986
- Related excavations: Operation 15 — back of Str 81  
Operation 20 — back of Str 80

This patio is located at the southern edge of Gr 9N-8. It has one of the most regular plans of any excavated patio in my sample. It also

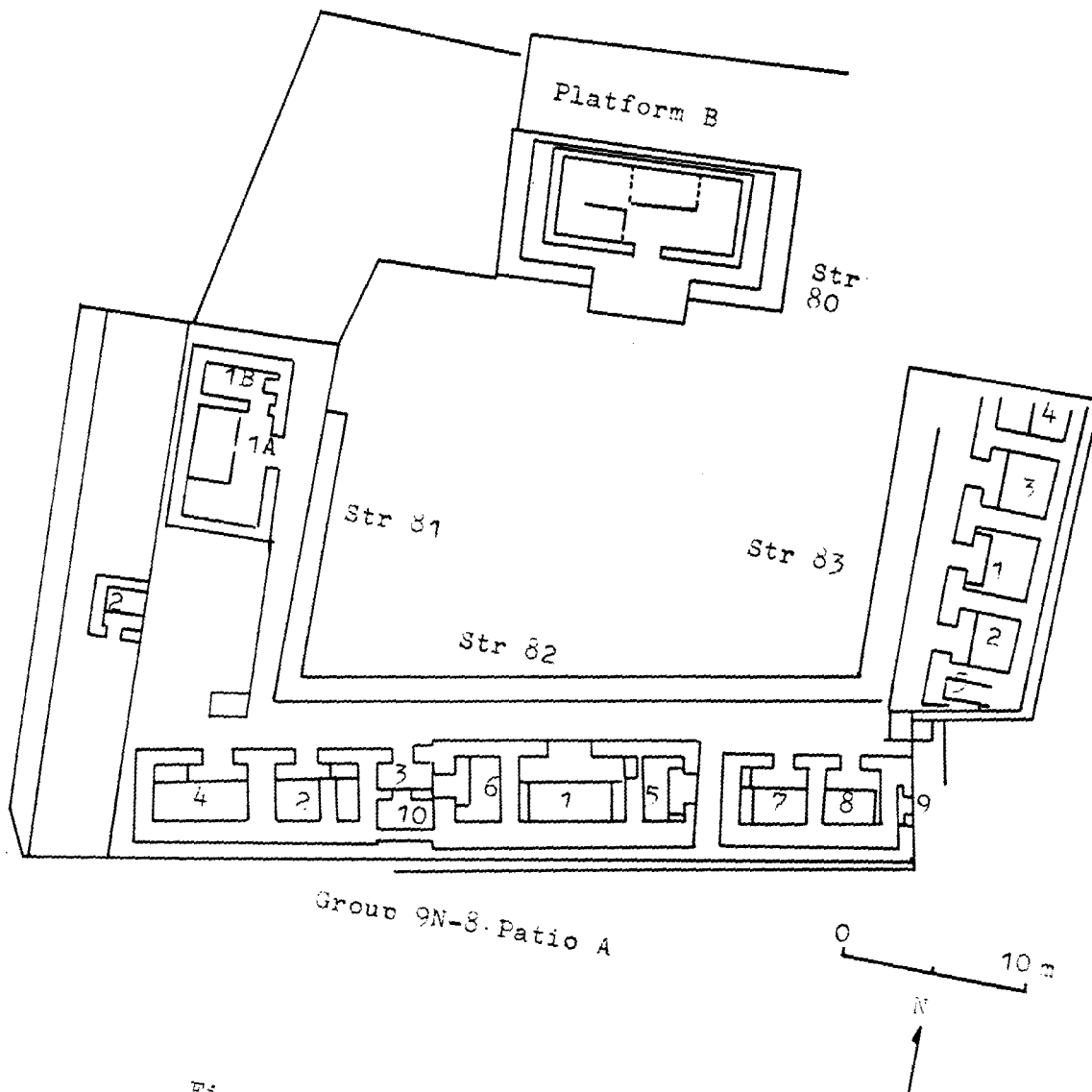


Figure 4.2: Map of Gr 9N-8 Patio A

features some of the most elaborate architecture. Figure 4.2 shows a rectified map of the patio.

There are four structures in the patio. Starting on the north side and moving clockwise around the patio, we find Str 80, Str 83, Str 82, and Str 81. The courtyard area was paved with plaster and measured approximately 640.0 m<sup>2</sup>. Strs 81-83 are connected to one another at the corners of their substructures and staircases. Str 80 is completely free-standing. Access to the patio through the northwest corner, between Strs 80 and 81, was limited by a wall running first north from the northeast corner of the substructure of Str 81 and then east to the southwest corner of Str 80 (Webster et al. 1986). This wall is matched by a second one located to the west, which also runs north from Str 81 and then east to Str 80 (Fash n.d.). The area between the two walls was filled with midden deposits and collapsed material (Webster et al. 1986). The only entrance to Patio A would appear to have been between Strs 80 and 83, via the northeast corner of the courtyard.

#### **Structure 9N-80**

Str 80 is the smallest and most poorly preserved building. It has a central projecting staircase located on the south or patio side. A circular worked piece of tuff, found in front of the stairs, is interpreted as an altar (Webster et al. 1986). Table 4.1 gives the salient details for the structure. The poor state of preservation made reconstruction and exact measurement difficult. However, the single room definitely contained one free-standing bench and may have had a second as well.

Table 4.1: Structure 9N-80 Architecture

Architectural Data	Room 1
Orientation of room	Patio (S)
Number of doors	1
Number of benches	1, possibly 2
Bench shape(s)	Rec, rec
Total room area (m <sup>2</sup> )	46.5
Floor area (m <sup>2</sup> )	30.7
Bench 1 area (m <sup>2</sup> )	8.6
Bench? 2 area (m <sup>2</sup> )	7.2 (est)
Bench 1 height (cm)	47
Bench? 2 height (cm)	?
Construction type	C/B <sup>a</sup>
Roof type	Th <sup>b</sup>
Location of plaster	F? <sup>c</sup>
Cordholders	?
Niches	No
Sculpture	Yes

<sup>a</sup> C = cobbles (as basal part of walls); B = bajareque.

<sup>b</sup> Th = thatched roof.

<sup>c</sup> F = floor.

Table 4.2: Locus Associated with Structure 9N-80

Locus	Description
0801.9	<p>Midden deposit on east side of structure. Labeled Feature 10. Most of the lots that were part of this deposit were mixed with collapsed building material and were removed from my sample.</p> <ul style="list-style-type: none"> <li>• Volume: 1.2 m<sup>3</sup></li> <li>• Total number of artifacts: 19 (15.8/m<sup>3</sup>)</li> </ul> <p>78.9% lithic; 15.8% ceramic; 5.3% bone<sup>a</sup> (21.9 g unmodified bone)</p>

<sup>a</sup> As will be made clear in Chapter 5, there are problems with the recording of bone and shell for operations 8, 9, and 10 which result in serious underrepresentation of unmodified bone and shell.

The associated sculpture consists of three pieces, two of which may have been placed on either side of the doorway of the superstructure (Webster et al. 1986), although it is not clear how such pieces would



have been secured in the bajareque walls. These two pieces are both carved with the same design, a spiral.

Table 4.2 shows the locus assemblages associated with Str 80.

Excavations in 1983 (Operation 20) of the area between Patios A and B of Gr 9N-8 included some material from behind Str 80. These deposits, collected into locus 2004.8, may have been associated with Str 80 or with the paved platform behind it labeled Platform B. I think the latter interpretation is more likely.

### Structure 9N-81

Str 81 forms the western arm of the U-shaped complex of substructures of Strs 81-83. A long staircase on its eastern side gives access to the terraces and superstructure. The western side of the structure also forms the eastern edge of the adjoining Patio E. This side is constructed in three terraces, each about 1 m high. The only way to gain access to the summit of Str 81 from this side would have been to use the terraces as steps; this, given their height, seems unlikely. Part of the western side was excavated in 1981 as part of Operation 8 and part in 1982 as part of Operation 15.

The northern half of the substructure supports a two-roomed superstructure. The rooms are labeled 1A and 1B. Rm 1A is the main room entered from the terrace. It has one rectangular bench opposite the entrance that was free-standing at its south end, creating an L-shaped floor area. This bench is lower than usual. Rm 1B is located north of this room and could only be entered from Rm 1A. It does not have a bench although there is a raised and plastered projection built against

the east room wall. However, its small size,  $0.8 \text{ m}^2$ , distinguishes it from the general bench pattern. The degree to which the northern area called Rm 1B was separate from the main area is somewhat unclear. There are clear pier walls projecting from the end of the bench and east wall of Rm 1A which look like the door jambs of many other rooms. The excavators report that these walls were only preserved 30-40 cm high, which would not completely segregate Rm 1B (Webster et al. 1986). However, given the evidence adduced by the excavators for the use of a combination of stone and bajareque construction for the exterior superstructure walls (Webster et al. 1986), it seems possible that this same mixture would have been used inside the building. Furthermore, this pattern of private or semi-private side rooms is well established at Sepulturas (Hendon 1985a). Features 4-7 were found inside the two rooms. Features 4 and 5 were in Rm 1A whereas the other two were in Rm 1B. They are described below.

South of this building a low elevated terrace was built. This raised terrace runs from the southern wall of the superstructure of Str 81 south to Feature 9. The latter is a series of cobble rock alignments forming three small pits or bins. The total dimensions of Feature 9 are  $2.0 \text{ m N-S} \times 3.6 \text{ m E-W}$ . It is located at the junction of the terraces of Strs 81 and 82, lying only 1.5 m north of the front wall of Rm 4, Str 82 (Webster et al. 1986).

Another room, Rm 2, was built on the widest of the back (western) terraces below the level of the top of the substructure. It faces south onto this terrace and has a single bench. How one gained access to the terrace on which Rm 2 is built is unclear. Webster et al. (1986) suggest that a stairway may have existed that went from the level of the large

southern terrace down to the lower western terrace. Although this reconstruction is plausible, there is no supporting evidence for it. Access from Patio E using the rear terraces as steps would be possible but extremely awkward given the height of the retaining walls.

Table 4.3 summarizes various data about the rooms. The associated sculpture consists of two tenoned jaguar heads with bat headdresses. They appear to have been mounted in the front wall of the superstructure flanking the entrance to Rm 1A (Webster et al. 1986).

Table 4.3: Structure 9N-81 Architecture

Architectural Data	Room 1A	Room 1B	Room 2
Orientation of room	Patio (E)	Other (S)	Other (S)
Number of doors	2-patio, 1B	1-1A	1
Number of benches	1	"1" <sup>a</sup>	1
Bench shape(s)	Rec	Rec	Rec
Total room area (m <sup>2</sup> )	28.2	8.1	5.6
Floor area (m <sup>2</sup> )	18.4	7.2	1.9
Bench area (m <sup>2</sup> )	9.8	0.8	3.7
Bench height (cm)	28	?-45 est	39
Construction type	T/C/B <sup>b</sup>	T/C/B	T/C/B
Roof type	Th <sup>c</sup>	Th	Th
Location of plaster	F <sup>d</sup>	F	F?B? <sup>d</sup>
Cordholders	No	No	No
Niches	No	No	No
Sculpture	Yes.	No	No

<sup>a</sup> Small projection that is probably not a bench but included here for convenience.

<sup>b</sup> T = roughly shaped blocks of tuff; C = cobbles; B = bajareque.

<sup>c</sup> Th = thatched roof.

<sup>d</sup> F = floor; B = bench.

Table 4.4 gives the loci associated with Str 81.

Feature 4, found in Rm 1A south of the bench, consists of a large-necked jar with a rim diameter of 45 cm. The actual type designation is somewhat unclear — it is described as unslipped but also as probably belonging to the Raul type (Webster et al. 1986), which would indicate a

red-slipped exterior. At any rate, we can say that the vessel belongs in the plain group of types discussed in Chapter 5. It was found mouth downwards and broken by the overlying collapsed wall stones.

Table 4.4: Loci Associated with Structure 9N-81

Locus	Description
0802.2	Features 4-7 (see discussion in the text).
0803.9	Midden deposit N of substructure and W of L-shaped patio boundary wall. <ul style="list-style-type: none"> <li>• Volume: 3.0 m<sup>3</sup></li> <li>• Total number of artifacts: 82 (27.3/m<sup>3</sup>)</li> <li>20.7% lithic; 2.4% ground stone; 75.6% ceramic, 1.2% shell (1.2 g unmodified shell)</li> </ul>
0804.9	Artifacts associated with Feature 9, stone boxes on south terrace. <ul style="list-style-type: none"> <li>• Volume: 1.7 m<sup>3</sup></li> <li>• Total number of artifacts: 57 (33.5/m<sup>3</sup>)</li> <li>56.1% lithic; 3.6% ground stone; 39.3% ceramic; 1.8% bone (77.2 g unmodified bone) (see Table 4.5)</li> </ul>
0824.3	Artifacts on southern terrace near Feature 9. <ul style="list-style-type: none"> <li>• Volume: 5.7 m<sup>3</sup></li> <li>• Total number of artifacts: 59 (10.4/m<sup>3</sup>)</li> <li>42.4% lithic; 55.9% ceramic; 1.7% other ceramic (= 1 spindle whorl)</li> </ul>
0825.9	Midden deposit on southern terrace near south wall of superstructure. Probably could be combined with 0824.3. <ul style="list-style-type: none"> <li>• Volume: 2.8 m<sup>3</sup></li> <li>• Total number of artifacts: 76 (27.1/m<sup>3</sup>)</li> <li>50.0% lithic; 46.1% ceramic; 2.6% bone (3.9 g unmodified bone); 1.3% other ceramic (= 1 candelero)</li> </ul>
1504.3	Artifacts on back terraces. <ul style="list-style-type: none"> <li>• Volume: 2.4 m<sup>3</sup></li> <li>• Total number of artifacts: 28 (11.7/m<sup>3</sup>)</li> <li>10.7% lithic; 75.0% ceramic; 14.3 bone</li> </ul>

Feature 5 designates an hacha in the shape of a macaw's head and a yoke. The hacha was broken into two pieces, both of which were found near the north door jamb of the entrance of Rm 1A. The yoke lay in the same area. A few centimeters of dirt mixed with charcoal separated the

artifacts from the floor. This fact suggests that the hacha and yoke were not lying on the floor before the building collapsed but rather that they fell from some height (Webster et al. 1986).

Feature 6 is a cylindrical censer of the Sepulturas type with an appliquéd human face and blue paint. It stands 39 cm high with a rim diameter of 29 cm. There is evidence of interior burning. The censer was found, broken, on the floor of Rm 1B in the vestibule area formed by the two pier walls (Webster et al. 1986).

Feature 7 is another piece of ballgame equipment, an hacha fashioned in the shape of a human skull, lying in the northwest corner of Rm 1B (Webster et al. 1986).

Table 4.5: Feature 9 (Locus 0804.9)  
N=57

Class	Artifact Category	Quantity	% of Class
Lithic (n=32)	Chert flake core	2	6.3
	Chert chunk	1	3.1
	Chert flake	12	37.5
	Chert biface/other retouch	1	3.1
	Obsidian chunk	1	3.1
	Obsidian blade	14	43.8
	Obsidian projectile point	1	3.1
Ground stone (n=2)	Bowl	1	50.0
	Celt	1	50.0
Ceramic rims (n=22)	Caldero	5	22.7
	Plate, plain <sup>a</sup>	1	4.5
	Hemispherical bowl, fancy	3	13.6
	Large-necked jar, plain	3	13.6
	Medium-necked jar, plain	4	18.2
	Narrow-necked jar, plain	6	27.3
Bone (n=1)	Unmodified animal bone (77.2 g)	1	100.0

<sup>a</sup> The terms plain and fancy refer to groups of ceramic types to be defined in Chapter 5.

The breakdown of artifacts included in the lot labeled Feature 9 is given in Table 4.5.

### Structure 9N-82

The largest and most elaborate building, Str 82 spans the southern edge of the courtyard. The substructure supports three separate superstructures, labeled western, central, and eastern. Narrow corridors originally separated the three buildings, but the one between the western and central superstructures was converted into two rooms in the final phase. The western superstructure contains Rms 2 and 4. The corridor became Rms 3 and 10. The central superstructure contains, from west to east, Rms 6, 1, and 5. The eastern superstructure consists of Rms 7 and 8. There is another room, Rm 9, which was built into the eastern wall of the substructure. It is thus at a lower level than the rest of the rooms. It was reached by a set of stairs running from the terrace down the east side. In front of the three superstructures runs a long terrace measuring approximately 42.5 m E-W  $\times$  2.0-2.5 m N-S. The central superstructure is wider north to south than the other two, which makes the terrace narrower in front of it. Tables 4.6-4.9 detail the architectural information for the three superstructures.

The bench of Rm 1 is carved with a long and elaborate hieroglyphic inscription, making it one of only three such benches known from sites outside the Main Group (Fash 1983a:259). The other two were found in Gr 9M-18 or CV-43 by the Harvard Project and in Gr 10K-7<sup>1</sup>, north of the

---

<sup>1</sup> Fash (1983a) gives two alternative group designations for the sites where the two benches were found. CV-43 is labeled Gr 9M-18 (pp. 257-259) and Gr 9M-23 (pp. 239, 285). The other site, often referred to as

Main Group (Willey et al. 1978; Fash 1983a:257-258, 292). A preliminary analysis of the text of the Str 82 bench suggests that the carved calendar round date of 11 Oc 3 Yax is best associated with the Long Count date of 9.17.16.13.10 (A.D. 786, GMT correlation) (Fash et al. 1981:115). The Gr 9M-18 (CV-43) bench has been dated to 9.17.10.0.0 or A.D. 780 (Willey et al. 1978:39). The third bench also dates from the reign of Madrugada, the sixteenth ruler of Copan (Fash 1983a:292).

In addition to the carved bench face, the Str 82 bench has sculpted outset supports and plinths. The bench from Gr 9M-18 covered "four pairs of false columns or pilasters attached to the inset part of the bench below the carvings" (Willey et al. 1978:39). Supports of this kind, whether functional or not, are another unusual feature further distinguishing these benches from the general pattern, which is one of solid retaining walls occasionally broken by one or two niches. This distinction can be found at other sites such as Piedras Negras (Pollock 1965) and San Jose. At the latter site, J. Thompson (1939:32) reports an "altar" from Str C4 Rm B which, in contrast to the benches there, has four pillar-like supports and a band of stuccoed glyphs across the top of its front above the pillars. Scenes on Lowland Maya ceramic vases show seats with legs and decoration. Similar pieces of furniture appear in murals (such as from Bonampak) and on sculpted stone panels. Three-dimensional representations, in the form of figurines, are also known. In all cases, they are used as seats by elaborately dressed people who dominate the scene portrayed (cf. Ruppert et al. 1955; Schele and Miller

---

"El Grillo", is assigned to Gr 10K-7 (p. 292) and Gr 10K-3 (p. 258). The table in Fash and Long (1983) indicates that Gr 9M-18 is a Type III site and the same as CV-43 whereas Gr 9M-23 is a Type I. It also shows that 10K-3 is a Type II site whereas 10K-7 is a Type IV; this accords with the description of the kind of site given in Fash (1983a).

1986:pl. 4, fig. III-5). In addition to having legs and decoration, some of these seats depicted in carved panels (Schele and Miller 1986) also have a band of hieroglyphs visible on their front edge. Although the forms are not identical to the Sepulturas ones, it seems to me that the three carved benches represent a similar sort of extremely elite and possibly special-function furniture which, following earlier descriptions, I will call *thrones* or *bench-thrones*.

Rm 2 of the western superstructure has a somewhat more complex interior arrangement. It has a rectangular bench built against the south wall opposite the doorway. This bench has been divided into two sections by the construction of a transverse wall on top of the bench. The floor area immediately north of the eastern section is raised 24 cm above the level of the rest of the floor. Thus there are three changes in elevation within the room. I prefer to call the northeastern area a raised floor rather than a bench because its height is much less than that of most benches. A similar although more elaborate arrangement is found in Rm 1 of Str 67 of Gr 9N-8 Patio B. Another question raised by the layout is whether there is one room or two. The transverse wall in Rm 2 does not extend beyond the bench face, nor is there a corresponding pier wall extending from the inside front room wall. In contrast, the walls between Rms 1A and 1B of Str 81 projected into the room space to delimit an entranceway. Because Rm 2 lacks this sort of construction I have considered it to be one room with two separate areas. Rm 4, its neighbor, also has a raised floor area but apparently no dividing wall on its bench.

Rms 3 and 10 came into being after the two superstructures were built, being made out of what was originally an open corridor. In



Table 4.6: Structure 9N-82 Central Superstructure Architecture

Architectural Data	Room 1	Room 5	Room 6
Orientation of room	Patio (N)	Other (E)	Other (W) (to Rm 3)
Number of doors	2 <sup>a</sup>	2 <sup>a</sup>	1
Number of benches	1-throne	1	1
Bench shape(s)	Rec	U	L
Total room area (m <sup>2</sup> )	21.5	8.5	9.3
Floor area (m <sup>2</sup> )	7.8	2.1	2.0
Bench area (m <sup>2</sup> )	10.8	6.4	7.3
Bench height (cm)	45	62	64
Construction type	DT <sup>b</sup>	DT	DT
Roof type	V <sup>c</sup>	V	V
Location of plaster	F,W,B <sup>d</sup>	F,W,B	F,W,B
Paint	Red-F, blue-B	-----	-----
Cordholders	Yes	Yes	Yes
Niches	No	No	No
Sculpture	Yes	Yes	Yes

<sup>a</sup> There is a door connecting Rms 1 and 5 that was eventually blocked off. Entering Rm 5 via this door would put one on that room's bench.

<sup>b</sup> DT = dressed tuff masonry.

<sup>c</sup> V = vault.

<sup>d</sup> F = floor; B = bench; W = walls and/or bench face.

Table 4.7: Structure 9N-82 Western Superstructure Architecture

Architectural Data	Room 2	Room 4
Orientation of room	Patio (N)	Patio (N)
Number of doors	1	1
Number of benches	2	1
Bench shape(s)	Rec, rec	Rec
Total room area (m <sup>2</sup> )	14.4 <sup>a</sup>	17.7
Lower floor area (m <sup>2</sup> )	3.1	3.0
Upper floor area (m <sup>2</sup> )	1.7	2.0
Bench area(s) (m <sup>2</sup> )	6.0, 3.6	12.7
Bench height(s) (cm)	58, 58	58 est
Construction type	T <sup>b</sup>	T
Roof type	BM(?) <sup>c</sup>	BM(?)
Location of plaster	F,W,B <sup>d</sup>	F,B <sup>e</sup>
Cordholders	Maybe	Yes
Niches	No	No
Sculpture	No	No

<sup>a</sup> Total room area does not include area occupied by interior wall.

<sup>b</sup> T = roughly shaped blocks of tuff.

<sup>c</sup> BM = beam and mortar.

<sup>d</sup> F = floor; B = bench; W = walls and/or bench face.

<sup>e</sup> Plaster on floor discolored suggesting it had been burned or otherwise subjected to heat.

Table 4.8: Structure 9N-82 Corridor Rooms Architecture

Architectural Data	Room 3	Room 10
Orientation of room	Patio (N)	Patio (N) via Rm 3
Number of doors	1	1
Number of benches	1	0
Bench shape	Rec	-----
Total room area (m <sup>2</sup> )	5.6	5.5
Lower floor area (m <sup>2</sup> )	4.5	5.5
Bench area (m <sup>2</sup> )	1.1	-----
Bench height (cm)	42	-----
Construction type	T <sup>a</sup>	T
Roof type	BM(?) <sup>b</sup>	BM(?)
Location of plaster	F,B,N <sup>c</sup>	F
Cordholders	Yes	No
Niches	4-rm walls	No
Sculpture	No	No

<sup>a</sup> T = roughly shaped blocks of tuff.

<sup>b</sup> BM = beam and mortar.

<sup>c</sup> F = floor; B = bench; N = niche.

Table 4.9: Structure 9N-82 Eastern Superstructure Architecture

Architectural Data	Room 7	Room 8	Room 9
Orientation of room	Patio (N)	Patio (N)	Other (E)
Number of doors	1	1	1
Number of benches	2 <sup>a</sup>	1	1
Bench shape(s)	Rec, rec	Rec	Rec
Total room area (m <sup>2</sup> )	11.9	10.5	3.7
Floor area (m <sup>2</sup> )	3.8	4.0	1.3
Bench area(s) (m <sup>2</sup> )	5.6, 0.9	6.5	2.4
Bench height(s) (cm)	47, 52	57	50
Construction type	T <sup>b</sup>	T	DT
Roof type	V <sup>c</sup>	V	V
Location of plaster	F?, B <sup>d</sup>	F, W, B	F, W, B
Cordholders	Yes	?	Yes
Niches	No	No	3-rm
walls			
Sculpture	No	No	No

<sup>a</sup> Smaller side bench may be more properly termed a ledge although it is somewhat wider than others so labeled.

<sup>b</sup> T = roughly shaped blocks of tuff; DT = dressed tuff masonry.

<sup>c</sup> V = vault.

<sup>d</sup> F = floor; B = bench; W = walls and/or bench face.

common with the majority of rooms thus created, the floor level of Rm 3 is the same as that of the surface of the front terrace. Its bench is small and located on a side wall rather than opposite the door. This unusual placement was dictated by the presence of Rm 10 behind Rm 3. Construction of the back wall of Rm 3 encroached on the doorway into Rm 6, reducing its width. The only access to Rm 6 was by way of Rm 3. A niche is found in each of the north and south room walls flanking the two doors. The arrangement of one room behind another does not occur often. The floor of Rm 10 is at a higher level than that of Rm 3 (ca. 44 cm) and it does not have a bench.

The exterior of the superstructure was decorated with a series of seated human figures that probably represent, to judge from their associated iconographic symbols, apotheosized ancestors (Fash 1986). Two

were located in niches on either side of the door of Rm 1. Others were placed in a second tier on the upper wall (Webster et al. 1986).

Table 4.10: Loci Associated with Structure 9N-82

Locus	Description
0805.2	Artifacts from above room floor and bench surface of Rm 1. <ul style="list-style-type: none"> <li>• Volume: 1.8 m<sup>3</sup></li> <li>• Total number of artifacts: 33 (18.3/m<sup>3</sup>)</li> </ul> 39.4% lithic; 51.5% ceramic; 3.0% bone (7.1 g unmodified bone); 6.1% other ceramic (= 2 candeleros)
0806.2	Artifacts from above room floor and bench surface of Rm 2. <ul style="list-style-type: none"> <li>• Volume: 2.4 m<sup>3</sup></li> <li>• Total number of artifacts: 19 (7.9/m<sup>3</sup>)</li> </ul> 63.2% lithic; 10.5% ground stone; 26.3% ceramic
0807.2	Artifacts from above room floor of Rm 3. <ul style="list-style-type: none"> <li>• Volume: 1.4 m<sup>3</sup></li> <li>• Total number of artifacts: 53 (37.9/m<sup>3</sup>)</li> </ul> 47.2% lithic; 50.9% ceramic; 1.9% bone (79.5 g unmodified bone)
0808.2	Artifacts from above room floor of Rm 4. Includes Feature 3. <ul style="list-style-type: none"> <li>• Volume: 1.2 m<sup>3</sup></li> <li>• Total number of artifacts: 27 (22.5/m<sup>3</sup>)</li> </ul> 39.3% lithic; 7.1% ground stone; 50.0% ceramic; 3.6% bone (47.6 g unmodified bone)
0809.2	Artifacts from above bench surface of Rm 5. <ul style="list-style-type: none"> <li>• Volume: 0.2 m<sup>3</sup></li> <li>• Total number of artifacts: 1 (5.0/m<sup>3</sup>)</li> </ul> 100.0% ceramic
0810.2	Artifacts from above room floor of Rm 6. <ul style="list-style-type: none"> <li>• Volume: 1.5 m<sup>3</sup></li> <li>• Total number of artifacts: 29 (19.3/m<sup>3</sup>)</li> </ul> 48.3% lithic; 3.4% ground stone; 37.9% ceramic; 3.4% bone (1.8 g unmodified bone); 6.9% other ceramic (= 2 candeleros)
0811.2	Artifacts from above room floor and bench surface of Rm 7. <ul style="list-style-type: none"> <li>• Volume: 0.4 m<sup>3</sup></li> <li>• Total number of artifacts: 16 (40.0/m<sup>3</sup>)</li> </ul> 43.8% lithic; 50.0% ceramic; 6.3% shell (3.0 g unmodified shell)

(Table 4.10, cont.)

<u>Locus</u>	<u>Description</u>
0812.3	Artifacts from front terrace and corridor between eastern and central superstructures. <ul style="list-style-type: none"> <li>• Volume: 1.0 m<sup>3</sup></li> <li>• Total number of artifacts: 36 (36.0/m<sup>3</sup>)</li> </ul> 47.2% lithic; 52.8% ceramic
0813.9	Artifacts from area off the southwest corner of the substructure. May be collapse. <ul style="list-style-type: none"> <li>• Volume: 8.0 m<sup>3</sup></li> <li>• Total number of artifacts: 21 (2.6/m<sup>3</sup>)</li> </ul> 95.2% lithic; 4.8% bone (66.6 g unmodified bone)
0822.9	Artifacts from area east of substructure near Rm 9. Also south of Str 83. Includes Feature 2. <ul style="list-style-type: none"> <li>• Volume: 1.0 m<sup>3</sup></li> <li>• Total number of artifacts: 205 (205.0/m<sup>3</sup>)</li> </ul> 41.0% lithic; 1.0% ground stone; 54.1% ceramic; 0.5% bone (8.9 g unmodified bone); 2.4% other ceramic (= 5 candeleros); 1.0% whole ceramic vessels (= 2 Casaca Striated jars, diameter unknown)

Feature 2 refers to the artifacts found between Strs 82 and 83 at the base of the stairs at the east end of the terrace of Str 82. Two Casaca Striated jars were found on the dirt floor. These and the other items found are summarized in Table 4.11. Webster et al. (1986:Appendix A) list a complete celt among the artifacts which, if present, did not get entered into the PAC II databank.

Feature 3 is described as a small concentration of ceramic sherds and a stone bowl on the floor of Rm 4 (Webster et al. 1986). The actual from this lot actually entered into the databank are limited to one hemispherical bowl rim and one restricted wide rim, both of local non-Copador polychrome. I have no information about the total number of sherds found. Although described as a bowl, the tuff artifact, which is cylindrical in shape, was open at both ends. It has incised lines along the top and bottom edges. It measured 9.6 cm high with an interior

Table 4.11: Feature 2 (Locus 0822.9)  
N=205

Class	Artifact Category	Quantity	% of Class
Lithic (n=84)	Chert flake core	1	1.2
	Chert chunk	4	4.8
	Chert flake	4	4.8
	Chert biface/other retouch	2	2.4
	Obsidian chunk	9	10.7
	Obsidian flake	1	1.2
	Obsidian blade	61	72.6
	Obsidian biface/other retouch	2	2.4
Ground stone (n=2)	Mano	2	100.0
Ceramic rims (n=111)	Comal	4	3.6
	Caldero	28	25.2
	Caldero with flat lip	9	8.1
	Straight-walled dish, fancy	1	0.9
	Hemispherical bowl, fancy	5	4.5
	Flaring-walled bowl/dish, fancy	8	7.2
	Cylinder, fancy	8	7.2
	Cylindrical censer	3	2.7
	3-pronged brazier	1	0.9
	Ladle censer	1	0.9
	Restricted wide, plain	8	7.2
	Restricted wide, fancy	1	0.9
	Medium-necked jar	16	14.4
	Narrow-necked jar	17	15.3
	Lid, plain	1	0.9
Bone (n=1)	Unmodified bone or antler (8.9 g)	1	100.0
Other ceramic (n=5)	Candelero	5	100.0
Whole vessels (n=2)	Unspecified jar, Casaca Striated	2	100.0

diameter of 8 cm. The walls were 3 cm thick (Gerstle n.d.b). The function of such an object is unknown.

Most of the loci from the rooms contain very few artifacts and cannot be taken very seriously as indicators of ancient activities. The rooms, if used as the location for some set of activities, were kept quite clean.

### Structure 9N-83

Structure 83 has one superstructure with five rooms, each with its own entrance. Rms 1-3 face west onto the patio. Rms 4 and 5, located at the ends of the substructure, face north and south respectively. The northern end of the building was not well preserved and the actual entrance to Rm 4 was never found.

Rms 1, 2, and 3 had circular burn marks on their plastered floors and, in the cases of Rms 1 and 3, on the bench surfaces as well. Similar marks were found on the terrace. These marks are indications of the repeated placement of some hot container with a round base on the surface. Webster et al. (1986) nominate the three-pronged braziers as likely candidates. They could have served as heating or cooking units. Although the lack of any other artifacts indicative of cooking suggests that no actual food preparation took place, the braziers could have served either to heat the room or to keep food or drink warm that had been prepared elsewhere.

Rm 4 was created by building an interior transverse wall in Rm 3, reducing the latter's size while defining a new area to the north. The bench of Rm 4 was thus the same construction as that of Rm 3. There was no doorway between the two rooms, indicating that Rm 4 must have been entered from the north. Furthermore, Rm 4 was divided by a north-south wall paralleling its bench face. This wall separated the floor area to the west from the bench to the east. Whether or not the two areas were completely cut off from one another is unknown since the north room wall was not intact.

Table 4.12: Structure 9N-83 Architecture

Architectural Data	Room 1	Room 2	Room 3
Orientation of room	Patio (W)	Patio (W)	Patio (W)
Number of doors	1	1	1
Number of benches	1	1	1
Bench shape	U	Rec	Rec
Other furniture	-----	Ledge	-----
Total room area (m <sup>2</sup> )	14.1	11.3	12.1
Floor area (m <sup>2</sup> )	3.1	3.2	3.3
Bench area (m <sup>2</sup> )	11.1	8.0	8.8
Bench height (cm)	62	?	60
Other furniture area (m <sup>2</sup> )	-----	0.1	-----
Other furniture height (cm)	-----	?	-----
Construction type	DT <sup>a</sup>	DT	DT
Roof type	BM <sup>b</sup>	BM	BM
Location of plaster	F, W, B <sup>c</sup>	F, B	F, B
Paint	Red-F, B	Red-B	Red-F, B
Cordholders	Yes	Yes	Yes
Niches	No	No	No
Sculpture	Yes	No	No

<sup>a</sup> DT = dressed tuff masonry.

<sup>b</sup> BM = beam and mortar.

<sup>c</sup> F = floor; B = bench; W = walls and/or bench face.

Architectural Data	Room 4	Room 5
Orientation of room	Other (N)	Other (S)
Number of doors	1?	1
Number of benches	1	1
Bench shape	Rec	Rec
Total room area (m <sup>2</sup> )	?	3.8
Floor area (m <sup>2</sup> )	?	0.0 <sup>d</sup>
Bench area (m <sup>2</sup> )	?	3.1
Bench height (cm)	?	45
Construction type	DT	DT
Roof type	BM	BM
Location of plaster	?	B
Cordholders	?	No
Niches	No	No
Sculpture	No	No

<sup>d</sup> The bench takes up all of the room except for the vestibule.



Table 4.13: Loci Associated with Structure 9N-83

Locus	Description
0814.2	Artifacts from above room floor and bench surface of Rm 1. <ul style="list-style-type: none"> <li>• Volume: 0.2 m<sup>3</sup></li> <li>• Total number of artifacts: 2 (10.0/m<sup>3</sup>)</li> </ul> 100.0% ceramic
0815.2	Artifacts from above room floor and bench surface of Rm 2. <ul style="list-style-type: none"> <li>• Volume: 0.2 m<sup>3</sup></li> <li>• Total number of artifacts: 1 (5.0/m<sup>3</sup>)</li> </ul> 100.0% ceramic
0816.2	Artifacts from above room floor and bench surface of Rm 3. <ul style="list-style-type: none"> <li>• Volume: 0.2 m<sup>3</sup></li> <li>• Total number of artifacts: 0 = VOID LOCUS</li> </ul>
0817.3	Artifacts from terrace area between Rms 1 and 2. <ul style="list-style-type: none"> <li>• Volume: 0.3 m<sup>3</sup></li> <li>• Total number of artifacts: 1 (3.3/m<sup>3</sup>)</li> </ul> 100.0% ceramic
0818.3	Artifacts from terrace area between Rms 1 and 3. <ul style="list-style-type: none"> <li>• Volume: 0.3 m<sup>3</sup></li> <li>• Total number of artifacts: 1 (3.3/m<sup>3</sup>)</li> </ul> 100.0% ceramic
0819.3	Artifacts from terrace area south of Rm 2. <ul style="list-style-type: none"> <li>• Volume: 0.2 m<sup>3</sup></li> <li>• Total number of artifacts: 0 = VOID LOCUS</li> </ul>
0821.9	Artifacts from midden deposit found west of building on patio floor. <ul style="list-style-type: none"> <li>• Volume: 1.2 m<sup>3</sup></li> <li>• Total number of artifacts: 204 (170.0/m<sup>3</sup>)</li> </ul> 31.9% lithic; 1.0% ground stone; 64.2% ceramic; 2.5% bone (128.5 g unmodified bone); 0.5% other ceramic (= 1 candelero)

A small round tuff altar was found on the patio in front of the stairs of Str 83 opposite Rm 1. It was 30 cm high × 75 cm in diameter. Several burials were found nearby (Webster et al. 1986).

Table 4.12 summarizes the architectural data while Table 4.13 describes the associated loci. The outside of the front wall of Rm 1

had been decorated with tuff blocks carved in the shape of the letter T. This shape may have been meant to represent the day sign Ik, one of whose principal elements is T-shaped. This same symbol is found on Str 60A of Patio D, on Str 203 near Gr 9M-24, and on the torches of the two monkey-headed figures flanking the stairs of Str 12 of the Main Group (Gerstle 1983, 1985b; Hohmann and Vogrin 1982:Abb. 81; Kelley 1976:fig. 4; J. Thompson 1971:73).

There are no features associated with the superstructure of Str 83. If anything, the rooms and terrace areas here are even cleaner than those of Str 82. The presence of a midden deposit on the patio area in front of Str 83 is another unusual feature. By and large, few examples of activity areas or concentrated refuse deposits were found inside the patio area. One final locus was created for Patio A containing those patio lots without obvious secondary material and with no clear structural association. It has been called Locus 0823.1 (volume =  $1.0 \text{ m}^3$ ; total number of artifacts = 38 [ $38.0/\text{m}^3$ ]; 34.2% lithic; 2.6% ground stone; 63.2% ceramic).

#### Gr 9N-8 Patio B

- Operation number: 16
- When excavated: 1982-1983
- Excavators: Julia Hendon, William Fash, Jr., Eloísa Aguilar P.
- Report: Hendon et al. n.d.a.

Patio B of Gr 9N-8 is located north of Patio A and is also built on the Central Platform. The space between the two courtyard units was an open and paved corridor (Figure 4.1).

Figure 4.3 shows the patio layout (Hendon et al. n.d.a). As can be seen, there are five structures in Patio B arranged around a paved courtyard area measuring approximately 20.0 m N-S  $\times$  18 m E-W (360.0 m<sup>2</sup>). Str 73 is located on the west side of the patio and thus forms the eastern edge of the adjacent Patio C (see below). There are two structures on the northern side, Strs 67 to the east and 68 to the west, which are separated by a narrow extension of the patio paving. The eastern edge of the patio is defined by Str 74. Part of the southern margin is occupied by Str 75. The substructures of Strs 68 and 73 join to form an L-shaped platform and staircase. The same arrangement can be found for Strs 74 and 68. At the same time, the front wall of Str 75 abutted that of Str 74 at the southern end of Str 74.

No structures were found in the southwestern part of the patio. A cobble paving, laid on top of the plaster patio surface, was found immediately west of Str 75. It appeared to lead out from Patio B into the central paved corridor, providing a well-defined access route into and out of the patio.

#### Structure 9N-73

There are at least three rooms here, the dimensions of which are given in Table 4.14. The southern end of the structure, which was poorly preserved, may have supported another room. The room and bench areas for Rms 1 and 2 are estimates since the side and front room walls, probably of perishable material, were not found. In contrast, Rm 3, at the northern end, was constructed of tuff ashlar as well as of cobbles. Strong evidence for a beam and mortar roof over that room came from

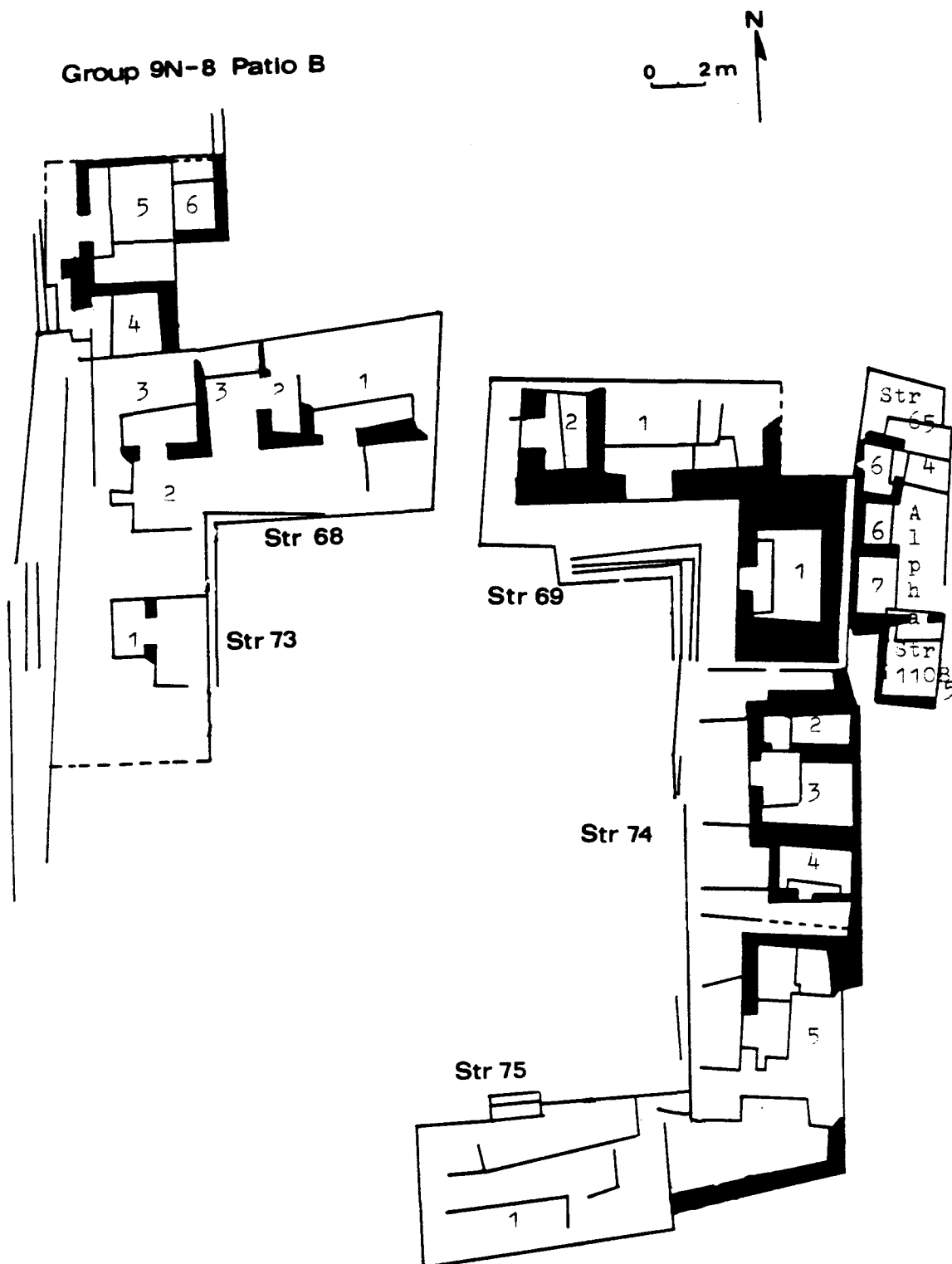


Figure 4.3: Map of Gr 9N-8 Patios B and Alpha

several large slabs of stucco mixed with the collapsed room debris. There is no real indication of the kind of roof that covered the other two rooms but it is assumed to have been of thatch.

Table 4.14: Structure 9N-73 Architecture

Architectural Data	Room 1	Room 2	Room 3
Orientation of room	Patio (E)	Patio (E)	Other (S) (to Rm 2)
Number of doors	1	0 <sup>a</sup>	1
Number of benches	1	1	1
Bench shape(s)	U	L	L
Total room area (m <sup>2</sup> )	12.0 est	12.0 est	12.4
Floor area (m <sup>2</sup> )	2.9	5.6	4.8
Bench area (m <sup>2</sup> )	9.2 est	6.4 est	7.6
Bench height (cm)	20	48	51
Construction type	T/C/B <sup>b</sup>	T/C/B	DT/C
Roof type	BM?Th? <sup>c</sup>	BM?P?	BM
Location of plaster	F,B	F,B	F,W,B
Cordholders	?	No	Yes
Niches	No	1 <sup>d</sup>	No
Sculpture	No	No	No

<sup>a</sup> No front wall or door jambs — opens directly onto terrace.

<sup>b</sup> T = roughly shaped blocks of tuff; C = cobbles; B = bajareque.

<sup>c</sup> BM = beam and mortar; Th = thatched roof. Definite evidence for beam and mortar roof over Rm 3 only.

<sup>d</sup> Front wall of west bench may have had a niche in it.

Rm 2 is unusual in having no front wall and consequently no doorway; it is thus open to the front terrace. Two elevated terraces are constructed outside of Rm 1 (Hendon et al. n.d.a).

Table 4.15 lists the loci for Str 73. No midden deposits were found that could be associated with the structure. This is probably due in large part to the fact that it was surrounded by other construction — Patio C to the west, additional rooms to the north (discussed below as part of Patio C), and the patio and Str 68 to the west. However, it

is possible that some of the midden found north of Str 68 came from Str 73.

Table 4.15: Loci Associated with Structure 9N-73

Locus	Description
1613.8	Artifacts from north of structure, not a midden deposit. <ul style="list-style-type: none"> <li>• Volume: 1.6 m<sup>3</sup></li> <li>• Total number of artifacts: 186 (116.3/m<sup>3</sup>)</li> </ul> 27.4% lithic; 0.5% ground stone (= 1 mano); 0.5% stone ornament (= pigment); 62.4% ceramic; 9.1% bone (= unmodified).
1614.2	Artifacts from Rm 1. <ul style="list-style-type: none"> <li>• Volume: 0.1 m<sup>3</sup></li> <li>• Total number of artifacts: 7 (70.0/m<sup>3</sup>)</li> </ul> 85.7% ceramic; 14.3% bone (unmodified)
1615.2	Artifacts from Rm 2 labeled Feature 3 (see discussion in the text). <ul style="list-style-type: none"> <li>• Volume: 0.3m<sup>3</sup></li> <li>• Total number of artifacts: 2</li> </ul>
1616.2	Artifacts from Rm 3. <ul style="list-style-type: none"> <li>• Volume: 0.3 m<sup>3</sup></li> <li>• Total number of artifacts: 6 (20.0/m<sup>3</sup>)</li> </ul> 66.7% ceramic; 33.3% bone (unmodified)

Feature 3 consists of a ceramic vessel and a figurine found on the floor of Rm 2 near the entrance into Rm 3. The vessel is a semi-necked jar of type Sisero with a rim diameter of 28 cm, a maximum diameter of 50 cm, and a height of 45 cm. It had a flat base and at least two handles. The interior basal area and part of one side were heavily smudged from exposure to heat. Only a little smudging was present on the exterior. There were also traces of lime on one interior wall near the base. The figurine, which was incomplete, was a human torso. It was hollow and hand-made of a distinctive non-local clay similar to that used for mold-made figurines and whistles from other parts of Honduras such as the Ulua Valley (Hendon et al. n.d.a:Appendix 1; Hendon n.d.).

## Structure 9N-68

The superstructure of Str 68 contains three rooms. Rm 3, the westernmost one, is another example of a room without front walls. In fact, the space it occupies was probably originally an open corridor separating the superstructures of Strs 68 and 73. It was converted to a room of sorts by the construction of a rectangular bench. This follows the pattern established in Patio A for Str 82 except that less care was taken with the construction here. Rm 2 is without a bench of any kind — it does not even have a raised floor area. It contained a set of ceramic vessels and other artifacts described below as Feature 7. The terrace area outside of Rm 1 had a terrace bench built on its eastern side (Hendon et al. n.d.a). Table 4.16 summarizes the relevant details while Table 4.17 describes the associated loci.

Table 4.16: Structure 9N-68 Architecture

Architectural Data	Room 1	Room 2	Room 3
Orientation of room	Patio (S)	Other (W) (to Rm 3)	Patio (S)
Number of doors	1	1	0 <sup>a</sup>
Number of benches	1	0	1
Bench shape	Rec	-----	Rec
Total room area (m <sup>2</sup> )	13.5	3.9	8.1
Floor area (m <sup>2</sup> )	3.2	3.9	5.2
Bench area (m <sup>2</sup> )	10.3	-----	2.9
Bench height (cm)	50	-----	48
Construction type	T/C <sup>b</sup>	T/C	T/C
Roof type	BM?Th <sup>c</sup> ?	Bm?Th?	BM?Th?
Location of plaster	-----	-----	-----
Cordholders	No	No	No
Niches	No	No	No
Sculpture	No	No	No

<sup>a</sup> No door jambs or front wall — room opens directly onto terrace.

<sup>b</sup> T = roughly shaped blocks of tuff; C = cobbles.

<sup>c</sup> BM = beam and mortar; Th = thatched roof.

Table 4.17: Loci Associated with Structure 9N-68

Locus	Description
1609.9	Artifacts from midden deposit north of building. Includes Feature 22. • Volume: 2.0 m <sup>3</sup> • Total number of artifacts: 689 (344.5/m <sup>3</sup> ) 13.2% lithic; 1.6% ground stone (= 2 metate, 5 mano, 2 abrader and/or polisher, 2 hammerstone and/or abrader); 0.9% stone ornament (= pigment); 75.9% ceramic; 7.5% bone (= 3 needle or pin, 2 tube or ring, unmodified); 0.3% other ceramic (= 2 candelero); 0.1% figurine; 0.3% whole ceramic vessel (= 1 Surlo tripod plate, 1 Surlo straight-walled dish)
1611.2	Artifacts from above room floor and bench surface of Rm 1 included in Feature 4 (see discussion in the text). • Volume: 0.1 m <sup>3</sup> • Total number of artifacts: 4 (40.0/m <sup>3</sup> )
1612.2	Artifacts from Rm 2 found on room floor and labeled Feature 7 (see discussion in the text). • Volume: 0.6 m <sup>3</sup> • Total number of artifacts: 27 (45.0/m <sup>3</sup> )

Feature 4 was found on the floor of Rm 1. A mano, a stone bowl or mortar, and the rim of a Casaca Striated jar were lying near the bench face. Somewhat separate was a broken metate and sherds from a comal, type Hastalgorro. Neither ceramic vessel was complete and the jar rim was entered into the PAC II databank as a rim rather than as a whole vessel. Both the mano and the metate were used (Hendon et al. n.d.a:Appendix 1; Hendon n.d.).

Feature 7 refers to a variety of artifacts all found on the room floor. The complete list is given in Table 4.18. One of the whole vessels, the three-pronged brazier, was smudged on its plate section and near the base (Hendon et al. n.d.a:Appendix 1; Hendon n.d.).



Table 4.18: Feature 7 (Locus 1612.2)  
N=27

Class	Artifact Category	Quantity	% of Class
Lithic (n=8)	Obsidian chunk	2	25.0
	Obsidian blade	6	75.0
Ground stone (n=3)	Metate	3	100.0
Ceramic rims (n=11)	Caldero	1	9.1
	Flaring-walled bowl/dish, fancy	2	18.2
	Cylindrical censer, fancy	1	9.1
	Restricted narrow, plain	1	9.1
	Large-necked jar	1	9.1
	Medium-necked jar	2	18.2
	Narrow-necked jar	3	27.3
Whole vessels (n=5)	3-pronged brazier, Sepultura	1	20.0
	Large-necked jar, Casaca	1	20.0
	Medium-necked jar, Casaca	2	40.0
	Narrow-necked jar, Casaca	1	20.0

#### Structure 9N-67

This building is built much better than its neighbors. As indicated in Table 4.19, in addition to dressed tuff masonry and a vaulted roof, both rooms had red-painted stuccoed surfaces. The front wall of the superstructure outside of Rm 1 was decorated with a frieze composed of small rectangular tuff blocks set in the wall at an angle to create a woven mat-like pattern. The arrangement is reminiscent of, although less complicated than, a frieze found on Str 10L-22A of the Main Group (Hendon et al. n.d.a; Hohmann and Vogrin 1982:Abb. 103).

The plan of Rm 1 is very similar to that of Rm 2 of Str 82 described above. Rm 1 is larger and has an L-shaped rather than rectangular bench in the side area. Once again, the lack of door jambs has

led me to consider it all one room albeit divided into sections by the transverse bench wall.

Table 4.19: Structure 9N-67 Architecture

Architectural Data	Room 1	Room 2
Orientation of room	Patio (S)	Other (W) (onto side terrace)
Number of doors	1	1
Number of benches	2	1
Bench shape(s)	Rec, L	Rec
Total room area (m <sup>2</sup> )	17.7	4.8
Floor area(s) (m <sup>2</sup> )	3.6, 1.5 <sup>a</sup>	1.8
Bench area(s) (m <sup>2</sup> )	11.0, 3.6	2.7
Bench height(s) (cm)	65, 43	60
Construction type	DT <sup>b</sup>	DT
Roof type	V <sup>c</sup>	V
Location of plaster	F,W,B,N <sup>d</sup>	F,W,B
Paint	Red-W,N	Red-B
Cordholders	Yes	Yes
Niches	2 <sup>e</sup>	No
Sculpture	Yes	No

<sup>a</sup> Eastern floor area, in front of L-shaped bench, raised 15 cm above level of main floor area.

<sup>b</sup> DT = dressed tuff masonry.

<sup>c</sup> V = vault.

<sup>d</sup> F = floor; B = bench; W = walls and/or bench face; N = niche.

<sup>e</sup> One niche built into retaining wall of L-shaped bench; one niche in west room wall. There is also a niche in the front substructure wall west of the stairs.

Table 4.20 gives the loci for Str 67. Very few artifacts were found in the rooms or behind the structure. In contrast to the other three buildings in this patio, there were no midden deposits or even any sort of fairly dense artifact accumulation anywhere around the substructure. There are no associated features.

Table 4.20: Loci Associated with Structure 9N-67

Locus	Description
1606.8	Area north of structure below wall collapse. <ul style="list-style-type: none"> <li>• Volume: 0.9 m<sup>3</sup></li> <li>• Total number of artifacts: 39 (43.3/m<sup>3</sup>)</li> </ul> 46.2% lithic; 53.8% ceramic
1607.2	Artifacts from above room floor and bench surface of Rm 1. <ul style="list-style-type: none"> <li>• Volume: 3.3 m<sup>3</sup></li> <li>• Total number of artifacts: 21 (6.4 m<sup>3</sup>)</li> </ul> 57.1% lithic; 42.9% ceramic
1608.2	Artifacts from above room floor and bench surface of Rm 2. <ul style="list-style-type: none"> <li>• Volume: 0.3 m<sup>3</sup></li> <li>• Total number of artifacts: 3 (10.0/m<sup>3</sup>)</li> </ul> 100.0% ceramic

**Structure 9N-74**

Str 74 has three separate superstructures. Unlike Str 82, however, they have separate staircases and are built at different levels. The northern superstructure contains Rm 1 and is described in Table 4.21. Its staircase and substructure articulate with Str 67. The finding of a number of small square tuff blocks among the collapsed wall debris suggests that the interior of Rm 1 may have been decorated with a geometric stone frieze (Hendon et al. n.d.a).

The central superstructure is separated from the northern and southern ones by two corridors. It houses three rooms, two of which intercommunicate (see Table 4.22). Despite the presence of a vaulted roof over Rms 2 and 3, the construction is inferior to that of Rm 1 to the north. In situ material was found in Rm 2 and on the front terrace in front of Rm 3. Two terrace benches were built on either side of the entrance to Rm 3 (Hendon et al. n.d.a).

Table 4.21: Structure 9N-74 Northern and Southern Superstructures Architecture

Architectural Data	Room 1	Room 5
Orientation of room	Patio (W)	Patio (W)
Number of doors	1	1
Number of benches	1	3
Bench shape(s)	U	Rec, rec, rec
Total room area (m <sup>2</sup> )	8.1	15.2 est
Floor area(s) (m <sup>2</sup> )	1.6	2.1, 3.2 (20 cm higher)
Main bench area (m <sup>2</sup> )	6.3	6.0 est (poss. 9.7 m <sup>2</sup> )
Othr bench areas (m <sup>2</sup> )	-----	? (S), 3.2 (N)
Main bench height (cm)	42-56	50
Other bench heights (cm)	-----	40 (S), 32 (N)
Construction type	DT <sup>a</sup>	T/C/B?
Roof type	V <sup>b</sup>	BM
Location of plaster	-----	F, W, B <sup>c</sup>
Cordholders	Yes	Maybe-found in collapse
Niches	1-bench face	2-N and S benches
Sculpture	Yes	No

<sup>a</sup> DT = dressed tuff masonry; T = roughly shaped blocks of tuff; C = cobbles; B = bajareque.

<sup>b</sup> V = vault; BM = beam and mortar.

<sup>c</sup> F = floor; B = bench; W = walls and/or bench face.

Rm 5, in the southern superstructure, and its terrace are at a higher level than the central area. The terrace had two terrace benches. The southern limit of the room was ill defined, forcing me to estimate bench and room areas in Table 4.21. It appears to have had a rectangular bench opposite the doorway, which I will call the main bench, and another one south of the doorway. The main bench and this southern one form an L shape in plan view but were of different heights and were built separately. The northern area of the room has a raised floor area which in turn supports another bench, also rectangular. This northern bench was built up against the north side of the main bench, indicating that the latter was originally free-standing. Niches were

found in the retaining walls of the northern and southern benches  
(Hendon et al. n.d.a).

Table 4.22: Structure 9N-74 Central Superstructure Architecture

Architectural Data	Room 2	Room 3	Room 4
Orientation of room	Other (S) (into Rm 3)	Patio (W) (S)	Other
Number of doors	1	2	1
Number of benches	0	1	1
Bench shape(s)	-----	L	U
Total room area (m <sup>2</sup> )	3.8	9.2	5.7
Floor area(s) (m <sup>2</sup> )	1.2, 2.6 <sup>a</sup>	2.9	0.6
Bench area (m <sup>2</sup> )	-----	6.3	5.0
Bench height (cm)	-----	60	27
Construction type	T/C <sup>b</sup>	DT	DT/T/C
Roof type	V <sup>c</sup>	V	BM?Th?
Location of plaster	-----	F <sup>d</sup>	B
Cordholders	No	Yes <sup>e</sup>	No
Niches	No	No	No
Sculpture	No	No	No

<sup>a</sup> Eastern part of floor is 15 cm higher than western part.

<sup>b</sup> DT = dressed tuff masonry; T = roughly shaped blocks of tuff; C = cobbles.

<sup>c</sup> V = vault; BM = beam and mortar; Th = thatched roof.

<sup>d</sup> F = floor; B = bench.

<sup>e</sup> Cordholders are two "doughnut stones" made of tuff and set into the front wall.

Beyond the southern end of Str 74 is a partially paved area with a patch of burned clay. The south wall of Str 74 has an opening measuring 36 cm high × 44 cm wide (E-W). No back or side walls were found inside the substructure, although a soft reddish-brown fill with a large quantity of burned clay and large ceramic sherds was found immediately inside the opening. A rich midden deposit was found above the paving in front of the opening along with several burials. At some point the area was enclosed by cobble walls which in effect extended the back wall of Str 74 south and then cornered to the west to abut the southeast corner

of Str 75. The original height of these walls is unknown but 70 cm were standing when excavated. There is no obvious access to the area since all walls abut Strs 74 or Str 75 (see Figure 4.3), nor is it clear if it was open during the final phase of occupation. The artifacts have been included in this study although the fact that their context is somewhat equivocal must be kept in mind (Hendon et al. n.d.a).

Table 4.23 gives the associated loci for all three superstructures. I have attempted to divide the heavy midden deposits behind the structure among the three superstructures.

Feature 63, in Rm 1, consists of an Ulua Polychrome jar and a chert chunk. Part of a thin-walled and smudged Casaca Striated narrow-necked jar was also found. The polychrome jar was lying on the northern part of the room floor, close to the retaining wall of the north arm of the bench. It may have originally been inside the niche/opening in the bench face (Hendon et al. n.d.a:Appendix 1; Hendon n.d.).

Features 47 and 54 refer to a variety of artifacts found in Rm 2. Artifacts in Feature 47 were found on and above the lower floor area in the western part of the room. The ones above the floor may have fallen from a position on the walls or roof when the building collapsed. A ceramic bead, an abrader and/or polisher, and an abrader and/or whetstone were found on the floor surface. Two reconstructable vessels are included, a medium-necked Casaca jar (23 cm diameter) and a large-necked Sisero jar (36 cm diameter). Some sherds of both vessels were smudged outside and inside. There was a fair amount of carbon and burned clay around and among the vessel pieces (Hendon et al. n.d.a:Appendix 1; Hendon n.d.).

Table 4.23: Loci Associated with Structure 9N-74

Locus	Description
1621.9	<p>Artifacts from midden deposit south of Str 74. The most notable aspect of this deposit is the very high quantity of obsidian — 310 chunks, 348 flakes, and 838 blades. This works out to 88.6 chunks, 99.4 flakes, and 239.4 blades per cubic meter. Compare this with Locus 1629.9 with 59 obsidian blades per cubic meter.</p> <ul style="list-style-type: none"> <li>• Volume: 3.5 m<sup>3</sup></li> <li>• Total number of artifacts: 2284 (652.6/m<sup>3</sup>)</li> </ul> <p>66.7% lithic; 0.1% ground stone (1 metate, 1 mano, 1 mortar); 23.1% ceramic; 9.2% bone (1 awl, unmodified bone); 0.2% shell unmodified, 5.4 g); 0.1% turtle shell (2 unmodified, 1 modified); 0.2% other ceramic (2 candelero, 2 miniature vessel); 0.4% figurine</p>
1622.9	<p>Artifacts from midden deposit east of northern superstructure (Rm 1).</p> <ul style="list-style-type: none"> <li>• Volume: 0.3 m<sup>3</sup></li> <li>• Total number of artifacts: 28 (93.3/m<sup>3</sup>)</li> </ul> <p>7.1% lithic; 7.1% ground stone (1 metate, 1 mano); 78.6% ceramic; 7.1% other ceramic (2 perforated flat disk)</p>
1623.2	<p>Artifacts labeled Feature 63 found on floor of Rm 1 (see discussion in the text).</p> <ul style="list-style-type: none"> <li>• Volume: Not applicable</li> <li>• Total number of artifacts: 4</li> </ul> <p>25.0% lithic; 25.0% ceramic; 50.0% whole ceramic vessel</p>
1624.2	<p>Artifacts on and above floor of Rm 2. Includes Features 47 and 54 (see discussion in the text).</p> <ul style="list-style-type: none"> <li>• Volume: 1.3 m<sup>3</sup></li> <li>• Total number of artifacts: 59 (45.4/m<sup>3</sup>)</li> </ul> <p>30.5% lithic; 3.4% ground stone; 55.9% ceramic; 3.4% other ceramic (1 flat perforated disk); 6.8% whole ceramic vessel</p>
1625.9	<p>Artifacts from midden deposit east of central superstructure. Includes some whole or partial vessels that were designated Features 65 and 70.</p> <ul style="list-style-type: none"> <li>• Volume: 2.4 m<sup>3</sup></li> <li>• Total number of artifacts: 115 (47.9/m<sup>3</sup>)</li> </ul> <p>6.1% lithic; 5.2% ground stone (3 metate, 1 mano, 1 abrader and/or polisher, 1 "barrel"); 69.6% ceramic; 12.2% bone (unmodified); 1.7% figurine; 5.2% whole ceramic vessel (1 caldero, 1 flat-rimmed caldero, 1 large-necked Casaca Striated jar, 1 medium-necked plain jar, 1 narrow-necked plain jar)</p>

(Table 4.23, cont.)

Locus	Description
1626.2	Artifacts from above room floor and bench surface of Rm 3. Includes Features 44 and 46 (see discussion in the text). <ul style="list-style-type: none"> <li>• Volume: 2.0 m<sup>3</sup></li> <li>• Total number of artifacts: 125 (62.5/m<sup>3</sup>)</li> </ul> 30.4% lithic; 1.6% ground stone (1 mano, 1 abrader and/or polisher); 1.6% stone ornament (figurine); 50.4% ceramic; 11.2% bone (unmodified); 1.6% other ceramic (2 can-delero); 3.2% whole ceramic vessel
1627.3	Artifacts labeled Features 41, 42, and 43 found on terrace outside of Rm 3 (see discussion in the text). <ul style="list-style-type: none"> <li>• Volume: Not applicable.</li> <li>• Total number of artifacts: 36</li> </ul>
1629.9	Artifacts from midden deposit east of southern super-structure. Includes some reconstructable ceramic vessels and concentrations of obsidian which were labeled Features 60, 66, 71. <ul style="list-style-type: none"> <li>• Volume: 4.0 m<sup>3</sup></li> <li>• Total number of artifacts: 597 (149.3/m<sup>3</sup>)</li> </ul> 48.6% lithic; 0.3% ground stone (1 pestle, 1 abrader and/or polisher); 34.1% ceramic; 3.9% bone (1 awl, 1 needle, unmodified); 11.1% shell (unmodified); 0.3% other ceramic (2 miniature vessel); 1.7% whole ceramic vessels (3 caldero; 1 bichrome unspecified jar, 2 Casaca large-necked jar, 2 Casaca medium-necked jar, 1 plain narrow-necked jar, 1 Casaca semi-necked restricted)
1630.2	Artifacts on and above room floors and bench surfaces of Rm 5. Includes Features 49, 50, 52, 55, and 57 (see discussion in the text). <ul style="list-style-type: none"> <li>• Volume: 0.4 m<sup>3</sup></li> <li>• Total number of artifacts: 19 (47.5/m<sup>3</sup>)</li> </ul> 10.5% lithic; 10.5% ground stone; 10.5% stone ornament; 47.4% ceramic; 21.1% ceramic whole vessel
1631.3	Artifacts on terrace surface outside of Rm 5 labeled Feature 45 (see discussion in the text). <ul style="list-style-type: none"> <li>• Volume: 0.3 m<sup>3</sup></li> <li>• Total number of artifacts: 9 (30.0/m<sup>3</sup>)</li> </ul> 77.8% ceramic; 11.1% bone; 11.1% other ceramic

Feature 54 was found on the upper floor. It subsumes two ceramic vessels, a narrow-necked (15 cm diameter) Cruz jar and a Casaca Striated caldero (30 cm diameter), which may have had a spout. The inside of the



jar walls were coated with a fairly thick encrustation of lime from the base up to the rim and chunks of lime were found among the sherds and on the floor during excavation (Hendon et al. n.d.a:Appendix 1; Hendon n.d.).

Inside Rm 3 a number of broken but reconstructable ceramic vessels were found on and above the room floor. A great deal of carbon and burned clay, similar to that in Rm 2, was found in the soil matrix above and surrounding the vessels. Feature 44 refers to a Raul or Cruz Incised jar on the floor. Feature 46 designates four vessels above and on the floor, a Lorenzo Red caldero with everted rim (50-54 cm diameter), a Lorenzo Red caldero with flat rim (20 cm diameter), a medium-necked Cruz Incised jar (20 cm diameter), and a narrow-necked Cruz Incised jar (18 cm diameter). It is possible that the sherds in Feature 44 go with one of these jars. Various other partial vessels were found, including a medium-necked Casaca Striated jar and a bolstered-rim caldero of the Lorenzo Red type which were classified as individual rim sherds rather than as whole vessels (Hendon et al. n.d.a:Appendix 1; Hendon n.d.).

Outside of Rm 3 on the lower terrace and the northern terrace bench were found several ceramic vessels. Feature 41 refers to two pots found on the lower terrace in front of the entrance of Rm 3. One vessel, an Ulua Polychrome cylinder with small slab feet, was closer to Rm 3 and overlain by fallen vault stones. The other vessel is a Raul Red or Cruz Incised jar that is less complete (Hendon et al. n.d.a:Appendix 1; Hendon n.d.).

Feature 42, which was found on the terrace bench, and Feature 43, found more to the east in the corridor between the northern and central

superstructures, refer to parts of the same vessels. One is a Raul Red jar or caldero, which was extremely large, to judge from the thickness and curvature of the sherds recovered. The other is a large-necked Casaca Striated jar (30 cm diameter). The sherds of this jar were burned on both sides. Also included in Feature 43 are twenty-four unworked animal bones, possibly deer, with a total weight of 213.3 grams (Hendon et al. n.d.a:Appendix 1; Hendon n.d.).

A variety of artifacts was found in Rm 5; these were designated Features 49, 50, 52, and 57. The other feature mentioned above, 55, refers to a variety of sherds which actually formed part of the vessels in other features. Feature 50 is a Sepultura cylindrical censer with appliqué cacao pods around the rim (28 cm diameter). The interior of the censer was smudged black up to the rim. It was placed on the raised floor just west of the opening/niche in the front wall of the northern bench. Inside this opening/niche was another Sepultura cylindrical censer, Feature 57. This one had a diameter of 18-19 cm and was also blackened on the inside, especially around the base. The exterior was somewhat smudged (Hendon et al. n.d.a:Appendix 1; Hendon n.d.).

Feature 49 includes two large-necked Casaca Striated jars (both 32 cm diameter). They were found at the level of the surface of the northern bench. The interior and part of the exterior of one of the jars was blackened while the other was smudged on the lower part of the exterior only. In addition to the jars, a whole rhyolite mano, moderately used, and an abrader and/or whetstone were found (Hendon et al. n.d.a:Appendix 1; Hendon n.d.).

Feature 52 was also found directly on the plaster surface of the raised floor area of Rm 5. It is a single circular earspool made of

obsidian. It has a central biconically drilled opening (Hendon et al. n.d.a:Appendix 1; Hendon n.d.).

The final feature associated with Str 74 was found on the lower terrace area outside of Rm 5. Upon discovery, Feature 45 looked like a fairly dense scattering of ceramics and ground-stone artifacts (3 manos reported in field notes) on the terrace surface. Examination of the ceramics suggested that there were at least three vessels represented, two Cruz Incised jars and a Casaca Striated jar, with possibly a fourth, a Raul Red jar. However, none of them was complete so they were coded as ceramic rims rather than as whole vessels. The manos are not present in the computer databank — either an oversight during coding or the result of mislabeling of the actual artifacts. A candelero fragment was also found along with a small amount of bone (Hendon et al. n.d.a:Appendix 1; Hendon n.d.).

#### Structure 9N-75

The final building to be discussed is also the most modest. One unusual feature is the use of limestone slabs for the retaining and room walls rather than the more commonly found cobbles or tuff. In part because of the choice of material, the room walls were almost completely destroyed. The dimensions given in Table 4.24 are therefore estimated. There may have been a bench on the western side of the terrace. The room bench was free-standing, creating an L-shaped floor area (Hendon et al. n.d.a).

Table 4.24: Structure 9N-75 Architecture

Architectural Data	Room 1
Orientation of room	Patio (N)
Number of doors	1
Number of benches	1
Bench shape	Rec
Total room area (m <sup>2</sup> )	23.6 est
Floor area (m <sup>2</sup> )	16.6 est
Bench area (m <sup>2</sup> )	7.0
Bench height (cm)	36+
Construction type	C/B <sup>a</sup>
Roof type	Th <sup>b</sup>
Location of plaster	F, B <sup>c</sup>
Cordholders	?
Niches	No
Sculpture	No

<sup>a</sup> C = cobbles; B = bajareque.

<sup>b</sup> Th = thatched roof.

<sup>c</sup> F = floor; B = bench.

There is only one locus associated with Str 75. It is described in Table 4.25.

Table 4.25: Locus Associated with Structure 9N-75

Locus	Description
1633.9	Artifacts from midden deposit behind the building. <ul style="list-style-type: none"> <li>• Volume: 18.8 m<sup>3</sup></li> <li>• Total number of artifacts: 1841 (97.9/m<sup>3</sup>)</li> </ul> 35.3% lithic; 0.3% ground stone (1 metate, 1 mano, 1 abrader and/or polisher); 0.2% stone ornament (2 jewelry, 2 miscellaneous worked); 59.1% ceramic; 2.3% bone (1 drilled tooth, 1 cut long bone, unmodified); 1.3% shell (1 jewelry, 5 miscellaneous worked, unmodified); 0.2% turtle shell (unmodified); 1.0% other ceramic (4 can-delero, 2 flask, 4 jewelry, 2 spindle whorl, 6 flat perforated disk); 0.2% figurine; 0.1% whole ceramic vessel (1 Copador hemispherical bowl, 1 plain cylindrical censer)

The patio lots below or without wall debris were collected into Locus 1601.1 It has a volume of 2.2 m<sup>3</sup> and there are 323 artifacts in all (146.8/m<sup>3</sup>). Of these artifacts, 40.2% are lithic, 1.9% ground stone

(3 metate, 2 mano, 1 hollow cylinder), 44.6% are ceramic rims, 12.4% bone (unmodified), and 0.9% ceramic whole vessels. Included in this locus are Features 48 and 56. The former refers to two partial vessels, a Lorenzo Red caldero and a Casaca Striated jar found on the patio paving south of Str 67 and west of Str 74. Feature 56 is a mano also lying on the patio paving west of Str 74 but further south than Feature 48 (Hendon et al. n.d.a:Appendix 1; Hendon n.d.).

#### Gr 9N-8 Patio C

- Operation number: 13
- When excavated: 1981-1982
- Excavators: Ricardo Agurcia F., R. A. Flores M. (1981);  
Julia Hendon, William Fash, Jr., Eloísa Aguilar P. (1982)
- Report: Hendon et al. n.d.b, also Agurcia and Flores n.d.
- Related excavations: Operation 16 — N end of Str 73

Patio C is located west of Patio B. Its patio, at a lower elevation than its neighbor, is not built on the raised platform which supports Patios A and B. As noted earlier, Str 73 forms the eastern edge of patio C. There are four structures in addition to Str 73: Str 69 on the north side, Strs 70 and 71 on the west, and Str 72 on the south side. Two platforms, which had not been visible on the surface, were found behind Strs 70 and 71, outside of Patio C. They were given the structure numbers 101 and 102. It is not clear if they should be associated with this patio or if they pertain to some other patio further west (and now destroyed by the modern access road). (See Figure 4.4.) The area of the patio, which was plastered, was 440.0 m<sup>2</sup>. Most of the midden deposits were excavated in 1981 (Hendon et al. n.d.b). Regrettably I could not use most of the lots because they were mixed

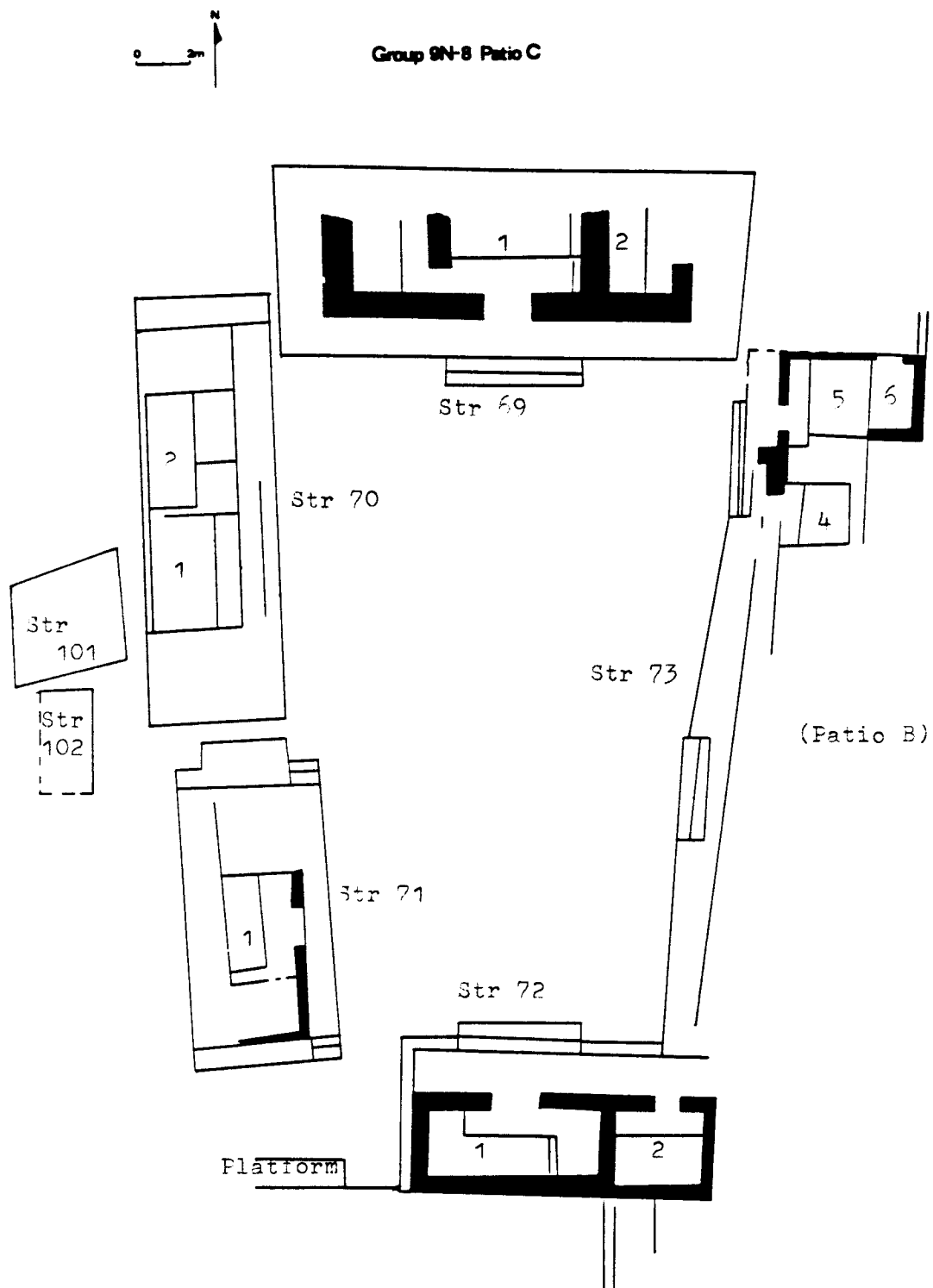


Figure 4.4: Map of Gr 9N-8 Patio C

with debris and fill from the collapsed superstructures. For this reason, Patio C is somewhat underrepresented in the population of artifacts.

The west (back) side of Str 73 was built on the patio surface of Patio C to form the east edge of the courtyard. Unlike the case of Str 81 and Patio E described above, a staircase was built on the western side of Str 73, allowing ascent from Patio C to the wide terrace behind the superstructure of Str 73. Although none of the rooms (1-3) in this part of the building faced onto Patio C, one could enter Patio B by walking south on the rear terrace and rounding the southern end of Str 73. Thus the stairs make it possible, in the absence of any impediment, to move between the two courts without increasing access to Rms 1-3 of Str 73. Another connection between the two areas is made by the intersection of the west side of Str 73 with the front wall of the southern building of Patio C, Str 72. The terrace surfaces of the two buildings are at the same height. Furthermore, the front terrace of Str 72 is only slightly higher than the patio surface of Patio B, making it theoretically possible to move from the top of the substructure of Str 72 into the patio area of Patio B as well as onto the back terrace of Str 73. However, an L-shaped stone wall was found in 1981 projecting east and then north from the west superstructure wall of Str 72 Rm 2. If, as is likely, the northern end of this wall abutted the south end of the substructure of Str 73, it would have provided just the sort of impediment necessary to prevent movement between the terraces of Strs 72 and 73 and the Patio B courtyard. At the same time, as can be seen in Figure 4.4, it screens the front terrace of Str 72 from view (Hendon et al. n.d.a, n.d.b; Fash et al. 1981:fig. 9).

## Structure 9N-69

Table 4.26: Structure 9N-69 Architecture

Architectural Data	Room 1	Room 2
Orientation of room	Patio (S)	Other (E)
Number of doors	1	1
Number of benches	2	1
Bench shape(s)	Rec, rec	Rec
Other furniture	Ledge	-----
Total room area (m <sup>2</sup> )	33.9	8.0
Floor area (m <sup>2</sup> )	13.6	3.2
Bench area(s) (m <sup>2</sup> )	10.4, 5.4	4.8
Bench height(s) (cm)	63, 40	44
Other furniture area	4.5	-----
Other furniture height	54	-----
Construction type	DT <sup>a</sup>	DT
Roof type	V <sup>b</sup>	BM?
Location of plaster	F,W,B <sup>c</sup>	F,W,B
Cordholders	Yes	Yes <sup>d</sup>
Niches	No	No
Sculpture	Yes	No

<sup>a</sup> DT = dressed tuff masonry.

<sup>b</sup> V = vault; BM = beam and mortar. Rm 2 may have been vaulted but all the vault stones found were in or behind Rm 1.

<sup>c</sup> F = floor; W = walls and/or bench face; B = bench.

<sup>d</sup> Found in collapse outside of Rm 2.

Table 4.26 gives the details of the architecture of this building. Rm 1 is another case where a side area is created because the main bench is free-standing on its west side. A plinth (a double-faced wall built on a bench and usually serving as a divider or a support) on the west edge of the bench further served to segregate the side area. There is a narrow ledge on the east room wall between the front of the main bench and the front room wall. At least eight glyph blocks were placed on either side of the entrance of Rm 1. The ones recovered do not form a complete text but, according to Fash et al. (1981:117), give a date and



mention a protagonist who is a different person from the subject of the text on the bench in Str 82. The interior of the room was decorated by a series of carved blocks set into the rear room wall to form a frieze. The design was apparently meant to represent a snake (Hendon et al. n.d.b).

#### Structure 9N-70

This building contrasts sharply with the others in terms of its building material. It is constructed of faced cobbles supporting a wattle and daub superstructure. Quite large areas exist north and south of the superstructure which did not support any sort of stone structure. These may have had completely perishable walls or been open terrace areas. The latter seems more likely in view of the small quantity of daub recovered. If unwallled, the terraces may have had a perishable roof, but again there is no evidence. Table 4.27 summarizes the architectural details.

#### Structure 9N-71

The substructure of Str 71 was built of dressed tuff. Instead of having a centrally located staircase on the wall facing the patio, as is usual, it has two sets of stairs, one on either end of the substructure, which lead to the front terrace. In the center of the front wall is a niche. The entrance of the single room is aligned with the center of the substructure (Hendon et al. n.d.b).

Table 4.27: Structures 9N-70 and 9N-71 Architecture

Architectural Data	Str 70 Room 1	Str 70 Room 2	Str 71 Room 1
Orientation of room	Patio (E)	Patio (E)	Patio (E)
Number of doors	1	1	1
Number of benches	1	1	3
Bench shape(s)	Rec	Rec	Rec (all 3)
Total room area (m <sup>2</sup> )	11.3	9.2	21.2 est <sup>a</sup>
Floor area (m <sup>2</sup> )	5.0	3.6	5.8 est
Bench area(s) (m <sup>2</sup> )	6.3	5.6	5.0, 5.1, 5.8 est
Bench height(s) (cm)	32	15	20+, ?, ?
Construction type	C/B <sup>b</sup>	C/B	DT/T/C
Roof type	Th <sup>c</sup>	Th	BM
Location of plaster	-----	-----	F <sup>d</sup>
Cordholders	No	No	No
Niches	No	No	1- substr
Sculpture	No	No	No

<sup>a</sup> The superstructure of Str 71 was not well preserved.

<sup>b</sup> Dt = dressed tuff masonry; T = roughly shaped tuff blocks; C = cobbles; B = bajareque.

<sup>c</sup> Th = thatched roof; BM = beam and mortar.

<sup>d</sup> F = floor.

This superstructure, if also constructed of dressed tuff, had suffered greatly from collapse and stone robbing, because few room walls were left intact. As reconstructed in Table 4.27, the interior room space was taken up by a series of benches occupying a larger than usual area. The main bench, i.e. the one opposite the door, was free-standing on its south end. It was flanked by what are interpreted to be two rectangular benches, one abutting the main bench, the other not, although poor preservation makes this reconstruction tentative (Hendon et al. n.d.b).

## Structure 9N-72

Table 4.28: Structure 9N-72 Architecture

Architectural Data	Room 1	Room 2
Orientation of room	Patio (N)	Patio (N)
Number of doors	1	1
Number of benches	1	1
Bench shape	L	Rec
Total room area (m <sup>2</sup> )	18.3	9.5
Floor area (m <sup>2</sup> )	10.3	3.0
Bench area (m <sup>2</sup> )	8.0	6.5
Bench height (cm)	68	34
Construction type	DT <sup>a</sup>	DT
Roof type	BM <sup>b</sup>	BM
Location of plaster	F, W?, B <sup>c</sup>	F, W, B
Paint	-----	Red-F, W, B
Cordholders	Yes	No
Niches	2-substr	No
Sculpture	No	No

<sup>a</sup> DT = dressed tuff masonry.

<sup>b</sup> BM = beam and mortar roof. Large slabs of roof stucco were found along with several tuff drainage stones which would have functioned as gutters.

<sup>c</sup> F = floor; W = room walls and/or bench face; B = bench.

Str 72 also has substructure niches, in this case two, one placed on either side of the central staircase. Rm 1 has a side area delineated by the east face of a free-standing bench and by a plinth. Rm 2 has a great deal of red paint preserved on all its interior surfaces (Hendon et al. n.d.b). Painted plaster is not common but does occur in several patios (see Chapter 6). Red is the only color used in most cases; the one exception is Str 9N-82 Rm 1, where both blue and red are found. The area covered by the paint in Str 72's Rm 2 — the entire bench surface, bench face, room floor, and walls — is greater than in any other case known. However, this difference may to a great extent be

due to differential preservation. Table 4.28 contains the architectural data.

A rich midden deposit was found on the patio floor in front of the building. It had collected on either side of the central projecting staircase. Str 72 thus joins Str 83 and others to be discussed later (i.e. Strs 110 and 76) as one of the few structures with midden deposits in the patio.

#### Structure 9N-73

Table 4.29: Structure 9N-73 Northern End Architecture

Architectural Data	Room 4	Room 5	Room 6
Orientation of room	Patio (W)	Patio (W)	Other (N)
Number of doors	1	1	1
Number of benches	1	2	1
Bench shape(s)	Rec	Rec, rec	Rec
Total room area (m <sup>2</sup> )	6.0	13.8	4.4
Floor area (m <sup>2</sup> )	1.6	5.8	1.0
Bench area(s) (m <sup>2</sup> )	4.4	7.3, 0.9	3.4
Bench height(s) (cm)	20	50, 48	30
Construction type	T/C <sup>a</sup>	T/C	T/C
Roof type	Th <sup>b</sup>	Th	Th
Location of plaster	-----	-----	-----
Cordholders	No	No	No
Niches	No	No	No
Sculpture	No	No	No

<sup>a</sup> T = roughly shaped tuff blocks; C = cobbles.

<sup>b</sup> Th = thatched roof.

Although, as discussed earlier, the superstructure of Str 73 faced onto Patio B, there are some rooms that are oriented towards Patio C. These rooms, three in number, were built on a low substructure that was attached to the north end of Str 73 (= 73N). The top of the substructure was about equal in height to the rear terrace of the main part

of the building. However, the rooms had their own staircase leading from Patio C. Since they are oriented onto Patio C or, in the case of Rm 6, northwards, they are considered to be part of this courtyard unit rather than of Patio B. They were excavated as part of Operation 16 so the relevant loci bear that number as identification. They are described in Table 4.29. Table 4.30 gives the loci for Patio C as a whole and Str 101.

Feature 8 of Operation 16 was a broken ceramic vessel found on the bench surface of Rm 5. It was a Cruz Incised jar according to the field identification. It was subsequently lost in the laboratory and was thus never analyzed or entered into the databank (Hendon n.d.; Hendon et al. n.d.b:Appendix 1).

Feature 10 of Operation 16 was a collection of artifacts found on the bench of Rm 6. The ceramics may have included a Titichon caldero and a Casaca Striated jar, but no whole vessels could be reconstructed (Hendon et al. n.d.b:Appendix 1; Hendon n.d.). Table 4.31 outlines the artifacts in detail.

Several areas of the patio which should have been included in this study but could not be because of admixture with collapse or otherwise unclear contextual associations ought to be mentioned. The area between Strs 71 and 70, which was paved, may have had a substantial midden deposit. A great deal of midden-like material including large quantities of ceramics, lithics, manos and metates, and animal bone was recovered by the restoration crew working on Str 71 in 1982. The material was said to have come from north of Str 71 and to have been above the floor. However, the fact that it was not excavated under controlled conditions makes it impossible to determine with certainty if it had

been mixed with collapse or came, at least in part, from below the level of the patio paving.

Table 4.30: Loci Associated with Patio C

Locus	Description
1301.9	Midden deposit behind Str 69. <ul style="list-style-type: none"> <li>• Volume: 11.2 m<sup>3</sup></li> <li>• Total number of artifacts: 664 (59.3/m<sup>3</sup>)</li> </ul> 25.6% lithic; 0.3% stone ornament (pigment); 71.5% ceramic; 2.0% bone (unmodified); 0.2% shell (unmodified); 0.3% other ceramic (1 candelero, 1 perforated flat disk); 0.2% figurine
1303.3	Artifacts from above terrace surface of Str 69. <ul style="list-style-type: none"> <li>• Volume: 1.0 m<sup>3</sup></li> <li>• Total number of artifacts: 18 (18.0/m<sup>3</sup>)</li> </ul> 50.0% lithic; 44.4% ceramic; 5.6% bone (unmodified)
1304.8	Artifacts from behind Str 70. <ul style="list-style-type: none"> <li>• Volume: 1.0 m<sup>3</sup></li> <li>• Total number of artifacts: 28 (28.0/m<sup>3</sup>)</li> </ul> 10.7% lithic; 17.9% ground stone (4 metate, 1 mano); 71.4% ceramic
1306.6	Artifacts inside substructure niches of Str 72. <ul style="list-style-type: none"> <li>• Volume: 0.3 m<sup>3</sup></li> <li>• Total number of artifacts: 12 (40.0/m<sup>3</sup>)</li> </ul> 50.0% lithic; 16.7% bone (unmodified); 33.3% shell (unmodified)
1307.9	Artifacts from midden deposit in front of Str 72 on either side of central staircase. <ul style="list-style-type: none"> <li>• Volume: 6.0 m<sup>3</sup></li> <li>• Total number of artifacts: 1031 (171.8/m<sup>3</sup>)</li> </ul> 17.7% lithic; 0.2% ground stone (1 abrader and/or polisher, 1 celt); 0.1% stone ornament (1 jade and jade-like miscellaneous worked); 57.4% ceramic; 13.8% bone (1 drilled tooth, unmodified); 10.5% shell (3 miscellaneous worked, unmodified); 0.2% other ceramic (1 jewelry, 1 spindle whorl); 0.1% figurine
1308.1	Artifacts above cobble paving behind Str 72. <ul style="list-style-type: none"> <li>• Volume: 1.6 m<sup>3</sup></li> <li>• Total number of artifacts: 151 (94.4 m<sup>3</sup>)</li> </ul> 27.8% lithic; 70.9% ceramic; 1.3% bone (unmodified)

(Table 4.30, cont.)

Locus	Description
1309.7	Artifacts from platform/terrace between Strs 72 and 73. <ul style="list-style-type: none"> <li>• Volume: 0.4 m<sup>3</sup></li> <li>• Total number of artifacts: 44 (110.0/m<sup>3</sup>)</li> </ul> 45.5% lithic; 52.3% ceramic
1310.3	Artifacts from above room floors, bench surfaces, and terrace of Str 72 Rms 1 and 2. <ul style="list-style-type: none"> <li>• Volume: 6.1 m<sup>3</sup></li> <li>• Total number of artifacts: 12 (2.0/m<sup>3</sup>)</li> </ul> 8.3% lithic; 83.3% ceramic; 8.3% other ceramic (1 candelero)
1311.9	Midden deposit north of Str 101. Includes Feature 10 of Op 13 <sup>2</sup> which refers to two reconstructable vessels found in the deposit — a Surlo Plain straight-walled dish and a Copador cylinder. <ul style="list-style-type: none"> <li>• Volume: 1.4 m<sup>3</sup></li> <li>• Total number of artifacts: 65 (46.4/m<sup>3</sup>)</li> </ul> 13.8% lithic; 66.2% ceramic; 16.9% bone (unmodified); 3.1% whole ceramic vessel
1312.8	Artifacts from area around Strs 101 and 102 that did not appear to be midden. <ul style="list-style-type: none"> <li>• Volume: 4.1 m<sup>3</sup></li> <li>• Total number of artifacts: 140 (34.2/m<sup>3</sup>)</li> </ul> 7.9% lithic; 5.0% ground stone (3 metate, 3 mano, 1 celt); 85.0% ceramic; 1.4% bone (1 worked antler, unmodified); 0.7% whole ceramic vessel (1 Surlo cylinder)
1617.2	Artifacts found in Rm 5 of Str 73 that were designated Feature 8 of Op 16 (see discussion in the text). <ul style="list-style-type: none"> <li>• Volume: Not applicable</li> <li>• Total number of artifacts: 1</li> </ul>
1618.2	Artifacts found in Rm 6 of Str 73 that were labeled Feature 10 of Op 16 (see discussion in the text). <ul style="list-style-type: none"> <li>• Volume: 0.2 m<sup>3</sup></li> <li>• Total number of artifacts: 78 (390.0/m<sup>3</sup>)</li> </ul> 3.8% lithic; 2.6% ground stone; 60.3% ceramic; 30.8% bone; 2.6% shell

---

<sup>2</sup> Each operation numbered its features separately. Since some of Patio C was excavated as Op 16, the feature numbers overlap with those assigned as part of Op 13.

Table 4.31: Op 16 Feature 10 (Locus 1618.2)  
N=78

Class	Artifact Category	Quantity	% Class
Lithic (n=3)	Chert flake	1	33.3
	Obsidian blade	2	66.7
Ground stone (n=2)	Mano	2	100.0
Ceramic rims (n=47)	Comal	1	2.1
	Caldero	6	12.8
	Flaring-walled bowl/dish, fancy	1	2.1
	Cylinder, fancy	2	4.3
	3-pronged brazier	1	2.1
	Large-necked jar	1	2.1
	Medium-necked jar	19	40.4
	Narrow-necked jar	15	31.9
Bone (n=24)	Unmodified bone	24	100.0

Another area of interest is on the west side of Str 72. Excavations here in 1981 revealed a low platform built on the patio paving that stood 32 cm high (see Figure 4.4). Its full area cannot be determined since it was not completely excavated. The 1981 excavations in this area found a baked clay feature constructed on the cobble paving up against the base of Str 72. Agurcia and Flores (n.d.) suggest that this feature was an oven. Unfortunately there are no clearly associated lots from this area that were free of collapse.

#### Gr 9N-8 Patios D, I, and K

- Operation number: 17 (1982-1983); 26 (1984)
- When excavated: 1982-1983, 1984
- Excavators: Andrea Gerstle, David Webster
- Report: Gerstle and Webster n.d.; Gerstle n.d.a

Excavations carried out as Operation 17 were focused on Patio D. However, as was often the case, structures which before excavation were



thought to be part of one patio proved afterwards to be oriented toward another courtyard. As a result, parts of two more patios were discovered and excavated, Patio I to the north and Patio K to the east. In addition, three structures that form the north side of Patio H, Strs 110A, 64 and 115, were partially or completely excavated as part of Operation 17. Figure 4.5 shows the excavated structures for this operation. Additional trenching carried out in 1984 as part of Operation 26 will not be discussed here (see Gerstle n.d.a).

Patio D, which lies northeast of Patio B and north of Patio H, contains the following buildings: on the north side Strs 111, 61A, 61B, and possibly 61C; on the east Str 63; on the south Str 105; and on the west Strs 65 (or 65S), 104, 60A, and 60B. Str 112A, north of Strs 60A and 111, may also have faced in the direction of Patio D. Only Rms 1, 3, and 5 of Str 65 are part of this courtyard unit. Rms 4 and 6 face onto a small open area between Patios B, H, and D which is described below as Patio Alpha. What in 1982 was called Rm 2 of Str 65 proved, on the basis of the 1983 Operation 22 excavations in Patio H, to be part of the superstructure of Str 110A. The area of the courtyard of Patio D was, very roughly, 141.0 m<sup>2</sup>. The irregular placement of the structures constricts the patio into a T-shaped area consisting of a narrow east-west strip between the northern Strs 111 and 61A-C and the southern Strs 63 and 105 plus a north-south section in front of Strs 65, 104, and 60A. As Gerstle (1985a) has pointed out, movement between Patio D and the other main courtyards of Gr 9N-8 was quite difficult. In fact, there is no direct way to go from the Central Platform of Patios A and B to Patio D. (See Figure 4.1.)

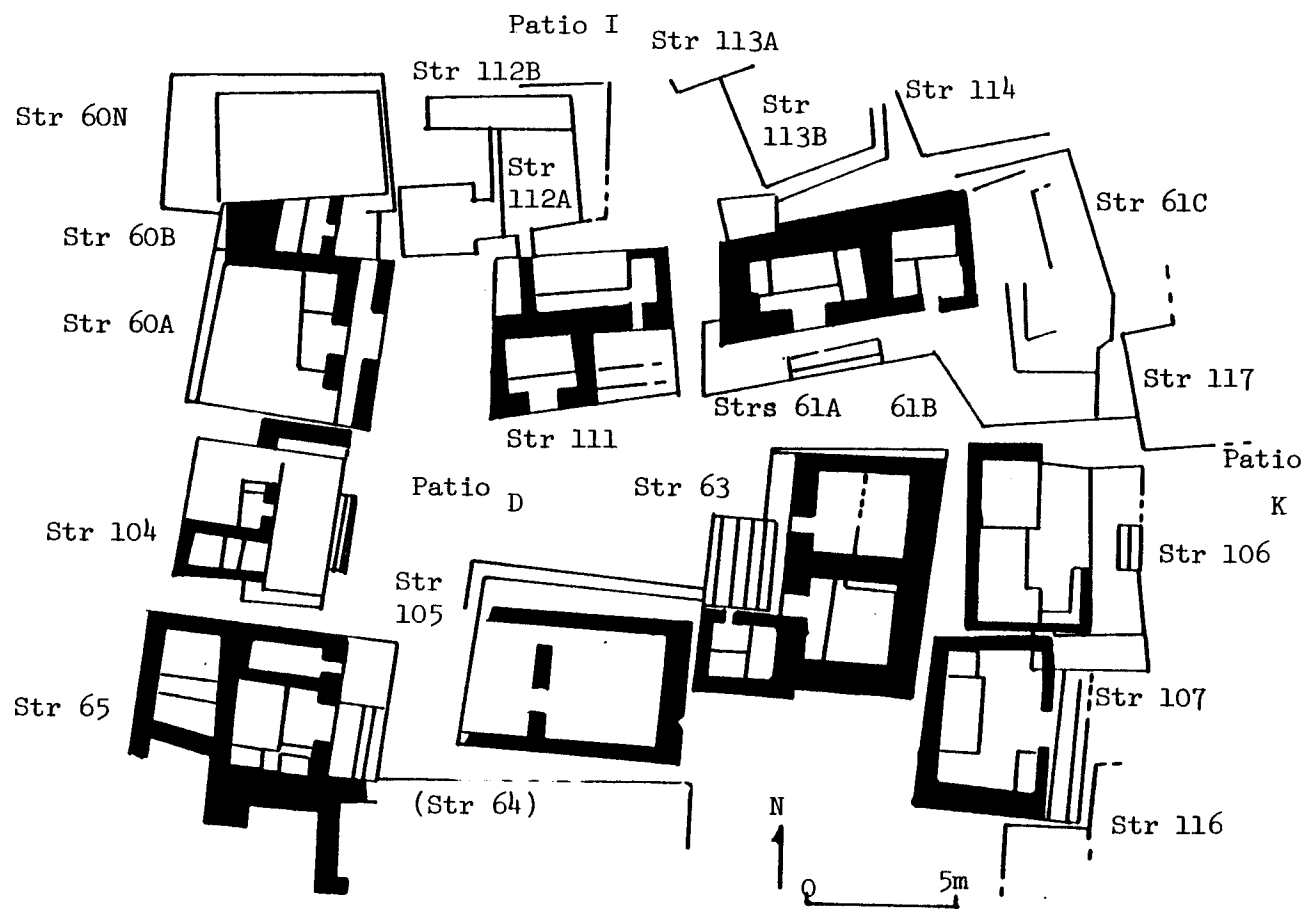


Figure 4.5: Map of Patios D, I, and K in Gr 9N-8

Patio I, to the north, has Strs 60N, 112B and possibly A, and 113A, B, and C on its southern edge. The rest of the patio was not investigated due to lack of time and funds. Patio K, to the east, was virtually destroyed by river action except on its western side, where Strs 117, 106, and 116 were found (Gerstle and Webster n.d.). (See Figure 4.5.)

The architectural discussion presented here will concentrate on the Patio D buildings. This is the only one of the three patios that was completely excavated. Furthermore, the structures are, by and large, better preserved than those of Patios I and K and hence much fuller measurement is possible. Artifacts from the adjoining patios have been included in the artifact analysis, however (see Chapter 6).

#### **Structures 9N-60A and 9N-60B**

These two structures are two-thirds of a row of adjoining substructures oriented north to south on the west edge of Patio D. The third building, Str 60N, lies outside the limits of the patio and was probably part of Patio I. Str 60B, the middle one, is also, strictly speaking, beyond Patio D but appears to have been oriented towards it rather than Patio I. Strs 60A and N were originally independent of one another until the substructure of Str 60B was built in the corridor space between them. Each superstructure contains a single room, the details of which are summarized in Table 4.32. As mentioned earlier (see Str 83 Patio A), Str 60A has a façade composed of T-shaped blocks possibly representing the day sign Ik. Some of the T's have straight downstrokes while others flare. In addition, a tenoned piece of tuff

carved in the form of a jaguar's head (Feature 4) was found on the surface of the lower bench or shelf (Gerstle and Webster n.d.). Table 4.33 presents the loci associated with these structures.

Table 4.32: Structure 9N-60 (A and B) Architecture

Architectural Data	60A Room 2	60B Room 1
Orientation of room	Patio (E)	Patio (E)
Number of doors	1	1
Number of benches	2 <sup>a</sup>	1
Bench shape(s)	L, rec	Rec
Total room area (m <sup>2</sup> )	24.3	4.5
Floor area (m <sup>2</sup> )	2.9	2.0
Bench area(s) (m <sup>2</sup> )	19.3, 2.1	2.5
Bench height(s) (cm)	60, 22	34
Construction type	DT/T/C <sup>b</sup>	T/C
Roof type	Th <sup>c</sup>	Th
Location of plaster	-----	F,W,B <sup>d</sup>
Cordholders	Yes	No
Niches	No	No
Sculpture	Yes	No

<sup>a</sup> In plan view the position of the two benches appears to create a U-shaped bench; however, the rectangular bench is lower than the L-shaped area. This lower bench could be a kind of shelf.

<sup>b</sup> DT = dressed tuff masonry; T = roughly shaped tuff blocks; C = cobbles.

<sup>c</sup> Th = thatched roof.

<sup>d</sup> F = floor; W = walls and/or bench face; B = bench.

Table 4.33: Loci Associated with Structures 9N-60A and 9N-60B

Locus	Description
1702.2	Artifacts from above room floor and bench surface of Str 60B Rm 1. <ul style="list-style-type: none"> <li>• Volume: 0.9 m<sup>3</sup></li> <li>• Total number of artifacts: 64 (71.1/m<sup>3</sup>)</li> <li>70.3% lithic; 28.1% ceramic; 1.6% bone (1 unmodified)</li> </ul>
1704.2	Artifacts from above room floor and bench surface of Str 60A Rm 2. <ul style="list-style-type: none"> <li>• Volume: 0.3 m<sup>3</sup></li> <li>• Total number of artifacts: 15 (50/m<sup>3</sup>)</li> <li>40.0% lithic; 60.0% ceramic</li> </ul>

(Table 4.33, cont.)

<u>Locus</u>	<u>Description</u>
1705.3	Artifacts from above terrace in front of Str 60A Rm 2. <ul style="list-style-type: none"> <li>• Volume: 0.6 m<sup>3</sup></li> <li>• Total number of artifacts: 34 (56.7/m<sup>3</sup>)</li> </ul> 41.2% lithic; 55.9% ceramic; 2.9% bone (1 unmodified)
1706.9	Artifacts from midden deposit west of Str 60B. <ul style="list-style-type: none"> <li>• Volume: 0.2 m<sup>3</sup></li> <li>• Total number of artifacts: 167 (835.0/m<sup>3</sup>)</li> </ul> 32.9% lithic; 61.7% ceramic; 5.4% bone (9 unmodified)
1707.9	Artifacts from midden deposit in area between Strs 60B, 60N, and 112A. <ul style="list-style-type: none"> <li>• Volume: 1.4 m<sup>3</sup></li> <li>• Total number of artifacts: 186 (132.9/m<sup>3</sup>)</li> </ul> 29.0% lithic; 2.7% ground stone (3 metate, 1 hammerstone, 1 celt); 61.8% ceramic; 5.4% bone (10 unmodified); 0.5% other ceramic (1 perforated flat disk); 0.5% figurine

In addition to the above material, a metate was found in Str 60A Rm 2 on the surface of the upper bench. This was labeled Feature 3. A Cruz Incised jar was found above the terrace surface of Str 60B and labeled Feature 8.

#### Structure 9N-111

Str 111 is placed almost due east of Str 60A, blocking the latter's access to the courtyard area. It has the conventional sort of superstructure which contains one room, Rm 1, which apparently had a free-standing bench and a side area to the east with a raised floor. There is also a second room, Rm 2, built into the front section of the substructure next to the staircase. This unusual arrangement is also found in Str 63 (see below) (Gerstle and Webster n.d.). Table 4.34 describes the two rooms while Table 4.35 lists the associated loci.

Table 4.34: Structure 9N-111 Architecture

Architectural Data	Room 1	Room 2a
Orientation of room	Patio (S)	Patio (S)
Number of doors	1	1
Number of benches	1	1
Bench shape	Rec	Rec
Total room area (m <sup>2</sup> )	9.1 est	4.6
Floor area(s) (m <sup>2</sup> )	2.5 est, 2.0 <sup>b</sup>	1.2
Bench area (m <sup>2</sup> )	4.6 est	3.4
Bench height (cm)	25+	30
Construction type	T/C/B <sup>c</sup>	DT/C
Roof type	Th <sup>d</sup>	Th
Location of plaster	-----	B <sup>e</sup>
Cordholders	No	No
Niches	No	No
Sculpture	No	No

<sup>a</sup> Rm 2 built into substructure supporting Rm 1.

<sup>b</sup> Floor area east of bench is 30 cm higher than rest of floor.

<sup>c</sup> DT = dressed tuff masonry; T = roughly shaped tuff blocks; C = cobbles; B = bajareque.

<sup>d</sup> Th = thatched roof.

<sup>e</sup> B = bench.

Table 4.35: Loci Associated with Structure 9N-111

Locus	Description
1733.2	Artifacts from above room floor of Rm 2. <ul style="list-style-type: none"> <li>• Volume: 0.7 m<sup>3</sup></li> <li>• Total number of artifacts: 16 (22.9/m<sup>3</sup>)</li> </ul> 43.8% lithic; 12.5% ground stone (1 metate, 1 pestle); 43.8% ceramic
1734.9	Artifacts from midden deposit north of Str 111. <ul style="list-style-type: none"> <li>• Volume: 1.0 m<sup>3</sup></li> <li>• Total number of artifacts: 213 (213.0/m<sup>3</sup>)</li> </ul> 26.3% lithic; 72.8% ceramic; 0.5% shell (1 unmodified); 0.5% figurine

#### Structures 9N-61A, 9N-61B, and 9N-61C

The other three northern buildings have linked substructures. Str 61A, the westernmost one, supports Rm 1 while its neighbor, Str 61B,

supports Rm 2. The superstructures of the two rooms also abut. Although in plan view Strs 61A and B tend to look like a single unit, Str 61B was added on after Str 61A was built and has a lower sub-structure and superstructure. Str 61C, to the east, is a large sub-structure with the traces of a superstructure that is too poorly preserved to reconstruct. Even its orientation is questionable and it is very likely that it belonged to another patio (Gerstle and Webster n.d.). Table 4.36 gives architectural details for the three structures. Table 4.37 lists the loci.

Table 4.36: Structures 9N-61A, 9N-61B, and 9N-61C Architecture

Architectural Data	Str 61A Room 1	Str 61B Room 2	Str 61C Room ?
Orientation of room	Patio (S)	Patio (S)	Other (N)
Number of doors	1	1	?
Number of benches	1	2	?
Bench shape(s)	Rec	Rec, rec	?
Other furniture	Shelf on bench	-----	-----
Total room area (m <sup>2</sup> )	9.1	5.4 est	6.2?
Floor area(s) (m <sup>2</sup> )	1.5, 1.7 <sup>a</sup>	0.9	?
Bench area(s) (m <sup>2</sup> )	3.2 est	3.4, 1.0	?
Bench height(s) (cm)	60-90 <sup>a</sup>	80, 20-25	?
Other furniture area (m <sup>2</sup> )	1.7	-----	?
Other furniture height (cm)	20	-----	?
Construction type	T/C/B <sup>b</sup>	T/C/B	DT/C/B
Roof type	Th <sup>c</sup>	Th	Th?
Location of plaster	-----	-----	?
Cordholders	No	No	?
Niches	No	No	?
Sculpture	No	No	No

<sup>a</sup> Eastern area of floor (1.5 m<sup>2</sup>) is 30 cm lower than western area in front of bench. East bench face built on lower and upper floors.

<sup>b</sup> DT = dressed tuff masonry; T = roughly shaped tuff blocks; C = cobbles; B = bajareque.

<sup>c</sup> Th = thatched roof.

Table 4.37: Loci Associated with Structures 9N-61A, 9N-61B, and 9N-61C

Locus	Description
1709.2	Artifacts above and on room floor of Str 61A Rm 1. Includes Features 74 and 76 (see discussion in the text). • Volume: 1.1 m <sup>3</sup> • Total number of artifacts: 102 (92.7/m <sup>3</sup> ) 60.8% lithic; 2.0% ground stone; 20.6% ceramic; 6.9% bone (1 awl, 2 awl fragment, 1 needle, 1 needle or pin, 2 unmodified); 7.8% shell (8 unmodified); 1.0% other ceramic (1 miniature vessel); 1.0% whole ceramic vessel
1710.9	Midden deposit west of Str 61A. • Volume: 0.6 m <sup>3</sup> • Total number of artifacts: 246 (410.0/m <sup>3</sup> ) 43.9% lithic; 1.2% ground stone (1 metate, 2 mano); 48.8% ceramic; 1.6% bone (1 needle, 3 unmodified); 3.7% shell (8 unmodified, 1 miscellaneous worked); 0.8% turtle (2 unmodified)
1711.9	Midden deposit northwest of Str 61A. • Volume: 0.9 m <sup>3</sup> • Total number of artifacts: 80 (88.9/m <sup>3</sup> ) 5.0% lithic; 3.8% ground stone (1 mano, 1 abrader and/or polisher, 1 abrader and/or whetstone); 90.0% ceramic; 1.3% bone (1 unmodified)
1712.9	Midden deposit north of Strs 61A and 61B. • Volume: 11.8 m <sup>3</sup> • Total number of artifacts: 1742 (147.6/m <sup>3</sup> ) 28.9% lithic; 1.1% ground stone (6 metate, 6 mano, 1 hammerstone, 2 abrader and/or polisher, 1 mortar, 2 celt, 1 flat-surfaced artifacts); 0.1% stone ornament (1 slate baton, 1 indeterminate miscellaneous worked); 60.0% ceramic; 4.6% bone (2 awl, 2 awl with rounded end, 3 awl fragment, 1 spatula, 2 cut long bone, 72 unmodified); 4.6% shell (79 unmodified 2 miscellaneous worked); 0.2% turtle (3 unmodified); 0.1% other ceramic (1 jewelry, 1 spindle whorl); 0.3% figurine
1713.9	Midden deposit north of Str 61C. • Volume: 7.0 m <sup>3</sup> • Total number of artifacts: 767 (109.6/m <sup>3</sup> ) 22.8% lithic; 0.5% ground stone (4 mano); 0.1% stone ornament (1 slate baton); 72.8% ceramic; 2.5% bone (1 human miscellaneous worked, 1 awl or pick, 3 tube or ring, 1 carved ornament, 13 unmodified); 0.9% shell (7 unmodified); 0.3% other ceramic (1 flask, 1 spindle whorl); 0.1% figurine



Three sets of artifacts were found inside Rm 1 of Str 61A. Feature 74 collects together artifacts found on or within 15 cm of the lower floor in the eastern part of the room. Included are a chert biface, a basalt mano, a stone used for abrading or polishing, a whole small cylinder or cup of type Surlo, bone, shell, and two unperforated sherd discs. Feature 76 refers to an obsidian projectile point found on the western floor. A third feature designation, 75, was given to an Ulua Polychrome cylinder with short tripod feet that was found in the collapse debris in front of the main bench. This vessel has not been included here because of its location but Gerstle and Webster (n.d.:Appendix 1) are probably correct in suggesting that it fell from the bench.

Feature 109 was also found amongst wall debris, above the terrace of Str 61B in front of the doorway of Rm 2. This feature refers to a basalt metate with three legs. It is carved and incised in a manner similar to metates from Costa Rica and had been used heavily (Gerstle and Webster n.d.:Appendix 1; Snarskis 1981.)

### Structure 9N-63

The only building on the east side is Str 63. Its placement vis-à-vis Str 61A is similar to that of Strs 111 and 60A, resulting in greater constriction of the courtyard area. There are two rooms built on the substructure. A projecting staircase, more or less centered on the substructure, gives access to a front terrace and ultimately the rooms. A third room was built south of the stairs up against the substructure; this room incorporated part of the terrace and front sub-

structure retaining wall into its interior area. The terrace section so included became the bench for Rm 3. The entrance was on the north side, with the result that the bench was to one side of the door rather than opposite it (Gerstle and Webster n.d.). Table 4.38 discusses these rooms. The associated loci are found in Table 4.39.

Table 4.38: Structures 9N-63 and 9N-105 Architecture

Architectural Data	Str 63 Room 1	Str 63 Room 2	Str 63 Room 3 <sup>a</sup>	Str 105 Room 1
Orientation of room	Patio (W)	Patio (W)	Other (N)	Patio (W)
Number of doors	1	1	1	2?
Number of benches	1	1	1	1?
Bench shape(s)	Rec	Rec	Rec	Rec?
Total rm area (m <sup>2</sup> )	9.6	10.1	5.2	16.8
Floor area (m <sup>2</sup> )	2.6	5.7	3.7	16.1
Bench area (m <sup>2</sup> )	7.0	4.4	1.5	0.7
preserved				
Bench height (cm)	45	45	60-65	56
Construction type	DT <sup>b</sup>	DT	DT	DT/T/C/B
Roof type	BM <sup>c</sup>	BM	?	BM?/Th?
Location of plaster	----	----	B <sup>d</sup>	B
Cordholders	No	No	No	No
Niches	2-ext. of S wall		No	No
Sculpture	No	No	No	No

<sup>a</sup> Rm 3 is attached to the front substructure of Str 63. Bench, which is located to east of entrance, is a section of Str 63's front terrace.

<sup>b</sup> DT = dressed tuff masonry; T = roughly shaped tuff blocks; C = cobbles; B = bajareque.

<sup>c</sup> BM = beam and mortar roof; Th = thatched roof.

<sup>d</sup> B = bench.

Feature 11 is a straight-walled dish of the type Cruz Incised. It was found on the floor of Rm 1 (Gerstle and Webster n.d.:Appendix 1).

Table 4.39: Loci Associated with Structure 9N-63

Locus	Description
1714.2	Artifacts on and above room floor and bench surface of Rm 1. Includes Feature 11 (see discussion in the text). <ul style="list-style-type: none"> <li>• Volume: 0.4 m<sup>3</sup></li> <li>• Total number of artifacts: 7 (17.5/m<sup>3</sup>)</li> <li>42.9% lithic; 42.9% ceramic; 14.3% whole ceramic vessel</li> </ul>
1715.2	Artifacts from above room floor of Rm 2. <ul style="list-style-type: none"> <li>• Volume: 0.2 m<sup>3</sup></li> <li>• Total number of artifacts: 17 (85.0/m<sup>3</sup>)</li> <li>29.4% lithic; 70.6% ceramic</li> </ul>
1716.9	Midden deposit south of Str 63. <ul style="list-style-type: none"> <li>• Volume: 2.6 m<sup>3</sup></li> <li>• Total number of artifacts: 314 (120.8/m<sup>3</sup>)</li> <li>29.9% lithic; 1.3% (4 metate); 65.0% ceramic; 2.5% bone (8 unmodified); 0.6% other ceramic (1 candelero, 1 jewelry); 0.6% figurine</li> </ul>
1717.9	Midden deposit east of (behind) Str 63 and west of Str 107 (Patio K). <ul style="list-style-type: none"> <li>• Volume: 1.9 m<sup>3</sup></li> <li>• Total number of artifacts: 263 (138.4/m<sup>3</sup>)</li> <li>18.6% lithic; 74.5% ceramic; 6.1% bone (16 unmodified); 0.8% figurine</li> </ul>
1718.9	Midden deposit east of (behind) Str 63 and west of Str 106 (Patio K). <ul style="list-style-type: none"> <li>• Volume: 3.5 m<sup>3</sup></li> <li>• Total number of artifacts: 813 (232.3/m<sup>3</sup>)</li> <li>28.7% lithic; 1.1% ground stone (3 metate, 5 mano, 1 abrader and/or polisher); 59.2% ceramic; 8.9% bone (1 awl fragment, 2 needle or pin, 69 unmodified); 1.1% shell (9 unmodified); 0.4% other ceramic (3 miniature vessel); 0.2% figurine; 0.5% whole ceramic vessel (1 Casaca Striated caldero, 2 straight-walled dish, type unknown, 1 plain ware unspecified jar)</li> </ul>

### Structure 9N-105

This building forms the south side of Patio D but also encroaches into the courtyard area. It virtually abuts the west wall of Str 63 to the east. The superstructure was poorly preserved but appears to have faced west towards Strs 65 and 104. What information is available has

been summarized in Table 4.38. The building had a decorative cornice made of beveled stones, although this sort of architectural elaboration has not been considered here to be sculpture. It is possible that many masonry superstructures had outset moldings or cornices no longer in position. Certainly such moldings are a common feature of many substructures (Gerstle and Webster n.d.). Table 4.40 lists the locus associated with this structure.

Table 4.40: Locus Associated with Structure 9N-105

Locus	Description
1726.9	Midden deposit labeled Feature 33 off southeast corner of building. Included in the ceramic sherds are parts of one vessel, a Surlo cup or small cylinder. <ul style="list-style-type: none"> <li>• Volume: 0.1 m<sup>3</sup></li> <li>• Total number of artifacts: 41 (410.0/m<sup>3</sup>)</li> </ul> 78.0% lithic; 14.6% ceramic; 2.4% other ceramic (1 miniature vessel); 4.9% whole ceramic vessel (1 Gualpopa flaring-walled bowl/dish, 1 Surlo cylinder)

#### Structure 9N-65

Rms 1, 3, and 5 of this western structure are part of Patio D. The southern wall of Str 65 abuts the north wall of Str 110A of Patio H. Rms 1 and 5 face east towards Str 105. Rm 5 has no bench whereas Rm 1 not only has a fairly large one but also has two small raised areas or shelves built on top of the bench. Rm 3 was built west of these two rooms and probably faced west into Rm 1. If this reconstruction is correct, the door would have led to the upper or lower bench surface rather than the floor (Gerstle and Webster n.d.). Table 4.41 gives architectural information for these three rooms while the loci are found in Table 4.42.

Table 4.41: Structure 9N-65 Architecture

Architectural Data	Room 1	Room 3	Room 5
Orientation of room	Patio (E)	Other? (W)	Patio? (E)
Number of doors	1	1?	1?
Number of benches	1	2	0
Bench shape(s)	L	Rec, rec	-----
Other furniture	2 shelves <sup>a</sup>	1 ledge <sup>b</sup>	-----
Total room area (m <sup>2</sup> )	7.0	10.3	3.5
Floor area (m <sup>2</sup> )	2.6	4.1	3.5
Bench area(s) (m <sup>2</sup> )	4.4	4.4, 1.8	-----
Bench height(s) (cm)	50	48 <sup>c</sup> , 21	-----
Other furniture areas (m <sup>2</sup> )	1.1, 1.1	0.3 est	-----
Other furniture heights (cm)	40, 40	21	-----
Construction type	DT/T/B <sup>d</sup>	T/C/B	T/B
Roof type	Th <sup>e</sup>	Th	Th
Location of plaster	F, B <sup>f</sup>	-----	F
Cordholders	No	No	No
Niches	No	No	No
Sculpture	No	No	No

<sup>a</sup> Both shelves are built on the surface of the short arm of the bench.

<sup>b</sup> Ledge located along east room wall.

<sup>c</sup> Height of upper bench as measured from floor; would be 27 cm above lower bench surface.

<sup>d</sup> DT = dressed tuff masonry; T = roughly shaped tuff blocks; C = cobbles; B = bajareque.

<sup>e</sup> Th = thatched roof.

<sup>f</sup> F = floor; B = bench.

Table 4.42: Loci Associated with Structure 9N-65

Locus	Description
1720.2	Artifacts from above room floor and bench surface of Rm 3. <ul style="list-style-type: none"> <li>• Volume: 0.8 m<sup>3</sup></li> <li>• Total number of artifacts: 37 (46.3/m<sup>3</sup>)</li> </ul> 37.8% lithic; 2.7% ground stone (1 abrader and/or polisher); 56.8% ceramic; 2.7% bone (1 unmodified)
1722.2	Artifacts from above room floor of Rm 5. <ul style="list-style-type: none"> <li>• Volume: 0.4 m<sup>3</sup></li> <li>• Total number of artifacts: 49 (122.5/m<sup>3</sup>)</li> </ul> 87.8% lithic; 8.2% ceramic; 2.0% bone (1 unmodified); 2.0% shell (1 unmodified)

Feature 7 consists of a mano and metate, which were found on the stairs of Str 65. A Favela tripod bowl was found in the collapse debris inside Rm 3 and labeled Feature 26. The type Favela is one that begins prior to the Coner phase but may continue for a time into Coner. It has not been included here.

#### Structure 9N-104

Table 4.43: Structure 9N-104 Architecture

Architectural Data	Room 1	Room 3	Room 2 <sup>a</sup>
Orientation of room	Patio (E)	?	Patio (E)
Number of doors	1	0 <sup>b</sup>	1
Number of benches	1	0	1 <sup>c</sup>
Bench shape(s)	L	-----	Rec
Other furniture	1 shelf <sup>d</sup>	-----	-----
Total room area (m <sup>2</sup> )	9.3	1.5-1.7	6.6 est
Floor area (m <sup>2</sup> )	1.5	1.5-1.7	5.6 est
Bench area (m <sup>2</sup> )	7.4	-----	1.0
Bench height (cm)	57	-----	53
Othr furniture area (m <sup>2</sup> )	0.4	-----	-----
Othr furniture height (cm)	14	-----	-----
Construction type	DT <sup>e</sup>	T?	DT/T/B
Roof type	BM?Th? <sup>f</sup>	BM?Th?	Th
Location of plaster	F, B <sup>g</sup>	-----	-----
Cordholders	No	No	No
Niches	No	No	No
Sculpture	No	No	No

<sup>a</sup> Created by enclosing the terrace area south of Rm 1. Another room of similar size may have existed north of Rm 1 also.

<sup>b</sup> No evidence of a door was found although the walls were preserved.

<sup>c</sup> Bench of Rm 2 is set into west room wall (= east room wall of Rm 3).

<sup>d</sup> Low shelf or step in front of short arm of bench.

<sup>e</sup> DT = dressed tuff masonry; T = roughly shaped tuff blocks; B = bajareque.

<sup>f</sup> BM = beam and mortar; Th = thatched roof.

<sup>g</sup> F = floor; B = bench.

This building lies between Strs 65 and 60A. As can be seen from Table 4.43, there is one room, Rm 1, of fairly normal appearance. Rm 3,

however, had four well-preserved stone walls and no entrance. This raises the possibility that it belongs to an earlier phase of the structure, but the nature of the stratigraphy in and around the room does not support this. Walls preserved on the front terrace area suggest that at least one room (Rm 2) was created south of Rm 1. The front wall of Rm 2, if it existed, must have been made entirely of poles and clay (Gerstle and Webster n.d.). Table 4.44 presents the loci.

Table 4.44: Loci Associated with Structure 9N-104

Locus	Description
1723.2	Artifacts above room floor and bench surface of Rm 1. <ul style="list-style-type: none"> <li>• Volume: 0.8 m<sup>3</sup></li> <li>• Total number of artifacts: 12 (15.0/m<sup>3</sup>)</li> </ul> 58.3% lithic; 41.7% ceramic
1724.2	Artifacts above room floor of Rm 3. <ul style="list-style-type: none"> <li>• Volume: 0.2 m<sup>3</sup></li> <li>• Total number of artifacts: 15 (75.0/m<sup>3</sup>)</li> </ul> 33.3% lithic; 6.7% ground stone (1 bowl); 60.0% ceramic

#### Patio and Middens

The western side of Strs 65, 104, and 60A-B yielded a rich midden deposit which I have labeled Locus 1742.9. North of Strs 111 and 61A-B is another midden collected into Locus 1743.9. Artifacts near Str 112B were kept separate as Locus 1745.9 since they might be associated with that structure or with Str 111. Some patio lots were merged into Locus 1701.1. Table 4.45 gives the details of their contents.

Table 4.45: General Midden and Patio Loci

Locus	Description
1701.1	Patio lots. • Volume: 0.5 m <sup>3</sup> • Total number of artifacts: 92 (184.0/m <sup>3</sup> ) 23.9% lithic; 4.3% ground stone (1 metate, 3 mano); 67.4% ceramic; 2.2% bone (2 unmodified); 2.2% shell (2 unmodified)
1742.9	Western midden. • Volume: 15.8 m <sup>3</sup> • Total number of artifacts: 3366 (213.0/m <sup>3</sup> ) 37.0% lithic; 0.3% ground stone (5 metate, 4 mano); 52.8% ceramic; 9.1% bone (4 awl, 1 awl with rounded end, 4 awl fragment, 2 awl or pick, 1 needle, 2 needle or pin, 1 pin with rounded end, 1 tube or ring, 1 drilled tooth, 1 spatula, 2 cut long bone, 1 rasp, 2 shaped and/or perforated, 284 unmodified); 0.3% shell (7 unmodified, 3 modified); 0.1% other ceramic (1 candelero, 1 miniature vessel, 1 perforated flat disk); 0.2% figurine
1743.9	Northern midden. • Volume: 9.6 m <sup>3</sup> • Total number of artifacts: 3273 (340.9/m <sup>3</sup> ) 39.4% lithic; 0.4% ground stone (5 metate, 6 mano, 1 abrader and/or polisher, 1 celt, 1 doughnut stone); 0.3% stone ornament (5 pigment, 3 miscellaneous worked, 1 miscellaneous vessel); 52.6% ceramic; 6.4% bone (2 awl, 4 awl fragment, 1 awl or pick, 2 needle or pin, 1 pin with rounded end, 1 tube or ring, 1 spatula, 1 cut long bone, 194 unmodified); 0.2% shell (7 unmodified); 0.3% other ceramic (4 candelero, 2 flask, 2 miniature vessel, 1 perforated flat disk); 0.2% figurine
1745.9	Northern midden near Str 112B. • Volume: 1.6 m <sup>3</sup> • Total number of artifacts: 452 (282.5/m <sup>3</sup> ) 37.2% lithic; 55.5% ceramic; 6.6% bone (1 awl fragment, 1 tube or ring, 28 unmodified); 0.2% shell (1 unmodified); 0.2% turtle (1 unmodified); 0.2% figurine

In many ways, the arrangement of Patio D is distinctively different from that of Patios A-C, E, F, and H in Gr 9N-8. The structures are built closer together and their overall arrangement is more irregular. At the same time, although the basic room pattern conforms to that of the rest of the group, the Patio D rooms tend to have more interior



furniture, especially ledges and small secondary benches. Whether or not these differences reflect functional differentiation as well will be examined through the study of artifact distribution to be presented in Chapter 6. As will be demonstrated there, the loci contain artifacts reflecting the same kinds of activities as found elsewhere in Gr 9N-8. Therefore the explanation of Patio D's distinctive characteristics lies elsewhere (Gerstle 1985a).

#### Patio I

Table 4.46 presents the loci associated with this patio. It is possible, of course, that a certain amount of the material in the midden north of Strs 111 and 61A-B was actually associated with Strs 113 or 112. Loci 1737.9 and 1738.9 probably should have been combined. As pointed out above, no detailed discussion of the architecture can be presented.

Table 4.46: Loci Associated with Patio I

<u>Locus</u>	<u>Description</u>
1708.8	Non-midden deposit of artifacts west of Str 60N. <ul style="list-style-type: none"> <li>• Volume: 0.5 m<sup>3</sup></li> <li>• Total number of artifacts: 12 (24.0/m<sup>3</sup>)</li> </ul> 33.3% lithic; 58.3% ceramic; 8.3% figurine
1735.9	Midden deposit west and north of Strs 112A and B. <ul style="list-style-type: none"> <li>• Volume: 13.4 m<sup>3</sup></li> <li>• Total number of artifacts: 2912 (217.3/m<sup>3</sup>)</li> </ul> 32.8% lithic; 0.4% ground stone (4 metate, 2 mano, 2 abrader and/or polisher, 1 mortar, 1 celt, 1 pot stand/support); 0.1% stone ornament (2 pigment); 63.4% ceramic; 2.6% bone (1 awl fragment, 1 needle or pin, 1 tube or ring, 1 cut long bone, 72 unmodified); 0.1% shell (3 unmodified); 0.1% turtle (1 unmodified, 1 modified); 0.3% other ceramic (3 candelero, 1 flask, 3 miniature vessel, 1 spindle whorl, 2 perforated flat disk); 0.2% figurine

(Table 4.46, cont.)

Locus	Description
1736.9	Midden deposit west, east, and south of Strs 113A and B. <ul style="list-style-type: none"> <li>• Volume: 5.6 m<sup>3</sup></li> <li>• Total number of artifacts: 742 (132.5/m<sup>3</sup>)</li> </ul> 37.6% lithic; 0.5% ground stone (2 metate, 1 mano, 1 abrader and/or polisher); 56.3% ceramic; 5.0% bone (1 awl or pick, 1 drilled tooth, 2 cut long bone, 33 unmodified); 0.1% other ceramic; 0.4% figurine
1737.9	Midden deposit west of Str 114 below base of wall. <ul style="list-style-type: none"> <li>• Volume: 0.1 m<sup>3</sup></li> <li>• Total number of artifacts: 32 (320.0/m<sup>3</sup>)</li> </ul> 43.8% lithic; 56.3% ceramic
1738.9	Midden deposit west and southwest of Str 114. <ul style="list-style-type: none"> <li>• Volume: 6.8 m<sup>3</sup></li> <li>• Total number of artifacts: 625 (91.9/m<sup>3</sup>)</li> </ul> 26.4% lithic; 1.0% ground stone (3 metate, 2 Costa Rican-style metate, 1 mano); 64.0% ceramic; 8.2% bone (1 awl fragment, 1 tube or ring, 49 unmodified); 0.2% other ceramic (1 flask); 0.3% figurine

## Patio K

Of the four structures excavated from this patio, Strs 106, 107, 116, and 117, only the first two were completely uncovered and sufficiently preserved to allow me to garner the same sort of architectural information as given elsewhere. The information has been gathered together in Table 4.47 for these two buildings. As will be seen in the section on Patio H, the layout and interior furniture of Str 107 are very similar to those of Str 115A Rm 1. Figure 4.5 shows that they are built very close to the back of Str 63 (Patio D) and the side of Str 115 (Patio H). However, they definitely face eastward. Table 4.48 presents the loci associated with Strs 106, 107, and 117. No loci have been defined for Str 116, which is located south of Str 107 and east of Str 115B (Patio H.)

Table 4.47: Structures 9N-106 and 9N-107 Architecture  
Patio K

Architectural Data	Str 106 Room 1	Str 107 Room 1
Orientation of room	Patio (E)	Patio (E)
Number of doors	1	1
Number of benches	1	2
Bench shape(s)	L	Rec, rec
Other furniture	2 shelves, 1 "pillar" <sup>b</sup>	1 stone box <sup>a</sup>
Total room area (m <sup>2</sup> )	16.5 est	10.3
Floor area (m <sup>2</sup> )	6.3	5.5
Bench area(s) (m <sup>2</sup> )	5.7	2.7, 1.2 (lower)
Bench height (cm)	56	54, 20
Other furniture area(s) (m <sup>2</sup> )	0.8, 0.4, 3.3 "pillar"	0.9
Other furniture height (cm)	20, 15+, 86 <sup>c</sup>	?
Construction type	DT/T/C <sup>d</sup>	T/C/B
Roof type	Th <sup>e</sup>	Th
Location of plaster	-----	-----
Cordholders	No	No
Niches	No	No
Sculpture	No	No

<sup>a</sup> Stone walls in southeast corner of room forming a box-like construction. May have been for a burial that was later looted.

<sup>b</sup> "Pillar" refers to a set of four stone walls forming a square that was filled in and presumably paved that rises above the level of the main bench in the northwest corner of the room. Similar construction found in Str 115A Rm 1 of Patio H.

<sup>c</sup> "Pillar" stands 30 cm above the bench, which in turn is 56 cm above the floor of the room.

<sup>d</sup> DT = dressed tuff masonry; T = roughly shaped tuff blocks, C = cobbles; B = bajareque.

<sup>e</sup> Th = thatched roof.

Feature 85 was found on the room floor of Rm 1 Str 106 in the corner formed by the east face of the main bench and the north face of the southern projection. It is a plain-ware, possibly Cruz Incised, narrow-necked jar (Gerstle and Webster n.d.:Appendix 1).

Three artifacts found on the northwest corner of the retaining wall of Str 107 are collectively labeled Feature 30. A Raul Red jar (size unspecified) was filled with lime and then covered by an inverted

Casaca Striated caldero. Both these vessels were covered in turn by an inverted broken metate. The metate was made out of basalt and had three long legs (Gerstle and Webster n.d.:Appendix 1).

Table 4.48: Loci Associated with Patio K

<u>Locus</u>	<u>Description</u>
1727.2	Artifacts from above room floor and bench surface of Str 106 Rm 1. Includes Feature 85 (see discussion in the text). <ul style="list-style-type: none"> <li>• Volume: 0.3 m<sup>3</sup></li> <li>• Total number of artifacts: 4 (13.3/m<sup>3</sup>)</li> <li>25.0% lithic; 25.0% ceramic; 25.0% other ceramic (1 candelero); 25.0% whole ceramic vessel</li> </ul>
1728.2	Artifacts from the top of Str 107's superstructure — more exact provenience not known. <ul style="list-style-type: none"> <li>• Volume: 0.6 m<sup>3</sup></li> <li>• Total number of artifacts: 62 (103.3/m<sup>3</sup>)</li> <li>45.2% lithic; 4.8% ground stone (3 abrader and/or polisher); 29.0% ceramic; 1.6% bone (1 unmodified); 17.7% shell (11 unmodified); 1.6% other ceramic (1 candelero)</li> </ul>
1729.3	Artifacts from above stairs and terrace of Str 107. <ul style="list-style-type: none"> <li>• Volume: 1.5 m<sup>3</sup></li> <li>• Total number of artifacts: 182 (121.3/m<sup>3</sup>)</li> <li>30.2% lithic; 0.5% ground stone (1 abrader and/or polisher); 0.5% stone ornament (1 mineral pigment); 67.0% ceramic; 1.6% bone (1 awl fragment, 2 unmodified)</li> </ul>
1730.2	Artifacts from above room floor and bench surface of Str 107 Rm 1. <ul style="list-style-type: none"> <li>• Volume: 2.0 m<sup>3</sup></li> <li>• Total number of artifacts: 88 (44.0/m<sup>3</sup>)</li> <li>21.6% lithic; 65.9% ceramic; 8.0% bone (1 awl, 2 awl fragment, 1 awl or pick, 1 carved bone ornament, 2 unmodified); 4.5% shell (4 unmodified)</li> </ul>
1731.9	Midden deposit off southwest corner of Str 107 above cobble paving. <ul style="list-style-type: none"> <li>• Volume: 0.4 m<sup>3</sup></li> <li>• Total number of artifacts: 91 (227.5/m<sup>3</sup>)</li> <li>39.6% lithic; 44.0% ceramic; 1.1% bone (1 unmodified); 15.4% shell (14 unmodified)</li> </ul>

(Table 4.48, cont.)

<u>Locus</u>	<u>Description</u>
1732.9	<p>Midden deposit between Strs 115B and 107.</p> <ul style="list-style-type: none"> <li>• Volume: 1.4 m<sup>3</sup></li> <li>• Total number of artifacts: 300 (214.3/m<sup>3</sup>)</li> </ul> <p>43.3% lithic; 0.3% ground stone (1 mano); 0.3% stone ornament (1 slate miscellaneous worked); 36.0% ceramic; 5.0% bone (1 awl fragment, 3 needle, 1 pin with rounded end, 2 tube or ring, 1 drilled tooth, 1 worked antler, 6 unmodified); 12.3% shell (33 unmodified, 2 jewelry, 2 miscellaneous worked); 1.3% other ceramic (1 miniature vessel, 3 perforated flat disk); 0.7% figurine; 0.7% whole ceramic vessel (1 Surlo straight-walled dish, 1 Surlo cylinder)</p>
1744.9	<p>Midden deposits from area between Strs 106 and 107.</p> <ul style="list-style-type: none"> <li>• Volume: 0.7 m<sup>3</sup></li> <li>• Total number of artifacts: 250 (357.1/m<sup>3</sup>)</li> </ul> <p>52.8% lithic; 0.4% ground stone (1 hammerstone); 35.6% ceramic; 8.0% bone (1 pin with rounded end, 1 spatula, 18 unmodified); 2.8% shell (7 unmodified); 0.4% other ceramic (1 candelero)</p>

## Gr 9N-8 Patios E and F

- Operation number: 15
- When excavated: 1982-1983
- Excavators: Melissa Diamanti
- Report: Diamanti n.d.

Patio E lies west of Patio A, whose Str 81 formed its east boundary. It is built at a lower elevation than its eastern neighbor. The structures that face onto Patio E are found mainly on the north, west, and south sides of the courtyard area. Strs 97 and 96 are on the north, Strs 93N and 93S on the west, and Strs 92 and 108 on the south. Only one building, Str 95, was placed on the eastern edge of the patio next to Str 81. Strs 92 and 108 occupy the western half of the southern margin. To the east are two more buildings, Strs 90N and 91, which, although serving to delimit part of the patio, actually face onto

another courtyard further south, Patio F. It is their back walls, therefore, which form the southeastern side of Patio E. Str 94 was built in the eastern half of the courtyard itself. Figure 4.6 shows the arrangement. Overall the architecture is less elaborate than that of Patios A-C with a higher preponderance of perishable materials used in the construction of the superstructures. However, there was one vaulted and dressed-tuff building, Str 97, and a widespread use of plaster.

I have combined a number of lots from the patio area as Locus 1502.1. This locus has a volume of  $13.6 \text{ m}^3$  and contains 575 artifacts in total ( $42.3/\text{m}^3$ ). The locus is made up of 30.1% lithic, 3.7% ground stone (13 metate, 5 mano, 1 abrader and/or polisher, 1 yoke, 1 doughnut stone), 0.2% stone ornament (1 mineral pigment), 57.2% ceramic, 8.2% bone (1 tube or ring, 46 unmodified), 0.7% other ceramic (3 candelero, 1 miniature vessel). Features 8, 11, 16, 18, 19, and 96 are included in this locus. They are described in Table 4.49.

Table 4.49: Features in Locus 1502.1

Feature	Description
8	Zico jar and two or possibly three other jars found on patio floor near Str 95.
11	Casaca Striated jar and Surlo cylinder found near Str 97.
16	Surlo Plain restricted cylinder found in debris above patio floor near northeast corner of Rm 3 Str 96.
18	Cruz Incised jar plus partial Casaca Striated and Reina jars found in same area as Feature 16.
19	Reina jar found in same area as Feature 16.
96	Cruz Incised jar on patio paving N of Str 92.

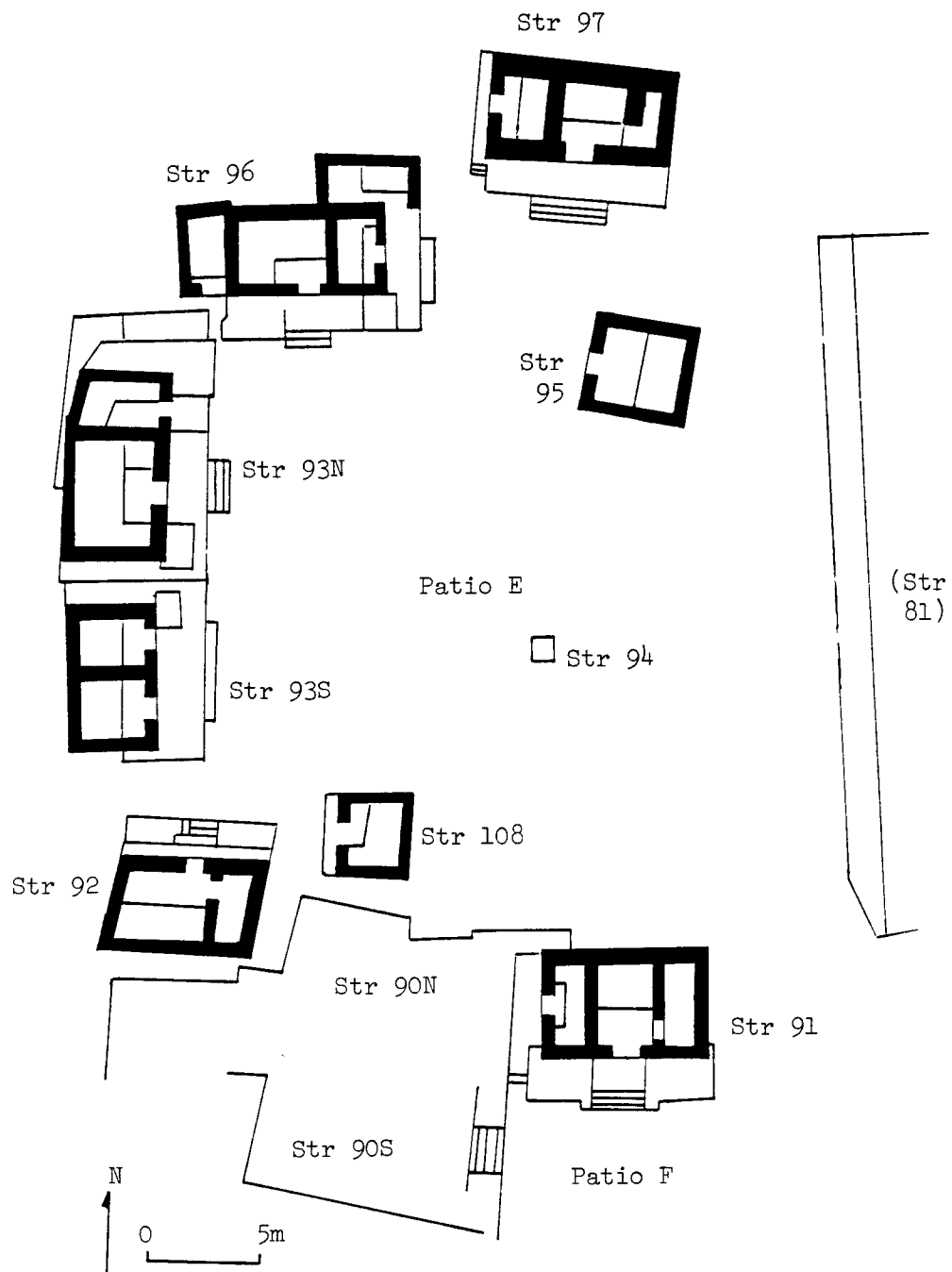


Figure 4.6: Map of Gr 9N-8 Patios E and F

## Structure 9N-94

This is a very unusual structure, both because of its placement, further into the area of the patio than any other building in Patio E or any other patio except Patio D (Str 105), and because of its size. Str 94 is an extremely small platform measuring 4.1 m N-S  $\times$  3.5 m E-W (6.4 m<sup>2</sup>) and standing only 20-30 cm above the patio paving. It was built of boulders and large cobbles with no stone superstructure (Diamanti n.d.).

## Structure 9N-95

Table 4.50: Structures 9N-95 and 9N-97 Architecture

Architectural Data	Str 97 Room 1 <sup>a</sup>	Str 97 Room 2	Str 95 Room 1
Orientation of room	Patio (S)	Other (E)	Patio (W)
Number of doors	1	1	1
Number of benches	1	1	1
Bench shape	Rec	Rec	Rec
Total room area (m <sup>2</sup> )	9.9	5.4	10.4
Floor area(s) (m <sup>2</sup> )	2.5, 2.5	1.8	6.3
Bench area (m <sup>2</sup> )	4.9	3.6	4.1
Bench height (cm)	52	52 est	?-20+
Construction type	DT <sup>b</sup>	DT	C/B
Roof type	V <sup>c</sup>	V	Th
Location of plaster	F, B <sup>d</sup>	-----	-----
Cordholders	Yes	No	No
Niches	No	No	No
Sculpture	No	No	No

<sup>a</sup> I have combined Rms 1 and 1E. There is a dividing wall built on the bench's east end that serves to segregate a narrow area, called Rm 1E in Diamanti (n.d.). I do not consider this area, whose floor is 10 cm higher than the main floor (Rm 1), as a separate room because there do not appear to have been any door jambs.

<sup>b</sup> DT = dressed tuff masonry; C = cobbles; B = bajareque.

<sup>c</sup> V = vault; Th = thatched roof.

<sup>d</sup> F = floor; B = bench.



This building is described in Table 4.50. It is also smaller than average (17.9 m<sup>2</sup>) with two ample terrace spaces on its west and south sides. No staircase was found during excavation but the top of the substructure is only 50 cm above the patio. Two burned clay accumulations were found. Feature 7 was found north of the building on the patio paving. It was associated with Feature 8 (three partial vessels) as well as other artifacts. It is not clear if this burned clay and associated artifacts are to be considered wall collapse or in situ accumulation. The other area of burned clay was found in the room and represents a portion of the earth floor which had been burned (Diamanti n.d.).

#### Structure 9N-97

As noted in Table 4.50, Rm 1 has a side space which was given a separate room number in the excavation report (Diamanti n.d.). However, I have decided to consider all the space as belonging to one room since, unlike Str 81 Rms 1A and 1B or Str 74 Rms 2 and 3, there are no obvious door jambs between the two parts of the superstructure. Table 4.51 presents the loci associated with Str 97.

Table 4.51: Loci Associated with Structure 9N-97

<u>Locus</u>	<u>Description</u>
1535.9	Artifacts from midden deposits north and east of building. <ul style="list-style-type: none"> <li>• Volume: 1.2 m<sup>3</sup></li> <li>• Total number of artifacts: 123 (102.5/m<sup>3</sup>)</li> </ul> 62.6% lithic; 37.4% ceramic

(Table 4.51, cont.)

Locus	Description
1537.2	Artifacts from above room floor and bench surface of Rm 1. • Volume: 0.2 m <sup>3</sup> • Total number of artifacts: 1 (5.0/m <sup>3</sup> ) 100.0% ceramic (1 jar unspecified, Casaca Striated)

## Structure 9N-96

Table 4.52: Structure 9N-96 Architecture

Architectural Data	Room 1	Room 2	Room 3	Room 4
Orientation of room	Patio (S)	Other (E)	Patio (S)	Patio (S)
Number of doors	1	1	1	1
Number of benches	1	1	2 <sup>a</sup>	1
Bench shape(s)	L	Rec	L	Rec
Other furniture	----	Ledge	----	----
Total room area(m <sup>2</sup> )	12.0	6.8	7.9	4.9
Floor area (m <sup>2</sup> )	2.5	2.2	1.6	0.9
Bench area(s) (m <sup>2</sup> )	9.5	4.1	2.7, 3.5	4.0
Bench height (cm)	50	50 est	?	35
Ledge area (m <sup>2</sup> )	----	0.3	----	----
Ledge height (cm)	----	50 est	----	----
Construction type	C/B <sup>b</sup>	C/B	C/B	C/B
Roof type	Th <sup>c</sup>	Th	Th	Th
Location of plaster	----	B <sup>d</sup>	F	----
Cordholders	No	No	No	No
Niches	1 <sup>e</sup>	No	No	No
Sculpture	No	No	No	No

<sup>a</sup> One bench abuts the other to form what is essentially one L-shaped area consisting of two separate constructions.

<sup>b</sup> C = cobbles; B = bajareque.

<sup>c</sup> Th = thatched roof.

<sup>d</sup> F = floor; B = bench.

<sup>e</sup> Niche in east room wall.

Str 96 consists of a two-room superstructure (Rms 1 and 2) to which two more rooms have been appended, one on the west (Rm 4) and one north and east of Rm 2 (Rm 3). There are two staircases, one on the patio side as usual and one on the east side giving access to Rms 2 and

3. The south or front terrace has two benches flanking the entrance to Rm 1. The presence of these terrace benches would make it difficult, if not impossible, to walk around the superstructure to Rm 2, which accounts for the addition of the second staircase. Both Rms 2 and 3 had in situ artifacts on their room floors. Rm 4 was built up against the substructure of the building (Diamanti n.d.). Table 4.52 gives the architectural information and Table 4.53 the loci for this structure.

Table 4.53: Loci Associated with Structure 9N-96

Locus	Description
1530.8	Artifacts from in back of (north of) substructure. <ul style="list-style-type: none"> <li>• Volume: 3.2 m<sup>3</sup></li> <li>• Total number of artifacts: 60 (85.7/m<sup>3</sup>)</li> <li>12.9% lithic; 1.6% ground stone (1 metate); 78.8% ceramic; 9.7% bone (6 unmodified)</li> </ul>
1531.3	Artifacts from east terrace area labeled Feature 56 but not representing any whole artifacts. <ul style="list-style-type: none"> <li>• Volume: Not applicable</li> <li>• Total number of artifacts: 1</li> <li>100.0% ceramic</li> </ul>
1532.2	Artifacts from above room floor and terrace of Rm 1. <ul style="list-style-type: none"> <li>• Volume: 8.0 m<sup>3</sup></li> <li>• Total number of artifacts: 90 (11.3/m<sup>3</sup>)</li> <li>41.4% lithic; 4.4% ground stone (3 metate, 1 mano); 54.4% ceramic</li> </ul>
1533.2	Artifacts from above room floor, bench surface, and terrace of Rm 2. <ul style="list-style-type: none"> <li>• Volume: 1.6 m<sup>3</sup></li> <li>• Total number of artifacts: 43 (26.9/m<sup>3</sup>)</li> <li>34.9% lithic; 2.3% stone ornament (1 mineral vessel); 58.1% ceramic; 4.7% bone (2 unmodified)</li> </ul>
1534.2	Artifacts from northeast corner of superstructure — area of Rm 3. <ul style="list-style-type: none"> <li>• Volume: 1.2 m<sup>3</sup></li> <li>• Total number of artifacts: 21 (17.5/m<sup>3</sup>)</li> <li>23.8% lithic; 4.8% ground stone (1 mano); 71.4% ceramic</li> </ul>

## Structures 9N-93N and 9N-93S

Strs 93N and 93S are two separate substructures oriented north to south whose respective southern and northern ends abut. They are described in Tables 4.54 and 4.55. The southern substructure, 93S, is lower than the northern one. Each substructure supports a two-room superstructure — Rms 2 and 3 in 93N, Rms 4 and 5 in 93S. There is a terrace bench present on the front terrace of 93N and on that of 93S. The area between the two superstructures has been labeled Rm 1 with a de facto set of door jambs formed by two of the terrace benches. There is no evidence of a back wall, however, and it is quite likely that this area was in fact an open corridor (Diamanti n.d.). The loci for these two buildings are found in Table 4.56.

Table 4.54: Structure 9N-93N Architecture

Architectural Data	Room 1 <sup>a</sup>	Room 2	Room 3
Orientation of room	Patio (E)	Patio (E)	Patio (E)
Number of doors	1	1	1
Number of benches	0	1	1
Bench shape(s)	-----	L	U
Total room area (m <sup>2</sup> )	12.0	6.2	14.6
Floor area (m <sup>2</sup> )	12.0	2.6	3.1
Bench area (m <sup>2</sup> )	-----	3.6	11.5
Bench height (cm)	-----	50 est	50
Construction type	T/C/B <sup>b</sup>	T/C/B	T/C/B
Roof type	Th <sup>c</sup>	Th	Th
Location of plaster	-----	-----	F <sup>d</sup>
Cordholders	No	?	?
Niches	No	No	No
Sculpture	No	No	No

<sup>a</sup> This "room" is really the corridor between the superstructures of 93N and 93S.

<sup>b</sup> T = roughly shaped blocks of tuff; C = cobbles; B = bajareque.

<sup>c</sup> Th = thatched roof.

<sup>d</sup> F = floor.

Table 4.55: Structure 9N-93S Architecture

Architectural Data	Room 4	Room 5
Orientation of room	Patio (E)	Patio (E)
Number of doors	1	1
Number of benches	1	1
Bench shape	Rec	Rec
Total room area (m <sup>2</sup> )	8.7	8.7
Floor area (m <sup>2</sup> )	2.5	2.5
Bench area (m <sup>2</sup> )	6.2	6.2
Bench height (cm)	50	50
Construction type	C/B <sup>a</sup>	C/B
Roof type	Th <sup>b</sup>	Th
Location of plaster	-----	-----
Cordholders	No	No
Niches	No	No
Sculpture	No	No

<sup>a</sup> C = cobbles; B = bajareque.

<sup>b</sup> Th = thatched roof.

Table 4.56: Loci Associated with Structures 9N-93N and 9N-93S

Locus	Description
1521.9	Artifacts from midden deposit behind Str 93N. Includes Features 38 and 48. <ul style="list-style-type: none"> <li>• Volume: 1.4 m<sup>3</sup></li> <li>• Total number of artifacts: 21 (15.0/m<sup>3</sup>)</li> </ul> 9.5% lithic; 9.5% ground stone (2 mano); 81.0% ceramic
1522.3	Artifacts above terrace in front of Rm 2 of Str 93N. <ul style="list-style-type: none"> <li>• Volume: 1.2 m<sup>3</sup></li> <li>• Total number of artifacts: 10 (8.3/m<sup>3</sup>)</li> </ul> 20.0% lithic; 60.0% ceramic
1523.3	Artifacts on front terrace outside of Rm 4 of Str 93S. Includes Feature 37 (see discussion in the text). <ul style="list-style-type: none"> <li>• Volume: 1.2 m<sup>3</sup></li> <li>• Total number of artifacts: 32 (26.7/m<sup>3</sup>)</li> </ul> 15.6% lithic; 3.1% stone ornament (1 jade bead); 65.6% ceramic; 6.3% other ceramic (1 miniature vessel, 1 perforated flat disk); 3.1% whole ceramic vessel
1524.3	Artifacts labeled Features 40 and 49 (see discussion in the text) found on terrace outside of Rm 5 of Str 93S. <ul style="list-style-type: none"> <li>• Volume: Not applicable</li> <li>• Total number of artifacts: 17</li> </ul> 5.9% lithic; 88.2% ceramic; 5.9% figurine

(Table 4.56, cont.)

<u>Locus</u>	<u>Description</u>
1525.2	Artifacts from above room floor and bench surface of Rm 2 of Str 93N. Includes Feature 30 (see discussion in the text). <ul style="list-style-type: none"> <li>• Volume: 0.6 m<sup>3</sup></li> <li>• Total number of artifacts: 43 (71.7/m<sup>3</sup>)</li> </ul> 39.5% lithic; 2.3% ground stone (1 mano); 51.2% ceramic; 7.0% bone (1 cut long bone, 2 unmodified)
1526.2	Artifacts above room floor and bench surface of Rm 3 of Str 93N. Includes Feature 32 (see discussion in the text). <ul style="list-style-type: none"> <li>• Volume: 1.3 m<sup>3</sup></li> <li>• Total number of artifacts: 36 (27.7/m<sup>3</sup>)</li> </ul> 16.7% lithic; 2.8% ground stone (1 mano); 08.6% ceramic
1527.2	Artifacts labeled Features 27 and 34 (see discussion in the text) in Rm 4 of Str 93S. <ul style="list-style-type: none"> <li>• Volume: Not applicable</li> <li>• Total number of artifacts: 19</li> </ul> 45.5% lithic; 9.1% ground stone; 4.5% stone ornament ( 1 slate miscellaneous worked); 36.4% ceramic; 4.5% whole ceramic vessel
1528.2	Artifacts from above room floor and bench surface of Rm 5 of Str 93S. Includes Feature 36 (see discussion in the text). <ul style="list-style-type: none"> <li>• Volume: 0.9 m<sup>3</sup></li> <li>• Total number of artifacts: 36 (40.0/m<sup>3</sup>)</li> </ul> 22.2% lithic; 5.6% ground stone (1 mano; 1 celt); 47.2% ceramic; 22.2% bone (8 unmodified); 2.8% figurine
1529.9	Artifacts from midden deposit west of Rm 3 Str 93N. Labeled Feature 48. <ul style="list-style-type: none"> <li>• Volume: 0.7 m<sup>3</sup></li> <li>• Total number of artifacts: 60 (85.7/m<sup>3</sup>)</li> </ul> 16.7% lithic; 6.7% ground stone; 60.0% ceramic; 15.0% bone (1 awl, 8 unmodified)

Feature 27 refers to a Sepultura cylindrical censer on the floor of Rm 4, Str 93S. Also found were a stone disk, pestle, obsidian core, and projectile point. Feature 34 was found on the terrace outside of Rm 4 and is a partial Casaca Striated jar. Also on the terrace was a broken Cruz Incised narrow-necked jar (Feature 37). Inside Rm 5 of Str 93S was a Lorenzo caldero called Feature 36. Feature 40, on the terrace

outside of Rm 5, consists of a Titichon caldero and a chert projectile point. Also on the terrace is Feature 49, a ceramic whistle in the shape of a bird (Diamanti n.d.:Appendix 1).

A partial Sepultura cylindrical censer found on the floor of Rm 2 of Str 93N near a section of burned clay floor was called Feature 30. Feature 32 is a cluster of ceramics and other artifacts, namely mano fragments, found on the floor of Rm 3, Str 93N. No whole or partial vessels could be reconstructed (Diamanti n.d.:Appendix 1).

#### Structure 9N-92

Table 4.57: Structures 9N-92 and 9N-108 Architecture

Architectural Data	Str 92 Room 1	Str 92 Room 2	Str 108 Room 1
Orientation of room	Patio (N)	Other (W) (to Rm 1)	Other (W)
Number of doors	1	1	1
Number of benches	1	0	1
Bench shape	Rec	-----	L
Total room area (m <sup>2</sup> )	12.6 est	4.1-5.4 <sup>a</sup>	6.9
Floor area (m <sup>2</sup> )	6.5 est	4.1-5.4	1.4
Bench area (m <sup>2</sup> )	6.1 est	-----	5.5
Bench height (cm)	?	-----	?
Construction type	C/B <sup>b</sup>	C/B	C/B
Roof type	Th <sup>c</sup>	Th	Th
Location of plaster	-----	-----	-----
Cordholders	No	No	No
Niches	No	No	No
Sculpture	No	No	No

<sup>a</sup> Room walls are not parallel.

<sup>b</sup> C = cobbles; B = bajareque.

<sup>c</sup> Th = thatched roof.

Str 92, on the south side of the patio, has an irregularly shaped substructure, probably due to the presence of buildings to its south and

east. It also has no side or rear terrace area. Table 4.57 has architectural details for the two-roomed superstructure, which was poorly preserved (Diamanti n.d.). The loci are presented in Table 4.58.

Table 4.58: Loci Associated with Structure 9N-92

Locus	Description
1518.9	Artifacts from midden deposit labeled Feature 103 off southeast corner of building. <ul style="list-style-type: none"> <li>• Volume: 2.1 m<sup>3</sup></li> <li>• Total number of artifacts: 478 (227.6/m<sup>3</sup>)</li> </ul> 11.9% lithic; 0.6% ground stone (1 mano, 1 abrader and/or polisher, 1 hammerstone and/or polisher); 82.6% ceramic; 4.2% bone (1 awl fragment; 19 unmodified); 0.6% other ceramic (2 flask, 1 jewelry)
1519.8	Artifacts from deposit labeled Feature 98 from south side of building. <ul style="list-style-type: none"> <li>• Volume: Not applicable</li> <li>• Total number of artifacts: 25</li> </ul> 28.0% lithic; 68.0% ceramic; 4.0% other ceramic (1 jewelry)
1520.2	Artifacts from above room floor of Rm 2. <ul style="list-style-type: none"> <li>• Volume: 0.2 m<sup>3</sup></li> <li>• Total number of artifacts: 45 (225.0/m<sup>3</sup>)</li> </ul> 40.0% lithic; 4.4% ground stone (1 mano, 1 celt); 2.2% stone ornament (1 jade and jade-like jewelry); 53.3% ceramic

#### Structure 9N-108

The other building on the south side is oriented westward towards its neighbor, Str 92. It has an extremely low substructure which stands only 30 cm above the patio floor. The single room is described in Table 4.57. Associated loci are given in Table 4.59.



Table 4.59: Loci Associated with Structure 9N-108

<u>Locus</u>	<u>Description</u>
1538.9	Artifacts from midden deposit labeled Feature 102 south of building. <ul style="list-style-type: none"> <li>• Volume: 0.5 m<sup>3</sup></li> <li>• Total number of artifacts: 111 (222.0/m<sup>3</sup>)</li> </ul> 21.6% lithic; 0.9% ground stone (1 mano); 69.4% ceramic; 8.1% bone (9 unmodified)
1539.8	Artifact labeled Feature 100 found along north wall of building. <ul style="list-style-type: none"> <li>• Volume: Not applicable</li> <li>• Total number of artifacts: 1</li> </ul> 100.0% whole ceramic vessel (1 Casaca Striated medium-necked jar)

#### Patio F

Only part of Patio F was excavated, including Strs 91, 90N, and 90S, which together form the northwest corner of the courtyard. The final-phase architecture of both Strs 90N and 90S was poorly preserved. It appears that each structure had at least two rooms but the architectural details and dimensions that I have been discussing here were difficult to record. One room of Str 90S appears to have a bench with a semicircular front retaining wall (Diamanti n.d.). Str 91 was in better condition and is reported in Table 4.60. Loci from this patio are given in Table 4.61. Feature 104, a three-pronged brazier, was found on the courtyard paving north of Str 90.

Feature 108 refers to two ground-stone implements found on the floor of Rm 3, Str 91, one of which is a mano. The other is a flat rectangular sandstone block which showed no signs of use-wear. It has been classified as a support rather than a grinding stone (Diamanti n.d.:Appendix 1).

Table 4.60: Structure 9N-91 Architecture  
(Patio F)

Architectural Data	Room 1	Room 2	Room 3
Orientation of room	Patio (S)	Other (W) (Str 90N-3)	Other (E) (to Rm 1)
Number of doors	3	1	1
Number of benches	1	1	0
Bench shape	Rec	U	-----
Other furniture	-----	-----	Ledge
Total room area (m <sup>2</sup> )	8.6	5.4	5.1
Floor area (m <sup>2</sup> )	4.2	1.2	2.7
Bench area (m <sup>2</sup> )	4.4	4.2	-----
Bench height (cm)	60	50	-----
Ledge area (m <sup>2</sup> )	-----	-----	2.4 est
Ledge height (cm)	-----	-----	?
Construction type	T/C <sup>a</sup>	T/C	T/C
Roof type	Th <sup>b</sup>	Th	Th
Location of plaster	F, B <sup>c</sup>	-----	-----
Cordholders	?	?	?
Niches	No	No	No
Sculpture	No	No	No

<sup>a</sup> T = roughly shaped tuff blocks; C = cobbles.<sup>b</sup> Th = thatched roof.<sup>c</sup> F = floor; B = bench.

Table 4.61: Loci Associated with Patio F

Locus	Description
1507.9	Artifacts from midden deposit between Strs 90N and 108 and between Strs 90N and 92 but believed to be associated with Str 90N. Part of this deposit was labeled Feature 110. <ul style="list-style-type: none"> <li>• Volume: 3.3 m<sup>3</sup></li> <li>• Total number of artifacts: 615 (186.4/m<sup>3</sup>)</li> </ul> 17.7% lithic; 1.0% ground stone (2 metate, 2 mano, 1 abrader and/or polisher, 1 pot stand or support); 0.2% stone ornament (pigment); 65.0% ceramic; 14.0% bone (1 awl fragment, 1 needle or pin, 1 drilled tooth, 83 unmodified); 1.6% other ceramic (2 candelero, 1 flask, 4 miniature vessel, 1 jewelry, 2 perforated flat disk); 0.5% figurine

(Table 4.61, cont.)

<u>Locus</u>	<u>Description</u>
1508.7	Artifacts labeled Feature 115 found near southwest corner of Str 90S. <ul style="list-style-type: none"> <li>• Volume: Not applicable</li> <li>• Total number of artifacts: 2</li> </ul> 100.0% whole ceramic vessels (1 Surlo straight-walled dish, 1 Sisero ladle censer)
1509.8	Artifacts from behind and south of Str 90S. <ul style="list-style-type: none"> <li>• Volume: 5.6 m<sup>3</sup></li> <li>• Total number of artifacts: 287 (51.3/m<sup>3</sup>)</li> </ul> 19.9% lithic; 2.1% ground stone (1 metate, 1 mano, 3 abrader and/or polisher, 1 pot stand or support); 0.3% stone ornament (1 jade and jade-like jewelry); 56.8% ceramic; 18.1% bone (1 needle or pin, 51 unmodified); 0.3% turtle shell (1 unmodified); 1.7% other ceramic (4 candelero, 1 spindle whorl); 0.7% figurine
1510.3	Artifacts from terrace area of Str 90S. <ul style="list-style-type: none"> <li>• Volume: 0.8 m<sup>3</sup></li> <li>• Total number of artifacts: 15 (18.8/m<sup>3</sup>)</li> </ul> 40.0% lithic; 60.0% ceramic
1511.2	Artifacts from rooms of Str 90S. <ul style="list-style-type: none"> <li>• Volume: 0.6 m<sup>3</sup></li> <li>• Total number of artifacts: 38 (63.3/m<sup>3</sup>)</li> </ul> 36.8% lithic; 2.6% ground stone (1 hammerstone and/or abrader; 57.9% ceramic; 2.6% other ceramic (1 candelero)
1512.2	Artifacts from room containing semicircular bench of Str 90S = Rm 1. <ul style="list-style-type: none"> <li>• Volume: 1.6 m<sup>3</sup></li> <li>• Total number of artifacts: 124 (77.5/m<sup>3</sup>)</li> </ul> 43.5% lithic; 1.6% ground stone (1 metate, 1 anvil/support/table); 50.8% ceramic; 4.0% bone (1 drilled tooth, 4 unmodified)
1513.2	Artifacts from room area of Str 90N. <ul style="list-style-type: none"> <li>• Volume: 0.4 m<sup>3</sup></li> <li>• Total number of artifacts: 37 (92.5/m<sup>3</sup>)</li> </ul> 32.4% lithic; 2.7% ground stone (1 metate); 45.9% ceramic; 16.2% bone (6 unmodified); 2.7% other ceramic (1 jewelry)
1514.2	Artifacts from room area of Str 90S. <ul style="list-style-type: none"> <li>• Volume: 0.6 m<sup>3</sup></li> <li>• Total number of artifacts: 33 (55.0/m<sup>3</sup>)</li> </ul> 15.2% lithic; 72.7% ceramic; 12.1% bone (4 unmodified)

(Table 4.61, cont.)

<u>Locus</u>	<u>Description</u>
1515.9	Artifacts from midden deposit north of Str 91. Part of this deposit was labeled Feature 114. It also includes Feature 122 (see discussion in the text). <ul style="list-style-type: none"> <li>• Volume: 4.2 m<sup>3</sup></li> <li>• Total number of artifacts: 335 (79.8/m<sup>3</sup>)</li> <li>14.9% lithic; 0.9% ground stone (1 celt, 1 multi-use tool, 1 pot stand/support); 75.8% ceramic; 7.8% bone (26 unmodified); 0.3% other ceramic (1 candelero); 0.3% figurine</li> </ul>
1516.2	Artifacts above room floor of Rm 1 of Str 91. <ul style="list-style-type: none"> <li>• Volume: 0.3 m<sup>3</sup></li> <li>• Total number of artifacts: 33 (110.0/m<sup>3</sup>)</li> <li>21.2% lithic; 63.6% ceramic; 9.1% bone (3 unmodified); 6.1% other ceramic (1 flask, 1 perforated flat disk)</li> </ul>
1517.2	Artifacts on floor of Rm 3 of Str 91. Includes Feature 108 (see discussion in the text). <ul style="list-style-type: none"> <li>• Volume: 0.6 m<sup>3</sup></li> <li>• Total number of artifacts: 13 (21.7/m<sup>3</sup>)</li> <li>30.8% lithic; 15.4% ground stone; 46.2% ceramic; 7.7% figurine</li> </ul>

Feature 122 designates a dog skeleton deliberately covered with pieces of a Cruz Incised jar that was found in the midden deposit near Str 91 (Diamanti n.d.:Appendix 1).

#### Gr 9N-8 Patio H

- Operation number: 22 (1983); 26 (1984)
- When excavated: 1983-1984
- Excavators: Randolph Widmer (1983); Andrea Gerstle (1984)
- Report: Widmer n.d.; Gerstle n.d.a
- Related excavations: Operation 17 — Rms 2 and 4 of Str 110A, rear of Str 64, Strs 115A-B

The last formal patio unit to be described for Gr 9N-8 is Patio H. Most of the excavation was carried out in 1983 as Operation 22. Additional work in Str 64 and southwest of Str 110C was undertaken in 1984 as part of the Operation 26 excavations. The patio is located due east

of Patio B and directly south of Patio D (see Figure 4.1). There are no shared structures with its western neighbor. Str 65 of Patio D, however, abuts the north end of Str 110A of Patio H. There is no doorway or other means of passing from one building to another. Short walls were built connecting the substructure of Str 115A with those of Strs 105 and 63 while Str 115B and Str 107 appear to abut. The relationship of the courtyards of Patios H and K is unclear. It may have been fairly easy to pass from one to the other, but the river erosion has removed too much of the eastern edges of the patios for any kind of assessment to be possible.

The courtyard and structures of Patio H, like those of Patio D, were built at a lower elevation than the Central Platform supporting Patios B and A. Excavations at the south end of patio H revealed a wall, 1.5 m in height, made of large boulders, which ran east from the eastern edge of the northern part of the Central Platform (shown in Figure 4.7). From the evidence of collapsed boulders south and west of Str 76 it is clear that the wall originally stood higher at least in some sections. The full length of the wall is not known but it continued east past the east edge of Str 76 (Widmer n.d.). This wall would have further impeded passage from H to A and at the same time reinforced the edge of the Central Platform in this area. Excavations in 1984 (Gerstle n.d.a) found a staircase built between the south end of the western structure of Patio H (Str 110C) and the boulder barrier. The boulder retaining wall is actually built on the steps, thus covering their southern edge. Using it, one ascends via four steps from the level of Patio H to the level of Patio B, arriving behind (south of) Str

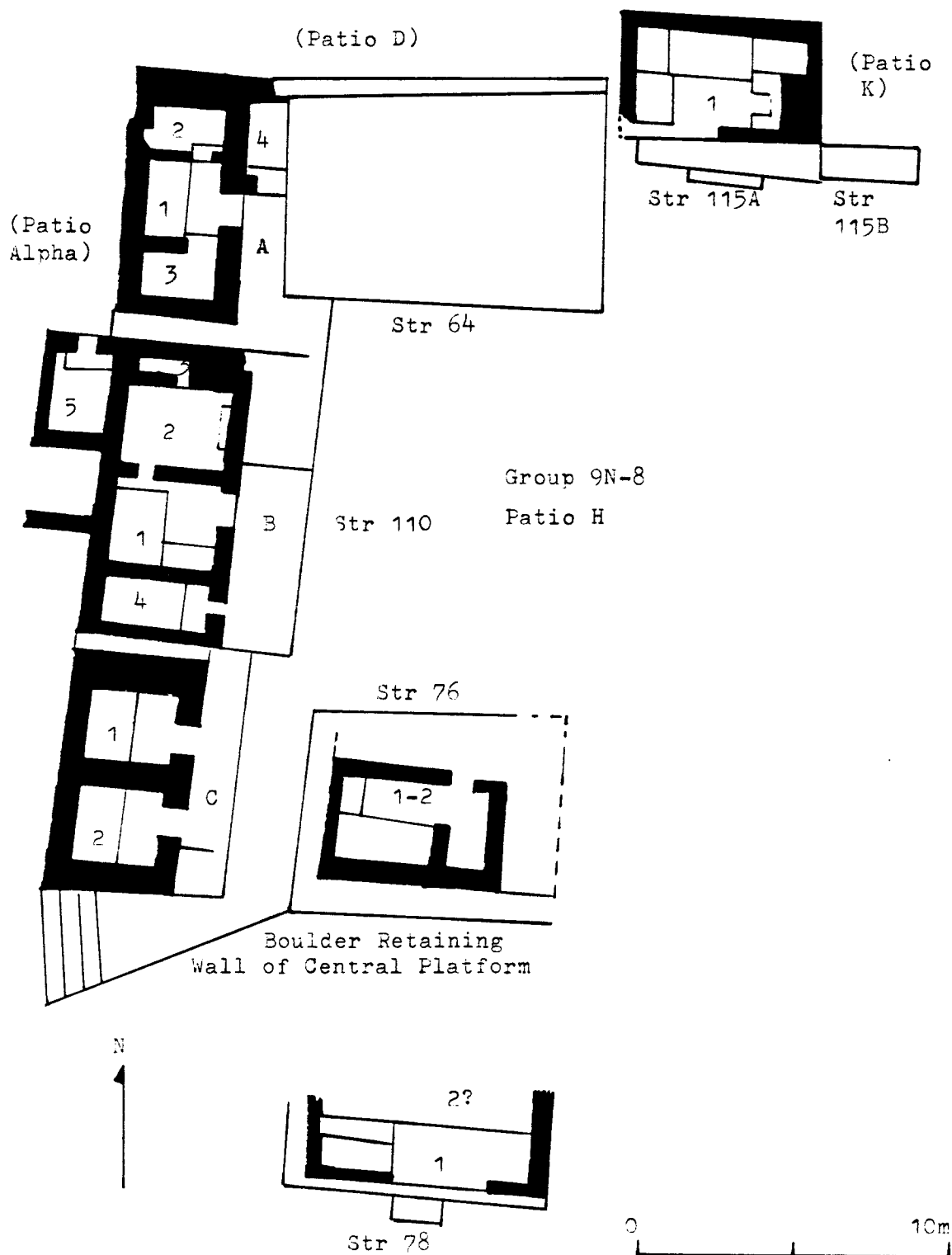


Figure 4.7: Map of Gr 9N-8 Patio H and Str 9N-78

74. From here it is easy to continue west onto the corridor of the Central Platform and gain access to either Patio A or Patio B.

Final-phase structures, shown in Figure 4.7, were found on the north, west, and south sides of the courtyard. Two earlier buildings were discovered on the east but there is no indication of their continued use. Either the eastern side was open in this direction, perhaps onto Patio K, during the last phase of occupation or else whatever structure existed has been completely destroyed by river erosion and possibly stone robbing.

The buildings of Patio H are arranged as follows. On the north are Strs 64, 115A, and 115B. Str 76 occupies the southern side. On the west are three adjoining substructures each supporting its own superstructure. These are labeled, north to south, Strs 110A, 110B, and 110C. In the final occupation phase the substructures abutted to form one long platform and shared a single staircase. The superstructures were separated from one another by open corridors (Widmer n.d.). The arrangement is similar to that of Str 74 to the east (see Figure 4.3). The arrangement of the buildings, especially in the western part, seems cramped when compared to most other patios except Patio D. Strs 64 and 76 block direct access from Strs 110A and C to the patio. The courtyard area enclosed by these structures is correspondingly small, ca. 126.0 m<sup>2</sup>. The overall impression is that Strs 64, 110, and 76 were squeezed in between Patio D to the north and the edge of the Central Platform to the south.<sup>3</sup> Determination of the total patio area is difficult. Since

---

<sup>3</sup> Countering this visual impression are the various lines of evidence discussed by Widmer (n.d.) and Gerstle (n.d.a) which suggest that earlier versions of the structures of Patio H predate the central platform.

Str 115A is oriented south, it must be included in the Patio H complex. Strs 106, 107, and 116, however, in addition to being north of Strs 64 and 115A, are clearly oriented east onto what has been called Patio K. The eastern edge of the formal paving of Patio H may have been found by the Operation 17 excavations to lie at about the eastern edge of Str 115A (Gerstle and Webster n.d.), suggesting that Str 115B was also somewhat peripheral to the unit. If this is the limit, the patio area may have been ca. 304.0 m<sup>2</sup>. How much further east the paving and possible additional structures of Patio H extended is unknown because of the river erosion, although I prefer to be more cautious than Widmer (n.d.) in projecting the occupation eastward.

One final structure excavated as part of Operation 22 is Str 78, which lies south of Str 76 on the Central Platform and outside of Patio H. It may have been associated in some way with Patio A but will be described here.

#### Structure 9N-64

Str 64 occupies the northwestern part of Patio H. It has a high terraced substructure which abuts, in the final phase, the front wall of Str 110A. The details of the substructure are poorly known. It probably had a front staircase. Almost no trace of the superstructure of this building was found. A plaster surface, presumably the floor of a room, covered a 5.0 m<sup>2</sup> area on the summit of the structure. A collection of dressed tuff blocks may represent the disturbed remnants of a bench retaining wall that measured at least 1.8 m east to west and is assumed to have faced south towards Patio H. The paucity of rubble on



the surface suggests walls built entirely of perishable material, such as poles and clay, and a thatched roof.

Three features, 4, 19, and 20, were found on top of Str 64. They were set into the top of the substructure and were thus at a level below that of the plaster floor. The floor itself, however, had eroded away in the area of the features. Feature 4, described more fully below, is a whole ceramic vessel. It was found between Feature 19, a stone crypt presumably intended for a burial but empty when found, and Feature 20, a small stone-lined box covered with capstones and containing several artifacts also described below (Widmer n.d.). A stone burial crypt is not an uncommon type of grave in Sepulturas, although such burials usually occur in the patio area. Caches have been found in some of the other structures in Gr 9N-8, generally placed during construction of some phase of the building. Str 64's cache is unusual for three reasons: its location directly below the room/terrace surface, its placement in a specially constructed box, and its contents, specifically the *Spondylus* shell and the greenstone pectoral. Most other caches consist only of ceramic vessels, generally a single cylindrical censer or polychrome bowl.

The usual table of architectural information has not been prepared since almost none, beyond what is presented above, is available. One salient aspect of Str 64 is the greater than usual height of its substructure above the patio — ca. 3.6 m. Table 4.62 gives the associated loci.

Table 4.62: Loci Associated with Structure 9N-64

Locus	Description
2201.1	Artifacts from patio in front of Str 64 near southeast corner. Includes Feature 2, a broken ceramic vessel. Although Widmer (n.d.) states that it was complete, or nearly so, there is no indication of the form or type. <ul style="list-style-type: none"> <li>• Volume: 1.3 m<sup>3</sup></li> <li>• Total number of artifacts: 286 (220.0/m<sup>3</sup>)</li> </ul> 58.7% lithic; 0.3% stone ornament (1 jade jewelry); 37.8% ceramic; 0.3% bone (1 cut long bone); 1.4% shell (4 unmodified); 1.0% other ceramic (1 spindle whorl, 2 perforated flat disk); 0.3% figurines
2202.6	Artifacts from within stone cache box (Feature 20) on summit of structure (see discussion in the text). <ul style="list-style-type: none"> <li>• Volume: 0.1 m<sup>3</sup></li> <li>• Total number of artifacts: 6</li> </ul>
2203.6	Artifacts from fill of niche in west wall of sub-structure. <ul style="list-style-type: none"> <li>• Volume: 0.1 m<sup>3</sup></li> <li>• Total number of artifacts: 67</li> </ul> 9.0% lithic; 1.5% ceramic; 47.8% bone (32 unmodified); 41.8% turtle (28 unmodified)
2204.3	Artifacts from summit of structure above plaster floor. Includes Feature 4, a Sepultura cylindrical censer. <sup>4</sup> <ul style="list-style-type: none"> <li>• Volume: 1.0 m<sup>3</sup></li> <li>• Total number of artifacts: 66 (66.0/m<sup>3</sup>)</li> </ul> 78.8% lithic; 15.2% ceramic; 3.0% bone (2 unmodified); 3.0% whole ceramic vessel

Feature 20 contained a Sepultura cylindrical censer<sup>5</sup> which held a Spondylus shell and a greenstone, probably serpentine, pectoral that was incised and carved with an elaborate Maya-style figure (Widmer n.d.). Some other ceramic rims make up the rest of the artifacts in the locus.

---

<sup>4</sup> There is some confusion about the form and type of this vessel. Widmer's feature appendix identifies it as a Sisero jar. However, the vessel labeled with the lot number of Feature 4 (41) is clearly a Sepultura cylindrical censer.

<sup>5</sup> There is the same problem with respect to form and type as in the case of Feature 4.

### Structures 9N-115A and 9N-115B

The eastern half of the northern edge of Patio H is occupied by Strs 115A and B, which were excavated as part of Operation 17. Str 115A has a single-roomed superstructure, which is described in Table 4.63. As can be seen from the table, Rm 1 is quite large and contains a variety of "furniture". There is a rectangular, free-standing bench built against the north wall. Between its eastern end and the east room wall is an unusual construction labeled a "pillar" for want of a better term. It is a solid construction with west and south retaining walls rising above the level of the bench surface. To the south of this "pillar" in the southeast corner is a slightly lower U-shaped bench. Opposite this bench in the southwestern corner is another unusual item, a stone-walled box that is surfaced on its western half but open to the east. This layout is similar to that found in Str 107. The placement of the stone chamber or box impeded movement from the floor area south of the bench to the northwestern corner of the room (Gerstle and Webster n.d.).

Two niches were visible in the south (front) retaining wall of the main bench. The edges of the niches are formed by cantilevered tuff blocks, a construction like a corbel vault. In the western face of the bench is an opening which could be considered a niche except that it has no back or side walls inside the bench itself. It is really a gap in the stones (Gerstle and Webster n.d.).

Str 115B is a platform built next to Strs 115A and 107 (Patio K). The surface area was approximately 6.6 m<sup>2</sup>. It does not appear to have ever supported a superstructure. It did, however, have a bench or ledge on its western side that measured 0.7 m<sup>2</sup> in area and 37 cm high. As

noted above, it also may lie beyond the edge of the formal patio paving (Gerstle and Webster n.d.). For the loci associated with Strs 115A and B, see Table 4.64.

Table 4.63: Structures 9N-115A and 9N-76 Architecture

Architectural Data	Str 115A Room 1	Str 76 Room 1-2 <sup>a</sup>
Orientation of room	Patio (S)	Patio (N)
Number of doors	1	1
Number of benches	2	2
Bench shape(s)	Rec, U	Rec, rec <sup>b</sup>
Other furniture	"Pillar", stone box <sup>c</sup>	-----
Total room area (m <sup>2</sup> )	15.7 est	12.2
Floor area (m <sup>2</sup> )	4.9	7.0
Bench area(s) (m <sup>2</sup> )	4.9, 1.4 (U)	4.2, 1.0
Bench height(s) (cm)	60, 50 (U)	40, 40?
"Pillar" area (m <sup>2</sup> )	2.6	-----
"Pillar" height (cm)	140+	-----
Stone box area (m <sup>2</sup> )	1.9	-----
Stone box height (cm)	38	
Construction type	T/C/B <sup>d</sup>	T/C
Roof type	Th <sup>e</sup>	Th <sup>f</sup>
Location of plaster	-----	B <sup>f</sup>
Cordholders	?	No?
Niches	2-rec bench face, opening in W bench face	No
Sculpture	No	No

<sup>a</sup> Combines Rms 1 and 2 in Widmer (n.d.). See discussion in text.

<sup>b</sup> "Pillar" in northeast corner of room next to bench; stone box in southwestern part of room. See discussion in text for further description. Similar to "pillar" in Rm 1 of Str 106.

<sup>c</sup> T = roughly shaped blocks of tuff; C = cobbles; B = bajareque.

<sup>d</sup> Th = thatched roof.

<sup>e</sup> Beam and mortar postulated by Widmer (n.d.).

<sup>f</sup> B = bench.

Feature 77 consists of two green cobbles used as polishers, a perforated sherd disk, a small accumulation of bright green pigment, perhaps malachite, and two whole vessels, one a Titichon ladle censer and the other a narrow-necked Cruz Incised jar (Gerstle and Webster n.d.:Appendix 1).

Table 4.64: Loci Associated with Structures 9N-115A and 9N-115B

Locus	Description
1739.2	Artifacts from floor paving between east and south ledges of Str 115, more exact provenience not known. <ul style="list-style-type: none"> <li>• Volume: 0.1 m<sup>3</sup></li> <li>• Total number of artifacts: 6 (60.0/m<sup>3</sup>)</li> </ul> 66.7% ceramic; 33.3% bone (1 cut long bone, 1 carved bone ornament)
1740.2	Artifacts from above benches and floor of Rm 1 Str 115A. Includes Feature 77 (see discussion in the text). <ul style="list-style-type: none"> <li>• Volume: 0.6 m<sup>3</sup></li> <li>• Total number of artifacts: 153 (255.0/m<sup>3</sup>)</li> </ul> 37.9% lithic; 1.3% ground stone; 2.0% stone ornament (1 jade jewelry, 2 pigment); 32.7% ceramic; 13.7% bone (1 needle, 2 needle or pin, 18 unmodified); 10.5% shell (16 unmodified); 0.7% other ceramic; 2 whole ceramic vessel
1741.9	Artifacts from midden deposit on or south of Str 115B. Includes Feature 89, partial Casaca Striated narrow-necked jar with large mammal bones nearby. <ul style="list-style-type: none"> <li>• Volume: 2.1 m<sup>3</sup></li> <li>• Total number of artifacts: 911 (433.8/m<sup>3</sup>)</li> </ul> 26.5% lithic; 39.8% ceramic; 33.4% bone (1 awl, 1 needle, 1 spatula, 3 cut long bone, 1 carved bone ornament, 297 unmodified); 0.1% other ceramic (candelero); 0.4% figurine; 0.1% whole ceramic vessel

### Structure 9N-110A

The designation 110A refers to the northernmost superstructure of the final-phase western building. The front part of the substructure abuts the west side of Str 64. Although the superstructure faces east it does not really face onto the patio because of the position of Str 64. There are three rooms arranged in a row north to south and a fourth room built in the space between the superstructure and the west side of Str 64 (see Figure 4.7). As noted previously, Str 110A and Str 65 of Patio D abut but there is no evidence of a door or passage between the two adjoining rooms (Rm 2 Str 110A and Rm 1 Str 65) at any point in the

occupation of the patios. There was at one time, however, a door in the west wall of Rm 2 which led either into Rm 4 of Str 65 or into the space later occupied by Rm 4. This room is part of the collection of rooms between Patios B and H discussed below as Patio Alpha. In the final phase of occupation, this door was blocked with tuff blocks (Gerstle and Webster n.d.). There may have been at one time a narrow corridor between the substructures of Strs 64 and 110A leading north into Patio D. This space was filled in after the initial construction of the two structures to create the final-phase configuration just described (Widmer n.d.).

Rm 3, the southernmost room, had no bench in its final-phase form. The entrance to the room, in its north wall, opens into Rm 1. Since the floor level of Rm 3 was some 45 cm above that of Rm 1, two steps were built into the connecting doorway. Rm 1 has an L-shaped bench with a niche in its retaining wall (Widmer n.d.). Rm 4 incorporates part of the west substructure terrace of Str 64 into its bench area (compare Str 63 Rm 3 of Patio D). The bench is lower than average.<sup>6</sup>

Table 4.65 gives the architectural details about the four rooms while Table 4.66 presents the associated loci.

Feature 5 refers to a partial Casaca Striated jar found in the northeast corner of Rm 1 on the floor (Widmer n.d.:Appendix 1).

---

<sup>6</sup> The work of the restoration crew on this structure has shown that its front superstructure wall was pierced by six slits, arranged in two sets of three, one on either side of the entrance of Rm 1. Another element not mentioned in the excavation report is a small square window in the wall between Rms 1 and 3.

Table 4.65: Structure 9N-110A Architecture

Architectural Data	Room 1	Room 2 <sup>a</sup>	Room 3	Room 4
Orientation of room	Patio (E)	Other (S) (to Rm 1)	Other (N) (to Rm 1)	Other (S) (to terr)
Number of doors	3	1	1	1
Number of benches	1	1	0 <sup>b</sup>	1
Bench shape(s)	L	L	----	L
Total rm area (m <sup>2</sup> )	6.3	3.5	3.6	5.4
Floor area (m <sup>2</sup> )	2.5	0.3	3.6	0.6
Bench area (m <sup>2</sup> )	3.8	3.2	----	4.9
Bench height (cm)	45	32	----	28
Construction type	DT/T <sup>c</sup>	DT/T/C	DT/T/C	DT/T
Roof type	V <sup>d</sup>	V	V	BM
Location of plaster	F,W?,B?, N <sup>e</sup>	----	F	F,B
Paint	Red-W?	No	No	No
Cordholders	Yes? <sup>f</sup>	?	?	?
Niches	1-bench	No	No	No
Sculpture	No	No	No	No

<sup>a</sup> Str 110A Rm 2 was excavated in 1982 as part of Operation 17 and labeled at the time as Str 65 Rm 2. It is described under this name in Gerstle and Webster (n.d.).

<sup>b</sup> Floor of Rm 3 is ca. 45 cm above floor of Rm 1.

<sup>c</sup> DT = dressed tuff masonry; T = roughly shaped tuff blocks; C = cobbles.

<sup>d</sup> V = vaulted; BM = beam and mortar roof.

<sup>e</sup> F = floor; B = bench; W = walls and/or bench face; N = niche surface.

<sup>f</sup> Located in northern part of east room wall — probably for main entrance from terrace. Second cordholder in east wall south of main entrance but may have been obscured by stairs into Rm 3 in final phase (Widmer n.d.).

Table 4.66: Loci Associated with Structure 9N-110A

Locus	Description
2217.3	<p>Artifacts from corridor between Strs 110A and 110B and from terrace between Strs 110A and 64.</p> <ul style="list-style-type: none"> <li>• Volume: 2.0 m<sup>3</sup></li> <li>• Total number of artifacts: 129 (64.5/m<sup>3</sup>)</li> </ul> <p>79.8% lithic; 15.5% ceramic; 4.7% bone (6 unmodified);</p>
2218.2	<p>Artifacts from above and on bench and floor of Rm 1. Includes Feature 5 (see discussion in the text).</p> <ul style="list-style-type: none"> <li>• Volume: 1.1 m<sup>3</sup></li> <li>• Total number of artifacts: 120 (109.1/m<sup>3</sup>)</li> </ul> <p>37.5% lithic; 3.3% ground stone (1 Costa Rican- style metate, 1 anvil/support/table, 1 abrader and/or polisher, 1 pestle); 28.3% ceramic; 14.2% bone (17 unmodified); 16.7% shell</p>
1719.2	<p>Feature 15 (of Op 17) and surrounding artifacts found in Rm 2.</p> <ul style="list-style-type: none"> <li>• Volume: 0.3 m<sup>3</sup></li> <li>• Total number of artifacts: 47 (156.7/m<sup>3</sup>)</li> </ul> <p>53.2% lithic; 2.1% ground stone (1 abrader and/or polisher); 25.5% ceramic; 12.8% bone (6 unmodified); 2.1% shell (1 unmodified); 2.1% other ceramic (1 candelero); 2.1% whole ceramic vessel (1 plain [Sisero] cylinder = Feature 15)</p>
2219.2	<p>Artifacts in front of bench of Rm 2.</p> <ul style="list-style-type: none"> <li>• Volume: 0.3 m<sup>3</sup></li> <li>• Total number of artifacts: 12 (40.0/m<sup>3</sup>)</li> </ul> <p>50.0% lithic; 16.7% ceramic; 33.3% bone (4 unmodified);</p>
2220.2	<p>Artifacts from above upper and lower floor levels of Rm 3.</p> <ul style="list-style-type: none"> <li>• Volume: 1.3 m<sup>3</sup></li> <li>• Total number of artifacts: 281 (216.2/m<sup>3</sup>)</li> </ul> <p>36.7% lithic; 16.4% ceramic; 40.6% bone (1 awl, 2 needle or pin, 1 cut long bone, 110 unmodified); 5.0% shell (14 unmodified); 1.4% other ceramic (2 candelero, 2 jewelry)</p>
2221.2	<p>Artifacts from above bench and floor of Rm 4.</p> <ul style="list-style-type: none"> <li>• Volume: 0.5 m<sup>3</sup></li> <li>• Total number of artifacts: 41 (82.0/m<sup>3</sup>)</li> </ul> <p>31.7% lithic; 9.8% ceramic; 58.5% bone (24 unmodified)</p>



**Structure 9N-110B**

The central superstructure, Str 110B, also contains four rooms arranged in a row north to south. The northernmost one, Rm 3, is barely more than a slot in the north wall but, to judge from the presence of some in situ material, was apparently considered usable space. Its floor was some 20 cm higher than that of Rm 2. A ledge or shelf was found in the north room wall formed by simply decreasing the width of the wall at a point some 60 cm above the floor of Rm 3. There may have been a similar construction in the poorly preserved southern wall. From the wall joints it can be seen that Rm 3 was a later addition to the superstructure. Rm 2, south of Rm 3, has no bench but it does have a small ledge attached to the east room wall. A number of in situ artifacts found in this room are described below. Rms 1-3 all interconnect, with only one door to the terrace. Rm 4, to the south, has an independent entrance from the front terrace (Widmer n.d.).

The staircase for both Strs 110A and B is located east of the entrance of Rm 1. The terrace area north of Rm 1 and east of Rms 2 and 3 stands 32 cm higher than the terrace at the top of the stairs. This raised terrace or bench is 50 cm above the corridor paving between Strs 110A and B. Two niches were built into the east substructure wall. The southern one (Feature 1) is north of the stairs in the front retaining wall of the raised terrace. The northern niche, Feature 3, is in the front wall opposite the corridor between Strs 110A and B. The floors of both niches were plastered. The surface of Feature 1 had also been painted red (Widmer n.d.). The artifacts found inside the niches are collected in Locus 2226.3.

Table 4.67 shows the architectural information while Table 4.68 details the loci.

Table 4.67: Structure 9N-110B Architecture

Architectural Data	Room 1	Room 2	Room 3	Room 4
Orientation of room	Patio (E)	Other (S) (to Rm 1)	Other (S) (to Rm 2)	Patio (E)
Number of doors	2	2	1	1
Number of benches	1 <sup>a</sup>	0	0 <sup>b</sup>	1
Bench shape(s)	L	----	----	Rec
Other furniture	----	Ledge <sup>c</sup>	Ledge(s)	----
Total rm area (m <sup>2</sup> )	9.6	8.3	1.0	5.4
Floor area (m <sup>2</sup> )	3.6	7.9	1.0	1.0
Bench area (m <sup>2</sup> )	6.0	----	----	4.4
Bench height (cm)	52	----	----	60
Ledge area (m <sup>2</sup> )	----	0.4	0.3?	----
Ledge height (cm)	----	10-20	60	----
Construction type	DT/T <sup>d</sup>	DT/T	DT/T	DT/T
Roof type	BM <sup>e</sup>	BM	BM	BM
Location of plaster	F?, B? <sup>f</sup>	F?	----	F, B
Cordholders	No? <sup>g</sup>	?	?	?
Niches	2 in front	substructure		
Sculpture	No	No	No	No

<sup>a</sup> Bench free-standing on west end.

<sup>b</sup> Floor Rm 3 ca. 20 cm higher than floor Rm 2.

<sup>c</sup> Ledge built against west room wall.

<sup>d</sup> DT = dressed tuff masonry; T = roughly shaped tuff blocks.

<sup>e</sup> BM = Beam and mortar roof.

<sup>f</sup> F = floor; B = bench.

<sup>g</sup> No information in Widmer (n.d.), but no cordholders are visible in available photographs.

Of the features assigned to Locus 2229.2, Features 7-13 were found in Rm 2 in various locations on the room floor or, in the case of Feature 9, on the ledge. Unfortunately most of the ceramic vessels were not restored or analyzed separately with the exception of the two listed in Table 4.68. They were probably categorized as ceramic rim sherds. Therefore the only available form and type identifications are those of Widmer (n.d.:Appendix 1 and text), which are not very complete, may not be accurate, and are internally inconsistent.

Table 4.68: Loci Associated with Structure 9N-110B

Locus	Description
2207.9	Artifacts from patio against front (east) wall of sub-structure. <ul style="list-style-type: none"> <li>• Volume: 0.3 m<sup>3</sup></li> <li>• Total number of artifacts: 8 (26.7/m<sup>3</sup>)</li> </ul> 100.0% lithic
2223.1	Artifacts from patio against front (east) wall of sub-structure. Should include Locus 2207.9 and probably should be assigned to midden (9) rather than patio (1) context — separation here maintains distinction of excavator. <ul style="list-style-type: none"> <li>• Volume: 1.6 m<sup>3</sup></li> <li>• Total number of artifacts: 171 (106.9/m<sup>3</sup>)</li> </ul> 45.6% lithic; 1.2% ground stone (2 mano); 35.1% ceramic; 4.7% bone (1 worked antler, 7 unmodified); 12.9% shell (22 unmodified); 0.6% figurine
2224.8	Artifacts either from corridor between Strs 110A and 110B or from Rm 3 of Str 110B. Not clear from excavator's notes. <ul style="list-style-type: none"> <li>• Volume: 0.8 m<sup>3</sup></li> <li>• Total number of artifacts: 74 (92.5/m<sup>3</sup>)</li> </ul> 51.4% lithic; 1.4% stone ornament (1 jewelry); 45.9% ceramic; 1.4% other ceramic (1 candelero)
2225.8	Artifacts from corridor between Strs 110B and C. <ul style="list-style-type: none"> <li>• Volume: 0.6 m<sup>3</sup></li> <li>• Total number of artifacts: 39 (65.0/m<sup>3</sup>)</li> </ul> 61.5% lithic; 12.8% ceramic; 25.6% bone (10 unmodified)
2226.3	Artifacts from niches (Features 1 and 3) in substructure of Str 110B or from immediately in front. <ul style="list-style-type: none"> <li>• Volume: 0.1 m<sup>3</sup></li> <li>• Total number of artifacts: 7</li> </ul> 28.6% lithic; 71.4% bone (1 tube or ring, 4 unmodified)
2227.3	Artifacts from front terrace. <ul style="list-style-type: none"> <li>• Volume: 2.7 m<sup>3</sup></li> <li>• Total number of artifacts: 86 (31.9/m<sup>3</sup>)</li> </ul> 44.2% lithic; 20.9% ceramic; 33.7% bone (1 awl, 28 unmodified); 1.2% other ceramic (1 miniature vessel)
2228.2	Artifacts from above floor of Rm 1. <ul style="list-style-type: none"> <li>• Volume: 0.4 m<sup>3</sup></li> <li>• Total number of artifacts: 37 (92.5/m<sup>3</sup>)</li> </ul> 64.9% lithic; 24.3% ceramic; 10.8% bone (4 unmodified)

(Table 4.68, cont.)

Locus	Description
2229.2	<p>Artifacts from above and on floor and ledge of Rm 2 and Rm 3 (Feature 14). Includes Features 7-14 (see discussion in the text).</p> <ul style="list-style-type: none"> <li>• Volume: 0.5 m<sup>3</sup></li> <li>• Total number of artifacts: 209</li> </ul> <p>11.4% lithic; 4.5% ground stone (1 mortar, 1 celt, 1 anvil/support/table, 1 hollow cylinder, 5 abrader and/or polisher); 1.5% stone ornament (1 jade jewelry, 1 jade miscellaneous worked, 1 pigment); 16.4% ceramic; 25.9% bone (1 awl with rounded end, 1 worked antler, 50 unmodified); 38.3% shell (73 unmodified, 1 star, 3 miscellaneous worked); 0.5% turtle (1 unmodified); 0.5% other ceramic (1 candelero); 1.0% whole ceramic vessel (1 Surlo flaring-walled bowl/dish, 1 plain cylindrical censer)</p>
2230.2	<p>Artifacts above and on bench and floor of Rm 4. Includes Feature 17, an olivine basalt striated abrader found in front of bench.</p> <ul style="list-style-type: none"> <li>• Volume: 0.9 m<sup>3</sup></li> <li>• Total number of artifacts: 193 (214.4/m<sup>3</sup>)</li> </ul> <p>67.4% lithic; 2.6% ground stone (2 abrader and/or polisher, 1 bowl, 1 celt, 1 doughnut stone); 20.2% ceramic; 8.3% bone (1 cut long bone, 15 unmodified); 0.5% shell (1 unmodified); 1.0% other ceramic (1 candelero, 1 spindle whorl)</p>

Feature 7 refers to a vessel, possibly a cylindrical censer, found on the floor near the center of the room. It contained dirt mixed with charcoal, possibly burned pine needles (Widmer n.d.:Appendix 1).

Feature 8 is a ceramic vessel, possibly a large jar of unspecified type, and a striated olivine basalt abrader or working platform. They were found on the floor in the northwest corner of Rm 2.

Feature 9 refers to the artifacts on the ledge plus an additional one in the southeast corner of the room. A total of three vessels was found on this ledge, two of which (Vessels 1 and 2) are reported by Widmer in his appendix to be calderos, type unspecified, but in his text to be respectively the bottom of a Sisero cylinder and a Sepulturas "container". Vessel 1 contained ten obsidian blade fragments (five

found in flotation analysis), five-plus pieces of marine shell, cut and drilled, a worked fragment of greenstone, possibly a hammerstone. Vessel 2 held a broken star-shaped shell ornament, an unperforated ceramic disk or plate, and other pieces of shell (Widmer n.d.:Appendix 1). More shell was found on the floor. Vessel 3, a *Sepultura cylindrica* censer, contained a mixture of dirt and flecks of burned material. It was placed on a ceramic tile set into the ledge surface (Widmer n.d.:Appendix 1). Vessel 4, which is on the floor, is a flaring-walled bowl/dish, probably of the Surlo plain type. Other artifacts included in this feature are a piece of worked deer antler which may have been used as an awl and a chisel. A second bone artifact, a humerus of some large mammal, appears to have been used to shape and polish wood (Widmer n.d.:Appendix 1). A striated olivine basalt abrader was also found as well as a number of shell fragments and two obsidian blades.

Feature 10 is located in the northeast part of the room. It refers to a tuff cylindrical artifact of unknown function and a partial straight-walled or flaring-walled bowl/dish (Widmer n.d.:Appendix 1). Feature 11, also in the northeastern part of the room, consists of a sandstone "double-sided" bowl (coded in Table 4.68 as a mortar). It is rectangular with rounded corners and has a depression on each side (Gerstle n.d.b). Feature 12, in the northwest corner, comprises a Casaca jar, a sandstone abrader, and a ceramic pendant (Widmer n.d.:Appendix 1). Feature 13, in the northeast corner, refers to an artifact made of tuff. The stone has been worked into a rectangular base supporting a smaller rectangle. Widmer (n.d.:Appendix 1) suggests that the artifact was used to grind or sand wood, but a later examination of

the artifact failed to find the wear he noted (Gerstle n.d.b) and suggests that the item was a table or a lid.

The final feature, 14, was found in Rm 3. A stone celt and an unfinished stone bowl were found on the room floor (Widmer n.d.:Appendix 1).

### Structure 9N-110C

Direct access from Str 110C to the patio was impeded by the presence of Str 76. Perhaps partly for this reason, Str 110C had no staircase of its own. Instead the rooms were reached via the stairs opposite Str 110B to the north and across the front terrace. An elevated terrace or bench 30 cm high is found at the south end of the front substructure, roughly aligned with the south door jamb of Rm 2. There is also some sort of plaster-covered stone projection or small platform attached to the outside of the front wall of the superstructure between the two rooms. Two flat tuff slabs were found among the wall and vault debris. One was carved with a woven mat design. They would have been part of the exterior superstructure construction.

Str 110C, as indicated by Table 4.69, has a simpler superstructure arrangement of two patio-facing rooms each with a single rectangular bench. Each bench is actually half of a single construction which spans the entire interior length of the superstructure and has been divided by the interior room walls. It is built on a 6 cm high platform. Each bench has two niches in its front retaining wall. The sides of the niches consist of a series of cantilevered tuff blocks resembling miniature corbel vaults. Similar niches were built in the bench face of Str

115A (see above). Each room also had a niche in the west room wall above the bench. The associated loci are presented in Table 4.70.

Table 4.69: Structure 9N-110C Architecture

Architectural Data	Room 1	Room 2
Orientation of room	Patio (E)	Patio (E)
Number of doors	1	1
Number of benches	1	1
Bench shape(s)	Rec	Rec
Total room area (m <sup>2</sup> )	7.3	9.5
Floor area (m <sup>2</sup> )	3.7	4.8
Bench area (m <sup>2</sup> )	3.6	4.7
Bench height (cm)	?	?
Construction type	DT/T <sup>a</sup>	DT/T
Roof type	V <sup>b</sup>	V
Location of plaster	F,W,B,N <sup>c</sup>	F,B,N
Cordholders	No	Yes
Niches	3-1 W wall, 2-bench face	3-1 W wall, 2-bench face
Sculpture	Yes <sup>d</sup>	No

<sup>a</sup> DT = dressed tuff masonry; T = roughly shaped tuff blocks.

<sup>b</sup> V = vault.

<sup>c</sup> F = floor; B = bench; W = walls and/or bench face; N = niche.

<sup>d</sup> Two flat tuff slabs, one carved with mat design.

Table 4.70: Loci Associated with Structure 9N-110C

Locus	Description
2222.9	Artifacts from midden deposit behind corridor between Strs 110B and C and behind Str 110C. May be associated with rooms between Patios B and H but could also be from Str 110C. <ul style="list-style-type: none"> <li>• Volume: 1.7 m<sup>3</sup></li> <li>• Total number of artifacts: 371 (218.2/m<sup>3</sup>)</li> </ul> 41.0% lithic; 0.3% ground stone (1 mano); 44.5% ceramic; 13.2% bone (2 tube or ring, 1 cut long bone, 1 shaped or perforated, 46 unmodified); 0.3% shell (1 unmodified); 0.3% other ceramic (1 flask); 0.5% figurine
2232.3	Artifacts from front terrace. <ul style="list-style-type: none"> <li>• Volume: 1.0 m<sup>3</sup></li> <li>• Total number of artifacts: 52 (52.0/m<sup>3</sup>)</li> </ul> 55.8% lithic; 44.2% ceramic

(Table 4.70, cont.)

Locus	Description
2233.6	Artifacts labeled Feature 16 from niche in west wall of Rm 1. <ul style="list-style-type: none"> <li>• Volume: 0.1 m<sup>3</sup></li> <li>• Total number of artifacts: 1</li> </ul> 100.0% ground stone (1 celt)
2234.2	Artifacts from above floor and bench of Rm 1. <ul style="list-style-type: none"> <li>• Volume: 0.2 m<sup>3</sup></li> <li>• Total number of artifacts: 5 (25.0/m<sup>3</sup>)</li> </ul> 80.0% ceramic; 20.0% other ceramic (1 candelero)
2235.2	Artifacts from above bench and floor of Rm 2. <ul style="list-style-type: none"> <li>• Volume: 1.3 m<sup>3</sup></li> <li>• Total number of artifacts: 61 (46.9/m<sup>3</sup>)</li> </ul> 52.5% ceramic; 1.6% ground stone (1 bowl); 44.3% ceramic; 1.6% bone (1 unmodified)
2236.6	Artifacts labeled Feature 25 from niche in west wall of Rm 2. <ul style="list-style-type: none"> <li>• Volume: Not applicable</li> <li>• Total number of artifacts: 4</li> </ul> 100.0% ceramic

#### Structure 9N-76

Str 76 on the south is a less impressive construction than its western neighbor. The superstructure is described in Table 4.63. I have decided to consider the interior space as all one room with an L-shaped floor area because of the lack of door jambs between what Widmer (n.d.) calls Rms 1 and 2. Also the location of the door to the terrace suggests one room rather than two. The main part of the room has two benches placed perpendicular to one another to form an L-shaped bench area, if both benches were of the same height. There may have been a raised terrace east of the superstructure that stood, perhaps, 40 cm above the level of the front terrace (Widmer n.d.). Behind Str 76 is a ca. 1.0 m wide space formed by the south wall of the building and the



boulder retaining wall of the Central Platform. The west end of this area was blocked off by a short wall abutting both Str 76 and the boulder wall. There appears to have been some sort of paving west of the building and south of this wall that was above the level of the usual courtyard surface of Patio H (Widmer n.d.). Table 4.71 presents the loci.

Table 4.71: Loci Associated with Structure 9N-76

<u>Locus</u>	<u>Description</u>
2205.9	Artifacts from midden deposit between Strs 76 and 110C. May be associated with Str 110C. <ul style="list-style-type: none"> <li>• Volume: 6.2 m<sup>3</sup></li> <li>• Total number of artifacts: 2688 (433.6/m<sup>3</sup>)</li> </ul> 73.5% lithic; 0.2% ground stone (1 mano, 1 abrader and/or polisher, 2 celt, 1 flat-surfaced artifact); 0.2% ground stone (2 jade jewelry, 2 pigment, 1 miscellaneous worked, 1 baton); 20.4% ceramic; 4.7% bone (2 awl, 1 needle, 3 needle or pin, 3 tube or ring, 1 drilled tooth, 2 cut long bone, 1 worked antler, 112 unmodified); 0.3% shell (7 unmodified, 1 worked); 0.2% turtle (5 unmodified); 0.2% other ceramic (1 candelero, 1 flask, 1 miniature vessel, 2 jewelry, 1 spindle whorl); 0.3% figurine
2209.2	Artifacts from above bench and western floor of Rm 1. <ul style="list-style-type: none"> <li>• Volume: 0.8 m<sup>3</sup></li> <li>• Total number of artifacts: 72 (90.0/m<sup>3</sup>)</li> </ul> 69.4% lithic; 30.6% ceramic
2210.2	Artifacts from above eastern side floor of Rm 1. <ul style="list-style-type: none"> <li>• Volume: 0.2 m<sup>3</sup></li> <li>• Total number of artifacts: 58 (290.0/m<sup>3</sup>)</li> </ul> 77.6% lithic; 15.5% ceramic

#### Structure 9N-78

Str 78 is located south of Str 76 and on the other side of the large boulder retaining wall behind Str 76. It is thus built on the Central Platform which supports Patios A and B. Although physically closer to Str 76 and hence Patio H, its placement on this platform and

the location of its staircase on the southern side suggest that the building had more to do with Patio A to its southwest. Interestingly, Str 78 is diagonally opposite the northeast corner of the courtyard, which was the only corner that was open and hence served during the final phase as the sole entrance point into Patio A (see Figure 4.1). It must be remembered, however, that there are at least two more mounds lying just east of Str 78, namely 9N-77 and 9N-79, which have not been excavated (see Fash and Long 1983:map 15).

Str 78 was not well preserved. Widmer (n.d.) discusses various constructional units for three phases of the structure but neglects to give an integrated reconstruction of the final-phase architecture. From the evidence provided I have come up with three versions of what the final-phase superstructure might plausibly have looked like. These will be described below and are summarized in Table 4.72 following a presentation of the architectural features found.

The substructure of the final phase (Str 78-1st) was an expansion and enlargement of the second-phase one (Str 78-2nd) by the construction of new west and south retaining walls of dressed tuff blocks (Widmer n.d.). The estimated east-west dimensions are 8.9 m. North to south it measured at least 4.4 m but the north wall was not found. As mentioned above there is a staircase on the south side.

The staircase gives access to the top of the substructure, where a badly preserved floor surface was found about 20 cm higher than the surface of the previous phase. Widmer (n.d.) suggests that walls constructed during phase 2 continued in use in the final phase, serving as the superstructure walls. These walls are found on the south, east,

and west, inset 40-60 cm from the new substructure walls. The terrace area on these sides was thus minimal.

Table 4.72: Structure 9N-78 Architecture — Three Alternative Reconstructions

Architectural Data	Version 1		Version 2		Version 3
	Rm 1	Terr	Rm 1	Rm 2	Rm 1
Orientation of room	C.P. <sup>a</sup> (S)	----	C.P. (S)	Rm 1 (S)	C.P. (S)
Number of doors	1	0 or 1	1	1	1
Number of benches	1	0	1	0	1
Bench shape(s)	Rec	----	Rec	----	Rec
Total rm area (m <sup>2</sup> )	6.8	16.3 <sup>b</sup> , 19.9 <sup>b</sup>	6.8	16.3 <sup>b</sup>	27.2 <sup>b</sup>
Floor area (m <sup>2</sup> )	4.4	16.3 <sup>b</sup> , 19.9 <sup>b,c</sup>	4.4	16.3 <sup>b,c</sup>	6.8 <sup>c</sup> , 13.9 <sup>b</sup>
Bench area (m <sup>2</sup> )	2.4	----	2.4	----	2.4
Bench height (cm)	?	----	?	----	?
Construction type	T/C <sup>d</sup>	T/C	T/C	T/C	T/C
Roof type	Th <sup>e</sup>	Th?	Th	Th	Th
Location of plaster	----	----	----	----	----
Cordholders	?	----	?	?	?
Niches	No	No	No	No	No
Sculpture	No	No	No	No	No

<sup>a</sup> C.P. = Central Platform.

<sup>b</sup> Minimum estimated measurement.

<sup>c</sup> Version 1: terrace level at least 15 cm above that of Rm 1's floor. Version 2: Rm 2's floor at least 15 cm above that of Rm 1. Version 3: floor of Rm 1 in two levels, upper (13.9 m<sup>2</sup>) at least 15 cm higher.

<sup>d</sup> T = roughly shaped tuff blocks; C = cobbles.

<sup>e</sup> Th = thatched roof. Terrace area (Version 1) may also have been roofed.

In the western area of the substructure was found a single-faced wall, one course of dressed tuff blocks, running north-south for ca. 1.5 m and facing east. This has been interpreted as the retaining wall for a bench built up against the west room wall. The height of the wall is not given. A double-faced wall line defines the north end of the bench but does not extend east beyond the face of the bench. The width of

this wall and the south room wall reduce the actual bench width to ca. 1.0 m N-S (Widmer n.d.).

The area north of the north wall on the bench is stated to be lower than the preserved top of the wall although its relation to the floor surface east of the bench is not specified (Widmer n.d.). However, based on the Str 78-2nd floor levels discovered by Widmer, it would appear that it should be at least 15 cm higher and presumably had some sort of paving.

The first possible reconstruction is that there is a single-roomed superstructure built on the southern part of the substructure. This room was entered from the south through a door whose west door jamb may have been flush with the plane of the bench retaining wall. The room had a single bench located west of the entrance. The north margin was formed by the wall found, which would have continued west to abut the east room wall.

The area north of Rm 1 is a large terrace which may have been roofed by an extension of the roof of the superstructure. It may have had some sort of furniture but there is no real evidence one way or another. There are a number of ways that this terrace could have been reached. First, Rm 1 might have had a door in its north room wall. If this wall was solid, access would have been from the north, east or west sides of the substructure, either via another staircase or by clambering up the low retaining walls.

The second version holds that a single room the same as Rm 1 described above existed but that the northern area was a second room rather than a terrace. Since in phase 2 the walls assumed to form the superstructure of Rm 1 continued north of the final-phase bench limit,

it is reasonable to assume that they were still visible and used in phase 1. Thus they would enclose another room area to the north. Again, the wall north of the bench must be assumed to have continued east to divide the two room areas. The entrance to Rm 2 would have been in this wall. The floor level of Rm 2 was probably at least 15 cm above that of Rm 1 but it is not known if it had a bench or other furniture.

The final reconstruction is that there was only one room, which encompassed all of the area north and east of the bench. In other words, Rm 1 had a small bench in its southwestern corner surrounded on its east and north by a large expanse of floor. The northern floor would have been 15 cm or more above the level of the floor due east of the bench. Support for this version is provided by the failure to find a continuation of the north wall beyond the bench face during excavation (Widmer n.d.). Furthermore, the intersection of the bench face as shown in the excavation maps suggests that the north wall was a pier or jamb wall.

This third version is the one I prefer based on my interpretation of the evidence presented by Widmer (n.d.). A continuation of the superstructure rather than a terrace seems more likely on the basis of the phase-2 walls. The assumption that there was one room rather than two seems preferable because of the lack of any wall line east of the bench face.<sup>7</sup> Whichever version is used, however, the result remains a different kind of interior arrangement than found in most rooms. Str 78 appears to be another example, along with Str 110B Rm 2 and others, of a

---

<sup>7</sup> Widmer (n.d.) does state that prior to excavating the mound, some sort of rock alignment was noticed east of the bench face but that it was not confirmed by the excavations.

room with greater floor space and correspondingly less bench space than generally found. Table 4.73 presents the associated loci.

Table 4.73: Loci Associated with Structure 9N-78

Locus	Description
2211.9	Artifacts from midden deposit at base of west wall. <ul style="list-style-type: none"> <li>• Volume: 0.8 m<sup>3</sup></li> <li>• Total number of artifacts: 215 (268.8/m<sup>3</sup>)</li> </ul> 60.9% lithic; 0.9% ground stone (1 barkbeater, 1 abrader and/or polisher); 36.7% ceramic; 1.4% bone (1 needle or pin, 2 unmodified)
2212.1	Artifacts from on top of substructure — apparently north of bench in terrace or upper floor of room. <ul style="list-style-type: none"> <li>• Volume: 0.8 m<sup>3</sup></li> <li>• Total number of artifacts: 68 (85.0/m<sup>3</sup>)</li> </ul> 48.5% lithic; 51.5% ceramic
2213.7	Artifacts from above cobble surface west of substructure (not clear how this surface should be interpreted). <ul style="list-style-type: none"> <li>• Volume: 0.8 m<sup>3</sup></li> <li>• Total number of artifacts: 144 (180.0/m<sup>3</sup>)</li> </ul> 55.6% lithic; 38.9% ceramic; 5.6% bone (1 awl, 7 unmodified)
2214.2	Artifacts from above cobble surface representing room floor and possibly bench. <ul style="list-style-type: none"> <li>• Volume: 3.4 m<sup>3</sup></li> <li>• Total number of artifacts: 315 (92.7/m<sup>3</sup>)</li> </ul> 46.3% lithic; 0.3% ground stone (1 celt); 52.7% ceramic; 0.3% bone (1 cut long bone); 0.3% other ceramic (1 candelero)
2216.3	Artifacts from above poorly defined floor between preserved section of Str 78 and edge of Central Platform. May represent part of superstructure (or terrace) of Str 78 or some sort of patio paving or apron. <ul style="list-style-type: none"> <li>• Volume: 6.2 m<sup>3</sup></li> <li>• Total number of artifacts: 2302 (371.3/m<sup>3</sup>)</li> </ul> 49.0% lithic; 0.3% ground stone (5 mano, 1 celt, 1 hollow cylinder); 0.1% stone ornament (1 jade jewelry, 1 miscellaneous worked); 49.0% ceramic; 1.3% bone (2 drilled tooth, 1 cut long bone, 27 unmodified); 0.0% shell (1 worked); 0.1% other ceramic (1 candelero, 1 flat perforated disk); 0.1% figurine

# Midden South of Structure 9N-76

A dense midden deposit was found in the space between the back wall of Str 76 and the boulder retaining wall of the Central Platform. Despite the proximity to Str 76 and the presence of a large number of burials interpreted as relating to Str 76, Widmer (n.d.) has argued that material from this area actually represents refuse from activities carried out in and around Str 78. These loci are presented in Table 4.74.

Table 4.74: Loci for the Area South of Structure 9N-76

Locus	Description
2206.9	<p>Artifacts from midden deposit between Str 76 and boulder retaining wall of Central Platform.</p> <ul style="list-style-type: none"> <li>• Volume: 7.5 m<sup>3</sup></li> <li>• Total number of artifacts: 4561 (608.1/m<sup>3</sup>)</li> </ul> <p>68.0% lithic; 0.3% ground stone (6 metate, 2 mano, 4 abrader and/or polisher, 1 doughnut stone); 0.0% stone ornament (2 pigment); 25.5% ceramic; 5.5% bone (8 awl or pick, 1 needle, 6 needle or pin, 3 tube or ring, 4 spatula, 3 cut long bone, 1 worked antler, 226 unmodified, 1 miscellaneous worked); 0.1% shell (5 unmodified); 0.2% turtle (9 unmodified); 0.1% other ceramic (1 candelero, 2 miniature vessel, 1 jewelry); 0.2% figurine; 0.1% whole ceramic vessel (1 Copador hemispherical bowl, 1 Surlo flaring-walled bowl/dish, 1 Surlo cylinder, 1 plain ladle censer)</p>
2208.3	<p>Artifacts from area between Strs 76 and 78, higher level than Locus 2206.9.</p> <ul style="list-style-type: none"> <li>• Volume: 0.3 m<sup>3</sup></li> <li>• Total number of artifacts: 72 (90.0/m<sup>3</sup>)</li> </ul> <p>62.9% lithic; 0.7% ground stone (1 metate); 23.2% ceramic; 9.9% bone (1 drilled tooth, 14 unmodified); 3.3% turtle (5 unmodified)</p>
2215.8	<p>Artifacts from area south of substructure in vicinity of Burial 20.</p> <ul style="list-style-type: none"> <li>• Volume: 0.3 m<sup>3</sup></li> <li>• Total number of artifacts: 2 (6.7/m<sup>3</sup>)</li> </ul> <p>50.0% ceramic; 50.0% bone (1 unmodified)</p>

Widmer argues that the kinds of artifacts present and the density of artifacts in the midden south of Str 76 are more like the range and density of artifacts from around Str 78 than from around Str 76. He notes specifically that the deposits of Str 78 appear to have an unusually high frequency of decorated serving vessels, obsidian blades, and grinding stones. This emphasis on serving vessels is also found, according to Widmer, in the midden south of Str 76. His conclusions appear to be based partly on field observations of both the midden south of Str 76 and of primary (midden, floor debris) and secondary (rubble, structural fill) material from Str 78 and partly on soil sample analysis.

Since the proposed association of this midden with Str 78 rather than Str 76, to which it is closer, represents a departure from the usual interpretation, I felt it was necessary to test if these impressions could be confirmed on the basis of my collection of only primary deposits. To this end, I set up a comparison of three groups of loci for all possible artifact categories. The loci were grouped according to location: 1) from inside the room of or to the west of Str 76,<sup>8</sup> 2) the midden south of Str 76, and 3) on and around Str 78. The categories<sup>9</sup> used were:

- 1) Obsidian blades.

---

<sup>8</sup> The locus west of the structure, 2205.9, is a midden deposit which Widmer feels came from Str 110C rather than Str 76, although there were substantial midden deposits behind Str 110C excavated in 1984 (Gerstle n.d.a). The actual affiliation of Locus 2205.9 does not affect its usefulness in this comparison, however, since Widmer draws a distinction between, on the one hand, Str 78 and the midden south of Str 76 and, on the other, all other Patio H deposits.

<sup>9</sup> See Chapter 5 for an explanation of these categories and their inferred functions.



- 2) All other obsidian.
- 3) All chert artifacts (including chunks).
- 4) Grinding stones (manos, metates).
- 5) Miscellaneous tools (bone needles, awls, spatulas, spindle whorls, flat perforated disks, ground-stone tools other than grinding stones, and any other similar categories).
- 6) Miscellaneous products (stone ornaments, worked bone, shell, and turtle, clay jewelry and any other categories which represent a worked or decorated item).
- 7) Miscellaneous raw material (pigment, unworked stone ornaments, unworked bone, shell, and turtle, etc.).
- 8) Cooking vessels (comals, three-pronged braziers).
- 9) Food preparation vessels (calderos, plain bowls and dishes, special jars).
- 10) Food serving vessels (fancy bowls and dishes).
- 11) Ritual-cum-food serving vessels (plates, fancy cylinders).
- 12) Ritual vessels (plain cylinders, cylindrical censers, ladle censers, lids).
- 13) Storage vessels (jar unspecified, narrow-necked, medium-necked, large-necked, straight-necked).

The locus groups were compared with one another in pairs — Strs 76 and 78, Str 76 and the midden, Str 78 and the midden — as well as all three together using the non-parametric statistics Mann-Whitney *U* (for the pairs) and Kruskal-Wallis one-way analysis of variance (for the three-way comparison). These statistics evaluate the null hypothesis that all samples examined come from the same population (Siegel 1956). The comparisons for each of the four sets of locus groups (three pairs,

one trio) were carried out first for all thirteen artifact categories. Then separate comparisons were performed for these three groupings of categories: lithic (1-3), tools/raw materials/finished products (4-7), and ceramic vessels (8-13). All these comparisons were done once using the raw artifact frequencies and again using density of artifacts per cubic meter. Calculations were carried out by the NPAR module of the SYSTAT statistical package (Wilkinson 1986).

Table 4.75 gives the resulting test statistic values and their associated probabilities. In the analysis based on frequency (raw counts) the only test resulting in a statistically significant probability, using the standard alpha of 0.05, is the one between Strs 76 and 78 for the category group consisting of the six ceramic categories. Here the probability of the Mann-Whitney *U*, under the null hypothesis of same parent population (or parent populations with identical distributions), is 0.025, which is quite small. Thus with respect to numbers of ceramic rim sherds, there does seem to be a difference in make-up between the loci associated with Str 76 (or Str 110C) and those around Str 78. In addition, it is worth noting that the comparison for this same group of categories between Str 76 and the midden yielded a statistic with a probability of 0.109. Although not statistically significant in the strict sense, this figure is quite a bit smaller than most of the other results. However, much of the apparent significance of these two tests is probably due to the fact that both Str 78 and the midden have between two and two and a half times as many ceramic rims as does Str 76 (n=580, Str 78 n=1461, midden n=1195).

The above results illustrate the problem of using frequencies when the samples are of different sizes, a question discussed more fully in

Chapter 3. Using the volume of each group of loci to standardize the artifact representation gives the results summarized in the second part of the table. With density as the basis for comparison, there were no probabilities less than or equal to 0.05. The dissimilarities with respect to ceramic vessels suggested by the first analysis show up less strongly here, although the associated probability (0.150 in both cases) is still smaller than most of the others. From an examination of the ceramic densities, it appears that the real difference among the three areas is in terms of cooking vessels and ritual forms, both of which are underrepresented in the Str 76 loci.

In fact the smallest probability in this part of the table (0.083) is obtained for Str 78 versus the midden with regard to density of the miscellaneous group (4-7). Thus, although there is weak support for rejection of the null hypothesis and some indication of differences in density of ceramic forms between Str 76 on the one hand and the midden and Str 78 on the other hand, there is even more support for the notion that *Str 78* and the midden represent different populations with respect to density of various tools, including grinding stones, finished products, and raw materials (and/or faunal bone). Str 76 is very similar to the midden (Mann-Whitney  $U = 7$ ,  $p = 0.773$ ) for this set of categories.

Finally, if one looks at either the percentage or the density of ceramics within each set of loci, the same pattern emerges in all three cases. Each set is dominated by food serving forms followed by storage forms and then food preparation forms.

In short, the statistical comparisons presented here fail to confirm the existence of the strong and clear-cut differences in arti-

fact representation or density suggested by Widmer. They do indicate a slight separation of Str 76 from the other two areas in terms of the ceramic forms present and a stronger split of Str 78 from the midden with regard to the miscellaneous group of artifact categories. On the basis of location and association with burials, I prefer to associate the midden deposits with Str 76.

Table 4.75: Mann-Whitney *U* and Kruskal-Wallis ANOVA Statistics for Loci Associated with Str 76, Str 78, and Midden South of Str 76 for Various Combinations of Artifact Categories

A. Comparison based on frequency

Categories Compared	76/78 M-W <i>U</i> (df=1)	76/Mid M-W <i>U</i> (df=1)	78/Mid M-W <i>U</i> (df=1)	76/78/Mid K-W ANOVA (df=2)
All 13	76 <i>p</i> =.663	67 <i>p</i> =.369	76 <i>p</i> =.663	0.80 <i>p</i> =.670
Lithic (1-3)	7 <i>p</i> =.275	6 <i>p</i> =.513	2 <i>p</i> =.275	1.87 <i>p</i> =.393
Miscellaneous (4-7)	10 <i>p</i> =.663	6 <i>p</i> =.564	4 <i>p</i> =.248	1.28 <i>p</i> =.526
Ceramic (8-13)	4 <i>p</i> =.025	8 <i>p</i> =.109	24 <i>p</i> =.337	5.80 <i>p</i> =.055

B. Comparison based on density

Categories Compared	76/78 M-W <i>U</i> (df=1)	76/Mid M-W <i>U</i> (df=1)	78/Mid M-W <i>U</i> (df=1)	76/78/Mid K-W ANOVA (df=2)
All 13	90 <i>p</i> =.778	70 <i>p</i> =.457	58 <i>p</i> =.174	1.65 <i>p</i> =.439
Lithic (1-3)	7 <i>p</i> =.275	6 <i>p</i> =.513	2 <i>p</i> =.275	1.87 <i>p</i> =.393
Miscellaneous (4-7)	11 <i>p</i> =.386	7 <i>p</i> =.773	2 <i>p</i> =.083	2.58 <i>p</i> =.276
Ceramic (8-13)	9 <i>p</i> =.150	9 <i>p</i> =.150	13 <i>p</i> =.423	3.13 <i>p</i> =.209

## Gr 9N-8 Patio Alpha

- Operation number: 16
- When excavated: 1983
- Excavators: Julia Hendon
- Report: Hendon et al. n.d.a
- Related excavations: Operation 17 — part of Str 65S Rm 4  
Operation 22 — Str 110B Rm 6, corridor  
between Strs 110A and B

Str 74 Rms 6 and 7, Str 65 Rms 4 and 6, Str 110B Rm 5

A set of five rooms was constructed in the area behind Strs 74 and 110A-B. Since they all face onto an open paved area and are placed in a roughly rectangular arrangement that mimics the conventional courtyard, I have designated the complex Patio Alpha. Two rooms were built on the west side up against the back wall of the substructure of Str 74. They are designated Rms 6 and 7 of that building. To the south is found a northward-facing room that abuts the rear of Str 110B and is labeled Rm 5. The north side is occupied by Rm 4 of Str 65. Rm 6 of Str 65 is a small room on the west side of Rm 4 that also abuts the north side of Rm 74-6. It is entered from the bench of Rm 4. The east side has no rooms; the rear wall of Str 110A, however, serves to close off the area. The only way in or out of Patio Alpha was through the corridor between the superstructures of Strs 110A and B. Tables 4.76 and 4.77 describe the architecture.

Rms 74-6, 74-7, and 65-4 are alike in having no front wall. They open directly onto the courtyard. In addition, each room contains a bench that fills most or all of the room space, although it should be noted that the bench of Rm 74-6 is so low it is really a raised floor.

Rm 65-4 has two more benches, the second built on the large main one, the third on the second. Rms 74-6 and 74-7 have a narrow rear ledge which, in the case of Rm 74-6, held two in situ ceramic vessels (Features 61 and 72). There is a window in the wall between the two rooms. All three rooms are of strikingly crude cobble/tuff construction, especially when contrasted with the rear walls of Strs 74 and 110A. The walls, nevertheless, were probably made entirely of stone capped by a thatched lean-to roof.

Table 4.76: Patio Alpha — Structure 9N-74 Architecture

Architectural Data	Room 6	Room 7
Orientation of room	Patio (E)	Patio (E)
Number of doors	0 <sup>a</sup>	0 <sup>a</sup>
Number of benches	1	1
Bench shape(s)	Rec	Rec
Other furniture	Ledge	Ledge
Total room area (m <sup>2</sup> )	2.8	3.8
Floor area (m <sup>2</sup> )	0.4	0.0 <sup>b</sup>
Bench area (m <sup>2</sup> )	1.7	3.0
Bench height (cm)	14	48
Ledge area (m <sup>2</sup> )	0.8	0.8
Ledge height (cm)	65	75
Construction type	T/C <sup>c</sup>	T/C
Roof type	Th <sup>d</sup>	Th
Location of plaster	-----	-----
Cordholders	No	No
Niches	No <sup>e</sup>	No <sup>e</sup>
Sculpture	No	No

<sup>a</sup> Room lacks front wall.

<sup>b</sup> Bench fills entire room.

<sup>c</sup> T = roughly shaped blocks of tuff; C = cobbles.

<sup>d</sup> Th = thatched roof.

<sup>e</sup> Window in wall between rooms.

Rm 65-6 has a more conventional plan but on a miniature scale (Hendon et al. n.d.a). It is built on top of the first bench of Rm 4 and has a well-defined doorway although there is room for only one jamb.

Rm 110B-5 is the only room, however, to resemble the majority of rooms in Gr 9N-8. It is of noticeably finer construction than its neighbors, although still inferior to Strs 110A-C. The higher bench on the west side of the room (see Table 4.77) has a niche in its front wall which contained Feature 68 (Hendon et al. n.d.a:Appendix 1; Hendon n.d.), a stone bowl and a Hastalgorro Pebble-polished hemispherical bowl, stacked one above the other. Covering the two vessels were large sherds from a Casaca Striated jar and a Reina Incised jar. A chipped and faceted (probably from use as a polisher) chert artifact, shaped like a shoe-horn, lay in front of the stack. A diverse set of artifacts was found in Rm 110B-5 above the bench along with a flexed burial (Hendon et al. n.d.a). Although these artifacts (Feature 58) may represent a later use of the room — certainly the burial must — I have included them here.

Three in situ deposits were found in Rm 74-6, two on the rear ledge and one on the bench/raised floor (Hendon et al. n.d.a:Appendix 1; Hendon n.d.). Feature 61 refers to an intact Reina Incised jar with four vertical handles sitting on the southernmost part of the ledge in the corner. Some small cobbles found around its base appeared to have been deliberately set to make the jar more secure. It was filled with lime, a great deal of which had stuck to the interior of the jar from rim to base. Feature 72 was found further along the ledge and refers to a three-pronged brazier, a Lorenzo Red caldero, and a Casaca Striated medium-necked jar. The interior of the plate of the three-pronged brazier showed signs of heavy exposure to heat. Feature 64, on the surface of the lower bench near the back of the room, consists of four broken vessels: a large Lorenzo Red caldero (maximum diameter 48 cm) burned on the lower exterior, a Reina Incised jar that had lime adhering

to its exterior and interior, and two Casaca Striated jars. There were also a few pieces of obsidian (1 flake, 3 blades) and one piece of animal bone.

Table 4.77: Patio Alpha — Structures 9N-65 and 9N-110B Architecture

Architectural Data	Str 65 Room 4	Str 65 Room 6	Str 110B Room 5
Orientation of room	Patio (S)	Other (E)	Patio (N)
Number of doors	1 <sup>a</sup>	1-to Rm 4	1
Number of benches	3	1	2 <sup>b</sup>
Bench shape(s)	Rec, rec, rec	L	Rec, rec
Total room area (m <sup>2</sup> )	10.8	2.3	5.7
Floor area (m <sup>2</sup> )	1.5	0.2	1.2
Bench area(s) (m <sup>2</sup> )	2.3, 2.5, 4.5	2.1	4.2, 0.2
Bench height(s) (cm)	50, 10, 20-45 <sup>c</sup>	10	33, 47
Construction type	T/C <sup>d</sup>	T/C	DT/T/C
Roof type	Th <sup>e</sup>	Th	Th
Location of plaster	B-1 <sup>f</sup>	----	----
Cordholders	No	No	No
Niches	No	No	1-W bench
Sculpture	No	No	No

<sup>a</sup> To Rm 6, no front walls and thus no door onto patio.

<sup>b</sup> Set perpendicular to one another, western one higher.

<sup>c</sup> Bench 3 higher at one end than at other.

<sup>d</sup> DT = dressed tuff masonry; T = roughly shaped blocks of tuff; C = cobbles.

<sup>e</sup> Th = thatched roof.

<sup>f</sup> B = bench; 1 = first bench.

The material from Rm 110B-5, Feature 58, includes the following whole or partial ceramic vessels (Hendon et al. n.d.a; Hendon n.d.): two Lorenzo Red calderos, 34 and 42 cm in diameter, one Surlo plain hemispherical bowl, one Raul Red or Cruz Incised medium-necked jar, one Casaca Striated medium-necked jar, and one Cruz Incised narrow-necked jar. In addition, thirty-eight pieces of deer bone were found. Next to the burial and resting on the bench was a curious tuff barrel-shaped object of unknown function.



Table 4.78: Loci Associated with Patio Alpha and Str 110B Rm 6

Locus	Description
1603.9	Artifacts from midden west of Str 65 Rms 4 and 6. <ul style="list-style-type: none"> <li>• Volume: 1.0 m<sup>3</sup></li> <li>• Total number of artifacts: 266 (266.0/m<sup>3</sup>)</li> </ul> 33.5% lithic; 0.8% ground stone (2 mano); 59.4% ceramic; 5.6% bone (1 awl, 14 unmodified); 0.8% other ceramic (2 perforated flat disk)
1604.2	Material from Str 65 Rm 4. <ul style="list-style-type: none"> <li>• Volume: 0.3 m<sup>3</sup></li> <li>• Total number of artifacts: 63 (210.0/m<sup>3</sup>)</li> </ul> 15.9% lithic; 74.6% ceramic; 1.6% bone (1 unmodified); 6.3% shell (4 unmodified); 1.6% whole ceramic vessel (1 foreign polychrome cylinder)
1605.2	Material from Str 65 Rm 6. <ul style="list-style-type: none"> <li>• Volume: 0.4 m<sup>3</sup></li> <li>• Total number of artifacts: 104 (260.0/m<sup>3</sup>)</li> </ul> 43.3% lithic; 1.0% ground stone (1 mano); 43.3% ceramic; 11.5% bone (1 awl, 1 tube or ring, 10 unmodified); 1.0% turtle (1 unmodified)
1721.2	Artifacts from Str 65 Rm 4 excavated in 1982, including Feature 17 (see discussion in the text). <ul style="list-style-type: none"> <li>• Volume: Not applicable</li> <li>• Total number of artifacts: 14</li> </ul> 28.6% lithic; 57.1% ceramic; 7.1% shell (1 miscellaneous worked); 7.1% whole ceramic vessel
1632.2	Features 61, 64, and 72 from Str 74 Rm 6 and adjacent artifacts. <ul style="list-style-type: none"> <li>• Volume: Not applicable</li> <li>• Total number of artifacts: 23</li> </ul> 21.7% lithic; 56.5% ceramic; 4.3% bone (1 unmodified); 17.4% whole ceramic vessels (see the discussion in the text)
1635.2	Feature 58 from Str 110B Rm 5. <ul style="list-style-type: none"> <li>• Volume: 0.3 m<sup>3</sup></li> <li>• Total number of artifacts: 67 (233.3/m<sup>3</sup>)</li> </ul> 1.5% ground stone (1 "barrel"); 32.8% ceramic; 56.7% bone (38 unmodified); 9.0% whole ceramic vessels (see the discussion in the text)

(Table 4.78, cont.)

<u>Locus</u>	<u>Description</u>
2231.2	Material from behind Str 110B and possibly inside the area of Str 110B Rm 6. <ul style="list-style-type: none"> <li>• Volume: 0.4 m<sup>3</sup></li> <li>• Total number of artifacts: 70 (175.0/m<sup>3</sup>)</li> </ul> 42.9% lithic; 2.9% ground stone (1 barkbeater, 1 pestle); 2.9% stone ornament (1 jade jewelry, 1 pigment); 47.1% ceramic; 4.3% bone (1 tube or ring, 2 unmodified)

Feature 67, a partial Casaca Striated jar, was found on the paving outside of Rm 74-7. It has been included in Locus 1601.1.

Feature 17 of Operation 17 was just above the bench of Rm 65-4. It is a Cruz Incised jar.

#### Structure 9N-110B Room 6

Another room or platform was attached to the back of Str 110B south of Patio Alpha; this was called Rm 6. It was not accessible from any of the rooms already described but could have been reached by entering the area between Strs 74 and 110 at the southern end. It was excavated as part of Operation 22 but is not described in Widmer (n.d.). Since no architectural information is available, I am unable to offer any description. One locus has been created for this room. It is given in Table 4.78 along with the loci for Patio Alpha.

#### Central Platform

Mention has been made at several points in this discussion of the Central Platform, the artificial elevated mound on which Patios A and B were built. This platform is roughly L-shaped with one arm oriented north to south. The back walls of Strs 73, 68, and 67 of Patio B are

built on the north edge of this arm with no way of descending from the surface of Patio B to the lower area to the north (Patio J).<sup>10</sup> The southern edge lies somewhere behind Str 82. The eastern edge of this arm is located between Strs 74 and 110A-C (see Hendon et al. n.d.a; Gerstle n.d.a). The perpendicular arm of the L runs east from the eastern side for an undetermined length towards the river. Its northern edge is formed by the boulder retaining wall described under Patio H.

The western side of the platform between Strs 72 and 81 and the summit area between Patios A and B were excavated in 1983 as Operation 20 (Fash n.d.). Behind Str 72, a two-terraced retaining wall runs south, eventually passing west of Str 81. A staircase built of limestone was found in the retaining wall allowing movement from the lower level, where Patios E and C lie, to the summit of the Central Platform (see Figure 4.1). Both the areas at the foot and at the top of these stairs were paved with cobbles, which were in turn covered with plaster. On the Central Platform, the plaster floor came up to the outside of the L-shaped barrier wall in the northwest corner of Patio A.

A low platform, built of two courses of limestone and referred to here as Platform B, is attached to the rear of Str 80. Its western wall is aligned with that of Str 80 and is approximately 5.0 m long. Its east-west dimension is unknown but probably exceeded 11.0 m. There was no indication of any sort of superstructure. The cobble paving of the

---

<sup>10</sup> During restoration of Str 73 in 1984, part of Rm 4 and the back wall of the main superstructure were removed to allow consolidation of the fill. This revealed a staircase inside the fill of Rm 4 which, prior to the construction of the northern three rooms, apparently led from the level of Patio C to either the terrace of Str 73-2nd or some earlier version of Rm 3 itself. The construction of the final phase of Str 73 and the addition of the northern rooms necessitated the abandonment of this means of access.

corridor ended at the northwest corner of Platform B. To the east (and north of Platform B), however, traces of a tuff-chip grouting, which usually underlies a plaster surface, indicate that this coating once existed here.

On top of Platform B was found a deposit of dark soil mixed with charcoal and burned clay which was labeled Feature 2. It covers an irregularly shaped area immediately behind Str 80 measuring some 0.6 m<sup>2</sup>.

Some of the artifacts from the corridor and Platform B have been collected into four loci. They are listed in Table 4.79.

Table 4.79: Loci Associated with the Central Platform

<u>Locus</u>	<u>Description</u>
2001.9	Dense deposits of midden-like character from corridor between Patios A and B as well as from area south and east of stairs. <ul style="list-style-type: none"> <li>• Volume: 5.2 m<sup>3</sup></li> <li>• Total number of artifacts: 551 (106.0/m<sup>3</sup>)</li> </ul> 17.8% lithic; 0.2% ground stone (1 metate); 0.2% stone ornament (1 pigment); 79.9% ceramic; 2.0% bone (11 unmodified)
2002.1	Upper levels or sparser deposits from corridor between Patios A and B. <ul style="list-style-type: none"> <li>• Volume: 27.4 m<sup>3</sup></li> <li>• Total number of artifacts: 1524 (55.6/m<sup>3</sup>)</li> </ul> 28.4% lithic; 0.3% ground stone (2 metate, 1 hammerstone, 1 abrader and/or polisher, 1 celt); 68.2% ceramic; 2.6% bone (39 unmodified); 0.2% other ceramic (2 candelero, 1 jewelry); 0.3% figurine
2003.7	Material from immediately north of Platform B. <ul style="list-style-type: none"> <li>• Volume: 0.7 m<sup>3</sup></li> <li>• Total number of artifacts: 59 (84.3/m<sup>3</sup>)</li> </ul> 25.4% lithic; 74.6% ceramic
2004.8	Material, including Feature 2, from area behind Str 80 on top of Platform B. <ul style="list-style-type: none"> <li>• Volume: 1.6 m<sup>3</sup></li> <li>• Total number of artifacts: 59 (36.9/m<sup>3</sup>)</li> </ul> 11.9% lithic; 86.4% ceramic; 1.7% bone (1 unmodified)

## Gr 9M-22 Patio A

- Operation number: 10
- When excavated: 1981
- Excavators: James Sheehy
- Report: Sheehy n.d.

This is the easternmost patio of Gr 9M-22 (see earlier discussion in this chapter and Figure 3.1 for the location of this group). It is also the largest, both in terms of courtyard space, ca. 1185.0 m<sup>2</sup>, and number of structures, seventeen (one, Str 198, unexcavated). A map of the excavated structures in Patio A appears in Figure 4.8.

The north side of the patio is occupied by Strs 242, 194A, 194B, 195B, and 195A. A short section of wall runs behind Strs 194B and 195B, closing off the widest part of the northern boundary not blocked by buildings. It was at least 2.6 m long and 50 cm high with a stucco covering. A spur of the main Sepulturas sacbe, 3.5-3.7 m wide and 30 cm high, leads up to this wall. The presence of the sacbe offshoot and the relatively low height of the wall, regardless of whether or not a perishable gate was built on top (Sheehy n.d.), suggest that the wall was intended as a means of controlling movement from sacbe to patio rather than preventing it completely. Str 243 is found next to this sacbe arm outside the patio.

On the east side are found Strs 246, 245B, 245A, 196, and 197. The first four buildings have walls connecting their substructures, impeding any passage between them. A fairly wide space was left open between Strs 196 and 197; its width suggests that it was one of the main entrance points to the patio. East of Patio A is a mostly vacant area containing only the large mound Str 9M-203.

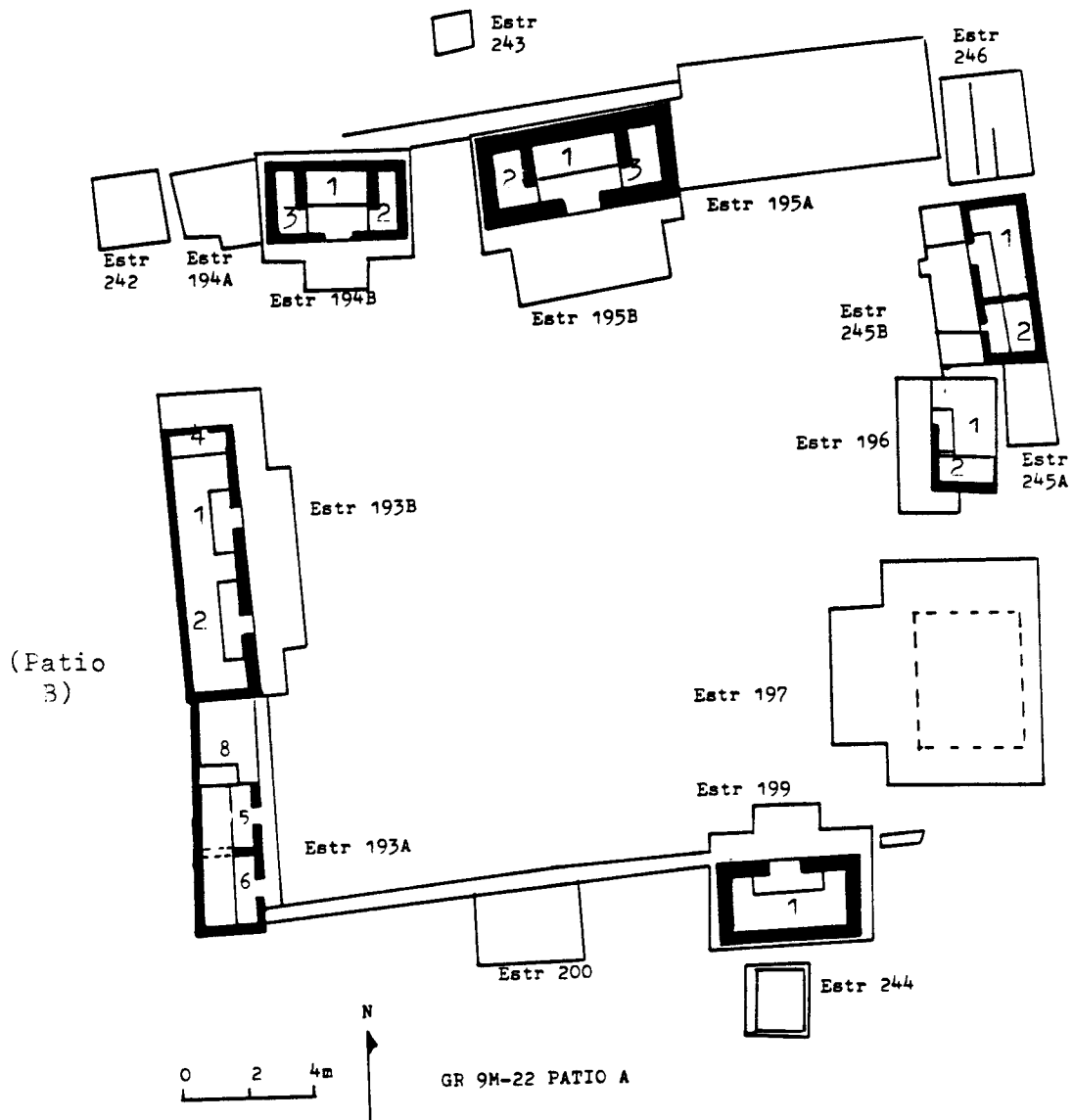


Figure 4.8: Map of Gr 9M-22 Patio A

The south side of Patio A has only Strs 199 and 200, with Str 244 lying behind Str 199 and thus, strictly speaking, outside of the courtyard. An unexcavated structure, 198, is located south and east of Str 199. A wall runs the entire length of the south side, intersecting Str 199, Str 200, and, on the west, Str 193A. Of varying height above the patio, ranging from 63 cm to an estimated 20 cm, the vertical surface on the patio side was plastered. A possible cobble ramp runs from the south up to this wall at its lowest point, west of Str 200, and may represent a way of getting down to the river, which runs south of Patio A. As with the northern wall, the presence of this ramp suggests that the southern wall was never very high and was not intended to completely bar movement in and out, although Sheehy (n.d.) has suggested that an upper section of poles was built to increase the height.

The fourth side contains Strs 193A and 193B. A fairly large space exists on the north of Str 193B between it and Str 242. It was presumably through this gap that one moved between Patio A and Patio B to the west. A platform is found west of Str 193A as well as the remains of an earlier perishable structure.

#### **Structure 9M-242**

Starting in the northwest corner, one finds a square platform built of cobbles and standing about 17 cm above the courtyard. It has a surface area of 14.4 m<sup>2</sup> with no trace of a stone superstructure. It is possible, of course, that there was a completely perishable building or ramada. Table 4.80 describes the associated locus.

Table 4.80: Locus Associated with Structure 9M-242

Locus	Description
1048.7	Artifacts on surface of platform. • Volume: 0.7 m <sup>3</sup> • Total number of artifacts: 11 (15.7/m <sup>3</sup> ) 9.1% ground stone (1 metate); 90.9% ceramic

## Structures 9M-194A and 9M-194B

Table 4.81: Structure 9M-194B Architecture

Architectural Data	Room 1	Room 2	Room 3
Orientation of room	Patio (S)	Other (W) (to Rm 1)	Other (E) (to Rm 1)
Number of doors	3	1	1
Number of benches	1	0	0
Bench shape(s)	Rec	----	----
Total room area (m <sup>2</sup> )	11.2	4.6 <sup>a</sup>	4.6 <sup>a</sup>
Floor area (m <sup>2</sup> )	4.8	4.6	4.6
Bench area (m <sup>2</sup> )	6.4	----	----
Bench height (cm)	65	----	----
Construction type	DT <sup>b</sup>	DT	DT
Roof type	V <sup>c</sup>	V	V
Location of plaster	F, W, B <sup>d</sup>	F	F
Paint	Red-W, F?, B?	Red-F	Red-F
Cordholders	?	No	No
Niches	No	No	No
Sculpture	Yes	Yes	Yes

<sup>a</sup> Floor 10 cm higher than Rm 1's.

<sup>b</sup> DT = dressed tuff masonry.

<sup>c</sup> V = vault.

<sup>d</sup> F = floor; B = bench; W = walls and/or bench face.

East of Str 242 is another platform, Str 194A, which was attached to the west side of Str 194B. Of uneven shape and a different orientation than 194B, it measures approximately 20.3 m<sup>2</sup>. There is no trace of a superstructure. In contrast, as described in Table 4.81, Str 194B is



a well-built and vaulted three-room building with some sort of sculptural decoration made out of small tuff blocks with a circular flat face (see Sheehy n.d.:Appendix 1). North of this structure is a large flat rock oriented perpendicularly to the back wall. East of the rock was found a concentration of artifacts (Feature 43) which suggests an activity area. Another concentration of material occurs on the patio in front of both buildings (Feature 4) (Sheehy n.d.). Table 4.82 gives the loci for Strs 194A and 194B.

Table 4.82: Loci Associated with Structures 9M-194A and 9M-194B

Locus	Description
1019.1	Artifacts from above patio south of Str 194A. <ul style="list-style-type: none"> <li>• Volume: 5.5 m<sup>3</sup></li> <li>• Total number of artifacts: 182 (33.1/m<sup>3</sup>)</li> </ul> 34.1% lithic; 1.6% ground stone (2 metate, 1 mano); 63.1% ceramic; 1.1% other ceramic (1 candelero, 1 flat perforated disk)
1020.7	Artifacts from surface of platform of Str 194A in eastern section. Includes Feature 10. <ul style="list-style-type: none"> <li>• Volume: 5.3 m<sup>3</sup></li> <li>• Total number of artifacts: 46 (8.7/m<sup>3</sup>)</li> </ul> 21.7% lithic; 73.9% ceramic; 4.3% other ceramic (2 candelero)
1021.3	Artifacts from surface of Str 194A in western section. <ul style="list-style-type: none"> <li>• Volume: 1.3 m<sup>3</sup></li> <li>• Total number of artifacts: 54 (41.5/m<sup>3</sup>)</li> </ul> 29.6% lithic; 70.4% ceramic
1022.7	Artifacts from area to north of Str 194B and west of short perpendicular wall. Includes Feature 43. <ul style="list-style-type: none"> <li>• Volume: 0.6 m<sup>3</sup></li> <li>• Total number of artifacts: 20 (33.3/m<sup>3</sup>)</li> </ul> 10.2% ground stone (1 metate, 1 mano); 90.0% ceramic
1023.3	Artifacts from area of stairs of Str 194B. <ul style="list-style-type: none"> <li>• Volume: 0.6 m<sup>3</sup></li> <li>• Total number of artifacts: 15 (25.0/m<sup>3</sup>)</li> </ul> 47.7% lithic; 53.3% ceramic

(Table 4.82, cont.)

Locus	Description
1024.2	Artifacts from Rm 1 Str 194B. <ul style="list-style-type: none"> <li>• Volume: 0.7 m<sup>3</sup></li> <li>• Total number of artifacts: 22 (31.4/m<sup>3</sup>)</li> <li>18.2% lithic; 81.8% ceramic</li> </ul>
1025.2	Artifacts from Rm 2 Str 194B. <ul style="list-style-type: none"> <li>• Volume: 0.6 m<sup>3</sup></li> <li>• Total number of artifacts: 2 (3.3/m<sup>3</sup>)</li> <li>100.0 ceramic</li> </ul>

### Structures 9M-195A and 9M-195B

Str 195B is identical in superstructure layout to Str 194B but is even more impressive due to a higher substructure, a wider and more projecting staircase, and larger rooms. Furthermore, it was decorated by a series of mosaic stone masks, representing jaguar faces with elaborate headdresses, attached to the exterior walls of the superstructure. In addition to these masks, four carved and tenoned heads were attached to the superstructure walls — two, a human and a jaguar head, to the front wall, one, a bat head, to the east wall, and the fourth, another human head, to the west wall (see Sheehy n.d.:Appendix 1 for more information). Table 4.83 summarizes the architectural information. Behind the building, attached to the rear wall, is a ledge or bench, measuring ca. 11.0 m long × 0.95-1.05 m wide. Standing 15-19 cm high, it was completely covered with plaster. Beyond the northwest corner of Str 195B, the ledge turns into the wall, described above, that closes off the corridor between it and Str 194B.

East of Str 195B is a large platform labeled Str 195A with an area of 91.0 m<sup>2</sup>. A large number of loose cobbles were found on the surface,

suggesting the remains of a cobble and bajareque superstructure. The platform or substructure is constructed from a mixture of dressed tuff, cut tuff, and cobbles. There is no clear evidence of a staircase for the 80-100 cm high platform, although Sheehy (n.d.) suggests there may have been one on the south or patio side, the stones of which were removed after abandonment. Since Str 195A extends as far north as the bench behind Str 195B, access may have been from that side with the bench serving as a step. Its front wall is set back from the terrace of Str 195B, making movement from the front of 195B extremely awkward even if perhaps not completely impossible. Table 4.84 presents the loci for both structures.

Table 4.83: Structure 9M-195B Architecture

Architectural Data	Room 1	Room 2	Room 3
Orientation of room	Patio (S)	Other (E) (to Rm 1)	Other (W) (to Rm 1)
Number of doors	3	1	1
Number of benches	1	0	0
Bench shape(s)	Rec	----	----
Total room area (m <sup>2</sup> )	12.7	6.1	5.4
Floor area (m <sup>2</sup> )	5.2	6.1 <sup>a</sup>	5.4 <sup>a</sup>
Bench area (m <sup>2</sup> )	7.5	----	----
Bench height (cm)	50	----	----
Construction type	DT <sup>b</sup>	DT	DT
Roof type	V <sup>c</sup>	V	V
Location of plaster	F,W,B <sup>d</sup>	F	F
Paint	Red-F,W,B	Red-F	Red-F
Cordholders	Yes	No	No
Niches	No	No	No
Sculpture	Yes <sup>e</sup>	Yes	Yes

<sup>a</sup> Floor 10 cm higher than Rm 1's.

<sup>b</sup> DT = dressed tuff masonry.

<sup>c</sup> V = vault.

<sup>d</sup> F = floor; B = bench; W = walls and/or bench face.

<sup>e</sup> On exterior of superstructure on three or four sides.

Table 4.84: Loci Associated with Structures 9M-195A and 9M-195B

Locus	Description
1026.1	Artifacts found on patio on eastern side of stairs of Str 195B. Includes Feature 3 which refers to most of the concentration. Sheehy (n.d.:Appendix B) states that several broken vessels were included in this deposit but they were not analyzed separately from the rims and thus were not classified as whole vessels. Based on the rim frequencies, there may have been a caldero, at least two Casaca jars, a comal, and a Surlo dish. <ul style="list-style-type: none"> <li>• Volume: 4.0 m<sup>3</sup></li> <li>• Total number of artifacts: 189 (47.3/m<sup>3</sup>)</li> </ul> 36.0% lithic; 11.6% ground stone (17 metate, 4 mano, 1 abrader and/or polisher); 52.4% ceramic
1028.3	Artifacts on surface of Str 195A. Could have been coded as locus type 7 since presence of superstructure not confirmed. <ul style="list-style-type: none"> <li>• Volume: 14.4 m<sup>3</sup></li> <li>• Total number of artifacts: 205 (14.2/m<sup>3</sup>)</li> </ul> 28.8% lithic; 3.4% ground stone (7 metate); 62.9% ceramic; 4.4% bone (9 unmodified); 0.5% other ceramic (1 candelero)
1029.2	Artifacts from Rm 1 Str 195B. <ul style="list-style-type: none"> <li>• Volume: 3.2 m<sup>3</sup></li> <li>• Total number of artifacts: 32 (10.0/m<sup>3</sup>)</li> </ul> 65.5% lithic; 34.4% ceramic
1030.8	Artifacts on west end of bench/ledge in back of Str 195B. <ul style="list-style-type: none"> <li>• Volume: 2.9 m<sup>3</sup></li> <li>• Total number of artifacts: 82 (28.3/m<sup>3</sup>)</li> </ul> 39.0% lithic; 1.2% ground stone (1 abrader and/or polisher); 56.1% ceramic; 1.2% other ceramic (1 spindle whorl)

#### Structure 9M-243

Str 243 is located west of the sacbe spur north of Patio A. Its west retaining wall practically touches the edge of the spur. It is very small, only 4.0 m<sup>2</sup> in area and 50 cm high, with no superstructure (Sheehy n.d.). At the base of the platform, east of the sacbe, there is a plastered surface. There are no associated loci.

## Structures 9M-196, 9M-245A, 9M-245B, and 9M-246

Table 4.85: Structures 9M-245B and 9M-246 Architecture

Architectural Data	Str 245B Room 1	Str 245B Room 2	Str 246 Room 1
Orientation of room	Patio (W)	Patio (W)	Patio (W)
Number of doors	1	1	1
Number of benches	1	2? <sup>a</sup>	1
Bench shape(s)	L	Rec, rec	Rec
Total room area (m <sup>2</sup> )	12.0-13.4	6.3	14.8
Floor area (m <sup>2</sup> )	2.8-4.2	1.0	4.7
Bench area (m <sup>2</sup> )	9.2	4.5, 0.8	10.1
Bench height (cm)	30?	?, ?	30
Construction type	T/C/B <sup>b</sup>	T/C/B	T/C/B
Roof type	Th <sup>c</sup>	Th	Th
Location of plaster	F <sup>d</sup>	----	----
Cordholders	No	No	No
Niches	No	No	No
Sculpture	No	No	No

<sup>a</sup> There may be a small bench in southwest corner of room.

<sup>b</sup> T = roughly shaped blocks of tuff; C = cobbles; B = bajareque.

<sup>c</sup> Th = Thatched roof.

<sup>d</sup> F = floor.

These four structures will be treated together. The architectural details will be found in Tables 4.85 and 4.86. Str 246, the northernmost building, is situated east of Str 195A, separated from it by only the narrowest of corridors. On the south side a wall, inset somewhat from the plane of the front wall, connects Str 246 to the north end of Str 245B, thus blocking off a possible passageway. Str 245B is the largest of the four, with two rooms. There are two benches built on the front terrace at the north and south ends. Attached to the rear part of the south wall is Str 245A, another of these platforms with no definite

traces of a building.<sup>11</sup> It has an area of approximately 11.3 m<sup>2</sup>, being wider at the south than at the north end.

Table 4.86: Structures 9M-196, 9M-197, and 9M-199 Architecture

Architectural Data	Str 196 Room 1 <sup>a</sup>	Str 197 Room 1	Str 199 Room 1
Orientation of room	Patio (W)	Patio (W)	Patio (N)
Number of doors	1	1	1
Number of benches	2	1?	1
Bench shape(s)	L, rec <sup>b</sup>	Rec	U
Total room area (m <sup>2</sup> )	14.9-15.6	13.6	16.0
Floor area (m <sup>2</sup> )	1.9	9.3	3.8
Bench area(s) (m <sup>2</sup> )	9.8, 3.6	4.3	12.3
Bench height (cm)	32, 30 est	40	30+
Construction type	DT/T/C/B <sup>c</sup>	C/B	DT
Roof type	Th <sup>d</sup>	Th	V
Location of plaster	----	----	----
Cordholders	No	No	No
Niches	No	No	No
Sculpture	No	No	No

<sup>a</sup> Combines Rms 1 and 2 of Sheehy (n.d.).

<sup>b</sup> Second bench equivalent to Rm 2.

<sup>c</sup> DT = dressed tuff masonry; T = roughly shaped blocks of tuff; C = cobbles; B = bajareque.

<sup>d</sup> V = vault; Th = thatched roof.

Str 196 is located south of Str 245B and west of Str 245A with a narrow L-shaped corridor between them. Since its surface is higher than the patio surface, a set of narrow steps was built at the western edge of the corridor projecting into the patio between Strs 245B and 196. These steps appear as well to be the only way of ascending to the summit of Str 196, since no staircase was found on the south side. A substantial midden deposit was found in the corridor. The superstructure of

---

<sup>11</sup> Sheehy (n.d.) reports finding a brick-shaped piece of burned/fired clay with stucco on one side but feels that it was more likely part of a clay oven or kiln than a wall. Despite this, he posits a bajareque superstructure based on other evidence.

Str 196 is not well preserved. Sheehy (n.d.) suggested that there were two rooms; however, the evidence seems to me to be equivocal and I have considered Rm 2 to be a second bench in Rm 1. The loci for all four structures are given in Table 4.87.

Table 4.87: Loci Associated with Structures 9M-196, 9M-245A, 9M-245B, and 9M-246

Locus	Description
1031.7	Artifacts on surface of Str 245A and in corridor between Strs 245A and 196, Strs 245B and 196. Much of deposit labeled Feature 6. <ul style="list-style-type: none"> <li>• Volume: 8.7 m<sup>3</sup></li> <li>• Total number of artifacts: 452 (52.0/m<sup>3</sup>)</li> </ul> 22.3% lithic; 1.3% ground stone (4 metate, 1 mano, 1 celt); 76.1% ceramic; 0.2% whole ceramic vessel (1 square jar or bottle, local polychrome)
1032.3	Artifacts on terrace of Str 196. <ul style="list-style-type: none"> <li>• Volume: 7.2 m<sup>3</sup></li> <li>• Total number of artifacts: 89 (12.4/m<sup>3</sup>)</li> </ul> 59.6% lithic; 3.4% ground stone (1 metate, 2 mano); 33.7% ceramic; 3.4% other ceramic (2 candelero, 1 miniature vessel)
1033.2	Artifacts from Rm 1 Str 196. <ul style="list-style-type: none"> <li>• Volume: 1.1 m<sup>3</sup></li> <li>• Total number of artifacts: 17 (15.5/m<sup>3</sup>)</li> </ul> 11.8% lithic; 82.4% ceramic
1035.2	Artifacts from Rm 1 Str 245B. <ul style="list-style-type: none"> <li>• Volume: 1.4 m<sup>3</sup></li> <li>• Total number of artifacts: 35 (25.0/m<sup>3</sup>)</li> </ul> 31.4% lithic; 62.9% ceramic; 2.9% other ceramic (1 candelero); 2.9% figurine
1036.3	Artifacts from terrace of Str 245B. <ul style="list-style-type: none"> <li>• Volume: 2.8 m<sup>3</sup></li> <li>• Total number of artifacts: 51 (18.2/m<sup>3</sup>)</li> </ul> 37.3% lithic; 3.9% ground stone (2 metate); 58.8% ceramic
1037.2	Artifacts from Rm 1 Str 246. <ul style="list-style-type: none"> <li>• Volume: 0.2 m<sup>3</sup></li> <li>• Total number of artifacts: 12 (60.0/m<sup>3</sup>)</li> </ul> 50.0% lithic; 50.0% ceramic

## Structure 9M-197

Str 197 has a high substructure, a fairly elaborate staircase, and an extremely poorly preserved superstructure. The information presented in Table 4.86 is therefore tentative. There may have been a small bench in the northeast corner of the room, although the presumed bench face may in fact be part of the structural fill (Sheehy n.d.). The associated loci are found in Table 4.88.

Table 4.88: Loci Associated with Structure 9M-197

Locus	Description
1038.1	Artifacts on patio north of stairs and west of sub-structure. <ul style="list-style-type: none"> <li>• Volume: 7.9 m<sup>3</sup></li> <li>• Total number of artifacts: 135 (17.1/m<sup>3</sup>)</li> </ul> 41.5% lithic; 0.7% ground stone (1 mano); 57.8% ceramic
1039.8	Artifacts from north and east side of structure. <ul style="list-style-type: none"> <li>• Volume: 9.0 m<sup>3</sup></li> <li>• Total number of artifacts: 283 (31.4/m<sup>3</sup>)</li> </ul> 28.3% lithic; 2.5% ground stone (5 metate, 2 mano); 69.3% ceramic
1040.8	Artifacts from south side of structure. <ul style="list-style-type: none"> <li>• Volume: 9.9 m<sup>3</sup></li> <li>• Total number of artifacts: 228 (23.0/m<sup>3</sup>)</li> </ul> 25.9% lithic; 7.5% ground stone (12 metate, 5 mano); 66.7% ceramic
1041.3	Artifacts from summit of structure. <ul style="list-style-type: none"> <li>• Volume: 24.4 m<sup>3</sup></li> <li>• Total number of artifacts: 302 (12.4/m<sup>3</sup>)</li> </ul> 39.4% lithic; 1.0% ground stone (2 metate, 1 mano); 59.3% ceramic; 0.3% other ceramic (1 perforated flat disk)
1042.1	Artifacts from patio off southwest corner of structure labeled Feature 42. <ul style="list-style-type: none"> <li>• Volume: 1.1 m<sup>3</sup></li> <li>• Total number of artifacts: 3 (2.7/m<sup>3</sup>)</li> </ul> 100.0% ground stone (3 metate)



### Structure 9M-199

Table 4.86 gives the architecture for this building. The southern boundary wall, mentioned above, intersects Str 199 near the latter's northwest and northeast corners. Thus most of the building lies behind this wall and in a sense outside the patio. Nevertheless, the only staircase is in the courtyard area. The associated loci are given in Table 4.89.

Table 4.89: Loci Associated with Structure 9M-199

Locus	Description
1044.3	Artifacts from front terrace of structure. <ul style="list-style-type: none"> <li>• Volume: 15.3 m<sup>3</sup></li> <li>• Total number of artifacts: 91 (6.0/m<sup>3</sup>)</li> <li>27.5% lithic; 8.8% ground stone (5 metate, 3 mano); 62.6% ceramic; 1.1% other ceramic (1 candelero)</li> </ul>
1045.2	Artifacts from Rm 1. <ul style="list-style-type: none"> <li>• Volume: 1.0 m<sup>3</sup></li> <li>• Total number of artifacts: 10 (10.0/m<sup>3</sup>)</li> <li>40.0% lithic; 60.0% ceramic</li> </ul>

### Structure 9M-244

Some 1 m south of Str 199 lies another small platform, 60 cm high, which is labeled Str 244. It has a surface area of approximately 12.8 m<sup>2</sup> with a set of three stairs on the west side. Construction of the platform is primarily cobbles and cut tuff with a perishable superstructure indicated by a large quantity of burned clay on the surface. There is no direct access from Str 199 to Str 244 despite their proximity. Nor would movement from Str 244 to Patio A be unimpeded or direct given its location outside the south wall. The loci are given in Table 4.90

Table 4.90: Loci Associated with Structure 9M-244

<u>Locus</u>	<u>Description</u>
1043.8	Artifacts from area east of platform. <ul style="list-style-type: none"> <li>• Volume: 1.4 m<sup>3</sup></li> <li>• Total number of artifacts: 17 (12.1/m<sup>3</sup>)</li> </ul> 29.4% lithic; 70.6% ceramic
1049.3	Artifacts from surface of platform. <ul style="list-style-type: none"> <li>• Volume: 2.7 m<sup>3</sup></li> <li>• Total number of artifacts: 12 (4.4/m<sup>3</sup>)</li> </ul> 25.0% lithic; 75.0% ceramic

## Structure 9M-200

Str 200 is located west of Str 199 and also lies south of the boundary wall. The platform, built of large cobbles and boulders, has an area of 22.4 m<sup>2</sup> and a height of 50 cm; evidence of superstructure construction is lacking. There are no steps, but the low height would make them unnecessary. To the south and west, cobble wall lines run at right angles out from the platform, enclosing an apparently rectangular area. The western one merges, after about 2 m, with a broader agglomeration of cobbles which runs, via a series of descending levels, to the south towards the Copan River. The loci are given in Table 4.91.

Table 4.91: Loci Associated with Structure 9M-200

<u>Locus</u>	<u>Description</u>
1046.8	Artifacts south of platform. <ul style="list-style-type: none"> <li>• Volume: 4.1 m<sup>3</sup></li> <li>• Total number of artifacts: 196 (47.8/m<sup>3</sup>)</li> </ul> 23.5% lithic; 2.6% ground stone (5 mano); 73.5% ceramic; 0.5% other ceramic (1 candelero)
1047.3	Artifacts from surface of platform. <ul style="list-style-type: none"> <li>• Volume: 3.6 m<sup>3</sup></li> <li>• Total number of artifacts: 53 (14.7/m<sup>3</sup>)</li> </ul> 32.1% lithic; 9.4% ground stone (5 metate); 58.5% ceramic

### Structures 9M-193A and 9M-193B

These two structures abut with Str 193B on the north and Str 193A on the south. Str 193A, narrower than its neighbor, has no staircase. Its summit was reached by stepping down from the higher terrace of Str 193B. Table 4.92 shows the room dimensions. As indicated in the table, two of the rooms, 3 and 8, are somewhat doubtful. Rm 3, according to Sheehy (n.d.), is a square area which cut into the area of the bench of Rm 5 and apparently had no entrance. If this does represent a final-phase construction, it seems more like a bin than a room. Rm 8 refers to the northern part of the building. There are no walls preserved on any side, although Sheehy (n.d.) describes an entrance from Rm 5 formed by the edge of the bench and the end of the door jamb of Rm 5 (see Figure 4.9). I have retained the room number while considering it more likely that the area was a wide section of terrace. This area, although unwallled, was, to judge from the presence of a posthole in Rm 8, probably roofed. Attached to the south end of Str 193A, outside the south boundary wall, is a small stone-walled bin (Feature 71) measuring 1.4 m E-W  $\times$  1.0 m N-S. Enclosing the bin and a cobble paving around it on the east and south sides are two rough, discontinuous wall lines. This whole area is due west of the ramp described above. The overall configuration is undefined because of the excavation limits. It is possible, however, that it relates to the construction behind Str 193A described below.

Table 4.93 describes Str 193B. This building has the staircase that serves both substructures. There is a second, very small set of stairs on the north end leading up to the wide side terrace and the

entrance to Rm 4. Beyond these stairs is the open part of the patio through which traffic probably passed to Patio B or the area behind Strs 193A and B. There may have been a room on the southern end of the structure, which Sheehy (n.d.) called Rm 7. There was no dividing wall preserved separating it from Rm 2 and no indication of an entrance. For these reasons, I have merged the area into the bench of Rm 2.

Table 4.92: Structure 9M-193A Architecture

Architectural Data	Room 3 <sup>a</sup>	Room 5	Room 6	Room 8 <sup>b</sup>
Orientation of room	?	Patio (E)	Patio (E)	Patio/Other (S-Rm 5)
Number of doors	0	2	1	1
Number of benches	0	1	1	1
Bench shape(s)	----	Rec	Rec	Rec
Total room area (m <sup>2</sup> )	2.4	7.8	11.0	13.5
Floor area (m <sup>2</sup> )	2.4	4.2	7.4	11.1
Bench area (m <sup>2</sup> )	----	3.6	3.6	2.4
Bench height (cm)	----	50	25	40
Construction type	T/C/B <sup>c</sup>	T/C/B	T/C/B	B? <sup>d</sup>
Roof type	Th <sup>e</sup>	Th	Th	Th
Location of plaster	----	----	----	F <sup>f</sup>
Cordholders	No	No	Yes? <sup>g</sup>	No
Niches	No	No	No	No
Sculpture	No	No	No	No

<sup>a</sup> May not really be a room.

<sup>b</sup> May be part of terrace rather than a room.

<sup>c</sup> T = roughly shaped blocks of tuff; C = cobbles; B = bajareque.

<sup>d</sup> Rm 8 may not have had walls.

<sup>e</sup> Th = thatched roof.

<sup>f</sup> F = floor.

<sup>g</sup> Field notes mention a cordholder found on room floor.

Dense midden deposits were found behind Strs 193B and A which continued west towards the eastern side of Patio B and Str 191N. Among the ceramics found in the midden behind Str 193A were some pieces of "non-Tohil" plumbate (see Chapter 3). Unfortunately I was forced to eliminate this deposit from my study because of the confused stratigraphy. The material west of Str 193B has been used.

Table 4.93: Structure 9M-193B Architecture

Architectural Data	Room 1	Room 2 <sup>a</sup>	Room 4
Orientation of room	Patio (E)	Patio (E)	Other (N)
Number of doors	1	1	1
Number of benches	1	1	1
Bench shape(s)	U	U	Rec
Total room area (m <sup>2</sup> )	15.6	4.9	5.3
Floor area (m <sup>2</sup> )	3.1	3.6	2.8
Bench area (m <sup>2</sup> )	12.5	1.3	2.5 est
Bench height (cm)	20	32	50 est
Construction type	T/B <sup>b</sup>	DT/T/B	DT/T/B
Roof type	Th <sup>c</sup>	Th	Th
Location of plaster	F, B <sup>d</sup>	----	B
Cordholders	Yes	No	No
Niches	No	No	No
Sculpture	No	No	No

<sup>a</sup> Combines Rms 2 and 7 of Sheehy (n.d.).

<sup>b</sup> DT = dressed tuff masonry; T = roughly shaped blocks of tuff.

<sup>c</sup> Th = thatched roof.

<sup>d</sup> F = floor; B = bench.

Behind the southern part of Str 193A and south of this midden are traces of two constructions. The first one, indicated by a pair of low cobble walls (Features 57 and 65) and a posthole (Feature 67), is interpreted as a platform, measuring 5.3 m N-S  $\times$  3.7 m E-W (19.6 m<sup>2</sup>), supporting a pole and thatch structure. The second construction, which partly covers the first and thus postdates it, is a cobble and boulder platform (Feature 64) measuring 5.3 m N-S  $\times$  4.0 m E-W (21.2 m<sup>2</sup>). A staircase or buttress (Feature 58) was attached to the east side; this was 4.1 m long N-S and 0.6 m E-W. A plastered floor (Feature 66) was found east of part of the platform; it was later covered over by a further extension of the platform (Sheehy n.d.).

Table 4.94 presents the loci associated with Strs 193A and 193B as well as from behind the buildings.

Table 4.94: Loci Associated with Structures 9M-193A and 9M-193B

Locus	Description
1002.1	Artifacts from area of patio in intersection of front walls of Strs 193A and B and continuing on in front of Str 193B. Labeled Feature 1. (see Table 4.95). <ul style="list-style-type: none"> <li>• Volume: 12.1 m<sup>3</sup></li> <li>• Total number of artifacts: 720 (59.5/m<sup>3</sup>)</li> <li>37.5% lithic; 3.6% ground stone (15 metate, 8 mano, 3 abrader and/or polisher); 58.8% ceramic; 0.1% figurine</li> </ul>
1004.7	Midden deposit on east side of Str 193A in area of platform (Feature 64) behind building. <ul style="list-style-type: none"> <li>• Volume: 4.2 m<sup>3</sup></li> <li>• Total number of artifacts: 94 (22.4/m<sup>3</sup>)</li> </ul>
1005.3	Artifacts from north part of terrace of Str 193A. <ul style="list-style-type: none"> <li>• Volume: 5.8 m<sup>3</sup></li> <li>• Total number of artifacts: 110 (19.9/m<sup>3</sup>)</li> <li>36.4% lithic; 1.8% ground stone (2 metate); 61.8% ceramic</li> </ul>
1006.3	Artifacts from terrace/southern part of Rm 8 of Str 193A. Probably should be combined with 1007.3 and 1012.2. <ul style="list-style-type: none"> <li>• Volume: 2.4 m<sup>3</sup></li> <li>• Total number of artifacts: 54 (22.5/m<sup>3</sup>)</li> <li>25.9% lithic; 74.1% ceramic</li> </ul>
1007.3	Artifacts from terrace north of Rm 8, Str 193A. Probably should be combined with 1006.3 and 1012.2. <ul style="list-style-type: none"> <li>• Volume: 0.9 m<sup>3</sup></li> <li>• Total number of artifacts: 11 (12.2/m<sup>3</sup>)</li> <li>45.5% ground stone (4 metate, 1 mano); 54.5% ceramic</li> </ul>
1008.3	Artifacts from southern part of terrace of Str 193A. <ul style="list-style-type: none"> <li>• Volume: 0.4 m<sup>3</sup></li> <li>• Total number of artifacts: 2 (5.0/m<sup>3</sup>)</li> <li>50.0% ground stone (1 metate); 50.0% ceramic</li> </ul>
1009.2	Artifacts from Rm 3 Str 193A. <ul style="list-style-type: none"> <li>• Volume: 0.6 m<sup>3</sup></li> <li>• Total number of artifacts: 15 (25.0/m<sup>3</sup>)</li> <li>26.7% lithic; 73.3% ceramic</li> </ul>
1010.2	Artifacts from Rm 5 Str 193A. Includes Features 38-40 (see discussion in the text). <ul style="list-style-type: none"> <li>• Volume: 3.2 m<sup>3</sup></li> <li>• Total number of artifacts: 6 (1.9/m<sup>3</sup>)</li> <li>100.0% ceramic</li> </ul>

(Table 4.94, cont.)

<u>Locus</u>	<u>Description</u>
1011.2	Artifacts from Rm 6 Str 193 A including Features 5 and 41 (see discussion in the text). <ul style="list-style-type: none"> <li>• Volume: 2.8 m<sup>3</sup></li> <li>• Total number of artifacts: 39 (13.9/m<sup>3</sup>)</li> <li>30.8% lithic; 64.1% ceramic; 2.6% whole ceramic vessel (1 large-necked jar, plain)</li> </ul>
1012.2	Artifacts from Rm 8 Str 193A including Features 36 and 37 (see discussion in the text). Should be combined with Locus 1007.3 and 1006.3. <ul style="list-style-type: none"> <li>• Volume: 4.0 m<sup>3</sup></li> <li>• Total number of artifacts: 71 (17.8/m<sup>3</sup>)</li> <li>4.2% lithic; 94.4% ceramic; 1.4% other ceramic (1 candelero)</li> </ul>
1013.9	Artifacts from midden deposit west of Str 193B. <ul style="list-style-type: none"> <li>• Volume: 31.8 m<sup>3</sup></li> <li>• Total number of artifacts: 1140 (35.9/m<sup>3</sup>)</li> <li>33.2% lithic; 1.0% ground stone (4 metate, 5 mano, 2 abrader and/or polisher); 65.4% ceramic; 0.3% other ceramic (2 candelero, 1 perforated flat disk); 0.2% figurine</li> </ul>
1014.8	Artifacts off northwest corner of Str 193B. <ul style="list-style-type: none"> <li>• Volume: 4.4 m<sup>3</sup></li> <li>• Total number of artifacts: 89 (20.0/m<sup>3</sup>)</li> <li>28.1% lithic; 1.1% ground stone (1 mano); 70.8% ceramic</li> </ul>
1015.3	Artifacts from front terrace of Str 193B. <ul style="list-style-type: none"> <li>• Volume: 13.4 m<sup>3</sup></li> <li>• Total number of artifacts: 288 (21.5/m<sup>3</sup>)</li> <li>46.2% lithic; 2.8% ground stone (6 metate, 2 mano); 50.3% ceramic; 0.7% other ceramic (2 candelero)</li> </ul>
1016.2	Artifacts from Rm 1 Str 193B. <ul style="list-style-type: none"> <li>• Volume: 0.3 m<sup>3</sup></li> <li>• Total number of artifacts: 5 (16.7/m<sup>3</sup>)</li> <li>100.0% ceramic</li> </ul>
1017.2	Artifacts from Rm 2 Str 193B. <ul style="list-style-type: none"> <li>• Volume: 0.5 m<sup>3</sup></li> <li>• Total number of artifacts: 26 (52.0/m<sup>3</sup>)</li> <li>38.5% lithic; 57.7% ceramic</li> </ul>
1018.2	Artifacts from Rm 4 Str 193B. <ul style="list-style-type: none"> <li>• Volume: 2.1 m<sup>3</sup></li> <li>• Total number of artifacts: 43 (20.5/m<sup>3</sup>)</li> <li>27.9% lithic; 72.1% ceramic</li> </ul>

Feature 1, which is included in Locus 1002.1, is described in Table 4.95.

Table 4.95: Feature 1 (Locus 1002.1)  
N=720

Class	Artifact Category	Quantity	% of Class
Lithic (n=270)	Chert flake core	2	0.7
	Chert chunk	14	5.2
	Chert flake	4	1.5
	Chert blade	2	0.7
	Chert projectile point	1	0.4
	Chert biface/other retouch	1	0.4
	Obsidian flake core	2	0.7
	Obsidian chunk	14	5.2
	Obsidian flake	19	7.0
	Obsidian blade	209	77.4
	Obsidian biface/other retouch	2	0.7
Ground stone (n=26)	Metate	15	57.7
	Mano	8	30.8
	Abrader and/or polisher	3	11.5
Ceramic rims (n=423)	Comal	15	3.5
	Caldero	69	16.3
	Flat-rimmed caldero	1	0.2
	Bowl/dish, fancy	3	0.7
	Straight-walled dish, plain	14	3.3
	Hemispherical bowl, plain	4	0.9
	Hemispherical bowl, fancy	23	5.4
	Flaring-walled bowl/dish, fancy	12	2.8
	Cylinder, fancy	4	0.9
	3-pronged brazier	10	2.4
	Unspecified jar, plain	97	22.9
	Restricted wide, plain	4	0.9
	Restricted wide, fancy	4	0.9
	Restricted narrow, plain	4	0.9
	Medium-necked jar, plain	134	31.7
	Narrow-necked jar, plain	23	5.4
	Lid, plain	1	0.2
	Miniature, fancy	1	0.2
Figurine (n=1)	Indeterminate manufacture	1	100.0

For Rm 5, Sheehy (n.d.:Appendix B) describes three features, 38-40, that were found in this room. Each feature number refers to one



broken ceramic vessel on the room floor. Since no more complete description of the vessels exists, I have no information on total vessel size or condition. Based on the rims present, these vessels were jars, one of unspecified rim diameter of the type Casaca Striated and two medium-necked ones — plain and indeterminate.

Features 5 and 41, found in Rm 6 of Str 193A, refer to the same deposit (Sheehy n.d.:Appendix B). This deposit consists of an Arroyo Red jar (the whole vessel in Locus 1011.2) found on the floor near the southeast corner of the bench. In addition, ceramics were found on the floor along both the south and east bench faces. These have been classified as rim sherds. Also included in this feature is an abrader or celt.

Two ceramic concentrations labeled Features 36 and 37 were found in Rm 8 along with two metate fragments, an abrader, and burned clay. Based on the rims found, the following vessels may have been present: plain medium-necked jar, unspecified or medium-necked Casaca Striated jar, and a narrow-necked Casaca Striated jar. I have no information on the type or form of these broken vessels.

#### **Patio**

The courtyard area is almost square. The entire surface was probably covered with plaster. One locus has been created to combine the lots unassociated with any specific structure and free from collapse debris (see Table 4.96).

Table 4.96: Locus Associated with Gr 9M-22 Patio A

Locus	Description
1001.1	Artifacts from patio. <ul style="list-style-type: none"> <li>• Volume: 10.3 m<sup>3</sup></li> <li>• Total number of artifacts: 181 (17.6/m<sup>3</sup>)</li> </ul> 31.5% lithic; 2.8% ground stone (5 metate); 65.2% ceramic; 0.6% other ceramic (1 candelero)

## Gr 9M-22 Patio B

- Operation number: 9
- When excavated: 1981
- Excavators: John Mallory
- Report: Mallory n.d.<sup>12</sup>

This patio is situated a short distance to the east of Patio A. It is smaller, with buildings of generally inferior construction to those of its neighbor. To the west lies Patio C and the rest of the group, all unexcavated. There are seven structures arranged around a 245.0 m<sup>2</sup> courtyard that was apparently only partially paved with cobbles (Mallory n.d.). As can be seen in Figure 4.9, two of the buildings lie somewhat outside the patio. Starting on the north, Str 241 is one of these structures. Another spur of the main sacbe, approaching Patio B from the northwest, intersects this structure before reaching the courtyard. Located east of Str 241 is Str 192, which serves to define the north side of the courtyard. Str 191N is built on the east side of the patio. The southeast corner of the building abuts Str 191W, which occupies the southern side of the courtyard. Directly behind Str 191W is a

---

<sup>12</sup> I have supplemented the rather limited descriptions in this report with observations based on the restored architecture and excavation photographs. In some cases this has led to a different interpretation from that presented by Mallory. I feel that there is justification for these alternative views, which are completely my responsibility.

large platform extension which I will call Str 191W-B. East of Str 191W-B is Str 190, the second somewhat peripheral building. Strs 189 and 240 form the west side, although the latter building actually faces south rather than onto the patio. Little attempt appears to have been made to channel or limit movement. As noted above, Strs 191N and 191W abut in the final phase. Str 190 was joined to Str 191W-B as well, blocking off a corridor between these two structures. Except for these two areas, fairly wide spaces have been left open between the structures, making movement to Patio A and C or the river to the south possible. Although the northwest corner is unbarred, the presence of Str 241 somewhat impedes access to and from the offshoot of the sacbe.

Table 4.97: Structures 9M-189 and 9M-240 Architecture

Architectural Data	Str 189 Room 1	Str 240 Room 1 <sup>a</sup>
Orientation of room	Patio (E)	Other (S)
Number of doors	1	1? <sup>b</sup>
Number of benches	1	1
Bench shape(s)	U	L
Total room area (m <sup>2</sup> )	49.7 est	14.2 est
Floor area (m <sup>2</sup> )	9.7	5.8 est
Bench area (m <sup>2</sup> )	40.0 est	8.4 est
Bench height (cm)	50?	?
Construction type	T/B <sup>c</sup>	C/B
Roof type	Th? <sup>d</sup>	Th
Location of plaster	F, W <sup>e</sup>	F?
Paint	Red-W? <sup>f</sup>	No
Cordholders	?	No
Niches	1-substr	No
Sculpture	No	No

<sup>a</sup> Based on results of restoration of structure.

<sup>b</sup> No front wall restored (preserved?) above level of floor.

<sup>c</sup> T = roughly shaped blocks of tuff; C = cobbles; B = bajareque.

<sup>d</sup> Th = thatched roof.

<sup>e</sup> F = floor; W = walls and/or bench face.

<sup>f</sup> Mallory (n.d.) reports red painted pieces of stucco which may have originally covered a vertical surface. Whether this included the walls or the bench face is not determined.

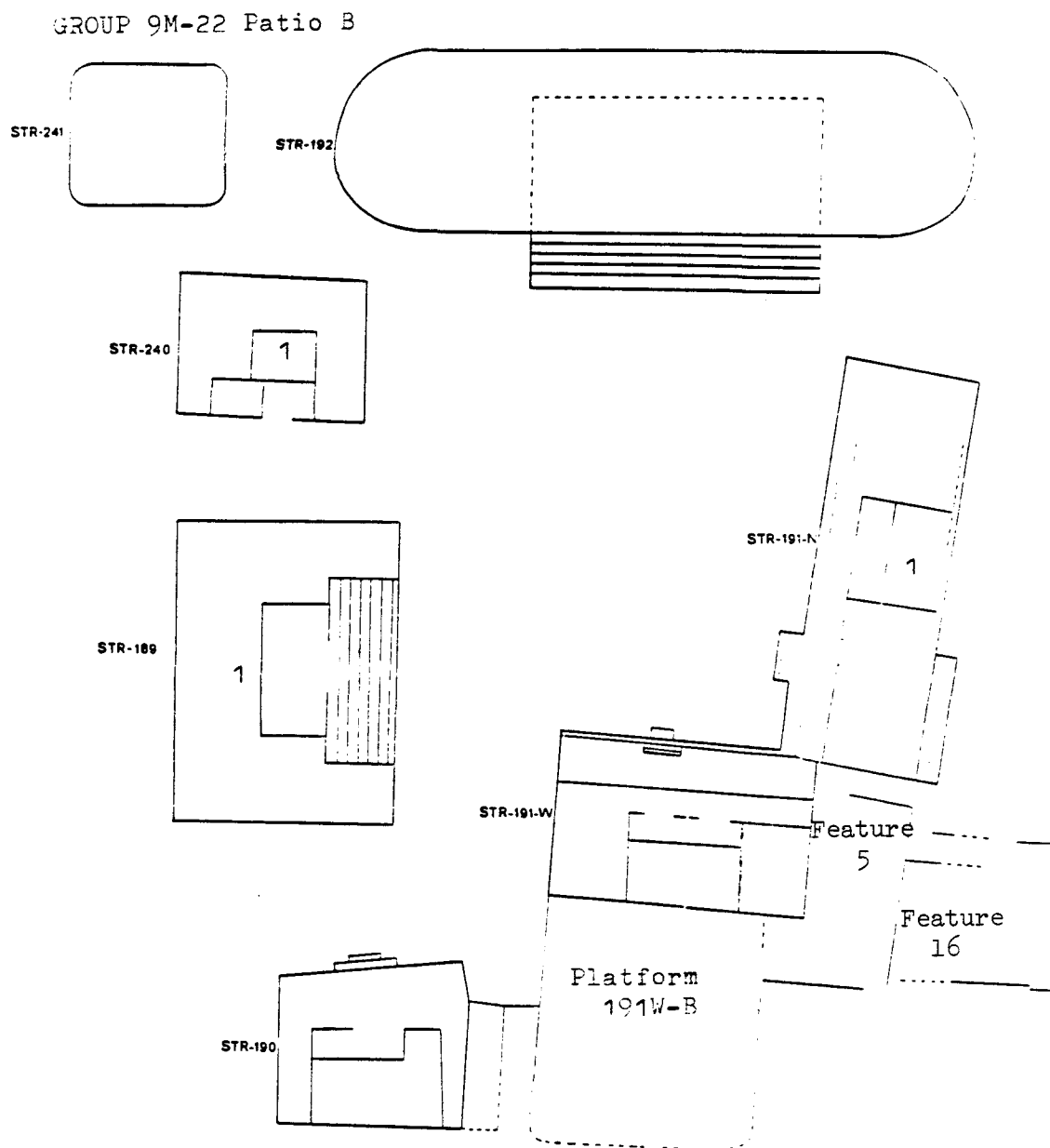


Figure 4.9: Map of Gr 9M-22 Patio B

### Structure 9M-189

Str 189 is described in Table 4.97. Despite its being the best constructed structure of the patio unit, it probably had a partially perishable superstructure. The stucco of the room floor was discolored in one area as if it has been exposed to heat. A niche was built into the front staircase near the level of the patio floor. Table 4.98 gives the associated loci.

Table 4.98: Loci Associated with Structure 9M-189

Locus	Description
0902.3	Artifacts from east side of building — may include some from patio as well as from terrace and stairs. <ul style="list-style-type: none"> <li>• Volume: 3.4 m<sup>3</sup></li> <li>• Total number of artifacts: 164 (48.2/m<sup>3</sup>)</li> </ul> 44.5% lithic; 1.8% ground stone (1 metate, 2 pestle); 51.8% ceramic; 1.8% shell (3 unmodified)
0903.2	Artifacts from Rm 1. <ul style="list-style-type: none"> <li>• Volume: 3.7 m<sup>3</sup></li> <li>• Total number of artifacts: 316 (85.4/m<sup>3</sup>)</li> </ul> 53.2% lithic; 34.2% ceramic; 0.3% bone (1 unmodified); 11.1% shell (35 unmodified); 0.9% other ceramic (1 miniature vessel, 2 jewelry); 0.3% figurines

### Structure 9M-240

This building has a very low substructure but, as indicated in Table 4.97, possessed a fairly large room. Despite its lack of height, there is a narrow one-step staircase on the south side giving access to the main terrace in front of Rm 1. West of this area is an elevated terrace which extends as far west as the plane of the west wall of the superstructure. Beyond this point, running the whole north-south length of the substructure, is another terrace whose surface is the same as

that of the main terrace.<sup>13</sup> The associated loci are listed in Table 4.99.

Table 4.99: Loci Associated with Structure 9M-240

Locus	Description
0920.3	Artifacts from terrace areas. <ul style="list-style-type: none"> <li>• Volume: 10.0 m<sup>3</sup></li> <li>• Total number of artifacts: 122 (12.2/m<sup>3</sup>)</li> </ul> 36.1% lithic; 0.8% ground stone (1 mano); 63.1% ceramic
0921.2	Artifacts from Rm 1. <ul style="list-style-type: none"> <li>• Volume: 0.1 m<sup>3</sup></li> <li>• Total number of artifacts: 66 (660/m<sup>3</sup>)</li> </ul> 7.6% lithic; 92.4% ceramic

#### Structure 9M-241

Str 241 is a platform with no apparent superstructure. Built of cobbles, it has an area of 25.3 m<sup>2</sup>. Table 4.100 gives the locus associated with this structure.

Table 4.100: Locus Associated with Structure 9M-241

Locus	Description
0922.7	Artifacts from surface of platform. <ul style="list-style-type: none"> <li>• Volume: 1.1 m<sup>3</sup></li> <li>• Total number of artifacts: 76 (69.1/m<sup>3</sup>)</li> </ul> 25.0% lithic; 73.7% ceramic; 1.3% bone (1 unmodified)

#### Structure 9M-192

Str 192 is poorly understood as to form, construction, and presence of a superstructure. Mallory (n.d.) interprets it as having an

---

<sup>13</sup> I think, based on the description in Mallory (n.d.), that the elevated terrace corresponds to his "area B", the floor of Rm 1 to his "area C", and the main terrace to his "area A".

oval or apsidal shape with no retaining walls on the north, east, or west sides. On these sides a dirt and cobble embankment covered the interior fill to create sloping sides.<sup>14</sup> There is a projecting staircase on the south side. The summit of the platform is paved with cobbles and supported, based on the evidence of pieces of burned clay, a perishable superstructure. There is no information about the layout of this building. Table 4.101 gives the associated loci.

Table 4.101: Loci Associated with Structure 9M-192

Locus	Description
0918.3	Artifacts from surface of substructure. <ul style="list-style-type: none"> <li>• Volume: 2.9 m<sup>3</sup></li> <li>• Total number of artifacts: 306 (105.5/m<sup>3</sup>)</li> <li>38.9% lithic; 0.7% stone ornament (2 jewelry); 59.8% ceramic; 0.7% other ceramic (2 candelero)</li> </ul>
0919.9	Artifacts from area north of building. <ul style="list-style-type: none"> <li>• Volume: 2.4 m<sup>3</sup></li> <li>• Total number of artifacts: 162 (67.5/m<sup>3</sup>)</li> <li>27.2% lithic; 72.8% ceramic</li> </ul>

#### Structures 9M-191N and 9M-191W

Str 191N is described in Table 4.102. The northern part of its substructure was badly destroyed, making it uncertain what, if any, sort of superstructure continuation was present there. One room was preserved, located at the northern part of the preserved section. South of this room and its terrace area to the west is a raised terrace. Its

---

<sup>14</sup> The head restorer for the project, C. Rudy Larios (personal communication 1984), suggested, based on the work done by the restoration crew on Str 192, that there had indeed been vertical retaining walls outlining a rectangular substructure but that the extreme roughness of the construction (faced cobbles) and the collapse of these walls after abandonment had complicated the excavator's interpretation.

north retaining wall abuts the front wall of the superstructure and runs approximately 1.3 m westward to the retaining wall of the lower terrace. This raised terrace is 46 cm above the level of the lower one in front of the room and has a niche built into the face measuring 26 cm wide  $\times$  60 cm deep  $\times$  35 cm high. A second elevated terrace may have existed to the north of the superstructure entrance, but the evidence for this is not as clear. Continuing south on the substructure is an even higher terrace, 34 cm above the elevated terrace described above. This higher terrace runs south to the junction with Str 191W and east to the back wall of the substructure south of the superstructure of Rm 1. Thus a large open area is created measuring 6.6 m N-S  $\times$  3.6 m E-W. This terrace was apparently built over an earlier room with two benches (Mallory's Rm C). A set of stairs is attached to the substructure opposite this open area. Access to Rm 1 may have been via these stairs and then north on the terraces with a final step down to reach the terrace outside Rm 1. However, since the surface of the substructure is much lower opposite the superstructure it may be that one stepped first onto a 30 cm wide outset terrace and then up to the top of the substructure.

Str 191W likewise has only one room in its superstructure; this is also described in Table 4.102. The substructure area to the east of this building was raised above the level of the front terrace. The nature of the substructure to the west is unknown. For this reason it is not possible to determine if the bench of Rm 1 was L-shaped or if another arm was built on the west side. Attached to the south side of Str 191W is a large platform labeled Str 191W-B. It has an estimated area of 52.5 m<sup>2</sup>. A short wall line connected it, on the west side, with the extension of Str 190 described below.



Table 4.102: Structures 9M-191N, 9M-191W, and 9M-190 Architecture

Architectural Data	Str 191N Room 1 <sup>a</sup>	Str 191W Room 1 <sup>b</sup>	Str 190 Room 1
Orientation of room	Patio (W)	Patio (N)	Patio (N)
Number of doors	1	1	1
Number of benches	1	1	1
Bench shape(s)	L	L or U	L
Total room area (m <sup>2</sup> )	10.7 est	7.3, 7.8 or 9.6 est	20.4 est
Floor area (m <sup>2</sup> )	3.0	1.8	3.0
Bench area (m <sup>2</sup> )	7.7 est	5.5, 6.0 or 7.8 est	17.4 est
Bench height (cm)	52	25	20(+?)
Construction type	T/C/B <sup>c</sup>	T/C/B	T/C/B
Roof type	Th <sup>d</sup>	Th	Th
Location of plaster	----	F/B <sup>e</sup>	----
Cordholders	No	No	No
Niches	1-terrace	No	No
Sculpture	No	No	No

<sup>a</sup> Equals Rm A/B of Mallory (n.d.).

<sup>b</sup> Combines Rms A and B of Mallory (n.d.) and follows restoration as with Str 191N. Due to the poor preservation, it could not be determined if the west part of the room was actually another bench arm. Several possible bench and room measurements are presented based on the assumption of a U or L-shaped bench and different locations of room walls.

<sup>c</sup> T = roughly shaped blocks of tuff; C = cobbles; B = bajareque.

<sup>d</sup> Th = thatched roof.

<sup>e</sup> F = floor; B = bench.

Several constructions were built in the area east of Str 191W and south of Str 191N as well as east of Str 191N. Attached to the east wall of Str 191N behind the south high terrace is a ledge or bench, Feature 15, reminiscent of the one behind Str 195B of Patio A. Feature 15 measures 4.0 m N-S × 0.9 m E-W × 40 cm high. Feature 5 is a cobble pavement or platform located east of Str 191W and south of Str 191N. It occupies an area of 24.8 m<sup>2</sup> with cobble walls on the north, east, and south sides which supported perishable walls (Mallory n.d.). In the northeast corner is found Feature 9, a set of burned limestone slabs. A

heavy midden deposit was found above the paving of Feature 5 (as well as below it). Mallory (n.d.) argues that when the Feature 5 area was first built and used, the substructures of Strs 191N and 191W were unattached, leaving a passageway open to the patio. Gradual expansion of the substructures eventually blocked off this access route; this was followed, at the end of occupation, by the filling in of the Feature 5 area. Further east is a cobble platform, Feature 16, 18.4 m<sup>2</sup>, which abuts Feature 15 on the west and Operation 10's Feature 64, the platform behind Str 193 of Patio A, on the east. The loci for both structures and the attached platforms are found in Table 4.103.

Table 4.103: Loci Associated with Structures 9M-191N and 191W and Attached Platforms

Locus	Description
0909.3	Artifacts from front terrace and north end of Str 191N. <ul style="list-style-type: none"> <li>• Volume: 9.6 m<sup>3</sup></li> <li>• Total number of artifacts: 208 (21.7/m<sup>3</sup>)</li> </ul> 33.7% lithic; 6.3% ground stone (8 metate, 5 mano); 58.7% ceramic; 1.0% bone (2 unmodified); 0.5% other ceramic (1 candelero)
0910.2	Artifacts from Rm 1 Str 191N. <ul style="list-style-type: none"> <li>• Volume: 1.7 m<sup>3</sup></li> <li>• Total number of artifacts: 41 (24.1/m<sup>3</sup>)</li> </ul> 39.0% lithic; 2.4% ground stone (1 mano); 56.1% ceramic; 2.4% bone (1 unmodified)
0911.7	Artifacts associated with Feature 16, platform east of Feature 5. <ul style="list-style-type: none"> <li>• Volume: 5.3 m<sup>3</sup></li> <li>• Total number of artifacts: 370 (69.9/m<sup>3</sup>)</li> </ul> 18.9% lithic; 1.9% ground stone (2 metate, 4 mano, 1 hammerstone); 79.2% ceramic

(Table 4.103, cont.)

Locus	Description
0912.9	<p>Artifacts from midden deposit east of Str 191N, north of Feature 15.</p> <ul style="list-style-type: none"> <li>• Volume: 28.1 m<sup>3</sup></li> <li>• Total number of artifacts: 2616 (93.1/m<sup>3</sup>)</li> </ul> <p>34.1% lithic; 0.7% ground stone (9 metate, 6 mano, 2 abrader and/or polisher, 1 bowl); 64.4% ceramic; 0.3% bone (9 unmodified); 0.1% shell (3 unmodified); 0.3% other ceramic (6 candelero, 1 perforated flat disk); 0.0% whole ceramic vessel (1 flaring-walled bowl/dish, local polychrome)</p>
0913.3	<p>Artifacts from front and side terraces of Str 191W.</p> <ul style="list-style-type: none"> <li>• Volume: 6.8 m<sup>3</sup></li> <li>• Total number of artifacts: 291 (42.8/m<sup>3</sup>)</li> </ul> <p>40.9% lithic; 1.4% ground stone (1 metate, 2 mano, 1 incensario); 55.7% ceramic; 1.0% bone (3 unmodified); 0.3% shell (1 unmodified); 0.3% other ceramic (1 candelero); 0.3% figurine</p>
0914.2	<p>Artifacts from Rm 1 Str 191W.</p> <ul style="list-style-type: none"> <li>• Volume: 0.6 m<sup>3</sup></li> <li>• Total number of artifacts: 29 (48.3/m<sup>3</sup>)</li> </ul> <p>27.6% lithic; 69.0% ceramic; 3.4% shell (1 unmodified)</p>
0915.7	<p>Artifacts from area of Feature 5 to east of Str 191W.</p> <ul style="list-style-type: none"> <li>• Volume: 1.6 m<sup>3</sup></li> <li>• Total number of artifacts: 115 (71.9/m<sup>3</sup>)</li> </ul> <p>46.1% lithic; 1.7% ground stone (1 metate, 1 abrader and/or polisher); 52.2% ceramic</p>
0916.7	<p>Artifacts from Str 191W-B.</p> <ul style="list-style-type: none"> <li>• Volume: 8.1 m<sup>3</sup></li> <li>• Total number of artifacts: 271 (33.5/m<sup>3</sup>)</li> </ul> <p>22.5% lithic; 1.5% ground stone (1 metate, 3 mano); 74.5% ceramic; 0.4% bone (1 unmodified); 0.4% shell (1 unmodified); 0.7% figurine</p>
0917.9	<p>Midden deposit east of Str 191W associated with Feature 5 and south and east of Str 191N near southern part of Feature 15.</p> <ul style="list-style-type: none"> <li>• Volume: 22.0 m<sup>3</sup></li> <li>• Total number of artifacts: 1745 (79.3/m<sup>3</sup>)</li> </ul> <p>28.6% lithic; 1.0% ground stone (6 metate, 7 mano, 3 abrader and/or polisher, 1 celt, 1 awl/punch); 67.6% ceramic; 0.5% bone (1 drilled tooth, 7 unmodified); 2.0% shell (35 unmodified); 0.2% other ceramic (3 candelero); 0.1% figurine; 0.1% whole ceramic vessel (1 narrow-necked bichrome jar)</p>

## Structure 9M-190

Table 4.104: Loci Associated with Structure 9M-190

Locus	Description
0904.3	Artifacts from terrace areas of building. <ul style="list-style-type: none"> <li>• Volume: 4.3 m<sup>3</sup></li> <li>• Total number of artifacts: 145 (33.7/m<sup>3</sup>)</li> </ul> 22.8% lithic; 1.4% ground stone (1 metate, 1 mano); 75.2% ceramic; 0.7% bone (1 unmodified)
0905.2	Artifacts from Rm 1. <ul style="list-style-type: none"> <li>• Volume: 4.1 m<sup>3</sup></li> <li>• Total number of artifacts: 28 (6.8/m<sup>3</sup>)</li> </ul> 64.3% lithic; 32.1% ceramic; 3.6% bone (1 unmodified)
0906.7	Artifacts associated with platform attached to east side of Str 190. <ul style="list-style-type: none"> <li>• Volume: 8.5 m<sup>3</sup></li> <li>• Total number of artifacts: 455 (53.5/m<sup>3</sup>)</li> </ul> 22.6% lithic; 0.9% ground stone (1 metate, 2 mano, 1 celt); 74.5% ceramic; 0.7% bone (3 unmodified); 0.2% shell (1 unmodified); 0.4% turtle (1 unmodified, 1 modified); 0.7% other ceramic (2 candelero, 1 flask)
0907.9	Artifacts from midden deposit south of building. <ul style="list-style-type: none"> <li>• Volume: 7.0 m<sup>3</sup></li> <li>• Total number of artifacts: 412 (58.9/m<sup>3</sup>)</li> </ul> 37.6% lithic; 0.2% ground stone (1 mano); 0.5% stone ornament (2 jade jewelry); 61.4% ceramic; 0.2% bone (1 unmodified)
0908.9	Artifacts from midden deposit in front of Str 190. <ul style="list-style-type: none"> <li>• Volume: 3.8 m<sup>3</sup></li> <li>• Total number of artifacts: 1026 (270.0/m<sup>3</sup>)</li> </ul> 20.5% lithic; 0.5% ground stone (3 metate, 2 mano); 77.8% ceramic; 0.3% bone (1 awl, 2 unmodified); 0.3% shell (3 unmodified); 0.4% other ceramic (4 candelero; 0.3% figurine)

The details of the single room will be found in Table 4.102. A platform with an area of 4.8 m<sup>2</sup> was added on to the southern part of the east side. It had a lower surface than the top of the substructure but probably served as additional terrace space. It is this platform which

is connected to Str 191W-B by the short wall line. Table 4.104 presents the loci.

### Patio

For the patio I have combined a number of lots into a single locus. In view of the description by Mallory (n.d.) of apparent midden deposits in front of Str 189 and possibly elsewhere, it would have been preferable to divide them into separate loci on the basis of structural association. This proved to be impossible for two reasons: the extreme brevity of the lot descriptions, which often did not mention the associated structure, and the lack of a site map with the excavation grid superimposed on the architectural plans. Table 4.105 presents the locus.

Table 4.105: Locus Associated with Gr 9M-22 Patio B

<u>Locus</u>	<u>Description</u>
0901.1	<p>Artifacts from patio area near all structures as well as more towards center.</p> <ul style="list-style-type: none"> <li>• Volume: 90.8 m<sup>3</sup></li> <li>• Total number of artifacts: 3919 (43.2/m<sup>3</sup>)</li> </ul> <p>44.2% lithic; 0.7% ground stone (13 metate, 12 mano, 1 hammerstone, 2 abrader and/or polisher, 1 celt); 0.0% stone ornament (1 jade jewelry); 54.2% ceramic; 0.3% bone (10 unmodified); 0.2% shell (9 unmodified); 0.3% other ceramic (6 candelero, 3 flask, 1 miniature vessel, 1 jewelry); 0.1% figurine</p>

## Gr 9M-24

- Operation number: 18
- When excavated: 1982-1983
- Excavators: Saúl Murillo
- Report: Murillo n.d.

This is the final Sepulturas group excavated by PAC II. It has only one patio, around which are arranged five structures (see Figure 4.10). The courtyard area, measuring ca. 180 m<sup>2</sup>, was at least partially paved with cobbles. It may also have had a plaster coating, since a tuff chip grouting was found in certain squares; this grouting usually underlies a plaster floor. The west side is defined by Str 211, which however does not face onto the patio. On the north are Strs 248 and 247, neither of which was noted by the Harvard Project's survey. Str 213 defines the east side. To the south, Str 212 occupies the eastern part of the side. The open area west of this building probably represents the main entrance and exit route for the occupants of the group. All the buildings have low substructures, so low in fact that staircases were not needed to enable passage from the patio level to the terrace level. In addition, they are marked by ample terrace space around their superstructures. The architecture was probably a combination of stone bases supporting wattle and daub walls. As a result, the wall lines, bench faces, and doorways are not always obvious, making the reconstruction of the architectural details somewhat tentative. This group is the only one with no evidence of sculpture or paint.

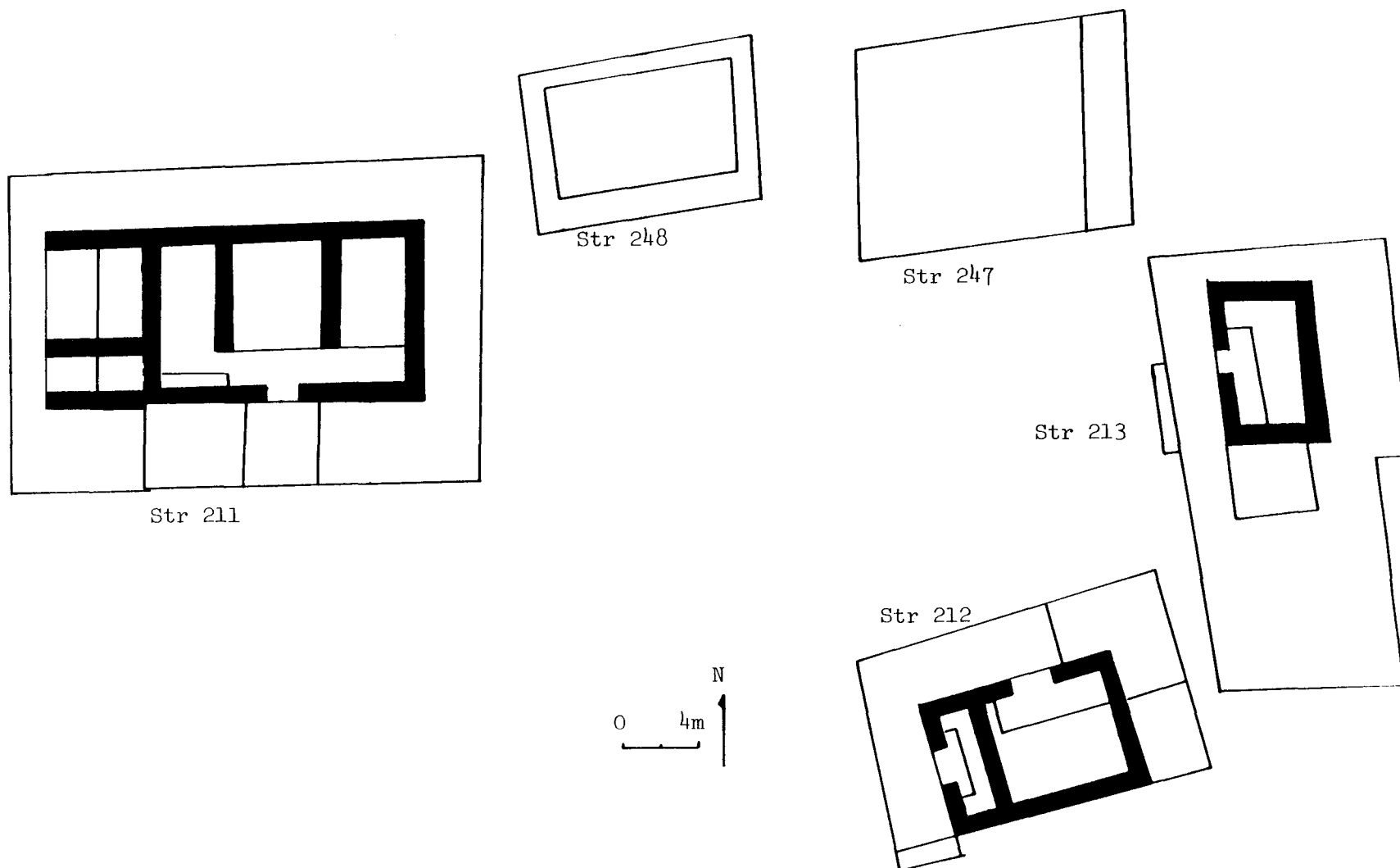


Figure 4.10: Map of Gr 9M-24

## Structure 9M-211

Table 4.106: Structure 9M-211 Architecture

Architectural Data	Room 1	Room 2	Room 3
Orientation of room	Other (S)	Other (W)	Other (W)
Number of doors	1	1	?
Number of benches	2	1	1
Bench shape(s)	Rec, rec	Rec	Rec
Other furniture	Ledge	----	----
Total room area (m <sup>2</sup> )	18.5	3.3	2.6
Floor area (m <sup>2</sup> )	8.7	1.1	0.6
Bench area(s) (m <sup>2</sup> )	5.2, 3.8	2.2	1.4
Bench height(s) (cm)	56, 38	?	?
Ledge area (m <sup>2</sup> )	0.8	----	----
Ledge height (cm)	?	----	----
Construction type	T/C <sup>a</sup>	T/C	T/C
Roof type	Th <sup>b</sup>	Th	Th
Location of plaster	----	----	----
Cordholders	Yes	No	No
Niches	1 (east raised terrace)		
Sculpture	No	No	No

<sup>a</sup> T = roughly shaped blocks of tuff; C = cobbles.

<sup>b</sup> Th = thatched roof.

As mentioned above, this eastern structure faces south rather than westward onto the patio. It was the best-built of the five and is described in Table 4.106. The presence of cordholders in Rm 1 suggests that Str 211 had walls made completely of stone. In front of the superstructure, flanking the entrance to Rm 1, are two elevated terraces or benches, the eastern one of which has a niche built into its west retaining wall. This arrangement is similar to that described for Str 191N of Gr 9M-22 Patio B. The superstructure has one large room facing south, Rm 1, and two small ones on the west side. The bench and side walls of Rms 2 and 3 are fairly well defined but the west room wall is not. It is possible that these two rooms in fact had no west or front



wall at all. Rm 1 has two bench areas created by the construction of a dividing wall on what is in reality a single free-standing bench. The floor area is L-shaped with a side arm west of the bench. There is also a small ledge built against the south wall west of the entrance. Table 4.107 lists the associated loci.

Table 4.107: Loci Associated with Structure 9M-211

Locus	Description
1805.1	Artifacts from south and southwest of building. <ul style="list-style-type: none"> <li>• Volume: 6.0 m<sup>3</sup></li> <li>• Total number of artifacts: 941 (156.8/m<sup>3</sup>)</li> <li>38.4% lithic; 0.2% ground stone (1 metate, 1 pestle);</li> <li>61.4% ceramic</li> </ul>
1806.9	Artifacts from midden deposit south of building. <ul style="list-style-type: none"> <li>• Volume: 4.0 m<sup>3</sup></li> <li>• Total number of artifacts: 344 (86.0/m<sup>3</sup>)</li> <li>30.2% lithic; 1.2% ground stone (4 metate); 68.6% ceramic</li> </ul>
1807.4	Artifacts from Rm 1 or terrace. <sup>15</sup> <ul style="list-style-type: none"> <li>• Volume: 0.4 m<sup>3</sup></li> <li>• Total number of artifacts: 77 (192.5/m<sup>3</sup>)</li> <li>100.0% lithic</li> </ul>
1808.4	Artifacts from Rms 1 and 2 and north, south, and east terraces. <ul style="list-style-type: none"> <li>• Volume: 35.5 m<sup>3</sup></li> <li>• Total number of artifacts: 108 (3.0/m<sup>3</sup>)</li> <li>7.4% lithic; 92.6% ceramic</li> </ul>
1809.8	Artifacts from west of structure. <ul style="list-style-type: none"> <li>• Volume: 6.8 m<sup>3</sup></li> <li>• Total number of artifacts: 200 (29.4/m<sup>3</sup>)</li> <li>21.5% lithic; 0.5% ground stone (1 metate); 77.0% ceramic; 1.0% figurine</li> </ul>

---

<sup>15</sup> The excavator did not distinguish material from inside and outside the rooms in his field notes.

## Structure 9M-248

Table 4.108: Structures 9M-247 and 9M-248 Architecture

Architectural Data	Str 247 Room 1	Str 248 Room 1	Str 248 Room 2
Orientation of room (S)	Other? (W?)	Patio? (S)	Patio?
Number of doors	?	?	1?
Number of benches	0	0	0
Bench shape(s)	----	----	----
Total room area (m <sup>2</sup> )	18.5	2.6	2.0
Floor area (m <sup>2</sup> )	18.5	2.6	2.0
Bench area (m <sup>2</sup> )	----	----	----
Bench height (cm)	----	----	----
Construction type	C/B <sup>a</sup>	C/B	C/B
Roof type	Th <sup>b</sup>	Th	Th
Location of plaster	----	----	----
Cordholders	No	No	No
Niches	No	No	No
Sculpture	No	No	No

<sup>a</sup> C = cobbles; B = bajareque.

<sup>b</sup> Th = thatched roof.

Northeast of Str 211 is Str 248, which is described in Table 4.108. It appears to have a superstructure consisting of two small, benchless rooms that probably faced south. Table 4.109 presents the loci.

Table 4.109: Loci Associated with Structure 9M-248

Locus	Description
1826.1	Artifacts from patio south of structure. <ul style="list-style-type: none"> <li>• Volume: 2.0 m<sup>3</sup></li> <li>• Total number of artifacts: 293 (146.5/m<sup>3</sup>)</li> <li>99.3% lithic; 0.7% ground stone (2 metate)</li> </ul>
1827.9	Artifacts from midden deposit south of structure. <ul style="list-style-type: none"> <li>• Volume: 5.6 m<sup>3</sup></li> <li>• Total number of artifacts: 575 (102.7/m<sup>3</sup>)</li> <li>1.0% lithic; 98.4% ceramic; 0.2% bone (1 unmodified);</li> <li>0.2% other ceramic (1 candelero); 0.2% figurine</li> </ul>

(Table 4.109, cont.)

<u>Locus</u>	<u>Description</u>
1828.4	Artifacts from rooms and/or terraces. <ul style="list-style-type: none"> <li>• Volume: 3.6 m<sup>3</sup></li> <li>• Total number of artifacts: 134 (37.2/m<sup>3</sup>)</li> </ul> 1.5% lithic; 98.5% ceramic
1829.8	Artifacts from patio east of structure. <ul style="list-style-type: none"> <li>• Volume: 0.8 m<sup>3</sup></li> <li>• Total number of artifacts: 136 (170.0/m<sup>3</sup>)</li> </ul> 97.1% lithic; 2.9% ceramic

**Structure 9M-247**

This eastern neighbor of Str 248 is also presented in Table 4.108. The reconstruction of the room is based primarily on the presence of what seems to be a double-faced cobble wall on the west side with an apparent break interpreted as a doorway. If there was indeed a room here it is unusual both in being fairly large and in having no bench or interior furniture. Given the poor preservation, however, the possibility of a bench cannot be completely ruled out. A possible hearth was found near the southeast corner of the building. The associated loci are found in Table 4.110

Table 4.110: Loci Associated with Structure 9M-247

<u>Locus</u>	<u>Description</u>
1822.9	Artifacts from midden deposit south of structure. <ul style="list-style-type: none"> <li>• Volume: 3.6 m<sup>3</sup></li> <li>• Total number of artifacts: 821 (228.1/m<sup>3</sup>)</li> </ul> 63.6% lithic; 0.2% ground stone (2 metate); 35.8% ceramic; 0.2% other ceramic (1 flask, 1 jewelry); 0.1% figurine
1823.8	Artifacts from eastern side of structure. <ul style="list-style-type: none"> <li>• Volume: 0.4 m<sup>3</sup></li> <li>• Total number of artifacts: 43 (107.5/m<sup>3</sup>)</li> </ul> 69.8% lithic; 30.2% ceramic

(Table 4.110, cont.)

Locus	Description
1824.2	Artifacts from Rm 1. <ul style="list-style-type: none"> <li>• Volume: 9.6 m<sup>3</sup></li> <li>• Total number of artifacts: 1100 (114.6/m<sup>3</sup>)</li> </ul> 17.7% lithic; 0.2% ground stone (1 metate, 1 mano); 81.5% ceramic; 0.5% other ceramic (5 candelero, 1 miniature vessel); 0.1% figurine
1825.2	Artifacts, mainly lithics, in Rm 1 or on east terrace. <ul style="list-style-type: none"> <li>• Volume: 0.8 m<sup>3</sup></li> <li>• Total number of artifacts: 46 (57.5/m<sup>3</sup>)</li> </ul> 91.3% lithic; 8.7% ceramic

## Structure 9M-213

Table 4.111: Structures 9M-212 and 9M-213 Architecture

Architectural Data	Str 213 Room 1	Str 212 Room 1	Str 212 Room 2
Orientation of room	Patio (W)	Patio (N)	Other (W)
Number of doors	1	1	1
Number of benches	1	1	1
Bench shape(s)	L	L	U
Total room area (m <sup>2</sup> )	5.8	8.3	2.6
Floor area (m <sup>2</sup> )	1.6	2.3	0.5
Bench area (m <sup>2</sup> )	4.2	6.0	2.1
Bench height (cm)	36+	39	42
Construction type	C/B <sup>a</sup>	T/C/B	T/C/B
Roof type	Th <sup>b</sup>	Th	Th
Location of plaster	----	----	----
Cordholders	No	?	?
Niches	No	No	No
Sculpture	No	No	No

<sup>a</sup> T = roughly shaped blocks of tuff; C = cobbles; B = bajareque.

<sup>b</sup> Th = thatched roof.

Table 4.111 gives the architectural information for the super-structure of Str 213. Although a second room was identified by Murillo (n.d.) south of Rm 1 and a third one further south yet, there is no

evidence of room walls. I believe the areas in question are better interpreted as a series of three terraces, decreasing in height as one moves away from the superstructure. Table 4.112 gives the loci for this building.

Table 4.112: Loci Associated with Structure 9M-213

Locus	Description
1815.1	Artifacts from patio area west of building. <ul style="list-style-type: none"> <li>• Volume: 2.4 m<sup>3</sup></li> <li>• Total number of artifacts: 142 (591.7/m<sup>3</sup>)</li> </ul> 78.2% lithic; 5.6% ground stone (1 celt, 7 doughnut stone); 16.2% ceramic
1816.9	Artifacts from midden deposit south of building. <ul style="list-style-type: none"> <li>• Volume: 1.2 m<sup>3</sup></li> <li>• Total number of artifacts: 174 (145.0/m<sup>3</sup>)</li> </ul> 51.7% lithic; 47.7% ceramic; 0.6% figurine
1817.8	Artifacts north and east of building. <ul style="list-style-type: none"> <li>• Volume: 0.8 m<sup>3</sup></li> <li>• Total number of artifacts: 267 (333.8/m<sup>3</sup>)</li> </ul> 82.8% lithic; 17.2% ceramic
1818.4	Artifacts from Rm 1 and side or front terraces. <ul style="list-style-type: none"> <li>• Volume: 2.4 m<sup>3</sup></li> <li>• Total number of artifacts: 68 (28.3/m<sup>3</sup>)</li> </ul> 100.0% ceramic
1819.4	Artifacts from Rm 1 or west terrace. <ul style="list-style-type: none"> <li>• Volume: 6.4 m<sup>3</sup></li> <li>• Total number of artifacts: 199 (31.1/m<sup>3</sup>)</li> </ul> 6.5% lithic; 0.5% ground stone (1 metate); 92.5% ceramic; 0.5% bone (1 unmodified)
1820.3	Artifacts on front terrace, southern part of sub-structure. <ul style="list-style-type: none"> <li>• Volume: 0.4 m<sup>3</sup></li> <li>• Total number of artifacts: 18 (45.0/m<sup>3</sup>)</li> </ul> 94.4% lithic; 5.6% ceramic
1821.2	Artifacts from southern terrace (should have been coded as locus type 3). <ul style="list-style-type: none"> <li>• Volume: 0.4 m<sup>3</sup></li> <li>• Total number of artifacts: 5 (12.5/m<sup>3</sup>)</li> </ul> 20.0% ground stone (1 abrader and/or whetstone); 80.0% ceramic

## Structure 9M-212

The final building in Gr 9M-24 has two rooms, described in Table 4.111. There is an elevated terrace on the front and side of the sub-structure east of the entrance of Rm 1. The loci are given in Table 4.113.

Table 4.113: Loci Associated with Structure 9M-212

Locus	Description
1810.1	Artifacts from patio area north of structure. <ul style="list-style-type: none"> <li>• Volume: 1.6 m<sup>3</sup></li> <li>• Total number of artifacts: 520 (331.3/m<sup>3</sup>)</li> </ul> 90.6% lithic; 0.2% ground stone (1 mano); 9.2% ceramic
1811.9	Artifacts from midden deposit south and west of building. <ul style="list-style-type: none"> <li>• Volume: 4.8 m<sup>3</sup></li> <li>• Total number of artifacts: 1989 (414.4/m<sup>3</sup>)</li> </ul> 76.5% lithic; 0.3% ground stone (4 metate, 1 mano, 1 abrader and/or polisher); 23.1% ceramic; 0.1% figurine
1812.8	Artifacts from area west of structure. <ul style="list-style-type: none"> <li>• Volume 2.4 m<sup>3</sup></li> <li>• Total number of artifacts: 852 (355.0/m)</li> </ul> 88.6% lithic; 0.5% ground stone (2 mano, 2 yoke); 10.7% ceramic; 0.1% other ceramic (1 candelero); 0.1% figurine
1813.3	Artifacts from terrace north of Rm 1. <ul style="list-style-type: none"> <li>• Volume: 0.8 m<sup>3</sup></li> <li>• Total number of artifacts: 42 (52.5/m<sup>3</sup>)</li> </ul> 71.4% lithic; 28.6% ceramic
1814.4	Artifacts from Rm 1 or on terrace. <ul style="list-style-type: none"> <li>• Volume: 1.2 m<sup>3</sup></li> <li>• Total number of artifacts: 211 (175.8/m<sup>3</sup>)</li> </ul> 100.0% lithic

## Patio

Artifacts from the courtyard area which were not associated with any particular structure have been gathered into four loci on the basis of their location. They are presented in Table 4.114.

Table 4.114: Loci Associated with Gr 9M-24 Patio

Locus	Description
1801.9	<p>Artifacts from a midden deposit in the eastern part of the patio area.</p> <ul style="list-style-type: none"> <li>• Volume: 8.8 m<sup>3</sup></li> <li>• Total number of artifacts: 1868 (212.3/m<sup>3</sup>)</li> </ul> <p>34.3% lithic; 0.2% ground stone (1 hammerstone, 2 abrader and/or polisher); 65.5% ceramic; 0.1% other ceramic (1 jewelry); 0.1% figurine</p>
1802.9	<p>Artifacts from a midden deposit in the central part of the courtyard.</p> <ul style="list-style-type: none"> <li>• Volume: 2.0 m<sup>3</sup></li> <li>• Total number of artifacts: 247 (123.5/m<sup>3</sup>)</li> </ul> <p>98.8% lithic, 0.8% ground stone (1 mano, 1 abrader and/or polisher); 0.4% ceramic</p>
1803.1	<p>Artifacts from western part of patio.</p> <ul style="list-style-type: none"> <li>• Volume: 0.8 m<sup>3</sup></li> <li>• Total number of artifacts: 128 (160.0/m<sup>3</sup>)</li> </ul> <p>99.2% lithic; 0.8% ceramic</p>
1804.1	<p>Artifacts from south to central part of patio.</p> <ul style="list-style-type: none"> <li>• Volume: 3.6 m<sup>3</sup></li> <li>• Total number of artifacts: 525 (145.8/m<sup>3</sup>)</li> </ul> <p>99.4% lithic; 0.6% ceramic</p>

## CHAPTER 5

### ANALYSIS OF ARTIFACTS AND THEIR FUNCTIONS

From the description of the location and content of the individual loci in the preceding chapter, it is evident that there is a large quantity of artifacts from primary contexts dispersed throughout the three groups under study. However, if artifacts are to be used as the basis for inferring the presence of activities of particular kinds, the question of how the functions of artifacts are to be determined must be addressed. That is the purpose of this chapter.

There are obviously many possible ways to classify artifacts. Classification systems emphasizing form, style, material, or, more broadly, function, chronology, aesthetics, or technology have all been popular. (See Brew 1946; Rouse 1960; Shepard 1956:224-305; Spaulding 1953; Ericson and Stickel 1973; Doran and Hodson 1975; Clarke 1978.) The PAC system, discussed briefly in Chapter 3, was based on a mixture of criteria of various kinds. Some of the categories were clearly oriented towards artifact function (mano, awl, blade, comal). Others made reference to established types, usually distinguished on the basis of decoration, or were descriptive (Copador, polished incised bone, stone cylinder, cross-grooved stone). Still other categories were oriented towards technology and production; this applies especially to the lithic categories (obsidian or chert core, obsidian fine versus irregular pressure blade). A number of categories were added over the course of the project in response to the finding of new kinds of artifacts or differences of opinion as to classification.



PAC analysis involved two main steps. First the analyst examined an artifact and recorded information on forms providing a standardized set of categories which depended on the particular class of artifacts. The classes of artifacts used were: lithics, ground stone, stone ornaments, bone, shell, turtle or tortoise shell, other ceramic artifacts, and figurines. Pottery vessels were divided into ceramic rims, bodies, handles, support, and whole vessels. In general terms, the important attributes of the artifacts were material, form or type (both for ceramic vessels), condition, and use. Weight or measurements were recorded for some classes. The second step was translation of this information into coded form for entry into the computer databank. For each artifact, a databank record was created. A record consisted of a series of independent fields usually one or two columns wide. Each field corresponded to a specified attribute or set of attributes such as raw material, form, or ceramic type. The actual value of each attribute of the artifact was expressed by a numeric code in the appropriate field. This system allows the recording of a great variety of data for any particular artifact and reflects the desire to create as broadly based a system as possible. It also means that there are, in theory, a tremendous number of possible combinations for any particular artifact class.<sup>1</sup>

Since my study considers a specific question, I needed a classification system focused on that problem. Therefore it was not only

---

<sup>1</sup> As an example, there are the following fields for ceramic sherds: a) form (30 possible codes), b) type (88 possible codes), c) variety (100 possible codes), d) rim diameter (9 possible codes), and e) quantity. This creates, leaving aside quantity,  $30 \times 88 \times 100 \times 9$  or 2,376,000 theoretically possible unique combinations.

unnecessary but also undesirable to take too reverent an attitude towards the databank as originally created. As Dunnell (1971:117) has written,

If classifications of any kind are to be devices useful in constructing explanations...they must be capable of evolution, susceptible to change. In short, they must be hypotheses about the ordering of data for a specific problem. Only if a specific problem is stated can the choice of definitive criteria be tested in ordinary scientific fashion as an hypothesis.... To expect that the same set of classes defined by criteria relevant to use will prove the most useful for chronology is foolish.

In order to accomplish this necessary translation of the PAC II databank into one designed for the problems under investigation here, a critical review of the existing categories was undertaken to identify those most useful to the identification of activities and those of ambiguous interpretation. For certain of the classes of low frequency, the simplest solution turned out to be examination and reclassification of the items themselves. This was done for worked bone,<sup>2</sup> other ceramic artifacts, figurines, some ground stone, and whole ceramic vessels. These combinations, eliminations, and reclassifications plus the selection of only primary contexts resulted in the creation of the Artifact Distribution Database containing only the specific information relevant to my study. It is from this database that the discussion of artifact distribution is derived. Because not all excavation lots are included, some types of artifacts present in the PAC II databank are not found in mine. The following discussion of artifact categories, therefore, will be confined to only those actually present in the loci used here.

---

<sup>2</sup> For this class I have used the reclassification produced by Andrea Gerstle in 1984. I am solely responsible for the use I have made of her typology here.

However, in order to give a better idea of the dimensional variation of certain kinds of artifacts, such as bone tools, measurements from all excavated examples of the particular type of artifact, from whatever context, have been utilized.

The rest of the chapter considers the functions assignable to the artifacts. This will be done in two ways. The first approach concentrates on the individual categories and their possible functional meaning. Each artifact class will be considered in turn. The question of function is addressed mainly by looking for formal similarities between the excavated artifacts and utensils of known function used by ethnographic groups. Also part of this descriptive and analytic discussion will be a brief characterization of the actual representation of the various categories in the Artifact Distribution Database.

The second approach to artifact function analyzes patterns of co-occurrence among categories in the Artifact Distribution Database as a whole. Two kinds of co-occurrence were defined in Chapter 3: physical and statistical. Both sorts of association will be examined here. The purpose of these studies is to contribute to the definition of activity sets and the confirmation and refinement of the attributions of functions to artifacts based on analogic reasoning. The implications of these co-occurrences for the determination of structure use will be discussed in Chapter 6.

The groupings to be proposed have been deliberately referred to as *categories*. Although it would be possible to consider them polythetic functional types (Clarke 1978:35-37; Steward 1954; Bailey 1973), the widespread use of the word *type* to refer to groups based on decorative attributes, its often monothetic definition, and the term's important

place in the type-variety system of ceramic classification (Gifford 1976) make the use of the term *category* preferable in order to avoid possible confusion. In this study *type* will be used exclusively to refer to the ceramic groups defined on the basis of surface treatment and decorative features, some of which were listed earlier in the discussion of the Coner phase.<sup>3</sup>

### DISCUSSION OF ARTIFACT CLASSES

Each class of artifacts will be presented in turn. For each class the categories into which the class is divided, the possible functions served by the artifacts, and the representation of the class in the Artifact Distribution Database will be discussed.

#### Lithics (Class 01)

##### *Categories*

The categories of lithics are shown in Table 5.1.

---

<sup>3</sup> This is not meant to imply that the Copan typology necessarily follows the type-variety system. Viel (1983:501) describes his method as follows: "Para la clasificación de la cerámica de Copán en su fase preliminar se adoptó una base tipológica diferente del sistema 'tipo-variedad'.... La tipología fue por lo tanto establecida según una jerarquía de criterios elástica que hacía resaltar los atributos de superficie y de decoración. Los atributos de pasta y forma fueron tomados en cuenta sólo cuando eran verdaderamente distintivos..." Some of the terminology in the ceramic lists appears to relate to the type-variety system. Until Viel publishes the results of his work on the Phase II material, however, the statement in the Phase I publication stands as the formal definition of his approach.

Table 5.1: Categories for Lithic Artifacts

Chert flake core
Chert blade core
Chert chunk
Chert flake, unspecified
Chert large core preparation flake
Chert other flake (non-core preparation)
Chert blade
Chert projectile point
Chert biface or other retouch
Chert core, unspecified
Chert eccentric
Obsidian flake core
Obsidian blade core
Obsidian chunk
Obsidian large core preparation flake
Obsidian blade
Obsidian projectile point
Obsidian biface or other retouch
Obsidian core, unspecified
Obsidian eccentric
Green obsidian blade

*Function*

These artifacts can be divided into those used to produce other lithic artifacts (cores, flakes, and chunks), those used as tools on other materials (flakes, blades, projectile points, and bifaces), and those used for ritual observances or to mark social status (eccentrics).

The only category of tools which has been examined for traces of use is the obsidian blades. They constitute the overwhelming majority of the lithic material. A sample of these blades from Gr 9N-8 Patio A, Gr 9M-24, and Gr 9M-22 Patios A and B was examined under a microscope for traces of microwear (Mallory 1984). This resulted in the identification of six categories relating to use, to which the investigator gave these labels: sawing (subdivided into invasive and non-invasive), slicing, scraping, planing, used (more exact identification impossible),

and unused. Mallory's general conclusion regarding use of obsidian blades was as follows:

Comparison of intersite use wear variability demonstrates the presence of the generalized domestic wear pattern at all urban [i.e. Sepulturas] sites. In...Copan assemblages, the largest proportion of the blades show sawing wear, with smaller proportions characterized by slicing and scraping wear, and a very small proportion with planing wear. The generalized nature of blade use is also demonstrated by the fact that between 12 and 28% of the blades from each of the urban assemblages has been used for more than one purpose (Mallory 1984:241).

Such use wear patterns can be produced by a number of activities involving various materials, such as the working of wood, bone or antler, palm or reed, leather or hides, meat or vegetable matter (Mallory 1984:242). Thus the analysis gives a general picture of the range of obsidian blade use; unfortunately more specific identifications were apparently not possible. His work also helps to offset the vagaries of preservation discussed earlier: although the organic materials themselves were not preserved, evidence of their presence and use survives indirectly through the traces left on the obsidian blades.

Comparable analysis has not been done on the chert artifacts. Chert artifacts, especially chert tools, are not as common as obsidian. For purposes of this study, the chert artifacts will be considered to have had uses similar to those of their obsidian counterparts (Mallory 1984).

#### *Representation in the Artifact Distribution Database*

Table 5.2 shows the distribution of lithic artifacts by material (chert, obsidian, and green obsidian). Almost 71% of the class is obsidian blades, the next most common category being chert chunks (13.2%). Table 5.3 separates the chert from the obsidian artifacts to

emphasize the differences in use of these materials. Most of the chert is represented by chunks (76.9%) with flakes the next most common form (15.1%). Blades and flake cores account respectively for 3.3% and 2.4% of the chert artifacts. All other categories present are less than 1.0%. As would be expected, almost 85% of the obsidian artifacts are blades. Chunks are next at 8.0% followed by flakes at 4.5%. Unspecified cores are the last category, over 1% of the sample.

Other retouch/bifaces (n=91) and projectile points (n=62) of either material are rare, especially in comparison to the blades (n=23358) (cf. Valdez 1981). This disparity suggests that the blades, specifically the obsidian blades, were, as indicated by Mallory's (1984) analysis, multi-purpose tools adapted to a number of different requirements. It also suggests that activities of the kind that would be best performed with projectile points or bifaces did not occur with great frequency at Sepulturas. Projectile points suggest hunting (or fighting), which would most likely have been carried out away from the built-up Sepulturas zone. The category "other retouch/biface" can subsume a number of different types of tools such as scrapers, burins, or the general-utility biface of the Maya Lowlands (Kidder 1947; Willey 1972). Blades may have been substituted for some of these tools, although not for the large bifaces generally considered to have functioned as hoes (Coe 1965b). The low representation of some equivalent to this general-utility biface in our sample again may reflect the fact that little cultivation took place within the Sepulturas zone itself. Although some have argued for the presence of kitchen gardens around Maya structures, a pattern found in modern and ethnohistoric communities (Wauchope 1938:132-133; Puleston 1978; Folan et al. 1983), the

Sepulturas settlement distribution does not lend itself to this interpretation. Not only are structures close together with most of the intervening space occupied by midden deposits, but the single largest area of open space in each unit, the courtyard, was always paved at least with cobbles and often with plaster as well. On the other hand, the lack of large bifaces may indicate that cultivation was accomplished with some other sort of tool of which we have no remains and which was therefore probably made out of perishable material such as wood.

Table 5.2: Types of Lithic Artifacts in Total Sample  
(N=32985)

Form	Chert		Obsidian		Green Obsidian	
	#	%	#	%	#	%
Core	22	0.1	375	1.1		
Flake core	137	0.4	63	0.2		
Blade core	36	0.1	163	0.5		
Chunk	4370	13.2	2177	6.6		
Flake	448	1.4	1233	3.7		
Flake-core preparation	98	0.3	31	0.1		
Flake-other	315	1.0				
Blade	187	0.6	23171	70.3	2	0.0
Projectile point	25	0.1	37	0.1		
Other retouch (biface)	45	0.1	46	0.1		
Eccentric	1	0.0	3	0.0		
Total for material	5684	17.3	27299	82.7	2	0.0

Table 5.3: Chert and Obsidian Artifacts in Total Lithic Sample

A. Chert (n=5684)

Form	Quantity	% of Lithic	% of Chert
Chunk	4370	13.2	76.9
Flake(combined)	581	2.7	15.1
Blade	187	0.6	3.3
Flake core	137	0.4	2.4
Other retouch	45	0.1	0.8
Blade core	36	0.1	0.6
Projectile point	25	0.1	0.4
Core	22	0.1	0.4
Eccentric	1	0.0	0.0



(Table 5.3, cont.)

## B. Obsidian (n=27299)

Form	Quantity	% of Lithic	% of Chert
Blade	23171	70.3	84.9
Chunk	2177	6.6	8.0
Flake	1233	3.7	4.5
Core	375	1.1	1.4
Blade core	163	0.5	0.6
Flake core	63	0.2	0.2
Other retouch	46	0.1	0.2
Projectile point	37	0.1	0.1
Flake-core preparation	31	0.1	0.1
Eccentric	3	0.0	0.0

## Ground Stone (Class 02)

*Categories*

Table 5.4: Categories for Ground Stone Artifacts

Form	Function
Metate	Maize grinding
Costa Rican-style metate	Status (see below)
Anvil/table	Support for pounding, etc.
Barkbeater	Pounding bark (paper)
Mano	Maize grinding
Hammerstone	Striking hard material
Abrader and/or polisher	see below
Hammerstone and/or abrader	see below
Abrader and/or whetstone	see below
Bowl	Container
Mortar	Pulverizing
Pestle	Pulverizing
Celt	Gouging stone, wood, etc.
Multi-use tool	Anvil, abrader, whetstone
Flat-surfaced artifact	Unknown — see below
Pot stand	Support pots over fire
Yoke	Ballgame equipment
Hacha	Ballgame equipment
Awl/punch	Perforator or drill
Incensario	Ritual container
"Barrel"	Unknown — see below
Hollow cylinder	Unknown — see below
Doughnut stone	Unknown — see below
Grooved mano	Unknown — see below

The categories of ground stone artifacts are shown in Table 5.4.

### *Function*

The functions of most of these artifacts have been deduced from the kind of wear present and the interpretations of such wear and forms in other archaeological and ethnographic contexts (cf. Strömsvik 1931; Strömsvik 1937b; Kidder 1947; Willey et al. 1965; Willey 1972; Willey 1978; Sheets 1978; Longyear 1952). Costa Rican-style metate refers to elaborately carved metate or metate-like fragments which look like examples reported from the Guanacaste-Nicoya zone of Costa Rica (Snarskis 1981). Only a few were found and it is suggested that they played more of a role as status markers than as actual grinders.

Certain categories are more difficult to interpret. The three abrader categories refer to large dark-green cobbles (12-15 cm long) with well-developed wear facets suggestive of use as a rubber or polisher. The facets are often marked with striations as well. It is not known what kinds of material were polished although plaster smoothing was a possible use (Andrews IV and Rovner 1973; Willey 1972; see also Hayden and Cannon 1984). These cobbles are generally much larger than the kind of pebbles illustrated as ceramic vessel burnishers (R. Thompson 1958:90-91, Fig. 19f-g; Reina and Hill 1978 Pl. 101, 118, 180). Other kinds of use, as indicated by the composite category labels, include hammering and sharpening.

The "flat-surfaced artifact" category subsumes a variety of rectangular or circular pecked pieces. Both small and thin, they correspond to what have often been called palettes or plates (Kidder 1947; Willey

1972). They provide a flat surface of small area that would be appropriate for grinding or pulverizing small amounts of plant or mineral material or for use as a support.

Barrel, hollow cylinder, doughnut stone, and grooved mano are all categories for artifacts of uncertain function despite the occurrence of the first two in primary contexts within rooms and in association with other artifacts. The labels are therefore mainly descriptive. Both the barrels and hollow cylinders are open at both ends, precluding their use as containers.

Doughnut stones, also known as ring stones, are a familiar member of the artifact inventory of Maya sites. The label aptly describes the form. The Sepulturas examples range from completely round to subrectangular; the hole, however, is always round. Some are incised. With regard to their possible function, Willey (1972:135-136) says:

It has been suggested that they are digging-stick weights, implements to aid in shelling maize (by pushing and twisting the ear through the hole very rapidly), counterweights for doors or curtains, holders for banners or awning posts, and weights for lance or spear shafts (to impart greater force and shock when thrown).

Another possibility, at least for Copan, is suggested by the fact that two doughnut stones were embedded in the walls flanking the entrance to Rm 3 of Str 74 (Gr 9N-8 Patio B), apparently functioning as cordholders (Hendon et al. n.d.a).

#### *Representation in the Artifact Distribution Database*

The ground stone artifacts are given in Table 5.5. The proportion of the total number of ground stone artifacts represented by each type of artifact is also given. From this it can be seen that the sample is predominately composed of metates (43.0%), manos (30.9%), and abraders

and/or polishers (10.5%). If to the last category are added the two other types that functioned in part as abraders, namely hammer-stone/abraders (0.6%) and abrader/whetstones (0.6%), the representation is increased to 11.7%. The other categories over 1% of the class are celts (3.8%), doughnut stones (1.7%), pestles (1.3%), and hammerstones (1.1%). The fact that almost three-quarters of the ground stone inventory are manos and metates suggests the importance of maize-grinding activity.

Table 5.5: Types of Ground Stone Artifacts in Total Sample  
(N=640)

Form	Quantity	% of Ground Stone
Metate	275	43.0
Mano	198	30.9
Abrader and/or polisher	67	10.5
Celt	24	3.8
Doughnut stone	11	1.7
Pestle	8	1.3
Hammerstone	7	1.1
Bowl	6	0.9
Anvil/support/table	5	0.8
Yoke	5	0.8
Hammerstone and/or abrader	4	0.6
Abrader and/or whetstone	4	0.6
Mortar	4	0.6
Pot stand/support	4	0.6
Costa Rican-style metate	3	0.5
Hollow cylinder	3	0.5
Barkbeater	2	0.3
Flat-surfaced artifact	2	0.3
Hacha	2	0.3
Barrel	2	0.3
Multi-use tool	1	0.2
Awl/punch	1	0.2
Incensario	1	0.2
Grooved mano	1	0.2

## Stone Ornament (Class 03)

### *Categories*

This class refers to all non-architectural decorative stonework. The categories are listed in Table 5.6. Although some three-dimensional carvings or figures have been found, most of the artifacts included here are items of personal adornment or use. This is one of the few classes for which I have retained distinctions based on material. There was a great variety of materials and forms, most of which has been merged into more inclusive categories here. "Miscellaneous" material refers to all other kinds of material not otherwise named in the table. "Indeterminate" material refers to those items of unknown or unidentified material. "Miscellaneous worked" subsumes pieces of various shapes and decoration which did not belong in the jewelry, figurine or other categories.

Table 5.6: Categories for Stone Ornaments

- Jade and jade-like<sup>a</sup> jewelry
- Jade and jade-like miscellaneous worked
- Igneous jewelry
- Silicate jewelry
- Other mineral pigment
- Other mineral vessel
- Other mineral miscellaneous worked
- Slate baton
- Slate miscellaneous worked
- Obsidian jewelry
- Schist baton
- Miscellaneous pigment
- Miscellaneous vessel
- Miscellaneous figurine
- Miscellaneous miscellaneous worked
- Indeterminate jewelry
- Indeterminate miscellaneous worked

<sup>a</sup> Includes, in the absence of mineralogical testing, any and all dense, fine-grained green stone of jade-like appearance.

*Function*

Jewelry subsumes all sorts of objects which could either be worn by a person or sewn onto a person's clothing. Pigment refers to unworked lumps of minerals such as ochre that could have been used as coloring agents.

This class of artifacts can be related to the study of structure function only if their manufacture occurred in association with some building. Otherwise, their presence and distribution relate more to differences in social status or access to scarce resources since post-Conquest accounts as well as murals and polychrome pottery indicate the importance of dress and jewelry as markers of status or social position and wealth (Osborne 1975:14-24; Tozzer 1941). In short, they represent a different cultural subsystem than tools or utensils (Binford 1962; 1965). Furthermore, an analysis of their distribution as an indicator of social status should consider the burials as well as the primary contexts. Since no evidence of stone ornament production was found, these artifacts will be peripheral to the main line of investigation in the present study.

*Representation in the Artifact Distribution Database*

Stone ornaments are a small part of the total sample and, as indicated in Table 5.7 Part B, occur in a fairly limited range of forms. The largest category, pigment, is not a finished product but a raw material. Next most common is jewelry (beads, earplugs, labrets, pendants, etc.), followed by miscellaneous worked (tiles, disks, cylinders). Part C of the table shows the kinds of materials used for jewelry and the miscellaneous worked category. Most of the items of

personal adornment were made out of jade or a jade-like green stone with some use of obsidian, igneous rock (diorite, basalt, etc.), and chert or quartz. In contrast, most of the miscellaneous worked category is made of slate.

Table 5.7: Stone Ornaments by Material and Form in Total Sample (N=67)

A. Different Materials Present

<u>Material</u>	<u>Quantity</u>	<u>% of Stone Ornaments</u>
Mineral pigment	23	34.3
Jade and jade-like	15	22.4
Miscellaneous	10	15.0
Slate	7	10.5
Indeterminate	4	6.0
Igneous	2	3.0
Mineral non-pigment	2	3.0
Obsidian	2	3.0
Silicate	1	1.5
Schist	1	1.5

B. Different Forms Present

<u>Form</u>	<u>Quantity</u>	<u>% of Stone Ornaments</u>
Pigment	28	41.8
Jewelry	20	29.9
Miscellaneous worked	12	18.0
Baton	3	4.5
Vessel	2	3.0
Figurine	2	3.0

C. Kinds of Materials used for Jewelry (n=20)  
and Miscellaneous Worked (n=12)

<u>Material</u>	<u>Jewelry</u>		<u>Miscellaneous Worked</u>	
	<u>Quantity</u>	<u>% of Jewelry</u>	<u>Quantity</u>	<u>% of Misc Worked</u>
Slate	—	—	5	41.7
Jade or jade-like	13	65.0	2	16.7
Igneous	2	10.0	—	—
Obsidian	2	10.0	—	—
Indeterminate	2	10.0	2	16.7
Miscellaneous	—	—	2	16.7
Silicate	1	5.0	—	—
Mineral	—	—	1	8.3

## Ceramic Rims (Class 04)

### *Categories*

**TYPES:** Ceramic rims are the largest part of the total sample and the basis of much of the statistical testing. Vessel form and type (as defined by René Viel, generally on the basis of surface treatment and decoration) were originally recorded for all rim sherds analyzed. Sometimes ceramic variety and other information relating to lip form, decoration or burning were recorded, but unsystematically. With a few exceptions, the number and definition of form categories remained constant. Type was less stable, with new types being added as needed.<sup>4</sup> Aquino Café, for example, was not identified as a separate type until 1983. Other types were used in 1981 but not thereafter. Partly for this reason and partly because I feel that vessel form is a better indicator of vessel function than type, I have merged type information into larger categories of decorative treatment. This decision left the problem of how to handle those records with no clear type distinction. The solution I adopted was to lump designations such as "indeterminate", "unknown", "burned", "eroded", and the like into a single class labeled indeterminate.

The merger of the types was done in two stages. Table 5.8 gives the first level, in which types of like surface alterations are brought together. Each ceramic type group is assigned a letter for convenience of reference.

---

<sup>4</sup> Since Viel's original typology was based on a much smaller sample.



Table 5.8: Ceramic Type Groups

Type Group	Type Group Label	Ceramic Types Included
A	Plain wares, generally monochrome	Antonio Aquino Café Arroyo Red Cruz Incised Hastalgorro Pebble-polished Hijole Brown Iotampoco Coarse Lorenzo Red Orange paste Orange Self-slipped Polished Orange Raul lip Raul Red Red slipped Sepultura Sisero Slipped Titichon Unslipped Zico
B	Incised plain wares	Cementerio Incised Mapache Grooved
C	Casaca Striated	Casaca Striated (= Longyear's "raking")
D	Reina Incised	Reina Incised
E	Bichromes	Black on orange Cocorico Red on orange Cream slipped Favela Red on cream Red on buff Red on cream
F	Local polychromes other than Copador (includes trichromes)	Arturo Incised Caterpillar Polychrome Chilanga Red-on-Usulután Eroded fine ware Fine paste, unidentified Gatito Polychrome Gualpopa Polychrome Usulután (Izalco)
G	Copador Polychrome	Copador Polychrome (Copa)
H	Foreign polychromes	Arambala Polychrome Babilonia Polychrome Cancique Polychrome Imported Peten Polychrome Ulúa Polychrome

(Table 5.8, cont.)

Type Group	Type Group Label	Ceramic Types Included
I	Surlo	Capulín Cream Copa (= Copador slip on Surlo paste?) Surlo Ardilla Surlo Besal Surlo grooved Surlo Macanudo Surlo Madrugada Surlo miscellaneous Surlo Orange-brown Surlo Red on white Surlo Tasu Surlo Yoki
J	Indeterminate	Burned Eroded Miscellaneous Other Unspecified

Descriptions of many of the types are given in the references cited in Tables 3.2-3.3. I do not have descriptions for Aquino Café or Gatito Polychrome (although the latter is very close to Gualpopa Polychrome). Copa is related to the Surlo group (J. Sheehy, personal communication) but apparently has Copador-like slip (i.e. specular hematite). Peten polychrome was used as a generic term for sherds that were considered on the basis of stylistic affinities to be Lowland Maya imports. It does not, of course, include Dos Arroyos polychromes or other clearly non-Tepeu 2 types.

Sepultura, Sisero, Titichon, and Zico are all types defined by Viel after publication of his Phase I work. Sepultura and Zico are unslipped although the latter can have splotches of red paint. In fact, Zico, Raul Red, and Cruz Incised have the same paste and cannot always be completely separated from one another as types, since differences in the degree of erosion or the amount of body still attached to the rim

may result in different classifications for sherds that are actually from the same vessel (see Viel 1983:525). Sisero and Titichon have the same paste as Sepulturas. Sisero has red slip on the exterior, Titichon on the interior. They thus have the same kind of surface treatment as, respectively, Raul and Lorenzo but are made of a different paste.

The second level of grouping makes a further reduction to just two groups. Type groups A-D are combined to form a more inclusive set of simple surface treatments which will be referred to hereafter as *plain*. Type groups E-I are merged to form a group of more elaborately decorated types; this second group will be called *fancy*. This dichotomy is similar to the frequently used one between utilitarian on the one hand and ceremonial or elite on the other (e.g. R. Smith 1971; Adams 1971). I have avoided these terms, however, because I believe that form is much more important than type in determining function and therefore neutral terms are preferable for decorative features. In other words, utilitarian and ceremonial vessels occur in both the plain and fancy groups (Sharer 1978b:119-120). The types included in the plain group generally fall within Longyear's class of Full Classic coarse ware. Some of the material he classified as Postclassic coarse ware is comparable to the current system's Cruz Incised. Although the deposits Longyear examined may indeed be Postclassic in date, this does not mean that Cruz Incised is confined to that period. Excavations by both phases of PAC have demonstrated its presence in Coner phase deposits. The fancy group subsumes his red-on-orange (= Chilanga), carved brown ware (= Surlo), and Copador polychrome (1952:29-31).

**FORMS:** Classification of all rim sherds included identification of original vessel form. Those forms which have obvious functional

interpretations and which also occurred in sufficient quantities for discussion will be analyzed here. The descriptions below concentrate on the morphological characteristics. Wide-ranging and exhaustive comparisons have been avoided, although I have attempted to correlate PAC II forms with those used by Longyear (1952).<sup>5</sup> In a few cases, specifically for the cylindrical censers and the three-pronged braziers, a more complete review of relevant material has been undertaken. I felt it desirable to do this mainly because the Copan vessels thus labeled are not necessarily formally or functionally identical to the similarly named vessels from other sites.

In most instances some ideal dimensional range was incorporated into the definition of the form itself by Viel. This is the case for the jars, where rim diameter determines placement in a subcategory. Plate, dish, bowl, and cylinder are separated from one another on the basis of their ratio of (internal) height to (maximum) diameter. In actual practice, of course, such ratios could not be determined for individual rim sherds. In order to give a better idea of the actual measurements, both for the significant dimensions and for those not implicit in the form definition, I recorded a series of measurements from the whole or partial vessels recovered during excavation. The whole vessels used for this purpose come from all operations. Somewhat greater detail is available on partial vessels from OPs 13, 15, and 16.<sup>6</sup>

---

<sup>5</sup> In the rest of the ceramic section all references to Longyear, unless otherwise specified, are to this publication.

<sup>6</sup> I am grateful to Andrea Gerstle and Melissa Diamanti for information on some of the whole and partial vessels.

Table 5.9 summarizes this information. Not all vessels yielded the same variety of information.

These vessels do not in any sense form a representative sample of the population of original vessels. Many are from burials, caches, or in situ features and thus represent cases of special and unusual preservation. Others are vessels from primary refuse or secondary contexts (fill and collapse) that were recognized during excavation or in the lab as being relatively complete. There was no systematic effort during analysis, however, to restore vessels. There is a definite bias towards the fancy types (polychromes and Surlo group) as well as towards forms which were commonly placed in caches and burials (cylinders, cylindrical censers, bowls, dishes). These forms and types are not confined to caches and burials, however. They occur in abundance in the locus assemblages and it is clear that they do not represent an exclusively mortuary-cum-dedicatory subcomplex. Thus, although the measurements given in Table 5.9 and in the discussions of individual forms below do not necessarily cover the full range of a particular dimension for a particular vessel form, they do give some idea of that range.

Where appropriate I have given the ideal ratios or measurements as well as the range of actual ratios or measurements calculated from the whole and partial vessels. Maximum diameter is given only when different from the rim diameter. Volume, in cubic centimeters, is calculated using the mensuration formula of the geometrical solid most closely approximated by the vessel form. The figures given are based on that subset of the whole and partial vessels for which appropriate measurements could be obtained. The most common formulae used were those for the volume of a zone of a sphere, of a frustrum of a cone, and of a

Table 5.9: Whole Vessel Characteristics

Group Type	Base Shape	Height (cm)	Maximum Diameter (cm)	Rim Diameter (cm)	H:D Ratio	Volume (cc)	Burning/ <sup>a</sup> Lime?
• Caldero with bolstered rim (3 examples)							
A	Unknown	24.0	42.0	42.0	0.571	24806.02	B ext
A	Unknown	?	40.0	40.0			B int
A	Unknown	?	50-54	50-54			
• Caldero with direct rim (6 examples)							
A	Unknown	15.0	26.0	26.0	0.577		
A	Unknown	*10.0	24.0	24.0			
A	Unknown	?	38.0	38.0			
A	Unknown	?	40.0	40.0			
A	Unknown	18.0	30.0	30.0	0.600		
A	Unknown	?	22.0	22.0			B int
• Caldero with everted rim (5 examples)							
A	Unknown	*20.0	48.0	48.0			B ext
A	Unknown	23.0	42.0	42.0	0.548	23603.83	
A	Flat	*18.5	50.0	50.0			B ext/int
A	Dimple	19.0	29.0	29.0	0.655		
A	Unknown	?	32.0	32.0			
• Caldero with flat rim (2 examples)							
A	Flat	10.5	21.0	20.0	0.500	2754.39	
C	Flat?	17.5	15.0	15.0	1.167	2515.23	
• Plate, tripod (1 example)							
F	Convex	6.0	54.0	54.0	0.111		
• Straight-walled dish (3 examples)							
I	Convex	6.0	14.0	14.0	0.429		
I	Ring	5.0	26.0	26.0	0.192	2018.09	
	(Base)	2.4	22.0	22.0			
I	Unknown	6.5	18.0	18.0	0.361		

(Table 5.9, cont.)

Group Type	Base Shape	Height (cm)	Maximum Diameter (cm)	Rim Diameter (cm)	H:D Ratio	Volume (cc)	Burning/ <sup>a</sup> Lime?
• Flaring-walled bowl/dish (19 examples)							
I	Flat	4.5	23.0	23.0	0.196		
I	Flat?	5.0	24.0	24.0	0.208		
I	Flat?	4.0	18.0	18.0	0.222		
I	Flat	4.7	21.0	21.0	0.224		
I	Convex	5.5	23.5	23.5	0.234		FC int/ext
F	Flat	7.0	27.3	27.3	0.256	1261.36	
I	Flat	5.5	20.0	20.0	0.275		
I	Flat	6.5	23.0	23.0	0.283		
F	Ring	8.5	28.0	28.0	0.304		
	(Base)	0.8	9.0				
I	Convex	6.5	20.5	20.5	0.317		
I	Flat	6.3	18.0	18.0	0.350		
F	Convex	8.0	22.0	22.0	0.364		
G	Convex	5.2	14.0	14.0	0.371	554.31	
I	Flat	3.7	9.8	9.8	0.378		
G	Flat	5.5	14.5	14.5	0.379		
I	Flat	7.5	19.7	19.7	0.381		
G	Convex	7.5	18.1	18.1	0.414		
G	Flat	9.5	22.0	22.0	0.432		
G	Flat	6.2	14.0	14.0	0.443	584.58	
• Hemispherical bowl (25 examples)							
I	Unknown	10.0	20.0	20.0		2094.40	
A	Convex	3.2	11.0	11.0	0.291	189.32	
I	Dimple	2.1	6.8	6.8	0.309		
-	Ring	6.0	19.0	19.0	0.316	1154.54	
	(Base)	2.5	10.0				
F	Convex	7.1	22.0	22.0	0.323	1637.25	
A	Convex	5.5	17.0	17.0	0.324	972.65	B int/ext
F	Ring	8.0	24.0	24.0	0.333	2278.70	
	(Base)	2.0	9.0				
I	Flat	5.5	16.0	16.0	0.344		FC ext
I	Convex?	6.2	17.3	17.3	0.358		
I	Flat	6.5	18.0	18.0	0.361	1134.18	B int
I	Convex?	5.5	15.0	15.0	0.367		
G	Flat	6.4	17.3	17.3	0.370		
F	Convex?	5.0	13.5	13.5	0.379		
I	Flat	5.0	13.0	13.0	0.385	446.37	B ext
G	Convex?	7.0	18.0	18.0	0.389		
I	Flat	7.0	18.0	18.0	0.389		
I	Dimple	3.7	9.5	9.5	0.389		
F	Convex	6.8	17.5	17.5	0.389		
F	Ring	9.5	24.0	24.0	0.396	2836.53	
	(Base)	2.5	6.0				
G	Flat	8.0	20.0	20.0	0.400		

(Table 5.9, cont.)

Group Type	Base Shape	Height (cm)	Maximum Diameter (cm)	Rim Diameter (cm)	H:D Ratio	Volume (cc)	Burning/ <sup>a</sup> Lime?
• Narrow-necked jar (19 examples)							
-	Unknown		16.5	8.5			
H	Unknown	*5.5	14.0	9.0			
F	Flat	13.0	14.0	9.8			
A	Unknown	*5.5		10.0			
H	Dimple	10.5	11.5	10.5			
A	Unknown	*8.0	17.0	12.0			
A	Unknown	30.0	30.0	12.0			
J	Dimple	12.5	15.0	12.0			
I	Flat	14.0	14.0	12.3			
J	Flat?	17.0	17.0	13.0			
A	Dimple	26.0	30.0	13.5			
D	Flat	23.0	20.0	14.0			L int
A	Unknown	30.0	30.0	14.0			
A	Unknown	25.5	35.0	14.0			
A	Dimple	*15.0	17.0	15.0			L int
A	Dimple	21.0	22.0	15.0			
D	Unknown	*10.0		16.0			
A	Unknown	27.5	39.5	18.0			
A	Round?	14.0	16.5	11.0			B int?
• Restricted wide bowl (5 examples)							
F	Flat?	8.0	14.0	10.2	0.571		
G	Flat?	7.8	10.5	10.5	0.743		
I	Convex	12.5	16.5	15.2	0.758		
H	Ring	11.7	14.5	12.5	0.807		
	(Base)	1.8	8.5				
F	Flat	14.0	15.5	14.5	0.903		
• Restricted narrow bowl (2 examples)							
I	Flat	11.0	16.0	11.0	0.688	1162.78	B ext
F	Flat?	10.0	14.0	10.5	0.714		
• Restricted narrow cylinder (2 examples)							
I	Ring	16.5	14.0	9.0	1.179		
	(Base)			9.8			
-	Unknown	*15.5	11.5	9.5			
• Restricted wide jar (1 example)							
G	Flat	12.8	15.5	14.5			



(Table 5.9, cont.)

Group Type	Base Shape	Height (cm)	Maximum Diameter (cm)	Rim Diameter (cm)	H:D Ratio	Volume (cc)	Burning/ <sup>a</sup> Lime?
• Cylindrical censer (9 examples)							
A	Flat	*19.0	28.0	28.0			B&L ext
A	Flat	20.5	28.0	28.0	0.732	12622.92	B int
A	Flat	14.0	19.0	19.0	0.737	3969.40	
A	Flat	22.0	28.0	28.0	0.786	13546.55	
A	Flat	15.0	18.0	18.0	0.833	3817.04	B int
A	Flat	20.5	21.0	21.0	0.976	7100.39	B int/ext
A	Flat	28.5	26.0	26.0	1.096	15131.48	
A	Flat	17.5	18.0	18.0	0.972	4453.21	B int
A	Flat	24.0	30.0	30.0	0.800	16964.60	FC ext
• Lid (4 examples)							
A	Open	4.0	16.5	16.5			B ext
A	Open	13.0	19.0	19.0			
A	Open	14.5	26.0	26.0			
A	Open	*15.0	26.0	26.0			
• 3-prong brazier — dish (2 examples)							
A	Convex	13.0	38.0	38.0			
A	Convex	10.0	25.5	25.5			B int
• 3-prong brazier — base (3 examples)							
A	Open	?	21.0	21.0			B top
A	Open	23.0	22.0	22.0			B top, base
A	Open	28.0	28.0	28.0			
• Large-necked jar (5 examples)							
A	Unknown	*20.0	56.0	37.0			B
C	Unknown	*28.0	*45.0	32.0			B ext/int
C	Unknown	*20.0	52.0	32.0			B ext
C	Unknown			40.0			
C	Unknown			32.0			
• Medium-necked jar (7 examples)							
C	Unknown			23.0			B ext/int
C	Unknown	*10.5	*29.0	21.0			B ext/int
C	Unknown	*15.5	*33.0	22.0			
C	Unknown	30.0		20.0			
A	Unknown			20.0			
C	Unknown	37.5	41.0	22.0			
C	Pointed	43.0	42.0	26.0			

(Table 5.9, cont.)

Group Type	Base Shape	Height (cm)	Maximum Diameter (cm)	Rim Diameter (cm)	H:D Ratio	Volume (cc)	Burning/ <sup>a</sup> Lime?
G	Convex	6.7	16.5	16.5	0.406		
G	Flat	5.5	12.5	12.5	0.440		
G	Flat?	9.5	20.5	20.5	0.463		
I	Convex	4.0	8.6	8.6	0.465		
I	Convex	8.0	13.0	13.0	0.615		B int

• Cylinder, fancy type groups (21 examples)

G	Flat	*6.5	12.0	12.0			
I	Flat	*6.5	8.0	8.0			
H	Flat?		16.0	16.0			
I	Flat	10.5	13.0	13.0	0.808	1393.69	
I	Flat	5.2	5.6	5.6	0.929	128.08	
I	Flat	9.1	9.7	9.7	0.938	672.47	
I	Flat	11.3	11.5	11.5	0.983	1173.72	
H	Flat	12.3	12.5	12.5	0.984		
I	Flat	16.8	16.0	16.0	1.050	3367.79	B ext
G	Flat	15.0	14.0	14.0	1.071	2309.07	
I	Flat	14.0	12.0	12.0	1.167	1381.66	
H	Flat	17.5	15.0	15.0	1.167	3092.51	
I	Flat	12.4	10.5	10.5	1.181	1073.72	
I	Flat	11.5	9.5	9.5	1.211	815.15	
I	Flat	8.6	7.0	7.0	1.229		
I	Convex	13.4	10.6	10.6	1.264	1182.51	
I	Convex	13.4	10.6	10.6	1.264	1182.51	
I	Flat	27.0	16.0	16.0	1.688	5529.20	
I	Flat	7.0	4.0	4.0	1.750	87.96	
G	Flat	27.5	14.0	14.0	1.964	4233.30	
I	Flat	10.0	5.0	5.0	2.000	196.35	

• Cylinder, plain type groups (8 examples)

A	Flat	8.0	12.7	12.7	0.630	1013.41	
A	Flat	8.5	13.0	13.0	0.654	1128.22	
A	Flat	9.5	13.5	13.5	0.704	1359.82	
A	Flat	24.5	30.0	30.0	0.817	17318.03	
A	Flat	10.5	12.5	12.5	0.840	1288.54	
A	Flat	22.0	26.0	26.0	0.846	11680.44	FC ext
A	Flat	27.0	30.0	30.0	0.900	19085.18	
A	Flat	14.0	15.0	15.0	0.933	2474.00	

(Table 5.9, cont.)

Group Type	Base Shape	Height (cm)	Maximum Diameter (cm)	Rim Diameter (cm)	H:D Ratio	Volume (cc)	Burning/ <sup>a</sup> Lime?
• Semi-necked jar (9 examples)							
G	Flat	9.0	11.5	9.5			
G	Flat	7.5	12.0	10.0	0.625		
G	Unknown	12.5	14.0	11.0	0.893		B int
F	Flat	11.3	15.0	11.0	0.753		
G	Flat	16.0	15.0	12.0			
C	Unknown	24.0	24.0	14.0			
A	Unknown	17.0	23.5	14.0			
A	Flat	39.0	56.0	28.0			B/L int
F	Unknown	12.0	14.5	10.0			
• Ladle censer (3 examples )							
A	Flat	4.4	18.0	18.0			
A	Flat	4.0	16.0	16.0			
A	Flat	6.0	20.0	20.0			B int

<sup>a</sup> 10.0 = estimated measurement

\* = incomplete vessel or measurement

B = signs of exposure to heat on vessel walls

FC = fire clouds on vessel walls

L = traces of lime adhering to vessel walls

int = interior of vessel

ext = exterior of vessel

cylinder (Merritt 1962:96-100). This approach involves a certain amount of inaccuracy due to irregularities of vessel shape and errors of measurement (cf. Ericson and Stickel 1973). The arithmetic mean and standard deviation of the height, diameter, and volume were calculated for each form when possible. If more than two measurements were not available for a dimension, the mean was not calculated. These statistics provide a summary of the measurements of the vessels, but cannot be generalized beyond the sample used except heuristically.

Two of the most important elements in the way forms are distinguished are degree of mouth restriction and proportion (cf. Shepard 1956:236-245). The first element, degree of mouth restriction, creates differences in size of opening and hence in ease of access. The second element contrasts height and diameter. Whichever dimension is larger will determine the kind of vessel produced. To a certain extent mouth restriction and proportion overlap and are expressions of the same general idea. However, in the case of the hemispherical bowls and restricted wide and narrow bowls, vessels with similar H:D (height to diameter) ratios can have different degrees of mouth restriction. Figure 5.1 illustrates the forms discussed below.

**Comal:** Extremely shallow; unrestricted opening. Interior slipped. "The...comal...is a large round platter, gently and evenly concave but lacking a definite wall, with two horizontal loop handles springing from the rim on opposite sides of the vessel..." (Longyear 1952:25, see also 91, fig. 35e-h). Exterior often burned or smoke-blackened.

Rim diameter: ca. 40.0-42.0 cm (n=1).

Height: No data.

H:D ratio: < 0.200.

Volume: No data.

Longyear: 36-46 cm given as diameter range (p. 91).

**Caldero (direct, everted, bolstered rim):** Large bowls of varying size with unrestricted mouth. Walls always out-flaring, may be curved (convex) or relatively straight. Both flat and dimple (concave) bases recorded. No handles. Unslipped or interior slipped, may be burned inside and out. May be spouted.

Rim diameter: ca. 24.0-54.0 cm (n=14).

Mean diameter (sd<sup>7</sup>): 36.68 cm (9.58 cm) (n=14).

Height: ca. 15.0-24.0 cm estimated (n=7).

Mean height (sd): 19.80 cm (3.70 cm) (n=5).

H:D ratio: ca. 0.571-0.655 (n=2).

Volume: ca. 23,603.83-24,806.02 cc (n=2).

Longyear: Coarse ware deep bowls. One deep bowl reported from the Full Classic (i.e. Coner) with vertical strap handle attached below the rim (p. 91, Fig. 36m). However, the illustration shows enough restriction of the mouth to suggest that it would have been classified as Restricted wide (see below) under the PAC system.

**Caldero flat rim:** Same general characteristics as above but smaller and more like hemispherical bowls in overall dimensions. Walls curved and mouth may be slightly restricted. Flat base recorded on one example. May be spouted.

Rim diameter: ca. 15.0-20.0 cm (n=2).

Maximum diameter: ca. 15.0-21.0 cm (n=2).

---

<sup>7</sup>sd = standard deviation.

Height: ca. 10.5 cm (n=1).

H:D ratio: ca. 0.500 (n=1).

Volume: ca. 2515.23-2754.39 cc (n=2).

Longyear: Coarse ware deep bowls (p. 91, fig. 36).

**Plate:** Very shallow unrestricted form. No information on the kind of base of the plain types. The fancy versions of this form have interior decoration, a slightly everted rim, a flat, slightly rounded (convex) base, and three long hollow supports. No handles.

Rim diameter: ca. 54.0 cm (n=1, fancy type).

Height: ca. 6.0 cm (n=1, fancy type).

H:D ratio: < 0.200 (0.111, n=1, fancy type).

Height of supports: No data. The H:D ratio does not include the height of the supports when present.

Volume: No data.

Longyear: Coarse ware shallow bowls; Copador polychrome large tripod dishes. Fig. 5b shows a round, perhaps slightly flattened base on the coarse ware shallow bowl although this is probably an interpretation (see p. 91). The exterior of the coarse ware examples examined by Longyear showed traces of smoke or fire blackening (p. 91). The supports of the tripod dishes are 7.0 cm high with a maximum diameter of 6.0 cm where attached to the vessel base (p. 100, fig. 78a).

**Straight-walled dish:** Shallow unrestricted form. Walls may be vertical or inclined outward. Base may be flat or round. Ring base also known. Surface treatment variable.

Rim diameter: ca. 14.0-26.0 cm (n=3).

Mean diameter (sd): 19.33 cm (6.11 cm) (n=3).

Height: ca. 5.0-6.5 cm (n=3).

Mean height (sd): 5.83 cm (0.76 cm) (n=3).

H:D ratio:  $0.200 \leq H:D < 0.333$  (0.192-0.429, n=3).

Volume: ca. 2018.09 cc (n=1).

Ring base height 2.4 cm, diameter 22.0 cm (n=1).

Longyear: This sort of form was classified mainly as simple bowls or vases (see fig. 104d,c,h,i,k).

**Hemispherical bowl:** Intermediate to deep unrestricted to slightly restricted form. Walls curve. Despite the label, form only approximates a hemisphere (volumes were calculated using the zone of sphere formula). Base usually round, although some flat or dimple examples. Ring bases are known although this is more commonly an Acbi trait. No handles. Size variable.

Rim diameter: ca. 6.8-24.0 cm (n=25).

Mean diameter (sd): 16.32 cm (4.50 cm) (n=25).

Height: ca. 2.1-9.5 cm (n=25).

Mean height (sd): 6.31 cm (1.94 cm) (n=25).

H:D ratio:  $0.333 \leq H:D < 1.000$  (0.291-0.615, n=24).

Volume: ca. 189.32-2836.53 cc (n=9).

Mean (sd) volume: 1415.99 cc (870.39 cc) (n=9).

Longyear: Simple bowls, some shallow bowls, Usulután bowls (pp. 95-96, 99-100, figs. 59-60, 73, 75).

**Flaring-walled bowl/dish:** Shallow to intermediate unrestricted open form. Two separate vessel types represented by this class. 1) Simple silhouette — walls straight to concave (out-flaring). Flat base (1 example with a ring base). No handles. 2) Composite silhouette — lower section with out-curving (convex) or straight walls which reverse orientation in the upper section walls to out-flaring (concave). Round

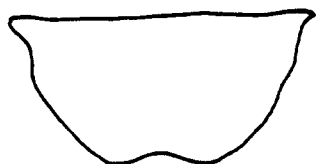
## UNRESTRICTED FORMS



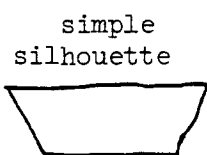
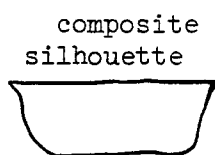
Comal



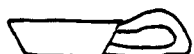
Tripod Plate



Caldero

Caldero with  
flat-rimHemispherical  
bowlsimple  
silhouettecomposite  
silhouette

Flaring-walled bowl/dish



Ladle censer



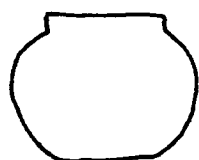
Cylinder, fancy type group

Cylinder and Lid,  
plain type groupCylindrical censer  
and Lid3-prong  
brazier

Figure 5.1: Schematic Drawings of Ceramic Vessel Forms



## RESTRICTED FORMS



Restricted  
wide



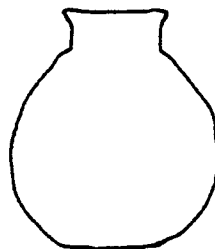
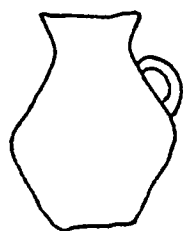
Restricted  
narrow



Tecomate



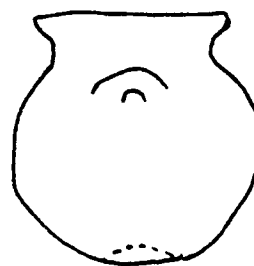
Semi-necked  
restricted jar



Narrow-necked jars



Medium-necked jar



Large-necked jar

(Figure 5.1, cont.)

base. No handles. In terms of Shepard's (1956:226-227) system the first form has end points only or possibly a point of vertical tangency whereas the second form has a corner point. The reason that sherds from both forms end up in this class is that both tend to produce rim sherds with a concave out-flaring profile. The presence of the lower section will not be apparent. Whole vessels show that both forms do occur. Measurements for both forms are comparable and will be treated together.

Rim diameter: ca. 9.8-28.0 cm (n=19).

Mean diameter (sd): 20.02 cm (4.66 cm) (n=19).

Height: ca. 4.0-9.5 cm (n=19).

Mean height (sd): 6.16 cm (1.56 cm) (n=19).

H:D ratio:  $0.200 \leq H:D < 1.000$  (ca. 0.196-0.443, n=19).

Volume: ca. 554.31-1261.36 cc (n=3).

Longyear: Thick-walled footed bowl (?); black ware simple bowl; carved brown ware bowl; composite silhouette bowl; Copador jar; polychrome fine-line dish (this form has supports — no examples of such from whole vessels but possible variant) (pp. 97-100, figs. 59, 61, 63, 69, 76, 77, 79, 101y,bb,cc).

**Cylinder:** Deep (tall) unrestricted form. Vertical walls; direct, flat, beveled (fancy types) or everted (plain types) rims most frequent. Flat base, occasionally slightly rounded. Supports often found on imports from Lake Yojoa-Central Honduras area. No handles. Common form for the imported Ulua-Babilonia Polychromes, local polychromes, especially Copador, and such plain types as Sepultura and Sisero (red slipped exterior). These latter cylinders often have a domed lid. Size variable with some Surlo examples cup-like in size.

## Rim diameter

Fancy: ca. 4.0-15.0 cm (n=19).

Mean diameter (sd): 10.92 cm (3.65 cm) (n=18).

Plain: ca. 12.5-30.0 cm (n=7).

Mean diameter (sd): 19.09 cm (8.06 cm) (n=8).

## Height

Fancy: ca. 5.2-27.5 cm (n=17).

Mean height (sd): 13.47 cm (5.91 cm) (n=18).

Plain: ca. 8.0-27.0 cm (n=7).

Mean height (sd): 15.50 cm (7.78 cm) (n=8).

H:D ratio:  $\geq 1.000$

Fancy: ca. 0.808-2.000 (n=17).

Plain: ca. 0.630-0.933 (n=7).

## Volume

Fancy: ca. 87.96-4233.30 cc (n=15).

Mean (sd) volume: 1738.73 cc (1564.55) cc  
(n=16).

Plain: ca. 1013.41-19,085.18 cc (n=7).

Mean (sd) volume: 6918.46 cc (7834.00 cc)  
(n=8).

Longyear: Coarse ware "cache jars" (for plain cylinders); polychrome and carved brown ware vases (pp. 92, 98-100, figs. 68, 74, 101a-r, 109d,e).

**Cylindrical censer:** Deep (tall) unrestricted. Same shape as the plain cylinders — vertical walls, everted rim, flat base — but usually larger and squatter. Surface treatment: appliquéd decorations common — cacao pods, spikes, human faces with elaborate headdresses and

earplugs, flattened disks; blue and red paint sometimes. Elaborately decorated lids have also been found with appliqué, blue paint, and vents. Frequently burned on inside.

Rim diameter: ca. 18.0-30.0 cm (n=9).

Mean (sd) rim diameter: 23.50 cm (5.01 cm) (n=8).

Height: ca. 14.0-28.5 cm (n=8).

Mean height (sd): 20.25 cm (4.77 cm) (n=8).

H:D ratio:  $\geq 1.000$  (ca. 0.732-1.096, n=8).

Volume: ca. 3817.04-16,964.60 cc (n=8).

Mean (sd) volume: 9700.70 cc (5442.57 cc) (n=8).

*Comparison:* This form category corresponds to both the coarse ware incensarios and the anthropomorphic incensarios described by Longyear (p. 92, figs. 42b-c, 105b, 109f and p. 105, figs. 88e-f). The coarse ware ones can be dated to the Full Classic on the basis of their presence in such burials as Tomb 11 and Grave 1-38. The censers with molded faces were also assigned to this period (but see below). Several whole examples decorated with spikes and incision are reported from Gr 9M-27 (CV-20) excavated by the Harvard Project (Willey and Leventhal 1979:95-99, figs. 6-15, 6-16). The collection of censers created by the Carnegie, Harvard, and PAC II excavations displays a fair amount of variation in height to width ratio, degree of rim eversion, and kind and location of decoration. They were placed, along with plain cylinders, in the substela caches for a number of the monuments described by Strömsvik (1941a). Cylindrical censers and plain cylinders were used for a similar purpose at Sepulturas, being found in the fill of various structures (Hendon et al. n.d.b; Diamanti n.d.).

Borhegyi (1955) equated the anthropomorphic incensarios (specifically Figure 88c of Longyear's publication) with his "loop-nose" censer class as found in the Guatemalan Highlands (see Borhegyi [1951b]) based, apparently, primarily on the presence of a curled strip of clay on the Copan one. Since the highland ones are Early Classic in date, he questioned Longyear's Full Classic placement. Longyear (1957) agreed that an earlier date was possible. However, aside from the clay loop, which is rare at Copan, the Copan censers do not share the characteristics of this class as delineated by Borhegyi (1951b), to wit, an interior horizontal divider creating two chambers and an hourglass or flaring-walled exterior profile. Furthermore, the Sepulturas data indicate that censers with faces are found in Coner phase deposits, supporting Longyear's original estimate.

**Three-pronged brazier:** Complex form made up of a base, a dish or plate, and prongs. Two categories were used depending on which part of the vessel one had, base or plate. The prongs were classed as supports (although they were not supports for the censer) rather than rims.

Base is conical with the wider end open and serving as the base. Plate attaches to other end (see below). This end is somewhat to strongly convex or dome-shaped. The slanting sides have a set of triangular cut-out areas with rounded corners. The cut-outs are arranged in two rows, the upper ones often smaller and with apex downwards. Unslipped on all surfaces except the top which may be slipped, burned interior and exterior.

Basal diameter: ca. 21.0-28.0 cm (n=3).

Mean diameter (sd): 23.67 cm (3.79 cm) (n=3).

Height: ca. 23.0-28.0 cm (n=2, 28 cm estimated).

Number of cut-outs: 6 (n=1).

Longyear: No examples of the base known.

*Plate* is very much like a comal, perhaps with slightly more of a overall curve. It is attached to the top of the base. Its walls extend outwards and upwards beyond the base. This means that the plate's diameter is greater than that of its base. The curving top of the base could also be considered the deepest part of the plate since they were constructed as one piece. Interior of the plate is slipped and often burned heavily. One example has a lizard effigy in the center of the interior.

Rim diameter: ca. 25.5-38.0 cm (n=2).

Height: ca. 4.0 cm (n=1).

H:D ratio: ca. 0.105 (n=1).

Longyear: Fig. 35i illustrates a fragment of a plate with one prong attached. It is labeled as "comal with interior handle" (p. 91).

*Prongs* are always three in number. They are hollow cylinders with a slight taper at the unattached end, which is usually closed or with a small opening. They are attached to the interior slipped surface of the plate very near the rim. They usually incline slightly towards one another. Exterior slipped.

Maximum diameter: ca. 1.6 cm (n=1).

Minimum diameter: ca. 0.6 cm (n=1).

Height: ca. 10-13 cm (n=2).

Distance between prongs: ca. 23.0-26.0 cm (n=1).

Longyear: Fig. 35i. Suggested, erroneously, by

Borhegyi (1955) to be part of a "rim-head" vessel (see Borhegyi [1950]). This was rejected by Longyear (1957).

*Comparison:* Despite the label, this form is not identical to the lidded three-pronged cylindrical incensarios first described in detail by Borhegyi (1950; 1951a) for the Guatemalan Highlands and more recently by Sharer (1978b:29-30, 43-44, 81, figs. 34-35) for Chalchuapa, which are Middle to Late Preclassic in date (Rands and Smith 1965). These Preclassic incensarios are taller, narrower, and more cylindrical with side flanges and human or animal faces on the body. The prongs may be hollow or solid, plain or modeled, and there are usually no cut-outs on the base. In addition, they have a shallowly domed lid (like an inverted dish) with a scored underside and a loop handle that rests on the prongs (Borhegyi 1951a; Rands and Smith 1965). No conclusive evidence of these covers has been found at Copan despite Borhegyi's suggestion that the incised shallow bowls described by Longyear (1952:91, fig. 37a) were lids rather than small comals (Borhegyi 1955). As pointed out by Longyear (1957) and further confirmed by PAC II excavations, incising is rare on bowls, and when present is not particularly like highland incising in terms of location on vessel, type, or quantity.

Nor do the Copan vessels look like the "flaring-sided dishes with inner-inverted feet and pedestal base" reported from Tzakol phase Uaxactun (R. Smith 1955:101, 127, 131-132, 146-147, fig. 17a). The Uaxactun examples are interpreted as having four prongs.

However, as noted by Longyear (1957), there are certain parallels with Classic Period vessels from Quirigua, mentioned briefly by Borhegyi (1951a) and described more fully by Benyo (1979:17-20, 38, figs. 13-16)

under the label of "pronged dish on pedestal support". The one example discussed by Borhegyi (1951a) was Late Classic in date but Benyo's larger sample indicates that the form spans the entire length of site occupation from Middle to Terminal Classic. The Quirigua plate or dish part is very similar to the Copan specimens. It has out-flaring walls, has three inward-leaning hollow prongs attached near the rim, and is often heavily burned on the interior. It is perhaps somewhat deeper than the Copan counterparts. One difference is the presence on some Quirigua plates of a central scalloped ridge. Such a ridge was not noted on the Copan censers, although there is one plate from OP 15 with a lizard effigy in its center. This example has a different contextual association from the others from Sepulturas. It was found inside the fill of a structure and is interpreted as a possible cache (Diamanti n.d.). Another common treatment of the plate is to score the interior. Again, this sort of surface treatment is unknown from Copan. The Quirigua base as reconstructed is described as being low with vertical to slightly out-flaring walls and vents or perforations in the side walls. The most common shape for these vents was round. The lack of whole examples precludes any discussion of pedestal height. Judging from Figures 13-16 (Benyo 1979), the Quirigua bases are less conical than the Copan ones, somewhat shorter in height, and have a different arrangement and form of cut-outs. As noted above, there is no evidence from Sepulturas of scored censer lids such as are reported by Benyo (1979:20-22).

Elsewhere, three-pronged censers were found in the Ulua Valley although the details of base shape and decoration are different from Copan (Joyce 1985:290-291). At Quelepa, Andrews V (1976:107-108, fig.



129) reports a class of two-chambered spiked censers, Lolotique Spiked, that are somewhat similar to the Copan ones in that the lower section is conical with cut-out sections. However, the upper part is much deeper, more bowl-like, and has no prongs.

As the above brief discussion suggests, a variety of formal and decorative features as well as, possibly, functions are subsumed under the three-pronged censer label. Borhegyi's classification, based on a limited number of examples with minimal provenience, has nevertheless held up for the highland zone (Rands and Smith 1965). Despite the presence of three prongs, however, the Copan material suggests that the characteristics identified as belonging to the highland three-pronged incensarios, which are most coherently expressed during the Late Preclassic period, do not necessarily extend into the southeastern periphery during the Middle to Terminal Classic.

**Ladle censer:** Shallow unrestricted form. Out-flaring straight walls. Flat base. One looped hollow handle. Slipped interior and exterior, interior burning. No perforations in base in whole examples.

Rim diameter: ca. 16.0-20.0 cm (n=3).

Mean diameter (sd): 18.00 cm (2.00 cm) (n=3).

Height: ca. 4.0-6.0 cm (n=3).

Mean height (sd): 4.80 cm (1.06 cm) (n=3).

H:D ratio: ca. 0.244-0.300 (n=3).

Volume: ca. 482.72-567.49 cc (n=2).

Handle: 9.0 cm long; 6.0 cm high (n=1).

Longyear: The ones found at Sepulturas are distinct from the examples illustrated by Longyear as ladle incensarios. His have a round bowl and straight handle with a modeled end (p.92, figs. 102b,

108m-n). It is possible that this form also occurred at Sepulturas but that no whole examples were found.

*Comparison:* The ladle censers from Quirigua are similar to the ones described by Longyear. Some have perforated bases (Benyo 1979:25-27, figs. 23-25).

*Jar:* Most jars were sorted on the basis of rim diameter. I have divided these rim diameters into three groups: narrow-, medium-, and large-necked. In general, the jars have a globular body with a flat or dimple base. There is one example of a pointed base, and it is possible that there were other unrecognized cases, since such bases would not be easily distinguishable from other body sherds. The angle between neck and body is smooth and the degree of definition of the neck itself varies. By and large these jars are independent restricted vessels with a point of inflection, although corner point is also known (Shepard 1956:226-230). There are usually two handles placed on the upper body or shoulder. Vertical handles are most common on slipped and unslipped plain types (Zico, Raul, Sisero, etc.) while Casaca Striated jars have horizontal handles that tilt upwards slightly. Cruz Incised jars often have more elaborate handles with appliquéd spikes or dots or with two strips of clay twisted together. Jars may be burned on the exterior or interior. Coarse ware jar types B and C (= Cruz Incised) plus the coarse ware everted-rim jar (more common in Early Classic) defined by Longyear (pp. 89-90, figs. 30, 31) correspond to this form class. The three subgroups are described below. Minimum diameter is generally above the point of inflection as defined by Shepard (1956:226-227). It is used here to give an idea of the degree to which access to the vessel

interior is limited. It is perhaps best described as an interior point of vertical tangency.

**Jar, large-necked:**

Rim diameter: > 30 cm (ca. 32.0-40.0 cm, n=5).

Mean (sd) rim diameter: 34.60 cm (3.72 cm) (n=5).

Minimum diameter: 24.0-35.0 cm (n=5).

Maximum diameter: ca. 56.0 cm (n=1).

Height: No data.

**Jar, medium-necked:** One whole vessel has a pointed base. Greater tendency towards vertical neck than for large-necked.

Rim diameter: 20-30 cm (ca. 20.0-26.0 cm, n=7).

Mean (sd) rim diameter; 22.00 cm (2.08 cm) (n=7).

Minimum diameter: 15.0-22.0 cm (n=5).

Maximum diameter: ca. 41.0-42.0 cm (n=2).

Height: ca. 30.0-43.0 cm estimated (n=3).

**Jar, narrow-necked:** Most vertical necks and/or everted rims likely to be in this group. Greater variability in general because more likely to include Copador or other fancy jars as well. Two plain examples had lime in the interior.

Rim diameter: < 20 cm (ca. 8.5-18.0 cm, n=18).

Mean (sd) rim diameter: 12.61 cm (2.49 cm) (n=19).

Minimum diameter: 8.0-13.0 cm (n=8).

Maximum diameter: ca. 11.5-39.5 cm (n=16).

Mean (sd) max diameter: 21.12 cm (8.46 cm) (n=17).

Height: ca. 10.5-26.0 cm (n=9).

Mean (sd) rim height: 19.57 cm (7.37 cm) (n=14).

**Jar, straight-necked, special:** Refers to vessels with a well-defined vertical neck and direct to only slightly everted rim most often found in the Reina Incised type. Body globular to egg-shaped. Base unknown. Often has vertical handles attached just below the rim. Not all Reina jars conform to these specifications and the class was not applied very consistently.

Rim diameter: 16.0 cm (n=1).

Minimum diameter: 16.0 cm (n=1).

Maximum diameter: No data.

Height: No data.

Longyear: Fig. 113b is a good illustration of a Reina Incised jar with this sort of neck.

**Restricted wide:** Intermediate to deep restricted form. Maximum diameter different from rim diameter. Many examples look like hemispherical bowls with a vertical or incurving neck added. Other examples have more of a pear shape with no clearly defined neck. It is not always clear if the form is a bowl or a jar. Bases are flat or round; a ring base is also a possibility. No handles. My measurement data come only from vessels of the fancy type may not be applicable to plain vessels.

Rim diameter: ca. 10.2-15.2 cm (n=7).

Mean (sd) rim diameter: 12.06 cm (2.06 cm) (n=7).

Maximum diameter: ca. 10.5-16.5 cm (n=7).

Mean (sd) max diameter: 14.43 cm (1.99 cm) (n=7).

Height: ca. 7.8-14.0 cm (n=7).

Mean height (sd): 10.71 cm (2.29 cm) (n=7).

H:D ratio: ca. 0.571-0.903 (n=7).

Volume: ca. 1162.78 cc (n=1).

Longyear: Distinction not made in his analysis but some illustrations show vessels labeled jar or simple bowl that could be considered as belonging to this category (figs. 54, 59, 77, 101x, 101dd-ff, 111c). Figure 111c is an excellent example of what I call a hemispherical bowl with added vertical neck.

**Restricted narrow:** Intermediate to deep restricted form. More restricted than Restricted wide — more contrast between maximum and rim diameters. No data on details of form or on measurements. Longyear: some simple bowls and jars (figs. 59, 101dd-ff).

**Tecomate:** Globular extremely restricted form. Bowl rather than jar. Direct and flat rim. No information on base. No handles; may have a spout. No dimensions. One of Longyear's Early Classic coarse ware deep bowls (fig. 36c) is an example of this form.

**Semi-necked, restricted:** Deep restricted form with slight indication of a neck — i.e. walls curve up slightly. Globular to egg-shaped body. These are best considered as a kind of jar. Flat base. Handles usually vertical when present. Interior burning on some examples.

#### Rim diameter

Fancy: ca. 9.5-12.0 cm (n=6).

Plain: ca. 14.0-28.0 cm (n=3).

Mean (sd) rim diameter: 13.28 cm (5.76 cm) (n=9).

#### Maximum diameter

Fancy: ca. 11.5-15.0 cm (n=6).

Plain: ca. 23.5-56.0 cm (n=3).

Mean (sd) max diameter: 20.61 cm (14.02 cm) (n=9).

#### Height

Fancy: ca. 7.5-12.5 cm (n=6).

Plain: ca. 17.0-39.0 cm (n=2).

Mean height (sd): 16.48 cm (9.77 cm) (n=9).

Longyear: some jars.

Lid: Domed or peaked covers for plain cylinders and cylindrical incensarios. Decoration usually parallels that of vessel. Longyear: Figs. 109d-f.

**Indeterminate categories:**

Comal/caldero

Bowl/dish

Cylinder or dish:

Jar, unspecified: Heterogeneous category which reflects inability of analyst to make a decision or failure of recorder to specify shape in initial notation.

There is a certain amount of overlap among some of the categories. Specific cases:

Comal is really an extremely shallow plate (R. Smith 1971:83-84). Lids and comals could have been confused, but the fact that comals are slipped only on the interior whereas lids are either unslipped and appliquéd or have exterior slip makes this problem minor. Also lids tend to be more convex. Neither lids nor comals appear to have been scored in the same way as reported for Quirigua (Benyo 1979), Uaxactun (R. Smith 1955), and Chalchuapa (Sharer 1978b).

Calderos with flat rim and hemispherical bowls of plain types are much the same although the calderos may perhaps be somewhat larger on average.

Plates, straight-walled dish, flaring-walled bowl/dish: the discrepancy between ideal and actual H:D ratio reflects one difficulty

of classifying rims rather than whole vessels. "In the dish category there are always a few that are really plates by actual measurement" (R. Smith 1971:83). Also, some vessels with walls that flared but were not curved were classified as straight-walled. Furthermore, deviation from the vertical was often difficult to tell for some sherds.

Cylinder and cylindrical censer could overlap since they are essentially the same form. In other words, a cylinder with appliqué which should be classified as a cylindrical censer might be labeled a plain cylinder depending on what part of the rim was represented. There are some examples whose H:D ratio is less than the ideal of 1.000 among the whole vessels. This is especially true for the plain cylinders and the cylindrical censers. Strict adherence to the form definitions would require putting these vessels in the straight-walled dish or cylinder or dish categories.

Restricted wide, narrow, and semi-necked restricted are not clearly distinguished from one another. Wide and narrow are subjective categories rather than specifically defined diameters. What one person called semi-necked might have been classified by another simply as restricted wide or narrow.

Jar, straight-necked, was not used very much. Most Reina Incised jars were classified as narrow-necked jars (or medium-necked, although in most cases they seem to have fairly small rim diameters).

Ladle censer bowl fragments could have been classified as either flaring-walled or hemispherical bowls.

### *Function*

Given the overall goal of this study, I am more interested in the ceramics as containers and utensils than as indicators of status or group membership. Interpretation of the function of a ceramic form can be based on a theoretical analysis of the relationship between form and function which suggests that certain forms and physical properties represent a more efficient solution to certain requirements of function (Ericson et al. 1972:85-86; Braun 1980; Lischka 1978:226; Adams 1971:138). The interpretation can also be derived more empirically from analogy with actual form-function correlates found in modern pottery-using societies. Studies of ancient Maya sites have by and large shown a preference for the latter method, using analogies drawn from the way modern Maya use pottery (e.g., R. Smith 1971; Adams 1971; Lischka 1978; Robertson-Freidel 1980). Although I am in general agreement on the value of the use of direct historical evidence, I feel investigations of a more theoretical nature also have value in shedding light on pottery use and the relation of form to function cross-culturally (e.g., Braun 1980; Hally 1986). Since I will make use of both approaches in identifying the functions of Sepulturas vessels, I will now discuss these two lines of evidence, beginning with the work done on the analysis of vessel function from a theoretical standpoint.

Ericson et al. (1972:87) have compiled a list of theoretical "primary functional categories" for ceramic vessels, all of which reflect their use as containers. The list includes cooking, other food preparation, storage, carrying and transport, and aids to environmental exploitation. Food preparation is broken down into four activities: grinding, cutting, mixing, and pounding. Storage varies along two



dimensions: length of time stored (long-term and short-term) and kind of material stored (wet and dry). They then go on to outline some formal and technological characteristics that would be likely to occur in vessels in the various functional categories (Ericson et al. 1972:87-91). The majority of their expectations are concerned with material properties such as density, hardness, porosity, and so on — all properties for which unfortunately no information is available in the PAC II databank.

Two contrasting sets of formal properties are summarized as Stability Choice A and Stability Choice B (Ericson et al. 1972:91). Stability Choice A results in relatively short, open, and unrestricted vessels with a larger mouth area than basal area. These vessels are more stable because of their lowered center of gravity. Leverage control, or the ease of pouring, as well as control of evaporation will be reduced. However, access to the interior of the vessel will be easy and the ratio of surface area to volume will favor heat distribution. It is expected that cooking, short-term, and long-term dry storage vessels will tend to fall into this category.

Stability Choice B incorporates some opposite factors. Height of the vessel increases at the expense of mouth size. This change results in a higher center of gravity but better control over leverage. Stability may be improved by increasing the area of the base relative to the area of the mouth. These criteria will yield tall restricted vessels. Access to the interior of the vessel will be more difficult but evaporation will be controlled. For this reason, both short-term and long-term wet storage will favor this form.

These hypothetical formulations have been tested by Henrickson and McDonald (1983) using a geographically and temporally diverse set of cross-cultural comparisons. They have established the importance of (or at least the high frequency of occurrence of) various factors within each of the following functional classes, all of which have relevance to the Copan assemblage: cooking vessels, cooking trays, serving and eating vessels, vessels for both dry and liquid storage, and water transport vessels.

One result of Henrickson and McDonald's empirical search for formal-functional regularities has been to overcome to a certain degree Shepard's (1956:224) caution that "[t]he same shape may have a variety of uses, and conversely, the same purpose may be served by many forms." The basic distinction made by Ericson et al. (1972) between relatively short and open (unrestricted) vessels (Stability Choice A) and relatively tall and restricted vessels (Stability Choice B) is somewhat borne out by Henrickson and McDonald, although there is an apparent willingness to sacrifice mouth constriction in liquid storage vessels somewhat to allow the use of dippers. Considering the large capacity of many such vessels and their relative immobility when full, scooping or dipping represents an easier and safer way to remove just the desired amount of the stored material.

More specifically, we see a separation of vessels into the broad functional groups of cooking, food serving or consumption, storage, and water transport. One group mentioned by Ericson et al. (1972) but not discussed by Henrickson and McDonald is that of food preparation vessels for mixing, pounding, holding, and so forth. Cooking vessels fall into two types: one, which is widespread, is the short squat wide-based bowl

while the other, apparently limited to certain parts of the New World, is the very shallow and open griddle or comal. Food serving and eating vessels tend to be quite open and may be decorated. Storage vessels have more restricted openings than vessels used for other purposes. The main difference between short- and long-term appears to be in size and rim eversion. There also seems to be a tendency for long-term storage vessels to be taller and less squat than the short-term ones. However, both long- and short-term as well as liquid and dry storage forms overlap in size and shape. Water transport, finally, results in the greatest degree of neck restriction and smallest mouth. Another factor which crosscuts all formal regularities determined by activity is the size of the group to whom these activities are related. Thus size and volume of cooking or serving vessels reflect to a certain extent the number of people involved.

I turn now to the other approach, which uses evidence from modern pottery-using societies. Although studies of pottery use have been conducted in a number of areas, I will concentrate on those concerned with the modern Maya in Yucatan (R. Thompson 1958) and highland Guatemala (Reina and Hill 1978). The categories of form and use identified by R. Thompson and Reina and Hill are quite similar to one another and correspond well to the categories derived from theoretical considerations. In Yucatan, Thompson (1958:136) lists three main functional groups: cooking vessels, water containers, and ceremonial items. Food serving and eating dishes are generally made out of gourds rather than clay in this area. For the Guatemalan highlands, vessels are divided into transport, storage (both subsumed under water containers by Thompson), cooking, serving, and ceremonial (Reina and Hill 1978:24-25).

In both studies, the authors are confident of the close association between vessel form and function:

There is a close correlation between vessel use and shape except in the case of the water basin and cooking pot. The distinction between the uses for these 2 very similar shapes is often no longer made (R. Thompson 1958:146).

There is a degree of obvious overlap between the first four functional groups [i.e. transport, storage, cooking, and serving]. A *tinaja* may be used both to carry and to store water. An *olla* may be used to store, cook, and serve food. But, although some forms are almost general-purpose vessels, the majority fit into only one of the above groups (Reina and Hill 1978:25).

Used for cooking are the comal for cooking tortillas and toasting cacao beans, nuts, and seeds (R. Thompson 1958:109; Reina and Hill 1978:26; Osborne 1975:309) and a large deep bowl or basin. The Yucatecan examples of the latter have a fairly small base, a somewhat restricted mouth, and no handles (R. Thompson 1958:113-117, figs. 34-35) whereas the Guatemalan ones have quite a broad flat base, less restriction, and two handles (Reina and Hill 1978:26; Osborne 1975:319). Additional cooking vessels reported from Guatemala include a smaller pot with an open mouth and an hourglass outline, a shallow flat-based pan used for frying, a larger globular vessel with a restricted opening used to steam tamales, and a sort of colander or sieve used in preparing maize (Reina and Hill 1978:26-27; Osborne 1975:319).

Transport and storage vessels are generally jars. Water-carrying jars are smaller with smaller openings to counteract spillage. Emphasis is placed in both areas on the importance of surface evaporation for storage and transport jars as a way to cool the water. Canteens are made in imitation of the gourd tecomates often used for the same purpose (R. Thompson 1958:117-119, 120-136; Reina and Hill 1978:25-26). The

optional nature of handles on the storage vessels can be explained by the way they are used: "[they are] set on the floor around the inside wall of the house...[and] filled with drinking water. A gourd dish is used to dip out the water which is usually transferred to a water cooler" (R. Thompson 1958:121-123). Another common storage form is the large basin, usually the same form as the cooking pot but larger in size. This form is used to hold water for cooking and washing, mixing and preparing food, and general storage, especially of maize or beans (R. Thompson 1958:117-119; Reina and Hill 1978:26).

As pointed out above, serving vessels in Yucatan are rarely made of clay. The one exception, a small bowl, is apparently used more for ceremonial food offerings than for actual eating (R. Thompson 1958:105-107,146). Pottery vessels are commonly used in Guatemala, however, for eating and serving. Reina and Hill (1978:27) discuss three forms: a small drinking cup or pitcher (*batidor*), an open bowl with out-flaring rim and a flat base, and a larger pitcher with a globular body, spout, and vertical handle that is used to hold and serve liquids (see also Osborne 1975:316).

Ceremonial forms are mainly those used to burn incense. These censers are essentially large bowl-shaped containers for embers and copal or other material which rest on a pedestal base and have perforations to allow the smoke to escape (R. Thompson 1958:109; Reina and Hill 1978:27). They are used in household ritual observance and curing ceremonies (Vogt 1976; Tozzer 1941:104ff.).

The case for the validity of ethnographic analogy is strengthened by the close similarity between modern Maya pottery forms and those

found in archaeological deposits to which Reina and Hill (1978:27) have called attention:

Far from being recent innovations, the majority of the basic vessel forms are solutions to functional needs of great antiquity. The basic utilitarian assemblage was in existence at least as early as the Middle Preclassic and has continued, with some slight modifications, to the present time.

Table 5.10: Functions of Sepulturas Vessel Forms on the Basis of Form and Ethnographic Analogy

Function	Forms	Other Evidence
Cooking	Comal	Signs of heat exposure, association with manos and metates, other contextual associations (Chapter 6)
	Caldero (everted, direct and bolstered rims)	
	Three-pronged brazier	
Food preparing	Caldero (everted, direct and bolstered rims)	Contextual associations
	Caldero flat rim	
	Plate (plain)	
	Hemispherical bowl (plain)	
Food serving and eating	Plate tripod (fancy)	Scenes on vessels, murals
	Bowl/dish (plain and fancy)	
	Straight-walled dish (plain and fancy)	
	Hemispherical bowl (fancy)	
	Flaring-walled bowl/dish (plain and fancy)	
	Cylinder (fancy)	
	Cylinder/dish	
Ritual	Cylinder (plain)	Evidence of exposure to heat, presence in caches at Main Group and Sepulturas
	Cylindrical censer	
	Lid	
	Ladle censer	
Long-term storage	Jar large-necked	Presence of lime in some in situ jars
	Jar medium-necked	
	Jar narrow-necked, especially liquids	
	Jar unspecialized?	
	Jar straight-necked	
Short-term storage	Tecomate — dry?	
	Semi-neck restricted	
	Restricted wide, liquids?	
	Restricted narrow, liquids?	
Water	Jar narrow-necked	
transport	Jar straight-necked	

Table 5.10 summarizes the uses assigned to the various ceramic vessel forms described earlier on the basis of their shapes and ethnographic analogy.

*Representation in the Artifact Distribution Database*

Most of the database consists of ceramic rims. Table 5.11 gives the distribution of the rims by form and type group (as defined in Table 5.8). From the first part of the table it can be seen that 68.7% of the forms are medium-necked jars, calderos, flaring-walled bowls/dishes, narrow-necked jars, and hemispherical bowls. Comal is next most common after this group at 5.1%. Serving vessels as defined by Fry (1969) (i.e. cylinders, tripod plates) are a small part of the overall sample, only 6.0% combined.

The second part of Table 5.11 shows that almost half the sample falls into type group A, plain wares, generally monochrome. Casaca Striated, type group C, is the next most common, but with a much lower percentage, 15.8%. Type group I, Surlo, accounts for 11.5% of the sample. In the last part of the table the type groups have been further combined. This results in 65.6% of the total sample being plain wares (i.e. type groups A-D). All polychromes combined (type groups F-H) are a distant second at 18.1%. Even when polychromes are merged with the bichrome (E) and Surlo (I) type groups to make up the more general fancy category, they account for only 29.8% of the sample. The remaining 4.6% belong to type group J, indeterminate.

Table 5.11: Distribution of Ceramic Rims  
in the Artifact Distribution Database  
(N=40739)

• Vessel Form Totals

<u>Form</u>	<u>Quantity</u>	<u>% of Ceramic Rims</u>
Jar, medium-necked	6528	16.0
Caldero	6343	15.6
Flaring walled bowl/dish	5648	13.9
Jar, narrow-necked	5294	13.0
Hemispherical bowl	4137	10.2
Comal	2077	5.1
Jar, unspecified	1888	4.6
Cylinder	1269	3.1
Plate (tripod)	1182	2.9
Straight-walled dish	1061	2.6
Lid	832	2.0
Cylindrical censer	811	2.0
3-pronged brazier	679	1.7
Restricted wide	610	1.5
Caldero with flat lip	531	1.3
Jar, large-necked	508	1.2
Restricted narrow	323	0.8
Tecomate	213	0.5
Ladle censer	212	0.5
Bowl/dish, unspecified	199	0.5
Basal rims with cut-outs	189	0.5
Comal/caldero	72	0.2
Spout	60	0.1
Semi-necked, restricted	47	0.1
Jar, straight necked/Reina	14	0.0
Colander	7	0.0
Miniature	4	0.0
Cylinder/dish	3	0.0
Pot stand	1	0.0

• Totals for Type Groups

<u>Type Group</u>	<u>Quantity</u>	<u>% of Ceramic Rims</u>
A - Plain wares, generally monochrome	19261	47.3
C - Casaca Striated	6432	15.8
I - Surlo	4687	11.5
F - Local polychromes other than Copador	3987	9.8
G - Copador Polychrome	2870	7.0
J - Indeterminate	1872	4.6
D - Reina Incised	572	1.4
H - Foreign polychromes	528	1.3
B - Incised plain wares	443	1.1
E - Bichromes	87	0.2



(Table 5.11, cont.)

- Further Grouping of Types

<u>Form</u>	<u>Quantity</u>	<u>% of Ceramic Rims</u>
Plain wares	26708	65.6
Polychromes	7385	18.1
Surlo	4687	11.5
Indeterminate	1872	4.6
Bichromes	87	0.2

Vessels of the same form can be decorated differently and therefore will be assigned to different ceramic types and hence belong to different type groups. Table 5.12 shows how various forms are distributed among type groups. Each of the ten type groups is treated in a separate section of the table. In each section, all form classes represented in the type group are listed. The interpretation of the columns in the table is as follows. The first column, "Form", gives the name of a particular vessel form. The second column, "Quantity", gives the total number of rim sherds of that form assigned to one of the types included in the type group. The third column, "% of Ceramic Rims", shows the ratio of "Quantity" to the total number of ceramic rims in the Artifact Distribution Database. The next column, "% of Type Group", is the ratio of "Quantity" to the number of ceramic rims belonging to the particular type group. The final column, "% of Form", shows the ratio of "Quantity" to the total number of ceramic rims belonging to the form class regardless of type. All ratios are expressed as percentages.

Table 5.12: Forms Present in each Ceramic Type Group

## Type Group A - Plain wares, generally monochrome (n=19261)

Form	Quantity	% of Ceramic Rims	% of Group	% of Form
Caldero	6055	14.9	31.4	95.5
Jar, narrow-necked	2935	7.2	15.2	55.4
Jar, medium-necked	2814	6.9	14.6	43.1
Comal	2077	5.1	10.8	100.0
Lid	821	2.0	4.3	98.7
Cylindrical censer	806	2.0	4.2	99.4
3-pronged brazier	679	1.7	3.5	100.0
Caldero with flat lip	531	1.3	2.7	100.0
Jar, unspecified	463	1.1	2.4	24.5
Restricted wide	397	1.0	1.5	65.1
Hemispherical bowl	296	0.7	1.6	7.2
Ladle censer	211	0.5	1.1	99.5
Basal rims with cut-outs	187	0.5	1.0	98.9
Restricted narrow	179	0.4	0.9	55.4
Tecomate	171	0.4	0.9	80.3
Straight-walled dish	159	0.4	0.8	15.0
Jar, large-necked	136	0.3	0.7	26.8
Cylinder	117	0.3	0.6	9.2
Comal/caldero	72	0.2	0.4	100.0
Spout	50	0.1	0.3	83.3
Flaring-walled bowl/dish	36	0.1	0.2	0.6
Semi-necked, restricted	24	0.1	0.1	51.1
Bowl/dish	21	0.1	0.1	10.6
Plate (tripod)	18	0.0	0.1	1.5
Colander	6	0.0	0.0	85.7

## Type Group B - Incised plain wares (n=443)

Form	Quantity	% of Ceramic Rims	% of Group	% of Form
Jar, medium-necked	268	0.7	60.5	4.1
Jar, narrow-necked	88	0.2	19.9	1.7
Jar, unspecified	51	0.1	11.5	2.7
Jar, large-necked	14	0.0	3.2	2.8
Hemispherical bowl	8	0.0	1.8	0.2
Restricted wide	4	0.0	0.9	0.7
Caldero	3	0.0	0.7	0.0
Cylinder	3	0.0	0.7	0.2
Flaring-walled bowl/dish	2	0.0	0.5	0.0
Straight-walled dish	2	0.0	0.5	0.2

(Table 5.12, cont.)

## Type Group C - Casaca Striated (n=6432)

Form	Quantity	% of Ceramic Rims	% of Group	% of Form
Jar, medium-necked	3094	7.6	48.1	47.4
Jar, narrow-necked	1552	3.8	24.1	29.3
Jar, unspecified	1253	3.1	19.5	66.4
Jar, large-necked	354	0.9	5.5	69.7
Restricted wide	62	0.2	1.0	10.2
Restricted narrow	38	0.1	0.6	11.8
Tecomate	34	0.1	0.5	16.0
Caldero	24	0.1	0.4	0.4
Semi-necked restricted	19	0.0	0.3	40.4
Spout	1	0.0	0.0	1.7
Straight-walled dish	1	0.0	0.0	0.1

## Type Group D - Reina Incised (n=572)

Form	Quantity	% of Ceramic Rims	% of Group	% of Form
Jar, narrow necked	365	0.9	63.8	6.9
Jar, medium necked	108	0.3	18.9	1.7
Jar, unspecified	76	0.2	13.3	4.0
Jar, Reina type	14	0.0	2.4	100.0
Straight-walled dish	5	0.0	0.9	0.5
Restricted wide	2	0.0	0.3	0.3
Flaring-walled bowl/dish	1	0.0	0.2	0.0
Hemispherical bowl	1	0.0	0.2	0.0

## Type Group E - Bichromes (n=87)

Form	Quantity	% of Ceramic Rims	% of Group	% of Form
Hemispherical bowl	40	0.1	46.0	1.0
Caldero	17	0.0	19.5	0.3
Jar, medium-necked	9	0.0	10.3	0.1
Straight-walled dish	8	0.0	9.2	0.8
Flaring-walled bowl/dish	5	0.0	5.7	0.1
Restricted narrow	2	0.0	2.3	0.6
Cylinder	2	0.0	2.3	0.2
Jar, narrow-necked	2	0.0	2.3	0.0
Bowl/dish	1	0.0	1.2	0.5
Jar, unspecified	1	0.0	1.2	0.1

(Table 5.12, cont.)

## Type Group F - Local polychromes other than Copador (n=3987)

Form	Quantity	% of Ceramic Rims	% of Group	% of Form
Hemispherical bowl	1919	4.7	48.1	46.4
Plate (tripod)	895	2.2	22.4	75.7
Flaring-walled bowl/dish	772	1.9	19.4	13.7
Straight-walled dish	97	0.2	2.4	9.1
Restricted wide	91	0.2	2.3	14.9
Restricted narrow	78	0.2	2.0	24.1
Cylinder	65	0.2	1.6	5.1
Bowl/dish	31	0.1	0.8	15.6
Jar, narrow-necked	14	0.0	0.4	0.3
Jar, unspecified	9	0.0	0.2	0.5
Jar, medium-necked	7	0.0	0.2	0.1
Semi-necked restricted	3	0.0	0.1	6.4
Cylindrical censer	3	0.0	0.1	0.4
Lid	2	0.0	0.1	0.2
Basal rims with cut-outs	1	0.0	0.0	0.5

## Type Group G - Copador Polychrome (n=2870)

Form	Quantity	% of Ceramic Rims	% of Group	% of Form
Flaring walled bowl/dish	1528	3.8	53.2	27.1
Hemispherical bowl	1001	2.5	34.9	24.2
Straight-walled dish	137	0.3	4.8	12.9
Cylinder	95	0.2	3.3	7.5
Bowl/dish	61	0.2	2.1	30.7
Jar, narrow-necked	20	0.0	0.7	0.4
Restricted wide	11	0.0	0.4	1.8
Jar, medium-necked	8	0.0	0.3	0.1
Tecomate	4	0.0	0.1	1.9
Plate (tripod)	3	0.0	0.1	0.3
Spout	2	0.0	0.1	3.3

(Table 5.12, cont.)

## Type Group H - Foreign polychromes (n=528)

Form	Quantity	% of Ceramic Rims	% of Group	% of Form
Cylinder	341	0.8	64.6	26.9
Flaring-walled bowl/dish	101	0.2	19.1	1.8
Jar, narrow-necked	26	0.1	4.9	0.5
Straight-walled dish	24	0.1	4.5	2.3
Hemispherical bowl	21	0.1	4.0	0.5
Tecomate	4	0.0	0.8	1.9
Cylinder/dish	3	0.0	0.6	100.0
Jar, medium-necked	2	0.0	0.4	0.0
Bowl/dish	1	0.0	0.2	0.5
Semi-necked restricted	1	0.0	0.2	2.1
Plate (tripod)	1	0.0	0.2	0.1
Cylindrical censer	1	0.0	0.2	0.1
Restricted narrow	1	0.0	0.2	0.3
Jar, unspecified	1	0.0	0.2	0.1

## Type Group I - Surlo (n=4687)

Form	Quantity	% of Ceramic Rims	% of Group	% of Form
Flaring-walled bowl/dish	2534	6.3	54.1	44.9
Hemispherical bowl	745	1.8	15.9	18.0
Cylinder	599	1.5	12.9	47.2
Straight-walled dish	448	1.1	9.6	42.2
Plate (tripod)	228	0.6	4.9	19.5
Bowl/dish	83	0.2	1.8	41.7
Restricted narrow	16	0.0	0.3	5.0
Restricted wide	11	0.0	0.2	1.8
Jar, unspecified	7	0.0	0.1	0.4
Miniature	4	0.0	0.1	100.0
Caldero	3	0.0	0.1	0.0
Jar, narrow-necked	3	0.0	0.1	0.1
Spout	3	0.0	0.1	5.0
Pot stand	1	0.0	0.0	100.0
Colander	1	0.0	0.0	14.3
Basal rims with cut-outs	1	0.0	0.0	0.5

(Table 5.12, cont.)

## Type Group J - Indeterminate (n=1872)

Form	Quantity	% of Ceramic Rims	% of Group	% of Form
Flaring-walled bowl/dish	669	1.7	35.7	11.8
Jar, narrow-necked	289	0.7	15.4	5.5
Caldero	241	0.6	12.9	3.8
Jar, medium-necked	218	0.5	11.6	3.3
Straight-walled dish	180	0.4	9.6	17.0
Hemispherical bowl	106	0.3	5.7	2.6
Cylinder	44	0.1	2.4	3.5
Plate (tripod)	37	0.1	2.0	3.1
Restricted wide	32	0.1	1.7	5.2
Jar, unspecified	27	0.1	1.4	1.4
Restricted narrow	9	0.0	0.5	2.8
Lid	9	0.0	0.5	1.1
Spout	4	0.0	0.2	6.7
Jar, large-necked	4	0.0	0.2	0.8
Ladle censer	1	0.0	0.1	0.5
Bowl/dish	1	0.0	0.1	0.5
Cylindrical censer	1	0.0	0.1	0.1

The most common forms in type group A (plain wares, generally monochrome) are calderos, narrow- and medium-necked jars, and comals (72.1%). Type groups B (incised plain wares) and C (Casaca Striated) consist predominately of jars, narrow- and medium-necked as well as unspecified (91.8% and 91.7%). Most of the vessels in type group D (Reina Incised) are jars (96.0%).

Hemispherical bowls, calderos, medium-necked jars, and straight-walled dishes account for 85.1% of type group E (bichromes). The most frequent forms in type group F (local polychromes other than Copador) are hemispherical bowls, tripod plates, and flaring-walled bowl/dishes (89.9%). Vessels in type group G (Copador Polychrome) are mainly flaring-walled bowl/dishes and hemispherical bowls (88.1%) with straight-walled dishes, cylinders, and bowl/dishes, unspecified, also present. Cylinders along with flaring-walled bowl/dishes dominate type

group H (foreign polychromes) (83.7%), followed by narrow-necked jars, straight-walled dishes, and hemispherical bowls (13.4%). Over half of the vessels in type group I (Surlo) are flaring-walled bowl/dishes with hemispherical bowls, cylinders, and straight-walled dishes the next most common (92.3% combined).

Table 5.13 summarizes the preceding discussion by showing the dominant forms in each type group on the basis of the percentages shown in column four ("% of Type Group") in Table 5.12. It makes clear that certain forms tend to fall predominantly into certain type groups.

Table 5.13: Dominant Forms in each Type Group

Form <sup>a</sup>	Type Group								
	A	B	C	D	E	F	G	H	I
Cald	31.4	-	-	-	19.5	-	-	-	-
Jar M	14.6	60.5	48.1	18.9	10.3	-	-	-	-
Jar N	15.2	19.9	24.1	63.8	-	-	-	-	-
Jar u	-	11.5	19.5	13.3	-	-	-	-	-
Comal	10.8	-	-	-	-	-	-	-	-
Plate	-	-	-	-	-	22.4	-	-	-
HB	-	-	-	-	46.0	48.1	34.9	-	15.9
FW b/d	-	-	-	-	-	19.4	53.2	19.1	54.1
Cyl	-	-	-	-	-	-	-	64.6	12.9
SW dsh	-	-	-	-	9.2	-	-	-	9.6
Total %	72.1%	91.8%	91.7%	96.0%	85.1%	89.9%	88.1%	83.7%	92.3%

<sup>a</sup> Cald = Caldero; Jar M = Jar, medium-necked; Jar N = Jar, narrow-necked; Jar u = Jar, unspecified; HB = Hemispherical bowl; FW b/d = Flaring-walled bowl/dish; Cyl = Cylinder; SW dsh = Straight-walled dish.

#### Bone (Class 06)

#### Categories

The categories for worked and unworked bone are shown in Table 5.14.

Table 5.14: Categories for Worked and Unworked Bone

Material	Category
Faunal	1. Awl, unspecified
	2. Awl or warp lifter, pointed end
	3. Awl with rounded end
	4. Awl, medial fragment
	5. Awl, butt-end fragment
	6. Needle, unspecified
	7. Needle with pointed end
	8. Needle or pin with pointed end
	9. Pin with rounded end
	10. Tube or ring
	11. Drilled teeth
	12. Spatulate tool
	13. Cut long bone
	14. Rasp
	15. Shaped or perforated bone
	16. Carved bone ornaments
	17. Worked antler
	18. Unmodified bone or antler
	19. Miscellaneous worked
Human	20. Miscellaneous worked

As mentioned earlier, this classification represents a much greater departure from the PAC system than for any other class. In fact, for the worked bone, I have abandoned the PAC coding altogether. Since there was no identification of the species of animals represented in the collection, no discussion of consumption patterns is possible.

#### *Function*

The artifacts labeled as awls are made from animal long bones, usually of deer, and generally have a length twice their width. The cross-section is rectangular to ovate-rectangular. The term awl is used as a convenient rubric which has been widely employed at other sites for similar, sometimes identical tools (cf. Kidder 1947:54; Willey et al. 1965:492; Proskouriakoff 1962a:373; Willey 1972:229-230; Sheets 1978:51;



Willey 1978:168-169). For the purposes of my analysis the main distinctions within this set of artifacts are made on the basis of the working tip. Category 2 represents the awl qua awl, that is to say a tool with one pointed end for piercing. The opposite end usually retains the joint of the bone, providing a rounded surface to grip. These tools could have been used to make holes in some material such as soft leather or hide (Sheets 1978:51). However, they could also have been used as picks to aid in weaving, basketry, or netting. In some parts of highland Guatemala, warp lifters, tools used in brocading, are made from poultry leg bones. One illustrated example is identical in form and size to the majority of the awls in this category (O'Neale 1945:34, fig. 75h). I saw a similar tool in Santa Barbara, Honduras, which I was told was used in the manufacture of the hats and baskets produced in that town. There are twenty-two awls of Category 2 for which complete length is measurable. The minimum length is 5.1 cm, the maximum 15.5 cm, with a mean of 8.5 cm and a standard deviation of 2.58 cm.

Tools in Category 3 have one working end but the tip is flattened and rounded, making its use as a perforator unlikely. These may have functioned as gouges, smoothers, spreaders, or scoops. The one complete example is 8.8 cm long. The remaining categories, 1, 5, and 7, contain pieces for which no specific information was available or which were too fragmentary to determine the shape of the working end.

Table 5.15 lists information on the maximum width dimension. As can be seen, of the tools for which the working end was preserved (Categories 2 and 3,  $n=74$ ), most (58 or 78.4%) are awls with a single pointed end. In this table and some that follow, a notation of the form "( $n=58$ )" placed after the category label specifies the total number of

artifacts in that category. The quantity listed in the column labeled "N" is the number of tools which could be measured. In Table 5.15, for example, there are 58 awls in Category 2 (awl with pointed end), but only 56 for which maximum width could be measured.

Table 5.15: Awls<sup>a</sup>

Maximum Width (cm)					
Category	N	Min	Max	Mean	SD
Pointed end (n=58)	56	0.4	2.2	1.17	0.41
Rounded end (n=16)	14	0.8	2.2	1.39	0.37
Butt fragments (n=42)	42	0.5	3.1	1.39	0.61

<sup>a</sup>Based on the entire sample of bone awls from all Sepulturas excavations, n=186. Measurement was not possible on all specimens. 65 (35%) in the Artifact Distribution Database.

Needles and pins (6-9) are both short and thin with a circular to oval cross-section. Artifacts classified as needles (6 and 7) have a drilled or carved eye at the end opposite the working tip. The butt may be rounded, square or pointed. Artifacts put in Category 8 are fragments with a pointed tip or from the middle section of the shaft. The presence of an eye cannot be determined, raising the possibility that at least some were pins. The majority of artifacts fall in this category. In addition to the possible pointed pins, four whole artifacts have no eye but a rounded tip (Category 9). The maximum diameters of the needles, needle or pin fragments, and pins are comparable (see Table 5.16). The length measurements of the six complete needles are 10.8 cm, 10.7 cm, 10.3 cm, 8.0 cm, 6.0 cm, and 4.8 cm long (mean 8.43 cm, sd 2.38 cm). This suggests that a variety of material was sewn. The longest preserved needle or pin fragment is 8.6 cm. The two whole pins with rounded ends measured 3.6 and 4.6 cm long. The small sample size for the rounded end category, however, rules out any firm conclusion on size

differences. Two of the needle or pin fragments are decorated with incision or grooving.

Table 5.16: Needles and Pins<sup>a</sup>

Maximum diameter (cm)					
Category	N	Min	Max	Mean	SD
Needle (n=41)	41	0.2	0.8	0.38	0.13
Needle or pin (n=78)	75	0.1	0.7	0.39	0.13
Pin, rounded (n=4)	4	0.3	0.6	0.45	0.11

<sup>a</sup>Based on the entire sample of bone pins and needles from all Sepulturas excavations, n=143. Measurement was not possible on all specimens. 42 (29%) in the Artifact Distribution Database.

Bone needles with both carved and drilled eyes are reported from a number of Maya sites (cf. Kidder 1947:56; Willey et al. 1965:500; Proskouriakoff 1962a:374; Willey 1972:231). Sizes are generally comparable. A related sort of artifact, called a bodkin, described as being "broader and flatter than the needles" (Kidder 1947:56) and apparently having an eye is not found at Copan (see also Proskouriakoff 1962a:374, fig. 37m). The obvious use for needles is to sew. Bone needles are still used, although less frequently than metal ones, by some Highland Maya today (Hayden and Cannon 1984:88-89). Long ones may be used as warp lifters or to insert yarn in brocading (O'Neale 1945:34,58). Pointed pins (or needles) may have served to hold cloth to tenter sticks during weaving or as general fasteners (O'Neale 1945:32; Sperlich and Sperlich 1980:33).

Tubes and rings (10) are made from mammal or bird long bones. They vary in size and surface treatment. Some have one or more circular perforations in the shaft; others are incised or carved. By and large they bear the appearance of having been beads or other sorts of adornment, although it is possible that the longer perforated ones were

musical instruments (cf. Tozzer 1941:93). Willey et al. (1965:494-496) suggest that similar tubes at Barton Ramie may have been used as musical instruments, rasps, or handles for obsidian blades. (See also Kidder 1947:57; Willey 1972:234-235; Sheets 1978:48-49; Proskouriakoff 1962a:344; Willey 1978:169.) Table 5.10 summarizes the dimensions.

Table 5.17: Tubes and Rings<sup>a</sup>

Dimension (cm)	N	Min	Max	Mean	SD
Length	33	1.3	15.0	3.25	2.30
Maximum diameter	55	0.5	2.3	1.28	0.58

<sup>a</sup>Based on the entire sample of bone tubes and rings from all Sepulturas excavations, n=69. Measurement was not possible on all specimens. 26 (38%) in the loci used here.

Drilled teeth (11) are also considered to be ornaments. Most of the teeth are the canines of large mammals; some are molars. The number of perforations varies but one is the most common (39 out of 41 examples or 95.1%) (Kidder 1947:57-58; Proskouriakoff 1962a:377; Willey et al. 1965:502; Willey 1972:239; Willey 1978:171).

Spatulate tools (12) are made of split long bones and are marked by a noticeable widening at the working end. This end is also concave in cross-section. Their presumed use is as a scoop or gouge. The one whole example has a triangular shape and measures 7.2 cm long × 3.6 cm wide. The width to length ratio is 0.5. There are eight pieces (including the whole one) out of fourteen for which maximum width may be measured. The lowest maximum width measurement is 1.5 cm; the highest is 3.6 cm. Mean maximum width is 2.28 cm with a standard deviation of 0.61 cm (cf. Willey et al. 1965:494).

Category 13 comprises long bones with horizontal or vertical cut or saw marks or cut edges. In the former case, the cutting or sawing

operation may not have been completed. The pieces with cut edges are very close to being tools in some cases but lack the smoothing and polishing found on the finished items. Many would appear to be unfinished awls. In all cases, the emphasis is on reducing or changing the shape of the bone by removing certain parts, splitting the shaft, and so on.

Rasps (14) are pieces of long bone with a series of deep parallel grooves carved perpendicular to the bone's original long axis. The number of grooves or cuts ranges from four to seventeen, although none of the examples is whole. It is assumed that these served as noisemakers-cum-musical instruments (Proskouriakoff 1962a:374; Willey et al. 1965:496; Willey 1978:169-170).

Categories 15 and 16 contain a set of artifacts which are interpreted as personal adornments of one kind or another. Category 15 is made up mostly of animal mandibles plus some other kinds of bone into all of which holes have been drilled. They are assumed to have been pendants. Category 16 consists of quite elaborately carved sections of bone. Many show human, animal, or possibly supernatural faces or figures; others have elaborate abstract and glyphic carving. Most seem to have been originally made in the form of narrow sticks with the carving at one end. Preserved lengths range from 3.1 cm to 8.2 cm. These sticks probably served as hair ornaments although they could also have been inserted in nose or ear slits or through loosely woven fabric (Willey et al. 1965:502; Kidder 1947:54; Willey 1972:235-236; J. Thompson 1939:178).

Worked antler (17) contains all pieces of antler with any signs of shaping and use. In most cases, it is the pointed tip of the tine which seems to have been the part used (cf. Sheets 1978:51-52).

Unmodified bone or antler (18) is self-explanatory. One problem with this category is that quantity and weight were not both recorded for all entries. For the 1981 excavations (Ops 8-10) weight was noted but not quantity. Most of the later analyses recorded both but there are some with quantity only. For those entries with no quantity recorded I have arbitrarily set the quantity to one. This results, of course, in an underestimation of the amount of unworked bone for certain patios.

The final two categories (19 and 20), both labeled miscellaneous worked, are catch-alls for various entries for which I had no more specific information beyond the indication of worked bone.

#### *Representation in the Artifact Distribution Database*

The overwhelming majority of the bone sample (94.0%) consists of unmodified faunal bone or antler. The remaining 6% of the sample (n=197), representing worked bone, has been tabulated in Table 5.18. The highest quantities are almost equally divided among needles or pins, awl fragments, tubes or rings, and cut long bones. Each of these categories accounts for between 12 and 14% of the worked bone total. Awls with pointed ends are also fairly common.

Table 5.19 lists just the awls. Most of them have a pointed tip or are medial fragments which cannot be more precisely typed. Medial fragments added to butt-end fragments equal 34, or 53.1% of all awls. In other words, slightly more than half of the awl sample is missing the

working end. The unspecified category is well represented (13.8% of awls) but the kind of tip cannot be determined.

As shown in Table 5.20, most of the needle and pin sample consists of fragments without the butt end, making it difficult to be sure if they had an eye or not. Eyed needles are the next most common (i.e. pieces with the eye preserved).

Table 5.18: Worked Bone Artifacts in Total Sample  
(n=197)

Form	Quantity	% of Bone	% of Worked Bone
Needle or pin	28	0.9	14.2
Awl, medial fragment	27	0.8	13.7
Tube or ring	26	0.8	13.2
Cut long bone	25	0.8	12.7
Awl, pointed end	18	0.5	9.1
Drilled teeth	12	0.4	6.1
Needle, pointed end	10	0.3	5.1
Awl, unspecified	9	0.3	4.6
Spatulate tool	9	0.3	4.6
Awl, butt end (fragmentary)	7	0.2	3.6
Worked antler	6	0.2	3.1
Shaped and/or perforated	5	0.2	2.5
Awl, rounded end	4	0.1	2.0
Carved bone ornaments	4	0.1	2.0
Pin, rounded end	3	0.1	1.5
Worked human bone	1	0.0	0.5
Needle, unspecified	1	0.0	0.5
Rasp	1	0.0	0.5
Miscellaneous worked	1	0.0	0.5

Table 5.19: Kinds of Awls Present  
(n=65)

Form	Quantity	% of Bone	% of Worked Bone	% of Awls
Medial fragment	27	0.8	13.7	41.5
With pointed end	18	0.5	9.1	27.7
Unspecified	9	0.3	4.6	13.8
Butt end (fragmentary)	7	0.2	3.6	10.8
With rounded end	4	0.1	2.0	6.2

Table 5.20: Kinds of Needles and Pins Present  
(n=42)

Form	Quantity	% of Bone	% of Worked Bone	% of Needles and Pins
Needle or pin	28	0.9	14.2	66.7
Needle	10	0.3	5.1	23.8
Pin, rounded	3	0.1	1.5	7.1
Unspecified	1	0.0	0.5	2.4

### Shell (Class 07)

#### *Categories*

Table 5.21 shows the categories for shell artifacts.

Table 5.21: Categories for Shell Artifacts

Unmodified  
Jewelry  
Star  
Miscellaneous worked

#### *Function*

This entire class is unsatisfactory for a number of reasons. The original coding sequence required a decision as to shell type: bivalve, gastropod, jute (a local kind of snail), or indeterminate. Such identification was difficult because of the fragmentary nature of most shell artifacts recovered and lack of expert knowledge. A large number of shell artifacts ended up in the indeterminate category. I therefore eliminated this information. The emphasis for this class will therefore be on the modified pieces or artifacts, all of which are items of personal adornment or decoration.



*Representation in the Artifact Distribution Database*

Shell is presented with turtle (see the next section) in Table 5.22. The vast majority of shell (96.5%) and turtle (85.5%) is unmodified. Of the worked pieces, most served a decorative purpose.

Table 5.22: Shell (N=695) and Turtle (N=83) in Total Sample

<u>Form</u>	<u>Quantity</u>	<u>% of Shell and Turtle</u>
Unmodified shell	671	96.5
Miscellaneous worked shell	20	2.9
Shell jewelry	3	0.4
Shell star	1	0.1
Unmodified turtle	71	85.5
Modified turtle	12	14.5

**Turtle (Class 10)**

*Categories*

The categories for turtleshell are shown in Table 5.23.

Table 5.23: Categories for Turtleshell

Unmodified  
Modified

Most modified turtle shell was too fragmentary to give any idea of the form or purpose of the original artifacts. Some pieces were quite elaborately carved with traces of red paint.

*Function*

There is no information available.

*Representation in the Artifact Distribution Database*

The distribution is presented in Table 5.22.

## Other Ceramic Artifacts (Class 13)

### *Categories*

The categories for the class other ceramic artifacts are listed in Table 5.24.

Table 5.24: Categories for Other Ceramic Artifacts

Candelero
Flask
Miniature vessel
Jewelry
Spindle whorl
Perforated flat disk

This class as a whole serves as a repository for those artifacts made of baked clay which are neither figurines nor full-sized ceramic vessels.

### *Function*

Candeleros are small hand-modeled containers with a limited interior capacity. Shapes generally fall into one of a set of fairly regular forms (cylindrical, globular, bottle-shaped, etc.). Decoration ranges from combinations of incision and punctation to modeled animal faces and legs. Recovered by all previous excavations (Longyear 1952:101-102; G. Willey, pers. comm.), they are of common occurrence in Sepulturas. They are assumed to have been used in some way in connection with ritual observances.

Flasks are small bottles of standardized size, shape, and design manufactured using molds. Elaborately decorated with standardized designs, they bear a close resemblance to ones from the Ulua Valley (Gordon 1898:19-21; also Longyear 1952:102) and the Alta Verapaz region

(Schele and Miller 1986 Pl. 103). Their possible use as containers of unusual substances is indicated by the finding of mercury inside one in the cache chamber below Stela M in the Main Group (Strömsvik 1941a:73). In Sepulturas, flasks are found in burials and once as a cache (Gr 9N-8 Patio H Str 110), suggesting their use as ritual objects or status markers. They also occur in the refuse deposits. None was found in the primary use-related contexts.

Miniature vessels are mostly very small jars or bowls, often under 6 cm in height. Although generally well-made, they lack the elaborate decoration of the flasks. They are another example of small containers of uncertain function.

The jewelry category subsumes beads, labrets, and ear spools or flares; these are items of personal adornment and display.

Spindle whorls may be of two kinds, "those specially manufactured and fired as such and those made from potsherds" (Willey et al. 1965:402). In the system used here, the label spindle whorl will be reserved for the former kind while perforated flat disk will refer to the latter. Both kinds of artifacts were placed on the lower ends of spindles for weight and balance while spinning thread. "The whorl, as it is called, gives the necessary steadiness to the spindle as it is made to revolve by a flick of the right thumb against the second and third finger" (O'Neale 1945:8; see also Sperlich and Sperlich 1980:5; Osborne 1975:33).

It is possible to divide the spindle whorls into four shape groups based on cross-sectional outline: sphere or ellipse, hemisphere, truncated cone, and zone of sphere. Although some are plain, most spindle whorls are decorated with incision and punctation in geometric designs

emphasizing curved lines, crosses, and stars in combination with cross-hatched areas and small dots. The only representational designs are of birds. Neither these variations in shape nor these decorative differences are assumed to have affected the use of the items. Table 5.25 gives some dimensions for all spindle whorls from the excavations, slightly less than half of which are included in the Artifact Distribution Database.

Spindle whorls per se have been considered to be relatively late phenomena at most central Maya sites (cf. Kidder 1947), appearing in very Late Classic to Early Postclassic levels (Willey et al. 1965:402; Willey 1972:84-86; J. Thompson 1939:153). Elsewhere in Mesoamerica, spindle whorls are reported from Lepa-phase deposits at Quelepa, El Salvador (Andrews V 1976:156). At Chalchuapa, most spindle whorls date from Classic to Postclassic contexts as well (Sheets 1978:61-63). In terms of form, the Copan-Sepulturas examples are more like the ones illustrated from Chalchuapa than those from Quelepa or San Jose.

Table 5.25: Spindle Whorls<sup>a</sup>

A. Diameter (cm)

Shape	N	Min	Max	Mean	SD
Sphere (n=11)	10	2.8	3.7	3.29	0.14
Hemisphere (n=14)	11	2.5	3.8	3.01	0.39
Truncated cone (n=1)	1		2.2		
Zone of sphere (n=1)	1		2.3		

B. Thickness (cm)

Shape	N	Min	Max	Mean	SD
Sphere (n=11)	11	1.0	2.0	1.51	0.28
Hemisphere (n=14)	14	0.9	2.0	1.49	0.40
Truncated cone (n=1)	1		1.6		
Zone of sphere (n=1)	1		1.8		

<sup>a</sup>Based on all spindle whorls from all Sepulturas excavations, n=27. Measurement was not possible on all specimens. 12 (44%) in the Artifact Distribution Database.

The final category contains round disks created from ceramic vessels, presumably representing a re-use of the pieces after breakage. The original vessels run the gamut of both plain and fancy types including polychromes. All have a single central perforation that may be either biconically or uniconically drilled.

Table 5.26: Round Perforated Disks<sup>a</sup>

Dimension (cm)	N	Min	Max	Mean	SD
Diameter	65	1.8	6.0	3.88	0.94
Thickness	66	0.1	0.9	0.48	0.16
Perforation diameter	59	0.2	0.9	0.54	0.17

<sup>a</sup>Based on all round perforated disks from all Sepulturas excavations, N=66. Measurement was not possible on all specimens. 33 (50%) in the Artifact Distribution Database.

The Kruskal-Wallis one-way analysis of variance and the Mann-Whitney *U* test (for the two-sample case) were used to evaluate the apparent differences in the diameters and thicknesses for the spindle whorls and round perforated disks. Both of these statistics are powerful nonparametric alternatives to Student's *t* test (Siegel 1956:116-127, 184-193). This sort of test is preferred here due to doubts about the normality of the underlying distributions (see Chapter 3). A rejection level of 0.05 was used. The Mann-Whitney *U* statistic for the comparison of spherical and hemispherical spindle whorl thickness was 61.00, which has a probability of 0.538 (df = 1). This says there is no real difference in the thickness of the two forms. I did not bother to calculate a statistic for the flat perforated disk thickness since it was obviously different from that of the spindle whorls. Diameters of the two types of spindle whorls and of the flat perforated disks, on the other hand,

are significantly different. The Kruskal-Wallis statistic for a three-way comparison is 12.97, which has a probability of 0.002 ( $df = 2$ ).

Although such round perforated disks are generally more common in Late Classic contexts than the specially made spindle whorls (Kidder 1947; Willey et al. 1965; Sheets 1978), some doubts have been expressed as to their use as whorls. Sheets (1978:67), for example, points out that many of the Chalchuapa examples are pierced off-center and therefore do not provide proper balance to the spindle. The disks included in this category in this study, however, are only those with a central perforation. Disks with off-center perforations were put originally in another category and have not been considered here. Furthermore, a few cases of recent use of thin flat disks for whorls have been reported. O'Neale (1945:15, fig. 75b-c) says that the spindles used by men for spinning wool yarn have a whorl that is a cedar disk which is noticeably thinner than the cotton-spindle spindle whorls. Sperlich and Sperlich (1980:11, plate 9) illustrate a spindle used only by men to double thread for bags (the kind of thread is not specified). Here again the spindle whorl is larger and thinner than those used by women. In these modern examples, the material spun is wool, a post-Conquest introduction. However, their use with wool demonstrates the effectiveness of thin flat disks as spindle whorls, if properly made, perhaps especially with heavy or coarse materials, such as sisal-like or hemp-like fibers (cf. Carlsen 1986).

*Representation in the Artifact Distribution Database*

Almost half of this class, 48.9%, are candeleros (see Table 5.27). Perforated flat disks, miniature vessels, and jewelry have fairly similar proportional representation. Spindle whorls are the least common.

Table 5.27: Other Ceramic Artifacts in Total Sample  
(N=227)

Form	Quantity	% Other Ceramic Artifacts
Canelero	111	48.9
Perforated flat disk	33	14.5
Miniature vessel	30	13.2
Jewelry	23	10.1
Flask	18	7.9
Spindle whorl	12	5.3

**Figurines (Class 14)**

*Categories*

Table 5.28 lists the categories for figurines.

Table 5.28: Categories for Figurines

Hand-made figurine  
 Mold-made figurine  
 Figurine of indeterminate manufacture  
 Mold-made whistle  
 Mold-made jointed figurine  
 Jointed figurine of indeterminate manufacture

*Function*

Figurines and whistles are small, free-standing, baked-clay figures of animals or humans. Some fragments classified as figurines may actually be from whistles but hollow non-whistle figurines do occur. Although mold-made figurines and whistles have been cited as a typically "Maya" or Central Peten trait (Longyear 1942; Leventhal et al. 1982),

many of the ones from Sepulturas are identical or very similar in paste, manufacture, and design to ones made in the Ulua Valley-Lake Yojoa-Central Honduras region whence they are assumed to have been imported (R. Joyce, pers. comm.; cf. Gordon 1898 Plates 9, 12; Strong 1948:93; Glass 1966:173-174; Longyear 1952:104; Benyo 1986:568-572; Baudez and Becquelin 1973). There are cases of whistles or figurines of identical design but of varying size found at Sepulturas and at other Honduran sites. Other figurines and whistles are indeed more similar to the lowland Maya examples such as those found at Altar de Sacrificios (Willey 1972; Longyear 1952:104). In addition to the ones made from molds there are many hand-formed figures, usually although not exclusively of animals. On the basis solely of macroscopic inspection, many of these animal or human figures appear to have the same paste as certain local ceramic types such as Surlo. No attempt has been made to distinguish styles of figurines or whistles in the computer coding.

Jointed figurine refers to modeled animal or human limbs which had a drilled hole at the proximal end of the limb. Some examples had a pointed dorsal end with no indication of a foot. These are identical to the "needles" described by Joyce (1985:329-330) from Ulua Valley sites and also mentioned by Gordon (1898). They have been found as well at the site of La Ceiba in west-central Honduras (Benyo 1986:574-575). Other limbs indicated the foot or paw clearly. Possibly related are several heads with a solid, bottle-stopper-like projection in place of a neck, although these may in fact be part of unjointed figurines manufactured in several steps (cf. Dahlin 1978). A single example of a torso may also belong to this class. It is a hollow cylinder closed at the top except for a small hole into which a "neck" and head could be



inserted. It is also pierced on either side of the torso, possibly for the attachment of arms. At least some of the artifacts put in this class resemble arms from jointed figurines of the Preclassic period reported from Atiquizaya in western El Salvador (Haberland 1960) as well as from Tazumal/Chalchuapa and Kaminaljuyu (Dahlin 1978:170; Borhegyi 1954). The torso discussed above, however, is completely different. Pending a detailed study and typology of the entire figurine collection, little more can be said about the presence of jointed figurines at Sepulturas except that a variety of objects are included in the class as it presently stands. It is quite possible that at least some of the pierced objects were used as pendants.

Some burials included whistles in their offerings. In a few cases, figurines or whistles were found in situ on terrace or room surfaces suggesting their presence in the buildings. The associated material does not indicate manufacture or active use of any kind. In short, although it is apparent that these items were available and in circulation, their precise purpose is uncertain. However, the burial data suggest their importance and possible ritual significance.

*Representation in the Artifact Distribution Database*

Table 5.29: Figurines in Total Sample  
(N=129)

<u>Form</u>	<u>Quantity</u>	<u>% of Figurines</u>
Hand-made figurine	105	81.4
Indeterminate-make figurine	14	10.9
Mold-made whistle	5	3.9
Mold-made figurine	2	1.6
Mold-made jointed figurine	2	1.6
Indeterminate-make jointed figurine	1	0.8

Most artifacts in the figurine/whistle class are hand-made figurines (81.4%). Next most common are figurines of indeterminate manufacture (10.9). Mold-made figurines and whistles account for only 1.6% and 3.9% of the class respectively (see Table 5.29).

#### Whole Ceramic Vessels (Class 24)

This class contains all complete vessels whether found intact or not. Many are part of primary contexts such as features, caches, or burials, but a certain number of restorable vessels were also separated out in the middens. The form and type categories are the same as for Class 04, ceramic rims. Since entries in this class are whole items in contrast to the other classes which count pieces, the whole vessels will be treated somewhat differently in the discussions.

#### *Representation in the Artifact Distribution Database*

Table 5.30: Whole Ceramic Vessels in Total Sample  
(N=97)

Form/type	Quantity	% of Whole Ceramic Vessels
Caldero, plain	10	10.3
Narrow-necked jar, plain	10	10.3
Medium-necked jar, Casaca	8	8.2
Cylindrical censer, plain	7	7.2
Cylinder, Surlo	6	6.2
Large-necked jar, Casaca	6	6.2
Straight-walled dish, Surlo	4	4.1
Narrow-necked jar, Casaca	4	4.1
Cylinder, plain	3	3.1
Large-necked jar, plain	3	3.1
Medium-necked jar, plain	3	3.1
Flat-rimmed caldero, plain	2	2.1
Caldero, Casaca	2	2.1
Straight-walled dish, indeterminate	2	2.1
Hemispherical bowl, Surlo	2	2.1
Hemispherical bowl, Copador	2	2.1
Flaring bowl/dish, Surlo	2	2.1

(Table 5.30, cont.)

Form/type	Quantity	% of Whole Ceramic Vessels
Flaring bowl/dish, local polychrome	2	2.1
Cylinder, foreign polychrome	2	2.1
Ladle censer, plain	2	2.1
Unspecified jar, plain	2	2.1
Narrow-necked jar, foreign	2	2.1
Plate, Surlo	1	1.0
Straight-walled dish, plain	1	1.0
Hemispherical bowl, Surlo	1	1.0
Cylinder, Copador	1	1.0
Pot stand, plain	1	1.0
Colander, plain	1	1.0
3-prong brazier, plain	1	1.0
Unspecified jar, bichrome	1	1.0
Restricted narrow, plain	1	1.0
Narrow-necked jar, Reina	1	1.0
Narrow-necked jar, bichrome	1	1.0
Semi-necked, Casaca	1	1.0
Square bottle, local polychrome	1	1.0

The forms and types of whole vessels present are given in Table 5.30. Most of these have been discussed in Chapter 4 in connection with the description of the loci and the features. The features will be treated in greater depth in the following section.

#### DISCUSSION OF ARTIFACT ASSOCIATIONS

##### Features

Although the association of in situ non-refuse deposits with architectural units is of great importance in analysis of the structures, the features can also be examined purely as conjunctions of artifacts used contemporaneously to accomplish the same activity or set of related activities. This section aims to describe those features or complexes of features containing more than one artifact in terms of the

kinds of activities represented. As a starting point for this discussion, the contents of all features first listed in Chapter 4 are summarized in Table 5.31.

Table 5.31: Distribution and Content of Features by Patio for Gr 9N-8 and Gr 9M-22 Patio A

The table does not include features assigned to specific artifacts within a midden deposit or those assigned to part or all of a midden deposit. Also excluded are features assigned to architectural or other non-artifactual elements. The column heading ST = Superstructure type, explained in Chapter 6.

In this and subsequent tables, L = "large-necked", M = "medium-necked", and N = "narrow-necked" when used with reference to jars.

• Gr 9N-8 Patio A (Operation 8)

Str (Room)	Feature Number	Feature Description	Location	ST
9N-81 (1A)	4	Plain jar L	Rm flr	B4
9N-81 (1A)	5	Stone hacha and yoke	Rm flr	B4
9N-81 (1B)	6	Plain cylindrical censer	Rm flr	B4
9N-81 (1B)	7	Stone hacha	Rm flr	B4
9N-81	9	Chert — 2 cores, 1 chunk, 12 flakes, 1 biface, obsidian — 1 chunk, 14 blades, 1 projectile point, 1 stone bowl, 1 celt, 77.2 g animal bone, ceramic sherds from plain caldero, plate, jars L, M, N, fancy hemispherical bowl	Up terr	B4
9N-82W (4)	3	Tuff cylinder	Rm flr	B2

• Gr 9N-8 Patio B (Operation 16)

Str (Room)	Feature Number	Feature Description	Location	ST
(9N-67, 74)	48	Plain caldero, Casaca jar M	Patio	--
9N-68 (1)	4	Mano, stone bowl or mortar, metate, parts of Casaca jar and plain comal	Rm flr	A5
9N-68 (2)	7	3 metates, plain 3-prong brazier, 3 Casaca jars (N, M, L), 6 obsidian blades, 2 chunks	Rm flr	A5
9N-73 (2)	3	Plain semi-necked jar, mold-made figurine	Rm flr	A5
(9N-74)	56	Mano	Patio	--
9N-74N (1)	63	Ulúa P. jar, chert chunk	Rm flr	A1
9N-74C (2)	47	Ceramic bead, 2 abraders, Casaca jar M, plain jar L	Rm flr	A5

(Table 5.31, cont.)

Str (Room)	Feature Number	Feature Description	Location	ST
9N-74C (2)	54	Plain jar L, Casaca caldero with spout?, lime inside	Rm flr	A5
9N-74C (3)	44	Plain jar	Rm flr	A5
9N-74C (3)	46	Plain caldero, flat-rimmed caldero, and jars M and N	Rm flr	A5
9N-74C	41	Ulua P. cylinder, plain jar	Lw terr	A5
9N-74C	42, 43	Plain caldero or jar, Casaca jar L, 24 animal bone (deer?, 213.3 g)	Up terr	A5
9N-74S (5)	49 (55)	2 Casaca jars L, mano, abrader	Bench	B1
9N-74S (5)	50 (55)	Plain cylindrical censer	Rm flr	B1
9N-74S (5)	52	Obsidian earspool	Rm flr	B1
9N-74S (5)	57 (55)	Plain cylindrical censer	Rm flr	B1
9N-74S	45	3 manos, 3-4 plain jars, bone (0.8g), candelero fragment	Lw terr	B1

• Gr 9N-8 Patio C (Operations 13 and 16)

Str (Room)	Feature Number	Feature Description	Location	ST
9N-73 (5)	8 <sup>a</sup>	Plain jar	Bench	A3
9N-73 (6)	10 <sup>a</sup>	Plain caldero and jar?, mano, chert flake, 2 obsidian blades, bone	Bench	A3

• Gr 9N-8 Patio D (Operation 17)

Str (Room)	Feature Number	Feature Description	Location	ST
9N-60A (2)	3	Metate	Bench	A1
9N-60B	8	Plain jar	Terr	A1
9N-61A (1)	74	Chert biface, mano, abrader, Surlo cylinder, bone, worked and unworked shell, 2 unperforated sherd discs	Rm flr	B1
9N-61A (1)	75	Ulua Polychrome cylinder	Bench?	B1
9N-61A (1)	76	Obsidian projectile point	Rm flr	B1
9N-63 (1)	11	Plain straight-walled dish	Rm flr	A3
9N-65S	7	Mano, metate	Stairs	A3

• Gr 9N-8 Patio E (Operation 15)

Str (Room)	Feature Number	Feature Description	Location	ST
(9N-92)	96	Plain jar	Patio	--
9N-93N (2)	30	Partial plain cylindrical censer	Rm flr	A1
9N-93N (3)	32	Manos, ceramics	Rm flr	A1
9N-93S (4)	27	Plain cylindrical censer, stone disk, pestle, obsidian core, projectile point	Rm flr	A1
9N-93S (5)	36	Plain caldero	Rm flr	A1
9N-93S	34	Partial Casaca jar	Terr	A1

(Table 5.31, cont.)

Str (Room)	Feature Number	Feature Description	Location	ST
9N-93S	37	Plain jar N, obsidian blades, 1 jade bead	Terr	A1
9N-93S	40	Plain caldero, chert projectile point	Terr	A1
9N-93S	49	Whistle (mold-made?)	Terr	A1
(9N-95)	8	Plain jar, 2-3 other jars?	Patio	--
(9N-96-3)	16	Surlo restricted cylinder	Patio?	--
(9N-96-3)	18	Plain jar, partial Casaca and plain jars	Patio?	--
(9N-96-3)	19	Plain jar	Patio?	--
(9N-97)	11	Casaca jar, Surlo cylinder	Patio	--
(9N-108)	100	Casaca jar M	Str side	--

• Gr 9N-8 Patio F (Operation 15)

Str (Room)	Feature Number	Feature Description	Location	ST
(9N-90)	104	Plain 3-prong brazier	Patio	--
(9N-90S)	115	Surlo straight-walled dish, Surlo ladle censer	Patio	--
9N-91 (3)	108	Mano, flat stone block	Rm flr	A5

• Gr 9N-8 Patio H (Operations 22 and 17)

Str (Room)	Feature Number	Feature Description	Location	ST
(9N-64)	2	Vessel, form and type unknown	Patio	--
9N-64 (?)	4	Plain cylindrical censer	Cache	A1?
9N-64 (?)	20	Plain cylindrical censer, green-stone pectoral, Spondylus shell	Cache	A1?
9N-110A (1)	5	Partial Casaca jar	Rm flr	A5
9N-110A (2)	15 <sup>b</sup>	Plain cylinder	Rm flr	A5
9N-110B (2)	7	Plain cylindrical censer?	Rm flr	B5
9N-110B (2)	8	Jar L?, abrader	Rm flr	B5
9N-110B (2)	9	3 plain cylinders/cylindrical censers?, Surlo flaring-walled bowl/dish? (on floor), 12 obsidian blades, worked and unworked shell, hammerstone, shell star, worked antler, wood-working tool, abrader	Ledge	B5
9N-110B (2)	10	Tuff cylinder, partial straight or flaring-walled bowl/dish	Rm flr	B5
9N-110B (2)	11	Mortar	Rm flr	B5
9N-110B (2)	12	Casaca jar, abrader, ceramic pendant	Rm flr	B5
9N-110B (2)	13	Tuff table or lid?	Rm flr	B5
9N-110B (3)	14	Celt, stone bowl	Rm flr	B5
9N-110B (4)	17	Abrader	Rm flr	B5

(Table 5.31, cont.)

<u>Str (Room)</u>	<u>Feature Number</u>	<u>Feature Description</u>	<u>Location</u>	<u>ST</u>
9N-115A (1)	77 <sup>b</sup>	2 polishers, perforated disk, green pigment, plain ladle censer, plain jar N	Rm flr	B1
9N-115A (1)	78 <sup>b</sup>	Double-bowled bone scoop, cut long bone	Rm flr	B1
9N-115A (1)	79 <sup>b</sup>	Bone pectoral	Niche	B1

• Gr 9N-8 Patio K (Operation 17)

<u>Str (Room)</u>	<u>Feature Number</u>	<u>Feature Description</u>	<u>Location</u>	<u>ST</u>
9N-106 (1)	85	Plain jar N	Rm flr	B1
9N-107	30	Plain jar filled with lime, covered by Casaca caldero	Str rear	B1

• Gr 9N-8 Patio Alpha (Operation 16)

<u>Str (Room)</u>	<u>Feature Number</u>	<u>Feature Description</u>	<u>Location</u>	<u>ST</u>
9N-65S (4)	17 <sup>b</sup>	Plain jar	Bench	A4
(9N-74-6,7)	67	Partial Casaca jar L	"Patio"	--
9N-74 (6)	61	Plain jar N w/lime inside	Ledge	A2
9N-74 (6)	72	3-pronged brazier, plain caldero, Casaca jar M	Ledge	A2
9N-74 (6)	64	Plain caldero, plain jar with lime, Casaca jars N and M, bone (4.9 g), obsidian flake, 3 obsidian blades	Bench	A2
9N-110B (5)	58	2 plain calderos, 1 Surlo hemispherical bowl, 1 plain jar M, 1 plain jar N, 1 Casaca jar M, 38 pieces deer bone (169.2 g), tuff barrel	Bench	A1
9N-110B (5)	68	Stone bowl, plain hemispherical bowl, chert polisher, sherds	Niche	A1

• Gr 9M-22 Patio A (Operation 10)

<u>Str (Room)</u>	<u>Feature Number</u>	<u>Feature Description</u>	<u>Location</u>	<u>ST</u>
(193A-B)	1	See Table 4.95	Patio	--
193A (5)	38	Ceramic vessel — jar?	Rm flr	A2
193A (5)	39	Ceramic vessel — jar M?	Rm flr	A2
193A (5)	40	Ceramic vessel — jar M?	Rm flr	A2
193A (6)	5, 41	Plain jar, sherds, celt	Rm flr	A2
193A (8)	36	Plain jar M?, Casaca jar?, 2 metates	Rm/Terr	A2
193A (8)	37	Casaca jar N?, abrader	Rm/Terr	A2

(Table 5.31, cont.)

Str (Room)	Feature Number	Feature Description	Location	ST
194A	10	2 ceramic concentrations of mainly Casaca jar sherds, also flaring-walled bowl/dish fancy, 2 obsidian blades	Pl surf	--
(194B)	43	Ceramic concentration of plain comal, caldero, colander, and jar N sherds and Casaca jar N and unspecified sherds; 1 mano	Str rear	A4

<sup>a</sup> Operation 16.

<sup>b</sup> Operation 17.

Based on the kinds of artifacts present in these features, one can see that there is a definite emphasis on large open containers (calderos), large restricted containers (jars), and maize-grinding implements (manos and metates). There are very few occurrences of bowls or dishes and few vessels of any kind with elaborate decoration. The bone, with a few exceptions described more fully below, is mostly unworked.

In the previous discussion, jars were interpreted as storage vessels and calderos primarily as food preparation utensils. These inferred uses are supported by the feature co-occurrences. Calderos and grinding stones are found together along with unworked animal bone, usually deer, and obsidian blades (i.e. cutting tools). Also associated are the smaller calderos (with flat rim) and one or more jars. In a few cases, the jars contained lime. Although this material can have a number of uses, it is an important ingredient in the processing of maize. The traditional method, still used today in the Copan Valley and elsewhere in the Maya area entails soaking maize kernels in a jar or large bowl filled with water in which lime has been dissolved. This prepares the maize for grinding and eating.



The interpretation of another vessel form, the three-prong brazier, stems from its contextual associations to a great extent. Although the form and the smudged areas on its base and plate combine to suggest its use with heat, the nature of that use is not certain from the formal attributes alone. The form could have served as a space heater, censer, or a sort of portable stove. Certainly a range of uses is possible. Stronger indications of its main use as a stove, however, result from its association, in two separate features, with grinding stones, numerous jars, one of which held lime, animal bone, obsidian blades and calderos (Table 5.31 — 9N-8 Patio B Feature 7 in Rm 2 of Str 68 and 9N-8 Patio Alpha Features 61, 64, and 72 in Rm 6 of Str 74). In both cases, the activity of food preparation, and specifically of cooking or reheating, seem strongly indicated.

Another activity implied by the artifacts in these two features is storage. The kinds of material stored can vary of course but the association between jars, some with lime, and food preparation forms suggests in these cases the storage of food, either liquid or dry. There are other features with jars that lack food preparation forms. In these cases the material contained by the jars may or may not have been food. The number of jars found in one area varies. Many of the single-artifact features consist of jars. For those features with more numerous components, there may be anywhere from one to four or more. The differences in quantity suggest differences in the amount of material stored and possibly in the permanence of the storage. By the latter I mean that areas with several jars, especially in the absence of any artifacts related to one of the more "active" activities (see Chapter

1), may have been used primarily as storage areas. In the ensuing chapters I have drawn a distinction between incidental storage and large-scale storage. Storage of the first kind is generally indicated by a single isolated jar or one or two jars associated with other sorts of artifacts; my choice of the term "incidental storage" is meant to imply storage for a short period of time and/or in connection with some other activity. Large-scale storage represents cases of several jars usually associated only with one another.

Another frequent vessel form is the cylindrical censer. These vessels have been interpreted in the previous section as censers — i.e. containers in which some material was burned in order to produce smoke. They have also been interpreted more generally as secular or religious ritual vessels on the basis of analogy with ethnohistoric and modern Maya religious practices. One line of evidence supporting this interpretation is their use as cache vessels in some Sepulturas buildings (Hendon et al. n.d.b; Diamanti n.d.; Widmer n.d.) and in the substela caches in the Main Group (Strömsvik 1941a).<sup>8</sup> In at least some of these caches, the censers were also used to hold other offerings. As can be seen in Table 5.31, a number of these vessels occur in the non-cache features. They are found in association with various non-ceremonial artifacts, such as jars and grinding stones. They also occur, however, in many of the features containing unusual artifacts — two hachas and a yoke from Str 9N-81 Rms 1A-1B, an obsidian earspool in Str 9N-74S Rm 5, and a stone disk in Rm 4 of Str 9N-93S. Another interesting collection, found in Str 9N-110B Rm 2, will be discussed below.

---

<sup>8</sup> This kind of vessel almost never appears in burials, however.

It is possible that the presence of this sort of vessel in some of the features indicates that some sort of ceremonial activity took place. Another possibility is that they served a more practical use as heaters or lights or a more esthetic function as perfumers. That these vessels were sometimes used in the rooms rather than simply being stored there is suggested not only by their presence and their frequently blackened interiors but also by the presence of multiple circular burn marks on the bench and floor plaster of several rooms such as, for example, Rms 1-3 of Str 9N-83, Patio A (Webster et al. 1986). These marks are of a size and shape to have been made by either cylindrical censers or plain cylinders. However, no such vessels were actually found in these rooms. In short, the use of cylindrical censers and plain cylinders as ritual censers is supported to a certain extent by their contextual associations. Their spatially dispersed distribution in several patios also suggests that the organization of and participation in ritual activity was neither centralized nor restricted.

The above associations have all implied food preparation, storage, and small-scale ritual. The co-occurrence of three sets of artifacts, however, suggests actual production, as opposed to use, of certain kinds of implements.

The shell and the bone tools come mainly from three rooms. The majority of the shell and one bone tool were found in Rm 2 of Str 9N-110B, Patio H. This room also contained several vessels and a quantity of obsidian blades. The presence of both unworked shell and unfinished pieces of worked shell suggests the actual manufacture of these items in this room (Widmer n.d.). Another structure of this same patio, Str 9N-115A, contained three pieces of worked bone, one in the form of a

double-bowled scoop or spoon, one a piece of cut long bone, and one shaped into a pectoral, in association with a variety of artifacts listed in Table 5.31 (Gerstle and Webster n.d.). The associated ceramic vessels in the features in Patio H are jars and censers, either cylindrical or ladle, with one fancy dish as well. The third room is Rm 1 of Str 9N-61A in Patio D. Here were found some worked and unworked shell, although in less quantity than was found in Str 9N-110B (Gerstle and Webster n.d.). Two fancy cylinders were also associated. It is possible, although less clear than in the case of Rm 2, Str 9N-110B, that some sort of small-scale workshop or activity area was located in Strs 9N-61A and 9N-115A. The fancy cylinders and dishes may have held material used in the production process or served as containers of food and drink for the producers. The addition of two kinds of censers may indicate some association between the process of manufacture and ritual activity.

On the basis of the in situ associations, certain of the analogic interpretations of artifact use have been supported. Not all artifacts have been found in this kind of context, however. Furthermore, such in situ primary deposits, although found in a number of locations in our excavations, are still the exception. Therefore, the next step in my analysis is to turn to the entire Artifact Distribution Database to see what sorts of co-occurrences are found. This will be described below.

### **Statistical Analysis**

In an effort to discern possible patterns in artifact co-occurrence, two statistical techniques, principal components analysis (PCA)

and cluster analysis (CA), were applied to the Artifact Distribution Database. Certain decisions had to be made in order to conform to the requirements of these techniques. Only categories with fairly large representation could be used. These include mainly the ceramics, obsidian blades, and certain ground stone artifacts. The obsidian blades were not used, however, because they are found almost everywhere in association with almost everything. A possible alternative would be to look at relative densities of blades. This was not done due to lack of time.

Both principal components analysis and cluster analysis were performed on certain ceramic form categories (based on the rim sherd counts) and on certain ground stone categories. Some of the categories used were merged to bring together functionally similar forms. Only loci with a total of 50 or more artifacts were used in these analyses; this reduced the number of loci analyzed from 280 to 164. This criterion, arrived at on a purely ad hoc basis, serves to mitigate somewhat the effects of the extremely skewed distributions created by small samples (cf. Cowgill 1970; Doran and Hodson 1975). Some of these small loci are equivalent to the features and thus have already been discussed. The others by and large contain mostly rims and blades. Their exclusion, in my opinion, does not therefore mask any special distributional features.

Before discussion the results of each test, the techniques used will be described and the chosen categories listed.

*Principal Components Analysis*

Principal components analysis looks at "relationships within [original emphasis] a single set of variables" (Harris 1975:23). Working on a matrix of correlations ( $r$ ) among a set of variables (artifact categories) measured across a set of cases (loci), the technique creates a set of new variables, referred to as *principal components* (PCs) or simply *components*, that combine the scores on the original variables and have the following features: each component maximizes variance, is uncorrelated and orthogonal to all others, and the sum of squares of the PC coefficients equals one (Harris 1975:156). A feature of principal components analysis is that it requires no *a priori* assumptions of causality (Morrison 1967:221). The first component extracted (PC1) accounts for as large a percent of the total variance as possible. The second does the same for the variance remaining after the creation of PC1, the third component for the variance remaining after the creation of PC2, and so on.

There will be as many components as there are original variables but, due to the hierarchical nature of the variances, the amount of variance accounted for diminishes with each succeeding component. One may generally, therefore, decide to keep only a subset of the components (1 through  $n$ ) which will account for a goodly percentage of the variance (Harris 1975:158; Kim and Mueller 1978b:14-17; Kim 1975:470-471). Deciding just how many components to keep in practice is usually done on an ad hoc basis. One approach is to decide on some arbitrary proportion of the total variance and keep as many components as necessary to account for it (Morrison 1967:228). Another frequently applied rule is

to keep only those PCs whose eigenvalue is greater than or equal to one (Cooley and Lohnes 1971:104).

For purposes of this study, the goal of a principal components analysis on the selected variables was to examine the proportional distribution of these variables across loci to see how variables clump and how loci are similar. The independence of the components means that one can interpret each one separately as expressing a distinct aspect of the variance. Therefore each PC may group loci quite differently because it will be based on a different subset of the variables (Harris 1975:163).

Interpretation of the extracted and retained components is based on the factor structure. The usual arrangement of this structure is a matrix in which each variable occupies a separate row and each retained component a column. The loadings, or correlations, between each variable and each component appear in the appropriate cell. By reading down the columns, one can find, for each component, those variables which have the highest correlations with the component (indicated by large values) and therefore contribute most to the make-up of that component (which is, as stated earlier, in fact a composite variable). These high-loading variables are more highly intercorrelated in the sample (as can be seen by the values of  $r$  in the original correlation matrix) (Harris 1975:163; Cooley and Lohnes 1971:106).

Loadings may be either positive or negative. Large loadings are of importance regardless of sign (Doran and Hodson 1975:195-197; Thomas 1978:234). The fact that certain variables have large loadings of the

same sign on the same component indicates that the categories represented by these variables will tend to occur together in the cases examined — i.e. be present or absent or, more accurately, have high or low values, in concert. Opposite signs for high loadings indicate that one set of variables is generally not found in the same loci as the other set or, if present, is insignificant in amount. The trend suggested by the sign of the loadings applies only to the relevant component. A negative loading on PC1 has no relation to a positive loading on PC2. It is important to realize that the correlations do not necessarily mean that the scores for, say, two variables will be identical in a particular case. Thus an association between comals and calderos does not mean that a locus with 30% comals will also have 30% calderos. Rather it indicates that when comals are present there is a strong chance that calderos will also be there, and as the proportion of the one increases so will the proportion of the other (Morrison 1967:242-243; Doran and Hodson 1975:195). The assignment of negative or positive signs to loadings is arbitrary and can be reversed as long as the bipolar relationship is maintained (Wilkinson 1986).

In addition to representing the make-up of the components, the factor structure gives the composition of each variable. For each row, the sequence of loadings indicates the relative contributions each component makes to partitioning the variable's variance. Furthermore, because in principal components analysis the factor structure is equal to the factor pattern (Cooley and Lohnes 1971:106-109), "[t]he square of the correlation of [variable]  $k$  with [component]  $j$  gives the part of the variance of the [variable] accounted for by that [component], and the



sum of these squares for  $n$  [components] is the communality, or explained variance, for the [variable]" (Cooley and Lohnes 1971:109).

It is often the case that interpretation of the components is complicated by a certain indeterminacy in variable-component correlation. That is to say, some of the variables will fail to show a clear-cut and exclusive association with one component (Kim and Mueller 1978b:29). In order to simplify the relationships, the defined and retained components can be *rotated* to new positions. These new components (or factors) will still be independent, may be orthogonal, but will no longer maximize the variance hierarchically (Harris 1975:164; Morrison 1967:227). Choice of one of the several rotation schemes rearranges or redistributes the variance accounted for so that variables are restricted to high correlations with one component only. "...[N]o method of rotation improves the degree of fit between the data and the factor structure. Any rotated factor solution explains exactly as much covariation in the data as the initial solution. What is attempted through rotation is a possible 'simplification'" (Kim and Mueller 1978a:50). The most common type of rotation used is the varimax solution, which simplifies columns, i.e. components, by maximizing the variance of the squared component loadings (Cooley and Lohnes 1971:145-148; Kim and Mueller 1978b:35-36; Kim 1975:485).

The input used in this analysis was expressed in the form of percentages. Using data in this form to calculate Pearson's  $r$  raises a serious problem. The transformation of a set of counts into percents which sum to 100 creates a closed array, because the value of the last variable is by definition equal to 100 minus the sum of all the preceding variables. In a sense, the number of degrees of freedom has been

reduced by one. This lack of independence can create artificial correlations even when the original variables were uncorrelated. Furthermore, the additive property guarantees that large percentages will be counterbalanced by small ones, leading to induced correlations which generally are negative (Doran and Hodson 1975:145; Chayes and Kruskal 1966; Cowgill 1968a; Lischka 1978:262).

As a way of ameliorating this problem, the percentages used were calculated on the basis of the total number of artifacts in the locus. Since, in all cases, the categories selected for analysis are a subset of all the categories present, the percentages compared do not sum to 100. There is, in effect, a final unexpressed and unused category, "all other artifacts present but not analyzed", that represents the last element in the closed array. The effect of induced correlations is thus minimized (Sload 1982:89-90).

Before actually carrying out principal components analysis one should first determine if there are intercorrelations among the variables to be explained. All correlation matrices used were subjected to the "rule of thumb" test and Bartlett's test for significance of the correlations outlined by various authors, setting alpha equal to 0.05. Both tests for all matrices showed that the number of significant correlations exceeded the expected number due to chance alone, thereby warranting principal components analysis of the variables (Vierra and Carlson 1981:276-277; Healan 1984; Vierra and Carlson 1985; Cooley and Lohnes 1971:103; Blalock 1979:418; Harris 1975:17).

The categories chosen for this analysis are presented in Table 5.32. This table gives the total number of artifacts in each of these categories for the 164 loci analyzed. The "Category Number" is the

variable label used during statistical analysis. The "% of Total" column shows the proportion of the total number of artifacts in that category in the entire set of loci which is included in the subset of 164 loci. In all cases, these loci contain over 90% of the artifacts of interest here.

Table 5.32: Categories used in Principal Components Analysis and Cluster Analysis (N=38554)

Category Number	Quantity	% of Total	Description
23	429	90.7	Mano and metate — grinding stones
64	2007	96.6	Comal
66	6117	96.4	Caldero, bolstered, everted and direct rims
67	1007	94.7	Bowl or dish plain, caldero with flat rim
73	1158	98.0	Plate
90	856	95.7	Straight-walled dish fancy
99	3730	97.3	Hemispherical bowl fancy
108	5510	98.2	Flaring-walled bowl/dish fancy
114	1339	96.8	Cylinder plain, cylindrical censer, ladle censer, candelero, figurine and whistle
116	1113	96.9	Cylinder fancy, cylinder/dish
128	851	98.0	3-prong brazier
136	1764	93.4	Jar, unspecified
145	1156	96.9	Jar special — restricted wide, restricted narrow, tecomate, semi-necked restricted
160	497	97.8	Jar, large-necked
164	6387	97.8	Jar, medium-necked
173	5168	97.4	Jar, narrow and straight-necked
192	804	96.9	Lid

Manos and metates were merged to form a grinding stone group. The flat-rimmed calderos and all plain bowl or dish forms were combined to make a category of small plain open containers which may have been used more for food preparation than their fancy counterparts. Another possibility is that the degree of decoration reflects status differences (cf. Sharer 1978b:120). Fancy bowl/dish was eliminated because, unlike the plain examples, the fancy bowls and dishes were kept separate in order

to look at their individual distributions. Bowl/dish was an indeterminate designation of such small total that using it separately was not feasible. Cylinder/dish was extremely small but was merged with the fancy cylinders. Ladle censers, candeleros, and figurines/whistles were joined with the cylindrical censers and plain cylinders to create a category of ritual/ceremonial forms and artifacts. Straight-necked jars were made part of the narrow-necked jar category.

I had originally intended to keep restricted wide, restricted narrow, tecomate, and semi-necked restricted separate. However, it turned out that almost 97% of the latter two forms occur in Op 17 (Gr 9N-8 Patio D). Also, all four categories were uncommon. The marked distributional pattern more likely resulted from differential analysis.<sup>9</sup> Therefore all four were merged into a somewhat heterogeneous special jar group (Jar S), interpreted as comprising short-term liquid and dry storage vessels.

One final problem was the unspecified jars. They were numerous enough to make it desirable to include them. The very lack of information about them, however, made merger with another jar category impossible unless all jars, including the ones in Jar S, were to be combined. Since I feel there is a functional difference between the small vessels included in Jar S and the larger-necked jars, it was important to keep them separate. Therefore jar unspecified has been retained as a distinct category. Large-necked jars are notably less frequent than the other neck sizes but were kept as a distinct category.

---

<sup>9</sup> Based on the fact that a certain amount of confusion over definition of these forms was known to exist during the several years of ceramic analysis.

In the first run of this analysis, the "eigenvalue greater than or equal to one" criterion was used, resulting in retention of six components. Together they accounted for 65.24% of the total variance. A second run was performed increasing the number of PCs to seven. This raised the proportion of total variance accounted for to 70.64%. This solution seemed to result in more interpretable components and was selected for description and manipulation.

Discussion will concentrate on the rotated components emphasizing the most important correlations/loadings.<sup>10</sup> Although the seven rotated PCs (RPCs) still account for 70.64% of the total variance, the proportion for each component has changed. The rotation achieves the desired result of tightening the correlation between each variable and a single component. Furthermore, the number of bipolar components has decreased. These loadings will be listed below for each rotated component (RPC) in turn.

RPC1 (7.48% total variance) is made up primarily of grinding stones (.735). Medium-necked jars have a secondary loading of .436.

RPC2 (13.18% total variance) is made up of lids (.718), fancy hemispherical bowls (.690), plain bowls and dishes — Category 67 (.673), and medium-necked jars (.607).

RPC3 (12.08% total variance) consists of unspecified jars (.762), fancy straight-walled dishes (.682), large-necked jars (−.581), and narrow-necked jars (−.580).

---

<sup>10</sup> Analysis was carried out using the FACTOR module of the SYSTAT statistical package (Wilkinson 1986). The varimax rotation method was used. The complete set of matrices and tables for the principal components analysis and similar material from other statistical tests is available upon request from the author.

RPC4 (9.56% total variance) is made up of three-pronged braziers (.845) and comals (.597). Plates have a loading of .491 but correlate more strongly with the next component.

RPC5 (10.44% total variance) correlates with the censers-cum-ritual artifacts category (.782) as well as fancy cylinders (.620) and plates (.550). Large-necked jars have a smaller but positive loading (.445) than the one for RPC3.

RPC6 (8.17% total variance) comprises the special jars (.862) and, albeit of less importance, calderos (.474).

RPC7, the final rotated component (9.73% total variance), is made up of fancy flaring-walled bowl/dishes (.862) and calderos (.568). Two other categories have secondary loadings: narrow-necked jars (.501) and comals (.415).

Table 5.33 summarizes the composition of the components. Variables are listed in decreasing order of loading. Those in parentheses have a larger loading on some other component. Negative loadings are indicated by a negative sign. Only loadings equal to or above .400 are tabulated.

Table 5.33: Rotated Component—Variable Correlations

RPC1	RPC2	RPC3	RPC4	RPC5	RPC6	RPC7
23	192	136	128	114	145	108
(164)	99	90	64	116	(66)	66
	67	160-	(73)	73		(173)
	164	173-		(160)		(64)
[7.48]	[13.18]	[12.08]	[9.56]	[10.44]	[8.17]	9.73

One may look at the variance partition of the variables by squaring the weights in the factor pattern (= loadings in factor structure) (Cooley and Lohnes 1971). Table 5.34 shows the proportions and gives

the total for each variable. In all cases, at least 60% of the category variance is explained by the seven components.

Table 5.34: Category Variance for Rotated Components

Category	RPC1	RPC2	RPC3	RPC4	RPC5	RPC6	RPC7	Total variance
23	<b>54.02</b>	0.76	8.18	3.72	0.04	2.19	0.06	68.97
192	4.75	<b>51.55</b>	0.01	0.16	0.94	1.39	3.24	62.04
99	1.02	<b>47.61</b>	0.71	4.75	1.61	0.45	1.85	58.00
67	11.22	<b>45.29</b>	3.42	6.71	4.45	1.72	0.01	72.82
164	<b>19.01</b>	<b>36.84</b>	7.56	2.69	2.62	7.02	0.37	76.11
136	0.92	0.49	<b>58.06</b>	0.66	2.56	4.84	1.08	68.61
90	7.34	15.52	<b>46.51</b>	0.50	0.18	0.01	1.54	71.60
160	1.10	0.44	<b>33.76</b>	6.76	<b>19.80</b>	2.79	0.28	64.93
173	12.04	0.05	<b>33.64</b>	0.12	8.24	0.40	<b>25.10</b>	79.59
128	1.21	0.00	0.27	<b>71.40</b>	0.23	0.21	0.02	73.34
64	0.50	6.20	7.02	<b>35.64</b>	1.30	0.49	<b>17.22</b>	68.37
114	0.69	0.05	0.08	2.02	<b>61.15</b>	0.27	3.13	67.39
116	10.43	0.08	0.46	2.76	<b>38.44</b>	13.03	4.88	70.08
73	0.62	3.35	0.98	<b>24.11</b>	<b>30.25</b>	6.76	0.01	66.08
145	1.56	0.01	0.61	0.02	0.52	<b>74.30</b>	0.03	77.05
108	0.30	0.67	0.04	0.46	1.88	0.56	<b>74.30</b>	78.21
66	0.48	15.13	0.01	0.00	3.20	<b>22.47</b>	<b>32.26</b>	73.55

Interpretation of the rotated components is the most difficult but most important part of a principal components analysis. "By examining those original variables which correlated most highly with each principal component, labels suggestive of the meaning of each PC can be developed" (Harris 1975:24). Labeling will be as much a factor of one's focus of interest and ideas about what the original variables represent as it will be of the new components (Press 1972:284). This is why so much effort was expended in the previous chapter on trying to determine the possible uses of the various kinds of artifacts. However, it is also to be remembered that "the consistency of the inferred uses of a group of variables correlating highly with a factor is a test of the use inferences of the individual variables in that group" (Lischka 1978:26).

The first RPC is essentially defined by the distribution of manos and metates. It therefore appears to represent a specific kind of food preparation task, namely the grinding of maize into *masa*. Other materials may also have been ground but are presumed to be of secondary importance. Storage, as represented by medium-necked jars, has a certain amount of distributional similarity to the grinding stones. This association mirrors that found in the features where jars and grinding stones often occur in the same in situ use-related deposit.

The fourth component, in light of the primary deposits discussed earlier, represents cooking almost exclusively. The two forms believed to have been used for this activity, comals and three-pronged braziers, have high correlations here.

Component 5 joins the censer and other ritual/ceremonial artifacts class (Category 114) with fancy cylinders and plates. These latter two forms were interpreted as food serving/eating vessels in the first part of this chapter. Their association with the censers suggests that they may have been used primarily or at least frequently in ceremonial contexts. It also suggests that the ritual activities may have involved the serving and consumption of food and drink. Large-necked jars have their highest positive correlation with this component. This association may indicate that such forms were used to hold material, possibly liquid or solid foodstuffs, required for the ritual activity. The fact that it is the largest jar form suggests the a number of people came together for these rituals.

Special jars are the most prominent part of RPC6 with a smaller contribution from calderos. Category 145 represents short-term storage that would have been part of the food preparation process. Calderos



also are interpreted as large food preparation or short-term storage containers.

The above components, then, represent fairly distinct activities or functions: maize grinding (RPC1), cooking (RPC4), ritual/ceremonial activity (RPC5), and short-term storage cum food preparation (RPC6).

The remaining three components are best considered together, since each combines a fancy bowl or dish, interpreted as a food serving/eating form, with a large jar, a long-term storage form. RPC2 has fancy hemispherical bowls and medium-necked jars, RPC3 has fancy straight-walled dishes and unspecified jars, while RPC7 associates with fancy flaring-walled bowl/dishes and the narrow-necked jars (which may have been used for water transport as well as storage). Furthermore, both components 2 and 7 have a correlation with a food preparation form in the guise of plain bowls or dishes (Category 67) for RPC2 and calderos for RPC7.

This arrangement suggests several things. In the first place, the three kinds of fancy open containers have separate distributional patterns vis-à-vis one another. The proportions of the various decorated bowl and dish forms do not seem to be interrelated. In other words, one form does not serve as a good predictor of the presence (or absence) of the other forms. Thus, even though all three forms may have similar functions, some other factor or factors seem to be operating to affect their distribution. One possibility is that the original analysts did not classify these vessels consistently, specifically in the case of the flaring-walled bowl/dishes and the straight-walled dishes. Another possibility is that this represents a real preference for one form over another on the part of the inhabitants of certain

locations (e.g. patios). The features provide no help here since such vessels almost never appear.

We should also note the disjunction with the plates and fancy cylinders, the other forms believed to be for food serving or eating. The association, on the one hand, of plates and cylinders with censers versus, on the other, the consistent grouping of bowls or dishes with food preparation and storage forms suggests that two distinct sorts of "use-contexts" are being represented. The cylinders and plates may have been used as containers for serving food or other materials as part of ritual activities whereas the bowls and dishes were used for secular serving. The secondary loading of the plates with RPC4, cooking, further suggests that this form played a role in both ceremonial and mundane spheres.

The three sizes of jars (L, M, and N) also are essentially uninfluenced by each other's distribution. The unspecified jars, however, contrast in distribution with the large-necked jars and the narrow-necked jars as a result of classificatory failures.

In sum, RPCs 2, 3, and 7 each represent a somewhat generalized set of domestic activities emphasizing food serving and eating and storage as well as food preparation. Loci may score high on only one or some combination of these components depending on what sort of jars and bowls or dishes are present. These activities suggested are in line with the feature analysis presented earlier.

The association of the lid category with RPC2 was unexpected since it was thought that it contained only covers for the cylindrical censers, known to exist from the whole vessels. Its failure to align with the censers or cylinders, however, casts doubt on the exclusiveness

of the category. I have no information on any other kind of formally defined lid that would be included here and am therefore at a loss to interpret either the category or its correlation.

### *Cluster Analysis*

The second technique used, cluster analysis, serves as a check on the first. Cluster analysis, properly speaking, encompasses a variety of techniques that share the goal of "objectively group[ing] together entities on the basis of their similarities and differences" (Tryon and Bailey 1970:1). The clusters produced, whatever the similarity measure used and the type of clustering method chosen, have the advantage of being based strictly on the data submitted. Once again, it is a descriptive technique (or group of techniques) which discerns patterns in a body of data too large and complex for hand manipulation. Data entities that are grouped into the same cluster are more similar to one another than they are to the elements of other clusters. What exactly is meant by more similar is determined by the choice of similarity measure and the type of clustering method as well as what the data entities represent. One can cluster categories (here the artifact categories) across cases (objects, entities, observation units, etc. — here the loci) in what is usually referred to as R-mode analysis. One can also cluster the cases on the basis of the variables; this is generally referred to as Q-mode analysis (Aldenderfer and Blashfield 1984:7-9, 14-16; Tryon and Bailey 1970; Sneath and Sokal 1973:256-259; Doran and Hodson 1975:173-175).

A number of similarity (or distance) measures and clustering algorithms have been proposed (cf. Sneath and Sokal 1973:116-147, 202-245;

Aldenderfer and Blashfield 1984; Doran and Hodson 1975:136-157, 173-186; Jardine and Sibson 1971). For reasons discussed earlier, the coefficient chosen for use here was Kendall's (1970) rank correlation coefficient,  $\tau_b$ , which is a nonparametric statistic. Although the product-moment correlation coefficient (Pearson's  $r$ ) has been employed somewhat in clustering, the use of Kendall's  $\tau_b$  is less common (although Sneath and Sokal 1973:139 report a few instances). Objections have been raised to the use of correlation matrices as the basis for clustering (as they have been raised for other choices of similarity measurements). However, the similarity measure's applicability can best be judged, in cases like the one studied here, by the clustering results and their interpretive possibilities (Sneath and Sokal 1973:137-139; Aldenderfer and Blashfield 1984:22-24; Jardine and Sibson 1971). "If a certain kind of coefficient seems sensible at all, then it should be sensible to cluster analyze a matrix of them" (Cowgill 1968b:370).

Kendall's  $\tau_b$  is a nonparametric alternative to Pearson's  $r$  in the sense of being another way of measuring correlation among cases. It is not equivalent to Pearson's  $r$  in terms of assumptions or calculation the way such nonparametric statistics as Spearman's  $\rho$  are (Harris 1975:227-228). Kendall's  $\tau_b$  is a measure of the similarity between two or more cases based on a comparison of the rank orders of the values of a series of variables. Higher values of the coefficient will be obtained when two cases are more similar in their rankings of the variables. The power of the statistic when compared to Pearson's  $r$  is quite high (Siegel 1956:213-223).

Although the apparent robusticity of the product-moment correlation as discussed by Harris (1975:231-233) would make it a possible

choice, the use of Kendall's  $\tau_b$  provides a different but similar type of measure for comparison to the principal components analysis produced using Pearson's  $r$ . Furthermore, as a measure of correlation Kendall's  $\tau_b$ , unlike Pearson's  $r$ , is not adversely affected by the reduction in the number of degrees of freedom resulting from the use of percents. It is somewhat affected by a large number of ties within a case, and therefore the formula which contains a correction for ties (indicated by the  $b$  subscript) was used (Kendall 1970:34-48; Siegel 1956:217-219).

Single- and average-link clustering methods were used. Both are hierarchical agglomerative approaches. Single linkage creates clusters each member of which must be most similar to one other member only (as indicated by the similarity measure used). "...[A] new candidate for cluster membership can be joined to an existing group on the basis of the highest level of similarity of any member of the existing group" (Aldenderfer and Blashfield 1984:36; see also Sneath and Sokal 1973:216-222). It has the advantage of being easily computed. In addition, some practitioners have preferred single linkage on mathematical and theoretical grounds (e.g. Jardine and Sibson 1971:54, 77-91). However, a frequent criticism of the algorithm when actually used is that it tends to form a series of clusters which, if represented graphically, would be long and spread out. This phenomenon, known as chaining, may make interpretation more difficult (Aldenderfer and Blashfield 1984:39-40; Doran and Hodson 1975:176).

Average-link clustering, developed as one of the alternatives to the single-link method designed to create more compact clusters, has been carried out by a variety of algorithms each of which "computes an average of the similarity of a case under consideration with all cases

in the existing cluster and...joins the case to that cluster if a given level of similarity is achieved using this average value" (Aldenderfer and Blashfield 1984:40-41; see also Sneath and Sokal 1973:228-240; Cowgill 1968b.) The specific type of average linkage used here is equivalent to unweighted-average-link as described by Jardine and Sibson (1971:53). Some people prefer average-link over single-link while others feel that the clusters produced are more sensitive to sampling and round-off errors (Jardine and Sibson 1971:55-56; Doran and Hodson 1975:177).

In the course of running a number of cluster analyses on many different combinations of variables and cases (which will not be reported here) I generally used both methods for each set of data. Those loci or categories which were very highly correlated would by and large be grouped together no matter which type of linkage was used. The differences in placement pertained more to those cases which were more distinctive (cf. Cowgill 1968b:370). Under single linkage, these cases generally were added to existing clusters one at a time with a slightly different clustering level each time — i.e. chaining resulted. The average-link method avoided this, but the higher-order clusters produced usually had such low clustering levels as to be unconvincing for interpretive uses.

The choice of cut-off point or the point at which one stops being interested in the clusters created is essentially a heuristic and individual decision which results in the retention of a certain number of clusters considered to be important and worth interpreting. Since cluster analysis is not a parametric inferential statistical technique, application of the usual sorts of significance tests to clustering

levels is not appropriate. Some alternative tests have been proposed, one example of which is the "scree" test in which one plots the values of the cluster levels, connects the points, and tries to find the place in the resultant line at which an abrupt change in slope is apparent. The decision on the sharpness of this change is often rather subjective. Another approach, used here, is to observe the dendrogram of the analysis to see where a noticeable drop in cluster level value occurs (Aldenderfer and Blashfield 1984:53-58).<sup>11</sup>

A cluster analysis using Kendall's  $\tau_b$  as the similarity measure was performed on the same set of data used for the principal components analysis, as a way of checking for any possible distortion in the latter caused by the use of Pearson's  $r$  as the coefficient of correlation. The average-link method was used. The resulting groups of variables are very close to the RPCs based on the correlation coefficient.

Reading the dendrogram from top to bottom (see Figure 5.2), one sees that the two single-variable components, RPC1 and RPC6, are maintained as two distinct clusters made up of one variable each. The next cluster has the highest level (.522) and consists of Category 136 and Category 90, the two variables with positive loadings on RPC3. The cooking component, RPC4, is reproduced as the next cluster, which has Category 128 and Category 64 as its members. A more complex cluster of five variables follows which mirrors RPC5 in the presence of Category

---

<sup>11</sup> For cluster analysis I used a set of computer programs written for me by Rufus Hendon. These programs, which were written in Turbo Pascal 3.01 (Borland International 1985) were specifically designed to handle the large matrices of data and coefficients involved in this study. Kendall's  $\tau_b$  is computed using the formula incorporating correction for ties (Kendall 1970:35). Clustering is performed using C. J. van Rijsbergen's algorithm as reported in Jardine and Sibson (1971:240-248).

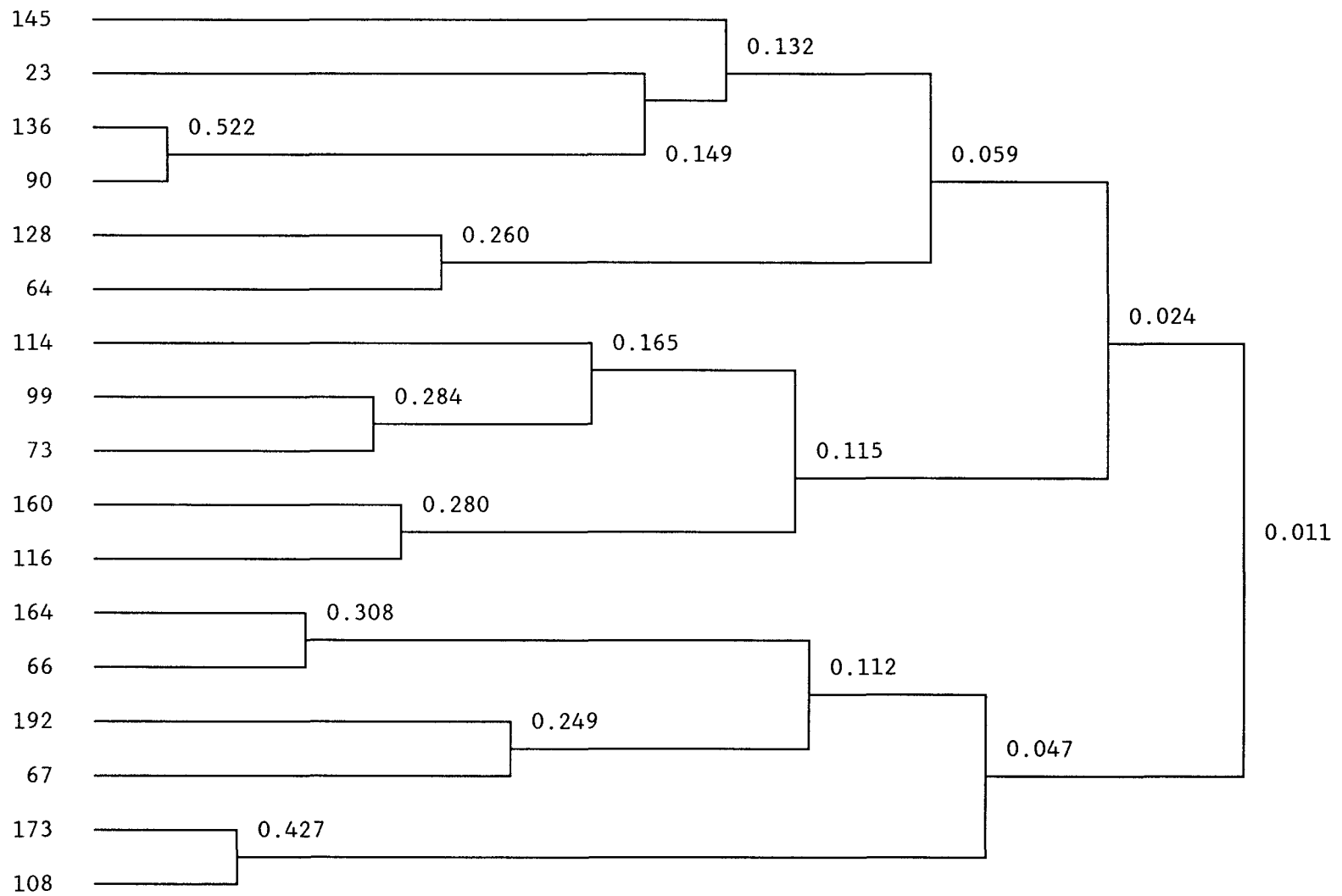


Figure 5.2: Dendrogram of Average-Link Cluster Analysis of 17 Artifact Categories



114, Category 73, and Category 116. Category 160 had its highest loading on RPC3 but it was negative. Its greatest positive association is in fact with RPC5. Category 99 is anomalous, however, in that its only strong correlation in the principal components analysis was with RPC2. This component, in fact, is represented by the next cluster with members Category 164, Category 192, and Category 67. Another switch from the principal components analysis is present here as well — Category 66 is grouped with these variables although its main component loadings are on RPC7 and RPC6. The final cluster contains Category 173 and Category 108. Once again, Kendall's  $\tau_b$  and the clustering program have emphasized positive over negative association to put these two categories together, as does RPC7.

This emphasis on the positive correlations brings out even more strongly the manner in which the fancy bowl or dish forms associate with the large storage vessels. At the same time the cluster analysis reveals that the fancy hemispherical bowls also can associate with the plates, another food-serving form. The bowls and dishes do not, by and large, show much affinity with the censers, figurines, candeleros, or fancy cylinders (Categories 114 and 116). These various associations are significant in light of the somewhat equivocal position of bowls, especially decorated ones, in various studies of ceramic function. R. Thompson (1958:105-107), for example, indicates that although ceramic bowls may serve as containers of food intended for eating, they are more frequently used for ritual offerings. The same point is made more strongly by Lischka (1978:227-230), one of whose assumptions is that "vessels exhibiting a high degree of workmanship were associated more frequently with public secular and religious activities than with purely

domestic and utilitarian functions" (p. 227). On the other hand, R. Smith (1971:103-105) puts small bowls in his utilitarian group where they join jars, large basins, and other forms.

The fact that decorated bowls and dishes are found in burials and caches at Sepulturas, both eminently religious contexts, indicates that they were at times used for ritual purposes (Hendon et al. n.d.a; Hendon et al. n.d.b; Gerstle and Webster n.d.; Diamanti n.d.; Widmer n.d.; Webster et al. 1986; Longyear 1952; Viel and Cheek 1983; Willey and Leventhal 1979). Even so, they rarely if ever occur in the same caches with cylindrical censers, suggesting that even in ritual contexts some distinction is being made. The situation at Sepulturas, however, based on all indicators, including the statistical investigations, demonstrates the dominance of the domestic over the ceremonial function. Many other excavated ceramic assemblages have shown that comparable vessels occur in both domestic and ritual contexts. In fact, it may well be that the more interesting use of these forms lies in their utility as markers of differences in status or rank within the society under study. Such vessels displaying a greater elaboration of design or skill in workmanship may have been used by the more elite section of society for mundane and religious uses (Adams 1971:138-141; Sharer 1978b:120-121; Robertson-Freidel 1980:298; Joyce 1985; Benyo 1986; Wonderly 1986).

## CHAPTER 6

### THE SPATIAL DISTRIBUTION OF ACTIVITIES

The preceding chapters had the task of presenting the three components of my data. Chapter 4 provided a detailed description of the first two components: the architecture of individual structures and the composition and location of the individual loci constituting the Artifact Distribution Database. The third component was the topic of Chapter 5, which discussed the kinds of artifacts found in the loci, describing the classification system used and the functions ascribed to artifacts on the basis of form-function correlates, ethnographic analogy, and the analysis of artifact co-occurrences.

It is now time to use the information accumulated so far to investigate the relationship between architectural units and activities. This chapter begins with a synthesis of the architectural data presented in Chapter 4. The purpose of this section is to examine patterns of form and size that highlight the similarities and differences among the three patio groups studied that appear to be of significance for the question of the distribution of activities. The comparisons of the groups made in this section may ultimately also be relevant to the investigation of social organization.

In the remainder of the chapter I will study the spatial distribution of the activity sets defined in Chapter 1 (with the exception of sleeping, which will be discussed in Chapter 7), to determine the extent to which certain activities tend to occur in certain locations or in association with certain architectural traits such as benches or type of

room access. The focus will initially be on the statistical investigation of the association of activities with locus types. The loci representing the four primary use-related contexts will be considered first, in order to discover differences in the kinds of activities occurring in rooms, on terraces, and on platforms. The locus types representing refuse deposits will be discussed separately.

The focus will then shift to the level of the patio and the individual structures within each patio. All loci associated with a particular structure will be compared with those from other buildings in the same patio in order to determine which activities occurred where. Statistical analysis and the examination of feature deposits will be used in the investigation of activity distribution.

#### SYNTHESIS OF ARCHITECTURAL PATTERNS

The architectural information about individual patios and structures presented in Chapter 4 can serve as the basis for a comparison of the three patio groups that are the object of this investigation. These comparisons will serve to characterize the architecture of Sepulturas. More specifically, however, the architectural similarities and differences among the groups and their constituent patios are of interest for the light they shed on the question of the homogeneity of the sample of excavations on which the Artifact Distribution Database is based. Differences among the groups with respect to architectural features may be relevant to the question of the distribution of activities. Such differences may also reflect aspects of the social organization.

I will present a series of comparisons. In particular, separate consideration will be given to these topics: 1) the distribution across groups of architectural units such as patios, superstructures, platforms, rooms, etc.; 2) the distribution across groups of superstructures classified according to a superstructure typology to be described; 3) the distribution across groups of certain features of construction and decoration; 4) a comparison of groups on the basis of furniture inventories and room measurements; and 5) the distribution of elevated terraces in relation to patios.

#### **The Distribution of Architectural Units across Groups**

Table 6.1 shows how many architectural units of various kinds are found in each group. From these raw frequencies it appears that Gr 9N-8 dominates the other two groups in all categories except number of platforms. This effect, however, is largely due to the fact that Gr 9N-8 has more patios than the other groups and was more thoroughly excavated. A more meaningful comparison can be achieved by converting the frequencies to ratios showing, for example, the number of structures per patio or the number of rooms per structure. These ratios are presented in Table 6.2.

The most salient difference after weighting by the number of patios is that Gr 9M-22 has a considerably greater number of structures per patio than either of the other two groups. Both structures with superstructures, preserved or not, and platforms contribute to this

higher incidence. Despite a greater number of structures and superstructures, however, the number of rooms per patio for Gr 9M-22, 11.5, is only slightly higher than for Gr 9N-8 (10.7) and for Gr 9M-24 (9.0).

Table 6.1: Frequency of Buildings and Components by Group

	Gr 9N-8	Gr 9M-22	Gr 9M-24
Patios	9 <sup>a</sup>	2	1
Structures <sup>b</sup>	54	28	5
Superstructures <sup>c</sup>	49	14	5
Rooms	96	23	9
Superstructures? <sup>d</sup>	10 <sup>e</sup>	6 <sup>f</sup>	0
Platforms <sup>g</sup>	3 <sup>h</sup>	8 <sup>i</sup>	0

<sup>a</sup> Patios I and M and Central Platform not included.

<sup>b</sup> Structures = substructures and platforms.

<sup>c</sup> Superstructures preserved well enough to show the number and kinds of rooms present. Separate buildings on same substructure counted individually.

<sup>d</sup> Cases where superstructure known or believed to exist but preservation too poor to allow reconstruction of form, rooms, etc.

<sup>e</sup> Strs 9N-101, 9N-102 (Patio C); 9N-61C (Patio D); 9N-90N, 9N-90S, Platform A, Platform B (Patio F); 9N-78 (Patio H/A?); 9N-116, 9N-117 (Patio K).

<sup>f</sup> Strs 9M-195A, 244, 245A, and F. 57 (Patio A); Str 9M-192 and F. 5 (Patio B).

<sup>g</sup> Artificial raised constructions with no evidence of superstructure.

<sup>h</sup> Platform west of Str 9N-72 (Patio C); Strs 9N-94 (Patio E); 9N-115B (Patio H).

<sup>i</sup> Strs 9M-194A, 200, 242, 243, and F. 64 (Patio A); Strs 9M-191W-B, 241, and F. 16 (Patio B).

Due in part, no doubt, to poor preservation but more to its greater number of platforms, Gr 9M-22 has only half as many superstructures per structure as Gr 9N-8 or Gr 9M-24. The latter two groups have almost identical ratios. This suggests that the occurrence of multiple superstructures on one substructure, which is confined to Gr 9N-8, is not frequent enough to affect appreciably the superstructures per structure figure for that group. Grs 9N-8 and 9M-24 are also equal with respect to number of rooms per structure, the figure again being over

twice that of Gr 9M-22. This disparity is reduced if the ratios for number of rooms are calculated on the basis of known superstructures only rather than on the basis of all structures. Gr 9N-8 has the highest number of rooms per superstructure (2.0) but Gr 9M-24 (1.8) and even Gr 9M-22 (1.6) are fairly close.

Table 6.2: Weighted Frequencies of Buildings and Components by Group

	Gr 9N-8	Gr 9M-22	Gr 9M-24
• Patio	n=9	n=2	n=1
Structures/patio	6.0	14.0	5.0
Superstructures/patio	5.4	7.0	5.0
Rooms/patio	10.7	11.5	9.0
Superstructures?/patio	1.1	3.0	0.0
Platforms/patio	0.3	4.0	0.0
• Structure	n=54	n=28	n=5
Superstructures/structure	0.9	0.5	1.0
Rooms/structure	1.8	0.8	1.8
• Superstructure	n=49	n=14	n=5
Rooms/superstructure	2.0	1.6	1.8

In summary, then, all three groups are remarkably similar in their per patio distributions with the notable exception that Gr 9M-22 has a much higher number of platforms and possible perishable superstructures. The greater use of perishable materials for superstructures carries certain implications about access to resources, social status, and perhaps permanence of occupation. The greater need for open platforms may suggest that the occupants of Gr 9M-22 engaged in a wider range of activities or had different views about the appropriate location for activities than the occupants of Gr 9N-8 and Gr 9M-24. It could also suggest that certain activities carried out on platforms in Gr 9M-22 did not take place in Gr 9N-8 at all. The sections on the artifact distribution will address this more fully.

### Superstructure Types and their Distribution across Groups

I have constructed a typology of Sepulturas superstructures that emphasizes certain features which I think have importance for the question of where activities might be located (see Hendon 1985a and 1985b for earlier versions). I will first describe the typology and then discuss the distribution of the types it defines across the three patio groups.

#### *The Superstructure Typology*

The first element of the typology is the interior layout of the superstructure. The superstructures are divided into two main groups: those having rooms with a simple interior arrangement (Type A) and those having rooms with a complex arrangement (Type B). The presence of even one room with a complex interior puts a superstructure into the second group.

The simplest of simple interiors is that with no bench at all. The simple interior type also includes those rooms whose bench, regardless of shape, is placed opposite the door and abuts the side walls of the room. The floor area thus created is always square or rectangular, even in those cases where more than one bench is present in the room. The possible presence of ledges, niches, or other subsidiary furniture is irrelevant.

The complex interior, in contrast, has an L-shaped or U-shaped floor area created by a bench that is free-standing on one or both of its short sides. Such benches are generally built against the back wall of the room but do not abut the side walls. The lack of door jambs



indicates that the side areas thus created are to be considered part of the same room.

Although expressed in terms of the kind of bench present, this element really captures the division of interior horizontal space. Except for those rooms with no bench, the rooms in Group A (see below) generally have more bench surface than floor.

The next element considered is the number of rooms, the distinction being between superstructures with only one room and those with more than one. This has been included mainly because, as discussed in Chapter 1, the conventional classification of structures summarized by Pollock (1965) contrasts the possibly residential (or administrative) "palace" type, which is by definition multi-roomed, with the type that is possibly a religious temple, a type conceived of as having one room. Because of this apparent equation of the existence of several rooms with use as a residence I wished to see if different kinds of activities were associated with one-room superstructures in the three groups.

The third element I have included is referred to as room orientation. For all rooms tabulated in Chapter 4, the direction in which their entrance faced was noted. Most rooms face onto the courtyard area but a sizable subset does not. For simplicity the range of possible orientations has been summarized in the form of a dichotomy: orientation is either towards the patio or away from the patio. Once again the main reason for studying this trait is the possibility that different activities are associated with rooms facing in different directions. It should also be noted that most rooms oriented away from the patio have less terrace space associated with them.

Table 6.3: Definition of Superstructure Types<sup>a</sup>

Type	Layout	# Rooms	Orientation	Access
A1	S <sup>b</sup>	1	P	I
A2	S	2+	P	I
A3	S	2+	V	I
A4	S	2+	V	D
A5	S	3+	V	I/D
B1	C <sup>c</sup>	1	P	I
B2	C/S	2+	P	I
B3	C/S	2+	V	I
B4	C/S	2+	V	D
B5	C/S	3+	V	I/D

<sup>a</sup> S = simple; C = complex; P = patio; V = various (patio and other); I = independent; D = dependent.

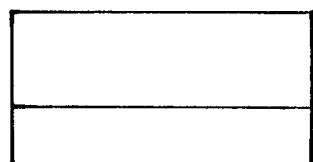
<sup>b</sup> Simple layout may include rooms with no bench as well as those with the sort of bench described in the text.

<sup>c</sup> Complex layout rooms must have a free-standing bench. In multi-roomed superstructures, some rooms may have a simple layout, others complex.

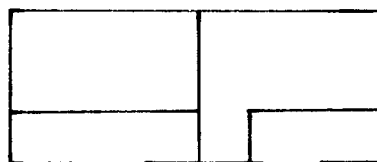
The final element is that of access. This trait has been divided into two kinds: independent and dependent. Independent access means that there is no direct passage from any one room to another within the superstructure. All the rooms present have doorways leading only to the exterior terrace area of the substructure. Dependent access means that one room can only be entered from another room. In some cases, both kinds of access may be present in the same superstructure; this is considered dependent/independent access.

Use of these additional criteria of number of rooms (one or more than one), orientation of rooms (all towards the patio or some or all away from the patio), and access to rooms (independent or dependent) results in the further division of each of the two basic types — simple (A) and complex (B) — into five subdivisions. Table 6.3 lists the main characteristics of the ten types. Figure 6.1 illustrates the types.

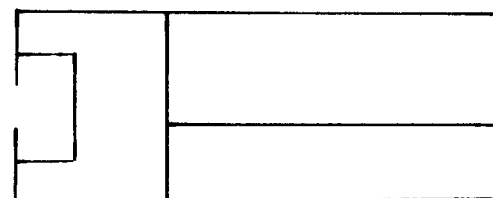
SIMPLE INTERIORS - bench may be absent in all cases; shape of bench irrelevant



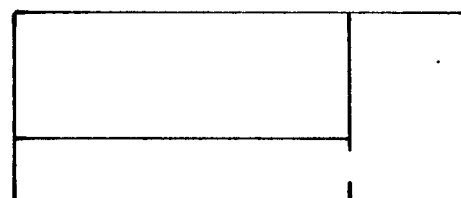
Type A1



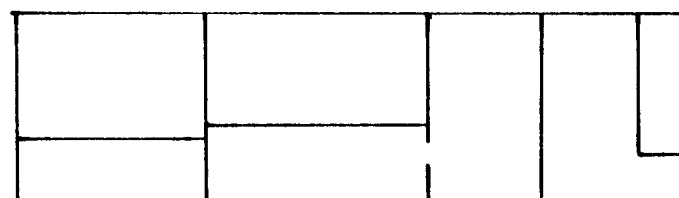
Type A2



Type A3



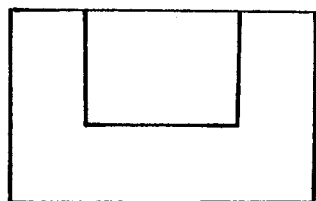
Type A4



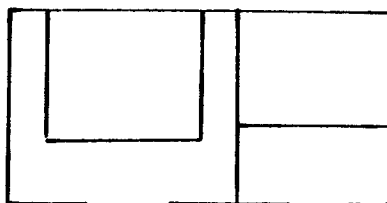
Type A5

Figure 6.1: Schematic Drawings of the Ten Superstructure Types

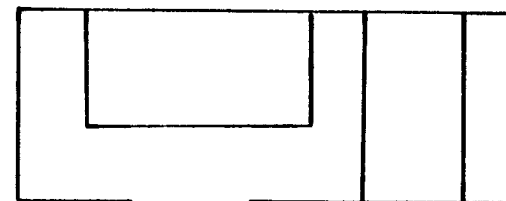
COMPLEX INTERIORS - bench in room with complex interior layout may be free-standing on one or both ends



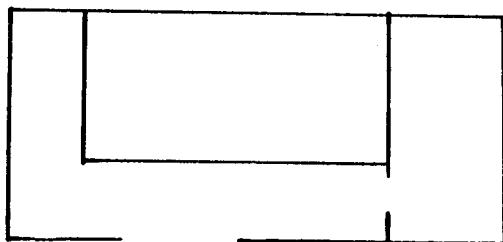
Type B1



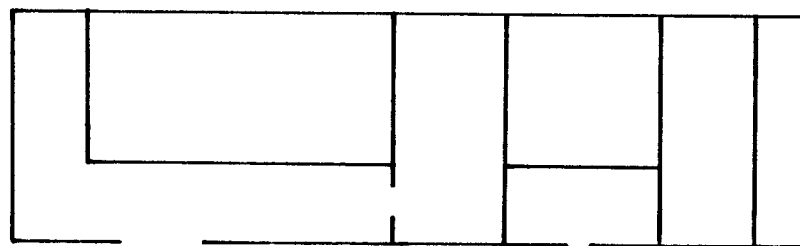
Type B2



Type B3



Type B4



Type B5

(Figure 6.1, cont.)

As indicated by Table 6.3 and as can be seen in Figure 6.1, Type A2 is a concatenation of several Type A1's. B2 is a string of B1 rooms and/or A1 rooms. In fact, each succeeding type is an extension of the preceding ones through the addition of more rooms or greater variety in access or orientation. It should also be noted that the addition of interior door jambs would turn Type B1 into a variant of the Type A4 superstructure having two side rooms.

#### *The Distribution of Superstructure Types across Groups*

The classification of the excavated superstructures is shown in Tables 6.4 and 6.5. The numbers of superstructures of each type summed by group are presented in Table 6.6. The superstructures whose existence is questionable (ST?) and the platforms (PL) are also included in this table. The numbers per group converted into percentages are given in Table 6.7. The total number of *known* superstructures in each group has been used to calculate these percents. Thus the superstructures of questionable existence and platforms do not enter into this calculation. Finally, Figure 6.2 gives a histogram of these percents for each group.

From these tables and Figure 6.2 it can be seen that superstructures of the five variants of Type A predominate in each of the three groups, indicating that the simple interior arrangement is the more common pattern. Of these buildings with simple interiors, most have one room (A1) — 22.4% for Gr 9N-8, 57.1% for Gr 9M-22, and 40.0% for Gr 9M-24. A2 and A3 are the next most common types in Gr 9N-8 and Gr 9M-24. Both these types refer to multi-roomed superstructures with independent access. Type A2 buildings all face onto the patio while Type A3's have both patio and other orientations. Gr 9M-22 differs slightly in having,

in addition to Type A2, Type A4 as one of the next most frequent types after A1. Type A4 superstructures have one room oriented towards the patio and a second room that can only be entered from the first — independent and dependent access. Type A4 is present in Gr 9N-8 but in a lower percentage. The final type in the A group, A5, is found only in Gr 9N-8, where it is almost as common as Types A2 and A3. Type A5 is equivalent to Type A4 but with the addition of one or more rooms with independent access.

In the case of the set of B types — superstructures with one or more rooms with complex interiors — the distribution is quite uneven in favor of Gr 9N-8. Gr 9M-22 has one example of a Type B1 while Gr 9M-22 has a single instance of a Type B3. In this connection, however, the frequent occurrence of Type A4 in this group should be remembered. Otherwise, all examples of B types are found in Gr 9N-8. Here the single-room type is most common (18.4%) but there is at least one example of each of the other types. On the basis of the data on both sets of types, Gr 9N-8 not only has more superstructures and rooms than the other two groups but also has a greater variety of superstructure patterns.

Table 6.8 compares the distribution of various components of these superstructure types across the groups as a way of emphasizing certain aspects of superstructure patterning. All three groups have a greater number of Type A superstructures and higher percentages for patio orientation and independent access. Gr 9M-22 has a greater percentage of one-roomed buildings, whereas for the other two groups the percentage of buildings with more than one room is higher.

ST <sup>a</sup>	Patio A	Patio B	Patio C	Patio D	Patio E	Patio F	Patio H	Patio K	Patio Alpha
A1	81 (2), 82 (9)	74 (1)		60A, 60B, 61B, 105	95, 108		64?		110B (5)
A2	82 (E)		70	104, 111	93S, 93N		110C		74 (6-7)
A3	82 (C), 83		73 (4-6)	63, 65 (1,3,5)	96				
A4	82 (3&10)				92				65 (4&6)
A5		68, 73 (1-3), 74 (2-4)				91	110A		
B1	80	74 (5), 75	71	61A			76, 115A	106, 107	
B2	82 (W)		72						
B3		67	69		97				
B4	81 (1A-B)								
B5							110B		
ST?			101, 102	61C		90N, 90S	78	116, 117	
PL			W of 72		94?	Pl.A&B	115B		

<sup>a</sup> ST = superstructure type. In this column PL = platform; ST? = existence of superstructure unknown.

Table 6.4: Classification of Gr 9N-8 Superstructures

Table 6.5: Classification of Gr 9M-22 and Gr 9M-24 Superstructures

ST <sup>a</sup>	Gr 9M-22 Patio A	Gr 9M-22 Patio B	Gr 9M-24
A1	196, 199 246	189, 190 191W, 240 191N	213, 247
A2	193A, 245B	-----	248
A3	193B	-----	212
A4	194B, 195B	-----	-----
A5	-----	-----	-----
B1	197?	-----	-----
B2	-----	-----	-----
B3	-----	-----	211
B4	-----	-----	-----
B5	-----	-----	-----
ST?	195A, 244 245A, F.57	192, F.5	-----
PL	194A, 200 242, 243 F. 64	191W-B 241, F.16	-----

<sup>a</sup> ST = superstructure type. In this column PL = platform; ST? = existence of superstructure unknown.

Table 6.6: Distribution of Superstructure Types by Group

Superstructure Type	Gr 9N-8	Gr 9M-22	Gr 9M-24	Total by ST
A1	11	8	2	21
A2	8	2	1	11
A3	6	1	1	8
A4	3	2	0	5
A5	5	0	0	5
Total A1-A5	33	13	4	50
B1	9	1?	0	10
B2	2	0	0	2
B3	3	0	1	4
B4	1	0	0	1
B5	1	0	0	1
Total B1-B5	16	1	1	18
ST? <sup>a</sup>	10	6	0	16
PL	3	8	0	11
Total by group	62	28	5	95

<sup>a</sup> ST? = existence of superstructure unknown.



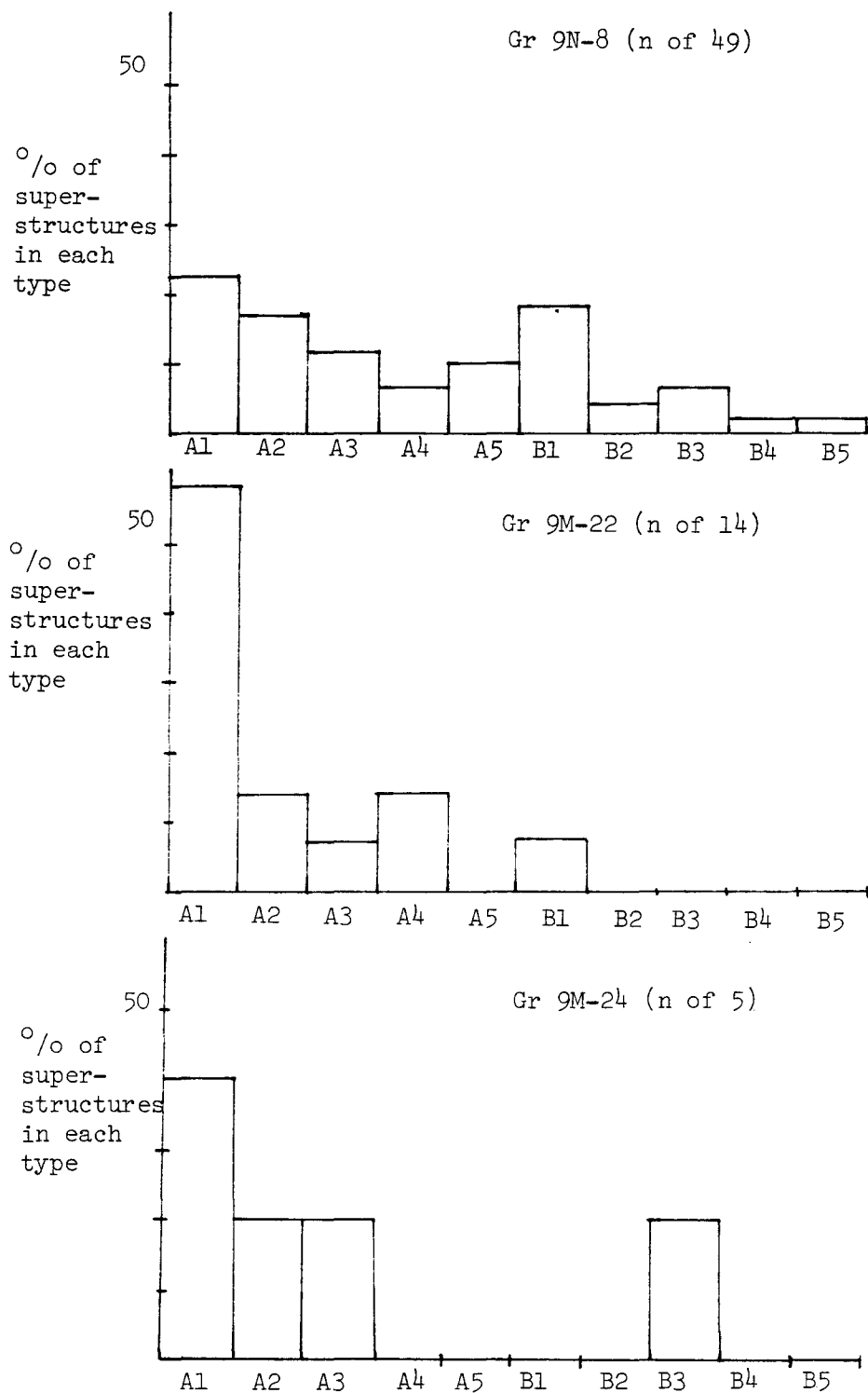


Figure 6.2: Histogram of the Distribution of Superstructure Types in each Group Studied

Table 6.7: Distribution of Superstructure Types by Groups Expressed as Percentage of Total Superstructures in Group

<u>Superstructure Type</u>	<u>Gr 9N-8</u>	<u>Gr 9M-22</u>	<u>Gr 9M-24</u>
A1	22.4%	57.1%	40.0%
A2	16.3	14.3	20.0
A3	12.2	7.1	20.0
A4	6.1	14.3	0.0
A5	10.2	0.0	0.0
B1	18.4	7.1	0.0
B2	4.1	0.0	0.0
B3	6.1	0.0	20.0
B4	2.0	0.0	0.0
B5	2.0	0.0	0.0

Table 6.8: Comparison of Elements of Superstructure Types

<u>Elements Compared</u>	<u>Gr 9N-8</u>	<u>Gr 9M-22</u>	<u>Gr 9M-24</u>
• Aggregate ST			
Types A1-A5	67.3%	92.9%	80.0%
Types B1-B5	32.7	7.1	20.0
• Number of rooms			
1 room	40.8	64.3	40.0
2 or more rooms	59.2	35.7	60.0
• Orientation of rooms			
Patio only	61.2	78.6	60.0
Patio and other	38.8	21.4	40.0
• Access to rooms			
Independent	79.6	85.7	100.0
Dependent/Independent	20.4	14.3	0.0

### The Distribution of Construction and Decoration Traits Across Groups

Various features of construction and decoration that play no part in the typology of superstructures just discussed are nevertheless of interest, since their distribution further serves to characterize the similarities and differences among the three groups. Table 6.9 tabulates different wall and roof constructions as well as the presence of plaster, paint, and sculpture. For the walls, the information presented in the individual structure tables has been compressed into four categories: all stone, a combination of stone and bajareque, completely bajareque, and unknown construction (but walls are presumed to have existed). The roofs have been divided into vault or beam and mortar and thatch. In those cases where no definite evidence exists, a thatched roof has been assumed. The raw frequencies have been converted to percentages of the total number of superstructures for which data were available in each group, to offset the differences in the number of buildings. It must be noted that the frequencies of plaster and paint are somewhat affected by uneven preservation and the availability of information in the reports. It is therefore possible that some instances were overlooked. This is especially true of paint, which was rarely found preserved in large quantities. As the table indicates, Gr 9N-8 has a larger proportion of stone buildings, vaulted or beam and mortar roofs, and sculpture, but only a slightly greater use of plaster than Gr 9M-22. On the other hand, Gr 9M-22 has a higher percentage of superstructures with preserved paint than Gr 9N-8 (although the absolute number is smaller).

Table 6.9: Comparison of Constructional Details across Groups  
(Percent of Total Superstructures in Each Group)

Constructional Details	Gr 9N-8 (n=59)	Gr 9M-22 (n=20)	Gr 9M-24 (n=5)
• Walls			
Stone	57.6%	15.0%	20.0%
Stone/Bajareque	35.6	55.0	80.0
Bajareque	0.0	30.0	0.0
Unknown	6.8	0.0	0.0
• Roofs			
Vault/Beam Mortar	32.2	15.0	0.0
Thatch	67.8	85.0	100.0
• Plaster			
Present	54.2	40.0	0.0
Absent	28.8	30.0	100.0
Unknown	16.9	30.0	0.0
• Paint			
Present	8.5	15.0	0.0
Absent	91.5	85.0	100.0
• Sculpture			
Present	18.6	10.0	0.0
Absent	81.4	90.0	100.0

Table 6.10 provides further details about the sculpture. For each structure where sculpture is present the table gives a brief description of the kind of sculptural elements used without entering into details of style and significance. The placement of the decoration is specified together with a simple typology of the kind of sculpture based on its means of attachment and degree of projection. Except for the bench of Str 9N-82, all sculpture is part of or assumed to have been part of an interior or exterior wall. Gr 9N-8 Patio A and Gr 9M-22 Patio A are the only patios to have more than one structure with exterior sculpture. Interior sculpture turns up in several patios of Gr 9N-8, specifically A, B, C, and D. Except in Patio B, a structure with interior decoration always has some sort of exterior sculpture. In the case of Patio B, the interior sculpture is in Str 74N, which is physically connected by a shared substructure and staircase to Str 67, the building with an exterior design. Hieroglyphic inscriptions are rare; the dominant motifs or

elements are jaguars, human heads or full figures, T-shaped blocks, and bats. Given the presence of the bat in Copan's emblem glyph, it is perhaps surprising that that animal occurs less often than the jaguar and in fewer patios.

Table 6.10: Location and Type of Sculptural Decoration

Structure	Sculptural Elements	Loc <sup>a</sup>	Type <sup>b</sup>
• Gr 9N-8 Patio A			
9N-80	3 pieces — 2 spirals, 1 unknown	E	?
9N-81	Jaguar heads with bat headdresses	E	F
9N-82C	Human/divine figures	E	S
9N-82C	Glyphic inscription, divine figures	I	B
9N-83	T-shaped blocks	E	F
• Gr 9N-8 Patio B			
9N-67	Diagonally set rectangles	E	F
9N-74N	Small square blocks <sup>c</sup>	I?	F
• Gr 9N-8 Patio C			
9N-69	Glyphic inscription	E	F
	Serpent	I	F
• Gr 9N-8 Patio D			
9N-60A	Straight, flaring T's	E	F
	Jaguar head <sup>d</sup>	I?	P
• Gr 9N-8 Patio H			
9N-110C	Block carved with mat design <sup>e</sup>	E?	F?
• Gr 9M-22 Patio A			
9M-194B	Round flat-surfaced blocks	E	F?
9M-195B	Mosaic jaguar masks	E	F
	Jaguar, bat and 2 human heads	E	P

<sup>a</sup> E = exterior of superstructure; I = inside a room.

<sup>b</sup> P = projection, i.e. tenoned piece set into wall, projecting perpendicular to wall and beyond plane of wall. S = statuary, i.e. figure or element carved in full round with no means of attachment (e.g. tenon) to wall and thus placed in niche. F = frieze (interior) or façade (exterior), i.e. untenoned blocks set into wall same as wall stones and projecting no further than plane of wall. B = bench.

<sup>c</sup> Found in collapse debris inside Rm 1.

<sup>d</sup> Found on bench inside Rm 2.

<sup>e</sup> Found in collapse debris of Str 110C; placement uncertain.

### Comparisons on the Basis of Room Furniture and Room Measurements

I have prepared a series of tables and figures comparing various features of the rooms in the three groups. Table 6.11 gives the distribution of benches (number per room and numbers of various shapes) and other kinds of furniture. Table 6.12 presents several standard descriptive statistics for room and bench areas and bench height for each of the three groups. The mean in all groups for all dimensions is affected by the presence of a few unusually large examples. To counteract this skewing and to give an idea of the shape of the distribution of areas and heights, a set of stem and leaf plots (Mosteller and Tukey 1977:43-47; Clark 1982), with medians and upper and lower hinges (quartiles) indicated, has been prepared for each group and each dimension; these are given as Figures 6.3 to 6.15.

The three plots of room area (Figures 6.3 to 6.5) show that Gr 9N-8 and Gr 9M-22 generally have larger rooms than Gr 9M-24. All have at least one room that is unusually large for the group (i.e. lies outside the upper fence as explained in Figure 6.3). Both Gr 9N-8 and Gr 9M-22 have peaks at 4-6 m<sup>2</sup> and 12-14 m<sup>2</sup> with an additional one for Gr 9N-8 at 8-10 m<sup>2</sup>. The room areas of Gr 9M-24 peak at around 2-4 m<sup>2</sup>.

With respect to bench area (Figures 6.6 to 6.8), Gr 9N-8 and Gr 9M-22 once again predictably have larger benches than Gr 9M-24. There is a slight tendency for larger benches in Gr 9M-22 than in Gr 9N-8. Both groups have outside values. Despite the presence of larger benches in Gr 9M-22, its plot shows similar peaks to that of Gr 9N-8 at around 2-4 versus 3-5 m<sup>2</sup> and 6-9 versus 6-7 m<sup>2</sup>.

Table 6.11: Distribution of Benches, Other Furniture, and Niches by Groups

	Gr 9N-8	Gr 9M-22	Gr 9M-24
• % of rooms with:	n=92	n=23	n=9
No benches	13.2	21.8	33.4
1 bench	70.4	69.6	55.6
2 or more benches	16.5	8.7	11.2
Other furniture	16.5	0.0	11.1
Wall niches	6.6	0.0	0.0
Bench niches	9.9	0.0	0.0
• % benches that are:	n=96	n=20	n=9
Rectangular	74.0	55.0	57.2
L-shaped	17.8	25.0	28.6
U-shaped	8.4	20.0	14.3
• % other furniture	n=19	n=0	n=1
Ledge/shelf	78.9	0.0	100.0
Other <sup>a</sup>	21.2	0.0	0.0
• % structures with:	n=54	n=28	n=5
Exterior niches <sup>b</sup>	9.3	7.1	20.0

<sup>a</sup> I.e. pillar, stone box.

<sup>b</sup> In substructure, exterior wall of superstructure, or retaining wall of elevated terrace.

Table 6.12: Mean Room Area, Bench Area, and Bench Height

DIMENSION	Gr 9N-8	Gr 9M-22	Gr 9M-24
• Room area (m <sup>2</sup> )	n=91	n=23	n=9
Minimum area	1.0	2.4	2.0
Maximum area	46.5	49.7	18.5
Mean area	10.3	12.2	7.1
Standard deviation	6.9	9.5	6.7
• Bench area (m <sup>2</sup> )	n=95	n=20	n=7
Minimum area	0.7	0.8	1.4
Maximum area	19.3	40.0	6.0
Mean area	5.1	8.4	3.6
Standard deviation	3.1	8.6	1.7
• Bench height (cm)	n=86	n=17	n=5
Minimum height	15.0	20.0	36.0
Maximum height	80.0	65.0	56.0
Mean height	45.9	38.0	42.2
Standard deviation	13.6	12.9	7.2

Figure 6.3: Stem and Leaf Plot of Room Areas for Gr 9N-8 (n=91)

Minimum area: 1.00  
 Lower hinge: 5.55  
 Median: 9.10  
 Upper hinge: 12.05  
 Maximum area: 46.50

```

    0      11
    0     3333333
    0  H   444445555555555555
    0     6666666777
    0  M   88888888899999999999
    1     00000111
    1  H   2222222233
    1     44455
    1     6677
    1      8
    2     11
*** OUTSIDE VALUES ***a
    2     348
    3      3
    4      6

```

<sup>a</sup> Outside values are those greater than the upper fence where  
 upper fence = upper hinge +  $(1.5 \times \text{Hspread})$ . Hspread (or inter-  
 quartile range) = upper hinge - lower hinge (Wilkinson 1986). In  
 this case the upper fence = 21.8.

Figure 6.4: Stem and Leaf Plot of Room Areas for Gr 9M-22 (n=23)

Minimum area: 2.40  
 Lower hinge: 5.75  
 Median: 11.20  
 Upper hinge: 14.50  
 Maximum area: 49.70

```

    0      2
    0  H   44455
    0     667
    0
    1  M   011
    1     2333
    1  H   4455
    1      6
    1
    2      0
*** OUTSIDE VALUES ***
    4      9

```



Figure 6.5: Stem and Leaf Plot of Room Areas for Gr 9M-24 (n=9)

Minimum area: 2.00  
 Lower hinge: 2.60  
 Median: 3.30  
 Upper hinge: 8.30  
 Maximum area: 18.50

```

      0  H/M 2223
      0    5
      0
      0  H   8
*** OUTSIDE VALUES ***
      1    88

```

Figure 6.6: Stem and Leaf Plot of Bench Areas for Gr 9N-8 (n=95)

Minimum area: 0.70  
 Lower hinge: 3.30 (actual value not present)  
 Median: 4.70  
 Upper hinge: 6.40  
 Maximum area: 19.30

```

      0    77899
      1    00012458
      2    1457779
      3  H   122244456666678
      4  M   01122333333678999
      5    001456678
      6  H   0001223334455
      7    0023346
      8    0068
      9    258
     10    348
*** OUTSIDE VALUES ***
     11    15
     12    7
     19    3

```

Figure 6.7: Stem and Leaf Plot of Bench Areas for Gr 9M-22 (n=20)

Minimum area: 0.80  
 Lower hinge: 3.60  
 Median: 6.95  
 Upper hinge: 9.95  
 Maximum area: 40.0

```

      0      01
      0 H   22333
      0      44
      0 M   677
      0 H   899
      1      0
      1      22
      1
      1      7
*** OUTSIDE VALUES ***
      4      0

```

Figure 6.8: Stem and Leaf Plot of Bench Areas for Gr 9M-24 (n=7)

Minimum area: 1.40  
 Lower hinge: 2.15  
 Median: 3.80  
 Upper hinge: 4.70 (actual value not present)  
 Maximum area: 6.00

```

      1      4
      2 H   12
      3 M    8
      4 H    2
      5      2
      6      0

```

Because the report on Gr 9M-24 (Murillo n.d.) does not include measurements of bench height, bench heights could only be compared for Gr 9N-8 and Gr 9M-22 (Figures 6.9 and 6.10).<sup>1</sup> The former has somewhat higher benches and a greater range of values than the latter. There are no extreme values for either group. The plot for Gr 9N-8 displays a

---

<sup>1</sup> During a recent visit to Copan (June 1987) I measured the heights of the restored benches in Gr 9M-24 and have added the figures to the tables in Chapter 4 and used them in Table 6.12. However, I decided against redoing the comparison.

number of peaks at approximately 20-22 cm, 30-34 cm, 45-55 cm, and 60-65 cm. Gr 9M-22 is less diverse with only two peaks, one at 30-33 cm and the other at 50-53 cm.

Despite these differences in size of rooms and benches, all three groups are very similar in the amount of room space taken up by benches. As shown in Figures 6.11 to 6.13, the median and upper hinge values are very close. Gr 9N-8 has the greatest maximum value but the other two groups are not too dissimilar. The plot for Gr 9N-8 peaks at 0%, 60-65%, and 75-80% whereas that for Gr 9M-22 peaks at 0%, 57-60%, and 80-85%. Gr 9M-24 has no real bulges in its plot.

Figure 6.9: Stem and Leaf Plot of Bench Heights for Gr 9N-8 (n=86)

Minimum height:	15.00
Lower hinge:	36.00
Median:	49.50
Upper hinge:	56.00
Maximum height:	80.00

1	5
2	0000012
2	55788
3	0022244
3	H 569
4	0000234
4	M 5555557788889
5	00000000000001222234
5	H 6677888
6	000000002234
6	558
7	
7	
8	0

Figure 6.10: Stem and Leaf Plot of Bench Heights for Gr 9M-22 (n=17)

Minimum height: 20.00  
 Lower hinge: 30.00  
 Median: 32.00  
 Upper hinge: 50.00  
 Maximum height: 65.00

```

2      00
2      5
3  H/M 000022
3
4      00
4
5  H   00002
6
6      5

```

Figure 6.11: Stem and Leaf Plot of Percent Room Occupied by Bench for Gr 9N-8 (n=91)

Minimum percent: 0.00  
 Lower hinge: 36.90 (actual value not present)  
 Median: 60.20  
 Upper hinge: 74.65  
 Maximum percent: 91.50

```

0      00000000000004
0      9
1
1      59
2
2      89
3      444
3  H   5579
4      0233
4      68999
5      00134
5      55689
6  M   0000012224
6      566688
7  H   01112334
7      55667778888999
8      11112
8      78
9      01

```

Figure 6.12: Stem and Leaf Plot of Percent Room Occupied by  
Bench for Gr 9M-22 (n=23)

Minimum percent: 0.00  
 Lower hinge: 22.20 (actual value not present)  
 Median: 57.20  
 Upper hinge: 74.45 (actual value not present)  
 Maximum percent: 85.90

```

0      00000
1      7
2  H   6
3      12
4      67
5  M   799
6      88
7  H   26
8      00455
  
```

Figure 6.13: Stem and Leaf Plot of Percent Room Occupied by  
Bench for Gr 9M-24 (n=9)

Minimum percent: 0.00  
 Lower hinge: 0.00  
 Median: 53.90  
 Upper hinge: 72.30  
 Maximum percent: 80.80

```

0  H   0004
0  M/H 56778
  
```

Another way to evaluate the apparent slight differences suggested by the stem and leaf plots is through an analysis of variance. The null hypothesis under consideration holds that the room or bench dimensions recorded from all three groups fall within the same population regardless of location. Room area, bench area, and the percent of room occupied by bench were evaluated using a three-way comparison with the Kruskal-Wallis statistic; bench heights from Gr 9N-8 and Gr 9M-22 were compared with the aid of the Mann-Whitney  $U$  statistic (Siegel 1956; Wilkinson 1986). The results are presented in Table 6.13. The only statistic which has a probability less than or equal to 0.05 comes from

the comparison of bench heights (M-W  $U = 967$ ,  $p = 0.035$ ,  $df = 1$ ). However, the probabilities associated with the statistics for room area and bench area are much smaller than that associated with the percent of room comparison and are in fact both less than 0.10. The pattern indicated by the stem and leaf plots as described above is thus confirmed by the analysis of variance but, as also suggested by the plots, the differences are not strongly marked except in the case of bench height.

Table 6.13: Analysis of Variance of Room and Bench Areas Across Groups

Comparison	Statistic <sup>a</sup>	Prob	DF
Room area	5.07	0.079	2
Bench area	4.78	0.092	2
Bench height	967.0	0.035	1
% Room occupied	0.71	0.703	2

<sup>a</sup> For 3-way comparisons (i.e. room area, bench area, % room occupied), Kruskal-Wallis one-way analysis of variance performed; for 2-way comparisons (bench height), Mann-Whitney  $U$  used.

#### The Distribution of Elevated Terraces in Relation to Patios

The exposure of a certain amount of substructure surface due to the practice of building superstructures with an area less than the area of their substructures creates strips of open space. It is possible to speculate that these terraces, most commonly found in front of the superstructures, might have been covered by impermanent ramada-style roofs, but little in the way of supporting evidence can be adduced beyond the posthole in Rm 8 of Str 9M-193A, Gr 9M-22 Patio A.

Table 6.14: Location and Dimensions of Elevated Terraces

Structure Number	Terrace Area-m <sup>2</sup>	Terrace Height <sup>a</sup>	Associated Feature <sup>b</sup>	Type of Terrace	Miscel- laneous
9N-81	54.0	26	9	Side	
9N-73	2.7 est	31	None	Front	
9N-73	3.7 est	31 est	None	Front	
9N-68	6.9	42	None	Front	
9N-74-C	4.7	38	43-43 (41)	Front	
9N-74-C	5.3	47	(41)	Front	
9N-74-S	3.1	50	(45)	Front	
9N-74-S	?	16	(45)	Front	
9N-75	4.0 est	34?	None	Front	
9N-96	1.9	?	None	Front	
9N-96	3.3	?	None	Front	
9N-93N	3.0	?	None	Front	
9N-93S	1.9	45	(34, 40, 49)	Front	
9N-91	5.3	25	None	Front	
9N-91	5.3 est	25 est	None	Front	
9N-110B	7.9 est	32	None	Front	
9N-110C	1.7 est	30	None	Front	
9N-76	5.1 est	40 est	None	Side	
9M-245B	4.4	16 est	None	Front	
9M-245B	4.1	35	None	Front	
9M-240	2.0	?	None	Front	
9M-191N	?	25+	None	Front	
9M-191N	8.6	46	None	Frnt/Sde	Niche
9M-191N	23.8	34	None	Side	
9M-191W	10.2	?	None	Side	
9M-211	6.7	?	None	Front	
9M-211	6.7	?	None	Front	Niche
9M-212	6.0 est	?	None	Front	
9M-213	3.5	24	None	Side	
9M-213	2.6	20	None	Side	

<sup>a</sup> Height (in cm) above lower terrace, est = estimated measurement.

<sup>b</sup> Numbers refer to features found on surface of elevated terrace or, if in parentheses, on surface of lower terrace adjacent to elevated terrace.

Figure 6.14: Stem and Leaf Plot of Elevated Terrace Areas (n=28)

Minimum area: 1.90  
 Lower hinge: 3.20 (actual value not present)  
 Median: 4.70  
 Upper hinge: 6.70  
 Maximum area: 54.00

```

      1      99
      2      067
      3 H    01357
      4 M    01477
      5      1333
      6 H    0779
      7      9
      8      6
      9
     10      2
*** OUTSIDE VALUES ***
     23      8
     54      0

```

Figure 6.15: Stem and Leaf Plot of Elevated Terrace Heights (n=22)

Minimum height: 16.00  
 Lower hinge: 25.00  
 Median: 31.50 (actual value not present)  
 Upper hinge: 40.00  
 Maximum height: 50.00

```

      1      66
      2      04
      2 H    5556
      3 M    011244
      3      56
      4 H    02
      4      567
      5      0

```

Two factors suggest that at least some of the terraces were more than just walkways facilitating movement from one room to another. The first is the presence of in situ artifact deposits on some terraces. The second is the construction of elevated terraces or terrace benches. The placement and height of these elevated terraces are such that they actually impede movement. Table 6.14 lists the elevated terraces from



all patios. They have been divided on the basis of location into front and side elevated terraces. The former are built in front of the superstructure, generally flanking or on one side of a room entrance. Side elevated terraces, which are less common, are located next to a superstructure raised above the level of the front terrace. Figures 6.14 and 6.15 give stem and leaf plots for the area and the height of these constructions.

Patios A, B, E, F, and H of Gr 9N-8 have elevated terraces. Of these, Patio B has a clear majority both in number of elevated terraces and in number of structures with such exterior benches. They are also found in the two patios of Gr 9M-22 and in Gr 9M-24. Table 6.15 summarizes the distributions. One elevated terrace from Gr 9M-22 Patio B in Str 191N and another from Gr 9M-24 in Str 211 have a niche built into the retaining wall. Otherwise the terraces lack architectural decoration or elaboration.

Table 6.15: Distribution of Elevated Terraces

Group and Patio	# Terraces		# Structures with	
	Front	Side	Front Ter	Side Ter
9N-8 Patio A	0	1	0	1
9N-8 Patio B	8	0	4	0
9N-8 Patio C	0	0	0	0
9N-8 Patio D	0	0	0	0
9N-8 Patio E	4	0	3	0
9N-8 Patio F	2	0	1	0
9N-8 Patio H	2	1	2	1
9N-8 Patio I	0	0	0	0
9N-8 Patio K	0	0	0	0
9M-22 Patio A	2	0	1	0
9M-22 Patio B	3	2	1 (+1) <sup>a</sup>	1 (+1)
9M-24	3	2	2	1

<sup>a</sup> One structure in Gr 9M-22 Patio B, Str 9M-191N, has both front and side elevated terraces.

### COMPARISON OF LOCUS TYPES

The kinds of deposits associated with each locus type were described in Chapter 3. It was stated there that the locus types can be divided into those reflecting in situ activities (or the residue of those activities) and those representing redeposited refuse. Locus types 2 (room interiors), 3 (terraces), 4 (room or terrace), 6 (niches), and 7 (platform surfaces) are examples of primary use-related (in situ) contexts which have been distinguished on the basis of their location in and on the architectural units of the patio. Locus types 1, 8, and 9, on the other hand, denote redeposited material. Locus type 1 refers to material on the patio paving while locus type 8 denotes material associated with the sides of substructures. Locus type 9 refers to midden deposits. Tables 6.16-6.31, which show the range of categories in each locus type, are provided for reference. Tables 6.17-6.31 present each class of artifacts separately. For Tables 6.17-6.24, the artifact category occurrences are expressed as the ratio of the quantity of artifacts in the category to the total number of artifacts of the class (lithics, ground stone, etc.) in the locus type. In Tables 6.25-6.31, it is the ratio of quantity of artifacts in a particular category and locus type to the total number of artifacts in the Artifact Distribution Database assigned to the category.

Table 6.16: Material Codes by Locus Types

Material Code	Locus type 1		Locus type 2		Locus type 3		Locus type 4	
	Quantity	%	Quantity	%	Quantity	%	Quantity	%
01	5228	47.0	1953	35.1	2600	43.9	311	39.0
02	141	1.3	85	1.5	79	1.3	1	0.1
03	3	0.0	15	0.3	5	0.1	0	0.0
04	5520	49.7	2812	50.5	3069	51.8	484	60.7
06	149	1.3	417	7.5	136	2.3	1	0.1
07	37	0.3	198	3.6	5	0.1	0	0.0
10	0	0.0	2	0.0	5	0.1	0	0.0
13	24	0.2	38	0.7	20	0.3	0	0.0
14	11	0.1	6	0.1	5	0.1	0	0.0
24	3	0.0	40	0.7	5	0.1	0	0.0
Total:	11116		5566		5929		797	

Material Code	Locus type 6		Locus type 7		Locus type 8		Locus type 9	
	Quantity	%	Quantity	%	Quantity	%	Quantity	%
01	12	13.2	540	25.0	1658	48.7	20683	41.5
02	1	1.1	32	1.5	56	1.6	245	0.5
03	1	1.1	0	0.0	3	0.1	40	0.1
04	8	8.8	1558	72.2	1578	46.3	25710	51.5
06	34	37.4	14	0.6	89	2.6	2443	4.9
07	5	5.5	2	0.1	2	0.1	446	0.9
10	28	30.8	2	0.1	1	0.0	45	0.1
13	0	0.0	6	0.3	10	0.3	129	0.3
14	0	0.0	2	0.1	6	0.2	99	0.2
24	2	2.2	3	0.1	2	0.1	42	0.1
Total:	91		2159		3405		49882	

Table 6.17: Lithic Artifacts by Locus Type

Artifact category	Locus type							
	1	2	3	4	6	7	8	9
Chert core	0.5	1.0	0.5	-	-	0.7	0.8	0.6
Chert chunk	19.5	15.2	9.6	12.9	41.7	10.2	20.4	11.4
Chert flake	3.2	2.9	2.3	2.9	8.3	3.9	2.7	2.4
Chert blade	0.9	0.6	0.5	0.3	-	0.7	0.8	0.5
Chert proj pt	0.2	0.1	0.1	-	-	0.2	0.1	0.0
Chert biface	0.2	0.2	0.0	0.6	-	0.2	0.2	0.1
Ch eccentric	-	0.1	-	-	-	-	-	-
Obsidian core	1.5	1.4	1.2	41.5	-	1.1	4.8	1.2
Obs chunk	7.4	6.2	7.0	6.8	-	5.0	8.0	6.3
Obs flake	4.3	2.3	3.1	7.1	-	5.0	5.6	3.7
Obs blade	61.7	69.9	75.5	27.7	50.0	72.6	56.2	73.5
Obs proj pt	0.2	0.1	0.2	-	-	0.4	0.2	0.1
Obs biface	0.4	0.1	0.2	0.3	-	-	0.1	0.1
Obs eccentric	0.0	-	-	-	-	-	-	0.0
Gr obs blade	0.0	0.1	-	-	-	-	-	-
Locus total	5228	1953	2600	311	12	540	1658	20683

Table 6.18: Ground Stone Artifacts by Locus Type

Artifact category	Locus type							
	1	2	3	4	6	7	8	9
Metate	54.6	18.8	63.3	100.0	-	50.0	48.2	35.9
CR-style met	-	1.2	-	-	-	-	-	0.8
Anvil/table	-	5.9	-	-	-	-	-	-
Barkbeater	-	1.2	-	-	-	-	-	0.4
Mano	27.7	21.2	29.1	-	-	37.5	37.5	34.7
Hammerstone	1.4	-	-	-	-	3.1	-	1.6
Abrader &/or polisher	5.7	23.5	1.3	-	-	3.1	7.1	13.5
Hammer &/or abrader	-	1.2	-	-	-	-	-	1.2
Abrader &/or whetstone	-	2.4	-	-	-	-	-	0.8
Bowl	-	4.7	-	-	-	-	-	0.8
Mortar	-	1.2	-	-	-	-	-	1.2
Pestle	0.7	4.7	2.5	-	-	-	-	0.4
Celt	2.1	5.9	1.3	-	100.0	6.3	1.8	4.5
Multi-use tool	-	-	-	-	-	-	-	0.4
Flat surfaced	-	-	-	-	-	-	-	0.8
Pot stand	-	-	-	-	-	-	1.8	1.2
Yoke	1.4	1.2	-	-	-	-	3.6	-
Hacha	-	2.4	-	-	-	-	-	-
Awl/punch	-	-	-	-	-	-	-	0.4
Incensario	-	-	1.3	-	-	-	-	-
"Barrel"	-	1.2	-	-	-	-	-	0.4
Hollow cyl	0.7	1.2	1.3	-	-	-	-	-
Doughnut stone	5.7	1.2	-	-	-	-	-	0.8
Grooved mano	-	1.2	-	-	-	-	-	-
Locus total	141	85	79	1	1	32	56	245

Table 6.19: Stone Ornaments by Locus Type

Artifact category	Locus type <sup>a</sup>					
	1	2	3	6	8	9
Jade jewelry	66.7	26.7	20.0	100.0	33.3	10.0
Jade misc worked	-	6.7	-	-	-	2.5
Igneous jewelry	-	-	-	-	-	5.0
Silicate jewelry	-	-	20.0	-	-	-
Mineral pigment	33.3	13.3	20.0	-	33.3	45.0
Mineral vessel	-	6.7	-	-	-	-
Mineral misc worked	-	-	-	-	-	2.5
Slate baton	-	-	-	-	-	5.0
Slate misc worked	-	6.7	-	-	-	10.0
Obsidian jewelry	-	13.3	-	-	-	-
Schist baton	-	-	-	-	-	2.5
Misc pigment	-	13.3	-	-	-	7.5
Misc vessel	-	-	-	-	-	2.5
Misc figurine	-	13.3	-	-	-	-
Misc misc worked	-	-	20.0	-	-	2.5
Indet jewelry	-	-	20.0	-	33.3	-
Indet misc worked	-	-	-	-	-	5.0
Locus total	3	15	79	1	3	40

<sup>a</sup> Locus types 4 and 7 not listed.

Table 6.20: Ceramic Rims by Locus Type

Artifact category	Locus type							
	1	2	3	4	6	7	8	9
Comal plain	4.5	5.1	7.3	4.3	12.5	4.4	4.4	5.1
Comal/cald pl	0.2	0.1	0.1	-	-	0.4	-	0.2
Caldero plain	14.8	17.6	14.8	16.7	12.5	15.1	18.1	14.4
Caldero fancy	0.1	-	0.0	-	-	0.1	-	0.1
FR cald plain	1.6	1.4	1.0	1.7	-	1.5	1.0	1.3
Plate plain	0.0	-	0.0	-	-	0.1	0.1	0.1
Plate fancy	2.1	2.3	3.2	2.3	-	1.9	2.2	3.0
Plate indet	0.3	0.1	0.1	-	-	0.2	0.1	0.0
Bowl/dish pl	0.0	0.2	-	-	-	-	-	0.1
Bowl/dish fan	0.3	0.4	0.3	-	-	0.7	1.6	0.4
Bowl/dish ind	-	-	-	-	-	-	-	0.0
SW dish plain	0.7	0.2	0.2	-	-	1.4	0.3	0.3
Sw dish fancy	1.9	1.1	1.4	0.4	-	2.6	0.5	1.9
SW dish indet	0.6	0.7	0.9	-	-	1.1	1.7	0.2
Hemi bowl plain	1.1	0.7	0.8	-	-	2.0	1.0	0.6
Hemi bowl fancy	9.6	8.9	9.8	4.8	-	9.5	4.9	9.3
Hemi bowl indet	0.5	0.1	0.3	-	-	0.3	0.3	0.2
FW bwl/dsh plain	0.1	0.1	0.1	-	-	-	-	0.1
FW bwl/dsh fancy	8.6	11.7	11.9	19.6	12.5	4.0	12.1	13.3
FW bwl/dsh indet	2.8	3.9	0.4	8.9	-	1.0	1.5	1.2
Cylinder plain	0.1	1.0	-	1.2	-	-	0.9	0.3
Cylinder fancy	1.8	2.7	2.5	2.7	-	0.8	1.9	3.1
Cylinder indet	0.2	0.1	0.1	-	-	0.1	0.1	0.1
Cyl/dish fancy	0.0	-	-	-	-	-	0.1	0.0
Cyl censer pl	1.9	1.3	3.1	0.4	-	0.8	1.3	2.1
Cyl censer fan	0.0	0.0	-	-	-	-	-	0.0
Cyl censer ind	-	-	0.0	-	-	-	-	-
Pot stand fancy	-	-	-	-	-	-	-	0.0
3-prong plain	1.1	1.2	2.1	0.2	-	2.3	1.4	2.5
Colander plain	-	-	0.1	-	-	0.1	-	0.0
Colander fancy	-	-	-	-	-	-	-	0.0
Ladle censer pl	0.2	0.7	0.7	0.8	-	0.2	0.4	0.6
Ladle censer ind	0.0	-	-	-	-	-	-	-
Jar uns plain	3.8	3.4	2.7	-	-	3.6	7.3	5.0
Jar uns fancy	0.0	-	0.0	-	-	-	-	0.1
Jar uns indet	-	-	-	-	-	0.1	-	0.1
Jar L plain	0.8	0.9	0.9	1.7	-	0.6	1.3	1.5
Jar L indet	-	-	-	-	-	-	-	0.0
Jar M plain	22.9	11.7	16.5	9.3	25.0	28.8	15.5	13.4
Jar M fancy	0.0	-	0.1	-	-	0.1	0.2	0.1
Jar M indet	1.2	0.5	1.3	0.2	-	0.7	0.9	0.3
Jar N plain	9.4	14.4	9.4	17.1	25.0	7.3	12.8	12.9
Jar N fancy	0.0	0.1	1.0	-	-	0.1	0.3	0.2
Jar N indet	0.9	1.4	0.5	3.7	-	0.2	1.2	0.6
Str neck jar pl	0.0	0.1	0.1	-	-	-	0.1	0.0
Rest wide plain	1.2	1.3	1.0	0.8	-	2.2	1.3	1.1
Rest wide fancy	0.2	0.8	0.6	-	-	0.3	0.2	0.2
Rest wide indet	0.1	-	0.2	-	-	0.3	0.1	0.1
Rest nar plain	0.8	0.6	0.6	0.8	-	0.2	0.8	0.5

(Table 6.20, cont.)

Artifact category	Locus type							
	1	2	3	4	6	7	8	9
Rest nar fancy	0.2	0.3	0.3	-	-	0.1	0.7	0.2
Rest nar indet	-	-	-	-	-	0.1	-	0.0
Tecomate plain	-	0.2	0.0	-	-	-	-	0.8
Tecomate fancy	0.0	-	-	-	-	-	-	0.0
Semi-neck plain	0.0	0.0	0.1	-	-	-	-	0.1
Semi-neck fancy	-	0.1	-	-	-	-	-	0.0
Lid plain	2.3	1.6	2.9	2.3	12.5	3.1	1.3	1.9
Lid fancy	-	0.1	-	-	-	-	-	-
Lid indet	0.0	-	-	-	-	0.1	-	0.0
Spout plain	0.0	0.1	0.2	-	-	-	-	0.2
Spout fancy	-	-	-	-	-	-	-	0.0
Spout indet	0.1	-	0.0	-	-	-	-	-
Miniature fancy	0.0	-	0.0	-	-	-	-	0.0
Locus total	5520	2812	3069	484	8	1558	1578	710

Table 6.21: Unworked Bone and Bone Artifacts by Locus Type

Artifact category <sup>a</sup>	Locus type							
	1	2	3	4	6	7	8	9
Human worked	-	-	-	-	-	-	-	0.0
Awl, unsp	-	0.2	-	-	-	-	-	0.3
Pointed awl/ warp lifter	-	0.7	0.7	-	-	-	-	0.6
Rounded awl	-	-	0.2	-	-	-	-	0.1
Awl, medial fragment	-	1.0	0.7	-	-	7.1	-	0.9
Awl, butt frag	-	0.2	-	-	-	-	-	0.2
Needle, unsp	-	-	-	-	-	-	-	0.0
Needle w/tip & eye intact	-	0.5	-	-	-	-	-	0.3
Needle or pin, pointed tip	-	1.2	-	-	-	-	1.1	0.9
Pin, rounded tip	-	-	-	-	-	-	-	0.1
Tube or ring	0.7	0.5	0.7	-	-	-	-	0.9
Drilled tooth	-	0.2	2.2	-	-	-	-	0.3
Spatula-like	-	-	-	-	-	-	-	0.4
Cut long bone	0.7	1.2	0.7	-	-	-	-	0.7
Rasp	-	-	-	-	-	-	-	0.0
Shaped/pierced	-	-	-	-	-	-	-	0.2
Carved ornament	-	0.5	-	-	-	-	-	0.1
Worked antler	0.7	0.2	-	-	-	-	1.1	0.1
Unmodified	98.0	93.3	94.9	100.0	100.0	92.9	97.8	93.6
Misc worked	-	-	-	-	-	-	-	0.0
Locus total	149	417	136	1	34	14	89	2443

<sup>a</sup> All categories are for faunal bone unless otherwise specified.

Table 6.22: Worked Bone Artifacts by Locus Type

Artifact category <sup>a</sup>	Locus type <sup>b</sup>					
	1	2	3	7	8	9
Human misc worked	-	-	-	-	-	0.6
Awl, unspecified	-	3.6	-	-	-	5.1
Awl or warp lifter with pointed end	-	10.7	14.3	-	-	9.0
Awl with rounded end	-	3.6	-	-	-	1.9
Awl, medial fragment	-	14.3	14.3	100.0	-	13.5
Awl, butt-end fragment	-	3.6	-	-	-	3.8
Needle, unspecified	-	-	-	-	-	0.6
Needle with pointed tip	-	7.1	-	-	-	5.1
Needle or pin, pointed tip	-	17.9	-	-	50.0	14.1
Pin with rounded tip	-	-	-	-	-	1.9
Tube or ring	33.3	7.1	14.3	-	-	14.1
Drilled tooth	-	3.6	42.9	-	-	5.1
Spatulate tool	-	-	-	-	-	5.8
Cut long bone	33.3	17.9	14.3	-	-	11.5
Rasp	-	-	-	-	-	0.6
Shaped or perforated	-	-	-	-	-	3.2
Carved ornament	-	7.1	-	-	-	1.3
Worked antler	33.3	3.6	-	-	50.0	1.9
Miscellaneous worked	-	-	-	-	-	0.6
Locus total	3	28	7	1	2	156

<sup>a</sup> All categories refer to faunal bone unless otherwise specified.

<sup>b</sup> Locus types 4 and 6 not included.

Table 6.23: Unworked and Worked Shell and Turtle by Locus Type

Artifact category	Locus type <sup>a</sup>						
	1	2	3	6	7	8	9
Unmodified shell	100.0	97.5	80.0	100.0	100.0	100.0	96.0
Shell jewelry	-	-	-	-	-	-	0.7
Shell star	-	0.5	-	-	-	-	-
Shell misc worked	-	2.0	20.0	-	-	-	3.4
Locus total Shell	37	198	5	5	2	2	446
Unmodified turtle	-	100.0	100.0	100.0	50.0	100.0	77.8
Modified turtle	-	-	-	-	50.0	-	22.2
Locus total Turtle	0	2	5	28	2	1	45

<sup>a</sup> Locus type 4 not included.



Table 6.24: Other Ceramic Artifacts and Figurines by Locus Type

Artifact category	Locus type <sup>a</sup>					
	1	2	3	7	8	9
Candelero	54.2	63.2	65.0	83.3	70.0	38.0
Flask	12.5	2.6	-	16.7	-	10.1
Miniature vessel	8.3	7.9	15.0	-	-	17.1
Jewelry	8.3	13.2	-	-	10.0	11.6
Spindle whorl	4.2	2.6	5.0	-	20.0	5.4
Perforated flat disk	12.5	10.5	15.0	-	-	17.8
Locus total Other ceramic	24	38	20	6	10	129
Hand-made figurine	72.7	100.0	40.0	50.0	83.3	83.8
Mold-made figurine	-	-	-	50.0	-	1.0
Figurine, indeterminate	18.2	-	40.0	-	16.7	9.1
Mold-made whistle	9.1	-	20.0	-	-	3.0
Mold-made jointed figurine	-	-	-	-	-	2.0
Jointed fig. indeterminate	-	-	-	-	-	1.0
Locus total Figurine	11	6	5	2	6	99

<sup>a</sup> Locus types 4 and 6 not included.

Table 6.25: Distribution of Lithic Artifacts across Locus Types

Artifact category	Locus type								Category N
	1	2	3	4	6	7	8	9	
Chert core	14.9	9.7	6.2	-	-	2.1	7.2	60.0	195
Chert chunk	23.4	6.8	5.7	0.9	0.1	1.3	7.7	54.1	4370
Chert flake	19.4	6.6	6.9	1.0	0.1	2.4	5.1	58.4	861
Chert blade	25.1	6.4	7.0	0.5	-	2.1	7.0	51.9	187
Chert proj pt	44.0	4.0	12.0	-	-	4.0	8.0	28.0	25
Chert oth rt	20.0	6.7	2.2	4.4	-	2.2	8.9	55.6	45
Chert eccentric	-	100.0	-	-	-	-	-	-	1
Obs core	12.8	4.5	5.0	21.5	-	1.0	13.3	42.0	601
Obs chunk	17.9	5.6	8.3	1.0	-	1.2	6.1	60.0	2177
Obs flake	17.5	3.6	6.4	1.7	-	2.1	7.4	61.3	1264
Obs blade	13.9	5.9	8.5	0.4	0.0	1.7	4.0	65.6	23171
Obs proj pt	27.0	2.7	10.8	-	-	5.4	10.8	43.2	37
Obs oth retouch	41.3	4.3	8.7	2.2	-	-	4.3	39.1	46
Gr obs blade	50.0	50.0	-	-	-	-	-	-	2

Table 6.26: Distribution of Ground Stone Artifacts across Locus Types

Artifact category	Locus type								Category N
	1	2	3	4	6	7	8	9	
Metate	28.0	5.8	18.2	0.4	-	5.8	9.8	32.0	275
Mano	19.7	9.1	11.6	-	-	6.1	10.6	42.9	198
Abrader/polish	11.9	29.9	1.5	-	-	1.5	6.0	49.3	67
Abrader/hammer	-	25.0	-	-	-	-	-	75.0	4
Abrader/whet	-	50.0	-	-	-	-	-	50.0	4
Celt	12.5	20.8	4.2	-	4.2	8.3	4.2	45.8	24
Hammerstone	28.6	-	-	-	-	14.3	-	57.1	7
Pestle	12.5	50.0	25.0	-	-	-	-	12.5	8
Mortar	-	25.0	-	-	-	-	-	75.0	4
Bowl	-	66.7	-	-	-	-	-	33.3	6
Anvil/table	-	100.0	-	-	-	-	-	-	5
Yoke	40.0	20.0	-	-	-	-	40.0	-	5
Hacha	-	100.0	-	-	-	-	-	-	2
Pot stand	-	-	-	-	-	-	25.0	75.0	4
CR-style metate	-	33.3	-	-	-	-	-	66.7	3
Barkbeater	-	50.0	-	-	-	-	-	50.0	2
Flat artifact	-	-	-	-	-	-	-	100.0	2
Multi-use tool	-	-	-	-	-	-	-	100.0	1
Awl/punch	-	-	-	-	-	-	-	100.0	1
Grooved mano	-	100.0	-	-	-	-	-	-	1
Doughnut stone	72.7	9.1	-	-	-	-	-	18.2	11
Hollow cyl	33.3	33.3	33.3	-	-	-	-	-	3
"Barrel"	-	50.0	-	-	-	-	-	50.0	2
Incensario	-	-	100.0	-	-	-	-	-	1

Table 6.27: Distribution of Stone Ornaments across Locus Types

Artifact category	Locus type							Category
	1	2	3	6	7	8	9	N
Pigment	3.6	14.3	3.6	-	-	3.6	75.0	28
Jade/"jade" jewelry	15.4	30.8	7.7	7.7	-	7.7	30.8	13
Other jewelry	-	28.6	28.6	-	-	14.3	28.6	7
Jade misc worked	-	50.0	-	-	-	-	50.0	2
Other misc worked	-	10.0	10.0	-	-	-	80.0	10
Baton	-	-	-	-	-	-	100.0	3
Vessel	-	50.0	-	-	-	-	50.0	2
Figurine	-	100.0	-	-	-	-	-	2

Table 6.28: Distribution of Ceramic Rims across Locus Types

Artifact category	Locus type								Category N
	1	2	3	4	6	7	8	9	
Comal plain	11.9	6.9	10.7	1.0	0.0	3.3	3.4	62.7	2077
Com/caldero pl	16.7	2.8	5.6	-	-	9.7	-	65.3	72
Caldero plain	13.5	8.2	7.5	1.3	0.0	3.9	4.7	61.0	6082
Caldero fancy	15.0	-	5.0	-	-	10.0	-	70.0	20
Caldero indet	24.1	7.1	15.4	-	-	11.6	0.8	41.1	241
FR caldero pl	16.6	7.2	5.6	1.5	-	4.3	3.0	61.8	531
Plate plain	5.6	-	5.6	-	-	5.6	5.6	77.8	18
Plate fancy	10.1	5.8	8.7	1.0	-	2.6	3.1	68.8	1127
Plate indet	37.8	8.1	8.1	-	-	8.1	5.4	32.4	37
Bowl/dish pl	4.8	33.3	-	-	-	-	-	61.9	21
Bwl/dsh fancy	9.6	6.8	5.1	-	-	6.2	4.7	57.6	177
Bwl/dsh indet	-	-	-	-	-	-	-	100.0	1
SW dish plain	23.4	3.0	4.2	-	-	13.2	3.0	53.3	167
SW dish fancy	14.8	4.5	6.0	0.3	-	5.6	1.1	67.6	714
SW dish indet	19.4	11.1	15.6	-	-	9.4	5.0	29.4	180
Hemi bowl pl	20.0	6.9	7.5	-	-	10.2	4.9	50.5	305
Hemi bowl fan	14.2	6.7	8.1	0.6	-	4.0	2.1	64.3	3726
Hemi bowl ind	24.5	3.8	9.4	-	-	4.7	3.8	53.8	106
FW b/d plain	15.4	7.7	50.1	-	-	-	-	71.8	39
FW b/d fancy	9.6	6.6	7.4	1.9	0.0	1.3	3.9	69.3	4940
FW b/d indet	22.9	16.3	1.9	6.4	-	2.2	3.4	46.8	669
Cylinder plain	4.1	23.8	-	4.9	-	-	11.5	54.1	122
Cylinder fancy	9.2	6.9	6.9	1.2	-	1.2	2.7	72.1	1100
Cylinder ind	29.5	9.1	4.5	-	-	2.3	2.3	52.3	44
Cyl/dsh fancy	33.3	-	-	-	-	-	33.3	33.3	3
Cyl censer pl	12.9	4.5	11.7	0.2	-	1.6	2.6	66.5	806
Cyl cen fancy	50.0	25.0	-	-	-	-	-	25.0	4
Cyl cen indet	-	-	100.0	-	-	-	-	-	1
3-prong plain	6.8	3.8	7.4	0.1	-	4.1	2.5	75.2	868
Ladle cen pl	4.7	10.0	10.4	1.9	-	1.4	3.3	68.2	211
LC indet	100.0	-	-	-	-	-	-	-	1
Jar uns plain	11.2	5.2	4.6	-	-	3.0	6.2	69.7	1843
Jar uns fancy	5.6	-	5.6	-	-	-	-	88.9	18
Jar uns indet	-	-	-	-	-	3.7	-	96.3	27
Jar L plain	7.3	5.2	5.8	1.6	-	1.8	4.0	74.4	504
Jar L indet	-	-	-	-	-	-	-	100.0	4
Jar M plain	20.1	5.2	8.1	0.7	0.0	7.1	3.9	54.8	6284
Jar M fancy	7.7	-	11.5	-	-	3.8	11.5	65.4	26
Jar M indet	29.8	6.0	18.8	0.5	-	5.0	6.4	33.5	218
Jar N plain	10.5	8.2	5.8	1.7	0.0	2.3	4.1	67.3	4940
Jar N fancy	1.5	4.6	4.6	-	-	3.1	7.7	78.5	65
Jar N indet	17.6	13.1	5.5	6.2	-	1.0	6.6	49.8	289
Str neck jar pl	14.3	21.4	14.3	-	-	-	7.1	42.9	14
Rest wide pl	14.4	8.0	6.5	0.9	-	7.3	4.5	58.5	465
RW fancy	7.9	19.5	16.8	-	-	3.5	2.7	50.0	113
RW indet	18.8	-	15.6	-	-	15.6	3.1	46.9	32
Rest nar plain	19.4	8.3	8.8	1.8	-	1.4	6.0	54.4	217
Rest nar fancy	13.4	8.2	9.3	-	-	1.0	11.3	56.7	97
Rest nar indet	-	-	-	-	-	11.1	-	88.9	9

(Table 6.28, cont.)

Artifact category	Locus type								Category N
	1	2	3	4	6	7	8	9	
Tecomate plain	-	2.4	0.5	-	-	-	-	97.1	205
Tecom fancy	12.5	-	-	-	-	-	-	87.5	8
Semi-neck pl	4.5	2.3	4.7	-	-	-	-	88.4	43
Semi-neck fan	-	50.0	-	-	-	-	-	50.0	4
Lid plain	15.2	5.5	10.8	1.3	0.1	5.8	2.6	58.6	821
Lid indet	11.1	-	-	-	-	11.1	-	77.8	9
Spout plain	2.0	3.9	9.8	-	-	-	-	84.3	51
Spout fancy	-	-	-	-	-	-	-	100.0	5
Spout indet	75.0	-	25.0	-	-	-	-	-	4
Miniature fan	50.0	-	25.0	-	-	-	-	25.0	4
Pot stand fan	-	-	-	-	-	-	-	100.0	1
Colander plain	-	-	33.3	-	-	16.7	-	50.0	6
Colander fancy	-	-	-	-	-	-	-	100.0	1

Table 6.29: Distribution of Unmodified Bone and Bone Artifacts across Locus Types

Artifact category <sup>a</sup>	Locus type								Category N
	1	2	3	4	6	7	8	9	
Unmodified	4.7	12.6	4.2	0.0	1.1	0.4	2.8	74.1	3086
Awl, pointed	-	16.7	5.6	-	-	-	-	77.8	18
Awl, rounded	-	25.0	-	-	-	-	-	75.0	4
Awl, unspec	-	11.1	-	-	-	-	-	88.9	9
Awl, medial	-	14.8	3.7	-	-	3.7	-	77.8	27
Awl, butt	-	14.3	-	-	-	-	-	85.7	7
Needle	-	20.0	-	-	-	-	-	80.0	10
Needle or pin	-	17.9	-	-	-	-	3.6	78.6	28
Pin, rounded	-	-	-	-	-	-	-	100.0	3
Needle, unspec	-	-	-	-	-	-	-	100.0	1
Spatulate tool	-	-	-	-	-	-	-	100.0	9
Tube or ring	3.8	7.7	3.8	-	-	-	-	84.6	26
Cut long bone	4.0	20.0	4.0	-	-	-	-	72.0	25
Drilled tooth	-	8.3	25.0	-	-	-	-	66.7	12
Worked antler	16.7	16.7	-	-	-	-	16.7	50.0	6
Shaped/pierced	-	-	-	-	-	-	-	100.0	5
Carved ornament	-	50.0	-	-	-	-	-	50.0	4
Rasp	-	-	-	-	-	-	-	100.0	1
Misc worked	-	-	-	-	-	-	-	100.0	1
Worked human	-	-	-	-	-	-	-	100.0	1

<sup>a</sup> All bone faunal unless otherwise specified.

Table 6.30: Distribution of Shell and Turtle across Locus Types

Artifact category	Locus type						Category	
	1	2	3	6	7	8	9	N
Unmodified shell	5.5	28.8	0.6	0.7	0.3	0.3	63.8	671
Misc worked shell	-	20.0	5.0	-	-	-	75.0	20
Shell jewelry	-	-	-	-	-	-	100.0	3
Shell star	-	100.0	-	-	-	-	-	1
Unmodified turtle	-	2.8	7.0	39.4	1.4	-	49.3	71
Modified turtle	-	-	-	-	8.3	8.3	83.3	12

Table 6.31: Distribution of Other Ceramic Artifacts and Figurines across Locus Types

Artifact category	Locus type					Category	
	1	2	3	7	8	9	N
Candelero	11.7	21.6	11.7	4.5	6.3	44.1	111
Flat perforated disk	9.1	12.1	9.1	-	-	69.7	33
Miniature vessel	6.7	10.0	10.0	-	-	73.3	30
Jewelry	8.7	21.7	-	-	4.3	65.2	23
Flask	16.7	5.6	-	5.6	-	72.2	18
Spindle whorl	8.3	8.3	8.3	-	16.7	58.3	12
Hand made figurine	7.6	5.7	1.9	1.0	4.8	79.0	105
Indeterminate figurine	14.3	-	14.3	-	7.1	64.3	14
Mold-made whistle	20.0	-	20.0	-	-	60.0	5
Mold-made figurine	-	-	-	50.0	-	50.0	2
Mold-made jointed figurine	-	-	-	-	-	100.0	2
Indet jointed figurine	-	-	-	-	-	100.0	1

It seems preferable to treat the locus types associated with primary use-related contexts separately from those associated with secondary refuse, comparing the locus types in each group with one another. I will therefore first examine locus types 2, 3, 4, 6, and 7 as a group (primary deposits) and then turn to the group consisting of locus types 1, 8, and 9 (refuse deposits).

### Primary Deposits (Locus Types 2, 3, 4, 6, and 7)

The locus types associated with locations where activities could be performed, namely locus types 2, 3, 4, and 7, will be dealt with first. Locus type 6 (niches) will then be discussed.

#### *Locus Types 2, 3, 4, and 7*

As a way of examining more closely the possibility that different sets of activities took place in the various locations assigned to locus types 2, 3, 4, and 7 — rooms, terraces, and platforms — the artifact content of these four locus types can be compared in order to look for significant variation. The necessary information on the distribution of artifacts in these locus types is given in Tables 6.32-6.38.

Table 6.32: Distribution of Lithic Artifacts  
across Locus Types 2, 3, 4, and 7

Artifact category	Locus type				Category N
	2	3	4	7	
Chert core	35.9	51.6	2.3	10.3	35
Chert chunk	46.3	38.9	6.2	8.6	642
Chert flake	39.0	40.4	6.2	14.4	146
Chert blade	40.0	43.3	3.3	13.3	30
Chert projectile point	20.0	60.0	-	20.0	5
Chert other retouch	42.9	14.3	28.6	14.3	7
Chert eccentric	100.0	-	-	-	1
Obsidian core	14.1	15.6	67.2	3.1	192
Obsidian chunk	34.6	51.7	6.0	7.7	350
Obsidian flake	25.7	46.3	12.6	15.4	175
Obsidian blade	35.9	51.6	2.3	10.3	3806
Obsidian projectile point	14.3	57.1	-	28.6	7
Obsidian other retouch	28.6	57.1	14.3	-	7
Obsidian eccentric	-	-	-	-	0
Green obsidian blade	100.0	-	-	-	1

Table 6.33: Distribution of Ground Stone Artifacts  
across Locus Types 2, 3, 4, and 7

Artifact category	Locus type				Category N
	2	3	4	7	
Metate	19.3	60.2	1.2	19.3	83
Mano	34.0	43.4	-	22.6	53
Abrader/polisher	90.9	4.5	-	4.5	22
Abrader/hammerstone	100.0	-	-	-	1
Abrader/whetstone	100.0	-	-	-	2
Celt	62.5	12.5	-	25.0	8
Hammerstone	-	-	-	100.0	1
Pestle	66.7	33.3	-	-	6
Mortar	100.0	-	-	-	1
Bowl	100.0	-	-	-	4
Anvil/table	100.0	-	-	-	5
Yoke	100.0	-	-	-	1
Hacha	100.0	-	-	-	2
CR-style metate	100.0	-	-	-	1
Barkbeater	100.0	-	-	-	1
Grooved mano	100.0	-	-	-	1
Doughnut stone	100.0	-	-	-	1
Hollow cylinder	50.0	50.0	-	-	2
"Barrel"	100.0	-	-	-	1
Incensario	-	100.0	-	-	1

Table 6.34: Distribution of Stone Ornaments  
across Locus Types 2, 3, 4, and 7

Artifact category	Locus type				Category N
	2	3	4	7	
Pigment, all kinds	80.0	20.0	-	-	5
Jade/"jade" jewelry	80.0	20.0	-	-	5
Other jewelry	50.0	50.0	-	-	4
Jade/"jade" misc worked	100.0	-	-	-	1
Other misc worked	50.0	50.0	-	-	2
Vessel	100.0	-	-	-	1
Figurine	100.0	-	-	-	2

Table 6.35: Distribution of Selected Ceramic Forms  
across Locus Types 2, 3, 4, and 7

Artifact category	Locus type				Category N
	2	3	4	7	
Comal	31.5	48.8	4.6	15.1	457
Caldero (all types)	39.1	35.9	6.4	18.5	1267
Flat-rimmed caldero	28.3	30.3	8.1	23.2	99
Plain plate, bowl, dish	29.8	26.4	-	43.8	121
Fancy and indet plate	32.0	48.3	5.4	14.3	203
Fancy and indet SW dish	27.4	36.8	1.7	34.2	117
Fancy & indet hemi bowl	34.6	41.8	3.2	20.5	723
Fancy & indet FW bowl/dish	38.5	43.0	11.2	7.4	852
Fancy cylinder	42.7	42.7	7.3	7.3	178
Cyl censer, pl cylinder	35.9	52.5	4.4	7.2	181
3-prong brazier	24.6	47.8	0.7	26.9	134
Ladle censer (all types)	42.0	44.0	8.0	6.0	50
Lid (all types)	24.0	45.4	5.6	25.0	196
Restr wide (all types)	36.9	33.8	2.4	26.9	160
Restr narrow (all types)	35.6	52.1	5.5	6.8	73
Tecomate (all types)	83.3	16.7	-	-	6
Semi-neck (all types)	60.0	40.0	-	-	5
Unspecified jar plain	40.5	35.4	-	24.1	237
Jar L plain	36.1	40.3	11.1	12.5	72
Jar M plain	18.0	41.5	3.7	36.8	1218
Jar N plain	45.6	32.2	9.3	12.8	890
Jar uns,N, M, L fancy	23.1	53.8	-	23.1	13

Table 6.36: Distribution of Unmodified Bone and Bone Artifacts  
across Locus Types 2, 3, 4, and 7

Artifact category	Locus type				Category N
	2	3	4	7	
Unmodified faunal bone	73.1	24.2	0.2	2.4	532
Awl/pick, categories merged	76.9	15.4	-	7.7	13
Needle/pin, categories merged	100.0	-	-	-	7
Tube or ring	66.7	33.3	-	-	3
Cut long bone	83.3	16.7	-	-	6
Drilled tooth	25.0	75.0	-	-	4
Worked antler	100.0	-	-	-	1
Carved bone ornament	100.0	-	-	-	2



Table 6.37: Distribution of Shell and Turtle Shell  
across Locus Types 2, 3, 4, and 7

Artifact category	Locus type				Category N
	2	3	4	7	
Unmodified shell	97.0	2.0	-	1.0	199
Miscellaneous worked shell	80.0	20.0	-	-	5
Shell star	100.0	-	-	-	1
Unmodified turtle	25.0	62.5	-	12.5	8
Modified turtle	-	-	-	100.0	1

Table 6.38: Distribution of Other Ceramic Artifacts and Figurines  
across Locus Types 2, 3, 4, and 7

Artifact category	Locus type				Category N
	2	3	4	7	
Candelero	57.1	31.0	-	11.9	42
Miniature vessel	50.0	50.0	-	-	6
Ceramic jewelry	100.0	-	-	-	5
Flask	50.0	-	-	50.0	2
Perforated flat disk	57.1	42.9	-	-	7
Spindle whorl	50.0	50.0	-	-	2
Hand-made figurine	66.7	22.2	-	11.1	9
Indet-make figurine	-	100.0	-	-	2
Mold-made figurine	-	-	-	100.0	1
Mold-made whistle	-	100.0	-	-	1

Taking as the null hypothesis that there should be no significant difference in the frequency of various kinds of artifacts in each locus type (after allowance is made, of course, for differences in sample size), I performed a series of chi-square tests for lithic, ground stone, and ceramic categories. By calculating the departure of observed frequencies from those expected under a notion of independence, an evaluation of the differences among groups is possible (Siegel 1956:104-105; Blalock 1979:279-282). Of the two versions of the statistic often reported, the goodness-of-fit and the likelihood-ratio, the former will be used here (Reynolds 1977:8). A probability for the chi-square statistic of 0.05 was used as the criterion for rejecting the null

hypothesis. Like any statistical test, chi-square has certain requirements, such as independence among observations and mutually exclusive and exhaustive categories, and certain limitations. Sample size and skewed distributions will affect the approximation achieved. One frequently used rule of thumb for  $df$  (degrees of freedom)  $> 1$ , adhered to here, is that all expected frequencies should be greater than one and only 20% of them should be less than or equal to five (Siegel 1956:110; Scheps 1982; Reynolds 1977:9). Chi-square is insensitive to any order which might exist in the relationships being assessed (Siegel 1956:110). Furthermore, increasing sample size will automatically increase the value of the chi-square statistic and hence its significance. For this reason, comparison of two or more chi-square statistics calculated from samples of different sizes is difficult (Blalock 1979:299-303; Cowgill 1977). In short, "one can always find a significant relationship by making the sample large enough" (Reynolds 1977:11).

Of particular interest is why a chi-square value is significant or not for a particular sample. This requires some evaluation of the contributions of the various variables to the deviation from the expected distribution. Such information cannot be derived from the chi-square statistic itself, which does no more than indicate the existence of relationships. It can be obtained, however, from calculation and comparison of the standardized residuals for each locus/category cell. Standardized residuals are derived by subtracting the expected from the observed frequencies and dividing the result by the square root of the

expected frequency,<sup>2</sup> as shown in the following formula (Reynolds 1977:11-12; Blalock 1979:297-298):

$$e_{ij} = (O_{ij} - E_{ij}) / \sqrt{E_{ij}}; O=\text{observed}, E=\text{expected}$$

The first comparison used the following lithic categories: obsidian blades, obsidian cores, chert cores, obsidian flakes, chert flakes, and tools. The last combination category, necessitated by the low quantities of the individual categories, merges obsidian projectile points and other retouch/biface with chert blades, projectile points, and other retouch/biface. Table 6.39 gives the frequencies (part A), the expected values (part B), and the standardized residuals (part C) for all four locus types compared simultaneously to one another. The chi-square statistic, given in Table 6.42, has a value of 1480.44 which has a probability of less than 0.001 (df = 15). Part D translates those standardized residuals greater than 1.00 or less than -1.00 into pluses and minuses to clarify further the patterning. Divergences less than 0.50 have been left blank as being not very different from expected. Values between 0.50 and 1.00 of either sign have been noted but with parentheses around the plus or minus.

Obsidian blade frequencies are greater for LTs 2 and 3, less for LT 4, and about as expected in LT 7. Obsidian cores are below expected except for LT 4, where they are superabundant (standardized residual = 35.80). They are clearly found in greater proportion in LT 4 than anywhere else. This fact is suggested by the very high percent of the LT 4 lithic sample assigned to the cores (41.5%, see Table 6.17). The chi-square results serve to underscore it and to show that it is not due

---

<sup>2</sup> The calculations were carried out using the MODEL command of the TABLES module of SYSTAT (Wilkinson 1986).

solely to a smaller overall lithic sample from this set of loci. Chert cores exceed expected frequencies only in LT 2. LTs 3 and 4 have too few chert cores. Tools are not greatly above or below expected in LTs 2-4; they are slightly more frequent in LT 7. Obsidian flakes are lacking in LTs 2 and 3 but occur in greater frequency in LTs 4 and 7. LT 7 also has higher amounts of chert flakes as does LT 2. Lt 3 is deficient while LT 4 is neutral.

Table 6.39: Chi-square Analysis of Lithic Categories  
across Locus Types 2, 3, 4, and 7

• Part A: Frequencies (*O*)

Artifact category	Locus type				Category N
	2	3	4	7	
Obsidian blade	1366	1962	86	392	3806
Obsidian core	27	30	129	6	192
Chert core	19	12	0	4	35
Tools	19	25	4	8	56
Obsidian flake	45	81	22	27	175
Chert flake	57	59	9	21	146
Column total	1533	2169	250	458	4410

• Part B: Expected Frequencies (*E*)

Artifact category	Locus type			
	2	3	4	7
Obsidian blade	1323.04	1871.93	215.76	395.27
Obsidian core	66.74	94.43	10.88	19.94
Chert core	12.17	17.21	1.98	3.63
Tools	19.47	27.54	3.17	5.82
Obsidian flake	60.83	86.07	9.92	18.17
Chert flake	50.75	71.81	8.28	15.16

• Part C: Standardized Residuals ( $(O-E)/\sqrt{E}$ )

Artifact category	Locus type			
	2	3	4	7
Obsidian blade	1.18	2.08	-8.83	-0.16
Obsidian core	-4.86	-6.63	35.80	-3.12
Chert core	1.96	-1.26	-1.41	0.19
Tools	-0.11	-0.48	0.46	0.91
Obsidian flake	-2.03	-0.55	3.84	2.07
Chert flake	0.88	-1.51	0.25	1.50

(Table 6.39, cont.)

## • Part D: Residuals Expressed as + or -

Artifact category	Locus type			
	2	3	4	7
Obsidian blade	+	+	-	
Obsidian core	-	-	+	-
Chert core	+	-	-	
Tools				(+)
Obsidian flake	-	(-)	+	+
Chert flake	(+)	-		+

Chi-square tests were run for each pair of locus types in order to see if all possible pairs were significantly different. Table 6.42 Part B presents the results of these two-way comparisons. With 0.05 used as the significance level, LTs 2 and 3 are not significantly different, although the probability of the chi-square statistic, 0.10, is still quite low. Looking again at Table 6.39 Part D one can see that these two locus types diverge in the same direction from expected values or do not diverge for four of the six categories (obsidian blades, obsidian cores, tools, and obsidian flakes).

Both rooms (LT 2) and terraces (LT 3) seem to have been loci of activities involving primarily obsidian blades. Such activities, following Mallory's (1984) use-wear analysis, would have involved cutting, sawing, and/or scraping of both hard and soft materials. In this regard, it is notable that LT 2 has the greatest quantity of worked bone (n=28) and LT 3 has the next highest (n=7) outside of the refuse contexts. Both locus types have awls or picks and cut long bone present (see Table 6.22 and Table 6.36). The rooms also contain needles or pins. Furthermore, as can be seen in Table 6.36, LT 2 loci contain 73.1% (n=389) of the unmodified bone, 76.9% (n=10) of the awls or picks, 100.0% (n=7) of the needles or pins, and 83.3% (n=5) of the cut long

bone found in the four locus types under discussion. 24.2% of unmodified bone (n=129), 15.4% of awls or picks (n=2), and 33.3% of cut long bone (n=1) are found in LT 3. Other categories of worked bone (tube or ring, miscellaneous, drilled tooth, carved ornament) are also found only in these two of the four primary locus types. Most of the unmodified and worked shell not found in middens is found in LT 2 — 97.0% of unworked shell (n=193), 80.0% miscellaneous worked (n=4), and 100.0% shell star (n=1) (see Table 6.37). LT 3 has the other 20.0% of the miscellaneous worked shell (n=1) although only 2.0% unmodified shell (n=4).

Some sort of activity involving chert is also suggested for LT 2 deposits. Both chert cores and flakes occur in somewhat higher quantities than expected in the rooms. On the other hand, tools are slightly below expected. Either chert artifacts were being produced and transported out of the rooms or the chert cores were producing flakes to be used, as the obsidian blades were, in connection with the working of other materials such as bone or shell.

The very high proportional frequencies of obsidian cores as well as of obsidian flakes suggest strongly that one major activity represented in LT 4 deposits was the working of obsidian. Since more artifacts of this material are blades, one would assume that the end result of the LT 4 activity was indeed blades. Since LT 4 deposits are room/terrace material from Gr 9M-24 only, this patio unit would seem to be a locus of obsidian blade manufacture.

Table 6.40: Chi-square Analysis of Selected Ground Stone Categories for Locus Types 2, 3, and 7

• Part A: Frequencies ( $O$ )

Artifact category	Locus type			Category N
	2	3	7	
Metate	34	73	28	135
Abrader/polisher + celt	25	2	3	30
Column total	59	75	31	165

• Part B: Expected Frequencies ( $E$ )

Artifact category	Locus type		
	2	3	7
Metate	48.27	61.36	25.36
Abrader/polisher + celt	10.73	13.64	5.64

• Part C: Standardized Residuals  $((O-E)/\sqrt{E})$

Artifact category	Locus type		
	2	3	7
Metate	-2.05	1.49	0.52
Abrader/polisher + celt	4.36	-3.15	-1.11

• Part D: Residuals Expressed as + or -

Artifact category	Locus type		
	2	3	7
Metate	-	+	(+)
Abrader/polisher + celt	+	-	-

The results of the ground stone comparisons are presented in Table 6.40. LT 4 was not used because all these loci together only have one ground stone artifact, a metate (see Table 6.18). The categories used were mano and metate combined (since each reflects the same activity) and abrader/polisher and celt combined. LT 3 loci not only have the most grinding stones (Table 6.40 Part A, see also Table 6.33) of the locus types but also show a large positive divergence from the expected values (Table 6.40 Part C). LT 7 deposits also have a somewhat greater proportional representation of these artifacts. Neither LT 3 nor LT 7 has much in the way of polishers or celts. LT 2 loci, on the other

hand, have a preponderance of these artifacts and a less than expected representation of grinding stones. These differences are reflected in the two-way chi-square comparisons in Table 6.42 Part C. These results suggest several things. First, grinding stones are found in all three types of contexts, indicating that the processing of maize took place in rooms, on terraces, and on platforms. The greater than expected occurrences in LT 3 and LT 7 suggest that the terraces and platforms were more often the location of this activity than were the rooms. Second, as can be seen both in the chi-square analysis and in Table 6.33, LT 2 loci have not only many more abraders/polishers and celts but also a much greater variety of other kinds of ground stone artifacts including mortars and pestles, bowls, small tables, barkbeaters, and various other unusual artifacts.

Finally, the distribution of certain ceramic forms, based on rim sherd frequencies, across the four locus types is examined. As can be seen in Table 6.41, some forms were combined, primarily on the basis of size and degree of restriction. The small open plain category includes all plain type group versions of the following forms: flat-rimmed caldero, plate, bowl/dish, straight-walled dish, flaring-walled bowl/dish, and hemispherical bowl. The versions with decoration of the fancy type groups are included in the small open fancy group. Ladle and cylindrical censers were combined with plain cylinders and lids. Restricted wide, restricted narrow, tecomates, and semi-neck restricted forms were merged into the small restricted category. All other jars were combined into the large restricted group. The labels fancy cylinders and calderos have been retained, but one could also call the



former tall open forms and the latter large open forms. These mergers are intended to reflect possible functional differences among the forms.

Table 6.41: Chi-square Analysis of Selected Ceramic Forms for Locus Types 2, 3, 4, and 7

• Part A: Frequencies (*O*)

Artifact category	Locus type				Category N
	2	3	4	7	
Comal	144	223	21	69	457
3-prong brazier	33	64	1	36	134
Caldero	496	455	81	235	1267
Small open plain	81	62	8	76	227
Small open fancy	687	818	131	291	1927
Cylinder fancy	77	76	13	13	179
Censers/lid	131	206	23	65	425
Small restricted	79	69	8	45	201
Large restricted	747	907	136	628	2418
Column total	2475	2880	422	1458	7235

• Part B: Expected Frequencies (*E*)

Artifact category	Locus type			
	2	3	4	7
Comal	156.33	181.92	26.66	92.09
3-prong brazier	45.84	53.34	7.82	27.00
Caldero	433.42	504.35	73.90	255.33
Small open plain	77.65	90.36	13.24	45.75
Small open fancy	659.20	767.07	112.40	388.33
Cylinder fancy	61.23	71.25	10.44	36.07
Censers/lid	145.39	169.18	24.79	85.65
Small restricted	68.76	80.01	11.72	40.51
Large restricted	827.17	962.52	141.04	487.28

• Part C: Standardized Residuals ( $(O-E)/\sqrt{E}$ )

Artifact category	Locus type			
	2	3	4	7
Comal	-0.99	3.05	-1.10	-2.41
3-prong brazier	-1.90	1.46	-2.44	1.73
Caldero	3.01	-2.20	0.83	-1.27
Small open plain	0.38	-2.98	-1.44	4.47
Small open fancy	1.08	1.84	1.75	-4.94
Cylinder fancy	2.01	0.56	0.79	-3.84
Censers/lid	-1.19	2.83	-0.36	-2.23
Small restricted	1.23	-1.23	-1.09	0.71
Large restricted	-2.79	-1.79	-0.42	6.37

(Table 6.41, cont.)

## • Part D: Residuals Expressed as + or -

Artifact category	Locus type			
	2	3	4	7
Comal	(-)	+	-	-
3-prong brazier	-	+	-	+
Caldero	+	-	(+)	-
Small open plain		-	-	+
Small open fancy	+	+	+	-
Cylinder fancy	+	(+)	(+)	-
Censers/lid	-	+		-
Small restricted	+	-	-	(+)
Large restricted	-	-		+

Figure 6.16 shows the proportional distribution of these forms or merged form categories in each of the four locus types. Figure 6.17 presents these same proportions divided up by form category instead of by locus type. Terraces (LT 3) have a greater proportion of their assemblage made up of comals and, along with LT 7, of three-pronged braziers. The terrace loci also have a greater proportional representation than other contexts of the censer and lid category. Calderos make up between 15 and 18% of each locus type with LT 2 having the highest percentage. Plain small open vessels are rare in all cases. They account for a higher proportion of LT 4's assemblage than in the case of any other set of deposits. They are also more frequent in LT 7 than in LT 2 or LT 3. Fancy bowls, dishes, and plates, on the other hand, are found in roughly comparable proportions (ca. 25-28%) in loci of types 2, 3 and 4 but are relatively infrequent in platform deposits. This same sort of distribution holds for the fancy cylinders, although the actual percentages are much lower. Small containers with restricted openings have a distribution similar to that of the small open plain forms. Large containers with restricted openings, or jars, account for a

greater proportion of the LT 7 deposits (ca. 40%) than of any other locus type, although in all cases jars are a fairly large part of the assemblages (26-40%).

Table 6.41 gives the results of the chi-square analysis of the occurrence of these forms. The standardized residuals (Parts C and D) indicate the divergence from the expected distribution under the null hypothesis of uniform distribution. The pattern for comals and three-pronged braziers evident in the histograms is here confirmed, since LT 3 has a higher than expected frequency for the comals and three-pronged braziers. LT 7 also has more three-pronged brazier sherds. Calderos, in contrast, are underrepresented in these two contexts. Despite the relatively large proportion of LT 4 deposits classified as small open plain and small restricted forms, they are nevertheless present in quantities below expectations. In fact, it is LT 7 and, to a lesser extent, LT 2 which have a superabundance of these forms. The platform loci are also strongly lacking in fancy bowls and dishes, fancy cylinders, and censers. The terraces are the only area with more censers than expected. Large jars, on the other hand, predominate in LT 7 only.

These different distributions produce a highly significant chi-square statistic when compared all together (Table 6.42 Part A). However, the two-way comparisons (Table 6.42 Part D) show that LTs 2 and 4 are not significantly different from one another (chi-square = 10.40,  $p < 0.30$ ) and that LTs 3 and 4 are less different than the other pairs.

Based on these results, certain possibilities emerge regarding the kinds of activities present in the different locations. The evidence for elaborately decorated bowls, dishes, and cylinders in rooms and on terraces suggests that some food serving occurred in these areas. The

greater than expected occurrence of comals and three-pronged braziers on the terraces implies that these spaces, along with the rooms, were used for food heating and cooking. These loci also had more manos and metates than expected. Terraces appear to have been the locus of activities involving censers as well, again something shared between terraces and rooms. In this regard, it should be noted that terrace and room deposits both contain candeleros and figurines of various types (Table 6.24). Of all candeleros included in the assemblage ( $n=111$ ), 21.6% ( $n=24$ ) were found in rooms and 11.7% ( $n=13$ ) on terraces (Table 6.31). In contrast, none were found in LT 4 loci and only 4.5% ( $N=5$ ) come from LT 7 deposits. Thus, one of these four types of primary deposits, the rooms, contains over half the candeleros (57.1%) while another, the terraces, contains almost one-third (31.0% — see Table 6.38). Table 6.38 also shows that most of the hand-made figurines come from LT 2 ( $n=6$ ) or LT 3 ( $n=2$ ) deposits while figurines of indeterminate manufacture and mold-made whistles are found only in terrace loci. LT 4 has no figurines or whistles. LT 7 has one hand-made and one mold-made figurine.

The predominance of large jars and, although to a lesser extent, of small restricted bowls and jars in the platform deposits (LT 7) supports the interpretation of these areas as primarily storage facilities. Some food preparation is also indicated based on the occurrence of three-pronged braziers as well as manos and metates. The comparative lack of fancy vessels and censers indicates little food serving or ritual activity. This, coupled with the probable lack of superstructure, or at least of walls, indicates that platforms were not residences, but functioned instead as places for specific tasks. The loci

of type 4 are similar to those of type 2 in relative distribution of ceramic forms.

Table 6.42: Chi-square Statistics for Comparisons of Locus Types 2, 3, 4 and 7

• Part A: Multi-way Comparisons

<u>Class</u>	<u>Chi Square</u>	<u>DF</u>	<u>Probability</u>
Lithics	1480.44	15	$p < 0.001$
Ground stone	36.85	2	$p < 0.001$
Ceramics	202.05	24	$p < 0.001$

• Part B: Two-way Comparisons for Lithics

<u>Locus type pairs</u>	<u>Chi Square</u>	<u>DF</u>	<u>Probability</u>
LT 2 and LT 3	10.66	5	$p < 0.10$
LT 2 and LT 4	712.22	5	$p < 0.001$
LT 2 and LT 7	11.22	5	$p < 0.05$
LT 3 and LT 4	959.09	5	$p < 0.001$
LT 3 and LT 7	11.33	5	$p < 0.05$
LT 4 and LT 7	281.82	5	$p < 0.001$

• Part C: Two-way Comparisons for Ground Stone

<u>Locus type pairs</u>	<u>Chi Square</u>	<u>DF</u>	<u>Probability</u>
LT 2 and LT 3	32.36	1	$p < 0.001$
LT 2 and LT 7	10.14	1	$p < 0.01$
LT 3 and LT 7	2.40	1	$p < 0.20$

• Part D: Two-way Comparisons for Ceramics

<u>Locus type pairs</u>	<u>Chi Square</u>	<u>DF</u>	<u>Probability</u>
LT 2 and LT 3	45.09	8	$p < 0.001$
LT 2 and LT 4	10.40	8	$p < 0.30$
LT 2 and LT 7	112.11	8	$p < 0.001$
LT 3 and LT 4	17.07	8	$p < 0.05$
LT 3 and LT 7	132.93	8	$p < 0.001$
LT 4 and LT 7	59.28	8	$p < 0.001$

It should be noted here that terrace refers not only to the area around stone-walled superstructures but also to the tops of substructures supporting perishable buildings such as Str 9M-195A or Str 9M-200. These often have a small surface area and are placed adjacent to or behind more formally built structures. Furthermore, platforms and

completely perishable superstructures are much more common in Gr 9M-22 than in Gr 9N-8 or Gr 9M-24. Therefore, whereas cooking and other kinds of food preparation may have occurred in some rooms, on some terraces, or on the patio surface of Gr 9N-8, these activities were, in the case of Gr 9M-22, performed instead on platforms and in small perishable structures as well as on the patio around buildings.

Both LT 2 and LT 3 contain spindle whorls (LT 2, n=1; LT 3, n=1) and flat perforated disks (LT 2, n=4; LT 3, n=3) whereas LT 4 and LT 7 do not (see Table 6.24). The room deposits have the highest proportion of flat perforated disks (12.1%) aside from the middens (Table 6.31). The spindle whorls were found in Str 9N-110B Rm 4 (Patio H — Locus 2230.2) and on the terrace of Str 9N-81 near Feature 9 (Patio A — Locus 0824.3). Single flat perforated disks come from Str 9N-91 Rm 1 (Patio F — Locus 1516.2), the terrace of Str 9N-93S outside of Rm 4 (Patio E — Locus 1523.3), Str 9N-115A Rm 1 (Patio H — Feature 77 — Locus 1740.2), and Str 9N-78's terrace (Central Platform — Locus 2216.3) of Gr 9N-8. Two of these artifacts were found in Rm 2 of Str 9N-74C (Patio B — Locus 1624.2). The only occurrence outside of Gr 9N-8 is one disk in Locus 1041.3, material from Str 9M-197's terrace in Patio A of Gr 9M-22. Three of these buildings, 9N-93S, 9N-110B, and 9N-115A, have already been identified as loci of manufacturing activity based on their associated in situ features (see Chapter 5).

This distributional pattern coupled with that of the bone awls and needles which are concentrated in room loci, and to a lesser extent in terrace deposits (see Tables 6.22, 6.29, and 6.36) suggests that the spinning of thread, the weaving of cloth, and the sewing of fabric took place in some rooms or on some terraces. The actual performance of

these activities would seem to be more easily accomplished on the terraces due to better light conditions. The evidence of the in situ artifacts in Rm 2 of Str 9N-110B, however, indicates that the manufacture of delicate and elaborate shell ornaments did take place in a room which did not even have access to the terrace and thus would have received little direct light through its entrance. One must presume that some sort of artifical illumination was used in Rm 2. Such an arrangement may have made possible the spinning and weaving activities. Another possibility is that the material in the rooms was being stored there and was moved to the terraces or the room doorways when used. The lack of any dense concentration of these artifacts in any one room or terrace suggests that the activities were carried out on a small scale in several locations intermittently, in a manner analogous to the modern and historic Maya pattern where weaving and spinning are carried out by women in between their other household and family duties (Sperlich and Sperlich 1980:xvi).

#### *Locus Type 6 (Niches)*

The only primary context not discussed above is that of the niches. There are five loci of this type, four of which contain artifacts found in niches. One locus is from Gr 9N-8 Patio C Str 72, which had two niches in its front substructure. The other three niches are found in Gr 9N-8 Patio H. One locus refers to a niche in the west substructure wall of Str 64. Rms 1 and 2 of Str 110C each had a niche in the back room wall. A separate locus was created for each of these niches. The fifth locus refers to Feature 20 of Gr 9N-8 Patio H, the stone cache box found on the top of Str 64. From Table 6.16 it is clear

that this locus type is the smallest and has a different distribution of artifacts from the other locus types.

Table 6.43: Contents of Loci of Locus Type 6

Locus Number	Structure	Location	Total N	Artifacts	Associated with midden?
1306.6	9N-72	Exterior (in sub-structure)	12	5 chert chunks 1 chert flake 2 unmodified bone 4 unmodified shell	Yes
2202.6	9N-64	Interior (room? floor)	7	1 jade jewelry 1 plain comal rim 1 plain jar M rim 1 plain jar N rim 1 unmodified shell (Spondylus) 1 plain cylinder 1 plain cylindrical censer	No
2203.6	9N-64	Exterior (in sub-structure)	67	6 obsidian blades 1 fancy FW b/d rim 32 unmodified bone 28 unmodified turtle	No
2233.6	9N-110C Rm 1	Interior (wall)	1	1 celt	No
2236.6	9N-110C Rm 2	Interior (wall)	4	1 plain caldero rim 1 plain jar M rim 1 plain jar N rim 1 plain lid rim	No

The specific content of these loci, already detailed to a certain extent in Chapter 4, is presented more fully in Table 6.43. Very few of the niches found contained material and those that did, as indicated in the table, held mostly unmodified bone, shell or turtle, and lithics. There are no whole vessels and by and large the material is of little use in suggesting uses for the niches. The stone box from the summit of Str 9N-64, on the other hand, is clearly a ritual cache deposit.



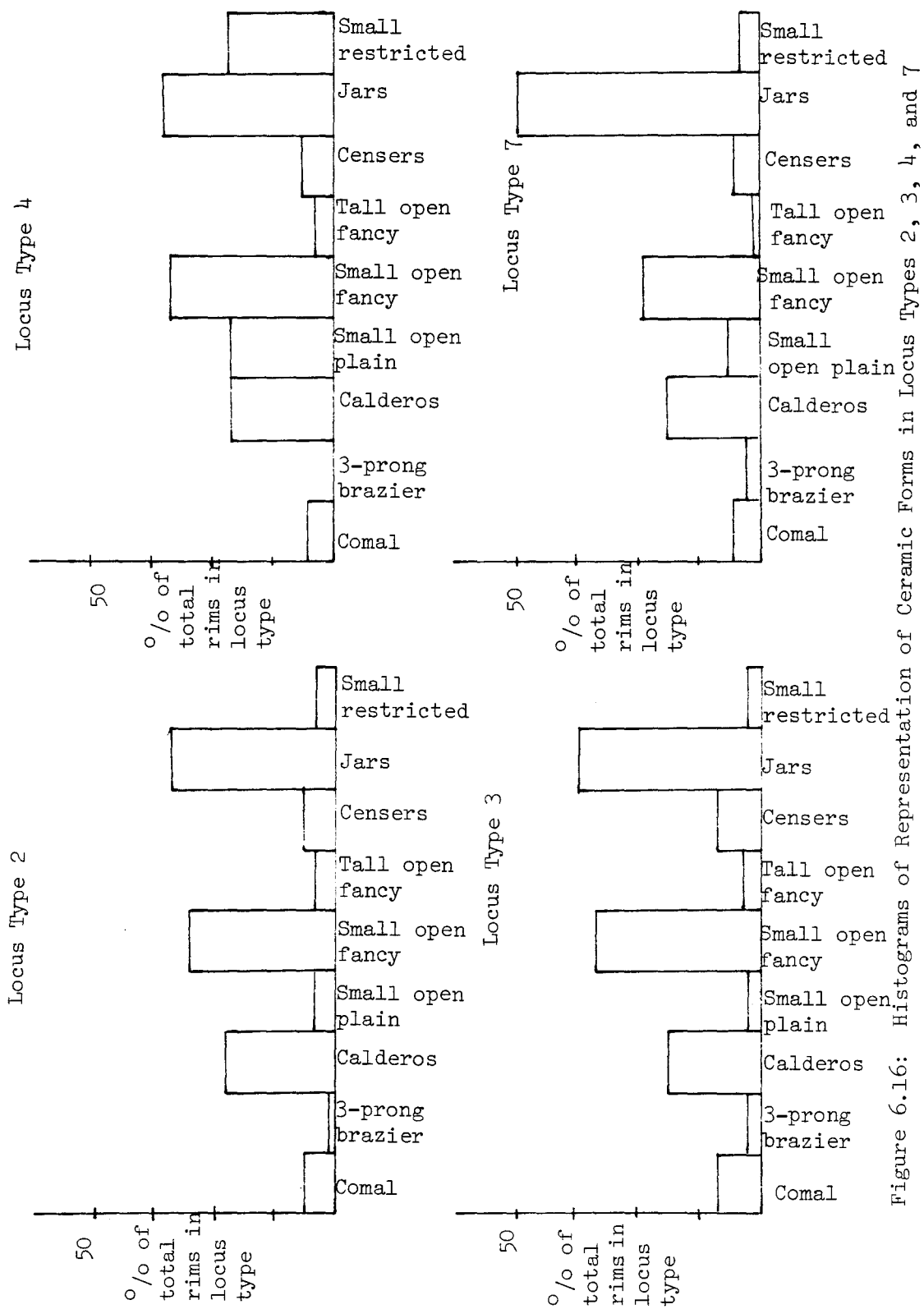


Figure 6.16: Histograms of Representation of Ceramic Forms in Locus Types 2, 3, 4, and 7

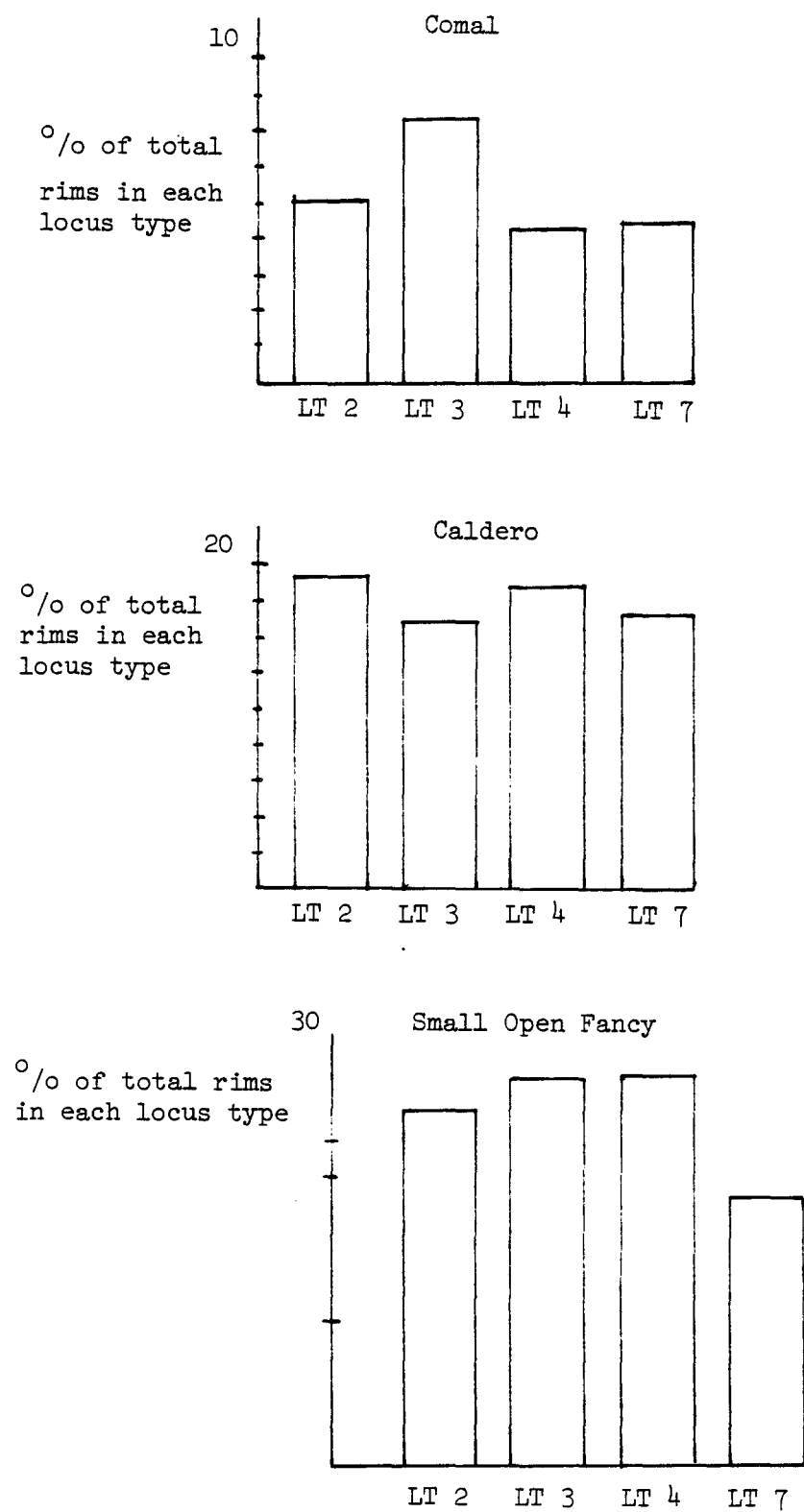
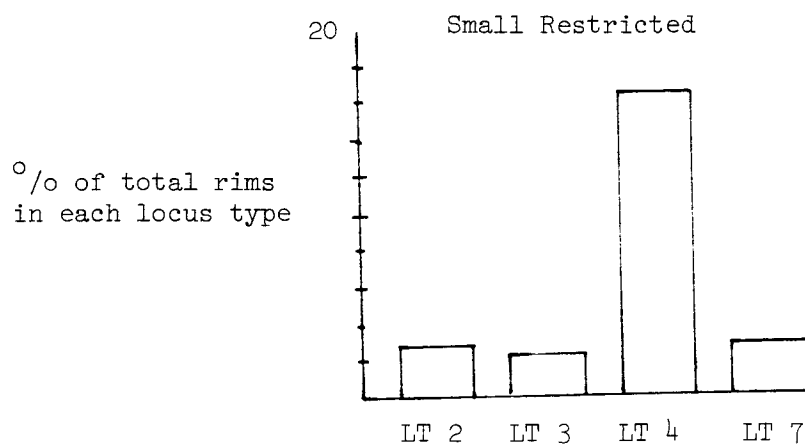
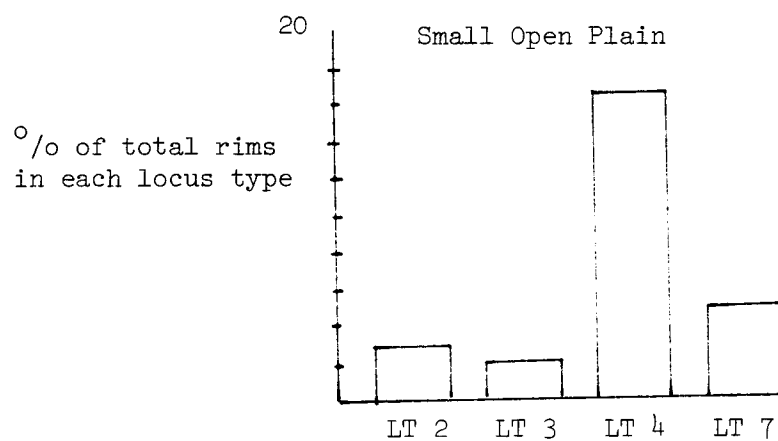
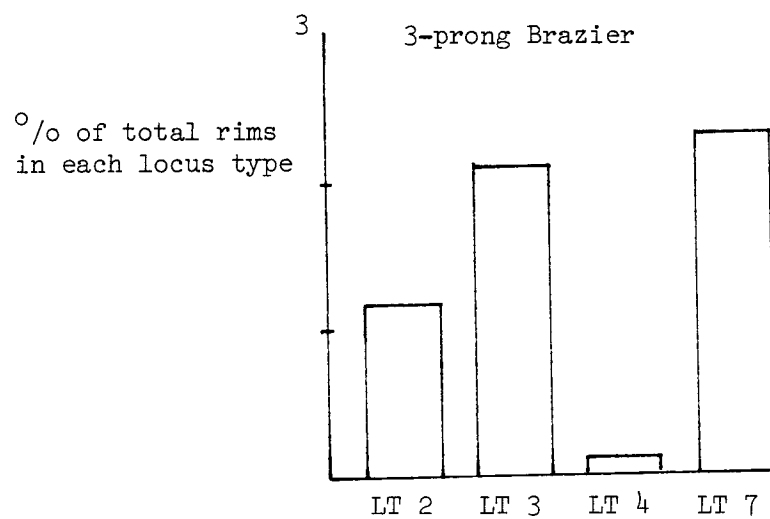
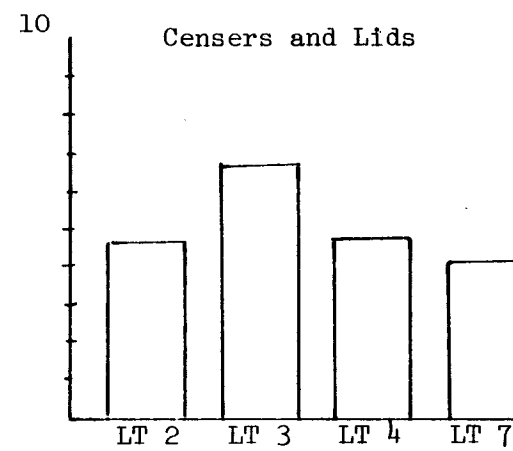
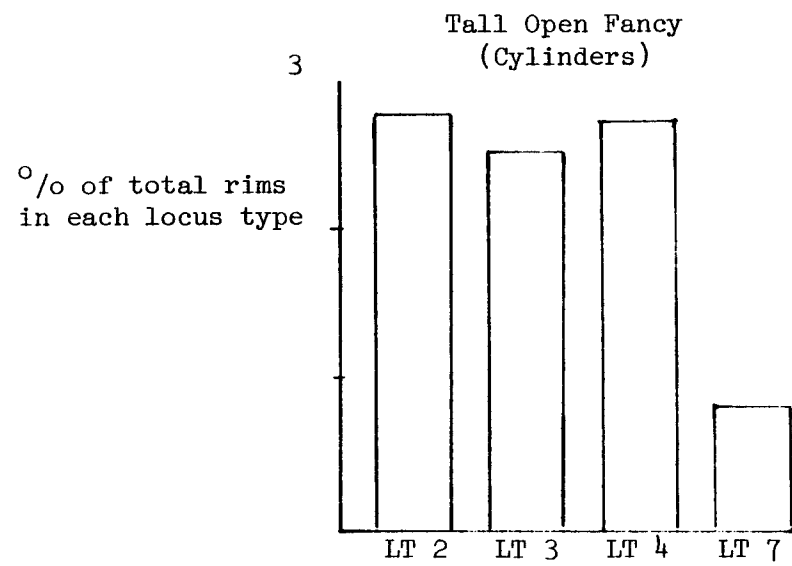


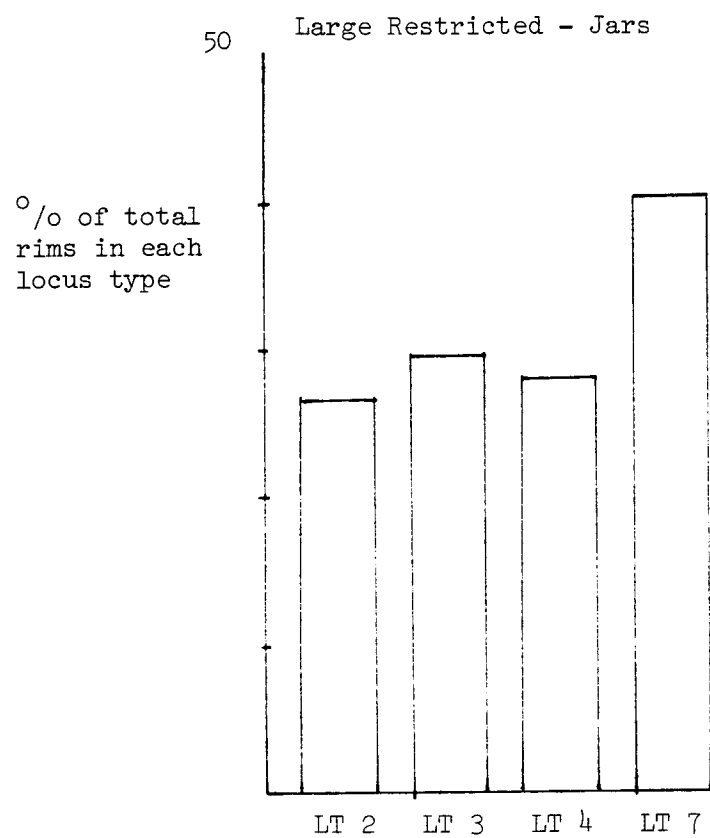
Figure 6.17: Histograms of the Distribution of Ceramic Forms across Locus Types 2, 3, 4, and 7



(Figure 6.17, cont.)



(Figure 6.17, cont.)



(Figure 6.17, cont.)

### Refuse Deposits (Locus Types 1, 8, and 9)

The remaining three locus types are considered here as deposits of refuse. The material classified as LT 1 comes from on or immediately above the courtyard area of the patios or, in the case of the area between Patios A and B, the paving of the Central Platform. Although it is possible that at least some of this material is debris from activities carried out exactly where the material was found, the nature of the deposits by and large suggests otherwise. It is more likely, since most of them are concentrated near substructures, that the artifacts have been redeposited through sweeping or dumping from terraces or even rooms. Table 6.44 gives the locations of loci of this type.

LT 8 refers to those deposits that were free from collapsed constructional material but lacked some or all of the characteristics of the midden deposits. The distinction between LT 8 and LT 9 is impressionistic and subjective. In many cases, very few artifacts at all were found in these levels free of and sometimes below wall fall. The artifacts may be refuse from activities occurring in the vicinity or from casual discard. Their locations are described in Table 6.45.

Finally, the middens (LT 9) are generally dense accumulations of artifacts and faunal material that are free of building material; they are often in a matrix intermixed with ash, carbon, or burned clay. They usually occur behind substructures but some have been found in the patio area in front of structures. Table 6.46 lists all structures studied here and their midden associations, if any. As can be seen, not all structures have adjacent midden deposits.

Table 6.44: Patio Loci (Locus Type 1) in Groups 9N-8, 9M-22, and 9M-24

Locus Number	Associated Structure	Location/Comments	Volume (m <sup>3</sup> )	Density per m <sup>3</sup>
• GR 9N-8	Patio A			
0823.1	none	General patio lots	1.0	38.0
• GR 9N-8	Patio B			
1601.1	none	General patio lots, includes Features 48, 56, 67	2.2	146.8
• GR 9N-8	Patio C			
1308.1	72	To S (rear) above paving	1.6	94.4
• GR 9N-8	Patio D			
1701.1	60N/61A 61C/112B	Generally N side of patio	0.5	184.0
• GR 9N-8	Patio E			
1502.1	none	General patio lots	13.6	42.3
• GR 9N-8	Patio F	No loci of Type 1		
• GR 9N-8	Patio H			
2201.1	64	Area on E and N side of patio	1.3	220.0
2223.1	110A/110B	In front of stairs of 110B, to N in front of 110A	1.6	106.9
• GR 9N-8	Patio I	No loci of Type 1		
• GR 9N-8	Patio K	No loci of Type 1		
• GR 9N-8	Patio Alpha	No loci of Type 1		
• GR 9N-8	Central Platform			
2002.1	none	Above paving of upper and lower parts of area between A and B	27.4	55.6
2212.1	78	Paved area near building	0.8	85.0
• GR 9M-22	Patio A			
1001.1	none	General patio lots	10.3	17.6
1002.1	193A/B	Material in front of substructure	12.1	59.5
1019.1	194A	SW side of structure	5.5	33.1
1026.1	195B	S of structure near stairs	4.0	47.3
1038.1	197	W of structure near stairs	7.9	7.1
1042.1	199	Area between 199 and 197	1.1	2.7
• GR 9M-22	Patio B			
0901.1	none	General patio lots	90.8	43.2
• GR 9M-24				
1803.1	none	Western part of patio	0.8	160.0
1804.1	none	S to central part of patio	3.6	145.8
1805.1	211	S side of structure	6.0	156.5
1810.1	212	N side of structure	1.6	331.3
1815.1	213	W side of structure	2.4	591.7
1826.1	248	S side of structure	2.0	146.5

Table 6.45: Location of Deposits of Locus Type 8  
in Groups 9N-8, 9M-22, and 9M-24

Locus Number	Associated Structure	Location/Comments	Volume (m <sup>3</sup> )	Density per m <sup>3</sup>
• GR 9N-8 Patio A No loci of Type 8				
• GR 9N-8 Patio B				
1606.8	67	N of structure at base of wall	0.9	43.3
1613.8	73	N of structure	1.6	116.3
• GR 9N-8 Patio C				
1304.8	70	W of structure	1.0	28.0
1602.8	73	E of rear wall of Rms 4 and 5	0.5	116.0
1312.8	101/102	Between 101 and 102	4.1	34.2
• GR 9N-8 Patio D No loci of Type 8				
• GR 9N-8 Patio E				
1519.8	92	Feature 98 — S of structure	PP <sup>a</sup>	(25)
1530.8	96	N of structure	3.2	85.7
1539.8	108	Feature 100 — vessel filled with lime near N wall structure	PP	(1)
• GR 9N-8 Patio F				
1509.8	90S	S and W of structure	5.6	51.3
• GR 9N-8 Patio H				
2224.8	110A/110B	Corridor between superstructures A and B	0.8	92.5
2225.8	110B/110C	Corridor between superstructures B and C	0.6	65.0
• GR 9N-8 Patio I				
1708.8	60N	W of structure, could be associated with either Patio I or Patio D	0.5	24.0
• GR 9N-8 Patio K No loci of Type 8				
• GR 9N-8 Central Platform				
2004.8	80/P1	Behind 80, N of Platform B	1.6	36.9
• GR 9M-22 Patio A				
1014.8	193B	N and W sides of structure	4.4	20.2
1030.8	195B	N of structure near rear ledge	2.9	52.0
1039.8	197	E side of structure	9.0	31.4
1040.8		S side of structure	9.9	23.0
1046.8	200	W, S, and E sides of structure	4.1	47.8
1043.8	244	E side of structure	1.4	12.1
• GR 9M-22 Patio B No loci of Type 8				
• GR 9M-24				
1809.8	211	W of structure between it and 248	6.8	29.4
1812.8	212	W of structure	2.4	355.0
1817.8	213	N and E of structure	0.8	333.8
1823.8	247	E of structure	0.4	107.5
1829.8	248	E of structure	0.8	170.0

<sup>a</sup> PP = item with point provenience.



Table 6.46: Middens (Locus Type 9) in Groups 9N-8, 9M-22, and 9M-24

Structure	Associated Midden	Location/Comments	Volume (m <sup>3</sup> )	Density per m <sup>3</sup>
• GR 9N-8 Patio A				
80	0801.9	E of substructure, may be collapse	1.2	15.8
81	0803.9	N of substructure	3.0	27.3
	0804.9	On elevated terrace near Feature 9	1.7	33.5
	0825.9	On elevated terrace near S wall of superstructure	2.8	27.1
82W	0813.9?	W Off SW corner of substructure, may be collapse	8.0	2.6
82C		No associated midden		
82E		No associated midden		
82/83	0822.9	In area S of Str 83, E of Str 82E outside of Rm 9	1.0	205.0
83	0821.9	W of substructure on patio	1.2	170.0
• GR 9N-8 Patio B				
67		No associated midden		
68	1609.9	N of substructure	2.0	344.5
73		Possibly associated with 1609.9		
74N	1622.9	E of substructure	0.3	93.3
74C	1625.9	E of substructure	2.4	47.9
74S	1629.9	E of substructure	4.0	149.3
	1621.9	S of substructure	3.5	652.6
75	1633.9	S of substructure	18.8	97.9
• GR 9N-8 Patio C				
69	1301.9	N of substructure, mixed with collapse	11.2	59.3
70/71		Possibly in area between these two substructures, context uncertain — no locus defined		
72	1307.9	N of substructure on patio Possibly W of substructure near low platform, context uncertain — no locus defined	6.0	171.8
101	1311.9	N of substructure/platform	1.4	46.4
102		No associated midden		
73		No associated midden		
• GR 9N-8 Patio D				
60A/60B/ 65/104	1742.9	West of substructures of these four structures	15.8	213.0
60B	1706.9	West of substructure	0.2	835.0
60B/60N/ 112A	1707.9	East of substructures of these three structures	1.4	132.9
111	1734.9	N of substructure	1.0	213.0
61A	1710.9	W of substructure	0.6	410.0
	1711.9	Off NW corner of substructure	0.9	88.9
61A/61B	1712.9	N of these two substructures	11.8	147.6
61A/61B/ 111	1743.9	N of these three substructures	9.6	340.9

(Table 6.46, cont.)

Structure	Associated Midden	Location/Comments	Volume (m <sup>3</sup> )	Density per m <sup>3</sup>
61C	1713.9	N of substructure	7.0	109.6
63	1716.9	S of substructure, N of 115A	2.6	120.8
	1717.9	E of substructure, W of 107	1.9	138.4
	1718.9	E of substructure, W of 106	3.5	232.3
105	1726.9	Off SE corner (1 whole vessel)		
• GR 9N-8 Patio E				
92	1518.9	Off SE corner of substructure	2.1	227.6
93S		No associated midden		
93N	1521.9	W of substructure	1.4	15.0
	1529.9	W of substructure	0.7	85.7
96		No associated midden		
97	1535.9	N and E of substructure	1.6	126.3
95		Possibly midden around structure — no locus defined		
94		No associated midden		
108	1538.9	S of substructure	0.5	222.0
• GR 9N-8 Patio F				
90N	1507.9	N and W of substructure	3.3	186.4
90S		No associated midden		
91	1515.9	N of substructure	4.2	79.8
• GR 9N-8 Patio H				
64		No associated midden		
115A		No associated midden		
115B	1741.9	S of platform	2.1	433.8
76/110C	2205.9	W of 76, E of 110C	6.2	433.6
76/78?	2206.9	S of 76, N of 78	7.5	608.1
110A		No associated midden		
110B	2207.9	E of substructure	0.3	26.7
110C	2222.9	N of substructure, W of super- structure	1.7	218.2
• GR 9N-8 Patio I				
112A/B	1735.9	W and N of these two substructures	13.4	217.3
112B	1745.9	S of substructure	1.6	282.5
113A/B	1736.9	W, E, & S of the two substructures	5.6	132.5
114	1737.9	W of substructure	0.1	320.0
	1738.9	SW of substructure	6.8	91.9
• GR 9N-8 Patio K				
106/107	1744.9	Between these two substructures	0.7	357.1
107	1731.9	Off SW corner of substructure	0.4	227.5
	1732.9	Between substructure and 115B	1.4	214.3
• GR 9N-8 Patio Alpha				
65	1603.9	W of Rms 4 and 6	1.0	266.0
74		No associated midden		
110B		No associated midden		
• GR 9N-8 Central Platform				
78	2211.9	W of substructure	0.8	268.8
C.P.	2001.9	Paved path between Patios A and B	5.2	106.0

(Table 6.46, cont.)

Structure	Associated Midden	Location/Comments	Volume (m <sup>3</sup> )	Density per m <sup>3</sup>
• GR 9M-22 Patio A				
193A		There is a midden W of sub-structure, but eliminated because of mixed contexts		
193B	1013.9	W of substructure	31.8	35.9
193A/B	1002.1?	E of substructures on patio (see discussion)	12.1	59.5
242		No associated midden		
194A	1019.1?	S of platform on patio	5.5	33.1
194B		No associated midden (see discussion)		
195B	1026.1?	S of substructure on patio	4.0	47.3
195A		No associated midden		
246		No associated midden		
245B		No associated midden		
245A		No associated midden (see discussion)		
196		No associated midden		
197		No associated midden		
199		No associated midden		
244		No associated midden		
200		No associated midden		
243		No associated midden		
• GR 9M-22 Patio B				
189		No associated midden		
190	0907.9	S of substructure	7.0	58.9
	0908.9	N of substructure on patio	3.8	270.0
191W	0917.9	E of substructure	22.0	79.3
191N	0912.9	E of substructure	28.1	93.1
192	0919.9	N of substructure	2.4	67.5
241		No associated midden		
240		No associated midden		
• GR 9M-24				
211	1806.9	S of substructure on patio	4.0	86.0
212	1811.9	S and W of substructure	4.8	414.4
213	1816.9	S of substructure	1.2	145.0
247	1822.9	S of substructure in patio	3.6	228.1
248	1827.9	S of substructure in patio	5.6	102.7
Patio	1801.9	Eastern part of patio near 213, 212, and 247	8.8	212.3
Patio	1802.9	Central part of patio near 248 and southward	2.0	123.5

Some of the densest and at the same time most extensive midden deposits in Gr 9N-8 come from Patios D, I, and K. The only structure in

these three patios without an associated midden is Str 9N-105 of Patio D. The other patios of this group have a much more variable distribution of middens. Most of the patios do have over half of their structures associated with middens; however, the density varies greatly (see Table 6.47). Patio C and especially Patio A have average densities of less than 100 artifacts per cubic meter. For Patio C this is somewhat deceiving since several possible middens could not be included (Table 6.46). However, in the case of Patio A, this low average density is an accurate reflection of the small size of most of the middens. The most substantial deposit is found in the area between Strs 9N-83 and 9N-82 (Locus 0822.9). The main parts of Str 9N-82 are not associated with any large deposit. Str 9N-78, which may have been associated with Patio A (see Chapter 4), does have a dense midden deposit on its west side.

Str 9N-82 is the most elaborate building in Patio A by virtue of the fineness of its construction, the lavish use of plaster, the painted surfaces, the hieroglyphic bench, and the other sculpture. Other structures in Gr 9N-8 which correspond to Str 9N-82 in being the most elaborate for their patio, although always less so than Str 9N-82, are Str 9N-67 (Patio B), Str 9N-69 (Patio C), Str 9N-63 (Patio D), and Str 9N-97 (Patio E). There is no real counterpart to these structures in Patio H although Strs 9N-110A-C have a variety of architectural detail and Str 9N-64's substructure at least was also embellished. Of the four from Patios B-E, only one, Str 9N-67, lacks any associated midden. Strs 9N-63, 9N-97, and 9N-69 all have middens behind their substructures. Str 9N-110's three components are also associated with midden deposits but Str 9N-64 is not. The latter is perhaps better compared to Str 9N-80 of Patio A, because both have unusually tall substructures with small

surface areas that apparently supported completely or partly perishable superstructures. Str 9N-80 has only a small midden nearby (Locus 0801.9) on its east side. It is possible that this deposit was actually associated with Platform B behind Str 9N-80.

Table 6.47: Distribution and Density of Middens Compared

Group/Patio	Total number of Strs <sup>a</sup>	Number of Strs with middens	% of total Strs	Average density
9N-8/A	8	4	50.0	68.76
9N-8/B	7	4	57.1	230.92
9N-8/C	8	3	35.5	92.50
9N-8/D	10	9	90.0	248.53
9N-8/E	8	5	62.5	130.56
9N-8/F	5	2	40.0	133.10
9N-8/H	7	4	57.1	344.08
9N-8/I	5	5	100.0	208.84
9N-8/K	2	2	100.0	266.30
9N-8/Alpha	3	1	33.3	266.00
9N-8/Central Platform	2?	1	50.0	187.40
9M-22/A	16 <sup>b</sup>	2	12.5	? <sup>c</sup>
9M-22/B	7 <sup>d</sup>	4	57.1	113.76
9M-24	5	5	100.0	187.43

<sup>a</sup> Str = independent superstructures plus platforms plus substructures with perishable superstructures (ST?).

<sup>b</sup> Count does not include Features 57 or 64.

<sup>c</sup> Density of one midden = 35.9 artifacts per cubic meter. Density of the other midden is unknown.

<sup>d</sup> Feature 5 and 191W-B have been merged with Str 191W to equal one structure for purposes of this count.

Patio A of Gr 9M-22 has very few middens. The only two known are associated with the two abutting structures, 9M-193A and 9M-193B, on the west side of the courtyard. However, as can be seen in Table 6.60, there are several patio loci associated with Strs 9M-193A and 9M-193B, 9M-194A, and 9M-195B that probably also represent refuse deposits. In addition, an extensive collection of primary refuse was found on Str 245A (Locus 1031.7). LT 7 deposits were associated with some other

structures (see Chapter 4). Nevertheless, the pattern is quite different from that of Gr 9N-8 or for that matter from the pattern of Patio A's neighbor, Patio B, or of Gr 9M-24. All the structures in these groups have associated middens. Strs 9M-194B, 9M-195B, and 9M-189, which qualify as the best built structures of Gr 9M-22, are without middens although there is material in front of Str 9M-195B. Str 9M-211 of Gr 9M-24 does have a midden but it is located in front of rather than behind the building.

The types of artifacts comprising locus types 1, 8, and 9 are given in Tables 6.16-6.24, with the figures expressed as percentages of each locus type total, and again in Tables 6.25-6.31, there with the percentage calculated on the basis of the category totals across loci of all locus types. Both LTs 1 and 8 have not only fewer artifacts than LT 9 (Table 6.16) but also much less variety in the number of categories present. This is especially true for ground stone, where almost all artifacts present are either manos or metates (Table 6.18), stone ornaments (Table 6.19), bone, shell, and turtle which, if present at all, are almost always unmodified (Tables 6.21-6.23), and figurines (Table 6.24).

### Structure Comparisons

In this section, the patios will be considered individually. Each locus, it will be remembered, pertains to some area of a patio unit. Given that these patio units form spatially discrete and inward-looking clusters of structures, it is possible to treat each one as a separate grouping. In this way differences among the assemblages associated with

the buildings of one patio unit can be more easily and more directly examined. Keeping the patios separate also ameliorates the effects of different durations of occupation of various patios. Since the focus is now on individual structures, all the loci, regardless of type, that pertain to the same structure will be grouped together.

Relying to a certain extent on the results of the principal components analysis and cluster analysis described earlier, I decided to merge further the seventeen categories used in those analyses into five groups of artifacts involved in the same activity or task. These groups will be referred to as *supercategories*. Since not all categories are used, the activities delimited are necessarily only a part of the range of activities represented by the categories discussed in Chapter 5. This subset does, however, take in those activities most abundantly represented in the data.

The supercategories and their constituent categories are listed in Table 6.48. Grinding stones, comals, and three-pronged braziers are combined in a supercategory representing cooking or heating of food and the grinding of maize. The supercategory of food preparation other than cooking or maize grinding plus short-term storage is made up of the calderos, plain bowls and dishes, flat-rimmed calderos, and special jars. Based on the earlier analyses, plates and fancy cylinders are put together with the censers-plus-small ritual objects to form a ritual/ceremonial/food serving supercategory. All the different kinds of fancy bowls and dishes (including the bowl/dish category which was not included in the principal components analysis) are merged together in the supercategory of food serving and eating. This supercategory will hereafter be referred to as food serving but it is to be understood

that consumption is always implied as well. Finally, the jars are grouped into a long-term or large-scale storage supercategory, as defined in the feature discussion. Lids were eliminated from this analysis.

Table 6.48: Variables used in Chi-Square Comparison of Structures within Patios

Category Number	Activity Represented	Categories Included
23	Cooking/Maize grinding	Mano Metate Comal 3-pronged brazier
66	Food preparation/Short-term storage (liquid and dry)	Caldero Flat-rimmed caldero Plain bowl/dish Plain straight-walled dish Plain hemispherical bowl Plain flaring-walled bowl/dish Special jar
73	Ritual/Ceremonial (probably involving food)	Plate Plain cylinder Cylindrical censer Ladle censer Candelero Figurine/whistle Fancy cylinder Cylinder/dish
80	Food serving/Consumption (secular)	Fancy bowl/dish Fancy straight-walled dish Fancy hemispherical bowl Fancy flaring-walled bowl/dish
136	Long-term storage (liquid and dry)	Jar unspecified Large-necked jar Medium-necked jar Narrow-necked jar Straight-necked jar

The comparison of supercategory frequencies in the loci for each patio was aimed at the evaluation of differences in these frequencies. If certain loci have higher frequencies of certain supercategories, could such differences be the result of chance or do they represent some significant departure from a chance-based distribution? Underlying this



question is the null hypothesis that the relative frequency distribution should be the same for all buildings in a patio after such factors as unequal total numbers of artifacts have been taken into account.

For each patio, chi-square was calculated for the  $r \times 5$  table as a whole (where  $r$  = the number of row or loci and 5 = the number of columns, i.e. the number of supercategories).<sup>3</sup> Expected values and standardized residuals were also calculated and printed. Counts rather than percents were used as the input. Table 6.49 gives the resulting chi-square values for the tests. All comparisons produced significant chi-square values (probability of occurrence under the null hypothesis  $\leq 0.05$ ) except in the cases of Gr 9N-8 Patio A, the Central Platform area between Patios A and B of Gr 9N-8, and the area between Patios B and H labeled Patio Alpha (Rms 4 and 6 of Str 65S, Rms 6 and 7 of Str 74, and Rms 5 and 6 of Str 110B). The probability of the chi-square for the Central Platform loci is quite large — 0.605. Patio Alpha's chi-square has a probability of 0.098 while that of Patio A is 0.138. These values, especially that of 0.605, indicate a greater similarity in the distribution of the ceramic forms over the areas in question. The relatively small values for Patios A and Alpha, despite their failure to satisfy the usual standard of  $p \leq 0.05$ , are nevertheless suggestive of less distributional uniformity than holds for the Central Platform. As Scheps (1982:844) has said about similar significance levels in another analysis, "[w]hile this is not statistically significant (for most), its relative strength may be indicative of matters of anthropological interest worth pursuing."

---

<sup>3</sup> The calculations were carried out using the Model command of the TABLES module of SYSTAT (Wilkinson 1986).

Table 6.49: Chi-square Statistics for Comparison of Structures within Patios

<u>Group and Patio</u>	<u>Chi Square</u>	<u>DF</u>	<u>Probability</u>
9N-8 Patio A	26.89	20	.138
9N-8 Patio B	107.23	32	< .001
9N-8 Patio Alpha	7.84	4	.098
9N-8 Patio C	95.58	24	< .001
9N-8 Patio D	1381.31	36	< .001
9N-8 Patio E	58.13	24	< .001
9N-8 Patio F	24.64	8	.002
9N-8 Patio H	212.32	36	< .001
9N-8 Patio I	18.52	8	.018
9N-8 Patio K	34.57	4	< .001
<u>9N-8 Central Platform</u>	<u>10.12</u>	<u>12</u>	<u>.605</u>
9M-22 Patio A	204.49	56	< .001
<u>9M-22 Patio B</u>	<u>144.15</u>	<u>52</u>	<u>&lt; .001</u>
9M-24	112.99	20	< .001

The standardized residuals for each patio have been converted to pluses and minuses using the same criteria as for the locus type comparisons. The results of these conversions are presented in Tables 6.50 through 6.59. Once again it must be emphasized that these are relative, not absolute, comparisons. The information indicated by the positive residuals has been combined by group in Tables 6.60 and 6.61 to show more clearly the distribution of the activities investigated within each patio. Discussion of the results will be organized by patio. In addition to considering the implications of the chi-square analysis, I will also discuss the activities suggested by any in situ features found in the patio (see also Hendon 1987).

#### Gr 9N-8 Patio A

None of the three artifact categories included in the first super-category, cooking/maize grinding, is plentiful in Patio A of Gr 9N-8. The greatest concentration of these artifacts is found in the patio lots

and in the material off the southwest corner of Str 82 (see Tables 6.50, 6.60). This building also has an abundance of food service forms associated with it. The material from the paved area between Strs 82 and 83, outside of Str 82's Rm 9, is rich in food preparation forms (calderos, plain bowls, small jars). Str 83 itself, including the midden in front of it, has a preponderance of large storage jars. This is also the case for the southern terrace of Str 81 (which includes the material labeled Feature 9) and the patio. Str 81's rooms contain mainly ritual and food service forms on the basis of the chi-square test. Features 4-7 bear out this identification to a certain extent because one of the vessels was a cylindrical censer. The two hachas and the yoke are pieces of ballgame equipment. Since there is no ballcourt in the environs of Patio A, it seems likely that the items were being stored in Str 81. The fact that there is only one jar argues against all of the superstructure being primarily a storage facility. The division of the interior of the superstructure into a main room and a dependent smaller side room, however, does imply some spatial differentiation of activity areas. The relative inaccessibility of Rm 1B coupled with its lack of a bench suggest that perhaps it was used for storage.

Whatever food preparation took place in Patio A occurred mainly in the vicinity of Str 82 and Str 83. The fact that the area between these two structures was paved and had a staircase leading up to the rooms suggests that it was a well-established food preparation locus. Although less than 0.50, the standardized residual for the cooking supercategory was positive (0.46) for this locus, indicating a slightly greater than expected frequency. There was also some secondary loci of maize grinding or food heating on the other side of Str 82 and in the

patio. On the basis of the contents of Feature 9, I would also suggest that some food preparation took place on the southern terrace of Str 81. Storage is strongly represented in the loci of Str 83 and of the southern terrace of Str 81. The possibility of ritual activity in Str 82 was suggested by the stone incensario in Rm 4 (see Table 5.31). The loci associated with Str 82 do have a slightly positive standardized residual for this supercategory (0.41).

Table 6.50: Suggested Activities for Structures in Gr 9N-8 Patio A

Structure and/or Area	Maize Grinding/ Cooking	General Food Preparation	Ritual with Food Service	Food Service	Large- scale Storage
80	***** no data *****				
81			+	(+)	-
81-S terrace		(-)			(+)
82	+			(+)	-
83	-		-	-	+
Midden between 82 and 83		+		(-)	-
Patio	(+)	-			(+)

#### Gr 9N-8 Patio B

The artifacts from behind Str 67 (of which there are only 33) are mostly food preparation or serving types (Tables 6.51 Part A, 6.60). The midden associated with Str 68 is rich in cooking and grinding artifacts, ritual artifacts, and storage jars. These results are supported by the two in situ deposits, one in Rm 1 and the other in Rm 2. Both contain a combination of forms relating to all three activities. The material from Rm 2 especially seems to represent a place where food was ground (several metates) and heated (three-pronged brazier). Given the fact that both features indicate food preparation, the abundance of

ritual forms in the midden would not be predicted under a traditional model of the differentiation of Maya structures. The co-occurrence further reinforces the observations made in Chapter 5 and earlier in this chapter about the apparent widespread access to ritual objects and the low level of organization this implies.

Table 6.51: Suggested Activities for Structures in Gr 9N-8  
Patios B and Alpha

• Part A: Patio B

Structure and/or Area	Maize Grinding/ Cooking	General Food Preparation	Ritual with Food Service	Food Service	Large- scale Storage
67	+	(+)	-		
68	+	-	+	(-)	+
73 Rms 1-3		(-)	(-)	-	+
74N	(+)	-	-	(-)	+
74C	-	+	-	-	+
74S	(+)	-			+
Midden S of 74S	-	+			(-)
75		+		+	-
Patio		(-)	(-)		+

• Part B: Patio Alpha

Structure and/or Area	Maize Grinding/ Cooking	General Food Preparation	Ritual with Food Service	Food Service	Large- scale Storage
65 Rms 4,6				(+)	-
74 Rms 6,7	(-)			-	+
110B Rms 5,6					

Other deposits with cooking/grinding artifacts are the middens associated with Strs 74N and 74S. The loci from east of Str 74C, south of 74S, and south of 75 have positive residuals for the general food preparation supercategory. Aside from Str 68, however, ritual artifacts appear to be in abundance only behind Str 74S. Food service is also limited primarily to one structure, Str 75, with another small positive value for Str 67. Large-scale storage, however, predominates in several

other structures and their associated middens, specifically Strs 73, 74N, 74C, and 74S.

Other areas of food preparation and storage indicated both by in situ and refuse material are the terrace of Str 74S and the terraces and rooms of Str 74C. Rms 2 and 3 of Str 74C contained several jars, a caldero holding lime, and some more unusual items including a ceramic bead and two polishers. Most of the artifacts indicate food preparation and storage. Like the rooms of Str 81, Rm 2 is dependent on Rm 3 for access. It is also small and without a bench. In this case the activities seem to have extended outside onto the elevated terrace as well. The chi-square analysis suggests further some food preparation behind Str 67, as well as in or around Str 74N and Str 75. This is accompanied by food service for Strs 67 and 75 or storage for Str 74N. Storage is the only activity with a positive residual for Str 73's rooms and terraces (there is no associated midden). The one in situ deposit associated with this building consisted of a jar, interpreted as an example of incidental storage, and a figurine found on the floor of Rm 2. This room has no front wall, making it more of an extension of the terrace than a room proper. In short, the preparation of food in its various forms appears to have been widespread in Patio B, occurring in or around five of the seven independent superstructures. The pattern of consumption of this food is more restricted as only two structures have positive residuals although these forms are present in all deposits examined.

## Gr 9N-8 Patio C

Table 6.52: Suggested Activities for Structures in Gr 9N-8 Patio C

Structure and/or Area	Maize Grinding/ Cooking	General Food Preparation	Ritual with Food Service	Food Service	Large-scale Storage
69	(+)	(-)	+	+	-
70	+		-	-	(+)
71	***** no data *****				
72	-	+		(-)	
S of 72	(+)		(+)		-
Area between 72 and 73			-	(-)	+
101		-	(-)	-	+
73 Rms 4-6	(+)	-	-	-	+

The midden behind Str 69 yielded an abundance of cooking/grinding, ritual, and food serving artifacts (Tables 6.52, 6.60). The only positive scores for Str 70 and for Rms 4-6 of Str 73 (= 73N) are in the cooking and storage supercategories. Two rooms of Str 73N held primary deposits. The one in Rm 5 is a single jar while that of Rm 6 includes various food preparation and storage artifacts (see Table 5.31). These deposits support the activity identification based on the chi-square analysis. The area behind (south) of Str 72 yielded a greater than expected number of cooking and ritual forms while the locus representing the superstructure and midden north of 72 was abundant in food preparation vessels. The material found on top of the merged superstructure of Strs 72 and 73 as well as that from around Str 101 were dominated by large-scale storage forms.

**Gr 9N-8 Patios D and I**

The loci from these two patios were analyzed separately. There is no artifactual information on Strs 60A, 60N, 61B, or 105 in Patio D, although a metate was found in Str 60A's room. Starting with the north side of the patio, the North Midden is rich in cooking and storage forms (Tables 6.53 Part A, 6.60). Other deposits associated with the northern structures, e.g. 61A, 61C, 111, and 112B, also have more storage jars than expected. The material from the midden between Strs 61A, 111, and 112B is also high in cooking/grinding forms. In contrast, the Western Midden has an abundance of food preparation, ritual, and food serving artifacts. Of the structures on this side for which information was available, namely Strs 60B, 104, and 65, the first has a large positive residual in the storage supercategory and much smaller ones in the food preparation and ritual supercategories. Str 104's locus is mostly cooking/grinding and food preparation forms while Str 65 has only food preparation artifacts in greater than expected quantities. Str 63, on the eastern side of the patio, is marked by positive values in the food preparation, ritual, and storage supercategories.

The in situ material found in Rm 1 of Str 61A, described in Chapter 5, was taken as suggesting incidental storage, maize grinding, and manufacture. The first two activities are also indicated by the chi-square analysis; the third was identified on the basis of artifact categories not included in the supercategories. There is also congruence between the present analysis and the feature found in Rm 1 of Str 60B which is interpreted as indicative of storage. Rm 2 of Str 60A contains artifacts related to maize grinding; the lack of any other



associated deposits, however, makes it impossible to examine further this area. The two other features from Patio D are not in agreement with the chi-square analysis. The presence of a mano and a metate on the stairs of Str 65 can be used as an indicator of maize grinding. The other associated material, mainly refuse, is unusually rich in food preparation forms while lacking cooking and grinding artifacts. Rm 1 of Str 63 contains a plain dish (Table 5.31). It is difficult to determine if this isolated dish was used to serve something or to prepare something. However, the associated midden deposit is strong in food preparation forms but quite weak in food service ones.

These results show that Patio D's unusual architectural features probably do not stem from the carrying out of different activities.

Table 6.53: Suggested Activities for Structures in Gr 9N-8  
Patios D and I

• Part A: Patio D

Structure and/or Area	Maize Grinding/ Cooking	General Food Preparation	Ritual with Food Service	Food Service	Large- scale Storage
Patio	(+)		(+)	(+)	-
60B	-			-	+
60A	*****	no data	*****		
60N	*****	no data	*****		
61A, midden between it & 111, it & 112B	+	-		-	+
61B	*****	no data	*****		
61C		(-)	-	(-)	+
63	-	+	+	-	+
105	*****	no data	*****		
65 Rms 3,5	(-)	+		(-)	
104	+	+		-	-
111	(+)	(-)	-	-	+
West midden (60,104,65)	-	+	+	+	-
North midden (61A-C, 112B)	+		-	-	+

(Table 6.53, cont.)

## • Part B: Patio I

Structure and/or Area	Maize Grinding/ Cooking	General Food Preparation	Ritual with Food Service	Food Service	Large- scale Storage
112A and B	-			(+)	(+)
113A and B	+		-	-	
114			+		-

The results for the five structures excavated in Patio I are given in Table 6.53 Part B and Table 6.60. The two parts of Strs 112 and 113 were merged for this comparison. Strs 112A and 112B have a preponderance of food service and storage vessels in their associated deposit. The material from Strs 113A and 113B, on the other hand, is dominated by artifacts in the cooking/grinding supercategory. The only positive standardized residual for Str 114's locus that is greater than 0.50 falls in the supercategory of ritual artifacts. However, the residuals for cooking/grinding and food service are close to 0.50 (0.45, 0.41). Incomplete excavation and poor preservation make further analysis difficult.

## Gr 9N-8 Patios E and F

For Patio E, two structures, 94 and 95, had no analyzable loci. The patio lots, Str 93N, and Str 97 have more cooking/grinding implements than expected (Tables 6.54 Part A, 6.60). The divergence is greatest for the patio and Str 93N. Other evidence for food preparation was found in the loci associated with Strs 92, 93S, and 96. The only positive value for the ritual supercategory comes from the deposits around Str 93S. Fancy bowls and dishes are underrepresented everywhere

except for Str 97 and the patio. Finally, storage is less widespread than for some patio units, predominating in Str 108 and the patio.

Table 6.54: Suggested Activities for Structures in Gr 9N-8  
Patios E and F

• Part A: Patio E

Structure and/or Area	Maize Grinding/ Cooking	General Food Preparation	Ritual with Food Service	Food Service	Large- scale Storage
Patio	+	-	(-)	(+)	+
92	-	+			(-)
93N	+		(-)	-	
93S	-	+	(+)	-	
96		+		(-)	-
97	(+)			+	-
95	***** no data *****				
94	***** no data *****				
108	-	-			+

• Part B: Patio F

Structure and/or Area	Maize Grinding/ Cooking	General Food Preparation	Ritual with Food Service	Food Service	Large- scale Storage
91	-		(+)		
90N	+	-	(-)		+
90S		+			-

The emphasis on cooking/grinding and storage for the patio area is also evidenced by the in situ vessels found (Tables 5.31). Strs 93N and 93S were the only two buildings with features in Patio E. The artifacts in Rms 2 and 3 of 93N suggested grinding, general food preparation, and ritual activities, the first of which is also indicated by the present results. Str 93S, specifically Rms 4 and 5 plus the terrace, had material relating to ritual, incidental storage, and possibly manufacture. The standardized residual for the ritual supercategory is positive. The real emphasis in the refuse deposit, however, is on food preparation artifacts.

A number of in situ artifacts were found on the patio paving near buildings, specifically Strs 92, 95, 96, and 97. Jars are the most common type of vessel (see Table 5.31). These findings indicate that the residents of this patio apparently used the courtyard area extensively. Since long-term storage in exterior areas exposed to the elements seems impractical, I suggest that these jars were used on a short-term basis perhaps in association with some other activity such as food preparation.

There are three structures excavated from Patio F. Str 90N has positive residuals for the cooking/grinding and storage supercategories (Tables 6.34 Part B, 6.60). The only positive value associated with Str 91S is for food preparation. Str 91's locus has a predominance of ritual artifacts as well as positive values less than 0.50 for food preparation and storage. The one in situ deposit from this structure, a mano and stone block in Rm 3, is related to food preparation, specifically maize grinding.

Patio F also has a few cases of patio vessels. The three found all associate with Str 90 but occur in different locations. They suggest cooking, food serving, and ritual. The material from Patios E and F is the most direct evidence for the performance of activities along the base of structures. Whether or not such a use was special to these two patio units is less clear. I would argue for a similar use of the courtyard area in at least some other patios based on the presence of refuse deposits in Patios A and C of Gr 9N-8 and Patio A of Gr 9M-22. At the same time the patio area may have been used less than the terraces and rooms in these other patios.

# **Gr 9N-8 Patio H, Str 9N-78, and Patio K**

The locus for Str 78 was included in the chi-square comparison for Patio H despite its uncertain patio affiliation. The midden deposit behind Str 76 was kept as a separate locus although, on the basis of the analysis in Chapter 4, I believe it represents refuse from Str 76 rather than from Str 78. The Patio K material was analyzed separately.

In Patio H, Strs 115A and 78 have an abundance of cooking/grinding artifacts (Tables 6.55 Part A, 6.60). Food preparation vessels are present in unusual amounts in association with Str 78 and all three superstructures of Str 110. The patio area in front of Str 64 (and east of Str 110) also scores high for this supercategory. Ritual artifacts are present in greater than expected frequencies in the deposits associated with Str 76 (i.e. the superstructure and midden to the east) and in the midden between Strs 76 and 78. This same distribution holds for the food service supercategory. Str 115A, Strs 110A and C, and the corridors as well as the patio south of Str 64 have loci with large numbers of storage jars. As can be seen in Table 6.60, there is a sharp dichotomy in the distribution of these activities. The two supercategories associated with food preparation plus the storage one predominate in loci from the north (Str 115A) and west (Strs 110A-C, south of 64) sides of the patio as well as from Str 78. The south structure, 76, on the other hand, has deposits dominated by ritual and food serving artifacts.

The activities indicated by the features are storage for Str 110A Rm 1, storage, manufacture, and possible food service for Rms 2-4 of Str 110B, and ritual, storage, and manufacture for Rm 1, Str 115A. This

evidence tends to blur somewhat the dichotomy above while adding another activity not tested for in this analysis.

Table 6.55: Suggested Activities for Structures in Gr 9N-8  
Patios H and K

• Part A: Patio H

Structure and/or Area	Maize Grinding/ Cooking	General Food Preparation	Ritual with Food Service	Food Service	Large-scale Storage
Patio S of 64	(-)	+	-	-	+
76	-		+	+	(-)
Midden between 76 and 78		-	+	+	-
110B	-	+	(-)	-	
Corridor between 110A and B	-	+	-	-	+
110A	-	+	-	-	+
Corridor between 110B and C, midden W of 110C	-	+	-	-	+
110C	-	+	(-)	-	+
115A	+	-	(-)		(+)
78 (Central Platform)	+	(+)			-

• Part B: Patio K

Structure and/or Area	Maize Grinding/ Cooking	General Food Preparation	Ritual with Food Service	Food Service	Large-scale Storage
K-106, between 106 and 107	(+)	+	-	(-)	-
K-107, between 107 and 115B		-	(+)		(+)

The chi-square analysis indicates that food preparation took place in and around Str 78. This building has an unusual room arrangement and a peripheral location since it is not part of any clearly defined patio — the two unexcavated adjacent structures do not form any sort of recognizable patio arrangement. Its affiliation with Patio H can be argued on the grounds of propinquity. However, actual movement between Str 78 and Patio H is complicated by the former's position on the

Central Platform. This position, in fact, sets it apart from the patio. Some functional or social connection with Patio A is suggested by the location of Str 78. It is built opposite the only open corner of Patio A in the one spot that would facilitate entrance into the courtyard of Patio A. Possibly Str 78 served as a food preparation area for Patio A. The chi-square analysis and Feature 9 show, however, that it is not the only such structure.

There are only two structures from Patio K that have been excavated, 106 and 107. The two associated loci turn out to be quite different from one another (Table 6.49). The material found around Str 106 has a greater proportion of cooking/grinding and other food preparation artifacts than does the locus associated with Str 107. The latter is marked by an abundance of ritual artifacts and storage jars (Tables 6.55 Part B, 6.60). There is also a small positive residual for the food service supercategory (0.44).

The one in situ vessel associated with Str 106 is a jar found in Rm 1 (Table 5.31). It was interpreted as an example of incidental storage, possibly of water since it is a narrow-necked type. Another jar, filled with lime and covered by a caldero, was found up against the back wall of Str 107.

#### Gr 9N-8 Patio Alpha

For this area, material from Str 65 and the midden deposit to its west was compared to the combined deposits in Rms 6 and 7 of Str 74 and Rm 5 of 110B. The merger of the room deposits was necessary because of

small sample sizes. As pointed out above, the chi-square is larger than 0.05 but less than 0.10 (Table 6.49).

Str 65 is strong in food serving and weak in storage forms. Strs 74 and 110B together are strong in storage but weak in food serving and cooking (Tables 6.51 Part B, 6.60). The latter locus also has a small positive residual for the food preparation supercategory (0.46) while Str 65 has an even smaller one for the ritual supercategory (0.22).

The emphasis on storage jars for the three rooms of Str 74 and 110B is also seen in the associated features from Str 74 Rm 6 and Str 110B Rm 5. The features in Rm 6 also indicate food preparation and cooking by the presence of a three-pronged brazier, two calderos, bone, and obsidian blades. When comparing the midden west of Str 65 with this material, however, the greater proportion of these artifacts comes from the midden. It may well be that this midden represent refuse from the entire Patio Alpha area, since there is no other space for dumping. By combining the features with the chi-square analysis, it appears that Patio Alpha was primarily the site of food preparation and storage.

#### Gr 9N-8 Central Platform

Table 6.56: Suggested Activities for Area of Central Platform between Patios A and B, Gr 9N-8

Structure and/or Area	Maize Grinding/ Cooking	General Food Preparation	Ritual with Food Service	Food Service	Large- scale Storage
Midden between 75 & Platform B	(-)				(+)
Pathway	(+)				
Platform B	-			-	+
Between 80 & Platform B		(+)	(+)		-



The four loci derived from this area were not different enough in their distributions to yield a significant value of chi-square (Table 6.49). Nevertheless, each locus had one or more supercategories that were under- or overrepresented. As can be seen in Table 6.56, the midden deposit was well-endowed with storage jars and somewhat low in grinding/cooking artifacts. The material from the surface of the paved pathway between Patios A and B had a slight abundance of this supercategory. Platform B's deposit is characterized by a high frequency of storage jars and fewer than expected cooking and serving artifacts. The deposit from between Platform B and the back wall of Str 80 is dominated by food preparation and ritual forms. These results suggest that Platform B was mainly used to store items.

#### Gr 9M-22 Patio A

The standardized residuals, converted to pluses and minuses, are given in Table 6.57 for this patio unit. Four of the structures, 242, 243, 244, and 246 did not have sufficient associated primary or secondary deposits for comparison. The locus for Str 200, the small structure on the south side of the patio, produced no residuals larger than 0.50 or smaller than -0.50. It did have a residual of 0.29 for the cooking/grinding supercategory and one of -0.18 for the food preparation supercategory. The other three values are very close to 0.00.

The distribution of activities, based on the positive residuals, appears in Table 6.61. Starting with the western side of the patio, the locus made up of material found west and south of Str 193A as well as in Rms 3-6 is dominated by cooking/grinding, ritual, and food service forms

while the material from Rm 8 and on the patio adjacent to the building mainly belongs to the storage supercategory. These results accord well with the nature of the in situ material, which is mostly jars with a few grinding stones. Str 193A's neighbor, 193B, has deposits with a greater representation of ritual and food service artifacts than expected.

On the north side of the patio are found Str 242, for which there is no information, Strs 194A and B, and Strs 195A and B. Strs 194A and B both have associated loci whose only unusually high representation was in the storage jar supercategory. The material around Str 195B includes that found on the superstructure and in front of the building on the patio floor (labeled "195B" in the tables) as well as artifacts behind the structure in association with a small ledge (labeled "Behind 195B"). This locus is dominated by food serving vessels. The deposits on and in front of 195B, on the other hand, are proportionally richer in cooking and food preparation artifacts. The adjacent platform, 195A, which probably supported a perishable superstructure, has material collected from its surface. This locus was abundant in cooking/grinding and ritual artifacts.

To the east are Str 246, the cluster of Strs 245A, 245B, and 196, and, further south, Str 197. Str 245B's locus is predominately food preparation, ritual, and food service artifacts while Str 245A's is dominated by food preparation and storage. The third building, Str 196, has a positive score in the food preparation supercategory only. The locus for Str 197 has an abundance of food preparation, ritual, and food service forms. Str 245A is another case of a completely perishable

superstructure with no interior furniture. This coupled with the artifacts suggests that it was used mainly for the combined purposes of cooking and storage.

Table 6.57: Suggested Activities for Structures in Gr 9M-22 Patio A

Structure and/or Area	Maize Grinding/ Cooking	General Food Preparation	Ritual with Food Service	Food Service	Large-scale Storage
Patio		(-)	(-)	+	
193A Rm 8 & patio E of str	(-)	-	-	-	+
193A Rms 3-6	+	-	(+)	+	-
193B	-	(-)	+	+	-
242	***** no data *****				
194A	(-)		(-)	-	+
194B	-			-	+
195B	+	+	-		-
195A	+		+	-	
Behind 195B			(-)	+	-
243	***** no data *****				
246	***** no data *****				
245B		(+)	(+)	+	-
245A	-	+	-	-	+
196		(+)			(-)
197		+	(+)	+	-
199	+	-	+	-	
200	no significant departures from expected frequencies				
244	***** no data *****				

The buildings on the south side are Str 244 (no information), Str 200, discussed above, and Str 199. Its deposits are dominated by cooking/grinding and ritual forms. The patio lots collected together had more food service forms than expected.

#### Gr 9M-22 Patio B

All structures in Patio B had enough material of the appropriate contexts to be examined (see Tables 6.58, 6.61). There are, however, no features from this patio for comparison. Str 189's associated locus

yielded higher than expected quantities in the food service and ritual supercategories. Strs 240 and 241, to the north, both scored high on food preparation while 240 also had a positive score for food service. Str 192 appears to have more ritual artifacts and storage jars associated than expected. The material from the superstructure of Str 190 or from in front of it is marked by an abundance of food serving vessels. The midden deposits behind and to the east of the building, however, consist mainly of food preparation forms.

The artifacts from the east and south sides of the patio were divided up as follows. For Str 191N there are two loci, one for the superstructure proper and one for the midden deposit to the east. This midden is also north of Feature 15, the ledge attached to the southern part of the back of 191N. Feature 16, the platform between Patio B and Feature 64 (in turn west of Str 193A of Patio A), has a separate locus. The material on top of Feature 5, the paved area east of Str 191W, has been kept separate from the midden deposit north of Feature 5 and south of Str 191N. Str 191W's superstructure is another locus. The platform to its rear, 191W-B, accounts for yet another separate collection of material.

The Str 191N superstructure has more cooking/grinding artifacts and food service vessels than expected whereas the midden to the rear has a large positive residual only in the storage jar supercategory. Str 191W's superstructure is dominated by ritual and storage artifacts. Str 191W-B's locus, however, has more food preparation forms than expected. The material from Feature 5 is marked mainly by the presence of more jars than expected. The midden to its north has an abundance of cooking/grinding and food service artifacts. Feature 16's surface

yielded a greater proportion of food preparation forms and storage jars than expected.

Table 6.58: Suggested Activities for Structures in Gr 9M-22 Patio B

Structure and/or Area	Maize Grinding/ Cooking	General Food Preparation	Ritual with Food Service	Food Service	Large-scale Storage
Patio		(+)		-	
189		-	(+)	+	-
190	-			(+)	
S & E 190		+		-	
191W		-	+		(+)
Feature 5 pltfrm			-	(-)	(+)
191W-B		+	-		(-)
N of Feature 5	+	-		+	-
191N	+		+	-	
Feature 16 pltfrm		+	-	-	+
E of 191N,	(-)	-			(+)
N of Feature 15					
192	-	-	+	-	+
241	(-)	+	-	-	(+)
240		+		(+)	-

Large concentrations of comals, three-pronged braziers, and/or grinding stones are limited to the locus associated with Str 191N's superstructure and the midden north of Feature 5. Proportionally large quantities of other food preparation forms, i.e. calderos, plain bowls, and small jars, are more widespread. The only structures with no emphasis on food preparation in any form are 189 and 192. Both of these buildings have high scores in the ritual artifact supercategory; Str 189 also has an emphasis on food serving. Although these differences set Strs 189 and 192 apart from the others, it is important to realize that they are not the only buildings in whose loci these activities are represented. Strs 191W and 191N both have positive residuals for the ritual supercategory while Strs 190 and 240, as well as the midden north of Feature 5, show an abundance of food serving vessels. Thus, Strs 189

and 192 are remarkable primarily for their lack of representation of food preparation and storage artifacts.

One salient difference between the deposits from Patios A and B of this group and those from Gr 9N-8 is the much wider distribution of greater than expected quantities of food serving forms. These artifacts occur in Gr 9N-8 but rarely in unusual quantities. In Gr 9M-22 in contrast many of the loci display higher frequencies than expected.

#### Gr 9M-24

Table 6.59: Suggested Activities for Structures in Gr 9M-24

Structure and/or Area	Maize Grinding/ Cooking	General Food Preparation	Ritual with Food Service	Food Service	Large- scale Storage
Patio	-		-	+	-
211	-	-	(-)	+	+
212	+	(-)	+		
213	+	(+)		-	
247		+	+	-	+
248		(+)	(+)	-	+

Str 211's locus is strong in the storage and food service supercategories (Tables 6.59, 6.61). Deposits associated with Str 212 are marked by greater amounts of cooking/grinding and ritual artifacts. Cooking/grinding and food preparation characterize the locus from Str 213. Strs 247 and 248 have loci exhibiting the same pattern of positive residuals in the food preparation, ritual, and storage supercategories. The patio lots are strong only in rims from food serving vessels.

Table 6.60: Distribution of Activities within Patios of Gr 9N-8

Activity	Patio A	Patio B	Patio C	Patio D	Patio E <sup>a</sup>
Cooking/Maize Grinding	P; 82	67; 68; 74N; 74S	69; 70; 73N; S of 72	P; 61A/ 111/112B; 104; 111; N midden	P; 93N; 97
Food Preparation/Short-term Storage	Between 82 & 83	67; 74C; S of 74S; 75	72	63; 65; 104; W midden	92; 93S; 96
Ritual (Food Service as well)	81-rms	68	69; S of 72	P; 63; W midden	93S
Food Service	81-rms; 82	75	69	P; W midden	P; 97
Storage	P; 83; 81-terr	P; 68; 73; 74N; 74C; 74S	70; 73N; between 72 & 73; 101	60B; 61C; 63; 111; 61A/111/ 112B; N midden	P; 108

Activity	Patio F	Patio H/Str 78	Patio I	Patio K
Cooking/Maize Grinding	90N	115A; 78	113A/B	106
Food Preparation/Short-term Storage	90S	P S of 64; 110A; 110B; 110C; 78; 110A/B; 110B/C		106
Ritual (Food Service as well)	91	76; Midden between 76 & 78	114	107
Food Service		76; Midden between 76 & 78	112A/B	
Storage	90N	P S of 64; 110A; 110C; 115A; 110A/B; 110B/C	112A/B;	107

(Table 6.60, cont.)

<u>Activity</u>	<u>Patio Alpha</u>	<u>Central Platform</u>
Cooking/Maize Grinding	(65)	Present
Food Preparation/Short term Storage	(74/110B)	
Ritual (Food Service as well)	(65)	Present
Food Service	65	Present
Storage	74/110B	Present

<sup>a</sup> In the body of the table, P = patio.

Table 6.61: Distribution of Activities within Patios of Gr 9M-22 and Gr 9M-24

<u>Activity</u>	<u>Gr 9M-22 Patio A</u>	<u>Gr 9M-22 Patio B</u>	<u>Gr 9M-24<sup>a</sup></u>
Cooking/Maize Grinding	193A 3-6; 195A; 195B; 199	191N; N of Feature 5	212; 213
Food Preparation/Short-term Storage	195B; 245A; 196; 245B; 197	P; S & E 190; 241; Feature 16; 240; 191W-B	213; 247; 248
Ritual (Food Service as well)	193A 3-6; 193B; 197; 195A; 199; 245B	189; 192; 191W; 191N	212; 247; 248
Food Service	P; 193B; 193A 3-6; 197; 245B; rear 195B	189; 190; N of Feature 5; 240	P; 211
Storage	193A 8; 194A; 194B; 245A	191W; Feature 16; Midden E of 191N; 192; 241; Feature 5	211; 247; 248

<sup>a</sup> In the body of the table, P = patio.



## CHAPTER 7

### THE USES OF STRUCTURES AT SEPULTURAS

In this chapter I will present certain more general conclusions about structure use that can be derived from the specific investigations carried out in the preceding chapters. I will discuss (1) the results of the study of architectural patterns, (2) the identification of activities based on artifact distribution, focusing in turn on the features, the primary use-related locus types, and the structure loci, (3) the possible differentiation of structures on the basis of use in the three groups, and (4) the general nature of the Sepulturas settlement. Finally I will point out some ways in which the results of this study may be relevant to the investigation of the composition and social organization of the residential group at Sepulturas.

### RESULTS OF THE STUDY OF ARCHITECTURAL PATTERNS

Let us review briefly some of the results of examination of the data on the architecture presented in Chapter 6. Gr 9N-8 has more patios than Gr 9M-24 but Gr 9M-22 has more structures per patio (see Tables 6.1, 6.2, 6.9). Due to the higher incidence of platforms and completely perishable superstructures in Gr 9M-22, however, the number of rooms per patio is about the same for all three groups. The groups are also roughly equivalent in the figure for rooms per superstructure, which ranges from 1.5 to 2.0. Thus, despite the great disparity in the total number of patios, they are roughly similar in number of rooms.

The main factor distinguishing them is the greater reliance on platforms and perishable building materials in Gr 9M-22.

Ten superstructure types were defined incorporating information on bench location, number of rooms, room access, and room orientation (Table 6.3). The single-roomed superstructure with one entrance facing the patio and having a bench as wide as the room (superstructure type A1) occurs more often in all three groups than any other type (Tables 6.6-6.7). However, extensions of this type, some with interior rooms, others with separate rooms oriented away from the patio, are also fairly common. The other main set of superstructure types, B1-B5, which have benches narrower than the room, creating L- or U-shaped floor areas, occurs mostly in Gr 9N-8 (Table 6.7). It can be seen that independent access, patio orientation, and a bench are the major features of Sepulturas rooms — features which repeat throughout the three groups excavated (Table 6.8). Both Gr 9N-8 and Gr 9M-24 have more multi-roomed than one-roomed superstructures. It is just the opposite in the case of Gr 9M-22.<sup>1</sup>

Gr 9M-24 has the smallest rooms and benches (Table 6.12). Each group, however, has at least one unusually large room. As can be seen in Figure 6.3, five rooms in Gr 9N-8 have outside values: B-75-1 (23.6 m<sup>2</sup>), D-60A-2 (24.3 m<sup>2</sup>), A-81-1A (28.2 m<sup>2</sup>), C-69-1 (33.9 m<sup>2</sup>), and A-80-1 (46.5 m<sup>2</sup>). Only one room in Gr 9M-22 has an exceptionally large area, B-189-1 (49.7 m<sup>2</sup>). There are two rooms in Gr 9M-24 whose areas qualify as outside values, 211-1 and 247-1 (18.5 m<sup>2</sup> each). Based on the stem

---

<sup>1</sup> For these comparisons I have combined the counts for superstructure types with more than one room (ST A2-A5, ST B2-B5) to obtain the "multi-roomed" figure and the counts for types A1 and B1 to obtain the "one-roomed" figure.

and leaf plots (Figures 6.3-6.8), most rooms and benches fall within a certain size range. For Gr 9M-24 it is between 2 and 4 m<sup>2</sup> for the rooms and 1.4-6.0 m<sup>2</sup> for the benches. Both Gr 9M-22 and 9N-8 have clusters of rooms with areas between 4 and 6 m<sup>2</sup> and 12 and 14 m<sup>2</sup>. In addition, Gr 9N-8 has another bulge at 8-10 m<sup>2</sup>. The bench areas overlap for Gr 9M-22 and Gr 9N-8 with peaks at 2-5 m<sup>2</sup> and 6-9 m<sup>2</sup>.

Bench heights are variable, ranging from 15 to 80 cm in Gr 9N-8, 20 to 65 cm in Gr 9M-22, and from 24 to 52 cm for Gr 9M-24 (Figures 6.9-6.10, Table 6.12). A definite cluster of benches with the height range of 45 to 65 cm occurs in Gr 9N-8 with another apparent at between 20 and 35 cm (Figure 6.9). The distribution for Gr 9M-22 is similar but less varied. It has a peak at 30 to 32 cm and a smaller one at 50 to 52 cm (Figure 6.10).

A high percentage of the rooms have at least one bench: 86.9% for Gr 9N-8, 78.3% for Gr 9M-22, and 66.8% for Gr 9M-24 (Table 6.11). Of these rooms, the majority have only one bench. Other kinds of interior construction are found only in Gr 9N-8 with the exception of one ledge in Gr 9M-24. There are no interior niches in either Gr 9M-22 or Gr 9M-24, although ones built into the exterior of the buildings occur in all three groups. Less than 20% of the rooms in Gr 9N-8 have ledges or other features while niches are found in less than 10% of the rooms.

The amount of the room interior occupied by the bench or benches shows an interesting pattern (Figures 6.11-6.13). The first peak is at 0% — i.e. no bench at all. If a bench is present, in most cases it constitutes either around 60% or 80% of the area of the room. These figures mean that most of the horizontal space in these rooms is bench

surface. Whatever activities took place within these rooms, therefore, probably did so on the bench rather than the floor.

Construction and kinds of sculpture were compared in Tables 6.9 and 6.10. Gr 9N-8 has a much greater representation of masonry superstructures (57.6% vs. 15.0% vs. 20.0%) and vaulted or beam and mortar roofs (32.2% vs. 15.0% vs. 0.0%). Gr 9M-24 shows no evidence of plaster, paint, or sculpture. Gr 9N-8 has more superstructures with plastered surfaces but the difference between it and Gr 9M-22 is not large — 54.2% vs. 40.0%. However, more superstructures in Gr 9M-22 fall into the unknown category. Paint is generally rare (or not preserved) but was found in 8.5% of the Gr 9N-8 buildings and 15.0% of the Gr 9M-22 ones. Almost 20% of the structures in Gr 9N-8 and 10% in Gr 9M-22 had some sort of sculptural decoration. Hieroglyphic inscriptions, however, are rare (Table 6.10). Except for the Patios A of each group, only one structure in each patio has exterior sculpture.

Another common architectural features of these buildings is the elevated terrace (Tables 6.14-6.15). This kind of exterior bench is found in Gr 9M-24, both patios of Gr 9M-22, and five out of eleven patios in Gr 9N-8. Most are built on the front terrace outside of the superstructure. In some cases, the side terrace area is wider than usual and a raised section has been built (e.g. Strs 9N-81, 9N-76, 9M-191N, 9M-191W, and 9M-213). The area of most of the elevated terraces, with a few exceptions of larger size, falls between 4.0 and 6.9 m<sup>2</sup> (Figure 6.14). The maximum height attained is 50 cm, with the majority being between 25 and 35 cm (Figure 6.15). The elevated terraces are thus somewhat lower than the interior benches, although the height

ranges overlap. Several cases of in situ artifact deposits occurred in association with these areas (Table 6.14).

### RESULTS OF THE STUDY OF ARTIFACT DISTRIBUTION

Five sets of activities, representing specific and distinct kinds of behavior commonly found in residential or household units, were delineated in Chapter 1. They were chosen in part because of their widespread association with the household level of organization and in part because of their potential for involving utensils and materials at least some of which would be preserved in archaeological deposits. These sets of activities are: food preparation, food serving and eating, manufacture, ritual observances, storage, and sleeping. The in situ features, use-related locus types, and associated middens all contain artifacts relating to all of these kinds of activities except for sleeping. The results of the investigation of the distribution of these artifacts are summarized below.

#### Activities Indicated by Features

In situ artifacts were found mainly inside rooms, sometimes on terraces, and occasionally on the courtyard surface, usually near a structure (Hendon 1987). Artifacts relating to food preparation, storage, and ritual activity make up most of the features (see Tables 5.31, 7.1). Both rooms and terraces were used for these activities. There is also some evidence for food preparation and storage in the courtyard area near certain structures. In situ ritual artifacts, however, were confined to rooms.

The distribution of these various activities has been tabulated for each room, terrace, or patio area in Table 7.1. Storage has been divided into large-scale and incidental. Large-scale denotes the function of rooms whose main use appears to have been as storage areas based on the number of jars and the kinds of other associated artifacts. Incidental storage is used to refer to those cases in which one or two jars were present in rooms where other activities apparently took place. These jars probably held material needed for the indicated activity or to be used by the occupants of the room for some other purpose. Food preparation has been divided into two specific categories — cooking/heating and maize grinding — and one residual category — general food preparation — depending on the kinds of artifacts present.

Table 7.2 presents the distribution of these activities by superstructure type as defined in Chapter 4. The number of superstructures of each type with in situ material is also given in the column labeled "n". Finally, Table 7.3 shows the frequency of each activity in each type of location — rooms, terraces, patio, and platform. Incidental storage occurs in more rooms than any other of the activities (20 times, 31.3% of room occurrences) followed by large-scale storage (8 times, 12.5%). These two kinds of activity predominate in the total sample as well. Manufacture, taken in the broad sense of fabrication of items, on whatever scale, unrelated to food preparation or ritual observances, is confined to rooms.

Table 7.1: Kinds of Activities Represented in Features

Str-Rm	RIT	LST	IST	CKG	MZG	FPG	MAN	FS	UNK <sup>a</sup>
81-1A and 1B	P?	P	P	-	-	-	-	-	-
81-terrace	-	P	-	-	-	P	-	P?	-
82W-4	P?	-	-	-	-	-	-	-	-
68-1	-	-	P	P?	P	-	-	-	-
68-2	-	P	-	P	P	-	-	-	-
73-2	-	-	P	-	-	-	-	-	P
74N-1	-	-	P	-	-	-	-	-	-
74C-2 and 3	-	P	-	-	-	P?	-	-	-
74C-terrace	-	-	P	-	-	P	-	-	-
74S-5	P	-	P	-	-	-	-	-	P
74S-terrace	-	-	P	-	P	P	-	-	-
73-5	-	-	P	-	-	-	-	-	-
73-6	-	-	P	-	P	P	-	-	-
60A-2	-	-	-	-	P	-	-	-	-
60B-1	-	-	P	-	-	-	-	-	-
61A-1	-	-	P	-	P	-	P	-	P
63-1	-	-	-	-	-	-	-	P?	-
65S-stairs	-	-	-	-	P	-	-	-	-
93N-2	P	-	-	-	-	-	-	-	-
93N-3	-	-	-	-	P	P?	-	-	-
93S-4	P	-	-	-	-	-	P?	-	-
93S-5	-	-	P	-	-	-	-	-	-
93S-terrace	-	-	P	-	-	-	-	-	P
Patio near 92	-	-	P	-	-	-	-	-	-
Patio near 95	-	P	-	-	-	-	-	-	-
Patio near 96-3	-	P	-	-	-	-	-	-	-
Patio near 97	-	-	P	-	-	-	-	-	-
Side of 108	-	-	P	-	-	-	-	-	-
Patio near 90	-	-	-	P	-	-	-	-	-
Patio near 90S	P	-	-	-	-	-	-	P?	-
91-3	-	-	-	-	-	P	-	-	P
Patio near 64	?	?	?	?	?	?	?	?	?
64-cache	P	-	-	-	-	-	-	-	-
110A-1	-	-	P	-	-	-	-	-	-
110A-2	P	-	-	-	-	-	-	-	-
110B-2	-	P	P	-	-	-	P	P?	-
110B-3	-	P	-	-	-	-	P?	-	-
110B-4	-	-	-	-	-	-	P?	-	-
115A-1	P	-	P	-	-	-	P	-	-
106-1	-	-	P	-	-	-	-	-	-
Rear 107	-	-	P	-	-	-	-	-	-
65S-4	-	-	P	-	-	-	-	-	-
"Patio" Alpha	-	-	P	-	-	-	-	-	-
74-6	-	P	P	P	-	P	-	-	-
110B-5	-	P	P?	-	-	P	-	-	P
110B-5 niche	-	P	-	-	-	-	-	-	-

(Table 7.1, cont.)

Str-Rm	RIT	LST	IST	CKG	MZG	FPG	MAN	FS	UNK <sup>a</sup>
193A-5	-	-	P	-	-	-	-	-	-
193A-6	-	-	P	-	-	-	-	-	-
193A-8	-	-	P	-	P	-	-	-	-
Patio near 193A	-	P	-	P	P	P	-	P	-
Surface 194A	-	-	P	-	-	-	-	P?	-
Rear 194B	-	P	-	P?	P	P	-	-	-

<sup>a</sup> RIT = ritual; LST = large-scale storage; IST = incidental storage; CKG = cooking/heating; MZG = maize grinding; FPG = general food preparation; MAN = manufacturing; FS = food service/consumption; UNK = unknown function. In the body of the table, P = present.

Table 7.2: Distribution of Activities Indicated by Features across Superstructure Types

ST <sup>a</sup>	RIT	LST	IST	CKG	MZG	FPG	MAN	FS	UNK	n	% of ST
A1	P	P	P	-	P	P	P	-	P	7	30.4
A2	-	P	P	P	P	P	-	-	-	2	22.2
A3	-	-	P	-	P	P	-	P?	-	2	25.0
A4	-	-	P	-	-	-	-	-	-	1	20.0
A5	P	P	P	P	P	P?	-	-	-	5	100.0
B1	P	-	P	-	P	-	P?	-	P	4	40.0
B2	P?	-	-	-	-	-	-	-	-	1	50.0
B3	-	-	-	-	-	-	-	-	-	0	0.0
B4	P?	P	P	-	-	-	-	-	-	1	100.0
B5	- P	P	-	-	-	-	P	P?	-	1	100.0

<sup>a</sup> ST = Superstructure type.

Table 7.3: Location of Activities Indicated by Features

Activity	Room	Terrace	Patio	Platform	n
Ritual	8	0	1	0	9
Large-scale storage	8	1	4	0	13
Incidental storage	20	3	5	1	29
Food preparation—cooking	3	0	3	0	6
Food preparation—maize grinding	8	2	2	0	12
Food preparation—general	5	3	2	0	10
Manufacture	6	0	0	0	6
Food service	1	1	2	1	5
Unknown function	5	1	1	0	7
Column totals	64	11	20	2	97



Tables 7.1-7.3 suggest that in most cases several kinds of activity took place both in rooms and on terraces. There are few instances of only one type of activity and those are mostly incidental storage. Ritual activities, as indicated by censers, either cylindrical or ladle, occur slightly more often in association with artifacts related to storage, food preparation, and production than they do in isolation. Furthermore, there does not seem to be any clear-cut difference in the kinds of activities found in different types of superstructures. Some interesting patterns do emerge, however, from an examination of the distribution of individual activities.

Large-scale storage occurs in rooms with dependent access, occasionally spilling over into the main room through which the other is entered. Str 9N-81 Rms 1A and 1B, Str 9N-68 Rm 2, Str 9N-74 Rms 2 and 3, and Str 9N-110B Rms 2 and 3 are all examples of this. The two other rooms in Gr 9N-8, Str 9N-74 Rm 5 and Str 9N-110B Rm 5, are part of the complex of rooms between Patios B and H. Although these rooms have independent entrances, access to the entire set of rooms and open space can be seen as dependent since one must pass through the corridor between the northern and central superstructures of Str 9N-110B.

Food preparation, with clear evidence for cooking or heating as indicated by the presence of comals, three-pronged braziers, and/or carbon or other signs of burning, is rare (6 occurrences, 6.2%). Evidences of this activity are found in Str 9N-68, definitely in Rm 2 and possibly in Rm 1, in the vicinity of Str 9N-90, in Rm 6 of Str 9N-74 in Patio Alpha, in the vicinity of Str 9M-193A, and behind Str 9M-194B. Thus this activity takes place mainly in the courtyard area near a structure or to its rear. In this regard, the description in Chapter 4

of the possible hearth on the courtyard of Patio C near Str 9N-72 should be recalled. Two of the other locations are small rooms with dependent access whose bench, if present, is somehow unusual. The third, Str 9N-68 Rm 1, has a standard type of bench both in form and size. All of these locations have evidence for other related activities such as maize grinding. Additional occurrences of the latter activity are more widespread, being found in several other rooms (i.e. Str 9N-60A-2, Str 9N-61A-1, Str 9N-73N-6, Str 9N-91-3, Str 9N-93N-3, Str 9M-193A-8) as well as on several terraces (i.e. Str 9N-74S, Str 9N-65S). Other possible indicators of food processing, such as concentrations of unworked animal bone, obsidian blades, and calderos, are found in conjunction with some of the above deposits of grinding stones as well as independently (i.e. Str 9N-81 terrace, Str 9N-74C terrace, possibly Str 9N-74C Rms 2 and 3, and Str 9N-110B Str 5 — see Table 7.1).

Evidence from features for the manufacture of items unrelated to food preparation is found in four buildings of Gr 9N-8. Str 9N-61A Rm 1, Str 9N-115A Rm 1, and Str 9N-110B Rm 2 all have deposits strongly suggestive of this activity (see Chapter 5). Rms 3 and 4 of Str 9N-110B may also have been used in connection with the shell ornament manufacturing that was concentrated in Rm 2. The other building is Str 9N-93S, in whose Rm 4 an obsidian core was found. There is little other material suggestive of this sort of activity from Str 9N-93S, however. In consequence, one sees that the production of items is essentially confined to Patios H and D of Gr 9N-8.<sup>2</sup> Each of these rooms has an unusual interior arrangement, already described in Chapter 4. These

---

<sup>2</sup> Gr 9M-24 is another area of production, of obsidian blades, based on the locus type comparisons (see Chapter 6).

layouts, furthermore, are not particularly like one another. Str 9N-110B Rm 2 is characterized by the absence of a bench, the presence of a small ledge, and a considerable expanse of floor space which is extended even more by the presence of Rm 3. Str 9N-115A Rm 1, on the other hand, is notable for the variety of built-in furniture which considerably reduces its floor area while providing an array of raised surfaces and, apparently, enclosed spaces. Str 9N-61A Rm 1 is the least unusual of the three, but nevertheless falls into one of the less common super-structure types. It has a free-standing bench and a raised side area. All cases indicate a low output and a small-scale level of organization.

The one activity, aside from sleeping, for which little evidence exists is food consumption and serving. Very few of the features contained fancy small bowls or dishes, plates, or cylinders. The only rooms with evidence of this activity are Rm 2 of Str 9N-110B, the locus of shell ornament production, and Rm 1 of Str 9N-63, Patio D. In each case only one dish was found (Table 7.1). In the case of Str 63, there were no other associated artifacts. This low representation in the features contrasts with the frequent occurrence of fancy bowls, dishes, cylinders, and plates in the midden deposits (31.0% of rims) and the patio deposits (24.3% of rims) (Table 6.20).

#### **Activities Associated with Primary Use-Related Contexts**

The examination of the distribution of artifacts in the four primary use-related contexts (locus types 2, 3, 4, and 7) showed that the room deposits contain more bone tools, spinning tools, and shell as well as a greater variety of ground stone artifacts than any of the

other three contexts (Tables 6.32-6.38). The terraces also had associated bone tools, spindle whorls or flat perforated disks, and shell, but in lesser amounts. The rooms/terraces of Gr 9M-24 were exceptional in having a much higher incidence of obsidian cores.

Ground stone and ceramic artifacts relating to four of the five activity sets were found in room and terrace loci. On the basis of chi-square comparisons (Tables 6.39-6.42), the terraces have a greater frequency of grinding stones and cooking, food service, and ritual vessels than expected under a null hypothesis of even proportional distribution. However, these activities were also represented in the room deposits. The platforms were distinguished by the high representation of storage vessels and grinding stones.

#### **Activities Associated with Structures**

The structures were compared to one another on the basis of the contents of the loci associated with them. This analysis took each patio separately to highlight variation in artifact distribution within these architecturally and spatially discrete units. The results for each patio were discussed at length in Chapter 6 and summarized in Tables 6.50-6.61. Once again, the repeated occurrence of the five artifact-producing activities is emphasized. Table 7.4 lists, for each activity, the number of loci with larger than expected quantities in each patio.

Table 7.4: Distribution of Activities across Loci by Patio

Group-Patio	CKG/ MZG	FPG	RIT	FS	STO	Number of Structures
Gr 9N-8-A	2	1	1	2	3	4
Gr 9N-8-B	4	4	1	1	6	7
Gr 9N-8-C	4	1	2	1	4	6
Gr 9N-8-D	5	4	3	2	6	10-11
Gr 9N-8-E	3	3	1	2	2	8
Gr 9N-8-F	1	1	1	—	1	3
Gr 9N-8-H	1	6	2	2	6	6
Gr 9N-8-78	1	1	—	—	1	1
Gr 9N-8-I	1	—	1	1	1	5
Gr 9N-8-K	1	1	1	—	1	4
Gr 9N-8-Alpha	1	1	1	1	1	5
Gr 9N-8-C.P.	P	—	P	P	P	1
Gr 9M-22-A	4	5	6	6	4	16
Gr 9M-22-B	2	6	4	4	6	7
Gr 9M-24	2	3	3	2	3	5

<sup>a</sup> CKG/MZG = cooking and maize grinding; FPG = general food preparation; RIT = ritual; FS = food serving and consumption; STO = storage.

#### THE USES OF STRUCTURES IN THE THREE GROUPS STUDIED

The various artifact analyses presented in Chapter 6 and reviewed above present convincing evidence in support of the interpretation of the Sepulturas patios as residential units. Both accumulated midden deposits and the in situ material are dominated by artifacts used for food preparation, storage, and food serving (cf. Satterthwaite 1937). Those relating to production and ritual observances are also found. In addition, the features and other primary material as well as, in a more generalized way, the middens strongly indicate that a single structure could be the locus of a range of activities, some of which might be carried on inside the rooms while others took place outside on the

terrace. The overall pattern of structure use is one of variety and overlapping activity spheres (cf. Kent 1984; Hendon 1985a).

The distribution of ritual artifacts is dispersed, such artifacts being found in all patios in more than one structure. Although evidence for production is rarer, its distribution also follows a dispersed pattern. The amount of material found in the four cases identified suggest the production of only a small number of items (shell, bone, obsidian in the case of Patio E). Although the scale of production of obsidian blades in Gr 9M-24 cannot be precisely determined due to lack of activity areas, I would suggest that it was also low as in the cases for which fuller information is available. Based on these findings, the typical Sepulturas residential unit combines the basic domestic activities with a fair amount of ritual activity and in some cases specialized production.

Nevertheless, although all of the activities defined here except production occur in all the patios studied, certain kinds of buildings or rooms can be identified as having specific uses on the basis of a consistent association with certain activities or the presence of distinctive architectural features. These include the following types of more or less specialized buildings or rooms: ancillary structures, rooms without benches, rooms with benches, and two less common kinds of buildings which I will call "special structures".

### **Ancillary Structures**

The first type comprises platforms and small perishable structures

which appear to have served primarily as storehouses and cooking-cum-food preparation buildings. Such functions have often been attributed to these sorts of ancillary structures in other studies (Haviland 1963; Tourtellot 1983a; Leventhal 1979; also Wauchope 1938).

Structures of this type are not found with equal frequency in the three groups. Gr 9M-22 differs from Gr 9N-8 and Gr 9M-24 in having a higher incidence of ancillary structures. In Gr 9N-8 such types of structures are rare; however, the features and the other primary deposits indicate that the same activities took place, but primarily in rooms and terraces. A less frequent location for these activities was the courtyard itself. Even in Gr 9M-22 some of the rooms and part of the patio were also used for storage or food preparation. The lack of specialized buildings for storage and food preparation in Gr 9N-8, which is the largest group, may be due in part to the fact that the residential group was larger, which necessitated that more of the space be used for residences.

It is more difficult to identify ancillary structures in Gr 9M-24 because of the lack of in situ material and the lesser amount of information about its architecture. Two of the structures, 247 and 248, had rooms without benches. That of Str 247 is larger than usual while that of Str 248 is smaller. Both these structures had greater than expected quantities of storage, food preparation, and ritual artifacts (Table 6.61). Based on the architectural distinctiveness and the artifacts, it seems possible to consider them additional examples of ancillary structures.

### Rooms without Benches

Rooms without benches constitute the second type of relatively specialized architectural unit. As we have seen, benchless rooms are in the minority. These rooms are listed in Table 7.5 along with the kind of access, total room area, and other information. Dependent access means that the room cannot be entered from the outside without first passing through another room (called here the main room). Of the twenty rooms in the table, thirteen, or 65%, have dependent access. Two of the remaining rooms, 9N-104-3 and 9M-193A-3, have no door at all. These are both anomalous constructions that either relate to an earlier construction phase or possibly represent storage wells rather than rooms. The last five rooms (25%) can be entered directly from the terrace. Three of them are in Gr 9M-24 and were identified in the previous paragraph as ancillary structures. The fourth is "Rm 1" of Str 9N-93N in Patio E. This is not really a room as generally defined, being nothing more than a corridor between two superstructures whose front end has been slightly closed off by two elevated terraces. Its back is not closed, however. The fifth one, Rm 5 of Str 65 in Patio D, is a standard room in all respects, unusual only because it has no bench.

Several other common traits appear in Table 7.5 as well. Leaving aside the two rooms with no entrance and "Rm 1" of Str 9N-93N, slightly less than half (8 out of 17) of the rooms have a floor built at a higher level than that of the adjoining main room. These floors range in height from 10 to 45 cm. Another common factor is the total room area



— all except 9M-247-1 are under 10.0 m<sup>2</sup> and most (16 out of 19) are 6.1 m<sup>2</sup> or less. The one exception, Str 9M-247, is more than double the size of the next largest room, Rm 2 of Str 9N-110B.

Table 7.5: Characteristics of Rooms without Benches

• Gr 9N-8

Patio	Str-Rm	Area (m2)	Access	Floor Higher?	ST <sup>a</sup>	Associated Feature?
A	81-1B	8.1	D	N	B4	Y
	82-10	5.5	D	Y-44 cm	A4	N
B	68-2	3.9	D	N	A5	Y
	74C-2	3.8	D	Y-15 cm	A5	Y
D	65-5	3.5	I	N	A3	N
	104-3	1.5-1.7	No door	N	A2	N
E	93N-1	12.0	I	N	A2	N
	92-2	4.1-5.4	D	N	A4	N
F	91-3 <sup>b</sup>	5.1	D	N	A5	N
H	110A-3	3.6	D	Y-45 cm	A5	N
	110B-2 <sup>b</sup>	8.3	D	N	B5	Y
	110B-3	1.0	D	Y-20 cm	B5	Y

• GR 9M-22

Patio	Str-Rm	Area (m2)	Access	Floor Higher?	ST	Associated Feature?
A	194B-2	4.6	D	Y-10 cm	A4	N
	194B-3	4.6	D	Y-10 cm	A4	N
	195B-2	6.1	D	Y-10 cm	A4	N
	195B-3	5.4	D	Y-10 cm	A4	N
	193A-3	2.4	No door	N	A2	N

• Gr 9M-24

Patio	Str-Rm	Area (m2)	Access	Floor Higher?	ST	Associated Feature?
	247-1	18.5	I	N	A1	N
	248-1	2.6	I	N	A2	N
	248-2	2.0	I	N	A2	N

<sup>a</sup> ST = superstructure type. In the body of the table, D = dependent, I = independent, Y = yes, N = no.

<sup>b</sup> Room does have a ledge.

To this pattern of lack of bench and dependent access can be added certain artifact associations. Almost all in situ features in Gr 9N-8

interpreted as indicating large-scale storage (based on the number and variety of jars and other artifacts) or cooking were situated in one of these benchless rooms. In some cases, the main room also appears to have been used at least in part for storage and for other activities. These rooms are given in Table 7.6.

Table 7.6: Benchless Rooms with Artifact Features in Gr 9N-8

Patio	Str-Rm	Activities
A	81-1B and 1A	Primarily storage, ritual also
B	68-2	Cooking and storage
	74C-2 and 3	Storage and food preparation (onto elevated terrace as well)
H	110B-2 and 3	Craft production and storage

The two exceptions to all this are in Patio Alpha: Str 74 Rm 6 and Str 110B Rm 5. However, access to Patio Alpha as a whole is dependent on Str 110 and free passage through the corridor between two of its superstructures. Therefore, the entire suite of rooms is sequestered.

Storage thus seems to be the main use for these side rooms. I would extend this interpretation also to Gr 9M-22 Patio A's dependent rooms and Rm 5 of Str 65 in Patio D, Gr 9N-8. Rm 2 of Str 68 clearly functioned as a kitchen as well. In this regard, it is noteworthy that, although entrance to Rm 2 is via Rm 3, access is less restricted than in other cases because Rm 3 has no front wall or doorway. Movement between Rm 2 and other parts of the superstructure or patio would therefore be easier than for any other such room.

### Rooms with Benches

The somewhat specialized function of the side rooms and ancillary structures lacking benches has been described. The majority of Sepulturas rooms, however, do have benches and can be entered directly from the outside. In this section, the question of their function will be considered.

Several studies have suggested that benches, or certain kinds of benches, were used as sleeping and sitting platforms in Lowland Maya palace structures (Adams 1970, 1974; Harrison 1970:152-174). These conclusions are based on the size of the bench and its placement within the room as well as on the occurrence of cordholders or other wall holes which could have supported some sort of partition. Other indicators are the presence of wall niches which might have been storage areas, the association with a generally domestic constellation of artifacts, and similarities between the actual benches and ones depicted in scenes in murals or on pottery. There is also some support in the description of elite housing in Late Postclassic Yucatan (Haviland 1985:98-99, 121; A. Smith 1962:176).

Cordholders, wall niches, and narrow ledges or side benches are found in some Sepulturas rooms containing benches. In all but one of the recorded cases of rooms with cordholders, they are placed on the inside of the room. Sometimes there are two pairs, one set close to the floor (ca. 25-67 cm above the floor) and one higher up (ca. 110 cm above the floor). Other rooms, however, have only one pair, placed around 90-100 cm above the floor (e.g. Str 9N-82 Rm 9). Rm 1 of Str 9N-82, which contains the hieroglyphic bench, is unique in having both interior and

exterior cordholders (Webster et al. 1986:186-187). Hohmann and Vogrin (1982:80-81), in an analysis of structures in Copan's Main Group, distinguish between interior and exterior cordholders. Both kinds create segregated interior space but the location determines who controls the access: someone inside or someone outside the room. The fact that all structures whose cordholders have been preserved have them on the inside walls indicates that the cordholders were used by people inside the rooms to insure privacy and to limit or discourage access from the outside. In the case of Rm 1 of Str 9N-82, as already noted, in addition to the cordholders on the interior there were also cordholders on the exterior.

Discussion of cordholder distribution in Sepulturas structures is complicated by several factors: the use of perishable materials for walls, the collapse of the upper section of most masonry or cobble walls, and incomplete recording of such details. The fact that some well-preserved masonry walls only had one pair of cordholders indicates that the lack of cordholders near the floor does not necessarily mean none were present at all. The question whether there were beam holes or hooks just below the vault spring, as found in buildings of Tikal's Central Acropolis, cannot be answered either because not that many structures were vaulted and few had walls preserved high enough. For these reasons no statistical comparison of cordholders has been attempted.

It seems quite probable to me, in light of the preceding discussion and the material presented in earlier chapters, that most of the rooms with benches, especially those above 45-50 cm in height, in these

three groups were used partly as sleeping areas and partly, along with the terraces outside, as work and general living space.

### Special Structures

Description of two sets of formally distinct structures will complete this discussion of structure function at Sepulturas. One set, consisting of what will be called *dominant structures*, is residential/domestic in function while the other is not. The structures of this second set may be special religious structures; the reasons for this will be discussed below.

#### *Dominant Structures*

The dominant structures correspond well to the description given by Tourtellot (1983b:49-50):

Most units have one larger, fancier, or formally distinct dwelling. At Seibal this dwelling was usually built as early as any other structure in the unit. Despite the greater bulk of its platform, it was usually built in a single effort. This dwelling is usually located on the north or west side of the patio, adjacent to the kitchen...shack if one is present. On an average, slightly more and finer artifacts are associated with it. At Tikal somewhat finer burials are also found in the more impressive platforms.... The most impressive dwellings in low-cost units may be smaller than the least impressive dwellings in higher-cost units.

Every completely excavated patio discussed in all three groups except H and Alpha of Gr 9N-8 has one of these buildings. Their main characteristics are presented in Table 7.7.

Most dominant structures are on the north (60%) or west (20%) sides of the patios. Their substructures are generally higher, their superstructures more compact, and their construction superior to others

in their patio. Such details as plaster, paint, and sculpture are common. These statements are not meant to imply that for each patio only its dominant structure is well-built and has a vaulted roof, plastered or painted surfaces, and sculpture. Masonry and plaster are widespread components of the architecture, especially in Gr 9N-8 (see Chapter 6). Nevertheless, these particular structures show a consistent association with these elements that is lacking in the others. There is also variation across residential units in quality of construction and architectural elaboration. Str 9N-97, for example, is the only one in Patio E built of dressed tuff and with a vaulted roof. Yet it is smaller and less decorated than almost all structures of Patios A, B or C.

Table 7.7: Features of Dominant Structures

Patio- Structure	ST	# Rms	Side Patio	Mid- den	Cache	Pl	Pnt	Scl	Ch <sup>a</sup>
• Gr 9N-8									
A-82C	A3	3	S	N	Y?	Y	Y	Y	Y
B-67	B3	2	N	N	N	Y	Y	Y	Y
C-69	B3	2	N	Y	Y	Y	N	Y	Y
D-63?	A3	3	E	Y	Y	Y	N	N	N
E-97	B3	2	N	Y	Y	Y	N	N	Y
F-91?	A5	3	N	Y	Y	Y	N	N	?
8-H	NONE								
8-I - Incomplete Excavation									
8-K - Incomplete Excavation									
8-M - Incomplete Excavation									
8-Alpha	NONE								
• Gr 9M-22									
A-194B	A4	3	N	N	N	Y	Y	Y	M
A-195B	A4	3	N	Y?	N	Y	Y	Y	Y
B-189	A1	1	W	N	Y	Y	Y	N	N
• Gr 9M-24									
211	B3	3	W	Y	N?	N	N	N	Y

<sup>a</sup> ST = superstructure type; Pl = plaster; Pnt = paint; Scl = sculpture; Ch = cordholders (answered yes if main room has them). In the "Side Patio" column, N, S, E, and W are the cardinal directions, indicating which side of the patio the structure is on. In other columns, Y = yes, N = no.

All of these structures except 9M-189 have a multi-roomed superstructure. The most common superstructure types are B3 (4 cases) and A3 (3 cases). Both of these types have one large room facing the patio and one or more smaller independent rooms with benches oriented away from the patio. In addition, superstructure type B3 has an interior dependent benchless room and a free-standing bench in the main room (see Figure 4.11). Str 9N-91 is type A5 while the two in Gr 9M-22 Patio A are of type A4 with no transverse independent rooms but two benchless dependent ones. The main room is generally large with a generously proportioned bench. The independent perpendicular rooms, on the other hand, are usually small and often have an L- or U-shaped bench. Some of these structures have several earlier phases, others do not. Formal tombs are found near some of these buildings below the patio surface; less frequently they are found inside the substructures. Although not all such structures have nearby tombs, most of the Coner phase tombs found by our excavations are associated with this sort of building. In contrast, the majority of burials in or near other structures lack any sort of formal grave although they often have burial offerings.

Tourtellot (1983b) also noted that in the lowland sites this sort of structure often has a kitchen nearby. Such a pattern can be found in Sepulturas also. The location of nearby food preparation loci has been charted in Table 7.8. Most of the structures also have adjacent middens containing utilitarian artifacts, suggesting their use as residences.

Table 7.8: The Association of Food Preparation Loci  
with Dominant Structures

Group-Patio	Structure	Location of Food Preparation Loci
Gr 9N-8-A	82C	1) Off SW corner of building 2) Between 82 and Str 83 3) South terrace of Str 81
Gr 9N-8-B	67	1) In Rm 2 of Str 68, adjacent building 2) Possibly behind structure
Gr 9N-8-C	69	1) In and around Rms 4-6, Str 73N, to E
Gr 9N-8-D	63	1) No clear association although the artifacts from associated midden suggest food preparation
Gr 9N-8-E	97	1) Possibly Str 95 to SE or Str 96 to SW
Gr 9N-8-F	91	1) Str 90N to W and attached to 91
Gr 9M-22-A	194B/195B	1) Possibly Strs 195A and 194A 2) Area of patio in front of 195B 3) Area behind 194B
Gr 9M-22-B	189	1) Possibly Str 240 to N although main food preparation area was in SE corner of patio
Gr 9M-24	211	1) No clear association; evidence of food preparation in all other structures

In summary, the available evidence indicates to me that despite their elaboration all these dominant structures are residences. Their special features suggest they were occupied by the most prominent member(s) of the resident group. The large size of the main room, with more bench space and floor space than usual, suggests that this room may also have been the site of various meetings, reunions, and other more public events involving other members of the patio unit. At the same time, the larger room size may serve as a marker of the higher status of the building's occupant. In other words, the ability to command a larger amount of interior space may be as significant an indicator of relative importance as access to rare or imported items or materials. Furthermore, the variations in construction, decoration, etc. evident across patios suggest differences in the overall relative status of the occupants of the various patios. Str 9N-82C is the most elaborate of



all. Besides its exceptionally fine construction, it has the hieroglyphic bench whose inscription affirms the protagonist's relationship with Madrugada, who was then the ruler of the Copan polity. In addition, the exterior façade of the building extolls the residents' lineage by sculptures depicting their ancestors (following the iconographic interpretation of Fash [1986]). Str 9N-82C may have had the most public function of any of these structures. However, I would still argue, on the basis of the associated artifacts, that it was used as living space.

It is puzzling that Patio H does not have one of these buildings. Strs 110A-C, despite their good construction and certain other details, are too long and low to fit the pattern. They are more comparable to Str 9N-83, Str 9N-74N-S, and Str 9N-72. Str 9N-64 is not of this type either, although it is out of the ordinary (see below). The only possibility is Str 9N-115A, which is built on the north side. However, it has a very low platform and a number of different elements including the stone "pillar", box, and bin, the cantilevered niches in the bench, and the evidence for production in the room. On the other hand, the fact that there are two such structures, almost identical in size, in Gr 9M-22 Patio A suggests a somewhat different organization than for Gr 9N-8.

#### *Structures with Possible Religious Functions*

The second set of special structures is much smaller, consisting of Strs 9N-64, 9N-80, 9N-94, and 9N-105 in Gr 9N-8 and possibly Strs 9M-197 and 9M-192 in Gr 9M-22. This is a more variable set as well. The common feature uniting them is their general dissimilarity to most Sepulturas structures.

Strs 9N-80, 9N-64, and 9M-197 have higher and squarer substructures and mostly perishable superstructures. This construction is especially notable in Gr 9N-8, where Patios A and H have a number of masonry vaulted buildings. The room area or, in the case of Str 9N-64, the area of the top of the substructure is not noticeably smaller than that of many other individual rooms. Strs 9N-81 and 9M-197 may have had benches which are smaller than the norm. Str 9N-64 had an associated cache consisting of a cylindrical censer, a carved jade pendant, and a *Spondylus* shell (see Chapter 4; Widmer n.d.). A jade celt was found in the fill of Str 9N-80 but the excavators do not make clear if it was a formal cache. A round tuff altar was found in the patio in front of the building (Webster et al. 1986:201-202). No cache was reported for Str 9M-197.

Str 9M-192 is different from these structures in having a lower and longer substructure. As interpreted by Mallory (n.d.), its platform had an apsidal rather than rectangular shape and sloping rather than vertical side walls. If present, the superstructure was completely perishable and may not have had a bench. The size and especially the height of Str 9M-192 is greater than most of the platforms in Gr 9M-22 interpreted as mundane ancillary structures (i.e. 9M-200, 9M-240-244, 9M-195A, 9M-194A, 9M-245A). The lack of a bench distinguishes it from the other structures, which are presumed to be residences.

Str 9N-105, in Patio D, is neither unusually tall nor small. In fact, it has quite a large surface area. The superstructure is built primarily of stone. The one room is large (16.8 m<sup>2</sup>) and does not have much of a bench preserved. In addition, there may have been two entrances in the front wall. The building encroaches somewhat into the

courtyard area. During its construction, a dog was buried under the room floor (Gerstle and Webster n.d.).

Str 9N-94 is another construction that is situated more into the courtyard, in this case of Patio E, than normal. Furthermore, it is a platform of extremely small size ( $6.4 \text{ m}^2$ ) with no superstructure. It had no caches or other associated material (Diamanti n.d.). Its placement and lack of artifacts differentiate it from the storage and cooking platforms discussed earlier.

The amount of artifacts associated with these structures also varies considerably. Str 9N-94 has nothing. Str 9N-80 has what the excavators termed a midden to the east (Locus 0801.9) which, however, only contains nineteen artifacts, twelve of which are obsidian blades. There was also a small amount of possible midden material off the south-east corner of Str 9N-105 (Locus 1725.9) with forty-one artifacts. Thirty-one of these are obsidian blades. Two whole vessels were found, a small Surlo cylinder and a Gualpopa flaring-walled bowl/dish. Str 9N-64 has no associated midden. A collection of material from the patio in front of it (Locus 2201.1) has more food preparation and storage forms than expected (Table 6.55). This material, however, may be associated with Str 9N-110A. A fair amount of material was found around Str 9M-197 but was not classified as a midden (Loci 1038.1, 1039.8, 1040.8, 1042.1). Additional artifacts were found on top of the substructure (Locus 1041.3). According to the chi-square analysis, these loci have greater than expected quantities of food preparation, food serving, and ritual artifacts (Table 6.57). A substantial midden was found behind Str 9M-192 (Locus 0919.9). Artifacts from the platform surface were

collected into Locus 0918.3. As can be seen in Table 6.58, ritual and storage vessels predominate.

These structures share some features of temples or shrines as usually defined. As discussed in Chapter 1, such structures have been traditionally interpreted as religious buildings. Their formal features as defined by Becker (1971) include high, relatively small substructures, small interior space (although cf. Satterthwaite 1937:165), center-line caches and burials, and location on the east side of the patio (also Pollock 1965; Tourtellot 1983b:40-41). An alternative form, found at Seibal (Leventhal 1983:57), Mayapan (Proskouriakoff 1962b), and such non-Maya sites as Cerro Palenque (Joyce 1985), is a small platform built in the middle of the courtyard area.

Strs 9N-80, 9N-64, and 9M-197 are somewhat like the temple class in height. Str 9N-80 is associated with an altar as described by Satterthwaite (1937). Only one, 9M-197, is found on the east; the other two occupy the north sides of their patios. The superstructure plan, although unusual for Sepulturas, is not especially close to the ones described by Becker or Satterthwaite. But then the residential structures, or palaces, are also somewhat different from the Peten ones. The higher than expected frequency of ritual artifacts associated with Str 9M-197 is suggestive, but it must be remembered that other clearly residential structures also have an abundance of these kinds of artifacts. There are no burials associated with these structures. The only one with a clearly defined cache deposit is Str 9N-64.

Str 9N-94 is the closest approximation we have to a mid-patio shrine. Its size is also comparable. Str 9N-105 also is unusual in its

location, which is more like that of Str 9N-94, as well as in its room layout, which is more like Strs 9N-80 and 9M-197 (Gerstle 1985b).

These structures, clearly not residences, may indeed be examples of religious buildings, although not necessarily exactly like the ones from Tikal or Piedras Negras. If so, then Patios A, D, E, and H of Gr 9N-8 and both patios of Gr 9M-22 have one such structure each. None is known from Gr 9M-24. Excavations in Patios F, I, K, and M were not complete enough and the destruction of some portions was too severe to make it possible to say whether these patios lacked religious structures. This leaves Patios B and C as the only completely excavated ones in Gr 9N-8 without such a structure.

The only possibility for Patio B is Str 9N-75 on the south side. It is smaller and lower than the others and has one fairly large room. In addition, its construction material, limestone, is rarely used elsewhere. However, I would reject such an interpretation of Str 9N-75 because of the extremely heavy midden deposit behind it. Analysis of the midden revealed a greater than expected amount of food preparation and food service artifacts. Furthermore, the substructure was physically connected to that of Str 9N-74S, the room has quite a large bench, and there may have been an elevated terrace outside it.

Str 9N-71 of Patio C is also smaller and squarer than the other structures. It had a masonry superstructure with a beam and mortar roof covering a large room with several benches. In fact, Str 9N-71 is most remarkable for its great amount of bench space. This would argue against its being a religious structure as defined by the other buildings discussed above. A tomb was found inside the structure underneath

the room on the center axis (Hendon et al. n.d.b). Burials inside residential structures are not uncommon, however; Strs 9N-68, 9N-74, and 9N-75 of Patio B all had them, including one in a small tomb below the terrace of Str 9N-74C (Hendon et al. n.d.a). Unfortunately, it was impossible to isolate material of primary context for this building because of a lack of discrimination during excavation. Nevertheless, I think Str 9N-71 was essentially residential.

Given that Patio B is the only other major complex built on the Central Platform and that movement between it and Patio A was, as far as we know, unrestricted — certainly no permanent barriers were built — perhaps the residents of B were more closely tied to those of A than any other patio. This being the case, they may also have used or looked to Str 9N-80 as their religious structure. Patio C is not on the Central Platform but it is physically linked to B via Strs 9N-72 and 9N-73. Although it is possible that movement between Patios B and C was restricted, nevertheless the two patios were physically joined to a greater extent than any other pair. Therefore, perhaps the occupants of Patio C also used Str 9N-80.

The lack of a separate structure devoted to ritual observances in Gr 9M-24 does not necessarily imply a lack of this activity in the patio. Ritual artifacts are associated with most of the structures. It does suggest that lower social status or lesser access to resources — more probably a combination of the two — limited the kinds of constructions the residents could aspire to. It is suggested that their ritual activities took place within the residential structures exclusively.

As described in detail in Chapter 2, two of the structures excavated by the Harvard Project were identified as being of special, probably administrative-cum-religious, function. These are Str B of Gr 9M-27 (CV-20) and Str A of Gr 9M-18 (CV-43). More recently Leventhal (1983) has suggested that they were mainly related to worship of lineage ancestors, a common practice among modern Maya groups. Information on Str B is not detailed enough to allow much comparison to the structures dealt with in my study, although two of the traits put forward as indicators of special function — a dressed tuff bench face and plaster surfaces — are not convincing (Leventhal 1979; Willey and Leventhal 1979). Neither feature is at all unusual in the three groups discussed here. In fact, many structures whose walls were built of cobbles and even perishable material had bench faces constructed of dressed tuff blocks. This is true even of the buildings in Gr 9M-24. Plaster also is widespread in Gr 9N-8 and Gr 9M-22.

Str A is of course noteworthy for its hieroglyphic bench. Leventhal (1983:64) has drawn a contrast between the contents of its inscription and that of Str 9N-82's bench, arguing that the former records a purely religious ceremony while the latter describes a relationship, specifically that between the head of the Patio A lineage and the Copan ruler, Madrugada. On the other hand, the architectural traits given as evidence of special function are actually identical to the ones used here to identify the dominant structures for each patio, which have been shown to be residential. In fact Str A is a quintessential dominant structure as shown by its exceptionally fine construction, the use of paint and sculpture as well as plaster, and a room layout of the A3 type.

## GENERAL CONCLUSIONS ABOUT THE NATURE OF THE SEPULTURAS SETTLEMENT

In Chapter 1 I adopted as a working hypothesis the opinion put forward by previous scholars on the basis of various kinds of evidence that Sepulturas represents a residential zone. It has become clear in the course of the present study of the uses of structures that there is abundant support for this hypothesis. However, the results of this investigation, because of its focus on specific kinds of activities and their distribution in the groups examined, make it possible to go beyond the simple characterization of Sepulturas as a residential zone, which by itself is too general to give much insight into the nature of the settlement and the functions of the structures of which it is composed.

To a certain extent my results support the existing view of Maya structure types. The use of some palace-type structures as residences has been clearly established in Sepulturas. The existence of small buildings and platforms used by the resident household group for domestic activities such as cooking and storage but not as living-space has also been shown. Finally, a small set of unusual structures whose form coincides with the temple class has been defined. These three structural forms and their inferred use agree with results from other areas based on excavation and survey.

Certain new insights also result from my work. In the case of the "temples", the use ascribed to such structures in Becker's Tikal analysis and other work cannot be clearly established for their Sepulturas analogs on the basis of the excavation data. In other words, one can say that these structures are not residences but little direct evidence



can be adduced to support the inference that they were used as special religious structures.

On the other hand, the evidence from Gr 9N-8 shows that the infrequency of small ancillary structures does not necessarily imply the absence of food preparation and storage activities but only a different use of space. The location of these activities simply shifted to certain kinds of rooms and terraces.

Furthermore, the fact that a structure boasts a greater use of dressed tuff, a vaulted roof, a generous coating of plaster on horizontal and vertical surfaces, or even sculpture or inscriptions cannot be taken in isolation as evidence of its use. The majority of buildings in my sample, regardless of construction, proved to be associated with artifacts strongly suggestive of residential occupation. Even when one particular building stands out from others in its patio by virtue of its construction and the quality of the associated burials, one cannot assume that it was a "special-function" structure. For these reasons, I disagree with Leventhal's (1983) identification of Str A in Gr 9N-18 (CV-43) as a shrine-cum-administrative building. Based on analogy with the class of dominant structures described earlier, I would suggest that it is the residence of the most important member of the residential group.

Another finding is that, although some of the smaller structures and platforms were devoted to a limited range of activities, most of the structures analyzed show evidence for a variety of activities. Food preparation, for example, took place, by and large, in several structures or areas within any one patio. Ritual activity also shows a dispersed distribution. Although the evidence for craft production may

suggest a more limited occurrence of this activity, the four instances identified are spread out in two different groups, Gr 9M-24 and Gr 9N-8. Within the latter group, manufacture took place in three different patios. These findings indicate that structures devoted to one specific use — cooking, storage, religious observances — are not necessarily the rule in the more densely settled areas of Copan and possibly at other sites as well. The decision to construct and use such structures is affected by the way associated activities are organized, the number of people involved, and their access to resources including space.

#### OBSERVATIONS ABOUT SOCIAL ORGANIZATION

In addition to the consideration of structure use, some evidence pertaining to the organization of the residential group has been presented, including the distribution of the dominant structures and the religious structures. The discovery that there was greater use of separate platforms for storage and food preparation in Gr 9M-22 and possibly Gr 9M-24 as opposed to rooms or suites of rooms (Patio Alpha, Rms 4-6 of Str 9N-73N) in Gr 9N-8 may also be relevant, since the difference may be related to a greater need for sleeping rooms in the latter group because of a denser population.

In Chapter 6 it was shown that a gradient of features such as size, structural elaboration, and use of masonry and vaulted or beam and mortar roofs exists from the smallest and least elaborate group, Gr 9M-24, to Gr 9M-22, and on up to Gr 9N-8. This increasing architectural complexity suggests that the original typology as created by the Harvard Project, on the basis of unexcavated mounds, broadly reflects real

differences among groups. However, the excavations also make clear that patios within a group can vary in the distribution of these traits.

Thus Patio B of Gr 9M-22 has fewer structures and less elaboration than Patio A. In Gr 9N-8, there is a marked difference in the sizes of structures and kinds of construction materials used in Patios E, F, and I when compared to Patios A-D and H.

One thing made clear by the material presented here is that the residents of the Sepulturas zone do not appear to have had much in the way of centralized organization above or even at the level of the patio. In religious matters, the occupants of each patio seem to have performed ritual activities in a variety of locations within the unit. To the extent that there is evidence for specialized production it appears to have been small-scale and to have taken place in rooms of residential structures. The special structures tentatively interpreted as religious buildings, which could be interpreted as evidence for possible patio or supra-patio integration, are rare and appear to represent additions to rather than replacements of the basic organization at the level of the patio unit.

## BIBLIOGRAPHY

- Abrams, Elliot M.  
 1984        *Systems of Labor Organization in Late Classic Copan, Honduras: the Energetics of Construction*. Ann Arbor: University Microfilms International.
- 1987        Economic Specialization and Construction Personnel in Classic Period Copan, Honduras. *American Antiquity* 52:485-499.
- Adams, Richard E. W.  
 1970        Suggested Classic Period Occupational Specialization in the Southern Maya Lowlands. In W. R. Bullard, Jr., ed., *Monographs and Papers in Maya Archaeology*. Papers, Peabody Museum of Archaeology and Ethnology Vol. 61. Pp. 487-502.
- 1971        *The Ceramics of Altar de Sacrificios*. Papers, Peabody Museum of Archaeology and Ethnology Vol. 63 No. 1.
- 1974        A Trial Estimation of Classic Maya Palace Populations at Uaxactun. In N. Hammond, ed., *Mesoamerican Archaeology: New Approaches*. Austin: University of Texas Press. Pp. 285-296.
- Adams, Richard E. W., and T. Patrick Culbert  
 1977        The Origins of Civilization in the Maya Lowlands. In R. E. W. Adams, ed., *The Origins of Maya Civilization*. Albuquerque: University of New Mexico Press. Pp. 3-24.
- Adams, Richard E. W., and Woodruff D. Smith  
 1981        Feudal Models for Classic Maya Civilization. In W. Ashmore, ed., *Lowland Maya Settlement Archaeology*. Albuquerque: University of New Mexico Press. Pp. 335-349.
- Agurcia Fasquelle, Ricardo  
 1986        Late Classic Settlements in the Comayagua Valley. In P. A. Urban and E. M. Schortman, eds., *The Southeast Maya Periphery*. Austin: University of Texas Press. Pp. 262-274.
- Agurcia F., Ricardo, and Rafael A. Flores M.  
 n.d.        Informe de excavaciones Operación XIII Temporada 1981. Unpublished excavation report in possession of author.
- Aldenderfer, Mark S., and Roger K. Blashfield  
 1984        *Cluster Analysis*. Quantitative Applications in the Social Sciences, series no. 07-044. Beverly Hills: Sage Publications.

- Anderson, T. W.  
1984      *An Introduction to Multivariate Statistical Analysis*. 2nd ed. New York: John Wiley and Sons.
- Andrews, E. Wyllys, V  
1976      *The Archaeology of Quelepa, El Salvador*. Middle American Research Institute Publ. 42. New Orleans: Tulane University.
- Andrews, E. Wyllys, IV, and Irwin Rovner  
1973      Archaeological Evidence on Social Stratification and Commerce in the Northern Maya Lowlands: Two Masons' Tool Kits from Muna and Dzibilchaltun, Yucatan. *Archaeological Investigations on the Yucatan Peninsula*. Middle American Research Institute Publ. 31. New Orleans: Tulane University. Pp. 81-92.
- Ashmore, Wendy A.  
1981a      *Precolumbian Occupation at Quirigua, Guatemala: Settlement Patterns in a Classic Maya Center*. Ann Arbor: University Microfilms International.
- 1981b      Some Issues of Method and Theory in Lowland Maya Settlement Archaeology. In W. Ashmore, ed., *Lowland Maya Settlement Archaeology*. Albuquerque: University of New Mexico Press. Pp. 37-69.
- Ashmore, Wendy, Patricia Urban, Edward Schortman, and Julie Benyo  
1984      Santa Barbara Archaeological Project 1984 Season. Unpublished interim report submitted to the Instituto Hondureño de Antropología e Historia, Tegucigalpa.
- Ashmore, Wendy A. and Gordon R. Willey  
1981      A Historical Introduction to the Study of Lowland Maya Settlement Patterns. In W. Ashmore, ed., *Lowland Maya Settlement Archaeology*. Albuquerque: University of New Mexico Press. Pp. 3-18.
- Bailey, Kenneth D.  
1973      Monothetic and Polythetic Typologies and their Relation to Conceptualization, Measurement and Scaling. *American Sociological Review* 38:18-33.
- Baudez, Claude F.  
1983      Presentación. In C. F. Baudez, ed., *Introducción a la Arqueología de Copán, Honduras Tomo I*. Tegucigalpa, Honduras: SECTUR. Pp. 15-33.
- 1984      Le Roi, la Balle, et le Maïs: Images de Jeu de Balle Maya. *Journal de la Société des Américanistes* 70:139-152.

- 1986 Iconography and History at Copan. In P. A. Urban and E. M. Schortman, eds., *The Southeast Maya Periphery*. Austin: University of Texas Press. Pp. 17-26.
- Baudez, Claude F., and Pierre Becquelin  
1973 *Archéologie de Los Naranjos (Honduras)*. Etudes Mesoaméricaines série 1 no. 4. Mexico, D.F.: Centre d'études mexicaines y centraméricaines.
- Beaudry, Marilyn P.  
1984 *Ceramic Production and Distribution in the Southeastern Maya Periphery: Late Classic Painted Serving Vessels*. BAR International Series 203. Oxford: BAR.
- Becker, Marshall J.  
1971 *The Identification of a Second Plaza Plan at Tikal, Guatemala and its Implications for Ancient Maya Social Complexity*. Ann Arbor: University Microfilms International.  
  
1973 Archaeological Evidence for Occupational Specialization among the Classic Period Maya at Tikal. *American Antiquity* 38:396-406.  
  
1979 Priests, Peasants and the Ceremonial Centers: the Intellectual History of a Model. In N. Hammond and G. R. Willey, eds., *Maya Archaeology and Ethnohistory*. Austin: University of Texas Press. Pp. 3-20.  
  
1983 Kings and Classicism: Political Change in the Maya Lowlands during the Classic Period. In A. G. Miller, ed., *Highland-Lowland Interaction in Mesoamerica: Interdisciplinary Approaches*. Washington, D.C.: Dumbarton Oaks Trustees for Harvard University. Pp. 159-200.
- Becker, Marshall J., and Charles D. Cheek  
1983 La Estructura 10L-18. In C. F. Baudez, ed., *Introducción a la Arqueología de Copán, Honduras Tomo II*. Tegucigalpa, Honduras: SECTUR. Pp. 383-446.
- Benyo, Julie C.  
1979 *The Pottery Censers of Quiriguá, Izabal, Guatemala*. Unpublished M.A. thesis, Department of Anthropology, State University of New York at Albany.  
  
1986 *An Archaeological Investigation of Intra-Community Social Organizations at La Ceiba, Comayagua, Honduras*. Ann Arbor: University Microfilms International.
- Binford, Lewis R.  
1962 Archaeology as Anthropology. *American Antiquity* 28:217-225.

- 1965      Archaeological Systematics and the Study of Culture Process. *American Antiquity* 31:203-210.
- 1982      The Archaeology of Place. *Journal of Anthropological Archaeology* 1:5-31.
- 1983a      Behavioral Archaeology and the "Pompeii Premise". In *Working at Archaeology*. New York: Academic Press. Pp. 229-421.
- 1983b      Organization and Formation Processes: Looking at Curated Technologies. In *Working at Archaeology*. New York: Academic Press. Pp. 269-286.
- Bishop, Ronald L., Marilyn P. Beaudry, Richard M. Leventhal, and Robert J. Sharer.  
 1986      Compositional Analysis of Copador and Related Pottery in the Southeast Maya Area. In P. A. Urban and E. M. Schortman, eds., *The Southeast Maya Periphery*. Austin: University of Texas Press. Pp. 143-167.
- Blalock, Hubert M., Jr.  
 1979      *Social Statistics*. Rev. 2nd ed. New York: McGraw-Hill Book Co.
- Bølviken, Erik, Ericka Helskog, Knut Helskog, Inger Marie Holm-Olsen, Leiv Solheim, and Reidar Bertelsen  
 1982      Correspondence Analysis: an Alternative to Principal Components. *World Archaeology* 14:41-60.
- Borhegyi, Stephan F. de  
 1950      *Rim-head Vessels and Cone-shaped Effigy Prongs of the Pre-classic Period at Kaminaljuyu, Guatemala*. Notes on Middle American Archaeology and Ethnology Vol. 4 No. 97. Cambridge: Carnegie Institution of Washington Department of Archaeology.
- 1951a      *A Study of Three-pronged Incense Burners from Guatemala and Adjacent Areas*. Notes on Middle American Archaeology and Ethnology Vol. 4 No. 101. Cambridge: Carnegie Institution of Washington Department of Archaeology.
- 1951b      *"Loop-nose" Incense Burners in the Guatemala National Museum*. Notes on Middle American Archaeology and Ethnology Vol. 4 No. 103. Cambridge: Carnegie Institution of Washington Department of Archaeology.
- 1954      Jointed Figurines in Mesoamerica and their Cultural Implication. *Southwestern Journal of Anthropology* 10:268-277.
- 1955      Comments on Incense Burners from Copan, Honduras. *American Antiquity* 20:284-286.

## Borland International

- 1985 Turbo Pascal version 3.01. Scotts Valley: Borland International.

## Braun, David P.

- 1980 Experimental Interpretation of Ceramic Vessel Use on the Basis of Rim and Neck Formal Attributes. In D. C. Fiero, R. W. Munson, M. T. McClain, S. M. Wilson, and A. H. Zier, eds., *The Navajo Project: Archaeological Investigations Page to Phoenix 500KV Southern Transmission Line*. Museum of Northern Arizona Research Paper 11. Pp. 171-231.

## Brew, John O.

- 1946 *The Archaeology of Alkali Ridge*. Papers, Peabody Museum of Archaeology and Ethnology Vol. 21.

## Bullard, William R., Jr.

- 1960 Maya Settlement Pattern in Northeastern Peten, Guatemala. *American Antiquity* 25:355-372.
- 1964 Settlement Pattern and Social Structure in the Southern Maya Lowlands during the Classic Period. *Actas y Memorias of the 35th International Congress of Americanists, Mexico, 1962*. Pp. 279-287.

## Bunzel, Ruth

- 1952 *Chichicastenango, a Guatemalan Village*. Locust Valley: J. J. Augustin.

## Campbell, Lyle R.

- 1976 The Linguistic Prehistory of the Southern Mesoamerican Periphery. *14th Mesa Redonda de la Sociedad Mexicana de Antropología, Tegucigalpa, 1975, Vol. 1*. Pp. 157-183.

## Cannon, Aubrey

- 1983 The Quantification of Artifactual Assemblages: some Implications for Behavioral Inferences. *American Antiquity* 48:785-792.

## Carlsen, Robert

- 1986 Analysis of the Early Classic Period Textile Remains — Tomb 19, Rio Azul. In R. E. W. Adams, ed., *Rio Azul Reports Number 2, the 1984 Season*. San Antonio: Center for Archaeological Research. Pp. 122-155.

## Carmack, Robert M.

- 1981 *The Quiché Mayas of Uatatlán: the Evolution of a Highland Guatemala Kingdom*. Norman: University of Oklahoma Press.



Carr, Christopher

- 1984 The Nature of Organization of Intrasite Archaeological Records and Spatial Analytic Approaches to their Investigation. In M. B. Schiffer, ed., *Advances in Archaeological Method and Theory*, Vol. 7. Orlando: Academic Press, Inc. Pp. 103-222.

Chamberlain, Robert S.

- 1948 *The Conquest and Colonization of Yucatan 1517-1550*. Carnegie Institution of Washington Publ. 582.

Chayes, F., and W. Kruskal

- 1966 An Approximate Statistical Test for Correlations between Proportions. *Journal of Geology* 74:692-702.

Cheek, Charles

- 1986 Construction Activity as a Measurement of Change at Copan, Honduras. In P. A. Urban and E. M. Schortman, eds., *The Southeast Maya Periphery*. Austin: University of Texas Press. Pp. 72-93.

Clark, Geoffrey A.

- 1982 Quantifying Archaeological Research. In M. B. Schiffer, ed., *Advances in Archaeological Method and Theory*, Vol. 5. New York: Academic Press. Pp. 217-273.

Clark, Geoffrey A., and C. Russell Stafford

- 1982 Quantification in American Archaeology: a Historical Perspective. *World Archaeology* 14:98-119.

Clarke, David L.

- 1978 *Analytical Archaeology*. 2nd rev. ed. New York: Columbia University Press.

Coe, William R.

- 1965a Caches and Offertory Practices of the Maya Lowlands. In G. R. Willey, ed., *Archaeology of Southern Mesoamerica Part One*. Handbook of Middle American Indians Vol. 2 (R. Wauchope, gen. ed.). Austin: University of Texas Press. Pp. 462-468.
- 1965b Artifacts of the Maya Lowlands. In G. R. Willey, ed., *Archaeology of Southern Mesoamerica Part Two*. Handbook of Middle American Indians Vol. 3 (R. Wauchope, gen. ed.). Austin: University of Texas Press. Pp. 594-602.

Coe, William R., and William A. Haviland

- 1982 *Introduction to the Archaeology of Tikal, Guatemala*. In W. R. Coe and W. A. Haviland, series eds., Tikal Report No. 12. University Museum Monograph 46. Philadelphia: The University Museum.

- Cooley, William W., and Paul R. Lohnes  
 1971 *Multivariate Data Analysis*. New York: John Wiley and Sons, Inc.
- Cowgill, George L.  
 1968a *Counts, Ratios, and Percentages: Problems in Quantifying Archaeological Data*. Duplicated manuscript on file in Tozzer Library, Harvard University.
- 1968b Archaeological Applications of Factor, Cluster, and Proximity Analysis. *American Antiquity* 33:367-375.
- 1970 Some Sampling and Reliability Problems in Archaeology. In J.-C. Gardin, ed., *Archéologie et calculateurs, problèmes sémiologiques et mathématiques*. Marseille: Centre National de la Recherche Scientifique. Pp. 161-175.
- 1977 The Trouble with Significance Tests and What We Can Do About It. *American Antiquity* 42:350-368
- 1986 Archaeological Applications of Mathematical and Formal Methods. In D. J. Meltzer, D. D. Fowler, and J. A. Sabloff, eds., *American Archaeology Past and Future: A Celebration of the Society for American Archaeology 1935-1985*. Washington, D.C. and London: Smithsonian Institution Press. Pp. 369-393.
- Cowgill, George L., Jeffrey H. Altschul, and Rebecca S. Sload  
 1984 Spatial Analysis of Teotihuacán: a Mesoamerican Metropolis. In H. J. Hietala, ed., *Intrasite Spatial Analysis in Archaeology*. Cambridge: Cambridge University Press. Pp. 154-195.
- Culbert, T. Patrick  
 1973 Introduction: a Prologue to Classic Maya Culture and the Problem of its Collapse. In T. P. Culbert, ed., *The Classic Maya Collapse*. Albuquerque: University of New Mexico Press. Pp. 3-19.
- Dahlin, Bruce H.  
 1978 Part Two: Figurines. In R. J. Sharer, ed., *The Prehistory of Chalchuapa, El Salvador Vol. 2*. Philadelphia: University of Pennsylvania Press. Pp. 134-211
- Demarest, Arthur A., and Robert J. Sharer  
 1986 Late Preclassic Ceramic Spheres, Culture Areas, and Cultural Evolution in the Southeastern Highlands of Mesoamerica. In P. A. Urban and E. M. Schortman, eds., *The Southeast Maya Periphery*. Austin: University of Texas Press. Pp. 194-223.

Diamanti, Melissa

1986        *The Terminal Classic Occupation in an Elite Residence at Copan, Honduras*. Paper presented at the 51st annual meeting, Society for American Archaeology, New Orleans.

n.d.        Excavaciones en el Conjunto 9N8, Patios E y F (Operación XV). In W. T. Sanders, ed., *Proyecto Arqueológico Copán Segunda Fase: Excavaciones en el Area Urbana de Copán Tomo IV*. [In preparation.]

Doran, J. E., and F. R. Hodson

1975        *Mathematics and Computers in Archaeology*. Cambridge, Mass.: Harvard University Press.

Dunnell, Robert C.

1970        Seriation Method and its Evaluation. *American Antiquity* 35:305-319.

1971        Sabloff and Smith's "The Importance of both Analytic and Taxonomic Classification in the Type-Variety System". *American Antiquity* 36:115-118.

1986        Five Decades of American Archaeology. In D. J. Meltzer, D. D. Fowler, and J. A. Sabloff, eds., *American Archaeology Past and Future: A Celebration of the Society for American Archaeology 1935-1985*. Washington, D.C. and London: Smithsonian Institution Press. Pp. 23-49.

Edmonson, Munro S.

1981        Some Postclassic Questions about the Classic Maya. In J. A. Graham, ed., *Ancient Mesoamerica: Selected Readings*. Palo Alto: Peek Publications. Pp. 221-228.

Eggan, F.

1934        The Maya Kinship System and Cross-Cousin Marriage. *American Anthropologist* 36:188-202.

Ericson, Jonathon E., Dwight W. Read, and Cheryl Burke

1972        Research Design: the Relationships between the Primary Functions and the Physical Properties of Ceramic Vessels and their Implications for Ceramic Distributions on an Archaeological Site. *Anthropology UCLA* 3:2:84-95.

Ericson, Jonathon E., and E. Gary Stickel

1973        A Proposed Classification System for Ceramics. *World Archaeology* 4:357-367.

Farriss, Nancy M.

1984        *Maya Society under Colonial Rule: the Collective Enterprise of Survival*. Princeton: Princeton University Press.

Fash, William L., Jr.

- 1983a      *Maya State Formation: a Case Study and its Implications.*  
Ann Arbor: University Microfilms International.
  
- 1983b      Deducing Social Organization from Classic Maya Settlement  
Patterns: a Case Study from the Copan Valley. In R. M.  
Leventhal and A. L. Kolata, eds., *Civilization in the  
Ancient Americas: Essays in Honor of Gordon R. Willey.*  
Cambridge: University of New Mexico Press and the Peabody  
Museum, Harvard University. Pp. 261-288.
  
- 1983c      Reconocimiento y Excavaciones en el Valle. In C. F.  
Baudez, ed., *Introducción a la Arqueología de Copán,*  
*Honduras Tomo 1.* Tegucigalpa, Honduras: SECTUR. Pp. 229-  
469.
  
- 1985      La Secuencia de Ocupación del Grupo 9N-8, Las Sepulturas,  
Copán y sus Implicaciones Teóricas. *Yaxkin* 8:135-149.
  
- 1986      La Fachada Esculpida de la Estructura 9N-82: Composición,  
Forma e Iconografía. In W. T. Sanders, ed., *Proyecto  
Arqueológico Copán Segunda Fase: Excavaciones en el Area  
Urbana de Copán Tomo I.* Tegucigalpa, Honduras: SECTUR.  
Pp. 319-342.
  
- n.d.      Operation 20 field notes and lot cards. On file, Centro de  
Investigaciones, Proyecto Arqueológico Copán, Copán,  
Honduras.

Fash, William L., Jr., Ricardo Agurcia F., and Elliot M. Abrams

- 1981      Excavaciones en el Sitio CV 36, 1980-1981. *Yaxkin* 4:111-  
120.

Fash, William L., Jr., and Sheree Lane

- 1983      El Juego de Pelota B. In C. F. Baudez, ed., *Introducción a  
la Arqueología de Copán, Honduras Tomo II.* Tegucigalpa,  
Honduras: SECTUR. Pp. 503-562.

Fash, William L., Jr., and Kurt Z. Long

- 1983      Mapa Arqueológico del Valle de Copán. In C. F. Baudez,  
ed., *Introducción a la Arqueología de Copán, Honduras Tomo  
III.* Tegucigalpa, Honduras: SECTUR.

Feldman, Lawrence H.

- 1983      Reconocimiento de los Recursos de Centroamérica en  
Manuscritos Chortí. In C. F. Baudez, ed., *Introducción a  
la Arqueología de Copán, Honduras Tomo 1.* Tegucigalpa,  
Honduras: SECTUR. Pp. 143-194.

Folan, William J., Ellen R. Kintz, and Laraine A. Fletcher

- 1983      *Coba, a Classic Maya Metropolis.* New York: Academic  
Press.

- Ford, Anabel, and Jeanne E. Arnold  
 1982 A Reexamination of Labor Investments at Tikal: Reply to Haviland, and Folan, Kintz, Fletcher and Hyde. *American Antiquity* 47:436-440.
- Fought, John G.  
 1972 *Chorti (Mayan) Texts 1*. (S. S. Fought, ed.) Philadelphia: University of Pennsylvania Press.
- Fox, James A., and John S. Justeson  
 1986 Classic Maya Dynastic Alliance and Succession. In R. Spores, ed., *Ethnohistory*. Supplement to the Handbook of Middle American Indians Vol. 4 (V. R. Bricker, gen. ed.). Austin: University of Texas Press. Pp. 7-34.
- Freter, AnnCorinne  
 1986 *Evidence of Political Decentralization during the Terminal Classic Period in the Copan Valley: a Regional Perspective*. Paper presented at the 51st annual meeting, Society for American Archaeology, New Orleans.
- n.d. *The Dynamics of the Copan Valley Regional Settlement System from an Ecological Perspective*. Ph.D. dissertation in preparation, Department of Anthropology, Pennsylvania State University. [In preparation.]
- Fry, Robert E.  
 1969 *Ceramics and Settlement in the Periphery of Tikal, Guatemala*. Ann Arbor: University Microfilms International.
- 1979 The Economics of Pottery at Tikal Guatemala: Models of Exchange for Serving Vessels. *American Antiquity* 44:494-512.
- Gerstle, Andrea I.  
 1985a *Ethnic Diversity in Late Classic Copan, Honduras*. Paper presented at the 50th annual meeting, Society for American Archaeology, Denver.
- 1985b La Arquitectura Ceremonial de las Sepulturas, Copán. *Yaxkin* 8:99-109.
- n.d.a Excavaciones Varias de 1984 en Las Sepulturas (Operación XXVI). In W. T. Sanders, ed., *Proyecto Arqueológico Copán Segunda Fase: Excavaciones en el Area Urbana de Copán Tomo IV*. [In preparation.]
- n.d.b Analysis of Special Ground Stone Artifacts from PAC II Excavations. Notes in possession of author.

- Gerstle, Andrea I., and David L. Webster  
 n.d.        *Excavaciones en el Conjunto 9N8, Patio D (Operación XVII).*  
              In W. T. Sanders, ed., *Proyecto Arqueológico Copán Segunda*  
              *Fase: Excavaciones en el Area Urbana de Copán Tomo III.*  
              [In preparation.]
- Gifford, James C.  
 1976        *Prehistoric Pottery Analysis and the Ceramics of Barton*  
              *Ramie in the Belize Valley.* In C. A. Gifford, compiler,  
              *Memoirs, Peabody Museum of Archaeology and Ethnology Vol.*  
              18.
- 1978        *The Ancient Maya in Light of their Ethnographic Present.*  
              In D. L. Browman, ed., *Cultural Continuity in Mesoamerica.*  
              The Hague: Mouton Publishers. Pp. 205-227.
- Girard, R.  
 1949        *Los Chortis ante el Problema Maya: Historia de las*  
              *Culturas Indígenas de América, Desde su Origen hasta Hoy.*  
              Mexico, D.F.: La Editorial Cultura, T. G., S. A.
- Glass, John B.  
 1966        *Archaeological Survey of Western Honduras.* In G. F. Ekholm  
              and G. R. Willey, eds., *Archaeological Frontiers and*  
              *External Connections.* Handbook of Middle American Indians  
              Vol. 4 (R. Wauchope, gen. ed.). Austin: University of  
              Texas Press. Pp. 157-179.
- Gordon, George B.  
 1896        *Prehistoric Ruins of Copan, Honduras: a Preliminary Report*  
              *of the Explorations by the Museum 1891-1896.* Memoirs,  
              Peabody Museum of Archaeology and Ethnology Vol. 1 No. 1.
- 1898a        *Caverns of Copan, Honduras.* Memoirs, Peabody Museum of  
              Archaeology and Ethnology Vol. 1 No. 5.
- 1898b        *Researches in the Uloa Valley, Honduras.* Memoirs, Peabody  
              Museum of Archaeology and Ethnology Vol. 1 No. 4.
- 1902        *The Hieroglyphic Stairway, Ruins of Copan.* Memoirs,  
              Peabody Museum of Archaeology and Ethnology Vol. 1 No. 6.
- Graham, Ian, and Eric von Euw  
 1977        *Corpus of Maya Hieroglyphic Inscriptions Volume 3 Part 1.*  
              Cambridge, Mass.: Peabody Museum of Archaeology and  
              Ethnology.
- Haberland, Wolfgang  
 1960        *Additional Notes on Jointed Figurines from El Salvador,*  
              C.A. *Ethnos* 25:73-83.

Hall, Grant D.

- 1986 Results of Tomb Investigations at Rio Azul, Season of 1984. In R. E. W. Adams, ed., *Rio Azul Reports Number 2, the 1984 Season*. San Antonio: Center for Archaeological Research. Pp. 69-110.

Hally, David J.

- 1986 The Identification of Vessel Function: a Case Study from Northwest Georgia. *American Antiquity* 51:267-295.

Hammond, Norman

- 1975 Maya Settlement Hierarchy in Northern Belize. *Contributions of the University of California Archaeological Research Facility No. 27*. Pp. 40-55.
- 1981 Obsidian Trade Routes in the Mayan Area. In J. A. Graham, ed., *Ancient Mesoamerica: Selected Readings*. Palo Alto: Peek Publications. Pp. 193-196.
- 1982 *Ancient Maya Civilization*. New Brunswick: Rutgers University Press.
- 1983 Lords of the Jungle: a Prosopography of Maya Archaeology. In R. M. Leventhal and A. L. Kolata, eds., *Civilization in the Ancient Americas: Essays in Honor of Gordon R. Willey*. Cambridge: University of New Mexico Press and the Peabody Museum, Harvard University. Pp. 3-32.

Harman, Harry H.

- 1976 *Modern Factor Analysis*. 3rd rev. ed. Chicago: The University of Chicago Press.

Harris, Richard J.

- 1975 *A Primer of Multivariate Analysis*. New York: Academic Press.

Harrison, Peter D.

- 1968 Form and Function of a Maya "Palace" Group. *Proceedings of the 38th International Congress of Americanists, Stuttgart-München 1968, Vol. 1*. Pp. 165-172.
- 1970 *The Central Acropolis, Tikal, Guatemala: a Preliminary Study of the Functions of its Structural Components during the Late Classic Period*. Ann Arbor: University Microfilms International.

Hasemann, George

- 1985 Desarrollo de los Asentamientos Clásicos Tardíos a lo largo del Río Sulaco. *Yaxkin* 8:25-46.

Haviland, William A.

- 1963        *Excavation of Small Structures in the Northeast Quadrant of Tikal, Guatemala*. Ann Arbor: University Microfilms International.
- 1968        Ancient Lowland Maya Social Organization. *Middle American Research Institute Publ.* 26. New Orleans: Tulane University. Pp. 93-117.
- 1981        Dower Houses and Minor Centers at Tikal, Guatemala: an Investigation into the Identification of Valid Units of Settlement Hierarchies. In W. Ashmore, ed., *Lowland Maya Settlement Archaeology*. Albuquerque: University of New Mexico Press. Pp. 89-117.
- 1982        Where the Rich Folks Lived: Deranging Factors in the Statistical Analysis of Tikal Settlement. *American Antiquity* 47:427-429.
- 1985        *Excavations in Small Residential Groups of Tikal: Groups 4F-1 and 4F-2*. In W. R. Coe and W. A. Haviland, series eds., Tikal Report No. 19. University Museum Monograph 58. Philadelphia: The University Museum.

Hayden, Brian, and Aubrey Cannon

- 1984        *The Structure of Material Systems: Ethnoarchaeology in the Maya Highlands*. SAA Papers No. 3. Washington, D.C.: Society for American Archaeology.

Healan, Dan M.

- 1984        Errors in Vierra and Carlson's Presentation of Bartlett's Test of Significance. *American Antiquity* 49:626-627.

Healy, Paul F.

- 1984        The Archaeology of Honduras. In F. W. Lange and D. Z. Stone, eds., *The Archaeology of Lower Central America*. Albuquerque: University of New Mexico Press. Pp. 113-161.

Henderson, John S.

- 1977        The Valley [sic] de Naco: Ethnohistory and Archaeology in Northwestern Honduras. *Ethnohistory* 24:363-377.
- 1978        El Noroeste de Honduras y la Frontera Oriental Maya. *Yaxkin* 2:241-254.

Henderson, John S., Ilene Sterns, Anthony Wonderly, and Patricia A. Urban

- 1979        Archaeological Investigations in the Valle de Naco, Northwestern Honduras: a Preliminary Report. *Journal of Field Archaeology* 6:169-192.



Hendon, Julia A.

- 1985a *The Use of Space and the Functional Interpretation of Structures*. Paper presented at the 50th annual meeting, Society for American Archaeology, Denver 1985.
- 1985b *Arquitectura Residencial en las Sepulturas, Copan*. Yaxkin 8:1-2:89-98.
- 1987 *Una Discusión Preliminar del Estudio de Actividades Antiguas en Las Sepulturas, Copán: Forma, Función y Distribución de las Vasijas de Barro*. Paper presented at the 4th Conference on Honduran Archaeology, La Ceiba, Honduras 1987.
- n.d. Analysis of Op 13 and Op 16 features. Unpublished notes in possession of author.

Hendon, Julia A., William L. Fash, Jr., and Eloísa Aguilar P.

- n.d.a *Excavaciones en el Conjunto 9N-8, Patio B (Operación XVI)*. In W. T. Sanders, ed., *Proyecto Arqueológico Copán Segunda Fase: Excavaciones en el Area Urbana de Copán Tomo II*. [In press.]

Hendon, Julia A., Ricardo Agurcia F., William L. Fash, Jr., and Eloísa Aguilar P.

- n.d.b *Excavaciones en el Conjunto de 9N-8, Patio C (Operación XIII)*. In W. T. Sanders, ed., *Proyecto Arqueológico Copán Segunda Fase: Excavaciones en el Area Urbana de Copán Tomo II*. [In press.]

Henkel, Ramon E.

- 1976 *Tests of Significance*. Quantitative Applications in the Social Sciences series no. 07-004. Beverly Hills: Sage Publications.

Henrickson, Elizabeth F., and Mary M. A. McDonald

- 1983 *Ceramic Form and Function: an Ethnographic Search and an Archeological Application*. *American Anthropologist* 85:630-643.

Hewett, Edgar L.

- 1912 *The Excavation of Quirigua in 1912*. *Bulletin of the Archaeological Institute of America* 3:163-171.

Hill, James N.

- 1968 *Broken K Pueblo: Patterns of Form and Function*. In S. R. Binford and L. Binford, eds., *New Perspectives in Archaeology*. Chicago: Aldine. Pp. 103-142.

Hohmann, Hasso, and Annegrete Vogrin

- 1982 *Die Architektur von Copan (Honduras)*. Graz, Austria: Akademische Druck und Verlagsanstalt.

- Houston, Stephen D., and Peter Mathews  
 1985 *The Dynastic Sequence of Dos Pilas, Guatemala*. San Francisco: Pre-Columbian Art Research Institute Monograph 1.
- Jardine, Nicholas, and Robin Sibson  
 1971 *Mathematical Taxonomy*. London: John Wiley and Sons Ltd.
- Johnson, Frederick  
 1977 The Linguistic Map of Mexico and Central America. In C. L. Hay, R. L. Linton, et al., eds., *The Maya and their Neighbors: Essays on Middle American Anthropology and Archaeology*. New York: Dover Publications, Inc. Pp. 88-114.
- Jones, Christopher  
 1977 Inauguration Dates of Three Late Classic Rulers of Tikal, Guatemala. *American Antiquity* 42:28-60.
- Jones, Christopher, and Robert J. Sharer  
 1986 Archaeological Investigations in the Site Core of Quirigua, Guatemala. In P. A. Urban and E. M. Schortman, eds., *The Southeast Maya Periphery*. Austin: University of Texas Press. Pp. 27-34.
- Jones, Morris R.  
 1952 Map of the Ruins of Mayapan, Yucatan, Mexico. In H. E. D. Pollock, ed., *Current Reports Vol. I No. 1*. Cambridge: Carnegie Institution of Washington Department of Archaeology.
- Joyce, Rosemary A.  
 1985 *Cerro Palenque, Valle del Ulua, Honduras: Terminal Classic Interaction on the Southern Mesoamerican Periphery*. Ann Arbor: University Microfilms International.
- 1986 Terminal Classic Interaction on the Southeastern Maya Periphery. *American Antiquity* 51:313-329.
- Kelley, David H.  
 1962a Glyphic Evidence for a Dynastic Sequence at Quirigua, Guatemala. *American Antiquity* 27:323-335
- 1962b A History of the Decipherment of Maya Script. *Anthropological Linguistics* 4:8:1-48.
- 1976 *Deciphering the Maya Script*. Austin: University of Texas Press.
- Kendall, Maurice G.  
 1970 *Rank Correlation Methods*. 4th ed. New York: Hafner Press.

- 1980      *Multivariate Analysis*. 2nd ed. New York: Macmillan Publishing Co., Inc.
- Kent, S.  
1984      *Analyzing Activity Areas: an Ethnoarchaeological Study of the Use of Space*. Albuquerque: University of New Mexico Press.
- Kidder, Alfred V.  
1939      Copan. *Annual Report of the Division of Historical Research — Section of Aboriginal American History*. Carnegie Institution of Washington Yearbook No. 38. Pp. 241-242.
- 1947      *Artifacts of Uaxactun*. Carnegie Institution of Washington Publ. 576.
- Kidder, Alfred V., Jesse D. Jennings, and Edwin M. Shook  
1946      *Excavations at Kaminaljuyu, Guatemala*. Carnegie Institution of Washington Publ. 561.
- Kim, Jae-On  
1975      Factor Analysis. In N. H. Nie et al., *SPSS, Statistical Package for the Social Sciences*. 2nd ed. New York: McGraw-Hill Book Co. Pp. 468-514.
- Kim, Jae-On, and Charles W. Mueller  
1978a      *Introduction to Factor Analysis: What it is and How to do it*. Quantitative Applications in the Social Sciences, series no. 07-013. Beverly Hills: Sage Publications.
- 1978b      *Factor Analysis: Statistical Methods and Practical Issues*. Quantitative Applications in the Social Sciences, series no. 07-014. Beverly Hills: Sage Publications.
- Kurjack, Edward B.  
1974      *Prehistoric Lowland Maya Community and Social Organization: a Case Study at Dzibilchaltun, Yucatan, Mexico*. Middle American Research Institute Publication 38. New Orleans: Tulane University.
- Lara Pinto, Gloria, and Russell Sheptak  
1985      Excavaciones en el Sitio de Intendecia, Río Humuya: Primeros Resultados. *Yaxkin* 8:13-24.
- Leventhal, Richard M.  
1979      *Settlement Patterns at Copan, Honduras*. Unpublished Ph.D. dissertation, Department of Anthropology, Harvard University.
- 1981      Settlement Patterns in the Southeast Maya Area. In W. Ashmore, ed., *Lowland Maya Settlement Patterns*. Albuquerque: University of New Mexico Press. Pp. 187-209.

- 1983 Household Groups and Classic Maya Religion. In E. Z. Vogt and R. M. Leventhal, eds., *Prehistoric Settlement Patterns: Essays in Honor of Gordon R. Willey*. Cambridge: University of New Mexico Press and the Peabody Museum, Harvard University. Pp. 55-76.
- Leventhal, Richard M., Arthur Demarest, and Gordon R. Willey  
1982 *The Cultural and Social Components of Copan*. Paper presented at the 52nd International Congress of Americanists, Manchester, England.
- Lischka, Joseph J.  
1978 A Functional Analysis of Middle Classic Ceramics at Kaminaljuyu. In R. K. Wetherington, ed., *The Ceramics of Kaminaljuyu, Guatemala*. Monograph Series on Kaminaljuyu (J. W. Michels and W. T. Sanders, series eds.). University Park: Pennsylvania State University Press. Pp. 223-278.
- Longyear, John M., III  
1942 A Southern Maya — Peten Pottery Correlation. *American Antiquity* 7:389-396.
- 1947 *Cultures and Peoples of the Southeastern Maya Frontier*. Division of Historical Research, Theoretical Approaches to Problems No. 3. Cambridge: Carnegie Institution of Washington.
- 1952 *Copan Ceramics: a Study of Southeastern Maya Pottery*. Carnegie Institution of Washington Publ. 597.
- 1957 Further Notes on Copan Incense Burners. *American Antiquity* 22:287-288.
- Lounsbury, Floyd G.  
1974 The Inscription of the Sarcophagus Lid at Palenque. In M. G. Robertson, ed., *The Art, Iconography and Dynastic History of Palenque, Part I*. Pebble Beach: Robert Louis Stevenson School, Pre-Columbian Art Research. Pp. 5-19.
- Mahler, Joy  
1965 Garments and Textiles of the Maya Lowlands. In G. R. Willey, ed., *Archaeology of Southern Mesoamerica Part Two*. Handbook of Middle American Indians Vol. 3 (R. Wauchope, gen. ed.). Austin: University of Texas Press. Pp. 581-593.
- Mallory, John K., III  
1981 Especialización económica en el valle de Copán: excavaciones en "El Duende". *Yaxkin* 4:2:171-178.

- 1984      *Late Classic Maya Economic Specialization: Evidence from the Copan Obsidian Assemblage*. Ann Arbor: University Microfilms International.
- n.d.      Excavaciones en el Conjunto 9M-22 Patio B (Operación IX). In W. T. Sanders, ed., *Proyecto Arqueológico Copán Segunda Fase: Excavaciones en el Area Urbana de Copán Tomo VI*. [In preparation.]
- Marascuilo, Leonard A., and Maryellen McSweeney  
1977      *Nonparametric and Distribution-free Methods for the Social Sciences*. Monterey: Brooks/Cole Publishing Co.
- Marcus, Joyce  
1983      Lowland Maya Archaeology at the Crossroads. *American Antiquity* 48:454-488.
- Martinez Girón, Eric J.  
1980      El Valle de Copán en la Epoca Colonial. *Yaxkin* 3:215-236.
- Mathews, Peter  
1980      Notes on the Dynastic Sequence of Bonampak, Part I. In M. G. Robertson, ed., *Third Palenque Round Table 1978, Part 2 (Volume V)*. Austin: University of Texas Press.
- Maudslay, Alfred P.  
1889-1902 *Biologia Centrali Americana — Archaeology*. London: R. H. Porter and Dulan and Co.
- Merwin, Raymond, and George Vaillant  
1932      *The Ruins of Holmul, Guatemala*. Memoirs, Peabody Museum of Archaeology and Ethnology Vol. 3 No. 2.
- Merritt, F. S.  
1962      *Mathematics Manual: Methods and Principles of the Various Branches of Mathematics for Reference, Problem Solving, and Review*. New York: McGraw-Hill Book Co.
- Morley, Sylvanus G.  
1920      *The Inscriptions at Copan*. Carnegie Institution of Washington Publ. 219.
- Morley, Sylvanus G., George W. Brainerd, and Robert J. Sharer  
1983      *The Ancient Maya*. Stanford: Stanford University Press.
- Morrison, Donald F.  
1967      *Multivariate Statistical Methods*. New York: McGraw-Hill Book Co.
- Mosteller, Frederick, and John W. Tukey  
1977      *Data Analysis and Regression: a Second Course in Statistics*. Reading: Addison-Wesley Publishing Co.

Murillo, Saúl

- n.d. Excavaciones en el Conjunto 9M24 (Operación XVIII). In W. T. Sanders, ed., *Proyecto Arqueológico Copán Segunda Fase: Excavaciones en el Area Urbana de Copán Tomo V*. [In preparation.]

Netting, Robert McC.

- 1977 Maya Subsistence: Mythologies, Analogies, Possibilities. In R. E. W. Adams, ed., *The Origins of Maya Civilization*. Albuquerque: University of New Mexico Press. Pp. 299-333.
- 1982 Some Home Truths on Household Size and Wealth. In R. R. Wilk and W. L. Rathje, eds., *Archaeology of the Household: Building a Prehistory of Domestic Life*. *American Behavioral Scientist* 25:641-662.

O'Neale, Lila M.

- 1945 *Textiles of Highland Guatemala*. Carnegie Institution of Washington Publ. 567.

Orrego Corzo, Miguel, and Rudy Larios Villalta

- 1983 *Reporte de las Investigaciones Arqueológicas en el Grupo 5E-11, Tikal, Petén*. Guatemala: Instituto de Antropología e Historia de Guatemala Parque Nacional Tikal.

Orton, Clive

- 1980 *Mathematics in Archaeology*. London: Collins.
- 1982 Computer Simulation Experiments to assess the Performance of Measures of Quantity of Pottery. *World Archaeology* 14:1-20.

Osborne, Lilly de Jongh

- 1975 *Indian Crafts of Guatemala and El Salvador*. Norman: University of Oklahoma Press.

Pahl, Gary W.

- 1977 The Inscriptions of Rio Amarillo and Los Higos: Secondary Centers of the Southeastern Maya Frontier. *Journal of Latin American Lore* 3:133-154.

Pollock, H. E. D.

- 1954 Annual Report of the Director of the Department of Archaeology. Cambridge: *Carnegie Institution of Washington Year Book No. 53*. Pp. 263-300.
- 1962 Introduction. In H. E. D. Pollock, R. L. Roys, A. L. Smith, and T. Proskouriakoff, *Mayapan, Yucatan, Mexico*. Carnegie Institution of Washington Publ. 619. Pp. 1-22.

- 1965        Architecture of the Maya Lowlands. In G. R. Willey, ed., *Archaeology of Southern Mesoamerica Part One*. Handbook of Middle American Indians Vol. 2 (R. Wauchope, gen. ed.). Austin: University of Texas Press. Pp. 378-440.
- Pollock, H. E. D., ed.  
 1952-1954 *Current Reports Vol. I Nos. 1-14*. Cambridge: Carnegie Institution of Washington Department of Archaeology.
- 1954-1957 *Current Reports Vol. II Nos. 15-41*. Cambridge: Carnegie Institution of Washington Department of Archaeology.
- Press, S. James  
 1972        Applied Multivariate Analysis. New York: Holt, Rinehart and Winston, Inc.
- Proskouriakoff, Tatiana  
 1960        Historical Implications of a Pattern of Dates at Piedras Negras, Guatemala. *American Antiquity* 25:454-475.
- 1962a       The Artifacts of Mayapan. In H. E. D. Pollock, R. L. Roys, A. L. Smith, and T. Proskouriakoff, *Mayapan, Yucatan, Mexico*. Carnegie Institution of Washington Publ. 619. Pp. 321-442.
- 1962b       Civic and Religious Structures of Mayapan. In H. E. D. Pollock, R. L. Roys, A. L. Smith, and T. Proskouriakoff, *Mayapan, Yucatan, Mexico*. Carnegie Institution of Washington Publ. 619. Pp. 87-140.
- 1963        Historical Data in the Inscriptions of Yaxchilan Part I. *Estudios de Cultura Maya* 3:149-167.
- 1964        Historical Data in the Inscriptions of Yaxchilan Part II. *Estudios de Cultura Maya* 4:177-201.
- Proskouriakoff, Tatiana, and Charles R. Temple  
 1955        A Residential Quadrangle — Structures R-85 to R-90. In H. E. D. Pollock, ed., *Current Reports Vol. II No. 29*. Cambridge: Carnegie Institution of Washington Department of Archaeology.
- Puleston, Dennis E.  
 1978        Terracing, Raised Fields, and Tree Cropping in the Maya Lowlands: a New Perspective on the Geography of Power. In P. D. Harrison and B. L. Turner, II, eds., *Pre-Hispanic Maya Agriculture*. Albuquerque: University of New Mexico Press. Pp. 225-245.

- Rands, Robert L. and Robert E. Smith  
 1965 Pottery of the Guatemalan Highlands. In G. R. Willey, ed., *Archaeology of Southern Mesoamerica Part One*. Handbook of Middle American Indians Vol. 2 (R. Wauchope, gen. ed.). Austin: University of Texas Press. Pp. 95-145.
- Rathje, William L.  
 1977 The Tikal Connection. In R. E. W. Adams, ed., *The Origins of Maya Civilization*. Albuquerque: University of New Mexico Press. Pp. 373-382.
- Reina, Ruben E.  
 1969 Eastern Guatemalan Highlands: The Pokomames and Chorti. In E. Z. Vogt, ed., *Ethnology Part One*. Handbook of Middle American Indians Vol. 7 (R. Wauchope, gen. ed.). Austin: University of Texas Press. Pp. 101-132.
- Reina, Ruben E., and Robert M. Hill II  
 1978 *The Traditional Pottery of Guatemala*. Austin: University of Texas Press.
- Reynolds, Henry T.  
 1977 *The Analysis of Cross-Classifications*. New York: The Free Press.
- Ricketson O. G., and Edith B. Ricketson  
 1937 *Uaxactun, Guatemala, Group E 1926-1931*. Carnegie Institution of Washington Publ. 477.
- Riese, Berthold  
 1986 Late Classic Relationship between Copan and Quirigua: some Epigraphic Evidence. In P. A. Urban and E. M. Schortman, eds., *The Southeast Maya Periphery*. Austin: University of Texas Press. Pp. 94-101.
- Robertson, Robin A.  
 1983 Functional Analysis and Social Process in Ceramics: the Pottery from Cerros, Belize. In R. M. Leventhal and A. L. Kolata, eds., *Civilization in the Ancient Americas: Essays in Honor of Gordon R. Willey*. Cambridge: University of New Mexico Press and the Peabody Museum, Harvard University. Pp. 105-142.
- Robertson-Freidel, Robin A.  
 1980 *The Ceramics from Cerros: a Late Preclassic Site in Northern Belize*. Unpublished Ph.D. dissertation, Department of Anthropology, Harvard University.
- Robinson, Eugenia J.  
 1985 Los Pueblos del Clásico Tardío del Valle de Sula. *Yaxkin* 8:161-174.



- 1986      A Typological Study of Prehistoric Settlement of the Eastern Alluvial Fans, Sula Valley, Honduras: Comparison to Maya Settlement Forms In P. A. Urban and E. M. Schortman, eds., *The Southeast Maya Periphery*. Austin: University of Texas Press. Pp. 239-261.
- Robinson, Kenneth W., Scott H. O'Mack, and William M. Loker  
1985      Investigaciones en la Plaza Principal del Conjunto Residencial Oeste de Salitrón Viejo (PC1). *Yaxkin* 8:47-58.
- Rosen, Steve J.  
1986      A Note on Frequencies, Proportions and Diversity: a Response to Cannon. *American Antiquity* 51:409-411.
- Rouse, Irving  
1960      The Classification of Artifacts in Archaeology. *American Antiquity* 25:313-323.
- Roys, Ralph L.  
1943      *The Indian Background of Colonial Yucatan*. Carnegie Institution of Washington Publ. 548.
- Ruppert, Karl, and A. Ledyard Smith  
1951      Mayapan, Yucatan. *Annual Report of the Director of the Department of Archaeology*. Cambridge: Carnegie Institution of Washington Year Book No. 50. Pp. 230-232.
- Ruppert, Karl, J. Eric S. Thompson, and Tatiana Proskouriakoff  
1955      *Bonampak, Chiapas, Mexico*. Carnegie Institution of Washington Publ. 602.
- Sabloff, Jeremy A.  
1975      Ceramics. In G. R. Willey, ed., *Excavations at Seibal, Department of Peten, Guatemala*. Memoirs, Peabody Museum of Archaeology and Ethnology Vol. 13 No. 2.
- 1985      Ancient Maya Civilization. In C. Gallenkamp and R. E. Johnson, eds., *Maya Treasures of an Ancient Civilization*. New York: Harry N. Abrams, Inc. Pp. 34-46.
- Sabloff, Jeremy A., Ronald L. Bishop, Garman Harbottle, Robert L. Rands, and Edward V. Sayre  
1982      Analyses of Fine Paste Ceramics. In G. R. Willey, ed., *Excavations at Seibal, Department of Peten, Guatemala*. Memoirs, Peabody Museum of Archaeology and Ethnology Vol. 15 No. 2.
- Sanders, William T.  
1973      The Cultural Ecology of the Lowland Maya: a Reevaluation. In T. P. Culbert, ed., *The Classic Maya Collapse*. Albuquerque: University of New Mexico Press. Pp. 325-365.

- 1977        Environmental Heterogeneity and the Evolution of Lowland Maya Civilization. In R. E. W. Adams, ed., *The Origins of Maya Civilization*. Albuquerque: University of New Mexico Press. Pp. 287-297.
- 1981a       Classic Maya Settlement Patterns and Ethnographic Analogy. In W. Ashmore, ed., *Lowland Maya Settlement Archaeology*. Albuquerque: University of New Mexico Press. Pp. 351-369.
- 1981b       Proyecto Copán: Segunda Fase. *Yaxkin* 4:79-84.
- 1986        Introducción. In W. T. Sanders, ed., *Proyecto Arqueológico Copán Segunda Fase: Excavaciones en el Area Urbana de Copán Tomo I*. Tegucigalpa, Honduras: SECTUR. Pp. 11-25.
- Satterthwaite, Linton, Jr.  
1937        Identification of Maya Temple Buildings at Piedras Negras. In D. S. Davidson, ed., *Twenty-fifth Anniversary Studies: Philadelphia Anthropological Society*. Philadelphia: University of Pennsylvania Press. Pp. 161-177.
- Schele, Linda, and Mary E. Miller  
1986        *The Blood of Kings: Dynasty and Ritual in Maya Art*. Ft. Worth: Kimball Art Museum.
- Scheps, Sheldon  
1982        Statistical Blight. *American Antiquity* 47:836-851.
- Schiffer, Michael B.  
1976        *Behavioral Archaeology*. New York: Academic Press.
- 1985        Is There a "Pompeii Premise" in Archaeology? *Journal of Anthropological Research* 41:18-41.
- Schortman, Edward M.  
1986        Interaction between the Maya and Non-Maya along the Late Classic Southeast Maya Periphery: the View from the Lower Motagua Valley, Guatemala. In P. A. Urban and E. M. Schortman, eds., *The Southeast Maya Periphery*. Austin: University of Texas Press. Pp. 114-137.
- Schortman, Edward, Patricia Urban, Wendy Ashmore, and Julie Benyo  
1986        Interregional Interaction in the Southeast Maya Periphery: the Santa Barbara Archaeological Project 1983-1984. *Journal of Field Archaeology* 13:259-272.
- Schumann de Baudez, Isabelle  
1983        Agricultura y Agricultores en la Region de Copán. In C. F. Baudez, ed., *Introducción a la Arqueología de Copán, Honduras Tomo 1*. Tegucigalpa, Honduras: SECTUR. Pp. 195-228.

- Shafer, Harry J., and Thomas R. Hester  
 1983 Ancient Maya Chert Workshops in Northern Belize, Central America. *American Antiquity* 48:519-543.
- Sharer, Robert J.  
 1978a Archaeology and History at Quirigua, Guatemala. *Journal of Field Archaeology* 5:51-70.  
 1978b Pottery and Conclusions. In R. J. Sharer, gen. ed., *The Prehistory of Chalchuapa, El Salvador Vol. 3*. Philadelphia: University of Pennsylvania Press.
- Sheehy, James J.  
 n.d. Excavaciones en el Conjunto 9M22 Patio A (Operación X). In W. T. Sanders, ed., *Proyecto Arqueológico Copán Segunda Fase: Excavaciones en el Area Urbana de Copán Tomo VI*. [In preparation.]
- Sheets, Payson D.  
 1978 Part One: Artifacts. In R. J. Sharer, ed., *The Prehistory of Chalchuapa, El Salvador Vol. 2*. Philadelphia: University of Pennsylvania Press. Pp. 1-131.
- Shepard, Anna O.  
 1956 *Ceramics for the Archaeologist*. Carnegie Institution of Washington Publ. 609.
- Siegel, Sidney  
 1956 *Nonparametric Statistics for the Behavioral Sciences*. New York: McGraw-Hill Book Co.
- Sload, Rebecca S.  
 1982 *A Study of Status and Function in the Xolalpan-Metepec Community in Teotihuacan, Mexico*. Ann Arbor: University Microfilms International.
- Smith, A. Ledyard  
 1937 *Structure A-XVIII, Uaxactun*. Contributions to American Archaeology Vol. 4 No. 20. Carnegie Institution of Washington Publ. 483.  
 1950 *Uaxactun, Guatemala: Excavations of 1931-1937*. Carnegie Institution of Washington Publ. 588.  
 1962 Residential and Associated Structures at Mayapan. In H. E. D. Pollock, R. L. Roys, A. L. Smith, and T. Proskouriakoff, *Mayapan, Yucatan, Mexico*. Carnegie Institution of Washington Publ. 619. Pp. 165-277.  
 1982 Major Architecture and Caches. In G. R. Willey, ed., *Excavations at Seibal, Department of Peten, Guatemala*. Memoirs, Peabody Museum of Archaeology and Ethnology Vol. 15 No. 1.

Smith, Robert E.

1955 *Ceramic Sequence at Uaxactun, Guatemala*. Middle American Research Institute Publ. 20. New Orleans: Tulane University.

1971 *The Pottery of Mayapan, including Studies of Ceramic Material from Uxmal, Kabah, and Chichen Itza*. Papers, Peabody Museum of Archaeology and Ethnology Vol. 66.

Snarskis, Michael J.

1981 *The Archaeology of Costa Rica*. In *Between Continents/Between Seas: Precolumbian Art of Costa Rica*. New York: Harry N. Abrams, Inc. Pp. 15-84.

Sneath, Peter H. A., and Robert R. Sokal

1973 *Numerical Taxonomy: the Principles and Practice of Numerical Classification*. San Francisco: W. H. Freeman and Co.

Spaulding, Albert C.

1953 *Statistical Techniques for the Discovery of Artifact Types*. *American Antiquity* 18:305-313.

Sperlich, Norbert, and Elizabeth K. Sperlich

1980 *Guatemalan Backstrap Weaving*. Norman: University of Oklahoma Press.

Spinden, Herbert J.

1913 *A Study of Maya Art*. *Memoirs, Peabody Museum of Archaeology and Ethnology* Vol. 6.

Spink, Mary L.

1983 *Metates as Socioeconomic Indicators during the Classic Period at Copan, Honduras*. Ann Arbor: University Microfilms International.

Stephens, John L.

1969 *Incidents of Travel in Central America, Chiapas and Yucatan*. New York: Dover Publications, Inc.

Steward, Julian H.

1954 *On the Concept of Types: Types of Types*. *American Anthropologist* 56:54-57.

Strömsvik, Gustav

1931 *Notes on the Metates of Chichen Itzá, Yucatan*. *Contributions to American Archaeology* Vol. 1 No. 4. Carnegie Institution of Washington Publ. 403.

1934 *Copan*. In A. V. Kidder, ed., *Annual Report of the Division of Historical Research — Section of Aboriginal American History*. Carnegie Institution of Washington Yearbook No. 34. Pp. 118-120.

- 1936 Copan. In A. V. Kidder, ed., *Annual Report of the Division of Historical Research — Section of Aboriginal American History*. Carnegie Institution of Washington Yearbook No. 35. Pp. 117-120.
- 1937a Copan. In A. V. Kidder, ed., *Annual Report of the Division of Historical Research — Section of Aboriginal American History*. Carnegie Institution of Washington Yearbook No. 36. Pp. 3-5.
- 1937b *Notes on the Metates of Calakmul, Campeche, and from the Mercado, Chichen Itza, Yucatan*. Contributions to American Archaeology Vol. 3 No. 16. Carnegie Institution of Washington Publ. 456.
- 1938 Copan. In A. V. Kidder, ed., *Annual Report of the Division of Historical Research — Section of Aboriginal American History*. Carnegie Institution of Washington Yearbook No. 37. Pp. 11-17.
- 1940 Copan. In A. V. Kidder, ed., *Annual Report of the Division of Historical Research — Section of Aboriginal American History*. Carnegie Institution of Washington Yearbook No. 39. Pp. 264-265.
- 1941a *Substela Caches and Stela Foundations at Copan and Quirigua*. Contributions to American Anthropology and History Vol. 7 No. 37. Carnegie Institution of Washington Publ. 528.
- 1941b Honduras. In A. V. Kidder, ed., *Annual Report of the Division of Historical Research — Section of Aboriginal American History*. Carnegie Institution of Washington Yearbook No. 40. Pp. 292-295.
- 1942 Honduras. In A. V. Kidder, ed., *Annual Report of the Division of Historical Research — Section of Aboriginal American History*. Carnegie Institution of Washington Yearbook No. 41. Pp. 249-250.
- 1952 The Ball Courts at Copan, with Notes on Courts at La Union, Quirigua, San Pedro Pinula and Asuncion Mita. *Contributions to American Anthropology and History* Vol. 11 No. 55. Carnegie Institution of Washington Publ. 596. Pp. 185-214.
- Strong, William D.  
1963 The Archeology of Honduras. In J. H. Steward, ed., *The Circum-Caribbean Tribes*. Handbook of South American Indians Vol. 4. New York: Cooper Square Publishers, Inc. Pp. 71-120.

Thomas, David H.

- 1976 *Figuring Anthropology: First Principles of Probability and Statistics*. New York: Holt, Rinehart and Winston.
- 1978 The Awful Truth about Statistics in Archaeology. *American Antiquity* 43:231-244.

Thompson, Edward H.

- 1892 The Ancient Structures of Yucatan not Communal Dwellings. *Proceedings of the American Antiquarian Society* n.s. 8:262-269.

Thompson, J. Eric S.

- 1939 *Excavations at San Jose, British Honduras*. Carnegie Institution of Washington Publ. 506.
- 1940 Late Ceramic Horizons at Benque Viejo, British Honduras. *Contributions to American Anthropology and History* Vol. 7 No. 36. Carnegie Institution of Washington Publ. 528. Pp. 1-35.
- 1954a *Maya History and Religion*. Norman: University of Oklahoma Press.
- 1954b A Presumed Residence of the Nobility at Mayapan. In H. E. D. Pollock, ed., *Current Reports Vol. II No. 19*. Cambridge: Carnegie Institution of Washington Department of Archaeology.
- 1971 *Maya Hieroglyphic Writing, an Introduction*. Norman: University of Oklahoma Press.

Thompson, Donald E., and J. Eric S. Thompson

- 1955 A Noble's Residence and its Dependencies at Mayapan. In H. E. D. Pollock, ed., *Current Reports Vol. II No. 25*. Cambridge: Carnegie Institution of Washington Department of Archaeology.

Thompson, Raymond H.

- 1958 *Modern Yucatecan Maya Pottery Making*. *American Antiquity* 23:4:2. *Memoirs of the Society for American Archaeology* No. 15.

Tourtellot, Gair, III

- 1983a *Ancient Maya Settlements at Seibal, Peten, Guatemala: Peripheral Survey and Excavation*. Ann Arbor: University Microfilms International.
- 1983b An Assessment of Classic Maya Household Composition. In E. Z. Vogt and R. M. Leventhal, eds., *Prehistoric Settlement Patterns: Essays in Honor of Gordon R. Willey*. Cambridge: University of New Mexico Press and the Peabody Museum, Harvard University. Pp. 35-54.

- Tourtellot, Gair, III, and Jeremy A. Sabloff  
 1972        *Exchange Systems among the Ancient Maya. American Antiquity* 37:126-135.
- Tozzer, Alfred M.  
 1911        *A Preliminary Study of the Prehistoric Ruins of Tikal, Guatemala. Memoirs, Peabody Museum of Archaeology and Ethnology* Vol. 5 No. 2.
- 1913        *A Preliminary Study of the Prehistoric Ruins of Nakum, Guatemala, a Report of the Peabody Museum Expedition 1909-1910. Memoirs, Peabody Museum of Archaeology and Ethnology* Vol. 5 No. 3.
- 1941        *Landa's Relación de las Cosas de Yucatan: a Translation. Papers, Peabody Museum of Archaeology and Ethnology* Vol. 18.
- Trik, Aubrey S.  
 1939        *Temple XXII at Copan. Contributions to American Anthropology and History* Vol. 5 No. 27. Carnegie Institution of Washington Publ. 509.
- Tryon, Robert C., and Daniel E. Bailey  
 1970        *Cluster Analysis. New York: McGraw-Hill.*
- Turner, B. L., II  
 1978        *The Development and Demise of the Swidden Thesis of Maya Agriculture. In P. D. Harrison and B. L. Turner II, eds., Pre-Hispanic Maya Agriculture. Albuquerque: University of New Mexico Press. Pp. 13-22.*
- Turner, B. L., II, William Johnson, Gail Mahood, Frederick M. Wiseman, B. L. Turner, and Jackie Poole  
 1983        *Habitat y Agricultura en la Region de Copán. In C. F. Baudez, ed., Introducción a la Arqueología de Copán, Honduras Tomo 1. Tegucigalpa, Honduras: SECTUR. Pp. 35-142.*
- Urban, Patricia A.  
 1986        *Precolonian Settlement in the Naco Valley, Northwestern Honduras. In P. A. Urban and E. M. Schortman, eds., The Southeast Maya Periphery. Austin: University of Texas Press. Pp. 275-295.*
- Valdez, Fred, Jr.  
 1981        *An Analysis of Obsidian from the Copan Valley Project, 1975-1977: a Preliminary Statement. Paper presented at Simposio, La Obsidiana en Mesoamerica, Pachuca City, Mexico.*
- Viel, René  
 1981        *Cronología Cerámica de Copán. Yaxkin* 4:2:103-105

- 1983      Evolución de la Cerámica en Copán: Resultados Preliminares. In C. F. Baudez, ed., *Introducción a la Arqueología de Copán, Honduras Tomo I*. Tegucigalpa, Honduras: SECTUR. Pp. 473-549.
- Viel, René, and Charles D. Cheek  
 1983      Sepulturas. In C. F. Baudez, ed., *Introducción a la Arqueología de Copán, Honduras Tomo I*. Tegucigalpa, Honduras: SECTUR. Pp. 551-609.
- Vierra, Robert K., and David L. Carlson  
 1981      Factor Analysis, Random Data, and Patterned Results. *American Antiquity* 46:272-283.
- 1985      Reply to "Errors in Vierra and Carlson's Presentation of Bartlett's Test of Significance". *American Antiquity* 50:169-170.
- Vlcek, David T., and William L. Fash, Jr.  
 1986      Survey in the Outlying Areas of the Copan Region, and the Copan-Quirigua "Connection". In P. A. Urban and E. M. Schortman, eds., *The Southeast Maya Periphery*. Austin: University of Texas Press. Pp. 102-113.
- Vogt, Evon Z.  
 1961      Some Aspects of Zinacantan Settlement Patterns and Ceremonial Organization. *Estudios de Cultura Maya* 1:131-146.
- 1964      Some Implications of Zinacantan Social Structure for the Study of the Ancient Maya. *Proceedings of the 35th International Congress of Americanists, Mexico, 1964, Vol. 1*. Pp. 307-319.
- 1976      *Tortillas for the Gods: a Symbolic Analysis of Zinacanteco Rituals*. Cambridge, Mass.: Harvard University Press.
- 1983      Ancient and Contemporary Maya Settlement Patterns: a New Look from the Chiapas Highlands. In E. Z. Vogt and R. M. Leventhal, eds., *Prehistoric Settlement Patterns: Essays in Honor of Gordon R. Willey*. Cambridge: University of New Mexico Press and the Peabody Museum, Harvard University. Pp. 89-114.
- Wauchope, Robert  
 1934      House Mounds of Uaxactun, Guatemala. *Contributions to American Archaeology Vol. 2 No. 7*. Carnegie Institution of Washington Publ. 436. Pp. 107-171.
- 1938      *Modern Maya Houses: a Study of their Archaeological Significance*. Carnegie Institution of Washington Publ. 502.



- 1977 Domestic Architecture of the Maya. In C. L. Hay, R. L. Linton et al., eds., *The Maya and their Neighbors: Essays on Middle American Anthropology and Archaeology*. New York: Dover Publications, Inc. Pp. 232-241.
- Webb, Malcolm C.  
 1973 The Peten Maya Decline Viewed in the Perspective of State Formation. In T. P. Culbert, ed., *The Classic Maya Collapse*. Albuquerque: University of New Mexico Press. Pp. 367-404.
- Webster, David L.  
 1977 Warfare and the Evolution of Maya Civilization. In R. E. W. Adams, ed., *The Origins of Maya Civilization*. Albuquerque: University of New Mexico Press. Pp. 335-371.  
 1985 Surplus, Labor and Stress in Late Classic Maya Society. *Journal of Anthropological Research* 41:375-399.  
 1986 *The Copan Valley Rural Sites Project, the 1985-1986 Field Seasons*. Preliminary Report to the National Science Foundation.
- Webster, David L., William L. Fash, Jr., and Elliot M. Abrams  
 1986 Excavaciones en el Conjunto 9N-8, Patio A (Operación VIII). In W. T. Sanders, ed., *Proyecto Arqueológico Copán Segunda Fase: Excavaciones en el Area Urbana de Copán Tomo I*. Tegucigalpa, Honduras: SECTUR. Pp. 157-235.
- Widmer, Randolph  
 n.d. Excavaciones en el Conjunto 9N8, Patio H (Operación XXII). In W. T. Sanders, ed., *Proyecto Arqueológico Copán Segunda Fase: Excavaciones en el Area Urbana de Copán Tomo V*. [In preparation.]
- Wilk, Richard R., and William L. Rathje  
 1982 Household Archaeology. In R. R. Wilk and W. L. Rathje, eds., *Archaeology of the Household: Building a Prehistory of Domestic Life*. *American Behavioral Scientist* 25:617-639.
- Wilkinson, Leland  
 1986 *SYSTAT: the System for Statistics*. Evanston, Ill: SYSTAT, Inc.
- Wiley, Gordon R.  
 1956a The Structure of Ancient Maya Society: Evidence from the Southern Lowlands. *American Anthropologist* 58:777-782.

- 1956b Problems Concerning Prehistoric Settlement Patterns in the Maya Lowlands. In G. R. Willey, ed., *Prehistoric Settlement Patterns in the New World*. Viking Fund Publications in Anthropology No. 23. New York: Wenner-Gren Foundation for Anthropological Research. Pp. 107-114.
- 1972 *The Artifacts of Altar de Sacrificios*. Papers, Peabody Museum of Archaeology and Ethnology Vol. 64 No. 1.
- 1978 Artifacts. In G. R. Willey, ed., *Excavations at Seibal, Department of Peten, Guatemala*. Memoirs, Peabody Museum of Archaeology and Ethnology Vol. 14 No. 1.
- 1981 Recent Researches and Perspectives in Mesoamerican Archaeology: an Introductory Commentary. In J. A. Sabloff, ed., *Archaeology*. Supplement to the Handbook of Middle American Indians Vol. 1 (V. R. Bricker, gen. ed.). Austin: University of Texas Press. Pp. 3-27.
- 1982 Maya Archeology. *Science* 215:260-267.
- 1984 Changing Conceptions of Lowland Maya Culture History. *Journal of Anthropological Research* 40:41-59.
- 1986a The Classic Maya Sociopolitical Order: a Study in Coherence and Instability. In E. W. Andrews V, ed., *Research and Reflections in Archaeology and History, Essays in Honor of Doris Stone*. Middle American Research Institute Publ. 57. New Orleans: Tulane University. Pp. 189-198.
- 1986b Copan, Quirigua, and the Southeast Maya Zone: a Summary View. In P. A. Urban and E. M. Schortman, eds., *The Southeast Maya Periphery*. Austin: University of Texas Press. Pp. 168-175.
- Willey, Gordon R., and William R. Bullard, Jr.  
1965 Prehistoric Settlement Patterns in the Maya Lowlands. In G. R. Willey, ed., *Archaeology of Southern Mesoamerica Part One*. Handbook of Middle American Indians Vol. 2 (R. Wauchope, gen. ed.). Austin: University of Texas Press. Pp. 360-377.
- Willey, Gordon R., William R. Bullard, Jr., John R. Glass, and James C. Gifford  
1965 *Prehistoric Maya Settlements in the Belize Valley*. Papers, Peabody Museum of Archaeology and Ethnology Vol. 54.
- Willey, Gordon R., William R. Coe, and Robert J. Sharer.  
1976 Un Proyecto para el Desarrollo de Investigación y Preservación Arqueológico en Copán (Honduras) y Vecinidad. *Yaxkin* 1:2:10-30.

- Willey, Gordon R., T. Patrick Culbert, and Richard E. W. Adams (eds.)  
 1967        Maya Lowland Ceramics: a Report from the 1965 Guatemala  
                  City Conference. *American Antiquity* 32:289-315.
- Willey, Gordon R., and Richard M. Leventhal  
 1979        Settlement at Copan. In N. Hammond and G. R. Willey, eds.,  
                  *Maya Archaeology and Ethnohistory*. Austin: University of  
                  Texas Press. Pp. 75-102.
- Willey, Gordon R., Richard M. Leventhal, and William L. Fash, Jr.  
 1978        Maya Settlement in the Copan Valley. *Archaeology* 31:4:32-  
                  43.
- Willey, Gordon R., and Demitri B. Shimkin  
 1973        The Maya Collapse: a Summary View. In T. P. Culbert, ed.,  
                  *The Classic Maya Collapse*. Albuquerque: University of New  
                  Mexico Press. Pp. 457-501.
- Wisdom, Charles  
 1940        *The Chorti Indians of Guatemala*. Chicago: University of  
                  Chicago Press.
- Wonderly, Anthony W.  
 1984        The Land of Ulua at Conquest. In J. S. Henderson, ed.,  
                  *Archaeology in Northwestern Honduras: Interim Reports of  
                  the Proyecto Arqueológico Sula Vol. 1*. Archaeology  
                  Program, Latin American Studies Program, Cornell  
                  University. Pp. 4-25.
- 1986        Material Symbolics in Pre-Columbian Households: the  
                  Painted Pottery of Naco, Honduras. *Journal of  
                  Anthropological Research* 42:4:497-534.