

CARNEGIE INSTITUTION OF WASHINGTON

PUBLICATION No. 406



PRESS OF  
W. F. ROBERTS COMPANY, WASHINGTON, D. C.  
LITH. A. HOEN & CO., INC.  
KIRBY LITHO. CO.  
JOYCE ENGRAVING CO.

# THE TEMPLE OF THE WARRIORS

AT

CHICHEN ITZÁ, YUCATAN

BY

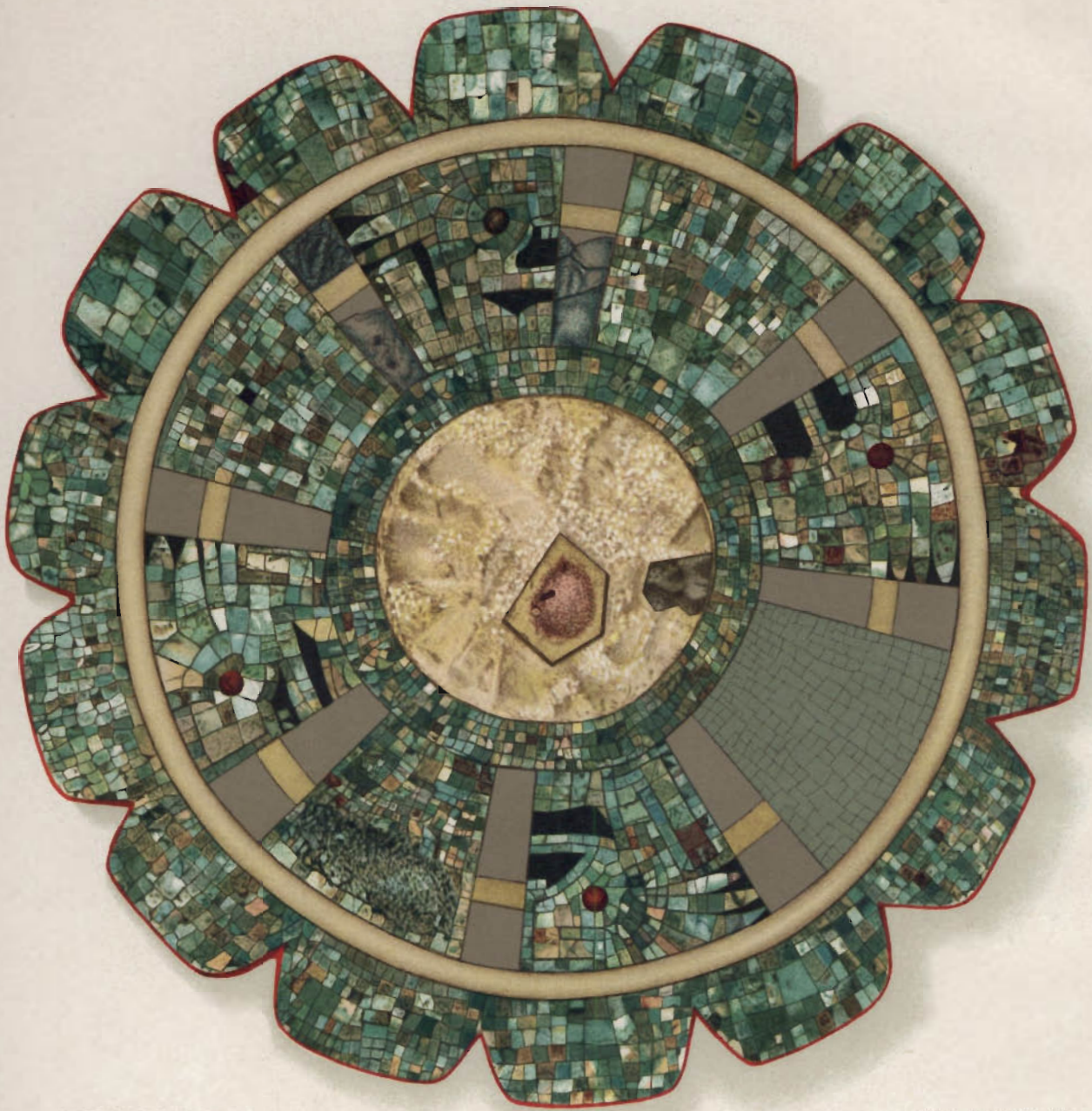
EARL H. MORRIS  
JEAN CHARLOT  
ANN AXTELL MORRIS

---

VOLUME I

PUBLISHED BY  
CARNEGIE INSTITUTION OF WASHINGTON

May 21, 1931



WATER COLOR BY S. ICHIKAWA

LITH. A. HOEN & CO., INC.

TURQUOISE MOSAIC PLAQUE FROM ALTAR CACHE, TEMPLE OF THE CHAC MOOL

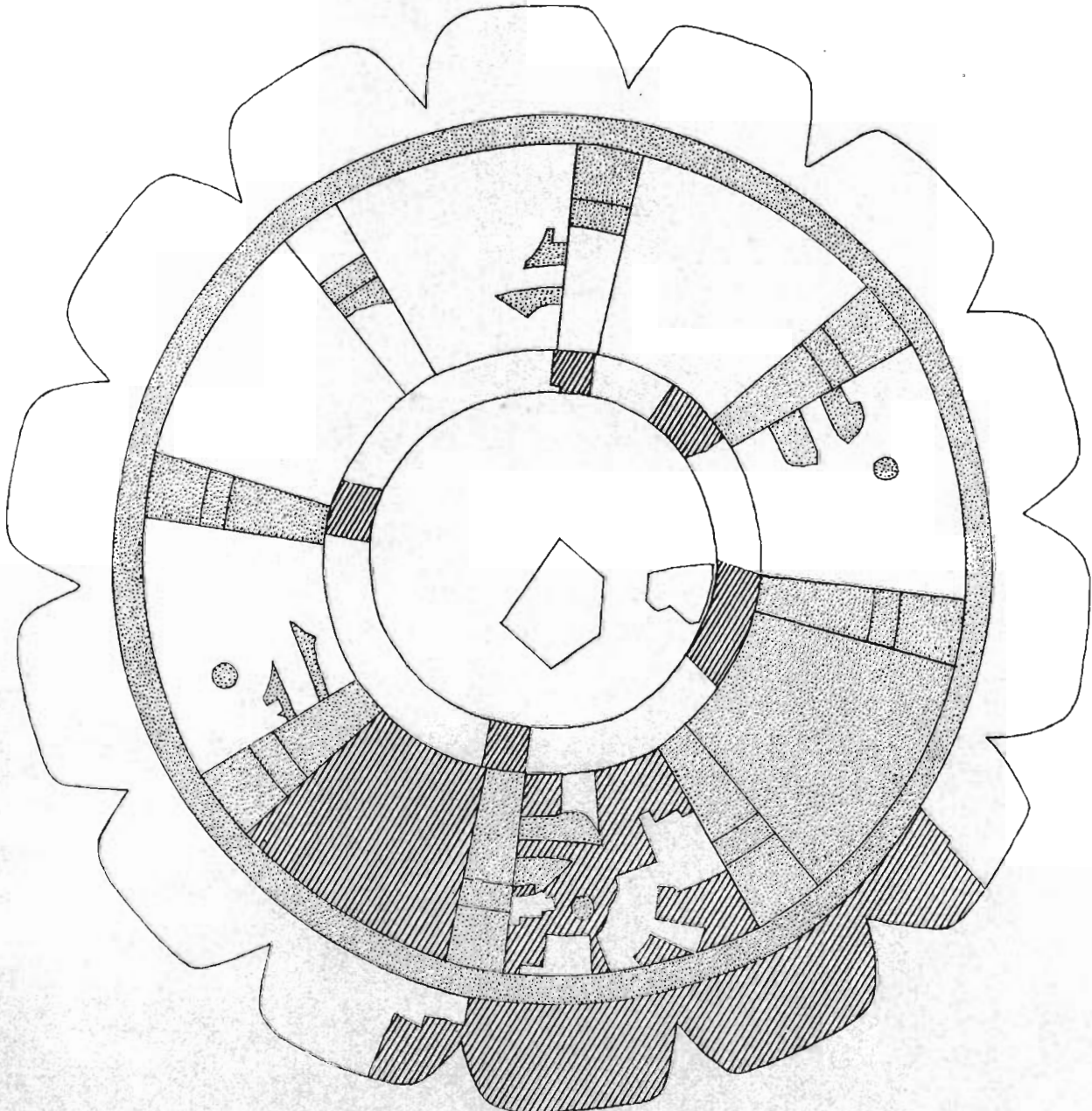



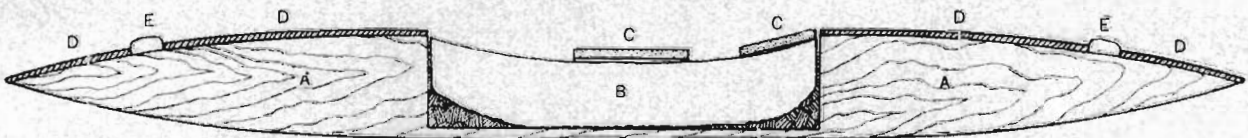


DIAGRAM OF PLAQUE

- |   |   |   |  |   |   |
|---|---|---|--|---|---|
|  | Areas found crumpled, but straightened to original level. |  | Areas built out of original pieces, found loose. |  | Areas in which new material was substituted during restoration. |
|---|---|---|--|---|---|



CROSS SECTION OF PLAQUE

- |  |   |
|--|---|
| <p>A. Wooden backing (Replaced during restoration).</p> <p>B. Sandstone at center (As it is now).</p> <p>D. Layer of encrusted turquoise (As it was originally).</p> | <p>C. Remaining elements of mosaic that originally covered the sandstone.</p> <p>E. Ring of plastic substances (Replaced during restoration).</p> |
|--|---|

Reproduction approximately three-fourths scale of original.

## CONTENTS

	PAGE
INTRODUCTION .....	1
DESCRIPTION OF THE TEMPLE OF THE WARRIORS AND EDIFICES RELATED THERETO, BY EARL H. MORRIS	11
Temple of the Warriors .....	11
The Portal and Outer Chamber.....	11
The Inner Doorway and the Sanctuary.....	15
The Altar .....	16
Finish of the Temple Interior.....	20
The Chac Mool.....	21
The Serpent Columns.....	23
The Western Façade.....	25
The Other Façades.....	28
Finish of Temple Exterior.....	35
The Pyramidal Substructure.....	37
The Compound Zones.....	37
The Sculptured Friezes .....	39
The Stairway .....	43
The Stair Well.....	46
The Ramps .....	48
Banner Supports .....	48
The Northwest Colonnade .....	52
Interior Features .....	54
Sculptured Dais .....	55
Secondary Dais .....	57
The Vaults .....	57
Color Treatment of Interior.....	59
Height of the Building.....	61
Exterior Sculpture .....	62
Junction with West Colonnade.....	64
Roof Ornamentation .....	66
The West Colonnade.....	67
The North Colonnade.....	68
Temple of the Chac Mool.....	70
Existing Portions .....	70
Original Form and Dimensions.....	71
The Altar .....	74
Interior Decoration: Sculptured and Painted.....	75
The Chac Mool Figure.....	78
The Substructure: North, East and South Exposures.....	79
Colonnade that Flanked Western Exposure.....	82
Juncture of Rear Wall of West Colonnade with Substructure of Temple of the Chac Mool.....	86
Arrangement of Colonnade Interior.....	87
Excavation .....	91
The Western Terrace; Point of Beginning.....	94
Serpent Columns and their Reerection.....	95
North and South Terraces.....	99
Clearing the Temple Interior.....	99
Condition of the Altar.....	103
Frescos are Found.....	104
Clearing North Side of Pyramid.....	106
Clearing South Side of Pyramid.....	108
Older Façade Buried in Southwest Corner of Pyramid.....	110
Transection of Northwest Colonnade to Foot of Warriors Stairway.....	111
Statuette Standard Bearers.....	114
Emptying South Half, Northwest Colonnade.....	115
Dais and Sacrificial Stone.....	117

Excavation—Continued	PAGE
North Half, Northwest Colonnade.....	118
First Traces of the Buried Temple.....	120
Dismantled Sculpture Built into Rubble.....	123
Type of the Buried Temple and its Substructure Revealed.....	126
Resumption of Excavation in 1927.....	128
Raising North and West Pyramid Shells to Enclose Outer Chamber.....	129
Column Blocks among the Rubble.....	131
The Buried Chac Mool.....	133
Excavating the Inner Chamber.....	133
Concrete Foundation for Temple of the Warriors.....	134
Support for the Concrete Foundation.....	137
Roof of Concrete for Temple of the Chac Mool.....	138
Pillars Placed beneath Warriors Foundation.....	139
Emptying the Inner Chamber.....	142
Replacing Razed Portions of the Columns.....	143
Analysis of the Rubble Fill.....	146
Procedure in Construction.....	147
Sculptured Panels with Flower and Insect Patterns.....	149
Stair Shaft to Temple of the Chac Mool.....	151
Rubble Cut Through by the Shaft.....	156
Painted Stones in Ancient Masonry.....	156
Tunneling in Search of Painted Stones.....	158
Tunnel following Chac Mool Substructure.....	159
Shaft beneath Warriors Stairway.....	161
Exploratory Tunnels.....	164
Chronological Sequence.....	165
Recapitulation of Constructional Sequence.....	172
Dearth of Minor Specimens.....	177
Pipe or Incense Burner.....	177
Ceramic Types.....	179
Temple Offerings.....	181
Northeast Corner, Temple of the Warriors.....	181
Northwest Corner, Temple of the Warriors.....	182
Dais, North Colonnade.....	183
Dais, Northeast Colonnade.....	185
Altar, Temple of the Chac Mool.....	186
Objects of Jadeite and Shell.....	187
Vestiges of Textile.....	188
Birds as Part of Offering.....	189
The Turquoise Mosaic; Preliminary Treatment.....	189
Repair of the Mosaic.....	191
Repaired Mosaic Described.....	193
Source of Turquoise.....	195
Analysis of Materials.....	196
Repair.....	198
Materials and Methods of Construction.....	204
Preparing the Site.....	204
The Substructure.....	205
The Faced Veneer.....	205
Lack of Foundations.....	206
The Vaults.....	207
Roof Materials.....	209
Lack of Leveling Instruments.....	209
Tools of the Stone Cutters.....	211
Sources of Building Stone.....	215
Standardized Form of Structural Units.....	215
Large Stones Seldom Used.....	216
Classes of Sculpture Carved <i>In Situ</i> .....	218
Mosaic Sculpture Cut before Placement in Walls.....	219
Quantity of Wood used by Chichen Builders.....	219
Lime Burning.....	220
Sand Substitute.....	223
Mortar Proportions.....	223
Volume of Materials.....	224

CONTENTS

vii

	PAGE
BAS-RELIEFS FROM TEMPLE OF THE WARRIORS CLUSTER, BY JEAN CHARLOT.....	229
Introduction .....	231
Technique .....	233
Temple of the Chac Mool .....	236
Decorative Panels .....	237
Masks .....	237
Atlantean Figures .....	238
Human Representations .....	241
Body-color, Tattooing and Mutilation .....	243
Garments, Body Ornaments and Accessories .....	244
Head-dresses .....	244
Wigs .....	246
Ear and Nose Ornaments .....	246
Masks .....	247
Necklace, Shoulder-cape and Breast Ornaments .....	248
Body Covering .....	248
Sleeve and Wrist Ornaments .....	250
Belts, Leg and Foot Gear .....	250
Cloaks .....	251
Weapons and Accessories .....	251
Human Types .....	253
Warrior .....	253
Priest .....	254
God Impersonator .....	255
Miscellaneous Personages .....	255
Art Considerations .....	256
Atlantean Sketch .....	256
Carving and Painting .....	260
Style .....	263
Temple of the Warriors .....	265
Northwest Colonnade .....	267
Decorative Panels .....	270
Atlantean Figures .....	270
Quetzalcoatl Motif .....	272
Sun God .....	273
Human Representations .....	274
Skin-Color, Body-Paint and Tattooing .....	274
Mutilation .....	275
Garments, Body Ornaments and Accessories .....	276
Head-dress—Diadem or Crown .....	276
Cylindrical Cap, Hat and Turban .....	277
Animal Head-dress .....	279
Skull-caps, Hair-dressing, Head-dress Ornaments and Wigs .....	280
Ear, Cheek and Nose Ornaments .....	283
Masks .....	285
Necklace, Shoulder Ornament and Breast-plaque .....	287
Tunic and Loin-Cloth .....	289
Skirt, Trouser and Sleeve .....	291
Arm, Wrist Ornaments and Belt .....	292
Knee and Ankle Ornaments .....	294
Legging .....	294
Cloak .....	295
Sandal .....	295
Weapons and Accessories .....	297
Comparative Study of Subject-Matter of Chac Mool Temple and of the Temple of the Warriors .....	300
Human Types .....	304
Warrior .....	305
Priest and God Impersonator .....	307
Sorcerer .....	307
Dignitary .....	308
Prisoners .....	310
Name Glyphs .....	311
Temple of the Warriors .....	311
Northwest Colonnade .....	311



	PAGE
Temple of the Warriors— <i>Continued</i>	
Art Considerations .....	313
Preliminary Sketches .....	313
Perspective and Substitution .....	316
Relation between Carved and Painted Versions .....	316
Art Style .....	319
Temple of the Warriors .....	319
Northwest Colonnade .....	321
Dais of the Northwest Colonnade .....	326
West Side .....	329
North Side .....	333
South Side .....	334
Comparison with Dais of North Colonnade .....	335
Art of the Warriors Cluster Compared with That of Other Periods of Maya Art .....	340
Appendix .....	344
 MURALS FROM THE TEMPLE OF THE WARRIORS AND ADJACENT STRUCTURES, BY ANN AXTELL MORRIS	 347
Introduction .....	349
Technical Considerations .....	351
Preparation of Wall Surface .....	351
Technique not True Fresco .....	352
Medium .....	352
Pigments .....	353
Sources of Pigments .....	355
Chemical Analysis of Pigments .....	355
Brushes .....	356
Scheme of Decoration .....	356
Preliminary Outlining .....	358
Application of Local Tones .....	359
Color Symbolism .....	359
Subject-Matter and Composition .....	360
Temple of the Chac Mool .....	363
Wall Painting .....	363
Bench Painting .....	367
Proof of Original Location .....	367
South Bench .....	374
North Bench .....	377
Temple of the Warriors .....	382
Area Analysis .....	382
Front Chamber .....	384
Area 1 .....	384
Areas 2 to 9 .....	384
Area 10 .....	385
Area 13 .....	386
Area 14 .....	386
Areas 15 and 16 .....	386
Area 17 .....	395
Area 18 .....	398
Areas 19, 20, 21 .....	398
Inner Sanctuary .....	405
Areas 22 and 25 .....	405
West Wall .....	405
North Wall .....	407
Triangular Arch Ends .....	407
Area 23 .....	410
Area 24 .....	411
Area 27 .....	412
Area 28 .....	413
Area 29 .....	414
Area 30 .....	414
Area 31 .....	418
Area 32 .....	427
Area 33 .....	427
Area 34 .....	429
Area 35 .....	430
Area 36 .....	430

ILLUSTRATIONS

ix

	PAGE
Temple of the Warriors— <i>Continued</i>	
Capstone .....	431
Exterior Frescos .....	433
North Zone .....	433
South Zone .....	436
Northwest Colonnade .....	437
Altar Panel .....	439
Classification and Analysis of Human Types and Costume .....	443
Physical Characteristics .....	443
Costume .....	447
Priest .....	447
Sorcerer .....	449
Old Man with a Bone .....	451
God Impersonator .....	453
Maniken Scepter .....	455
Warrior .....	456
Star-Symbol Warrior Variant .....	460
Animal Variants of Warrior .....	460
God-Warrior Variant .....	462
Warrior in Combat .....	463
Laborers .....	465
Table of Constant Costume Features .....	466
Classification of Miscellaneous Subject-Matter .....	467
Landscape and Vegetation .....	467
Water Scenes .....	468
Water Plant .....	469
Marine Life .....	469
Birds .....	472
Serpents .....	472
Temple Architecture .....	474
Domestic Architecture .....	478
Pottery .....	478
Way-signs .....	480
Conclusion .....	481
Bibliography .....	485

ILLUSTRATIONS

Frontispiece, Turquoise Mosaic Plaque from Altar Cache and Diagram	
FIG. 1. Typical Maya Vault, Temple of the Phalli, Old Chichen .....	14
2. Uncovering the Atlantean Altar .....	17
3. The Atlantean Altar before Repair .....	17
4. The Atlantean Altar during Repair .....	18
5. North End of the Atlantean Altar .....	18
6. Atlantean Altar After Repair .....	19
7. Chac Mool, Temple of the Warriors .....	21
8. Head of the North Serpent Column .....	22
9. Plumed Serpent Shield and South Panel of Mask, North Anta, Temple of the Warriors .....	25
10. Mask Panel, Northwest Corner, Temple of the Warriors .....	26
11. North Wall, Temple of Warriors, Showing Sculpture .....	28
12. West Plumed Serpent Shield, North Wall, Temple of the Warriors .....	29
13. Central Mask Panel, North Wall, Temple of the Warriors .....	29
14. East Plumed Serpent Shield, North Wall, Temple of the Warriors .....	29
15. Mask Panel, Northeast Corner, Temple of the Warriors .....	30
16. Mask Panel, Southwest Corner, Temple of the Warriors .....	30
17. North Panel of Masks and Plumed Serpent Shield, South Anta, Temple of the Warriors .....	31
18. West Plumed Serpent Shield, South Wall, Temple of the Warriors .....	32
19. Central Mask Panel, South Wall, Temple of the Warriors .....	32
20. East Plumed Serpent Shield, South Wall, Temple of the Warriors .....	32
21. Mask Panel, Southeast Corner, Temple of the Warriors .....	32
22. Roof Fret, Temple of the Warriors .....	33
23. Elements from Serpent Cornice, Temple of the Warriors .....	34

	PAGE
FIG. 24. Intact Portion Under Stairway of South Half of Third Sculptured Band.....	39
25. Portion of First Sculptured Band, South Side of Pyramid, Showing Block Pattern.....	40
26. Portion of Second Sculptured Band, South Side of Pyramid, Showing Block Pattern.....	40
27. Portion of Third Sculptured Band, West Side of Pyramid, Showing Block Pattern.....	41
28. Portion of Second Sculptured Band, South Side of Pyramid.....	41
29. First Stone of North Vault Corner (X) as Found on Stairway.....	44
30. Graphic Section of Roof of Stair Well, Restored.....	45
31. North Side of Stairway, Showing Serpent Pattern on Base of Stair Ramp.....	46
32. Serpent Motif, on Bases of Stair Ramps.....	47
33. Serpent Head at Top of North Ramp of Warriors Stairway.....	49
34. Standard Bearers on Front Terrace, Temple of the Warriors.....	50
35. Staff Sockets, Front of Northwest Colonnade.....	50
36. North Standard Bearer, Temple of the Warriors, Front and Profile.....	50
37. South Standard Bearer, Temple of the Warriors.....	51
38. Looking North between Second and Third File of Columns, Northwest Colonnade.....	52
39. Secondary Stairway in Front of Sculptured Dais, Northwest Colonnade, Partially Removed, Showing Remains of Earlier Stairway.....	56
40. South Face of Stair Ramp Showing Original Facing.....	58
41. Plan of Northwest Colonnade Showing Column Numbers and Distribution of Exterior Sculpture.....	60
42. Serpent Head with Human Head in Jaws from Mask Panel, Northwest Colonnade.....	62
43. Smaller Human Statuette from Façade, North Half of Northwest Colonnade.....	62
44. Bird Mask Head from Northwest Corner of Northwest Colonnade.....	63
45. Doorway from North to Northwest Colonnade, Castillo in Background.....	63
46. Roof Frets from Northwest Colonnade.....	66
47. Profile of Back Wall of West Colonnade.....	67
48. Chac Mool Figure as Found in Outer Chamber, Temple of the Chac Mool.....	77
49. Graphic Section, South Side of Stair Shaft to Temple of the Chac Mool.....	80
50. Northwest Corner of Castillo as Repaired by Mexican Government.....	81
51. Looking South along Front of Northwest Colonnade.....	83
52. Imprints of Column Bases in Demolished Colonnade.....	84
53. Juncture of Back Wall of West Colonnade with Substructure, Temple of the Chac Mool.....	86
54. Restored Cross-section through Demolished Colonnade and Stairway of Temple of the Chac Mool.....	89
55. Temple of the Warriors after Clearing.....	92
56. Front Terrace, Temple of the Warriors, Showing Chac Mool and Serpent Tails.....	92
57. Front Terrace, Temple of the Warriors, as Photographed by Maudslay in 1888.....	93
58. Line of Beveled Stones from Nether Course of Medial Cornice as Found, Extending Northwestward from South Jamb of Portal.....	96
59. North Serpent Column, Showing Position in Which It Fell.....	97
60. Tail Piece of North Serpent Column Ready to Swing into Position.....	98
61. North Serpent Column being Drilled to Receive Anchor Bolt.....	98
62. Excavating Top Level, Temple of the Warriors.....	100
63. Plan of Temple of the Warriors Showing Column and Area Numbers.....	101
64. Straightening Column 20.....	102
65. Fallen Vault Courses in Relative Position.....	102
66. Cache of Cylindrical Jars beside Column 7, Temple of the Warriors.....	103
67. Column 13, Showing Direction of Vault Failure.....	105
68. North Side of Pyramid after Excavation Showing, <i>In Situ</i> , Portions of Facing toward the West End.....	107
69. East End of North Side of Pyramid Showing, <i>In Situ</i> , Portion of First Sloping Element.....	107
70. Portion <i>In Situ</i> , Second Sculptured Band, South Side of Pyramid.....	109
71. Blocks of Second Sculptured Band of Pyramid, Found in Relative Position, and Set Back in Place.....	109
72. Excavating toward Foot of Warriors Stairway.....	112
73. First Level of Excavation in Front of Warriors Stairway.....	113
74. South Standard Bearer as Found between Columns 29 and 33, Northwest Colonnade, Looking East.....	113
75. North Standard Bearer as found against East Face of Column 29, Northwest Colonnade.....	114
76. Loading Device for the Removal of Débris.....	116
77. Looking North along Back Wall of Northwest Colonnade During Repair.....	116
78. Serpent Head, from North Balustrade as Found back of Column 23, North Colonnade.....	118
79. Front of Northwest Colonnade Showing Columns Fallen toward the West.....	119
80. East Rib of Vault, as Found in Front of Warriors Stairway.....	119

	PAGE
FIG. 81. Northwest Corner of Warriors Pyramid Showing First-Found Column of Temple of the Chac Mool .....	121
82. Excavation of Northwest Colonnade and Temple of the Chac Mool.....	124
83. Heads and Tail of Serpent Columns and Stones from Door Jambs as Found in Fill, Outer Chamber, Temple of the Chac Mool.....	125
84. Dry Walls Built to Enclose Columns of Temple of the Chac Mool.....	125
85. View from Temple of the Tables Showing Development of Temple of the Chac Mool.....	129
86. Enclosing Temple of the Chac Mool.....	130
87. Column Blocks Reused in Fill Between Column 2 and Partition, Temple of the Chac Mool.....	132
88. Interior of Outer Chamber, Looking South.....	132
89. North Anta, I-Beams of Foundation in Place.....	135
90. North Wall, I-Beams of Foundation in Place.....	135
91. North Wall, I-Beams of Foundation in Place, Seen from Interior of Temple.....	136
92. Slot Left in North Face of Pyramid During Excavation of Temple of the Chac Mool.....	140
93. Reused Column Blocks in Fill between Column 6 and Partition, Temple of the Chac Mool.....	142
94. Sawing Slabs from Blocks of Column 5, Temple of the Chac Mool.....	145
95, 96. Details of Sculptured Panels from Fill above Temple of the Chac Mool.....	149
97. East Half of North Side of Pyramid Showing Construction Units.....	150
98. North Side, Pyramid of the Warriors, Seen from Northeast after Completion of Repair.....	152
99. Shaft Dug to Expose Portion of Substructure, Temple of the Chac Mool.....	153
100. Graphic Section of West Side of the Stair Shaft.....	155
101. Mouth of Entry in Southeast Corner of Stair Shaft.....	157
102. Wall and Ramp Extending East from Substructure, Temple of the Chac Mool.....	160
103. East-and-West Section South of Warriors Stairway.....	162
104. Chart of Areas Excavated within Warriors Pyramid.....	164
105. Pit against First Terrace at Northeast Corner of the Castillo.....	166
106. Cross-Section from Back of West Colonnade to East Face of Northeast Corner of the Castillo .....	168
107. Cross-Section, East and West, between Columns 39 and 43, Northwest Colonnade.....	169
108. Cross-Section, East and West, South of Column 50, Northwest Colonnade.....	169
109. Schematic Cross-Section East and West, between North End of Original West Colonnade and South End of Demolished Colonnade.....	170
110. Schematic Cross-Section, East and West, North of Warriors Stairway.....	170
111. Schematic Cross-Section, North and South, from Northwest Colonnade to North End of West Colonnade .....	171
112. Cremation Pit beneath Column 33, Northwest Colonnade.....	174
113. Drums from Dismantled Columns of West Colonnade beneath Floor of Northwest Colonnade .....	174
114. Cylindrical Jars Found against North Face of Column 7, Temple of the Warriors.....	178
115. Obverse of Sandstone Disk from Cache under Northeast Corner, Temple of the Warriors.....	181
116. Obverse and Reverse of Sandstone Disk from Cache under Northwest Corner, Temple of the Warriors .....	183
117. Obverse and Reverse, Sandstone Disk from Altar Cache, North Colonnade.....	184
118. Objects of Jadeite and Shell, Altar, North Colonnade.....	184
119. Limestone Jar Containing Altar Cache <i>In Situ</i> , Temple of the Chac Mool.....	184
120. Interior of Limestone Jar after Partial Cleaning, Showing some Elements of Mosaic Plaque and Objects of Shell and Jadeite which Lay on Top of It.....	187
121, 122. Objects of Jadeite from Altar Cache, Temple of the Chac Mool.....	188
123. Interior of Limestone Jar after Removal of Objects which Lay upon Mosaic Plaque and Further Cleaning of Latter.....	190
124. <i>Cul-de-Sac</i> between Pyramid of Warriors and North Colonnade seen from East.....	201
125. Corner Stones from Northwest Corner Warriors Pyramid as Found in Débris above Northwest Colonnade .....	201
126. Repairing North Side of Pyramid.....	203
127. Repairing South Side of Pyramid.....	203
128. Hand Hammers or Pecking Stones.....	212
129. Grooved Hammers .....	213
130. Stone Celts, showing Width and Thickness.....	214
131. Half-Finished Head of Serpent Column in Quarry.....	217
132. Partially Wrought Block at Quarry, Some 3 Miles East of Village of Piste .....	217
133. Cylinder of Wood for Lime Burning, Half Built.....	222

	PAGE
FIG. 134. Completed Cylinder of Wood for Lime Burning	222
135. Cylinder of Wood Surmounted by Broken Stone, Ready for Firing	222
136. Lime Heap Burning	222
137. Lime Heap after Burning	222
138. Mask Motif	238
139. God Mask from the Dresden Codex	238
140. Composite Restoration of Atlantean Head-dress	239
141. Plan Showing Distribution of Atlantean Types in Chac Mool Temple	239
142. Examples of Shells Worn by Atlantean Figures	240
143. Example of the So-Called "Spider-Web"	240
144. Turtle-Shells Worn by Atlantean Figures	241
145. Profile of Atlantean Figure from Chac Mool Temple; Profile of God B from Dresden Codex	241
146. Personage from Peresianus Codex, Showing Atlantean Affinities; Shell man from a Chama Vase	241
147. Plan of Chac Mool Temple Showing Orientation of Human Representations and Distribution of Characters	242
148. Chac Mool Types of Diadems	244
149. Chac Mool Cylindrical Cap	244
150. Chac Mool Hats	245
151. Chac Mool Turban Made of Cloth Entwined with a Snake	245
152. Chac Mool Types of Hat Ornaments	246
153. Chac Mool: Type of Wig Knotted under Chin	246
154. Chac Mool Types of Ear Ornaments	247
155. Chac Mool Nose Ornaments	247
156. Chac Mool God Masks	248
157. Breast-Plaque and Mexican Stylized Butterfly	248
158. Chac Mool Belts	250
159. Chac Mool Types of Sandals	250
160. Chac Mool Offensive Weapons	252
161. Chac Mool Defensive Weapons	252
162. Chac Mool Shields	252
163. Atlantean Figuration Sketched on Southern Wall of Altar Room, Chac Mool Temple	257
164. Detail of Atlantean Figuration Shown in Figure 163	258
165. Carved Versions	260
166. Discrepancies between Painted and Carved Line	261
167. Same as 166. From E.	262
168. Same as 167. From 6 N.	263
169. Chac Mool Human Profiles showing Portrait-Like Characteristics	264
170. Plan of Warriors Temple showing Orientation of Human Representations and Distribution of Characters	266
171. Plan of Northwest Colonnade showing Orientation of Human Representations and Distribution of Characters	268
172. Remnants of Four Panels with Atlantean Figurations, on Tail-Piece of Serpent Columns, Temple of the Warriors	271
173. Respective Positions of Atlantean Types on Serpent-Columns and Pilasters, Temple of the Warriors	271
174. Bracelets	271
175. Quetzalcoatl <i>motif</i>	272
176. Diverse Profiles of Sun-God from the Capitals	273
177. Examples of Face Painting and Tattooing	274
178. Example of Diadems	276
179. Head-Dress with Atlantean Characteristics	276
180. Caps	277
181. Caps	277
182. Hats with God-Mask	277
183. Turban with Snake and Cloth Entwined	277
184. Animal Head-Dresses	279
185. Coyote Head-Dresses of So-Called Nahua Type	279
186. Skull-cap and Hairdressing	280
187. Female Head-Dresses	280
188. Plumes Showing Artificial Elaboration	282
189. Accessory Ornaments on Hat	282
190. Artificial Blue-Birds	282
191. Pennon and Shield on Blue Cap	283

	PAGE
FIG. 192. Floral Ornaments on Head-Dresses .....	283
193. Ornaments .....	283
194. Ear Ornaments .....	284
195. Nose Ornaments .....	284
196. Death-Masks .....	285
197. Bird-Masks .....	285
198. Unidentified Animal Mask .....	285
199. God-Masks .....	286
200. Necklaces .....	288
201. Shields with Human Features .....	288
202. Breast-Plaques .....	288
203. Rectangular Breast-Plaques .....	288
204. Animal Motif on Breast-Plaques .....	288
205. Painted Pattern on Tunic Representation .....	290
206. Complex Decoration on Tunic .....	290
207. Decorated Loin-Cloths and End-Flaps .....	290
208. Skirt Made of Loose White Flaps .....	290
209. Scalloped Skirt Worn with Back-Shield .....	290
210. Feather-Cylinder and Bat-Wing .....	292
211. Wrist Ornaments .....	293
212. Simultaneous Use of Snake and Textile Belt .....	293
213. Back Shields, Normal Type .....	293
214. Knee Ornaments .....	294
215. Leggings .....	294
216. Coats .....	294
217. Sandals .....	296
218. Axes and Staff .....	296
219. Atlatl .....	298
220. Bas-Relief on Stela 5, Uaxactun, with Representation of Atlatl .....	298
221. Unusual Dart .....	298
222. Circular Shield .....	298
223. Fan, Bottle-shaped Offerings .....	299
224. Baskets, Snake held in Hand .....	299
225. Miscellaneous Objects .....	299
226. Death-Mask .....	301
227. God-Mask .....	301
228. Transition in Style and Subject-Matter from the Maya God B to the Mexican Tlaloc .....	302
229. Animal Disguises .....	303
230. Sandals .....	303
231. Name-Glyphs, Warriors .....	312
232. Name-Glyphs, Northwest Colonnade .....	312
233. Name-Glyphs, Northwest Colonnade, Objects .....	312
234. Name-Glyphs, Northwest Colonnade, Birds .....	312
235. Name-Glyphs, Northwest Colonnade .....	312
236. Name-Glyphs, Northwest Colonnade .....	312
237. Perspective and Substitution .....	315
238. Substitution .....	315
239. Example of Substitution Quirigua .....	315
240. Carved Versions, Northwest Colonnade .....	317
241. Discrepancies Between Carved and Painted Line .....	318
242. Same as 241. From c. 44 N .....	318
243. Same as 242. From c. 48 S .....	318
244. Same as 243. From c. 49 N .....	318
245. Same as 244. From c. 53 N .....	318
246. Same as 245. From c. 53 E .....	318
247. Style. Examples of Hands from Warriors Temple .....	320
248. Portraiture. Human Profiles from Warriors .....	320
249. Plan of Northwest Colonnade, Showing Grouping of Stylistic Affinities .....	322
250. Style. Hands and Feet from Middle Section of Northwest Colonnade .....	324
251. Hands from South Section of Northwest Colonnade, Showing Inequality in Size .....	325
252. Hand and Bowl of Offerings from Same, Showing Purposeful Departure from Natural Appearances .....	325
253. Detail from Same, Showing Economy of Lines .....	325
254. Plan of Dais, Showing Orientation of Subject-Matter .....	326
255. Plans Showing Respective Positions and Attributes of Warriors on Both Dais .....	330

	PAGE
FIG. 256. Moon-Signs .....	332
257. Dais from North Colonnade .....	336
258. Examples of Preliminary and Secondary Outlining of Figures .....	362
259. Restoration of Typical Serpent, Walls of Chac Mool Temple .....	363
260. Serpent, Zouche Codex .....	364
261. From Chac Mool Temple .....	366
262. Plan of Benches, Chac Mool Temple .....	368
263. Fragment of Human Figure Widened Out of Proportion in Order to Adjust to Required Space, Chac Mool Temple, South Bench .....	370
264. Example of Preliminary and Final Outlining of Figures, Chac Mool Temple, North Bench .....	371
265. Examples of Double Outline Wherein the Painting Closely Followed Original Scratching, Chac Mool Temple, North Bench .....	372
266. Warriors Seated upon Jaguar Chairs, Chac Mool Temple, North Bench, Side A .....	373
267. Seat Upholstered with Jaguar Skin .....	375
268. Human Head and Mask Head-Dress, Figure No. 1, South Bench, Chac Mool Temple .....	375
269. Name Glyphs, South Bench, Chac Mool Temple .....	376
270. Sculptured Jaguar Seats, Chichen Itzá .....	378
271. Plan of Sanctuary Illustrating Sequence of Figures Adorning the Two Benches, Chac Mool Temple .....	380
272. Plan of Warriors Temple .....	382
273. Tracings of Mural Fragments, Warriors Temple .....	385
274. Wounded Warrior Drawn Head Downward, Probably Indicating Death, Temple of the Tigers .....	393
275. Wounded Warrior, Dresden Codex .....	393
276. Mural Fragments, Area 17, Temple of Warriors .....	396
277. Murals from Roof Vault, Area 19, Temple of Warriors .....	399
278. Significant Fragments from Marine Battle, Area 21, Temple of Warriors .....	399
279. Mural Fragment of Human Figure, Temple of Warriors, Showing by Upward Swing of Head-Dress that Painter of Area 25 was Confined within a Previously Delimited Space .....	406
280. Serpent Head, Area 25, Temple of Warriors .....	406
281. Serpent Heads, Area 27, Temple of Warriors .....	413
282. Serpent Body; Portion of Tree from Roof Vault; Area 27, Temple of Warriors .....	413
283. Rush Stool, Dresden Codex .....	413
284. Body of Serpent from Altar Panel, Temple of Warriors .....	415
285. Significant Mural Fragments, Area 30, Temple of Warriors .....	416
286. Significant Mural Fragments, Area 31, Temple of the Warriors .....	419
287. Mural Fragments Illustrating Canoes and Boatmen, Area 33, Temple of Warriors .....	428
288. Frescos from Exterior Basal Zone, Warriors Temple, North Side .....	432
289. Sketch of Entire Design Recovered, Set in Relation to Wall as a Whole, Basal Zone, North Side, Warriors Temple .....	432 facing
290. Death Heads .....	434
291. Death Heads, North Basal Zone, Temple of Warriors .....	434
292. Scorpions .....	436
293. Painted Scrolls, Sloping Element of First Compound Zone, Temple of Warriors .....	436
294. Fragment of Serpent Body, Northwest Colonnade, Back Wall, North of Staircase .....	438
295. Schematic Presentation of Mural Stripes from Back Wall of Structure Preceding Northwest Colonnade .....	439
296. Feather Decoration .....	442
297. Hairdressing .....	444
298. Typical Profiles .....	444
299. Head with Negroid Characteristics, Area 34, Temple of Warriors .....	444
300. Grotesque Faces of Captives, Temple of Warriors .....	445
301. Characteristic Treatment of Old Age .....	446
302. Typical Priest, Temple of the Chac Mool .....	448
303. Typical Composite Sorcerers .....	450
304. Old Man with Bone, Temple of the Chac Mool .....	452
305. God Impersonator .....	454
306. Typical "Toltec" Warrior, Temple of Chac Mool .....	457
307. Bird-Form Necklace, Temple of Warriors .....	458
308. Quilted Defensive Sleeve, Temple of Warriors .....	458
309. Atlatls .....	459
310. Planet Symbols .....	461
311. Bird Variants of Warrior Type, Area 23, Temple of Warriors .....	462
312. God Variant of Warrior Type, Northwest Colonnade .....	463

ILLUSTRATIONS

XV

	PAGE
FIG. 313. Quilted and Embroidered Tunics, Temple of Warriors.....	464
314. Warrior—Temple of Warriors.....	464
315. Shields, Temple of Warriors.....	464
316. Trees, Temple of Warriors.....	469
317. Shells, Temple of Warriors.....	470
318. Crabs, Temple of Warriors.....	471
319. Typical Fish, Temple of Warriors.....	471
320. Serpents, Temple of Warriors.....	473
321. Temple Architecture.....	475
322. Pottery Vessels.....	477
323. Way-Signs.....	479



## PLATES IN VOLUME II

### PLATES 1-27 ILLUSTRATING

#### DESCRIPTION OF THE

#### TEMPLE OF THE WARRIORS AND EDIFICES RELATED THERETO

- PLATE 1—Map of Maya Region of Middle America  
PLATE 2—Map of Chichen Itzá  
PLATE 3—Ground-Plan of Temple of Warriors Complex and Adjacent Portions of the Group of the Thousand Columns, with Front Elevation of the Temple of the Warriors and the Northwest Colonnade  
PLATE 3A—Ground-Plan of Temple of the Chac Mool and Related Colonnade, Showing Junction of Latter with West Colonnade  
PLATE 4—Graphic East-and-West Cross-Section of the Temple of the Warriors  
PLATE 5—Graphic North-and-South Cross-Sections of the Temple of the Warriors  
PLATE 5A—Plan of Northwest Colonnade  
PLATE 6—Schematic Color Presentation of Atlantean Figures of Warriors Altar  
PLATE 7—Front of the Temple of the Warriors  
PLATE 8—South Side and South Anta, Temple of the Warriors  
PLATE 9—Sculptured Dais, Northwest Colonnade, Seen from Southwest  
PLATE 10—Sculptured Dais, Northwest Colonnade  
PLATE 11—Human Statuette from Frontal Façade of Northwest Colonnade  
PLATE 12—Reconstructed Ground-Plan of Portion of West Colonnade which once occupied site of Demolished Colonnade  
PLATE 13—Reconstructed Ground-Plan, Temple of the Chac Mool and Related Colonnade  
PLATE 14—Head and Tail of Serpent Column, Temple of the Chac Mool  
PLATE 15—Chac Mool from Temple of the Chac Mool  
PLATE 16—Concrete Column Cast of Top of Column 5, Temple of the Chac Mool  
PLATE 17—Looking South Beneath North Wall, Temple of Warriors  
PLATE 18—Southeast Corner, Temple of the Chac Mool, showing Last Increment of Original Fill  
PLATE 19—Portions of Sculptured Panels from Fill above Temple of the Chac Mool  
PLATE 20—North Side, Temple of Warriors, seen from the Temple of the Tables  
PLATE 21—Pottery Pipe or Incense Burner found on Floor 2 beneath Northwest Colonnade  
PLATE 22—Looking West along North Colonnade toward Temple of the Tigers; Temple of the Warriors seen from the Castillo near End of 1925 Field Season  
PLATE 23—Temple of the Warriors seen from the Castillo at End of 1926 Field Season  
PLATE 24—Temple of the Warriors seen from the Castillo at End of 1927 Field Season  
PLATE 25—Aeroplane Panorama of Chichen Itzá, Looking Northwest  
PLATE 26—Aeroplane Views of the Temple of the Warriors  
PLATE 27—Architectural Restoration of Temple of the Warriors and Northwest Colonnade

### PLATES 28-129 ILLUSTRATING

#### BAS-RELIEFS FROM THE TEMPLE OF THE WARRIORS CLUSTER

- PLATE 28—Temple of the Chac Mool—Serpent Columns—Development of Relief on Tail Pieces  
PLATE 29—Temple of the Chac Mool—Column 1  
PLATE 30—Temple of the Chac Mool—Column 2  
PLATE 31—Temple of the Chac Mool—Column 3  
PLATE 32—Temple of the Chac Mool—Columns 2-N, 2-E, and 3-W  
PLATE 33—Temple of the Chac Mool—Pilaster C  
PLATE 34—Temple of the Chac Mool—Pilaster D  
PLATE 35—Temple of the Chac Mool—Column 4  
PLATE 36—Temple of the Chac Mool—Column 5  
PLATE 37—Temple of the Chac Mool—Column 6  
PLATE 38—Photographs of Bas-Reliefs shown in Color on Plate 37

- PLATE 39—Temple of the Warriors—North Jamb of Entrance Door and Pilaster A  
PLATE 40—Temple of the Warriors—South Jamb of Entrance Door and Pilaster B  
PLATE 41—Temple of the Warriors—Column 1  
PLATE 42—Temple of the Warriors—Column 2  
PLATE 43—Temple of the Warriors—Column 3  
PLATE 44—Temple of the Warriors—Column 4  
PLATE 45—Temple of the Warriors—Column 5  
PLATE 46—Temple of the Warriors—Column 6  
PLATE 47—Temple of the Warriors—Column 7  
PLATE 48—Temple of the Warriors—Column 8  
PLATE 49—Temple of the Warriors—Column 9  
PLATE 50—Temple of the Warriors—Column 10  
PLATE 51—Temple of the Warriors—Column 11  
PLATE 52—Temple of the Warriors—Column 12  
PLATE 53—Temple of the Warriors—North Jamb of Partition Door and Pilaster C  
PLATE 54—Temple of the Warriors—South Jamb of Partition Door and Pilaster D  
PLATE 55—Temple of the Warriors—Column 13  
PLATE 56—Temple of the Warriors—Column 14  
PLATE 57—Temple of the Warriors—Column 15  
PLATE 58—Temple of the Warriors—Column 16  
PLATE 59—Temple of the Warriors—Column 17  
PLATE 60—Temple of the Warriors—Column 18  
PLATE 61—Temple of the Warriors—Column 19  
PLATE 62—Temple of the Warriors—Column 20  
PLATE 63—Photographs of Bas-Reliefs shown in Line-Drawings on Plates 42 and 43  
PLATE 64—Photographs of Bas-Reliefs shown in Line-Drawings on Plates 44 and 45  
PLATE 65—Photograph of Bas-Reliefs shown in Line-Drawings on Plates 45, 46 and 48  
PLATE 66—Photograph of Bas-Reliefs shown in Line-Drawings on Plates 48 and 49  
PLATE 67—Photographs of Bas-Reliefs shown in Line-Drawing on Plate 50  
PLATE 68—Northwest Colonnade—Jamb A  
PLATE 69—Northwest Colonnade—Column 1  
PLATE 70—Northwest Colonnade—Column 2  
PLATE 71—Northwest Colonnade—Column 3  
PLATE 72—Northwest Colonnade—Column 4  
PLATE 73—Northwest Colonnade—Column 5  
PLATE 74—Northwest Colonnade—Column 6  
PLATE 75—Northwest Colonnade—Column 7  
PLATE 76—Northwest Colonnade—Column 8  
PLATE 77—Northwest Colonnade—Column 9  
PLATE 78—Northwest Colonnade—Column 10  
PLATE 79—Northwest Colonnade—Column 11  
PLATE 80—Northwest Colonnade—Column 12  
PLATE 81—Northwest Colonnade—Column 13  
PLATE 82—Northwest Colonnade—Column 14  
PLATE 83—Northwest Colonnade—Column 15  
PLATE 84—Northwest Colonnade—Column 16  
PLATE 85—Northwest Colonnade—Column 17  
PLATE 86—Northwest Colonnade—Column 18  
PLATE 87—Northwest Colonnade—Column 19  
PLATE 88—Northwest Colonnade—Column 20  
PLATE 89—Northwest Colonnade—Column 21  
PLATE 90—Northwest Colonnade—Column 22  
PLATE 91—Northwest Colonnade—Column 23  
PLATE 92—Northwest Colonnade—Column 24  
PLATE 93—Northwest Colonnade—Column 25  
PLATE 94—Northwest Colonnade—Column 26  
PLATE 95—Northwest Colonnade—Column 27  
PLATE 96—Northwest Colonnade—Column 28  
PLATE 97—Northwest Colonnade—Column 29  
PLATE 98—Northwest Colonnade—Column 31  
PLATE 99—Northwest Colonnade—Column 32  
PLATE 100—Northwest Colonnade—Column 33  
PLATE 101—Northwest Colonnade—Column 35  
PLATE 102—Northwest Colonnade—Column 36

- PLATE 103—Northwest Colonnade—Column 37  
 PLATE 104—Northwest Colonnade—Column 38  
 PLATE 105—Northwest Colonnade—Column 39  
 PLATE 106—Northwest Colonnade—Column 40  
 PLATE 107—Northwest Colonnade—Column 41  
 PLATE 108—Northwest Colonnade—Column 42  
 PLATE 109—Northwest Colonnade—Column 43  
 PLATE 110—Northwest Colonnade—Column 44  
 PLATE 111—Northwest Colonnade—Column 45  
 PLATE 112—Northwest Colonnade—Column 47  
 PLATE 113—Northwest Colonnade—Column 48  
 PLATE 114—Northwest Colonnade—Column 49  
 PLATE 115—Northwest Colonnade—Column 51  
 PLATE 116—Northwest Colonnade—Column 52  
 PLATE 117—Northwest Colonnade—Column 53  
 PLATE 118—Northwest Colonnade—Column 55  
 PLATE 119—Northwest Colonnade—Column 56  
 PLATE 120—Northwest Colonnade—Column 57  
 PLATE 121—Northwest Colonnade—Column 59  
 PLATE 122—Northwest Colonnade—Column 60  
 PLATE 123—Northwest Colonnade—Column 61  
 PLATE 124—(Diagram) Dais Northwest Colonnade—West Side  
 PLATE 125—Dais Northwest Colonnade—West Side  
 PLATE 126—(Diagram) Dais Northwest Colonnade—North Side  
 PLATE 127—Dais Northwest Colonnade—North Side  
 PLATE 128—(Diagram) Dais Northwest Colonnade—South Side  
 PLATE 129—Dais Northwest Colonnade—South Side

PLATES 130-170 ILLUSTRATING  
 MURALS FROM THE TEMPLE OF THE WARRIORS AND ADJACENT STRUCTURES

- PLATE 130—Photographic Rendering of Selected Painted Stones  
 PLATE 131—Photographs Illustrating Failure of the Camera to Register Pattern and Color Values of Painted Stones Satisfactorily  
 PLATE 132—Sections of Serpent Decoration, Temple of the Chac Mool  
 PLATE 133—Portion of South Bench, Side A, Temple of Chac Mool  
 PLATE 134—Additional Portions of South Bench, Temple of Chac Mool  
 PLATE 135—Warriors Seated upon Jaguar Chairs, North Bench, Temple of the Chac Mool  
 PLATE 136—Warriors Seated upon Jaguar Chairs, North Bench, Temple of the Chac Mool  
 PLATE 137—Details from Benches, Temple of the Chac Mool  
 PLATE 138—Fresco Elements, Temple of the Chac Mool  
 PLATE 139—A Raided Village and Procession of Victors and Captives, Temple of the Warriors  
 PLATE 140—Details from Restored Scene on Plate 139, Temple of the Warriors  
 PLATE 141—Additional Details from the Raided Village and Processional Scene (Plate 139), Temple of the Warriors  
 PLATE 142—Fresco Elements, Temple of the Warriors  
 PLATE 143—Fresco Elements, Temple of the Warriors  
 PLATE 144—Portrayals of Death, Temple of the Warriors  
 PLATE 145—Human Sacrifice, Area 19, Temple of the Warriors  
 PLATE 146—Fragments of Marine Battle from Areas 20 and 21  
 PLATE 147—Additional Fragments from Areas 20 and 21, Temple of the Warriors  
 PLATE 148—Additional Elements from Areas 20 and 21, Temple of the Warriors  
 PLATE 149—Portrayal of Water Life, Temple of the Warriors  
 PLATE 150—Fresco Elements, Temple of the Warriors  
 PLATE 151—Jaguar on Masonry Pyramid, Temple of the Warriors  
 PLATE 152—Fresco Elements from Areas 22 and 25, Temple of the Warriors  
 PLATE 153—Vegetation, Temple of the Warriors  
 PLATE 154—Fresco Details, Temple of the Warriors  
 PLATE 155—Human Figures, Areas 22 and 25, Temple of the Warriors  
 PLATE 156—Human Figures, Temple of the Warriors  
 PLATE 157—Human Figures, Temple of the Warriors  
 PLATE 158—Fresco Elements, Temple of the Warriors  
 PLATE 159—Sea Coast Village

- PLATE 160—Human Figures, Temple of the Warriors  
PLATE 161—Human Figures, Temple of the Warriors  
PLATE 162—Fresco Elements from Temples of the Warriors and of the Chac Mool  
PLATE 163—Capstone, North Colonnade  
PLATE 164—Exterior Frescos, North Side, Temple of the Warriors  
PLATE 165—Animal Heads, Exterior Fresco, South Side, Temple of the Warriors  
PLATE 166—Altar Panel, Northwest Colonnade  
PLATE 167—Human Figures from Temple of the Warriors and Northwest Colonnade  
PLATE 168—Architectural Representations, Temple of the Warriors  
PLATE 169—Serpents, Temple of the Warriors  
PLATE 170—Serpents, Temple of the Warriors

# THE TEMPLE OF THE WARRIORS

## INTRODUCTION

To the Temple of the Warriors attention shall be pledged throughout the ensuing volume. But to plunge at once into detailed description would be comparable to focusing the glass upon the central stone of an intricate mosaic; a stone which, though fascinating in itself, would lose much of its significance were it not viewed in at least partial relation to its setting. Hence, a few pages will be devoted to the environment which provided the material elements from which the temple was fashioned, and to the civilization whence evolved the concept of its shaping. For the specialist, this résumé will be superfluous, but the intended purpose will have been served if it provides, for those who have not a foundation in Middle American Archæology, a thread by means of which the Temple of the Warriors may be brought even to tenuous anchorage in space and time.

In origin, the Yucatan Peninsula is a slightly elevated shelf of sea floor. The whole expanse is not unlike a warty, pockmarked flipper which the recumbent continent has thrust above the waves to catch the warmth of the tropic sun. A ridge of low hills extends southwestward from the west center of the peninsula. Except for this excrescence, the terrain is essentially a horizontal plane, but pitted, knobby and irregular. The mother rock seems to be a Pleistocene limestone which has been acted upon by percolating waters until it has the internal structure of a sponge. Crevices, fissures and caverns traverse it everywhere, with the result that after the heaviest rainfalls the water disappears like ink into a blotting pad. Therefore, there are no running streams and no surface water whatever, except in occasional *aguadas* or slimy pools situated at points where a film of impervious clay has been laid down upon the limestone. Even these pools are ephemeral, the only dependable water supply being the cenotes or natural wells. Every now and then a cavern has been enlarged by the leeching away of its walls until the weakened roof fell in; if the mass of rock which composed it was not sufficient to fill the cavern above the water table, there remained a pool at the bottom of the pit.

Yucatan lies within the zone of the arid subtropics. Of seasons it has but two, the rainy and the dry. While subject to fluctuation, the former usually lasts from June until December. There are occasional rains during the first three months of the dry season, but through the latter half of March, April and May the landscape parches beneath a relentless sun.

In its natural condition, that portion of the peninsula wherein our interest centers is clad with a monotonous forest, difficult to penetrate. The trees are

seldom large; when mature they are of an almost uniform height of from 10 to 12 meters. Nearly all are of hard woods which have no names in English; even the vines and lesser growths which intertwine between the trunks are so resistant that they remind one of tangled wires rather than of vegetable growths. It seems possible that the small size of the trees is partially due to the scantiness of the soil in which they grow. Practically any given area, if cleared of vegetation, would reveal a surface of from 60 to 75 per cent bare rock, some of it in the form of rounded shoulders of ledges and some of it in loose, broken masses. But what soil there is is black vegetable mold, extremely rich and productive.

The forest provides much wood valuable for construction, and no small amount of wild fruits and vegetable food. Also, it abounds in animal life. The large mammals are scantily represented, jaguars, pumas, peccaries and deer being the only varieties which occur. Of smaller mammals there are many, and of reptiles a considerable variety. As might be expected, insects are extremely plentiful. They are of all sorts and sizes, and certainly comprise scores of species as yet unknown to the entomologist.

Considered as a habitat for man, Yucatan perhaps exhibits more favorable than disadvantageous features. The climate, while intensely hot at times, possesses that characteristic common to arid or semiarid lands, a fair degree of coolness in the shade. Today the inhabitants are less harried by disease than those of any other portion of the American tropics. In the past, the land must have been still more salubrious because of the absence of those diseases which were unknown in the New World until their introduction from the Old.

If Yucatan today were uninhabited and were to be viewed with an eye to colonization, the difficulty attending agriculture would, in all probability, be the chief deterrent factor. Seldom is there an area as large as a city lot which could, under any circumstances, be plowed or tilled in the modern sense of these words. In August, one may come upon a clearing in the bush where the whole area is an unbroken sweep of healthy green, in which sturdy maize stalks are the dominant members of the vegetable commonwealth, with hills of beans and peppers scattered between, and squash plants, rooted in crevices, draping the ledges with their trailing vines and yellow-brown fruit. The following March, after the burning season, that same expanse is as stony and unpromising as a gravel stream-bed. Indeed, agriculture as practised in modern farming communities could not be carried on in Yucatan, because the meager soil, at first so wonderfully rich, is exhausted after three or four years of productivity. However, the aborigines worked out a system in keeping with their needs, which under usual conditions provided them with enough of their one great staple, maize. This grain, augmented by plentiful wild fruits and plant foods, together with the game the bush afforded, made them fairly safe against famine.

It would appear that Yucatan was not settled until relatively late in the cycle of the aboriginal colonization of the Americas. There have not been found, nor is it probable that such will in future come to light, traces of any inhabitants

previous to the bearers of Maya culture. This culture produced the highest native civilization of the entire Western Hemisphere. The early history of the Maya people, if we may be permitted to use the latter as a synonym for culture, is unknown. Where they resided through the long period, measurable by milleniums rather than centuries, during which their culture rose from a dim Paleolithic horizon to a stage not very far behind that of Europe at the same date, remains an archæological problem for the future.

Certain discoveries made at Uaxactun, in the Department of Peten, Guatemala, in 1928, seem to indicate a connection between the earliest known phase of Maya culture and the archaic culture of the Mexican and Central American highlands. While, presumably, such a connection will be definitely confirmed sooner or later, in the light of present knowledge the Maya do not emerge from the mists of the receding centuries until a time when they had developed a rather surprising knowledge of mathematics and astronomy. A product of and probably the principal reason for the development of this knowledge was an intricate and astonishingly accurate time system, recorded in hieroglyphic writing upon stone. The earliest known Maya date occurs upon the Tuxtla Statuette, a jadeite figurine found in the state of Vera Cruz, Mexico. This date, in accordance with Dr. Morley's correlation, corresponds to 96 B.C. (8.6.2.4.17). The next date of importance, 68 A.D., occurs upon a monument at Uaxactun. These facts might seem to indicate that Maya culture originated on the northern fringe of the area over which it was to spread, and was borne thence southward. But be that as it may, Maya culture underwent rapid development and reached full power in the southern part of the area that was to fall, at one time or another, beneath its sway.

Between 68 and 630 A.D., a host of cities, comprising what is known as the Old Empire, were erected and abandoned. Nowhere else in the New World can architectural and sculptural remains of comparable excellence be found. The theories that have been advanced to account for the evacuation of the Old Empire need not be here reviewed; suffice to say that before the end of the break up in the south, some colonies had been established in Yucatan. From these beginnings, the New Maya Empire arose. Between 450 and 1450 A.D., cities, whose number has not yet been counted, were erected throughout the length and breadth of the peninsula. However, before the advent of the Spaniards, civil war, pestilence and famine had sapped both the political and cultural vigor of the New Empire.

In 1511, Valdivia reached Yucatecan shores. After him followed Cordoba in 1517, Grijalva in 1518, Cortez in 1519 and Montejo in 1527. By 1541, the last named completed the conquest of the peninsula and, in 1542, Mérida, the present capital, was founded.

The material culture of the Maya was of an extremely high order. The people depended upon agriculture for existence, and they had worked out a system in balance with the character of the fields within their domain. The few examples of basketry and textiles that have survived are of excellent quality. In ceramics they likewise had gone far. While most of their pottery, destined for ordinary

use, was of a very mediocre quality, those of the vessels upon which they saw fit to expend their full powers rank among the most beautiful examples of the potter's art from the entire Western Hemisphere.

Their skill in working wood is well attested by certain specimens from the Sacred Cenote at Chichen Itzá, and by the handsomely carved lintels, still extant at Chichen Itzá as well as in a few places in the Old Empire.

The Maya were greatly given to personal adornment, and to that end produced much jewelry, the best of it being fashioned from jadeite. This intensely hard stone was carved with extreme success and delicacy. Countless ruined buildings and monuments, scattered from the Gulf of Mexico to Spanish Honduras, bespeak a remarkable attainment in the fields of sculpture and architecture, an attainment all the more significant when it is remembered that such results were accomplished without the most fundamental aids which we of the Old World have had for ages. The Maya were a stone age people; they had no beasts of burden, knew not the wheel in any of its applications and possessed no metal tools whatever.

The life of the Maya was peculiarly dominated by religious belief. They possessed a well-stocked pantheon, partially filled by natural forces and processes personified as gods, and partially recruited by the deification of conspicuous culture heroes. The degree of dominion held by these gods may be judged from the fact that of the thousands of masonry structures erected by the Maya, nearly all were temples dedicated to their worship.

Except by inference, nothing is known of government during the life of the Old Empire. In the New Empire, there were a number of principal chiefs or lords, each having an important city as his capital. Under each of these was a group of lesser lords, each, in turn, controlling and administering a given territory. The offices were hereditary. Thus there was considerable similarity to the feudal system of our own ancestors. Laws were well defined, rigorous and fairly just.

Conspicuous, if not predominant, among the great capitals of the New Empire, was the city of Chichen Itzá. This tribute to the skill of the ancient builders is situated in the east central part of the north half of the Yucatan Peninsula (Plate 1).

In the origin of the name, there lies a point of interest. The Itzá were the ruling family of the Maya tribe which first settled at the spot. Chichen, in the Maya tongue, signifies "mouths of the wells," hence the name is "mouths of the wells of the Itzá," of which wells or *cenotes* there are two within the limits of the city.

There exists some historical knowledge concerning places and events in the New Empire. Certain chronicles of ruling families were transcribed from hieroglyphs to Latin script in the sixteenth century. According to these records, the Itzá had first settled at Chichen Itzá shortly before 530 A.D. In 668 A.D., the city was abandoned, for reasons unknown. The Itzá then moved westward and erected a new capital at Chakanputun, south of the present city of Campeche. There they remained until 944 A.D., when Chakanputun was destroyed by fire. During the two ensuing decades, the Itzá wandered from place to place, until in 964 A. D. they reestablished themselves at Chichen Itzá.



In the meantime, other powerful cities had grown up in Yucatan. In 1004 A.D., an alliance, the League of Mayapan, was formed between Chichen Itzá, Uxmal and Mayapan, whereby the dominion of the peninsula was divided equally among the three. A tremendous burst of development and architectural activity followed and continued until 1191 when civil war broke out within the league. With the aid of mercenaries from continental Mexico, the ruler of Mayapan vanquished the Itzá, and gave their capital as a spoil of war to the leaders of the foreign troops. There resulted a union of Maya and of what, for want of a more definitive name, will be called Toltec culture, which was extremely productive. Under its sway, Chichen Itzá became the foremost city in the New World and would seem to have been visited by pilgrims from all the region between Costa Rica and Northern Mexico, drawn there to make offerings in the Cenote of Sacrifice. A new architecture, half Maya and half Toltec, developed. Such was the richness and power of the new dominion, that before the final abandonment of Chichen Itzá, in 1448 A.D., the hybrid architecture had engulfed the old and had produced nearly all of the great buildings, the ruins of which are today in evidence.

Such is, in brief, the story to be gleaned from the Maya documents. However, it must be kept in mind that these are the records of certain families, and while perhaps accurate from that point of view they may not so faithfully depict the history of the city as a whole. Thus, while doubtless the Itzá did move away from Chichen Itzá, it is not necessary to believe that the city and its immediate environs ceased to be inhabited at any time between its first colonization and the Spanish Conquest. Nor is it easy to grant that the great number of Maya-Toltec ruins were all built between 1191 and 1448 A. D. It may well have been that a cultural union was effected long before the formal conquest of the Itzá by the hired soldiers of the Lord of Mayapan. But be that as it may, to judge from the buildings in the northern end of the city, a pure Maya culture might never have existed at Chichen Itzá; and it is in that quarter that the Temple of the Warriors stands.

A glance at the accompanying map (Plate 2) will convey more clearly than verbal description the location of the Temple of the Warriors relative to the Castillo, the Ball Court and the other notable structures of the Maya-Toltec period.

The Temple of the Warriors juts northward from the extreme western end of the North Range of the Group of the Thousand Columns. Because of the advanced stage of ruin into which it had fallen, it offered little which would focus the attention of the authors of classic literature upon Chichen Itzá. De Landa makes specific mention only of the Castillo and of the dance platforms northward of it.<sup>1</sup> Stephens mentions the Group of the Thousand Columns and presents a much schematized drawing thereof, placing the mound covering the Temple of the Warriors at an exaggerated distance from the adjacent ranges of columns.<sup>2</sup>

Maudslay, under the title Mound 18, gives a description of the hill, beginning "The next mound to the south, No. 18, must have supported one of the

<sup>1</sup> Landa, 1864.

<sup>2</sup> Stephens, 1843, vol. 2, pp. 317-318 and footnote.

principal buildings in the city. . . .” He also reproduces a photograph showing the Chac Mool figure and the tails of the fallen serpent columns on the frontal terrace.<sup>1</sup>

Holmes, in describing the Group of the Columns, speaks as follows: “At the north are two considerable pyramids. . . . The largest pyramid stands on the outside of the northwest corner of the inclosure, and is nearly 30 meters square and some 15 meters high.”<sup>2</sup>

In January 1925 this pyramid stood above the recently deforested Group of the Thousand Columns, its slopes densely bush-clad and its summit surmounted by trees of goodly proportion which rose like tufts of plumes from a shaggy, unkempt head. A few ax-cut stumps of hard wood indicated that the mound had at some time been at least partially cleared. Presumably, this work was done by Maudslay in 1888. In the thirty-seven years thus allowed, the forest would have had ample time to reach the stage of maturity it exhibited in 1925.

The hill was difficult to climb, because of its steepness and because of the tangled growth which cumbered its slopes. Upon the summit lay the great serpents' tails and the dilapidated Chac Mool, just as when photographed by Maudslay, except that the Chac Mool had been pried up and placed on a base of round poles in the attempt, not carried to completion, to remove it to the Museum of History and Art in Mérida. Broken roof frets scattered about, the tops of sculptured columns just visible above the débris, and a painted stone, torn out of the inner face of the east wall by the stump of an uprooted tree, tended to confirm the opinion voiced by Maudslay that here must have existed one of the most important buildings in the city. At any rate, it was the largest monument in Chichen which had not to some extent been gouged into or otherwise investigated.

After the undergrowth had been removed, it was possible to form a mental picture, none too clear it must be confessed, of the gross nature of the structure and its physical relationship to adjacent ruin masses. A relatively broad, level space across the western side, some 3.50 meters below the summit of the hill, indicated the line of demarcation between the pyramidal substructure and the building which surmounted it. The eastern slope of the mound presented an unbroken talus which stretched from foot to summit without infringing upon the wreckage of other structures.

The same condition held along the eastern two-thirds of the north slope, but thence westward there was a rock-strewn gully, its V-shaped bottom having been formed by the intermingling of the foot of the talus with the skirt of a similar deposit which resulted from the gradual disintegration of the southern slope of the Temple of the Tables.

Along the south side of the pyramid, conditions were still more complicated. A gully, more rugged than the one on the north, began at the southeast corner and continued, with a gradual upward slope, somewhat more than half the breadth of the pyramid, at which point it emerged at the surface of the flattish mound cover-

<sup>1</sup> Maudslay, 1889, vol. 1, pp. 38-39.

<sup>2</sup> Holmes, 1895, p. 133.

ing the north range of the Group of the Thousand Columns. Thence, westward to the corner, there was a talus of normal contour, its foot spreading out over the north edge of this same mound.

Across the western exposure, and extending both north and south therefrom, was a broad terrace, its relatively flat surface marked by the protruding crests of rectangular sculptured columns, running in four rows from north to south. From this terrace, the top of which was some 3 meters above the ground level, eastward, the shortened talus sloped upward to the margin of the shelf on which the Chac Mool lay. However, it was bisected by a broad ramp of lesser gradient, at the foot of which lay a great mass of the right-angled blocks which had slipped down from the steps of the stairway with which the ramp had been faced.

Thus, it was clear that the great hill contained an architectural complex rather than an architectural unit. The evident components were the pyramid, the temple on its summit, the long rectangular columned hall flanking the western base, and the north range of the Group of the Thousand Columns which impinged upon the southwest corner of the pyramid.

Such were conditions and prospects at the beginning of February 1925. Since then a total of 18 months of intensive work, comprising the principal objective of the Chichen Itzá Project during four field seasons, has been devoted to the Warriors complex. As a result, it stands today completely excavated and repaired to the intended limit, a mass imposing in its dignity and beauty, gleaming white against the dark green of the forest.

The aim of this volume is to describe the nature and relationships of the various architectural units which have been explored; to record what was recovered of the sculptured and painted embellishment of these structures and to set down the pertinent data gleaned during the course of exploration. Hence, its primary purpose is to serve as a source of new material to those students of Maya archaeology who will at some future time carry to completion the exhaustive analyses, comparative studies and final interpretations that such works as this will help to make possible.

The diverse subjects treated in the first part of the book have been, to a considerable extent, separated and classified as indicated by the headings. Of necessity, all pages will not offer uniform appeal. Presumably, only the special student will persevere to the end of those covering architectural description and excavation. But perhaps even the general reader will not find the ones upon Temple Offerings and upon Materials and Methods of Construction too potent a soporific.

Two great divisions of that which the following pages record lay entirely beyond the province of the present writer, namely, Bas-Reliefs and Mural Paintings. These were entrusted to Jean Charlot and to Ann Axtel Morris, respectively. The devotion, skill and acumen which they lavished upon their separate, though related studies, both in the field and at the desk, may be judged from those sections of the present volume which flowed from their pens and from the color plates which are the product of their brushes. The painted originals of the plates

appearing in their parts of the volume were made by these two artists, unless otherwise indicated on the plates.

In his section M. Charlot has subjected to critical analysis the great number of bas-reliefs which it fell to his pencil and brush to reproduce. His findings contain a wealth of information for those concerned with the indigenous art of the New World.

In the part on Mural Painting, Mrs. Morris has recorded what is, perhaps, the most important contribution that has thus far resulted from Carnegie Institution's explorations at Chichen Itzá. Although much about Maya architecture and sculpture was previously known, such knowledge as existed of the parallel art of wall painting was based principally upon inference and deduction. Some originals, mere fragments with two or three exceptions, had been recorded, but these were only a tantalizing reminder of the vast number and variety of those that once existed. The Warriors complex yielded to the pick and spade a greater bulk of frescos than had previously been obtained from the whole of Middle America. The individual characteristics of the art, the richness and beauty of its productions, and the gripping interest of some of the scenes depicted, it is the province of the final section of the book to express.

The map of Chichen Itzá was surveyed and drawn by Mr. Jerry Kilmartin. The numerous ground plans, graphic sections and most of the other drawings contained in the first section of the book were made by Thomas Rogers Johnson from data which he recorded in the field. The colored reproduction of the turquoise plaque, and the diagrammatic drawing of it (see frontispiece), were prepared by Mr. S. Ichikawa, to whose skill is due the masterly restoration of the rare mosaic.

The investigations of Carnegie Institution of Washington at Chichen Itzá are prosecuted under a contract signed on July 3, 1923, in which the Government of Mexico grants to the Institution "permission to carry on archæological explorations and excavations, as well as necessary repairs and replacements in the ruins of Chichen Itzá, in the State of Yucatan."

Special mention should be made of the generous cooperation extended at all times by officials of the Government of Mexico and of the State of Yucatan, without whose active assistance the undertaking could hardly have been carried out: Mr. Manuel Tellez, the Ambassador of Mexico at Washington; Dr. J. M. Puig y Casauranc, Minister of Public Education from 1923 to 1928, and Mr. Ezequiel Padilla, Minister of Public Education from 1928 to 1930; Dr. Manuel Gamio, Director of Archæology during the first year of the Chichen Itzá Project and Ing. José Reygadas y Vertiz, Director of Archæology since 1925; Mr. Eduardo Martínez Cantón and Mr. José A. Erosa Peniche, the former Inspector of Archæological Monuments for the State of Yucatan, and both resident inspectors designated by the Government of Mexico to observe the excavations carried on by the Institution at Chichen Itzá; as well as other officials of the Dirección de Arqueología, who, from time to time, have visited Chichen Itzá for special purposes; Mr. Ignacio

Marquina, Mr. Federico Mariscal, Mr. Eduardo Noguera, Mr. Juan E. Palacios and Mr. A. Garcia, and, finally, to the successive Administradors of the Port of Progreso, Mr. Leon Aillaud, Mr. Alberto Martinez, Mr. Crecencio Jáime, and Mr. Manuel C. Acuña. To all these Federal officials many thanks are due for their unwavering support and coöperation.

To many officials of the State of Yucatan, acknowledgment is also due for valuable assistance rendered during the past six years. In this connection, special mention should be made of Governor José M. Iturralde (1924-1926) and Governor Alvaro Torre Diaz (1926-1930), Mr. Diego Rendón, Mr. Rafael Ramirez, Mr. Francisco Loya Vega, Mr. Alfonso Vales G., and Mr. Pascual J. Leon, successive Directors General of the United Railroads of Yucatan, who have provided the fullest transportation facilities, passenger, express and freight service, free of charge since the beginning of the Chichen Itzá Project. And, finally, to Mr. Luis Rosadas Vega, Director of the Museum of Archæology and History at Mérida, recognition is also due for his excellent arrangement and exhibition of the specimens turned over to him by the Institution at the request of the Director of Archæology.

In the excavation and repair of the Temple of the Warriors, many minds and many hands have played a part. It would be impossible to mention individually all who have contributed in one way or another to the completion of the task, but it is both a privilege and a duty to express my gratitude to those who shared most heavily in the undertaking. To Dr. Sylvanus G. Morley, who planned and launched the Chichen Itzá project and who, from its inauguration, has been its wise, tactful and stimulating leader, I am particularly indebted for the free rein which he gave me in the prosecution of the work; for the able counsel he provided in so many moments of perplexity; and for his untiring effort to provide every facility, no matter how unexpected, that changing circumstances called for in the progress of the campaign.

Throughout, Karl Ruppert had charge of the reassemblage and replacement of fallen sculpture. In this and many other phases of the work he rendered most able assistance. During the various field seasons, Oliver G. Ricketson jr., J. Eric Thompson, Henry B. Roberts, and Robert A. Franks jr. gave fruitfully of their time and effort to the tasks in hand. In the course of three seasons, the many tests afforded by unpredictable demands and by the long distance from a base of supplies, failed to exhaust the mechanical ingenuity of Gustav Stromsvik.

Nor should there be forgotten the native workmen whose toil transformed a shapeless hill into a thing of enduring beauty. As a whole, they were as efficient, as dependable, and as agreeable as any group one could hope to find in any land. Juan Olalde, Mayordomo, and his son and first lieutenant, Isauro, served faithfully and intelligently. Because of their understanding of local conditions and their intimate familiarity with the material environment, they were able to give assistance which it would have been difficult in the extreme to do without. Angelino Pot, master mason, courteous, faithful and intelligent to a rare degree,

brought to bear upon his work a resourcefulness that I have not seen equaled. To him is due the credit for difficult pieces of construction, far more than to those to whom, in the natural course of events, it would be given.

And, finally, I am profoundly grateful to Dr. A. V. Kidder, Chairman of the Institution's Division of Historical Research, under the auspices of which future archæological activities of the Institution will be conducted, for the great help that he has given, not only in the later phases of the actual explorations, but also in the preparation of this report. From him came numberless opportune suggestions, and but for his diligent perusal of the proof, both for form and content, the book would have lacked much of whatever quality it may possess.

EARL H. MORRIS

*May 20, 1931*

DESCRIPTION  
of  
THE TEMPLE OF THE WARRIORS  
and  
EDIFICES RELATED THERETO

By EARL H. MORRIS

## DESCRIPTION OF THE TEMPLE OF THE WARRIORS AND EDIFICES RELATED THERETO

When viewing with an eye to lucid description the maze-like agglomeration of structures composing the Warriors complex (Plate 3), it is not easy to decide where to begin. Each plan of attack meets with some objection. Since the major temple alone stands free and unincumbered by the juxtaposition of other building units, it will be taken as the point of departure.

### TEMPLE OF THE WARRIORS

The walls of the Temple of the Warriors rise from the surface of a truncated pyramidal substructure, itself rising to a height of 11.41 meters above the level of the mother terrace which serves as a base plane for all of the Mexicanized Maya buildings in the north end of the city. The westward-facing temple is a quadrilateral, evidently intended to be rectangular. The lengths of the walls are: north, 21.26 meters; south, 21.05 meters; east, 21.13 meters; west, 21.20 meters. The included angles of the corners are: northeast,  $89^{\circ} 35'$ ; northwest,  $90^{\circ} 10'$ ; southeast,  $90^{\circ} 45'$ ; southwest,  $90^{\circ} +$ . The longitudinal axis of the front wall points north  $17^{\circ} 35'$  east. As a glance at the plan (Plate 3) will reveal, the temple is not symmetrically placed upon its substructure. The frontal or western terrace is 7.47 meters in average width; the north, 4.12 meters; the south, 4.55 meters; while the rear platform, assuming that the northeast and southeast corners of the pyramid have been restored at their original angles, had a breadth of only 2.92 meters. From wall bases to terrace margins there was in each case a downward slope, presumably designed to facilitate the run off of rain water, the fall varying from 20 to 30 cm.

### THE PORTAL AND THE OUTER CHAMBER

From the tripartite portal which pierces the front wall, one looks westward past the Castillo on the left hand, directly upon the crumbling magnificence of the Temple of the Tigers and south end of the Ball Court.

The maximum breadth of the portal is 8.67 meters. The central aisle is 2.44 meters in width and the two lateral entries 2.11 meters. The divisions are two serpent columns which will be described in connection with the frontal façade. The broad doorway gives access to the outer chamber, which is 18.69 meters from north to south and 8.87 meters wide. This hall is traversed from north to



south by two rows of six columns each. The columns average 69 cm. square with less than 1.9 cm. variation, and 3.74 meters in height. East and west, they are spaced 2.53 meters apart and the same distance from the walls. The intercolumnar interval from north to south is 2.01 meters, with the exception of the central aisle, which is 2.44 meters.

Each column is made up of from 8 to 11 blocks, bedded, one upon the other, in lime mortar. All are sculptured after the same basic pattern. While there is



FIG. 1—TYPICAL MAYA VAULT, TEMPLE OF THE PHALLI, OLD CHICHEN

no corresponding difference in size, from the viewpoint of decoration, each column is divided into three parts: a base, a shaft proper and a capital. In major aspect the plan of ornamentation of the columns is the same. Each base is graven to represent a composite, shieldlike device; each shaft portrays a warrior or priest richly garbed and adorned; and upon each capital is an inverted arc from the nether side of which issues a human form, in diving posture. In addition to being sculptured, the columns were brilliantly painted. Detailed description of the sculpture and its coloration is given by M. Charlot.

The roof vaults of the outer chamber ran from north to south and were three in number. Since the Warriors complex does not provide an example of an intact vault, a photograph of one in another building (fig. 1) is introduced to facilitate description. There is no way of determining the exact height of the chambers in the Temple of the Warriors. Practical certainty exists only up to the spring of the vault. The columns are 3.74 meters in height. Upon them rested the heavy wooden beams which supported the huge, inverted triangular masses of masonry which formed the dividing ribs between the first and second and the second and third vaults. A thickness of 30 cm. may be assigned to these beams. Judging from the positions of elements in standing buildings, homologous to those found among the débris, above the wood there was a vertically faced string course, 23 cm. in height with an overjut of 5 cm. From this sprang the vault, at the top of which was another vertically faced course, 9 to 10 cm. thick, the surface serving as a bed plate for the capstones. Plaster marks across the latter show that the tips of the arches were 23 to 28 cm. apart. It is obvious that the vaults were very high.

The débris which came from that part of the building above the level of the wooden beams filled the temple to the average level of the tops of the columns. Considering this mass raised back approximately to its previous position as an uninterrupted horizontal band, the building would have had at least twice the height of the columns, or say 7.48 meters. But originally, the hollow vaults occupied nearly half of the cube in which this masonry occurred, crowded for the most part into the intervault areas. Necessarily, the vertical dimension of this half-solid, half-hollow cube was considerably greater than the column height above mentioned. Allowing, on one hand, for a massive layer of roof finish above the capstones and on the other for the increase in bulk of the unconsolidated débris as contrasted with compact masonry, it seems permissible to assign to the vault a height of one and one-fourth times the altitude of the columns, or 4.68 meters. On this basis of calculation, the clearance between the floor of the hall and the capstones would have been: column height, 3.74 meters; wooden beams, 30.5 cm.; vault, 4.68 meters; or a total of 8.72 meters. Add to this 54 cm. for the ultimate roof grouting, which is considerably less than the thickness of that element in standing buildings, and there results a minimum exterior height for the Temple of the Warriors of at least 9.26 meters. A cross-section of the outer chamber, based upon the measurements above given, appears in Plate 4.

#### THE INNER DOORWAY AND THE SANCTUARY

A doorway 3.08 meters in width connects the outer with the inner chamber. It is bisected by the east and west axis of the temple. The partition wall in which it is situated is 79 cm. thick. Built against the center of each of the jambs is a pilaster, 43.5 cm. wide and 30.5 cm. thick. The faces of the pilasters are separated by the axial inter-columnar interval of the outer chamber, or 2.44 meters, being in

line, respectively, with the north and south sides of the two transverse center rows of columns in the outer hall. The pilasters are 2.43 meters in height; the jambs, 2.74 meters. A sublintel, 31 cm. thick, supported by the pilasters, crossed beneath the beams composing the true lintel, which was surmounted by the vertical wall that continued upward to the spring of the vault. The plaster line on stones from immediately above the lintel shows that the latter was set back at least 7.6 cm. from the wall face, a condition still to be observed in the Temple of the Tigers and in the Castillo.

The free margins of the jambs bear sculpture of a vine and flower device. The exposed surfaces of the pilasters are graven after the same plan as the columns. Normally, the human figures on back and front of both jambs and columns face the door-altar axis of the building, while those on the sides face toward its front.

The inner chamber is of practically the same size as the outer hall, being 18.74 meters from north to south and 9.06 meters in average width. It is crossed from east to west by four rows of two columns each. The columns are the same in size, height and treatment as those in the outer chamber. They stand 2.59 meters distant from the walls and the same distance apart east and west. The north and south spacing averages 2.96 meters, except for the central interval, which is 4.12 meters. The vaults were five in number, extending from east to west, *i.e.*, at right angles to those in the front chamber. A restored cross-section is shown in Plate 5. The central vault, with a breadth of 4.12 meters, ranks among the widest known in the entire Maya area. Mortar lines on capstones among its wreckage show this vault to have been 31.8 cm. wide at the top, thus 7.6 to 10 cm. broader than the other vaults of the chamber.

A bench crosses the north end of the room and at the northeast corner turns southward along the back wall for a distance of 2.32 meters. The bench is 1.72 meters wide and 76 to 84 cm. high. The margin is a 15-cm. vertical cornice with a 5-cm. overhang. Another bench identically the same is correspondingly placed in the south end of the room (Plate 3).

#### THE ALTAR

Against the center of the east wall, beneath the area once occupied by the abnormally broad vault, stands the altar (figs. 2, 3, 4, 5, 6). It is 4.27 meters north and south, 2.38 meters wide at the north end, 2.44 meters at the south, and 76 cm. high. Its surface is composed of 18 blocks of limestone, varying in size from 40.5 by 71 cm. to 89 by 90 cm. The smaller slabs along the back are not of uniform thickness, presumably because their nether surfaces are practically invisible, hence were not carefully finished. The rest are excellently wrought cubes, 10.9 to 12.2 cm. thick. Near the center of the northwesternmost there is an irregularly conical perforation of natural origin, 20 cm. in greatest diameter. To hide this flaw, a stone plug was shaped to fit the cavity and sealed in with mortar.

The north, west and south faces of the altar top were ornamented with crawling serpents, in the open mouth of each of which was a human head. On some of the



FIG. 2—UNCOVERING THE ATLANTEAN ALTAR



FIG. 3—THE ATLANTEAN ALTAR BEFORE REPAIR

Weight of falling roof mass had shattered many stone tablets and broken off several of the Atlanteans where they had been embedded in floor



FIG. 4—THE ATLANTEAN ALTAR DURING REPAIR



FIG. 5—NORTH END OF THE ATLANTEAN ALTAR  
Note stucco feet modeled against shins of left figure

blocks the serpents were both sculptured and painted; on others, sculptured and painted halfway across, and painted the rest of the way; and on still others, painted only upon an uncarved surface. The margin of the altar top contains a series of perforations, usually three to each block face, presumably provided to support a curtain. Each perforation consists of two conical holes made with a stone drill, one driven horizontally and the other vertically until the bores met.

Nineteen Atlantean figures and nine stone posts constitute the altar support. The Atlanteans are squat little human forms in full round with upflung hands, not carved free from the heads. However, there is an exception; the southwesternmost has the left arm standing clear of the matrix.

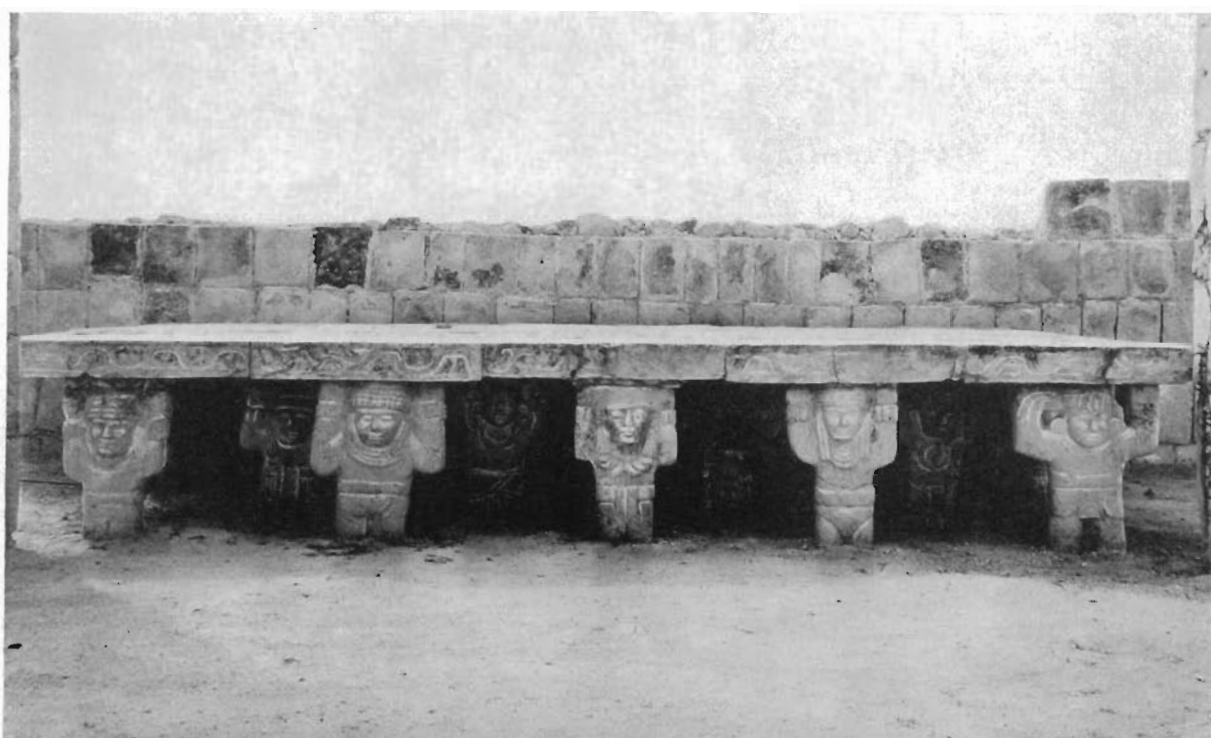


FIG. 6—ATLANTEAN ALTAR AFTER REPAIR

The stone posts are in reality miniature columns, each with a more or less rectangular capital carved from the same block. A typical one tapers from 16 cm. in diameter at the bottom to 19 cm. at the top, its capital being 18 by 20 cm. by 9 cm. thick.

A schematic presentation of the color treatment of the Atlanteans and of the faces of the altar slabs is given in Plate 6. Obviously most of the elements of this altar are reused. Several of the slabs have sculptured faces hidden by abutting slabs, thus showing that they were fashioned for an altar of smaller size and different arrangement. Moreover, as may be seen in Plate 6, some of the serpent patterns on the margins are complete and some are not; and the heads do not all face in the same direction. The distance from the slabs to the floor is 61 cm. The

Atlanteans are from 81 cm. to 89 cm. in height, and thus have their feet and calves completely buried. To hide this defect, little stucco feet were modeled on the floor against the legs and painted to represent sandals and sandal ties (fig. 5). Assuming that the Atlanteans and well-worked slabs represent a dismantled altar brought *in toto* to the newer building, the cruder slabs and the stone posts would constitute the increment provided with a minimum of labor to meet the increase in size.

#### FINISH OF THE TEMPLE INTERIOR

Plaster covered every feature of the temple interior. One or more washes of it were applied even upon the sculptured surfaces before the latter were painted. The floor, except for a stone-paved area in the outer chamber, which will be mentioned elsewhere, is a surprisingly hard, thin layer of mortar, polished to almost mirror-like smoothness. Walls, bench, altar, vault and capstones were plastered over to the extent that in its original condition not a square centimeter of actual stone surface remained visible within the structure. Even the joints between the column blocks were so skilfully filled out with stucco that, without minute examination, it would have been very difficult to determine that the pillars were not monolithic. And all surfaces were as thoroughly painted as they were plastered. The entire floor was stained a dark, brilliant red; the same was true of the sides and tops of the benches and the surface of the altar.

The lower 1.71 meters of the walls of the outer chamber bore the following coloration: a basal dado of red in the south half, and one of black of the same height in the north half, 1.07 meters broad; thence upward a stripe of blue, 13 cm. wide; a 15-cm. band of red bordered with narrow lines of black; a 13-cm. band of yellow, and lastly an 18-cm. band of black. Above the black stripe began the painted scenes which covered the remainder of the vertical walls, the vault and even the capstones. What is known of these will be given in detail in the section treating of frescos.

Beneath the center of the central arch was found the capstone which may well have borne the date of the building. It was a finely dressed slab with nether surface 45 cm. long and 24 cm. broad. Seven and six-tenths cm. from one end and 8.9 cm. from the other there began 3.8 cm. transverse stripes of brilliant blue. Unfortunately the film of stucco which had occupied the area between them, 20 cm. in width, had completely peeled off. Judging from similar stones found elsewhere in Chichen Itzá, this central panel bore most delicately executed paintings and probably a hieroglyphic inscription as well. In order to illustrate the nature of these elaborately treated capstones, a fragment of one is presented in Plate 163. The stone was found at the west end of the North Colonnade, to which structure it probably belonged. When it was unearthed, it had the appearance of an ordinary broken wall block and was so heavily coated with lime earth that no trace of the painting was visible, hence it was tossed aside with other stones as of no significance. Months later, after sun and rain had caused the lime encrustation to peel off, it was found to bear a super-excellent bit of painting.

The finish of the lower part of the walls of the inner chamber followed the same general plan as that in the outer hall, but varied in respect to the color sequence. On the west wall the latter was as follows: initial 1.03 meters, black; then blue, 14 cm.; red, bordered by black brush lines, 14 cm.; yellow, 14 cm.; and lastly a 15 cm. band of black. Here, then, the murals began at a height of 1.60 meters, instead of at 1.71 meters as in the outer hall.

The vertical face of the bench was red and its cornice blue. Except for this deviation, the color pattern of the base of the west wall continued across the north and south and to the ends of the altar on the east wall. Above the altar there was a mural panel, beginning 10 to 13 cm. from the surface thereof (fig. 284).



FIG. 7—CHAC MOOL, TEMPLE OF THE WARRIORS

#### THE CHAC MOOL

While not an integral part of it, the Chac Mool figure which reclines before the portal will be described in connection with the front or western façade of the building. From the head of the stair a paved area, the width of the space between the serpent columns, extends inward to the eastern line of the inner row of columns in the outer chamber. The paving blocks are like ordinary wall stones bedded face upward. Within the building they are completely hidden by a thin cap of floor plaster applied over them, and presumably they were similarly covered on the terrace before the disintegration of its plastered surface. Since the paving would appear to have been completely obscured from view, one can but wonder what was the motive for its construction.



The Chac Mool (fig. 7) and its base are carved from a single block. The 10-cm. base was set into the paving as if it were an integral block of the latter. The Chac Mool represents a human figure, half reclining upon its back, with knees raised and head held upright. The hands grasped opposite sides of a device held horizontally upon the abdomen. The figure wears sandals with two cords following down over the instep from an ankle band, one cord passing between the great and second toes, the other between the third and fourth. A broad cuff, composed of five bands, reaches from the wrist nearly to the elbow. A sort of double



FIG. 8—HEAD OF THE NORTH SERPENT COLUMN

birdwing shield covers the breast. A broad fillet of four bands encircles the forehead. From the crown of the feathered cap emerges a bifurcated ornament which has extended an unknown distance horizontally back of the head. The knees of the Chac Mool point to the north, and the face looks out over the left shoulder, that is, toward the west. The base of this sculpture is 99 cm. long, 54 cm. wide, 10 cm. thick; the figure itself is 1.06 meters long, 49 cm. wide and 99 cm. high.

The device upon the stomach is a disk instead of a bowl. In fact, the Chac Mool now in Mexico City is the only one of the dozen or more thus far found at Chichen which is provided with the ventral bowl. In execution, the figure may be

considered of medium quality. It has not the massive ugliness of many of the Chac Mools, nor does it exhibit the fine proportions and masterly carving of the one in the Temple of the Chac Mool, hereafter to be described. Seemingly the sculptor met with difficulty as his work progressed, inasmuch as the head was severed from the trunk by a nearly horizontal break through the neck. To remedy this condition, a pit was hollowed out both in neck and head, presumably for the reception of a vertical peg or dowel pin, by means of which the head was held in its intended position. In the photographs, a difference in degree of weathering is distinctly noticeable between body and head. Throughout several centuries the former remained exposed to the elements, whereas the head was found deeply buried at the south side of the base of the stair. To judge from a few splotches of blue and red left upon the head, the whole figure was at one time painted.

#### THE SERPENT COLUMNS

The two great serpent columns, perhaps even before the collapse of most of the front of the building, would have been the most conspicuous features of the western façade, as may be judged from the photographs. Each is composed of three distinct parts: a head, a body and a tail. For major points, a description of the northern column will serve for both. The head, carved from a single block, is 1.45 meters long, 66 cm. wide and 84 cm. high (fig. 8). It lies with ventral surface flat upon the terrace. The upper jaw is flung upward to give the effect of a wide-open mouth. In it the fangs are shown, short and stubby rather than keen, and beneath them in the lower jaw is another pair of teeth of only slightly smaller size. The bifurcated tongue, cut from another stone, juts forward for a distance of 51 cm. at a slight downward angle. The greatest breadth of this feature is 41 cm. An upward curving spiral reaches backward from each angle of the jaw.

Over each eye is a heavy raised plate ornamented with dotted crosses. The recessed eye cavities were lined with a black mortar in which probably was bedded a white substance to represent the iris, which, in turn, enclosed a dark pupil. From the top of the upper jaw rise two minutely decorated, more or less cylindrical, backward-sloping devices, probably indicating nose plugs. Two slightly forward-curving, cylindrically conical horns rise from the back of the head. Most of the top of the head between the base of the horns and the nose plugs consists of a rectangular, flat-bottomed, recessed area, 45.5 cm. long and 40.5 cm. wide. All surfaces not otherwise accounted for are graven to represent scales and, toward the neck, feathers. In the top of the upper jaw there is an eyelet just forward of each nose plug, and one in the outer side of each of the latter, made by the impinging tips of two conical bores drilled toward each other at an oblique angle. It may be inferred that in these were fastened plumes to heighten the likeness of the grotesque sculpture to the head of the Plumed Serpent.

At Chichen Itzá there are two types of serpent columns. In one, the body-column is round; in the other, rectangular. When the column is round, its base and head are carved from one block; when it is rectangular, the head is a separate

stone merely placed contiguous to the nether blocks of the column. The column in question is of the latter sort. It is so placed that it is bisected transversely by the longitudinal axis of the front wall of the temple. What may technically be considered the shaft of the column is 69 cm. square and 3.1 meters in height. The seven blocks composing it are graven in low relief on the front and sides to represent flowing plumes, and on the back to simulate the curved ventral scales of a serpent.

The tail piece rests upon the body-column like a capital. When viewed from the side, it looks not unlike a short-tongued builder's square resting on the back of the blade with tongue pointing vertically upward. The horizontal portion is 59 cm. wide, 64 cm. thick and 1.63 meters long. Thus it is inset from the column 5 cm. at the sides, juts 15 cm. inward from it, and extends forward 81 cm. directly over the head. From the tip of the horizontal portion rises, in terms of the previous analogy, the tongue of the square. This vertical shaft tapers from back and sides toward the top, at which point it is 42 cm. wide and 33 cm. thick. It is sculptured in the form of rattles, from the end of which emerges a tuft of graven plumes. The height of the column is the same as that of the others in the temple, 3.74 meters. From this altitude the rattles and plumes rise an additional 91.4 cm., bringing the total height to 4.65 meters. The sides of the horizontal portion of the tail piece bear sculptured panels in low relief, representing Atlantean figures. They are so badly weathered that they must be examined under the most favorable light if the details of the carving are to be seen. Except for minor variations in the proportions of head and tail, the southern serpent column does not deviate from the one described.

As previously stated, the great doorway is 8.67 meters in width. The height is that of the columns, or 3.74 meters. Thus of necessity the jambs are of the same altitude. The thickness of the wall, of which each jamb represents a cross-section, is 1.25 meters at base and 89 cm. above the battered zone. Built against each jamb is a pilaster, 44 cm. in width and 30.5 cm. thick. These pilasters are of the same height as the jambs, no provision for a sublintel having been made as with the inner doorway. The narrow panels of the jambs visible on each side of the pilasters are sculptured with the vine and flower pattern, and the jambs are graven after the same plan as the columns within the temple, except that the figure on each face is an attenuated Atlantean instead of a warrior or priest.

Provision was made for closing all three sections of the great portal with curtains of light-weight material. The inner edges of the jambs and the rear corners of both serpent columns contain eyelets or dumb-sheaves so placed as to form three transverse rows at heights of 30.5 cm., 1.35 meters and 2.44 meters from the floor. Each eyelet, like those previously mentioned, consists of two converging drill holes. The bore of these dumb-sheaves is so small that only slender cords could have been rove through them; hence the curtains must have been textiles rather than of any heavier material. There was no provision whatever for screening off the inner doorway, which seems a point worthy of comment, since some one of a number of styles of dumb-sheaves is to be observed on practically every doorway in the city.

There is reason to suppose that the heavy wooden lintels that spanned the portal were elaborately sculptured, as are those extant in the Castillo and the Temple of the Tigers.

#### THE WESTERN FAÇADE

The details of the western façade are known with positive certainty up to and including the apron course of the medial cornice, which was bedded 46 cm. above the level of the top of the lintels. Since the façade was composed of two symmetrical halves, only the one comprised by the northern anta will be described in



FIG. 9.—PLUMED SERPENT SHIELD AND SOUTH PANEL OF MASK, NORTH ANTA, TEMPLE OF THE WARRIORS  
Portion bordered with black line, made of cement, to replace missing original

detail. The portion of this anta now standing is given in figures 9 and 10. The outer face consists of an initial battered zone rising at an angle of  $74^{\circ} 15'$ , 1.43 meters in height. Above this there is an apron course or basal cornice, 19 cm. in vertical height, overjutting 9 cm., its face receding at an angle of  $28^{\circ}$ . Thence upward there is a vertical expanse 2.96 meters in height, crowned by another apron course, 24 cm. thick, with a 16-cm. overjut, and a bevel of  $23^{\circ}$ . This constituted the nether member of the medial cornice.

It is with the vertical zone that we are principally concerned, because of the richness of its sculptured ornamentation. As may be visualized from figures 9 and 10, the area is separable into three vertically divided zones. The width of the



FIG. 10—MASK PANEL, NORTHWEST CORNER, TEMPLE OF THE WARRIORS

Portions outlined in black, made of cement, to replace missing originals

plain vertical course formed by the ends of the jamb stones is 27.9 cm. Next this comes a panel, 1.98 meters wide, composed of three mosaic masks, one above the other (fig. 9). Since the individual masks vary one from the other in minute detail alone, only the bottom one in this panel will be minutely described.

This mask is 85 cm. in height and, as seen, is composed of twenty-three stones. In the center, resting directly on the apron course, are two stones representing the recessed mouth, each jaw plentifully supplied with teeth. From each corner of the mouth emerges a bifurcated scroll. Above the center of the mouth, the long curved snout is tenoned in. The snout, when seen from the side, resembles a question mark rotated at an angle of 90°. The then horizontal stem is the tenon by which the ponderous curve is held in place. In the rounding shoulder formed by the junction of the stem with the curve of the question mark, there is in practically every nose stone a conical pit which, doubtless, served as a point of insertion for a bulbous protuberance such as may be seen emanating from the snouts of the long-nosed masks depicted in sculpture (Plate 50 E) and in fresco (Plate 157b).

Each cheek and eye of the mask occupy a single block. The pupil is a conspicuous ball standing out against a deeply recessed background. Beneath the eye is a scroll-like line, and on the cheek there is a cross with a dot on either side. The eyebrow is rimmed with an oval formed by a line in relief. In the center of the enclosed sunken area is a cross like the one upon the cheek, again with a dot on either side. The ear is represented as a square divided into radiating triangular areas. A conical, collared ear-plug is tenoned into the center and protrudes 6 cm. beyond the plane of the ear piece. Above and below the ear are beveled-faced ornaments, each carved to represent two superimposed truncated triangles. From the outer side of the ear extends an angular scroll or fret which bifurcates, one end swinging upward and the other downward. The only element lacking in this mask is a stone to fit between the eyes. Allowing for this, the mask proper consisted of twenty-four stones. Above the eyebrows is the fillet-like band 16 cm. in width, with an elaborate knot at the center of the forehead. Five stones compose this band, bringing the total for the mask to twenty-nine.

With the exception of the snout, the mask stands out from the wall, at its maximum point, about 10 cm., which, taking into account the recessing of some of the features, gives a variation in depth of relief of 18 cm. The snout protrudes 52 cm. from the line of the wall.

The panel at the opposite end of the anta (fig. 10) consists of the vertical halves of three masks, which differ from the one described only in that they are conformed to a right-angled instead of to a flat surface. The corner forms the median line of the grotesque faces. Hence the snouts project directly out from the apex of the angle and the other halves of the masks are visible only from the north side of the building.

Between the two mask-covered zones there is a panel of different *motif*, 1.83 meters high and 1.91 meters wide. It is framed by plain masonry, 64 cm. wide

above, 49 cm. below, and 30.5 cm. at the sides. This sculpture may be styled a Plumed Serpent shield (fig. 9). The tenoned head, carved in the full round, reaches forward 30.5 cm. from the wall. From between the widely opened tooth-armed jaws emerges an excellently graven human head. The bifurcated tongue, which, with tips upturned, swings downward from the lower jaw, consists of two slender stones with very long tenons. From the sides of a feathered collar appear relatively huge birdlike lower legs and claws. From the top of the collar, masses of broad plumes reach upward for a distance, then curve away from the median line and

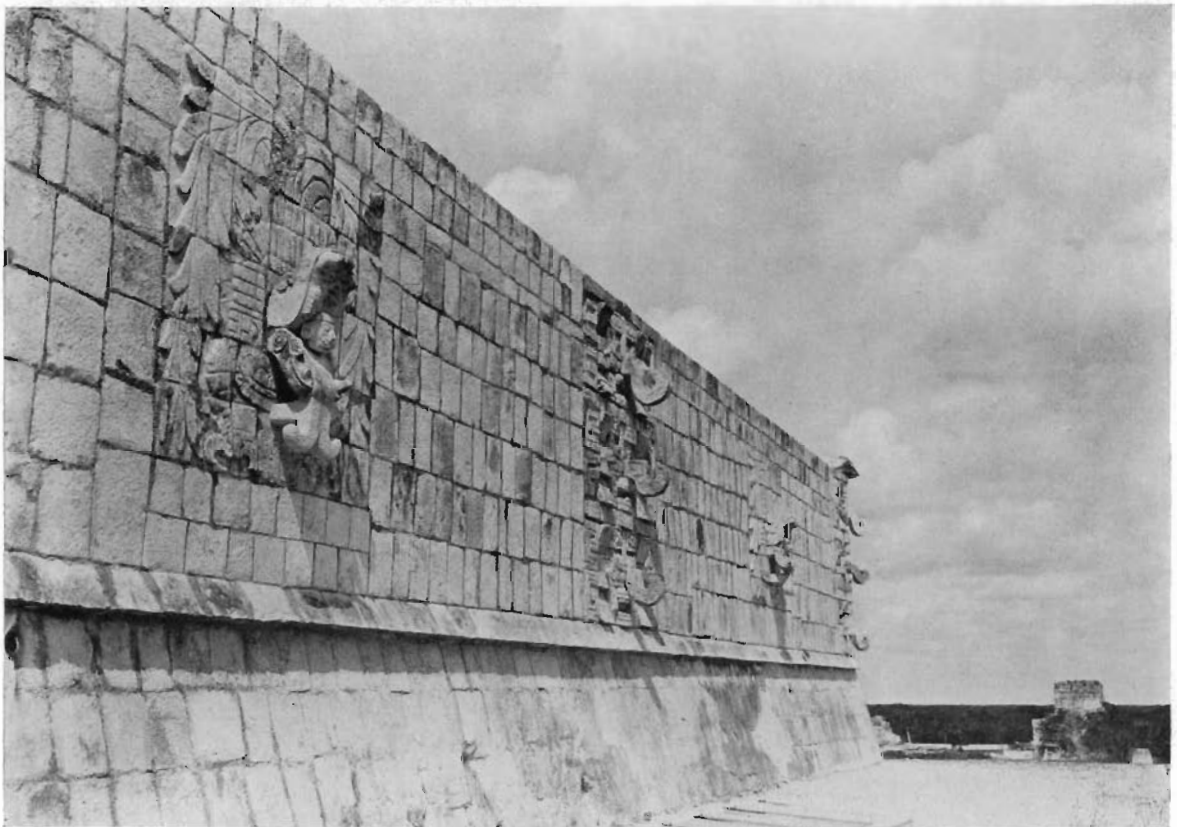


FIG. 11—NORTH WALL, TEMPLE OF WARRIORS, SHOWING SCULPTURE

fall in graceful drapery down the sides of the panel to the level of the claws. With the exception of the head, the relief is low, the greatest depth not exceeding 2.5 cm. This panel contains a total of twenty-nine stones.

#### THE OTHER FAÇADES

In the other three façades the zone between the lower molding and the medial cornice was a continuous band (fig. 11), thus differing from its condition on the western side where more than the central third was cut away by the door opening. The north side will be given as a type for the three. The band, 20.8 meters in



FIG. 12—WEST PLUMED SERPENT SHIELD, NORTH WALL, TEMPLE OF THE WARRIORS



FIG. 14—EAST PLUMED SERPENT SHIELD, NORTH WALL, TEMPLE OF THE WARRIORS



FIG. 13—CENTRAL MASK PANEL, NORTH WALL, TEMPLE OF THE WARRIORS

Portions outlined in black, made of cement; in dotted-white, of stone, to replace missing originals





FIG. 15—MASK PANEL, NORTHEAST CORNER,  
TEMPLE OF THE WARRIORS



FIG. 16—MASK PANEL, SOUTHWEST CORNER,  
TEMPLE OF THE WARRIORS

Portions outlined in black, made of cement; in dotted-white, of stone, to replace missing originals

length, which it offered as a field to the sculptor, was embellished with the same *motifs* as those described from the front of the building.

As already stated, the extreme western end of the north side bears half of a corner panel of masks. Corner masks also occupy the northeast corner of the structure, thus accounting for that extremity. In the center there is another of the mask panels, this time adapted, of course, to a flat surface; on each side, mid-

way between the center and the corners, is a duplication of the Plumed Serpent shield. The south side of the building is like the north, and there is every reason to believe that the rear or eastern exposure was treated in identically the same way. Since those who desire to make a detailed comparative study of masks or shield panels will find the material they need in the complete series of photographs provided in figures 9, 10, 12 to 21, inclusive, this task is not attempted here.

With the lower member of the medial cornice, consecutive knowledge of the sculptured treatment of the temple ceases. The main architectural features have



FIG. 17—NORTH PANEL OF MASKS AND PLUMED SERPENT SHIELD, SOUTH ANTA, TEMPLE OF THE WARRIORS  
Portions outlined in black, made of cement; in dotted-white, of stone, to replace missing originals

been determined from fallen stones found among the débris. The medial cornice consisted of three members, the lower one of which already has been described. The central member was a 21- to 23-cm. vertically faced course, and the upper was a repetition of the first, but with inverted bevel. Above this cornice, 71 cm. to 1.06 meters in total height, there was an entablature in the neighborhood of 3.08 meters high. Presumably this zone was vertical. Above it was the upper cornice, consisting also of three members. The basal apron course and the central vertical element have the same dimensions as the corresponding units of the medial cornice.



FIG. 18—WEST PLUMED SERPENT SHIELD, SOUTH WALL, TEMPLE OF THE WARRIORS



FIG. 19—CENTRAL MASK PANEL, SOUTH WALL, TEMPLE OF THE WARRIORS



FIG. 20—EAST PLUMED SERPENT SHIELD, SOUTH WALL, TEMPLE OF THE WARRIORS



FIG. 21—MASK PANEL, SOUTHEAST CORNER, TEMPLE OF THE WARRIORS

Portions outlined in black, made of cement; in dotted-white, of stone, to replace missing originals

However, the upper member, which served as the roof coping, consisted of stones 66 cm. in length. The configuration of these exterior features is given in the reconstructed cross-sections shown in Plates 4 and 5.

The topmost element of the building was a row of roof ornaments set back a short distance behind the coping stones. The row extended across the north, west, and south sides, and presumably across the eastern one as well. Each ornament was a fretlike device shaped much like a capital **G**, carved from a single piece of stone. A typical one is 55 cm. broad, 74 cm. high and 12 cm. thick (fig. 22). The tenon which was set into the roof mortar to hold the device upright is 21 cm. long and 15 cm. wide. The faces of many of the frets were recessed, giving the effect of a continuous band bordered on each side by a raised line. It is impossible to determine just how many of these frets there were. All were broken, most of them



FIG. 22—ROOF FRET, TEMPLE OF THE WARRIORS

in many pieces, and only two were recovered entire. However, the fragments are so numerous that they must have been set very close together. The recessing upon the fragments shows that some stood with open sides to the right and some to the left. The division line between these would seem to have been the door-altar axis of the building, so that the frets north of the door faced to the south, and those south of the door to the north.

On the western terrace, although some carved stones were found in addition to those used in reassembling the panels described, they were so few and so nondescript that it seems as likely that they had been brought from a dismantled building and used as common stone among the masonry, as that they constituted portions of some sculpture upon the entablature. The latter may have been plain upon the western side, or the sculptured elements may have been torn down and carried away before the city was abandoned; or, again, although

it seems improbable, the area in question may have been ornamented with painting alone instead of with painted sculpture.

The relative absence of sculptured stones on the west side seems all the more strange because a serpent head constituted the central element either of the medial or of the upper cornice. A head in full relief with a triangular tenon (fig. 23*b*) was found in the débris from each corner, and from both the north and south sides came numerous body stones. The serpents were not interlaced, but occurred singly, each beginning, apparently, at the center of one wall and extending thence to the corner. In proof of this, pairs of serpent tails were found at the foot of the hill, both on the north and on the south sides, at approximately the center thereof. One of these is shown in figure 23*a*. From the forward end of the tenoned portion,



FIG. 23—ELEMENTS FROM SERPENT CORNICE, TEMPLE OF THE WARRIORS  
a, tail; b, head

the plumed rattles form a graceful, downward curve. The stone is thinned and points outward to the extent necessary to permit it to hang down over the apron course beneath. Assuming that, either sculptured or painted, the serpent band was continuous around the building, two bodies would converge at each corner and thus the head tenoned therein would pertain as much to one as to the other.

It is certain that the entablature was variously sculptured on the north and south sides, but what the full nature and placement of the various *motifs* were is past finding out. Only a relatively small proportion of the mosaic blocks from this upper zone was found among the débris, some upon the north and south terraces and some scattered down the slopes of the pyramid. The dearth of sculptured material on the west side of the building already has been commented upon; but, to repeat, not even enough fragments were found to indicate definitely that carvings other than those replaced had ever existed on this exposure. On the north and south, where numerous elements were recovered, the conclusion cannot be avoided

that the temple had begun to crumble before building activities elsewhere in the city had entirely ceased, and that many of the missing stones were carried away to be reused. Stones that remained upon the surface, or weathered out as time went on, may have been destroyed by bush fires and the splintering action of the elements during centuries of exposure, but there is no reason why those from the entablature should have suffered more than those from the lower zone. In fact, the stones from above should have received better protection than the rest because they would have been the first to fall and thus the first to have been buried.

Among the sculptured fragments from the entablature may be recognized elements of masks, adapted both to corner positions and to flat wall panels, which are similar to those beneath the medial cornice, but of slightly larger size. There occur also a few blocks from serpent panels, but here the similarity of adornment of the two areas ceases. In the upper one there was an indeterminate number of panels wherein water seems to have been represented. At least the bases of the panels were composed of stones painted blue, the carving upon them conforming in shape and color to representations of waves in the murals depicting marine scenes (Plate 159) found within the temple. The line of water was interrupted by a mask much flattened from top to bottom, carved in the negative rather than the positive. Above the basal band were human figures of some sort. All efforts to learn more of size, subject and arrangement of entablature sculptures have met with failure.

#### FINISH OF TEMPLE EXTERIOR

When it is taken into consideration that the entire exterior of the temple was covered with plaster, it seems strange, indeed, that so much effort was expended in the careful facing and shaping of stones that were to be hidden completely from view. But such was the custom, and precedent as usual held sway. Coat after coat of liquid lime was applied until a layer 5.6 cm. thick had accumulated over plain spaces, cornices and sculpture, with the result that all contours were rounded and most of the detail of the carving was lost. Before the collapse of the upper zones, the major portion of this plaster shell loosened and peeled off, but on the battered zone of the north wall considerable stretches of it remained. By carefully picking off the flakes from the surface inward, 131 coats were counted. Even with this surprising total there is no certainty that the count was as large as it should be. Often the paper-thin layers adhered to each other so closely that it was impossible to be positive whether a specific flake was representative of one or more applications. As the extreme thinness of the laminæ indicates, the applications were not troweled on, but applied with some sort of brush, as kalsomine is put on today. The same technique is now practised by Yucatecan masons, the Spanish name therefor being "*lechada*," or, freely translated, "milk wash."

Several of the coats next the stone are a dappled, dark pink in color. This coloration was produced by some ingredient of the plaster instead of by painting over the wash after its application. It would appear that the plain surfaces were

for the most part left unadorned with color. However, on one, the twenty-second coat from the wall, the battered lower zone was covered entirely across the north and south sides, and presumably back and front as well, with a bold fresco.

After a great amount of painstaking labor, the superimposed layers were picked off from a strip 7.93 meters in length on the north side, beginning 2.44 meters from the west end, to reveal the *motifs* shown in Plate 164. The exterior plaster was entirely gone from the portions of the back of the temple *in situ*, and only the initial coats remained on the front. On the south side, the battered zone apparently retained its full thickness of stucco, except for some 1.5 to 2 meters at each end. Hence there was expectation of recovering therefrom an enormous painting. But upon picking into the mass, it soon became apparent that after several plain coats had been applied over the surface treated in color, almost all of the plaster, both frescoed and plain, had loosened from the stone and fallen. After the plaster fell, the cavity was filled with a massive coat of stucco, and the application of the first few films of whitewash obliterated all visible traces of the accident. There remained only an upper border of the painted coat, from 2.5 to 20 cm. wide, across nearly the whole expanse. However, 4.96 meters from the west end the nether edge dipped down to 34 cm. and from this vestige came the animal's head shown in Plate 165. Another head of the same sort of creature (Plate 165) remained upon another bit of the original, 14.41 meters from the west end. These murals will be discussed at greater length in the section on frescos.

While the plain area comprising the basal zone had been painted but once, the sculptured panels, to judge from those on the north side, had been repainted as often as the building was whitewashed. In picking off the plaster beneath the panels situated above the recoverable fresco, every coat was found to bear long splotches where drops of pigment falling from the brushes of the decorators at work upon the panels had struck against and then dribbled down the sloping surface. The colors were blue, green, yellow, red and black. Because of the multiplicity of repaintings, even were a sculptured area completely reassembled with much color remaining, it would be very difficult to decide what colors the various elements had been at a given time. In some places one layer of paint would be visible, and at others shades upon earlier or later coats. The surface of the stone being so irregular and the cohesion of the stucco layers so great, one could never be quite certain that a representation of synchronous coloration had been secured for the various elements of the mosaic. While the inherent love of color possessed by those who fashioned the temple would have led to its lavish use, even with no other motive than the pleasure which beholding it afforded, in so far as the sculptures in question are concerned a practical end was also served. The color demarcation of the various features would have made them recognizable long after the accumulation of plaster over them had obliterated detail and rendered the compositions nearly, if not entirely, unintelligible.

## THE PYRAMIDAL SUBSTRUCTURE

The pyramidal substructure of the temple was not symmetrical in major aspect for the reason that the lower half of the western slope was sheared off vertically by the back wall of the Northwest Colonnade, as indicated in the cross-section, Plate 4. The talus on the back, or east side, has not been removed. However, both the northeast and southeast corners are in place, giving the basal dimension of the eastern slope. The pyramid proper rests upon a simple terrace, varying in height from 36 to 54 cm. Presumably, this difference in altitude resulted from the slight irregularity of the base plane upon which it is built. It would seem that the purpose of the initial element was to provide a fairly well aligned and level surface as a foundation for the pyramid proper. The average width of the exposed upper surface of this foundation terrace is 86 cm., the variation being about 10 cm. The face, consisting in places of a single course and in others of two courses of stone, rises at an angle of  $72^{\circ} 30'$ . Because of the conflict of the Northwest Colonnade with the western side, this element is entirely lacking on that exposure.

## THE COMPOUND ZONES

The real pyramid, 11.06 meters in height, 38.43 meters north and south, and 37.58 meters east and west at the base, consists, in so far as its facing is concerned, of four compound zones. Each has as its components a lower element with battered face rising from the horizontal at an angle of  $64^{\circ}$  to  $80^{\circ} 10'$ ; a molding course, 15 to 16 cm. thick, vertically faced and overjutting from 15 to 19 cm. Set back about 5 cm. from the margin of it, there rises a vertical two-course band 66 to 76 cm. high, which is surmounted by a molding like the one beneath, its face flush therewith. Extending back from the margin of the upper molding, is a terrace 0.90 to 1.00 meters in width and sloping upward from 4 to 8 cm. From this terrace rises the battered element of the next compound zone (Plate 4). This description holds except at the extremities, where the corner pieces of the vertical band are set flush with the moldings, thus giving each band the form of a long recessed panel. The lower three of these panels are sculptured in low relief, except, of course, on the west face where the lower two do not exist. Because of the fact that it was found at one point *in situ* up to and including the lower molding, there can be no doubt that the fourth compound zone was of the same pattern as the others, but the complete lack of sculptured stones, such as could have belonged to it, proves that the uppermost vertical panel was not sculptured. For a long time this anomalous fact defied either disproof or explanation, but eventually a condition came to light which would seem to account for it. The pyramid was raised to the top of the third compound zone and there smoothed to the semblance of a floor. Also, the portion of the Temple of the Chac Mool which came within the boundaries of the pyramid was torn down to this same level. Hence, it may be inferred that the original intention was to give the pyramid an altitude of only



three compound zones, and that stones were quarried and carved to carry it to that height. Then later, when it was decided to raise it an additional increment, the latter was faced entirely with plain stone.

A cause for such a change of mind can easily be reconstructed. As will be shown later, the roof of the Northwest Colonnade was at the level of the top of the third sculptured band. Had the pyramid been left at this height, a building resting upon it would have been almost hidden from view on the front, or most important side. The desire to give their temple, when seen from the plaza around the Castillo, the Dance Platforms, or the Sacred Way, the prominence which its grandeur merited would have been reason enough to cause the architects to alter their plans.

Since, however, proof in the form of stones *in situ* cannot be provided for the way in which the uppermost panel was finished, it has not been rebuilt. As seen in the photographs, the upper margin of the pyramid consists of a rough backing, such as would have been provided for any sort of surface with which it might have been finished, inset sufficiently to allow for the thickness of a veneer.

As previously indicated, the front or western side of the pyramid coalesces with the back of the Northwest Colonnade. Therefore, the latter came in conflict with the stairway of the pyramid. The structural adjustment by means of which the stairway was brought up through the lower hall will be discussed in another place.

The stairway, including the ramps, one of which borders each side, is 10.37 meters in width. Therefore, it obscures practically the central third of the western face of the pyramid. The stubs of the two transected upper zones of the pyramid continue from the outer faces of the ramps to the respective corners. The finished facing of the topmost extends into the support of the ramps slightly less than the width thereof. On the contrary, the one next beneath continues under the ramps and into the hearting of the stairway for a distance of between 2 and 2.5 meters on each side. The interpretation of this inequality of length tends to confirm the assumption that according to the original plan the pyramid was to have been only three compound zones in height. Evidently the pyramid was completed to that height and finished, at least on the western side, with its veneer of faced and sculptured stone, with the exception of the area to be occupied by the stairway. This stairway was to have been only one intercolumnar interval in width to conform to the breadth of what functionally were its first steps; namely, those before the center aisle of the Northwest Colonnade, built against the face of the original platform thereof (Plate 5a). But before the time came for the erection of the stairway, it had been decided to add the fourth increment to the pyramid, and the general plan of amplification included the widening of the stairway to span three intercolumnar intervals of the lower hall, instead of one. Thus can be explained the fact that the faced veneer of the uppermost zone continues only a short distance into the ramps, while the shell of the third zone, as well as the continuations of the back wall of the Northwest Colonnade beneath the terminal portions of this third zone, extend under the ramps and far into the hearting, hiding thereby much carefully wrought surface, which according to original plan would have remained visible.

Of necessity the portions of the third sculptured band, which were buried under the masonry of later construction, were perfectly preserved (fig. 24). Fortunately, in the angles where the pyramid abutted the stair ramps, the first stones of the fourth sloping element remained in place, and at the north side the last block of the cornice which surmounted this element was still in position; thus a cross-section was provided without which it would have been impossible to replace, with certainty, the facing of the upper half of the pyramid.

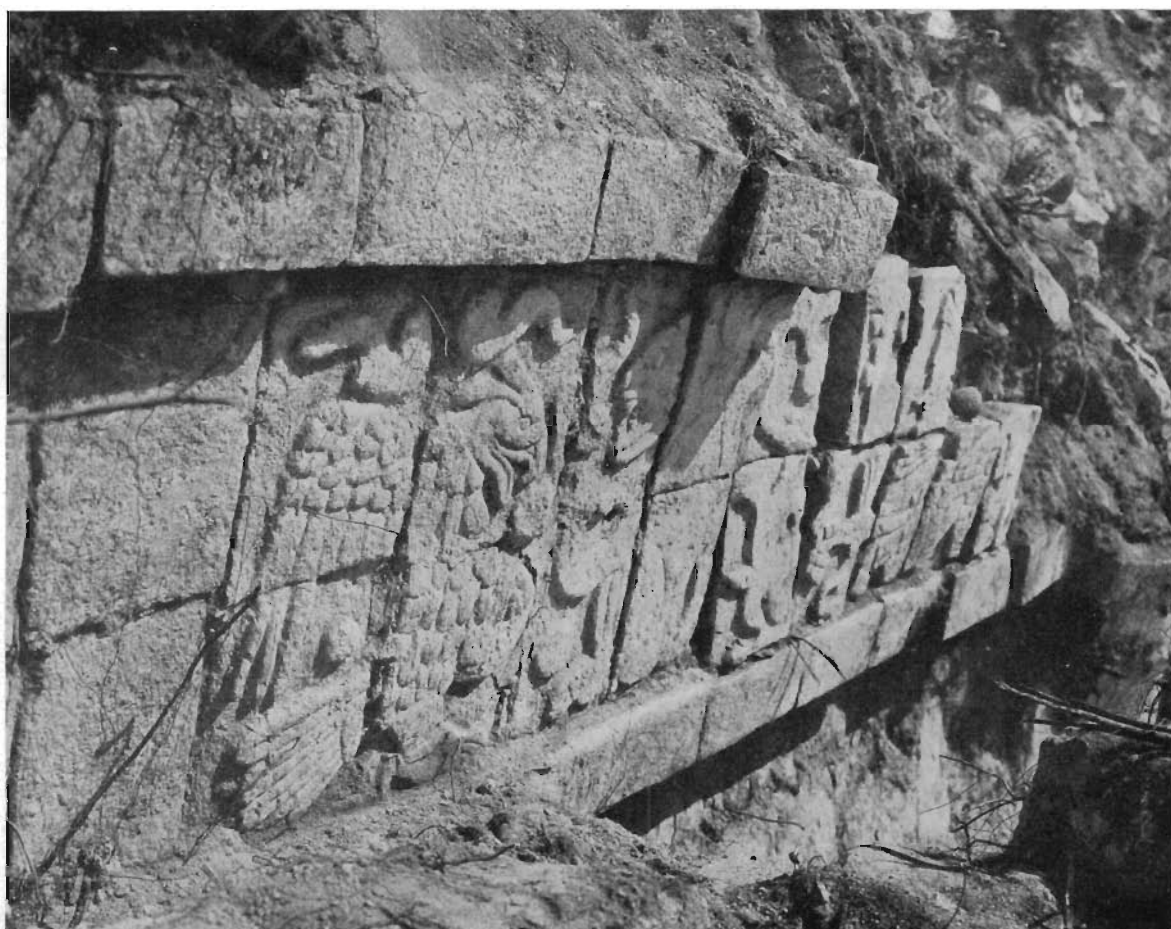


FIG. 24—INTACT PORTION UNDER STAIRWAY OF SOUTH HALF OF THIRD SCULPTURED BAND

#### THE SCULPTURED FRIEZES

All three of the recessed panels were sculptured after the same general plan (figs. 25, 26, 27, 28). The decorative elements are pairs of semireclining human figures, alternating with pairs of animals, or pairs composed of one animal and one bird. The relief is low, the maximum being about 2.5 cm., but clear-cut and distinct where the stones have not been weathered. The human figures, probably warriors, are placed feet to feet, with heads rotated 180° from the normal position so that they look directly over the back. Their major articles of vesture are a

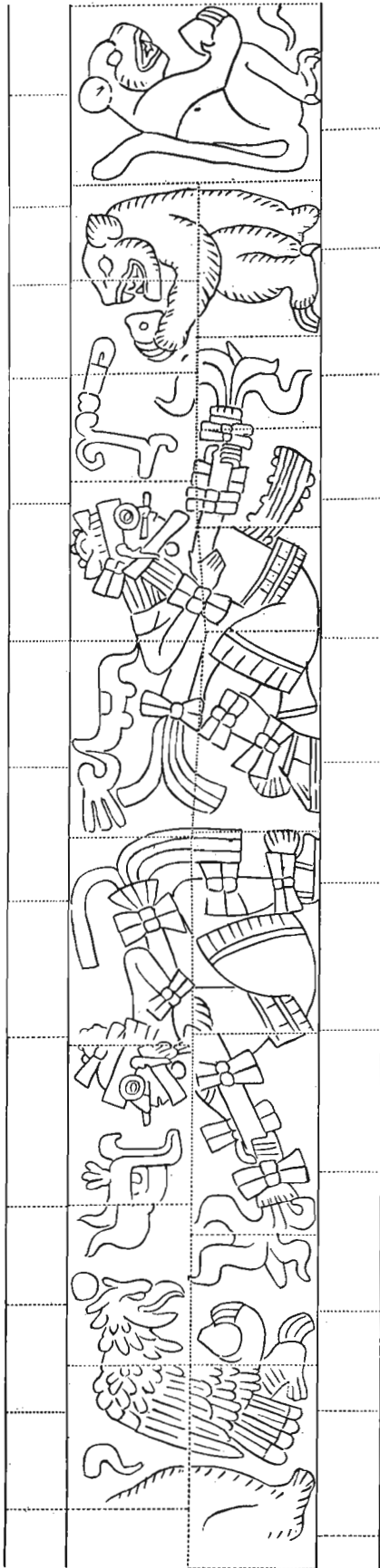


FIG. 25—PORTION OF FIRST SCULPTURED BAND, SOUTH SIDE OF PYRAMID, SHOWING BLOCK PATTERN

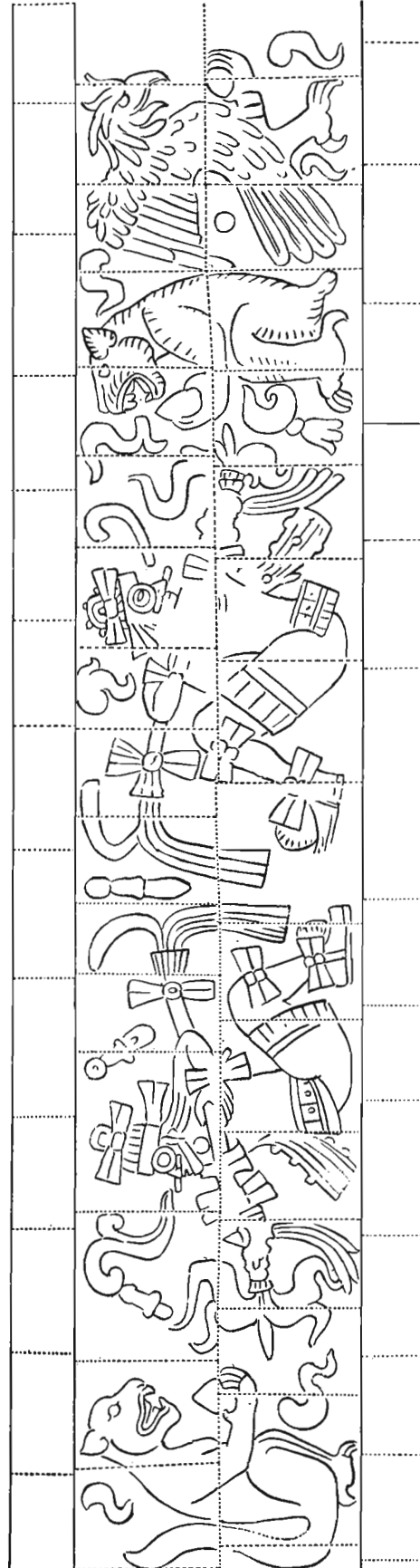


FIG. 26—PORTION OF SECOND SCULPTURED BAND, SOUTH SIDE OF PYRAMID, SHOWING BLOCK PATTERN

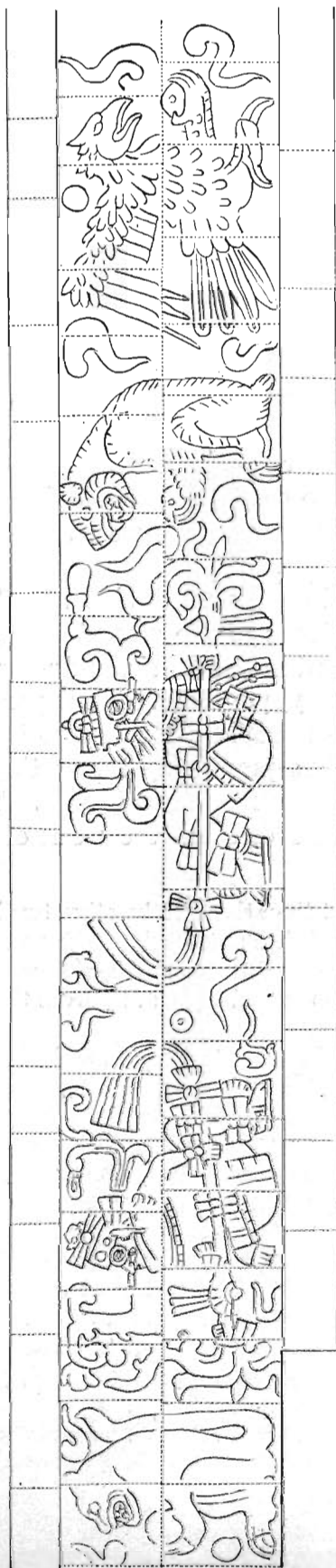


FIG. 27—PORTION OF THIRD SCULPTURED BAND, WEST SIDE OF PYRAMID, SHOWING BLOCK PATTERN



FIG. 28—PORTION OF SECOND SCULPTURED BAND, SOUTH SIDE OF PYRAMID

head-dress, sandals and a *maxtli* or breech clout. Each one carries a long plumed spear held more or less horizontally. The non-human forms are the jaguar, a stubby tailed, fuzzy creature resembling a bear, and the eagle. The animals sit upon their haunches, and the bird is always reared backward, with spread wing, in almost vertical position. Most commonly, the two contiguous animals, or bird and animal as the case may be, sit back to back. Never do two like creatures occur side by side. In one instance, in the third band—the only band on the west side of the pyramid—an eagle and a jaguar face each other. And in the bottom band on the south side, beginning 18.91 meters from the east end, two pairs of non-human forms appear together; the pairs are alike, in each case a jaguar on the east facing one of the above-mentioned woolly-haired animals; thus the contiguous members of the pairs are a jaguar and a woolly animal, back to back.

Without exception the animals have one foreleg and the birds one claw raised to a horizontal position, and they hold in either paw or claw a conical object resembling a heart. The warriors and many of the creatures are provided with speech scrolls, and plain areas of any appreciable extent always were avoided by leaving within them some scroll, dot, or circle.

The western 22.88 meters of the bottom band on the south side were found *in situ*. Between one-third and one-half of the stones of the second band, also at the west end of the south side, were tilted forward in the débris, and were thus relatively in place. Beneath the edges of the stairway, portions of the upper band also were found in original position. These sections provided the key to the difference in detail characterizing the three bands, thus permitting the sorting and differentiation of the fallen elements pertaining to the respective panels. These differences are described by Mr. Karl Ruppert, who directed the work of reassemblage, as follows:

“The Warriors in the lowest band are more recumbent than those in the other two bands, and also the staffs are held at a greater angle. The distal end rises to the height of the warrior’s head, while the other end is quite low. The feather ornaments on the staff swing low and away from the body. The *maxtli*, or Mayan breech clout, also curves sharply away from the body to accommodate itself to the reclining position of the figure.<sup>1</sup>

“In the first and second bands, the plumes on the end of the staff divide, a single plume curving up and back toward the rear of the warrior’s head, the other three turning downward. The ornaments, or scrolls, at the opposite end of the staff are long and slender and generally swing away from the figure. The *maxtli* is long and swings away from the warrior’s body.

“In the third band, the warriors are more upright, and the staff is held almost horizontal. The plumes at the end of the staff turn up in a single group of three, four or five, and curve toward the back of the warrior’s head. A pendant grouping of plumes on the staff, which, in the case of the lower bands swings away from the warrior’s body, here always hangs perpendicular.

“There seems to be no stylistic difference in the animal or bird figures of the different bands. Speech scrolls, circles and ornaments fill the background. (See figs. 25, 26, 27, 28.)

“The bands have been carefully painted and replastered several times. The background is red; the warriors have head-dresses of green, red and blue, and dresses of green, yellow, red and blue. The eagles are red; and the tigers, yellow, brown and black.”<sup>2</sup>

<sup>1</sup> The device interpreted by Mr. Ruppert as the *maxtli*, is, instead, long flowing hair, spangled with beads, as depicted in the frescos, Plate 146.

<sup>2</sup> Ruppert, 1926, p. 265.

The portion of the bottom band *in situ* on the south side, and the entire third band on the front of the pyramid, were merely finished with smoothing coats of plaster or, more properly speaking, whitewash, upon which no color appears, because they were hidden from view by structures built against them before the remaining portions of the panels were done in color.

Only one instance of painting upon the battered elements of the pyramid has come to light. Just beneath the lower cornice of the first compound zone on the north side, beginning 25.47 meters from the east end, is the pattern shown in figure 293. The lines are in red upon the white ground of a plaster coat very near the rock and firmly adherent thereto. There is no way of determining of what this fragment was a part nor the extent of the whole. Practically all plaster had peeled off, even from the portions of the facing *in situ*, exclusive of those parts intentionally built against, and these were covered before the whitewashings had deposited a coating of any appreciable thickness. Presumably, all of the pyramid that remained exposed was rewashed as often as the temple on top of it, but it is probable that to afford a contrast for the panels of colored sculpture it was customary to leave the sloping faces in their natural tone.

#### THE STAIRWAY

The stairway, visible in several of the accompanying illustrations, is situated at the center of the west face of the pyramid. It is 8.17 meters wide in the clear, or 10.37 meters counting the broad ramps, one of which borders each side. Thus the stair, exclusive of the ramps, has practically the width of the portal in the temple above. The stair rises at an angle of approximately 49° from the horizontal and consists of 36 steps. The lower eleven of these were *in situ* and in perfect condition, except for some fractures of the edges. The average rise and tread are respectively 26 and 28 cm. The component stones are small, from 16 to 51 cm. in width. Both flat and vertical faces are formed by the same stone, and the cutting is as true as if done with a saw. No other stairway in the city gives evidence of having been built with such precision. Despite the masterly finish of the stone surfaces, the stairs were repeatedly rewashed with lime until at least 7.6 cm. of plaster covered them. This consisted of a minimum of 120 coats, some of the inner ones having been stained red.

Approach to the stair was through the three central aisles of the Northwest Colonnade. The steps begin at the inner line of the third row of columns from the front of this lower hall, or the second from the rear wall. The vaults of the Northwest Colonnade ran from north to south, and, therefore, the stairway interfered with the two inner ones. The innermost was entirely omitted over the stair area, while the other was so modified that it formed a roof above the first eleven steps. The ramps are interrupted in the line of the western side of the inner row of columns by a wall, vertical for 1.16 meters, above which point they are surmounted by westward sloping beveled stones that constituted the springs of the corners of the inner,

or interrupted, leg on either side of the vault. One of these stones was found lying in a position that clearly revealed whence it had fallen (fig. 29). Rising from the stairway, in line with the inner row of columns and beginning about 41 cm. below the level of the tops thereof, are two unsculptured pillars, 2.79 meters in height. Obviously, these supported the inner edge of the roof, since there was nothing to have sustained it had it continued farther toward the pyramid. Vault



FIG. 29—FIRST STONE OF NORTH VAULT CORNER (X)  
AS FOUND ON STAIRWAY

Two cornerstones (*a*, *b*,) of vertical interruption of stair ramp are shown as found, inclined to west. Upon top member of series was bedded vault stone in question. Exposure that faced stairway lies downward.

stones, differing from those common in the débris of the Northwest Colonnade, in that they exhibited a much flatter bevel, were found at the foot of the stairs. With them were unusually long capstones, bearing transverse plaster lines 59 to 61 cm. apart. These showed that the roof had been vaulted and that the top of the vault was about 60 cm. in width. From the evidence afforded by the pillars rising from the stairway, the flat-beveled vault stones, and the abnormally long cap pieces, the stair roof must have been constructed as shown in figure 30.

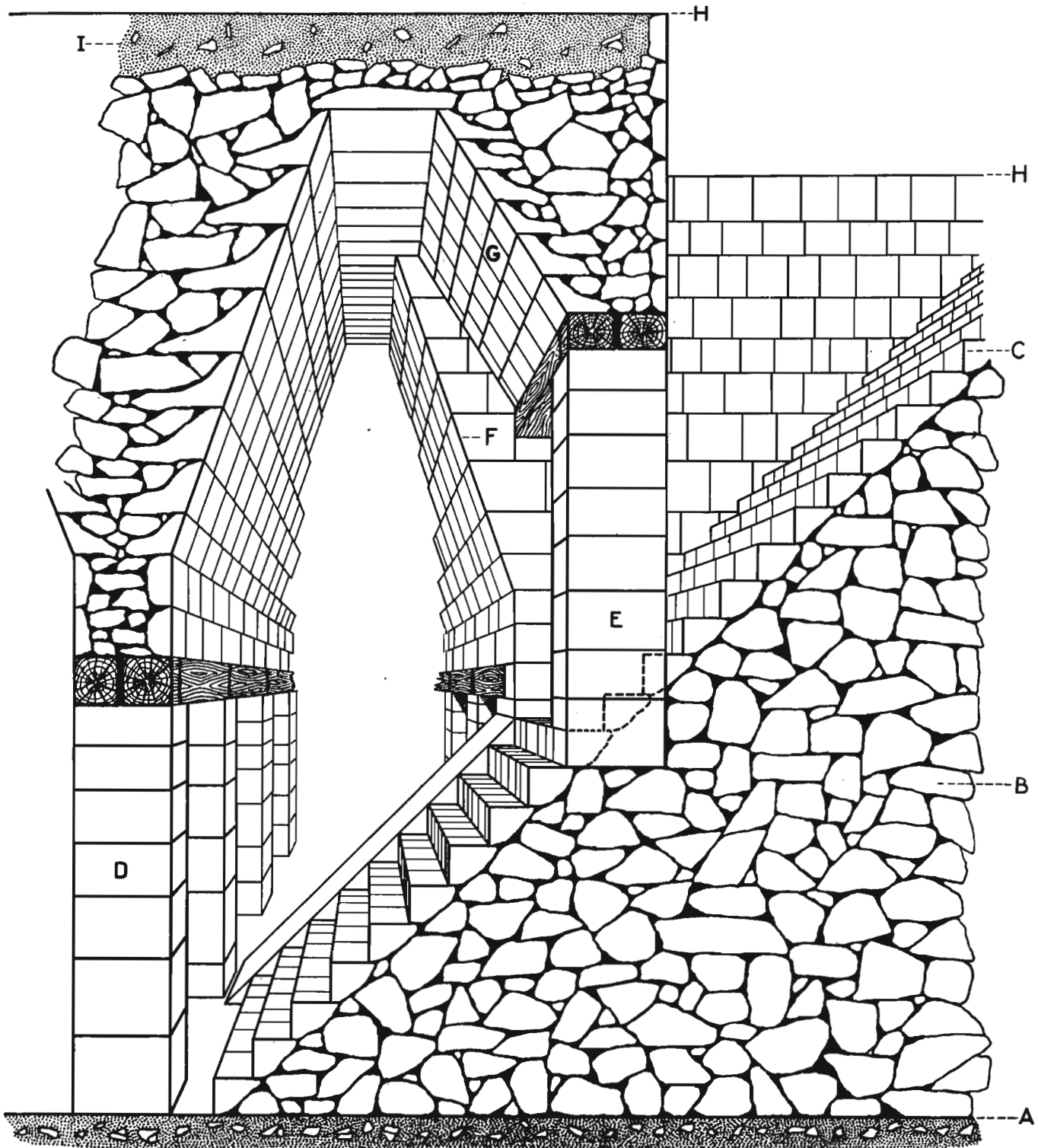


FIG. 30—GRAPHIC SECTION OF ROOF OF STAIR WELL, RESTORED

- |  |  |
|--|--|
| <p>A. Floor level of Northwest Colonnade</p> <p>B. Hearting of stairway</p> <p>C. Stairway</p> <p>D. Column 29, Northwest Colonnade</p> <p>E. Elevated column, No. 30, Northwest Colonnade</p> | <p>F. Corner of transected east rib of third vault of Colonnade, having bevel normal for building</p> <p>G. Shortened east rib of third vault, over stairway, having very flat bevel</p> <p>H, H. Roof level of Northwest Colonnade</p> <p>I. Compact roof layer</p> |
|--|--|



## THE STAIR WELL

The vault in normal cross-section terminated on each side at the line of the inner edge of the ramps. The western or outer leg of it continued across the breadth of the stair without interruption or change of slope. The eastern leg was bedded upon beams which crossed at the height of the tops of the columns rising from the stairs, or 1.53 meters above the spring of the western side. Granting to these beams a thickness of 20 cm., in the 1.53 meters of vertical distance remaining, the face sloped at an angle of about  $55^\circ$  from the horizontal to meet the abnormally long capstones at the distance which the plaster lines upon them indicated, or



FIG. 31—NORTH SIDE OF STAIRWAY, SHOWING SERPENT PATTERN ON BASE OF STAIR RAMP

60 cm. from their points of insertion above the terminal course of the west leg of the vault. The opposite exposure of this mass of masonry rose vertically from the eastern face of the elevated columns to the roof level of the Northwest Colonnade to form the western edge of the rectangular well through which the stairway emerged into the open. A glance at the graphic section presented in figure 30 will greatly facilitate an understanding of this novel constructional device. The sides of the well consisted of the vertical walls which occupied the area of the omitted portion of each ramp, their opposite faces blocking the ends of the transected innermost vault of the lower hall.

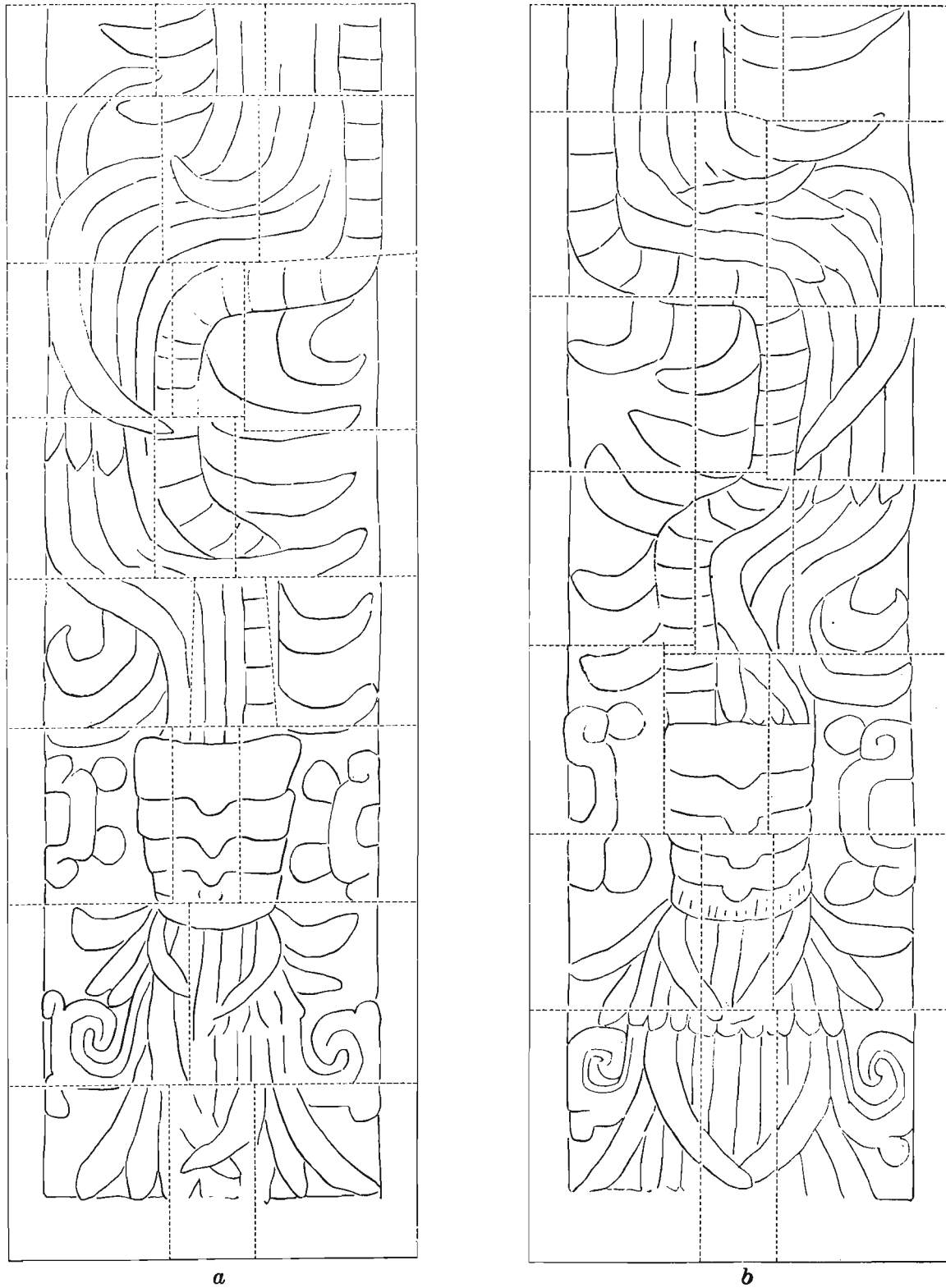


FIG. 32—SERPENT MOTIF, ON BASES OF STAIR RAMPS

At the roof level of the Northwest Colonnade the ramps begin anew and continue upward a distance of 2.31 meters with practically the same slope as the basal portions, to terminate at the bases of vertical collars which enclose the tenons of huge serpents' heads, one in each ramp. The extreme tops of the partly raised upper jaws are flush with the level of the terrace upon which stands the Chac Mool figure.

#### THE RAMPS

Each ramp is, in reality, a serpent balustrade carved in very low relief (fig. 31). The plumed rattles begin at the bottom (fig. 32), and the feather-decked body-whorls wind back and forth across the shallow recessed panel, as if to disappear beneath the wall previously described, and emerge again at roof level, whence the curves continue to the head. The latter, like those of the warriors in the sculptured bands which encircle the pyramid, is rotated through an angle of 180°, thus to stand in bold relief against the sky, looking out directly over the back of the serpent (fig. 33). The appearance of these heads is given with sufficient clearness in the photographs to make detailed descriptions superfluous. The northern head is 79 cm. long, 57 cm. wide and 69 cm. thick. The other is of practically the same dimensions. The collar, in which each is set, is 91 cm. high and 1.09 meters wide. Apparently these sculptures were not as well executed as, for instance, the heads of the serpent columns of the temple. However, because of their eroded condition, due to long weathering, one may be inclined to do them scant justice.

#### BANNER SUPPORTS

As far as the external features of the pyramid are concerned, there remains but one feature to touch upon, namely, the standard or banner supports. In figure 34 may be seen two human figures in stone, standing on the brink of the terrace immediately above and back of the serpent heads of the balustrades. They were found in the débris above the foot of the stair.

The statuettes are so nearly alike that only the one on the north side will be described in detail. It is 94 cm. in height. The square base is left rough for 6 cm., showing that, like the Chac Mool figure, this sculpture was set into whatever surface it stood upon. There is a deep recess between the feet, and the groove between the legs is well defined but not cut through. The upper arms hang vertically by the sides, while the forearms are raised to the horizontal with the finger tips touching in front of the abdomen. The stone between the forearms is not cut away. Thus the effect is given of a plate, 10 cm. thick, grasped and held against the trunk. Between the hands, the plate is pierced by a vertical bore, 7 cm. in diameter. A staff passed through the bore rests in the slot between the feet and hence slopes forward at a slight angle from the vertical. There is no doubt that these figures occupied strategic positions somewhere in front of the temple door. For a time it was thought that they stood in the recesses on the tops of the heads of the ser-

pent columns, but when staff sockets of another form (fig. 35) were found in front of the Northwest Colonnade, at the tops of the ramps which flank the central



FIG. 33—SERPENT HEAD AT TOP OF NORTH RAMP OF WARRIOR'S STAIRWAY  
Columns in sanctuary of Temple of the Tables in the distance

avenue of approach to the great stairway, a comparable placement at the stair head was assigned to the statuettes.

These squat, misshapen figures (figs. 36, 37) are represented as wearing sandals, anklets, cuffs, and a wide belt which terminates at a large medallion in the center



FIG. 34—STANDARD BEARERS ON FRONT TERRACE,  
TEMPLE OF THE WARRIORS



FIG. 35—STAFF SOCKETS, FRONT OF NORTHWEST  
COLONNADE

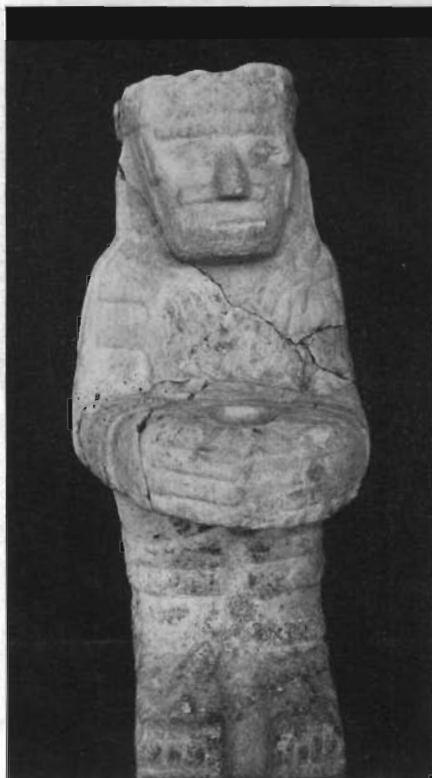


FIG. 36—NORTH STANDARD BEARER, TEMPLE OF THE WARRIORS, FRONT AND PROFILE  
The staff passed through the bore visible between the hands

of the back, from beneath which flowing streamers fall to the ground level. The hair seems to hang free, with bangs covering the eyebrows and a sort of stair-step bob across the cheeks. A broad fillet, tied at the back, encircles the head. A beaded collar hangs low upon the breast.

The more common sort of staff sockets are stones of truncated conical form, set with slender end uppermost. They are hollowed out both from below and above, the two pits meeting near the top. Because of the flare of the bottom cavity, a staff of a diameter that could be inserted at the impingement of the bores would always lean, in response to gravity, but once placed toward any



FIG. 37—SOUTH STANDARD BEARER, TEMPLE OF THE WARRIORS

direction it would be firmly held by the binding of the butt in the angle between the slope of the stone and the surface upon which the latter was bedded. A typical one of these sockets is 37 cm. high, 37 cm. in diameter at the base, and 20 cm. at the top. One or more were found in the debris beneath each corner of the pyramid. From this fact the inference would follow that they were set on the corners of the terraces. In substantiation of this allocation, a fragment of a mural may be cited (Plate 139, upper left), in which is depicted a temple with one of these cones, surmounted by plumes or long leaves, standing on the extant corner of the substructure. Certainly there was one at each angle of the Warriors platform, and probably they were present also on one or more of the lower terraces.

## THE NORTHWEST COLONNADE

The Northwest Colonnade (fig. 38) is a westward-facing rectangular structure, 48.07 meters in length and 14.82 meters in width. The longitudinal axis lies north  $16^{\circ} 20'$  east. As previously indicated, the rear of this building coalesces with the western face of the pyramid of the Temple of the Warriors. A glance at the ground plan (Plate 3) will make clear the extent to which the two structures overlap.



FIG. 38—LOOKING NORTH BETWEEN SECOND AND THIRD FILE OF COLUMNS, NORTHWEST COLONNADE

Approach to the building in question was from the major terrace which underlies the entire northern end of the city. From this terrace two stone steps, with an average rise of 25 cm. and tread of 30.5 cm., lead to a platform about 3.79 meters in average width at the floor level of the colonnade. The present length of these steps is 50.96 meters. They begin at the south end of the building and continue past the northern extremity. Nor is it certain what their limit in this direction was. They gradually break downward and disappear, while at the back of the colonnade the surface of the platform they bound seems to continue. It may have extended from 4.5 to 9 meters to the stair and substructure of the Temple of the Tables, which uncertainty excavation would dispel. This digging,

whoever, should not be done until the time is at hand for the repair of the features which would be uncovered.

The platform continued behind the part of the colonnade that juts northward from the pyramid of the Warriors, to form a terrace 1.63 meters in width with battered face approximately 46 cm. high, its slope not now determinable since the masonry veneer has disappeared. This face connects with the basal platform of the pyramid of the Warriors, and, being some 38 cm. higher than the latter, crosses it to join the foot of the sloping element of the first compound zone. In the angle thus formed, a stone pavement of undetermined extent, with a slight downward slope toward the east, continues northward beneath the talus of débris shrouding the Temple of the Tables.

The steps at the front of the platform terminate 1 meter from its southern end. Thence to the corner there is a vertical wall in line with the edge of the top step. From the corner this wall turns to the east and, at a distance of 3.49 meters, connects with a platform, 15 to 23 cm. high, which runs 1.3 meters to the south and 2.32 meters to the east to join the very low terrace on which the West Colonnade stands. The wall in question extends eastward across this platform in line with the south faces of the northernmost transverse tier of columns of the West Colonnade to the western side of the second column from the back wall. Built along it from this point to the forward line of the front row of columns in the Northwest Colonnade is a step 20 to 28 cm. in height and 30.5 cm. broad. Thus, throughout this distance, leading from the floor level of the West Colonnade to that of the Northwest, there are two disproportionate steps, the first about 25 cm. high, the second 30.5 cm. From the east end of these steps, a ramp with a slope of  $75^\circ$  extends to a junction with the bench of the West Colonnade.

However, the step once continued behind the space now occupied by the ramp to the forward line of the inner column; thence onward to the bench, there was at that time a vertical wall. The space between the inner and second columns was occupied by a wall 66 cm. thick.

On the ramp, about 61 cm. west of the inner column, were the graffiti, shown in figure 321, *a, b*, scratched into the black-coated plaster.

The platform beneath the Northwest Colonnade was changed and remodeled in various ways, and contains several sub-floor features of importance. Since the present aim is merely to describe the building in its ultimate arrangement, the modifications by which it reached this stage will be dealt with elsewhere.

There is an upward slope from the top of the frontal stair to the back wall of the colonnade. From the platform edge to the front row of columns the rise is 13 cm., and from the latter point to the front of the bench at the rear of the hall, 20 cm. The width of the platform in front of the building is 4.04 meters at the south end and 3.6 meters at the north.

In line with the two central rows of columns, that is, symmetrically placed on each side of a prolongation of the axis of the great stairway, ramps are built over the platform steps. The northern one is intact, is 36 cm. wide and slopes  $39^\circ$



from the horizontal. At the top is a vertical collar 34 cm. high, and in it is tenoned a serpent's head (fig. 35). The upper surface of the collar is about 5 cm. higher than the top of the upper step. Seated upon it is a conical staff socket, like those described for the Warriors, found *in situ*.

While in essential respects the Northwest Colonnade conforms to the most prevalent type of columned hall to be found at Chichen Itzá, its adjustment to contiguous structures caused the omission of some features and the modification of others. For instance, because of the junction of the south end with the West Colonnade, the south wall and the south anta were omitted. The rear center of the structure being occupied by the foot of the Warriors stairway, the dais or altar which should have been placed there was constructed three intercolumnar spaces to the south. Then later, to balance this asymmetry, another altar was built northward of the stairway.

#### INTERIOR FEATURES

The interior width of the hall is 12.48 meters and its length 46.51 meters. It contains, in all, four rows of columns running from north to south. The forward or western tier may be considered as elements of an interrupted front wall. They are fifteen in number, 76 cm. from back to front and 67 cm. wide, and stand at intervals that vary little from 2.29 meters, except the central space, which is 2.59 meters. There are sixteen columns in the second and third rows; but fourteen in the back row where the function of the two missing ones is assumed by the walls which, as previously described, form the sides of the Warriors stairway. Two of the fourteen rise from that stairway instead of from the floor of the hall. The interior columns are 67 cm. from east to west, and 52 cm. thick. They stand in well-aligned rows, separated from each other and from the tier in front by fairly regular intervals of 2.64 meters; while from north to south, the spacing, both between the individual columns and between the northernmost column and the north wall, is 2.44 meters, again excepting the central span which is 2.69 meters wide. Owing to the crookedness of the back wall, there is a maximum difference of 46 cm. in the distance from it to the respective columns of the inner row. The separation at the south end is 2.48 meters; at the south side of the stair, 2.90 meters; at the north side, 2.82 meters; and at the northernmost column, 2.68 meters.

The columns average 2.64 meters in height. Exclusive of the two on the stair, all are sculptured, the division of the field and the devices graven on base, shaft and capital being exactly the same as those described for the Temple of the Warriors. Considerable stylistic differences in the carving and variation in physical appearance and accoutrements of the individuals represented, are to be observed in certain portions of the hall, as will be described by M. Charlot. The four southern columns of the front row are not complete.

The jamb formed by the end of the north anta is sculptured, as might be expected, with the figure of an Atlantean. There is no false column or pilaster

built against the jamb; in fact, the pilaster seems never to have been used in the one-chambered, many-columned halls.

Beginning 29 cm. from the doorway near the south end, there is a bench all the way along the back wall, except for the areas occupied by the sculptured dais and the stairway. It is 1.55 meters broad and 63 cm. high, with a marginal vertical molding 11 to 15 cm. in height, which has an overjut of 4 cm. The wall beneath the molding is vertical. Bedded upon the bench, 27 cm. from the wall and leaning toward it, there is an inclined element, 54 cm. in height, with a slope of  $66^\circ$  from the horizontal. The top is finished with a flat shoulder averaging about 6 cm. in width.

#### SCULPTURED DAIS

A dais, 5.19 meters from north to south and 4.1 meters wide at the south end, built to enclose the bases of the first two columns south of the stairway in the row nearest the wall (Plates 9, 10), is perhaps the finest of several platforms which have been uncovered at Chichen Itzá. The wall which bounds the three exposed sides rises at an angle of  $80^\circ$  to a height of 67 cm. from the floor. Surmounting it is a 19-cm. vertical cornice with an overjut of 7.6 cm. The battered wall is of the same vertical height as the bench against which the dais abuts; therefore the cornice of the dais extends across the bench to the back wall of the chamber. The sloping element, mentioned as occurring at the back of the bench, does not continue across the space occupied by the altar. The battered zone is sculptured in low relief to represent two files of gaudily bedecked human beings, proceeding from the back of the altar, one on each side, to converge at the center of the front, where, between the leaders of the procession, stands a bowl of incense with cone-shaped offerings thrust into the mass which the bowl contains.

Upon the cornice are graven the inevitable colubrine figures. The serpents appear in regular curves, their whorls adorned with plumes, lying head to head with a bowl of incense between. From the open mouth of each is emerging a human head or figure. All of the sculpture was painted with the full range of the aboriginal palette, and, when uncovered, this paint was in an excellent state of preservation. The magnificence of the dais may be judged from the color reproductions given in Plates 125, 127, 129.

That this altar was part of the original plan of the hall is proved by two facts. The front wall of the bench against which it stands does not continue through it, and the columns which it encloses, although carved to the same scale as the others, so that the figures appear to be cut off at the knees, are plain beneath the level of the altar top.

When first uncovered there was a stairway of three steps, 2.59 meters in width, against the center of the front of the dais (Plate 10). The average dimensions of the steps were, rise 21 cm., tread 30.5 cm. A ramp, 21 cm. wide, bordered each side, sloping at an angle of  $43^\circ$ . At the top of each ramp there was a vertical panel, 23 cm. in height. Since it was evident that sculpture continued behind the

stairway, all but the lower two steps of the latter was dug away. Vertical plaster lines against the carved surface, 1.43 meters apart, showed that some previous device, presumably also a stairway (fig. 39), had been erected against the center of the dais, then torn away when the later one was built. Forward of the center line of the dais, at a distance of 2.96 meters, stands a truncated pyramidal sacrificial stone (Plate 9). It is 40 cm. from north to south at the base and 34 cm. wide, with dimensions of 30 cm. by 21 cm. at the top and a height of 40 cm. This stone was covered to a thickness of 1.9 cm. with white plaster. This same finish of white



FIG. 39—SECONDARY STAIRWAY IN FRONT OF SCULPTURED DAIS, NORTHWEST COLONNADE, PARTIALLY REMOVED, SHOWING REMAINS OF EARLIER STAIRWAY, *a*

covered the intercolumnar space in which the sacrificial stone stands, from the dais to the front of the building; also it spread back to and up the stairs, to terminate at the front line of the enclosed columns. The rest of the surface of the dais was originally a brilliant red, excellently finished lime plaster. Set back from the front margin, in the central line of each column, the northern one 19 cm., the southern 27 cm., was a plume or banner socket which consisted of a stone ring set flush with the plaster. The diameter of each ring is about 13 cm. and of the bore 4 cm. There are many curtain eyelets in the upper edge of the cornice, spaced at intervals of from 20 to 28 cm.

A ragged area of white plaster, beginning at the center of the altar and extending slightly southward, thence to the back wall, indicated that the surface had for some reason been patched. Investigation proved that in aboriginal times a hole had been dug to the level of the floor of the hall, presumably for the purpose of recovering some offering the altar had contained. The pit had been sunk at the center and, evidently failing in its purpose, had been narrowed down for a distance, then widened to some 60 cm. against the back wall where the object sought presumably had been interred. In this part of the hole was found part of the container of the cache. It had been a crude, widely flaring clay vessel with some sort of base, at least 35.5 cm. in diameter. On the section recovered was a broad vertical loop handle, and on either side of it a black-bordered vertical panel painted blue and studded with conical clay spines. The excavation had been loosely filled with the material dug out of it, among which fragments of the original red plaster finish were conspicuous. Then, after the hole was full, the area was smoothed over with plain white plaster.

#### SECONDARY DAIS

The secondary dais stands between the second and third columns of the back row north of the stairway. It is 3.54 meters from north to south and 4.15 meters wide. The walls are vertical, 69 cm. in height, including the cornice. The 13-cm. cornice overhangs 7.6 cm. This cornice, like that of the dais already described, extends back across the bench to the wall. The workmanship is poor in the extreme. The only sculpture occurs on a few of the cornice blocks which, obviously, are reused. The wall of the bench and the inclined element at the back thereof extend through this dais, and the sculpture on the columns, of which its mass hides three sides, reaches to the floor.

The floor of the Colonnade is not level nor does it deviate from the horizontal at any uniform gradient. From the south end, in addition to rising from front to back, it slopes upward toward the north as far as the north edge of the stairway. Thence northward it drops down gradually to a depth of nearly 30 cm., to rise again toward the north wall. This same sway is observable in the stairs at the front of the platform. It may have resulted from the settling of the substructure, although this seems unlikely.

Set into the floor in the line of the forward row of columns are rectangular paved areas, distributed as shown by the plan (Plate 5A). They vary in size from 76 cm. square to 25 by 32 cm. and consist of from one to four ordinary wall stones laid face upward, flush with the floor. Three of them show evidence of much burning, as if they might mark spots where fires were maintained for some length of time.

#### THE VAULTS

The vaults of the Northwest Colonnade were four in number and ran from north to south. Vestiges of the eastern side of the innermost vault remained in the two angles formed by the back wall and the stairway. According to these, the

spring of the vaults was 3.56 meters from the floor. This height was further confirmed by the basal stones of the rear leg of the third vault found *in situ* on the stumps of the walls bounding the mid-portion of the stairway, as described in connection therewith. Thus the vaults began 92 cm. above the 2.64-meter columns. Allowing 30.5 cm. for the thickness of the wooden beams which the columns supported, there must have been vertical walls of masonry, 61 cm. high, between



FIG. 40—SOUTH FACE OF STAIR RAMP SHOWING ORIGINAL FACING

*a*, squared corner thereof, *b*, situated behind *c*, the secondary veneer

them and the first course of beveled stones, or else, to fill this height, squared beams were laid one on top of the other. In the débris no unbeveled stones were found to indicate that there had been a molding course beneath the arches, nor was one in place in the angles by the stair. Neither were there traces of a string course beneath the capstones. However, plenty of the latter were found, some with plaster lines 39 cm. apart. By projecting the slope of the arch from the stones

found *in situ* beside the stairs to the point necessary to provide for cap-pieces with this clearance, the height of the vault was determined to have been 2.74 meters and the total distance from floor to capstones 6.30 meters.

Often it is difficult to imagine what logic operated in the minds of the ancient builders to account for the great amount of labor they expended to no advantageous purpose. For instance, in the line of the western faces of the inner row of columns, the walls of the stair sides were not only faced where they fulfilled the function of columns above the ramps; but were also provided with well-wrought corners (fig. 40) and faced walls extending 1.22 meters into the hearting of the stairs all the way to floor level. This expanse of finished masonry was completely hidden when the ramps were built, and these certainly are part of the plan according to which the stairway was constructed. Again, the ends of the inner vault and the sides of the stair mass beneath it are double-faced. In the first place, the wall was constructed to its full height with well-faced stone, including a 5-cm. overjut at the spring of the vault. Then an 18- to 25-cm. shell was applied in front of it, functionless as far as strength is concerned because of its thinness (fig. 40).

#### COLOR TREATMENT OF INTERIOR

The interior of the building had been plastered as thoroughly as had the chambers of the Temple of the Warriors, but, owing to more shallow burial of the remaining parts, less evidence remained as to the color treatment they had received. The floor, wherever it is preserved, is a brilliant, highly polished red surface like that of the upper temple. The sculpture of all of the columns was painted.

On the back wall, between the stairway and the corner of the Warriors Pyramid, enough vestiges remained to give a key to the color treatment. The front of the bench was black, and here and there upon its cornice face were to be observed conventionalized body scales of a serpent pattern done in red, white and blue. Black also covered the inclined element at the back of the bench and extended 4 cm. on to the vertical wall above it. Then came a stripe of blue, a band of red and one of yellow, each 9 cm. wide, all bordered by black brush lines. Above the yellow stripe, or at a height of 1.23 meters from the floor, began a more complex pattern. The recoverable portions of it, beginning 25 cm. from the stair and continuing northward for 6.10 meters, appear in figure 294. The two upturned arcs, composed of blocks of white, blue, yellow and red, bordered with fringes of triangles, were at first thought to represent solar disks, but subsequent findings in the Temple of the Chac Mool indicate that they were portions of the body whorls of a variant of the Plumed Serpent *motif*. This pattern continued past the corner to cover the side wall of the stair. As a further proof of the secondary construction of the north dais is the fact that the major mural pattern was continuous across the space behind it, whereas it was customary to place a more elaborately treated panel above dais or altar, wherever such occur. Enough bits of paint remained on fallen and unfallen stones, south of the stairway, to show that here, on both stair side

THE TEMPLE OF THE WARRIORS

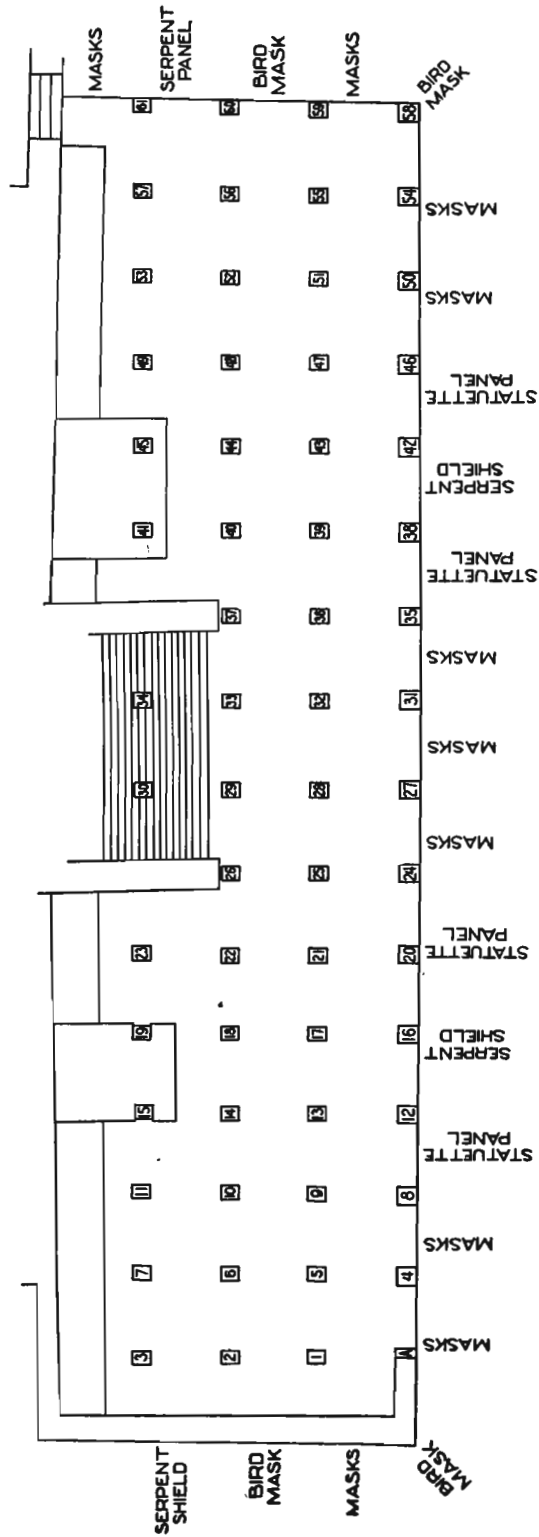


FIG. 41—PLAN OF NORTHWEST COLONNADE SHOWING COLUMN NUMBERS AND DISTRIBUTION OF EXTERIOR SCULPTURE

and wall, the painting on the north of the stairway had been duplicated, with the exception of the area behind the sculptured dais where there had been a most excellent wall panel. The stones of the veneer which it covered had peeled off and fallen face downward upon the dais, with the result that quite a number were well preserved, as may be judged from Plate 166.

A cross-section of the free standing wall, as given by the north jamb, is 1.32 meters in width at bottom. The basal zone is a battered element, 1.47 meters in height, rising at an angle of  $69^\circ$  from the horizontal. Above this is a beveled apron course, 21 cm. thick, its nether edge jutting forward 9 cm., its slope  $75^\circ$  from the vertical. Thence upward the jamb is vertical, 76 cm. in thickness, to a remaining height of 1.06 meters. This medial zone continued upward to the medial cornice, which from analogy may be assumed to have been approximately at the spring of the vaults, or about 3.56 meters from floor level. Thus the medial zone would have been in the neighborhood of 1.88 meters high. It was unsculptured. As known from fallen elements, the medial cornice consisted of three members; a beveled course above and below, with a vertical element between. The measurements of the beveled stones are: thickness, 24 cm., angle of slope,  $67^\circ$ . The vertical course was 21 to 23 cm. thick. The bottom element of the upper cornice was 28 cm. thick, the central vertical course 18 cm. The top member, which, as in all buildings at Chichen Itzá formed the roof coping, was 51 cm. in height.

#### HEIGHT OF THE BUILDING

The ultimate height of the building has been fixed with reasonable accuracy. The back wall rose from the terrace at the top of the second compound zone of the pyramid, but after at least that portion of it south of the stairway had been finished with faced stone, the area between it and the pyramid was filled with masonry. This fill came to the top of the sculptured band of the third compound zone, as proved by the fact that no color appeared upon the latter, while all portions that remained exposed had been painted. That it extended no higher was evidenced by the lack of man-made fill upon the terrace above the third zone. This gave an altitude from floor to roof margin of 6.89 meters. A further check was provided by the upper portions of the ramps of the Warriors stairway. The pattern for the replacement of the great serpents' heads was taken from the small one found *in situ* in the north ramp in front of the platform of the Northwest Colonnade. Giving the same relative proportions to the collar at the top of the ramp and placing the one complete margin of the sculptured ramp at the same angle as the one at the foot of the stair, the foot thereof lacked 2.5 cm. of filling the distance necessary to reach the roof level, as fixed by the previously cited method.



## EXTERIOR SCULPTURE

Granting, then, a building height of 6.89 meters, the upper vertical zone, or entablature, was approximately 1.58 meters wide. This area was copiously adorned with sculpture. While none of the panels has been reassembled with any approach to completeness, some idea of their nature and arrangement has been obtained. There were four distinct kinds of mosaic areas which may be classified as follows: Plumed Serpent panels, statuette panels, mask panels, and bird-head panels. The



FIG. 42—SERPENT HEAD WITH HUMAN HEAD  
IN JAWS FROM MASK PANEL, NORTHWEST  
COLONNADE



FIG. 43—SMALLER HUMAN STATUETTE FROM  
FAÇADE, NORTH HALF OF NORTHWEST  
COLONNADE

distribution and approximate position of these *motifs* is shown by figure 41. In all, there seem to have been four plumed serpent panels, four statuette panels, four bird-mask panels and ten ordinary mask panels. The Plumed Serpent panels were essentially like those previously described which have been reset in the walls of the upper temple. The most conspicuous element of each was the centrally placed reptilian head with a human face between the open jaws. The one from the north half of the western façade appears in figure 42.

The statuette panels had as their central element a seated human figure wearing a grotesque mask as head-dress. The statuette from just north of the central axis is shown in Plate 11, and the one from the second decorative unit northward thereof in figure 43. Only a few fragments of the two belonging to the south half of the façade were found. Presumably, these figures were squatting directly upon the upper member of the medial cornice. The exact pattern of the panels of which they formed the nuclei has thwarted all attempts at determination. It would appear that the border device had been an elaborate plume effect, the feathers turning toward the sides from the median line above the statuettes, falling thence



FIG. 44—BIRD MASK HEAD FROM NORTHWEST CORNER OF NORTHWEST COLONNADE

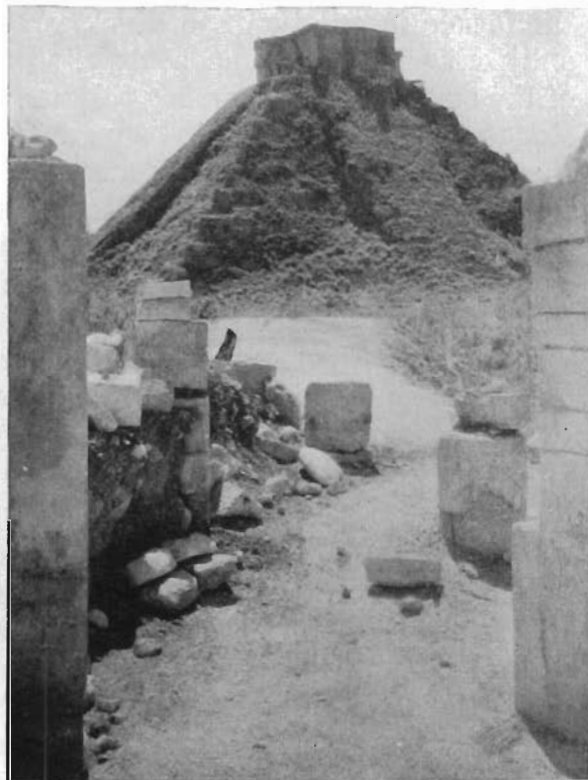


FIG. 45—DOORWAY FROM NORTH TO NORTHWEST COLONNADE, CASTILLO IN BACKGROUND

in graceful drapery down the sides, as do those bounding the sides and top of the Plumed Serpent panels in the Warriors façade.

The bird-mask panels appear to have varied from the typical mask panel, in that one of the snouts was omitted, to be replaced by a head, the upper half human, the nose and mouth being represented by the hooked bill of a bird. The composite head of this sort from the northwest corner may be seen in figure 44.

The mask panels were closely similar to those on the Temple of the Warriors. The height of the entablature being only 1.58 meters, more or less, there could have been but two masks in each panel. Thus in all there were, in the en-

tire three sides of the building which bore sculpture, twenty snouted masks, grouped in ten panels of two each; and, if the four bird-mask panels be included, twenty-four normal masks and four with snouts exchanged for composite gods.

The plan of distribution of the various mosaic panels (fig. 41) is asymmetrical in that masks occur at the eastern terminus of the south wall and not at the east end of the northern one. However, during excavation no fragments were found in the wreckage of the latter part, whereas they were plentiful in that of the former. It might be argued that originally the sculptured portions of both ends of the building were the same. This may have been the case, but the data here given are based on empirical evidence. A great many of the sculptured stones from the façade in question had disappeared entirely before excavations were begun, and perhaps all the components of a pair of masks, once present at the east end of the north wall, were among this number. However this may be, the custom of stone robbing is sincerely to be regretted, since in this case it has made impossible the reassemblage of one of the most richly carved façades in the city.

In the south end of the back wall of the Northwest Colonnade there is a doorway giving access to the north range of the Group of the Thousand Columns, or, as it will henceforth be known, the North Colonnade. The doorway begins 16.44 meters from the south side of the Warriors stairway. It is 2.37 meters in width and 3.54 meters in height. Three steps, with 23-cm. rise and 33-cm. tread, cross from jamb to jamb, leading to the more elevated floor of the North Colonnade (fig. 45).

#### JUNCTION WITH WEST COLONNADE

This doorway introduced a further complication in the adaptation by which a structural union was effected between the Northwest and the West Colonnade. It was requisite to place beneath a continuous roof two halls of different age and different height, meeting end to end. The vaults of each building were supported by rows of columns not aligned with those of the other, nor of the same height. That such a closure was attained is indicated by the depth of the débris which lay above the line of contact, and by the condition of the floor between the north tier of round columns and the south tier of rectangular ones. This floor showed no weathering such as may be observed on all exterior lime-finished courts or passages. And perhaps the best proof of all is that the end wall and anta which would have marked the south end of the Northwest Colonnade, had the latter been erected as a separate building, were entirely omitted. Moreover, while the Northwest Colonnade terminated at the line of its southernmost tier of columns, its floor was carried on to reach and to include the first row of columns of the West Colonnade.

Since all of the superstructure above the area in question has fallen, the plan by which the buildings were bridged together can be arrived at only by considering the possibilities of the situation in the light of such evidence as the fallen elements among the débris afford. Inasmuch as vaulting was practically the universal

method of roof construction at Chichen Itzá, at least among the pretentious buildings, the first expectation would be that it was used in the case in question. However, the files of columns which it would have been necessary to connect are so far out of alignment that it would have been out of the question to have made diagonal offsets in the ribs of masonry between the vaults of the West Colonnade to connect directly with the homologous ribs dividing the much wider vaults of the other structure. Had this been done, wedge-shaped capstones would have been used at each end of the diagonals. Not one was found in the fill.

The procedure most to be expected would have been to have thrown a vault over the span from east to west, at right angles to those in both halls. While the construction of such a vault would have been rather awkward because of the difference of vault heights in the two buildings, it could have been done; but where vaults meet at a right angle, as may be observed in the Castillo, there are always specially shaped cornerstones beveled on two sides. Not one of these came from the fill, thus ruling out the possibility of a transverse vault.

The facts at hand are these. The south end of the Northwest Colonnade was closed above the tops of the columns with a vertical wall. This wall must have been bedded on transverse timbers, the ends of which rested on top of the ends of those that held up the ribs between the vaults. Had it not been for the doorway previously mentioned, the tips of the easternmost set of these would have been inserted in the solid masonry of the back wall. But owing to the placement of the doorway, these timbers bore practically across the center of the lintels which spanned it. It would seem foolhardy to have built a massive corner thus directly above a broad opening, but the Chichen architects, in more than one instance, put surpassing trust in the strength of their native woods.

That the vertical wall existed was proved by the presence in the fill of plain, rectangular, vertically faced stones, and other stones each with a beveled side, such as occur at the sides of all vault ends. The outer face of this wall, as elsewhere detailed, bore no small amount of sculpture. Thus, obviously, that portion of the wall above the level of the roof of the West Colonnade must have remained exposed. Hence the span in question must have been in the plane of this roof. Presumably, the span was a flat roof like those from Tulum, figured by Lothrop.<sup>1</sup> Of the same construction are the coverings of the better class of Yucatecan buildings to the present day. In harmony with this hypothesis, the transected vault ribs of the West Colonnade were veneered with vertically faced masonry to provide a finished surface; then horizontal timbers were placed across the gap, one end inserted just above the level of the capstones of the West Colonnade, the other resting on the beams supporting the south upper wall of the Northwest Colonnade. Upon these was applied the layer of small stones and lime mortar which formed the substance of the roof.

<sup>1</sup> Lothrop, 1924, fig. 89.

## ROOF ORNAMENTATION

The roof ornamentation of the Northwest Colonnade was identically like that of the Temple of the Warriors. G-shaped fretlike stones of which it was composed are shown in figure 46. One, *a*, is 1.03 meters high and 61 cm. in greatest width. These stones were set back from the roof margin only a short distance, probably only enough to permit the tenon to be inserted just behind the coping blocks. How close together they were placed cannot definitely be stated, but from the very numerous fragments recovered, it is certain that the interval between them was less than the width of one of the G's. Some of the latter have the recessed

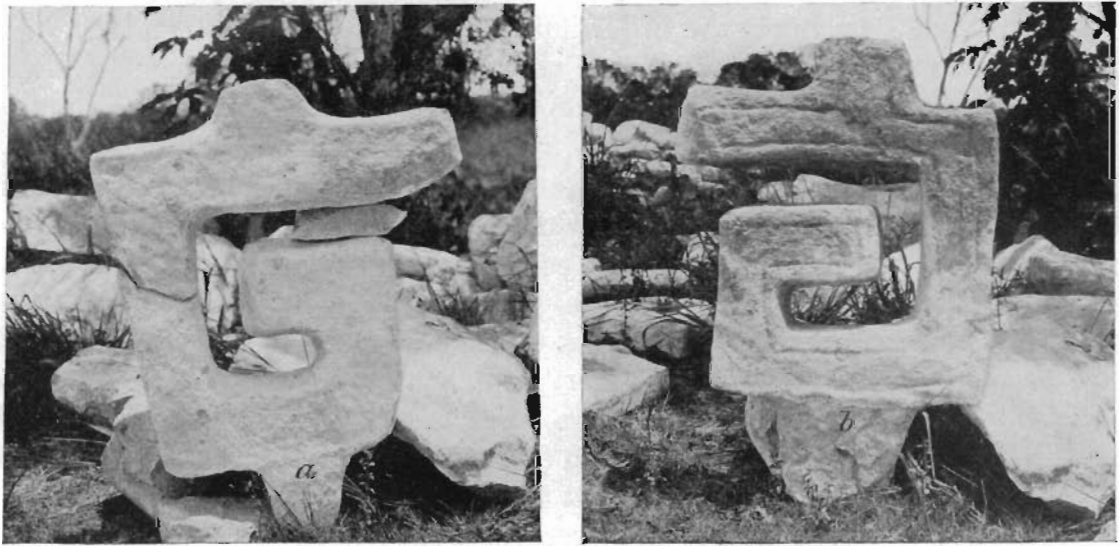


FIG. 46—ROOF FRETS FROM NORTHWEST COLONNADE

*a*, with open side to right; *b*, with open side to left. This sort of roof embellishment was held upright by the tenon which was set in the roof grouting just back of the coping stones. Some, as *a*, were very carelessly fashioned, while others, like *b*, were neatly shaped and sometimes carved.

panel on one side and some on the other. Therefore, a part of them presented the open side to the left and the others to the right. As in the case of the Temple of the Warriors, the line of change appeared to have been the east and west axis of the building. The frets were continuous across the front and both ends of the building, but were not present on the stubs of the back wall which extended north and south from the Pyramid of the Warriors.

Excavations have continued beyond the limits of the Warriors complex to include adjacent portions of the north and west ranges of the Group of the Thousand Columns. These structures, designated, respectively, the North and West Colonnades, being integral components of the latter architectural nexus, do not fall within the intended scope of this volume; hence they will be described only to the extent necessary to establish their structural and chronological relationship to the Warriors complex.

## THE WEST COLONNADE

As it now appears, the West Colonnade is a hall approximately 129 meters in length. Its longer axis lies north  $16^{\circ} 45'$  east. It is four rows of columns or 10.91 meters in interior width. The columns are round, 66 cm. in average diameter, varied slightly from 3.08 meters in height, were without capitals and are spaced 2.47 meters east to west and 2.52 meters north to south, from center to center. The four vaults ran north and south. The building height, from terrace

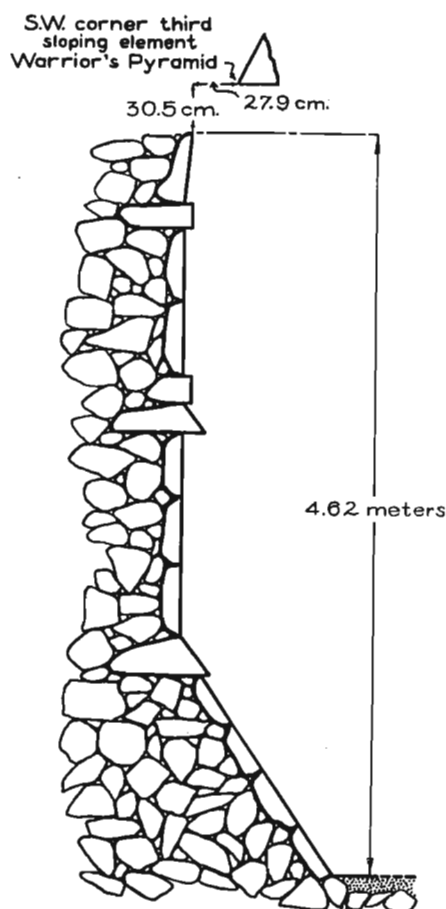


FIG. 47 — PROFILE OF BACK WALL OF WEST COLONNADE

This profile was obtained in a pit sunk from the terrace at the foot of the third sloping element at the southwest corner of the pyramid. It represents a portion of the West Colonnade included in the later pyramid. The west, or inner, face of the wall had been torn down, hence the original thickness at this point was not determinable.

to coping edge, was 4.63 meters, which figure, minus the altitude of the columns and an allowance of a minimum of 30.5 cm. for roof grouting, leaves a height of only 91.5 cm. for the vaults, thus marking them as extremely low, with a slope of between  $50^{\circ}$  and  $55^{\circ}$ . The very flat bevel of the vault stones tends to confirm this finding. The Colonnade is practically without a substructure, its frontal terrace being only 81 cm. in width and from 15 to 23 cm. in height. The rear wall is unusually massive. At base it is 1.73 meters thick. At the top of the battered zone, 1.43 meters in height, which rises at an angle of  $54^{\circ} 40'$  from the horizontal, there is a beveled molding 19 cm. thick, with a slant of  $65^{\circ}$  and an overjut of 9 cm.

Above this the vertical wall was 1.37 meters thick. The battered zone rises from a terrace 88 cm. in width and 50 cm. high, its face sloping at an angle of  $74^\circ$ . A complete vertical section of the eastern façade, recovered under conditions later to be described, is given in figure 47. The building is traversed by a passage, 79.45 meters from its junction with the Northwest Colonnade, which is 2.47 meters in width and which gives entry to the Court of the Columns from the west.

From the southern end of the building, what appears to be a right-angled continuation extends to the west for some 16.17 meters to end in a small pyramid at the top of which a paved platform is visible. It is doubtful if any device other than the platform, with perhaps an idol upon it, ever surmounted this pyramid.

### THE NORTH COLONNADE

The North Colonnade abuts the West Colonnade, forming an angle therewith of  $88^\circ 30'$ . Its substructure is 2.14 meters in height and 19.98 meters in width. Both front and rear exposures have the same essential features as one of the compound zones of the Warriors Pyramid, that is, a battered basal zone, a vertical over-jutting molding, a recessed sculptured panel, and another vertical molding. The Colonnade has been excavated to a length of 85 meters (Plate 3). Thence eastward the substructure continues some 46 meters to the northeast corner of the Court of the Columns. This area is not covered with any appreciable quantity of building wreckage. Three hypotheses may be advanced to account for such a condition: one, that it was not intended to surmount this portion of the platform with a continuation of the Colonnade; two, that the building did not reach a state of completion; and three, that the eastern end of it had been torn down. In regard to the first, there is no precedent for assuming that these long halls were left open at the ends. Such a procedure would of necessity soon have brought about disaster, for without the sustaining force of an end wall and an anta the action of gravity upon the huge masses of roof masonry would have spread the flimsy columns apart as if wedges had been driven between their tops.

While it is conceivable that it was intended to continue the building at a later time, this seems improbable. The work of the Chichen masons indicates that they, like those of the present day, laid out their structures and began building at the corners first in order to align their walls and internal supports.

It is the opinion of the writer that the North Colonnade once extended the full length of its substructure, and that the missing portion of it was torn down and the building material it yielded carried off for use elsewhere. Many of the numerous round column drums, built into the low platforms scattered about in the Court of the Columns, may have come from this source.<sup>1</sup>

Throughout the eastern 73.69 meters of the length to which it has been uncovered, the North Colonnade consists of a back or north wall and five rows of columns. From the western limit of this distance, which lacks but one inter-

<sup>1</sup> Ruppert, 1925, p. 270.

columnar space of being in line with the end of the western anta, the rear wall juts northward 2.75 meters, then continues westward 12.96 meters to a junction with the back wall of the Northwest Colonnade. It is this northward extension, which, because of the converging angles of their axes, brings the North Colonnade into direct conflict with the west end of the south side of the Pyramid of the Warriors. In the transverse row immediately westward of the jog in the back wall, there are six columns, but only five each in the remaining four rows thence to the west end, the line that would have been occupied by the terminal members of these tiers being taken up by the anta. Thus, in all, there have been laid bare 171 columns in this hall. All but those in the front row, eastward of the anta, are circular, varying somewhat from 59 cm. in diameter and 2.67 meters in height. The latter figure includes a rectangular capital 91.5 cm. by 61 cm. and 30.5 cm. thick, plus or minus, its longer dimension being from north to south.

The first thirteen columns from the anta eastward in the front row are rectangular and sculptured. The remainder are circular, of 61 cm. average diameter, thus somewhat larger than those in the interior files, and to some extent they are sculptured. It seems that many of the carved drums are reused.

The interior width of the hall is 13.60 meters east of the anta, and thence westward 15.77 meters. The end wall was built against the east façade of the West Colonnade northward to the junction of the latter with the Northwest Colonnade. Then comes the wide doorway described in connection with the latter structure. Northward of this, the back wall of the Northwest Colonnade was made to serve as the boundary of the North Colonnade.

Evidently, when the plan for the North Range of the Group of the Columns was first projected, it was intended to allow the truncated wedge-shaped *cul-de-sac* between its substructure and the Warriors Pyramid, occasioned by the convergence of their axes, to continue to the jog in the rear wall. This may be judged from the fact that the sculptured panel of the substructure extends to this point. However, before the wall of the angle was built, the blind alley was shortened 7.78 meters by a compound zone which had the essential features of those of the Warriors Pyramid, crossing from the latter to the substructure. The space behind it was filled with masonry to the eventual height of the top of the first compound zone of the pyramid, thus hiding not only the sculptured band thereof, but that upon the opposite substructure as well, and some 92 cm. of the basal wall of the building itself.

The top of the fill was smoothly finished to constitute a platform, to which access was provided at a later time by the construction of a crudely built stairway leading up to it from the end of the blind alley. Probably at the same time a wall was placed from the corner of the rear extension of the Colonnade to the pyramid, thus making an isolated pit of the area thence westward. Since a 10-cm. drain pierces the base of this wall, it would seem that the pit was not roofed. There were no vault stones among the fill, which would further corroborate the point.



## TEMPLE OF THE CHAC MOOL

Thus far, description has been concerned with an agglomeration of buildings standing in the open, what remains of them being plainly visible in panorama from the neighboring eminence afforded by the Castillo. In contrast, the Temple of the Chac Mool, now to be considered, lies beneath ground within the Warriors Pyramid. That portion of it extant is in an almost phenomenal state of preservation, owing to the fact that it was completely encased and enclosed within a solid mass of masonry. For centuries, first while the pyramid remained in finished condition and later during the gradual crumbling of its slopes, there was no discernible indication of the existence of the buried temple. Eventually erosion of the northwest corner proceeded to the degree that, after the tangle of vines and fallen leaves had been pulled away from a stump on the northern slope, there was visible beneath it a narrow band of sculptured stone. It was a portion of a column block *in situ* which provided a clue that led to the most difficult bit of excavation so far encountered at Chichen Itzá. Now that the fossil temple has been freed to the necessary extent from the surrounding matrix it reveals many features of surprising magnificence.

## EXISTING PORTIONS

In its original dimensions, the Temple of the Chac Mool and its substructure extended beyond the limits of the Warriors Pyramid northward to within a short distance of the area now occupied by the base of the Temple of the Tables. The Chac Mool Temple, and the colonnade associated with it, spread westward over a considerable portion of what are now the confines of more than the north half of the Northwest Colonnade. When the site of the Warriors Pyramid had been selected, those portions of the earlier temple, and the substructure thereof which lay without its boundaries, were razed to ground level, and the stone taken from them was reused in the building of the pyramid. The included portion of the substructure was left undisturbed, its bulk contributing a considerable increment toward the greater mass to be constructed. But the temple was less kindly treated. That part of it not completely demolished was razed, walls and columns alike, to a fairly uniform height of 2.06 to 2.54 meters above the floor, to conform to the altitude projected for the Warriors Pyramid when the construction of the latter was begun.

The horizontal relation of the Temple of the Chac Mool and the Warriors Pyramid and Temple is shown by the cover sheet of Plate 3. There is an average vertical distance of 5.34 meters between the floor levels of the two temples. The surviving portions *in situ* of the lower one are most of the south end wall, slightly more than half of the east or back wall, half of the north and south partition wall, and six sculptured columns. Of the front or western chamber there remains now visible a floor area 9.42 meters from north to south and 4.15 meters wide. The row of three columns, 61 cm. square, extends from north to south. They are spaced

2.50 to 2.59 meters apart, the southern one occurring at approximately the average distance from the south wall. They are 2.50 meters from the east wall, which is the remaining part of the north and south partition of the building, and were in the north and south axis of the chamber. The present west wall is the back of the shell of the Warriors Pyramid, constructed during the course of repair. Because of the difference in orientation of the two structures, this wall is not parallel to the columns, the space between it and the southernmost being 91.5 cm., while the northernmost is 1.16 meters distant from it.

Back of the space between the central and northern columns of this row is the doorway leading to the inner chamber. The jambs are the full intercolumnar distance, or 2.59 meters apart. Built against the center of each is a pilaster 28 cm. thick and 44 cm. wide.

The inner or eastern chamber is 5.82 meters in width and, in present condition, 9.49 meters long. There is a row of columns of the same size and of the same north and south spacing as those in the front chamber, situated 2.86 meters from the east wall and 2.30 meters from the west. The partition wall is 91.5 cm. thick. The rear and south walls are 1.07 meters thick at the bottom. The sloping lower zone of the exterior is 1.31 meters in height, with a rise of  $78^\circ$  from the horizontal. The lower cornice or apron course, which is 16 cm. thick, overjuts 6 cm. with a bevel of  $70^\circ$ . Thence upward the vertical wall is 79 cm. in width. As previously mentioned, the surviving portions of the walls vary from 2.06 to 2.54 meters in height. The three uppermost blocks of all the columns have been replaced, thus completing them to their original height, which varies but little from 3.13 meters.

#### ORIGINAL FORM AND DIMENSIONS

Such, then, are the gross skeletal features of the articulated portions of the fossil temple. From them reconstruction may proceed. The extant features mark the Temple of the Chac Mool as representative of one of the two predominant types of column-supported buildings occurring at Chichen Itzá. In essential form it was the same as the Temple of the Warriors, the Temple of the Tables, and one partly opened by E. H. Thompson on the eastern side of the Court of the Columns. Thus the type being definitely established, it is necessary only to project the missing portions of the building from the proportions of the remaining parts, to arrive at a ground-plan which would be altogether accurate, if the builders had used instruments of precision. However, since their walls are not always straight nor their angles true, the plan presented in Plate 13 may be subject to slight error, but if so, the error is one of execution rather than of concept, and hence of no great significance.

The temple was a two-chambered structure facing west, the rear wall oriented north  $13^\circ 30'$  east. In exterior width, it was 14.92 meters at the north end and 14.47 meters at the south. In length, it was 17.74 meters at the back and 17.36 meters at the front. The entrance was a triple doorway, of like character

to that of the Temple of the Warriors, the Castillo, and the Temple of the Tigers. Two massive serpent columns formed the divisions of the portal. The doorway was three intercolumnar spaces, or about 9 meters in width. Whether the jambs were sculptured or plain, and whether or not there were pilasters against them, cannot be proved empirically since no vestiges of either element were found. However, from analogy it may be inferred that there were pilasters, and that both they and the jambs were embellished with carving. Such is the case in the interior doorway, and it would be contrary to expectation that the lesser portal would have been more elaborately treated than the principal one. The jambs of the inner doorway are separated by the interval between the two columns in front of them, whereas, in the Warriors, the pilasters are aligned with the columns similarly situated. Hence, probably, the jambs of the main door were three full intercolumnar spaces apart, the pilasters jutting inward to decrease the functional width of the two lateral portions.

When the front wall was torn down, the head and tail pieces of the serpent columns were rolled back into the front chamber, where they were found, more or less complete, among the fill. None of the drums of the body elements were recovered, hence the height of the columns cannot be accurately established. However, from analogy to the Temple of the Warriors, the distance from the floor to the tops of the horizontal parts of the tail pieces was probably equal to the altitude of the interior columns, 3.13 meters. These serpent columns were round, 66 cm. in diameter, the base of each carved from the same block as the head. The most complete head and tail are shown in Plate 14. The head is 1.53 meters in length, 69 cm. in width, and 80 cm. in height to the top of the jaw. From the rear extremity, the base of the column proper rises an additional 46 cm. Both tail pieces lack the vertical plumed rattle elements with which they were once equipped. The one illustrated is 1.66 meters long, 66 cm. wide and 64 cm. high. From plaster marks, visible on the lower surface, it is evident that the tail pieces jutted 20 cm. inward beyond the columns. The inner extremities are rounded to simulate the circular form of the columns. On the inward curve, on both sides of the back of each head piece, there is a dumb-sheave for curtain attachment, consisting of two horizontally driven drill holes converging at the tips. Doubtless there was another set of these eyelets just beneath the tail piece, and presumably one or more between head and tail pieces. Both at the back and front of that portion of the huge plate above each eye which laps over on to the top of the head, there is a slender eyelet, and probably there were others along the margin of the upper jaw. The tongue elements, once present, were not found.

Despite their broken and incomplete condition, these serpents' heads and tails are, from certain points of view, the most instructive so far found in the city. The sculpture on the extant portions is in perfect condition and, because the stones were buried before any weathering took place, the overpainting of the sculpture is preserved in all of its original detail. Since both carving and color treatment are so well shown in Plate 14, they will not be described in detail. In each mouth

there is an area on both upper and lower jaws without plaster or color, indicating that these serpent columns were represented with a human head issuing from the throats, thus repeating the concept which appears so often in serpent panels and altar cornices.

The outer chamber was 15.43 meters in length and 5.67 meters in width. Four columns, 61 cm. square, stood in the line of the longer axis, that is, north and south, spaced 2.59 meters apart and the same distance from the walls. The width of the doorway from outer to inner chamber is, as previously stated, 2.59 meters. The height is 2.65 meters to the bottom of the sublintel. Judging from the blocks assembled to complete the south jamb, the latter was 28 cm. higher than the pilaster built against it. In the rear or east edge of each pilaster, there are two curtain eyelets, one 44 cm. from the floor, the other 1.93 meters. There were two provisions for covering this doorway. In addition to the eyelets in the pilasters, there is another attachment in the west wall of the inner chamber, set back 54 cm. from the south jamb and 23 cm. above the floor. The bottom of an ordinary wall block was grooved to leave a vertical peg, 2.5 cm. high and 3.7 cm. thick at the center, its outer surface flush with the face of the stone. The stone was so bedded that the tip of the peg touched the course beneath, in effect like a bar let into the wall across the mouth of a niche. Doubtless there was another one of these devices in the now demolished north wall, and a second set near the top of the door opening.

The inner chamber had practically the same dimensions as the outer one. However, if it be assumed that the missing portions of the side walls were in line with the extant portions, the room was 6.10 meters wide at the north end, while the southern extremity measures only 5.82 meters. As in the outer chamber, a row of four columns, 61 cm. square and 3.13 meters in height, stood about 2.85 meters from the east wall and 2.42 meters from the west.

From precedent it would be inferred that the inner chamber had been provided with benches along the end and part of the back walls, and with an altar built against the center of the latter. Although every component of these features had been torn out and removed from the temple, conclusive proof of their existence and nature was secured, and considerable portions of the benches were eventually recovered whence they had been used as filling material in the hearting of the Warriors Pyramid. The configuration of the benches, as may be seen from the restored ground-plan, is identical with that of those, already described, in the Temple of the Warriors. The south bench was 1.45 meters wide at floor level, 1.53 meters at the top, and 1 meter high, the upper 15 cm. of the altitude having been taken up by a vertically faced molding with an overjut of about 7.6 cm. At the east end, the bench turned at a right angle to continue 2.01 meters toward the altar. There is every reason for believing that the north bench was a replica of the one described.

## THE ALTAR

That the altar was of Atlantean character is indicated, first, by the type of the temple, and, second, by the absence of mortar stains upon the floor, such as would have resulted from the construction of a massive dais like those in the Northwest Colonnade.

The altar stood against the back wall of the room, directly behind the inner doorway, so that its east and west axis and that of the building were the same. The length of the platform was determined with practical accuracy. The vertical margin of the mural panel, once existing above it, was traceable 38 cm. south of the point where the line of the south jamb of the doorway and the north face of the first column south of it cut the east wall. On the basis of symmetry, the altar was twice this interval plus the distance between the columns, or 3.43 meters in length. The width can not be so positively stated. Had this altar been arranged like the one in the Warriors, it would have continued forward to the columns. There are no marks upon the columns to indicate that they were touched by the slabs, hence it is probable that the latter stopped somewhat short of 2.87 meters from the wall. It was hoped that the spots where the Atlanteans had stood could be traced in or upon the floor. The socket of one could be plainly discerned at the center against the back wall, but elsewhere the red plaster was so marred and fragmentary that no satisfactory determinations could be made.

The height of the altar may be considered to have been about that of the benches, 99 cm. Considering that not a fragment of table tops or Atlanteans was found, either in the fill of the temple or in the hearting of the pyramid, where so many torn out elements were recovered, it would seem probable that the components were saved to be reused elsewhere. Since most of the Atlanteans in the altar of the Warriors are too tall for the places they now occupy, and have the 81 to 89 cm. altitude which would have been appropriate for the supports of this altar, it is not improbable that they were derived from the Temple of the Chac Mool.

Buried beneath the floor in the transverse axis of the altar, and 1.06 meters from the wall, was the stone jar containing the turquoise mosaic plaque and the other elements of the offering described on pages 187-189 and 193-195.

It is obvious that the vaults of each chamber were two in number and that they extended from north to south. Adding to the height of the columns 30.5 cm. for the thickness of the supporting beams, the spring of the vaults occurred about 3.43 meters from the floor. No very definite calculation of their altitude can be given, but it is evident from the bevel of the many vault stones found among the fill that they were rather high. Plaster lines on capstones taken from the fill, and presumably derived from this temple, showed a clearance of from 36 to 41 cm., and face stones with a beveled edge once set in the margins of vertical vault ends indicate gradual rather than rapid convergence of the sides. Probably the height was between 2.45 and 3 meters.

## INTERIOR DECORATION: SCULPTURED AND PAINTED

To judge from those extant, all of the columns, jambs and pilasters were sculptured. The free margins of the south jamb of the inner door are graven with a vine and flower pattern. Each of the three exposed faces of the pilasters bears the figure of a priest or warrior standing above a full-face mask and surmounted by another. Like those in the Temple of the Warriors, the decorative field afforded by each column face may be divided, from the point of view of treatment, into base, shaft and capital. Upon the shaft appears a gaudily bedecked human figure, while both base and capital are occupied by bearded Atlantean figures, one symbolizing a support for the column, the other a support for the vault. Detailed consideration of these sculptures will be given by M. Charlot. However, it may be mentioned here that some of these columns are in a truly marvelous state of preservation. The first uncovered retained some of their pigment, and, as excavation progressed inward from the faces of the hill, each one encountered was better preserved, until when the southernmost one of the inner chamber was reached its condition taxed one's credulity, as may be judged from the color reproduction in Plate 37. So brilliant were the pigments that time seemed for the moment to have lost its immutability, and one glanced furtively over one's shoulder, half expecting to surprise into visibility the artist returned to inspect his handiwork of the day before.

Every feature of vesture and adornment retained its most minute detail. The decoration upon sandal ties, the mottling of jaguar-skin aprons, the designs in textile mantles, and the ribs on a palm leaf fan, could be observed and distinguished as readily as if one were inspecting a living figure instead of one carved upon stone some seven centuries ago. Even the joints between the column blocks were so skilfully filled out with stucco that only with difficulty could they be found, and across the stucco both sculptor and painter had carried their patterns.

Nor had the columns been more gorgeously colored than the rest of the temple interior, for the extant portions of the walls and detached stones from the fill proved that walls, vaults and capstones had been covered with paintings. The major pattern in both chambers had been the same; the first 81 cm. above the floor was black and thence there were, in sequence, a 15-cm. band of red, one of yellow and one of blue, each 14 cm. in height. All were bordered with a black line. Thus the pattern proper began 1.24 meters from the floor. Over the altar there had been an elaborate mural panel. Almost all of the plaster on the area it had occupied had peeled away from the stonework, the only remaining vestige being that shown in Plate 132a. The main portal, the inner doorway, and this panel area, cut the temple in two, so far as the area provided by the interior wall surfaces was concerned, offering to the decorators a field of equal proportions in each chamber on both sides of the east and west axis. There can be no question that the four expanses of surface between the banded dado and the spring of the vault were embellished with repetitions of the same device. The south half of the inner chamber shows plainly what this was. There a serpent *motif*, twice repeated, filled the entire ground. One head occurs on the east wall, adjacent to the position of

the altar panel, and the other is on the west wall, next the south jamb of the inner portal. Thence the bodies writhe southward, to curve inward past the corners and meet in the center of the south or end wall. Thus the temple bore eight of these huge serpent patterns, all facing the east and west axis. When viewed as a separate unit, the many rays bordering the sides of the body give a single whorl a close resemblance to a portion of a sun-disk, suggesting that this particular adaptation of the snake pattern may have been based on a sun-serpent concept. The fragments remaining on the back wall of the Northwest Colonnade were portions of the same pattern, varying only in minor detail.

The vaults of the buried temple bore some similar pattern, large, boldly and comparatively carelessly executed, to judge from detached stones with small areas of adhering plaster found among the fill. Some capstones bearing traces of paint were also observed, but no definite idea of their color treatment could be formed, except that their embellishment was different from that of walls and vaults.

As will be detailed in the section on frescos, the fronts of the benches bore the most splendid paintings that so far have been exhumed at Chichen Itzá. In excellence, these rival the murals from the Temple of the Tigers.

The back wall of the temple reveals the section previously described (page 71). The outer face of this wall, as well as that of the extant portion of the similarly truncated south wall which has not been disinterred, were examined for a short distance below their upper terminations for traces of paint and sculpture, but none were found. It would appear, therefore, that the medial zone had been entirely devoid of embellishment. From analogy it may be considered that the temple bore the sort of façade typical of Chichen buildings of this period. Portions *in situ* include the basal sloping zone, the lower beveled cornice or molding course, and a part of the medial zone. To complete the façade there would have been a three-member cornice surmounting the medial zone; the upper vertical zone or entablature, the upper cornice, also composed of three members, and, finally, some sort of roof margin ornaments. Also it would be expected that the entablature was, to some degree, sculptured.

Stones recovered from the fill within the temple and from the masonry of the pyramid east of it, wrought of the same quality of stone as the blocks still in place and bearing plaster of the same tone and thickness, undoubtedly represent dismantled portions of this structure. They contribute some details of significance. Two beveled apron courses are distinguishable. One was 25 cm. in thickness, with a plaster-marked overjut of 15 cm. and a slope of 65° from the vertical. Probably this was the nether member of the medial cornice. The other is 19 cm. thick, with an overjut of 13 cm. and a bevel of 50°. It may have been either the upper member of the central cornice or the basal course of the upper one. Also there are vertically faced string course blocks, varying from 19 to 21 cm. in thickness, from the central elements of one or both of the cornices. Coping stones have not been found, but a few fragments of roof ornaments, very similar in shape to those from the Warriors and the Northwest Colonnade, have come to light. The sculptured

stones definitely attributable to this temple are jaws, ear and nose-bridge pieces, and forehead bands of masks, similar to those occurring as flat vertical panels in the Warriors, but of considerably larger size, part of a very large curved snout, and four small animal heads in full round which had been deeply tenoned into the wall.

The plaster accumulation on the exterior wall faces, consisting of only fifteen recognizable coats, is 6 to 9 mm. in thickness. From this it may be inferred that no



FIG. 48—CHAC MOOL FIGURE (a) AS FOUND IN OUTER CHAMBER, TEMPLE OF THE CHAC MOOL

It lay upon its side with head toward south wall. Portion of original fill remains above and to right of it.

great length of time intervened between the completion and the destruction of the temple.

From within the building, and from the backing of the veneer of the later pyramid northward of it, came numerous stones from a demolished stairway, presumably the one that belonged to the buried temple. The exposed surfaces of these blocks, hewn and dressed as smoothly as if cut with a saw, form a right angle. The rise was 21 cm. and the tread 25 cm. The stairway from which they came is rivaled in excellence of finish by none known in the city except that of the Warriors. There will be occasion later to refer to this stairway in greater detail.



The platform on which the temple stood was finished with a coat of highly polished plaster, colored a deep and brilliant red. The terraces behind the building and at the south end are 1.04 meters in width, and, presumably, the totally destroyed one at the north end was of the same breadth. The probable nature of the front terrace will be described in another connection.

#### THE CHAC MOOL FIGURE

The magnificent Chac Mool figure (Plate 15) found in the southeast corner of the outer chamber may be assumed to have once reclined on this front terrace, presumably at its mid-point, directly in front of the central aisle of the portal. The Chac Mool and its base are carved from a single block of very fine-grained limestone, almost as hard as the local flint. The base is 96 cm. long, 47 cm. wide, and 24 cm. thick. The figure is 1.09 meters from knees to back of shoulders, 45.5 cm. in greatest width, and 76 cm. from base to the top of the crested helmet. The head is turned at an angle of 90° and looks directly over the right shoulder. The disproportionately large, long-fingered hands grasp the sides of a disk graven upon the abdomen. An inverted human head, with streaming hair, is carved upon each thigh, as if pendant from a belt hanging outside a short skirtlike garment that terminates above the middle of the thighs. Below each knee there is a circlet, and the feet are sandalshod. On the wrists are cuffs of beads or shells, and around the neck is a broad collar, apparently with feather-fringed margin. The hair is bobbed across the forehead and behind the ears it hangs loose and free. The nether lobes of the ears are pierced for the reception of pendants.

Perhaps the master feature is the helmet. Upon it crouches a composite creature with froglike body and reptilian head, pointing in the same direction as the human face beneath. From the middle of the back rises a small knob, transversely perforated. The forward paws are severed at the wrists, and a portion of the tail is broken away. As a continuation therefrom there is a thick cylindrical roll with encircling bands or wrappings carved free from the back of the head, pendant to the left shoulder. It may be debated whether this is the animal's tail, or a queue of human hair emerging from beneath the rim of the helmet.

Previous to the interment of the Chac Mool, the left side of the nose received a sharp blow which broke away that member and struck off a scale partially across the right cheek. Apart from this disfigurement and the lacking appendages of the animal crest, the sculpture is in a perfect state of preservation. The tops of the ends both of fingers and toes are cut away to a noticeable depth, and upon the recessed areas thus provided, the nails were modeled in a very fine-grained milk-white stucco. When found, the figure lay upon its left side. After it was set upright, the impression of the left hand was partially visible in the dried mortar where it had rested, and adhering thereto, was about two-thirds of the nail of the first finger which consisted of a plate, about 1.5 mm. in thickness, that crumbled at a touch to chalklike powder.

Upon the base there are some traces of red pigment applied directly on the stone, but very little indication of color is to be observed on any other portion. This figure had not been whitewashed and repainted as many times, as had, for instance, the Chac Mool in the North Colonnade.

#### THE SUBSTRUCTURE: NORTH, EAST AND SOUTH EXPOSURES

Beyond reasonable doubt, the three free sides of the substructure of the Temple of the Chac Mool—that is, the north, east and south exposures—were finished after one basic pattern (figs. 49, 50). The south and the remaining portion of the east side reveal this pattern to have been made up of four retreating zones. The first of these is plain, from 96 cm. to 1.01 meters in height, its face rising from the horizontal at an angle of  $76^\circ$ . Along the east it is surmounted by a terrace 61 cm. in width. However, along the south side, this first terrace extends 7.22 meters southward from the substructure, through the full width of the latter, to form an extensive platform, bounded on the west by what was at one time a portion of the back wall of the West Colonnade. The purpose of this platform is not apparent. Where tunnels have been driven, there was nothing to indicate that it had at any time been surmounted by a building of any sort. The tunnels do not cross the center of it, hence it is conceivable that a structure exists at that point, but, if so, it is very small.

The second and third zones are essentially alike. The basal feature of the second is a plain band 46 cm. high, rising at an angle of  $72^\circ$  from the horizontal. For purposes of description, this may be considered to be surmounted by a continuous band, 99 cm. in width. This second band overjuts the one beneath 5 cm. and rises from the horizontal at an angle of  $78^\circ$ . However, the continuity of the band is broken by recessed areas let into it at what were intended to be regular intervals of approximately 2.14 meters. These sunken areas, in length varying slightly around the mean of the intervals which separate them, are inset 5 cm. from the plane of the masonry beneath them—that is, from the first element of the zone—and are 84 cm. in height. Thus, in dominant aspect, the second element would appear to consist of alternating overjutting and recessed panels of equal length (fig. 50). But owing to the fact that the recessed panels lack 15 cm. of the height of the jutting panels, a border in the plane of the latter frames the top of each of the former.

The southwest corner, which is intact, forms the center of a jutting panel of which each half is 1.83 meters in length. Thence northward, along what remains of the east face, there are, in alternating sequence, four recessed and four jutting panels. And, upon the assumption of symmetry, when the substructure was complete on the east face, the second zone bore five recessed and seven jutting panels, counting those at the corners. On the south side, which is complete, there are four jutting and four recessed panels. Above the second band there is a string course protruding 5 cm. beyond the plane of the jutting panels. It is 18 cm. high and

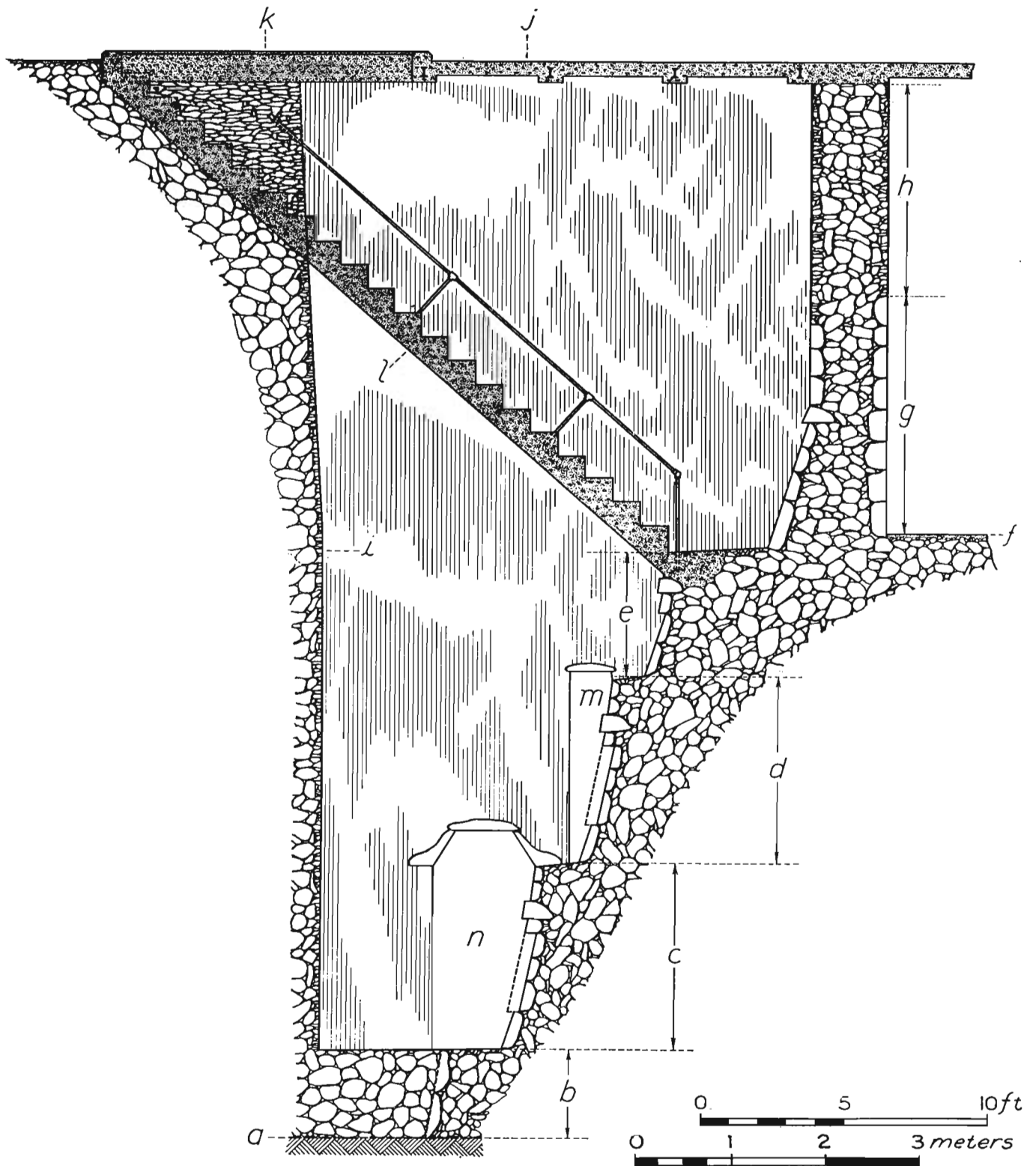


FIG. 49—GRAPHIC SECTION, SOUTH SIDE OF STAIR SHAFT TO TEMPLE OF THE CHAC MOOL

- |  |   |  |
|--|---|--|
| <i>a.</i> Ground-plane                         | <i>g.</i> Original portion of back wall | <i>l.</i> Concrete stairway  |
| <i>b.</i> First zone of substructure           | <i>h.</i> Modern portion of back wall   | <i>m.</i> Recess left in south wall to show portion of second zone of substructure |
| <i>c.</i> Second zone of substructure          | <i>i.</i> East wall of stair shaft      | <i>n.</i> Mouth of tunnel which follows southward along substructure               |
| <i>d.</i> Third zone of substructure           | <i>j.</i> Concrete roof of shaft        |  |
| <i>e.</i> Fourth zone of substructure          | <i>k.</i> South side of hatchway        |  |
| <i>f.</i> Floor level, Temple of the Chac Mool |   |  |

leans back at a slight angle from the vertical. Set in 6 cm. from its upper margin is the base of a course 33 cm. high, which rises from the horizontal at an angle of  $82^\circ$ . Above the jutting panels these two courses have the effect of a two-member cornice, while above the recessed ones, owing to the previously mentioned border which frames their upper margins, the appearance is that of a surmounting cornice



FIG. 50—NORTHWEST CORNER OF CASTILLO AS REPAIRED BY MEXICAN GOVERNMENT

Paneled effect of zones of pyramid is same as finish of substructure of Temple of the Chac Mool

composed of three members. These various relationships, rather difficult of verbal description, are presented graphically in the cross-section shown in figure 49.

Only the portion of the third zone within the limits of the stair pit has been laid bare, but in the area thus exposed the arrangement is exactly like that in the second zone, the recessed and jutting panels thereof being directly beneath the homologous features of the one above. In the second zone, it is distinctly noticeable that from bottom to top each of the three major bands presents a closer approach to the vertical plane. Thus the lowest forms an angle of  $72^\circ$  with the horizontal;

the second, 78°; and the topmost, 82°. Since the same tendency is apparent in both the third and fourth zones, there can be no doubt that the effect was intentional. The second terrace is 50 cm. wide, and the third, 33 cm. The width of the first, as previously given, is 61 cm., revealing that the terraces are progressively narrower from bottom to top.

The bottom element of the fourth zone is a plain band, 69 cm. high, rising from the horizontal at an angle of 72°. Next above it comes a sort of beveled apron course, 22 cm. high, jutting forward 11 cm. The face forms an angle of 79° with the horizontal. A string course, 14 cm. thick, forms the third element. It sets 6 cm. forward of the upper margin of the apron course, and its face rises at an angle of 81°. The fourth and last element is set 5 cm. back from the molding, and rises for 29 cm. at an angle of slightly more than 81°. The total height of the substructure is 6.18 meters at the points measured.

The southeast corner, the only one remaining, is rounded instead of angular. In the second and third zones it constitutes the center of a jutting panel. Thus, in distinctive features, the finish of the substructure is seen to be exactly like that of the pyramid of the Castillo, which has, in all of its nine terraces, the rounded corners and succession of recessed and jutting panels. Since there is no point whence a satisfactory picture of the buried substructure can be taken, one of the Castillo, as repaired by the Mexican Government, is introduced (fig. 50) to show the nature of the panels.

#### COLONNADE THAT FLANKED WESTERN EXPOSURE

The western face of the buried substructure remains to be accounted for. Had the Temple of the Chac Mool stood free of other buildings, obviously the frontal exposure of its base would have borne the same configuration as the other sides, interrupted only by a centrally placed stairway leading up to the portal of the temple. But no condition so simple existed. At the south side, the substructure meets the back wall of the West Colonnade, thus marking the beginning of a structural conflict in that quarter. And in front of what remains of the temple, is the Northwest Colonnade, its floor at a much higher level than the base of the temple substructure. Hence, had the latter at one time been completed in standard fashion on the front side, the foot thereof might be expected to exist beneath the colonnade floor, since there would have been no purpose in tearing it away below this level. Trenches dug across the colonnade failed to reveal even the slightest trace of masonry that might have pertained to this hypothetical construction. However, a colonnade, more recent than the West Colonnade and more ancient than the Northwest Colonnade, once occupied more than half of the area now covered by the latter. It stood upon a platform 61 cm. in height at its west or front side.

As shown in the ground plan (Plate 3A), the western boundary of this platform is almost exactly in line with the western face of the front row of columns

of the Northwest Colonnade. The platform extended north as far as the sub-structure of the Northwest Colonnade now exists, and how much farther there is no way of determining. It reached southward to the north half of the sculptured dais, where it ended with a step leading down to the floor of the West Colonnade as it existed at that time (Plate 3A). Only the western 2.75 meters of the step remain, but the plaster marks of its forward margin were traced eastward to the



FIG. 51—LOOKING SOUTH ALONG FRONT OF NORTHWEST COLONNADE

The walled trench A was constructed to leave visible the steps of the Demolished Colonnade. In like manner the pit B reveals the stairway to the original platform of the Northwest Colonnade.

sculptured dais, beneath which no excavation was attempted. The intact portion, except where it runs beneath column 38 of the Northwest Colonnade, has been left visible in a masonry pit. The rise of the step is 28 cm. and its tread 37 cm.

Approach to the platform from the front was by means of a two-step stairway, 18.96 meters in length. The steps have a rise of 21 cm., but the treads are not the same, the first being 28 cm. in width and the second 33 cm. At the north end

there is a beveled stone ramp, 67 cm. in width, with a rise of  $47^\circ$  from the horizontal. A duplicate of this ramp once existed at the south end, but it and a few contiguous stones of the stair were torn away before the erection of the Northwest Colonnade. Otherwise, the steps, left visible in a walled trench constructed for that purpose (fig. 51), are in perfect condition. The platform, both north and south from the stair to its terminations, was faced with a battered wall, 61 cm. high, leaning back very slightly from the vertical.

The floor level of this earlier colonnade lies from 10 to 25 cm. beneath that of the Northwest Colonnade. Hence from the time of its first discovery there was no hope that there might be found upon it any portions of the walls or columns that had once risen above it. There was a possibility, however, that breaks in the

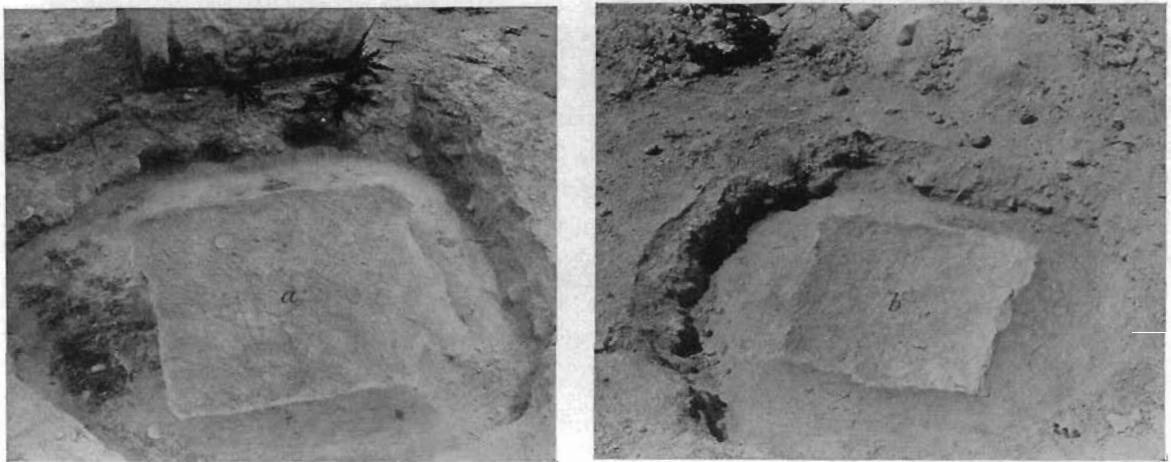


FIG. 52—IMPRINTS OF COLUMN BASES IN DEMOLISHED COLONNADE

*a.* Column 8 of Demolished Colonnade, with Column 36 of Northwest Colonnade visible beyond it; *b.* Column 12, Demolished Colonnade. In these views the 4-to-8-inch fill beneath the floor of the Northwest Colonnade has been removed to reveal the floor of the older structure, the red polished margins of which curve upward at their junction with the white rough areas where the columns once stood.

finely finished red surface might be discoverable which would mark the previous position of walls and columns. These were eventually found (fig. 52) to reveal the partial ground-plan indicated by solid lines in Plate 13. The north wall of this colonnade extended partly beneath the area now occupied by the corresponding wall of the Northwest Colonnade, hence its exact thickness cannot be stated. The inside length of the north anta was 2.75 meters and its thickness 1.14 meters. The nine columns (1 to 9, Plate 13) which constituted the front row, ranging from the anta southward, were approximately 69 cm. square and spaced 2.27 to 2.67 meters apart.

The ten columns of the second row (Plate 13) were much smaller, being only 59 cm. square, with the exception of the southern one, which was of the same size as those of the front tier. This second tier was not well aligned with the first, as the plan indicates, the spacing between the two tiers varying from 2.34 to 2.75 meters. The larger terminal column (No. 19) fails entirely to line with

the others of the row to which it belongs, having been set 1.11 meters farther west to fall in alignment with the second row of columns in the West Colonnade.

For a long time it appeared that the position once occupied by the rear wall of this colonnade could not be determined, despite the vigorous search that was made to locate it. From the secondary dais, northward to the end wall of the Northwest Colonnade, the floor of the underlying hall was examined from the second file of column bases pertaining thereto, eastward to the bench of the Northwest Colonnade. This floor became progressively more decayed from west to east so that it could not be ascertained if other columns had risen from it, and just short of the bench, although a plane of change in the fill was discernible, the floor surfacing disappeared entirely. From the north face of the third column from the north of the second or inner file (No. 12), the floor plaster continued eastward with an upturned margin, indicating junction with some vertical element at that point. To follow this line of impingement the bench was transected immediately north of the dais and a tunnel was driven beneath the back wall of the Northwest Colonnade into the rubble of the pyramid beyond. At a distance of about 5.50 meters from the column above mentioned, the floor ceased to be traceable and the upturned south edge had been broken away about 30 cm. short of that point. However, there was nothing to prove whether the floor had terminated where it became untraceable or whether that spot marked the limit of destruction of a portion that had continued still farther eastward.

Between the previously mentioned third column from the north in the second file (No. 12) and the fourth of the same row (No. 13), the floor finish curved upward at the inner or eastern line of these columns, again showing contact with a vertical element. In the next, or fifth, intercolumnar interval from the north, between columns 13 and 14, the floor continued eastward an additional 1.30 meters. It was bordered on north, east and south with upturned margins. In the next interval to the southward, between columns 14 and 15, the line of contact with a vertical face lay in the line of the inner faces of the row of columns. Thence southward, the base of the Warriors stairway interfered with further tracing of the floor, and it was not thought justifiable to tunnel into this mass for such information as might be gained. The entire area between the secondary dais and the stairway, eastward of the floor margins mentioned, was dug over. A well defined construction level in the plane of the floor was easily identifiable, but at no point did it bear even vestiges of a polished finish of red. Thus, it was made evident that from the north line of the third column from the north, southward to and for a distance beneath the Warriors stairway, some massive feature had risen from the floor of the older colonnade. South of the stairway this floor had been entirely dug away eastward from the terminal member of the inner file of columns, hence in that quarter no details were recoverable to aid in fixing the boundaries and interior arrangement of the structure. And so it appeared that the matter would rest, with the position of the back wall remaining undetermined. Eventually, however, unexpected evidence was brought to bear upon the problem.



JUNCTURE OF REAR WALL OF WEST COLONNADE WITH SUBSTRUCTURE  
OF TEMPLE OF THE CHAC MOOL

The back wall of the West Colonnade continues beneath the west slope of the Warriors Pyramid to a juncture with the substructure of the Temple of the Chac Mool (fig. 53). The situation, however, is not quite as free of complications as this statement would lead one to infer. The wall which merges with

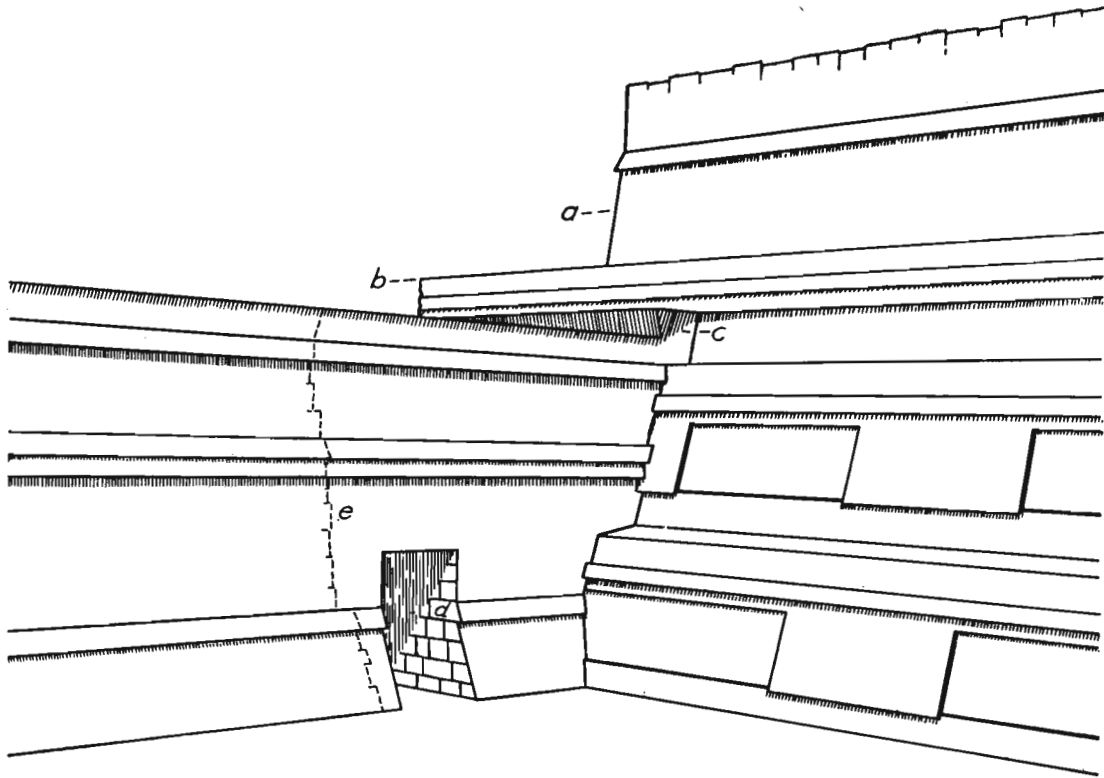


FIG. 53—JUNCTURE OF BACK WALL OF WEST COLONNADE WITH SUBSTRUCTURE, TEMPLE OF THE CHAC MOOL

Drawing projected from data recovered in shafts and tunnels driven in Warriors pyramid

- a. Southwest corner, Temple of the Chac Mool, wall of which is shown to existing height
- b. Top of Chac Mool substructure which presumably continued westward to form roof level of Demolished Colonnade
- c. Extra high coping at point of juncture
- d. Doorway to Demolished Colonnade
- e. Probable line to which wall of West Colonnade was torn down preparatory to erection of Demolished Colonnade, the part thence to substructure having been filled in to include doorway as substructure was raised

the older pyramid stands in the position of, and appears to be a part of the original rear boundary of the West Colonnade, but in reality, at the point of juncture it was erected synchronously with the substructure. This is shown by the fact that the veneer stones of the two dovetail, some of those of the wall jutting into the substructure, while some of the face courses of the latter continue into the wall as bonding stones.

At the level of the first terrace, the wall is pierced by a doorway, its north jamb 1.42 meters from the foot of the second zone of the substructure. This doorway is 84 cm. wide and 1.88 meters high. At the level of the sill, the masonry which it transects is 2.16 meters thick, while above the sloping base and surmounting apron course, the wall thickness is 1.58 meters. The doorway had been completely sealed with masonry, faced on both exposures, and hidden from view by subsequently applied plaster coats. It was found in the course of a minute examination of the wall in a search for jointure between the more recent portion touching the substructure and the original.

Of the fifteen coats of plaster covering the outer or east face of the wall, only one had been put on before the doorway was closed, the other fourteen having passed across and effectively hidden it. The entire interior of the door passage was colored a very dark rich red, and the floor, which continued eastward from the door, is of the same tone. Owing to the extreme looseness of the hearting beneath the Warriors stairway, which constitutes the fill against the western face of the wall pierced by this passage, the floor was followed only a few centimeters farther westward. Its level was taken and found to coincide with that of the floor of the demolished colonnade northward of the stairway, hence, obviously, it was a portion of that floor. Therefore, the west face of the wall pierced by the doorway marks the rear boundary of the colonnade to which the floor pertains. Again, owing to the looseness of the fill, this wall face was not followed to the northward. However, the line of it, when continued, is seen practically to coincide with the point to which the floor was traced on the north side of the secondary dais, and to fall in satisfactory alignment with the base of the outer face of the front wall of the Temple of the Chac Mool, as projected from proportions afforded by extant portions of the building. The horizontal relationship between the demolished colonnade and the Temple of the Chac Mool, as reconstructed from available data, is given in Plate 3.

#### ARRANGEMENT OF COLONNADE INTERIOR

As known, the demolished colonnade was 30.50 meters in interior length and 9.56 meters, more or less, in width. It faced the west and rose from its frontal terrace 4.12 meters from the brink thereof. To conform to its reconstructed ground plan it would have borne three rows of columns running from north to south. The positions of the members of the western two of these have been definitely determined from the marks where their bases rose from the polished floor. The distance from the inner of these two files to the back wall lacks 46 cm. of being twice the interval from the first to the second row, plus the width of a column of the same size as those in the inner file. Hence there was variation in the width of the three vaults which composed the roof. The width of the westernmost is, of course, fixed by the space between the two demonstrable column lines. Either of two conditions may, with equal probability, be assumed to have held in regard to the other two vaults. The postulated third file of columns may have stood midway

between the inner of the known two and the back wall, in which position it is indicated on the ground plan; or, it may have been placed the same distance from what was, then, the middle file, as the latter is distant from the first or front row. Under the first-named condition, the center and rear vaults would have been of the same width and the frontal one wider by 23 cm. Under the second, the middle and front vaults would have been of equal width and the inner one 46 cm. narrower.

The compensatory deviation evident in the placing of the southernmost member of the center file would, necessarily, have become more pronounced thence eastward. Since the two known files align with the corresponding rows in the West Colonnade, undoubtedly the same alignment would have held all the way along the line of union between the two buildings. Hence, the south terminal transverse row of the demolished colonnade would have consisted of four members instead of three, placed as indicated on the reconstructed ground-plan (Plate 3). Because there was no anta at this end of the building, because the terminal column stood just back of the brink of the steps connecting the floor level to which they pertained with that of the West Colonnade, as it then existed, and because of the further confirmation afforded by the definite alignment of the contiguous shafts pertaining to each, it must be concluded that the two buildings were under a continuous roof. Thus they had the same relation to each other as that which existed at a later time between the Northwest Colonnade and the West Colonnade, a relationship which has been explained in detail elsewhere (pages 64-65).

In conformity with the reconstruction of the horizontal relationship between the Temple of the Chac Mool and the demolished colonnade, given above, it must be granted that the two structures were contemporaneous and that they were a materialization of the architectural concept which, at a later time, was again expressed in the Temple of the Warriors and the Northwest Colonnade. In the latter case, we see a many-columned hall, rising from a low platform to flank the principal side or approach to the elevated substructure, upon which stands a temple of the enclosed type. Therefore, in the older complex, the stairway to the temple would have begun within the confines of the lower hall, and would have continued upward through a well in the roof of the latter, to end before the portal of the temple. Is there material evidence of a stairway so placed in the older hall? It has already been mentioned that at the line of the eastern face of the inner file of demonstrable columns, between the third (No. 12) and fourth (No. 13) from the north, the floor ended in an upturned curl where the plaster had continued upward upon some vertical element; also, that in a line eastward from the north face of the third column, the floor terminated in a like feature. As may be seen from the plan (Plate 3), the columns in question align reasonably well with the projected positions of the serpent columns of the temple. Therefore, the space between them is, for practical purposes, bisected by a prolongation of the east and west axis of the temple and hence affords a stairway position normal for this type of temple. The north and south plaster line would mark the rise of the first step, and the east and west floor boundary the junction

of the latter with the foot of the vertical wall that formed the north face of the solid mass supporting the stairway. Stones assumed to have belonged to the temple stairway have been elsewhere described (page 77). Considering the inner line of the columns in question as the beginning of a flight of steps, and projecting these upward for the 5.26 meters intervening between the floor of the colonnade and that of the temple, with a rise of 24 cm. plus, thus making an allowance for mortar beneath the stones in addition to the 21 cm. thickness thereof, and a tread of approximately 25 cm., the stairhead would fall well forward between the heads of the serpent columns. This arrangement is shown in cross-section in figure 54.

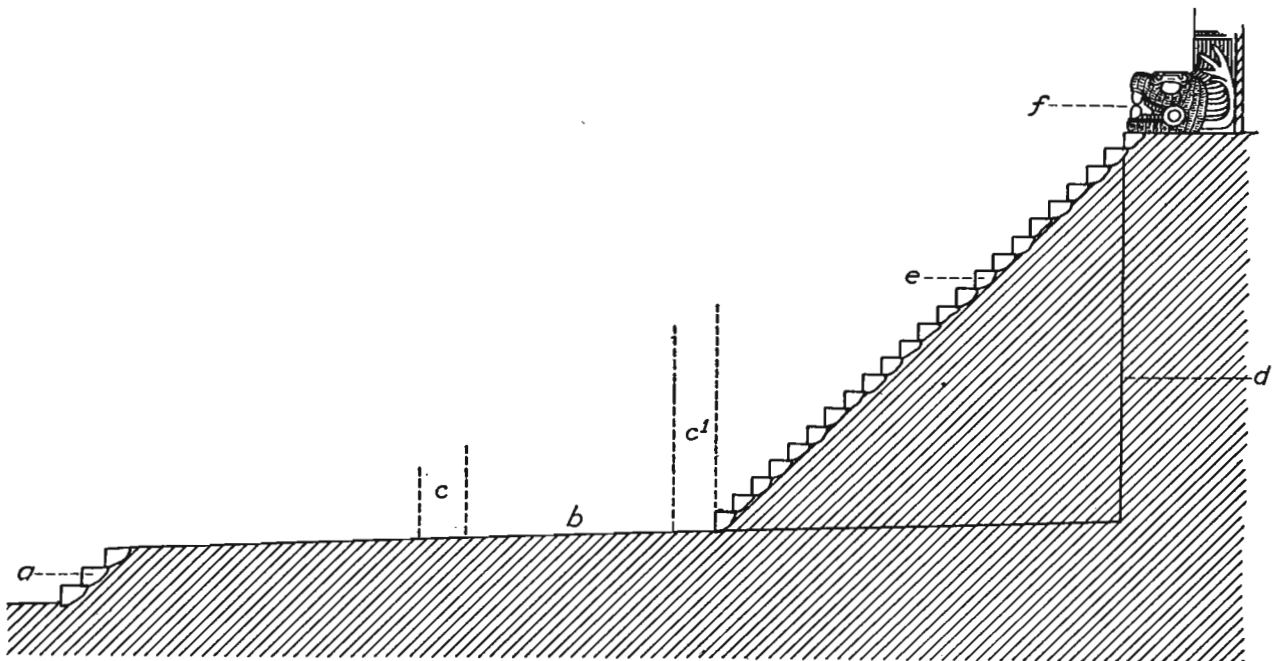


FIG. 54--RESTORED CROSS-SECTION THROUGH DEMOLISHED COLONNADE AND STAIRWAY OF TEMPLE OF THE CHAC MOOL

- |   |  |
|---|--|
| <p>a. Steps of Demolished Colonnade<br/>         b. Floor level of Demolished Colonnade<br/>         c, c'. Columns of Demolished Colonnade</p> | <p>d. Line of back of colonnade<br/>         e. Stairway of Temple of the Chac Mool<br/>         f. Head of serpent column resting on floor level of Temple of the Chac Mool</p> |
|---|--|

That the stairway was not more than one intercolumnar space in width is clearly shown by the fact that in the next interval to the south, the floor continued inward, that is, eastward, 1.30 meters beyond the line of the first step. Perhaps one would have expected so fine a temple to have had an approach commensurately pretentious. Nevertheless, all data in hand point to the correctness of the reconstruction as given.

Under the arrangement thus established, the entire roof of the demolished colonnade would have served as a frontal platform for the Temple of the Chac Mool. Assuming that the platform was in the place of or only slightly lower than

the temple floor, the colonnade would have had a roof height of between 5.19 and 5.49 meters.

The normal position for the Chac Mool figure, when it occurs in association with an enclosed temple, is at or near the center of the platform in the door-altar axis of the building, that is, directly in front of the central aisle of the portal. Despite the fact that, if so placed in this instance, the stair-well would have lain between the Chac Mool and the altar, it is most probable that the figure found within the temple once stood in the customary relation thereto upon the roof of the flanking colonnade.

No conclusive explanation can be given for the terminations of the floor in the two intercolumnar spaces south of the stairway. However, it is altogether probable that they indicate boundaries of some variation of the bench-altar features which are invariably present as part of the interior fittings of the colonnades. According to this assumption, the plaster line in the first space south of the stair would mark the front of a bench built against the back wall, while the east-and-west and north-and-south lines, occurring in the next interval, would indicate the boundaries of the northwest corner of an altar of the massive type, the only kind known to occur in the colonnades. Normally, the bench occupies only a portion of the first intercolumnar space forward of the rear or end wall, and the dais or altar continues only slightly into the second space; whereas, in this case, the former would have been a vault span and a half in width, and the latter, two vault spans. Were it not for this apparent discrepancy, no reasonable objection could be made to the suggested identification of the features that once existed south of the stairway.

Not one block with the dimensions of either the first or second file of columns was found among the reused stone in the portions of the Warriors Pyramid examined, nor beneath the floor of the Northwest Colonnade south of the end of the demolished colonnade. Therefore, whether these columns were plain or sculptured cannot be stated, although the latter would be the reasonable expectation.

Plaster retaining its colored finish remained upon the stones bordering the door in the rear wall. Stripes of blue, like casing panels, 13 cm. in width, reached from the floor to the nether surface of the lintel. Beyond these, from the floor upward, the color sequence of horizontal bands was as follows: brown-red, 79 cm. wide; dark red, 13 cm.; yellow, 14 cm.; blue, 6 cm.; red, 66 cm.; blue, 10 cm. The latter stripe reached to the top of the door. Crossing above it was a band of red 16 cm. wide, then a 9-cm. one of blue, and finally one of red, at least 31 cm. in breadth, above which point the wall stones could not be observed. This gives a total height of 2.44 meters, which figure may be taken as a minimum altitude for the spring of the vault.

Among the fill beneath the floor of the Northwest Colonnade, south of the limits of the demolished structure, were a great many reused wall and vault stones, probably derived therefrom. Several were found which retained blotches of painted plaster, but only one on which a definite pattern had survived. This is the human head shown in Plate 167f.

The similarity of arrangement between the two architectural units, one consisting of the Temple of the Chac Mool and the demolished colonnade; the other, of the Temple of the Warriors and the Northwest Colonnade, is so close that for all practical purposes it amounts to identity. In each case, the lower hall was joined to and was beneath a continuous roof with the coexistent portion of the West Colonnade, and each had a door in the rear wall in comparable position. Through the roof of each rose the stairway leading to the entrance of the enclosed temple upon an elevated base which was associated therewith. It would appear that the Warriors complex was copied directly from the preexistent one. The identity in the finished condition of the later group was not complete, but, had it been constructed as was at first planned, the only dissimilarity would have been in size and proportion. The eventual discrepancy resulted from the decision to broaden the stairway and to add a fourth zone to the Warriors Pyramid.

This sort of architectural arrangement was not rare at Chichen. The Temple of the Warriors exhibits one indubitable instance, and the Temple of the Wall Panels another. To these, may be added with reasonable certainty, the Temple of the Chac Mool, and it may be predicted that when completely excavated the temple on the east side of the Court of the Columns, partially opened by E. H. Thompson, will be found to be of the same type.

In the foregoing pages the several structures composing and directly related to the Temple of the Warriors complex have been briefly reviewed. The extant portions have been characterized and described in their major aspects, and many of the parts, destroyed either by time or by the hand of man, have been projected in their relation to the surviving elements to the degree made possible by a synthesis of data recovered during the course of excavation. Thus, in a way, the result has been given without describing the process by which it was obtained. However, in the following pages the plan and sequence of excavation will be presented in detail. This segregation has been resorted to in an effort to render understandable a complex mass of data, which, if presented with all the points relative to each respective feature given together, would be likely to confuse rather than to clarify.

## EXCAVATION

A mature forest covered the Temple of the Warriors and the Court of the Thousand Columns, when in 1923 Dr. Morley began the clearing of the area. Upon how many previous occasions the same terrain had been stripped of its vegetation, there is no way of determining. Ash and charcoal-filled root casts, continuing horizontally for many feet away from the spots at which stumps had burned out, were found as much as 3 meters beneath the surface along the south side of the pyramid. And at and near the surface many stones were checked and riven by the action of fire. Today the more hilly and irregular spots are those given preference by the Maya for their corn fields. Thus, it is probable that the temple areas have repeatedly served the purposes of agriculture.



FIG. 55—TEMPLE OF THE WARRIORS AFTER CLEARING

Seen from East. Fragment of wall and cornice at *a* only masonry *in situ* visible previous to excavation



FIG. 56—FRONT TERRACE, TEMPLE OF THE WARRIORS, SHOWING CHAC MOOL AND SERPENT TAILS

At the time of Stephens' visit in 1841, Chichen Itzá was a cattle ranch with wide vistas of open country spreading away from the *hacienda* buildings. Either the Court of the Columns was a part of the area already deforested, or else Stephens cleared it, since one of his plates could not otherwise have been drawn.<sup>1</sup> Then, in 1888, Maudslay felled as much of the timber as his purposes demanded. A good many stumps of the varieties of wood less subject to decay remained from this



FIG. 37.—FRONT TERRACE, TEMPLE OF THE WARRIORS AS PHOTOGRAPHED BY MAUDSLAY IN 1888

clearing and there were also a few trees of large size that showed that the deforestation had not been complete. On the northwest corner of the pyramid stood a *zapote* tree, 46 cm. in diameter, and near the east end of the south slope was a gnarled *cholul* of nearly the same girth, in which 140 annual rings were counted outside the 13-cm. cavity at the center.

The open area around the Castillo, maintained these twenty years and more by the Mexican Government, ended only a few meters eastward of the base of the

<sup>1</sup>That facing page 318, vol. II, Stephens, 1843, which shows the entire court and, to the right, the mound of the Warriors Temple.



pyramid. Obviously, a prerequisite to excavation was the removal of at least the major portion of the vegetation. After all but a few of the larger trees had been felled, and the huge mass of trunks and vines dragged away where they could be burned without danger to cut or sculptured stone, the relatively flat-topped mounds covering the North and Northwest Colonnades were seen to be blanketed with jagged stones from the roof mass, constituting a surface difficult to walk over, with the crests of columns protruding above them like rows of widely spaced mushrooms.

The slopes of the Warriors Pyramid appeared not dissimilar to rock slides on a mountain peak (fig. 55). Of the temple itself, the tops of the columns showed at the surface of the débris. Approximately the south half of the lower cornice of the east side was visible *in situ*, and at the southeast corner (fig. 55), as mentioned by Maudslay (page 39), the lower jaw of the nethermost mask remained above this cornice.

On the front, or western side, the jambs and pilasters of the portal jutted above the slope, and midway across the gentle declivity that marked the frontal platform sat the headless Chac Mool, flanked on the north and south by the huge serpent tails. They lay (fig. 56) as they had been photographed by Maudslay thirty-seven years before (fig. 57), except that the Chac Mool had been raised from its socket in the pavement and turned around in an attempt, fortunately abandoned, to remove it to the museum in Mérida. Aside from those mentioned, no portions of the temple appeared above the débris.

The fact is so obvious that it seems but a truism to say that when a campaign of excavation involves the clearing of a hill where remains to be conserved exist at different levels, digging should be begun at the top. If the lower levels are cleared first, it is inevitable that some of the débris, subsequently loosened from above, will be precipitated down the slopes, and where the detritus contains many stones, those that fall are sure to batter and mar what may lie in their path. The wreckage of buildings at Chichen Itzá is more than half composed of stones of appreciable size, many running in weight from 27 to 40 kilograms.

#### THE WESTERN TERRACE: POINT OF BEGINNING

The excavation of the Temple of the Warriors was begun synchronously at the northwest and southwest corners of the frontal terrace. At the extreme margins of the latter, the surface coating was removed until the transition from black vegetable mold to small stones, bedded in whitish decayed lime mortar, became evident. This plane of change marked approximately the position of the original terrace level. The surfacing had crumbled beyond recognition, but as digging progressed into the ever deepening accumulation toward the temple walls, disintegration of the lime plaster became less and less, until finally the troweled finish could plainly be distinguished. This provided a fixed base plane for all subsequent excavation, and in its progress, so far as possible, 5 to 7 cm. of earth were left above the floor to prevent its injury by the tools of the workmen and by the falling of stones from the bank ahead.

All building elements of significance were carried directly outward from the points at which they were found and piled at the edge of the terrace. The unworked stones from the wall hearting and the crumbled mortar and vegetable earth were moved in wheelbarrows to the terrace margin and dumped down the slope. The débris from northward of the axis was cast down the north side of the hill, and that from the south half of the terrace down the southern slope, there to be left until the problem of clearing these areas should present itself.

The front wall was found to be in place throughout its entire length up to and including the lower apron course or cornice. The lower three stones of the north jamb above this cornice were still one above the other, although slightly out of alignment. A fourth lay on the slope just westward of them. This was set back in position before the surface was lowered. Practically two-thirds of the bottom mask in the panel next the jamb had not fallen, and at the center of the wall face above a single course of plain-faced stones, were the blocks bearing the claws of the serpent shield. The corner panel of masks had entirely collapsed. Many of its elements were found on the western terrace, and others were taken later on from the débris on the west end of the northern platform.

The face of the south anta was in slightly better condition. Of the jamb and the pilaster next it, three stones above the lower cornice remained one on top of the other and an additional section of each of these elements had fallen inward into the portal, whence they were lifted back into position and left for the masons to consolidate with mortar at a later time. More than half of the adjacent mask resting on the lower cornice retained its relationship, although the stones were loose and had been held in place only by the accumulation in front of them. The lower two courses of the serpent shield at the center were leaning slightly forward from the vertical, and the side of the lowest corner mask was *in situ*. Thus the key was given for the replacement of all sculpture on both antæ.

#### SERPENT COLUMNS AND THEIR REERECTION

Strewn down the slope, of lesser gradient than elsewhere, in front of the portal were the body blocks and tails of the serpent columns. Swung forward and down, as if hinged to the south jamb, was a line of the very large bevel-faced units of the nether member of the medial cornice (fig. 58), thus proving that the latter had continued across the doorway. So far as possible, the fill was removed from around the blocks of the serpent columns and they were left as they lay, in order that their position might help in establishing their relationship for replacement. These columns had toppled forward as a severed tree might fall (fig. 59), naturally coming apart wherever there were plaster joints. As the digging reached the great serpents' heads, it became evident that the upper walls had crumbled slowly for some time previous to the outward crash *en masse* of the part of the superstructure that remained. Enough débris had collected around the heads to cover them before the body blocks came down upon them. The 8 to 10 cm. of earth upon the mar-

gins of the upper jaws served as cushions to break the fall of the heavy blocks, with the result that the jaws were in perfect condition.

In order to cope more easily with the hoisting back into position of the tail pieces, each weighing from 1.0 to 1.5 metric tons, excavations were carried inward through the portal just far enough to clear the bases of the columns, and there halted so that the surface of the fill, thence eastward, could serve as a platform. It was 3 meters above the doorsill, and much more stable than a scaffold.



FIG. 58—LINE OF BEVELED STONES FROM NETHER COURSE OF MEDIAL CORNICE AS FOUND, EXTENDING NORTHWESTWARD FROM SOUTH JAMB OF PORTAL

As falling upper zone swung downward, these stones struck upon their tips and turned over so that tenons point in opposite direction from that occupied in wall.

When the elements composing the columns were examined, it was found that all were present except a few scales from the lines of breakage in the rattle portion of the south tail, and the south half of the second block from the top of the north column. The scales were not recovered, as may be seen in the photographs, but the missing block came to light among the débris on top of the mound covering the Northwest Colonnade south of the stairway.

The basal blocks, wedged in the line of thrust by the massive heads abutting them, had not moved, and upon them the rebuilding began. The first three blocks to be replaced on each column were dragged back to their positions over inclined planks with a chain block anchored to stumps on top of the mound. Each one was leveled and plumbed and held thus by chips of stone driven into the joint beneath it. This done, the joint was covered from the outside with



FIG. 59—NORTH SERPENT COLUMN, SHOWING POSITION IN WHICH IT FELL

At left behind Chac Mool is tail piece as it lay. At right is head partially uncovered, with blocks from column toppled forward upon it as thrown by the thrust of the failing roof from behind. Other blocks have been moved to one side to facilitate excavation

a stiff sticky clay mud, with the exception of a 5-cm. space wherever the highest point might be. A tube pointing sharply upward was sealed into the opening and through it liquid Portland cement was poured until the joint was completely filled. Thus, in the end, the columns were rendered monolithic in effect, which was the desideratum because of the thrust to which the tail pieces would subject them. These tail pieces are so fashioned that, when in place, the center of gravity lies practically at the forward face of the column, hence the protruding portion of each

functions like the weight on a scale beam prying ever downward. When the superstructure was in place this weight was too insignificant to have any effect on the mass above, but as rebuilding was to stop with the columns, it was deemed necessary to anchor them as substantially as possible, because there would be no counter weight for the tails.

To raise the upper blocks and tails, an **A**, made of native timber, about 2.50 meters higher than the eventual altitude of the column, was set up between the latter and the bank behind it. In the **V** formed by the crossing tops of the two

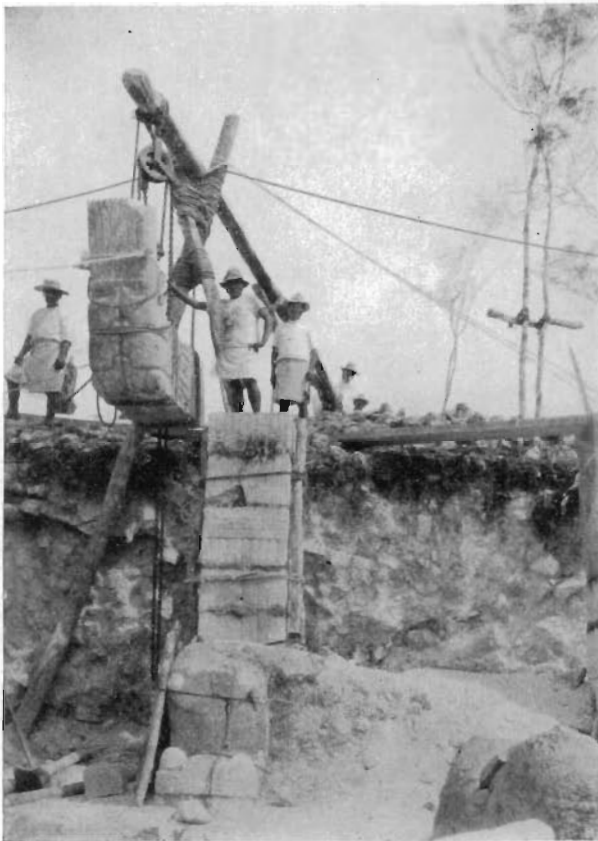


FIG. 60—TAIL PIECE OF NORTH SERPENT COLUMN  
READY TO SWING INTO POSITION



FIG. 61—NORTH SERPENT COLUMN BEING DRILLED  
TO RECEIVE ANCHOR BOLT

timbers was laid a horizontal member, made long enough by splicing together two tree trunks. One end extended outward beside the column; the other lay upon the top of the mound. To the protruding end the tackle was lashed. When block or tail piece had been raised slightly higher than the top of that portion of the column already replaced (fig. 60), the long end of the horizontal was swung through the arc necessary to place the stone in question directly above the point at which it was to rest. After the tail had been set it was lashed to stumps to prevent sidewise motion, while the far end of the sweep was weighted down with stones. Then a hole was drilled through the entire length of the column and 46 cm. into

the foundation beneath it (fig. 61). In this hole was placed a 2-cm. iron rod with an expansion device at the bottom, after which the bore was poured full of liquid cement. The top of the stone was recessed to receive an iron plate which was drawn down with a heavy nut. Both plate and nut were hidden by cement, smoothed flush with the top of the block. Thus the over-jutting tail and the shaft of the column are both cemented and bolted into one solid piece.

#### NORTH AND SOUTH TERRACES

While the serpent columns were being rebuilt, the north and south terraces were cleared. The south terrace remained to an average width of about 2.75 meters. Above it the slope was very steep. The digging was done from both ends, and the débris was thrown over the edge. The plain-faced blocks and the sculptured stones were kept upon the terrace, always, as nearly as possible, directly out from the points where they were exhumed. The apron course above the battered zone was in place all along this side. The jaws of the lowest mask at the southwest corner remained in place, as well as a few stones of the one at the east end. All other sculpture had fallen, but the position of the elements found upon the terrace showed the arrangement of the panels to have been as they appear in the photographs taken after the completion of repair.

On the north side, the pyramid had crumbled more rapidly than on the south, and to a greater extent near the east end than toward the west, with the result that the terrace dwindled out about 1.50 meters from the northeast corner, and thence onward even the outer facing of the temple wall was gone. With the exception of a few stones of the bottom mask at the west end, no carving was found *in situ* in the north wall. But, as on the south side, carved stones from the débris indicated the points above which the mask panels and shields had occurred.

#### CLEARING THE TEMPLE INTERIOR

The interior of the temple was cleared in two levels. Since the great sink or dead *cenote*, in which it was planned to dump the débris, lay eastward of the pyramid, it was desirable to cast as much as possible down the eastern slope to avoid longer haul than necessary. The outer facing of the east wall had been undermined by erosion and had fallen to floor level throughout the northern half of its length; and from the center northward, the inner face was gone to within 1.50 meters of the floor. At this level, the first drift was begun (fig. 62) and carried across the temple, eventually to meet the cut previously made through the portal. The material removed consisted of roof débris, earth of vegetable origin, and a great quantity of stumps and roots. The tangle formed by the latter was tough and resistant beyond ready belief. The effect was like reinforcement in concrete. Not infrequently, when a bank had been undermined from 1.25 to 1.50 meters, instead of the breast falling as a mass, little by little the stones and earth would crumble down, in the

end to leave a roof, 30 to 46 cm. thick, held in place only by its interwoven network of roots.

As the face of the cut reached columns 14 and 16, the top blocks of these were found leaning so far to the eastward that they would have fallen had the débris against them been removed. Hence, the fill on the opposite side was dug away and these blocks slipped back into position. Column 18 did not appear at all in the upper level. Later, it was found to have been overturned toward the south by the sidewise pressure of the broad central vault, until it lay stretched upon the floor, some of its blocks splintered and shattered. The upper five elements of column 20 were inclined southeast sufficiently to have toppled over of their own weight. Slots were dug behind the corners sufficiently to permit

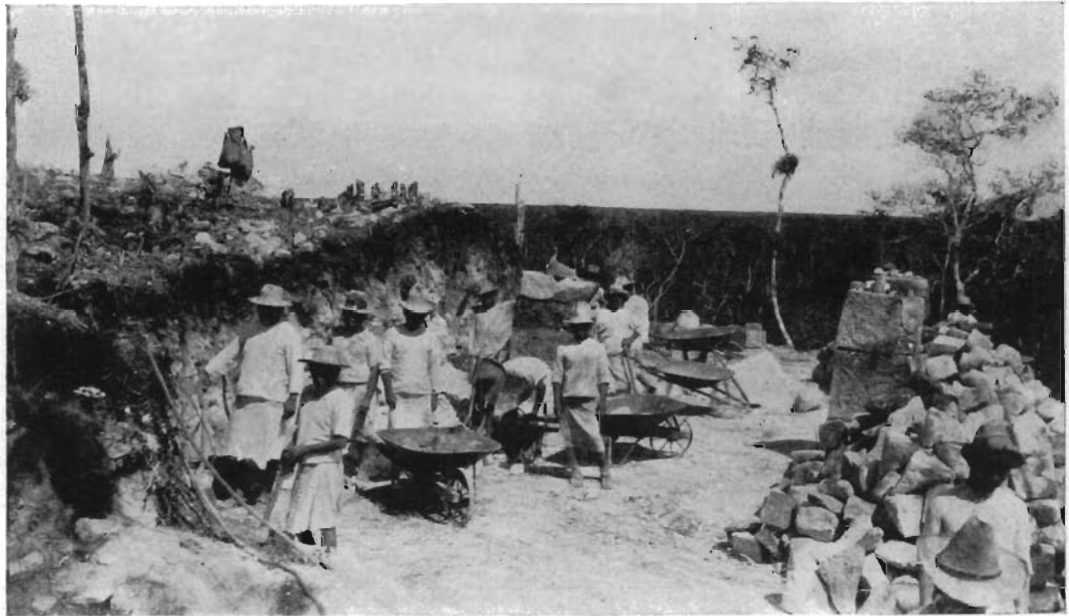


FIG. 62—EXCAVATING TOP LEVEL, TEMPLE OF THE WARRIORS  
East side, seen from south, columns 15 and 16 visible

the insertion of upright poles. These were bound in place, then a rope was passed behind the poles and secured to a tackle fastened to a stump on top of the hill toward the northwest (fig. 64). The ropes were drawn taut. Next, the earth was scratched out of the spaces, triangular in cross-section, between the blocks, so that slow tightening of the cables from the tackle would gradually pull the leaning splintered column back toward the vertical.

Column 13 lay in a débris-supported arc toward the east and north. Judging from what could be seen of it above the floor of the upper excavation level, it was tipped to the very bottom. Hence, the blocks above the plane of the first drift were left supported upon masses of unmoved débris until work at the lower level should reveal the condition of the entire column and the procedure necessary to reerect it.

In several places, large units of vault masonry had come down *en masse*, their beveled face stones still in alignment, course upon course. These plainly showed that the vaults of the eastern chamber had extended from east to west. The largest articulated arch mass found, lying above area 29, is presented in figure 65.

The partition wall between the outer and inner chambers stood to a height of 3.35 meters for a distance of 3.05 meters from the south end. Thence northward it was not to be seen from the upper level until within 1.50 meters of the north wall, where from one to three vertical courses had not fallen, although loosened from the hearting. However, the door jambs and pilasters remained, one on top

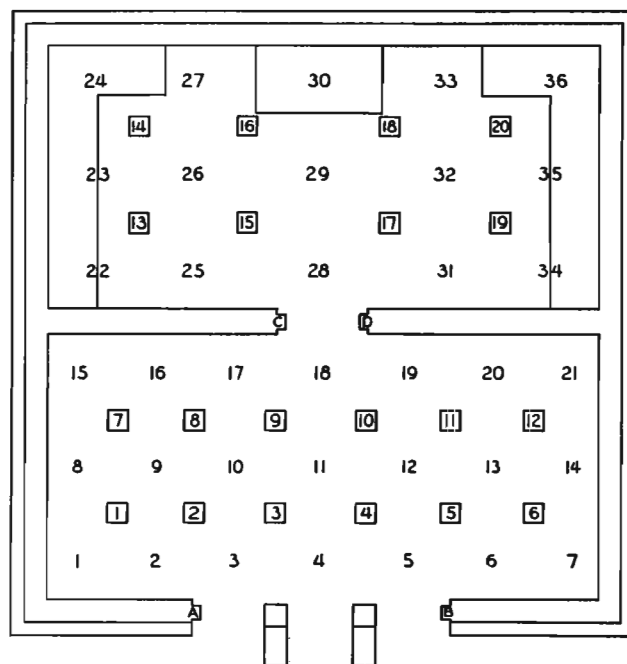


FIG. 63—PLAN OF TEMPLE OF THE WARRIORS SHOWING COLUMN AND AREA NUMBERS

of the other, to their full original height because of the fact that they were made of blocks spanning the entire width of the partition, and so possessed unusually broad bedding planes.

In the front chamber the columns were in relatively excellent condition. Only one, No. 11, had to be drawn back from a southward slant to the vertical. In almost every intercolumnar area, courses, and occasionally several superimposed courses of vault stones fallen more or less *en masse*, confirmed the fact that in the outer chamber the vaults had run from north to south, or at right angles to those in the inner sanctuary.

Against the north side of column 7, at a height of 1.68 to 2.14 meters from the floor, was found a cache of eight cylindrical jars of red clay (fig. 66). The shortest is 39 cm. high and 10 cm. in diameter; the tallest, 51 cm. high and also 10 cm. in diameter. Undoubtedly these were hidden in a cavity existent after the temple



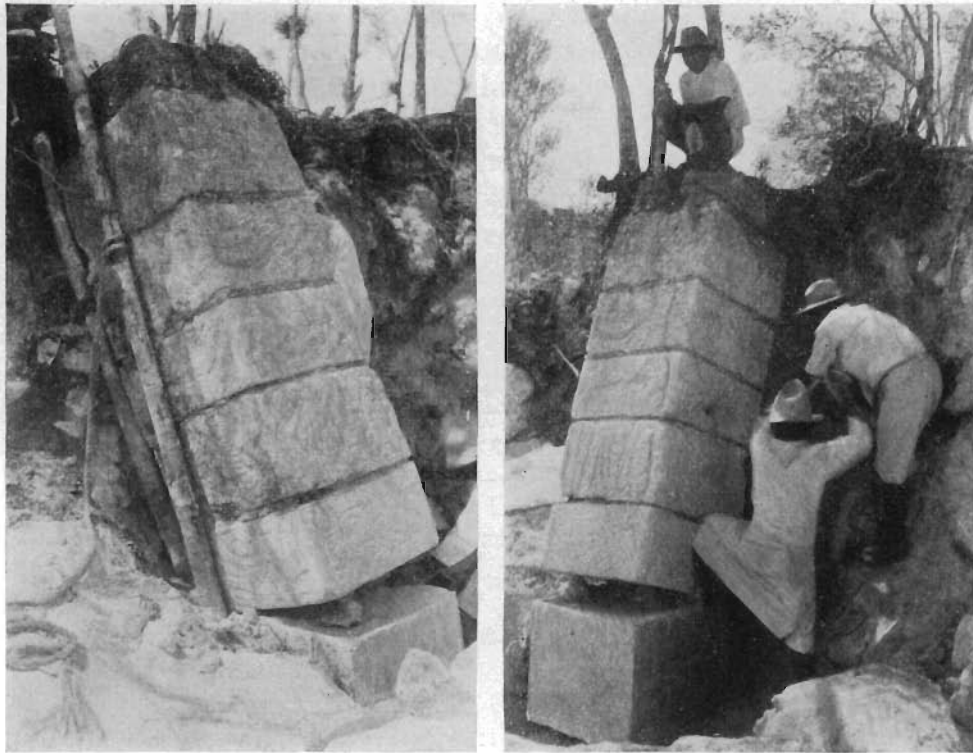


FIG. 64—STRAIGHTENING COLUMN 20



FIG. 65—FALLEN VAULT COURSES IN RELATIVE POSITION

had fallen into an advanced state of ruin. Had they been included in any part of the original superstructure they would inevitably have been shattered during its collapse. On the contrary, most of them were entire, fragments being lacking from only two.



FIG. 66—CACHE OF CYLINDRICAL JARS BESIDE COLUMN 7, TEMPLE OF THE WARRIORS

#### CONDITION OF THE ALTAR

Conditions existing in other buildings at Chichen Itzá supported the expectation that there would be an altar against the center of the back wall. Consequently a pit was sunk floorward along the eastern line of columns 16 and 18. When it had reached a depth of about 1.40 meters from the level of the upper drift, and lacked 46 cm. of reaching the calculated floor plane, there was uncovered a fragment of a beautifully polished red surfaced slab lying face upward. This confirmed the presence of the altar. The pit was widened to the east, north, and south, following the surfaces of the slabs that continued to be found. At length the south margin was reached and passed, and a pit was sunk still farther floorward (fig. 2). Soon it was revealed that a considerable cavity existed beneath the slab surface of the back part of the altar. Into this it was possible to crawl for some 2.50 to

3.00 meters, where, with the aid of artificial light, the plan and condition of the altar could be plainly discerned. It had filled the entire space between the wall and the eastern line of columns 16 and 18. Along the north side and following the east wall, the slabs were in place, in the former supported by Atlanteans, and adjacent to the wall, except at the north and south ends, by stone posts.

The terrific impact of masses falling from the roof had broken many of the slabs toward the front, thrusting them forward, and either snapping off the legs of the Atlanteans which supported them, at floor level, or else prying the figures out of the masonry in which they were embedded until they lay face downward upon the floor. The position and arrangement of the slabs and Atlanteans after the entire altar area was cleared is shown in figure 3.

#### FRESCOS ARE FOUND

While the excavation of the altar was being completed, a pit was sunk to the level of the bench in the southwest corner of the inner chamber. As the pit was continued northward, fragments of a fresco representing a marine scene were found *in situ* upon the partition wall above the striped dado. And from the fill began to come numerous fallen wall stones retaining more or less of their plaster, bearing portions of other scenes. Soon the rapidly increasing number of such stones encountered among the débris made it evident that copying and preserving them constituted a problem of considerable magnitude. Hence, no more were exhumed until a storage place could be provided and preservatives secured from the United States. Meanwhile, the copying of those that had been taken out was prosecuted as rapidly as possible. Before this was completed, came the hailstorm of April 14, 1925, which was so severe that its parallel is not recorded in the memory of the oldest natives, nor even in tradition. The bush was beaten as free of leaves as a winter landscape in northern latitudes, and every stuccoed surface was washed and pounded as clean of plaster as if the stones were fresh from the quarry. The colors upon the altar suffered greatly from the bombardment and, in consequence were recorded in the schematic presentation given in Plate 6 before they should suffer further misfortune.

After preservatives had been obtained, the excavation of the lower level within the temple was resumed from both back and front. The débris taken out through the portal was dumped down the northern slope of the pyramid. To work from the eastern side, a break was made to floor level in the remaining portion of the back wall between the north end of the altar and the bench, wide enough to accommodate a wheelbarrow, so that, for reasons previously given, as much as possible of the temple content could be dumped down the eastern face of the hill.

The interior of the building was divided into areas, each the size of an inter-columnar rectangle, and these arbitrarily numbered as shown in figure 63. As they were exhumed, the painted stones from each area were numbered, coated with an

application of thin ambroid, and then transported to a place of storage at the *hacienda*. All faced stones from which the paintings had disappeared were piled at one side to be used in rebuilding the walls when the time came for repair. A great many of the stones included in the latter category had, here and there, a splotch of color remaining, but when they bore no recognizable portion of a design there seemed no purpose in segregating them.

When the fill around the south and west sides of column 13 had been removed, the latter was found to be in the condition shown in figure 67. Column 18, which, as mentioned, did not appear in the upper drift, overturned to its base, lay scattered and riven, extending along the west side of column 20 to the south bench.



FIG. 67—COLUMN 13, SHOWING DIRECTION OF VAULT FAILURE

Between column 19 and the partition were found the only vestiges of original wood observed anywhere in the building. Side by side, extending from east to west about 45 cm. above the floor, were two cavities, marking the spots where the eastern 90 cm. to 1.25 meters of the beams which once spanned the space from the column to the wall had fallen. A few gingerbread colored chunks of the heartwood still held their form, but at a touch they returned to dust.

The temple floor was surprisingly clean and entirely free of objects of interest. Other than roof débris, a scant handful of potsherds were the only articles found upon it.

When the interior had been entirely cleared, the north, south and west walls retained their facing to an average height of 1.85 to 2.15 meters. The east wall, except the southern 3 meters, which stood almost to the height of the columns, had lost its veneer practically to floor level. On the opposite side, the veneer was of

practically the same height. Some 2.50 meters of the south wall of the inner chamber had not fallen, and the west wall for 3.50 to 4.50 meters north from the southeast corner, was of comparable height. Thence northward, the entire inner facing was gone to within four courses, or 1.25 meters from the floor. The east half of the north wall had fallen outward and down the hill, but thence to the partition the veneer sloped upward to a height of 2.45 meters. As in the outer chamber, almost all the face stones of the partition had fallen, even the bottom course being tipped so far forward that it had to be set back in line.

From the point of view of the mural paintings recovered, the collapse of the veneer was fortunate rather than otherwise, because the detached stones in the fill retained their plaster and coloration much better than those which remained in the walls. This was because of the better protection they had received from deeper burial. The stones *in situ* above the height of the dado had been within the limit of moisture and root penetration, hence, subject to potent agencies of destruction.

#### CLEARING NORTH SIDE OF PYRAMID

Excavations on the north side of the pyramid were begun at the northeast corner. There the accumulation of débris was not very great, the top of the long corner stone of the first battered zone being visible at the surface. The angle of the corner had always constituted a sort of backbone. Whatever became loosened and fell from above tended to roll vertically downward, thus well away from the base of the corner. In order to recover all that might exist of the specially shaped corner stones of the various elements of the pyramid face, a drift, the floor of which was at the original ground-level, was driven south along the east face and west along the north face. By the time the drift had reached a length of 5.50 meters on the east side, all of the pieces sought, or, to be specific, recognizable portions of five battered-element corners, three vertical panel corners, and eight 15-cm. molding corners, had been found. Hence, digging toward the south was discontinued and effort was centered upon the north side. There the volume of detritus was enormous. The foot of the talus rapidly widened to a breadth of 7.65 meters, and the apex of the deposit, triangular in cross-section, merged with the unfallen hearting of the pyramid at a height of 6.10 to 7.65 meters. Until the season of 1926 there was no mechanical means of transporting débris at Chichen Itzá. The cartage of 82 to 114 meters, necessary to reach the dump from the north side of the hill, was very slow when done by man power with wheelbarrows. It took more than six weeks for a crew, averaging twenty-five workmen, to dig their way to the back wall of the Northwest Colonnade. Toward the western end, in addition to the natural talus, there was the superimposition of the large quantity of débris dumped down the slope from the western terrace and from within the temple.

When, finally, the northern slope was fairly well cleared, the lowest battered zone with its vertical molding was found to be in place throughout the entire length, with the exception of minor areas toward the east end (figs. 68, 69). Seven

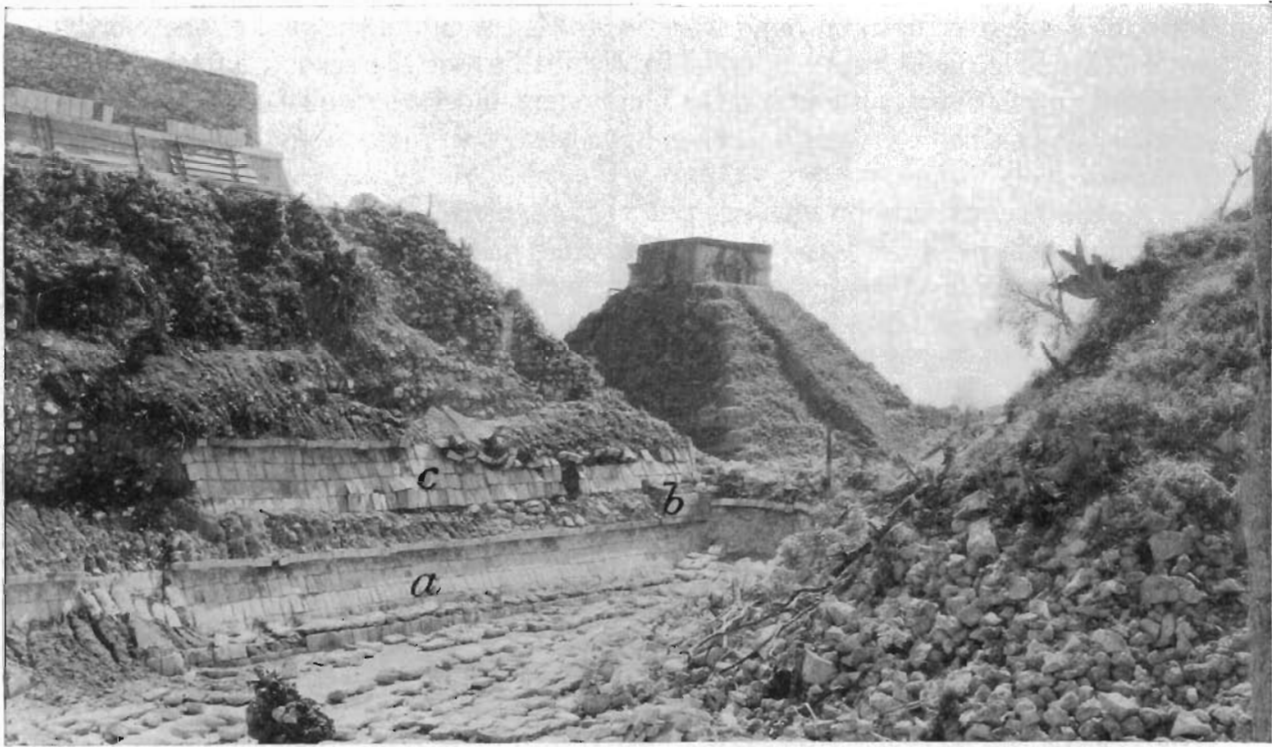


FIG. 68—NORTH SIDE OF PYRAMID AFTER EXCAVATION SHOWING, *IN SITU*, PORTIONS OF FACING TOWARD THE WEST END  
*a*, first sloping element; *b*, portion of first sculptured band; *c*, second sloping element



FIG. 69—EAST END OF NORTH SIDE OF PYRAMID SHOWING, *IN SITU*, PORTION OF FIRST SLOPING ELEMENT

stones of the first sculptured band were *in situ*, adjacent to the wall of the Northwest Colonnade, and most of the western third of the second battered zone remained in relative position, but the component blocks had all become loosened from the matrix behind them. Thence upward, not a single faced stone remained in place.

As the excavations progressed, the very numerous sculptured stones, which had come down from the three sculptured bands and from the temple above, were piled on the small level spot eastward of the Temple of the Tables, and the hundreds of cornice pieces and plain-faced blocks were carried somewhat farther away to the westward and there heaped up to await the time of repair.

#### CLEARING SOUTH SIDE OF PYRAMID

The clearing of the south side of the pyramid was done in two sections. A beginning was made at the southwest corner, at the level of the top of the mound covering the North Colonnade. From this point a path for the wheelbarrow men was cleared of stumps and rocks across the top of the Northwest Colonnade to the southwest corner thereof, whence a temporary dump was begun. First, the loose mass, previously dumped down the slope from the temple, was removed and thereafter the original talus was attacked. This talus was of much smaller volume than the one on the north, for the reason that the North Colonnade had protected the slope and retained against the upper half of it the *débris* that otherwise would have rolled down to the bottom, thus preventing to a marked extent the disintegration of the hill. Very soon the top of the pit between the pyramid and the back wall of the North Colonnade was reached. It was framed on the south by the lower member of the medial cornice of the latter structure, and on the north by the second sculptured band of the pyramid. In the pit were found the long pencil-like cornerstone of the third battered element of the pyramid, the recessed corner of the third sculptured panel, and component stones thereof. The second sculptured band had ended flush against the back wall of the North Colonnade. The first four or five stones of both the upper and lower courses were missing and were never found. The next five stones of both courses were *in situ*, with a single molding block in place on top of them (fig. 70). Thence eastward, both courses had loosened from their backing and toppled forward, probably during slow settling of the talus. Thus they were in almost perfect relative position, but lying at a slant, or, in some cases, horizontally instead of vertically. As the digging progressed from west to east, the cornice upon which they had stood was cleared of earth, and the stones set back one by one as they were raised from the *débris*, and blocked in place. By the exercise of constant vigilance, 110 fallen blocks were connected in sequence to the 10 *in situ* without break or gap in the frieze (fig. 71). Shortly westward of the line of the top of the stairway later found between the pyramid and the substructure of the North Colonnade, the carved stones ceased to be in sequence because the deeper gully thence eastward had permitted them to slump farther down the hill.



FIG. 70—PORTION *IN SITU*, SECOND SCULPTURED BAND,  
SOUTH SIDE OF PYRAMID

*a*, interior face of back wall of North Colonnade; *b*, base  
of third sloping element of pyramid

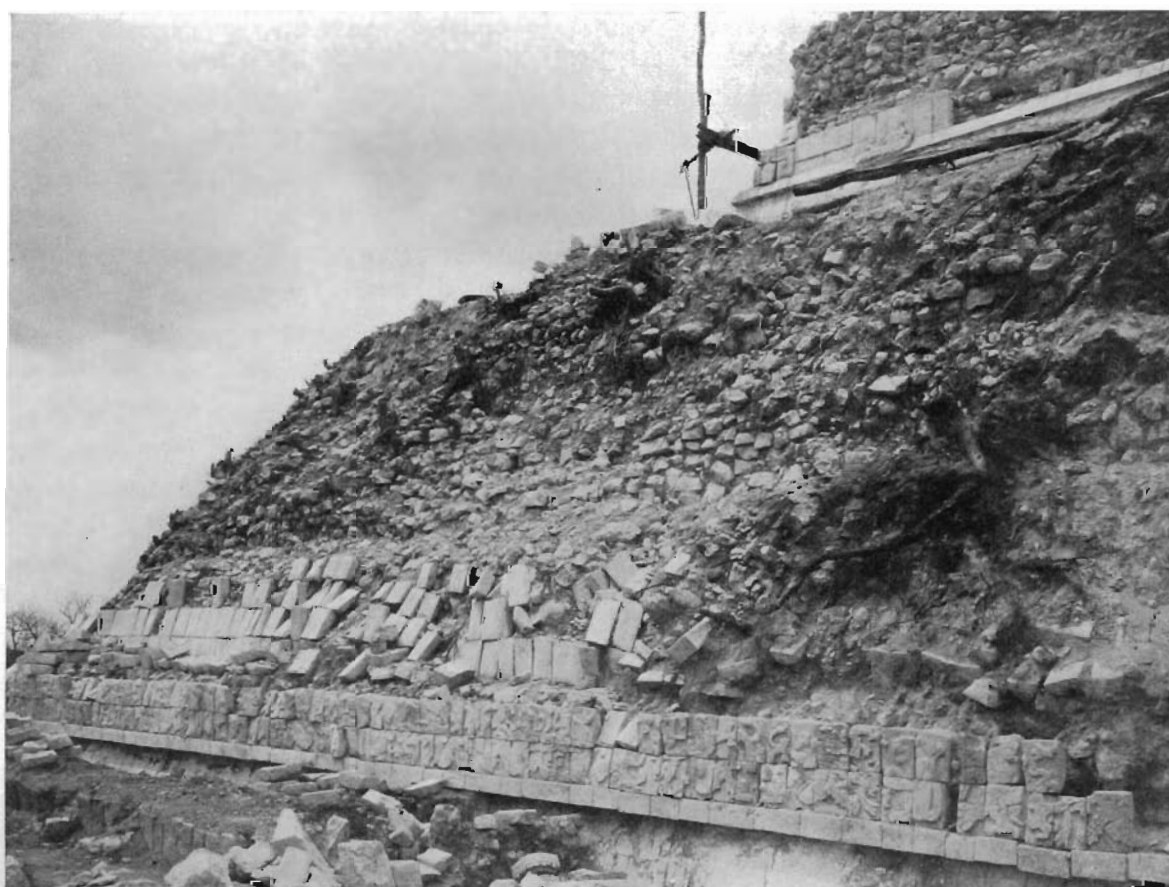


FIG. 71—BLOCKS OF SECOND SCULPTURED BAND OF PYRAMID, FOUND IN RELATIVE POSITION,  
AND SET BACK IN PLACE



After the talus had been completely cleared away eastward to the point above mentioned and down to the level of the top of the North Colonnade, the pit between the latter and the pyramid was dug out to the level of the first terrace. Subsequently, a trench was sunk beneath this level to reveal the first sculptured band of the pyramid, which, having been sealed in masonry, was in absolutely perfect condition.

To clear the eastern half of the south slope, a beginning was made at the southeast corner. A drift was run northward along the eastern face, far enough to make certain the recovery of such specially shaped corner stones fallen from above as might exist. Then the gully between the pyramid and the colonnade was opened. The jumble of sculptured stones in this restricted area was most perplexing. There were elements from all three of the pyramid friezes; from the similar one on the back of the North Colonnade substructure, as well as mask and panel pieces from the temple. Because of limited space, these had to be transported to the flat ground back of the pyramid, there to be spread out and sorted.

When the cut driven from the east end finally reached the area cleared from the westward, there had been laid bare the basal terrace and the first battered zone with surmounting cornice in practically perfect condition throughout the eastern 16.78 meters of its length. These features continue westward the full length of the pyramid, but are obscured from view by the masonry of the colonnade built against and upon them. The first sculptured band was *in situ* and not loosened for a distance of 22.88 meters from its western terminus, and the second battered zone existed across this same expanse. The second sculptured band has already been accounted for. At the west end, there was a small part of the third battered zone in relative position. The remainder of the slope to be covered with facing during the course of repair was, for the most part, the hearting of the pyramid exposed by erosion, studded with stumps and interlaced with a network of roots.

#### OLDER FAÇADE BURIED IN SOUTHWEST CORNER OF PYRAMID

In the backing, just behind the point where the missing stones from the west end of the second sculptured band once stood, after the detritus had been removed there was observed the corner of a block apparently in vertical position, with dressed face to the east as if the stone were in place in a wall. It was almost exactly in line with the face of the short section of the back wall of the Northwest Colonnade which closes the space between the pyramid and the north boundary of the North Colonnade. As the rough stones built against it were torn out, it became apparent that instead of being in vertical position, the top leaned to the east at an angle which suggested the slope of a coping stone. Such the block in question proved to be. A pit, about 1.25 meters square, was sunk following the façade of which this stone was the culminating member, to reveal the exposure charted in figure 47. Obviously, the façade was representative of some previously existent

structure of which a vestige had been included in the great pyramid, but the building to which it had belonged was not identified until much later.

The first digging on the front or western side of the pyramid was in search of certain missing stones from the sculptured panels of the temple façade, which were urgently needed in its repair. An inclined wheelbarrow path was graded down the front of the mound covering the Northwest Colonnade. With the top of this mound serving as a floor plane, the talus in the angle bounded on the north by the great stairway and on the east by the face of the pyramid was dug away and wheeled to a temporary dump in front of the Temple of the Tables.

Conspicuous in the rock slide that bordered the stair mass were a few blocks, carved in very low relief, belonging to the sculptured upper portion of the south ramp. The drift had been driven but a short distance inward when carved blocks began to appear among the débris, all the way from the stair to the corner of the pyramid. The devices on them were different from any known to have occurred on the front of the temple, but, nevertheless, it was assumed they belonged to it. This digging was previous to that on the north and south sides of the pyramid, hence the thought had not even suggested itself that the great hill had been other than plain faced. Finally, in the course of the work, a bit of bank fell away from the side of a block leaning forward in the débris as it would have fallen if it had come from a vertical face immediately above and back of the point at which it lay. Fingers thrust beneath it revealed the downward face to be sculptured. Careful removal of the earth northward from this stone uncovered another sloping not so sharply to the westward, and beyond it another even less moved from vertical position, then a fourth *in situ*, with a molding block in place above it. Thus was established the presence of at least one sculptured zone upon the pyramid. When uncovered to its northern limit, about 3.35 meters of the carved band were found intact, owing to the fact that it had extended into and beneath the hearting of the stairway (fig. 24).

By the time the débris from the upper level had been removed back to solid undisintegrated masonry, there had been recovered all but three of the stones necessary to complete that portion of what proved to be the third or uppermost sculptured band of the pyramid situated above this area. About two-thirds of the stones composing the third battered zone were unfallen, but so loosened from their backing that they had to be taken down and reset. Beneath the edges of the hearting of the stairway existed the termination of the fourth battered element, thus giving the key to the angle of slope of this feature.

#### TRANSECTION OF NORTHWEST COLONNADE TO FOOT OF WARRIORS STAIRWAY

Next, the Northwest Colonnade mound was transected by a cut, three inter-columnar spaces in width, made for the purpose of laying bare the foot of the Warrior's stairway (fig. 72). This work was begun at the level of the frontal

terrace, and a vertical breast was driven thence eastward. On the terrace were found some elements of snouted masks, but not enough to complete the panel to which they belonged. Until the line of the third row of columns from the front was reached, this bit of digging consisted of débris removal, without incident or feature of consequence. Masses of vault material, fallen without crumbling, showed, from rows of beveled stones still in relative position, that the vaults had run from north to south. As is the normal condition with all of the long columned halls, the thrust of this building as it settled toward collapse was frontward.



FIG. 72—EXCAVATING TOWARD FOOT OF WARRIORS STAIRWAY

In consequence, the two front rows of columns were overturned in a westerly direction. Those of the third row, uncovered in this cut, while slightly leaning, had not fallen. Inward from these columns, above the average level of the top of the mound, which was at a mean of 2.45 meters from the floor, began a rock talus continuing upward on to the ramp of the Warriors stairway. For the most part the talus consisted of steps which had become loosened from their supporting matrix and had rolled down the slope and accumulated at its foot. Some of the blocks were sufficiently intact to be saved and used in rebuilding the stairway, but most were riven, shattered, or cornerless, because of long exposure to the weather and subjection to bush fires.



FIG. 73—FIRST LEVEL OF EXCAVATION IN FRONT OF WARRIORS STAIRWAY

- a.* Tops of columns of Northwest Colonnade                      *e.* Serpent's head from south balustrade  
*b.* Stub of south column rising from stair                      *d.* Portion of third sculptured bank of pyramid  
*e.* Portion of third sloping element of pyramid



FIG. 74—SOUTH STANDARD BEARER AS FOUND BETWEEN COLUMNS 29 AND 33, NORTHWEST COLONNADE, LOOKING EAST

## STATUETTE STANDARD BEARERS

Among this mass of rock, partially visible at the surface above the south third of the stair, was the great serpent's head slid down from the top of the south ramp (fig. 73). Just back of the southeast corner of column 33, at a height of 1.10 meters from the foot thereof, lay the torso of the statuette standard bearer shown in figure 37. The head came to light 20 cm. north of the same column and 71



FIG. 75—NORTH STANDARD BEARER AS FOUND  
AGAINST EAST FACE OF COLUMN 29, NORTHWEST  
COLONNADE

cm. nearer the floor. That portion representing the forearms was 1.22 meters farther north and at a slightly higher level. The second statuette (fig. 36) was midway between columns 38 and 39 at a height of 1.42 meters from the floor. Figures 74 and 75 are photographs of these sculptures as found. Among the litter of stone chips immediately covering the basal steps were the horns and tooth missing from the heads of the serpent columns in the portal of the Temple of the Warriors. It seems altogether certain that these objects were hurled from the

temple platform by human agency. If the standard bearers originally stood where they have been replaced, they might have been precipitated down the stairs by the undermining action of natural disintegration, but no flight of imagination can picture the fragments of the snakes' heads rolling of their own accord from the portal to the stair head for the privilege of tumbling down the steps. The finding of the statuettes and the serpent fragments in close proximity favors the belief that vandals watched their descent.

Immediately above the lowest steps were blocks from the two unsculptured columns, the unusually long capstones, and the vault stones of flat bevel, which have been described (page 44) in connection with the roof which once covered the lower portion of the stairway.

#### EMPTYING SOUTH HALF, NORTHWEST COLONNADE

The next unit to be cleared on the west side of the pyramid was that portion of the Northwest Colonnade lying south of the great stairway. This was at the beginning of the 1926 field season, and by that time a dump truck had been included in the field equipment. A movable bin with trap bottom high enough to permit the truck to back beneath it was constructed and set up on the level ground in front of the Colonnade (fig. 76). A platform was built across one side of the bin to which ascent was made over an inclined plank runway connecting with one end; from the opposite end another runway led down again to the level. Thus the wheelbarrow men moved in a circuit, and, with the shortened haul, could transport several times as much material as before.

The breast was worked from north to south. All the way along the front terrace and even down to the edge of the flat below the steps were found elements of the sculptured panels once set in the superstructure. The columns of the front row, without exception, had bent forward and finally fallen so that some of their component blocks were mixed among the débris on the platform and a few had rolled down the slope as far as the major terrace. Blocks to complete all of them were found, until the fourth from the south end was reached. Broken top pieces of this and the next beyond (Nos. 46, 50) came to light, but the three to four cubes, necessary to fill the space between the stubs *in situ* and these final elements, were entirely missing, as were four to five blocks from the final two of this front tier (Nos. 54, 58). These well-shaped cubes had been procured by someone and carted off long after the building had been reduced to a mound. In the slope of the mound, above each truncated column, there was a conical pocket of black vegetable earth. Enough débris had been dug away from the sides of the removed blocks to permit them to be pried and lifted from their places. Then time and vegetable decay refilled the cavities.

Throughout the south half of the building, the inner three rows of columns had not fallen in a single instance, and only a few leaned far enough to the west to need straightening. The forward thrust had been very slight, the bulk of the roof

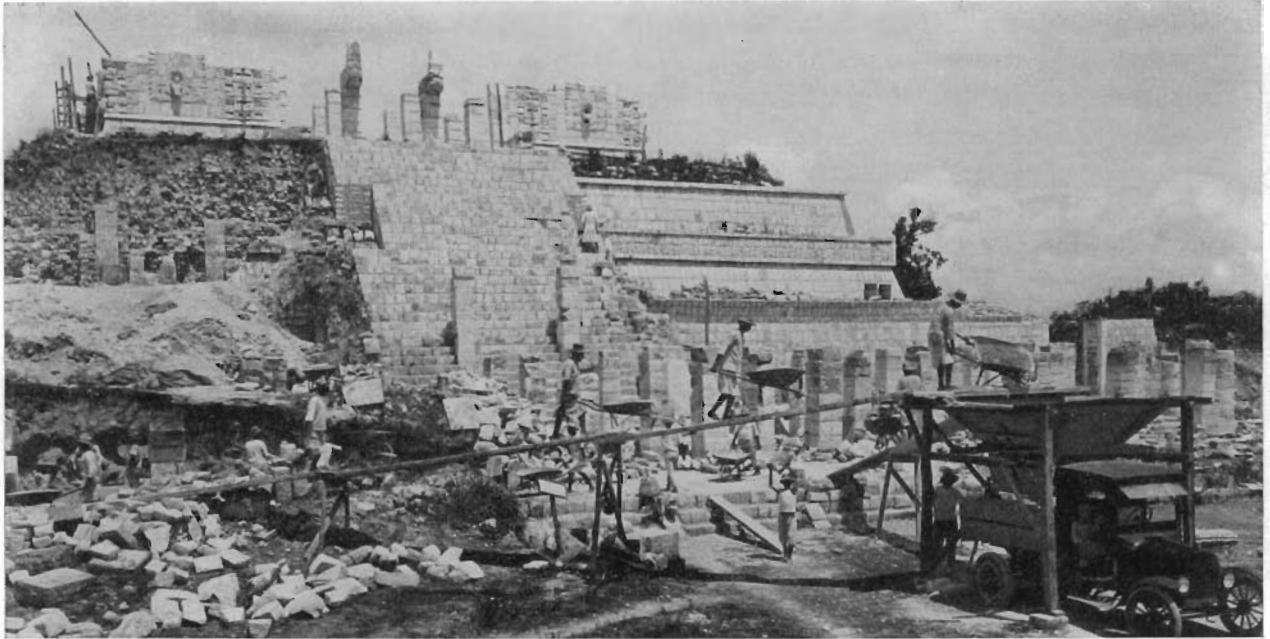


FIG. 76—LOADING DEVICE FOR THE REMOVAL OF DEBRIS



FIG. 77—LOOKING NORTH ALONG BACK WALL OF NORTHWEST COLONNADE DURING REPAIR

- a.* North jamb of doorway from Northwest to North Colonnade.  
*b.* Face of south side of Warriors Stairway, with original facing at left; and, *c.* secondary veneer at right.  
*d.* Four courses of vault stones *in situ*, which gave bevel of vaults in Northwest Colonnade.  
*e.* Exterior veneer of back wall. *f.* Intact strip of third sculptured band of pyramid.

mass having come vertically downward instead of swinging markedly toward the front of the building, as was usually the case in the collapse of a colonnade. On the tops of columns 40, 44, 41, 45 there were conspicuous signs of fire. For a time it was thought that perhaps the vertical fall of the roof had been caused by the burning out of the beams that upheld it. However, this seems rather an untenable hypothesis. It would have required intentional setting to have fired the logs of each span, and it is probable that such large pieces of intensely hard wood would have smouldered out rather than have continued to burn. Another argument against the burning of the beams is the fact that no ashes were observed on the floor. Presumably the ashes on the tops of these columns were the residue from vegetation which accumulated upon the mound after the building fell, but before the crumbling of the slope of the pyramid which provided the subsequently deposited increment of fill.

Between the northwest corner of the dais and column 42, the head of the Chac Mool on the Warriors terrace was found, 76 cm. above the floor. It may be inferred that it was thrown down from above at the same time as the standard bearers and the serpent fragments.

#### DAIS AND SACRIFICIAL STONE

The dais and the sacrificial stone before it came as complete surprises. There was little about the pyramidal stone that could have been marred by the falling roof. On the other hand, the sculptured dais with its overhanging cornice might have been expected to have suffered considerable damage from the impact of the voluminous mass covering it. However, only three stones of its cornice had been loosened enough to necessitate resetting.

The secondary shell built against the side of the stair mass (page 59) was found to be in place practically to the level of the spring of the vault. In the angle formed by the stair and the back wall, four courses of vault stones were *in situ*, thus giving the angle of slope for the vaults of the entire building (fig. 77). With the exception of 1.83 meters at the north end, the veneer of the back wall had peeled off and fallen forward, down as far as the inclined element at the back of the bench, southward to and including all but the bottom jamb stone of the doorway opening into the North Colonnade.

As the space between the last transverse row of rectangular columns and the adjacent file of round ones, marking the juncture of two buildings of different ages, was dug over, there were found sculptured elements to prove that the Northwest Colonnade had extended above the roof of the West Colonnade. The position of carved blocks of recognizable type indicated the decorative plan of the façade to have been as charted in figure 41.



## NORTH HALF, NORTHWEST COLONNADE

After the colonnade had been cleared to its southern limit, the dump from that point westward, made the year before in clearing the west end of the south slope of the pyramid, was removed. Immediately thereafter, attention was turned to the north half of the colonnade. There, as on the south side, the angle between the stair mass and the slope of the pyramid was the first to be cleared. Out of this increment of débris came the carved stones from the north half of the third sculptured band of the pyramid, a number of the elements of the upper face of the north stair ramp or balustrade, and the three blocks necessary to complete the northern plain column which rises from the stairway. In addition, 3.05 meters north of the stair side, 1.53 meters forward of the back wall, and just beneath the surface of the talus, or 3.36 meters above the floor of the colonnade, lay the ser-



FIG. 78-*a*, SERPENT HEAD, FROM NORTH BALUSTRADE AS FOUND BACK OF *b*, COLUMN 23, NORTH COLONNADE

pent's head from the top of the north balustrade (fig. 78). It had been loosened by the crumbling of the masonry beneath it until finally the tenon was wrenched free and, as might a sled, the huge block slipped down the slope to bring up against the rockheap at the bottom.

The principal object of the work at the upper level was to recover those portions of the facing of the pyramid which had fallen after the collapse of the structure beneath, and which, in consequence, were to be found on top of the wreckage thereof. When the remnant of the third battered element had been laid bare toward the top of the drift and the undisintegrated hearting of the back wall of the colonnade had been reached at the bottom, it was considered that the objective had been attained and the workmen were transferred to the platform in front of the building. As on the south side, all along the north half of this terrace were mosaic blocks of the sculptured panels which had fallen from the entablature before the final collapse of the building. Northward of the great stairway the structure had fallen in a very



FIG. 79—FRONT OF NORTHWEST COLONNADE SHOWING COLUMNS FALLEN TOWARD THE WEST



FIG. 80—EAST RIB OF VAULT, AS FOUND IN FRONT OF WARRIORS STAIRWAY

different manner than it had southward thereof. Instead of the roof mass dropping vertically downward between and around the columns, almost the entire northern half of the building had swung westward, as if hinged to the floor by the columns. Therefore, these lay in uniform rows pointing to the westward (fig. 79), most of them completely fallen or leaning so badly that they would have toppled over when the fill was removed from against them, had they not been taken down as the digging progressed. As the successive blocks were reached they were let down upon the floor in sequence, from the first encountered onward to the basal one, and left in horizontal instead of vertical alignment until the time of repair.

At many places in the north half of the colonnade, huge masses of the eastern ribs of the vaults had come down without having broken, and lay with course after course of the beveled stones with which they had been faced in place, one above the other (fig. 80). These confirmed the observation made in the area in front of the stairway, that the vaults had extended from north to south.

During the weeks which elapsed while this drift was encroaching upon the featureless bulk of fill between the forward row of columns and the back wall, the talus in front of the north anta and beyond the north wall of the building was removed. At the northeast corner of the colonnade this digging connected with the area previously cleared along the north foot of the pyramid.

All along the north wall of the colonnade, except beneath its extreme east end, were found portions of the sculpture from the upper walls. The identification of the types of panels from which the elements had fallen contributed to the determinations charted in figure 41.

Continuing northward from the northeast corner of the colonnade into the talus of the Temple of the Tables there was a crudely built wall which presumably continues to a junction with the substructure of that temple. The portion encountered was 54 cm. thick, and of an average height of 76 cm. It was obviously of late construction and contained a number of reused sculptured stones. From the corner northward to the limit of excavation, the wall was removed to open a roadway for the dump trucks leading to the north and east sides of the Temple of the Warriors.

On the sloping basal zone of the north wall much of the plaster remained practically to its full thickness. In all, 91 coats were counted; but the outer portions of the 6-cm. layer were so badly disintegrated, and the inner ones so closely adherent to each other, that undoubtedly the count is considerably less than the original number.

#### FIRST TRACES OF THE BURIED TEMPLE

The time had now come when it was necessary to take up the problem afforded by a sculptured column visible in the north face of the pyramid near the west end thereof. It was desirable to discover what complications this architectural vestige might introduce before the clearing of the north half of the Northwest Colonnade had reached the back wall, because, if it were necessary to cast down from above a considerable quantity of débris, this should be done while the inner columns and

the wall were still protected by the fill which enclosed and covered them. The north face of the column, the uppermost 10 cm. of which were visible after the vegetation had been removed from the slope, was followed downward to its base and found to be resting upon a red-surfaced floor, thus *in situ* (fig. 81). The west face of the column was practically parallel to the slope of the west side of the pyramid. Judging 2.75 meters to be an average interval of separation between columns,

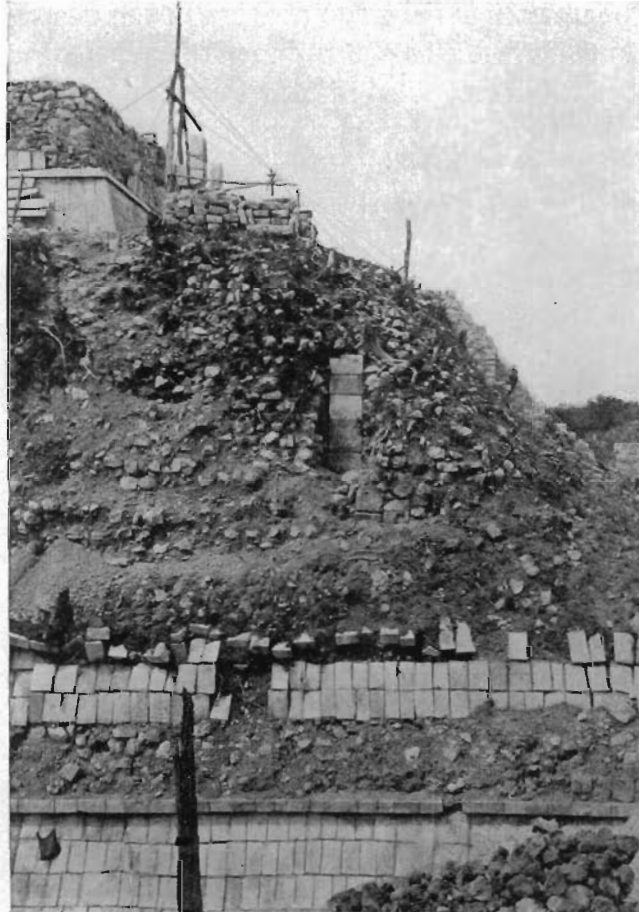


FIG. 81—NORTHWEST CORNER OF WARRIORS PYRAMID SHOWING FIRST-FOUND COLUMN OF TEMPLE OF THE CHAC MOOL

This view, taken from Temple of the Tables, shows north face of column laid bare. After the hill was deforested a small portion of topmost block was visible beneath stump standing at upper right of column.

a narrow vertical slot was cut into the western slope that distance south of the first-found column at the level of its top, or about 2.15 meters below the platform in front of the temple. The top of a second column was found 1.37 meters inward from the slope of the hill. Enough of the western faces of these two columns was cleared to make it possible to see in which direction the figures graven upon them faced. The one on the north looked to the south, and the one on the south

looked to the north; therefore, it became practically certain that the space between the two was the east and west axis of the building. The first figure exposed, that on the north side of the north column, faced to the west, indicating that the portal of whatever type of structure it was a part opened to that direction. Thus far there was nothing to indicate definitely whether the building was a many-columned hall similar to the Northwest Colonnade, or an enclosed temple like that of the Warriors, although the latter was the major probability, since structures of the Colonnade type upon high substructures are not in evidence at Chichen Itzá. This was the next point desirable to determine with as little excavation as possible. Every stone and shovelful of crumbled mortar thrown down the slope before it was decided whether or not there existed enough of the vestigial structure to justify the cost of clearing what might remain of it, was piling up the labor and expense of repairing the pyramid in case the venture were not to be carried to completion; hence the desideratum was to establish as many points as possible with a minimum disturbance of the fill which enclosed the buried building. The next step in this procedure was to move south along the slope another columnar interval and to cut a second slot like the one described. In this the top of a third column was found. To have gone in at another like interval to the southward would have involved heavy digging behind the north side of the great stairway, and therefore operations in that direction were temporarily halted.

From the base of the first-found column a floor level was traced with trowel and brush eastward along the undisturbed north face of the pyramid. At a columnar interval in that direction a slot was driven into the hill to and somewhat beyond the point at which a column standing directly behind the one first found should have occurred, but none was encountered. Since masons were at work repairing the second battered element of the pyramid face, no further examination to the eastward was made at this time, in order to avoid danger to the men and damage to their unfinished work from stones that might be loosened and unavoidably let fall down the nearly vertical slope.

The sculpture and color upon the three columns known to exist dictated that these be laid bare regardless of the difficulty and expense involved. The first step consisted of the removal of a section of the western pyramid slope, triangular in cross-section, extending inward to the line of the columns and down to their tops. The material moved was thrown down the slope on to the then existing surface of the Northwest Colonnade mound. After this level had been driven from the corner of the hill to the southernmost column previously found, it was continued another column interval to the south, at which point, instead of reaching a fourth column, it revealed, at an equal height, the truncated south wall of the building. Scratching away a few centimeters of the fill from the face of it revealed a plastered surface painted in vivid colors. The excellent condition of the paintings dictated a thorough investigation of the buried structure.

## DISMANTLED SCULPTURE BUILT INTO RUBBLE

Although the floor upon which the first-found column stood disappeared 76 cm. westward from it, this level was followed to the face of the slope and used as the floor of the second drift to be run thence southward (fig. 82). This digging had not been long in progress when unexpected developments began. Extending westward from the second of the three columns lay a huge, finely sculptured and painted block which proved to be the tail piece of a serpent column. It was in practically perfect condition except for the ascending plume-tufted rattle portion which had been broken off. Slightly farther to the south was what first appeared to be a cist or crypt of rectangular form lying parallel to the serpent tail. The bounding walls were made of sculptured and painted blocks. Contrary to expectation, the enclosed area was filled with mortar and small stones. Instead of being any sort of container, this mass was merely a construction unit for which the neatly shaped, easily laid carved blocks naturally had been utilized for the retaining faces. When removed, these blocks were found to comprise the major portions of two sculptured door pilasters. So brilliant was the paint upon them that they were taken to the *hacienda* and their copying begun before their colors should begin to fade. In addition to the sections of pilasters, there were a few long jamb stones with a narrow sculptured panel along each vertical margin. The width of the plain area between these, being the same as that of the uncarved side of the pilasters, proved that both elements belonged to the same doorway.

In line with the tail block and the crypt, and between the third column and the south wall, lay a very large serpent's head in normal position with mouth to the west. The upper jaw was missing, but both the sculpture and color of the remainder were in surprisingly good condition. A second head lay 46 cm. farther south. The jaws and mouth had been entirely broken away and, as found, the stone rested upon the rounded column portion, with the severed mouth stub pointing upward. The south wall was reached just beyond this second head. The striped dado and one whorl of the sun-serpent pattern previously described (page 76) were found to be strikingly brilliant and well preserved. In figure 83 these various sculptured elements are shown as they lay after the masonry about them had been removed.

There seemed but one conclusion to be drawn; namely, that the serpent columns had stood in the portal of the temple and being extremely heavy and difficult to move, the larger pieces had been rolled back into the room and built into the fill as the easiest way to get rid of them. Much of the breakage probably occurred when the columns were taken down. Obviously, there was no desire to protect them and, presumably, the easiest method was followed. The masonry above them was torn down, course by course until, freed of the weight that had formerly held them in place, the tails crashed down and forward. Being pivoted upon the forward edge of the columns, the L-shaped blocks could not begin their vertical fall until the outward ends had swung through the 90° between the horizontal and the vertical plane. Thus, inevitably, the rattle portion would strike

first and with tremendous impact upon the upper jaw of the head piece. The shock would have been sufficient to shatter both of the meeting elements.

Two serpents' heads had been found and but one tail. It seemed that the other should be somewhere in the neighborhood. It was recalled that northward of the first-found column, beneath the level of the floor on which it stood, there had been observed two red-painted double-faced stones, once steps of a stair way, like

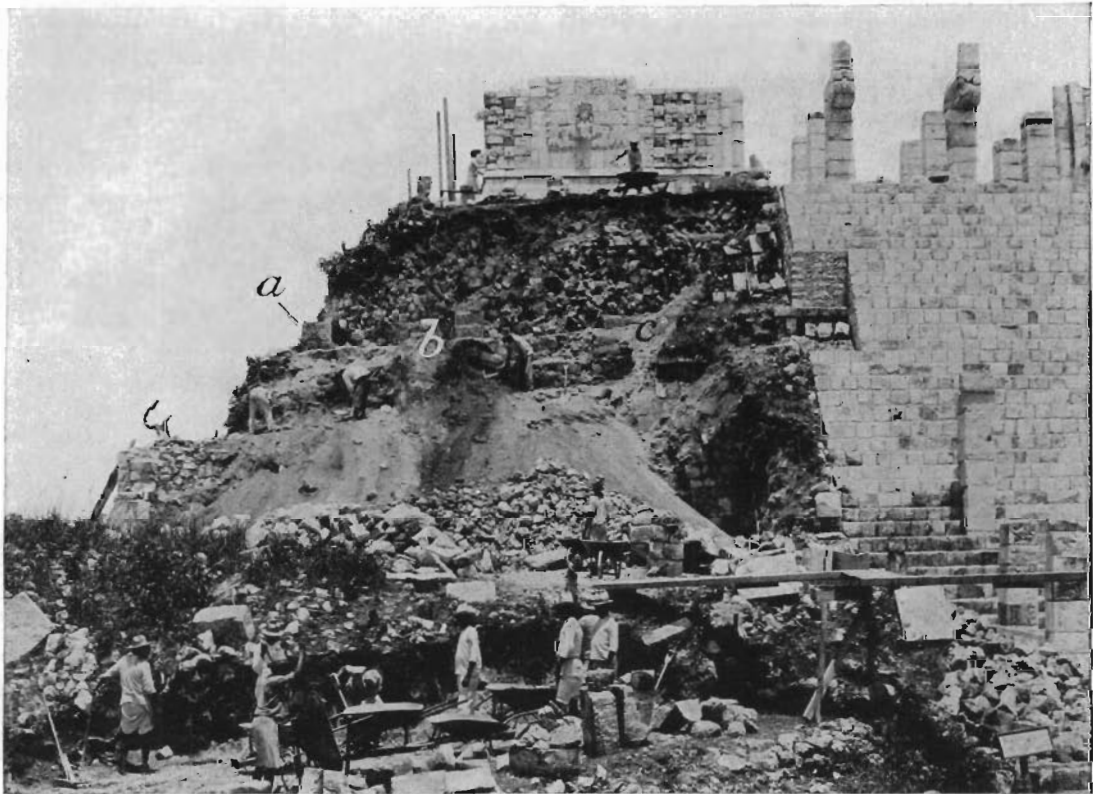


FIG. 82—EXCAVATION OF NORTHWEST COLONNADE AND TEMPLE OF THE CHAC MOOL

Drift in foreground is being opened at floor level of Northwest Colonnade. Upper group of workmen stand practically at floor line of buried temple. Tops of columns 1, 2, 3, visible at *a*, *b*, *c*.

other blocks which were dug from the masonry above the floor. Therefore, it seemed probable that more of the older substructure than necessary had been torn away to provide for the placing of the corner of the pyramid, and that, in consequence, the excess space had been refilled with material from the partly demolished building. With the hope that the second tail might have been disposed of in this way, digging was begun below the level once occupied by the floor, directly west of the northernmost column. At a depth of 20 cm. the block was found, built into the secondary hearting. As with the first, the rattle part was missing and, because of having been closer to the slope of the hill and therefore more subject to the action of roots and rain, the painting was less brilliant.



FIG. 83—HEADS AND TAIL OF SERPENT COLUMNS AND STONES FROM DOOR JAMS AS FOUND IN FILL, OUTER CHAMBER, TEMPLE OF THE CHAC MOOL

*aa*, columns 1 and 2; *b*, inner face of south wall; *c*, third sloping element of Warriors Pyramid; *d*, serpent tail; *e*, *f*, serpent heads; *g*, rectangle formed of sculptured blocks; *h*, floor level of temple



FIG. 84—DRY WALLS BUILT TO ENCLOSE COLUMNS OF TEMPLE OF THE CHAC MOOL

These dry walls, *a*, *b*, *c*, here seen from northwest, were erected to protect the columns during rainy season of 1926-1927. Crumbled mortar was tamped into space between walls and columns to guard painted sculpture against frequent and rapid fluctuations of temperature and humidity



These column elements were taken to the *hacienda* where they could be shielded from wind and rain. Each, in turn, was blocked up, wrapped in burlap, then let down upon a plank cleated in front to prevent the stone slipping off. Two other heavy planks were slipped side by side beneath the point of the one which served as a bed piece for the stone, their opposite ends resting on the bed of a truck which had been backed in between the columns of the Northwest Colonnade. Thus, held back by a block and tackle, the mass of from 1.0 to 1.5 metric tons was permitted to slide down the sharp incline until it came to rest at the desired point within the vehicle.

From the condition of the painting on the three columns and the small portion of the south wall which had been uncovered, it was plainly to be seen that these and, doubtless, whatever other features of the building interior still lay within the hill would need the maximum protection against rain and storm until they could be placed beneath a roof. It was late in the 1926 field season and the beginning of the rains was not far off. Hence, the continuance of excavations in the buried temple was deferred to another year. To protect the wall and the column faces already exposed, dry-laid retaining walls were built about 60 cm. away from them, and the space between tamped full of powdered lime earth (fig. 84).

#### TYPE OF THE BURIED TEMPLE AND ITS SUBSTRUCTURE REVEALED

The finding of the dismantled serpent columns led to the conclusion that the buried structure must be of the enclosed temple type, since serpent columns are not known to occur as parts of the long open-fronted halls. Such a temple should consist of two rooms, each with one or more longitudinal rows of columns. The unavailing search for the northern member of a second tier of columns behind or east of the one known to exist has been mentioned. In reviewing the situation, it seemed possible that the front chamber was traversed by only one row of columns, and that the space where a representative of a second file was sought might have been occupied by a partition wall. Since, from the orientation of the figures on the columns, it was certain that practically the northern half of the building had been removed, it seemed likely that the north half of the partition wall had been entirely torn down to and including the north jamb of the inner portal. Assuming this to have been the case and on the supposition that there was an inner chamber and that it contained a longitudinal row of columns, it was believed that one of these columns might be found to be at the distance of two intercolumnar spaces east of the column first uncovered. At this point the slope of the pyramid was practically vertical and still retained the stump of a good sized tree. When the roots on the uphill side of this stump were cut so that it fell away from the slope, it loosened the stones from the north face of the expected column. Measuring down beside this the distance of its assumed height, work with a trowel in the hill face revealed the floor level, which, though badly disintegrated, could be traced eastward. Four and twenty-seven hundredths meters beyond, it seemed to disappear in an

irregular downward break. A small amount of digging uncovered a cornice extending into the hill at right angles to the face thereof, and beneath this was another faced stone. Thence downward, just behind the facing of the later pyramid a cross-section of the eastern exposure of the substructure of the buried building was found to extend to ground level without break or missing element.

While the digging was going forward within the limits of the buried temple, the excavation of the north half of the Northwest Colonnade proceeded and was continued until completion. This involved the removal of the considerable mass of débris thrown down from above the floor of the buried structure. When the area was at length completely cleared, the inner face of the north anta, the north wall and the back wall to its juncture with the pyramid were seen to be in place to an average height of 1.83 meters. A bench, in every detail like the one on the south side of the stair, continued the entire length of the back wall. The secondary altar was found to have been built against this bench, between the second and third columns north of the stairway. From the pyramid corner to within six stones, or 1.83 meters, of the stair side, the facing of the back wall, except from two to four courses above the bench, had fallen and most of the stones that had not toppled forward were loosened from their backing. Enough paint remained on those in position to permit the copying of the pattern given in figure 294.

In the corner next the stair the vertical wall was intact to its full height, and above it four courses of arch stones were in place, thus giving another check upon the spring and slope of the vaults of the colonnade.

The first sculptured panel and the second battered element of the north face of the Warriors Pyramid were brought to an end flush with the face of the back wall of that half of the building under consideration. The cornerstone of the panel is normally recessed on the north side, but presents a plain vertical expanse on the exposure incorporated in the wall face. The cornerstone of the second battered element is tapered from top to bottom on the western face, but on the northern it is the same width throughout its entire length. This shows that it was cut to lean from north to south, but not in the opposite direction. Slid directly downward and covered in the upper 45 cm. of fill at the back of the colonnade were the recessed corner of the third sculptured panel, the tapering cornerpiece of the third battered zone, and two 15-cm. vertically faced molding corners. Presumably, the second sculptured band had no specially fashioned cornerstone, since it ended at the level of the basal courses of the vault. The complete cornerpiece considered to belong to the fourth battered element was assembled from seven fragments scattered down the slope, picked up previous to excavation.

The conditions proved to exist in the front or outer chamber of the fossil structure were so striking and fraught with such important possibilities that there was no alternative other than to excavate the room completely and to enclose it as a cavity within the Warriors Pyramid, by the time the repair of the latter should be completed. The task involved, while not altogether simple when undertaken in a place so far removed from a ready source of supplies, was as common

multiplication to calculus when compared to the problem of excavating the inner chamber. The latter, if the projected ground plan were at all correct, would continue beneath some 4.58 meters of the east end of the north wall of the Temple of the Warriors and beneath the entire north anta. By this time these features had been rebuilt up to the medial cornice and composed a bulk of at least 113 metric tons which must be held up in some fashion until suitable permanent supports could be built beneath it. Such an undertaking would have assumed a more attractive aspect had there been near at hand a full stock of contractor's equipment. For a long time a decision on what to do about the inner chamber was left in abeyance. It seemed best to wait until the relative importance of developments in the outer chamber should indicate the desirability of halting there, or of delving further toward the heart of the pyramid.

#### RESUMPTION OF EXCAVATION IN 1927

In resuming work at the point where the buried structure was left at the close of the season of 1926, the first step consisted of rebuilding the back wall of the Northwest Colonnade, from the corner of the pyramid to the north side of the Warriors stairway. The wall was carried to its full height, and above it were placed the three lower courses of the leg of the vault which it once supported. At this altitude occurs the terrace above the second compound zone of the pyramid. At the same time, the replacement of the second sculptured band on the north face of the pyramid was carried to completion. Thus there was provided, slightly beneath the floor level of the buried chamber, a firm base or foundation on its two exposed sides.

The cube of pyramid hearting lying above the level of the tops of the columns was removed until the stubs of the south and east walls were exposed throughout their entire length and width. The stone of appreciable size from this mass was heaped up on the south half of the front terrace of the Warriors Temple, to serve the future needs of the masons. The crumbled mortar and smaller pebbles were dumped down the north face to the pyramid, thence to be carted away by the trucks.

After the truncated walls had been laid bare, they were used as foundations for new masonry, set back 5 cm. on each side, and raised to within 30 cm. of the Warriors platform. Some caving during the process of excavation was unavoidable, because of the loose and miserable construction of the upper reaches of the hearting. This occasioned no apprehension on the south side, since there was nothing to suffer even if a major slide should develop in the hearting. But on the east there was a 2.45-meter breast within 1.83 meters of the north anta of the temple. Here, any marked degree of movement would have been disastrous, not only to the anta, but to the workmen employed beneath and in front of it. To guard as much as possible against such an event, as fast as the masonry was raised in horizontal courses, crumbled mortar was tamped between the new increment and the banks to wedge and sustain them in position.

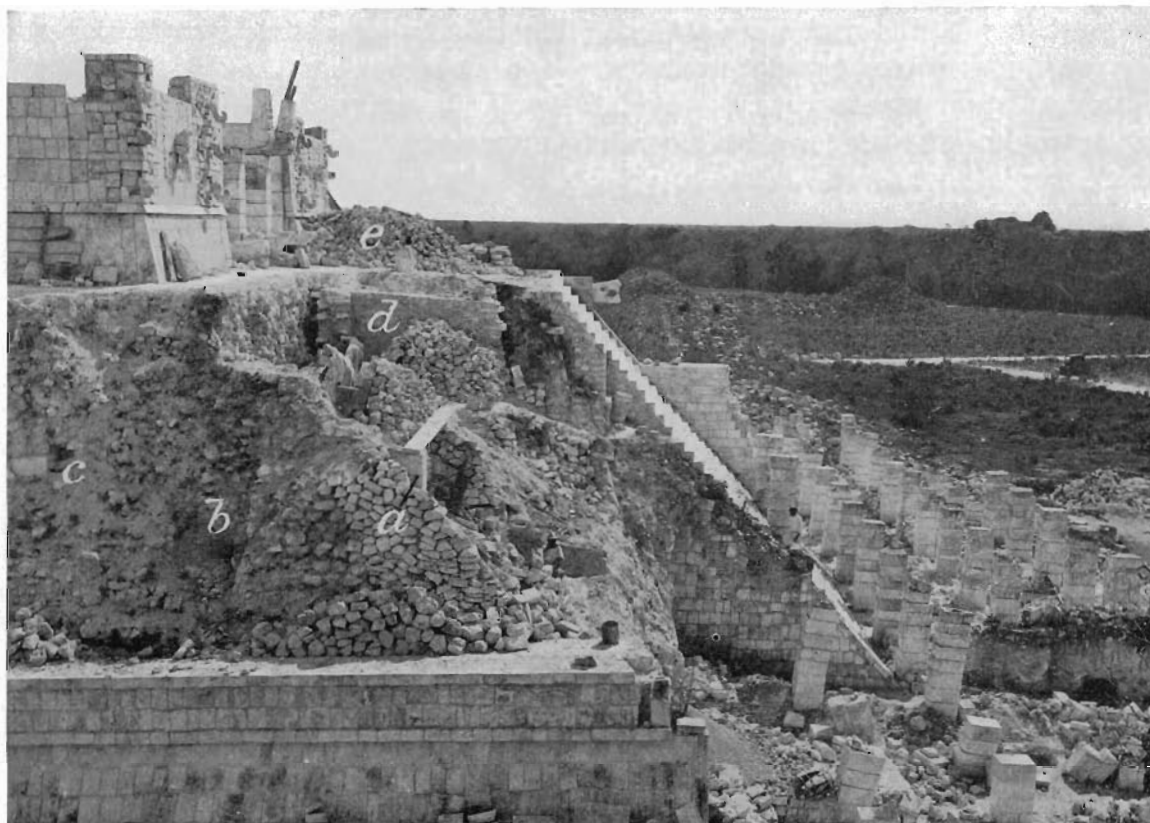


FIG. 85—VIEW FROM TEMPLE OF THE TABLES SHOWING DEVELOPMENT OF TEMPLE OF THE CHAC MOOL

Column 1 is visible at *a*. At *b* is slot dug in search of second file of columns eastward of first. Instead of row of columns, partition between inner and outer chambers had existed in this line. Top of column 4, north member of file in inner chamber, appears at *c*. Wall *d* is built on truncated south wall of outer chamber, and masons are raising one on partition. Heap of stone *e* was taken to Warriors platform from excavation where masons stand, later to be broken for use as gravel in concrete roof of lower temple.

#### RAISING NORTH AND WEST PYRAMID SHELLS TO ENCLOSE OUTER CHAMBER

Immediately after the completion of the partition and the south wall (fig. 85), synchronously were begun the excavation of the chamber to floor level and the raising of the west and north shells of the pyramid from the level of the top of the second compound zone (fig. 86). The plan adopted was to raise the interior face of the shells vertically, giving them a width at base sufficient to leave at the top a structural equivalent of the backing of the vertical panel of the fourth compound zone thick enough to support the load of the roof. At the south end of the western shell, a recess with concrete lintel was made for the purpose of leaving visible to its western limit the south wall of the chamber. Otherwise, the shell on this side, standing well away from the columns, offered no constructional complications. The line of the inner face of the north shell fell well toward the south side of the northernmost column. To permit the latter to remain visible, a rectangular recess, as indicated in the plan (Plate 3A), was left around

the west, north, and east sides thereof. The column as it stood was incomplete. The head-dresses of the sculptured figures were lacking, as well as the device constituting the decorative capital. Had the pillar been complete, the sides of the recess would have been carried vertically upward to the level of the top, upon which would have been bedded a lintel to support the masonry thence upward. The same would have been done had there been no expectation of completing the column. So many dismantled elements had come from that portion of the chamber



FIG. 86—ENCLOSING TEMPLE OF THE CHAC MOOL

Photograph taken from Temple of the Tables. Masons at lower left are replacing veneer of third sloping element of pyramid. The one above them is building recess *a* around column 4 of under temple while those at upper right are laying molding course at top of fourth sloping element of pyramid. Wall on partition *b*, shown under construction in Figure 85, is completed, and temporary roof *c* is in place, conditions beneath which at this time are shown in Figure 88. Two I-beams of concrete foundation of anta are in place, and third *d* is ready to be slipped into position through slots left in first elements of foundation.

already cleared that it seemed not too much to hope that the column elements might similarly be recovered. Hence, to make provision for such a possibility, the recess had to be closed over without a central support. To avoid the casting of a large reinforced lintel, at a height of 1.83 meters, each of the three walls of the recess was given an inward bevel like that of a Maya vault, so calculated that at an altitude of 3.18 meters the slopes would converge sufficiently to be bridged by a capstone of available size. The height of 3.18 meters was judged to be ample

because the thickness of the upper panel would be approximately that of the device at the base, and it was assumed that the general proportions of the head-dress would be more or less like those depicted on the columns in the Temple of the Warriors and the Northwest Colonnade. Of course, it would have been possible to have deferred the raising of the north shell until after excavation was completed, but to have done so would have necessitated dumping all the stone from the fill down the hill, only to bring it up again as needed by the masons, which would have involved much additional expense. As it was managed, the digging was carried forward with just sufficient rapidity to keep a supply of suitable stone ahead of the masons. Such stone comprised perhaps half the total bulk removed; the remainder, composed of small stones and crumbled mortar, was carried through a slot left in the north shell and dumped down the new talus which had developed against the repaired lower portion of the pyramid, thus shielding the masonry thereof from damage.

A thin vertical section of the fill was left along the faces of the ancient walls until the last, in order to protect them as long and as much as could be from possible rains and from flying stone chips struck off by the masons' hammers. The floor of the digging was kept at an average height of 75 cm. to 1 meter above that of the room, both to protect the latter and because it was seen that the new walls would not consume all of the stone the fill would yield.

#### COLUMN BLOCKS AMONG THE RUBBLE

By the time the breast had been worked from its beginning at the north edge south to the line of the center one of the three columns, a whole cluster of column blocks had been found built into the fill, as shown in figure 87. This event augmented the hope, previously entertained, that all of the missing pieces would be recovered. The jamb and hypothetical pilaster proved to have been torn away from the end of the south half of the partition wall. This wall measured 91.4 cm. in thickness and the south wall only 79 cm. Presumably all boundary or outer walls were of the same dimensions. Inasmuch as the sculptured jamb stones previously found had the width of the partition, it was obvious that they belonged to the inner doorway rather than to the main portal, as had previously been supposed. A socket in the red plaster floor at the dismantled north end of the south half of the partition, just wide enough to serve as a bedding place for the vertical tier of jamb stones with contiguous pilaster, confirmed their original position.

As the digging progressed southward, the stones necessary to complete both of the pilasters to their full height were recovered, as well as enough of the jamb blocks to rebuild one jamb to its original altitude. In certain construction units, the fill was composed almost entirely of stones from the torn-down walls, ordinary faced stones, cornice pieces, and vault stones in great number. Here and there was found a chip or good-sized fragment of one of the shattered serpents' heads.



FIG. 87—COLUMN BLOCKS REUSED IN FILL BETWEEN COLUMN 2 AND PARTITION, TEMPLE OF THE CHAC MOOL

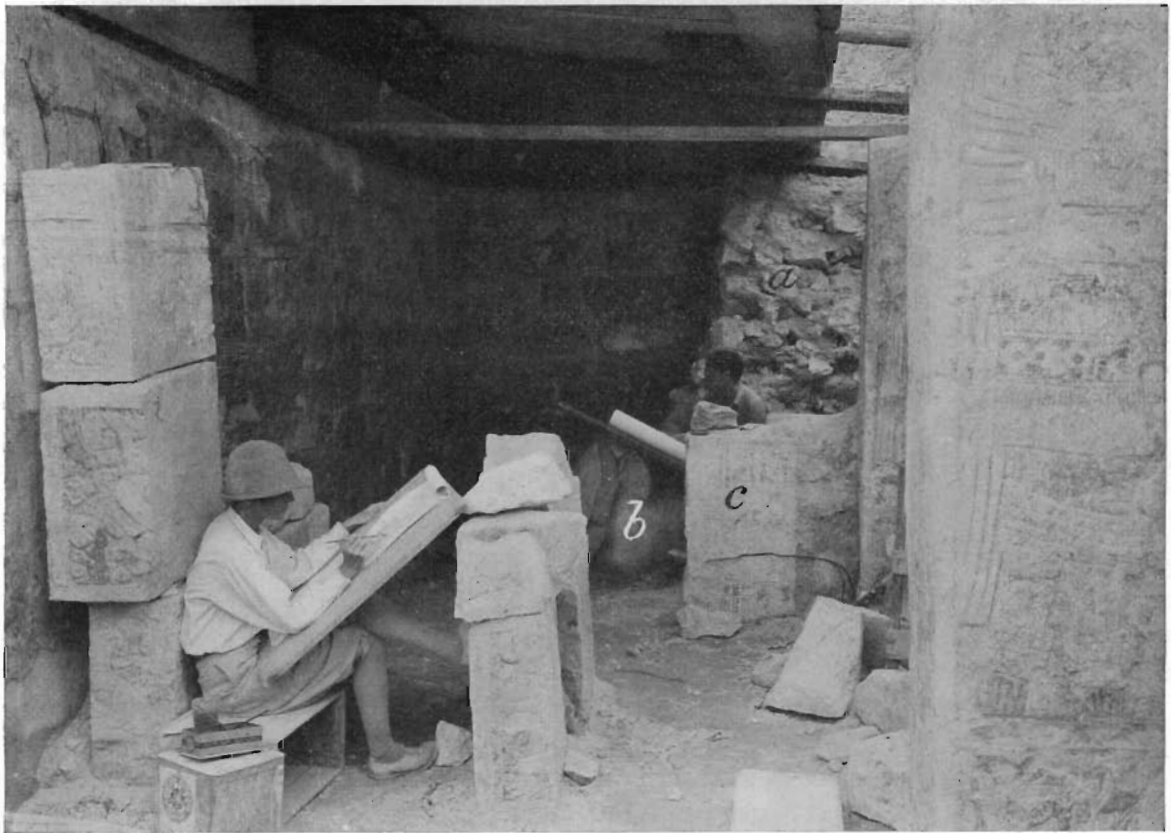


FIG. 88—INTERIOR OF OUTER CHAMBER, LOOKING SOUTH

Temporary roof to protect walls in position. Copying of wall painting and painted column in progress. *a*, section of original fill; *b*, base of Chac Mool; *c*, sculptured jamb stone; in foreground, group of column blocks shown in Fig. 87

## THE BURIED CHAC MOOL

Finally, a narrow cut was driven toward the southeast corner of the room. At a distance of 1.46 meters from the south wall, the boundary of an especially solidly built construction unit 1.30 meters in height, was encountered. Every stone in it was thoroughly embedded and enclosed in hard white mortar. Fragments of the serpents' heads were very plentiful in this block. It was necessary to observe carefully every chip of stone removed, for a good many of the fragments were from the interior of the great masses and hence had no sculptured or painted surfaces, so that they could be recognized only by the color and quality characteristic of the block from which they had been riven. The floor of the cut was deepened somewhat to permit the removal of several pieces that were visible. Beneath one of these appeared the right arm of the excellently fashioned Chac Mool figure for which the temple was named (Plate 15). The Chac Mool had been brought to the place chosen, then tipped over on its left side with head toward the east so that the flat nether surface of the base stood vertically in the north face of the construction unit. It is not unlikely that the unit of fill which enclosed the Chac Mool was the first to be built within the temple. It had been made of good rich mortar and was more substantial than any other block in the whole mass. Moreover, on top of it, against the south wall, was a layer of bat dung, 9 mm. thick. As bats frequent only dark enclosed places, the inference may be drawn that considerable time elapsed between the interment of the Chac Mool and the continuance of the filling and also that some of the roof remained undestroyed while the guano accumulated.

As soon as the original walls, that is the east and south, began to be uncovered, a temporary roof was erected to protect the frescos and the columns from any rains that might come. A framework of scantlings, held by gravity alone, was rested upon the tops of the columns and upon the 5-cm. shoulders left at the junction of the new with the old masonry of the walls. Upon the framework were spread sheets of corrugated iron, sloping from east to west (fig. 88). Where these touched the masonry, a skirt of cement was applied to seal the crack and to deflect whatever water might run down the walls on to the iron.

## EXCAVATING THE INNER CHAMBER

The finding of the Chac Mool and the excellent condition of the paintings on the wall argued the desirability and practical necessity of excavating the inner chamber. Hence, long before the outer room was finished, plans to that end were under way. First, it was determined that the back wall had not been dismantled more than those already laid bare. A column interval was measured off on the north face of the hill, extending eastward from the previously found column known to belong to the inner chamber. Then a tunnel was gouged into the hearting for a distance of 1.83 meters, at which point the eastern edge of it touched the inner face of the back wall of the temple. The failure to strike the center of the wall was due to the fact that the row of columns in this room is not in the longitudinal axis, but 30.5 cm. west of it.



The north face of the hill was cut back to as nearly a vertical breast as possible, so that the foot of the bank lay just inside the line of the inner face of an eastward extension of the north shell of the pyramid already begun across the north end of the outer chamber. This shell was laid out and construction begun to the line of the outer face of the back wall of the buried structure. A second recess, like the one previously described, was provided to leave visible all four sides of the northernmost column of the inner chamber. Inasmuch as the back wall thereof stopped about 1 meter short of the projected pyramid shell, a doorway to provide entrance to the included building was located at this point. The stone for the mass of the north wall was derived from the remainder of the fill in the west chamber.

#### CONCRETE FOUNDATION FOR TEMPLE OF THE WARRIORS

Before the walls of the Temple of the Warriors could safely be undermined, it was necessary to provide a firm and substantial foundation for them. In their natural condition these walls were bedded directly on the floor rubble of the pyramid, and their original portions were already riven to some extent by the settling of this rubble. It was decided to make the foundation of concrete, reinforced with longitudinal I-beams. Necessarily such a base had to be cast in sections. The first one was poured beneath the south end of the anta. Meanwhile, the termination of the anta was supported in the following manner: six 46-cm. sections were cut from a piece of strap iron, 6 cm. wide and 2 cm. thick, provided by the tire of an abandoned mule cart. Each was bent 7.6 cm. from one end until the shorter end formed slightly less than a right angle with the stem. The stems were then drilled and the irons bolted, two each, to the ends of three 5-cm. by 3.65-meter pine planks. One and eighty-three hundredths meters from the end bearing the irons, each plank was provided with a heavy cleat bolted fast to the side opposite the irons. Then the planks were stood upright, one against each of the two exposed panels of the jamb, and the third against the face of the pilaster between them, with the iron hooks caught beneath the forward margins of the nether stones. Strong diagonal timbers, with upper ends appropriately beveled to rest in the angle between cleat and plank, were laid across to a point 2 cm. from a wooden bed plate securely braced against the foot of the north serpent column. Gently tapering wedges were then driven between bed plate and timber ends until no further insertion could be made without crushing the wedges. Thus the extremity of the anta could not settle without the breakage of iron or the slivering of timbers capable of sustaining much more than its weight.

Sufficient rubble was dug out from beneath the jamb and pilaster to permit the placing of a skeleton form, 46 cm. high and the width of the wall, extending 46 cm. northward of the jamb and 1.22 meters south from it. The reason for the southward extension lay in the relation of the end of the anta to the south wall of the buried temple. The north line of this wall passed almost directly beneath the face of the jamb. Hence, it seemed desirable to continue the concrete southward to the point where the extremity of it would bear upon unmoved rubble when



FIG. 89—NORTH ANTA, I-BEAMS OF FOUNDATION IN PLACE

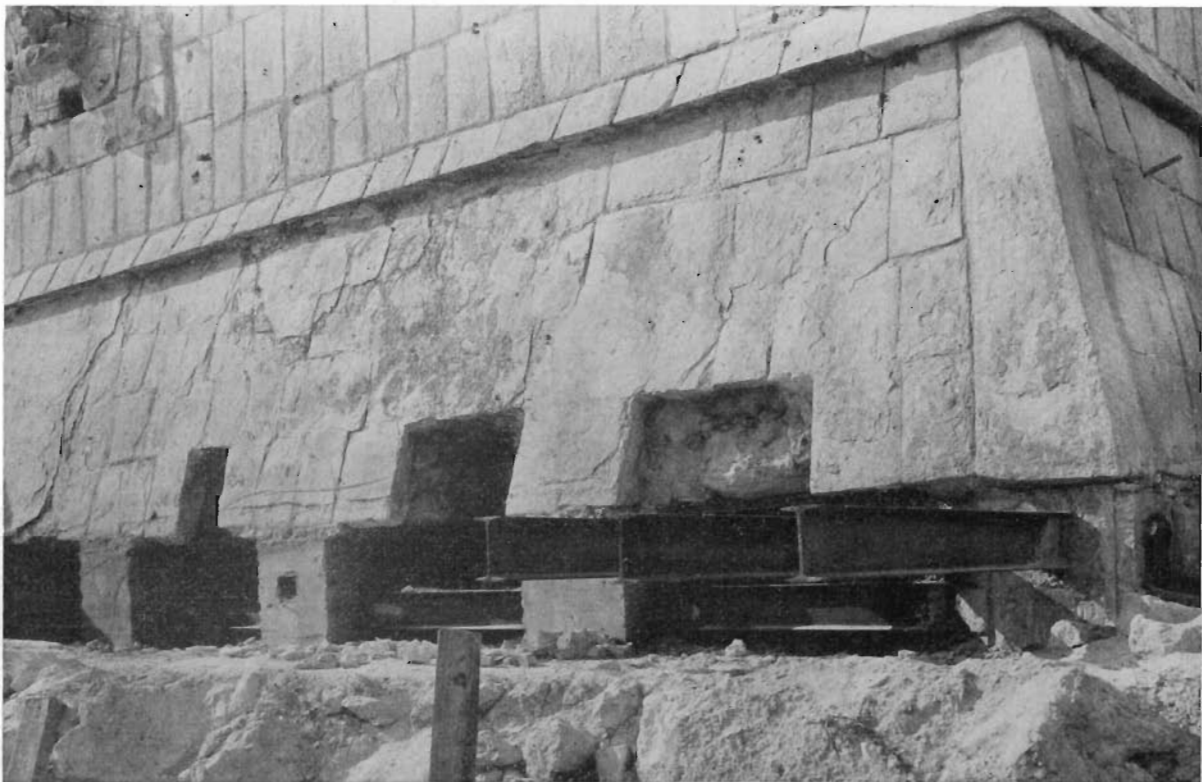


FIG. 90—NORTH WALL, I-BEAMS OF FOUNDATION IN PLACE

Note that I-beams of this wall at corner pass beneath those of front wall or anta

the space between the cement and the ancient wall was excavated to permit the raising of new masonry upon the latter. The skeleton form was traversed from north to south by minor forms to provide three canals for the eventual reception of I-beams.



FIG. 91—NORTH WALL, I-BEAMS OF FOUNDATION IN PLACE, SEEN FROM INTERIOR OF TEMPLE

Wall being built by mason in foreground rests on original east wall of inner chamber of Temple of the Chac Mool

After this first foundation element had been poured and given time to set, a transverse slot was dug beneath the wall, 76 cm. northward. In this a bottomless form was placed, likewise equipped with provisions for the three longitudinal slots.

These were carefully lined and leveled with those in the first element, in order to provide clean straight channels for the steel beams. Then the cement was poured.

This procedure was repeated all along the anta and the north wall to a point 91 cm. east of the outer line of the back wall of the buried temple. The corner form alone offered unusual complications. This was set so that its longitudinal axis was in the line from inside to outside corner, or at an angle in the horizontal plane of 45° from the other forms, both east and south from it. This form was slotted to receive two sets of I-beams, one from north to south beneath the anta, the other from east to west beneath the north wall. The latter were made to pass beneath the former.

Once the units were all cast and given a week in which to set, the rubble between them was dug out and the wooden forms removed. Then the 15-cm. I-beams were slipped through the series of slots provided to receive them (figs. 89, 90, 91), and the slots wedged full, above, beneath and at the sides, with rich cement mortar and stone chips. This done, the vertical sides of the initial elements were picked for the purpose of roughening them, and then washed free of dust. Thereafter the vacant spaces between them were filled with concrete, the roughened sides of each recess having first been coated with pure cement in liquid form, to provide a firm bond between fresh and hardened concrete. Thus, when all of the interstices had been filled, the anta and the west end of the north wall were firmly united to a reinforced concrete base, 46 cm. in thickness and the width of the wall, or from 1.22 to 1.30 meters. This base was almost as strong as if poured in a continuous progressive operation.

#### SUPPORT FOR THE CONCRETE FOUNDATION

A pit was now dug beneath the south end of the anta, directly above the south wall of the earlier temple which was assumed to exist there. When the truncated top of the latter was reached, a wooden form the width of the concrete foundation, acutely triangular in cross-section, was placed with apex downward resting upon the inner margin of the older wall and reaching up to the foundation, the line of its hypotenuse touching the latter 38 cm. north of the vertical line of the masonry on which the form rested. As previously stated, the jamb to be supported extended only as far southward as the face of the lower wall. The purpose of the beveled form was to provide a strong shoulder beneath the jamb, which at the same time would bear upon the wall beneath.

As a continuation of the sides of this form across the width of the lower wall, masonry partitions were built, the alternating courses of which were long stones laid east and west so that they would provide bonds between the concrete pier and the masonry to be built on each side of it. As the partitions were raised, concrete was poured between them and rammed as full of large stones as possible. With the completion of this unit, the terminus of the anta was brought solidly to bear upon the ancient wall beneath it. Next, a trench was dug to uncover the lower

wall from the west side of the pier to the southwest corner of the inner chamber. This interval was then filled with new masonry to connect with the previously constructed south wall of the outer chamber.

#### ROOF OF CONCRETE FOR TEMPLE OF THE CHAC MOOL

By this time the western shell of the pyramid had been completed and it was decided to cast that portion of the roof of the under temple which was to lie westward of the front wall of the Warriors. The initial step consisted of casting two major girders. The I-beams included in the north temple foundation continued westward to bear upon the partition wall of the under structure. A trench was dug beneath them in the fill which still existed eastward of the partition, and in it a form was set for the pouring of a unit to connect with the foundation of the north wall of the upper building and to give the latter a firm bed for its extremity upon the partition. The second major girder spans the outer chamber in line westward from the one described above. Two 13-cm. I-beams, were set one above the other, with their extremities embedded in the masonry of the partition and the west shell of the pyramid. A wooden form, supported by the beams themselves, was built to enclose them and was poured full of concrete to form a girder, 25 cm. in width and 35.5 cm. high.

The roof then to be cast consisted of two spans, one occurring between the front wall of the Warriors and the partition, the other between the partition and the west pyramid shell. The spans were approximately 6.1 meters in length, the eastern one 1.83 meters in average width, and the other 3.96 meters. Four 13-cm. I-beams were used as the transverse supports of each. The foundation of the anta had been slotted to receive the tips of the beams of the eastern span, the opposite ends of which rested upon the partition wall. The beams of the western span crossed from partition to western shell. The beams were spaced, leveled from north to south, given the slope of the terrace from east to west, and their ends secured in cement masonry. They were so placed that the cement with which they were to be enclosed would extend 10 cm. below the finished roof. The rubble beneath the eastern span had not been removed, hence narrow trenches were dug to receive the forms for the beams, and the spaces between were covered with thin boards from packing boxes, resting directly upon leveled earth. This effected a considerable saving in lumber. Forms were built for the beams of the western span and suspended directly from the irons by means of frequent ties of heavy wire passing through holes in the bottom boards of each form. Then the forms for the flat intermediate spaces were put in place, resting directly on the edges of the beam forms. The cracks where the lumber touched the walls were sealed with mortar. To provide south and west retaining edges for the liquid concrete, rims of masonry were built flush with the outer faces of the south under temple wall and the pyramid shell, half the width thereof and to the height of the finished roof. Iron rods of 9-mm. diameter were spread across the entire roof area from north to south, spaced 46 cm. apart. Then, 12-gage galvanized wire was woven east and west between them, at 20-cm. intervals.

When the preparations were completed, the roof and beams were cast at the same time, thus covering the entire expanse from the front wall of the Warriors to the margin of the terrace, with a continuous sheet of concrete at no place less than 15 cm. thick. The surface was finished with a thin one-to-one coat of cement, troweled to glassy smoothness. As soon as it was sufficiently hardened, it was covered with 5 to 7 cm. of white earth which was kept wet throughout the period of setting.

Attention was next turned to the completion of the walls of the inner chamber. Columns 1 and 2 of the upper temple rested directly above the back wall of the under building. In consequence these were taken down, the blocks numbered and moved out of the way. A pit was then sunk beneath the north foundation to the underlying truncated wall and a pier, like the one supporting the end of the anta, was constructed therein. This completed, a trench was dug to reveal the remainder of the east and south walls of the inner chamber and masonry raised upon these to within 30 cm. of the level of the floor of the upper temple. The west line of the two columns which had been dismantled fell westward of the face of the eastern wall. Since Column 2 belonged almost directly above the junction of east and south walls, only the northwest corner of it would extend outward beyond the masonry; hence no special provision for its support was necessary. On the contrary, Column No. 1 would jut 30.5 cm. forward from the wall. Therefore, a beveled pier was included in the wall to provide a substantial base beneath the column when it should be re-erected.

#### PILLARS PLACED BENEATH WARRIORS FOUNDATION

Two massive supports for the walls of the upper temple had now been provided, one at each end of the portion that jugged over the more ancient structure. In addition, the north foundation beam extended to and rested upon the partition of the lower temple. The next procedure was to provide a pier beneath the corner. According to the projected ground-plan of the earlier building, the central one of the row of three remaining columns in the inner chamber should lie with all but 8 or 10 cm. of its north and south width beneath the north edge of the foundation, and some 60 cm. east of the corner. On the assumption that this column had been torn down to the same level as the rest, a narrow slot was dug at this level into the north face of the hill until the column was reached and its top laid bare. There was strong reason to believe that the blocks to complete it would eventually be found, but the excavation necessary in the search for them could not be made until a corner support for the mass above had been supplied. The vertical distance of 4.88 meters between the lower floor and the base of the upper temple would not permit of sufficient excavation to allow the erection of a full-height column, because of the danger of caving occasioned by the looseness and instability of the fill. There seemed no ready alternative but to cast upon the truncated ancient column. A form was constructed of 5-cm. lumber and set flush with the column faces (Plate 16), so that when it was removed there would be a shoulder of this width on all sides.

After the form had been filled and the concrete had been given a week to set, the rubble in the space between the column and the east wall (Plate 17) was removed to floor level. The débris removed was taken out through the doorway provided between the severed end of the east wall and the north pyramid shell, to

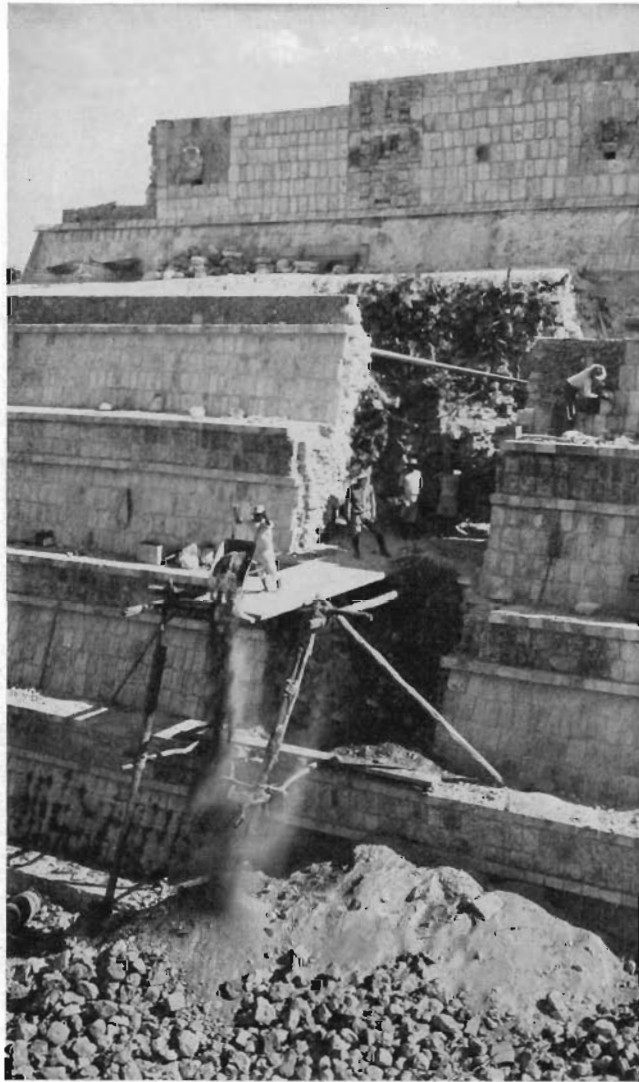


FIG. 92—SLOT LEFT IN NORTH FACE OF PYRAMID DURING EXCAVATION OF TEMPLE OF THE CHAC MOOL

Débris from the interior was brought out as here shown. Portion of pyramid behind and beneath workmen was removed during construction of stair shaft

the edge of a wooden platform extending far enough northward so that when dumped therefrom the stones would fall beyond the limits of the pyramid slope (fig. 92). Midway between the wall and the column a concrete pillar was cast, 1.22 meters north and south by 61 cm. wide, which reached from floor to foundation

beam. This provided the ultimate supporting unit for the north wall of the Warriors.

A cube of rubble was next removed from across the south end of the lower room, the width of the space between the south wall and the column nearest it, down to the tops of the original walls. Then a shaft was sunk to floor level between the south wall and the southernmost column, and in it was cast a full-height column of the same dimensions as the one described above. In the meantime, the east wall, between the pier under the Warriors foundation and the north pyramid shell, had been completed to full height, and the pyramid shell thence westward to the corner had been raised to the level of the top of the molding surmounting the fourth battered element. At this height were set flush with the inner face of the shell, the frames of eight iron-barred windows, the height of the fourth vertical panel. These were for the purpose of admitting light and air to the buried temple. Spaces 20 cm. in width were left between them, to be filled with concrete bases for the I-beams of the unconstructed north section of the roof. Box forms were rested on the ledge, forward of the window frames, to provide for the casting of these beams and the roof above them out to the line of the top element of the shell. The I-beams were set from north to south, forms constructed, and the sheet of concrete, 12.81 meters in length and 4.73 meters in width, poured with exactly the same procedure as that previously given in detail for the first roof section. This covered the entire area of the lower structure northward of the north line of the Temple of the Warriors.

In all, there now existed beneath the portion of the Warriors which overhung the older building five substantial piers, the concrete of which had been given ample time to set. Moreover the angle of the corner was enclosed in a monolithic sheet of concrete, which, because of its downward pitch away from the walls, served as a powerful brace toward both the north and the west. After months of preparation, at last the way was clear for the complete excavation of the inner chamber. All along the east and south walls, the upper half of the rubble fill had been removed in making ready for wall and column construction, as previously described. However, on the west side against the partition, there remained an undisturbed cube of full height, 3 meters from east to west and 4.50 meters long, still supporting an unknown proportion of the weight of the walls above. These walls had settled about 3 mm. when the rubble between the initially cast foundation units had been removed. The settling was due to an error in judgment rather than to a fundamental defect in the plan followed. The bottoms of some of the first forms were smoothed with earth, which of necessity was compressed when great weight came to rest upon it. Had the concrete been allowed to reach down to unmoved fill, regardless of the roughness of the surface, no movement whatever would have resulted. The cracks caused by this settling had been sealed with mortar, and since that time they had not reopened, proving that there had been no further movement. However, with the breaking down of the last cube of rubble came the final test. There was no reason to suppose that failure



of any of the features would bring about the shifting or collapse of the walls. Nevertheless, the test came as the climax of months of coping with imagined but unknown conditions; of basing plans upon hypotheses, only to be forced to change them, sometimes daily, sometimes hourly, as excavation presented new and unexpected developments. Therefore, the time consumed in caving down the last block of original masonry constituted a tense interval.



FIG. 93—REUSED COLUMN BLOCKS IN FILL BETWEEN COLUMN 6 AND PARTITION,  
TEMPLE OF THE CHAC MOOL

#### EMPTYING THE INNER CHAMBER

There were three picked men among the workmen who had been selected for all of the careful and seemingly dangerous digging. At first they had looked with apprehension at the threatening masses about them, when sent into a deep drift or a pit beneath vertical banks or free-swung walls. But, after many situations had been met and passed without accident, they had developed faith that they would not be called upon to go where real danger existed. At the appointed time, they stepped forward with their tools to begin the tearing down of the last pier. In all the planning of the beams and supports I had been given most able counsel

by those who helped in the management of their construction, but always the final decision rested with me. Hence, if at the crucial moment there came collapse and failure and consequent physical injury, I alone was responsible. Consequently, I sent the workmen to a safe distance and began caving down the faces of the rubble myself. At the end of an hour not a square centimeter of the original support touched the foundation of the upper walls or the portion of the concrete roof that had been cast upon it. I then went outside and examined both faces of the walls for settling cracks. There was not one that the eye could discern.

Within the next three days the buried temple was completely emptied of fill (Plate 18). The objects of outstanding importance derived from it were the remainder of the blocks missing from the columns. Seven in all were found in the outer chamber. An examination of them showed that the head-dresses of the Warrior figures had been very tall and elaborate in comparison with those depicted in the Temple of the Warriors and the Northwest Colonnade. It was obvious that three stones within the normal limits of thickness would be needed to complete each column, or a total of eighteen. Two thin top pieces were among a mass of crude stones, 1.83 meters above the floor, in the area north of the end of the partition, about 1.20 meters away from and 60 cm. east of it. Two more were on the floor adjacent to the east wall, directly east of the middle column. Two others were one on top of the other against the west face of the center column, and four were close together against the west wall, about 60 cm. south of the line of the center column (fig. 93). Thus, seventeen were accounted for. For a time it seemed that the eighteenth would not be found, but eventually it was uncovered lying on the floor 76 cm. west of the south column.

#### REPLACING RAZED PORTIONS OF THE COLUMNS

As soon as the temple was completely cleared, the disarticulated blocks were studied with a view to replacement. The fitting of the block needed to complete each head-dress occasioned no particular difficulty, as on at least one face some elements could be traced from the block in place across the joint to its continuance on the other. Likewise the pairs of blocks composing the six Atlantean capitals were easy to relate, one to the other. However, because of a definite border at the bases of four of the capitals, there was no bridging by design. In these cases, similarity of coloration and necessary height were relied upon to fix the placing of each. As soon as the units belonging to the south column of the inner chamber had been identified, they were replaced and a cement pillar cast on top of them to provide a sixth pier beneath the Warriors foundation.

Fortune was kind in regard to the height to which the niches in the north pyramid shell had been carried. Because of the unexpected altitude of the head-dresses, the columns were about 30 cm. taller than was expected. In the western niche, 5 cm. of clearance remained above the completed column, while the top block of the eastern one entered with less than 1 cm. to spare.

As has been recorded elsewhere, the two pilasters and one sculptured jamb from the inner doorway had been recovered complete. The fact that a socket of just the right size to accommodate the basal jamb stone existed in the red floor at the north end of the partition indicated that it was the south jamb that had been found, and in this position it was replaced. A buttress was built out from the north pyramid shell to fill the place of the missing north jamb. Because of the directions in which the figures on the pilasters faced, there was no doubt which belonged on the north and which on the south side of the doorway, and each was reset in its original position.

Soon after the ultimate pier had been cast, the rectangle of roof within the angle of the anta and the north wall of the Warriors was constructed, after the manner previously described. With the completion of this unit the Temple of the Chac Mool was closed in and rendered water-tight before the coming of the first shower of the 1927 rainy season.

One feature of the interior still demanded attention; namely, the truncated column upon which the concrete pillar had been bedded. The procedure decided upon was to take off thin slabs from the sculptured faces of the three upper blocks and to encrust these upon the concrete with cement as an adhesive. The blocks had been fashioned from a stratum of hard limestone, and there was question as to how rapidly and how successfully this could be sawed. The only blade available for the purpose was an Atkin's silver steel lumberman's crosscut of 2 meters length. The topmost block was only 15 cm. in thickness. An afternoon's work on the part of two experienced sawyers resulted in the severing of the desired slabs from two sides of the block. This proved that the stone could be sawed, but the prospect of the labor that doing so by hand would entail was not appetizing. Consequently, a mechanical means of driving the saw was devised. The crosscut was fashioned into a giant buck saw. Two 91-cm. sections of 3.1-cm. pipe served as the uprights. These were split with a hack saw at one end, then drilled so that they could be slipped down over the back of the long blade and bolted to it. Another section of pipe formed the horizontal bar placed between the mid-points of the uprights. This was split at each end, then heated so that the portions on each side of the split could be beaten into flat plates. These were spread apart, bent around the uprights to meet at the opposite side, then drilled and bolted together to form a rigid clamp, embracing each of the verticals. The top of one of the latter was drilled to receive the threaded end of an eye bolt. From this bolt three strands of wire passed around the top of the other upright. By screwing down the nut on the eye bolt, the saw blade could be drawn so tight that it could not bend nor buckle.

The blocks to be cut were taken down from the buried temple to the flat north of the pyramid. There a Ford truck was raised and blocked in position at a height of 60 cm. from the ground so that the left hind wheel was free. The rim of the latter was removed. An axle was shaped from the only piece of steel available, a section of a wrecking bar. One end of this hexagonal rod was dressed down to

the length and thickness of a rim bolt and its extremity threaded. The central part was left in its normal thickness for a distance sufficient to extend beyond the line of the hub cap, and to give ample clearance in addition. The outward end was cut down to 9-mm. diameter and threaded. When functioning, this axle occupied the place of one of the rim bolts. To the end not engaged by the rim, the buck saw was attached by means of a hole bored through one protruding end of the horizontal bar. Attachment to the rim imparted a rocking motion to the saw, the range of its swing being the diameter of the wheel.

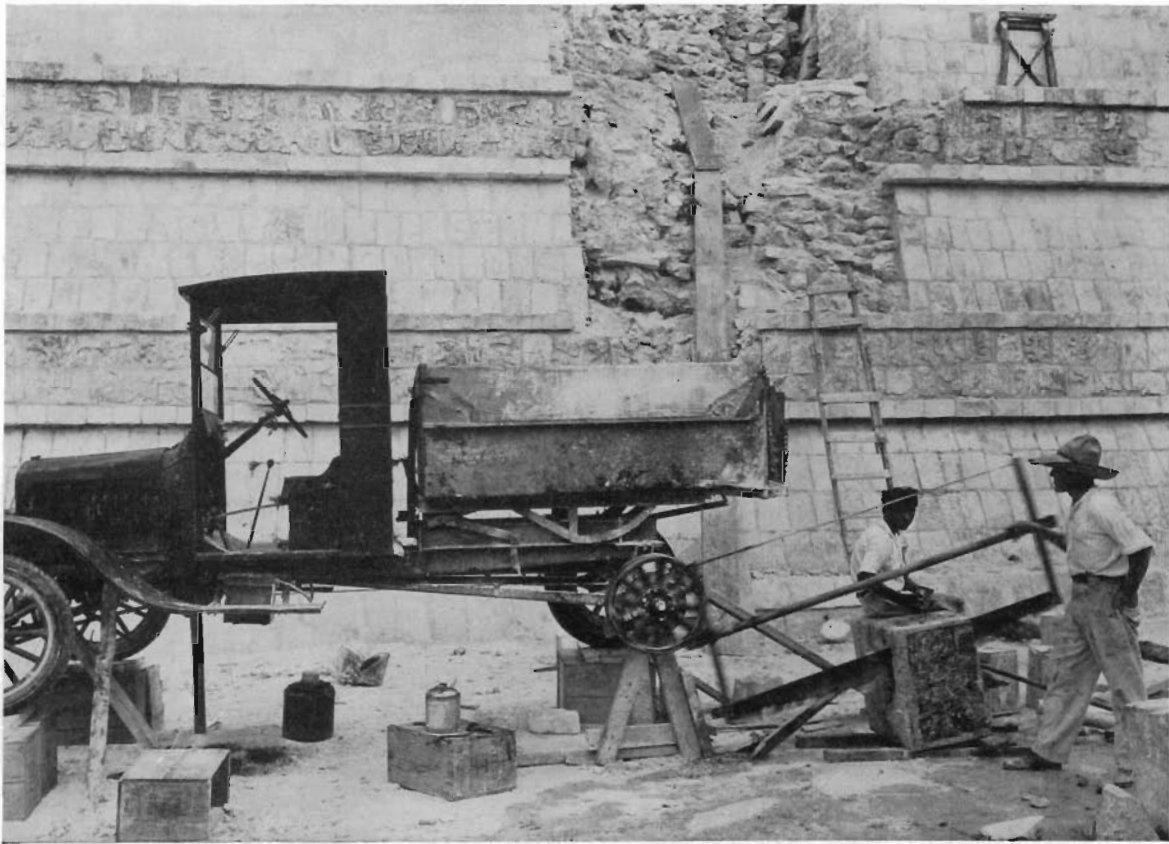


FIG. 94—SAWING SLABS FROM BLOCKS OF COLUMN 5, TEMPLE OF THE CHAC MOOL

The block to be cut was set on edge back of the car and adjusted so that the saw would take off a slab of the desired thickness. Owing to the up and down sweep, a block could be cut only halfway through before the free end of the saw would touch the ground. When the limit was approached, the block was turned over and the cut completed from the opposite side. The device may be seen in figure 94. It would make progress because of its own weight, but cut much faster when a man held the unattached end and bore down upon it. A stream of water was kept constantly playing in the slot. The machine used was equipped with a Ruxtell gear. By using this, wedging the shift pedal in low and speeding the engine

slightly above the minimum, the most effective rate of motion was secured. The most rapidly cut slab was severed from a block 33 cm. thick in one hour, and the slowest in three and one-half hours. The difference was due to many flint nodules present in the latter block. In all, 6.1 linear meters of stone were cut through, with a wearing down of only 9 mm. in the length of the saw teeth. This surprisingly small wastage of the steel was accounted for by the fact that the Chichen Itzá limestone resolves to an impalpable powder, absolutely without grit or sharpness.

After the slabs were cemented to the concrete core, one would not observe, were it not pointed out, that they bound other than rectangles of natural stone.

#### ANALYSIS OF THE RUBBLE FILL

Until we began to open the Temple of the Chac Mool all the materials dug over and removed consisted of the detritus from masonry structures which owed its accumulation and distribution to the action of natural agencies. A radically different condition existed in the under temple. The mass that filled and encased it had been placed where found by human hands and had not been moved or disturbed in the interim. The dissection of this mass during the course of excavation revealed in great detail the method followed by the ancient architects in erecting bulk construction such as constitutes the substructures of their buildings. The platforms were raised a level at a time and each horizontal sheet was composed of roughly rectangular units, erected one after the other away from the initial increment. These unit blocks varied in height and area, the variations being dependent upon the plan followed at the particular moment. One can not avoid the conviction that they were built under some sort of task system, where the quantity produced was the unit of measurement, rather than the time which its production involved.

An overseer had laid out the work. In the east wall of the outer chamber are plainly visible three vertical grooves scratched into the plaster, the first, 1.46 meters from the corner, the others occurring at intervals of 1.35 meters and 1.33 meters, thence northward. These coincided with the outer, more or less vertical faces of the construction units. The east and west division lines seem not to have been marked on the wall. However, in the first 4.58 meters west of the partition wall, there were three north and south divisions. As previously stated, the block enclosing the Chac Mool seemed to have been the first erected in the temple. It was 2.04 meters long, 1.46 meters wide and 1.30 meters high. What presumably was the next unit was built on top of it to the height of the truncated walls, or an additional 1.04 meters. Elsewhere, the first row of blocks reached from floor to wall tops. The east and west walls in the inner chamber also are scribed with vertical lines to mark the north boundaries of the east and west rows of blocks. Beginning at the south end, the intervals marked on the former are 1.10 meters, 1.19 meters, 1.08 meters, 1.10 meters, 1.08 meters, 1.02 meters; and on the west, 1.08 meters, 1.02 meters, 1.13 meters, 1.05 meters, 1.10 meters. From the same point of departure on the south wall they are: 1.46 meters, 1.65

meters, 1.54 meters. Thus, it seems that while the intention was to divide the area into units of equal size, no great care was exercised in the measuring. The average height of the first layer being 2.30 meters, the range of content of the units in the inner chamber was from 3.51 to 3.82 cubic meters. The unit in the southeast corner was the first to be built in the inner chamber.

#### PROCEDURE IN CONSTRUCTION

The procedure followed by the masons can be reconstructed almost as plainly as if one had watched them at work. A beginning was to be made, for instance, in the southeast corner of the inner chamber. The temple walls constituted two of the boundaries of the first block to be built. The north and east faces were raised, a course at a time, of relatively large stones carefully and substantially bedded in mortar. The cracks between the stones were chinked with mortar and small stones, and the joints roughly pointed. After the course had been completed, the now-enclosed quadrangular area was covered with a layer of stones of whatever sort the tenders might bring, so arranged that they reached a fairly uniform height. The layer being completed, the interstices were carelessly filled with small stones, after which mortar was dumped on top of the mass and spread smooth. Then another face course was erected, and the procedure above outlined was repeated until the block had reached the intended height. At this level the unit was troweled and smoothed to the semblance of a floor. Such construction was not particularly stable; not being bedded in mortar and the interstices of each layer remaining for the most part open, settling would be likely to occur when weight was added from above. As always, there were conscientious workmen and those who were not. Occasionally, a block, for instance, the one enclosing the Chac Mool, was without open crack or chink. In contrast, a good many contained practically no mortar at all except in the bounding walls, the interior having been filled with stones loosely piled, each placed to create as many spaces as possible around it, thus to take up more room.

When building away from a corner, the task of the mason was made considerably easier, because the existing walls provided two ready-made boundaries for his unit. And when he came to the last cube to be added in a row across the chamber, he had but one wall to erect. The faces of the blocks were never carefully aligned and usually lean inward to a maximum of about 10° from the vertical. No attempt was ever made at bonding between veneer and core, nor was there an effort to tie one block to the other. The stone which composed the first layer of the construction units within the temple varied greatly in character and arrangement. Perhaps 25 per cent consisted of reused building stones, most if not all derived from the dismantled portions of the structure. Some blocks were made up almost entirely of such pieces; others seemed to have been built by men with several tenders, some bringing stones from the nearby source and others going far afield for crude country rock; while certain other units consisted entirely of rough unworked stone.

Here and there a few fragments of a crude pot would be found chinked in among the stones. It would seem not unlikely that the mortar was brought in clay containers, which of necessity would now and then be broken and some of their sherds included in the masonry.

The average of 2.74 meters of vertical distance between the tops of the truncated walls and the surface of the pyramid was built in two levels, the lower one about 1.83 meters in height, the upper about 91 cm. West of the partition of the lower temple, above which was a division between two rows of units, the fill in both levels was almost entirely of small rough stones, very loosely and carelessly laid. From the partition eastward the lower of the two levels contained throughout a fair amount of reused material, perhaps 10 per cent as an average. The upper level, 91 cm. in height, contained a very great proportion of roof and wall stones, among them many sculptured elements. These continued upward into the base of the wall of the Warriors, as revealed where some of the face stones of the lowest course came loose while the foundation slots were being dug, thus making visible the carved stones in the hearting. Two or three fragments, delicately graven in very small scale as if derived from a sculptured altar, were observed. Almost without exception, the other carved blocks were representations of two similar wall panels of very large size. Presumably, these came from a façade rather than from an interior wall. Both represented branching, curved stemmed trees, laden with flowers, over and about which hovered birds and insects. The relief of both panels was higher than ordinary, in some places as much as 5 cm., and handsomely executed. One panel was finished in black and white and the other was colored throughout. Only a few stones from the black and white area could be fitted together, but a considerable part of the other was assembled. This bore the patterns shown in Plate 19. Only two of the stones from these mosaics were found beneath the 91 cm. of top rubble, and these were at a depth of 1.52 meters in the space midway between the middle and south columns of the inner chamber. As far south and as far east as excavations were carried, both inside the upper temple and under the terrace northward of it, these stones were found. It is altogether probable that much more of the area of the panels would be recovered were the untouched remainder of the pyramid top dug over. Six stones from this panel were found in the fill beneath the floor of the south end of the Northwest Colonnade, as elsewhere mentioned (page 170). The question naturally arises, from what building were these panels derived? Only a negative reply can be given. It is not probable that they formed a part of the decoration of the Temple of the Chac Mool. Had they belonged thereto they presumably would have been found in association with other reused material known to have come therefrom. But being separated even from the stumps of the walls by a 1.83-meter layer composed principally of country rock, it would appear that they belonged to some entirely different and unidentified building.

Concerning the panels, M. Charlot, who copied them in color, has supplied the following notes:

## SCULPTURED PANELS WITH FLOWER AND INSECT PATTERNS

"A reassemblage of two portions of this area was accomplished, 19 blocks entering into the formation of two fragments. A vertical one, composed of 12 stones, measures 1.37 meters in height and 70 cm. in its greatest width (Plate 19 left and figure 95a). The horizontal band of 7 stones is 32 cm. high and 1.43 meters long (Plate 19 right and figure 95b). Of the unrelated fragments, three of the finest appear in figure 96. The relief is unusually high, 5 cm. at its deepest, and the carving is carried to the point of giving to some part of the stone the appearance of a



FIG. 95



FIG. 96

## DETAILS OF SCULPTURED PANELS FROM FILL ABOVE TEMPLE OF THE CHAC MOOL

stucco smoothness. The subject-matter presents unknown flowers on graceful sinuous stems ornamented with budlike leaves. Different insects and birds feed upon them. Although much stylized, the butterflies are still recognizable as such, their wings transformed into two flowing *panaches* of quetzal-like feathers, the head, with its extended proboscis still retaining many of the original entomological characteristics. Among the birds, the humming bird (fig. 96a) and the crested parrot (fig. 96b) can be identified. The former is represented in the peculiar position of sucking the flower while on the wing.

"The relief, vividly colored, stands in strong contrast against the plain white background. A few stones were found which, though identical in subject-matter with the polychrome ones.



are treated in black and white (fig. 96*b* and *c*). As this duochrome treatment is to be observed on the colored blocks as a preparatory process before pigment was applied, it is probable that this panel, like some sections of the exterior frieze of the Warriors Pyramid, had been completely set in a wall, carved and prepared in black and white, before a disturbing modification in the architectural plan forced the sculptor to discard a portion of his work. Though the subject matter is most unusual, similar representations occur elsewhere in Chichen, especially in the Temple of the Xtoloc Cenote and on the ramp of the southern balustrade of the Ball Court."

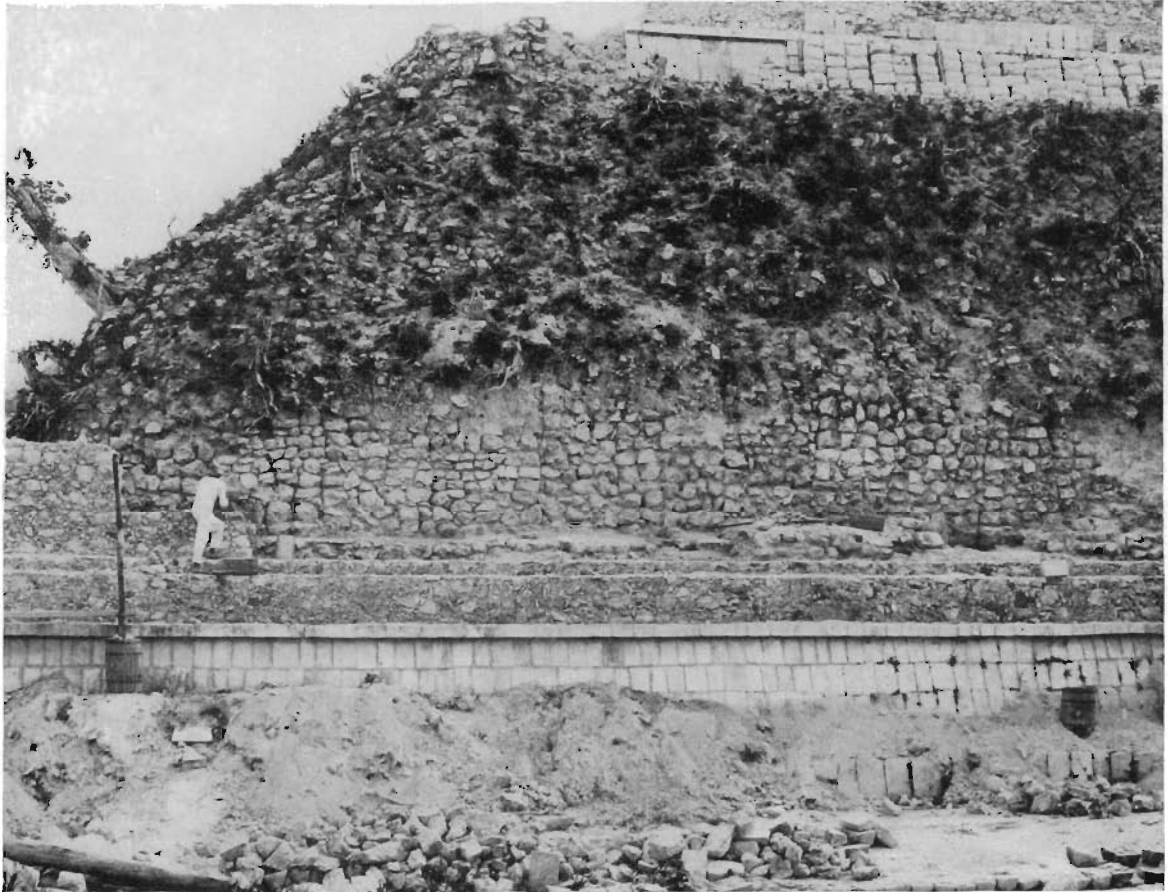


FIG. 97—EAST HALF OF NORTH SIDE OF PYRAMID SHOWING CONSTRUCTION UNITS

These units, divisions between which are indicated by black lines at top and bottom, are situated behind second compound zone of pyramid

The construction units in the level just above the walls averaged, approximately, 1.37 by 1.52 meters, thus having a bulk of about 3.82 cubic meters. Those in the top layer ran close to 1.98 by 2.14 meters with a content, again, nearly 3.82 cubic meters. Thus, to judge from those portions of the pyramid, systematically removed, 3.82 cubic meters was approximately the unit of mass measure used in its construction.

In successive sheets there was no attempt to keep the boundaries of construction blocks one above the other. Evidently each level was laid out with horizontal

dimensions proportionate to the intended height in order to give the blocks their proper unit content without regard to alignment with the previous sheet. Occasionally divisions were found that lined with those immediately beneath, but customarily they overlapped as if to break joints, as in a mass composed of huge composite bricks. In figure 97 is shown the face of the original core behind the east center of the second sloping element of the north face of the pyramid. The vertical lines of division between several units can readily be distinguished.

#### STAIR SHAFT TO TEMPLE OF THE CHAC MOOL

It was originally planned to give access to the Temple of the Chac Mool by leaving a broad gash (Plate 20) in the northern face of the pyramid, through which a stairway should ascend from ground level along the exposed slope of the more ancient substructure to the top thereof, to end before the doorway which, as previously mentioned, had been provided between the end of the back wall of the lower temple and the shell of the pyramid. Eventually, however, for the double purpose of revealing an expanse of the facing of the substructure of the under temple and of providing an entrance thereto from the north terrace, it was decided to complete the north side of the pyramid, except for a window in the second sculptured band (fig. 98), and to make a shaft beneath the north terrace reaching to ground level. To this end, excavations were initiated early in the season of 1928. A pit was begun, extending from the foot of the north wall of the Temple of the Warriors to the north face of the hill and reaching 5.34 meters eastward from the outer face of the back wall of the Temple of the Chac Mool. This area was dug down from 1.05 to 1.50 meters at a time. When each layer had been removed, the rubble directly beneath the wall of the upper temple was picked free of lime mortar, then chinked and faced with cement-laid masonry in order to prevent a slide beneath the wall of the upper temple and its consequent collapse. When the pit had reached a depth of 5.25 meters, at which point its temporary floor coincided with the level of the terrace behind the Temple of the Chac Mool, a 46-cm. wall of stone, laid in lime mortar, was built across the south side further to reinforce the foundation of the Warriors. At the same time, a wall was raised to bound the east side of the pit. First, a flat arch was thrown across the expanse from the backing of the pyramid face to undisturbed rubble at the end of the newly erected south wall. Upon this was laid lime-bound masonry 51 cm. thick. This wall was given a bevel of  $3^{\circ}$  from the vertical. The eastern extremity of the pit extended 96 cm. beyond the previously repaired facing of the pyramid. To sustain the latter, a wall forming part of the north boundary of the pit was erected with a bevel of  $5^{\circ}$  from the vertical. From the western terminus of this element to the margin of the substructure of the under temple, there was a span of 2.37 meters, which was left as a recess, roofed after the principle of a three-sided Maya vault (fig. 99). At its spring, this vault is, as above indicated, 2.37 meters from east to west and 1.27 meters from north to south. At a height of 2.50 meters

the vault is closed with a cement cap-piece, 71 cm. from east to west and 25 cm. wide. The vault begins at the level of the third battered element of the pyramid,

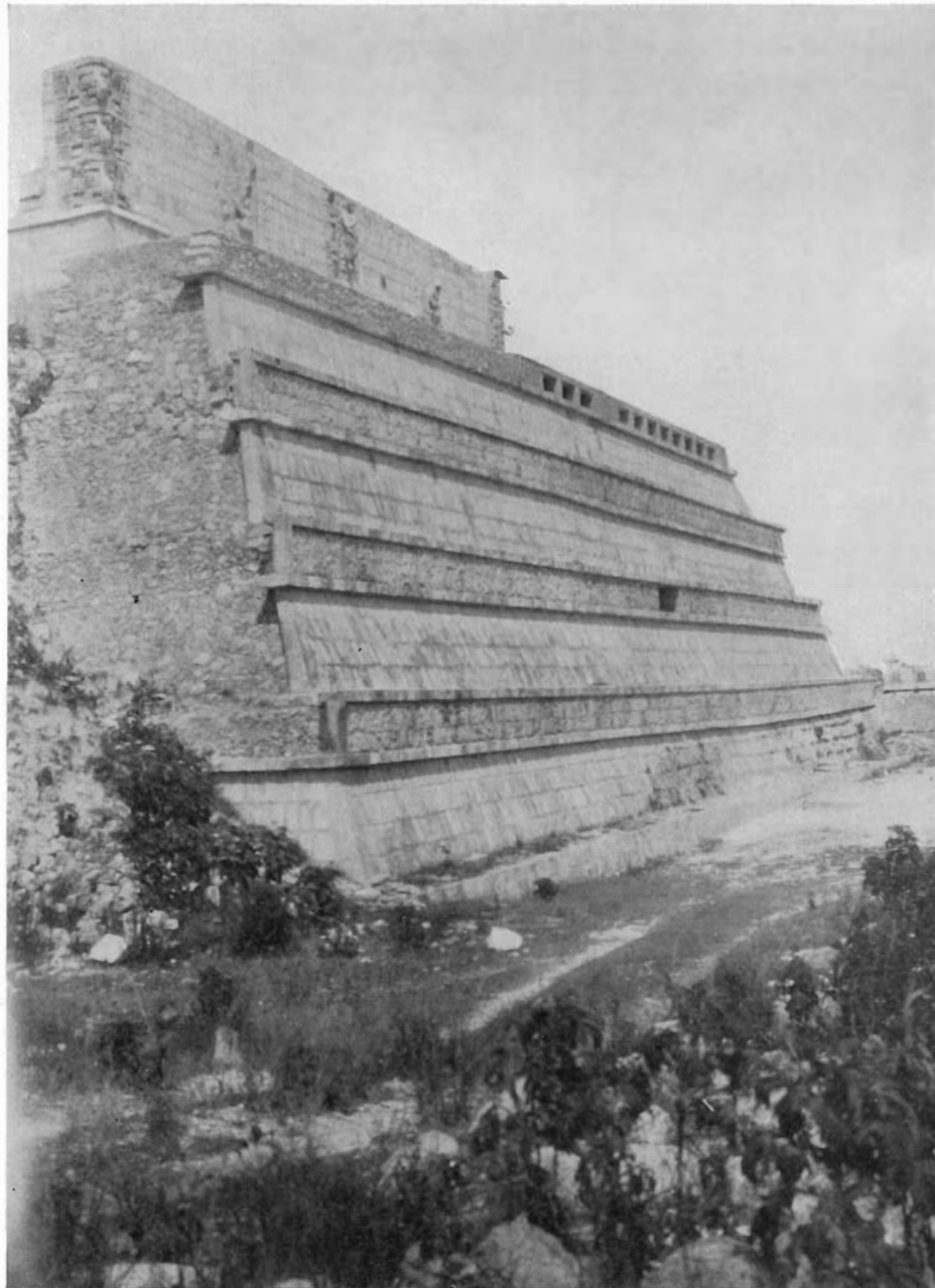


FIG. 98—NORTH SIDE, PYRAMID OF THE WARRIORS, SEEN FROM NORTHEAST AFTER COMPLETION OF REPAIR

and its north side serves as a backing therefor, the thickness from vault slope to outer facing being 72 cm. Above the vault, the inner face of the shell rises vertically to the top of the lower molding of the fourth vertical element. Above this height are

set three windows, like those which give light to the temple interior, to serve the same function for the pit. The area of the latter was roofed with reinforced concrete in the manner described in connection with the outer chamber of the under temple. Beginning 4.32 meters from the west end of this roof unit, adjacent to the wall of the Warriors, there was left a well, 1.09 meters from north to south

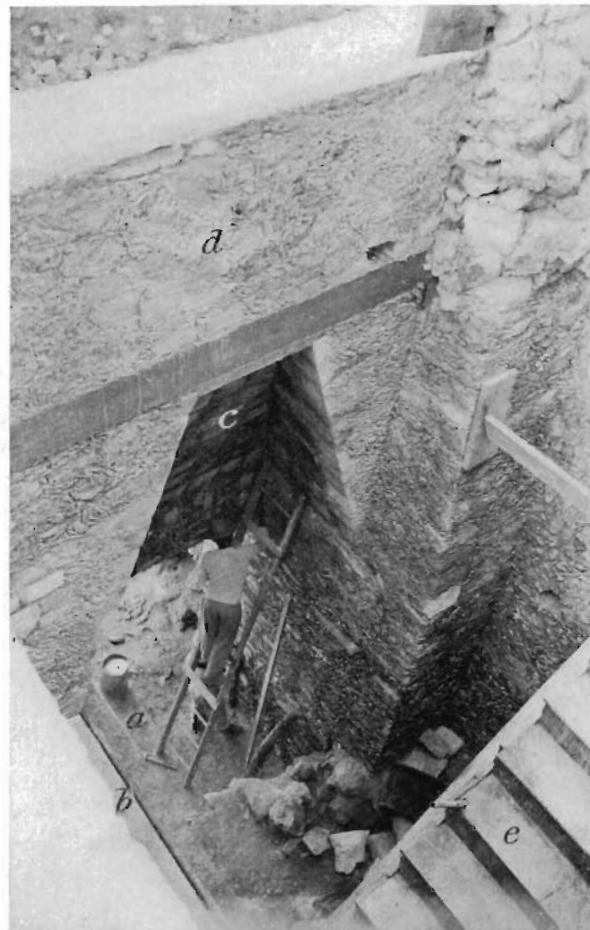


FIG. 99—SHAFT DUG TO EXPOSE PORTION OF SUBSTRUCTURE, TEMPLE OF THE CHAC MOOL

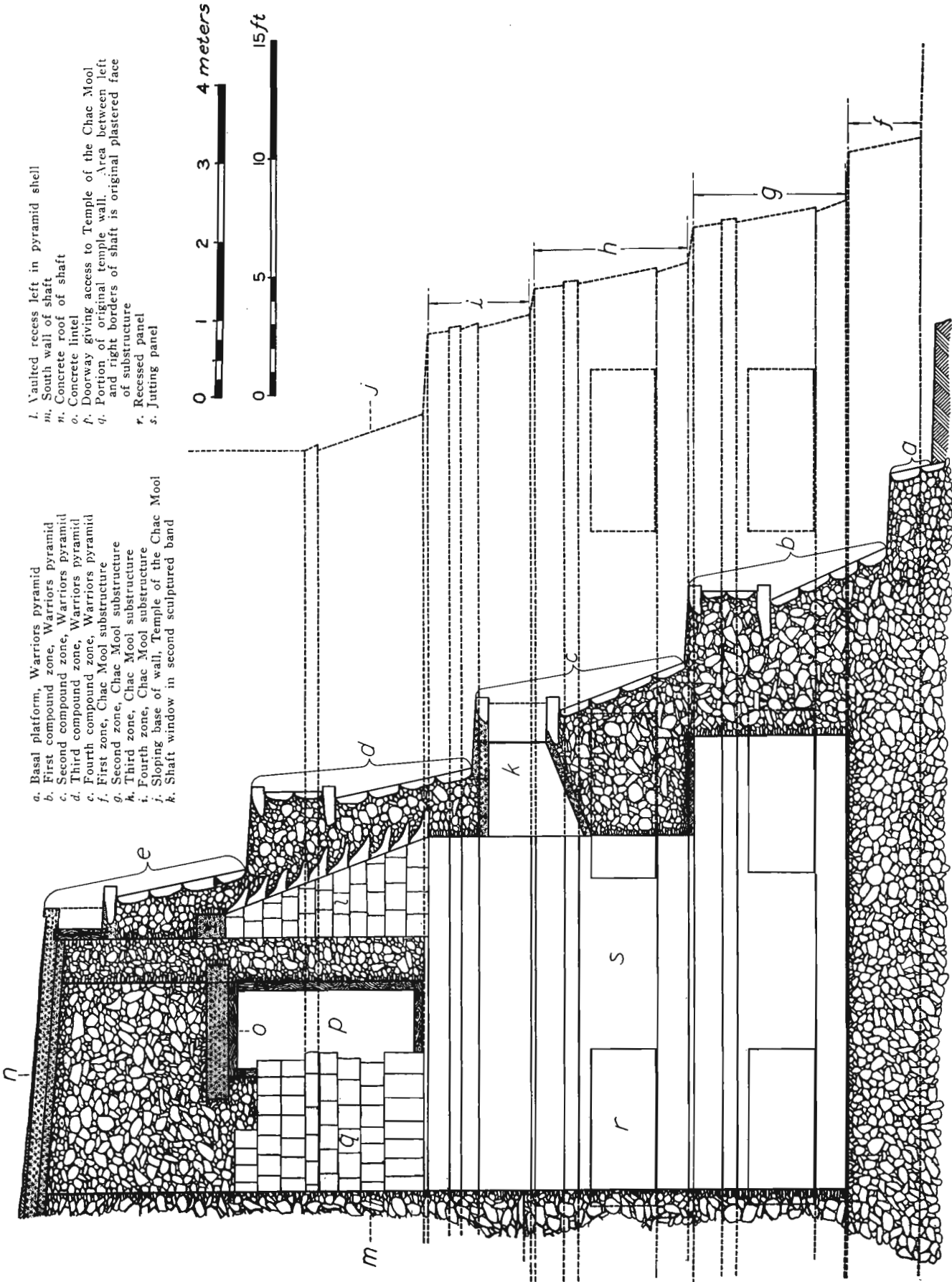
Photograph taken from foot of north wall, Temple of the Warriors, before shaft was roofed  
*a*, level of first terrace, Chac Mool substructure; *b*, top of substructure; *c*, vault made to leave visible a greater expanse of substructure; *d*, back of shell of fourth vertical element, Warriors pyramid; *e*, concrete stairway

and 2.79 meters long, fitted to be closed with a trap door. The well continues 1.88 meters eastward of the east wall of the pit. In this area steps were built of cement-laid masonry, while from the east wall of the pit to the terrace of the Chac Mool substructure the stairway is of reinforced concrete (fig. 99). The stairway abuts the south wall but is not sustained thereby, its support being two

included 15 cm. I-beams with their lower ends bedded into the substructure and their opposite extremities resting upon the pit wall.

After the pit had been completed to the floor level of the under temple, it was continued downward along the face of the substructure. This was accomplished by taking out the rubble to a depth of from 90 cm. to 1.50 meters flush with the wall faces. Then the material beneath the wall was removed for a width of from 60 cm. to 1.20 meters, dependent upon the solidity of the rubble, to a distance of from 30 to 60 cm. inward from the wall face. This unit was then filled with cement-laid masonry, and thereafter a contiguous area was treated in the same way. This process was repeated until what was in effect a monolithic band of masonry—because of the use of cement mortar—had been substituted for the rubble on all sides of the pit. Thus, as the excavation was deepened, the walls were continued downward by the erection beneath them of a series of contiguous pillars, built independently, but tied together by long bond stones left in the free side of each pier as the masonry was being laid. The pit was continued to the level of the first terrace of the substructure of the under temple, which is situated 96 cm. above ground-level at the north side of the pyramid; hence, the floor of the pit is 10.52 meters below the top of the pyramid, above which the wall of the Temple of the Warriors rises an additional 4.47 meters. The pit at bottom is 1.93 meters east and west and 2.49 meters wide.

From the north side, a slot 86 cm. wide was made northward along the face of the earlier substructure to and through the pyramid shell. This slot passed directly beneath the three-sided vault previously described. From the north and east bases of the vault the walls were built vertically downward. The north wall stops at the height of the top of the first vertical element of the pyramid. Here a flat arch was thrown across from the Chac Mool substructure to the backing of the pyramid shell on the eastern side of the slot. The arch supports the block of masonry comprising the backing of the second battered zone. Above it, a window, 1.7 meters in width, was left in the second vertical element of the pyramid. The east wall of the slot was carried down to the level of the pit floor and continued northward as the side of a tunnel giving additional strength beneath the end of the above-mentioned flat arch. It reaches to within 91 cm. of the face of the first battered element. The relationship of the various portions of the pit walls can be seen in the sections shown in figures 49 and 100. The slot was used as an exit during the removal of the great mass of rubble dug out of the tunnel which follows the Chac Mool substructure into and beneath the heart of the pyramid. After the tunnels had been completed, the north end of the passage was sealed with only enough masonry to provide a support for that portion of the veneer of the first sloping element of the Warriors Pyramid which had been removed to provide a temporary exit. In this way no more of the older substructure was hidden from view than was absolutely necessary.



- a. Basal platform, Warriors pyramid
- b. First compound zone, Warriors pyramid
- c. Second compound zone, Warriors pyramid
- d. Third compound zone, Warriors pyramid
- e. Fourth compound zone, Warriors pyramid
- f. First zone, Chac Mool substructure
- g. Second zone, Chac Mool substructure
- h. Third zone, Chac Mool substructure
- i. Fourth zone, Chac Mool substructure
- j. Sloping base of wall, Temple of the Chac Mool
- k. Shaft window in second sculptured band
- l. Vaulted recess left in pyramid shell
- m. South wall of shaft
- n. Concrete roof of shaft
- o. Concrete lintel
- p. Doorway giving access to Temple of the Chac Mool
- q. Portion of original temple wall. Area between left and right borders of shaft is original plastered face of substructure
- r. Recessed panel
- s. Jutting panel

FIG. 100—GRAPHIC SECTION OF WEST SIDE OF THE STAIR SHAFT  
 Portions of Temple of the Chac Mool made visible by construction of shaft; cross-section of north face of Warriors Pyramid and projection of older structure to its original northern termination are shown.

## RUBBLE CUT THROUGH BY THE SHAFT

All the rubble dug from the pit had been erected by the unit or block system, described in connection with the contents of the under temple. The shape of the blocks varied considerably, but the average content was apparently the same as that previously given. The first sheet of the great pyramid was raised to the height of the first terrace of the Chac Mool substructure, or 96 cm. The second sheet was 1.11 meters high; the third, 1.14 meters; the fourth, 2.03 meters; and the fifth, 1.04 meters. Obviously, the same altitudes may not have been followed over the entire area of the pyramid, but such was the condition where the pit was dug. The sheets here designated "second" and "third" continued all along the east and south faces of the buried substructure, as could be observed while the tunnel was being dug. The height of the second was marked by a line from 6 to 9 mm. wide, drawn in black with a pigment that seems more resistant than charcoal, upon the white plaster of the substructure along the entire south and what remains of the east side. In that expanse of the east face laid bare in the stair shaft, the level of the top of the third band had been indicated with a similar black line.

The five sheets listed brought the level approximately to the height of the floor of the under temple. Thence upward, there were two 1.22-meter sheets, approximately conforming in altitude to the 2.29-meter one inside the temple, and above these were a 1.83-meter sheet and one of 91 cm. Thus where the stair well was dug, the pyramid was raised in nine levels.

## PAINTED STONES IN ANCIENT MASONRY

In the first three levels, practically no worked stones were found, perhaps only a half dozen small, extremely crude wall stones occurring. In the fourth, some of the blocks were composed almost entirely of elements torn out of the Temple of the Chac Mool. There were stones from both the inner and outer wall faces, cornice blocks, beveled vault pieces, fragments of sculptured masks, a few bits of roof ornaments and many blocks from the painted benches. The latter began to be encountered in the cube lying against the substructure, partly north of and partly beneath the south wall of the pit. The remarkable preservation and beauty of those first found led to a continuance of excavation to the south boundary of the block, or 1.05 meters inward from the face of the pit wall. At this point was encountered the face of an unusually smooth well-built division, at first taken to be a wall. Developments showed it to run 9.14 meters eastward, beyond which it still continued but was not followed. It can not be decided whether the presence of this particularly solid bit of construction, continuing for at least 9.14 meters and perhaps much farther, directly beneath the north wall of the temple, was due to intention or coincidence. It may have been the expression of a desire to make that part of the pyramid which was to bear the weight of the wall more substantial than the rest. The full height of the face was not determined. It

began at the top of the third sheet and continued upward at least 2.14 meters. Above that point, the wall of the pit had been completed before this feature was found, hence no attempt was made to trace it surfaceward. In the westernmost block of the fourth sheet, 1.22 meters east and west by 1.52 meters north and south, were found 18 magnificently painted stones. In the one next eastward, of practically the same size, none whatever appeared, the mass consisting entirely of rough

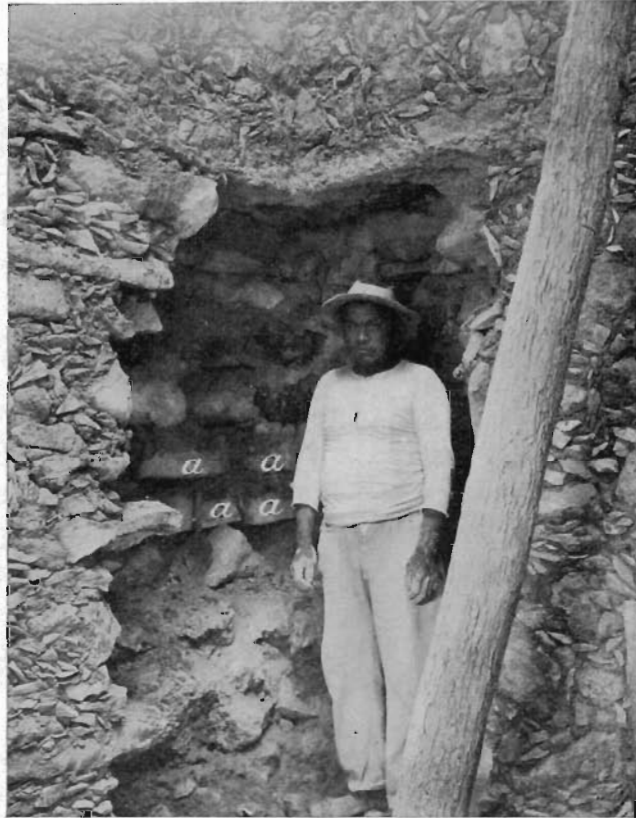


FIG. 101—MOUTH OF ENTRY IN SOUTHEAST CORNER OF STAIR SHAFT

Showing painted stones *a* from bench of Temple of the Chac Mool *in situ* in hearting of Warriors pyramid. Walls framing entry exemplify type of modern Yucatecan masonry known as "*mamposteria*"

country rock. In the third, which lay directly beneath and behind the southeast corner of the stair pit, 32 of the stones were exhumed (fig. 101). They had been built into the central vertical third of the block, along with many plain white plastered stones from the outer wall of the temple. Almost without exception, they had been laid face down, with the result that, since the courses of rubble were covered with mortar instead of being bedded in it, the painted surfaces were not smeared or daubed. The magnificence of the painting and its phenomenal preservation surpassed anything previously found. Soon it was possible to begin joining



the stones together, and it was seen that they belonged to a very long panel not more than 80 or 85 cm. high. There had been no place on the walls of the Temple of the Chac Mool for such a panel, hence it was believed to have been a part of some other structure dismantled to obtain stone for the pyramid. Credit for the discovery that it did form a conspicuous and important portion of the temple interior belongs to Mrs. Morris, who worked out and synthesized the data which made its identification possible. The panel was bordered with blue. Blue plaster borders appeared upon the walls at the line where the ends of the bench had once been present. The height of the panel was exactly the distance from floor to nether side of the cornice, the size and position of which the architect had drawn with a black line on the white under plaster before the bench was built. The floor of the temple was red, and the blue bottom border of the panel was splotched and smeared with this color, due to carelessness of those who retinted the floor. This conspiracy of facts was enough to satisfy all reasonable doubt that the panel was once the vertical face of the bench.

#### TUNNELING IN SEARCH OF PAINTED STONES

So great was the desire to complete the panel, that a tunnel was driven 7.31 meters eastward from the east wall of the pit through the line of blocks lying against the division wall, in the horizon in which the stones had been found. There a few more of the painted stones were recovered. When the digging had proceeded 1.83 meters beyond the last stone found, it was halted and the tunnel was refilled with masonry laid in lime mortar. Then a second bore was driven north of, contiguous and parallel to the first. From this came eight more of the stones, including a double-faced corner block and one cornice piece. Digging was terminated when it penetrated a mass of rough stone with no worked pieces among it. In all, 78 painted stones were recovered, 40 belonging to the south bench, and 38 to the north. These comprise practically half the total area of the bench faces. The splendid quality of their painted embellishment may be judged from the color reproductions (Plates 133 to 137, inclusive).

The single cornice piece was dressed as smoothly as an altar tablet on its upper surface and colored a deep, rich red like that of the floor. This indicated that the bench had been surfaced with stone instead of with plaster, as are the benches in the Temple of the Warriors and all others so far uncovered at Chichen Itzá. In confirmation are some 20 very thin stones from 30.5 to 45.5 cm. square, with polished red surfaces, found in the same areas as the painted blocks.

It is altogether probable that the stones necessary to complete both the north and the south benches are contained somewhere in the hearting of the pyramid, but to find them would constitute a tedious, difficult and expensive undertaking.

In the fifth, sixth and seventh sheets of the fill there were numerous reused stones, many derived from the Temple of the Chac Mool. The eighth layer

consisted almost entirely of country rock; and in the ninth, as above the temple interior, there was much faced wall material with considerable panel sculpture.

#### TUNNEL FOLLOWING CHAC MOOL SUBSTRUCTURE

When the search for painted stones had been concluded and the shaft had been completed, a tunnel was begun from the south side of it to run southward along the substructure of the Temple of the Chac Mool. This tunnel, which lays bare the entire height of the second element of the substructure, may be considered to consist of two parts, namely walls and roof. The floor, most of which is formed by the first terrace of the substructure, is 76 cm. in width. The east wall rises vertically to the height of the second zone, which averages 2.01 meters. Owing to the retreating slope of the latter, the tunnel at this altitude is 1.04 meters in width.

The roof is a miniature Maya vault, averaging 35.5 cm. in vertical height and, at the capstones, 61 cm. in width; thus, the total height of the tunnel is 2.36 meters. One leg of the vault is bedded upon the second terrace of the substructure, the other upon the wall of new masonry. The stones used for the construction of the vault are, for the most part, beveled cornice blocks left after the repair of the various structures in the open had reached its intended limits. The capstones were selected from those recovered during excavation.

The construction of the tunnel was accomplished by a repetition of the following routine. A bore of sufficient height to permit the workmen to stand upright was begun 90 cm. above the eventual floor level and driven into the hill from one to two meters at a time, its length being determined by the solidity, or lack of it, exhibited by the ancient construction units that were at the moment being penetrated. Where the old masonry was compact and well laid, no timbering was required, but where the stones had been loosely thrown in and poorly chinked with spalls and mortar, a great deal of propping and wedging was necessary to prevent caving from above. The bore was made wide and high enough to permit the construction of its east wall, the leg of the vault that was to surmount it, and to accommodate the east ends of the capstones, without disturbing the rubble bedded upon the second terrace of the substructure, which terrace, eventually, was to support the west leg of the vault.

After the digging had been completed, the east wall was begun at the temporary floor level and raised to the point of the beginning of the vault. It was of cement-laid masonry, a minimum of 20 cm. in thickness, bonded as substantially as possible to the original hearting, which served as a backing course. As soon as this wall had set, the eastern leg of the vault unit was put in place and the space behind and above the tenons tightly wedged with spalls driven into cement mortar. This element was drawn inward as much as practicable, in order that it might engage and sustain as much as possible of the roof mass and leave a shoulder jutting back 5 to 10 cm. from the brink of the top vault stone to receive one end of the cap pieces. This done, the rubble resting on the second terrace was torn out and the west leg of the vault constructed as the east one had been. Thereafter, the cap-

stones were slipped into place upon the shoulders provided to sustain them, and the space between them and the rubble roofing compactly filled with stone and mortar. After the vault and upper half of the tunnel had been completed for a convenient distance, the lower 60 to 90 cm. of the tunnel was excavated, the rubble dug a section at a time from beneath the east wall, and the latter completed down to the terrace level. A cross-section of the tunnel may be seen in Plates 4 and 5.

At a distance of 9.13 meters from its point of beginning and 1.70 meters short of the corner of the pyramid, a vertically faced wall was encountered. It was followed eastward 3.05 meters from the pyramid and found to consist of two parts (fig. 102). The original was a flat-topped wall, 45.5 cm. thick, rising from the base

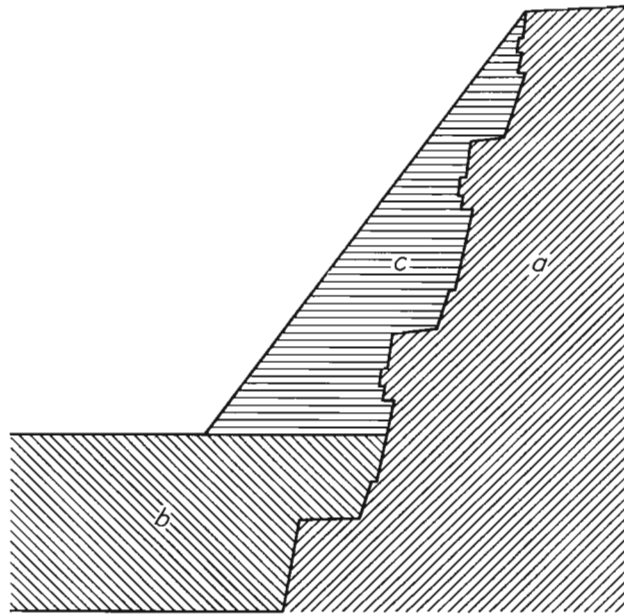


FIG. 102—WALL AND RAMP EXTENDING EAST FROM SUBSTRUCTURE, TEMPLE OF THE CHAC MOOL

*a*, substructure; *b*, original portion of wall; *c*, ramp added to wall.

plane of the substructure to a height of 1.75 meters. It crossed the first terrace which, as stated, serves as the floor of the tunnel, with a height of 79 cm., to impinge upon the slope of the second zone of the substructure. The secondary portion was a ramp built on top of the wall, the full width thereof, beginning 1.83 meters from the substructure, with beveled face sloping toward the latter at an angle of  $37^\circ$  from the vertical. Presumably, this wall constituted a boundary for some plaza or court which once existed either north or south of it. How far the wall extends to the eastward has not been determined. It seems probable that whatever enclosure it was related to lay southward of it, because its southern face and the lime-surfaced level which led away from its foot in that direction were a grayish black in color, which appeared to be the result of intention rather than of weather stain. Of the 15 coats of plaster discernible on the substructure,

4 passed behind its junction with the wall, and 11 turned the angle to continue over the surfaces of the wall.

After the tunnel had reached the corner it was turned to follow the contour of the substructure and continued westward along it. Work in the tunnel was always difficult and dangerous in varying degree, but the farther the bore penetrated, the more unpleasant conditions became. As electric light was not available, paraffin candles were used for illumination. Beyond a distance of 6 meters there was very little circulation, and the depleted air thick with candle smoke and the reek of sweating bodies was all but unbearable. This was especially true after the corner had been turned, beyond which circulation was further impeded and more candles were necessary to provide a twilight visibility. In order to hasten the connecting of the bore with an air shaft at its point of termination so that a through draft would be created, only the top level of the trench from the corner westward was pushed forward, the bottom being left to be completed after the upper part had been driven through.

Meanwhile, work was begun from the opposite end of the tunnel, access to which was afforded by a shaft which it will be pertinent to describe here. When the back of the West Colonnade at the northwest corner of the Court of the Columns was laid bare by excavation, it was found that the slope of the battered element at the base of the wall had the same angle of inclination as that occurring at the foot of the façade revealed in the pit dug downward from the top of the second compound zone in the southwest corner of the Warriors Pyramid (see page 110). This, together with the fact that the façade is in good alignment with the stump of the back wall of the West Colonnade, southward from the point at which it emerges beyond the abutting end of the North Colonnade, indicated that the two were parts of the same structure, which, therefore, once continued northward beneath the floor of the Northwest Colonnade. Excavations in the latter proved that this assumption was correct and that the round-columned hall had once existed to a point northward of the Warriors stairway.

#### SHAFT BENEATH WARRIORS STAIRWAY

Since the substructure of the Temple of the Chac Mool extended south of this point, the question arose as to the relationship between that temple and the West Colonnade. To seek an answer, four steps were removed from the north side of the Warriors stairway just above the level of the top of the second compound zone of the pyramid, and a tunnel was driven thence eastward. The north side of the tunnel exposed the southern terminus of the north half of the third battered element of the pyramid. The bore was continued eastward for 3.05 meters and then turned at a right angle to the north for 50.5 cm., to lay bare the sloping basal element of the exterior face of the south wall of the Temple of the Chac Mool. This tunnel was walled and roofed after the same general fashion as the major tunnel following the substructure.

At the south side of the east-and-west bore was found the broken-down west edge of what was taken to be a red-surfaced roof level, 55.5 cm. below the terrace from which the Temple of the Chac Mool rose, and extending southward. As its surface was followed eastward, it was found to have a width of only 45.5 cm., and to terminate in that direction in a finished margin, beneath which descended a two-course coping element with the surprising height of 74 cm. At a distance of 1.77 meters southward from the substructure, the coping dropped with a finished double-beveled corner to a height of 43.5 cm. and still continued southward.

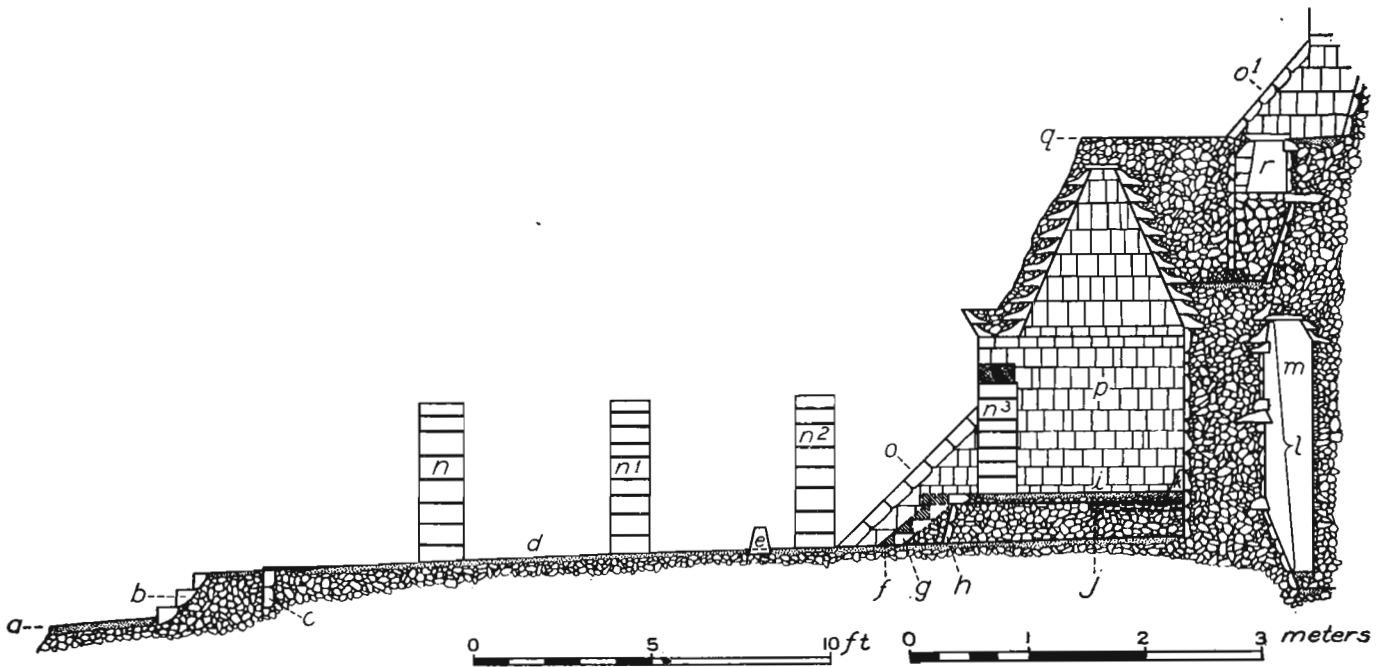


FIG. 103—EAST-AND-WEST SECTION SOUTH OF WARRIORS STAIRWAY. FROM POINTS *a-b* ON GROUND-PLAN (PL. 3)

(Certain features appearing back of the plane of the section have been included to clarify relationship)

- |   |   |
|---|---|
| <i>a.</i> Latest court level  | <i>k.</i> Sloping element at back of bench  |
| <i>b.</i> Steps to Northwest Colonnade  | <i>l.</i> Profile of outer face of back wall of West Colonnade  |
| <i>c.</i> Original front of Northwest Colonnade platform  | <i>m.</i> Shaft beneath Warriors stairway   |
| <i>d.</i> Floor level of Northwest Colonnade  | <i>n-n<sup>3</sup>.</i> Columns 38, 39, 40, 41, Northwest Colonnade   |
| <i>e.</i> Sacrificial stone   | <i>o-o<sup>1</sup>.</i> Ramp bordering the Warriors stairway  |
| <i>f.</i> Hachured outline indicates balustraded with square shouldered top of last stairway to sculptured dais | <i>p.</i> Face of stair ramp blocking transected fourth longitudinal aisle of Colonnade   |
| <i>g.</i> Steps of dais stairway  | <i>q.</i> Roof level of Northwest Colonnade   |
| <i>h.</i> Sloping face of dais  | <i>r.</i> Recess constructed to leave visible that portion of south half of third sculptured band of pyramid extending beneath stairway |
| <i>i.</i> Top of dais   |   |
| <i>j.</i> Dotted profile of bench showing relation to dais  |   |

A right-angled entry was cut from the portion of the tunnel already described, to follow the coping southward and downward. The vaulted roof was brought down at a sharp angle to the level of the one-course coping, which, thence onward, was made to serve as the west leg of the vault. The excavation for and the building of the slanting vault was an especially dangerous venture because the upper

half of the pyramid in this locality was miserably built of loose stones with very little mortar between. This entry was roofed to a total length of 4.88 meters, then deepened into a shaft seen in cross-section in figure 103. The façade that was being followed provided the west wall therefor. The east wall was constructed after the plan used elsewhere when it was necessary to build from the top down instead of from the bottom upward. That is, the shaft was deepened a convenient distance, usually about a meter, and then the existing part of the wall was undermined, a vertical section at a time, and the rubble thus removed replaced with cement masonry. At a depth of 4.42 meters from the top of the normal coping, the shaft reached the level of the first terrace of the Chac Mool substructure, where a red lime floor was found to continue southward beyond the limit of excavation. This floor is analogous to the terrace at the foot of the free portion of the rear wall of the West Colonnade, but occurs at a higher level to conform to the terrace of the substructure of the under temple.

The façade, of which the coping was the top member (fig. 53), was found to be a repetition, except for the height of the battered base, of the one found in the pit in the southwest corner of the pyramid, and beyond any doubt was a continuation of it. This façade forms an angle of  $89^\circ$  with the Chac Mool substructure.

When the pit had revealed features of such interest that it was deemed necessary to leave it open, the original tunnel mouth through the stairway was blocked up again and a permanent entry provided. Previously, a tunnel had been left in the masonry beneath the balustrade and the edge of the stairway to render visible that portion of the north half of the third sculptured band of the pyramid which the original builders had hidden from view. The rubble beneath this tunnel was torn out down to the foot of the battered element below the sculptured band and the west side of the slot was walled up. Thus, a passage of irregular shape but of ample width and height was created to give entrance to the pit.

From the bottom of the shaft, as previously stated, was begun the western terminus of the tunnel which follows the substructure of the Temple of the Chac Mool. Operations there were particularly slow and tedious. All stones from the rubble that were fit for use were built back into the walls, but the rest of the excavated material had to be hoisted to the top of the shaft and carried out through the upper tunnel connecting therewith. Moreover, mortar, vault and capstones had to be brought in over the same tedious path. After the two bores met, there was a constant draught, which changed direction to accord with the prevailing wind outside and was so strong that chimneys had to be provided for the candles, to keep them from blowing out.

As soon as the roof had been consolidated at the point of meeting, the tunnel was deepened to the level of the first terrace all the way across the south side of the substructure, and thereafter the south wall was completed in the manner previously described in detail.

## EXPLORATORY TUNNELS

The southeast corner of the older substructure is situated practically at the center of the Warriors Pyramid. Therefore, there remained three-fourths of the

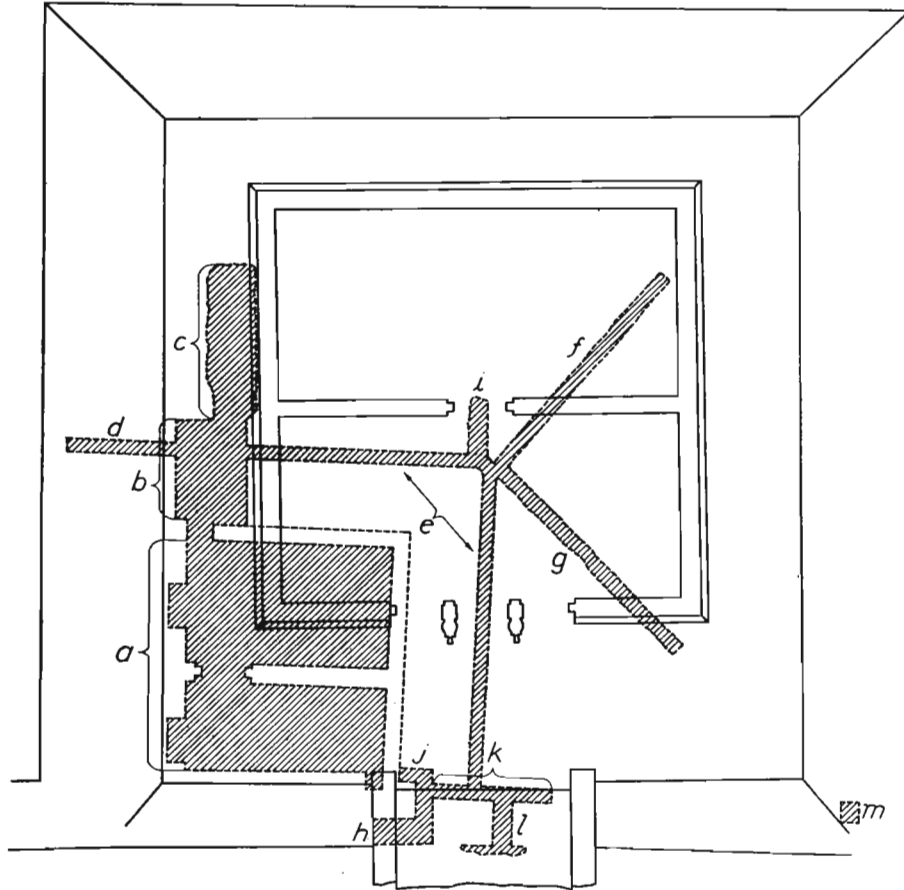


FIG. 104—CHART OF AREAS EXCAVATED WITHIN WARRIORS PYRAMID

- a.* Temple of the Chac Mool
- b.* Stair shaft to Temple of the Chac Mool, which continues to ground level to reveal portion of Chac Mool substructure
- c.* Area dug over in search for stones from painted bench, Temple of the Chac Mool
- d.* Slot to outside through which débris was removed from tunnels *e*, *f* and *g*
- e.* Tunnel following remaining portion of second zone of Chac Mool substructure on east and south sides
- f.* Exploratory tunnel toward southeast corner of pyramid
- g.* Exploratory tunnel toward southwest corner of pyramid
- h.* Entry at level of top of second compound zone of pyramid to shaft under stairway
- i.* Tunnel following wall extending eastward from Chac Mool substructure
- j.* Extension of *h* to reveal outer face of south wall of Temple of the Chac Mool
- k.* Shaft beneath Warriors stairway laying bare juncture of back wall of West Colonnade with Chac Mool substructure, and connecting with tunnel *e*
- l.* Doorway in back wall of Demolished Colonnade
- m.* Pit which reveals profile of outer face, back wall of West Colonnade

latter in which portions of other preexistent structures might have been interred. The tunnels which had been dug in the search for painted stones (page 158) had

penetrated the northeast one-fourth of the mass sufficiently to indicate that nothing of this nature was contained therein. To test the south half, an entry was opened in the corner of the tunnel leading around the substructure. As soon as it had passed beyond the tunnel wall, it was turned to the west and continued for a distance of 12 meters toward the southwest corner of the pyramid, with negative result. It was this tunnel which revealed the width of the platform at the south side of the substructure at the level of the first terrace (page 163).

A second branch tunnel of the same length was opened from the entry above mentioned, toward the southeast corner of the pyramid. No building remains were encountered *in situ*. The floor of this tunnel is at the base plane of the buried substructure and of the Warriors Pyramid, and is a little more than 91.4 cm. lower than that of the major tunnel. It is a polished lime court level, colored red. About 45.5 cm. from the edge of the substructure, a stone was set in this floor, containing a circular hole, 8.8 cm. in diameter at its center. Beneath was a bottle-shaped cavity about 61 cm. deep. Obviously, this device was a drain through which rain water falling upon the pavement could find its way into the loose stone fill with which the terrain had been leveled before the floor was constructed. The cavity was half full of lump charcoal, which must have been intentionally placed and would seem to suggest that the Maya used charcoal as a purifier and deodorant.

The two branch tunnels (fig. 104) were left open but were not walled. The masonry they penetrated had been solidly constructed and no moisture had reached these levels to soften the mortar. Hence, the sides and roof of the excavations were judged to possess sufficient solidity to remain indefinitely without caving. Some reused building stones, a few sculptured, were found throughout the two bores.

Runged ladders of 3-cm. galvanized pipe were set, one in front of the door leading into the under temple, the other against the substructure in the shaft beneath the Warrior stairway. By use of these and the major tunnel it is possible to make a complete circuit, 32.64 meters in length, of the extant portion of the substructure of the Temple of the Chac Mool.

## CHRONOLOGICAL SEQUENCE

The Castillo is the dominant structure of the cluster of Mexicanized Maya buildings which comprise the northern section of Chichen Itzá; physically, because of its huge bulk and height; psychically, because it is recorded as having been the Temple of Kukulcan, the principal deity of the city. It, then, may reasonably be taken as the point of departure in a discussion of the chronological sequence of the cluster of remains with which this volume is concerned.

The West Colonnade faces toward the Castillo, or directly away from the Court of the Columns of which it forms the western boundary. This condition suggested that it was in existence previous to the plan for the creation of the great enclosure and that it had been oriented with definite relation to the Castillo. When the eastern base of the latter was plotted, the line of its first terrace, as



revealed by excavations conducted by the Mexican Government, was found to be almost exactly parallel to the face of the 15- to 25-cm. terrace upon which the columns of the West Colonnade stand. The line of this terrace was established from the portion laid bare southward from the junction of the West Colonnade with the Northwest Colonnade, and from the corner where the western extension of the building joins its southern extremity. The line swings eastward from that



FIG. 105—PIT AGAINST FIRST TERRACE AT NORTH-EAST CORNER OF THE CASTILLO

Showing court levels 1 and 2, indicated by wooden pegs, continuing beneath masonry, with level 2a touching base of lowest faced stone

of the base of the Castillo less than 30.5 cm. in its entire length. This fact tended to strengthen the assumption of relationship. To test the matter a trench was dug adjacent to the West Colonnade terrace, 2.29 meters south of its point of disappearance beneath the platform bearing the Northwest Colonnade. This terrace stood 15 cm. above the last used court level, the plaster coating of which became entirely disintegrated and further untraceable at a distance of 1.52 meters

from the terrace. The latter continued downward beneath the final level a distance of 20 cm. From the foot of it, another red-tinted floor extended westward. A second terrace was found 1.22 meters west of the first, reaching downward an additional 55.5 cm. From the base of it, another lime floor, brown tinted, spread westward. Beneath this there was black earth, which, where tested, was about 55 cm. deep, overlying bedrock. Obviously, then, this third major floor from the surface marked the first paved level created in the locality under consideration.

From the trench above mentioned, a line of pits, from 7.50 to 9.00 meters apart, was sunk, leading to the northeast corner of the Castillo. In every pit the lower two of the major floors were encountered. The uppermost, or last constructed floor, had been entirely destroyed by the action of roots and of the elements. The pit or short trench which touched the first terrace of the Castillo revealed this feature to be a platform, 69 cm. in height, unembellished with cornices, moldings, or panels of any sort, in this respect like the basal platforms both of the Temple of the Warriors and the Temple of the Chac Mool. The lower two of the major floors continue beneath the facing of the platform, one at a depth of 30.5 cm. from the nether edge of the first course of stone, the other of 10 cm. (fig. 105). A third lime floor began at the foot of the platform, sloping downward to tail out and merge with the second or middle major floor, 3.66 meters to the eastward.

The fill between the lowest and middle floors consisted, with rare exception, of small stones, loosely piled, seldom ever containing a pebble larger than one's fist, and coated with from 3.7 to 7.6 cm. of mortar. The 15 to 25 cm. of material upon the middle floor had the appearance of black vegetable earth, but it was crowded full of the chips and small stones which had been the grouting of the third or last court level.

Two pits were sunk through the floor of the West Colonnade, in a line eastward from the series previously mentioned. Both were continued through a fill of large, loosely piled rough stones to country rock, without cutting any floors or smoothed levels whatever. Therefore, it is obvious that the West Colonnade was erected before the area where it stands had been reclaimed and incorporated in any previous plan of courts and buildings; also, that it is older than the Castillo. The data given in the preceding paragraphs appear in the cross-section shown in figure 106.

The floor of the West Colonnade and the low terrace marking the western margin thereof had been traced northward 42.83 meters from their point of disappearance beneath the platform of the Northwest Colonnade, before the lower frontal terrace above described had been found. The low or top terrace has been left visible in masonry-lined pits at two points, one 2.34 meters north of the south end of the Northwest Colonnade, the other where the terrace makes a right-angled turn to the west at its northern termination. After the second terrace had been discovered, a pit was sunk between columns 39 and 43 of the Northwest Colonnade to see if it followed the upper terrace throughout the length of the latter, but no trace of it could be discovered. Conditions in this pit are charted in figure 107. At the bottom, 2.05 meters below the floor of the Northwest Colonnade, was found a

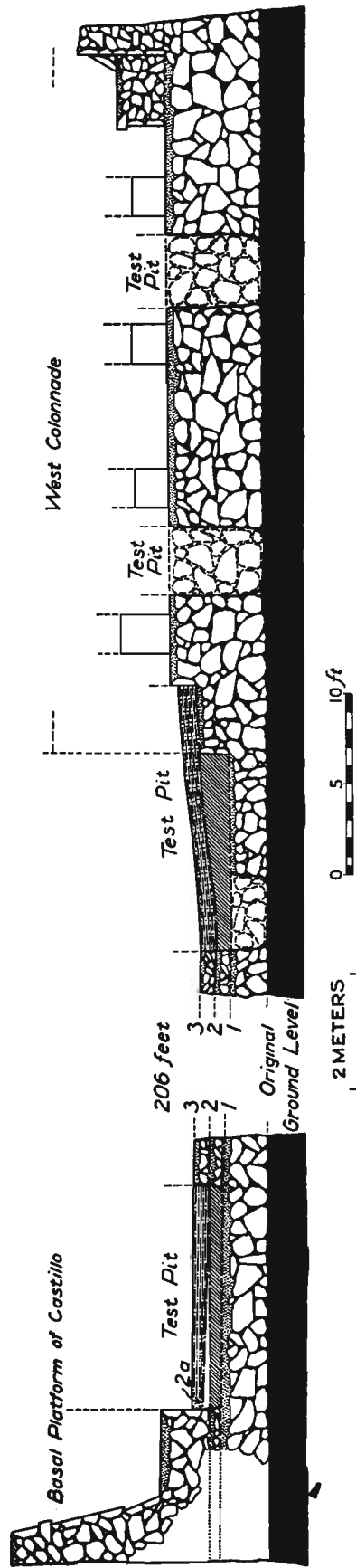


FIG. 106—CROSS-SECTION FROM BACK OF WEST COLONNADE TO EAST FACE OF NORTHEAST CORNER OF THE CASTILLO

Original ground level beyond question was rough and irregular, but here, for convenience, is charted as a plane. Unbroken fill beneath, with no definite floors running through it, shows the West Colonnade to be the oldest structure of those in question. From its lowest terrace, floors 1 and 2 continue under basal platform of Castillo, which is connected with floor 2a. Floor 3 constituted court level of latest construction. In the 206 feet between parts of section here given, six test pits were sunk, in all of which relationship of floors 1, 2 and 3 was found to be as indicated in portions figured.

continuation of the lowest floor which was traced across to the Castillo. Upon it was a fill of large, unworked stones, without either earth or mortar in the crevices, 55 cm. thick, surfaced with 3.7 to 5 cm. of lime plaster, stained red. Upon floor 2 was a layer of small pebbles, covered over with mortar, troweled smooth and colored

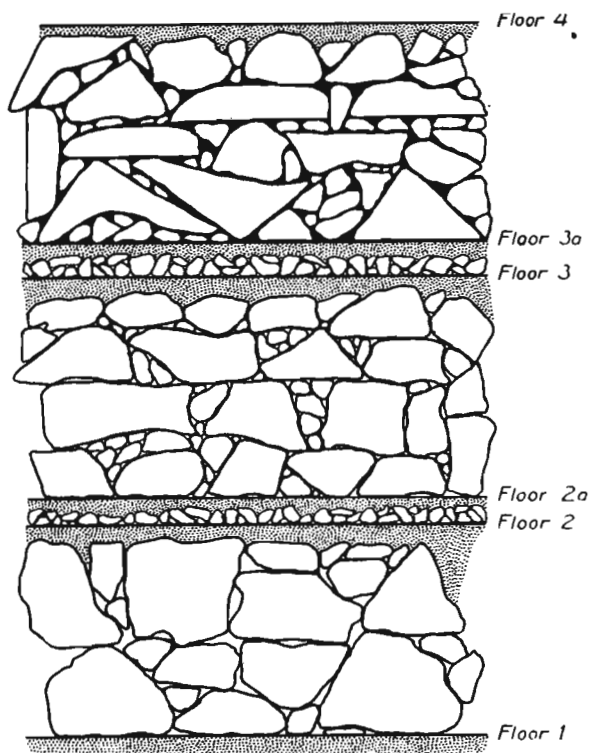


FIG. 107—CROSS-SECTION, EAST AND WEST, BETWEEN COLUMNS 39 AND 43, NORTHWEST COLONNADE

- Floor 1, oldest court level, overlying, where tested, loose fill resting on original surface
- Floor 2, second court level, separated from first by fill of large rough stones poorly chinked
- Floor 2a, addition to, or repair of, floor 2
- Floor 3, third or last court level separated from 2 by fill of rough stones well chinked; 3a is modification of 3
- Floor 4, that of Northwest Colonnade south of limits of Demolished Colonnade. Fill between 3a and 4 is of stones, many of them reused building blocks, compactly laid in mortar

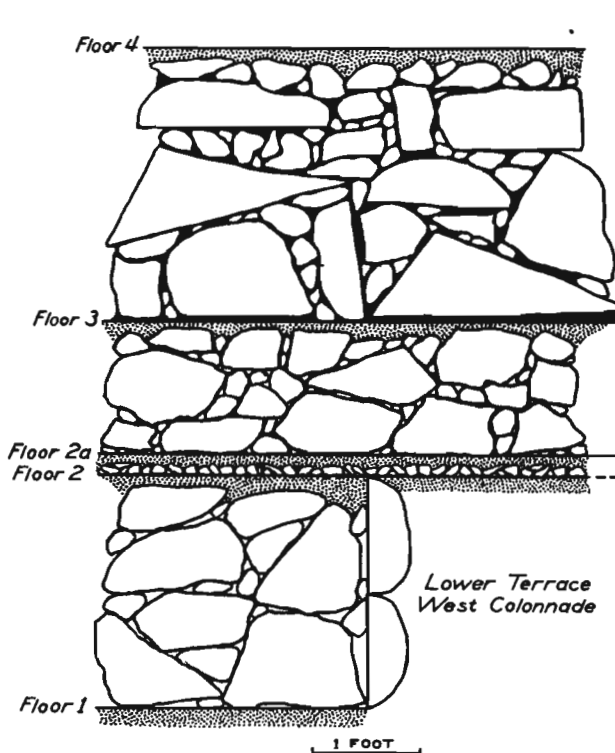


FIG. 108—CROSS-SECTION, EAST AND WEST, SOUTH OF COLUMN 50, NORTHWEST COLONNADE

- Floor 1, first or oldest court level, overlying, where tested, loose fill bedded upon natural surface
- Floor 2, second court level, built at height of top of first terrace of West Colonnade, indicated at bottom center
- Fill between floors 1 and 2 of rough stone poorly chinked
- Floor 2a, a modification or repair of 2
- Floor 3, last court level, separated from 2a by rough rock fairly well chinked
- Floor 4, that of the Northwest Colonnade, fill between it and 3 containing many reused building stones, compactly laid in mortar

red (floor 2a). The total thickness of this layer was 6.8 cm. Thence upward lay 64 cm. of loose, rough stones, the interstices fairly well chinked with small stones but not with earth or mortar. Upon this was floor 3, also red. Upon floor 3 were 8.3 cm. of mortar, surfaced and tinted to form floor 3a. The fill between this floor and that of the Northwest Colonnade was almost entirely of reused building

stones, compactly laid in mortar. Among the stones, within the area of the pit, were six sculptured blocks belonging to the panel, much of which was found in the topmost yard of rubble in the Warriors Pyramid.

In a further search for the lower terrace of the West Colonnade, a possible clue as to its northern end was seen in the alignment of this structure with the Castillo. From the drawn plan was taken the angle of a line from the southeast corner of the Castillo to the included corner formed by the westward turn of the first terrace at the south end of the Colonnade. A line at the same angle was projected north-east from the northeast corner of the Castillo to cross the line of the first terrace

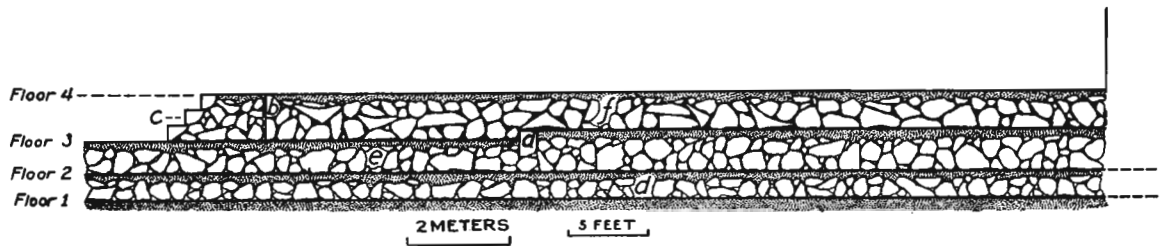


FIG. 109—SCHEMATIC CROSS-SECTION EAST AND WEST, BETWEEN NORTH END OF ORIGINAL WEST COLONNADE AND SOUTH END OF DEMOLISHED COLONNADE

Floor 1, first court level separated from floor 2, second court level, by fill of rough stone, unchinked (*d*)  
 Floor 3, last court level as far as *a*; thence eastward, the floor of West Colonnade addition, separated from 2 by fill of large stones, chinked (*e*)

Floor 4, that of Northwest Colonnade. Fill between it and 3, containing many reused stones laid in mortar (*f*)

*a*, front terrace, West Colonnade addition; *b*, original face of Northwest Colonnade platform; *c*, steps flanking addition to Northwest Colonnade platform.

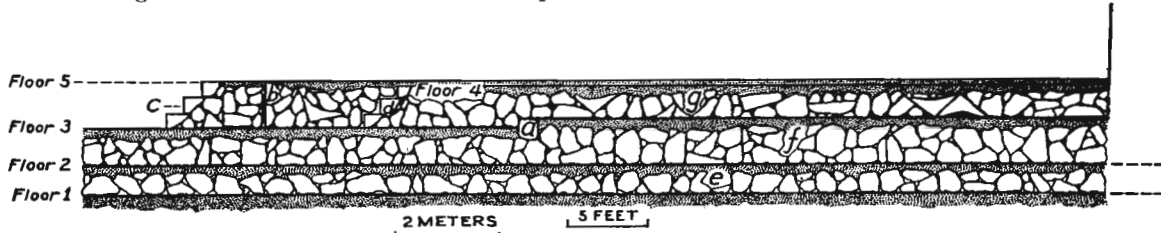


FIG. 110—SCHEMATIC CROSS-SECTION, EAST AND WEST, NORTH OF WARRIORS STAIRWAY

Floor 1, first court level

Floor 2, second court level, separated from 1 by fill of rough stone unchinked (*e*)

Floor 3, last court level as far as *a*, thence eastward floor of West Colonnade addition; separated from 2 by fill of stone unchinked (*f*)

Floor 4, that of Demolished Colonnade overlying fill containing many reused building stones laid in mortar (*g*)

Floor 5, that of Northwest Colonnade

*a*, front terrace, West Colonnade addition; *b*, original front of Northwest Colonnade platform; *c*, steps of addition to Northwest Colonnade platform; *d*, steps of Demolished Colonnade platform.

within the confines of the Northwest Colonnade. The line fell about 30 cm. south of column 50. A pit was sunk between this column and the next one southward to reveal the cross-section shown in figure 108. Floor 1 was encountered at a depth of 1.87 meters. At the east side of the pit, the sought-for lower terrace of the West Colonnade rose to a height of 66 cm. The fill to its top was of loose, rough stones, unchinked. At that level occurred floor 2. Upon it was a 6-cm. layer of

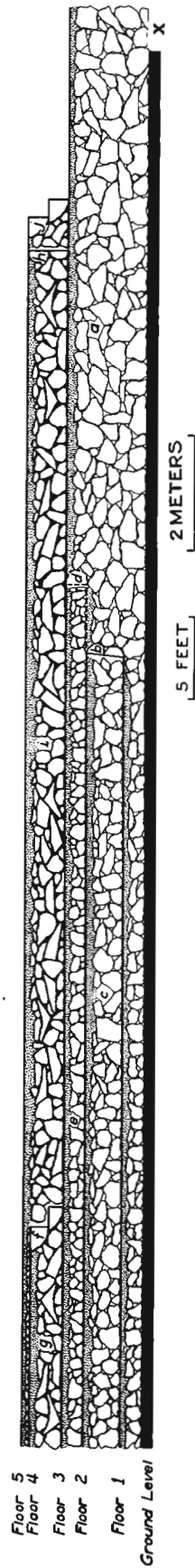


FIG. 111.—SCHEMATIC CROSS-SECTION, NORTH AND SOUTH, FROM NORTHWEST COLONNADE TO NORTH END OF WEST COLONNADE. GROUND LEVEL THEO-RETICALLY PROJECTED FROM KNOWN POINT OF OCCURRENCE AT X

- Floor 1, oldest court level to *b*, and from *d*, the floor of original portion of West Colonnade; overlying fill *a* of rough stone unchinked
- Floor 2, second court level separated from 1 by fill *c* of rough stone unchinked
- Floor 3, that of West Colonnade, coincident with floor 1 from *d* southward, separated from 2 by fill *e* of rough stone, chinked
- Floor 4, that of Demolished Colonnade, separated from 3 by fill *g* containing reused building stones laid in mortar
- Floor 5, that of Northwest Colonnade, separated from 3 by fill *i* containing reused building stones laid in mortar
- b*, face of lower terrace, original West Colonnade; *d*, face of upper terrace, original West Colonnade; *f*, steps of Demolished Colonnade; *h*, original face of platform, south end Northwest Colonnade; *j*, steps leading from floor of West Colonnade to Northwest Colonnade.

small pebbles covered over with troweled mortar, floor *2a*. In this pit, floors *2a* and 3 were separated by 38 cm. of rough stone, fairly well chinked with pebbles, among which an occasional potsherd was observed. Floor *3a* was not in evidence. Between floors 3 and 4 were 76 cm. of stone, mostly reused building elements, solidly laid in lime mortar.

At a point slightly north of the limits of the pit, reached by undermining, the lower terrace of the West Colonnade turned at a right angle to the east with a finished corner, neatly plastered with red-brown mortar. The eastern extension, which leaned back slightly from the vertical, was followed for a distance of 1.83 meters, beyond which the face stones had been torn out in ancient times. The turn of this terrace is 7.78 meters northward of the south limit of the Northwest Colonnade.

A number of pits, sunk at various points all over the remaining area of the Northwest Colonnade, revealed the same general alignment between floors 1, 2, 3 and 4. The only divergence was the presence of the floor of the colonnade, assumed to have been contemporaneous with the Temple of the Chac Mool, which extended from the north center of the sculptured dais northward to and beyond the north wall of the Northwest Colonnade. Thus, within the area of this structure, there occur five major floor levels instead of four. These floor levels may be designated as follows: (1) the original court level; (2) the second court level; (3) the last court level eastward of the West Colonnade and the floor of this structure within the limits thereof; (4) the floor of the Northwest Colonnade south of the boundary of the antecedent Demolished Colonnade, and thence northward the floor of the latter structure; and (5) the floor of the Northwest Colonnade from the north half of the sculptured dais northward.

The data gleaned from conditions existing in the various pits and trenches above mentioned are synthesized in the schematic cross-sections appearing in figures 106, 109, 110 and 111.

#### RECAPITULATION OF CONSTRUCTIONAL SEQUENCE

The complete structural sequence, as established by these cross-sections representing conditions underground, and by the relations of the visible structures which have been described, may be recapitulated and further explained as follows:

INTERVAL 1. The original portion of the West Colonnade is seen to be the earliest structure of those discussed in this volume. Except for the northern boundary, the exact limits of this original portion can not be stated positively without complete excavation of the untouched portions of the mound which still covers the bulk of the building. However, from the alignment with the base of the Castillo, it may be assumed that the entire north-and-south wing, as it now exists, pertains to the original plan, and perhaps the western extension from the south end does so as well. Contemporaneous with the pristine West Colonnade is the lowest court level, that marked 1 in the cross-sections, which continued

westward to and perhaps beyond the site of the Castillo and northward an unknown distance beyond the northern limit of the Northwest Colonnade. How far this pavement extends eastward past the north end of the West Colonnade is also unknown.

INTERVAL 2. Constructional activities definitely attributable to Interval 2 consist of the raising of the court, comprising the known area of the first floor, to the level of floor 2; that is, to the height of the top of the lowest terrace of the original West Colonnade.

INTERVAL 3. Next was raised the Castillo, indicated by the fact that it is bedded practically upon floor 2 and is connected therewith by the inclined floor previously mentioned. The Castillo was laid out and aligned with definite reference to the original West Colonnade, as shown by the almost perfectly parallel lines of the bases of the two structures and the fact that the angles from the northeast and southeast corners of the Castillo to the north and south extremities of the original Colonnade are the same.

It must be emphasized that the stratigraphic determinations herein set forth pertain to the Castillo in its present condition. Observations ended at the face of the first terrace. Any amount of complications might have been encountered had it been possible to tunnel into the pyramid. In the end, one comes to doubt the temporal homogeneity of any of the large substructures. Demolition, change and replacement were such common practices that it is highly probable that the remains of some preexistent structure are ensheathed within the great pyramid. If such be the case, the original Castillo, or whatever temple stood in lieu thereof, may well have served as a basis of alignment for the original West Colonnade, a possibility which is exactly the reverse of that suggested by the data thus far obtained.

INTERVAL 4. During the fourth phase of building activity, the West Colonnade was continued northward at least 35 meters, to the point indicated by the westward turn of its terrace, visible in pit K. Because of this right-angled turn of the bordering terrace, it would seem probable that there was incorporated, as part of the addition, a western wing from the north end of the Colonnade, similar to the one still in existence at its southern terminus. Trenches were dug in a search for foundations of such a wing, but no vestige of it could be located. This does not argue against the possibility that it once existed, for to have reduced the space it may have occupied to the present court level would have necessitated the demolition even of its basal course westward from the front line of the Colonnade immediately beneath the Northwest Colonnade.

Since the secondary portion of the West Colonnade is not touched upon elsewhere in the text, a certain feature of it will here be mentioned, despite the fact that it is not germane to the subject in hand.

Directly under the southern one of the two columns of the Northwest Colonnade situated at the foot of the steps of the Warriors stairway (No. 33), was found a masonry-walled pit 1.42 meters square, extending 61 cm. into the floor of the



West Colonnade addition (fig. 112). That the pit was coexistent with this floor was evident from the fact that the floor plaster curled down over the brink of the pit walls. The stones of the latter were blackened by fire, and on the bottom was a good deal of fine charcoal and some wood ashes. Above the layer composed principally of these substances was a stratum of bone ash, from 7.6 to 18 cm. thick, in which here and there could be distinguished the spongy fibrous arrangement of bone structure. Obviously, the pit was akin in function to those of the present day in which skeletons, evicted after a few years' burial in the modern Yucatecan cemeteries, are burned to dust.



FIG. 112—CREMATION PIT BENEATH COLUMN 33, NORTHWEST COLONNADE

Column 33 shown suspended to permit excavation of crematory (*a*). On sides visible (*b, b*) top course of stone had been torn out as revealed by portion on left side, which had reached height of floor of West Colonnade addition (*c*), proving that crematory pertained to that structure. (*d*) indicates floor level of Demolished Colonnade. At lower right corner of pit (*e*) deposit of bone ash overlying charcoal remains. A masonry base was built within pit for support of Column 33.



FIG. 113—DRUMS FROM DISMANTLED COLUMNS OF WEST COLONNADE BENEATH FLOOR OF NORTHWEST COLONNADE

Base of Column 54, Northwest Colonnade visible at upper left. *a*, floor 2 (see cross-sections); *b*, floor level of West Colonnade; *c*, floor of Northwest Colonnade.

At the same time that the West Colonnade addition was made, the great court was raised to the level of floor 3, as evidenced by the fact that the single low terrace at the front of the addition rises from the plane of this floor, but the floor does not continue beneath nor beyond it.

The fill beneath this ultimate pavement obscured more than half of the first element of the Castillo substructure. The exact point at which the troweled surface joined the face of the terrace is not evident. In clearing away the débris from the west and north sides of the pyramid, excavators for the Mexican Government

dug inward at what was ground level beyond the slopes. That this plane is practically the one once occupied by the last court level is indicated by the fact that the serpent heads at the bottom of the balustrades of the north stairway seem to be bedded at the same altitude. A further inference from the latter condition is that the third or final court level had been constructed before the balustrades of the north stairway were completed.

INTERVAL 5. The fifth construction interval marked the removal of the addition to the West Colonnade from its north end southward, to a point 17.23 meters north of the northernmost round column now standing. On the area thus cleared was erected the Demolished Colonnade, which is assumed, from data previously given, to have been contemporaneous with the Temple of the Chac Mool. Therefore, the latter, also, had its origin in Interval 5.

Presumably, the back wall of the addition was torn down as far south as, and perhaps slightly beyond, the point later occupied by the door in the rear boundary of the Demolished Colonnade. Then, as the substructure of the Temple of the Chac Mool was built, this doorway was constructed and the wall filled in around it to connect with the substructure. At least, such a procedure would explain the dove-tailing of the faced courses of the two.

Seemingly, the reused building stones occurring in the platform of the colonnade were derived from the torn-down part of its predecessor (fig. 113). This colonnade was built directly against and was, in some manner, joined to the severed end of the West Colonnade, so that the two were placed beneath the same roof, making, in effect, one continuous chamber.

A portion of the back wall of the West Colonnade was used as part of the corresponding member of the Demolished Colonnade. Presumably, this portion consisted of two increments, one being a section of the original wall of the addition; the other an element raised synchronously with the Chac Mool substructure to connect the latter with the severed end of the original wall.

INTERVAL 6. During the sixth construction period the square-columned hall was destroyed to floor level and a second increment of the West Colonnade, which extended southward to the northernmost transverse row of columns now standing, was razed. As in the previous case, the back wall was left, this time with certainty to be used as a part of the next building to be constructed. As part of the same process came the removal of the missing portions of the Temple of the Chac Mool and its substructure. These were but preliminary activities preparatory to the building of the Northwest Colonnade and the Temple of the Warriors, as elements of one ambitious plan. There can be no doubt as to the contemporaneity of these two buildings. Had the temple existed previous to the Colonnade, the western end of the south face of the pyramid would have been built across its point of jointure with the rear wall of the colonnade, which had also served as the rear wall of the preexistent West Colonnade. Instead, the pyramid face ends flush against the wall. Moreover, as in the previously mentioned instance of the Temple of the Chac Mool, had the substructure, in this case the pyramid, ever been completed on its western

exposure as were the other three sides, the foundation thereof, or the mark of its basal course, should still be discoverable beneath the floor of the Northwest Colonnade. Trenches sunk in search of such features showed conclusively that they do not exist. As additional confirmation, the Warriors stairway is bedded upon the floor of the colonnade, hence this level was in existence at the time of its construction. Then, too, the rows of columns flanking the sides of the central aisle, marking the east and west axis of both structures, are set wider apart than those both north or south of them, which suggests a predetermined consistency of arrangement. And, as a final element of corroboration, is the fact that reused sculptured stones from the same mural panel were found in the upper meter of fill in the pyramid and beneath the floor of the colonnade, south of the southern limit of the hall that immediately preceded it. Also beneath the floor were found occasional drums of round columns of the same diameter as those of the West Colonnade. These are from columns that once stood upon the present site of this fill. Evidently all the whole drums were saved for use elsewhere, only the broken ones together with many vault and a few wall stones, having been used in the building of the low substructure.

After its original completion, the Northwest Colonnade was subjected to several modifications, indicated in detail in the caption of the ground plan (Plate 5A). The first front of its terrace (*m*) was faced with a beveled wall, broken by a stairway (*g*) only 2.67 meters in width, situated in front of the central third of the Warriors stairway.

The south boundary of the platform (*n*) was a vertical wall, crossing the floor of the West Colonnade just north of the terminal transverse row of round columns still extant.

Next, the platform was provided with a southward extension (*o*), 71 cm. wide, which lacked 2.92 meters of reaching the southwest corner. The margin of this increment lies in the south line of the row of columns. A step (*i*) was built along the entire length of it to facilitate passage from one floor level to another. Later a ramp (*p*) was built to obscure the steps from the third column from the front to the bench along the rear wall. As a third phase of modification (*q*) the southward extension was finished out to the corner of the platform. Thereafter, the entire front terrace was widened (*r*) an average of 1.16 meters and faced with the stairway now in evidence, which is continuous to within 69 cm. of the south end. Then, as a final step in the sequence of remodeling, a platform at the level of the floor of the West Colonnade (*s*), 2.21 meters east and west by 1.3 meters wide, was built in the angle between the front terrace of this colonnade and the southward extension of the platform of the Northwest Colonnade. And at some time after the hall had reached its first stage of completion, the secondary dais (*c*) was built to enclose the second and third columns of the inner file, north of the Warriors stairway.

INTERVAL 7. The North Colonnade, which came into being during the seventh interval, goes beyond our major intention, but, for the sake of completeness, it must be tied in with the other components of the nexus. This long hall was built with

its western end abutting the junction of the West and Northwest Colonnades, as previously described (page 69). The method of joining proves that the North Colonnade is of more recent origin than the other colonnades in question, and the fact that the back of the west end of it covers and obscures a considerable part of the west end of the south face of the Warriors Pyramid shows it also to be later than the pyramid. As the absolutely final bits of construction in the whole Warriors complex, stand the stairway leading from the *cul-de-sac* between the pyramid and the North Colonnade, up to the platform lying thence westward, and the wall connecting the northward extension of the North Colonnade with the second battered element of the pyramid. The fill behind the ultimate stairway was made of stone, carelessly piled, with no mortar bonding whatever. Among the stone an astonishing amount of discarded sculpture was found; parts of six Atlantean figures, the head of a statue, neither Atlantean nor Chac Mool, a portion of a graven slab, and a corner stone, such as might have belonged to a sculptured dais. Whence these fragments, some exquisitely wrought, were gathered, there is no way of determining.

#### DEARTH OF MINOR SPECIMENS

The buildings herein considered yielded a surprising paucity of minor artifacts. Now and then a blade of flint or obsidian, a pottery spindle whorl, or a few potsherds would come to light, but the aggregate of these is so small as to be scarcely worth mentioning. The only complete pottery vessels recovered are the eight cylindrical jars (fig. 114), elsewhere referred to (page 101). These are of a rather coarse-grained reddish-salmon paste, relatively thick and not particularly hard. Originally, they possessed brilliantly polished surfaces, deeper red in color than the body of the paste, but bore no painted ornamentation whatever. Due to the action of moisture and fine roots, the vessels have lost much of their surface finish.

#### PIPE OR INCENSE BURNER

Only one truly excellent ceramic object was recovered. It is the pipe or incense burner shown in Plate 21. It was found on floor 2, in a trench dug between columns 52 and 56 of the Northwest Colonnade, under conditions which showed that it had been intentionally hidden after being broken. The fill at this particular point consisted of large, rough chunks of country rock, the interstices between which were hollow, no earth or mortar having been used to bind the stones together. On the floor level, in a crevice between two relatively long stones, lay the three sections of the stem. In a cranny 30 cm. to the south of and 15 cm. above them was the bowl.

The pipe in its entirety is 52.41 cm. long. The material is a warm, light red, fine-grained, compact and very hard clay. The finish is fairly good, perhaps half

of the area exhibiting a high polish, while the remainder is rough in places and uneven. The stem, from tip to point of union with the bowl, is 39.37 cm. long. The extreme tip is 1.12 cm. in diameter; thence the tube thickens abruptly to a diameter of 1.75 cm., then tapers to a thickness of 2.50 cm. where it merges into the base of the bowl. The bore is very slender, averaging about 24 mm.

When inverted, the base of the forward end of the pipe is seen as a flat surface, shaped like a wedge laid with broad end forward, its tip fusing with the point of an element shaped like a conventional candy heart modeled on to the nether surface of the root of the stem. The width of the broad end of the wedge is 3.46 cm. and its thickness 64 mm. The bowl is widely flaring, reaching, in a height of



FIG. 114—CYLINDRICAL JARS FOUND AGAINST NORTH FACE OF COLUMN 7, TEMPLE OF THE WARRIORS

The tallest, *a*, is 40 cm. high and 10.2 cm. in diameter

5.48 cm., a width of 8.80 cm. The bore enters 64 mm. from the bottom of the conical interior. Perhaps one-third of the latter is smoke-stained.

An *appliqué* decoration encircles, cordlike, the base of the bowl, then slopes backward and upward from both sides to the center of the top of the stem, where, 5.64 mm. from the bowl, it is caught under a two-strand cross tie, whence it emerges as two parallel cords, which continue for 3.14 cm., then are looped backward, the tips reaching almost to the cross tie.

Sixty-four mm. farther along on the upper side of the stem begins a second *appliqué* ornamentation, fashioned as if a cord were bent and loosely twined upon itself, to form four well-spread links of chain in a distance of 11.27 cm., then con-

tinues as a single strand for another 5.32 cm. In the center of each link there is a raised disk, 1.2 cm. in diameter.

Modeled on to the inward nether curve of the forward edge of the bowl is a bird's head. This is supported beneath by a cylinder, 96 mm. in diameter, which fuses with the upper surface of the wedge-shaped base previously described and by another strand of clay of about half this diameter, which curves forward and merges gradually into the base. The head proper is a hollow sphere, 3.46 cm. in diameter, with a 64-mm. perforation at each side. Within the sphere is a little ball that serves as a rattle. To form the ears, a slender *appliqué* strand of clay, folded sharply upon itself, begins back of the top of the head, and extends forward for 1.27 cm. whence the two ends diverge, each making three and a half turns upon itself, these spirals representing the eyes. A plastered-on serpentine curve, transversely applied, occupies the convergence of bill and head.

The bill is 3.14 cm. long, 2.82 cm. wide and 96 mm. in thickness. The mouth is indicated by a most skilfully manipulated strand of clay, applied in relief like the other features. The ends are done into spirals, one clockwise, the other the opposite, adhering to the upper corners of the beak. From the outward edges of these spirals, the strand continues back to the head, then turns downward and forward to follow the margin of the lower half of the bill. Thus the strand of clay completely outlines the mouth and gives an effect as if the bird were biting a disproportionately large fleshy tongue.

#### CERAMIC TYPES

Only one generalization of chronological significance can be drawn by the present writer from the ceramic vestiges secured in and about the Warriors. The complex represented by sherds from the floors of the buildings consists principally of portions of large jars of common function. The color varies from a sort of brick red to a dull smoky gray. The paste is thick, rather soft and friable, and the surface is fairly smoothly polished. Decoration, where it occurs, is in broad black lines, carelessly applied, with no attempt to produce anything worthy of being called a pattern. Along with these occur a few fragments of smaller vessels of very hard paste, beautifully polished. The most conspicuous shape is the rattle-footed tripod bowl with flat bottom and outcurved sides.

Examples of this type may be decorated with black upon the red of the clay, or the sides may have been coated with white, in which case the pattern is incised through the coat into the red of the paste. There also occur in this complex, sherds of the plumbate ware so widely distributed over Central America. Such, briefly characterized, were the wares in use while the buildings were still standing.

In the vegetable mold just beneath the surface, most plentiful in front of the doorways and strewn down the stairs, occur fragments of a totally different character. Where bowls are identifiable they are shallow, more like plates, without the outcurved sides and, although of tripod type, the legs are conical and solid instead

of globular and hollow. The ware is dark red in color and well polished. More common by far are portions of crude though elaborate human figures. All features and appendages are rather skilfully modeled, and the copious vesture is done in *appliqué*. The paste is coarse, granular and very fragile, and the surfaces are rough, having been carelessly smoothed while the clay was plastic but not polished. Such wares were made after most of the buildings fell into ruin, hence are relatively late. These effigy jars presumably were incense burners left among offerings made at deserted temples, as was customary. A great quantity of this latter type of ware was taken from the south temple of the Ball Court. Evidently the building stood for a long time, and a much-used shrine was maintained against the back wall at the east center. About it, ashes, probably from incense, and broken vessels accumulated to a depth of 45 cm. Many portions of the modeled figures from this locality were originally painted, as, doubtless, were those found in more exposed places where chemical action has disintegrated the surfaces.

While ceramic chronology is not as easily determinable at Chichen as is architectural sequence, both could be carried to a very satisfactory stage of completion. It would not be too much to hope for an almost complete recovery of the constructional sequence of all of the major remains in the city proper, at least of the interrelations of those that pertain, respectively, to the two great nuclei. One of the latter stretches from the High Priests Grave southward to the west of the Xtoloc Cenote, while the other consists of those remains associated with the great major terrace extending from the Ball Court eastward beyond the Court of the Columns. Beneath the surface, both of these areas are full of old court levels and the stubs of dismantled walls, which, if traced, would rarely fail to give the desired sequence. Nor is it impossible that, at some point, there still exist features of construction that would give the temporal relationship between the two great building areas. Ceramic material is not plentiful, but it does occur at certain places in adequate quantity. However, to secure it in condition to warrant initial determinations, it must be found deeply buried. Whenever it lies in vegetable earth, or where rain and roots have carried corrosive acids, the wares have been eroded to the destruction of surface character. But protected deposits do exist. About two bushels of sherds lay upon the floor of the Northeast Colonnade and, as mentioned, a quantity of markedly different wares came from the south temple of the Ball Court. In an enclosed court, south of the House of the Phalli, in Old Chichen, there was, at a satisfactory depth, a rubbish dump containing a great deal of pottery and other minor objects. Thus, it is evident that ceramic material sufficient to form a basis for the establishment of a chronological sequence could be gathered. It is to be hoped that the study of Chichen pottery, begun by Dr. Valliant, may be carried to completion, for, in addition to being a worthwhile end in itself, it would be of great value in fixing the position of many of the isolated buildings which are scattered so plentifully throughout the bush.

## TEMPLE OFFERINGS

The subject of what may be presumed to have been dedicatory offerings has already been introduced in the description of the sculptured dais in the Northwest Colonnade (page 57). Other deposits have come to light during the course of excavation and will here be touched upon.

## NORTHEAST CORNER, TEMPLE OF THE WARRIORS

The first offering found was that beneath the northeast corner of the Temple of the Warriors. The corner of the pyramid had crumbled away sufficiently to undermine the corner of the building, with the result that the latter had slumped down the slope. In digging among the loosened rubble, to provide for the erection

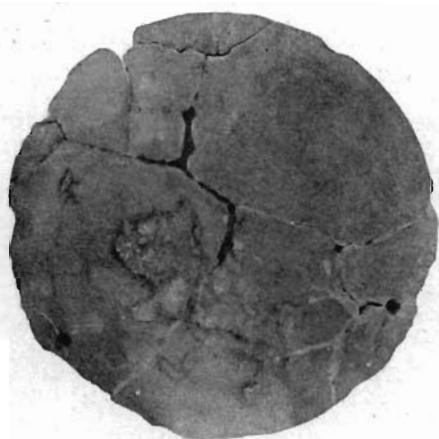


FIG. 115—OBVERSE OF SANDSTONE DISK FROM  
CACHE UNDER NORTHEAST CORNER, TEMPLE OF  
THE WARRIORS

Perforations for suspension visible at lower left  
and right and at center

of a solid foundation upon which to rebuild the collapsed walls, there were found within a short distance of each other nearly all of the fragments of a sandstone disk (fig. 115), 25 cm. in diameter and 1 cm. thick. The disk is a plane on one side. On the other, it is also flat to within 3.1 cm. of the edge, whence it slopes with a slight curve to the margin, where it averages about 30 mm. in thickness. The side with beveled periphery is the front of the disk. It is coated in part with a crust of brown mineral substance. Set back 1.2 cm. from the margin and 18.6 cm. apart, are two conical perforations, 80 mm. in diameter, drilled from the beveled side of the disk. Two more bores of approximately the same dimension appear in the line of a diameter, each 1.7 cm. from the center. On the front of the disk these are



connected by a groove 50 mm. deep. Thus, in effect, these holes and the grooves constitute an eyelet through which a cord might be rove without protruding above the plane of the surface. Therefore, when the surface coating of the disk was intact, the central handle or means of suspension would have been invisible from the side meant to be seen. However, the marginal perforations must have passed entirely through the finish coat. Subsequent experience would indicate that some small objects of jade and shell, which were not recovered, were buried with this disk.

#### NORTHWEST CORNER, TEMPLE OF THE WARRIORS

A second offering was found beneath the northwest corner of the temple when a slot to receive one of the foundation forms was being dug. In the rubble substructure, 45 cm. south of the corner and 30 cm. in from the outer face of the west wall, there was a cavity, 40 cm. deep, 35 cm. wide at the top and 25 cm. in diameter at the bottom. Presumably the loose white earth that partially filled it represented the plaster with which the sides had once been coated. A large, rough stone had been laid over the mouth. In the cavity, with beveled side upward, lay a broken disk (fig. 116), in all but minor detail the duplicate of the one above described. It is 29 cm. in greatest diameter and 1.1 cm. thick. One side is flat; on the other, a perceptible thinning begins about 7.6 cm. from the margin, which becomes more pronounced at 2.5 cm. therefrom, until, at the edge of the stone, the thickness averages about 50 mm. At the center, there is an eyelet like the one previously described. Owing presumably to the softness and fragility of the stone, the edge was never true and regular. However, the scallops and undulations were filled out and hidden by a coating of brown-yellow substance which had completely covered both faces of the disk. The extreme margin, at least, had been painted red on the beveled side.

On the flat side there is a deep, scratched groove running from the center almost to the margin, and another begins near the latter and continues at an angle thence edgeward. These grooves follow the centers of dark brown areas in the yellowish stone where apparently there was sand rather than rock, for which reason the former was scratched out and replaced with the coating material, some of which remains in the slots.

On top of the disk was about a handful of chunks of a brown-yellow mineral substance, apparently the same kind of material that had been used as a coating. In addition, there were two pieces of transparent quartz, evidently broken out of a large crystal, one small tubular bead of jadeite, one tubular bead of deep red shell, and one disk-shaped bead of pinkish shell. Judging from the presence of black-brown grainless mold, there had been among the objects something of organic nature.

Since deposits occurred beneath the northeast and northwest corners of the building, it seemed not improbable that they would be present at the south side also. The area under the southwest corner was prospected with negative result.

No search was made beneath the southeast angle. There, the building corner is near the brink of the unrepaired eastern slope of the hill. The latter is none too firm at best, and it was decided not to risk the settling of the walls by tunneling under them.

The presence of offerings under the Temple of the Warriors, linked with memory of the kiva offerings so commonly found in the Pueblo field, suggested that the making of deposits in structures of religious function might have been a widespread aboriginal practice. Since at Chichen Itzá the altars are foci of the temples, it seemed that deposits might be expected in them. The sculptured dais in the Northwest Colonnade was the first to be inspected, with the result previously

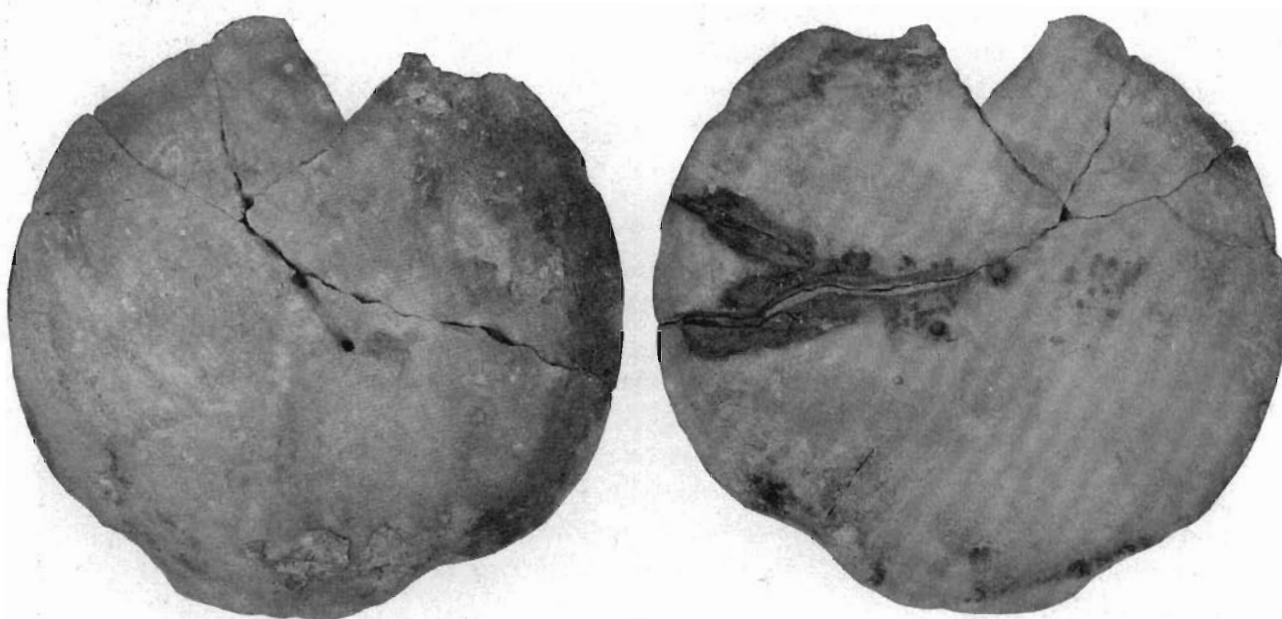


FIG. 116—OBVERSE AND REVERSE OF SANDSTONE DISK FROM CACHE UNDER NORTH WEST CORNER, TEMPLE OF THE WARRIORS

described (page 57). Other altars were examined in the order hereafter mentioned. The secondary dais in the Northwest Colonnade, situated north of the Warriors stairway, yielded nothing at all. The mass of this structure consisted of rough stones carelessly piled with no filling whatever of earth or mortar.

#### DAIS, NORTH COLONNADE

The dais in the North Colonnade proved to consist of the same sort of material handled in the same way. The first pit made in it, extending from the center to the back wall, revealed no offering. Because of the fact that this dais seemed to be a part of the original plan of the building, a second search was made some weeks later and the offering was found 45 cm. southeast of the center of the rectangular mass. There was no crypt or container to enclose the objects. They lay directly upon the surfaced level marking the plane of the floor of the building. Large

jagged rocks had been thrown unceremoniously on top of them. The objects comprising this deposit were 2 sandstone disks, 11 small pieces of jadeite, 4 pinkish shell beads and 3 pieces of shell from broken beads with several surfaces worked.

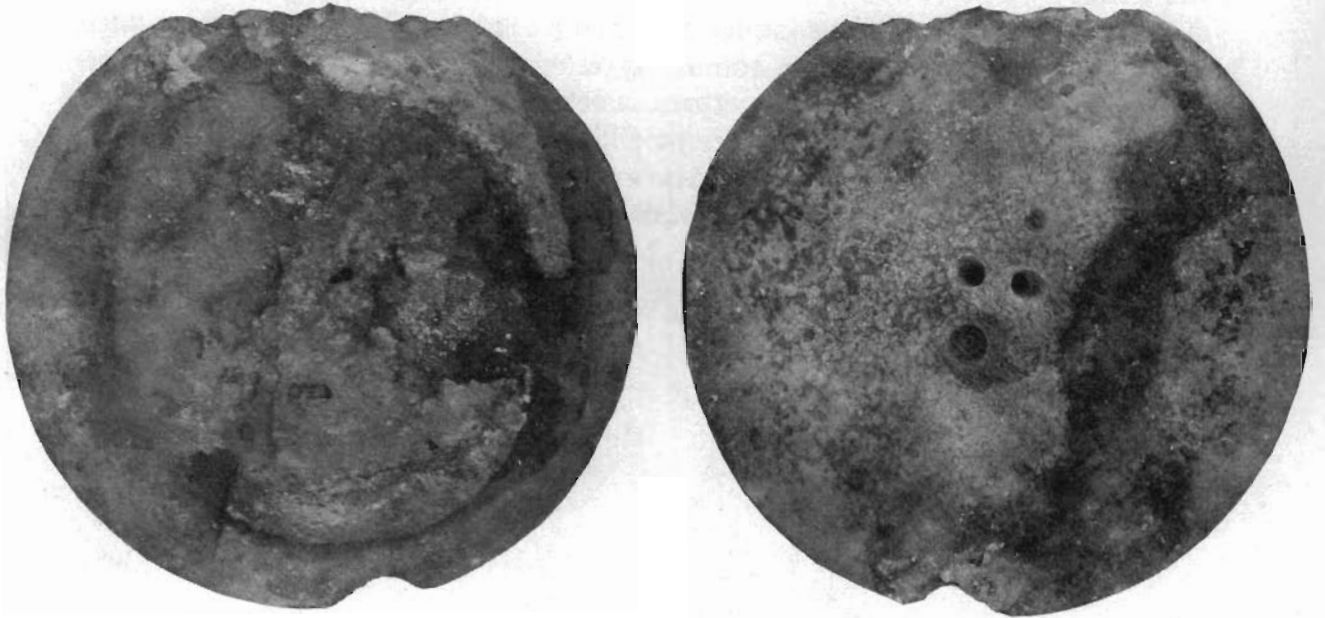


FIG. 117—OBVERSE AND REVERSE, SANDSTONE DISK FROM ALTAR CACHE, NORTH COLONNADE

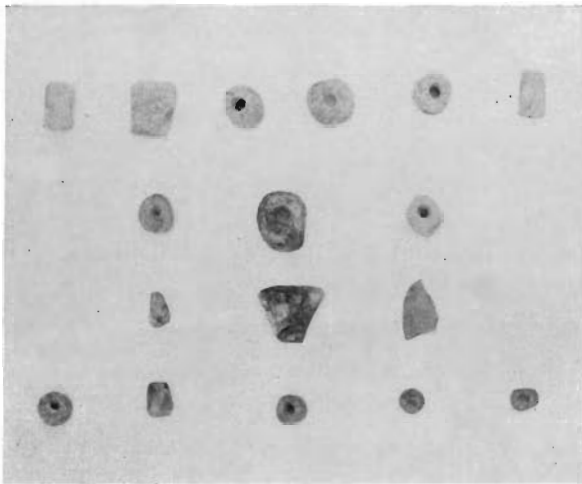


FIG. 118—OBJECTS OF JADEITE AND SHELL, ALTAR, NORTH COLONNADE



FIG. 119—LIMESTONE JAR CONTAINING ALTAR CACHE *IN SITU*, TEMPLE OF THE CHAC MOOL

Shown with surrounding rubble dug away, lid raised, and mouth sealed with paper to protect mosaic plaque beneath

The disks are, in major aspect, identical with the ones previously described. The larger one is 15.9 cm. in diameter and 50 mm. thick. The bevel begins about 1.2 cm. from the margin, at which point the thickness is 24 mm. The surface of

the beveled side is heavily coated with a yellow-brown substance. At the extreme edge this coating begins as scarcely more than a film and continues with increasing thickness a distance of 3 cm. in from the rim, at which point it is full 64 mm. high. Thence, it drops back abruptly to 16 mm. thick. Thus the center is a recessed area, practically 10 cm. in diameter. Obviously, this recess was filled with some substance that has entirely decayed.

At the center of the flat side, there is an eyelet like those in the previously described disks. The first attempt to make the suspension device was abandoned after the conical bores had reached a depth of 50 mm. These were 2.8 cm. apart. Then another pair, placed nearly at right angles to the first and 80 mm. apart, were carried to completion.

The other disk from this deposit was badly shattered and some of its center reduced to dust by a stone lying upon it. In its original condition, it was 11.1 cm. in diameter and 72 mm. thick. On one side there is a very slight bevel toward the margin. The sloping surface had been coated with the same yellow-brown substance found upon all the other disks. The complete disk from this deposit together with the objects of jadeite and shell appear in figures 117 and 118.

#### DAIS, NORTHEAST COLONNADE

The sculptured dais in the Northeast Colonnade, like the one in the Northwest Colonnade, is of stone compactly laid in lime mortar. At the rear center the mass contained a masonry crypt about 60 cm. east and west, 38 cm. wide and 60 cm. deep. It was roofed with two flat slabs of stone placed side by side. In the southeast corner lay a potsherd disk, 6.4 cm. in diameter and about 60 mm. thick; a tubular bead and a globular bead of jadeite, and two crudely worked disks of white shell, 2.54 cm. in diameter, each with a single hole at the center.

One side of the pottery disk bears a partial coating of the inevitable yellow-brown substance. This offering at first seemed a nondescript array to have formed the content of a container so well made. However, there is no way of estimating what the perishable components may have been. The sherd disk itself presumably was but the nucleus of a much larger plaque of wood, copiously adorned.

The crude secondary dais in the small excavated chamber near the Northeast Colonnade contained no offering.

Of five of the massive type altars examined, three contained offerings or signs of the original presence thereof, while two were barren. The three productive ones were comprised within the original plans of the structures in which they occur. The other two were secondary, which may well explain why they contained no deposits.

Since it had been proved that offerings were to be expected in the massive altars, it seemed that they should, with equal likelihood, be accompaniments of those of the Atlantean type, where, with greatest probability, they would have been buried beneath the floor. A trench dug in the east and west axis of the

building, from back to front of the altar in the Temple of the Warriors, yielded nothing. On the assumption that the corner deposits in this structure had taken the place of the altar cache, the sides of the altar area were not investigated.

#### ALTAR, TEMPLE OF THE CHAC MOOL

As previously recorded, the altar in the Temple of the Chac Mool had been completely torn out. However, the position of the door-altar axis of the building was known and this determined where the altar had stood. In the line of this axis, 81 cm. from the rear wall, was found a limestone jar with a recessed stone lid. The rim of the jar was 11 cm. beneath the surfacing of the floor. Allowing for the thickness of the lid, there was slightly less than 7.6 cm. of mortar covering it. The jar is a cylindrical vessel, 36.7 cm. in diameter and 29.2 cm. high. The interior dimensions are: diameter, 24.2 cm.; depth, 19.8 cm. The bottom is slightly concave instead of flat. The jar is well shaped but poorly finished, and of a quality of stone that was commonly used in construction. It would seem not improbable that the cylinder may be a reworked drum from a circular column. The lid, as may be judged from the photograph (fig. 119), is even more carelessly made than the jar. The container had been built into the rubble just as any stone of large size might have been included in the matrix. Hence it is impossible to decide whether it was placed where found while the final layer of the substructure was being built, or whether it was put in a hole dug or left to receive it, and sealed in with mortar of the same character as that used in the adjacent rubble.

When the lid was raised, the bottom of the jar, with the exception of a portion of the southwest quadrant, was seen to be covered with white granular limy earth, wherein lay an appreciable thickness of black-brown organic decay. Protruding through the lime layer were a sub-spherical ball of jadeite and an irregular piece of the same stone, graven to represent a human face, with a globular bead, also of jadeite, at each of what were the upper corners when the object was worn as a breast piece. Scattered about over practically the whole surface, were many shell beads and small bird bones in the area of the brown decay.

Investigation of the white earth was begun with an artist's camel's hair brush. A few strokes with this implement in the northeast quadrant of the field revealed a glint of blue, and a few more proved that a turquoise mosaic covered the bottom of the pot. The earthy matter was brushed into little mounds, then dipped out into a container, to be kept for subsequent examination. It soon became apparent that, owing to the thorough decay of the substance which had served as a backing, the mosaic was in a precarious condition. The individual sections, composing somewhat more than the eastern half of the circle, remained in relative position, suspended above a cavity. On the western side, the sections had given down and the many tiny plates were loosened, one from the other, and somewhat disarticulated. Presumably this was due to the fact that the jar sat at a slight angle, so that any water which reached the interior, collected and remained for a time as a pool in the western half of the circle.

With extreme caution a preliminary cleaning was carried to completion. Then the photograph shown in figure 120 was taken. The quality of the light within the temple was such that a 37-minute exposure with a 16°-aperture was



FIG. 120—INTERIOR OF LIMESTONE JAR AFTER PARTIAL CLEANING, SHOWING SOME ELEMENTS OF MOSAIC PLAQUE AND OBJECTS OF SHELL AND JADEITE WHICH LAY ON TOP OF IT

necessary to obtain a passable negative. After the latter had been developed, the objects resting upon the mosaic were removed, and will be described at this point (see figs. 121, 122).

#### OBJECTS OF JADEITE AND SHELL

The jadeite ball is 3.6 cm. in greatest diameter and 3 cm. in greatest height. It is of good quality, gray-green stone, highly polished. Sr. Don Juan Martinez believes that it is a representative of the type of object known to the Maya priests as *sastun*, and was used by them for purposes of divination.

The jadeite face is a piece of stone of irregular shape, fashioned to conform to the contour of the original flattish pebble. It is 3.8 cm. in greatest width, 2.8 cm. in greatest height, and 96 mm. in greatest thickness, this being at the top edge.

There is a deep vertical groove at the center of the top of the reverse side. Bores from the edges meet this to provide a device for transverse suspension. Six small perforations occur along the lower margin. The carving of the face bespeaks only a fair degree of skill in comparison with the best Maya jade cutting.

The jadeite beads also are pebbles not altogether reduced to uniform contour. They are essentially sub-spherical in shape, the larger being 2 cm. in greatest diameter, the smaller 1.6 cm. In color, the stone varies from a green of medium intensity to gray.

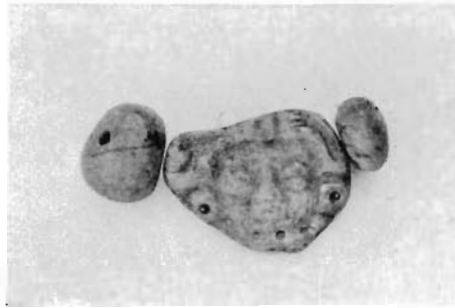


FIG. 121

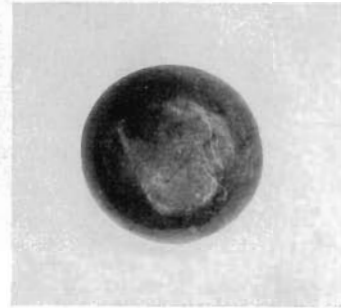


FIG. 122

OBJECTS OF JADEITE FROM ALTAR CACHE, TEMPLE OF THE CHAC MOOL  
Breast medallion representing human face, with globular bead at each side  
as worn, and at right *sastun* used as divining stone

The shell beads number one hundred and were made from some large massive shell, white to pinkish in color. All are in bad condition; the once polished surfaces are eaten away, and, in many cases the substance is deeply pitted by chemical action occasioned by the moisture that collected and at intervals formed a pool within the jar. In shape and size the beads may be classified as follows:

- 1 cylindrical, 1.75 cm. in diameter, 1.12 cm. long.
- 1 cylindrical, 1.75 cm. in diameter, .80 cm. long.
- 1 irregular tubular, 2.8 cm. long.
- 1 lozenge-shaped, 1.75 cm. long.
- 1 lozenge-shaped, 1.6 cm. long.
- 95 disk-shaped, 56 mm. to 1.12 cm. in diameter.

As arranged for wear, these objects formed a necklace. The carved jade was the central medallion. On either side of it was a jade bead, and continuing thence onward in order of decreasing size, came the shell beads.

#### VESTIGES OF TEXTILE

Among the organic decay there was a flake of substance composed of several laminæ, each of which represented a layer of some textile. Rarely did a vestige of one of the individual strands retain a semblance of its form. Originally these strands, which were about 0.75 mm. in diameter, had been composed of tightly

twisted fiber. When viewed with a glass, the fiber seemed too coarse for cotton, but distinctly similar to henequin. The form of the cloth object could not be determined.

#### BIRDS AS PART OF OFFERING

Upon and around the textile, the bones of two birds were scattered. They were for the most part so thoroughly decayed that the slightest movement reduced them to flecks of dust. The few of the larger ones that could be removed were submitted to Dr. A. Wetmore, of the United States National Museum, who reports his findings upon them as follows:

"The bird bones found in the limestone urn containing the plaque of turquoise matrix were in a very fragile condition so that they crumbled at any careless touch. On careful examination it was found that two species of birds were represented.

"The first is a pigmy owl (of the species *Glaucidium brasilianum*; the subspecies *ridgwayi* being found in this region today). This is a very small species, measuring from 140 mm. to 180 mm. in length, but is active and predatory in its habits.

"Among the bones present are fragments of wing and leg bones, making it probable that the entire skeleton was originally present.

"The finch is a species of the genus *Saltator*; which, from the material in hand, it is not practicable to identify specifically, though it is probably *atriceps* as that is the common species in the region of Chichen Itzá today. It is represented by wing bones and part of the skull. It is a species about the size of a chewink or cardinal."

#### THE TURQUOISE MOSAIC; PRELIMINARY TREATMENT

After the removal of the objects which lay upon it, the cleaning of the mosaic was continued until the sections which had not fallen apart were reasonably free of earth and dust. Its condition was pronouncedly disconcerting. So frail were the sections that they seemed but wraiths, ready to vanish at the slightest provocation. One plied the brush with drawn breath and dreaded the possible result of each stroke. The various elements as they lay provided the key for the complete reassemblage of the plaque. Obviously, they must be temporarily solidified and held in their existing condition until the time for the beginning of repair should arrive. To this end, the cleaned surfaces were treated with several coats of ambroid cement diluted to watery consistency. After the evaporation of the solvent, there remained, covering and closely adherent to the whole, a film of tough flexible substance which it was hoped would prevent the warping of the component areas likely to occur as they dried and would bind them in their relative positions. It was certain that the disk could not be taken out of the jar until plans for the work of repair had been thoroughly formulated. Hence, the removal of the urn to field headquarters where laboratory facilities could be provided was obligatory. To do this it was necessary to dig away the matrix surrounding the vessel. Lest crumbs of stone and mortar should fall inside the jar to the injury of the contents, a temporary lid was made as follows: two stiff wires, very slightly longer than the diameter of the cavity, were sprung, placed



within it about 8 cm. below the rim, crossing at right angles, and the pressure upon them released so that the points engaged the rough surfaces and held the wires rigidly in place. These served as supports for a sheet of cardboard, the upturned edges of which were pressed as tightly as possible against the walls of the urn. Then paraffin from a lighted candle was dripped along the juncture so that when it hardened the crack between stone and paper was completely sealed. After the jar had been dug free of the matrix, and before it had been moved, it appeared as shown in figure 119. It was lifted and placed upon a section of board, beneath which ropes were passed and fashioned into a sling by which the container was suspended from a stout pole. By means of the latter it was carried between two



FIG. 123—INTERIOR OF LIMESTONE JAR AFTER REMOVAL OF OBJECTS WHICH LAY UPON MOSAIC PLAQUE AND FURTHER CLEANING OF LATTER

men to the *hacienda*, where it arrived without shock or sudden movement. There, the mosaic was further cleaned and again photographed (fig. 123).

Through the courtesy of the American Museum of Natural History and the good offices of Dr. Clark Wissler, the services of Mr. Shoichi Ichikawa, of the Department of Anthropology of that institution, were secured. Mr. Ichikawa came to Chichen Itzá, repaired the plaque and made the water-color painting of it which is reproduced in the frontispiece. The data covering the work of repair, given in succeeding paragraphs, are taken largely from notes provided by him.

## REPAIR OF THE MOSAIC

After the preliminary cleaning had been completed, the plaque was seen to consist of five concentric areas. The center was a thick disk of yellow-gray sandstone with a slightly pinkish cast. It had been covered with a layer of relatively large dark-brown plates of a substance badly affected by decay. Encircling it was a continuous ring of turquoise mosaic. Thence outward, there had been a broad band which was divided into eight approximately equal panels by radial strips of what appeared to be vegetable substance. Four of the panels were of plain mosaic, but a pattern appeared upon the alternating set. Composing the outer boundary of the paneled zone was a narrow continuous ring of vegetable substance, which had a curved surface, giving it a slight relief. The rim of the object was a mosaic band composed of fourteen petal-shaped divisions. Framing the margin was a narrow line of red.

Although the component divisions of the incrustated layer over the relatively intact portion of the area had settled somewhat from the plane of the central disk, they had not sagged far enough to touch the stone beneath and were, in effect, suspended above a cavity. Somewhat buckled and distorted, they were held together by the very thin film of blackish gum by which they had been made to adhere to the backing.

In the more decayed area, the various sections were broken apart and lay upon and among the decay of what had been the backing, but, although the bits of mosaic were mostly loosened one from the other, the several component divisions of the area exhibited enough of their individuality to make plain that the pattern, evident in the better-conserved portion, had been carried out over the entire plaque.

Each component area was measured as accurately as possible, taking into account the distortion of some of the surfaces, and a plan of the plaque was made of exactly natural size. This was placed in the bottom of a box, made just the size of the paper on which it was drawn.

The surfaces of the relatively intact portions of the mosaic were dusted off and tested for solidity. The areas previously treated with diluted ambroid were found to be satisfactorily firm, but the spots that had not been ambroided were extremely frail and in danger of coming apart. These were at once given a coat of the same cement. When it had hardened, the plates were taken up, one by one, and each laid directly upon the portion of the drawing representing it. Thus the articulated component divisions of the plaque were transferred from the urn to a secondary container and placed in the same relative position.

As the more disintegrated side was examined, wherever two or more bits of stone still held together, they were ambroided and transferred to their respective areas in the box.

Where the articulated plates of incrustation had sheltered it, the brown dust residuum of the decayed wood backing occurred with little admixture of foreign matter. From the curve of the lacquer scales which had continued from a junction with the margin of the turquoise over the rounded edge of the wood on to the

reverse side of the plaque, it was evident that at the rim the wood had been not more than 30 mm. thick. Toward the center it had become progressively thicker. When found, the inner edge of the innermost ring of turquoise rested at the level of the surface of the plates which had been incrustated upon the disk of sandstone. And beneath the latter there was an unbroken layer of organic decay, like that elsewhere present, proving that the sandstone had been set into the wood and had not appeared upon the reverse side of the plaque. The most massive of the remaining central mosaic elements was 21 mm. thick, the sandstone 1 cm. Then, allowing a sufficient thickness to give stability to the wooden film behind these, the plaque must have been at least 1.8 cm. from back to front at center.

Beneath the brown decay, flakes of lacquer were present from center to periphery, showing that the entire reverse side of the plaque had been covered with this brilliant red substance.

After all articulated portions had been transferred to their places on the paper, the loosened mosaic elements visible among the decay were taken up. Thereafter, all other categories of substance were collected and put each in a separate container. The residuum of dust was sifted through cheese cloth for the purpose of collecting every fragment of turquoise it contained.

Some scales of the black cementing material were put into a small quantity of ambroid solvent and dissolved, and as the liquid evaporated the substance was left as a very sticky paste in the bottom of the receptacle. This demonstration that the gum still retained its original properties removed a cause of great anxiety, for it proved that the articulated elements of mosaic could be dealt with as units and that they would not have to be taken apart and reset.

Each composite plate was placed with gummed surface downward upon a sheet of paper moistened with the solvent and enclosed in a box with a tight cover. After a few hours, the gum had absorbed enough of the vapor of the solvent to become slightly flexible. Thereupon, the plate was laid face downward upon a sheet of glass and gradually and carefully pressed flat. The entire area was gently "tamped" to make sure that every individual stone would be forced into contact with the glass to assure a smooth surface. This done, a relatively heavy coat of ambroid was applied over the gum and to this one or more layers of Japanese paper were cemented. The whole was weighted down so that it would dry without warping. After such treatment, each section, with its reinforcement of ambroid and paper, was found to be as tough and substantial as a piece of heavy cardboard. When all had been thus transformed and put back upon their respective places on the chart, detailed horizontal measurements were taken and a new base of thoroughly seasoned Spanish cedar was prepared. All its surfaces were soaked with dilute ambroid to seal the pores against possible absorption of moisture, thereby minimizing the chances of warping or checking. On the side which was to receive the mosaic there was laid down in ambroid a double thickness of cheesecloth, further to protect the wood against checking and also to provide a rough ground upon which to cement the mosaic crust.

The field was laid out to duplicate the chart upon the sheet of paper and, one by one, the strengthened plates of mosaic were transferred from the paper to the wood and cemented to it with ambroid. Thereafter, the detached bits of turquoise were cleaned and freed of the gum which adhered to them, and from them the missing areas of the mosaic were rebuilt, as far as the stones in hand permitted. When these were exhausted, there remained vacant one of the plain sections of the paneled zone and the central part of another. To fill the latter, the fine turquoise chips, sifted from the dust, were pressed into a matrix of ambroid. The other panel was made of plastic substance and scored to simulate mosaic but not to duplicate it in appearance. The original, the rebuilt, and the replaced areas are clearly indicated by the diagram which accompanies the frontispiece. The lack of sufficient turquoise to complete the plaque may be accounted for by the fact that the stones were very thin and many of them of decidedly poor quality, hence quite soft. During the centuries through which the jar remained in the earth, the poorest disintegrated and went to compose some of the dust that the latter contained. Flecks of turquoise could be detected with a glass all through the siftings.

The material composing the radial lines of the paneled zone and the ring bounding it was so thoroughly decayed that only the three pieces indicated in the drawing could be restored to their original positions. The remainder of these features was built up of plastic substance. Upon the central disk of sandstone were reset two of the more intact of the three plates recoverable from the considerable number which had once covered it. The outlines of these were to be seen upon the sandstone, hence there is no doubt that they occupy their original positions. The remainder of the central area was left bare. The coat of red, which was applied to take the place of the original lacquer along the extreme margin of the petals and over the entire back of the plaque, is very close in color tone to the lacquer itself.

#### REPAIRED MOSAIC DESCRIBED

The frontispiece is an extremely faithful reproduction of the plaque as it appeared after the work of repair had been completed. As Mr. Ichikawa stated, "Each stone is a portrait." To secure exact detail and proportion, a rubbing of the plaque was made and transferred by carbon to the final sheet. Then each and every stone was painted in with its individual characteristics and variation in color.

In regard to color, the turquoise and the lacquer surely are what they once were. Whether or not the brown plates of the central area have altered with time can not be determined positively, nor is there as much certainty as would be desirable regarding the radial stripes and the ring with which their extremities merge. As found, the mass of these consisted of a black gum, apparently like that used as a cement for the turquoise, but covering it was a film of some substance, probably a pigment only, which had the color given to the ring and the stripes in restoration. What chemical change and alteration this pigment has

undergone, there is no way of estimating. The eyes of the serpents, although consisting of balls of gum appliqué upon the surface, remained an identifiable red.

The total diameter of the plaque is 22 cm. The central disk is slightly asymmetrical, measuring 6.6 cm. in one diameter and 6.8 cm. in the opposite. The inner ring of mosaic is 96 mm. to 1.12 cm. in width; the paneled zone, 3.62 mm. to 3.77 cm.; the molded ring 6.4 mm. and the petal area, 2.23 cm. The panels at their outer edges vary in width from 4.6 to 5.3 cm. The radial stripes, also, are not of uniform size, the range of variation in width being about 2.3 mm. Throughout most of their length all were of the same color, a lead-brown as given in the restoration; but just inward of their mid-points each was crossed by a transverse band about 56 mm. broad of the same color as the ring which their outer extremities join.

As may be judged from Mr. Ichikawa's cross-section (see frontispiece diagram), it would appear that the surface of the central element was somewhat concave instead of continuing to the center with a slight upward curve as a prolongation of the surrounding areas. However, this may not have been the original condition. The cross-section reveals that the sandstone, when viewed from the side, is more or less crescentic in form. The bottom portion was relatively softer than the top and of a spongy consistency. It was as if the object had absorbed moisture from beneath, causing incipient disintegration, which became progressively less toward the top. A proportionate swelling of the most affected parts would have distorted the upper surface from a plane into a concavity. If this distortion took place after burial, then originally the central element was practically flat, but if the stone were in the same condition when shaped as when found, then in its finished condition it was concave as represented.

As may be seen in the illustration, the inner and outer and four of the component areas of the middle mosaic band are plain, having no other decoration than that produced by the variation in color and quality of the individual stones of which they are composed. In contrast, the four alternating panels of the middle ring bear definite patterns, each being a repetition of the same *motif* with slight and inconsequential variations. The pattern would appear to be a representation of the plumed serpent in profile. Attention was centered upon the head, which is depicted in relatively enormous size. The cavity of the widely opened mouth is boldly emphasized by the black gum with which it is filled. Into this black field two fangs are pendant from the upper jaw. An area of the same black occupies the space between the lower jaw and the one huge claw depicted. The eye is a pellet of gum in relief, painted red. Either three or four feathers, outlined with black gum, drape rearward from the back of the head. The body is rudimentary and foreshortened. It is represented as curled upward and inward beneath the head plumes and downward again back of the head.

The plaque bespeaks a very high degree of craftsmanship, the quality of which compares very favorably with that of the finest specimens of ancient Mexican mosaic, figured by Saville.<sup>1</sup> Most of the component stones are sur-

<sup>1</sup> Saville, 1922.

prisingly small. The tiniest unbroken one observed was 0.53 mm. square, and the largest, only 7.42 mm. Their thinness is astonishing. The most delicate of the disarticulated ones measured 0.26 mm., the thickest, 1.33 mm. In general, the edges were ground with such great precision that stone fits snugly to stone, only a hair-line of cement appearing between them, save where, in the decorated panels, the black of the adhesive was used to outline and to accentuate the design. By count, there are in the plaque in its present condition 2,814 turquoises, so that, with a proportionate number for the vacant areas, there were approximately 3,000 when the object was intact. It would have been next to impossible to have worked the tiny scales individually, especially the softer ones, to such a degree of thinness. Hence, most probably, the stones first were set upon the wood, and afterward the whole area was ground down to a smooth surface.

#### SOURCE OF TURQUOISE

No very satisfactory conclusion can be drawn concerning the source of the turquoise. It is known that at the time of the Conquest turquoise was being brought by trade from what is now the southwestern United States to Central Mexico. However, although no adequate turquoise deposits in Mexico are known to modern man, it seems almost certain that the aborigines were cognizant of sources of it much nearer at hand than the mines in the far north, as is shown in the following abstract from Saville.

“The source of the considerable quantity of turquoise used in Mexico in pre-Spanish times for personal ornaments and mosaic incrustation is still an unsolved problem. Only recently turquoise has been discovered at the silver mines at Bonanza, Zacatecas, but Dr. Kunz, who has called our attention to this, writes that he has no information regarding prehistoric workings there. In the extensive bibliography on the geology of Mexico by Aguilar y Santillan we find only a single entry for turquoise, that being the study of Mexican mosaics in Rome by Pigorini. Pogue writes that there are no important turquoise deposits that do not show signs of prehistoric exploitation, and he is also of the opinion that it is very difficult to trace the source of the turquoise used by the Indians of ancient Mexico and Central America. Pogue’s conclusion is that as no occurrence at all adequate as an important source has been discovered south of the present Mexican boundary, it therefore seems probable that the Aztecs and allied peoples, through trade with tribes to the north, obtained supplies of turquoise from the Cerrillos hills (New Mexico) and perhaps other localities of the Southwest.

“Sahagun is the only early chronicler who affords information concerning this point. He writes explicitly that ‘The Toltecs had discovered the mine of precious stones in Mexico, called *xiuittl*, which are turquoises, which mine, according to the ancients, was in a hill called Xiuhtzone, close to the town of Tepotzotlan (State of Hidalgo).’ We will quote other statements by Sahagun concerning turquoise:

“The turquoise occurs in mines. There are some mines whence more or less fine stones are obtained. Some are bright, clear, and transparent; while others are not . . . *Teoxiuittl* is called turquoise of the gods. No one has a right to possess or use it, but always it must be offered or devoted to a deity. It is a fine stone without any blemish and quite brilliant. It is rare and comes from a distance. There are some that are round and resemble a hazelnut cut in two. These are called *xiuhtomolli* . . . There is another stone, used medicinally, called *xiuhtomoltell*, which is green and white, and very beautiful. Its moistened scrapings are good for febleness and nausea. It is brought from Guatemala and Soconusco (State of Chiapas).

They make beads strung in necklaces for hanging around the neck. . . . There are other stones, called *xixill*; these are low-grade turquoises, flawed and spotted, and are not hard. Some of them are square, and others are of various shapes, and they work with them the mosaic, making crosses, images, and other pieces.'

"If we are to credit Sahagun, turquoise was worked not only in the immediate region of the central Mexican plateau, but they received supplies from distant points, and specifically from Chiapas and Guatemala. The raw material, mentioned in the Tribute Roll of Montezuma as coming from coast towns and from the south, must also be taken into consideration. Hence, notwithstanding the present lack of information respecting the localities where turquoise is to be found *in situ* in central and southern Mexico, we can not reject the opinion that ultimately ancient workings will be found at more than one site in Mexico. We do not believe it necessary to assume that the source of supply of both the Toltecs and the Aztecs, as well as of other tribes, such as the Tarasco, and the Mixtec and Zapotec, which also made use of the material, was the far-distant region of New Mexico. It was formerly asserted by some students that the jadeite of Middle America must have come by trade from China, because no deposits have as yet been found in the former region, but it is now known by chemical analysis that the Middle American jadeite is distinct from that of Asia. In fact, the writer has long held that not alone in one but in at least five different localities, jadeite will in time be discovered."<sup>1</sup>

The great number of mosaic objects recorded in the early lists of loot and tribute from the vicinity of the State of Vera Cruz incline one to believe that somewhere in that general region turquoise occurs in nature. Perhaps the fine blue stones came from as far distant as the Cerrillos veins in New Mexico, but the baser qualities which predominate in most of the mosaics extant may well have been acquired not far from the centers of mosaic manufacture. It does not seem reasonable to suppose that traders would journey more than 1,600 kilometers on foot to return with an inferior quality of merchandise from the land where the best was obtainable. Probably it is with turquoise as with jadeite, that only a rigorous search is necessary to find its sources in Mexico, near the points where its use was most prevalent.

#### ANALYSIS OF MATERIALS

Through the courtesy of Dr. Arthur L. Day, Director of the Geophysical Laboratory of Carnegie Institution, small quantities of the conspicuous inorganic materials from the offerings were identified at the laboratory. The study of them was made by Dr. H. E. Merwin, and the quotations in the following paragraphs are from his report.

*Fragment of smaller disk from Northwest Colonnade altar:* This disk was so nearly ground to pieces by the stones which had lain upon it that a small bit could be spared without damage. The stone composing the several disks and that at the heart of the turquoise plaque seems to be exactly the same, so the identification of this fragment covers all examples of it herein referred to. "This is a friable sandstone, impregnated with jarosite and clay. It was tested by Dr. C. S. Piggot with an exposure of 216 hours, and no radio-active material found."

<sup>1</sup> Saville, 1922, pp. 27-28.

*Yellow-brown mineral substance, which had been used as a coating upon the sandstone disks:* "It is a jarosite-like basic ferric sulfate, possibly containing alkali. With it is fine-grained ferric hydroxide, and upon it tiny gypsum crystals, tinted blue."

*White crystalline substance from the jar which contained the turquoise plaque:* Throughout the earthy matter which covered the plaque there were tiny plates which had the appearance of being composed of slender transverse fibers. In the opinion of the writer, these were formed by the water which found its way into the jar, acting upon the materials which it washed down from the sides. If this view is correct, then they were not an intentional part of the offering. "The white transparent fibers are single crystals of calcite, emplaced upon gypsum and jarosite."

*Fragment of inlay from center of the turquoise plaque:* It has previously been stated that most of the relatively large plates which had been encrusted upon the sandstone center of the plaque had disintegrated to dust. Those remaining are of a dark reddish-brown color, while their surfaces bear evidence of once having carried a very high polish. Concerning the portion of one submitted, Dr. Merwin states: "The structure of the fragment suggests bone, but the material now is largely fibrous hematite with brown clay and jarosite."

It is altogether probable that the Chichen plaque was made in Mexico and brought to Yucatan, since it is a product of an art that greatly flourished in the former locality. True enough, the Maya, to judge from representations of vesture carved in stone, made and wore no small amount of mosaic ornaments, but it is not known that they worked in turquoise.

Depictions of mosaic shields are common enough in the culturally hybrid portions of Chichen. Architecturally, they occur in the façade of the Northeast Colonnade, and what would appear to be the same *motif* is often repeated on the great disks set in both the front and back walls of the North Colonnade. These have the same general division of the field as the turquoise plaque. In both sculptured figures and those appearing in frescos, a shield with the lobed margin, ring and paneled zone occurs very commonly at the back of an elaborate belt or girdle. Breast shields are also common, but none has been noted with similar ornamentations.

Since so few actual vestiges have been found, it would seem that *bona fide* mosaics were not as common at Chichen as sculptured representations would lead one to believe and that probably many false mosaics were in use. Such objects, done in wood or in stucco upon wood and skilfully painted, would have had much the same appearance and would naturally have been much less difficult to manufacture or costly to obtain by barter. That false mosaics did exist is indicated by a statement of Juan Olalde, for more than 30 years mayordomo at Chichen Itzá, that in the dust on the floor of a burial vault opened by E. H. Thompson, some distance east of the *hacienda*, there were a great many small, more or less rectangular plates of fine-grained stucco, painted blue on one surface.



He had no idea what they were at the time, but when he saw the turquoise mosaic he concluded that the bits of plaster must have been portions of an object imitating the same technique.

The colubrine symbol on the plaque is represented with a definite feather head-dress and with a forearm encircled by a bracelet. Evidently the device on the plaque provided the *motif* for the decoration of the interior walls of the temple wherein it was found. Differences of proportion and arrangement are pronounced, but the head-dress, the upturned snout, and the braceleted forearm are basically the same. The plaque would appear to have been a most revered object, and to have provided the inspiration for the building of this temple, dedicated to the worship of a serpent having certain anthropomorphic attributes.

Again thought turns to the sandstone at the center of the plaque. It is a bit of the same kind and quality of material found in four of the five known temple deposits. The altar was the shrine of the temple, and the plaque was the heart of the altar. Presumably its symbolism expressed the essence of the belief of the cult which treasured it. And at the heart of the plaque was the sandstone, sealed from sight, invisible but present, permeating the whole with its mysterious qualities. A thing without beauty, possessing no intrinsic properties to recommend it, nevertheless, it would appear to have been the most sacred object known to the devotees who made of it the nucleus of their temple. Its source is unknown, but it was far distant, since sandstone does not occur in the Yucatan peninsula.

On the basis of the experience thus far gained, it may be stated that some sort of offering is to be expected in every temple in Chichen Itzá. It would also seem that cylindrical stone urns were favorite receptacles for the more pretentious deposits. In the sacristy of the church at Chichen there is a huge vessel of this type, nearly a meter in diameter, which once served as a baptismal font and now is used as a washing vat in the photographic laboratory. Juan Olalde states that it was taken from beneath the north temple of the Ball Court by E. H. Thompson. The finely graven cover still lies upon the temple floor beside the spot where the jar is said to have been unearthed. Another urn, slightly smaller, is being used as a water trough at the custodian's quarters near the Castillo. It was brought from the Temple of the Eagles, where it is supposed to have been exhumed by Le Plongeon. One can but speculate as to the magnificence of the offerings these great jars once contained.

## REPAIR

The most casual comparison of photographs, taken before and after the exploration of the Warriors complex, reveals that a great amount of repair work has been done upon the various structures concerned. To the extent to which the edifices have been re-erected, they have, in major aspect, been put together again from the detached elements recovered from their wreckage during the progress of excavation. Few, indeed, are the new stones that were prepared to fill the places of missing originals. This applies to all of the columns and to the veneer or visible surface of all other features.

In contrast, the rough stone used in the hearting was gathered whence convenience dictated. The source of such material was no more a matter of importance in the work of repair than it was to the Maya overseers, so long as there was a sufficient supply on hand to keep the masons busy. As the huge masses of débris from collapsed superstructures were excavated, the best stone was segregated and piled as close at hand as possible, with the result that there was always a superabundance of crude wall material available.

The stone of the veneered surfaces falls into two classes; sculptured and plain-cut. Obviously, in point of area, the latter is in great predominance. For practical purposes it may be said that every sculptured stone which was replaced was put back in the very spot it previously occupied. This generality holds to the letter in regard to the overturned columns which were set up again, and to all sculptured surfaces where there is not a repetition of the same *motif* within a restricted area. The façade of the upper temple may be cited to illustrate the two conditions here drawn. The serpent shields are definite units, each occurring at a considerable distance from another like element. When once the components of one of these mosaics had been collected from the slope beneath the point in the wall which it formerly occupied, and had been fitted together so that the sculpture matched, there was no possibility of confusion or misplacement. There was one and only one position that a unit of the mosaic could occupy.

The mask panels, whether from the corners or from plane surfaces, represent a diametrically opposite condition. Each panel is composed of three masks, one above the other, all alike in essential respects. When the round hundred stones composing one of these panels were found, some in a heap at the foot of the wall, others scattered about on the terrace, and still others intermingled with the débris from the terrace level to the surface, it was utterly impossible to determine to which of the three masks an individual stone pertained. Each of the three masks could be laid out in proper order without undue difficulty, but it is probable that in some of the panels, stones originally occupying positions in all of the three masks were reassembled in one of them. Of course, absolute precision would have been desirable, but when the corresponding features were so nearly identical that they were interchangeable without detectable alteration of the masks concerned, it seemed far better to rebuild the panels than to leave blank spaces in the walls where they had been. Otherwise, the finished temple would have lacked one of its most important features, and, in addition, the elements of the sculpture would eventually have become scattered and lost.

All ordinary wall blocks and those from cornices and moldings as well are here classed as plain-faced stone. The cornice and molding units possess more individuality than the ordinary blocks because they were cut to a definite shape with at least one fixed dimension. Nevertheless, they have no distinctive characteristic to indicate their point of occurrence in the horizontal courses of which they were parts.

Wherever plain veneer was found merely loosened from its hearting or slumped in such a way that the exact relationship of the stones was evident

beyond possibility of error, the blocks were marked, taken down, and later replaced in their exact relative positions. Beyond that point, identical replacement could not go. All veneered expanses, of which no portions remained even relatively *in situ*, were built up of stones from the débris which should have contained the blocks from the areas in question, without thought or pretense of returning them to their exact previous positions. Take, for instance, the east half of the north slope of the pyramid. The talus contained all of the faced stones from the second, third and fourth sloping elements; a few from the first element, and a good many from the temple itself; also, the component blocks of at least seven vertically faced molding courses. With rare exception, it was beyond human capability to decide to which of the elements a particular stone belonged. Hence, from the mass available, the masons selected those which were best adapted to the space being filled at the moment. Therefore, while all of the veneer in the rebuilt areas is of archæological stone originally present in some portion of the structure, the individual blocks are not, with few and undeterminable exceptions, in their original positions. But this fact does not in the least change or mar the reproduction of original appearance and effect.

For practically every structural element replaced, there remained some diagnostic portion or vestige of the original to reveal the dimensions and character thereof. To emphasize this point, let us pass in brief review over the features upon which the most extensive repair was done. No stones were missing from those portions of the basal terrace of the Temple of the Warriors now visible, and only the few that had become loosened had to be reset. Of the sloping element of the first compound zone, some three-fourths of the north exposure and all of the south, except a few stones at the extreme east end, remained firm and unmoved. The bevel of the faces indicated one sure angle of slope for the cornerstones and these were reset on the assumption that the slope of the element was the same on the east side of the pyramid as on the north and south. The long tapering blocks that form the cornerpieces are the originals, for they were found but slightly moved from their positions (fig. 124).

Of the first sculptured band, the northwest corner block and a few stones reaching eastward therefrom were *in situ*, and more than half of this band was in perfect condition on the south side of the hill. Again, all that was necessary was to fit together the recovered components and put them in place. The recessed corner blocks at the northeast and southeast corners may or may not have belonged to this band. Three were found at each corner. The most massive were used in the lowest band and those of least weight saved for the topmost in order to lessen the labor of getting them in place.

The second battered element was intact throughout the western half of the south exposure, and some portions of the west end of the north side were not wholly collapsed. The cornerstone of that extremity had been pushed so that its top leaned to the west, but the bevel of the north face was undisturbed (fig. 124). Thus all necessary data for completion of the element were provided. The only

point that can be questioned is the bevel given to the east faces of the northeast and southwest cornerstones. These were set with the same inclination upon that exposure as they were known to have had, respectively, on their north and south faces.

The key to the replacement of the second sculptured band was provided by the long expanse of it found at the west end of the south side leaning forward from its base, therefore practically *in situ* (see page 108). This band had no specially



FIG. 124—*CUL-DE-SAC* BETWEEN PYRAMID OF WARRIORS AND NORTH COLONNADE SEEN FROM EAST

Intact portions of first sloping element on north side are visible, as well as late stairway at end of cut. At right center appears east end of *in situ* part of second sloping element.



FIG. 125—CORNER STONES FROM NORTHWEST CORNER WARRIORS PYRAMID AS FOUND IN DEBRIS ABOVE NORTHWEST COLONNADE

*a*, corner of second sloping element, *in situ*; *b*, *c*, corner pieces of molding courses; *d*, recessed corner block, second sculptured band; *e*, corner block, third sloping element.

shaped terminal blocks at the northwest and southwest corners, for the reason that at these extremities it joined the back wall of the Northwest Colonnade just above the spring of the vault and was not brought through to the exposed face thereof. There is a break in the second band on the north side where a window was set to admit light to the stair shaft of the under temple.

Much of the third sloping element was in place, both north and south of the stairway across the west side of the pyramid, and the third sculptured band was perfectly preserved on the same side, where its extremities continued beneath the hearing of the stairway. The stumps of the fourth battered element remained

at the points of junction with the sides of the stairway, and, surmounting the northern one, was a block of the nether molding of the fourth vertical element. Thus up to and including this molding, the key for replacement was provided by portions *in situ* of the various features involved. As stated (see page 38), for want of empirical evidence the fourth vertical element was provided only with a backing and not surfaced at any point.

Of the temple itself, the basal battered zone was intact across the south and west sides; along the western two-thirds of the north side, and the southern half of the east side. Throughout these distances, the lower cornice or apron course was also in place. Upon this, at the southwest corner, was the jaw of a mask, and at the center and the southeast corner the bottom stones of the mask panels were also in relative position. And midway between the corners and the center, above the points at which the stones of the serpent shields were recovered, one tall course of faced blocks was leaning forward from the backing from which it had become loosened, showing that, as on the front, there had been a plain band beneath the shield.

Across the front, some portions of each panel of sculpture were found, either wholly *in situ* or tipped forward only slightly from the vertical. On the north side, no sculpture was in place except portions of the lowest mask at the west end. However, at the foot of the wall were found components of duplicates of the panels upon the south side, the placement of which was known. Hence, obviously, the division of the field and the arrangement of its ornamentation had been the same.

The south and west walls of the temple were carried to a height which included the nether member of the medial cornice. Of this no vestige remained in position. However, a three-member medial cornice is a type feature of the class of buildings of which the one in question is an example, and the blocks of all three courses of such a cornice were found among the *débris*. The height at which the cornice occurred was indicated by the altitude of the mask panels. Since these began directly upon the lower cornice, there would have been no plain band left between their upper limits and the medial cornice.

In the Northwest Colonnade, and at all other points where replacement work has been done, the same general lines of reasoning provided the basis for repair. Hence, it would seem fruitless to go into detail concerning each and every feature of the several structures. Every step in the process of replacement was based upon extant portions of the structural element in question, or upon definite evidence secured from the occurrence, position and relation of fallen components among the *débris*. It is not claimed that the replacement is exact to the centimeter; minor differences in dimensions may have crept in here and there. However, such deviations from the original as may exist do not alter in the slightest the effect either of the architectural masses or of their ornamentation and detail. In the files of Carnegie Institution of Washington, there is a photographic record which shows, in detail, the portions of the various structures which have been rebuilt, and clearly indicates the few points where it was necessary to substitute newly cut blocks for missing originals.



FIG. 126—REPAIRING NORTH SIDE OF PYRAMID

Masons near at hand are replacing final course of second sloping element, while those beyond are finishing backing for second sculptured band

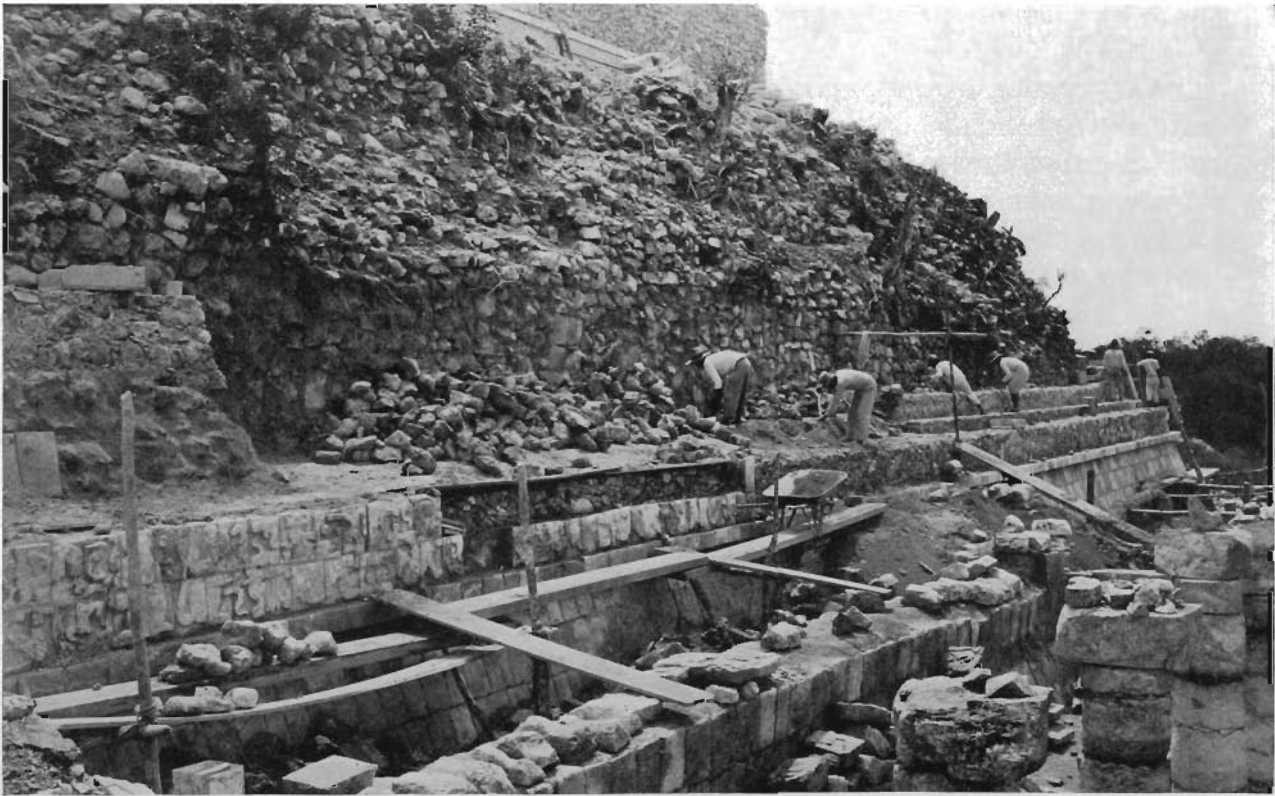


FIG. 127—REPAIRING SOUTH SIDE OF PYRAMID

Masons are replacing backing for third sloping element

During repair, the aim was to unite the masses into as solid and as substantial masonry as the material used would permit (figs. 126, 127). The first step toward this end was to take down all walls that were riven by root action, settling, or partial collapse. All hearting material that was loose or disintegrated was removed and the whole built back again. Special attention always was paid to obtaining a firm union between new and old masonry. For the most part, the mortar used was of lime, burned in the neighboring forest and mixed with white earth, which is the Yucatecan substitute for sand, in the proportion of one of lime to two of earth. However, in the replacement of the sculptured mosaics and in all places where unusual stress was to be borne, Portland cement mortar was used instead of lime. The mixture varied from one to three to one to six, depending on the quality of a particular cement and the degree of strength desired.

Since there is no natural gravel in Yucatan, nor sand, except the limy dust at the seashores, the use of concrete is beset with some difficulties. Crushed stone can be purchased in Mérida, and also ground stone of sandy fineness. However, owing to the gritless quality of all the limestone, this powder is little better than the white earth that can be dug at Chichen. And it was found that a local gravel substitute, in the form of rock broken by hand, could be obtained more cheaply than crushed stone could be brought from the capital. Hence, no imported materials, other than cement and iron for reinforcement, were used in making all concrete used at the Temple of the Warriors. The standard mixture was 1:2:4, although at a very few points of special stress it was richened to 1.5:2:4.

## MATERIALS AND METHODS OF CONSTRUCTION

Observation of the crumbled portions of a considerable number of buildings, and the partial dissection of some of the *in situ* features, provides one with the basis for a moderate familiarity with the builder's art, as practised in Yucatan a few centuries before the Spanish invasion. Although many details are lacking, the *résumé* that can be given may seem worth while to those interested in the problems that were met and the technique employed by the ancient architects.

### PREPARING THE SITE

Obviously, the first step toward the erection of an original structure consisted in the reclaiming or preparation of the site. The forest had to be cleared, if that had not previously been done to fit the plot in question for agricultural use.

In any case, the terrain was rough and uneven, its surface consisting for the most part of stone, much of it loose and broken, but some in the form of ledges. The high points were dug down and their bulk cast into the depressions until a fairly uniform level had been attained.

In general, there was much more filling than reduction of high places, because it was less difficult to bring in loose surface stone, even from a distance, than to work into movable size compact ledges or rock masses. The more nearly original

any filled area is, the larger the stones to be found in it because these are the pieces of country rock that were on the spot and the first material to be gotten rid of in the process of leveling. Thus, beneath the West Colonnade and deep under the plaza north of the House of the Phalli, in Old Chichen, there are numerous pieces so massive that a block and tackle was needed to get them out of test pits dug therein.

Over the confines of the yard or court that was to surround the proposed structure, the top of the first-made level was carefully chinked with small stones to provide a fairly smooth base or grouting for the reception of the ultimate coating of tamped and troweled lime mortar.

### THE SUBSTRUCTURE

The substructure for the building was not always prepared in the same way. In some instances, notably that of the West Colonnade, the bounding walls were raised and the space within them filled with rough rock, dry laid, so that the interstices remained entirely open. Apparently this was done only when the substructure was to be very low. As opposed to this, the platform beneath the south part of the Northwest Colonnade is very compactly built of stone and a good quality of mortar. Midway between these two extremes, stands the foundation of what, in preceding pages, has been styled the Demolished Colonnade. There the fill is of fairly large stones without mortar, but well chinked with chips and pebbles.

Substructures of the tall or pyramidal class seem to have been built after one general plan. The core was raised before the shell or veneer was applied. The mass was erected, a sheet at a time, after the block or unit system, elsewhere described in detail (page 146). The faces were probably intended to be vertical, but they have the slight inward inclination always given to free-built block boundaries. At the proper intervals of height, the core mass was set back to allow for the width of the terraces, if such were to occur.

### THE FACED VENEER

In the application of the veneer, which usually was not begun until after the completion of the core, the cornerstones were set and the face courses lined in between them. With only occasional exceptions, the cornerstones are disproportionately tall, as for instance in the sloping elements of the Warriors Pyramid and temple, wherein a single long, handsomely wrought, pencil-like block spans the entire height of each. There is no reason to doubt that the modern Maya mason sets his face courses as did his progenitors in the craft. Two lines are used, one at the top and one at the bottom of the course. Each stone is placed on end and driven with a setting-ball until it fails to touch both cords just sufficiently to leave them free of pressure and consequent distortion. The setting-ball is shaped like a wooden potato masher, and is made from a section of a thick limb, cut tapering at one end so that it can be gripped conveniently by the hand.



Where a stone would be askew if allowed to rest directly on the one beneath, the deficient corner is raised to proper position by driving in a thin, wedgelike spall. Then, after all blocks forming the course have been placed, the vertical joints are driven full of spalls, until the stones are wedged so tightly that it is difficult to pry one out without moving several of those surrounding it. This wedging or chinking was practised by the ancient as much as by the modern masons. In the finest masonry, it was seldom necessary, because of the relatively careful hewing of the blocks, but few are the walls that do not show occasional instances of it. It would seem that chinking, even of very narrow cracks between courses, was a practise of very wide distribution among the house-building aborigines. Whether it could be traced consistently northward through Mexico, the writer is not in a position to say, but it is conspicuously present in Pueblo ruins of the Great Period in the Southwest.

After a face course had been set, the space between the backs of the stones composing it and the existing face of the core was filled. No provision was made for bonding between the main mass of hearting and the skin of secondary backing. Behind the compound zones of the Warriors Pyramid this feature was triangular in cross-section and of varying thickness owing to the failure to align carefully the block faces of the core. Here and there the top stones of a sloping element would rest practically against the core, while at other points they were as much as 60 cm. distant therefrom.

When a substructure had reached its intended height, the top was leveled off with mortar and troweled down to the smoothness of a floor. This provided a sort of drawing-board surface upon which the building proper could be laid out. On it the cornerstones and the jambstones, where such were to occur, were set. Then between them, one by one, the faced courses, inner and outer, were lined and secured in position, after which the hearting was filled in. The walls always were raised just one course at a time. Usually, the outside face courses were kept to a fairly uniform height. While the inner courses have by no means a hit or miss arrangement, the individual stones are much more irregular than those in the outside faces. However, at the level of the spring of the vault the inner face was brought to a uniform height and finished off with troweled mortar.

#### LACK OF FOUNDATIONS

Despite the proportionately tremendous weight they were to bear, the columns were not provided with especially strong foundations, but, like the walls, were bedded upon the common mass of the substructure. The column blocks, shaped at the quarry to a semblance of rectangular form, scarcely ever have their bed plane at right angles to the faces. Consequently, after each individual block had been gotten into place it had to be pried up at certain edges until its various faces were as nearly plumb as possible. Then the crack beneath it was wedged completely full of mortar and spalls. Instances have been observed where, due to the faulty

cutting of a block along one edge, its nether surface would rest immediately upon the stone beneath, while at the opposite edge the crack between the two was 6 cm. wide.

### THE VAULTS

After the columns had reached their final height, the wooden beams could be swung into position. Until this had been completed, no particularly complicated structural situation had been encountered. But with the beginning of the vault, in most cases a decidedly ticklish procedure was at hand, which needed a clear understanding of the principles of balance and a meticulous observance of plan for its successful accomplishment. When both legs of a vault were bedded upon substantial masonry walls, its construction was comparatively simple. The stones with inclined faces, which were the components of each course, could be laid without particular risk of collapse so long as the tenons were weighted down with stones which were well bonded into the wall core, and that core raised to the full height of the course in question before another was begun on top of it. But when the rib dividing two vaults was bedded upon timbers, the extremities of which rested upon the tops of columns, the condition was little short of precarious. Here a widely flaring wedge-shaped bulk of masonry was being erected, its blunt tip balanced upon a base averaging about one-fourth the width of the butt of the wedge when the latter reached completion. The two sides would have to be raised synchronously with the greatest care never to permit one to get much ahead of the other, else of a certainty the mass would have overturned toward the heavier side.

Presumably, above the colonnades, as in the wall-supported vaults still extant, timbers were now and then set across the spans, their tips embedded in the masonry of the opposite sides. Holmes suggests that these were braces to lessen the probability of collapse of the vault during construction.<sup>1</sup> Certainly they would have contributed to stability in vaults resting upon walls and would have been of some slight value in the colonnades, but there their chief contribution would have been to impart the thrust to a neighboring balanced mass so that if one were to topple, it would have thrown the others down at the same time. A much more effective device for preventing movement during the building of the vaults would have been the use of strong diagonal transverse braces, extending from the bases of one file of columns to the tops of a parallel row. If securely wedged, such temporary supports would have made it impossible for the columns to have kicked out sidewise beneath a poorly balanced load. When one visualizes a rib of masonry 91.40 meters in length, as was the case in the North and West Colonnades, balanced upon a row of slender round columns that were not even monolithic in character, one can but regard this type of construction as one of the boldest architectural experiments ever attempted. Surely architects and masons alike must have sighed with relief when at last capstones were laid to bind rib to rib. The opinion has been current, as expressed by Spinden, that forms were used in vault construc-

<sup>1</sup>Holmes, 1895, vol. I, page 49.

tion.<sup>1</sup> Although a most natural assumption, this is an error. Even the specialized shape of the vault stones shows that they were cut in such proportion that gravity would hold them in desired position, with no supports whatever for their faces, until bonding elements could be built about and upon their tenons. Where portions of vaults *in situ* have been examined, there was evidence that close attention had been paid to the consolidation of the face and core as construction progressed. The backing of each course was brought to the full height thereof and smoothed to a level surface *before* the next course was begun. Not infrequently, there was so little eventual union between succeeding courses that it would appear that an appreciable interval of time elapsed between the completion of one and the beginning of the next. By thus allowing the mortar to set and harden, the overhanging masonry was materially strengthened against collapse.

While, seemingly, the vertical walls were always raised a complete course at a time, as has been indicated, this procedure was not invariably followed from the spring of the vault upward. Usually the entablature was to bear most of the sculptured ornamentation of the building. Such an area would seem to have been regarded as a field for the application of mosaic, and was so treated, at least in some of the buildings. The Temple of the Three Lintels, in Old Chichen, provides one instance. Therein the vaults and the backing for them were completed before the sculpture was applied. This backing was set in about 30 cm. from the margin of the upper member of the medial cornice, and was carried up, not vertically, but with a slight inward bevel. The face of it was smoothed and pointed, so that it offered no opportunity of bonding with the backing of the mosaic facing as the latter was erected. Perhaps the thickening of the secondary backing toward the top was intentional. In cross-section, the effect was that of an inverted right-angled triangle resting upon its apex. This unit would function as a mass, with its center of gravity lying considerably back of the bearing point of its down-turned apex. Thus any tendency of the more or less vertical sculptured face to topple outward was offset by the heavy counter weight which rested against the massive backing of the vault where the hypotenuse of the triangle lay against it. Clever as this device appears from one point of view, nevertheless it provided a distinct element of structural weakness because there was no bonding between the two elements. In consequence, there was a ready-made cleavage plane across each exposure of the building, and once rain and roots found their way into it, the sculptured zone was thrown outward in great sections which fell without breaking apart.

Above the capstones of the vaults, the roof was made surprisingly massive, in some cases this final element having been from 75 to 90 cm. in thickness. The reason is not clear. Perhaps the only purpose was to give the desired height to the superstructure, or it may have been considered that the huge rigid layer would hold and bind the vaults in position.

<sup>1</sup> Spinden, 1913, page 109.

## ROOF MATERIALS

Material for the roof was carefully selected and manipulated. It consisted of very rich mortar containing but few small stones and in the final finish of rich mortar alone. This mass was tamped and pounded until it was so compact that after setting it was of almost stony consistency. The whole object was to make it so nearly non-porous that rain-water could not soak through it. With the long-troweled, highly polished finish given to its surface, it was water tight, as is amply proved by the present day "*material*" roofs so commonly used in Yucatan. Although supported by timber joists, and never so carefully made as the ancient ones, these are satisfactorily impervious.

To judge from the Castillo, the roof was given enough pitch from the center toward the sides, to cause rapid run off. No ancient building is sufficiently intact to reveal drainage provisions at the roof margins. However, it may be ventured that just back of the tips of the coping blocks, the surface was cupped to provide a channel which would conduct the accumulated water to points at which were set stone troughs, jutting outward far enough to throw the descending streams beyond the foot of the wall. At any rate, fragments of stone troughs that could have fulfilled such a function are scattered about the city.

The platforms and terraces sloped downward from wall foot to margin, so that eventually the water found its way to the courts at ground level, and in the paved surfaces apertures were left at strategic points, through which it might disappear into the innumerable cavities between the loose stones of the original fill. In order that the drain mouths might not be pitfalls, each one large enough to be dangerous was covered with a grill, fashioned, as were the elaborate roof ornaments, from a single slab of stone, set flush with the surrounding pavement. One of these may still be seen near the south end of the Ball Court.

Frequently, if not generally, buildings were plastered before their interior fittings were put in place. This was notably the case in the Temple of the Chac Mool. There the walls had been neatly finished in natural white, down to floor level. Subsequently, the architect sketched in black the lines of the contour of the bench that was to flank the south and part of the east wall.

## LACK OF LEVELING INSTRUMENTS

It is doubtful if the Chichen masons relied upon any other leveling instrument than the human eye. Rarely, if ever, does a platform, terrace, floor or cornice represent a true horizontal. For instance, the molding courses on the south side of the Warriors Pyramid are about 30 cm. lower at the east than at the west end, and the floor of the Northwest Colonnade slopes upward for a distance, then falls, then rises again. Such deviations are everywhere to be observed. If they knew a formula by which to lay off a right angle, they seldom used it, at least with precision. Every corner that has been measured is either somewhat more or somewhat less than 90°. They were familiar with the line and the plumb-bob, and used them with

pleasing skill. In vertical aspect, the corners are handsomely aligned and the long horizontal courses, most conspicuously the moldings and cornices, run straight and true from corner to corner, even though the latter occur at different levels. Without the line, such accuracy would have been impossible of attainment.

Of the minor tools we know far too little. One can imagine the brown workmen scooping and scraping mortar about with potsherds, pieces of gourd shell and wooden paddles. In the southern of the two columns of the Temple of the Warriors which had to be taken down while the room beneath was excavated, stone chips, inserted as wedges, had prevented one of the blocks from touching the mortar at the center of the one beneath. The mortar plainly showed the long wiping strokes with which it had been spread. The implement had been about 5 cm. wide and had a rough edge, such as might have been present on the end of a stick or paddle broken across the grain.

For finishing plastered surfaces, there can be little doubt that a wooden tool was used. Several of the masons employed upon the repair work explained that when they were apprentices, the "masters" still used polishing tools made from one of several of the very hard woods of the country. These were described as having varied from one to two spans in length, from 5 to 8 cm. in thickness and as having had a width such as could conveniently be gripped by the hand. They were more difficult to handle than a steel trowel, but when plied by one familiar with their manipulation could produce as smooth and lustrous a finish as the quality of the mortar would permit.

Hammers and chisels will be touched upon elsewhere.

It would be of marked interest to know what units of measurement were employed. There can be no doubt that some set standards were recognized. It is possible that were one to take a very long series of measurements of structures, and the individual features thereof, and find common divisors for them, the original units and their multiples would be discovered.

Although the craft at Chichen Itzá had carried the art of masonry construction to a very high level, they failed to recognize, or at least to apply, two basic principles, the lack of which greatly weakened their work. They utterly disregarded the breaking of joints. Often, block after block was put one directly above the other with no overlapping upon those at either side. Thus the effect is as if the face were composed of vertical panels. The suggestion has been made by Holmes that the wall faces were regarded as nothing more than decorative mosaics, hence were not depended upon for strength, nor expected to bear much of the strain of the building.<sup>1</sup> Thus the wall cores would have been the functional portions. These cores, in every respect save their more irregular faces, are of exactly the same character as the "*mampostería*" walls that are the standard type of modern Yucatecan masonry.

The second great oversight of the Chichen masons was their failure to bond the face courses to the hearting. Cornice elements are positively the only header

<sup>1</sup> Holmes, 1895, vol. 1.

courses which occur, and when the cornices are composed of more than one member, only the lower one is deeply tenoned into the wall, its strength being depended upon to bear the weight of all jutting features above it. Thus, in the most customary type of façade there would be only three header courses in the total height thereof; the lower cornice and the nether members, respectively, of the medial and upper cornices. And in vertical interior walls, that is, in the expanses from floor level to the spring of the vaults, there were no bonding devices whatever. In many cases, however, a fairly deeply inserted string course occurs beneath the first vault stones, providing a relatively stable bed-plane for them.

The utter failure to bond the corners has greatly hastened the collapse of many buildings. Everywhere this condition is conspicuously apparent. Each angle of the Castillo pyramid, more than 30.50 meters in length, is composed of a single row of blocks piled one on top of the other without a single bond. Here, such procedure is somewhat less surprising because of the retreating angle, but the same lack of cohesion is present in the vertical corners of the buildings themselves and in the nearly vertical ones of the substructures, notably that of the Monjas.

In the whole matter of bonding veneer to core, there seems to have been a progressive degeneration. At Quirigua, the only Old Empire site wherein the writer has studied wall construction, the face stones are long and deeply tenoned. Each one is shaped like half a Vienna loaf of bread, divided transversely, the cut surface composing a part of the wall face. At Chichen Itzá, the older buildings are the most substantially constructed. For instance in the Monjas and the Akatzib, both face and cornerstones reach fairly deeply into the hearting, whereas, in the later buildings in the north end of the city, conversely, the veneer is a mere skin appliquéd against the core. To illustrate this, another homely simile may be employed. Each stone is like the top crust sliced horizontally from an ordinary loaf and stood on end in the wall with cut surface outermost. In conformity with this technical retrogression, the face stones of the Temple of the Chac Mool reach rather deeply into the matrix behind them, while those of the Warriors compose a veneer, thin to the extreme.

#### TOOLS OF THE STONE CUTTERS

Stone cutters at Chichen Itzá seem to have possessed an extremely limited range of tools, and representatives of the types that they did know and employ are surprisingly scarce. To one who has excavated in other fields, it seems incredible that such tremendous masses of man-made débris as have been handled in and about the Warriors could fail to yield quantities of lost and discarded implements and other minor artifacts. But the fact is that very few of any sort have come to light, and a number of those to be described and figured were found elsewhere in the city. It is probable that work in some of the old quarries would be rewarded by a large series of implements, but it is doubtful, in the writer's opinion, if the range of types would be greatly amplified.

It is really superfluous to say that all of the stone cutting was done without metal. Gold and copper were the only metals known to the pre-Columbian Yucatecans, and points or blades of copper would have been utterly useless for the working of stone. Moreover, all tool marks plainly indicate that they resulted from the impact of stone upon stone. In the collection thus far gathered at Chichen, three definite types of stone-worker's tools are in evidence. The most primitive and most prevalent type is the pecking stone. This tool is certainly of very ancient origin, and must have had an extremely wide distribution. Except for difference of material, examples from Chichen might have been picked up at any one of a thousand ruins in Arizona or New Mexico without raising comment. To fashion such a tool, a more or less spherical or globular pebble or boulder was selected, and along one side of it spalls were struck off both toward the left and toward the

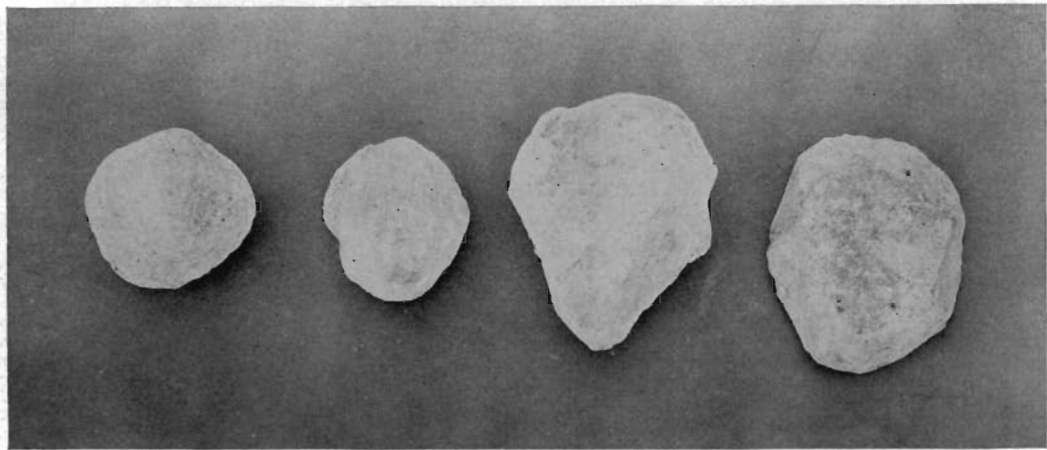


FIG. 128—HAND HAMMERS OR PECKING STONES

This type of implement is of wide distribution. It is figured by Holmes from the quarries at Mitla, and is plentiful at sites of all periods in the Southwestern United States

right until a rough jagged edge had been produced. The opposite side retained its original smoothness, so that it could comfortably be grasped in the hand. Thus held, it was, in effect, a hafted pick or chisel, the arm constituting a flexible helve and the sharp edges the cutting points. These pecking stones are nodules of the low-grade, creamy-white flint that occurs in some strata of the native limestone. As the result of long wear, the objects were finally abraded to almost spherical form, after which they were usually thrown away. Figure 128 presents a characteristic series. The smallest is 6.8 cm. in diameter and weighs 0.57 kilograms; the largest is 13 cm. long and weighs 1.50 kilograms. A score or more of such tools were found, built into the fill where the stair shaft was sunk in the north side of the Warriors Pyramid.

Several grooved hammers were taken from the same area. A typical assortment of four of these appears in figure 129. They also are of local flint or especially hard limestone and are miserably crude. However, there would have been no

object in expending upon them more than the minimum of effort for they are so brittle that they must have broken to pieces almost as rapidly as the stone upon which they were used. The smallest of those figured is 13.6 cm. long and weighs 0.85 kilograms, while the largest is 19.2 cm. long and weighs 2.32 kilograms.

The third type of implement is the celt, four of which appear in figure 130. The range of lengths is from 4.9 to 9.8 cm. The material is a greenish to black dioritic stone that does not occur locally. Such blades were not used solely for work upon stone; very frequently in sculpture they are depicted set in elaborate hafts as blades of war axes, sometimes singly, sometimes in pairs. One of jadeite, finely polished, must have been for more special function, but some of the ordinary ones show breakage at the bit that would scarcely have resulted

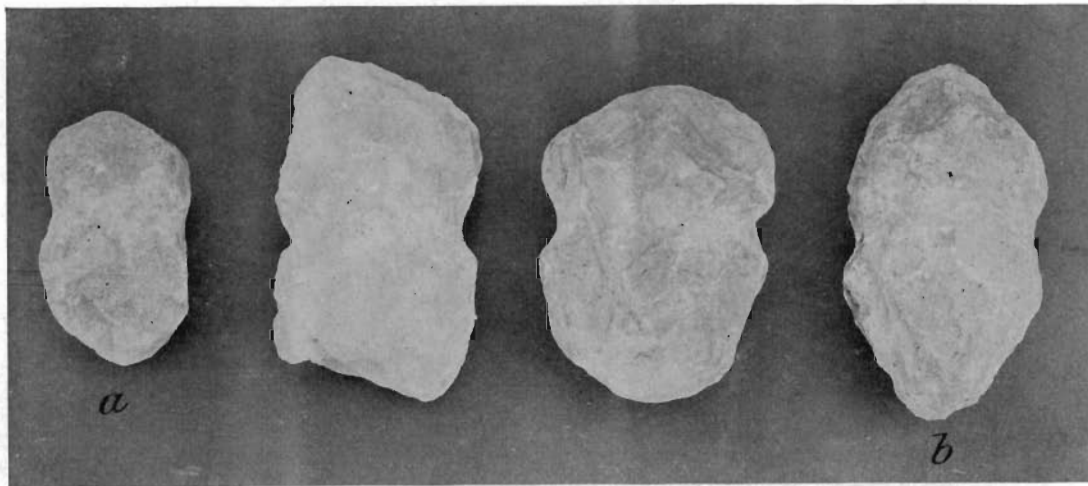


FIG. 129—GROOVED HAMMERS

The smallest, *a*, weighs 0.85 kilograms; the largest, *b*, 2.32 kilograms

from impact upon flesh and bone. The stone is both very hard and very tough. In complete specimens the bit has been ground to a good keen edge and the ground surfaces have been highly polished. While obviously such small heads would have been of little use as spalling or hewing tools, they would have been distinctly serviceable for a more special function, as will be pointed out later.

None of the hammers recovered to date seems of sufficient weight to have imparted the powerful shock that was necessary to strike off the large spalls that were removed from many of the building blocks during the process of their reduction. This is particularly apparent on the boot-shaped vault stones. Where they were narrowed, as at the ankle of the boot, flakes as much as 20 cm. long, 5 cm. thick and 15 cm. or more in width, often were riven at a single blow. It seems likely that for such work, very heavy hammer stones were used; probably they were flinty boulders, not hafted, but held in both hands.



Spalls and chips of the local flint and of the hardest limestone, without further shaping, would have done good service as graving tools. They would have worn out rapidly, but since there was an unlimited supply at hand, this fact would have been of no consequence. That spalls so used have not been identified is due to the tendency of most of the limestone to break into thin chips with knifelike edges. Tens of thousands of these chips were used as chinking in the mortar, and

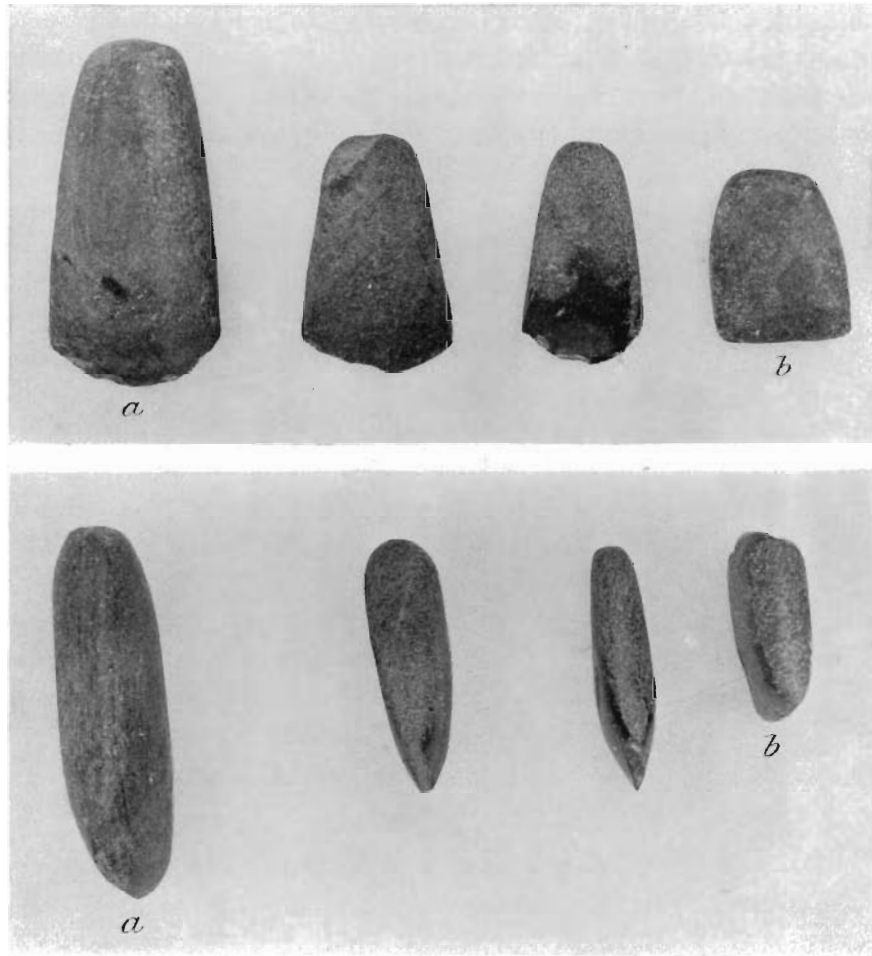


FIG. 130—STONE CELTS, SHOWING WIDTH AND THICKNESS

The largest is 9.80 cm. long, the smallest is 4.87 cm.

the edges break in such a characterless way that it would be extremely difficult to decide which are naturally fractured and which owe their form to use.

While it may seem a fantastic notion, the writer suspects that wood may have been used to some extent in stone-working at Chichen Itzá. Surfaces were reduced by pecking, but for smoothing them and for deepening and smoothing incised lines, first graven with a sharp spall, a blade or point of such wood as *cholul* could have been more or less effective. De Landa mentions *cholul* wood as being hard

as a beef bone, and states that native swords and daggers were made of it. Were the limestone tough or abrasive, wooden blades could have had no particular effect upon it, but since it flakes most readily and is absolutely gritless, they would have been fairly serviceable for the purposes suggested.

#### SOURCES OF BUILDING STONE

Sources of building stone were present on every hand. The strata lie horizontally bedded and vary from mere laminæ to several feet in thickness. Those most used constitute the cap rock of the neighborhood. The stone is massive, with no tendency toward cleavage planes in any direction. Two points of attack were chosen. In some instances, the quarrymen dug into the slopes of the natural sinks or dead *cenotes* to obtain the already loosened material resulting from the breaking down of the original pit walls. Doubtless, from such places came most of the shapeless stone used in substructures and for hearting in general, to judge from the fact that the bulk of such material is fresh and light colored, instead of the deep gray that results from surface exposure. Occasionally, however, stones from the surface were used and some of them show the blackening of bush fires; and some bear the deep red stain of *kancab*, the ocherlike earth that underlies the vegetable mold in all swales or depressions.

Knolls seem to have offered the favorite location for quarries. The quarrymen would work into these from one side and then break down the ledge faces in all directions until the crest of the eminence had been transformed into a crater. It would appear that they undercut a stratum by mining out the softer material beneath, until the blocks outlined by the irregular joint planes could be pried down and forward. Practically never do the natural blocks approach rectangular form. For the shaping of ordinary wall stones it would seem that the blocks were broken to pieces as best they could be, with a tremendous amount of wastage. The increments were examined with reference to the largest plain surface that could be produced with a minimum of labor, then abraded by pecking until they were practically flat. As a last step, came the trimming of the edges to produce an approximately rectangular outline for the faced surface. Evidently the plain wall material for a particular building often was cut to specification. The general uniformity of course height is an evidence of this, and the variation in average size of the blocks of different structures serves as a further confirmation. For instance, the units in the Temple of the Tigers are relatively enormous; those in the Temple of the Chac Mool were quite small, and those in the Warriors, intermediate between the two.

#### STANDARDIZED FORM OF STRUCTURAL UNITS

The shapes of the component blocks for the various structural and ornamental elements were so standardized that, after a familiarity with them has been established, one can pick out practically any worked stone from the *débris* and tell at a glance to what division of the walls it belonged. Thus the components of single

cornices, and the nether members of other cornices, have very long tenons, while the upper members, although they may have the same face bevel, are relatively short. Central cornice elements have tenons also, but relatively short ones, and are dressed to a uniform vertical thickness, and at top and bottom they are tooled for a distance back from the face margins. Vault stones, invariably, are shaped like a boot with the toe pointed downward, so that the sole or portion visible when in the wall forms considerably more than a right angle with the leg.

The capstones of the vaults usually are natural slabs from a thin stratum of very hard stone, trimmed at the sides to fit closely together. This sort of stone is extremely scarce and has not been observed *in situ*.

Coping stones were fashioned after the plan of the ones in the vault, but are proportionately much taller and better faced; and they have shorter tenons for the reason that they leaned only at a slight bevel, hence needed less counter weight to balance them in position. Coping corners are made in the same way, except that they have two beveled faces at right angles to each other, and are hollowed out behind.

Blocks for vertical corners are double faced, usually much greater in height than in breadth, and cornerpieces for sloping zones are long pencil-like stones tapering gracefully from base to tip.

The vast majority of even the most carefully cut stones bespeak the lack of an instrument equivalent to the square for the determination of angles. Rarely, if ever, does a corner block constitute a 90° angle, and the ordinary face stones that were intended to be rectangular evidently were laid off only with the eye. However, there is an occasional surface the components of which are accurately and beautifully shaped. Perhaps the southwest corner of the platform immediately beneath the floor level of the Monjas, visible where a later addition to the substructure has caved away, is the most excellent example. Here, the faces of the stones are true planes and the joints meet as neatly as if the blocks had been cut with a saw. This again is a relatively ancient wall, which fact tends to strengthen the assumption that in later times the builder's art entered a period of progressive decadence.

#### LARGE STONES SELDOM USED

It is noticeable that in general very large blocks were not used, except where some structural consideration made their presence particularly desirable. The ordinary face stones are rarely larger than 35.5 by 50.8 cm., and in the hearting one seldom sees a rock that a strong man could not carry. However, in cornerstones, corner members of molding courses, and column blocks, masses occur that would not have been easy to bring from the quarries. The component blocks of the bottom course of the five-member cornice of the Caracol and many of the blocks of the cornice of its substructure are relatively tremendous. The largest single stones in the city are the serpents' heads in front of the Temple of the Tigers. The latter weigh not far from 7.25 metric tons each. To have transported such blocks from the spot where they were carved, without wheeled vehicles or beasts of

burden, was a formidable task, but certain it is that it was done. It is altogether probable that rollers were used in horizontal movement, mere sections of tree trunks being adequate for such a purpose. The raising of the blocks was the real problem. This must have been accomplished by the use of ropes and man power. A people as far advanced as were the Maya may be expected to have known as close an approach to the pulley as a line passed over a smooth pole, but surely they had no more complicated mechanical devices than this. Much as one admires the successful placing of the largest stones at Chichen Itzá, such accomplishment was far surpassed in Old Empire days, as at Quirigua, where the largest stela, quarried at least 4.80 kilometers from its point of erection, weighs not less than 45 metric tons.

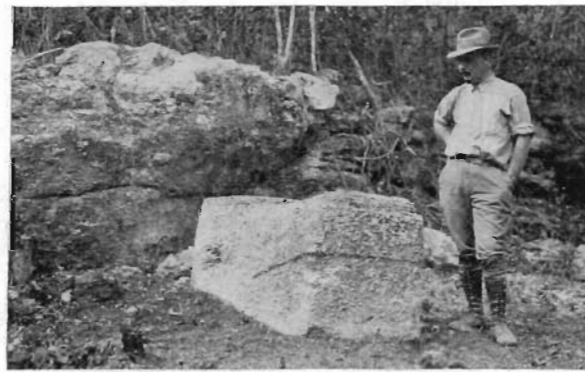


FIG. 131—HALF-FINISHED HEAD OF SERPENT COLUMN  
IN QUARRY



FIG. 132—PARTIALLY WROUGHT BLOCK AT QUARRY, SOME 3 MILES EAST OF VILLAGE OF PISTE  
Presumably block *a* was secured from the ledge *b*; closer view of block at right

Sawing of stone seems not to have been as commonly practised at Chichen as it was at Palenque.<sup>1</sup> That this variant of technique was occasionally employed is shown by certain of the fret-like roof ornaments. The portions that were to be removed from enclosed areas of these flat slabs were surrounded by slots cut in from both sides until the grooves met near the center of the stone. The sides of such grooves are smooth, showing that a back-and-forth motion was used. In

<sup>1</sup> Holmes, 1895, p. 198, fig. 62.

fact, surfaces produced in this way, whether in actual manufacture or in sculptured detail, are the only examples of what might be called architectural stone polishing to be observed. A few stones have been picked up that showed unmistakable marks of metal implements. Such marks were made by those who were shaping material from the ruins for use in modern buildings. That a great deal of post-Spanish stone robbing has gone on may be confirmed by an examination of the walls of the Chichen *hacienda* buildings, and of the church and various other structures in the neighboring village of Piste.

Channeling to divide large masses or to free a block of desired size from the ledge, as has been described by Holmes, has not been observed at Chichen, although an extended examination of quarries might reveal it. It must be assumed that most frequently for column blocks and the larger pieces, such as serpents' heads and tails, huge irregular masses were reduced to the desired dimensions by the slow process of abrasion. However, in a quarry situated westward of the south end of the Ball Court there lies, at the foot of a ledge, a large serpent head, half wrought (fig. 131), which is smooth and regular enough on its vertical exposure to suggest that the block in question was channeled off from it. Since weathering has been sufficient to obliterate all tool marks that may have been present, the point cannot be definitely settled.

#### CLASSES OF SCULPTURE CARVED *IN SITU*

Obviously, all sculptured columns, pilasters, and door jambs now in original position were carved *in situ*. The blocks fail so uniformly to have their vertical faces at an angle of 90° to the bed plane that, had they been graven before they were put in place, the wedging apart of many of the joints necessary to bring their faces as nearly as possible into the vertical plane, would have produced much more distortion of the component parts of the figures than is evident in the sculpture. After the shafts were raised and presumably after the roof was closed, so that there would be no danger to the embellished surface from falling objects, the sculptor plied his trade. The fact that column faces in the darkest corners are carelessly graven, in some case the lines being only rudimentary, strengthens the assumption that the work was done after the roof had been completed.

Whether from his sketched model the sculptor drew the design upon the column face with pigment or an incised line, is not subject to empirical proof. Be that as it may, once the field was laid off, the methods by which the work was done are evident. Narrow grooves, such as those which delineate the plumes of a head-dress, were made principally by pecking with a well-controlled slender point such as would occur upon a thin spall. The final smoothing was accomplished by drawing a hard object, V-shaped in cross-section, such as one of the celts of standard form, back and forth with a sawing motion. Recessed areas were lowered by abrasion with a pecking stone, thousands of the marks of which are still in evidence. Extremely delicate carving, like that upon the bases of the columns of the lower chamber of the Temple of the Tigers, was done almost entirely by the scratching technique.

Across the joints of the columns and where there were flaws in the stone, the design was continued out by stucco modeling, so effectively done that when completed the columns had the appearance of being monolithic.

#### MOSAIC SCULPTURE CUT BEFORE PLACEMENT IN WALLS

Mosaic sculpture, however, was not carved *in situ*. The individual stones were prepared elsewhere and brought to the masons, ready to be put in the wall. Such elements as the curved snouts, the tenoned serpent jaws, and the human heads within the latter, had of necessity to be shaped beforehand, but several bits of evidence show that mosaic bas-relief in general was prepared before the blocks were set. For instance, in a mask found in position at the west end of the Northeast Colonnade, one of the eyebrows was upside down. A stupid mason could easily have made such a mistake, but a sculptor would not have carved an element in inverted presentation. Again, in the stub of the sculptured band which was found intact beneath the south side of the Warriors stairway, one of the stones had been set upside down. Also, in the same band on the north side of the stair, two stones were separated by 10 cm. of chinking in order that the carving which did not cross from one to the other might connect with that upon contiguous stones, of which it was a continuation.

The most convincing proof of all is to be observed some 150 meters northwest of the Temple of the Tables. On the level terrace, there lies, in horizontal position, a mosaic panel about 1.83 meters wide and more than 15 meters long. Trees have grown up through it; some of the stones are broken by fire and some are missing, yet the *motifs* and composition of the design are clearly apparent. There are two files of human figures, beautifully carved in relatively high relief, and between them twines an elaborate depiction of the feathered serpent. A few meters to the northward is the brink of a dead *cenote*, the ledges exposed in the slope of which probably served as the quarry whence the blocks for the mosaic were obtained. Clearly, we have here a considerable portion of the decoration for an imposing building that was never carried to completion. It may have been intended for the structure lying north of the Warriors Pyramid and back of the Temple of the Tables. At that point there is a large mound of rough hearting material with no faced masonry visible on any of its slopes. A trench cut into the southeast corner showed the paved level of the base plane of the Warriors Pyramid extending beneath the rubble, but no bounding walls. This hill may be a substructure that never reached completion, or conversely it may be the remnant of one of which a great portion was torn down and the stone used elsewhere, perhaps in the Pyramid of the Warriors itself.

#### QUANTITY OF WOOD USED BY CHICHEN BUILDERS

One great realm of activity of the Maya builders is likely to fail to impress one. Huge masses of stone remain as an eloquent testimonial of the labor that the gathering and shaping cost, but the wood that formed an important feature of the

ancient structures has, with rare exception, decayed and left no visible traces of its presence. Nevertheless, a vast forest was felled, and contributed its substance in one way or another to the temples at Chichen. A minimum of sixty-five hewn beams, averaging about 2.75 meters in length, served as the support of the superstructure of the Warriors Temple. Only the hardest woods, such as *zapote*, *cholul*, *chacte* and *jabin*, were capable of sustaining the weight these beams were called upon to bear. And these varieties of timber, obviously, were the most difficult to cut and shape. It would have cost fully as much labor to fell a tree of suitable size and to square it into a beam, as it would to have hewn a beam of stone of the same dimensions. There was less bulk to remove, but the toughness of the wood fiber made work upon it with stone tools particularly tedious. And one must realize that a great many of the beams were not only hewn but elaborately sculptured. In the latter lay the real test of skill. A blow of a point upon stone sent most of the loosened substance flying in small chips, leaving only a minor residuum of dust that could be blown or brushed off and forgotten, but a similar blow upon wood merely frayed a few stringy fibers that must be cut or torn away before they ceased to be obstacles. It was necessary to remove them most carefully, lest they follow the grain into some area that it was desired to leave in relief. Constant attention and precision of movement were prerequisites to successful accomplishment of the task. The transverse cutting of the grain with flint spalls, and the picking out of longitudinal fibers with a point, presumably of bone, must have been the dominant features of the wood graver's technique.

However, such methods would not produce initially as clean a surface as would an incision with a steel blade. Under the circumstances, smoothness of the lines would have been obtained by scouring and rubbing, which would have been a slow procedure without a local supply of abrasive stone or gritty sand. Weeks would have passed in the graving of a single log, and all the while the wood would have been becoming more seasoned and commensurately tough.

In addition to the timber forming structural elements of the buildings, a considerable amount would have been used incidentally for props, scaffolding and ladders. But these two general uses of wood account only for a minute fraction of the total that was consumed. Burning of the lime for mortar and plaster called for a quantity of fuel, staggering in its immensity.

#### LIME BURNING

The Yucatecan method of producing lime at the present time is an ancestral heritage that has come down through the centuries with practically no change, except the substitution of steel for stone tools. Hence, a detailed description will not be amiss, for it will recast with close fidelity the procedure followed in this particular ramification of the building trade in the days before the Conquest. No sort of kiln or oven is used, perhaps because the only stone available is limestone, kiln walls of which would be destroyed by fire. Nor is there earth suitable

for the making of mud walls, nor clay banks deep enough to permit the excavation of ovens in them.

The lime burner selects a spot where there is mature forest in close proximity to outcrops of the proper quality of stone. An area slightly larger than the intended size of the mass to be erected is thoroughly cleared of vegetation and leveled. At the center, a straight post, about 2.75 meters high and 13 to 20 cm. in diameter, is set upright. About it a circle of the desired diameter of the projected *calera* is laid off upon the ground. This marks the periphery of the cylindrical heap that is to be constructed. The neighboring timber is felled and cut into proper lengths. The larger trunks are laid as radii of the circle and between them, also in radial position, the limbs and shorter pieces are placed as close together as possible. Slender limbs are hacked up into chips which are then crowded into the cracks between the poles until these are completely filled. Thus, course by course (fig. 133), the pile is carried upward to a uniform height of little more or less than 2 meters (fig. 134). Owing to the extreme care used in chinking the crevices, the result is a cylinder of wood as compact and solid as it could be made. Only the hard woods of the forest are used, and no dead timber whatever. The work is done as rapidly as possible, so that the minimum of drying will take place, because the greener the wood the greater the heat of its combustion.

Next, stone of the relatively soft creamy-white variety most favored is broken up into small pieces grading in size from one's fist downward. These are carefully piled on top of the wood until they constitute a layer about 50 cm. thick at the margins and 75 cm. at the center. From this mass, dust and minute particles are excluded in order that there may be no choking of the draft between the component flakes.

A windless day is chosen for the firing. The upright post is withdrawn from the center, leaving in its stead a cylindrical hole. Into this, ignited material is dropped. In the old days it consisted of a mass of burning charcoal; now, kerosene or gasoline is preferred when obtainable. Dry chips are thrown in, a bottle of the liquid poured down upon them, with finally a match or some flaming substance to set it off (fig. 135). The tube serves as a chimney and the air readily sucks in through the crevices of the wood mass so that a strong draft is soon set up. As the flame grows, dry chips and wood are thrown down on top of it until it is evident that the green wood of the heap has ignited. For a time, a heavy volume of dense smoke pours upward (fig. 136) but, once the fire is well started, it burns with a pale blue, intensely hot flame. The aim is that combustion shall proceed from the center outward in all directions with equal speed. Owing to the inward rush of the draft, this takes place rather slowly so that the wood at the center is well burned before that toward the rim of the circle has ignited. Thus the top of the heap becomes funnel-shaped so that, as the wood bulk shrinks, the stone layer caves down and inward toward the center where the heat is most intense.

A well-constructed *calera* seldom goes wrong in firing, if a wind does not rise. It is watched day and night and should some portion threaten to buckle outward, it is propped in position with diagonal braces, the butts of which are bedded in





FIG. 133—CYLINDER OF WOOD FOR LIME BURNING,  
HALF BUILT



FIG. 134—COMPLETED CYLINDER OF WOOD FOR  
LIME BURNING



FIG. 135—CYLINDER OF WOOD SURMOUNTED BY  
BROKEN STONE, READY FOR FIRING



FIG. 136—LIME HEAP BURNING



FIG. 137—LIME HEAP AFTER BURNING

the ground. A breeze, should it spring up, retards combustion on the side of approach and drives the flame through to the opposite side. As far as possible, this is prevented by the hanging of wet sacks, or whatever is available, against the windward wall.

Normally a *calera* 5.50 meters in diameter will burn down in from 24 to 30 hours. Preferably the lime is not touched until it has been thoroughly slacked by dew and rain. Gradually, what seemed but an insignificant little mound (fig. 137) swells to a dome of fluffy white powder of five or six times its original bulk. The powder can then be used, but the masons who take most pride in their work do not like to prepare mortar from lime less than a year old. This is especially true if plastering is to be done, for plaster made from fresh lime will check and crack, due, probably, to the fact that the last stages of slacking take place after it has been put on the wall.

#### SAND SUBSTITUTE

The *sascab*, or white earth, which is mixed with lime, as sand would be where the latter is obtainable, lies beneath the cap rock of the country. It is a sort of breccia or conglomerate, which appears to consist of the residuum of harder particles, left from strata beaten to pieces by the waves and laid down again as sea-floor deposits, which never became thoroughly reconsolidated to the consistency of stone. The whole region around Chichen is full of caves where it was dug. In the slopes of dead *cenotes*, where lateral access to beds of it was possible, and more frequently beneath spots where the cap rock had been removed by quarrying, entries were opened and driven sometimes a considerable distance underground, but apparently never beyond the limit to which light could penetrate from the mouth of the pit. No system whatever was followed. The miners burrowed about wherever the digging was easiest, without leaving any system of pillars or roof supports. The breast was beaten down and the loose material thus obtained was separated into the coarser, more gravel-like portion, which was tossed to one side as waste, and the finer, which was carried to the point where it was to be used.

The largest *sascab* cave observed lies between the Castillo and the Xtoloc Cenote. In it about 200 persons could have found shelter. In some parts of it the earth had been removed to a depth of 6 meters. While clearing away the waste from the foot of some of the breasts in this cave, in order to dig earth for the repair work, a few skeletons were found, accompanied by pottery which showed that the interments were made while the city was inhabited. It has not been determined how prevalent was the custom of cave burial.

#### MORTAR PROPORTIONS

For ordinary wall construction, the most favored mixture at the present time is one of lime to three of *sascab*, but for a particularly strong mixture two parts of earth are used to one of lime. In ancient times, the proportions varied according to the class of work in hand. In some of the massive substructures a very lean mortar of about four to one was used; and in the most substantial walls, such as

those of the Temple of the Chac Mool, the mixture would appear to have been about one and one-half to one.

To prepare mortar, the masons' helpers measure out the two ingredients in the desired quantity and pour them in a heap on the ground. The mass is turned with a shovel until it is fairly well mixed, always being thrown to the center so that it forms a peaked cone. Then it is spread and hollowed into the shape of a crater. Into this water is poured and the whole stirred until it is fairly moist. In this condition it is left until needed. Bit by bit, the edges are sliced down, remoistened and thoroughly mixed, then carried to the mason's mortar box.

The better workmen of today say that the mortar now used is not nearly as good as it could be made. In the old days, when there was less hurry, the "*maestros*" took great pains in its preparation. It was thoroughly stirred and remoistened once a day for two weeks, or longer, if needed for floor or roof construction. These latter features, which astound one with their hardness, considering that the cementing material is only lime, owe their peculiar quality to two things. They were tamped for hours on end with wooden mauls, until they were poreless and compact as stone. Moreover, a special liquid was used for remoistening the surface paste as it was being tamped and finally troweled. The bark of the *chocom* tree was stripped off and put to soak in vats. After standing for a number of days, the water had drawn enough of the soluble chemical from the bark to fulfill the intended function. Lime, moistened with it, takes a magnificent polish under the trowel and is practically impervious to water. It turns a bright red and does not check upon exposure to the sun.

#### VOLUME OF MATERIALS

It is quite impossible to form an adequate conception of the amount of labor expended in the construction of one of the ancient buildings. The builders faced the material environment, equipped only with determination and their naked hands. From tree and rock they were called upon to shape the few crude tools they knew how to fashion, and with these they hacked and beat the face of nature into a materialization of the images cast by the lens of imagination upon the curtain of their minds. We can think only in terms of processes dependent upon the use of metal tools, explosives and mechanical means of transportation. Hence, we have no approach by which to judge of the magnitude of the task involved in any given unit of construction, under the conditions operative at the time of its erection. Nevertheless, a somewhat detailed consideration of the quantity of materials employed in a specific instance will be illuminating.

Let us take the Temple of the Warriors and its substructure, considered as if standing as a unit, free of contact and of conflict with other buildings. Thus it will be necessary to project a symmetrical completion of the western face of the pyramid. The bulk of the masonry found in the stairway is approximately sufficient to fill out the first and second compound zones, not present on that expanse because of the existing adjustment with the back of the Northwest Colonnade. Hence, the

mass of the pyramid will be calculated as if it were finished in the same way on all four sides with no allowance for a stair ramp.

Thus considered, there were in the substructure 13,987 cubic meters of masonry and in the building itself an additional 2,018 cubic meters or a total for the structure of 16,005 cubic meters. The approximate room space of the temple was 2,032 cubic meters. Thus the ratio of room space to masonry was approximately 1:8.

It may be permissible to play a trifle with some of these figures. Trautwine allows a weight of 150 pounds per cubic foot for limestone rubble masonry (5,297 pounds per cubic meter). Pyramid and temple then weighed 84,778,485 pounds (38,455 metric tons). This mass is the equivalent of a wall 1 meter wide and 1 meter high and 16 km. long. Assuming that a man can carry, on the average, 100 pounds, it would have required 847,784 man-loads to have moved its mass. If sources were nearby so that a burden bearer could make three round trips per hour, upon the basis of a ten-hour day the mere transportation of the prepared material would have occupied 100 men for 282 days. This was but the simplest part of the whole undertaking, for the elaboration of the material was proportionately slow and tedious in the extreme.

The veneer of the pyramid and the inside and outside shells of the temple contained, in round numbers, 31,337 plain faced stones, including moldings and cornices and some 3,688 sculptured stones. This estimate accounts for the carved blocks up to the medial cornice, but not for the elements that were included in the entablature, the decoration of which could not be reassembled.

For rubble masonry, Trautwine estimates that one-fourth to one-third of the bulk consists of mortar. Using the lower figure, there would have been 4,000 cubic meters of mortar in the total structure. Let us assume that one-fourth of the latter bulk, 1,000 cubic meters, consisted of lime. An average lime heap, 5.48 meters in diameter, is expected to yield 200 *cargas* of lime powder. Each *carga* contains about 0.056 cubic meters, giving a total of 11.33 cubic meters for the *calera*. On this basis of calculation, the product of 88 lime heaps was consumed in the construction of the Temple of the Warriors. For the burning of each 5.48-meter *calera*, 11.9 cords of wood is necessary. Therefore, aside from all structural timber, about 1,050 cords of wood (3,804 cubic meters) contributed their substance to the architectural unit in question. And this unit constitutes but a minute fraction of the total bulk of masonry at Chichen. Due to the fact that a great proportion of the surrounding country must have been kept deforested to permit the raising of corn, the time must have come when it was necessary to go many kilometers to find the mature timber necessary for the firing of lime. This fact is borne out by the statements of natives to the effect that after clearing land for corn fields as much as 24 km. distant, they find here and there the little heaps of flinty waste left from the *caleras* of the ancients.

The mind wearies of groping for the definite significance of such measures of number and quantity as have been given. They reveal an expenditure of human effort colossal in its proportions. Surely, such tremendous undertakings could not

have been carried out except by the utilization of forced labor. To have heaped up the great cluster of temples now visible at Chichen Itzá, and the even greater number which were razed and obliterated by the aborigines themselves, one must conclude that throughout the centuries during which this construction took place, a whole populace was beneath the yoke serving, in one way or another, the building trade. Nor can there be doubt that the yoke galled the hearts and souls of those upon whom it rested most heavily, and these were, of course, the common masses. In this very condition may well have lain the principal factor responsible for the lapse of Maya culture, previous to the Conquest.

While presumably the existing order was accepted philosophically enough as long as it was in full momentum, it needed only such a conspiracy of events as the series of hurricanes, crop failures and epidemics, which took place shortly prior to 1520, to disrupt the mechanism of enforcement which had long operated with undoubted vigor. When once the human beasts of burden found it possible to scatter into the forest, where they had to labor only enough to provide their own sustenance, they would not have been slow to improve the opportunity. Thereafter, not enough time had elapsed before the coming of the Spaniards to permit another generation of rulers to perfect anew a juggernaut wherewith to wring from the masses such a tribute of life and labor as previously had been devoted to the edification of the gods.

From data recorded in the preceding text, Professor Kenneth Conant has made the architectural restoration of the Temple of the Warriors and the Northwest Colonnade shown in Plate 27. The impinging buildings, namely the West and North Colonnades, are represented in their ruined condition. In mass, proportion and major detail, this restoration faithfully depicts the gross features of the original. In the great composite structure we behold an edifice of stately beauty and imposing dignity that is a convincing testimonial to the architectural fruitfulness of its hybrid ancestry. The sections which are to follow, dealing specifically with bas-relief and mural painting, go far toward filling out the details of decoration and symbolic embellishment. But, at best, time is the victor. The most complete picture that we can reassemble is as if projected from an old film, spotted and blurred with age. No precedent exists whereby, even in imagination, the barbaric magnificence of Chichen Itzá in the days of its zenith, can be adequately recast. The whole surrounding country was as carefully tended as a garden. Acres of red pavement shimmered beneath an incandescent sun, which was reflected in dazzling brilliance from the milk-white temple walls, whereon were hung, like gaudy tapestries, bands and panels of sculpture resplendent with color of pure and vivid tone. The whole was an aggregation of superlatives, stunning in intensity. We can visualize the scene as an ant hill aswarm with workmen—bringers of water, lime and earth, bearers of stone and timber—all seething toward an eminence from which, under the skilled hands of the masons, a temple was taking form. The air would be filled with the din of hammers from the quarries, punctuated by shouts of the overseers. Or again, the same expanse is equally

congested with humanity, but now motionless as stones, waiting in awed silence for the emergence from some temple door, of a devotional procession, the priests decked in all the colorful splendor afforded by birds of the air, shells of the sea, dyes of the forest, and rare stones mined from the earth. Certainly we owe high respect to the intelligence and capacity of the group thus gathered in the holy place which they themselves conceived and wrung from nature at the cost of incalculable labor; to priest and warrior, to sculptor and painter; to mason and quarrymen; to hewers of wood and drawers of water, for the part each contributed to a unique and virile civilization.



BAS-RELIEFS

from

TEMPLE OF THE WARRIORS CLUSTER

by

JEAN CHARLOT



# BAS-RELIEFS FROM TEMPLE OF THE WARRIORS CLUSTER

## INTRODUCTION

This study is limited to the interior decoration of the Temple of the Warriors group, which consists of polychrome bas-reliefs executed on pilasters and columns in three distinct architectural units: the Temple of the Chac Mool, the Temple of the Warriors proper and the Northwest Colonnade. The sculptured frieze of the south dais in this last unit is also examined. The friezes on the outside of the Warriors Pyramid, the sculptures in full round, serpent columns, seated figures, and Chac Mools are not mentioned here, as originally they were all a part of the outside scheme of decoration and were unified with the architecture. They are therefore studied in that part of this book which considers architecture.

In Part I of this book reference is made to the columns and to the technique employed by the sculptors, and in Part III much is said about the coloring and technique of the painters, but both these aspects are also to be touched upon here, as they fall within the scope of this study. Unavoidable repetition was preferred to obscurity.

The bas-reliefs examined and illustrated in this study total 337 panels, each comprising a life-sized human representation and two decorative *motifs*. An exhaustive study would have required more time and knowledge than were at our disposal, and it was therefore considered sufficient to copy and classify this great amount of fresh material, making it available to other investigators who, it is hoped, will complete the task.

Our first concern was the obtaining of a correct and complete reproduction of the originals. Photographs, though they eliminate any doubt as to accuracy, failed to prove satisfactory. It is difficult to follow the extremely low relief of the sculptured line through the cracks, traces of roots and other accidents of weathering that mar the panels, as can be seen by examining the photographs included among our illustrations (Plates 38, 63 to 67). Moreover, the necessity of color notes made photography inexpedient.

It was therefore decided to draw to scale the material considered, and the first problem that presented itself was the projection on a flat surface of the four-sided, somewhat irregular, square columns. A process similar to that used for reproducing pottery decoration was adopted, which has the advantage of giving simultaneously the four sides of each column, while still preserving their unity. One angle of each column was established as an axis of development and the four faces were spread

out flat. Such a procedure presupposes geometrically straight and true vertical lines, and involved a theoretical correction of the somewhat ragged, sloping edges of the blocks, thus distorting slightly the width of the band that frames each panel.

The best-preserved specimens are reproduced in full color with all the details of their actual appearance. This work was successfully done by Ann Axtell Morris (Plates 32, 33, 34, 36, 37). A simpler schematic method was adopted for the other panels, by which the various accidental defects caused by decay are eliminated. Though these defects (holes, scratches, traces of roots, broken blocks) are now optically dominant on the panels to the point of obscuring the real design, they were obviously never intended by the sculptor and can be of no aid to the student. To avoid half-tone reproduction, no attempt at shadowing or at distinguishing between distinct depths of line was made. An ink-line of constant width represents the sculptured line, making a pattern clear enough to be easily traced or copied by the student, even when reduced.

Wide gaps occur between the blocks comprising the columns. These did not exist originally, as defective junctures were carefully hidden with stucco, modeled and painted to the point of optical identification with the neighboring areas of stone, as can still be observed on the best-preserved samples. A semirealistic rendering of these gaps by horizontal lines running into the design would have made a confusing presentation, and the gaps are therefore indicated at the proportionate height of each break by dotted lines in margin of the drawing proper.

It was also found impracticable to reproduce the true polychromy of the sculptures in the line drawings. Five flat tones were therefore adopted to represent the almost numberless color combinations of the originals. A gray stands for both blacks and grays; a blue, for all the shades from cerulean to Prussian blue; a red represents browns, carmines and vermilions; a green, both yellowish and bluish greens; a yellow stands for clear ochers and lemon yellows; and an occasional purple has been represented by superposition of red and blue. This limited palette, though schematic, is not too far removed from the actual hues of the much-faded panels. Restoration of line and color was not attempted except in one minor instance (t.1, N base).

It can be added that the copyist's work was not concluded in the field. Given the unusual and most delicate relation of color to line on the originals, in which the painted version does not always coincide with the sculptured, he thought it advisable to work on the lithographic color version, himself fixing the color outline on the 141 plates necessary for these reproductions. The result is thus as accurate as could be procured. A certain number of photographs of the material reproduced in drawings is also included for comparative purposes.

Columns are referred to by number, and their sides by orientation. More specific details about the illustrations are given in the study of each unit.

The text, as already stated, is intended mainly as a guide to the illustration accompanying it. It contains a description of the materials and methods used by the builders. The material is described in chronological order, in two groups. The representations of the Chac Mool Temple fall into the first group, while those

of the Temple of the Warriors and of the Northwest Colonnade are studied together, being contemporaneous. Objects of the same kind in each group are described together, regardless of their positions on the monuments. Such a method eliminates the exhausting repetition that would occur if each bas-relief were described separately, and furthermore it admits of interesting comparisons regarding garments and weapons. This analysis reveals that a number of accessories frequently appear together, worn by similar characters, and a study is attempted of the more constant of human types.

This part of the text, which is the longest, is not open to much discussion since it is descriptive. It is followed, however, by consideration of the artistic aspect of the monuments, for after all these reliefs are primarily objects of art, and a study of them which omitted more specialized æsthetic observations would have been incomplete. A few remarks about the style of each unit follow the description of its subject-matter and, when it seems necessary, some attempt is made at attributions. The conclusion consists of a comparative study of the art of the Warriors group in relation to that of other Chichen Itzá buildings, and more generally of the Maya area.

Clearly, the scope of this part of the text opens it to criticism. However, it is not nearly so arbitrary as might be supposed. Knowing the solutions found by Maya artists enables us to reconstruct their problems with some security. Furthermore, the very hesitations of the artist at work and his successive changes or improvements can still be seen by comparing the final version with the preliminary sketches which are often visible, and thus one may follow the artist's shifting mental attitude. As a craftsman, the sculptor had to deal with the constant factors involved in working in hard material. He had also to develop a style suited to the greatly limited space of the columnar panels. The mental æsthetic ideal and the material conditions of work are the two elements whose successful union produces an original art style. Both are considered in this study in the light of the writer's experience, during the past ten years, as a creative painter and sculptor.

I am much indebted to Lowell Houser for the skilful and careful assistance which made the conclusion of the work possible within the appointed time.

### TECHNIQUE

Nearly all the bas-reliefs to be described in connection with each architectural unit appear on the faces of columns. The same technique was probably followed in all of them, from their quarrying to the last coat of paint. An attempt to describe the phases of this work is here made. Some of the statements are evident facts; others are deductions presented without supporting explanation for the sake of brevity, but analyzed at length later.

The columns were made of relatively soft limestone, as were the other architectural elements of the building, and consist of rectangular blocks varying greatly in height. Only four of the six faces of each block were carved. The other two were left unpolished, since the rough surface helped to catch the mortar with

which the parts of a column were joined. The surfaces to be sculptured were smoothed, but were not polished. Probably because of the great number of stones required, blocks with serious defects and holes or depressions were not rejected, as it was apparently assumed that the stuccoing and painting to be later applied would obliterate these faults.<sup>1</sup>

The blocks were probably sent from the quarry already trimmed, to avoid useless weight, and in groups, each of which constituted a single column. Irregularities in shaping the blocks and the imperfect measurement of the squared stones, as they lay horizontally in the quarry, are sufficient to account for the slight differences that occur between the heights of the columns in place. Some correction of initial errors was possible by varying the spaces between blocks when these were filled with mortar. The carving proper could not begin before the stones had been thus sealed together, because of the delicate continuity that must exist between two segments of one line in passing from one block to the next. Various indications, described at length later, demonstrate that the sculptor did not begin his work until the room or gallery had been roofed and the columns were actually functioning as supports for the finished arches. It would seem logical that the artist could not work freely upon his composition *in situ*, before the roughest work was concluded and the masons' scaffolds had disappeared. The junctures between blocks, which broke the continuity of the surface and thus interfered with the preliminary sketch, were smoothed over with stucco before the artist set to work; while the delicate work of relating two segments of carving in stone by stucco modeling naturally would be done only after the carving was completed.

The artist began his work by dividing the column into three components—base, shaft and capital—and on each a general massing of the elements to be included in the picture was sketched with hard charcoal. Then followed delineation of details with more accurate depiction in view. When one considers the enormous number and variety of ornaments portrayed in minute detail, and their fusion in human representations, nearly all with a strong individual stamp, some even with a name and obviously portraits, it seems impossible to suppose that the artist worked only from memory. Rather it is highly probable that work on the stone itself was preceded by preparatory sketching from living models on a more perishable material and on a smaller scale. The artist, working from such sketches, could amplify and modify as the permanent version might require.

After the subject was drawn on the stone, the carving followed. This was a process of cutting away the background from the outline, so as to silhouette the figure upon it in relief. Then the details were cut inside this silhouette. The most important lines were made by double diagonal incisions which met in the middle, like a furrow, the sloping edges thus formed giving to the plane a suggestion of

<sup>1</sup> In columns of the Northwest Colonnade serious depressions are found that were never filled with mortar, as the carved line continues into the sloping surface of the hole. In such cases the faulty side of the stone was turned to the east, where it stood in the shade and against the strong outside light. Thus the defect was partly minimized.

spheric modeling. Minor lines were made by one vertical stroke, while the lightest were simply scratched on the surface.

Though the stone is soft, it would appear from the constant hesitations in line and the irregularities of the surface, that a tool of but slightly harder material was used, probably a roughly chisel-shaped stone. A point was used to deepen the furrow and to trace small lines. Holes were prepared for incrustations, the hollow remaining unpolished in order to insure adherence. In the parts of the Temple of the Warriors where the light was bad, and especially in corners distant from the altar, the sculpture consisted of hardly more than a few scratches, partly on stone and partly on stucco, barely an indication for the painter to work upon. On columns that stood in a particularly good light, or in a prominent place, the carving was finished off by polishing, so as to prepare a finer ground for color. Attempts to round the surfaces more thoroughly are rare and occur mainly in portrayals of small objects. The incrustations were probably inlaid after carving and before painting. All of them were intended as eyes. The best incrustations are of white shell with a circular hole in the middle, which was filled with a kind of tar to serve as the pupil of the eye. It seems that in some cases (Chac Mool, col. 5 S.) a cheaper material, probably white lime, was substituted for the shell.

When the carving and inlay were entirely completed, the painter began his work. Since his technique and materials were the same as for the wall paintings, they need not be described here in detail (see page 352). A fixed scheme was followed. The background was painted dark red, the frame blue, and the objects portrayed as near their natural colors as the limitations of the Maya palette permitted. The painter did not, however, adhere slavishly to the line made by the sculptor. It is interesting to note that he followed it freely, and often ignored it entirely. In some cases, he changed the proportions of the objects in the painted version, apparently for no other than an æsthetic purpose; in others, he added objects or completed parts forgotten by the sculptor. These variations between carving and painting on the same surface are sometimes so marked as to point to a conflict, and would indicate that painter and sculptor were two separate individuals.

The entire work of painting, laborious as it seems, was re-attempted from time to time, though not so often as the exterior decoration of the temple. While in the Chac Mool Temple there is only one coat of paint, thus bearing testimony to the short use of the structure, numerous coats are still in place in the Warriors Temple and the Northwest Colonnade. Seventeen can be counted on the dais of this colonnade. Some incrustations were buried under this process of successive repaintings (dais, North Colonnade) and preserved until revealed by the disappearance of some of the coats of paint after exposure. Painted eyes, concealing the original incrustated shell eyes, were found in one such instance, thus demonstrating that the existence of the latter had been forgotten by the time the last coats of paint were applied.

## TEMPLE OF THE CHAC MOOL

The two rooms inside the Chac Mool Temple originally held eight columns and four door jambs (fig. 147). Of this total, two columns and two door jambs were not recovered. For purposes of reference, the columns have been numbered from 1 to 6, beginning in the front room north, following the movement of the vaults, and ending at the south of the altar room. The pilasters are referred to as C and D.<sup>1</sup> A reference to a particular side of one of these architectural members includes, with its number or letter, an abbreviated symbol of its orientation.

The average height of the columns is 3.13 meters. They are practically square, each side measuring about 61 cm. across. The pilasters from the door jambs are approximately 2.57 meters high, and their breadth varies from 31 cm. on the broadest side to 30 cm. on the narrowest. The number of drum-shaped blocks per column varies from eight to ten, these ranging in height from 18 to 59 cm.

Each column was decorated on four sides and each pilaster on three, which gives a total of 44 decorated panels, of which only 30 (6 columns, 2 pilasters) remain. The sculpture is in excellent condition, with much of the delicate stucco work still in place. The best-preserved examples as to color in the front room were 2 E., 2 N. and 3 W. (see Plate 32). The two pilasters of the partition door were also excellently preserved, due to the fact that the jambs were dismembered when the temple was filled up and were used in the construction of a masonry box at the west side of the front room. Since the decorated blocks were laid face to face, the polychromy was fortunately well protected. When discovered (season of 1926), it seemed impossible that better preserved examples would come to light, so a careful copy was made (see Plates 33 and 34). However, excavation in the second room (season of 1927) uncovered column 5, at least their equal as to preservation, and column 6, so marvelously intact that its painting seemed new. Two other copies were therefore made, all four being the work of Ann Axtell Morris (Plates 36 and 37). The other sculptured decorations are reproduced in line drawing, the tones being conventionally indicated. By comparing them with the realistic copies they can, however, be more nearly visualized.

Each decorated face of both columns and pilasters is divided horizontally into three portions, the middle segment being by far the most important (2.02 meters high), while the upper and lower divisions are practically square (58 cm.). These divisions correspond in proportion and position to base, shaft and capital, and for the sake of clarity will hereafter be so designated. Each base and its corresponding capital bear similar designs—masks in the case of the pilasters, Atlantean dwarfs on the columns. All the shafts bear human figures of life size, fully dressed and armed.

The bas-reliefs sculptured on the horizontal member of the tail-capital of the serpent columns at the entrance of the temple are identical in size and style to the inner bas-reliefs, and are included in the detailed analysis of subject-matter that follows, although these columns belong more to the outside plan than to the decora-

<sup>1</sup> A and B were reserved for the serpent columns.

tion of the interior. These tail-pieces, though found torn away from their corresponding shafts, can be assigned to their original positions with reasonable certainty, as it is customary for the two Atlantean dwarfs sculptured at the back of the blocks to face each other. The plan shows the two tail-pieces returned theoretically to their respective places. They are referred to here as A and B. The carvings on both are reproduced in line-drawing, with the exception of the south face of B, which is included in Plate 14, the color presentation of a serpent column.

Stubs of what had once been a square colonnade were uncovered at the base of the pyramid, standing in the same relation to the Chac Mool Temple as the Northwest Colonnade does to the Warriors. Eighteen columnar elements were found, those of the west row being 69 cm. square, those of the east row 57 cm. Unfortunately no drums were recovered, but on the red floor, where the stucco surface met the column itself, traces of blue paint were plainly visible, suggesting that the reliefs were enclosed in a blue frame. Thus it seems probable that the columns had the same scheme of polychromy as the contemporaneous columns from the Temple proper, though they were different in size.

## DECORATIVE PANELS

### MASKS

The sculptured pilasters at the entrance of the Chac Mool Temple are missing. But in view of the accustomed manner of decoration of Chichen builders, it can be surmised that they bore the same *motifs* as those of the inner door, that is, on each of the three sides a standing figure on the shaft and masks corresponding to base and capital. This would have made originally a total of twelve figures and twenty-four masks, of which only half now remain. Two alone of the eight floral bands that ran vertically on the jambs along the pilasters are left—those on the south side of the partition door.

The mask *motif* (fig. 138) is evidently the equivalent on a flat surface of the architectural mosaic masks used on the outer walls of temples. These sculptured masks, enclosed in rectangular areas, are conspicuous over the doors of the Castillo, the building stylistically nearest to the Chac Mool Temple. Differences between the sculptured and the flat masks show interestingly the changes in appearance brought about by a change of medium. The "elephant" nose which appears on the sculptured masks could not be projected successfully on a flat surface, and it is therefore replaced by an approximately circular area painted red. The two green nose-plugs tipped with red rising upon this surface help to suggest perspective. In one case (D. N. capital), the nose is represented by twin circles.

If similar to other eyes still preserved, those on these flat masks were originally incrustations, probably white shell with the black pupil made of tar. Bits of plaster that sealed the incrustations to the stone orbits are still found in place. The missing incrustation was enclosed between a blue supraorbital plaque and an S-shaped suborbital device. A similarly shaped plaque is found on the heads

of the columnar serpents, and in both cases these plaques are ornamented with cross-bars or dots. The suborbital **S** is sometimes replaced by a ring that completely encircles the eye (D. W.). Curved fangs protrude from the yellow lips, shaped like the mouth of a Greek theater mask, disclosing the red cavity inside. The face is encased between triple ear-plugs (pink, yellow, green, ending in a long green stem and a bead) on each side of it and by a rectangular linear device suggesting the contracted head-dress peculiar to the technique of the sculptured stone mosaic masks.

Similar faces used also as bases and capitals are to be found in the Temple of the Tigers. They are intimately related to the old South Maya *motif* of the water-plant. At the back of that temple the water-plant shapes itself on the base of the columns to form the features of the mask. The composite eye-frame (**S** device and eyebrow plaque) is identical to that of the old-faced gods of the codices, as are



D. N.

FIG. 138—MASK MOTIF

FIG. 139—GOD MASK FROM  
THE DRESDEN CODEX

the fangs and the triple ear-ornament (fig. 139). On the other hand, the circle around the eyes that replaces the suborbital plaque on B. W. faintly recalls the Tlaloc heads of the Valley of Mexico.

#### ATLANTEAN FIGURES

The bases and capitals of the columns are practically square spaces. The sides, on the average, are 58 cm. long. On each the design is the so-called Atlantean figure. A man—or if compared with the human figures on the shaft, a dwarf—with characteristic features and insignia seems to support with his raised arms the superimposed architectonic elements. This psychological assistance to the balance of the building is given by the man on the base in relation to the shaft, and by that on the capital to the now missing beams.

What would be the typical Atlantean figure can not be defined and described completely; only the elements that recur constantly in representations of that



character can be noted. Other variable characteristics require individual description or at least grouping.

The human type is constant—an old, toothless, bearded man, who appears identically in the Castillo reliefs and also in the Temple of the Tables.<sup>1</sup> His skin is a deep red-brown, his beard gray, and the long hair—a play of black parallel lines—falls loosely on the breast. The nose-stick and ear-disk are green. He wears bracelets of green mosaic and a necklace of green beads, from which is hung an oval-shaped plaque with two flowerlike appendages which rest upon his breast. In the center of this plaque appears a small, deeply carved, concave oval which would suggest some incrustation, now missing, if it did not still retain traces of color. The function of this concavity is as yet unknown. At the waist two racquet-shaped yellow appendages, with a cross-line pattern and fringes, fall in front and in back, suggesting the end-flaps of a loin-cloth. The sandals are adorned with spherical rosettes. The head-dress is always partly hidden by the shoulder and



FIG. 140—COMPOSITE RESTORATION OF ATLANTEAN HEAD-DRESS

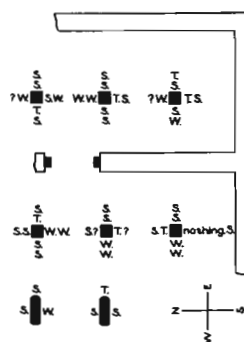


FIG. 141—DISTRIBUTION OF ATLANTEAN TYPES IN CHAC MOOL TEMPLE

raised arm, but it can be fully described in a composite picture summing up the visible details of different representations (fig. 140). A crown of yellow mosaic is made of squares or leaflike elements; on the side, a pink rosette, its center a bunch of green plumes; on top, a form similar to an inverted Phrygian cap often disclosing a twin shape from which rises a long panache or scroll. The body of this upper element varies as to color, being usually blue or white, with decorative rings and fringe of yellow.

The other elements, which would correspond to the clothing of the torso from waist to shoulders, vary greatly, but they can be grouped into three types: sea-shell, turtle-shell and spider-web. The first two are definitely identified as sea-shell and turtle-shell, but the third, though descriptively a spider-web, can not be strictly so interpreted. The 53 Atlantean panels that remain fall into the following groups: 27 with representation of sea-shells; 13 with representation of spider-webs;

<sup>1</sup> The only exception to this type occurs in the Temple of the Tables, where a youthful priest with a long robe appears in the Atlantean attitude on one of the capitals.

9 with representation of turtle-shells; 4 doubtful; 1 lacking symbolical ornaments. Figure 141 shows the distribution of these panels. The indication nearest to the column refers to the base *motif*, the more distant to the capital.

The simplest form is the spherical shell, with flat or elongated opening (fig. 142*a*, 5 S.). Another example (col. 5 E. capital) shows the snail issuing from its shell (fig. 142*b*). The conical shell is another type, one example of which is a transition from the spherical (col. 5 W. base, fig. 142*c*). It covers the man vertically, whereas the others are in diagonal position and apparently attached to the human back as the shell is to the snail's body. Figures 142*d* and *e* give a simple and a more complex form (A. N., B. N.). The shells are painted white, outlined and dotted in gray.

The spider-web object, whatever it may have been intended to symbolize, can be described theoretically as a succession of concentric circles divided by rays (fig. 143). In the best representations, the outside circle can be traced completely like a halo behind the figure, thus doing away with the possibility that the *motif* might have been intended to represent wings or batlike membranes to which it bears a superficial resemblance. It is colored gray with black lines.



FIG. 142—EXAMPLES OF SHELLS WORN BY ATLANTEAN FIGURES

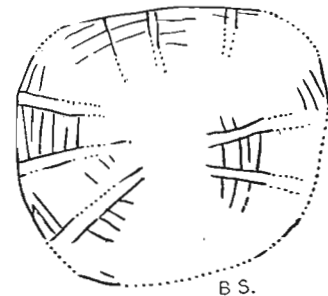


FIG. 143—EXAMPLE OF THE SO-CALLED "SPIDER-WEB"

When a turtle-shell is used, the man is supposedly armored with the shell, his body filling the inside and his arms and legs extending out from it in the position of the limbs and head of a turtle. Thus, in a standing position and from the front, only the under shell and the overhanging border of the upper shell are plainly visible (fig. 144). The normal color is dense yellow ocher.

It seems unusual to choose such a weak type as the oldish dwarf for the purely physical function of supporting a weight. In the mind of the builders, it must have been endowed with supernatural powers, and is probably a god. The resemblance to God B in the Dresden Codex (figs. 145*a* and *b*) is striking, and a similar personage, wearing the same collar-plaque and plaque-appendages and dressed in a sea-shell, is to be found in the Peresianus Codex (fig. 146*a*). Another shell-man with similar oldish features is painted on a Chama vase (fig. 146*b*). In Chichen this figure was not used merely as a support, for it is carved on the south jamb in the back chamber of the Temple of the Tigers with the same paraphernalia and insignia, though not in the Atlantean posture. Furthermore the

constant occurrence of a beard in this representation, and the rarity of it in other human figures, points also to its identity as a historical or mythological character.

As to the geographical origin of this *motif*, it must be considered that the effigy of a man used as an architectural support is too easy and logical a concept to establish any plausibility of inter-relations between peoples. However, when both the attitude and the characteristic features of the man himself are repeated, a relationship can be suspected with more justification. Such evidence occurs in an Atlantean representation from the Tro-Cortesianus Codex, which shows not only the uplifted arms but the characteristic profile and toothless mouth. We find also in Palenque a relief of a small man or god with oldish features supporting a larger standing human figure (bas-relief of the sun). The famous anthropomorphic columns of Tula and two statuettes of Ehecatl in the National Museum of Mexico are also human supports, but they resemble the Chichen figures only in attitude and differ widely in the other characteristic features.

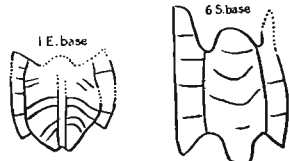


FIG. 144—TURTLE-SHELLS WORN BY ATLANTEAN FIGURES

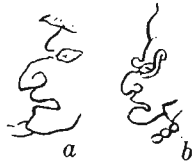


FIG. 145—*a*, PROFILE OF ATLANTEAN FIGURE FROM CHAC MOOL TEMPLE; *b*, PROFILE OF GOD B FROM DRESDEN CODEX

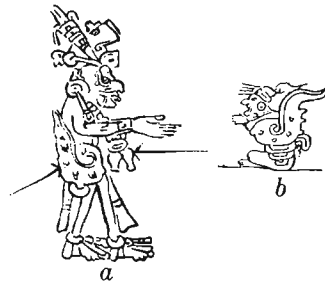


FIG. 146—*a*, PERSONAGE FROM PERESIANUS CODEX, SHOWING ATLANTEAN AFFINITIES; *b*, SHELL MAN FROM A CHAMA VASE

### HUMAN REPRESENTATIONS

The human representations on the shafts are sculptured life size. Their average height, including the plumes of the head-dress, is 2.01 meters. The height of the personages alone varies from 1.72 meters for the warrior type to 1.30 meters in the case of the oldish men in a stooped attitude.

They are all shown in the same position: the head and feet are in profile, while the torso is usually in three-quarter front. This gives to each figure the suggestion of a walking movement. When drawn extended, the personages on one column appear as two pairs of two figures each, confronting each other on the axis of development, with the single exception of column 4 where three figures meet one. In plan, with this exception, the figures on the east and west faces of the columns turn from the outside toward the central axis, and those on the north and south face from the back wall toward the door (fig. 147). As to the gesture, when one

of the hands is left free or bears only a light weapon, it usually extends across the breast toward the other shoulder in a movement believed to indicate salutation or worship. When both hands are used they carry defensive weapons, ornamental spears or baskets of offerings.

The human types depicted cover a wide range; their psychological and professional characteristics are given so accurately by the artist that they can be defined before the use of the accessories is made clear. These types can be broadly grouped as follows: the warrior, whose principal pride is strength, even showing scars from his battles (col. 3 S.); the patriarch, an old man of decrepit appearance, whose counsel must have been more respected than his strength, if we judge from his aging body (col. 6 W.); and the priest, his long robe characteristic of a more con-

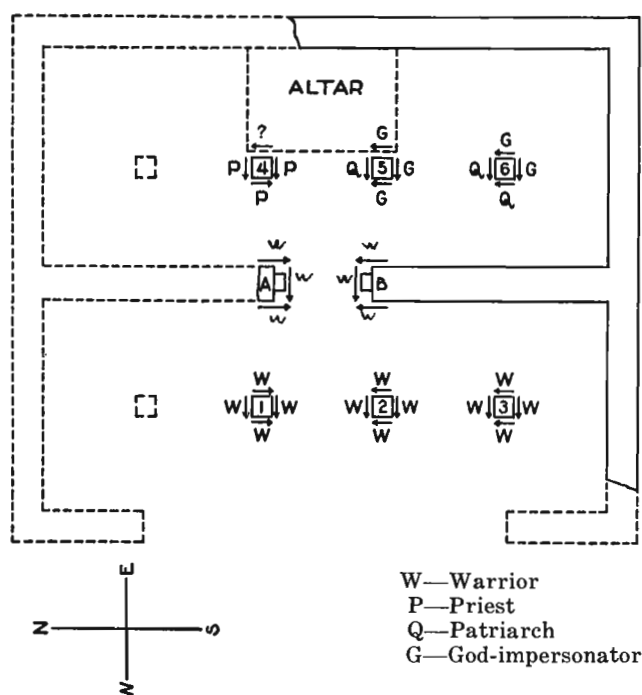


FIG. 147—PLAN OF CHAC MOOL TEMPLE SHOWING ORIENTATION OF HUMAN REPRESENTATIONS AND DISTRIBUTION OF CHARACTERS

templative life, the peaceful features pointing to temple service (col. 4 S., W., N.). A fourth category includes the mask bearers, delegates and embodiments of the divinities (col. 6 E.).

The plan presented (fig. 147) shows the distribution of the different characters in the two rooms. The room at the entrance contains only warriors; while the second room, where the altar once stood, has been reserved mainly for the more significant representations. Thus the artist by his choice of figures demonstrates the hierarchy of sanctity between the two rooms.

## BODY-COLOR, TATTOOING AND MUTILATION

The natural color of the skin is approximated by tones varying from yellow to deep red. This is as near an approach to the real appearance of the Maya skin as a limited palette permitted. The red is especially appropriate for the sun-burned pigmentation of the warriors, while the yellow is reserved for the more peaceful priests and attendants (col. 4) who lived in the shadow of the temple. It is also the color set apart for women's skin.

The artificial coloring of the skin for military or ceremonial purposes departed completely from natural appearance. When one tone was applied to the entire body, it always stopped at the wrist, leaving the hand in natural color. Thus the personages on columns 2 N., 2 W. and 6 N. are covered with black paint; on 6 N., though a peltmask sheathes the mouth and jaws, it appears that the cheeks and nose are painted black and the forehead blue; on 6 W. the lower part of the leg and the foot are covered with black, and this would give the appearance of a stocking if the toes were not visible; also a circle near the upper edge of the black area which has been left a natural skin-color shows that the leg is simply painted. On pilaster C. W. a dark paint applied to the leg stops at the middle of the thigh, while the arms are painted similarly from wrist to shoulder.

Another type of body-decoration consists of alternate stripes. The whole body on Column 3 N. is made into a pattern of vertical blue and brown bands, with the exception of hands and face, which are left unpainted; 3 W., judging from a few remnants of color on the leg, must have been identically decorated. On 5 N., tiny horizontal red lines alternating with the lighter red of the skin, leaving the hands and face unpainted, are displayed. Broader alternating red and white lines, completely concealing the natural color except at the hands and feet, cover 5 S. The face is unpainted, or at least it seems so from that part of the mouth area not concealed by the mask.

A third type of skin decoration is shown on pilaster D. N.—red circles outlined in black are scattered on the brown torso. This is the only case in the Chac Mool reliefs which might be tattoo rather than painting. Smaller blue circles appear on the cheeks and near the nostrils of a few figures, but these are most probably neither paint nor tattooing, but ornamental insertions of hard material; they are referred to together with other facial accessories.

On column 3 S. (Plate 31) the right leg of the standing figure, a warrior, is amputated. The limb is cut at half length of the thigh, showing a clean horizontal section. Directly under it, as if issuing from it, is shown a flower from which starts an intricately flowing scroll. This might emphasize the fact of the mutilation by charade writing, as in Maya, "nicaan," *cosa que ha cesado*, a thing that is no more; and "nican," *cosa que esta florida*, a flowering thing, are well-nigh the same (*Diccionario de Motul*, page 327b). The possible implications of this figure are discussed at the same time as are other similar representations to be found in both the Temple of the Warriors and the Northwest Colonnade (page 275).

## GARMENTS, BODY ORNAMENTS AND ACCESSORIES

The vestiture of the figures includes head-dress, face paraphernalia, nose and ear ornaments, masks and wigs; around the neck are collar and breast ornaments; on the left arm, a sleeve; on the wrists, cuffs; on the torso, sometimes a closely fitting tunic, and tied around the waist the loin-cloth or a skirt hanging from it; on the leg, knee- and ankle-bracelets or leggings; and on the feet, sandals. Sometimes a long cloak drops from the shoulders over the whole body. Weapons and other objects are carried by these figures, and will be considered along with the vestiture.

## HEAD-DRESSES

The hair, when visible, usually falls loosely on the shoulders, as a thick mass (col. 4 S.), or parted in thick strands that resemble braids (col. 1 N.). It is clipped in a clean, horizontal cut across the forehead. More complex arrangements are part of an artificial head-dress.

The skeletal structure of the head-dress can be reduced to four fundamental forms: the diadem or crown, the cap, the hat, and the turban.

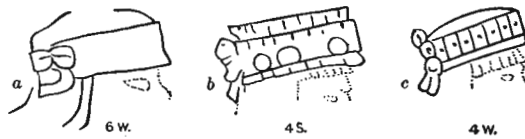


FIG. 148—CHAC MOOL TYPES OF DIADEMS  
a, textile; b, mosaic; c, intermediate form  
between diadem and cap.



FIG. 149—CHAC MOOL CYLINDRICAL CAP

The simplest form of the diadem is shown in figure 148*a*. A yellow cloth is thrown over the head, covering the hair and hanging down over the shoulders and back. To keep it in place, a long rectangular band of white cotton encircles the head horizontally and is knotted behind. The older man (col. 6 W.) who wears this primitive diadem is dressed differently from other figures, wearing simple unadorned garments with, nevertheless, an obviously religious significance, so that we may consider this head-dress an old form of head covering, discarded except for liturgical use. Figure 148*b* shows a more elaborate band, with blue disks on a yellow background, folded upon a wider band that overhangs it on each side of the head. Figure 148*c* shows the cloth having become a part of the band and the band transformed into a mosaic coronet. The knotting at the back of the head is still conspicuous, though now it is probably merely decorative. This head-dress is an intermediate form between the diadem and the cap. The material used for it seems to be a series of square solid plaques carved with simple designs, dots or diagonals. These band-crowns are usually painted green.

The cap (fig. 149) is the typical head-dress of the warriors. It is of cylindrical shape, with a flat top and "stepped" ear-flaps, retaining, too, something of the outline of the diadem and has, like the diadem, a knot in back which might be looked

upon as a survival from the earlier form. The cap is always painted blue and almost always has a blue bird affixed in front. On the best-preserved examples (D. W.), black lines are plainly visible on the blue background of the cap, giving the texture an appearance of tenuous mosaic, possibly feather.

The hat seems the direct ancestor of the modern "sombrero." It has an equally broad rim and a hemispherical or conical crown (figs. 150*a* and *b*). In its simplest form, for daily use, it appears made of braided straw (fig. 150*c* from a fresco). It is highly probable that even in its most ceremonial form it remained of the same texture. This hat offered an ample base upon which to build the accessory material displayed in elaborate head-dresses, and also a foundation upon which to erect the pyramidal structures frequent in such head-dresses. One of the less luxuriantly ornamented examples (5 N.) still permits the crown to be seen. In others (6 N.) the feather decoration has climbed over the entire form and hides the foundation hat completely. In the most elaborate examples the crown is concealed under the mask of a deity.<sup>1</sup> The hat mask bears a feathered head-dress and is adorned at the back by rows of multicolor feathers.

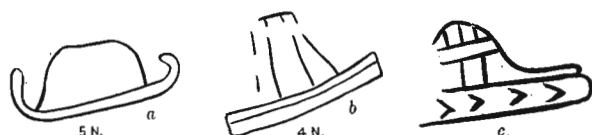


FIG. 150—CHAC MOOL HATS

*a*, semi-spherical crown; *b*, conical crown; *c*, straw texture of hat, from a fresco.



FIG. 151—CHAC MOOL TURBAN  
MADE OF CLOTH ENTWINED  
WITH A SNAKE

The turban occurs twice (2 E., D. E.), each time in association with the snake, a natural combination as its twisted conformation suggests of itself a serpent-like movement. In one example at least (fig. 151) the skin or stuffed body of a snake seems actually entwined with the other clothlike material.

Very striking decorative effects were obtained on head-dresses by the use of feathers, though probably they were somewhat exaggerated by the sculptor for the sake of his design. Of feather ornaments the most conspicuous are the long, green, curved plumes of the quetzal tail-panache; after them should be mentioned the straight black and white quills of the eagle (fig. 152*a*); the smaller, less identifiable feathers are colored green, red or yellow. Rings, made of feathers also, were used to bind the long plumes of a panache together, thus strengthening them and at the same time unifying the movement of the curves (6 N.). Stuffed blue birds, said to have been the escutcheon of the Xu family, frequently adorn the front of the warriors' hats (fig. 152*b*).

<sup>1</sup> These masks occur here (col. 5) at the juncture between two blocks. They were modeled mainly in stucco, at this breach, and disappeared when the stucco crumbled or fell off. The remaining traces, mostly the half-socket of the incrustated eye and the nose-plugs, seem to indicate that these masks were similar to the better preserved face masks which are studied later.

Among other objects used to decorate head-dresses can be listed a bone, probably human (6 W.), and the serpent (2 E., D. E.). More difficult to identify are the great sweeping scrolls on column 3 S., the unknown pear-shaped elements hanging from some of the quetzal feathers (fig. 152*c*), as well as the standardlike devices fixed into some head-dresses (fig. 152*d*). Fringes, rosettes and tassels completed the decoration.

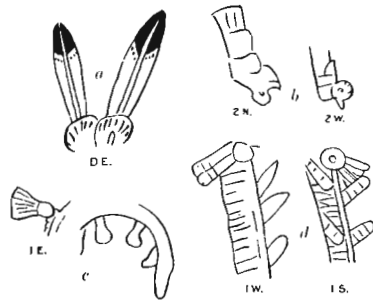


FIG. 152—CHAC MOOL TYPES OF HAT ORNAMENTS

*a*, eagle feather; *b*, blue birds; *c*, pear-shaped pendants; *d*, white pennons

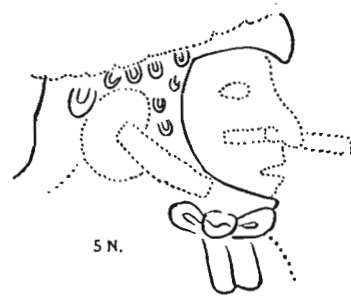


FIG. 153—CHAC MOOL: TYPE OF WIG KNOTTED UNDER CHIN

#### WIGS

A cloth thrown over the head and falling on the shoulders, for which “wig” seems an appropriate term, is cut across on the forehead coincident with the hair-line, and is often divided on the shoulders in strips that hang loosely like braids (6 E. and N.). It seems to have been used chiefly to conceal the back of the head of the mask bearers, in order to complete or emphasize the illusion created by the mask. However, as its black-and-white pattern suggests that it was made of the same material as the left-arm sleeve, it might also have been used, like the sleeve, as a defensive weapon, together with the back-shield. In figure 153 a variant of this covering is used without a mask. It is ornamented with crescent shapes and knotted upon the chin.<sup>1</sup>

#### EAR AND NOSE ORNAMENTS

The usual type of ear ornament is a solid flat circle, green or blue, which conceals the ear. One or two concentric circles are often traced upon the blue disks, as a simple decoration, and a more complex example displays human features (fig. 154*a*). The green disks are often elaborated by a tubular projection in the middle, also green, tipped with a white bead (fig. 154*b*). It seems likely that the ear-disk, given its position and size, was kept in place by a string which passed around the ear. The ear-disks displayed by god-masks are of the same type but usually the circle is doubled or trebled, overlaying one upon the other.

<sup>1</sup> Though the knot in this figure hangs upon the shield, it seems more related to the wig because of its color and texture. Furthermore, shields of the kind that appears here are fastened by a red strip which passes around the neck (6 N.), the portion of red under the ear-plug would in this case indicate a similar arrangement.



A different type of ear ornament requires a pierced ear-lobe (fig. 154*c*). In this example the crescent as well as the string of beads may well have been made of gold, as they are painted yellow.

Two principal forms of nose-plug seem to have been in equal favor for the decoration of the figures in the Chac Mool Temple—a pear-shaped pendant and a rod used transversally. Sometimes both are used together (col. 2 N.). They are kept in place by means of a hole bored through the septum. Though the rod is often conventionally represented in the unnatural and impossible position shown in figure 155*a*, more skilful representations are found in the profile of figure 155*b* and the front view of both ornament and nose taken from a shield decoration, as in figure 155*c*. A complicated variant of the rod is to be found on figure 155*d*, the ornament consisting of three tiny darts.

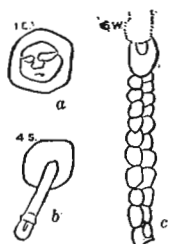


FIG. 154—CHAC MOOL TYPES OF EAR ORNAMENTS  
*a*, blue disk with human features; *b*, green disk with stem; *c*, ear plug, crescent and string of beads

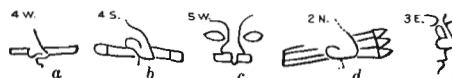


FIG. 155—CHAC MOOL NOSE ORNAMENTS  
*a*, erroneous representation of position of nose and stick; *b*, truthful representation of same; *c*, front view of same; *d*, unusual stick variant, made of three arrows; *e*, nose button and excrescency

A third type of nose ornament is the button, known to have been used also in Mexico, made of precious material, often turquoise. It appears in C. S. and C. E. as a small blue circle inserted over the line of the nostril. This same circle also occurs as a cheek-button (col. 1 N. and W.), or as twin ornaments connected, apparently, through the upper ridge of the nose (fig. 155*e*).<sup>1</sup> In this case it is similar in appearance, at least, to the nasal excrescences displayed by human representations from the South Maya area (Chama vase).

MASKS

A striking example of a realistic mask is to be found on column 3 W. (Plate 32). This is an awesome death's head, worn to advantage by a warrior. A more abstract creation can be seen on column 6 N. (Plate 37). From careful observations of the manner in which the nostrils are curved upward to allow room for the nose-plug, it would appear that the nose portrayed is a natural one, and consequently that the whole upper part of the face is unconcealed, though thickly coated with black and blue paint. The mask then seems reduced to an artificial mouth and chin, made of jaguar's hide, and a lolling white tongue.

<sup>1</sup> An ornament of this sort is sculptured clearly on the life-sized stucco head from Uxmal in the Museum of the American Indian, Heye Foundation, New York City.

Still more stylized masks are the four identified with long-nosed gods. Three of these (col. 5 W. and S., col. 6 S.) are very similar, having in common the elephant nose and nose-plugs, the suborbital S-shaped device and the theater-mask mouth opening (fig. 156*a*). They are painted green, with the forehead and nose, blue. In spite of stylistic divergencies, their features are identifiable as those of Schellas' God B, both representations, similarly, having conspicuous proboscis and eye-plaques. The other of these four masks (fig. 156*b*) differs from the first three particularly by a rigidly articulated lower jaw and the more elaborately ornamented long nose that characterizes Schellas' God K (fig. 156*c*), with which it can be identified. The scrolls that appear behind some of these masks flow so elegantly as to suggest that they have been added more for decorative than for descriptive purposes.

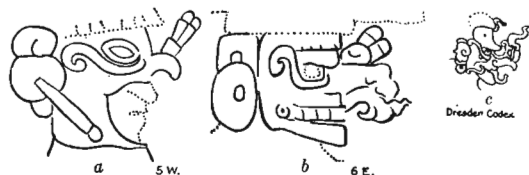


FIG. 156—CHAC MOOL GOD MASKS

*a* and *b*, from column reliefs; *c*, profile of god K from Dresden Codex

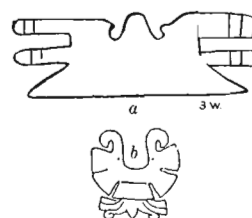


FIG. 157

*a*, breast-plaque in shape of a stylized bird; *b*, Mexican stylized butterfly (after Saville)

#### NECKLACE, SHOULDER CAPE AND BREAST ORNAMENTS

The usual necklace consists of six or seven cylindrical coils, with isolated beads occasionally pendant from the last coil. The entire ornament is painted blue. In column 2 N. is to be found an ornament of the same outline, which, seemingly, is a solid plaque of yellow mosaic. On columns 5 S. and 6 E. and S. the necklace is replaced by a cape that covers the shoulders, breast and back. It is made of green, square or scalelike pieces articulated into mosaic, and is finished off with a red outline and a fringe of white beads (Plates 36 and 37).

The simplest breast-plaque is a small round shield (cols. 5 E. and N. and 6 N. and S.). A more elaborate breast ornament is that described by Maudslay as the synthesis of a flying bird (fig. 157*a*) but which is not unallied to the Mexican goldsmith's stylization of a butterfly (fig. 157*b*, after Saville). This peculiar plaque, always painted blue, seems to be an ornament reserved for warriors. A bone, seemingly a human femur, is used as a breast ornament on the figure of the old man on column 6 W., hanging around his neck from a white band.

#### BODY COVERING

The torso is often bare, though painted or tattooed. However, a line that passes around the upper part of the arm, dividing two areas of different color, the lower of which is intended as the natural skin, indicates that a kind of closely fitting bodice was sometimes worn, like the pinkish garment on 2 E. It had short

sleeves and was molded tightly to the body as far as the waist, where it met the other garments, a loin-cloth or skirt. This bodice sometimes becomes a tunic, with the upper part identical to the shorter garment, but continuing from under the belt to hang horizontally above the knee. The simple green tunic on column 2 S. is of this type. A more elaborate tunic (col. 1 W.) is adorned with dangling snake rattles. On column 2 N. is to be seen a garment similarly shaped, but made of a very fine white stuff apparently pleated in a multitude of tiny vertical folds or perhaps striped with ornamental lines and transversed horizontally by a rich decorative band in black and white. On column 6 N. the material used for the tunic is a jaguar's pelt which has been cut rectangularly so that the limbs of the animal are removed, but the tail is retained and hangs behind the wearer.

A tunic falling to the knee was apparently considered sufficient clothing to cover the body, but usually other garments were used, bound at the waist. The loin-cloth seems to have been wrapped around the body, its ends crossing in front diagonally upon a second piece, the *maxtli*, which hung loosely between the legs in a triangular flap. The loin-cloth ends with a fringe or festoon. Loin-cloth and *maxtli* are usually white. On column 6 N. an elaborate *maxtli* is shown, colored two-thirds blue, one-third pink, and covered with black marks similar to the stamp made by the human hand with fingers extended. In the Dresden Codex is to be found a tree with human characteristics, its trunk girdled with a cloth, shaped like a loin-cloth, of which the piece corresponding to the *maxtli* also bears black imprints, in this case, however, the sole of a human foot. But the general appearance and the idea suggest the garment described. On Column 5 S. the loin-cloth is even more elaborate, the flap being made of multicolor mosaic with fringes.

At the back of the usual loin-cloth hangs a flap that corresponds to the *maxtli*. It commonly appears as a fan-like appendage of white cloth gathered in at the waist and spreading out downward. In its more ceremonial form this flap becomes two apparently tubular shapes, painted blue at the upper half and clear pink or yellow to the tip (5 E. and W. and 6 E., N. and S.). In this form it strongly resembles an animal tail, probably its prototype. On the Atlantean figures the *maxtli* and the back-flap appear as twin forms that can be described as oval racquets braided from a yellow material (straw?) with festoonlike edges. Figure 6 W. wears them, thus showing Atlantean affinities.

The simplest type of skirt is short and falls from waist to knee, like the lower half of the tunic. On column 6 W. is to be seen such a model, made of white cloth with a decoration of horseshoe designs. The same design is modeled in relief on column 5 N. but apparently remains part of the stuff itself. A short skirt of green feathers hanging vertically appears on column 2 E. On columns 6 E. and S., the skirts, almost concealed under heavily decorated belts, are made of jaguar skin.

A long robe was a ritual garment, associated apparently with the bearing of ceremonial offerings. It appears on columns 4 N., W. and S. of purple color, elaborately decorated with green galloon and beads and ending in a yellow fringe.

The skirt seems replaced on column 5 S., though not very distinctly, by loosely fitting trousers. This garment reappears more distinctly in the Warriors Temple.

## SLEEVE AND WRIST ORNAMENTS

The sleeve covering only the left arm seems identical to the quilted garment used at the time of the Conquest for defensive purposes. It displays a series of horizontal areas crossed by diagonal lines, which may indicate that the cloth was first cut in long bands which were twisted into a thick rope, then wound spirally around the arm. A curious detail connected with the use of the sleeve is the dart point found inserted between its upper edge and the bare arm (2 N., Plate 32), probably an emergency reserve in case of loss or breakage. A more ornamental sleeve appears on column 3 W. This consists of a cylinder of quetzal plumes, fastened to the upper arm by a ring of smaller plumes and making a kind of veil through which the forearm emerges when in movement.

A simple form of wrist ornament is a cloth wound around like a band (col. 3 N.) or tied on the forewrist with the ends of the knot hanging loose (col. 4 E.). A more solid material, painted blue, is used on column 2 S. This is a cylinder constructed of a series of rings. On column 4 W. a mosaic, shaped like a truncated cone, appears. Beads are used as wrist ornaments on column 4 S., and on 6 W. is a circle of white oliva shells.

## BELTS, LEG AND FOOT GEAR

The simplest belt is 2 S., a plain band of cloth with two narrower tongues tying it in front. When the cloth is broader the belt is tied with two knots, which is the most usual method. An extreme case of complication, a belt made of six super-

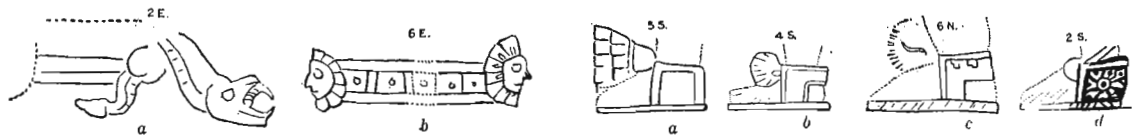


FIG. 158—CHAC MOOL BELTS

*a*, snake-belt; *b*, mosaic belt with human masks

FIG. 159—CHAC MOOL TYPES OF SANDALS

*a*, plain; *b* and *c*, hollowed at heel; *d*, complex decoration painted on a sandal

posed elements, the corresponding knots heaped in a vertical row, is shown in 4 E. The knot lent itself to ornamental refinements. In figure 158*a* we see a knot formed by the body of a snake whose head is stuffed most realistically.

Belts of more ceremonial purpose are made of solid material. The belt on column 4 N., W. and S. is made of rigid plaques and supports a much ornamented robe. On figure 158*b* the decoration includes also small human masks.<sup>1</sup> Often successive rows of dangling shells (col. 6 E.) or of beads and shells (col. 6 S.) hang from a belt of this type. All the belts of the warriors support at the back a blue shield decorated with concentric circles and rays, its outer circle broken in a scalloped outline.

A turbanlike type of knee ornament is seen on 2 S. A more usual form around ankle and knee is of rings from which drop rows of vertical or diagonal hachures that could very well be feathers, the usual color being white, gray and

<sup>1</sup> On the column the gouged sockets show that originally they contained incrustated eyes.

yellow. On column 5 N. (Plate 36) a string supports two spherical green beads on the leg, one in front and one in back. On column 6 N. (Plate 37) a whole string of beads encircles the leg just below the knee. A most ceremonial type, column 6 E., is made of mosaic, green framed in red, with a stepped outline. Perhaps the most sophisticated of these ornaments appears on column 2 N. (Plate 32). The material, simple enough, seems to be cloth knotted in front, but the color scheme is of unique boldness; the left leg is clad in green, the right in red. Such an ensemble of nonsymmetrical coloring for symmetrical limbs reminds us of some of the European court fashions at the end of the Middle Ages.

The legging is another type of ornament. On column 6 N. can be seen one formed of the sandal strings, criss-crossed upwards (Plate 37). The two white bands with irregular black markings that appear here are most probably snake skins. On column 4 E. the leg is entirely encased in alternating rings of red and yellow cloth, the knots massed in a vertical row down the front.

The sandal consists of a sole and an upper part which covers only the heel. It is usually held on the leg by a diagonal band, and the woven sole is fastened in place by means of strings passing between the toes. The semicircular upper portion which covers the heel sometimes appears made of solid plaques (fig. 159*a*), but occasionally this piece is perforated by a square hole at the back through which the heel can be seen (figs. 159*b* and *c*). The band knot in front is usually elaborated into an ornamental device, with either a spherical bunch of feathers or a tassel (figs. 159*b* and *c*) or a fan of multicolor beads (fig. 159*a*). Much of the woven texture of the sole is still visible, painted at the edge and with other decorative designs on the upper heel portion (figs. 159*c* and *d*, and column 2 W., D. S., C. N.). Usually sandals are colored a tone of black or white, but green also appears (col. 4 W.) and likewise brown (col. 6 N.).

#### CLOAKS

A cloak hanging from the shoulders upon the back and sides of the body, covering much of the other clothing, is to be found on C. E. It is made of black feathers and adorned with a circular design. The figure on D. W. wears a similar cloak of red feathers fastened from a yellow collar of the same material. Another type of cloak appears on column 3 E. It hangs in front and in back but is open at the sides, much like a modern Mexican *tilma*. This particular example seems made of white cloth with a collar and fringes of red, yellow and green feathers. Other cloaks covering only the back are seen on columns 5 E. and N. and 6 N. They are of the same black and white stuff as the wigs. An elaborate textile cloak is worn by the figure on column 6 W. (Plate 37). This is decorated with a complex geometrical pattern woven into the white background.

#### WEAPONS AND ACCESSORIES

The simplest offensive weapon shown is a stone knife (col. 4 E.), an object not to be found elsewhere in these reliefs. The bearer of it is sculptured on a column together with three priestly figures in long robes, a fact that establishes his probable

connection with temple service. It can be supposed that such a knife, uncommon then as a war weapon, was retained for ritual or sacrificial uses.

Other offensive weapons are two stone axes with wooden hafts. The diagonal strap tying the blade to the haft is visible on figure 160*a* and there are knotted bands at the two ends of the staff. A similar weapon on column 6 E. has three blades, imbedded in a massive clublike staff with a hanging ornament at the handle. The weapons on column 6 N. and figure 160*b* are decorated spears, on the second of which the staff is so crested with feathers that the weapon seems more like a standard. A double-pointed spear is shown in figure 160*c*. The existence of such a weapon was known to the Spanish historians, but this seems to be its only sculptured appearance, at least in this area. The staff of the spear is carved with two approximate circles that recall a similar staff in the Dresden Codex, the tip of which has the same silhouette as the spear in question, but in this case is elaborated as a hand of bifurcated outline (fig. 160*d*). The offensive weapons mentioned

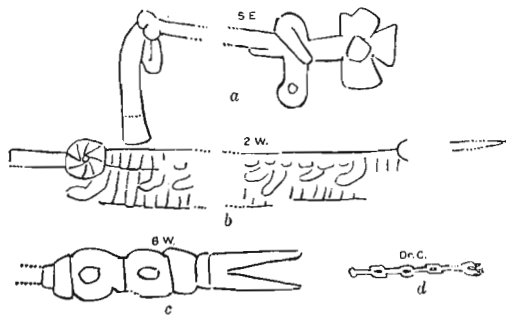


FIG. 160—CHAC MOOL OFFENSIVE WEAPONS

*a*, axe; *b*, spear; *c*, spear from bifurcated head; *d*, staff from Dresden Codex

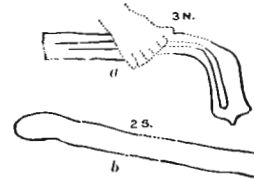


FIG. 161—CHAC MOOL DEFENSIVE WEAPONS

*a*, curved stick; *b*, simple form of same

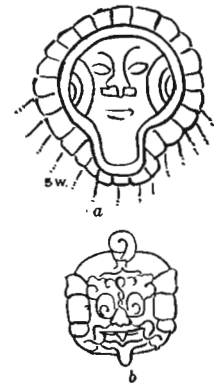


FIG. 162—CHAC MOOL SHIELDS

*a*, with human features; *b*, from Palenque

here are few, and since they are carried by dignitaries only and are usually over-decorated, it would seem probable that they are ceremonial. The only plain one, the knife, is probably also a ceremonial object, to be used in sacrifices.

The principal defensive weapon that appears is the curved stick with which darts can be batted out of their deadly course (fig. 161*a*). One or two of these weapons are carried by each of the warriors, and it appears no less than seventeen times in its normal form. A cruder stick appears in figure 161*b*, but, given the striking absence of offensive weapons in the hands of the warriors, this can be considered *a priori* as a defensive weapon intended for the same purpose as that already described.

Small round shields have been mentioned in connection with the breast-plaques and the belt. On column 5 S. a rectangular shield appears, carried on the forearm of a mask wearer. This shield is made up of a white field divided by a

horizontal black line and is enclosed by a red frame. The upper part is concealed by the drooping feathers of a yellow fringe which is also attached to the other three sides.

Perhaps the most complex of all these accessories is the shield in figure 162*a*. It is elaborately decorated with a hanging fan of tubular beads and bears a human face, enclosed in a circle, to which is added an appendage shaped like a lolling tongue; the mouth itself is not connected with the tonguelike appendage. Segments of circles on the cheeks may represent ear-plugs foreshortened in profile view. Though less conspicuous, because of over-elaborated details, an excrescence similar to the lolling tongue appears on the shield in the panel of the Temple of the Sun at Palenque. This excrescence, however, seems due to the extension downward of the lower lip or beak (162*b*).

Among accessories other than weapons may be mentioned the fan, which appears in two forms. On column 6 S. (Plate 37) it seems to be a large dried leaf, while on 6 W. (Plate 37) it is more elaborate, made up of a wooden handle, a carmine center of unknown material and two concentric bands of woven straw. On column 4 S. appears a stick with a reptilian head, carried by a long-robed priest. On 4 N., W. and S. are found baskets containing scarcely identifiable material, perhaps heaped copal flakes.

#### HUMAN TYPES

It may be of interest to follow the description of the clothing and accessories of the figures portrayed on the Chac Mool columns by an attempt to establish the associations between certain garments and accessories with certain types of individuals. A number of constant types emerge, defined by a more than accidental resemblance between the garments and accessories of the individuals thus grouped.

#### WARRIOR

On the four sides of column 1 (Plate 29) are depicted individuals in simple attire, each carrying one or two defensive bats. The four obviously belong to the same class or calling. They are so unobtrusively dressed that they may possibly belong to a lower class than their more theatrically clad neighbors and, because of the weapons they carry, we may call them warriors. Each wears a short blue tunic, fastened at the waist by a textile belt. The hat is the cylindrical blue cap, the chief features of which are the blue bird in front and short ear-flaps shaped into a stepped pattern. They wear typical warrior ornaments: a bead, pendant at the nose, a blue cheek-button and blue ear-disk, in this case partly covering the side-flaps of the cap, and a necklace wound many times around the neck and hanging down upon the breast and shoulders. The hair is long and braided. The left arm is covered by a voluminous cotton sleeve, and the right arm is bare except for a bracelet at the wrist. A circular blue shield is held in back, over the belt, and from the belt itself a fanlike back-flap drops to the ankle. The legs are bare except for knee and ankle ornaments made of plumes. The feet are shod in black-and-white sandals.

Although this might be called the "standard" type of warrior, yet the figures vary widely in details. Instead of the tunic the figure may wear a plume skirt (col. 2 E.) or a loin-cloth with a *maxtli* (cols. 2 W., 3 N.); in the second case the torso is left bare. The blue cap with the blue bird may be replaced by a turban (col. 2 E.) and the figure may also wear, in addition to his other garments, a plume cloak which falls to his feet (C. E., D. W.).

Other variations than these apparently fortuitous changes seem to have a special significance and reappear in the other architectural units. One such variant is the cripple or one-legged man on column 3 S. (Plate 31). He is dressed like a warrior, and the mutilation and unusual scrolls on his shoulders are discussed on page 275.

Column 3 W. (Plate 32) is clearly enough a warrior-type. He wears a blue cap and ear-disk and carries the defensive bat. The breast-plaque is the familiar bird shape found more frequently in the Warriors Temple and the Northwest Colonnade. The usual cotton sleeve on the left arm is replaced by a large wrist bracelet, apparently made of cloth. The right arm is concealed by a veil-like plume sleeve. But the departure from the normal type is most striking in the face, for the features of the man are totally hidden behind a gruesome and realistic death's-head mask.

Column 2 N. (Plate 32) is a personage of even more unusual type. He is related to the warrior class chiefly because of his blue cap, decorated with the typical blue bird, the left-arm cotton sleeve, with the dart point inserted between flesh and sleeve, the blue back-shield and the defensive bat. But he wears cloth leggings, a short embroidered tunic and a necklace which are all of unusual color and form. The face has extraordinary features, difficult to identify because there is a breach between the two blocks upon which it appears. It is bearded, and a pendant as well as three rods, shaped like arrows, pass through the nose. The eye is concealed by a blue ring, and there is evidence to show that this blue eye-ring is associated with a god that seems related to the Mexican Tlaloc. But, in spite of the religious significance of the mask, it is surely a warrior, if the constant characteristics of that class are accepted as descriptive of the type, *i. e.*, blue cylindrical cap, blue ear-disk, back-shield, defensive sleeve and non-ceremonial weapons.<sup>1</sup>

#### PRIEST

Three figures are depicted on column 4 N., W. and S. (Plate 35) bearing offerings. Because of their religious appearance and attitude, they can be identified as priests. The skin, instead of being painted red like that of the warriors, is painted yellow, a color also reserved for women. The features are softer and the expression more peaceful. The hair falls loose on the shoulders. On the head is a diadem made of solid square plaques. The ear ornament is cylindrical, green, with a long-beaded stem. A long rod is inserted in the septum. The shoulders are

<sup>1</sup> That the peculiar costume of the figure is not a haphazard combination appears clearly by comparison with figure C 17 (Maudslay, vol. III, Plate 49) of the sculptures in the lower chamber of the Temple of the Tigers. This figure wears, like column 2 N., the tunic with vertical lines, the horizontal knee ornament knotted in front, the small darts in the nose, and also the Tlaloc eye-ring.



covered by a cape of green mosaic, fringed with beads. The torso is clothed in tight-fitting pink cloth. Both arms are bare, except for wrist ornaments which are made of green mosaic. The belt is of the same material and is also fringed with beads. A skirt drops from waist to ankle and is decorated by a broad pattern (crisscross, spheres or beads), green on a red background, finished off with a yellow fringe. The most usual sandal for this costume is green. The constant features of the type are the long skirt, the basket or pot of offerings, and the absence of weapons.

#### GOD IMPERSONATOR

The distinctive feature of this type (Plates 36 and 37) is the mask, which has been described at length. The rest of the costume includes an ear ornament that is part of the mask; a black-and-white wig over the head, concealing the back; a mosaic shoulder cape, identical to that worn by the priests; and a heavy mosaic belt, fringed with beads and shells, which holds in place the extremely ceremonial *maxtli* of multicolored mosaic and the split two-tone back-flap. The torso is bare. The wrist, knee and ankle ornaments are also mosaic; leggings are worn by preference. The sandal is green. The figure carries a shield and spear or a ceremonial ax. This type is related in some ways with the priest—through the mosaic shoulder covering and the green sandals. It is also connected with the warrior, particularly through the use of weapons, even though in this case they are ceremonial.

#### MISCELLANEOUS PERSONAGES

There are other human figures of a complex character (cols. 5 and 6) too isolated to be fitted, with confidence, into classes. They include chiefly the figures of elders which have been described as patriarchs. One of the simplest is to be found on column 5 N. (Plate 36). He appears in a decrepit, stooping attitude, a position quite different from the erect carriage of other figures. He wears a short skirt, and a wiglike cloth around the head, both of which are decorated with scattered crescent shapes. The body is painted with tiny horizontal red and white stripes. A curved-brimmed hat with plume ornaments, a breast-shield, a mosaic wrist bracelet and a beaded knee ornament complete the costume. Other figures with similar features are found in the Warriors Temple and the Northwest Colonnade. They might be associated, because of the crescent designs, with the idea of night.

The figure on column 6 W. (Plate 37) wears a short skirt also decorated with crescents, and is also stooped. His features are distinctly old. He wears a textile diadem, folded upon a yellow cloth thrown over the head and dropping at the back, shell bracelets, bead knee ornaments, a long cloak of black and white pattern, and a heavy string of yellow beads, hanging from the lobe of the ear. The most striking feature of this personage is the use of bones as ornaments. They seem to be human bones judging from their size and use. A humerus, apparently, is fastened diagonally in front through the diadem, together with plume ornaments, and a femur hangs on the breast from a white band around the neck. It is probable that this old man is associated with the idea of death. A fragment

of an identically costumed figure was found painted on the bench of the Chac Mool Temple (Plate 133).

On column 6 N. (Plate 37) the personage is disguised as an animal. He wears a jaguar pelt and a chin-mask simulating the animal's jaws and tongue. However, in spite of his costume, he can be linked to the other two figures because of his general attitude and elderly features.

One last significant figure may be noted, column 4 E. (Plate 35). This man appears on the column together with three long-robed priests. He wears black and white leggings, a very broad belt with multiple knots, a nose-rod, and carries a stone knife in his right hand. This unusual weapon and his association with the priests might identify him, as has been suggested, as a sacrificing priest or an attendant.

*Comparison between types*

	Warrior	Priest	God Impersonator
Skin.....	Red.....	Yellow.....	Red.
Head-dress.....	Blue cap.....	Mosaic diadem.....	Hat, broad rim, with mask.
Face.....	Cheek-button.....	.....	Face-mask.
Ear.....	Blue disk.....	Green disk with stem.....	Triple disk.
Nose.....	Bead-pendant.....	Stick.....	Stick.
Shoulders.....	Necklace or plaque.....	Mosaic covering.....	Mosaic covering.
Arms.....	Defensive sleeve.....	Mosaic bracelet.....	Mosaic bracelet.
Belt.....	Textile with back-shield.....	Mosaic.....	Mosaic with shells.
Garment.....	Loin-cloth or tunic.....	Long robe.....	Tiger pelt or loin-cloth.
Back-flap.....	White.....	None.....	Blue and pink or yellow.
<i>Maxtli</i> .....	White.....	None.....	Blue and yellow or mosaic.
Knee and ankle.....	Feather.....	None.....	Mosaic.
Sandal.....	White.....	Green.....	Green.
Weapons.....	One or two defensive sticks.....	None.....	Staff, spear, or ax, shield.
Other accessories.....	None.....	Basket of offerings.....	None.

### ART CONSIDERATIONS

There is evidence that more than one artist worked on the bas-reliefs of the Chac Mool Temple. While the human figures are most carefully carved, the decorative panels, especially the capitals which are placed so that they can not be examined easily, are inferior in workmanship to those on the shafts. They might be attributed to a less skilled artist, a helper, as the entire work was probably directed by one master, a sense of homogeneity pervading the style as a whole.

### ATLANTEAN SKETCH

An interesting discovery was made pointing to some such working arrangement. This was an informal charcoal sketch on the southern wall of the altar room (fig. 163) which appeared on the white stucco revealed upon removal of the bench. It is drawn in hard charcoal at the intersection of the main axis of the room and the wall, not high above floor level. The subject-matter is the upper part of an Atlantean dwarf: torso, uplifted arms, profile and head-dress.

This dwarf is similar to the figures on the decorative panels of the columns, but while, on the latter, the human outline is over-burdened with elaborate

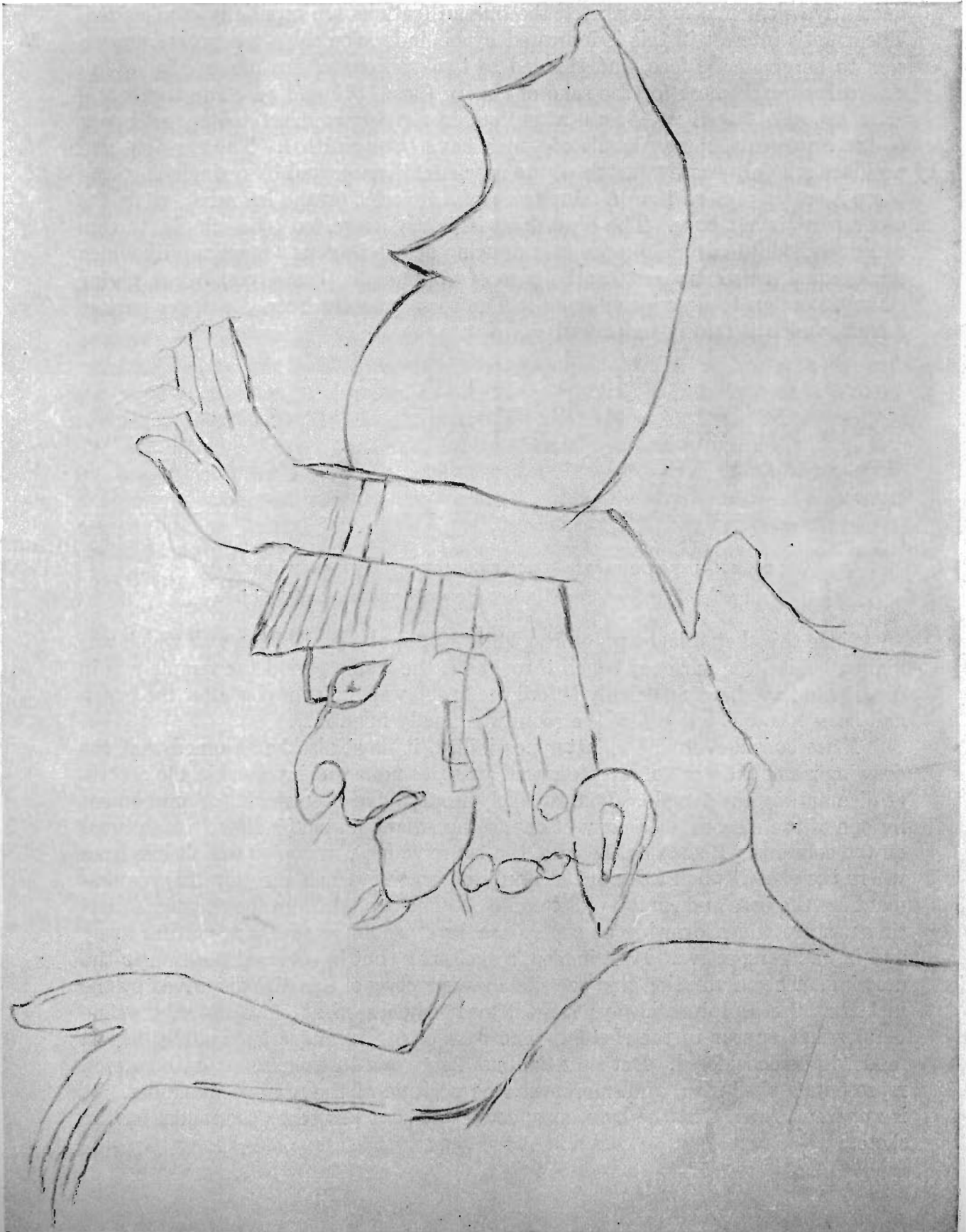


FIG. 163—ATLANTEAN FIGURATION SKETCHED ON SOUTHERN WALL OF ALTAR ROOM, CHAC MOOL TEMPLE

decorative elements, in the sketch the human features are especially emphasized. The artist's interest in this is indicated by his indecision as to the proper expression to be given the face, and this led to two versions of the mouth (fig. 164*a*), drawn separately here for the sake of clarity (figs. 164*b* and *c*). The hands and arms are also traced with close attention, in striking contrast to the treatment of the ornaments, many details of which have been omitted. The ear-plug and necklace are only hastily sketched, the nose-stick is indicated by a single line, and there is scarcely more than a faint trace of a bracelet on the left wrist, while the other wrist is left bare. The head-dress is lightly suggested by a simple, though extremely skilful outline, proper to a drawing at the stage of "massing" by which professional artists try out the balance of volumes in themselves, before giving closer attention to descriptive detail. The torso emerges from the upper part of a shell, which is faintly indicated.



FIG. 164—DETAIL OF ATLANTIAN FIGURATION SHOWN IN FIGURE 163  
*a*, profile of the head; *b* and *c*, two successive versions contained in *a*

Since this sketch is drawn on the white stucco of a part of the wall which was hidden behind the masonry bench throughout the whole period the temple was in use, it can have been made only before the bench was built; or else after the bench had been torn out but before the room was finally filled in.

If we consider, first, the latter possibility, it must also be assumed that the drawing is not the work of a professional artist, as none was involved in the process of dismantling the temple. It most likely would have been made for amusement by one of the masons, as a copy of one of the Atlantean *motifs* already sculptured on the columns. If such be the case, the figure which was copied was visible from where the sketch was made; but the only decorative panels meeting this requirement are the base and capital of column 6 S. The capital, from the peculiar squatting posture which drawing at such a low level would require, appears far away and in bad perspective. It is, indeed, a shell-man, but in reversed position to the drawing. The assumption that the sketch was a copy of it is also disproved by the fact that the sculpture always lacked, even when seen at close range, the fine details that appear in the sketch. The base of 6 S. remains as the only logical model to be considered. But its Atlantean figure is a turtle-man while the sketch represents a shell-man, and, moreover, the position of the arms is dissimilar. It is apparent, then, that the base, also, could not have served as the model for the sketch.

The nature of the drawing itself is in conflict with the theory that the sketch is a copy. Details easy to draw and conspicuous on the column reliefs, such as the flowing plume-rosette on the head-dress and the wrist bracelets would not have been omitted by a copyist, as they catch the eye even before the human features can be discerned. In the drawing, on the contrary, the human features are emphasized and much of the accessory matter is omitted. The two conflicting versions of the mouth, each of which corresponds to a definite facial expression, would indicate that the drawing was made from succeeding mental impressions and not from a passive sculptured or painted model.

The purposeful nature of the sketch is heightened by contrast to two untrained graffiti and a chance drawing found on the snake fresco (fig. 261). These drawings were probably made during the time the temple was no more in use and, as could be surmised beforehand, are very poor artistic achievements, having no relation whatever to the much more skilful sketch, which is patently a careful study and the work of a professional artist. Thus both technical and stylistic data contradict the possibility that the sketch was made after the room was dismantled.

All indications point to the period between the stuccoing of the wall and the building of the bench as the time when the sketch was drawn. On the white area on which it is traced are found also segments of four horizontal lines. These were traced to mark the position of the three bands that ran around the room between the dado and the serpent fresco. The bench was built in after these preliminary lines were traced, and then the painter proceeded with his work of painting in the bands, concealing the first tracings under a black brush-line. The section of the charcoal line that happened to be walled in behind the bench thus remained unpainted. As no other drawings appear on the same area, this line and the Atlantean sketch can be supposed contemporaneous and made before the bench was placed in position.

Though the assumption that the sketch is not a chance drawing, nor a copy, has been made plausible, it bears an evident relationship to the room in which it was found, the subject-matter being identical with figures on the decorative panels. It seems most likely, therefore, that the drawing is a model made by one of the master artists, when the temple was being built, and was intended as a guide and aid to his less skilled pupils. The quality of the work and the care displayed point to a master hand. This sketch is exactly what a drawing intended as a model would be, for the parts emphasized are the upper part of the torso, the hands, head and head-dress, that is, the constant elements of the figure, whatever the variation in costume and insignia. It has been remarked already that shafts and decorative panels are often by different hands, the shaft displaying the best technical qualities, while many of the decorative panels are evidently carved by less experienced assistants, so that if any of the workers needed a model it would be those who were employed on the panels in which the Atlantean figure appears.

These indications agree with the more probable date of the sketch, which, if accepted, would imply that the sculpture was executed on these columns at a late

step of the architectural process, when the columns were in place and the room was roofed, and the wall had been given the first coat of stucco.<sup>1</sup> The sketch furthermore corroborates the assumption that the sculptor began work by massing the general lines of his subject in a tentative charcoal drawing similar to the one discussed. In that case the sketch would constitute a unique document of the earlier and most ephemeral stage in the process of sculptured decoration.

#### CARVING AND PAINTING

At the next stage of the work, that is to say after the preparatory drawing of the subject had been completed and the carving begun, the artist was confronted by new problems. He was liable to error in following a decorative scheme previously planned. Such errors, when corrected at an early stage, would not have left any traces that could be detected now, but in one case at least an error and the ingenious method used by the artist in correcting it are discoverable.

The Atlantean figure on the capital of column 5 E. is costumed in a shell from which a snail issues (fig. 165*a*). However unmistakable this detail, the

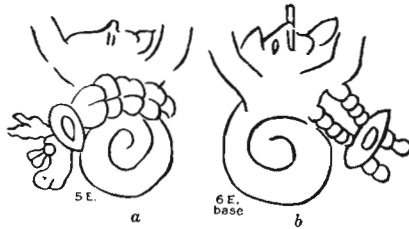


FIG. 165—CARVED VERSIONS

*a*, unusual representation of shell and snail, from a capital; *b*, normal representation of shell-man

shape and components of the animal's body are found to follow rather closely the elements of the necklace that the Atlantean figure commonly wears (fig. 165*b*). The body recalls a double string of beads; the oval at the neck is the oval plaque that hangs from the string, and it has the characteristic concave depression; the eye and ear occupy the area generally reserved for the two flowerlike pendants that hang from the plaque. Necklaces of this kind always fall diagonally in front of the wearer. Thus a necklace with the oval plaque at the left of the shell would indicate that the wearer also would face left. But in this case there is no necklace and the head of the man is turned to the right, while the body of the animal faces left. It is thus highly probable that the sculptor began carving a necklace and finding he was facing his figure in the wrong direction, as on this column the dwarf, following the general scheme, would face to the right, he modified his work when it was half executed and, unable to erase the carving itself, re-employed the forms in another manner.

The artistic interest of the Chac Mool decorations lies much more in the nearly intact painting of some of the reliefs (C. D. 5, 6) than in the carving proper. These examples, as they are today, are the best available key to the relationships between carving and painting in polychrome sculpture in the whole Maya area.

<sup>1</sup> That the rooms were roofed before the carving proceeded seems to have been a common habit, and it was the case in the Warriors Temple, as is indicated by the bad quality of the work in the parts that were in the dark when the roof was in place.

This painting is, like the carving, far removed from dry conventions. The painter at the same time finished off the sculpture and also improvised much that the sculptor had not planned. On column 6 W., for example, the skin over the knee shades realistically into a hue of red, darker than the skin of the leg. In 6 S., the painter made the yellow background of the jaguar's pelt vanish delicately toward the edges into the white of the ventral area. In a decorative scroll on column 3 W., a green melts into a blue by imperceptible transitions.

It also happened that the painter, besides finishing the sculptor's work and adding new details of his own invention, sometimes departed from the sculptor's indications, even to the extent of completely discarding the carved line. Examination of some of these discrepancies reveals something of the attitude of the artists.

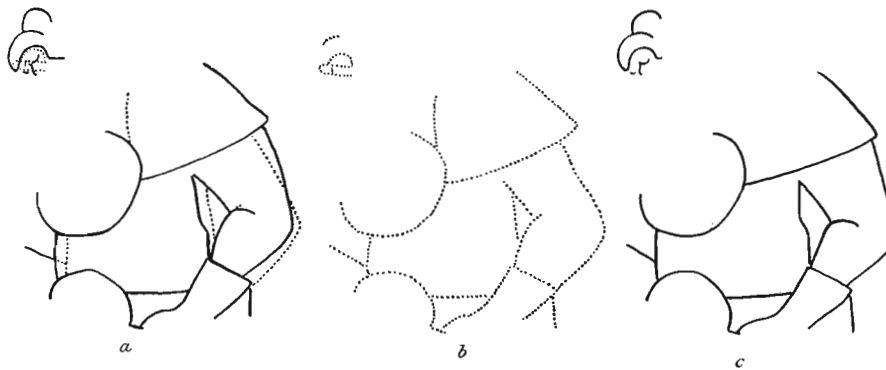


FIG. 166—DISCREPANCIES BETWEEN PAINTED AND CARVED LINE

*a*, comparative positions of both; *b*, carved line; *c*, painted line. From 6 S.

On column 5 N., the sculptured edge of the base panel sloped diagonally downward. The painter corrected this line by covering part of the frame area with the red used for background. Thus, in this case, the raised hand of the dwarfish figure does not grasp the blue ridge of the frame; instead, an empty space lies between arm and ridge (Plate 36).

As the polychromy on column 6 is excellently preserved, it is easy to follow the changes made by the painter. They are numerous and important. On 6 S. (fig. 166 and Plate 37), the superposed painted and sculptured lines as they now stand are shown in *a*, the dotted line being the sculptured one. If they are separated, we get the sculptured version, *b*, and the painted, *c*, a comparison between which shows that in the sculptured line the nose-stick was carved under the nose of the mask to correspond to the actual nose. The shoulder covering stopped vertically at the shield. In the painted version, the nose-plug has disappeared under paint simulating extra nose-scrolls, and the vertical limit of the shoulder covering has been ignored and concealed under the green mosaic stuff of the garment. Comparing the two versions again we see that the whole torso has been displaced to the left by the painter, and that bold black lines delineate a new arm, totally different from the sculptured limb. This change was re-emphasized by color (Plate 37).

The painted version of the arm does not seem, to a modern eye at least, better than the sculptured one. It is too small for the body and the outline is awkward, while the carved version is more satisfactory.

Another such change can be found in the discrepancies between the painter's and sculptor's work in and around the mask on column 6 E. (fig. 167 and Plate 37). In *b*, the carved version, there is a complex play of lines in front of the nose of the mask. Some of these lines can be interpreted as supplementary nose-plugs, others remain unintelligible. The line of the right edge of the frame curves diagonally inward; a few hair-lines are carved on the mask itself and it lacks both orbital plaques. The line of the lower jaw is straight, the upper jaw has no indication of fangs and ends in a curve independent of the nose-scroll. The neck is indicated by a double line, visible under the lower jaw. On the painted version *c*, the complex play of lines between the frame and the mask has been blurred by melting it with the background, through a red pigment; the line of the frame has been straightened to its vertical position; the hair-lines on the mask have disappeared and the two

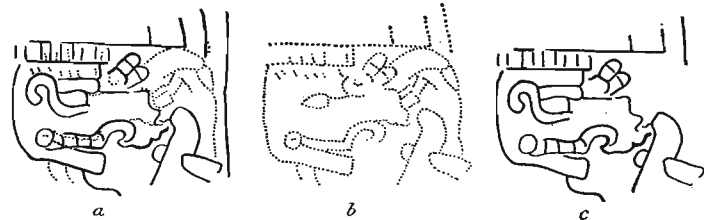


FIG. 167—SAME AS 166. FROM E.

eye-plaques—the upper one, painted yellow, the lower one, scroll-shaped and blue—have been placed around the orbit; the line of the lower jaw has been modified, the upper jaw shows a new broadened outline and an indication of fangs or teeth. Part of the background has been added with blue paint to the nasal area, and shaped so as to make additional nasal scrolls into which that of the upper jaw is now included; the line of the neck and chest has been brought forward.

On column 6 N. (fig. 168 and Plate 37), we see that the sculptor merely indicated the limits of the ear area and ear-plug, but did not fill them with details (fig. 168*b*). A nose-stick is silhouetted and turned forward from the far side of the nose. A line over the nostril is probably meant as the fore-part of the stick. There are deep furrows on the cheek, two of which meet at an angle to form a rather high relief. The coat is indicated by a series of lines meeting at right angles, the arm and hand are outlined, and the carving of the handle of the fan appears all through the hand. A shell bracelet is barely suggested by two oval shapes, right and left of the arm outline. In the painted version (fig. 168*c*), changes are made in the drawing of the white diadem and of the man's profile. Some of these latter heighten the toothless effect of the mouth. The outlines of the ear and ear-plug are filled in with details, and the sculptured nose-stick has been entirely discarded. It has disappeared in the black paint that covers the staff; but a new nose-stick has



been painted, the front half this time, superposed on the cheek. The ribbon holding the bone in place and its two end-flaps and the right part of the bone as it reappears from under the beads of the ear-pendant were forgotten by the sculptor but are improvised in paint. A complicated textile decoration, whose design partly follows and partly contradicts the carved lines, enhances the surface of the coat. Horseshoe shapes are also painted on the tunic. The outline of the hand has been bettered; the line of the fan handle now disappears under the hand; the shell bracelet is fully detailed, but the painter acknowledged in paint only one of the two carved shells; the shell-shape on the left has optically disappeared, being camouflaged skin-color to match the neighboring area.

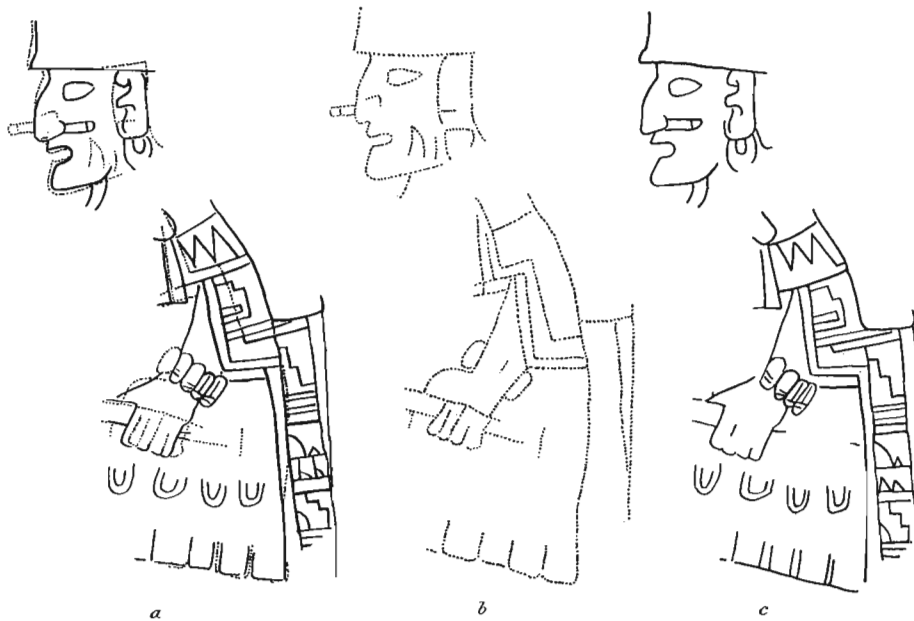


FIG. 168—SAME AS 167. FROM 6 N.

#### STYLE

A baffling characteristic of this group of bas-reliefs is, at least to a modern eye, the lack of a standard convention in the representation of the human body. It was remarked in the description of the shafts that the height of the figures varies from 1.71 meters to 1.30 meters, approximately; but more startling is the varying relative proportion of the different parts of the body, which phenomenon is closely related to the question of style.

A normal proportion of height to body is  $6\frac{1}{2}$  heads. These figures vary from 5 heads (col. 6 W., C. E.) to  $7\frac{1}{2}$  (col. 2 N.). This means that one moment of Maya art, judging from Greek standards, includes both fairly archaic proportions and the extreme elongation of decadence. Such variation, both in the size of the figures and in their proportion, does not need to be condoned, as the Maya artist was not ruled by our conventions, but it can, however, be partly explained by the difficulties that confronted the sculptor when he faced the problem of fitting his subject into the narrow faces of the columns.

The art style of the Chac Mool Temple is not impressionistic but strictly constructive. The artist could depict his subject only by adding detail to detail, until completion. Furthermore, he could not diverge greatly from a realistic and thorough enumeration of garments and accessories, because of their accepted symbolical meaning. So that one may infer from the finished product that when the artist sketched his subject on the given rectangle, his first concern was to reserve enough space for the bulky ornaments, especially head-dresses. After these volumes were provided for, he fitted the human body into the remaining space. This assumption is based on the fact that on reliefs including voluminous accessories (col. 5 W.) the head and shoulders of the figure are often drawn at a lower level, giving to the whole body a squatting proportion. On the other hand, when the head-dress is smaller, the head and shoulders move toward the top of the rectangle to help fill the extra space, and the body becomes elongated (col. 4 E.).

This same "horror of the void," most typical of Maya art, is probably at the root of another apparently awkward convention. On a single figure, in many cases (col. 6 E., W. and S., D. N., C. S.), the sculptor wholly ignores our conventions of anatomy and perspective and gives the hand in the background an exaggerated volume, while the corresponding hand in the foreground is reduced to less than



FIG. 169—CHAC MOOL HUMAN PROFILES SHOWING PORTRAIT-LIKE CHARACTERISTICS

its natural size. This treatment, which is repeated too often to be accidental, can be explained as a deliberate effort of the artist to make the hand at the back serve the same decorative purpose as a scroll, that is, of filling the background as much as possible, while the hand in front is reduced so that it will interfere as little as possible with the detailed ornaments of the body (see especially col. 6 W.).

Less radical departures from natural appearances also occur. The human ear is portrayed peculiarly, as on columns 6 W. (fig. 168c) or 4 E. The misleading respective positions of the nose-stick and nostril, as illustrated on figure 155a, are an evidence of the care with which the Maya artist avoided the representations of unintelligible points of view. When the face was in pure profile the nose-stick of a living model was so much foreshortened that only the end circle was visible. The sculptor, attempting the clearest representation possible, was led to combine the front view of the stick with a profile view of the face, thus displaying both at their best descriptive angle. The same problem reappeared in the portrayal of the bone hanging on the breast of the elder on column 6 W. The bone is shown in front view though the torso is in full profile (Plate 37). Aside from these thoughtful

departures from optical appearances the sculpture is most realistic. The work is technically inferior to the best work of similar subjects in the Maya area. But what it lacks in workmanship or in dignity it gains in freedom. The artist evidently enjoyed his work. His close observation of personages is ingenious and shrewd. It is true that the lack of a theoretical canon of beauty makes his work little fitted to embody, as of old, an impersonal collective feeling, but his more individual outlook on the world led him to fresher and unexpected realizations, especially in portraiture. Figure 169 presents some faces stripped of their ornaments (nose and ear-plugs) so as to make their human characteristics clearer.

### TEMPLE OF THE WARRIORS

The Temple of the Warriors proper contains two rooms, in the outer of which there are twelve columns and eight in the inner. To these twenty columns must be added four pilasters from the door-jambs (see plan, fig. 170).

The average height of these columns is 3.74 meters. They are practically rectangular and measure approximately 69 cm. across. Each column is built of a number of blocks, varying from eight to eleven. The highest drum-block is 99 cm., the narrowest, 20 cm. The pilasters of the door-jambs vary in height. On the front door, they are of the same height as the columns, while those of the partition door are 2.43 meters. Both have an average breadth of 44 cm. and a depth of 31 cm.

The columns have been numbered from one to twenty, starting from the north corner of the front row and ending at the south corner of the last row, following the south-north orientation of the arches. In the front room and the altar room the east-west orientation has been followed. The pilasters are referred to as A, B, C and D. The faces of each column or pilaster are differentiated by the same scheme used for the Chac Mool Temple. In the following text all references to sculptures pertaining to the Warriors Temple are preceded by *t* (temple).

As this architectural unit is at the top of the pyramid, it was not entirely buried, but was covered chiefly by the débris of the collapsed roof and arches. The upper drums of the columns were still visible, at ground-level, before excavation was begun. These columns suffered a great deal more than those of the Chac Mool Temple. All the stucco fillings between drums are badly broken and the stone itself is often shattered. Column 18, especially, is in bad condition—almost entirely in fragments. Traces of color are numerous near the floor level, but decrease steadily upward and are practically absent at the top of the columns.

The columns are sculptured on all four sides, which makes a total of eighty panels. To these must be added the four pilasters which have three panels each, bringing the number to ninety-two. Each panel can be divided into three decorated zones: base, shaft and capital. The sculptured part of bases and capitals is approximately a square, measuring 57 cm. on each side, while the shafts are, on the average, 2.31 meters high.

The subjects of the bas-reliefs on the bases are the familiar composite representation of Quetzalcoatl; and on the capitals, a figure of a Sun God. Atlantean figures are portrayed on the shafts of the pilasters and on the panels from the tail-pieces of the serpent columns; the shafts of the columns bear human figures of monumental size. These are all reproduced in outline, as well as the nine floral bands on the jambs proper and the two pairs of Atlantean panels that flank the tail-pieces of the serpent columns. Wherever the color is of especial interest, it is reproduced by the same set of tones devised for the columns of the Chac Mool Temple. Since the color scheme is identical in both colonnades, Plates 36 and 37

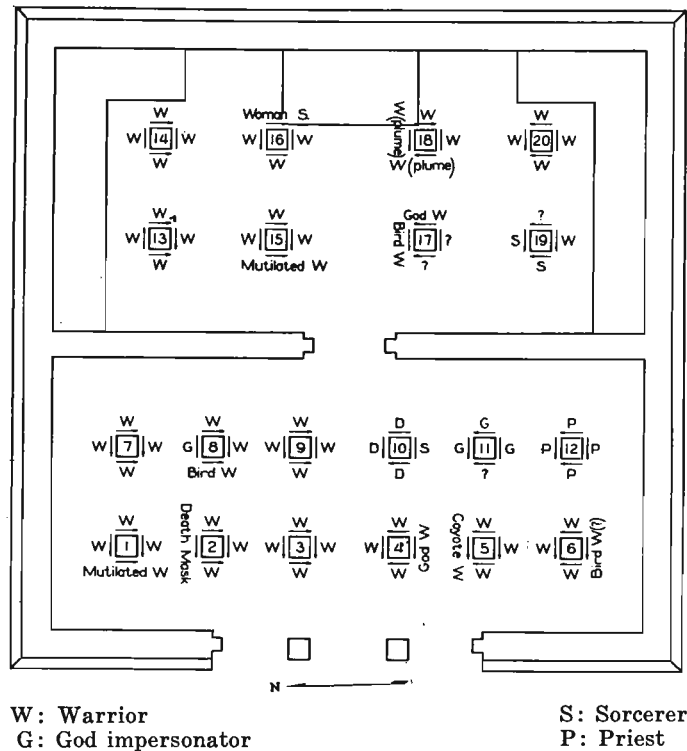


FIG. 170—PLAN OF WARRIORS TEMPLE SHOWING ORIENTATION OF HUMAN REPRESENTATIONS AND DISTRIBUTION OF CHARACTERS

from the older temple can give a fairly adequate idea of the general appearance, if not of the particular style, of the Warriors columns as they would look in a state nearer their original intensity.

The general plan of the bas-reliefs in the Warriors Temple was determined by exactly the same set of ideas that produced the Chac Mool carvings. The figures stand in similar attitudes and, as the plan reveals, face from the sides toward the center and forward from the back (fig. 170). There are three exceptions: columns 13 N. and 18 S. face east, that is, toward the back wall of the altar room, while 18 E. looks south, and thus turns his back to the altar.

The figures include warriors, elders, mask wearers and long-robed priests, the only new character being, exceptionally enough, an ugly female figure (col. 16 E.), a good match for one of the old sorcerers. No established plan is perceptible in the distribution of the different characters. The most significant—long-robed attendants and priests wearing god-masks—are crowded toward the southeast corner of the entrance room, while the more important inner altar room contains chiefly the common type of warrior (fig. 170).

#### NORTHWEST COLONNADE

This unit originally was made up of sixty-one columns and one pilaster (fig. 171). Its long axis runs north-south and is centered on the east-west middle line of the main stairway. It has a span of sixteen columns, four rows deep. Two altars, symmetrical to the stairway and built against the eastern wall, mark the centers of the colonnade wings. All of the columns are practically of the same height, 2.64 meters, but the other measurements fall into two groups. The columns that were part of the façade scheme are 76 cm. by 67 cm. in breadth and depth; all the others are 67 cm. by 52 cm. The pilaster, 76 cm. broad, was probably the same height as the columns. Each column is made up of from seven to nine blocks, while each block is from 67 cm. to 16 cm. in height.

The columns are numbered from 1 to 61, west-east, beginning at the northwest corner of the colonnade and ending at the southeast, instead of following the north-south orientation of the arches. This was done in order to keep together certain groups, similar in style and subject-matter, which would otherwise have been split. The pilaster is referred to as A. The faces of the columns are identified by their orientation. All reference to sculptures from this unit are preceded in the following text by *c* (Colonnade).

The two columns (30, 34) that stand on the staircase were not decorated. Three sides of the two columns, corresponding to the north altar (15, 19), are partially hidden by masonry, but were completely carved. The two columns embedded in the south altar (41, 45) are buried to about one-third of their height, but though the sculptured figures are cut off abruptly at the knee where they meet the altar, excavation revealed that the lower part of the shafts and the bases were not carved or painted. The other columns are carved on all four sides.

The shafts as uncovered were in varying states of preservation. In general the north wing is more nearly destroyed than the south, and the weathering on the entire colonnade decreases from west to east. This was determined by the extra protection of the fallen débris from the pyramid, as well as by the demolished roof.

Only the lower drums of four columns at the southwest corner (46, 50, 54, 58) could be found. The top drum is missing from nine other columns.

In accordance with the general state of preservation, the painting is particularly vivid on the southeast corner, except on 61, which was not sheltered by the pyramid. Fortunately the best-preserved columns (41, 45, 49, 53, 57) are among the most excellent in workmanship. Practically no traces of color are left on the façade row or on the entire left wing.

THE TEMPLE OF THE WARRIORS

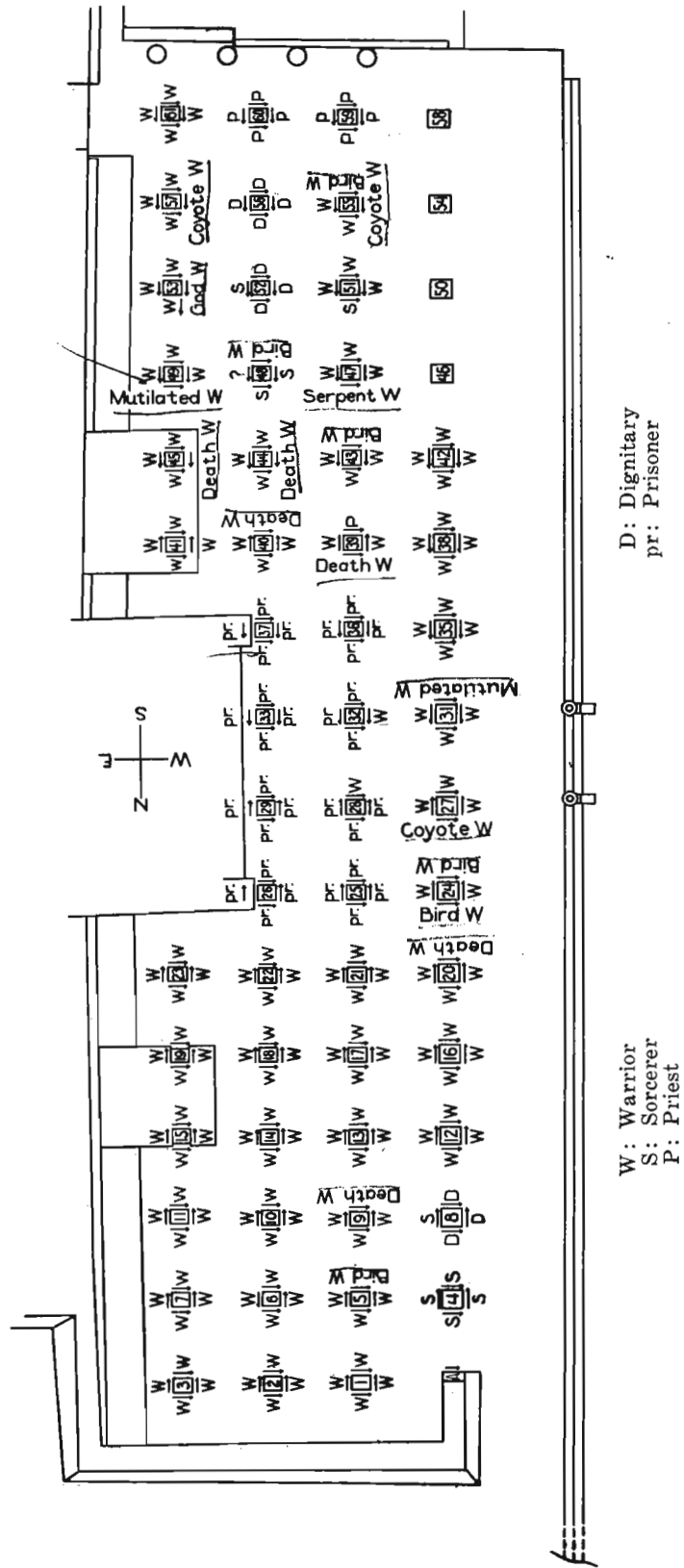


FIG. 171—PLAN OF NORTHWEST COLONNADE SHOWING ORIENTATION OF HUMAN REPRESENTATIONS AND DISTRIBUTION OF CHARACTERS

Discounting the two plain columns and the four that were too incomplete to be reproduced, 55 carved columns and a pilaster remain, making a total of 221 bas-reliefs. Each is divided, according to the adopted scheme, into base, shaft and capital. The bases and capitals average approximately 50 cm. in height and the shafts, 1.47 meters. The subjects are identical to those depicted in the Warriors Temple proper: a Quetzalcoatl *motif* on the base, a human figure standing on the shaft and a diving god on the capital.

Only the decorative *motifs* from the south half of the Colonnade were copied, as those of the northern half were less skilful and contained no new details. These *motifs* are reproduced in line only. The shafts are all reproduced in line with color notes wherever these might add interesting data. The usual method of presenting the joints of the stones was discarded for the jamb, as the position of the blocks is shown fully.

The sculptured figures are laid out as usual from the sides toward the center (in this case a prolongation of the middle line of the stairway) and from the interior outward (fig. 171). This plan, however, was interrupted by the architect's wish to emphasize another center of interest—the altar at the right of the stairway. Therefore a secondary scheme of symmetry was evolved, the axis of which passes through the middle of the altar and, as a result, the figures on the east side of columns 39, 40 and 41 do not follow the dominant plan but turn their backs to the stairway and face the second axis, and delineate, together with columns 43, 44 and 45, a short avenue which leads to the small conical altar and ends at the front of the sculptured dais. It is remarkable that column 38, though in the same row as the other columns thus treated, drops back into the general plan, its east and west figures facing the stairway. This change occurs because column 38 forms part of the outward scheme of decoration and this could not be disturbed for the sake of the secondary internal plan.

The sculptures on the two columns embedded in the north dais are not symmetrical to the center of the dais but, instead, face toward the stairway, following the general scheme. This helps to prove the suggestion made before on other grounds, that while the south dais was planned at the same time as the colonnade, the north altar was added later.

The sculpture on column 6 E. is inverted, the figure facing north; but given its position among bas-reliefs which face in the common direction, and, considering the poor quality of the sculpture itself, it can be supposed that this inversion was a thoughtless accident. Column 53 N. faces front, that is, the figure stands in the old South Maya conventional manner, with torso and legs in full front, the feet in profile and turned outward; but the head is turned westward, the normal direction for figures exposed to the north.

As in the older architectural unit, we find here well-defined human types, the familiar warrior carrying weapons, the long-robed priest, the old sorcerer with his pouch and snake. But a new type appears, unarmed men, with both hands tightly bound by a rope around the wrists. Since their costumes and ornaments

are as elaborate as those on the other figures they undoubtedly represent persons of high rank, while the armed figures would seem to be their conquerors. Another feature peculiar to the Northwest Colonnade, and met with only once before, is the use of ideographs above approximately one-fourth of the personages. They are most probably name-glyphs and suggest forcibly that at least the most individual of the pictures were intended as portraits.

As in the Chac Mool Temple, some scheme of distribution was apparently adopted in the grouping of the types. As a rule, each column bears figures similarly costumed and similarly significant. For example, warriors holding staffs, an unusual feature, are carved on all four sides of column 56 and repeated on three panels of the neighboring 52. Columns 59 and 60 on all four sides have long-robed priests with baskets of offerings in their hands. There is also a more general scheme of grouping (fig. 171). If the front row that was part of the façade is not considered, the colonnade falls into three groups: in the middle, the eight columns that stand in front of the stairway of which thirty-one of their thirty-two panels bear men of the prisoner type, the one exception being 32 W., a warrior. To the left of this group of prisoners, only armed warriors are depicted. To the right of the stairway, warriors and sorcerers are mingled together, but of the nine figures of long-robed priests that occur in the entire colonnade, eight are grouped together on the two columns 59 and 60, at the extreme right, along the passage leading toward the North Colonnade.

An Atlantean figure of the shell type, in the familiar upholding position, is carved on the jamb A.

#### DECORATIVE PANELS

##### ATLANTEAN FIGURES

This *motif* already studied in connection with the older temple reappears sixteen times in the Warriors Temple and once in the Northwest Colonnade.

Two pairs of Atlantean figures are found in the Warriors Temple enclosed in rectangles on the tail-pieces of the serpent-columns (fig. 172). Although they are nearly totally destroyed, the tail-pieces on which they are carved having been exposed ever since the destruction of the temple, it is evident from the remains that in size and style they are identical with those of the Chac Mool. It is interesting to note that three Atlantean figures cover the tail-pieces of the Chac Mool serpent-column, making a continuous frieze, while in this case they are reduced to a pair, enclosed in square frames, and the remaining space is filled with the feathers of the tail.<sup>1</sup> Twelve more Atlantean figures in the Warriors Temple are depicted, human size, on the shafts of the door pilasters. They differ from the other figures on the shafts in that they are mythical, instead of realistic, they are closely connected with other Atlantean representations, both in the Warriors Temple and the Chac Mool. These figures appear in profile, and are thus better adjusted to the

<sup>1</sup> The sculptural arrangement on the tail-pieces of the serpent columns in the Castillo are identical to those of the Chac Mool Temple, while the tail-pieces of the columns in the Tigers Temple are entirely covered with carved feathers.



elongated rectangle of the shaft. The position remains fundamentally the same, though the changed orientation gives a different appearance.

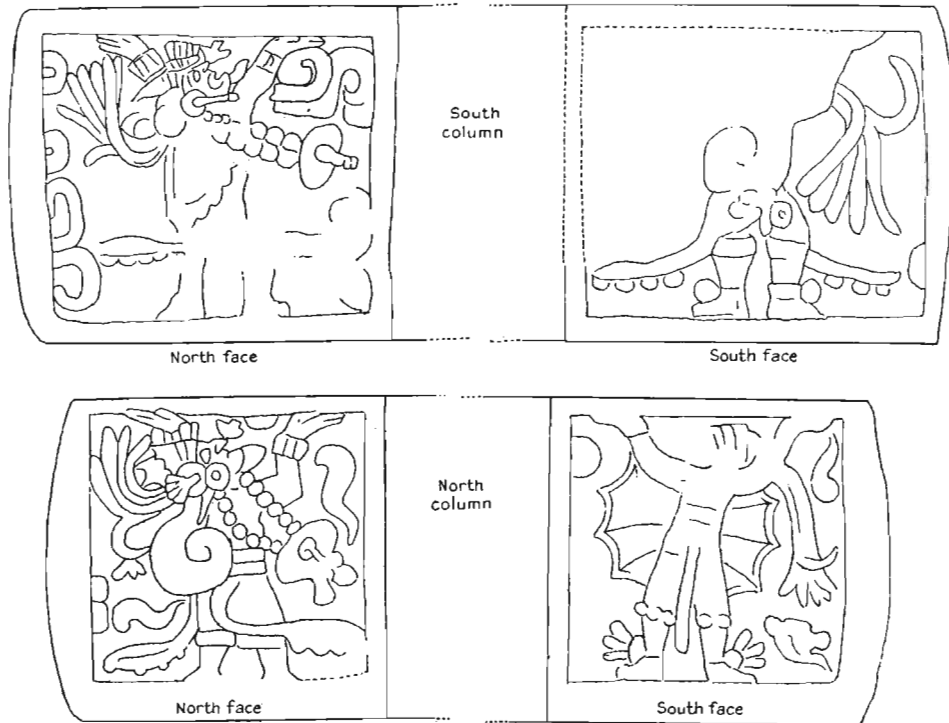


FIG. 172—REMNANTS OF FOUR PANELS WITH ATLANTEAN FIGURATIONS, ON TAIL-PIECE OF SERPENT COLUMNS, TEMPLE OF THE WARRIORS

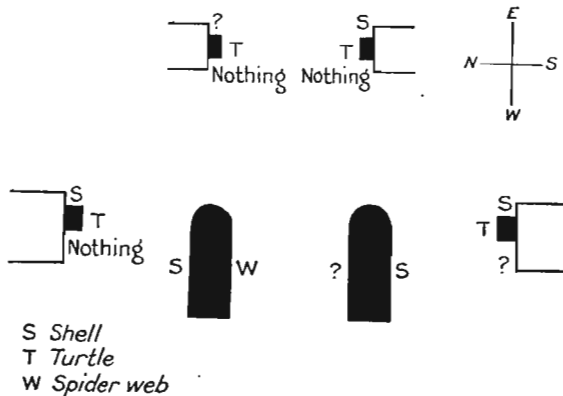


FIG. 173—RESPECTIVE POSITIONS OF ATLANTEAN TYPES ON SERPENT-COLUMNS AND PILASTERS, TEMPLE OF THE WARRIORS

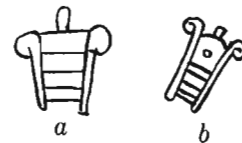


FIG. 174—BRACELETS  
a, from Temple of the Warriors; b, from Dresden Codex

Two of the Atlantean figures at the entrance, A.S. and B.N. (Plates 39, 40), are turtle-men. They face outward. The bodies fill the narrow spaces and they are

depicted in profile, thus making the costume clearer than in front view. The wide scales on the back, the smaller ones at the edge of the upper shell, and the broad horizontal lines of the undershell are well differentiated. The profile position also makes more distinct the way the body and arms emerge from the shell (A.S.). The garments of the limbs are the same as in other turtle-men portrayals, except that on the leg the usual knee and ankle ornament of feathers is replaced by a short legging ending in two volutes, very similar to the legging that often appears in the Dresden Codex (fig. 174*b*). Two more turtle-men stand symmetrically to these, on the north and south panels of the pilasters of the partition door. The figures on the eight narrow panels are: three wearing only the breech-clout, two with no decipherable symbols and three costumed in conical shells (see plan, fig. 173).

The single Atlantean figure in the Northwest Colonnade is A, on the pilaster of the northwest corner (Plate 68). It is a shell man.

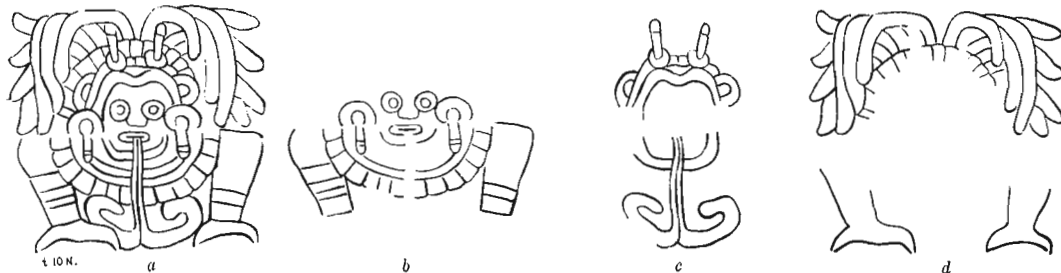


FIG. 175

*a*, Quetzalcoatl motif; *b*, human features of same; *c*, ophidian features; *d*, bird features

#### QUETZALCOATL MOTIF

The composite monster known as the Quetzalcoatl motif appears on the bases of columns and pilasters in both architectural units. Figure 175*a* is the motif; *b* consists purely of the human features of the creature, *c* the reptilian, and *d* the bird elements. The best-preserved example available (t.20 E.) is colored as follows: skin of face and arms, red; hair, gray; facial and wrist ornaments, green; shoulder cape, green with red border and fringe of black and white beads; snake head, green with blue eye-plaques and a yellow ridge on the jaw; tongue, red; nose-plugs, green, tipped with a black and white bead; feather head-dress, short feathers at the base, yellow; plume panache, green. The bird claws are red with white nails lined with black. This color scheme seems constant.

The shape of the nose ornament sometimes varies, becoming a crescent or designed in a stepped outline, and the eye occasionally acquires the Tlaloc ring. Identical arrangements have been found infrequently in Mexico.<sup>1</sup> They occur commonly as a decorative feature in Chichen Itzá.

<sup>1</sup> Gamio, 1922, vol. I, p. 279; Spinden, 1913, p. 211.

SUN GOD

The Sun God is a figure that descends from a series of concentric half-circles decorated by patterns of hachures and larger triangular rays. The best-preserved example (t.D.W., Plate 54) shows each of the circular segments colored differently, making a series of tones from center to rim, green, blue, yellow, with the heavy rays in red. Similar figures, in a complete circle, appear in the frescos of the Temple of the Tigers. Other painted representations of this symbol are scattered over a rather wide area (Santa Rita-Mitla).<sup>1</sup> They have been identified as symbols of the sun disk. Cruder similar symbols, less closely related in details, however, have been found in Teotihuacan.<sup>2</sup>

The change from the complete disk to the half-circle in Chichen Itzá inheres in the convention adopted to represent the optical foreshortening of circular objects, such as shields and breastplates. The profile view of a circle was suggested by a drawing of a half-circle. The sun disk from the front view (Temple of the Tigers frescos) is represented not as a plain disk, but as a broad ring. The central circle is a circular opening, through which the god appears. In profile this became the half-ring sculptured on the columns, and the fact that it lies on a horizontal plane, as shown by the orientation of the line that corresponds to the diameter, indicates that the sun is at the zenith.

The god, visible to the waist, descends out of the center. He carries weapons and apparently casts his influence on the warrior below. No particular human type has been chosen to embody the god, as in the case of the Atlantean figures. Figure 176 shows several of its impersonations: a youthful boy, a classic Maya type, a Roman-nosed man and two elders, one of them bearded. The torso is adorned with a shoulder-plaque on which falls the long hair; occasionally a very elaborate breast-plaque is added, hanging loosely outward from the body. The god wears mosaic wrist bracelets and a stiff belt. The head is covered with a

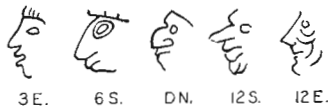


FIG. 176—DIVERSE PROFILES OF  
SUN-GOD FROM THE CAPITALS

diadem-type hat, which sometimes has the blue bird in front (t.3 E.), or a bead design (t.3 S.) or, finally, the most interesting decoration—a human mask projected toward the front in a way that recalls similar head-dresses painted at Santa Rita<sup>3</sup> (t.17 N.). The weapons of the god are an *atlatl* in one hand and in the other a sheaf of darts and a defensive bat. On t.17 E., the god carries a decorated basket in addition to the weapons. Figures descending from the sky in a similar position are common in both Mexican (Vienna) and Maya (Dresden) codices.

<sup>1</sup> Gann, 1897, p. 308; Seler, 1904.

<sup>2</sup> Gamio, 1922, vol. I, p. 284. See for the possible chronological relationships between the sun-rays as represented in Chichen Itzá and Teotihuacan, suggested by Hermann Bayer.

<sup>3</sup> T. Gann, 1897.

## HUMAN REPRESENTATIONS

## SKIN-COLOR, BODY-PAINT AND TATTOOING

The natural human skin is represented by tones varying from deep red to yellow, which is the color specifically of long-robed priests (t.12) and females (t.16 E.).

Not many traces of artificial skin coloration remain on the figures, contrary to the case in the Chac Mool Temple. As much of the war-paint and tattooing was applied with brush rather than delineated by chisel, it must have existed and disappeared. However, some of the traces are interesting and significant. As in the Chac Mool Temple, when the body was artificially colored, the hands and face were left of the natural skin tone.

The most common body-paint is plain black. This is to be found on t.6 W., 17 W., 20 E. and W. and 11 E., which is an exception to the general rule, as the paint covers the face. Black paint also appears on c.9 S. Body and face are painted blue on c.8 S. and 52 S. A most interesting figure is c.28 N. (Plate 96), on which the traces of color show the arm divided into two longitudinal parts, one red and one blue.

Another common body decoration is a series of parallel lines, usually red and white. They occur horizontally on t.10 W. and c.52 W., and in red and yellow on c.52 E., vertically, on c.40 N., 45 W., 47 W., 49 N., and in red and blue on c.45 N.



FIG. 177

*a*, example of face painting;  
*b* and *c*, examples of tattooing;  
*d*, dubious representation of face painting, more probably a skin-mask

Carved circles are scattered irregularly over the body, arms and legs of t.1 W. and c.20 W. (Plates 41 and 88). They might be intended to represent tattooing. This kind of design has already been described in connection with Chac Mool 6 N., where it appeared painted red.

The most frequent face decoration is the Tlaloc ring, painted or incised around the eye. It is carved on t.10 S., painted red on t.10 N. and W., white on c.52 E., carved and painted blue on t.12 W. A segment of circle is sculptured around the mouth on t.1 S. and 15 S., and painted red on c.52 W. (fig. 177*a*), which latter also displays the painted Tlaloc ring.

Another type of facial decoration is a well-chiseled zig zag line that appears on the cheek of c.41 W., and represents, most probably, a relief tattoo (177*b*). The face of c.4 W. is furrowed so deeply that the lines seem deliberate incisions rather than natural wrinkles (fig. 177*c*).

A line of somewhat high relief runs horizontally under the nose of t.5 N., with the ridge showing in profile (fig. 177*d*). This line would suggest, rather than paint or tattoo, a mask of some ductile material, perhaps skin, fitted closely to the upper part of the face, leaving the mouth and chin uncovered.

## MUTILATION

The figure of a warrior with the right leg amputated was described in connection with the Chac Mool Temple (page 243). The flower that seems to issue from the stump was suggested as possible charade writing, and peculiar flowing scrolls on the head-dress were also noted.

Four figures, similar to this mutilated warrior, appear in the Warriors Temple and the Northwest Colonnade. On t.1 W. (Plate 41) the left leg is amputated above the knee. The stump ends in a double ring that may be an example of Maya surgery. On t.15 W. (Plate 57) the left leg is cut slightly below the articulation, and an ornament conceals the wound. Both figures wear the peculiar scrolls found on the head-dress of the earlier representation. The right leg is missing on c.31 S. (Plate 98). A flower replaces it, precisely as on the figure in the Chac Mool Temple. On c.49 N. (Plate 114) the left leg is amputated and the limb ends in the artificial form of an inverted cup. The head-dress peculiarities on these last two figures are indistinct. The lines that might indicate special scrolls on c.27 could as well be nondescript decoration, while c.49 seems to lack the special volutes found associated with mutilated figures in the three cases already mentioned.

These figures might be intended as portraits. They are varied, well-defined types, similar in style to the figures on neighboring shafts, which are obviously intended as naturalistic representations; the brutal characterization of the face of the warrior in the Chac Mool Temple is a particularly convincing piece of realism. The mutilated figures are all warriors and it is not improbable that soldiers wounded in battle might have parts amputated and survive the operation. The flowing scrolls on the head-dresses of these personages, both in the older and the newer temples, might represent the special distinction of warriors thus wounded. However, a stylistic peculiarity might contradict this theory, for, in spite of the different orientations of these figures, in each case the mutilated limb is always placed in the background, that is, if the right leg is missing the figures face left, and vice versa. This arrangement was admirably suited to the decorative effect desired by the sculptor, but it weakens the theory that these may be portraits, for it seems difficult to imagine the sculptor either choosing, from among the warriors, a man whose wound might best fit the requirements of each design, or treating the living model freely enough to invert the mutilation. We know also that similar figures occur relatively often upon Mexican monuments, with the difference, however, that in such cases the leg is severed not on the thigh, but at the ankle. Flowing designs also issue from the stumps. Such mutilations might, perhaps, have a historical import; they certainly have some theological significance.<sup>1</sup> The truth might be a compromise between the two possibilities. Mutilated warriors did exist, and there was a belief in a mythical personage who had suffered amputation. These two phenomena were probably associated. The

<sup>1</sup>Mrs. Zelia Nuttall says (1904, p. 24): "The sixteen one-footed warriors on the stone of Tizoc and those on the Penon rocks either prove that a native conqueror existed who was actually one-footed and had adopted the insignia of Texcatlipoca, or that it was customary, in representing living personifications of the god, to emphasize one of his symbols, the lame foot, even if the mutilation did not exist in reality."

unusual scroll that appears with the severed limb would in that case be another symbol connected with the legendary character that the warrior similarly wounded would personify.

## GARMENTS, BODY ORNAMENTS AND ACCESSORIES

### HEAD-DRESS—DIADEM OR CROWN

A head-dress, which seems to be a primitive form of diadem, was made up of a horizontal band around the head, which holds in place a cloth that hangs behind the wearer. This was described in connection with the Chac Mool carvings. It reappears on c.33 S. in a slightly elaborated form. It consists of a yellow cloth with a cross-line pattern, which covers the head, hangs behind and is held in place by a textile band around the head (fig. 178*a*). The feather ornaments are fastened diagonally toward the back and are tied at the stem in a cone. These elements are the same as those of the Chac Mool diadem, but two additional forms appear on this head-dress, one in front and one in back. They are shaped like ax-blades

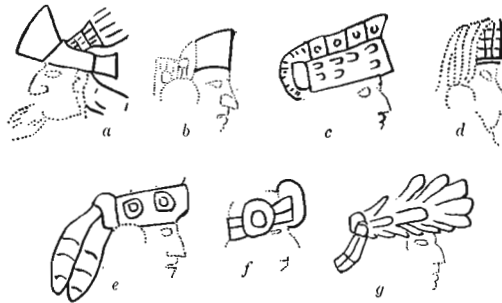


FIG. 178—EXAMPLE OF DIADEMS  
*a* and *b*, textile; *c* and *d*, mosaic; *e*, same with a knot of snake's rattles; *f* and *g*, variants of diadem

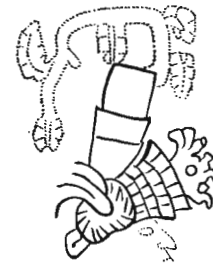


FIG. 179—HEAD-DRESS WITH ATLANTEAN CHARACTERISTICS

and seem to be made of the same material as the diadem. Another example of a simple diadem is c.53 N. (fig. 178*b*); the band is broader in front, like a tiara, and the hair falls over it at the sides and in back.

Various examples of the mosaic diadem, which seems a development of the textile band, reappear: t.9 S., decorated with circles; c.6 E., made of square plaques with a circle in the center of each; c.39 E., with a more complex, but rather indistinct, design; c.25 N. (fig. 178*c*) which is a combination of the mosaic made up of square plaques like c.6 E. and a mosaic of scalelike pieces. These diadems are not actually knotted, but there is a rosette similar to that found on sandals. A more elaborate version of c.53 N., which has already been described, is found in c.56 E. (fig. 178*d*). The band is made up of small square plaques and the overhanging hair is left unadorned. Especially interesting is c.25 W. (fig. 178*e*), because the knot at the back to be found in the oldest version has here become hypertrophied, for decorative purposes, to enormous proportions, and the two flaps are snake rattles, or at least imitate those objects.

There are other head-dresses that fall into the diadem class, but they are further removed from the simpler and more primitive model. A double ribbon, slipped through a number of rings like a belt through a buckle, is to be found in c.44 N. (fig. 178f), while c.37 N. (fig. 178g) is a band that fastens a green crown of leaflike shapes, conspicuously knotted at the back. New features appear on c.33 E. (fig. 179); a rosette, probably of small feathers, in which are set long plumes, is fastened on one side of the head-dress; the ax-blade form, described with c.33 S., stands out on the fore part of the crown, but another ornament of intricate outline (perhaps a monster's head) is set in front. Conical forms rise out of each other on top. The form and material of the diadem and the cylindrical ornaments on top

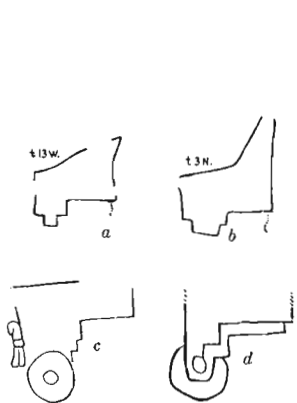


FIG. 180—CAPS

*a* and *b*, caps with triangular front; *c*, respective positions of ear-flap with ear-disk in Chac Mool Temple; *d*, respective positions of same in the newer units



FIG. 181—CAPS

*a*, with square mosaic texture; *b*, with scale-mosaic texture; *c*, possible fusion in one of cap and ear-disk



FIG. 183—TURBAN WITH SNAKE AND CLOTH ENTWINED

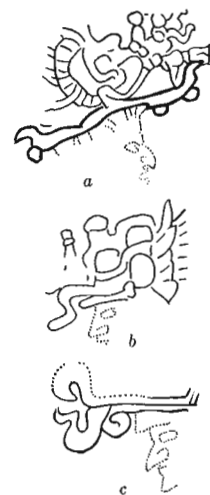


FIG. 182—HATS WITH GOD-MASK

*a* and *b*, complete masks; *c*, incomplete mask

are characteristic features peculiar to the head-dresses of the Atlantean dwarfs on the bases and capitals of the Chac Mool columns. In this case, however, the usual plumes or scrolls set in the top cylinder are replaced by the curved twig of a plant with notched leaves.

CYLINDRICAL CAP, HAT AND TURBAN

Practically all the warriors in both the Warriors Temple and the Northwest Colonnade wear the cylindrical blue cap with ear-flaps that is associated with the large blue ear-disks and which also has the stuffed blue bird in front. Thirty-six such head-dresses were counted in the Warriors Temple and 218 in the Northwest Colonnade. It is essentially the same cap found in the Chac Mool Temple, with

minor differences: the knot in back often disappears completely or is replaced by a tassel, nail-shaped studs (t.4 S.) or other ornamental devices. The band rises to a triangle in front (fig. 180*a*), which in the highest form looks like the Mexican royal diadem, the *xiuh-uitzolli* (fig. 180*b*). A more important though minute point of interest is that in the Chac Mool Temple sculptured and painted versions both portray the ear-disk independent of or partially covering the ear-flaps of the cap (fig. 180*c*), while here the contrary happens more often, that is, the flaps cover part of the ear-disk (fig. 180*d*). As the carved and painted versions agree in the older monuments, this unobtrusive detail, together with similar accessory points, might help to establish a comparative date for other objects.

The best-preserved examples afford some idea of the detailed structure of the caps. Thus, c.57 S. (fig. 181*a*) is a mosaic of rectangular pieces and c.45 N. (fig. 181*b*) is one of irregular scales. On c.53 W. (fig. 181*c*) there is no clear separation of ear-disk and ear-flap; the usual stepped line that outlines the lower edge of the cap is run into the ear-disk and also continues into the Tlaloc eye of the face. It would be difficult to say whether this indicates that the three objects were fused into one, or if the sculptor left for the painter the task of making a more accurate description of the objects.

The wide-brimmed hat seems to be worn by elders and priests. A rather simple form of this headgear appears on t.10 S. and t.12 E. and S. (Plates 50 and 52), in the last case of which even the texture of the straw is visible. A composite hat and diadem head-dress appear on t.12 N. (Plate 52); the diadem decorated with beads in front is easily visible under the brim of the hat. Particularly interesting is c.60 S. (fig. 189) because the crown is visible even to details of its texture; the material is probably straw, and diverse lines upon it indicate an elaborate woven pattern. This hat is worn together with a diadem, as in t.12 N., and is lavishly decorated with tassels, beads and plumes. As is general for a head-dress, the most elaborate hats are worn by the wearers of divine masks. The crown of t.11 N. (Plate 51), for example, is concealed by large disks that give the entire structure a conical form. This type of hat is also found as a base for masks of gods probably identical to those described in previous discussions, but here they are so worn that it is difficult to perceive them clearly. Two such examples are t.11 E. and t.19 N. (Plates 51 and 61). It may be that the twin tubular shapes set upon the crown were intended as nose-plugs, in which case the crown was adorned by a mask. Better preserved is c.33 N. (fig. 182*a*). The very large brim of the hat curving upward and decorated with hanging beads is here reproduced with a heavy line, for purposes of clarity. The details of the mask that conceal the crown or replace it are indistinct, but the cavity of the eye-orbit is visible, as are also forms that seem to be nose-plugs of various kinds and a feather fan that ornaments the back. On c.33 W. (fig. 182*b*) the hat has a smaller brim and one of the volutes of the god's proboscis hangs over it. The other volute is now indistinct, but a vertical nose-plug remains of it. C.4 S. (fig. 182*c*) is much weathered, but still visible upon it are three scrolls which might have delineated a different type of god-mask, to be



described later, together with the face masks. Part of the upper scroll has disappeared and is restored in the text-figure as it probably had been. A form similar to a nose-plug appears at the top of this bas-relief, and may have been also part of the mask.

The turban is nearly always depicted as made up of a cloth wound about with a snake. A clear and really beautiful example is worn by a long-robed priest on t.12 W. (fig. 183), while c.61 W. (Plate 123) shows a snake intertwined with what seems to be decorated textile, the snake's rattle hanging behind. On c.57 E. (Plate 120) the cloth is arranged in tiny horizontal folds. On c.38 S. (Plate 104) volutes curve from the reptile's mouth. These are probably decorative scrolls added by the sculptor, rather than an exaggerated form of the bifurcated serpent's tongue.

ANIMAL HEAD-DRESS

A few animal features appeared on the head-dresses in the Chac Mool Temple, but none that constituted an animal head-dress proper. In the newer architectural groups this type of head-dress is found, made up of an animal head that covers

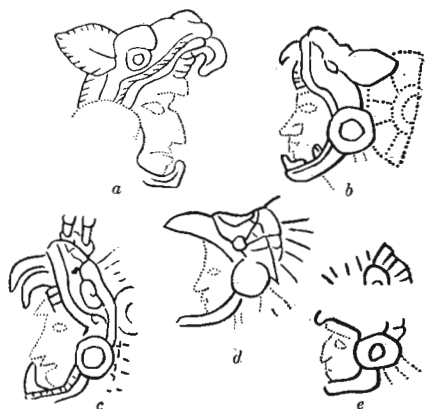


FIG. 184—ANIMAL HEAD-DRESSES

*a* and *b*, coyote; *c*, serpent; *d*, quetzal (?); *e*, parrot (?)



FIG. 185—COYOTE HEAD-DRESSES OF SO-CALLED NAHUA TYPE

*a*, from Dresden Codex; *b*, from Tro-Cortesianus Codex

the back and sides of the wearer's head, allowing the human face to be seen in the animal's distended jaws. The coyote type of this kind of head-dress appears on c.27 N. and an especially good portrayal of it is t.5 N. (fig. 184*a*). On c.57 W. (fig. 184*b*) it is worn, together with an additional back-shield identical to the belt back-shield, a feature found here for the first time. In c.55 W., though much weathered, a vertical line at the back of a head-dress of the same type may indicate that a shield was also depicted.

In the Warriors Temple only one doubtful example of reptilian head-dress appears (t.10 W., Plate 50), but it is depicted repeatedly and distinctly in the Northwest Colonnade. A particularly good example of this head-dress is c.25 S. (fig. 184*c*), as it includes the outside fangs of the serpent, indications of its scales, and well-defined nose-plugs and eye, while a voluminous plumed crest stands upon

it. The head-dress in c.36 N. is similar but poorly drawn and now rather indistinct. A new version of the reptilian headgear appears on c.47 N. (Plate 112). Here not only the reptile's head, but the entire body is worn. The body hangs down from the back of the head and ends at the height of the warrior's ankles in a clearly depicted rattle-tail, decorated with plumes. The reptilian nose-plug appears on this figure, and also a unique detail—a voluminous speech-scroll at the height of the mouth of the warrior. Throughout this architectural group, speech-scrolls rarely appear issuing from a human mouth, but several times from a snake's jaws. The speech-scroll on c.47 N. most probably, therefore, refers to the snake or possibly to the man considered as being endowed with the powers of the creature whose costume he wears. In c.37 E. another example of the use of all the reptilian characteristics is found, but in this case the lower jaw of the animal is eliminated, so



FIG. 186

a, skull-cap; b and c, hair-dressing



FIG. 187—FEMALE HEAD-DRESSES

a, from Temple of the Warriors; b, from Trocortesianus Codex

that the warrior's chin is uncovered. As the sculptor was much hampered by insufficient space, the tail-panache is reduced to two unusually small plumes, carved as if they hung over the blue ridge that frames the picture. Another example is c.38 E. (Plate 104). Much of the head is destroyed but the sculpture still gives a good image of the S-shaped curve of the serpent's body.

Bird head-dresses of several varieties also appear; t.17 W. and t.6 S. seem to fall into this class, although they are so badly preserved that it is doubtful. C.48 S. (fig. 184*d*) is a clear representation of an unidentified fowl; it is similar in form to c.24 N. (Plate 92), a man entirely disguised as a bird, but only the lower profile of the beak is distinct. Another such head-dress (c.5 S., fig. 184*e*) may be a parrot.

Such head-dresses are usually said to be characteristically Nahua, but they seem to have been used also by the Maya. One is to be found in the Dresden Codex (fig. 185*a*) drawn in pure Maya style. It represents the same creature as t.5 N. and is worn by a black god dressed also like a warrior. A similar figure appears in the Trocortesianus Codex (fig. 185*b*). The human face appearing in the animal's jaws is a feature common enough in both northern and southern Maya sculpture.

#### SKULL-CAPS, HAIR-DRESSING, HEAD-DRESS ORNAMENTS AND WIGS

Another type of head-dress appears, which might be called a skull-cap, as it fits closely the outline of the skull, but the material is, in most cases, not identifiable. Such headgear might just as well be a special decorative arrangement of the hair itself, with a few ornaments and the usual plume panaches added. For example,

in t.9 W., 10 N. and 16 E., though artificial elements appear, the hair seems visible all over the head. The head-dress in c.19 W. (fig. 186*a*) is no bulkier than natural hair, but is differentiated from it by a double ornamental band across the lower border of the outline. Perhaps the clearest of these arrangements is c.4 E. (fig. 186*b*). This seems to be natural hair with a kind of band knotted in front, while c.17 E., c.5 E. and c.32 E. are less distinct.

Another ornamental headgear that is more certainly a kind of coiffure appears on c.56 S. (fig. 186*c*) and on the similar figures c.52 N. and S. (Plate 116), c.8 N. and W. (Plate 76); and, doubtfully, on t.8 N. (Plate 48). This arrangement shows the hair tied by a broad band in such a way that the lower part is held tightly to the scalp, while the upper, that is the ends of the hair, stands erect, held in at the base by the knot and spreading upward and outward in the form of an inverted cone.

On the unique female figure, t.16 E., the hair is bobbed and hangs loose; a tall bulbous ornament set on a narrow horizontal base is held on the top of the head, and a tassel, standing stiffly upward, holds a sheaf of long plumes that drop behind (fig. 187*a*). A similar female head-dress from the Codex Trocortesianus is shown for comparison (fig. 187*b*).

Other head-dresses do not fall into any of the categories already discussed. For instance, t.20 E. (Plate 62) is a fluffy ball of slight feathers with two multi-color antennæ emerging from it; c.8 W. (Plate 76) is of similar material but has a circular ornament at one side; c.1 N. (Plate 69) is a shapeless mass of mosaiclike material; while c.29 N. (Plate 97) is made up of long feathers plucked or trimmed into fret-work, and arranged in the same way as a modern Plains Indian's head-dress. Cases parallel to this somewhat unusual head-gear are to be found in the fresco fragments of the Monjas Temple and likewise in the back chamber of the Tigers Temple.

All the objects used to decorate head-dresses in the Chac Mool carvings appear in the later architectural units, and there are a few new ones. Again we find plumes that seem to be the familiar quetzal and eagle feathers, though the relative lack of color does not permit absolute identification. The pear-shaped pendants on the long plumes also reappear (t.1 E. and t.15 E.) and likewise the small pennantlike ornaments (t.14 S., 15 N., 16 W., and fig. 191). Elaborately trimmed or plucked artificially composite plumes appear on 5 W. and 9 S. (fig. 188).

The head-dress of c.60 S. is reproduced completely here as it reveals indications both as to the details of the ornamental materials and the method of using them (fig. 189). At the top of the conical crown of the hat are set elaborate stems of semirigid strings of spherical beads, tipped with a small tassel or rosette from which issues a long panache. On the rim, a decoration of short feathers serves as a base for longer plumes. These rise upward and then drop with their own weight. Though this decoration appears here only at the front and the back of the hat, that is, to the right and left of the crown, it might indicate a circular decoration around the entire rim which in actual fact would have hidden the crown entirely. Maya requirements of full description in representations would have suggested this elliptic method of depicting the rim decoration, as thus the crown might remain

visible. Fully detailed tassels hang from the outer rim of the hat: cross-lines indicate that the clasp was made of woven material, perhaps the same as that of the tuft. This hat does not rest upon the wearer's head directly, but on a crown in the front of which is set a monster's head, with bifurcated tongue, carved, probably, out of some hard material.

The blue birds used as escutcheons on the warrior's caps are usually entirely realistic and are probably stuffed birds quite like the ornaments on ladies' hats used not so very long ago. Others, however, are made of other materials; c.53 W. seems to be assembled of carved bits of wood mounted and fastened together by tenons (fig. 190a); while c.17 S. and c.61 E. (fig. 190b and c) are mosaics made up of square pieces, probably turquoise or imitation turquoise, as the blue of that stone would correspond closely to the natural color of the bird.

The back-shield that appears on a few of the head-dresses is a new feature. It has been mentioned in connection with c.57 W., a coyote head-dress. Another clear example is c.61 S., in which the back-shield is associated with a cylindrical blue cap (fig. 191).

Another new, though infrequent, feature found in both the temple and the colonnade is that of a floral decoration as in c.4 W. (fig. 192a) where an isolated flower fastened in front of a head-dress is shown. On c.29 N. (fig. 192b) unusual

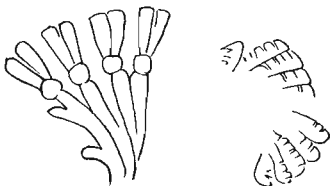


FIG. 188—PLUMES SHOWING ARTIFICIAL ELABORATION



FIG. 189—ACCESSORY ORNAMENTS ON HAT

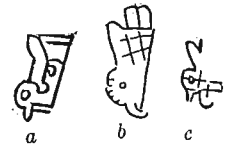


FIG. 190—ARTIFICIAL BLUE-BIRDS

and decorative shapes appear, insistently suggesting the well-known Maya water-plant *motif*, while c.51 S. (fig. 192c), t.8 E. (Plate 48) and t.9 E. (fig. 192d) all have flowering twigs set into the hat. The enormous size of the flowers, in proportion to the size of the wearer, is probably a liberty taken by the sculptor who magnified the size in order to fill the space of the background. This throws doubt on the authenticity of the flowering branch on the hat of t.8 E., which might be merely an elaborated part of the decorative plant-scrolls on the lower left. However, the other two examples can not be doubted. In both cases the twig has been set on the hat through a tuft of hairlike material. On t.9 E. especially, the demarcation between cap and twig has been emphasized by the realistic way in which the other decoration has been parted and combed sideways in order to make room for the stem (fig. 192d).

Another type of ornament, a composite form of turban and diadem, appears on c.1 E. This ornament is probably cylindrical. It rises diagonally in front, and a flap of some soft stuff hangs from the end (fig. 193a). A pointed form stands out in front on c.16 S. (fig. 193b). Given the Maya sculptor's conventions for depicting perspective, it seems that this would be the same shape of

ornament used as a breast-plaque on c.24 S. (fig. 193c) but here seen in profile. In normal perspective, the breast-plaque, seen in full front on c.24 S., would become a rectangular plaque from which a cone rises, with its axis perpendicular to the plane of the base (fig. 193d).

As a form of head-dress, wigs seem to have fallen into disuse since the days of the older temple. In the Warriors Temple they are found on 11 N. and S., associated with god-personifiers, and also on 10 A., in a manner and with a type that recalls 2 N. of the Chac Mool Temple. In the Colonnade the wigs depicted are doubtful; they appear on dignitaries wearing unusual costumes (col. 56). The best example is 33 E., a figure whose entire costume retains survivals of older styles.

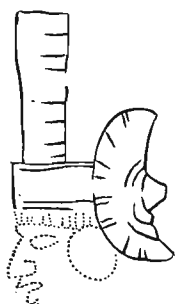


FIG. 191—PENNON AND SHIELD ON BLUE CAP



FIG. 193—ORNAMENTS

*a*, with flap; *b*, profile view of conical ornament; *c*, front view of same, from a breast-plaque; *d*, same in normal perspective

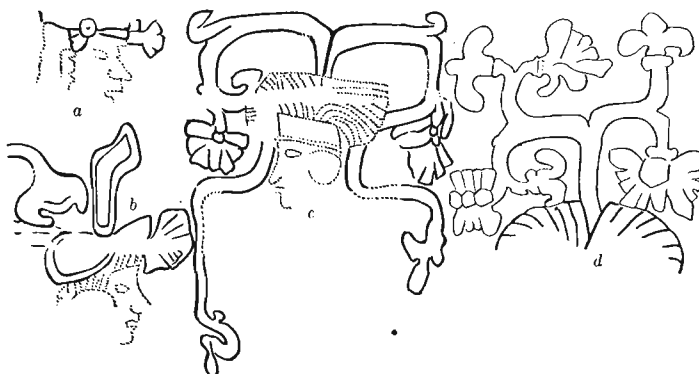


FIG. 192—FLORAL ORNAMENTS ON HEAD-DRESSES

EAR, CHEEK AND NOSE ORNAMENTS

Only once does the ear appear unadorned—on t.16 E., in which case it is portrayed in the same conventional way usual in the wall paintings.

By far the most common ear ornament is the disk covering the ear, used with or without a stem. All except three of the ear ornaments from the temple are of this type, and in the colonnade there are as many as 168 examples. The disk is plain or decorated by a small concentric circle, except in the cases of c.22 N. and t.5 N., which have a design of radiating lines. Ten rectangular ear-plaques, of the type seen on c.28 S. (fig. 194*a*), appear.

The ear-plug inserted through the distorted lobe of the ear, with the ear itself left visible, also appears. The commonest forms are the rod (c.29 W.) and the rectangle (c.57 N., fig. 194*b* and *c*). There are two variants of the rod: an S-shaped tube (c.43 S.) and the rod tipped with a hemispherical bead (c.16 S., figs.

194*d* and *e*). Of the rectangle there are several variants: *c.4 N.*, which may be, however, a sheaf of small rods; and *c.7 N.*, shaped like an ax-blade (figs. 194*f* and *g*). In a few cases long strings of beads hang from the lobe of the ear, or in clusters, like grapes, as for example *c.40 S.* and *c.57 N.* Both are worn together with the rectangular plug (figs. 194*i* and *j*). A unique feature is the disk or ring used as a plug on *c.29 S.* (fig. 194*h*).

An entirely different kind of ear-plug appears on *c.52 E.* (fig. 194*k*). Instead of being made of solid material, it seems to be a textile band inserted through the lobe, knotted or folded behind the ear, with the two ends hanging loose in front. The ear-plug in *c.37 W.* is similar though less clearly depicted, while in *c.4 W.* it is a kind of circular rosette (fig. 194*l*) and stands apart.

Sometimes more than one ear-plug is used. A favorite combination is the rod or rectangle with a bead or beads, as seen on *c.40 E.*, *c.43 S.* and *c.48 E.*

A single cheek-button appears on *t.2 S.*, *7 N.* and *W.* and on *c.31 E.* and *45 E.* Two buttons are used by *c.61 S.*

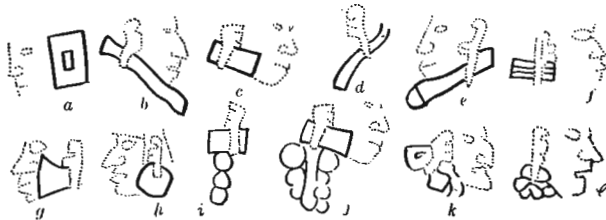


FIG. 194—EAR ORNAMENTS

*a*, rectangular plaque; *b*, stick-plug; *c*, rectangular plug; *d*, S-curved stick; *e*, stick tipped with bead; *f* and *g*, variant of rectangular plug; *h*, circular plug; *i* and *j*, composite ornament with beads; *k* and *l*, textile plug

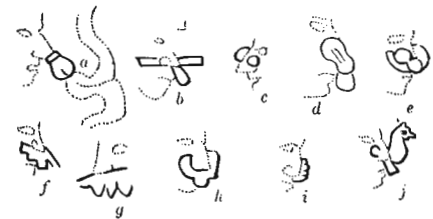


FIG. 195—NOSE ORNAMENTS

*a*, bell-pendant; *b*, simultaneous use of pendant and stick; *c*, nose-button and excrescence; *d*, 8-shaped plaque; *e*, same plus semicircular ornament; *f*, *g*, *h*, unusual shapes; *i* and *j* ornament starting from behind nose

The most common nose ornament depicted is the bead hanging from the septum, usually associated with the cylindrical blue cap and ear-disk; on *t.4 N.* (Plate 44) this seems to become a triple pendant. Another unusual example appears on *c.28 N.* (fig. 195*a*). The line at the base recalls the slit of a bell, and a scroll which possibly signifies the sound issues from this slit. The rod through the septum ranks second in favor to the pendant. It is usually worn by personages other than warriors. However, no sharp demarcation is made between the wearing of the two types of ornaments, and in several cases (*c.3 S.*, *c.14 S.*, *c.32 N.*, *c.47 W.* and *t.9 W.*) both are worn. A good example of this combination (fig. 195*b*) is had in *c.57 N.*, a warrior.

The nose-button reappears frequently, and always worn by warriors. There are three doubtful examples of this ornament: *c.32 W.* (fig. 195*c*), *c.10 S.* and *c.49 N.* On all of these a noticeable excrescence stands out from the ridge of the nose. It was remarked in connection with the Chac Mool sculptures that similar details appear occasionally on some of the South Maya monuments. In the Chac Mool figures,

however, one button was carved on the visible side of the nose. The bulge on the other side might indicate the ingenious attempt of the sculptor to depict the twin-buttons, the other part of which would be invisible from this point of view in normal perspective.

The semicircular ornament found in full-face view on the composite figures of the bases is also worn by the human beings on the shafts, here carved in conventional profile view. A new device also appears. This is a figure-eight plaque, of which a good example is seen on t.5 W. (fig. 195*d*). In some respects this resembles a twin-button, but it must be differentiated because the two disks are carved on the same side of the nose. Figure 195*e* shows this plaque worn in combination with the semicircular ornament.

There are several other unusual forms: c.39 N., the stepped outline of which recalls the nose-ornaments of some of the composite figures on the bases (fig. 195*f*); c.39 W., a series of inverted triangles (fig. 195*g*); and c.43 N. (fig. 195*h*) which may be, instead of a new kind of ornament, the outline of the semicircular ornament combined with the bead-pendant, sketched by the sculptor and left for the painter to finish. The ornaments on c.28 W. and c.37 N. are depicted in a manner



FIG. 196—DEATH-MASKS

*a*, with sub-orbital plaque; *b* and *c*, incomplete masks; *d*, with bisected skull outline



FIG. 197—BIRD-MASKS

*a*, parrot; *b*, owl; *c*, unidentified



FIG. 198—UNIDENTIFIED ANIMAL MASK

such that it is difficult to ascertain what was the real position of the original object (figs. 195*i* and *j*). The ornament on c.37 N. is particularly interesting. It is a carefully delineated silhouette of a crested bird, worn with the nose-button and the bead pendant. The glyph-name of the wearer, sculptured at the upper edge of the shaft, also happens to be a bird.

#### MASKS

Seven new examples of the death-mask appear in the architectural units under consideration. These are: c.20 W. and c.40 W., which completely conceal the face; c.40 W. which has the stone blade inserted in the nasal cavity; c.39 E. (fig. 196*a*), which also conceals the face and has an interesting sub-orbital plaque like the one depicted on the masks of the long-nosed gods; t.2 N. (fig. 196*b*) and c.44 W., which are incomplete masks, revealing the chin; c.45 W. (fig. 196*c*), which conceals only the lower part of the face, leaving the forehead, eyes, and the upper part of the nose and cheeks uncovered; and c.9 S. (fig. 196*d*), a very poor portrayal, but which, nevertheless, is of great interest. It has a hairy crest comparable to the one which appears on the same subject in the fresco on the exterior of the Warriors Temple. The skull is of the same heart-shape which in the Tulum frescos represents an abbreviation of the bicephalic features of the god.

The five bird-masks that appear are similar in form to the bird head-dresses. The jaw opening is smaller in the case of the masks, so that although the lower half of the beak covers the chin quite like the corresponding part of the head-dress, the upper part drops like a visor over the forehead, eyes, cheeks and nose. The eyes of the wearer coincide with the eye-holes of the mask, obviously so that he may see. Of these five masks, c.55 S. (fig. 197a) is a crested parrot; t.8 W. (fig. 197b) and, less certainly, c.43 S. represent an eared owl, probably the moan bird; t.17 N. and c.24 S. are unidentified; while 6 S. (fig. 197c) is extremely difficult to discern. The face seems to appear between the jaws of a bird's head, the sharp form that projects from the chin corresponding to the lower part of the beak; but the features of the face seem concealed by a narrow band of thin material. Thus, if the projection in front is the continuation of this band, the mask might represent a turkey's beak and flap, or, on the other hand, it may indicate merely the common nose pendant.

Because there is a tiny heart-shaped ear at the upper right of the head of c.32 S. (fig. 198) it seems to have been intended as an animal mask. The eye is enclosed

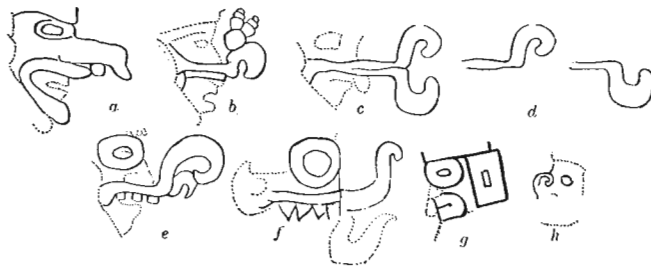


FIG. 199—GOD-MASKS

a, similar to Chac Mool type; b and c, incomplete masks; d, analysis of scrolls on preceding figure; e, f, and g, masks with Tlaloc eye; h, degenerated god-masks (?)

in a heavily underlined oval; the nose seems to be human, and the mouth is concealed by an unusual design of lines which looks, to a modern eye, like moustaches and a beard. A tuft of hair above the tip of the nose and the upper part of an *atlatl* laid horizontally in front of the mouth make this composition still more puzzling.

Two of the later god-masks, t.11 E. and N. (fig. 199a), recall the older type described in connection with the Chac Mool Temple. These, however, lack the suborbital plaque. A new variant of the same subject as the type on t.10 E. (fig. 199b) appears more often. This is an incomplete mask fastened to the face by means of double prongs, much as the spur is fixed to the heel of a boot. The prongs are probably tied back of the ears and the whole object is held in place by the bridge of the nose. It gives the nose an artificial scroll shape which produces a profile reminiscent of a long-nosed god. Three others are constructed on the same principle; c.48 N., t.8 N. (fig. 199c) and t.11 S.; the last is so badly weathered that it can hardly be perceived. In the other two cases, however, the nasal volute is double instead of single, thus portraying in a composite form the two positions of the long nose, each of which is found independently on the architectural masks



(fig. 199*d*). In c.53 W. (Plate 117) and t.4 S. (fig. 199*e*), a slightly different principle has been employed. The device does not rest on the nose but is fastened under it, concealing the upper lip by an artificial lip and set of teeth, while the lower jaw is unmasked and thus, left to move freely, adds greatly to the general effect. In both cases this mask appears associated with an eye-ring, though not attached to it. Eye and nose pieces are made into a single object on 17 E. (fig. 199*f*) which is the same in appearance and significance as the others.

The design of c.28 S. (fig. 199*g*) is complex. The human nose, with its bead-pendant, is not covered; the eye is concealed by an eye-ring, and a piece of hard material also seems to mask the chin. This latter object recalls the similarly shaped mouth-mask found in the Chac Mool Temple (6 N.). The Tlaloc eye-ring appeared not painted or tattooed, but as a separate object made of hard material, as in the Chac Mool Temple (2 N.). It reappears similarly, seven times, used by itself or in combination with other facial ornaments (t.1 S., 15 S., c.2 E., 8 W., 48 N., 53 W. and 57 N.). Because of its use and significance, it might be considered a rudimentary god-mask.

A very degenerate type of god-mask, consisting of a minute scroll fastened to the nose, seems to appear on c.44 S. (fig. 199*h*).

#### NECKLACE, SHOULDER ORNAMENT AND BREAST-PLAQUE

The familiar type of necklace, with or without beads, reappears frequently as in c.39 E. (fig. 200*a*) which is an example of a shell necklace. The necklace in t.1 S. (Plate 41) is made of tiny shields, each decorated with two disks simulating eyes. A most unusual case is presented in c.20 N. (fig. 200*b*). The two concentric circular lines are like the strings of a necklace, which are probably made up of large irregular beads or shells used as pendants, carefully worked out on the column but not easily identifiable.

The shoulder cape, worn especially by non-warrior types, is identical to the one described in connection with the Chac Mool figures. Large shells hang from the lower border on c.4 N. (fig. 200*c*). This is a method of decoration often used on belts, but unusual on capes.

An ordinary shield used as a breast-plaque appears on c.8 N., W. and S. Here it is more a defensive weapon than an ornament, but in other cases the protected area decreases in size and the halo of rays and beads increases, so that the object becomes a real jewel. The shield-ornament takes on the shape of a half-circle on c.53 N. and c.52 S., and is further designed for its decorative purpose by the addition of elaborate bead fringes. In c.36 N. the same material is used, but with a more elaborately fretted outline and a markedly convex surface. Most of the shields are plain, but the decoration on some suggests a human face, varying from an extremely simple version such as t.1 S., on which two small circles simulate eyes, to a more detailed pattern such as is on c.60 N. A comparison between t.4 N. and t.18 N. (figs. 201*a* and *b*), the first a full-face and the other a profile view of similar breast-plaques, each decorated with a human face, will show that

the sculptor or smith did not content himself in such cases with merely scratching the features, but worked them out in high relief.

The peculiar rectangular shape of a stylized bird, already alluded to, reappears here worn by many of the warriors. Some variants develop, for example c.44 W. (fig. 202*a*), which has more than the usual three indentations on each side. Probably the most refined version of this ornament is the small brooch c.56 S. (fig. 202*b*), which has two loose flaps. This is worn by a high dignitary, fastened on the lower border of his mosaic shoulder cape.

Rectangular plaques other than the stylized bird are relatively rare. The cone projecting from a rectangle on c.24 S. (fig. 193*c*) has already been described. Three others appear: t.5 S. (fig. 203*a*), which is decorated with an indefinite pattern

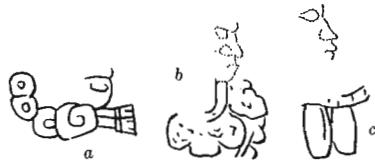


FIG. 200—NECKLACES

*a*, shell; *b*, unidentified; *c*, use of shells on shoulder cape

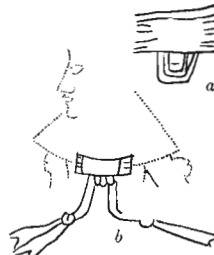


FIG. 202—BREAST-PLAQUES

*a*, variant of stylized bird; *b*, refined variant of same



FIG. 201—SHIELDS WITH HUMAN FEATURES

*a*, front-view; *b*, profile

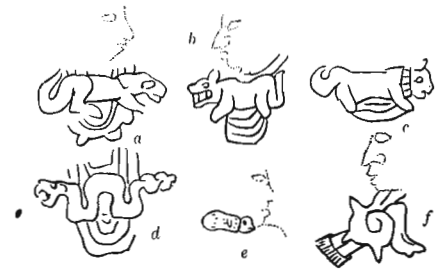


FIG. 204—ANIMAL MOTIF ON BREAST-PLAQUES

*a*, *b* and *c*, jaguar; *d*, rattle-snake; *e*, glow-worm (?); *f*, shell



FIG. 203—RECTANGULAR BREAST-PLAQUES

*a*, unidentified pattern; *b*, plaited pattern; *c*, with additional snake's rattles

of curved lines; c.8 E. (fig. 203*b*), which has a wavy design, and c.52 E. (fig. 203*c*), which is a cross-pattern with a fringe of outer rays, from which project two objects, probably snake rattles. These last two examples are unusual. They are both worn by sorcerers holding snakes, and, given the similar appearance and use, might have a special symbolic significance.

Animal representations occur frequently on breast-plaques. The most common of these is the jaguar. It is worn alone on c.2 W., and in combination with a necklace decorated with beads on c.9 W. (fig. 204*a*); c.37 S. (fig. 204*b*) is an example of a jaguar intended to look ferocious; while c.6 S. and c.13 W. (fig. 204*c*) represent the animal wearing a mosaic collar, a detail which suggests domestication. The little color remaining on the breast-plaques shows the animal painted, not in yellow, its

natural color and the color which is used when the living animal is represented, but in blue, which suggests derivation from a carving or mosaic of some semiprecious material.

Another animal that appears on the breast-plaques is the rattlesnake, beautifully carved on c.55 S. (fig. 204*d*), of which c.15 W. is a weaker replica. Most interesting is c.6 W. (fig. 204*c*). The warrior wears the usual bird-shaped breast-plaque, but another ornament closer to his neck seems to be a small wormlike creature. Comparison with the few insect representations that appear in the entire group, such as those on the floral relief of the Chac Mool Temple (Plate 19 and page 149), strengthens the idea that a larva is meant. In its natural state, this creature is far from being ornamental, and thus some other reason must have determined its choice; possibly it is actually a glow-worm, the Yucatecan variety of which gives a relatively strong light, which might have added an interesting effect in nocturnal processions. A large sea-shell is used as a breast-plaque on c.40 S. (fig. 204*f*). It is hung around the neck by a band, the fringed ends of which appear on the breast of the wearer.

#### TUNIC AND LOIN-CLOTH

The badly faded painting in the Warriors Temple and the Colonnade makes difficult the identification of any close-fitting bodicelike garment, or the distinction between long tunic and skirt. A bodice with short sleeves, molded to the torso, was indicated with the chisel on c.24 E. and c.51 N. and W., and can still be perceived by the carved line near the shoulder that separates the arm itself from the sleeve. On other reliefs, traces of color other than that of the body or of the usual body-paints can be found on the torso, though the face and arms are usually of a natural shade. Probably the traces are remains of the painted bodices. Two good examples are c.52 S., on which the skin was painted blue while the garment was green, and c.60 S., on which the bodice is pink and worn with a long robe (unless the two were one piece). An identical combination appears in the Chac Mool frescos.

A plain blue tunic hanging to the knee also occurs. On c.35 W. and t.2 S., snake's rattles have been sewed, dangling from the edge of the garment. Chac Mool 1 W. is an identical case. Another typical tunic is cut similarly, but it is white. It recalls Chac Mool 2 N. The material seems to be very fine and is decorated with a band running horizontally near the lower border, and with patterns of wide and narrow vertical stripes, combined with dots, over the entire surface. Examples of this tunic are had in t.1 S., t.15 S., c.48 E. and c.57 N. Traces in color of the vertical ornamental bands remain on the last two (figs. 205*a* and *b*). On figure 205*b*, the diagonal lines at the left are part of the surface of the sleeve. The manner in which they are disconnected from the lines of the tunic suggests that the decoration was woven in a broad piece of cloth, from which the sleeve and the main part of the tunic were cut separately and then sewed together, with no attempt at connecting the design. The lower part of a tunic, showing the remains of an intricate design, is seen in c.12 N. (fig. 206).

Some tunics, like c.36 W., were made partly of feathers, or decorated with them. Though almost covered by the cloak, t.8 N. and 17 E. might have been made entirely of plumes; t.11 N. is probably a tiger's pelt, similar to Chac Mool 6 N.

Garments covering the torso, other than tunics, infrequently occur, as in c.4 S. and t.19 N., which seem to be turtle shells, worn in the manner of the Atlantean figures on the Chac Mool bases. Another garment, unique to bird-men, fits closely to the body, is molded to the legs and imperceptibly vanishes into the leggings. As it is covered with feathers, it gives to the body of the wearer the realistic appearance of a bird (t.6 S. and 8 W. and c.48 S.).

The loin-cloth is usually white and finished with a fringe. It appears nearly as often in blue, scalloped with red, but on c.40 W. it is green, which is unusual. It may be plain or decorated. An elaborate one appears on c.36 N. (fig. 207a).



FIG. 205 — PAINTED PATTERN ON TUNIC REPRESENTATION

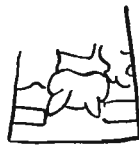


FIG. 206 — COMPLEX DECORATION ON TUNIC

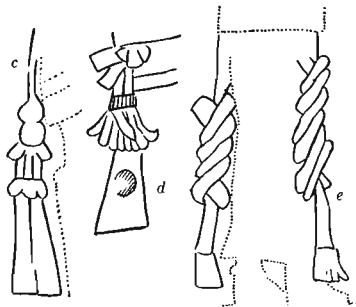
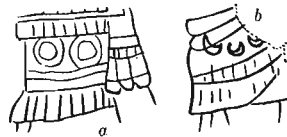


FIG. 207

a and b, decorated loin-cloths; c, d, decorated end-flaps; e, end-flaps worn on long skirt

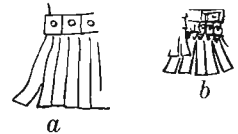


FIG. 208 — SKIRT MADE OF LOOSE WHITE FLAPS

a, from Temple of Warriors; b, from Dresden Codex

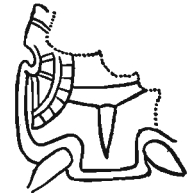


FIG. 209 — SCALLOPED SKIRT WORN WITH BACK-SHIELD

Moon crescents, used to decorate a loin-cloth on Chac Mool 5 N., reappear on t.10 S. and c.52 E. (fig. 207b), painted grey on the white garment.

The front flap or *maxtli* is generally a white triangular piece of cloth, either plain or decorated, in the latter case the ornamentation usually consists of a horizontal band of embroidery (c.16 N. and c.25 N.). This decoration matches the style of the bands on white tunics. The back-flap, which corresponds to the *maxtli*, is white and fanlike and usually, if the warrior wears it, drops from under the back-shield. The two flaps may become highly elaborated; beads and tassels are used on c.33 E., c.36 N. and c.56 E. (fig. 207c); feathers replace the cloth on c.32 N. and are added to the normal cloth *maxtli* on c.61 W. (fig. 207d). The front of t.13 S. is covered with a fluffy material, possibly short feathers, which type of decoration is also found on the frescos. On c.37 N. cloth is used in back and plumes in front, an order which is inverted on c.39 E.

However, in spite of the endless variety, certain conventions are observed. For usual figures, the back-flap is always white. Personages of special importance, such as mask-wearers, always wear a tubular, bifurcated back-flap, the lower third of which is painted yellow or pink and the upper part blue (t.11 N. S., c.8 S., c.33 E.). This is the same garment, both in shape and color, as found in the Chac Mool Temple (5 E. W. and 6 E., N., S.). The two oval racquets worn in front and in back which characterize Atlantean figures reappear also, always on the most exceptional personages: sorcerers (c.4 N. and W.), turtle-men (c.4 S., t.19 N.), other animal personifiers (c.32 S. and c.37 E.) and on the bearded prisoner (c.33 S.) who wears an Atlantean necklace also.

The bird-man (c.24 N.) is unique as regards this garment. Instead of the ordinary back-flap, a realistic imitation of a bird's tail issues from under his back-shield. An entirely new detail appears on c.60 E. (fig. 207*e*). Front- and back-flaps hang from the belt over the long robe of a priest. They are green, twisted like a very thick rope, and end in tassels.

It is to be remarked that though the *maxtli* and back-flap usually are worn with the loin-cloth, they can appear independently, that is, with the tunic (c.6 N.), the short skirt (c.16 S.), and even with the long skirt (c.60 E.).

#### SKIRT, TROUSER AND SLEEVE

A plain short skirt above the knee is the only garment worn by the female figure, t.16 E. (Plate 58). A most interesting version of the short skirt appears ten times in both of the later architectural groups. It is made of strips of white cloth, hanging loose, if the artist's indication of one strip blown a little apart from the others is accurate (c.24 S. and t.4 S., fig. 208*a*). In that case the garment is similar to but shorter than a skirt which appears in the Dresden Codex (pages 25 to 28) and is described in Landa as a priestly insignia (fig. 208*b*). The one in t.9 E. is of the same type but is worn with a loin-cloth of the normal kind, which covers the upper part. Similar, likewise, is t.17 N. except that it is decorated with black dots irregularly scattered over the garment.

An entirely new form of skirt appears on t.9 N. and W. (Plate 49). It strongly suggests a ballet skirt scalloped like a flower, and is worn unusually high on the waist. However, astronomical rather than aesthetic considerations seem to have determined the form, as the layout of the figure apparently reveals it to be the sign used to signify a starry heaven. This scalloped skirt may be worn together with the usual back-shield. A good example of the combination is c.40 W. (fig. 209).

Sacerdotal robes identical to those of the Chac Mool Temple and decorated similarly, with a crisscross pattern or circles, appear on all four sides of column t.12 and on columns 59 and 60. On c.51 N., the long robe is uniquely formed by superimposed rows of green feathers, each row ending in a short red knot with two yellow tips.

On c.20 N. (Plate 88) a loose flap skirt half reveals a garment that might be described as a pair of short trousers, finished with fringe and identical in form to the trousers on Chac Mool column 5 S.

The protective left-arm sleeve is usually worn the full arm's length. A half-length type appears on c.1 S. On c.31 W. (Plate 98), a dart is inserted between the arm and the upper edge of the sleeve, exactly as on Chac Mool column 2 N. Another sleeve, less usual than the ordinary cotton sleeve, is made of cloth bands and has a vertical row of knots in front (c.38 S.). The long, loose sleeve, described in connection with Chac Mool t.3 W., reappears in more detail on c.53 S. (fig. 210*a*). Here a broad gray band with yellow ornaments encircles the arms just below the shoulder. A circular piece of white material hangs from this band to the height of the thigh. It is finished by a decoration of green and red feathers. The



FIG. 210

*a*, feather-cylinder used as sleeve; *b*, bat-wing (?)

arm emerges, when in movement, through a vertical slit on the outside of the sleeve (t.9 S. and t.16 S.).

The long feather fringes, imitating wings which appear on the arms of the bird-men, can be classified with the sleeves. The warrior on c.48 S. (Plate 113) wears both the wing-sleeve and the ordinary cotton defensive sleeve. A crest or fringe, recalling a feather wing, appears along the outer edge of the arm on c.32 (fig. 210*b*). There can be little doubt that a wing is intended, but it is not a wing made of feathers, so that it does not correspond to a bird but rather to some other winged creature, possibly a butterfly. However, the same personage wears an ear characteristic of a mammal, which may indicate that the costume represents a bat. This suggestion might be corroborated by the existing tradition, both in northern and southern Maya art, of representing bats in more or less humanized form.

#### ARM, WRIST ORNAMENTS AND BELT

Twin bracelets worn high on the arm are depicted on c.56 S. and E. (Plate 119). The two chief types of wrist ornament, that is, the soft textile or plume band, and the stiff, usually mosaic jewel, appear in about equal numbers. Both may be worn on the same wrist, as is the case in t.16 S. (Plate 58); c.39 E. is a variant of the textile type, with voluminous knots (fig. 211*a*). The rigid type

appears in varied forms on c.41 S., c.52 N., c.59 S. and c.60 N. (figs. 211*b* to *e*). The band on c.60 W. (fig. 212*f*) belongs to the class described here as the Dresden Codex type. This ornament is infrequent and is worn only by special personages. It was found on the Atlantean figures, and is here worn by a priest who is making offerings.

The commonest type of belt used by the warriors is made of cloth, usually red with a single or double knot in front. This red band is tied upon a broader blue band that can be seen above and below the red. It seems to hold the back-flaps in place. Usually it appears in profile, but c.44 N. (Plate 110) gives a good front view of it. On c.61 W., t.16 S. and 4 N., the belt has a woven design which was probably accentuated by black and white, as on Chac Mool 2 N. The ordinary textile belt as on Chac Mool 2 E. reappears, combined with a snake skin on c.35 W.,

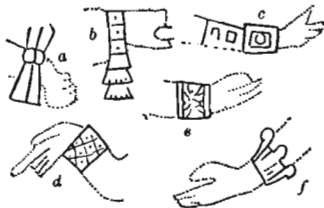


FIG. 211—WRIST ORNAMENTS  
a, textile; b, c, d and e, rigid;  
f, "Dresden-Codex" type



FIG. 212—SIMULTANEOUS USE OF  
SNAKE AND TEXTILE BELT

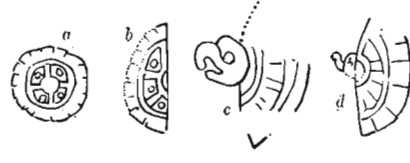


FIG. 213—BACK SHIELDS, NORMAL  
TYPE

a, front; b, profile; c and d, unusual  
decorations

c.41 W. and t.2 S. (figs. 212*a* and *b*). The head and rattles drop in front like the flaps of the usual knot.

The back-shield should be described along with the belt, as it seems usually to be associated with it. It is worn by nearly all of the warriors. Two good views of its appearance, in profile and in full front, are afforded by c.59 W. and c.51 N. (figs. 213*a* and *b*, respectively). On the inner circle of the shield of c.51 N. a parrot's head is sculptured in full round (fig. 213*c*). A smaller but really interesting relief appears on c.49 N. (fig. 213*d*). It is the profile of a curved projection similar to the proboscis of the long-nosed god. A few lines on the main portion of the semispherical base suggest mosaic.

On c.39 E. and N. (Plate 105) a shell is depicted hanging at the waist. Although it is carved on the belt, it seems to be really independent of it, and instead is an ornament worn *en bandouliere*, that is, hanging from a band or ribbon which drops from the left shoulder across to the right thigh.

The belts of stiff material, usually made up of square plaques and painted green, reappear relatively often but none is as heavily decorated with beads and shells as are the Chac Mool figures. The most elaborate versions are to be found on t.10 E., N. and 11 N., E. (Plates 50 and 51).

## KNEE AND ANKLE ORNAMENTS

The most common type of leg ornament depicted on these figures is a voluminous ring probably made of feathers, as the tiny vertical or diagonal lines scattered over it might indicate. The usual color scheme of such rings is: upper half, white; lower half, yellow, and black hachures over both. A second type, of soft material and corresponding to the sleeve, is made up of narrow parallel bands wound round the limb and tied in front so that the vertical row of knots becomes a decorative feature (c.57 W., fig. 214*a*, and c.40 W.). A similar leg ornament occurs on Chac Mool 2 N. Occasionally beads, fastened upon the bands or dangling from them, enhance the decorative effect still further, as on c.16 N. (Plate 84) and t.17 W. (Plate 59). On t.17 W. a wide ax-blade shape projects from the right knee, but curiously enough is not duplicated on the other leg of the figure. Stiff ornaments painted green reappear, but with no new details.

Several unusual knee ornaments occur: c.28 W., a simple cord wound twice about the leg below the knee and finished by a tassel (fig. 214*b*); c.40 S., on the same principle, but with a few spherical green beads threaded on the cord and ending not in a tassel but in the ordinary typical knot, the two flaps of which are tipped with beads (fig. 214*c*); and c.61 W., with more beads and also pear-shaped

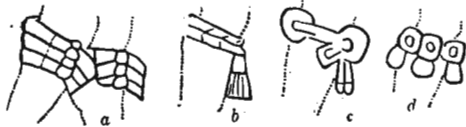


FIG. 214—KNEE ORNAMENTS

*a*, textile; *b*, *c* and *d* intermediate forms between textile and rigid types

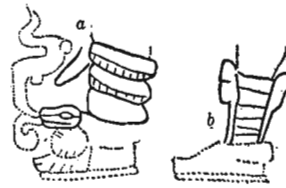


FIG. 215—LEGGINGS

*a*, snake; *b*, "Dresden Codex" type

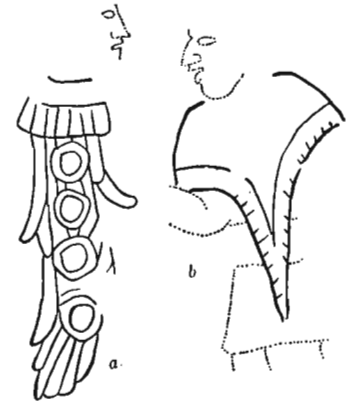


FIG. 216—COATS

*a*, feather coat; *b*, triangular coat or shoulder cape

pendants hanging from them (fig. 214*d*). These three ornaments are transitional between the soft and the stiff types of knee ornament. Three of the prisoners, c.29 N. and S. and c.32 N., wear no ornament whatsoever. The turbanlike knee ornament discovered in Chac Mool 2 S. does not appear. Considering the large number of figures, this indicates that this type of ornament was no longer worn.

## LEGGING

The plain legging made of horizontal bands of alternate color (usually red and yellow) which appeared in the Chac Mool (cols. 5 W. and 6 E.) occurs in identical form. In the Chac Mool, too, a legging made of snake skin was depicted on column 6 N. Here the stuffed snake itself is realistically coiled around the leg, its head resting upon the rosette of the sandal (t.4 S., fig. 215*a*). The highly elaborate mouth-scroll which appears along with this reptile is probably not part of the legging itself, but merely a liberty taken by the sculptor for decorative purposes.



On c.32 S. (fig. 215*b*), an animal costume, the Dresden Codex legging is used. Two bird-men also wear it, one (t.17 N.) by itself and the other (t.8 W.) combined with a crisscross legging. On the bird-men t.6 S. and c.55 S. (Plates 46 and 118), the bird idea is emphasized by a closely fitting stocking running from thigh to foot, on which the bird's leg is elaborated with feathers and paint. There is only one other example of the crisscross legging. This is made of a black band that begins at the sandal (c.40 N., Plate 106). It is worn in combination with a knee ornament made of green beads. Except for the Atlantean figures on pilaster B. of the temple, only three figures wear the Dresden Codex ornament as a legging (c.32 S., t.17 N. and 8 W.).

#### CLOAK

Some of the warriors wear a long cloak thrown over the shoulders and hanging down the back. It is usually made of plumes; sometimes, as on c.6 N., a rosette of plumes furthermore adorns the shoulder. The front view of such a cloak appears on c.25 S. (Plate 93). It fastens at the neck, covers the shoulders, and the plumes reappear at the right and left of the body.

In addition to plumes, other decoration is used, for example seemingly small circular shields on c.25 W. (fig. 216*a*). The cloak on c.28 N. (Plate 96) looks entirely like a plume cloak, but the arm of the wearer lies upon it. Unless it is really an unusual plume tunic, this departure from actual appearance is probably due to the fact that as the arm is decorated with interesting tattooing, the artist probably wanted to include that in the picture and therefore took the liberty of putting the cloak under the arm. Those in c.48 N. and W. are made partly of plumes, but another material, probably cloth, seems also to have been used. The cloak on c.61 E. has a design of vertical and horizontal lines, and the lower edge is a fringe of cloth decorated with circles.

The bearded figure with Atlantean characteristics (c.33 S., Plate 100) wears three cloths at the back. The outer garment seems to be a cloth that covers the head and hangs behind as part of the head-dress, as on Chac Mool 6 W.; the second, is a textile cloak with black-and-white woven designs, and the third, which shows underneath, is similar to the first. The cloak that opens at the sides, described in connection with Chac Mool 3 E., occurs on c.61 N. (Plate 123), and an intermediary between that and the shoulder cape occurs on c.61 S. (fig. 216*b*).

The thick feather crests which occur along the back of many figures in the frescos rarely appear here, doubtless because of lack of space due to the narrow panels. When they do appear in sculpture they are usually considerably smaller than in the frescos, and the feathers are made to fold in upon themselves where they touch the vertical line of the frame (59 S. and c.60 S.). Feather crests appear on c.36 E. and 47 N. (Plates 102 and 112), but these have shrunk to tail-like tufts at the back of the belts.

#### SANDAL

The sandal with a square opening at the heel, noted often in the Chac Mool, reappears here only once, and that case is doubtful (c.37 W., fig. 217*a*). The ornament described before, consisting of a spherical tuft in front of the sandal (figs. 217*b* and *c*), and also the more elaborate decorative knot or stiff material reappear (fig. 217*d*).

Footgear imitating a bird claw appears on c.24 N. and S. (figs. 217*e* and *f*). Both still retain some semblance of a human foot; the knot in front remains and, in c.24 S., the sole and heel-part of the sandal. Both have a clawlike envelope over the foot, and an ankle ornament surmounts the whole. However, on c.24 N., the envelope affords barely enough space for the foot, and the whole weight of the body, furthermore, would rest on only the points of the claws. Thus, as in t.6 S., it may be supposed that the sculptor exaggerated the realistic appearance of the claw at the expense of accuracy. On c.24 S., the portrayal seems entirely reliable. The left foot has a normal outline except for a few curved lines that conceal part of the sole. These lines would be most unusual if they were supposed

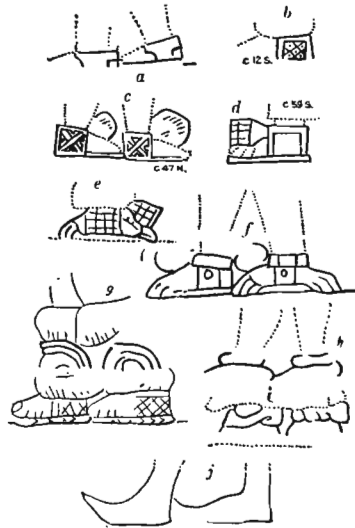


FIG. 217—SANDALS

*a*, with hollowed heel; *b*, *c*, painted ornamentation; *d*, rigid type of knot; *e*, *f*, claw disguise of foot; *g*, unidentified representation; *h*, *i*, cloth wrappings; *f*, female footgear

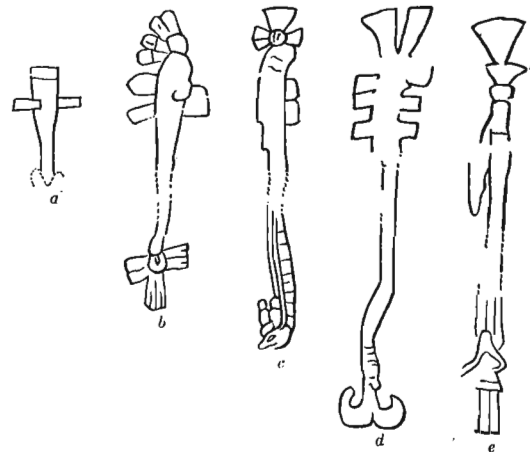


FIG. 218

*a*, *b*, axes; *c*, *d*, with snake representation; *e*, staff

to represent toes, but they are more probably intended as a sketchy representation of three hooked nails which make up a dummy half-claw, such as is plainly visible on the other foot. In the latter case the illusion is aided by fastening the other half of the claw to the heel, so that it also projects backward.

One figure, c.53 S. (fig. 217*g*), seems difficult to explain. The ordinary knee and ankle ornaments are plainly visible and the sandal is of the usual type, except that a series of curved lines appear on the leg, between the knee and ankle ornaments, somewhat like the variant of the high boot found occasionally on Old Empire stelæ at Macanxoc. An absolutely new, if inelegant, type of footgear appears on c.40 W. and c.51 N. and possibly also on t.8 N. This seems to consist of cloth bound around the foot, making a shapeless bundle which ties at the ankle. It is worn on c.40 W. (fig. 217*h*) by a skeleton personifier, and the foot thus arrayed

seems designed to imitate the backward spread of the calcaneum in a skeleton foot, as is shown on the outside frescos of the Warriors Temple. The other, c.51 N. (fig. 217*i*), is worn by a sorcerer who holds a snake. It is carefully carved and traces of green paint still remain. The last, t.8 N., is less distinct. It appears on a mask-wearer.

The female figure (t.16 E.) wears a very novel kind of shoe (fig. 217*j*). The point turns up *à la poulaine*, precisely like the traditional footgear of the modern Maya woman, which was in wide use twenty years ago, but is now rapidly disappearing.

#### WEAPONS AND ACCESSORIES

Few of the offensive weapons found in the Chac Mool Temple reappear in the newer units. The stone knife does not occur, and there is only one example of a long spear (c.42 W., Plate 108). The ax is the only weapon from the older temple that reappears more than once. A very simple type, with one blade embedded in the heavy haft, appears on c.43 N. (fig. 218*a*). The weapon carried by t.10 W. is similar, except that it is double-bladed. On d.52 N. (fig. 218*b*) a more ceremonial type of ax occurs, decorated at each end with ribbons and beads. It is carried upright, like a staff, grasped in the middle of the handle. There are two similar axes, t.10 E. and c.56 N. Although on t.10 N. the blades at present are not visible, since it is identical in other respects to t.10 E., it can be supposed that the traces of lines at the lower left of the ear-plug of the figure indicate the blades, or that the blades were depicted only in paint. Though almost hidden by the body, t.11 S. seems identical to the others. Another ax, c.56 S. (fig. 218*c*), goes a step further from the simple form of the weapon. The lower part is composed of a snake's body with the head realistically turned outward, showing the traditional nose-crest and nose-plugs. A cruder example of this same type, probably representing a wood-sculpture with two heavy volutes in place of the forked tongue, is found in c.52 S. (fig. 218*d*). A non-bladed staff appears on c.56 E. (fig. 218*e*). It is described here because it occurs on a column whose three other figures carry axes; it could be only a purely ceremonial object. Its association with the axes is a strong indication that these, rather than being war-weapons, were ceremonial accessories or insignia of rank.

Other weapons appear that are not found with the Chac Mool figures. These are the *atlatl* and darts. In fact practically all the warriors of the ordinary type carry the *atlatl* in the right hand and a sheaf of darts in the left. This sudden appearance of the two weapons might be highly significant if they were absent from the frescos of the older structure as well as from the sculptures. However, four representations of them are identifiable on the painted frieze that covered the bench at the left of the altar. Apparently the wooden body of the *atlatl* usually was the same, but when decorated it appeared in two different aspects. The trefoil type (fig. 219*a*) occurs most frequently, and the bouquet type seems specifically the possession of warriors wearing masks or the scalloped skirt. Good examples of the latter are to be seen in c.40 W. and c.38 S. (figs. 219*b* and *c*). The

wooden body of the *atlatl*, ending in the characteristic hook, here emerges through the feathers.

The way in which the *atlatl* was held can be seen on c.49 N. and c.45 W. (figs. 219*a* and *d*), back and front respectively. The two fingers adjusted into the holes of the handle are clear in both representations. The strange outline of the *atlatl* on c.45 W. can be explained only by the requirements of the sculptor's design.

In spite of the general belief, this weapon does not seem to be imported from Mexico, or at least it was adopted by the Maya early in their development, for it appears distinctly sculptured on Stela 5 at Uaxactun (fig. 220, from a photograph) which is dated 98 A. D., according to Dr. Morley's correlation.

A very short dart, unusual in both size and shape, appears on c.47 N. (fig. 221). It is the only offensive weapon carried by a warrior who holds a cylindrical shield in the other hand.

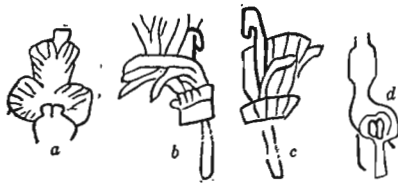


FIG. 219—ATLATL

*a*, trifoiled showing back view of hand; *b*, *c*, "bouquet" type; *d*, distorted representation showing front view of hand

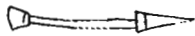


FIG. 221—UNUSUAL DART



FIG. 220 — BAS-RELIEF ON STELA 5, UAXACTUN, WITH REPRESENTATION OF ATLATL

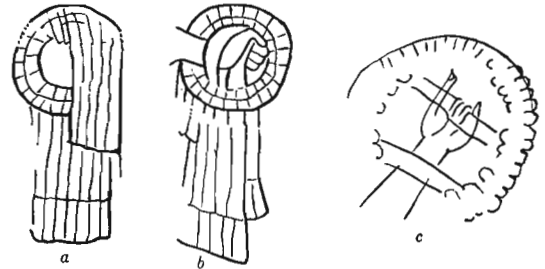


FIG. 222—CIRCULAR SHIELD

*a*, outer view; *b*, inside view; *c*, same from Tigris Temple fresco

The usual defensive weapons are the cotton sleeve, the back-shield and the curved bat, which generally appear together with the *atlatl* and darts. The only figure which carries defensive weapons alone is c.45 S., which holds a bat in each hand, as often occurs in the Chac Mool reliefs. The shield, though absent from the typical warrior's outfit, is carried by a few unusual figures. Rectangular shields with feather fringes all around are carried by personages who seem to be high dignitaries. On c.56 N. (Plate 119), the fringe is painted yellow and the body of the shield has a black and white grecque *motif*, outlined in red. Except that the background is further decorated by tiny horizontal lines, c.52 N. (Plate 116) is similar. The outside and inside views of a circular shield can be seen in c.43 N. and c.47 N. (figs. 222*a* and *b*), respectively. Long feather or cloth strips hang on the outside, a feature nearly always depicted in the frescos, while c.47 N., the inside view, affords a clear illustration of the way the shield is held. Two straps, probably leather, are fastened on the inside. The warrior puts his whole hand through the first, thus bringing the strap to his wrist, while he holds the other

strap with four fingers, the back of the hand resting against the shield. Thus the hand grasps the second strap firmly and the shield is held in place by wrist and fist. This manner of holding the shield is repeated in the frescos on the west wall of the Tigers Temple (fig. 222c).

A fan, probably of a type similar to Chac Mool column 6 W., appears on c.4 N. (fig. 223a). The bottlelike shapes found in baskets of offerings re-occur on c.60 N. (fig. 223b) and t.12. One such shape is depicted, held by a personage on one of the painted capstones found in Old Chichen, in the Temple of the Owl. In the

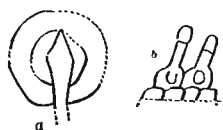


FIG. 223

a, fan; b, bottle-shaped offerings

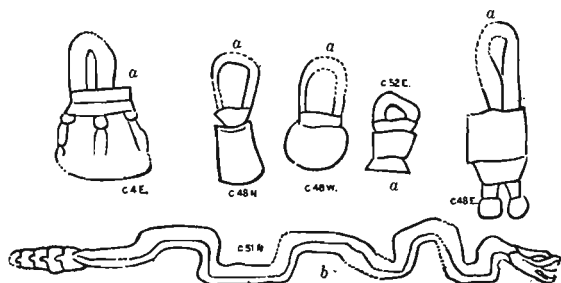


FIG. 224

a, baskets; b, snake held in hand

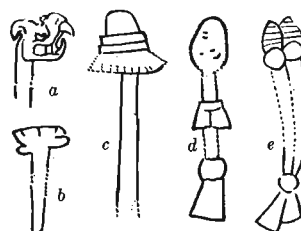


FIG. 225

a, animal's head carved on stick; b, c, unidentified accessories held by "sorcerer"; d, staff-like object held by death-impersonator; e, unknown object or objects held by warrior

other hand he holds a basket of offerings, from which the single bottle-shaped object has evidently been taken. The sorcerers in the panels of the two new units under discussion carry diversely shaped baskets (fig. 224a) and snakes, either alive, judging from the realistically wriggling body on t.10 S. and c.51 N. (fig. 224b), or carved on the handle of a stick or staff, as in t.19 N. (Plate 61) and c.4 S. (fig. 225a). In the latter case the carving may possibly depict a monster head instead of a serpent's. Other accessories of a sorcerer's outfit, the use of which is unknown, appear on c.4 S. and N. (figs. 225b and c). On c.9 S. (fig. 225d) one such object is grasped as a staff would be, by a man personifying the death-god. The unknown object or objects shown on figure 225e are held in the crook of the arm by a figure who carries an ax in the hand of the same arm (t.10 W.).

Three of the personages (c.32 E., N. and c.51 N., Plates 99 and 115) wear a feathery object on their backs which seems to have only a symbolic function. As similar objects occur in Mexican codices, they may be military insignia. They are also worn by most of the warriors painted in the Temple of the Tigers, though they do not occur either in the sculptures or the frescos of the Chac Mool.

COMPARATIVE STUDY OF SUBJECT-MATTER OF CHAC MOOL TEMPLE  
AND OF THE TEMPLE OF THE WARRIORS

The excavations in the Temple of the Warriors group uncovered no less than 337 bas-reliefs, each a masculine figure in full array. The realistic treatment and the variety of the figures give a rather exhaustive picture of the fashions in vogue during two periods. Between them they cover the time from the building of the Chac Mool Temple to its use, after partial destruction, as a platform for the Warriors Temple. Thus the position of the two groups, one upon the other, establishes their relative dates quite beyond any doubt and affords a firm chronological basis for comparative study. All of the material to be discussed has been mentioned in the description of the vestiture, but it seems advisable to include it again from the point of view of the differentiation between the two horizons.

The blue cylindrical hat with a flat top and ear-flaps is used by the warriors in both temples, and is always associated with the ear ornament which consists of a blue disk. In the Chac Mool Temple, the ear-flap is not greatly developed; either it is missing entirely or it is a small stepped outline. It does not touch the ear-plaque or it may be partly concealed by it, but it, in turn, never covers the disk (fig. 180*c*). This, then, was the fashion at the time, as is corroborated further by the frescos in the same temple. In the Warriors Temple, the ear-flap is more conspicuous, the stepped outline is more pronounced, and the flap definitely covers part of the ear-plaque (fig. 180*d*). Further minor differences occur in the decoration at the back of the cap. In the Chac Mool reliefs, this decoration always consists of one or two knots, while in the Warriors Temple the knots often disappear and are replaced by a decorative tassel or hat-pinlike ornaments. In the older form, the vertical wall of the cap is of the same height all the way around. In the later variant it develops a triangular front which at its highest makes the headgear look like the Mexican royal diadem (fig. 180*b*).<sup>1</sup> However, inasmuch as a form intermediate between the Chac Mool type and the triangular front cap appears on the panels, the latter can be presumed a local coincidence with the Mexican diadem, rather than a pure importation.

The hat proper, ancestor of the modern sombrero, already has a large brim and a semispherical or conical crown. It is used in both periods as the best base for a heterogeneous massing of feathers, tassels and symbolical representations. The most elaborate examples of this type of head-dress decoration are to be found in the frescos of the Chac Mool Temple, where a single hat supports two god-masks, one upon the other, and all their voluminous scrolls and feathers as well. The corresponding head-dresses of the later period show a definite tendency toward lighter and more usable forms, the most complex example being a hat in the Warriors Temple, which supports only one god-mask (fig. 182*a*).

The wig, which developed from the most primitive form of diadem, that is, a cloth thrown over the head, assumed an independent form—black and white materials covering the head, shoulders and back, and sometimes divided to sim-

<sup>1</sup> This chronological difference is true only for the bas-reliefs. But a review of all the Chichen sculptures will reveal caps with triangular fronts in monuments architecturally preceding the period of the Chac Mool Temple.

ulate braids of hair. This headgear, common in the Chac Mool Temple, disappears between times and occurs but exceptionally on the later figures.

The tendency of the later ceremonial hats toward more practical, if less impressive, forms is also evident in the development of the priests' and warriors' masks. For example, a warrior in the Chac Mool Temple wears a death-mask, evidently for the military purpose of frightening his enemies (fig. 226*a*). This mask completely conceals the face and is extremely realistic. It appears to be carved from some hard material. Now, death-masks also occur in the Warriors Temple, but these have lost the emphasis on horror that obtains in the older mask and have developed into a purely symbolic structure (fig. 226*b*). The skull idea is expressed by a row of teeth and a nose-cavity into which a stone-knife is fixed, but in a way that implies no special emotional reaction from the spectator. Moreover the mask is made of light material and leaves the chin and forehead free, while vision is amply provided through the holes simulating the orbits.

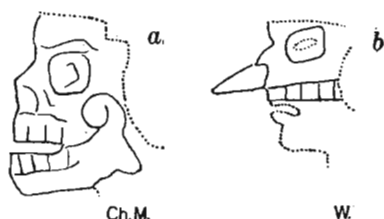


FIG. 226—DEATH-MASK

*a*, Chac Mool; *b*, Warriors



FIG. 227—GOD-MASK

*a*, Chac Mool; *b*, Warriors

These masks were worn by the warriors. The priests' masks were more complex. Four of the priests in the Chac Mool Temple are costumed as the long-nosed god (fig. 227*a*). The masks are essentially the same as the features of this god in the codices. The "elephant" proboscis with nose-plugs and the suborbital S-shaped device is common to both. The mouth opening on the masks is similar to that of the theater masks of classical antiquity. The face and ears are entirely covered by the mask, which is worn together with the wig and this, covering the back of the head, completes the illusion. Priests of the Chac Mool type reappear in the Warriors Temple, personifying the long-nosed god. But there also appear masks expressing the same idea, which have undergone changes since the days of the Chac Mool artists (fig. 227*b*). The older mask, hiding the entire face, in these cases is replaced by a smaller incomplete mask that leaves two-thirds of the face bare. The long nose, indispensable because of its symbolic meaning, is alone retained. It is fastened to the face by means of prongs which probably hooked back of the ears. Thus the god-mask seems to have developed into a more practical affair, retaining only its most important features.

However, besides the changes in structure, there are also marked stylistic changes. The hat-mask on a fresco in the Chac Mool Temple (fig. 228*b*) is very

close to a portrait of the god drawn in pure Maya style as it appears in the Dresden Codex (fig. 228*a*). The triple ear ornament, the two orbital plaques, the fangs, nose-plaque and nose-plug all occur in both representations. Stylistically, the same feeling for sinuous lines also pervades each. The face-mask actually worn by the priest who carries the hat-mask under discussion (fig. 228*c*) will reveal that though some modifications occur on the face-mask to insure vision and speech, still the two are closely related in type. The new version of the same mask, lighter in structure, appears in the Warriors Temple (fig. 228*d*). It retains the nose-scroll and adds conspicuous nose-plugs. Similar nose-scrolls appear on figures 228*e* and *f*, and eye-rings are added, *e* being from the Warriors Temple, *f* from the Northwest Colonnade. Comparison with figures 228*g*, *h* and *i*, which are taken

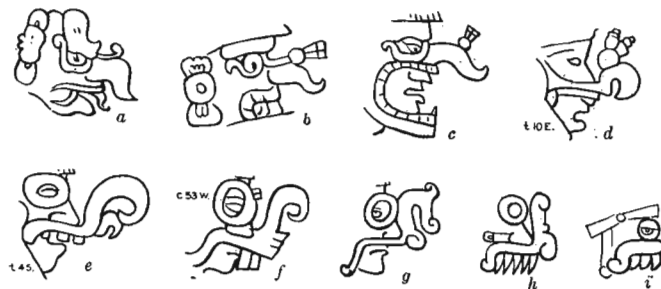


FIG. 228—TRANSITION IN STYLE AND SUBJECT-MATTER FROM THE MAYA GOD B TO THE MEXICAN TLALOC

*a*, profile of God-B from Dresden Codex; *b*, Hat-mask from Chac Mool frescos; *c*, face-mask from same; *d* and *e*, face-masks from Warriors sculptures; *f*, face-mask from Northwest Colonnade; *g*, *h*, face-masks from de Zouche Codex; *i*, Tlaloc profile from same

from the Zouche Codex (the first two are face-masks worn by Tlaloc personifiers, the third is a Tlaloc portrait), reveals the striking fact that a development can be traced from pure Maya style to pure Nahua style (*a*, *i*), by a series of imperceptible transitions. At the same time a somewhat close relation is accepted between the features of the Mexican Tlaloc and the Maya god B. It may be suggested that though *d* and *e* have similar nose-scrolls, the different source of each is shown convincingly enough by the appearance of the Tlaloc eye on *e* as different from the suborbital scroll on *a*, *b* and *c*. Nevertheless, some confusion seems to exist, or rather a fusion of Maya and Mexican traits, in the Chac Mool Temple; the masks on the bases and capitals of the jambs are in a rather pure Maya style; for example, they have the triple ear-disk and fangs as in *a*, yet the eye-cavity is decorated indiscriminately with the Maya suborbital scroll or the Tlaloc eye-ring.

As regards animal costumes, only one occurs in the Chac Mool Temple (fig. 229*a*). The face of the wearer is partly bare, though coated by thick black and blue paint. The mask consists of a dummy mouth and chin made of jaguar skin, with



a white lolling tongue. The figure wears also a jaguar-pelt cloak, with the animal's tail hanging behind. The mildly realistic tendency of the figure is contradicted by a richly ornamented straw hat. A similar jaguar face-mask is carved at the back of Stela A at Quirigua,<sup>1</sup> which links this style of animal costume with the so-called Old Empire period.

Animal representations occur more frequently in the Warriors Temple, but they are of a different character (fig. 229*b*.) The face of the wearer shows between the open jaws of the animal in the manner of the Mexican eagle and tiger warriors. The use of a pelt as a cloak is also discarded now. The animals identified in these representations are the coyote, the quetzal, the owl and the snake.

A ceremonial belt occurs in the Chac Mool Temple. It is often made of mosaic and decorated with alternate rows of beads and shells. It is very similar to belts carved on southern Maya stelæ figures. In the newer temple the ornaments on the belt have disappeared or are much reduced in size and weight.

The figures in both temples wear sandals. The older type of footgear, which appears in the Chac Mool Temple (fig. 230*a*), is tied to the leg by a diagonal band,

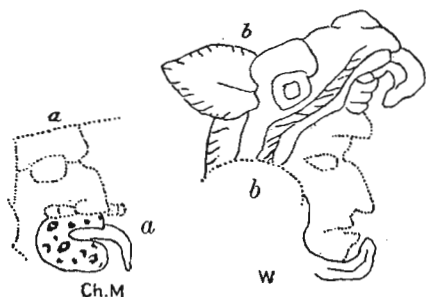


FIG. 229—ANIMAL DISGUISES  
*a*, Chac Mool; *b*, Warriors

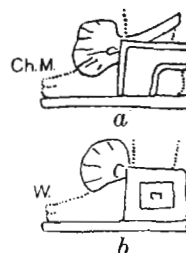


FIG. 230—SANDALS  
*a*, Chac Mool;  
*b*, Warriors

and the sole is fastened in place by means of a string between the toes. The semi-circular heel-covering has a squarish hole at the base, through which the heel can be seen. In the newer figures, the general lines remain the same, but the diagonal band tying the sandal to the leg has completely disappeared and the hole at the back of the heel-covering occurs only once, and then doubtfully, among 313 shod figures.

The use of weapons also affords interesting comparative data. In the older structure the warriors do not carry offensive weapons, at least not those in everyday use. They carry only the curved stick with which darts were batted out of their course. In the Warriors Temple and Colonnade all the figures but one (c.45 S.) have both defensive and offensive weapons, the favorite combination being the *atlatl* in the right hand and a sheaf of darts and the defensive bat in the left.

It is known that when the Chac Mool Temple was built, the *atlatl* was already in use. In fact it is represented clearly on the frescos of the same temple. Never-

<sup>1</sup> Maudslay, 1889-1902, vol. 2, plate VIII.

theless the Chac Mool sculptor depicts his warriors carrying only defensive weapons, most of them a defensive bat in each hand. This might be a rather handicapping equipment for a soldier in battle, and one may be certain that the warriors represented were accustomed to using both offensive and defensive weapons. Yet if the sculptor chose to portray them incompletely accoutred, he must have had some reason for it. Since the *atlatl* was not carved on the panels inside the older building, it might mean that offensive weapons were not carried into the temple, at least not in their non-ceremonial forms, because of some peace guaranty, perhaps, or as a sign of religious respect. The warrior entered the sanctuary carrying only the defensive bat, and leaving *atlatl* and darts outside. This custom must have been abandoned in the period between the building of the first and second temples, and warriors then might enter the temple fully armed. The supposition is strongly supported by the fact that in the Castillo, while the warriors on the door-jambes in the corridors carry *atlatl* and spears, those guarding the entrance to the sanctuary as well as those inside the altar room carry, like the Chac Mool figures, only one or two defensive bats.

The differences which have been noted between the bas-reliefs of the Chac Mool Temple and the Warriors Temple fall into two groups: one, objects comprising part of the ceremonial paraphernalia, which show a decided change from great complexity to less theatrical and more practical versions, as the symbolic hat, the god-masks and the ceremonial belts; and two, changes that do not proceed from the development of older forms, but are new forms and fashions that have been introduced, such as the difference in the manner of wearing the ear-disk and ear-flap, the animal head-dress of foreign taste, the difference in the shape of the sandal and the habit of carrying offensive weapons inside the sanctuary.

As to the more general artistic fluctuations shown by these changes, it may be said, broadly speaking, that the complex ornaments of the older temple are fairly similar in style to analogous articles in Southern Maya art and in the Dresden Codex, while the later fashions show the gradual disappearance of these styles and the appearance of new points of relationship with Mexico, though a local style is still preserved.

The emphasis heretofore laid on the differences between the styles of the Chac Mool and the Warriors Temple figures would be misleading if no mention were made at least of the much more numerous similarities, which make the two structures, culturally, very closely related.

#### HUMAN TYPES

The analysis made of the Chac Mool figures, reducing the group to a few types, would not seem very conclusive because of the relatively small number of bas-reliefs considered. The far greater number in the later units admits of a more thorough classification, and a few new types are made clear, along with others already described in the older temple.

## WARRIOR

The warrior type remains essentially the same. He wears the blue cap and blue ear-disk, the nose-pendant, the blue back-shield, the plume knee and ankle ornaments; the left arm is covered with the cotton sleeve and he carries the defensive bat. The new features of significance are that the ear-flaps have a stepped outline which covers the ear-disk and the warrior carries offensive as well as defensive weapons, that is, the darts and the *atlatl*. This type is what might be called the standard warrior, but there are many variants, all of which may be linked most commonly by the use of the familiar blue cap and defensive sleeve, and of the *atlatl*, curved bat and darts as accessories. New examples of two variants already described among the Chac Mool figures appear in the Warriors Temple, namely, the death-warrior and the god-warrior.

The realistic skull mask found in the Chac Mool Temple does not reappear, but is replaced, as has been stated, by more conventional forms of it. The wearer of this mask is not otherwise distinguished from the ordinary warrior. Two exceptions occur in the Northwest Colonnade (c.39 N. and c.40 S., Plates 105 and 106). Both have unusual head-dresses. The first of these figures also wears a shell necklace and another shell hangs from his left shoulder on to his right thigh. Both wear textile ornaments with large knots on wrist, knee and ankle. Comparison of these figures with similar warriors portrayed in fresco, such as the two death-gods on the northern talud, will reveal a definite relationship between the skull-mask and this type of wrist and ankle ornament. This similarity is carried further on c.40 S. where the feet are shod with unusual footgear, which gives the foot an outline resembling the skeleton foot of the god.

Most of the warriors distinguished by godlike features affect a long plume cloak thrown over the ordinary costume and falling to the ankles (t.8 N., 17 E., c.28 S., and 53 W.).

A figure clothed in a jaguar pelt and with a pelt mouth mask, which probably personifies the jaguar, appears in the Chac Mool Temple (6 N.). However, this figure with its oldish features and stooped position is connected with the sorcerer type and not with the warrior. Warriors in animal costume appear only at a later date, both in the Temple and the Colonnade. The chief indication of the creature which each represents is to be found in the head-dress, which is shaped and detailed like the head of the animal. In the case of the coyote warriors, there is no other indication except the head-dress. The figures wear the attire of the ordinary warrior (t.5 N., c.27 N., 55 W., 57 W.).

The serpent-warriors are more elaborately costumed. The body of the reptile seems to drop from the head-dress, curling down behind in an S-shape. However, it would be difficult to decide if this was actually the case in the costume or if the artist used the serpent head-dress as a pretext for portraying the well-known protective serpent as shown on the dais of the Colonnade. The three best-preserved serpent-warriors are c.36 S., 37 E. and 47 N. The first wears a long plume cloak in addition to his warrior's costume, the second, elaborate knee and sandal

ornaments and Atlantean racquet-flaps on his loin cloth, and the third has extremely unusual weapons—a very short dart and a circular shield.

Unlike the other animal costumes, the bird disguise extends itself over the entire body. On one doubtful case (c.5 S.), however, the bird-mask might seem to be worn by a warrior not otherwise extraordinary in his costume. On c.24 S. and 43 S. the disguise is more complete. The two figures are strikingly similar in many ways and might be derived from a single source. A single description, therefore, will serve for both. The bird-mask which they wear is unusual, as it is incomplete. The upper half of the beak apparently functions as a kind of nose-mask, the eye of the wearer being hidden by an eye-ring. The mouth and chin and part of the cheek and ear are all uncovered. Both a rod and a circle are inserted in the lobe of the ear. A plaque with a conical shape upon it is thrust forward from the breast. A short skirt, made of loose white strips, and knee ornaments of green plaques with bead pendants, complete the non-bird part of the costume. The bird features, other than the mask, are a crest of flame-shaped objects attached to the back of each arm in the manner of a simulated wing, and the outline of the foot, an ambiguous compromise between a human foot and a bird's claw. On t.8 W. and 17 N. the bird features are more emphasized. They wear the same skirt of white strips, but, in spite of the knee and ankle-ornaments (both of the Dresden Codex type) and of distinctly human leggings, the feet are absolutely non-human. They are clearly bird claws resting on the points of the nails. Still more birdlike costumes appear on two other figures (c.24 N. and 48 S.). The whole body is covered with plumes so arranged as to simulate a bird's body. At the knee, the plumes are replaced by lines on a yellow background, clearly intended to describe the tough skin on a bird's leg, which blend into a bird's claw. The somewhat diminutive wings of the preceding figures are much enlarged here, and apparently are made of feathers arranged from wrist to shoulder, gradually decreasing in height. On c.24 N., the back-flap is replaced by a naturalistic fan-tail of feathers. The most complete bird-disguise occurs on t.6 S. and c.55 S. The head-dress, which has heretofore left the human features visible, is replaced by a mask, half concealing the face—a change which increases the animal appearance.

One unique animal costume occurs (c.32 S.). The figure wears a loin-cloth with racquet-shaped flaps, "Dresden Codex" leggings, a shoulder cape and an elaborate shield as a breast-plaque. The mask has animal features, particularly a small heart-shaped ear. The arm has a wing attached to it. The figure might be an owl, but as the mask lacks a beak and the wing does not look like a bird's, the creature intended is probably, as has been already suggested, a winged mammal, most likely a bat.

The scalloped-skirt type of warrior does not appear in the Chac Mool Temple, but occurs seven times in the Warriors Temple and the Northwest Colonnade bas-reliefs. The special skirt is the only constant characteristic feature of this costume.

## PRIEST AND GOD-IMPERSONATOR

The priests in long robes do not vary greatly from the older type. They wear the nose-rod, green ear-plugs with stems, and a mosaic shoulder covering—the same long robe with a crisscross or bead design, the green belt and green sandals. The basket of offerings also seems identical. In the Chac Mool Temple, however, four priests wore the diadem, and only one a hat in addition to the diadem. Of the thirteen priests in this newer period, only one wears the simple diadem, and three the diadem plus the hat; one wears a turban, and eight the large-brimmed straw hat, this head-dress having become much more characteristic of the priest than the diadem.

The God-Impersonator, wearing complicated garments and mask, or masks in the Chac Mool Temple, appears here on t.11 N. and E. These two figures wear the same full-face masks which reveal only the mouth; also, the mosaic shoulder covering, the stiff belt heavily hung with beads and shells and the tiger pelt as a loin-cloth. The same type reappears, more fully detailed, in four figures (N. 7, 8, S. 1 and 2) on the dais of the Northwest Colonnade.<sup>1</sup> These figures wear masks on both face and hat, as well as the full regalia of the type, and, in addition, voluminous back-crests of feathers that did not appear on the columns because of the lack of space, but which seem to be a constant feature of this type, as its painted representations also testify. God-masks of lighter structure appear also, in addition to this more monumental type of mask, but their wearer lacks the particular characteristics of the sacerdotal masked figure, and is in fact a variant of the warrior type, wearing the god-mask as other warriors the animal or skull-mask.

## SORCERER

Two interesting figures have been described in the Chac Mool Temple (5 N. and 6 W.)—aged personages in a characteristically stooped position. Enough figures similar to these reappear in the Warriors Temple and Northwest Colonnade to permit a description of the constant features of the type. The weird aspect of the figure, the absence of typical military or mythological symbolism, the presence of strange accessories, suggest convincingly a sorcerer. The two most perfect examples from the viewpoint of definition are t.10 S. and c.52 E. They are very nearly replicas of the Chac Mool column, 5 N. The typical sorcerer has the features of an old man: toothless mouth, with chin projecting upward, meeting a crooked nose. He walks in a decrepit attitude. The skin, judging from the best-preserved example (c.52 E.), is painted in alternate horizontal stripes of red and white. The torso is bare, and realistic folds of flesh are sculptured on the stomach. The figure wears a broad-brimmed hat, but it differs from the priest's hat, for while the brim of the latter is flat and has a fringe hanging from it, the sorcerer's hat curves upward on both sides and the crown only is decorated. There are no ear ornaments. An oval-shaped plaque painted yellow, decorated with a braided *motif*, hangs on the breast. The loin-cloth is white, with white fringe and is decorated with black crescent shapes. The front and back flaps are of the blue and yellow kind or racquet-shaped like those on Atlantean dwarfs. The wrist and knee

<sup>1</sup> This dais is described separately on page 326.

ornaments are green mosaic, one of the most peculiar being a cord on which are strung two green beads. This ornament appears both in the Chac Mool Temple and in the Northwest Colonnade, each time as part of a sorcerer's attire.

But perhaps the most striking feature of the sorcerer, beyond his aged appearance, is the insignia he carries. In his right hand he holds a snake as if it were a staff. Usually the reptile's body is shown undulating in a most realistic manner. This, and the fact that the object does not touch the ground but is held in the air, may mean that the Maya, like other American Indians, used live snakes in their ceremonies (t.10 S., c.8 E., c.4 W. and c.52 E.). Sometimes the snake becomes a true stick or staff, carved more or less realistically (t.19 N. and c.4 S.). In his left hand the sorcerer usually grasps the handle of a pot, bag, or pouch, probably containing "medicine." There are many minor variants of this type. Two of the figures wear, instead of a loin-cloth, a turtle-shell in the Atlantean manner (t.19 N. and c.4 S.). The entire costume may vary, but serpent and pouch remain (c.48 N. and W.).

A female sorcerer appeared on t.16 E. In spite of differences, the type is unmistakable because of the aged features, the wrinkled stomach and the pouch in the left hand.

#### DIGNITARY

Some figures of warlike appearance, but more carefully delineated, are further distinguished by somewhat refined details of garments and accessories. They can therefore be called dignitaries. Thirteen such figures appear on columns t.10, c.8, c.52 and c.56. It should be noted that c.56 has a dignitary on each panel, while the other three columns have each three dignitaries and a sorcerer. Given the relative rarity of both types, this association might be supposed more than a coincidence and may point to a professional link between the two.

The traces of color remaining on six of these bas-reliefs indicate that two of the bodies were painted blue; three others have a painted eye-ring, and the bodies of two of these are painted in red and white horizontal stripes. It can be inferred from this that few of these figures went unpainted. The hair is unusually long and, on the best examples, ornamented with beads scattered through it (c.52). The typical head-dress combination of these figures consists of a textile ornament which holds the hair from the roots, close to the scalp, while the ends stand stiffly in the shape of an inverted cone. These figures wear the nose-rod, the stemmed ear-disk, the mosaic shoulder cape, and the shield breast-plaque. The belt is made of rectangular plaques. The loin-cloth is white with fringes and grecque designs, and the flaps are of the split blue and yellow type. Usually such figures wear red and yellow leggings and green sandals. The right hand holds a ceremonial ax which varies as to number of blades and is always elaborately decorated with ribbon and beads at each end. The most interesting examples, however, have a reptilian head carved at the handle. The left arm holds a rectangular shield, decorated with black and white designs and feather fringes. This figure is evidently a type of importance intermediate between the warrior and the god-masked priest. Its most constant features are the head-dress, the ax and the shield.

It must be understood that, though the classification by groups holds in general, there is no sharp delineation between type and type, or between the variants of one type. The mass of material is too great and our resulting knowledge too thorough to permit of strict generalization. The types are exact in so far as the human character of the personages can be judged. The characteristics ascribed to each type are those that appear most often associated with it, but no one of them is indispensable to it. For example t.16 E. is a sorcerer, though she lacks the snake; on the other hand c.48 N. and W., both of which carry snake and pouch, are not convincing types, because the posture and the costume are not those of a sorcerer. Thus the definitions consist more of ideological nuclei than of exact descriptions. Also a certain number of the figures do not fit the descriptions but are types intermediate or transitional between two, or even three, definitions. Thus we have the warrior variant c.44 W. wearing both the skull-mask and the scalloped skirt, and c.51 N. (Plate 115) amalgamating features which belong to warrior, sorcerer and priest. Of the warrior, he has the cap with triangular front and the ear-disk, the bead-pendant, the belt with back-shield, and the plume tuft in back; of the sorcerer, the aged features and stooped posture, and the live snake grasped like a staff; of the priest, the long robe, though of a different material than that of the ordinary priest, and a bowl of offerings in the outstretched left hand.

Comparison between types

	Warrior	Priest	God-Impersonator	Sorcerer	Dignitary
Head-dress . . . .	Blue cap	Hat with large brim	Hat, broad brim with mask	Hat with curled brim	Hairdressing with knot
Face . . . . .	Cheek-button		Face-mask	Wrinkles, toothless	
Ear . . . . .	Blue disk	Green disk with stem	Triple disk	Naked ear with stick-plug	Disk with stem
Nose . . . . .	Bead pendant	Stick	Stick	Stick	Stick
Shoulders and breast . . . . .	Bird-shaped plaque	Mosaic cape	Mosaic cape	Oval plaited plaque	Mosaic cape
Arms . . . . .	Defensive cotton sleeve	Mosaic bracelet	Mosaic bracelet		Mosaic bracelet
Belt . . . . .	Textile with back-shield	Mosaic	Mosaic with beads and shells	None	Mosaic
Garment . . . . .	Loin-cloth or tunic	Long robe	Tiger-pelt or loin-cloth	Loin-cloth with crescents or turtle shell	Loin-cloth
End-flaps . . . . .	White	None or twisted green	Bifid, blue and yellow	Blue and yellow, or racquet shaped	Front, white, blue and yellow back
Knee and ankle ornament . . . . .	Plume	None	Mosaic	String with two beads	Mosaic and legging
Sandal . . . . .	White	Green	Green	White	Green
Weapons . . . . .	Defensive stick; <i>allatl</i> , darts	None	Ceremonial ax round shield	None	Ceremonial ax square shield
Accessories . . . . .	None	Basket of offerings	None	Snake and pouch, or fan	None

## PRISONERS

The figures in the Northwest Colonnade appear as warriors and others who might reasonably be supposed to be their prisoners. It would seem that an examination of the costumes of both groups would reveal differences in dress which would presumably correspond to the different national affiliations of conquerors and conquered.

The thirty-one prisoners in front of the main stairway are dressed as follows (from left to right):

Col. 25—Four men with long plume cloaks, three of these with circular shields as breast-plaques. N. has a diadem head-dress. W. likewise, but the diadem is decorated with snake's rattles. S. has a beautifully detailed serpent head-dress, Mexican style. E. is dressed like the ordinary warrior and has the blue cap with the blue bird in front.

Col. 26—This column is very badly carved. The figures on the four panels can, however, be identified as types similar to each other. They wear a shoulder cape and a fringed loin-cloth. Two have the broad-brimmed hat, and two the diadem.

Col. 28—Two of the figures on this column wear plume cloaks. One (S.) has a Tlaloc mask. All wear the nose-pendant.

Col. 29—Three of the figures are dressed in short loose tunics. One has the back-tuft worn by the warriors in the Tigers fresco and Mexican manuscripts. All four wear the nose-pendant.

Col. 32—One of the figures on this column is not a prisoner, but an ordinary armed warrior. Two of the other figures, prisoners, wear the plume tuft in back. The third is the bat-man who has already been described.

Col. 33—Two of the figures wear hats with long-nosed god-masks on them. Two others, one of them bearded, are similar in many respects to Atlantean figures.

Col. 36—Two of the figures seem to wear animal head-dresses, one also having the Tlaloc eye.

Col. 37—One of the figures is a serpent warrior, with the reptile curving behind him. The other three wear long plume cloaks. One (N.) has the nose-button and pendant, another (W.) the pendant and nose-rod, and the third (S.) the pendant alone. N. wears the familiar bird breast-plaque. S. has a tiger-shaped breast-plaque and wears the usual warrior's blue cap and ear-disk.

Thus, the most distinctive features of this group of prisoners is the wealth of plume cloaks—nine in all. The non-prisoner warrior found in the Colonnade wears this cloak only when he seems more important than an ordinary warrior. It may be inferred with certainty that these prisoners are all men of rank, a deduction strengthened by the care with which some are detailed and by the relatively great number of name-glyphs that appear over them. It would be difficult to find any other characteristic feature of the group, as traits that can be considered Nahua, and others usually ascribed to the Maya, appear among them indiscriminately. For example, the Nahua traits would be the four animal head-dresses,



the blue cap with the blue bird in front, the Tlaloc eye, the conventionalized bird breast-plaque, and the back-tuft or warrior insignia; while the hats with images of a long-nosed god and the Atlantean figure details might be listed as Maya traits. However, all the traits found among the prisoners are found also among the armed warriors. It would seem, then, that the entire group records, not an interracial war, but a civil war between members of the same tribe.

### NAME-GLYPHS

#### TEMPLE OF THE WARRIORS

A figure which seems to be a name-glyph appears on column 17. It is the head of a rabbit over two bars (fig. 231). If it is assumed that the two bars stand for ten in the Maya bar-and-dot numeral writing, as is probable, then this glyph would resemble a Zapotecan glyph in presenting a combination of a figure of Mexican type with Maya numeration. However, it would seem that the figure is not a date at all, but is somehow connected with the human figure on the same shaft. It might mean that the warrior's name is "Ten Rabbits," but, unlike other American Indians, the Maya seldom used totemistic names; usually the glyphs have a more abstract root. The rabbit head might stand for the sound it suggests, independent of the zoological association, as the Maya language is rich in synonyms, which makes charade writing easy. Rabbit is *thul*; *tul* means the act of counting, but only when human beings or spirits are the unit.<sup>1</sup> *Lahun* is ten. Thus the glyph would read *Lahuntul*, that is, "ten men counted," which would be perfectly appropriate for a warrior who had killed or captured ten of his enemies.

On columns 1 S. and 4 S. there are representations of a star and of the sky, standing respectively for *Ek* and *Caan*. *Ek* may also mean "black," a most natural nickname. *Caan* may signify the same as *can*, snake. The two snakes on 10 N. and W. (Plate 50) do not appear to be used as glyphs, though they probably have a symbolic meaning.

#### NORTHWEST COLONNADE

No less than 57 name-glyphs appear on the columns of the Northwest Colonnade. They are carved over the human figures and are sometimes difficult to differentiate from the purely decorative designs. These glyphs include astronomical symbols, objects of daily use, men, quadrupeds, birds and parts of costumes. Some of them seem to express action, as if they were verbs; for example, a hand grinding on a *metate* appears in figure 233f, and this would probably illustrate the verb, *to grind*, instead of the substantive, *metate*. It would seem also that in these glyphs phonetic or charade writing appears, rather than direct picture writing.

The sign for sky, *Caan*, appears again on column 32 N. (fig. 232a) and the sign for star, *Ek*, on four shafts, c.59 E., 57 W. E., 48 W. (fig. 232b), and 52 N.

<sup>1</sup>Beltran, 1859, Tul: particula para contar hombres, mujeres, angeles y almas.

Figures *c* and *d* (cols. 22 E. and 29 S.) are flowers, *nic*. Figure *e* (col. 9 N.) is a flower and an ear of maize is *nal*. The latter might stand for *nahal*, meaning meritorious, "to win," "to have good luck," "to be happy."<sup>1</sup>



FIG. 231—NAME-GLYPH,  
WARRIORS

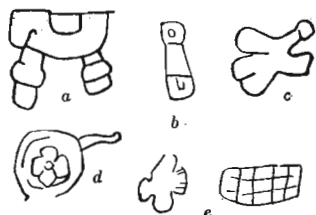


FIG. 232—NAME-GLYPHS,  
NORTHWEST COLONNADE

*a, b*, astronomical designs;  
*c, d, e*, floral designs



FIG. 234—NAME-GLYPHS, NORTHWEST  
COLONNADE, BIRDS

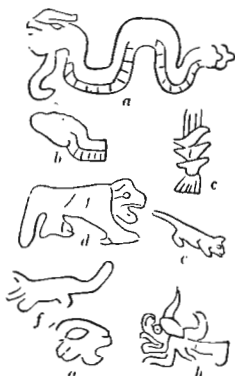


FIG. 235 — NAME-GLYPHS,  
NORTHWEST COLONNADE

Miscellaneous animal  
representations

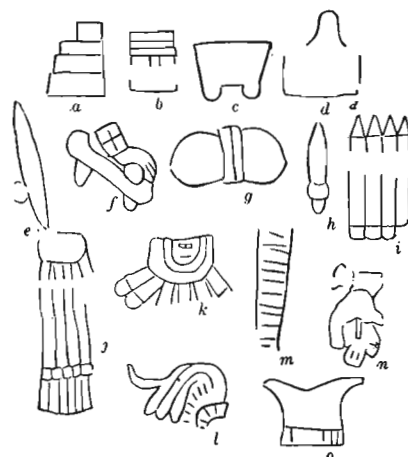


FIG. 233—NAME-GLYPHS, NORTHWEST  
COLONNADE. OBJECTS



FIG. 236 — NAME-GLYPHS, NORTHWEST  
COLONNADE

*a, b, c, d*, human representations;  
from *e* to *m*, unknown subject-matter

Figure 233*a* (col. 9 S.) seems to be a pyramidal temple; figure *b* (19 E.) a house made of stone, *Nocac*. Figure *c* (14 S.) seems to be a bowl with spherical supports similar to the vessels depicted on the dais of the same colonnade, and chiefly for copal. Figure *d* (25 S.) might be an *aventador*, or straw fire-fan, *Ualpicit*. Figure *e* (55 W.) is a *mano del metate*, or grinding roller, *Xcatun*. Figure *f* (32 N.) is a hand grinding (*Tuhuch*) on a stone *metate*, *Ka*; the roller as seen in 55 W. is here foreshortened to a circle. Figure *g* (32 S.) is a bundle tied around the middle with a rope. Figure *h* (17 N.) seems to be a stone knife. Figure *i* (19 N.) is a bunch of darts, shortened because of lack of space. Figure *j* (37 S.) is a shield

<sup>1</sup> *Diccionario de Motul*, *nahal*, merecer o merecimiento. *nahal*, ser dichoso, tener dicha.

with a fringe; the small size of the shield and the emphasis on the fringe would suggest that the latter is the important object in the glyph and that the former is depicted only for explanatory purpose. Figure *k* (59 N.) is another shield with a human head roughly sketched in the center. The shape, a half-circle, as well as the small size in comparison with the beads which hang from it, suggest a jewel used as a breast-plate more than the defensive weapon itself. The glyph *k* would thus read *Kanthixal, alhaja de pecho*. Figure *l* (19 W.) is a head-dress with feather decoration; figure *m* (15 E.) a high, narrow banner similar to those found in the frescos. Figure *n* (41 S.) might be, dubiously, a hand holding an *atlatl*; figure *o* (33 N.) is an unknown object, possibly a small stool, *Xec*.

Figure 234 (1 S.), two eagle heads, might read thus: two, *Ca*, and eagle, *Coot*. Figure *b* (18 S.) is a guacamaya or crested parrot, *Moo*. Figures *c* to *e* (18 E., 17 S. and 26 S.) show perched birds, *Chich*, specifically unidentifiable. Figures *f* to *j* (on 3 S., 14 W., 37 N., 5 S. and 21 S.) are flying birds. Figure *k* (2 N.) is a perched owl, *Icim*. Figure *e* (c.5 E.) is a flying owl. Figure 603a (33 S.) is a rattle-snake, *ahaucan*, depicted somewhat realistically, notwithstanding the beard and crest. Figure *b* (14 N.) and perhaps figure *c* (6 N.) show snake's rattles. Figure *d* (13 N.) seems to be a tiger, *Balaam*, or a leopard, *Goh*. Figures *e* to *g* (18 W., 21 E., 11 E.) are not identified. Figure *h* (28 S.) is dubious, as it might be, given its position on the panel, part of the head-dress and not a glyph at all. It is a monster head, very clearly drawn.

Figure 236a (15 N.) seems to be a mask, *Kohob*, representing a human head. Figure *b* (21 N.) is a head emerging from an eagle helmet. Figure *c* (13 S.) is a bearded head of semitic aspect. Figure *d* (33 W.) shows a seated woman. As her hands are bound at the wrist she might be considered not a name-glyph, but a relative captured with the prisoner depicted on the shaft.

Nine other glyphs, figures *e* to *m*, are unknown objects.

The slight knowledge acquired from this description shows three distinct types of glyphs; some represent the name of the man depicted under the glyph, as, for example, *Can*, *Coh*, *Moo*, others refer phonetically to some action of this man, as, for example, *Lahuntul* of the Warriors Temple; and others represent a direct attribute of the prisoner, as, for example, the woman prisoner on the colonnade shaft. Though a Maya numeral appears once, no calendrical or mathematical glyphs seem to be present.

Some of the decorative scrolls on both units have the appearance of more or less fantastic human features. This is the case on column 7 N., the scroll on which turns into a human profile, and on t.13 S., where the profile of a long-nosed god appears.

#### ART CONSIDERATIONS

##### PRELIMINARY SKETCHES

Here again, as was the case in the Chac Mool Temple there are indications that sketches were used by the artists. Such a supposition is strengthened by the strong artistic similarity existing between the three sides of column t.1 (W., S., E., Plate 41) and the corresponding sides of column t.15 (Plate 57).

The west side of both 1 and 15 shows a man with the left leg amputated, holding darts with his left hand, and the defensive bat, in a vertical position. The head-dress on both figures has a scroll-like decoration among the feathers, a very rare feature which occurred once before, in the Chac Mool Temple, also associated with a one-legged warrior.

The south sides of both 1 and 15 show a man with a long tunic, decorated with tiny pleats and a horizontal band at the lower edge. The tunic falls loosely, unbelted. The extended left arm holds the darts and defensive bat vertically; in both cases the right arm is folded across the breast and holds the *atlatl* diagonally; the hats are decorated with a blue circle and a projection that seems to be an eagle feather; the eye is the "Tlaloc eye," framed in a blue circle; the same curved line appears around the mouth on both figures, and the knee and ankle ornaments are similar, though unusual, being made of cloth tied in front and not of feathers.

The east sides of 1 and 15 show a warrior with very young features. The torso appears in profile, with the right arm concealed by it, so that only the wrist and hand appear, holding the *atlatl* vertically; both figures wear turbans with an intertwined rattlesnake and the long quetzal feathers of the panache are, in each case, decorated with pear-shaped pendants, a detail that does not again occur in the Warriors Temple reliefs. Both figures wear tunics.

Such repetitions of unusual peculiarities, together with the identical orientations of the corresponding figures, indicate some relationship between them. As one column can not be seen from the other, because of a wall that stands between and as it would be impossible to see both corresponding sides at the same time from any other point, the idea that one was a direct copy of the other must be dismissed. It might be suggested that the figures are historical personages, whose garments and insignia were fixed by tradition, and this suggestion might be further justified by the constant association between the one-legged man and the peculiar scroll-decoration on his hat in both the older and the later temples. However, this suggestion presupposes the existence of representations of these personages, carved or painted before those of the Warriors Temple and numerous enough to establish a tradition. If these supposed representations were monumental, only by means of sketches could the artist take them to the new shaft as models; if they were of more portable material, they were the sketches themselves, and possibly an album of models accumulated by the observing professional artist with an eye to further use.

In this case, however, the drawings are too full of life to be second or third-hand copies from monuments. Though they are closely similar in small casual details as, for example, the lines on the inside of the fore-arm that occur on both 1 and 15 E., on the other hand, they present great differences as regards accessories. The movement of the two scroll ornaments on 1 and 15 W. is strikingly dissimilar; 1 S. wears conspicuously an elaborate collar-piece made of small shields, which 15 S. lacks; the necklace on 15 E. is made up of spherical beads while that on 1 E. is not; the ornamental scrolls on 1 E. and 15 R., again, are as dissimilar as

the same amount of space to be filled permits. Important and deliberate changes in the attitudes of the figures were also made. While 15 W. holds the *atlatl* horizontally, the arm on the corresponding figure of 1 W. is in identical posture but the wrist is twisted at a right angle, so that the *atlatl* hangs vertically.

The repetition of lines insignificant for descriptive purposes—but agreeable aesthetically—and the disregard for important features point to an artist dealing freely with his own sketches and from an artistic point of view, repeating

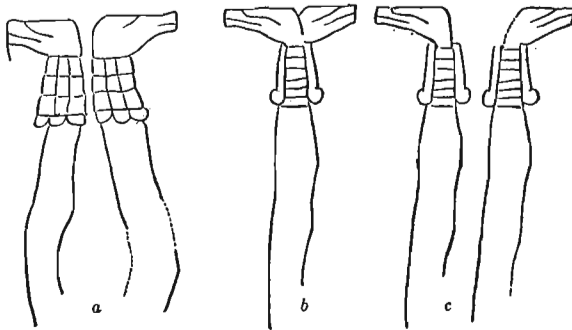


FIG. 237—PERSPECTIVE AND SUBSTITUTION

*a*, detail of Atlantean figure on B N.; *b*, detail of Atlantean figure on B E.; *c*, artificial presentation of precedent with both arms represented



FIG. 239—EXAMPLE OF SUBSTITUTION QUIRIGUA

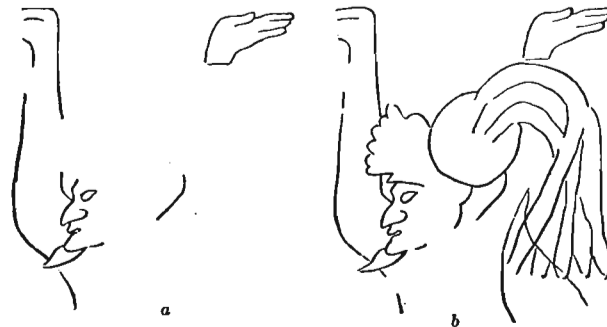


FIG. 238—SUBSTITUTION

*a*, human features taken from *b*, a detail from an Atlantean figure, Northwest Colonnade

himself, but doing this as unobtrusively as possible and creating or suppressing details at will—an attitude quite different from that of a mere copyist.

Thus the identities between descriptive and purely plastic details on columns 1 and 15 would prove that sketches on portable material were used by the artist during the stage of work preceding the actual carving. Minor resemblances, as well as variants, would indicate that the sketches in this case were not replicas but most likely studies from life, drawn by the sculptor himself to be transformed later, *in situ*, adding or suppressing freely, in adjustment to the needs of monumental style.

## PERSPECTIVE AND SUBSTITUTION

Problems of perspective frequently faced the artists of these bas-reliefs and were solved most interestingly. One very successful example is the Atlantean figure on B E. (fig. 237*b*). A similar figure appears in front view, with upraised arms, on B N. (fig. 237*a*). The much narrower panel of B E. did not permit a front view, and yet it was essential to depict the Atlantean gesture clearly. The artist solved the problem in an extremely sophisticated manner. The two hands emerge from a single wrist ornament, in a supporting position. This apparently simple formula presupposes a double perspective: the arms are shown in pure profile, the left arm totally concealing the right; for the hands, however, the point of view changes and they are depicted identically with those of the figure in a full front position. As this effect might easily be unintelligible, the artist resorted to a purposely ambiguous description of the raised arm which makes it fit either of the two hands (see fig. 237*c*, a composite picture drawn to illustrate this point).

Another optical illusion similar to this appears on c.A. Here the raised right arm of the Atlantean figure is shown, and only the hand and a small part of the shoulder of the left (fig. 238*a*). The artist, by a skilful use of the outline of the panache, the rosette of the head-dress and the conical shell ornament, simulated with it the silhouette of the concealed raised left arm, and thus conveyed to the spectator a suggestion sufficient to enable him to reconstruct the other limb (fig. 238*b*). The spectator *sees* both arms with equal clearness and is scarcely aware of the stratagem.

A less elaborate optical illusion was frequently employed by the sculptor, especially in the temple. He emphasized the elegance of the figures, giving the high waist artificial slimness, by substituting for the real line of the back the curved outline of the back-shield, connecting it above and below to the line of the body.

A similar but more complex illusion occurs in Quiriga, where the glyphs made up of several human figures do not seem crowded, simply because the artist used a single limb, optically, to correspond to two different bodies<sup>1</sup> (fig. 239 after Maudslay, VII., Plate 14. The grotesque heads and the ornaments are suppressed for the purpose of clarity).

## RELATION BETWEEN CARVED AND PAINTED VERSIONS

Since the paint has disappeared from most of the bas-reliefs of the Colonnade, especially in the south area, the first versions of the subjects are visible. These first versions, compared with the definitive lines, permit a glimpse into the mind of the sculptor and throw some light on his solutions of artistic problems, though usually of minor points.

It would hardly be denied that when the artist was sketching with charcoal the lines to be carved on the panel, he changed his drawing more than once, modifying the relative positions and proportions of his subject-matter to make a clear

<sup>1</sup> The solution of artistic problems by means of "substitution" is one of the most striking achievements of Maya art. Spinden illustrates it excellently by saying in regard to a snake from Yaxchilan, "In the example the writhing movements of the serpent's tail are probably intended by the added scrolls." Spinden, 1913, p. 83.

and artistically perfect version. These successive preliminary attempts, of which we have an indirect example in the two versions of the mouth in the Atlantean sketch of the Chac Mool, naturally disappeared when the artist, having arrived at a version which suited him, began to carve. However, in some cases the artist changed his mind after the carving was begun, relying on the painter to hide his errors. Thus on c.49 N. (fig. 240*a*), there is the upper part of an *atlatl*, held diagonally; this position was changed for a horizontal line when the carving was halfway completed (fig. 240*b*) and the first line, thus discarded, was hidden by the black and white paint of the defensive sleeve. On c.48 W. (fig. 240*c*) the snake in the hand of the sorcerer was begun too near the edge of the stone. When the sculptor traced the line of the frame he cut vertically into this first outline, which was later covered with the blue paint of the frame; the second version of the snake is shown in figure 240*d*. On c.32 E. (fig. 240*e*) an entire hand holding an *atlatl* vertically was discarded because the sculptor later decided that the figure was to be an unarmed prisoner. The two hands bound at the wrist which would correspond to that final version had to be carved high enough so as not to be confused with the first hand, and the result of this expedient was that they were placed so near the chin that they dwarf the arms, thus giving the whole figure awkward proportions.

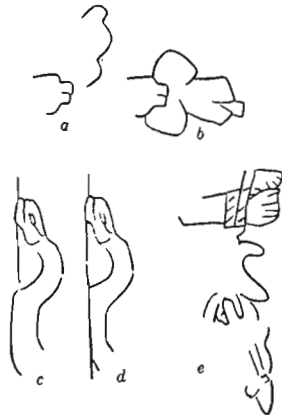


FIG. 240—CARVED VERSIONS. NORTHWEST COLONNADE

*a* and *c*, first versions; *b* and *d*, definitive versions; *e*, detail of figure showing three hands

Changes made in carved lines, however, are much less frequent than the changes made by the painter in the work of the sculptor. Many of these differences between carved and painted versions are visible even on shafts such as these, which have lost much of the color. On c.52 E. (fig. 241*a*), the face of an old sorcerer, the painter attempted to better this most careful piece of carving by minor changes in the drawing of the ear-plug and by a radical change in the position of the eye (fig. 241*b*). On c.44 N. (fig. 242*a*) the somewhat angular outline of the carving was rounded and made more flowing by the painter, and a dart was added to the sheaf grasped by the hand (fig. 242*b*). On c.48 S. (fig. 243*a*) a defensive sleeve of a type intermediate between the ordinary sleeve and a wrist ornament was modified by the painter into a sleeve of the usual type, the vertical hachures were made diagonal, and the strongly contrasted pattern helped to conceal the first outline

of the hand and arm, now swathed in the new version of the sleeve (fig. 243*b*). On c.49 N. (fig. 244*a*) a somewhat cramped carving of a hand holding an *atlatl*, a left arm with its defensive sleeve, and a knotted belt, was made less heavy by a bold suppression in the painted version of the inner bulk of the sleeve; thus the three components are more clearly differentiated and the elaborate knots of the

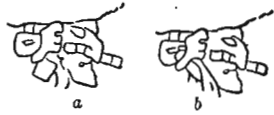


FIG. 241—DISCREPANCIES BETWEEN CARVED AND PAINTED LINE

*a*, carved line; *b*, painted line. From c. 52 E.

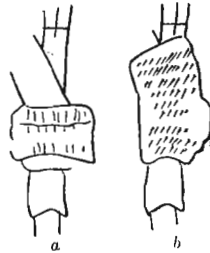


FIG. 243—SAME AS 242. FROM c. 48 S.

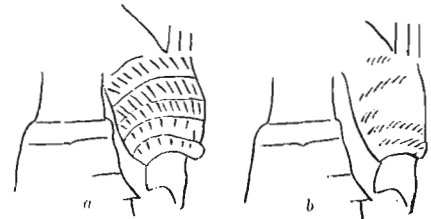


FIG. 245—SAME AS 244. FROM c. 53 N.

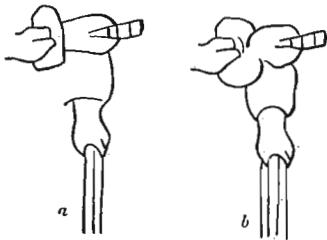


FIG. 242—SAME AS 241. FROM c. 44 N.

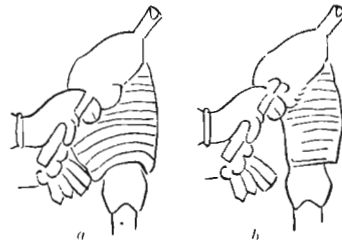


FIG. 244—SAME AS 243. FROM c. 49 N.

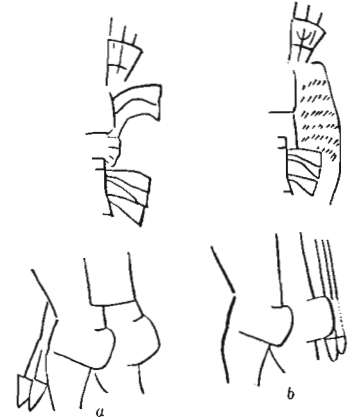


FIG. 246—SAME AS 245. FROM c. 53 E.

belt now retain their full decorative value against a plain background (fig. 244*b*). Again, the figure on c.53 N., a warrior seen from the front, had been carved in such a way that the slim waist contrasted almost to the point of caricature with the voluminous left sleeve and, furthermore, the lack of space between them did not permit a clear differentiation at first glance (fig. 245*a*); this over-emphasis of relative proportions between sleeve and waist was much subdued by the painter, who also widened the space between sleeve and waist, thus permitting a clear vision of each and achieving a more defined interplay of proportions (fig. 245*b*).

An ingenious use of perspective obtained in the carving of figure 246*a*. Here the arm holding the weapons was supposedly concealed by the body, and the fingers of the hand only were visible, grasping a sheaf of darts and the defensive bat diagonally toward the back. The blunt ends of the darts were depicted, seen beyond the left shoulder, the heads projecting from behind the knee. This unusual, if sophisticated, portrayal did not please the painter and he attempted to transform it into a more traditional attitude (fig. 246*b*). A defensive sleeve and a hand holding vertically a sheaf of darts were painted along the outline of



the torso, while the sculptor's discarded version was buried under the paint of the defensive sleeve. The carved version of the arrow points was discarded, receiving a coat of red that identified it with the background, while the blunt ends of the darts behind the shoulder were left untouched, even though portrayed in a diagonal position. Other minor changes from carved to painted versions, for instance a change in the size of the *maxtli* which would permit the outline of the leg to continue as far as the waist, point to the care with which the artist worked the definitive version on the shaft.

#### ART STYLE

##### TEMPLE OF THE WARRIORS

The first impression conveyed by the bas-reliefs of the Warriors Temple columns is, on the whole, less favorable than that made by those on the columns of the buried temple. This is due in part to the lack of color which would emphasize the sculpture and also to the fact that the carved lines, though as deep as those in the Chac Mool reliefs, are scattered over a greater area, giving a proportionately flatter effect.

On six of the columns the work is particularly poor. The carving consists of barely more than a few scratches on the plain surface of the stone. This strengthens the supposition that the carving was begun after the roof was in place, since it can be explained only by the fact that very little light fell on these shafts when the temple stood complete.

The great inequalities that occur in workmanship possibly indicate that the artist had helpers. Curiously enough the work which, from its appearance, might be ascribed to assistants is all to be found in the altar room, while the very best craftsmanship occurs on the outside of the entrance pilasters and on the columns most easily visible from this entrance. It will be remembered that in the Chac Mool Temple, the contrary occurred. Thus it would seem that while the artist of the earlier period cared more for the opinion of his gods, human approbation was more prized in the later period, or perhaps, more prosaically, the light in the inner room was so bad that it made careful work difficult and useless.

The composition of the subject-matter in an elongated rectangle, the color scheme, the attitudes of the figures and even the human types depicted, seem to have remained, on the whole, the same as in the Chac Mool Temple. This fact might be very misleading to an observer, influencing him to conclude that the only changes that occurred in the time elapsing between the construction of the two temples were eliminations or modifications of minor garments and details. More essential differences were not discovered previously because the analysis referred only to subject-matter. This method of using a work of art as merely an accumulation of descriptive data fails to reveal or define its most individual feature, which is style.

Comparison of the decorations of the two temples reveals interesting changes. In the Chac Mool reliefs, direct ancestors of those under discussion, there is no hint at standard proportions for portraying the human body. And since the

artist was pre-occupied with composition, distortions or realisms occurred whenever space requirements so dictated. This naïve logic of the older craftsman was discarded by his successor, and a conventional compromise between artistic law and realistic depiction was adopted. Thus a fairly constant canon of human beauty was developed, but, on the other hand, some of the boldest effects of the older artist were lost along with his unconcern for academic conventions. Another obstacle to fresh and striking effects faced the later workman in the changed fashions of dressing. The most picturesque of the older garments, the heavy masks and monumental head-dresses, had been somewhat reduced in size and weight. As the artist could only follow the fashions, he was no longer faced with the complex but exciting problems of composition that challenged his predecessor, and monotony became inescapable. And, finally, the later artist was hampered by the monumental size of the shafts and the lack of free space around them, so that he could see only a small part of the panel when he was working on it, and was not able, except in a few cases, to retire far enough from it to see the entire panel at once.

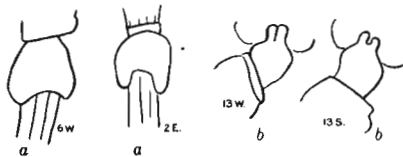


FIG. 247—STYLE. EXAMPLES OF HANDS FROM WARRIORS TEMPLE.

*a*, holding arrows; *b*, holding *atlatl*



FIG. 248—PORTRAITURE. HUMAN PROFILES FROM WARRIORS.

*a*, *b*, straight nose types; *c*, *d*, Maya nose types; *e*, youth; *f*, bearded elder; *g*, old woman

The proportion adopted for depicting the human body can be fixed approximately as  $6\frac{1}{2}$  "heads" (height of the head) to the body. This somewhat elongated proportion is accounted for partly by a technical reason. The narrow and very high spaces of the shafts could be more easily filled with a subject similarly proportioned; thus the figures on the narrow sides of the jambs (A E., W. and B E., W.) are the longest of all. This technical problem might, however, have been differently solved had the artist's own ideal been in conflict with this type of beauty.

The disparity that occurred between the two hands of the same figure in the Chac Mool carvings no longer appears, as here again freshness has been sacrificed to convention. Whereas the older artist often carved the hand, finger by finger, thus giving it an individual expression (see 4 W., Plate 35, and 6 N. and W., Plate 37), his successor was satisfied with a hastier rendering. The hands of the Warriors Temple figures are outlined only. A heartlike shape suffices to indicate the hand grasping the darts on figure 247*a*; a similarly simple convention represents the front view of the hand holding the *atlatl*, with the two fingers in the corresponding holes on figure 247*b*; in both cases the fingers are omitted or barely sketched.

However, in the portrayal of faces the Warriors artist equalled, if he did not surpass, his predecessor. The number of really insignificant faces is surprisingly

small, given the total number. Some of the interesting faces of the Warriors figures are shown in figures 248*a* and *b*, straight-nosed types; *c* and *d*, Maya-nosed faces; *e*, an accepted type of beauty; *f*, a strongly characterized face; *g*, the wrinkled features of the female figure. These faces differ from the Chac Mool carvings in that they are not, like them, minute and keen portraits of individuals, but rather the results of a tendency toward establishing ideal types. Thus, what the portrayal may lose in exact representation, it regains in dignity. Creations like the Atlantean figures of the shafts (A S. and B N., Plates 39 and 40), which have well-defined characteristics but are far from being portraits, are charged with deep human feeling of permanent value, like the most celebrated reliefs of Palenque. In the less exceptionally beautiful panels of the Warriors Temple the artistic mood oscillates between realistic rendering and generalization. Whereas 16 E. and 19 N. (figs. 248*f* and *g*) are comparable to Chac Mool figures, the coyote warrior 5 N. (Plate 45) seems more highly stylized, and 4 W. (fig. 248*e*) approaches our own and the Greek ideals of beauty more than any of the older sculptures.

The style of the Warriors Temple bas-reliefs could be summed up as follows: it possesses dignity and a certain tiresomeness due to excessive repetition; some of the minor problems are solved in an extremely sophisticated way; and the elegant proportions and tendency to artistic theorizing point to a stage of development at which this art grows more distant from life and actual observation, but one which, nevertheless, has not yet reached the point of decadence. Two of the contributing factors to the definition of the style may be the momentary uneasiness with which the artist met the unusual size of the shafts and also his restraint, due to a too close collaboration with the priests. The study of the art-style of the Northwest Colonnade reliefs will point also indirectly to these modifying factors. Altogether the Warriors Temple style contrasts strikingly with that of the Chac Mool reliefs, which are so richly descriptive and impetuously youthful. Most probably these differences are not isolated in the two groups, and links between the two styles might be found in buildings dating from the intermediate period.

#### NORTHWEST COLONNADE

The bas-reliefs of the Northwest Colonnade fall into groups according to great differences in workmanship. The front row, though much destroyed, still appears technically consistent; it is evidently the work of one hand. The northern group of back rows is of poorer workmanship, the carving being performed clumsily and hurriedly. The middle group, which corresponds roughly to the front of the stairway, was more carefully executed; but by far the best work was done on the south side of the colonnade, where the stone, though not more deeply carved than elsewhere, was in some cases delicately sculptured with attempts at a true rounding of the volumes and with a surface perfectly smoothed (cols. 60, 61). This work is by far the best of any yet discussed.

The progress in workmanship on the columns from north to south indicates that some scale of importance was fixed according to orientation; the probability

- 1: Work attributed to the sculptor of the upper chambers
  - 2: Work of low quality
  - 3: Work of medium quality
  - 4: Work of best quality
- Dotted lines show approximate limit of each group

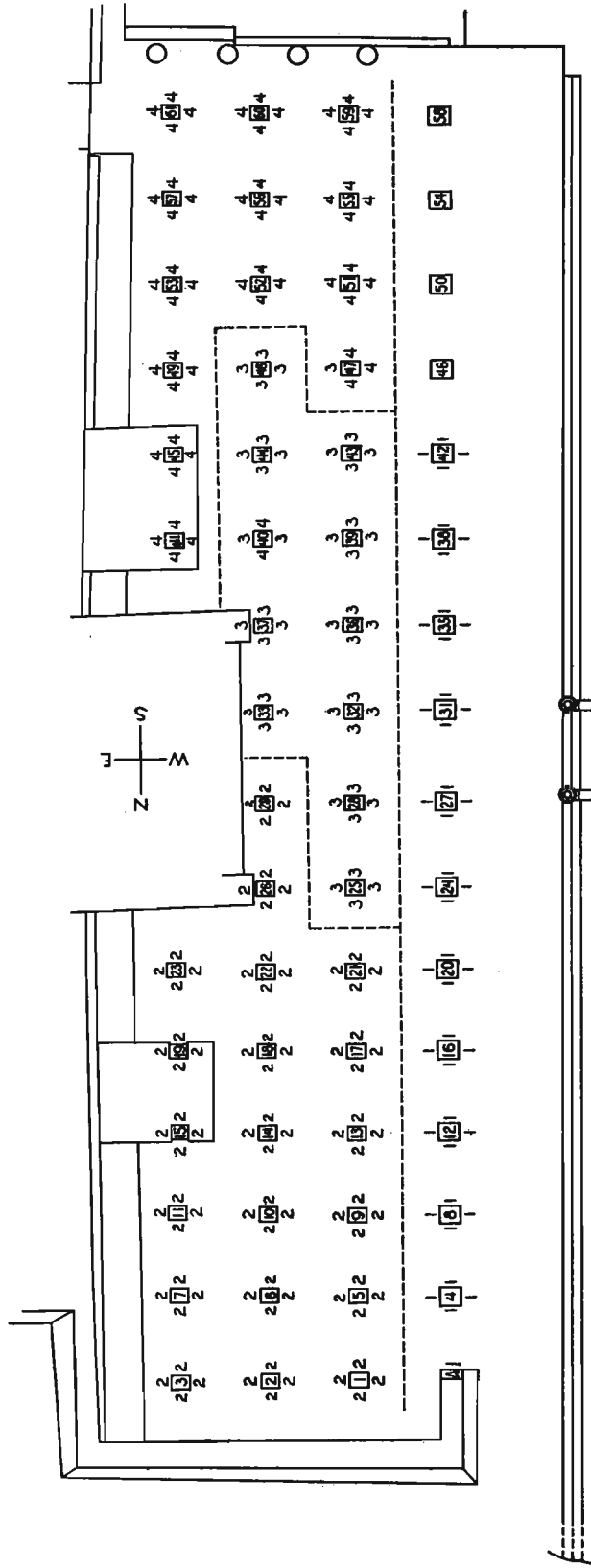


FIG. 249.—PLAN OF NORTHWEST COLONNADE, SHOWING GROUPING OF STYLISTIC AFFINITIES

is strengthened by the fact that while the work on the north altar or dais is very careless and no sculpture is attempted, the corresponding south dais is one of the most beautiful objects of art found in the ruins.

From internal evidence it appears that the work was given out among four artists, each of whom naturally possessed individual peculiarities (see plan, fig. 249). To preserve the architectural unity, the work on the entire front row was given to one man. His carving is now much more damaged than that of his colleagues, as it was more exposed. However, it still shows excellent workmanship which has much in common with the style of the bas-reliefs in the Warriors chamber. As in those carvings, the artist carefully maintained a standard proportion for the human body and also revealed rather close observation of anatomical appearances. Some of the panels on this front row are slightly taller than those in back, and the average height set for the figures throughout the colonnade thus left more space on these columns, which was frequently filled with huge decorative forms. One can hardly be mistaken in asserting that the chief part of the carving in the rooms of the Warriors Temple and on these columns was the work of the same man.

The group on the north, to the left of the stairway (including columns 26 and 29), is the poorest. It was carved hastily and the eighty warriors depicted are slightly varying repetitions of one type. Some of the columns (22, 23, 26, 29) are carved deeply but crudely, and the lines are not carefully defined; others (col. 17 W.) are so lightly engraved that the background and the figure are almost of the same depth, so that the suggestion of volume is lost. In still others (col. 1) much of the sculpture has been done in stucco, which is much easier to work than stone. The faces are monotonously treated, and the clothing, weapons and attitudes are standardized. The chief interest of this group obtains in the name-glyphs which have already been discussed.

The adjacent group (including columns 25 and 28) is of much better workmanship and is also more varied as to subject-matter. It includes six of the eight columns on which prisoners are portrayed and five more columns on the south wing. The limits of the group, however, are less clearly apparent here. The peculiar artistic style of these columns consists of a return to the older tastes of the Chac Mool Temple, or perhaps it is a survival in popular art of those traditions supplanted by newer aristocratic conventions in the Warriors chambers and on the front row of the façade. Like the older art, it is extremely skilful in composition, apt to seize and reproduce human characteristics with a somewhat caricaturesque bent, but at the same time it displays a tendency to transform the optical appearance of the model into more abstract or "plastic" elements. A study of the prisoners' hands is instructive from this point of view (fig. 250). On the simplest (25 W., 33 W., 33 S.), the hands are supposedly held in such a position that one entirely conceals the other. In the lines of the hand itself, the sculptor was evidently influenced by a flower *motif*, as the hand emerges from its rope like a corolla, with the fingers curving outwardly like petals (see especially 33 S.). When both hands are depicted (33 E., 33 N.) the position is barely suggested

with a few choice lines to differentiate the palm from the back of the hand; 37 S. is a good example of a pair of feet similarly portrayed, a few lines intended for the toes likewise distinguishing the outer view from the inner. The front view of the hands of a prisoner is shown in 25 S. Though the idea of the arms crossed and bound at the wrist is grasped easily enough, it is partly the result of imagination, as on the carving itself the handcuff does not fit both forearms. The number of fingers in all these hands varies from four to six, and the insistence on a squarish outline with extremely short fingers is characteristic of the popular peasantlike tendencies of this particular artist. He is better, also, at describing small details than at achieving balanced compositions. His name-glyphs are particularly well

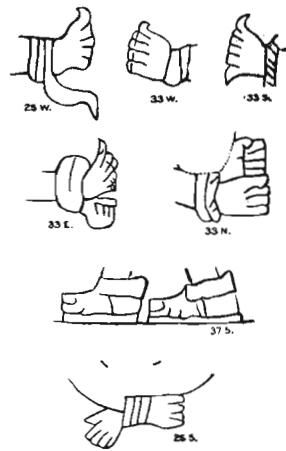


FIG. 250—STYLE. HANDS AND FEET FROM MIDDLE SECTION OF NORTHWEST COLONNADE

worked out (the hand grinding, the woman) and in some cases (33 S.) his interest in the glyphs was so great that he cut down the size of the human figure in order to give more space to them. On the other hand, his compositions are often overcrowded, decorative forms being thrown in until no space was left. On shafts where the outline of the subject itself was rectangular and thus did not admit much supplement, the composition is better; 25 S. especially, a figure seen in front-view, is his masterpiece as regards composition (Plate 93). This warrior, standing in a posture difficult to portray and dressed in his complicated attire, fills the entire rectangle with rich curves, all describing some significant detail. It is a striking contrast to the poorer work of the sculptor of the north wing bas-reliefs whose skeletal massing of the human figure on 29 N. (Plate 97) is adjusted to a very simple expedient of a vertical line that runs from head-dress to feet in front of the personage.

The fourth and best group consists of the reliefs on the extreme south wing of the colonnade. The builders, and likewise the decorators, were chiefly interested in the dais around which people would crowd to watch or perform ceremonies; the columns of the south façade, along the passageway between the square and the round colonnades, were also given special attention, as this was probably a frequented place since it led to the north colonnade and into the large court. The work done here is exceptionally beautiful. The columns include 41, 45 (both embedded in the dais), 49, and the entire south group from 51 to 59, except the

columns of the first row. On the northern limit the style blends with the carvings of the preceding type (see plan, fig. 249). Fortunately, the paint on these reliefs is much better preserved than on the carvings of inferior workmanship in the north half of the colonnade.

The sculpture proper, though it does not diverge essentially from the preceding group, is different enough when closely analyzed to be described independently as the work of another man. Besides greater care in technique, the rounding of volumes and the smoother surface finish, these carvings show also a more restrained taste. The composition is, in general, severe. The subject is usually fitted successfully into the rectangular space without the assistance of ornamental scrolls (61 E., Plate 123), although inconspicuous half-circles are used when there is space left (61 E., 60 W., Plates 123 and 122). When more voluminous decorative forms are used, instead of the usually flowing and purposely complex curves, they are more sober curves strengthened by horizontal and vertical axes (col. 61 S., Plate

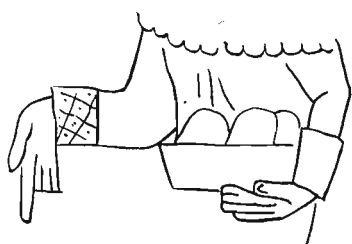


FIG. 251—HANDS FROM SOUTH SECTION OF NORTHWEST COLONNADE, SHOWING INEQUALITY IN SIZE

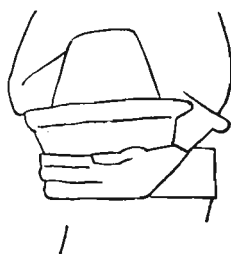


FIG. 252—HAND AND BOWL OF OFFERINGS FROM SAME, SHOWING PURPOSEFUL DEPARTURE FROM NATURAL APPEARANCES



FIG. 253—DETAIL FROM SAME, SHOWING ECONOMY OF LINES

123). Unlike his fellow workers and against the general tendency of his time, this artist knew the value of plain undecorated spaces as a background upon which to detach the figure. He used the idea most successfully in such panels as the beautiful 61 S. (Plate 122). His choice of a predominating kind of line for each panel gives each piece individuality. Thus in 61 E. (Plate 123) verticals dominate and the scheme is followed even by the feathers of the head-dress; a similar subject is treated in curves on 60 W. (Plate 122). And on the same panel the sculptor contrasted two kinds of lines, as, for example on 60 S. (Plate 122), a broad and heavy head-dress, crowded with detail, is worn by a figure of deliberately narrowed silhouette, delineated in an extremely simple way. This artist like his less gifted companions, but more consciously, enjoys working out interesting abstract forms, without feeling any special responsibility toward descriptive accuracy. This tendency can be illustrated here again by a study of the hands depicted. The inequality in size of the two hands discovered in the Chac Mool carvings reappears here, but is used quite purposely, a fact which is strikingly illustrated by 59 S. (fig. 251). One can hardly imagine that the sculptor of this column, which is one of the best in the south wing, was unaware of his departure from anatomical appearances. Indeed he emphasizes and justifies it by developing from it a linear pattern of real beauty. Another and more radical departure from realistic ap-

pearances is attempted on 59 W. (fig. 252). Here the hand is completely transformed so that it becomes the shape and length of the invisible part of the belt. The profile of the wrist ornament is a replica, diagonally, of the profile of the basket that contains the offering, and the corresponding diagonal line at the left balances the entire composition. This artist, like his colleagues, was faced by the problem of welding multiple heterogeneous elements into one plastic unit and at the same time achieving a clear representation. To solve this problem much ingenuity was required. One of his favorite ways of effecting simplification was to use one line for two purposes. Thus on 60 W. (fig. 253), a single curved line describes both the concave inner outline of the folded arm and the convex border of the breast-shield. The best work of this artist (cols. 57, 60, 61), though not as picturesque as that of his less able companions, is extremely dignified and can bear comparison to its credit with the good examples of Southern Maya art.

#### DAIS OF THE NORTHWEST COLONNADE

The dais covers a rectangular area, measuring from north to south 5.19 meters and from east to west 4.1 meters. The average height of three of its sides is 67

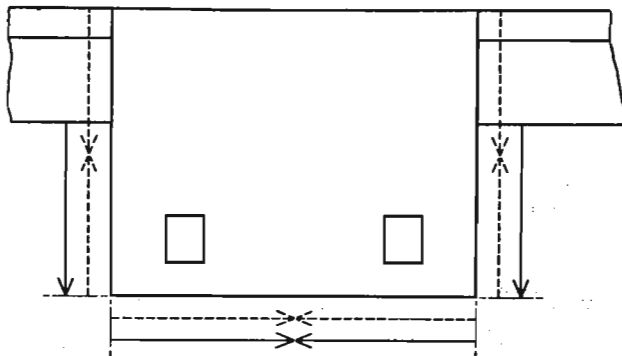


FIG. 254—PLAN OF DAIS, SHOWING ORIENTATION OF SUBJECT-MATTER.

Dotted arrows refer to snakes on frieze; plain arrows refer to processions on sloping zones.

cm. They slope upward at an angle of about  $80^\circ$ . A rectangular cornice 19 cm. wide crowns the whole and overlaps the upper edge about 8 cm. The dais meets the west face of the temple wall on its fourth side, which faces east. Part of the north and south sides seem to be embedded in the bench that runs along the same wall (see fig. 254). The cornice, the rest of the north and south sides and the front of the dais, which faces west, are covered with polychrome bas-reliefs (Plates 124 to 129). The top of the dais, upon which the performers of the ceremony stood, was stuccoed and painted dark red like the floor of the colonnade itself. Columns 41 and 45, described along with the other shafts of the colonnade, are set into this dais floor. When the dais was uncovered a crude stairway obscured much of the front part of it, from *a* to *a'* (see Plates 124 and 125). When this



stairway was removed, revealing the sculptures buried under it, traces of an older and narrower stairway running from  $b$  to  $b'$  were discovered. Thus on the single slope of the front of the dais, five areas in different states of preservation occur. The central portion, from  $b$  to  $b'$  was covered first, when the older stairway was built. Then the two small areas  $ab$  and  $a'b'$ , to the right and left of this stairway, were covered when it was demolished and a second and wider stairway was built. The other two areas, from  $a$  to the left corner and from  $a'$  to the right corner, were exposed until the temple itself fell. This was also the case with the small sides of the dais.

An interesting fact with which the study of the sculptured parts of the dais was begun is that the central block was missing. It had been fixed directly over the stone on which the bowl of offerings is sculptured and, according to the rest of the bas-reliefs, should have had carved upon it two serpent heads facing each other. Two other stones had been laid in its place, also sculptured and painted and covering the same space, but they were entirely disconnected from the rest of the design. The most important of these two stones has a human profile carved upon it in high relief, with a shell-eye still incrusting in the orbit. This head was not only disconnected from the neighboring design, but it was in much larger scale than the other figures. Curiously enough the missing central stone was found employed in place of the second stone from the left on the upper row of the same frieze. This other missing stone, which had been thus replaced, was never found. The intruding stones were removed from the center and the stone with the two serpent heads was again fixed in the corresponding cavity. Its lines match perfectly the design in the surrounding area. Plates 124 and 125 show this stone in its proper place, and the second stone from the left, with the head of the man No. 2 and the upper part of his corresponding snake, is presented in an attempted restoration based on the style of the neighboring figures. The displacement of this carved stone might be explained as follows: the second stone from the left had been probably badly damaged accidentally before the first stairway was built. The men who built this stairway knew that the central area would be covered by it, while the sides would still be visible. Therefore they did not scruple to use the central stone in place of the damaged one at the side, as it was of the same size and, at first glance, similar enough in subject-matter. But the filling of the resulting cavity by another stone of some artistic merit, and just at a time when the whole middle area was to be walled in, is still a baffling fact.

Before the stairway was built, the area  $bb'$  was crudely covered with a coat of red paint which still obscures much of its original coloring. Thus the polychromy on  $bb'$  is less perfectly preserved than that on neighboring areas, in spite of the fact that it was protected by masonry for a longer period than the rest of the bench. When the first stairway was finished, a coat of stucco was applied along the sides, turning smoothly into the corners where stairway and altar met. Then this as well as the whole face of the altar received a new coat of paint, followed later by other layers. When this first stairway was torn down, the broken stub

of this outward curve of the stucco still remained. On *b* and *b'* these traces of the older stairway show an irregular vertical line of broken plaster, made of superposed layers, the thickness of which gives some indication of the length of time that the stairway was in use. On *b* the points of the warrior's darts (No. 6) as well as the curved body of his snake were covered by the masonry. A second version of the same subjects, much smaller so as to fit the new space, was improvised with paint. Both versions are now visible.

As has already been stated, the color on *ab* and *ab'*, to the right and left of the older stairway, is much brighter than on other parts of the bench, since they were protected by the second stairway until the time of excavation. The rest of the front part of the bench is much faded, due to exposure, and likewise the north and south sides of the dais, but the west half of the south side was accidentally protected and thus, when uncovered, was in particularly brilliant condition. Except for the small part of the front (*bb'*) that was walled in by the masonry a relatively short time after it was finished, the rest of the dais received enough coats of paint to obscure the lines of the bas-relief underneath. These layers were so thin and adhered so closely together that they could not be counted. But the different layers which were partly uncovered show, that though line and color occasionally varied slightly from one version to the next, on the whole, the same color scheme and style were retained.

The subject-matter of the reliefs on the three sides of the cornice is similar. An offering in a bowl stands in the center, flanked by human beings costumed as gods, or gods in human form. They are clad as warriors and carry the usual weapons (*atlatl*, defensive bats and spears). Their bodies, from the waist down, disappear into the wide jaws of feathered serpents whose undulating forms fill the remaining space on the frieze. Their feather-tipped rattles fill the corners. On the front of the dais the bowl is exactly in the geometrical center, but at the sides this focus of interest is pushed back toward the junction between dais and bench. The dotted arrows in (figure 254) show respective positions of the serpents. Their meeting point is the middle, if measured from the western corner of the dais to the wall against which the bench is set. This displacement of the central axis would suggest, at first, that part of the dais is embedded in the bench. The idea is emphasized by the fact that the difference in level between dais and bench is equal to the height of the frieze, and that the frieze runs continuously around the bench to the foot of the wall. But an examination of the sculptured subject-matter on the slope proves that bench and altar were really planned together and do not interfere architecturally with each other.

Here again the actual state of the sculpture proves that changes have been made. The meanderings of the serpent's body are connected with each other sufficiently, but the characteristics differ from stone to stone, which fact suggests that part of the original frieze was destroyed and then mended with blocks from a neighboring frieze depicting the same subject, but differing in minor ways. Thus on the left side of the front panel, the snake's body at its tail end is divided in

only two areas, ventral and dorsal. From the third stone on, however, there is only a play of multiple lines, suggesting that the body is completely feathered. The stone where the head of the reptile ought to be is missing, but is here restored in color on plate 125 and in line on plate 124. The other serpent on this same panel is similarly inconsistent. Ventral scales occur only on three stones out of the seven that make up the snake. The difference in width of the blue frame near the right corner also points to important misplacements. The subject-matter on the north frieze is also superficially continuous, and the head of the left snake is missing on the south. Where color occurs, the dorsal part of the snake's body is green, the ventral, yellow. The snake on the right half of the south side, however, is an exception, as it is painted with a pattern of black and white. It can be assumed that the color on the left half of this same side, which is so well preserved, appears as intense as it was originally.

As has been remarked, the subject-matter on each of the three sloping panels of the dais is the same. The bowl, set on three spheres, stands in the middle of the front face. It is painted white, with a blue band around the rim. It contains a heap of material that might be copal flakes, into which three long and narrow objects with rounded tops are fixed. These were originally painted yellow. Two processions of men start from the sides toward this focus (see fig. 254). The arrows in plain line show the direction of the procession which includes 32 figures in all, 16 in front and 8 on each side.

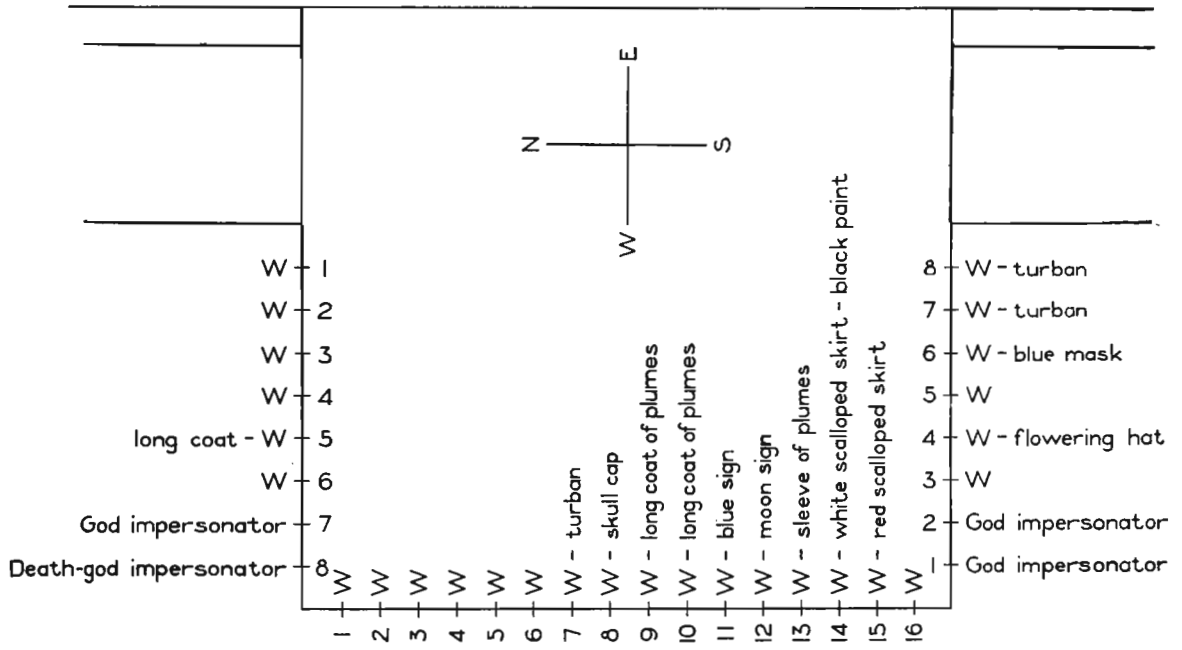
The color scheme is, in general, the same adopted for the columns. A blue band frames the picture. The background on which the figures are detached is dull red. Much of the space between the figures is filled with decorative scrolls and insignia, so that scarcely an unused space remains. For descriptive purposes, each personage is referred to by number, counting from left to right.

#### WEST SIDE<sup>1</sup>

The figures on the left, Nos. 1, 2, 3, 4, 5 and 6, are all of the same type—the standard warrior as found on the columns. They wear the blue cap and the blue ear-disk. Four of the head-dresses are still intact; of these, two are circular and adorned with the traditional blue bird, while the other two have the triangular front. Plume panaches set in the head-dresses flow toward the back. A wide blue necklace hangs around the shoulders and upon the breast of each figure. They are garbed in a short tunic or wear the loin-cloth. The belt is blue or red cloth, knotted in front; the back-shield, also blue, is fastened behind; and from under the shield hangs a wide back-flap, painted white with black lines which accentuate the fanlike folds and shape. Each figure wears white plume bracelets at the wrists, knees and ankles. The sandals are also white. All these warriors carry an *atlatl* in the right hand and a sheaf of darts and a defensive bat in the left. The defensive sleeve is absent, but no conclusion can be drawn from this fact, as it would be worn on the left arm, which in all these cases is concealed by

<sup>1</sup> Plates 124 and 125.

NORTHWEST DAIS



NORTH DAIS

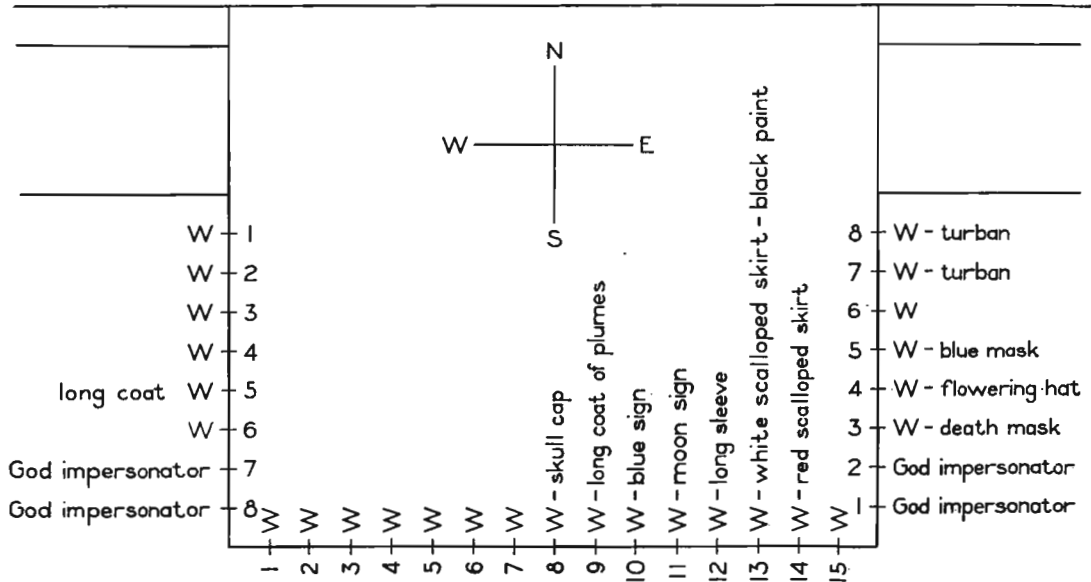


FIG. 255—PLANS SHOWING RESPECTIVE POSITIONS AND ATTRIBUTES OF WARRIORS ON BOTH DAIS

the body. The heads of the arrows of 6 N. are painted twice. This detail has already been explained in discussing the construction of the earliest stairway.

Figures 7 and 8, though warriors also, differ in some respects from the others. This difference is accentuated by the fact that the two figures are carved in that portion which was painted red before it was covered by the masonry. The traces of red therefore blur the original colors, which, as to clothing, seem to be similar to those of the other figures. However, the head-dresses are different. Figure 7 wears a turban head-dress with a very small panache dropping down behind instead of flowing upward, as is usually the case. He also has a small round shield for a breast-plaque, instead of the necklace or bird breast-plaque. Figure 8 is much weathered. The head-dress is unusual, being a skull-cap with two eagle feathers. The knee and ankle ornaments are also of unusual type, consisting of cloth knotted in front.

Behind each of the warriors appears a snake of realistic appearance, but with the addition of a head-dress, beard, excrescences like stone knives or feathers, and a tail-ornament which consists of a panache of plumes. A split speech-scroll or decoratively accentuated tongue issues from the jaws of No. 8. The colors vary greatly, a differentiation always being made between the ventral and dorsal areas.

The second procession, which covers the right half of this same panel, is made up of more varied figures. They wear unusual garments of complex significance. No. 9 is clothed in a long coat of green plumes that falls to his feet in front. His arms, on both of which he wears defensive sleeves of cotton, emerge from this garment. The head-dress is a diadem type, with a green ornament fastened in front; the elaborate panache is made up of green, yellow and red feathers. This figure carries in his right hand an *atlatl* of the "bouquet" type. The snake which curves behind him has a green back and a yellow belly.

Figure 10 wears an equally long coat, open in front. It covers his shoulders and is edged with yellow fringe. He wears a defensive sleeve on his right arm and carries an *atlatl* of intermediate type in his right hand. In his left hand, he holds a sheaf of darts. The hat is white, with a white crown made of short feathers from which two longer plumes emerge. The serpent that appears with this personage is painted yellow and white; the central scales, yellow, the dorsal, white; and the scroll-like ornaments fastened to the body are also white. This serpent wears two white nose-plugs tipped with beads, but no head-dress.

Figure 11 is depicted with the legs seen in front view and the feet in profile. He wears a shoulder covering that can be seen only on his right shoulder. It is black, with a red border and a white fringe. A yellow area on his chest may be the traces of a rectangular breast-plaque. He wears a loin-cloth with a distinct pattern woven in black. A wide and apparently double *maxtli* hangs diagonally from under the loin-cloth. The upper two-thirds are blue, the lower, yellow, which is the same color scheme as that of the ceremonial flaps described in both the old and the new columns. A cotton sleeve of peculiar design covers the left arm, and the left hand grasps a sheaf of darts. The head is covered with a bluish cap, decorated with an

ornament which may be a monster's head, and is crowned with two bead-plugs. The usual panache flows from this headgear. A nose-rod, green tipped with white, is inserted through the septum. The *atlatl* is of the bouquet type. The hair is unusually long and drops over the shoulder. The accompanying snake behind the man is replaced by a huge decorative scroll, which has no animal features. It is, nevertheless, plastically suggestive of the reptile's body as it follows the same curves, is adorned with the same flaplike appendages, and has a yellow area underneath, corresponding to the ventral scales of the snake, while the part that would correspond to the back is painted blue. The scroll ends in two volutes, where the head and the tail would be.

No. 12, like figure 11, is depicted with the legs seen from the front and the feet turned outward. This figure has warrior features: cotton sleeve, arrow, trefoil *atlatl*. He wears a shoulder covering and a shieldlike breast-plaque. His head-dress consists of a green diadem with a figure similar to that on the head-dress of 11 carved in front. Red beads are scattered over the diadem, as well as through the panache attached to it. The face is decorated with a nose-rod. The hair falls to the shoulders. The usual accompanying snake does not appear behind this

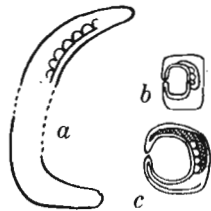


FIG. 256—MOON-SIGNS

*a*, from Northwest Colonnade Dais; *b*, painted representation; *c*, sculptured representation (the last two after Spinden)

figure. Instead, the background is filled with a shapeless scroll at the top, while at the feet there is a form that might be described as a split tongue, though apparently it issues out of thin air. The form in the middle background is much more interesting. Compared with similar representations on sculptures and in codices, it is seen to represent the moon. It is shaped like a crescent and furthermore is dotted in the characteristic manner of moon representations (fig. 256). The moon sign is white, dotted with black.

Figure 13 is a warrior, wearing on his left arm a long plume sleeve which hangs down, knee-length. His head is encased in a red cap which has a blue ornament in front which, though indistinct, might be identified as a blue bird. Two black and white feathers are fastened into the cap, and in back of these a tuft of yellow feathers from which two long and narrow green plumes issue. Another plume ornament is worn behind and below the cap. It flows backward and is colored orange and black. The serpent associated with this figure is green, the ventral part is yellow and the fins or feathers are red or green.

The face of the next figure, 14, is hidden under a coat of black paint. The legs are painted red, and the hands yellow, probably the natural color. The head-dress curves over the forehead in the shape of a bird's beak. It is decorated with yellow and white feathers crowned with the usual green panache. The ear-disk is white.

This personage carries the ordinary weapons. His waist is unusually high, and the scalloped skirt or sky-sign, painted yellow and white, billows around it. Under it a small square *maxtli* and an ample fanlike flap appear. The serpent behind this figure is painted yellow and white, with white appendages.

Figure 15, like 14, wears the sky-sign skirt, also high on the waist. The hat, though much faded in color, still reveals circular ornaments. This figure, carrying the usual weapons, also wears a breast-plaque, yellow with green fringe, and a conspicuously large cotton sleeve. But perhaps the most interesting detail is the color of the knee and ankle ornaments; on the right leg, they are yellow at the knee and green at the ankle; and on the left leg, the opposite arrangement obtains. This bold asymmetric device has already been noted on Chac Mool 2 N.

The last figure, No. 16, has almost entirely disappeared. The remaining traces indicate that it was a warrior.

#### NORTH SIDE<sup>1</sup>

The procession on the north side is turned toward the right, from the junction of dais and bench to the western corner of this side. Figures 1, 2, 3 and 4 are warriors of the usual type. A green and yellow symbolic serpent is associated with only one of these figures, 4, but no special significance seems to inhere in the fact that it was omitted in the other three cases. Probably the sculptor began his work from the right side, and the first five figures required so much space that the last three were jammed too closely together to admit of the snake *motif*. It is replaced by less voluminous speech-scrolls which issue from the mouth of each warrior. No especially remarkable features appear in their garments. Numbers 2 and 4 wear a bead as a nose pendant. The body of No. 3 is painted with red and white vertical stripes. No. 5, also a warrior, carries the usual weapons, but his body is hidden to the knee by a cloak made of three rows of yellow and red flaps. His hat is also somewhat unusual. It is a blue skull-cap from which issue feathers, alternately blue, yellow and green. He is seen almost in full-front, with the feet turned out. His snake is green and yellow and its nose is tipped with two beads. No. 6, also seen from the front, is likewise a warrior, well designed but with no outstanding peculiarities. The corresponding serpent is yellow, with a white ventral area, a blue eye-plaque and two blue head-plugs.

Figure 7 is a priest costumed as a god. He carries a blue staff which, as exemplified as carried by similar personages on columns, frescos, and on the dais itself, is the variant of a ceremonial ax with a reptilian head carved on the handle. This figure wears a broad-brimmed hat, which supports the mask of a long-nosed god, crowned with a feather head-dress. The mask wears the triple ear-plug that appears on similar figures (Chac Mool columns and frescos) as well as a single nose-plug. Its moustache, or fangs, and teeth are painted yellow. A red fringe hangs around the hat. The mask worn by the priest himself is also that of a long-nosed god. It is blue and seems to leave bare the lower part of the face. The priest wears a shoulder covering, a wrist bracelet and a blue belt. A back-crest of long plumes unfurls behind him.

<sup>1</sup> Plates 126 and 127.

Figure 8 is somewhat similar. The staff here has all the details which do not appear on No. 7, among them the blades and the serpent's head. The hat has disappeared. The nose-plugs only remain in the place where a god-mask must have been. The face seems to be covered with a skull-mask. The figure wears a shoulder covering and carries a round shield, red, black and white, with a fringe of the same colors. The back of the hat and the back of the man are both adorned with long feather fringes.

SOUTH SIDE<sup>1</sup>

Here eight personages file in procession toward the left, headed by numbers 1 and 2. They are priestly figures wearing hat-mask and face-mask, both of a long-nosed god. They carry carved ceremonial axes decorated with rosettes of beads and tufts of feathers. They wear also the typical shoulder covering, the blue and yellow *maxtli*, the tubular blue and yellow back-flaps, split at the end. Each carries a shield made up of three concentric color-areas, green, red and white. The back of the hat, the back of the man, and the edge of the shield are decorated with plume panaches and fringes. These figures are costumed somewhat similarly to the pair, 7 and 8, on the north side.

Figure 3 is a warrior, clad and armed as usual, and with a green and yellow snake behind him. Figure 4 is a warrior also, dressed as the ordinary warrior but wearing a striking head-dress, consisting of a close-fitting cap from which a tuft of hairlike material springs. From the center of this tuft the stem of a flowering plant emerges, which is divided, forward and backward, into large flowering branches which curl serpentlike behind the body of the warrior, displaying blossoms and buds. In spite of the exaggerated size of the plant ornament, which for the sake of decorative rhythm is given the same size and general outline of the neighboring serpents, it is intended as a head-dress ornament as it emerges from the tuft of hair. Comparison with the head-dresses on t.9 E. and c.51 S., decorated in the same manner, will establish its nature beyond a doubt.

Figure 5 is a warrior also. The panache on his cap is finished with red and yellow feathers instead of with the usual green plumes. Figure 6, a warrior, wears a blue face mask that seems transitional between the death-mask and the Tlaloc mask. A green and yellow serpent is coiled behind him. Figures 7 and 8 are likewise warriors. No. 8 wears a bead pendant at the nose. Both these figures wear turban hats with intertwined serpents, on which the reptilian head is used as a frontal ornament.

A plan showing the distribution of the figures will establish that they are not arranged haphazardly (fig. 255). The four priests are placed by twos, at each corner, as if they headed the two smaller processions. No priest appears on the front of the dais, all the figures being warriors. Nevertheless a given order is also maintained on this panel. The figures to the left of the bowl (1 to 8) are all warriors of the usual type, among whom the only peculiarities are the head-dresses of 7 and 8. These warriors are all bulwarked by the symbolic serpent, monotonously

<sup>1</sup> Plates 128 and 129.

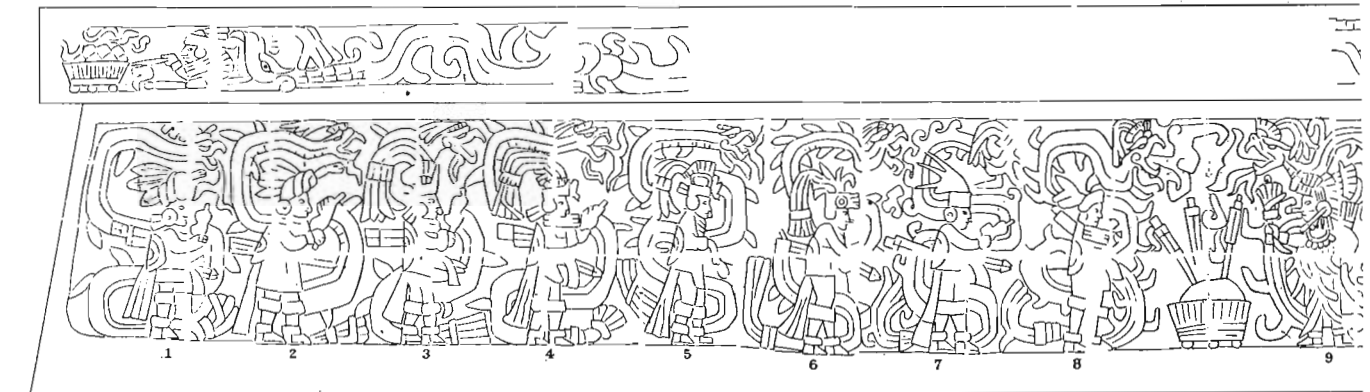


repeated. At the right of the bowl all the figures except the last are highly individual, either in their garments or else in the symbol which appears behind each. Even the workmanship on this side of the altar shows more care than on the left. This kind of artistic emphasis on the right side of an otherwise symmetrical arrangement occurs in other cases, for example in the Chac Mool Temple, where the two benches at the sides of the altar are shaped alike, but the left bench is painted somewhat carelessly with the usual warrior types, while the bench on the right side is covered with figures of dignitaries in gorgeous array, carefully drawn and characterized. The same kind of asymmetry occurs also in the architecture, and an example is to be had in the inequality between the dais at the right and the dais at the left of the Warriors Temple stairway. The left altar is coarse and not decorated with sculpture, but the one on the right, which is now discussed, was carefully planned to harmonize with the colonnade and was beautifully sculptured. The columnar bas-reliefs on the left and right sides of the Northwest Colonnade are also artistically unequal, like those on this dais. Those on the left depict warriors of a somewhat monotonous type and are poorly carved, whereas on the right side the figures are more carefully executed and the subject-matter is more choice. It includes mask-wearers, dignitaries holding staffs, and sorcerers, as well as warriors.

#### COMPARISON WITH DAIS OF NORTH COLONNADE

The subject-matter on the dais of the Northwest Colonnade has been studied in itself, but more data are to be had by comparing this unit with a similar dais uncovered in the North Colonnade. Since the latter is not actually a part of the Temple of the Warriors, it will be discussed here only because of its connection with the Northwest Colonnade dais. It is illustrated on figure 257. The subject-matter is the same as on the Northwest Colonnade dais: two processions of men starting from the back of the dais and going toward the front (west and east sides), then turning the corners and continuing till they meet in the center where a tripod bowl of offerings is placed. Figure 255 is a sketch-plan of the distribution of these figures. Four priests only, among 31 figures, are depicted and are here again placed by twos at the heads of the processions of eight men each, which are pictured on the two sides of the dais. On the south side, the eight warriors to the left of the offering are of the usual type, while to the right, though warriors also, they are dressed more strikingly.

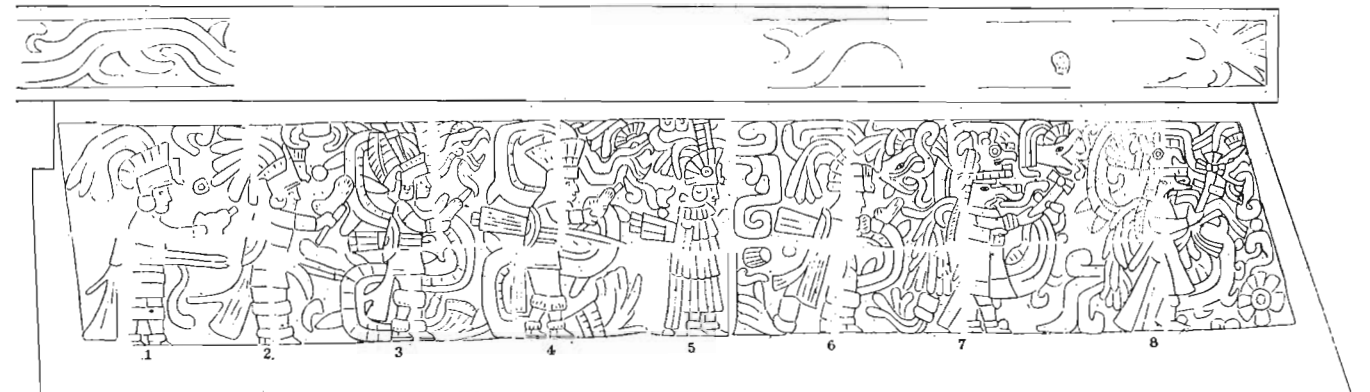
Similarities even more remarkable are revealed by a comparison of the two altars in detail. On the front of the North Colonnade dais, warrior No. 8, directly to the left of the bowl, wears a knee ornament that is made of horizontal bands of cloth knotted in front, instead of the more usual plume ornament. His head-dress consists of a skull-cap with a few feathers, apparently eagle feathers, fastened to it. Both knee ornaments and head-dress are repeated on the corresponding warrior 8 on the Northwest Colonnade dais. Figure 9, which faces 8 and stands to the right of the bowl, wears a long cloak of green plumes which drops to the ankles, a yellow shield, used as a plaque, is on his breast and a green diadem is on his head. All these unusual features are repeated on the corresponding warrior 9 on the Northwest Colonnade dais.



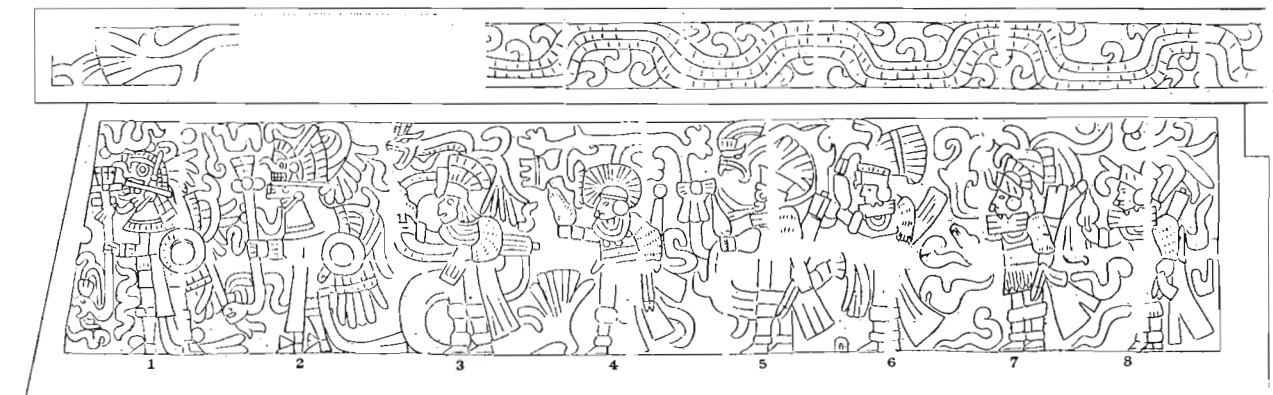
South side (west part)



South side (east part)



West side



East side

FIG. 257—DAIS FROM NORTH COLONNADE

There is, however, an important discrepancy between the two units. On the northwest dais there are eight figures to the right of the central bowl, and No. 10 is a man with a long cloak, accompanied by a white serpent. On the corresponding part of the North Colonnade there are only seven figures, and the man with the long cloak and the white serpent is missing. No. 10 on this dais is a man with very long hair in braids, wearing a green diadem with a bead ornament in front, ear-disks with long stems, a white loin-cloth decorated with black, a blue and yellow back-flap, and a nose-rod. He carries an *atlatl* of the bouquet type. Behind him, instead of a snake, is depicted a blue and yellow decorative scroll, which, though featureless, has a reptilian aspect. All these peculiarities occur on No. 11 in the Northwest Colonnade. Number 11 on the North Colonnade dais wears a green diadem with a bead ornament in front and a crescent moon appears behind him; he corresponds thus to No. 12 on the other dais. Number 12, North Colonnade dais, wears a right-arm sleeve or cloak which falls to the knee, and a very peculiar red head-dress which consists of a cylindrical cap with a back-tail of plumes dropping from it, an eagle feather fastened diagonally at the top, and the blue bird in front. This description fits warrior 13 Northwest Colonnade, except that on his cap are two eagle feathers instead of one. Number 13, North Colonnade dais, wears a yellow hat with a fan of black and white feathers from which green ones emerge. His face is painted black. His hair hangs in separate clumps. High on the waist, he wears the scalloped skirt with a yellow border. Thus he corresponds to No. 14 on the other dais. Number 14 North Colonnade wears a similar scalloped skirt, red instead of white, and has a breast-shield. The serpent behind him is red. This corresponds to No. 15 Northwest Colonnade dais. Finally, No. 15 North Colonnade dais, is an ordinary warrior with no symbol behind him, quite like No. 16 of the Northwest Colonnade dais. These similarities are summed up in the following table:

Northwest Dais	North Dais	Subject-matter
1 .....	1 .....	Warrior, usual type
2 .....	2 .....	Warrior, usual type
3 .....	3 .....	Warrior, usual type
4 .....	4 .....	Warrior, usual type
5 .....	5 .....	Warrior, usual type
6 .....	6 .....	Warrior, usual type
7 .....	7 .....	Warrior, usual type
8 .....	8 .....	Skull-cap
9 .....	9 .....	Long plume-coat, breast-shield
10 .....		White serpent, long coat
11 .....	10 .....	Blue sign
12 .....	11 .....	Moon-sign
13 .....	12 .....	Long sleeve, red hat with back-tail
14 .....	13 .....	Sky-sign skirt, white and yellow; face, painted black
15 .....	14 .....	Sky-sign skirt, red and yellow
16 .....	15 .....	Usual warrior

Thus it is clear that, except for the extra figure on the Northwest Colonnade altar, the two groups of warriors on the front of each dais, and most strikingly the right, proceed to the offering in an order that seems constant and traditional.

The west side of the North Colonnade dais corresponds to the south side of the other altar; figures 1, 2, 3 and 4 are warriors with no striking peculiarities. Number 5 wears a long cloak on both altars, though on the Northwest it is made of textile and on 5 N. of plumes. Number 6 on both is a warrior; numbers 7 and 8 are priests. Both wear the hat and face masks of long-nosed deities. The attire is the same on both: blue and yellow *maxtli*, the ceremonial ax and broad-brimmed hat. There is only one slight difference—the staff carried by No. 7 is finished with a carved snake's rattle instead of with a snake's head, as on 8. The following table sums up the corresponding sides:

Northwest Dais	North Dais	Subject-matter
1 .....	1 .....	Warrior, usual type
2 .....	2 .....	Warrior, usual type
3 .....	3 .....	Warrior, usual type
4 .....	4 .....	Warrior, usual type
5 .....	5 .....	Long cloak
6 .....	6 .....	Warrior, usual type
7 .....	7 .....	Priest with god-mask
8 .....	8 .....	Priest with god-mask

The east side of the North Colonnade dais corresponds to the south side of the other altar. Figures 1 and 2 on the North Colonnade dais are priests holding staffs. They wear hat and face-masks of deities, circular shields and long feather fringes in back. Figures 1 and 2 on the other altar are similar in all respects. Figure 3 N. is a warrior wearing a death-mask while 3 N.W. is also a warrior, but without the mask. Figure 4 wears a skull-cap with a tuft of hairlike material from which a flowering twig emerges, and is thus identical to 4 N.W. Figure 5 is a warrior with a peculiar panache on his hat, made of blue, red and yellow feathers. The corresponding figure, N. W. 5, is a warrior with a blue mask showing the Tlaloc eye-ring. Figure N. 6 wears a blue mask with the pointed nose of a death-mask, and figure N. W. 6 is like N. 5, a warrior with blue, red and yellow plumes on his hat. Thus the correspondence of the two pairs of personages is inverted. Numbers 7 and 8 N. wear turbans with snakes' heads projecting from them, and bead pendants at the nose, as do 7 and 8 N. W. The two sides are compared in the following table:

Northwest Dais	North Dais	Subject-matter
1 .....	1 .....	Priest with god-mask
2 .....	2 .....	Priest with god-mask
3 .....	3 .....	Warrior
4 .....	4 .....	Warrior with death-mask
5 .....	5 .....	Plant head-dress
6 .....	6 .....	Warrior, blue, red and yellow panache
7 .....	7 .....	Blue mask
8 .....	8 .....	Snake turban
		Snake turban

Thus, the two altars when compared reveal striking similarities. The identical order and arrangement of figures in the cases of columns 1 and 15 of the Northwest Colonnade (1 W., S. and E. and 15 W., S. and E.) would seem at first glance to be a similar instance of repetition suggesting that the two dais like the two columns have a common artistic origin. This theory is unsupported by evi-

dence. While columns t1 and t15 are strictly contemporaneous, the North Colonnade was constructed later than the Northwest Colonnade, in fact after this latter had been completed, and it is clear from architectural data that both altars were planned at the same time as their respective colonnades.

On the columns the figures are similar not only as to attire and insignia, but also as concerns the general distribution of the masses, the positions, and even the small, meaningless, but agreeable lines. On the altars, however, the similarities embrace only the order in which the personages are placed and their characterization. The composition of the masses, the postures, the direction of the lines are not the same, neither are the garments or symbols alike in appearance, though the same object may be meant. For example, the long plume cloak of Northwest 9 falls in parallel vertical lines, and the corresponding cloak on North 9 is depicted as a pattern of curly feathers. The body and face of Northwest 11 is unpainted, and the figure stands with the legs seen in full-front. The corresponding figure North 10 is painted as follows: the body, blue, and the face, vertically half pink and half blue. The legs are shown in profile, as if walking. The blue volute which simulates his accompanying snake is simple on this dais, but behind the corresponding figure on the other dais it bursts into three flowers. On Northwest 12, the moon crescent is set vertically, while on North 11 it is placed horizontally. On Northwest 12 the man in front of the moon-sign is seen from the front and is dressed as an ordinary warrior; North 11, the corresponding figure, is dressed very differently, except for his head-dress, which is the same; and he walks in profile. North 12 is dressed like Northwest 13, but the sleeve and hat on the first figure are more elaborate in details. The scalloped skirts of North 14 and Northwest 15 are both red with a yellow border, but the petals are rounded at an acute angle on North 14, while on Northwest 15 they have much softer contours.

Thus the similarity of the two dais is one of ideas; whereas, physically, they do not resemble each other. Such dissimilarities indicate that the two sets of reliefs are not derived from one artistic source. The quality of the work proves also both altars to be originals, as both display artistic inventiveness in subject-matter and style. It is therefore justifiable to assume that the similarities occur, not because one altar is the copy of the other, but because it is the same ceremony that is depicted on both—a ceremony in which traditional personages are grouped around the offering in prearranged order. The suggestion accounts perfectly for resemblances and discrepancies between the two groups of people, as each sculptor would have used different models who, though impersonating the same idea, nevertheless differed individually. This explanation would also account for the extra figure (Northwest 10) on one of the altars, as this could well be due to a minor variant of the ritual, and the same probability would account for the inversion of the order of 5 and 6 on east N. and south N. W. This latter detail, which could not be accounted for if it were assumed that the two altars were derived from one painted or sculptured source, becomes, in the light of the suggested explanation, a change of etiquette or possibly an involuntary error on the part of the two dignitaries involved.

It is evident, then, that a traditional order existed for this procession, and that a hierarchy was established between the participants. Most probably, those who headed the procession, and were thus nearer the offering, were the most prominent individuals, and the least prominent were the farthest from this focus of interest. The hierarchy may have been based on religious or military grounds, as it seems to partake of both. Each figure could be shown in the rôle of a deity and ranged according to mythological importance, or perhaps the insignia they wear may refer to their military ranks, as all but four are warriors. One last possibility is that the hierarchy may be social, based on family prominence.

#### ART OF THE WARRIORS CLUSTER COMPARED WITH THAT OF OTHER PERIODS OF MAYA ART

The description of each architectural unit—the Chac Mool Temple, the Warriors Temple, and the Northwest Colonnade—has been followed by a short discussion of its artistic style, with emphasis laid on the minor stylistic differences between the older temple and the newer units. However, if the group as a whole is compared to the neighboring monuments, it will be found that the two temples are more closely related to each other than to any of the other monuments at Chichen Itzá, and thus, from the viewpoint of artistic style, can be considered together as a unit.

The style of this group has often been labeled decadent, particularly by students more accustomed to Southern Maya sculpture. At first sight it is difficult to separate the work of the sculpture from the destructive marks of time, so that the reliefs seem almost incomprehensible. Closer examination will establish that these sculptures are not decadent in the sense of being deficient, either technically or stylistically. They are, beyond a doubt, late work, and as such have lost many of the characteristics of the style that might be called “classical” in Chichen Itzá (Ball Court Group). Nevertheless this later style has new features that were lacking in the earlier period. Furthermore, many details that might be dismissed as technical failures are revealed by analysis to have been the best solution of the artistic problem in hand.

For example, the fact that the columns are carved in very low relief, three-eighths of an inch at its deepest, might be considered due to technical inability. This supposition would surely be contradicted by the beautiful objects of the same period carved in full round, such as the Chac Mool for which the older temple was named. This piece makes clear that the Chichen sculptor was quite able to carve deep and highly modeled bas-reliefs if he wished. But a column thus carved would be weakened, and the prime object of these columns was architectural; they were supports. Artistic considerations would also dictate low relief. A statue is a monumental unit *per se*, but the sculptures on the columns should have remained as they do, merely decorative; that is to say, they adorn the surface without destroying or distorting it. A wish to avoid bulging masses such as would be made by faces or feet seen in full front is probably at the root of the convention of depicting all the heads and feet of the figures in profile. This technical limitation,

which might seem a drawback, really led to the striking use of a processional movement, oriented toward the altar, which was the central point of interest.

Another striking feature in these sculptures is the use made of natural perspective. Ease in perceiving and portraying foreshortening seems native to the Chichen sculptor, since it appears early in Maya art. Here, by the use of a few discreet optical illusions or conventions, a distinctive style is achieved that has more of the spontaneous appearance of objects than many other more highly developed arts such as the Egyptian.

Low bas-relief, unlike any other form of sculpture, is an extremely favorable medium for the representation of thin objects (feathers, ribbons) in flowing curves, and this possibility was seized upon by the Chichen sculptor and used perhaps even excessively. In this he was backed by the Maya tradition that considered free space to be dead space, æsthetically speaking, and which imposed the addition of speech-scrolls, glyphs and other forms to cover the background to the point of saturation. He completely avoided right angles, straight lines, or any other acutely geometrical forms. Even the rectangular frame was transformed into a sinuous line which followed all the concave and convex suggestions of the enclosed forms. The result is highly dynamic, the figures seeming to move at ease within their narrow frames.

Any attempt to give this rippling quality to sculpture in the round would mar its monumental effect. Thus, in contrast with his fellow workers, the artist who created the Chac Mool, found in the buried temple, used only volumes as strictly geometrical as the representation of the human body allows.

The bas-reliefs, as such, were not intended as a finished product, for the shallowness of the carving would make it invisible except in a very low cross-light. These sculptures were merely skeletons to be clothed entirely by the painter. Suggestions of volume, corrections in drawing and the small details were left to his care. He followed the same scheme throughout—the background a deep red, the frame a blue of a lighter value, and the figures and objects as close to their natural colors as the Maya palette permitted. The scheme was therefore by no means dryly conventional. The primary tones were often mixed into composites. A whole scale of flesh tones, from clear ocher to dark red, were made from yellow and red. The greens bridge the gaps from yellow to blue with only slight discontinuities. Blue and red are combined into a dark mauve or purple. Each tone was also used in different values; thus the reds vary from pink to deep purple, the blues from clear cerulean to blue-black, the yellow from pale lemon-yellow to an opaque raw sienna. Throughout, runs a *leit-motif* of black and white which must have been especially delightful to the Maya eye. This contrast was sometimes softened by an added gray.

The effect must have been very different from barbaric richness, even when the columns were new; first because the tones used, even so intensely, were far from being prismatically pure and are much toned down and nearer the hues of the earth, flesh, and straw than to the corresponding colors of the light spectrum.

Much of the harmony is achieved by tone upon tone, the red of a flesh against the red of a background, which made delicate similarities, and the diffused dim light of the room, for which the decorations were made, mellowed even the boldest contrasts. When with time, the color faded, much of effect which was originally intended was effaced. It would therefore be unfair to judge of the artistic standards or technical abilities of these builders by the sculptured remains only.

It would perhaps be premature to attempt to allocate the style of the Warriors Temple in the history of art at Chichen Itzá. Yet comparison with similar bas-reliefs in other temples discloses interesting facts. The art of the Warriors Temple, beautiful as it is, seems, nevertheless, somehow barbaric when compared with the style of the great period which preceded it, during which the Ball Court was built. The decorations in the Tigers Temple, from the cutting of the stones to the final polishing of the surface, are far more exquisitely careful. The proportions of the human body, though elongated nearly to affectation ( $7\frac{1}{2}$  heads to the total height), are fairly constant and are anatomically accurate. There is a dignity amounting to coldness, which is not backed by deep feeling. The work has all the characteristics of an art in which worn-out formulæ are expressed in perfections mostly technical but over-ripe. This sustained collective impersonal style points also to sacerdotal or aristocratic pressure on the artisan, and, in turn, to a rigidly organized social régime.

The work in the Warriors Temple Group, from the preparation of the surface to the carving itself, is indeed technically inferior to the work in the Temple of the Tigers. The elongated proportions of the human body, constant in the Tigers Temple decorations, occur infrequently in the Warrior's group. Even in these cases it would seem that the slimness of the personages is due more to the necessity of placing them in the narrow rectangles of the shafts, than to current taste for such proportions. The difference in attitude is seen in the fact that the figures painted in the frescos of the Tigers Temple are of the same elongated proportions as those of the frescos sculptured on its columns, while in the Warriors Temple the slim elegance of the carved figures is not repeated in the frescos where spatial considerations would impose no special canon; rather, short squatty proportions are preferred.

Much of the dignity that pervades the sculptures of the Temple of the Tigers disappears in the later group, as well as the taste for generalization that makes the people sculptured in the Ball Court more ideally human representations than individual characterizations. But new qualities appear, one of the most conspicuous of which is an emphasis on character which in some cases reaches caricature. This intensity, however, is not the result of comic intent, but of an eager desire to record, in their original strength, the features of the model.

Beauty *per se*, even only male beauty, was certainly not the chief quality required of these models, though some of the youthful figures approach it. The artist was more interested in character and regalia. He evidently enjoyed his work and was tumultuous, ingenious and shrewdly observant. Apparently he suffered no pressure from the priests, nor was he overwhelmed by uneasiness or



awe of his task. Indeed, if only style were considered, the Chac Mool Temple would be placed chronologically earlier than the Ball Court group. Architectural evidence contradicts this, but it can be said with some assurance that, when the Chac Mool Temple was built, the rigid aristocratic social order that produced the Tigers Temple was much weakened and dismembered.

When the art of Chichen Itzá is compared with that of the Southern Maya and of the Nahuas, it must be acknowledged that, at his best, the Chichen artist equals the best Mexican work, but is inferior to the best in the southern area. It is, however, important to add that he was an original artist. This is a thing that is often denied, it would seem, because of a confusion between subject-matter and style. There is no doubt that many, though not all, of the details in this work (god-masks, garments, weapons) can be traced to identical representations in the Southern Maya area or in Mexico, but it is also true that this by no means affects the originality of the Chichen style.

There is great disparity, in fact incompatibility, between the acute realism of the Warriors Temple art and the idealism of the Southern Maya style. A comparison with Mexico is even more striking. The extreme elongation of the Chichen figures is absolutely incompatible with the Mexican's love for short, squat representations. These are two very different concepts of beauty. The few sculptures found in Teotihuacan, also, when compared with Chichen carvings, are found to be utterly unlike. The Mexican sculptures show a love for abstract geometrization carried to extremes, especially in the treatment of the human figure, a tendency typified by the Goddess of Agriculture in the National Museum of Mexico. The Mexican transformed his model into a new form that retained only a few points of contact with natural appearances. In Chichen, on the contrary, a most exact love of nature predominated. Beyond a doubt, whatever foreign influences reached the Chichen artist were grafted upon an already vigorous native style.

Our knowledge of Maya art would be incomplete, indeed, if it embraced only Copan and Palenque. The roots of that art extend through the early stelæ and monuments of Uaxactun to the pre-Maya archaic clay figurines of a more familiarly realistic style. In northern Yucatan the great classic tradition was to turn again in a somewhat decreasing curve toward realism. This last period should by no means be omitted from the general picture of Maya art.

## APPENDIX

Not all of the color remaining on the columns of the Warriors Temple was considered important enough to justify reproduction. However, to complete the documentation on painting, a written description of the omitted material follows. No mention is made of the more traditional color scheme of which many examples are given: red for backgrounds, blue for the frame, back-shields, mosaic plaques, black-and-white pattern on leg-bracelets and left sleeves, etc., the description including only the more unusual features.

### TEMPLE OF THE WARRIORS

North Jamb of entrance door and Pilaster A (Plate 39):

A. S.—Black-and-white cross pattern on the end-flaps.

Jamb right—green on the stem of a flower.

South Jamb of entrance door and Pilaster B (Plate 40):

Jamb left—Green on the stem of the flowers. Yellow with red lines on the petals, touched with gray at the base.

B. E.—Traces of blue on the pendants of the breast-plaque. Yellow on the head-dress panache.

B. N.—Blurred black-and-white design on end-flaps.

Jamb right—The right vertical band of the frame is carried over the broader lower half of the jamb with the same width that it has on the upper half. The remaining space shows traces of red.

Column 2 (Plate 42):

S.—The tunic is blue; the snake's mouth, red; the snake's body, yellow on the central area, with red lines; human skin, yellow.

Column 3 (Plate 43):

N.—Tuft of plumes hanging behind right leg, green. Green on beads on decorative *motif* that appears at half-height on the right.

Column 4 (Plate 44):

E.—Hanging band in front of the man, black and white with red edge.

N.—Breast-plaque, traces of black and white on the rays. The bigger beads under it are green at the base, a red line separating the green area from the black-and-white pattern at their top.

W.—Bracelet, blue; yellow on back feathers.

Column 5 (Plate 45):

E.—Traces of blue on *atlatl*.

N.—Blue on lower edge of left sleeve and bracelet. Face, red.

W.—Vertical black-and-white pattern on wall of sandal. Braided pattern on sole.

S.—Cross-hatching on wall of sandal in black and white. Huge scroll at knee height, green. Plume coat with yellow.

Column 7 (Plate 47):

E.—Horizontal band at base of tunic showing an elaborate but much destroyed black-and-white Greek key treatment. Green on stem of decorative flower at left.

## Column 8 (Plate 48):

N.—Traces of yellow, red and green on plume coat.

W.—Corrections made by the painter in faint red over the beak of the head-dress.

S.—Cross-hatching in black and white on wall of sandal. Blue on mosaic bracelet showing under left arm sleeve.

E.—Green on decorative plant.

## Column 9 (Plate 49):

W.—Scalloped skirt with red on the inner triangle and yellow on the outline.

E.—White on flap-skirt, loin-cloth over it blue, fringed with red. Traces of green on the breast.

## North Jamb of partition door and Pilaster C (Plate 53):

Jamb—Remains of color identical to those on outer jamb.

W. S. E.—Yellow on skin and head-dresses, green on nose, ear and neck ornaments.

## Column 14 (Plate 56):

W.—Traces of a blue bracelet, painted.

S.—Tunic, green.

E.—Blue on ornaments.

## Column 18 (Plate 60):

S.—Painter's attempt to invert orientation of feet with black paint (sculptured walking toward the right instead of the left). Tunic, black, with yellow on the middle band (belt?).

## Column 19 (Plate 61):

N.—Hair of the figure with red.

## Column 20 (Plate 62):

E.—Body-paint black. Tuft on head-dress gray, yellow, blue, red (?). Head-panache: short feathers, red, yellow, long feathers, green tipped with yellow. Antennæ on head-dress, yellow with oval shapes at top, half green, half red.

W.—Body-paint black.

## NORTHWEST COLONNADE

## Column 1 (Plate 69):

W.—Plumes hanging downward from head-dress are green, tipped with yellow, the horizontal band between is red.

S.—Plumes on the tunic are tipped with red, two parallel black lines delineating the flap of plumes in front, rosette, red, then yellow, the narrow band red, the end plumes green.

E.—A faint vertical black-and-white pattern on the tunic, under the belt.

## Column 3 (Plate 71):

E.—Belt, red with outer bands, green.

## Column 4 (Plate 72):

E.—Tunic, gray, lower edge, red. End-flaps of loin-cloth, blue. Pouch, red with green band at neck. Sandals, green with rosettes green and gray. Bracelet green.

## Column 5 (Plate 73):

- N.—Plume coat, successive rows from neck down, green, red, yellow. Traces of blue, green, yellow, red on lower part of coat. Skin, yellow.  
S.—Ornamental scroll in front of knees, green and blue.

## Column 12 (Plate 80):

- S.—Blue tunic, cross-hatching and dots on sandal walls.

## Column 16 (Plate 84):

- N.—Twisted strings falling from breast-plaque, green; leg ornaments, red with green beads; sandal, gray.

## Column 17 (Plate 85):

- S.—The glyph name, a bird, painted blue.  
E.—Panache, blue, narrow band of red, top, yellow.

## Column 23 (Plate 91):

- S.—*Motif* in front of face, green.

## Column 24 (Plate 92):

- N.—Mosaic bracelet and curved plaque over *maxtli*, blue.

## Column 25 (Plate 93):

- E.—Black and white diagonal traces on rope tying hands, feather coat near neck, yellow, sweeping curve frontward, green with red band. Black-and-white remains on sandal.

## Column 39 (Plate 105):

- S.—Skin, yellow. Robe disks, green. Lower fringes, top, green; middle, red; lower, yellow. Sandals, green, rosette tipped with red.

## Column 55 (Plate 118):

- S.—Variants of the feather wings and the skirt drawn in light red, green and yellow on the defensive stick held in the left hand. Blue on snake plaque and points of darts.

MURALS FROM  
THE TEMPLE OF THE WARRIORS  
and  
ADJACENT STRUCTURES  
by  
ANN AXTELL MORRIS



# MURALS FROM THE TEMPLE OF THE WARRIORS AND ADJACENT STRUCTURES

## INTRODUCTION

Before excavation of the Temple of the Warriors, traces of paint were observed upon a few stones that had been torn out of the eastern slope by the roots of a fallen tree. This circumstance gave rise to the hope that mural paintings, so few examples of which had come to light in the Maya area, might have been preserved in the mound. Such paintings were known to have existed originally in great numbers upon the temple walls and in the houses of the *caciques*, as their presence was often recorded by the early Spanish invaders. The quality to be expected in Chichen Itzá was presaged by the magnificent fragments extant in the Temple of the Tigers and in the Monjas. Unfortunately, when the ruins were rediscovered in the Nineteenth Century, the explorers were so overpowered by the grandeur and mysterious magnificence of the buildings that they paid slight regard to minor manifestations, such as paintings. In the meantime, forest growth, vandalism and the devastating fluctuations of an alternately wet and dry climate had destroyed almost every known trace of this so perishable art. In particular, this is to be deplored, because through such a medium, lending itself in all facility to informal expression, lies the only hope of obtaining familiar, intimate glimpses of the life of the people. The formality of monuments and bas-relief, the inscrutability of codices and stelæ, and the meager material to be derived from most of the minor arts, have only tantalized, with their half expression and description of a great and lost civilization.

Therefore, the possible discovery of wall paintings was awaited with great eagerness from the excavation of the Temple of the Warriors to which Carnegie Institution set its hand in 1924. How richly expectation was realized, the present section of this volume will attempt to record.

In forecasting the possibilities for the recovery of murals, standing walls seemed to offer the greatest promise. But, herein, the obvious was deceptive. Not many of the walls remained to a height that would have brought them to the level where pictorial detail was utilized for embellishment. And from those that did retain this altitude almost all plaster had been eaten off by the action of tree roots and surface moisture. However, the vast majority of the painted walls had collapsed inward and in consequence were so deeply buried that many of them retained their film of plaster and its colored finish. From the great number of disarticulated elements taken from the débris, it was possible to reassemble several large mural scenes, with close approximation to their original appearance. In addition to these groups, some four hundred separate stones provided a veritable depository of detail for human types, ornaments, dress, animal life and landscape. Later excavation in the buried Chac Mool Temple and the Northwest Colonnade

revealed entire walls which were practically intact, due to deeper interment. Taken as a whole, then, for the study of the little known art of fresco painting, the accumulation of painted material from the three structures possesses a value second to none thus far discovered on the American continent.

Owing to the fugitive character of the frescos when subjected to changes of atmosphere, an immediate study was considered to be imperative. Copying of these stones was undertaken by hand, because repeated trials proved that photography was distinctly inadequate. Many of the paintings were so badly destroyed that a magnifying glass had to be applied to the surface to catch the elusive bit of line or fleck of color which established some definitive detail, while the camera's trick of registering light and shade at the expense of color caused the breakages of plaster to be emphasized out of all proportion to the pattern. The fading, due to fluctuations of humidity and temperature, and the uniform values of even the best-preserved colors, presented a baffling problem to the photographer. Even experiments attempted with color photography failed entirely to record the true value of the pigments.

In order to substantiate this point, a comparison of the results obtained by photography and those secured with a brush is made possible by contrasting the photographs in Plates 130 and 131 with their corresponding water-color reproductions. In the former illustration, the two stones *a* and the single stone *e* are quite legible because the chief elements of pattern consist of a white field outlined in black. In these instances, the abrupt contrast of values is well suited to the camera, but, unfortunately, black-and-white figures are of rare occurrence. The water-color reproductions of these two are found in Plates 138*a* and 169*c*. The group of stones Plate 130*b*, which portrays a part of the south bench from the Chac Mool Temple, gave the most successful result obtained photographically. Herein, the extraordinary brilliance of color and excellent preservation of the plaster surface made photography a feasible method for recording the figure outlines, but exact coloration and certain inherent qualities of technique can be seen to far better advantage in the water-color reproduction (Plate 133). The remaining photographs from the two plates, which are representative of the general run of frescos, were far less successful, as can be seen when they are compared with the corresponding paintings, as cited on each plate. Distinctions of color are vague and in many cases the outline itself is completely lost.

With such results in hand, the necessity for a more adequate record was evident, and water-color was hit upon as being the medium best calculated to retain the quality of the originals. Great pains were taken to produce exact copies, uninfluenced by the personal equation or by the slightest subjectivity on the part of the copyist. In order to achieve this result, careful tracings of every stone were made upon transparent paper. These tracings were then transferred, by means of carbon sheets, to Whatman's paper, after which the colors were reproduced directly from the model. When it was thought that numbers of the disarticulated stones might be fitted together, the several possible blocks were first copied individually, and the paintings, which could be handled with far more



facility than the cumbersome stones, were then shifted about until adjusted to their proper places. After this process of allocation was completed, when necessary, drawings of the great scenes were reduced to a reasonable scale. No such reduction was employed, however, throughout the greater part of the work. Copying in full size from a direct tracing was considered to give the most faithful reproduction obtainable, since it removed the opportunity for the slight deviations and distortion of line which might have taken place in redrawing to a reduced scale.

In the years that have passed since the first of the stones were found, it would have been impossible for one person unaided to have subjected so vast a bulk of material to the various processes above mentioned. In tracing and transferring the patterns Lowell Houser worked with me months on end, and Jean Charlot devoted fruitful moments to this same task when his other duties would permit.

Great as was their contribution in lessening the mechanical drudgery, I am more deeply indebted to them for their vivid interest in the subject, and ready suggestions in interpretation and technique which made possible the completion of a work that without them would have been much curtailed both in volume and quality.

## TECHNICAL CONSIDERATIONS

### PREPARATION OF WALL SURFACE

A preliminary discussion of the material with which the Maya artist worked is necessary to a thorough understanding of the possibilities and limitations which confronted him.

The wall upon which the work was based was of limestone of various degrees of porosity, shaped into blocks of an average size of about 23 by 36 cm. When dressing these blocks, the quarryman seldom attained a surface that was a true plane. In cross-section, the exposed surface of nearly every stone is slightly convex, having a raised center and depressed margins. The function of the plaster coat was to overcome the unevenness of the stone surface. Hence, the stucco was relatively thin over the centers of the stones and thick toward the edges and along the lines of juncture. Therefore, over the latter areas, the plaster coat possessed sufficient inherent strength to peel off in large flakes, instead of cracking neatly to follow the joints as the walls settled. This will explain the fact that so many of the stones, hereafter to be described, have painted centers and bare edges; the only exceptions being those which, owing to unequalities of contour, were plastered thinly to one or more of their margins.

The plaster is white in color and made up of lime and *sascab* or the fine "white earth" used in Yucatan in place of sand. It was troweled to an excellent surface, which, at times, was almost of glassy smoothness. There is a possibility that the artist himself attended to the final surfacing of the wall in order adequately to prepare it for his paintings. This suggestion is based upon the differences in the two benches from the Chac Mool Temple. As will be seen from their description on page 370, the plastering on the south bench is carefully applied and smoothed,

in preparation for the exquisitely rich and detailed frescos on its surface; but that on the north bench is rough and uneven, commensurate in quality to the carelessly executed painting which adorned its face. Thus, it might appear that the surfacing of the plaster and the painting upon it are ascribable to the same hand.

#### TECHNIQUE NOT TRUE FRESCO

The technique involved can not be entitled true fresco, since to all appearances the paint was laid on a dry surface. Lime and sand, the usual components of plaster, mix with the carbonic acid of the air when wet and give off water. If the color is mixed with water and placed on this surface when still damp, it has a tendency to enter into chemical union with its background, forming a unified, hard, rock substance, of which the color is an inseparable part. This process is true *fresco*. When the plaster ground has been permitted to dry before the application of colors which are mixed with lime water, the process is called *secco fresco*. But if a sticky binding medium is employed to apply pigments to a dry plaster wall the procedure is one of *secco*. In the case of the Temple of the Warriors, the fact that the colored surface rubs and peels away from its background indicates that the process is that of *secco* rather than *fresco*. The Maya did, however, make sparing use of the latter method, as evidenced by the work upon the Temple of the Tigers, where all the preliminary figure outlining is done on wet plaster in a tenacious, carmine tint which has outlasted the subsequent application of most of the filling colors. Nevertheless, for greater convenience, as well as in deference to popular nomenclature, the term "fresco" will be retained throughout this report, in description of all mural painting.

#### MEDIUM

The coloring matter, either in powder or in the form of highly concentrated liquid, was mixed with various media before application to the walls.<sup>1</sup> One binding medium appears to have been a highly agglutinative substance of such viscosity as to interfere materially with the uniform mixing of the pigment. This condition resulted in an uneven application of color, causing it to lie in a streaked fashion upon the walls. The alternate ribbons of self-color reveal that the medium was a fairly translucent, yellowish white, with considerable body of its own. This substance was employed throughout the Temple of the Chac Mool—the effect of its use being visible in the upper blue margin of the south bench (Plate 133).

A second solvent, which may have been only a thinner solution of the first, or with equal probability an altogether different substance, combined smoothly with the colors and was neither very thin nor unduly glutinous. It was used for the greater part of the paintings in the Warriors Temple and Northwest Colonnade.

The third variety, evident in one small section in the Temple of the Warriors, is extremely fugitive. One gathers the impression that it was nothing but clear water mixed with dry color, which, after the lapse of time and a final complete drying, was apt to flake off in a powdery form, leaving the original plaster back-

<sup>1</sup>Since no trace of this substance appeared when specimens of color were submitted for analysis, it may have been of an organic nature which has utterly decomposed due to the lapse of time and fluctuations in humidity.

ground clean and smooth. The use of some arrestive substance, such as varnish or ambroid, has been absolutely necessary for the saving of these particular colors after they were taken from the earth, and has proved of valued assistance in the retention of the original brilliancy in all the frescos. This fugitive coloration was utilized in the Human Sacrifice Scene, from Area 19 (page 398). That area was evidently painted by the same artist who worked upon Areas 20 and 21. But, as the latter were more retentive of their color, both when wet and dry, it is suggested that the medium of Area 19 was merely over-diluted with water and that the painter corrected his error when mixing his paints for the rest of the scene, or that the plaster had completely dried before he had finished the left side of his great composition.

#### PIGMENTS

The problem of the colors is even more involved, for while their derivation can be determined, in part, from chemical analysis, questions of mixtures and variations of tone have to be solved from the general aspect of the paintings.

Time would seem to have wrought no essential changes in the appearance of the better-preserved murals. Each tint retains an isolated character of brilliancy and at the same time merges into the general tone of the whole with an even distribution of values. In other words, no one of the dyes seems to have been of a more fugitive character than the others, and where exposure has inevitably reduced their original strength somewhat, the process has been consistent throughout.<sup>1</sup> On the whole, where conditions for their conservation have been most favorable, the conclusion seems justifiable that, when the stones were unearthed, we looked upon a scheme of color decoration practically unchanged from the day when the painter, with a last touch, finally laid aside his brush.

A catalogue of the colors that were used will reveal a number of primaries out of which a large variety of intermediates were developed. In general, reds are found varying from an opaque purplish tone near Indian red through a finely graded range of more transparent shades to a fiery orange. The deeper tones possess a tenacious permanence. A color, describable as copper-tan, rather near a burnt sienna, is used so frequently for preliminary outlining and is of such a fairly consistent quality, that it appears to be a primary, unmixed member of the Maya palette.<sup>2</sup> A thick opaque pink, present only in the Chac Mool Temple, was obtained by mixing these reds with white. The variation in this pink from the distinct mauve of the frescos to a salmon, as found on the columns, is explained by the predominant shade of the original red which was utilized.

The yellows, although probably all derived from ocherous earths, range from those having a pale greenish cast to a dark hue near orange. A dark brown probably results from mixture of ocher with black.

<sup>1</sup> The one exception to this general rule occurs on Plate 37, wherein the arm of the figure on the north face of the column is done in a fugitive black, in contrast to the vivid and permanent color utilized for the black-and-white head and shoulder covering. The presence of at least two sources for this hue, as revealed by chemical analysis (see page 355), is probably responsible for the discrepancy.

<sup>2</sup> In spite of the findings of the chemist in regard to "copper-tan" (see page 356), it is so widely diffused and of such a constant hue as to suggest that the Maya had access to a supply ready-blended by nature.

Blue, an extraordinarily vivid shade similar to Prussian blue when it is presented on an opaque background, takes on an equally intense although clear cerulean tone when applied directly to white plaster. That these two shades are probably one and the same color becomes evident when the process of weathering is seen to reduce the former to its more transparent complement.

The origin of green is a puzzle. The wide variation from light olive to almost black, and the lack of any uniform stable, base tone, suggest that it was produced solely by mixing some of the different yellows with blue, in varying quantities.

A pure black of great vividness is utilized for outline purposes; on the columns it is mixed with white to form a grey. In the Warriors Temple frescos, plain white plaster is utilized for the depiction of masonry temples, but an opaque, white pigment serves for various details of overpainting, such as tattoo or facial decorations. In the Chac Mool Temple, no reserved plaster was permitted, and the whites are rendered by paint which, usually, is not too pure.

These colors assume an entirely different appearance as they are subjected to the opaque treatment accorded to the panel above the altar in the Northwest Colonnade (Plate 166). Here, the red background is so dense and vivid as to suggest more than one coat of paint. Since it was necessary, first, to obscure an entire previous underpainting which had decorated the wall when it was a part of an older structure (see page 438), this density is understandable. The red was made to cover the whole area, instead of serving merely as background fill, and after it had become dry the colors of the design were superimposed on its surface. Since these secondary tints were normally transparent they had to be mixed with a small amount of opaque gouache, which of course changed their whole quality.

Another variation of color quality is to be observed in the south bench of the Chac Mool Temple (Plates 133, 134). The plaster was first treated with a sizing coat of whitish pigment, mixed thickly with a heavy agglutinative medium. Upon this surface was laid the color mixed, in turn, with what seems to be the same medium. In some cases, it appears that the preliminary layer was not completely dry and hence mingled to a certain extent with the colored coat. The resulting wet, oily character of the composition is revealed in the smeared finger mark across the red feathers of human figure XII, Plate 134, and in the two spots on the adjacent human figure XI, where the red paint has dribbled from the painter's overfull brush. At any rate, a heavy, glittering virtuosity of unrivaled richness and beauty is had, differing markedly both from the fresh water-color effects of the murals in the Warriors and from the completely opaque work in the altar panel of the Northwest Colonnade.

There is an entirely different range of colors on the walls of the Temple of the Tigers which is not found in any of the frescos under consideration. The transparent carmine of the outlines and a vivid light yellow and light green, similar to modern Aureolin and Veronese, as well as a densely opaque green, are all unique to that structure.

As a whole, one is justified in drawing the conclusion that there was a variety of sources from which pigments could be obtained, and the innumerable minor

variations signify that the tones were mixed afresh from time to time as the work progressed.

#### SOURCES OF PIGMENTS

According to Bustamante, the native artists of Mexico purposely withheld from the Conquerors the secrets gained through centuries of experience in manufacturing beautiful and lasting colors from vegetable and mineral substances. However, some light is thrown on the possible derivation of a few of these pigments, by the reports from the various villages in Yucatan, submitted to the Spanish rulers in the middle of the Sixteenth Century.<sup>1</sup> From this mass of documents, occasional extracts bearing on this obscure point, have been translated. Due to the fact that the references occur in descriptions of the trees of the land and of their various uses, the accounts, in every case, mention a vegetable source. Although four of the five citations concern the dyeing of garments, it may possibly have been the same coloring matter that was occasionally utilized for mural decoration.

"Of the trees of the forest which are found in the district of this city [Mérida] there is one which in the language of the inhabitants is called *Er*, that is to say, black wood. . . The Indians make use of this to stain their garments black . . ., even as do the Spaniards who are accustomed to send it in very large quantities to Spain."

And, again, probably in reference to the same tree:

"There is another tree called in their language *Ek*, . . . which serves to dye the garments black . . . and which has been carried to Castile for the purpose of dyeing."

Concerning the source of blue:

"There is a tree or plant from which a blue dye is made and which the inhabitants of this country in ancient times used in order to dye and to paint blue."

The writers were slightly more explicit concerning the derivation of the red colors.

"There is a red wood<sup>2</sup> . . . when cut in little pieces and cast into water becomes blood red, and the Indians make use of this to color their garments."

And, finally:

"Two trees grow . . . in great quantity, the one gives the tint blue-black-purple . . . and the other serves for the colors red and 'encarnada.'"

The latter term is variously translatable as *carmine* or as *flesh color*.

In view of the above notes, as well as of current Maya tradition, which give vegetable sources for the primary colors, the findings of the chemist are at striking variance. In every case, with the exception of some of the blacks, chemical and microscopic analysis prove the pigments to be earth colors. Evidently the old palette can be relegated to the ever increasing score of "lost arts."

#### CHEMICAL ANALYSIS OF PIGMENTS

The result of a chemical and microscopic analysis of the pigments is embodied in the following report of Dr. H. E. Merwin, of the Geophysical Laboratory of Carnegie Institution of Washington.

<sup>1</sup> Relaciones, 1898-1900, Tomo Num. 11, pp. 55, 108, 140, 166.

<sup>2</sup> For use of this same method in present day Yucatecan masonry, see page 224.

"Examination by means of the petrographic microscope appeared to be the only effective way to begin the study.

"The paints covered a smooth layer of fine lime plaster, containing a little white clay. Under a binocular microscope some samples showed two or more coatings of different color. Only exceptionally could a paint layer be removed in minute coherent flakes or films. Usually scrapings from the surface were an incoherent powder.

"The only *red* pigmenting material found was hematite. This was identified by its intense color, strong birefringence, and high refractive index. In even the reddest paint, it was a very minor constituent, carried by or mixed with orange or reddish ochers. It is very probable, but not definitely proven, that some of the reddish ochers contain hematite crystals too small to be seen, which formed during the roasting of a brown ocher.

"Yellow ochers are found in *yellow* paints, and in various orange and brown paints. That these ochers are largely clay was shown by optical properties and by staining tests; that they are colored by iron was shown by micro-chemical and lead tests.

"Charcoal was easily recognized in some of the *black* and darker paints. Other black grains seem to be carbonized organic matter. Mixtures of black with orange and yellow ochers produce dark brown, 'copper-tan,' dull olive, etc.

"The *blue* paints, as contrasted with the others, form fairly coherent films. These can be isolated by dissolving away the underlying plaster in dilute acid. Microscopically, the blue material consists of indefinite or spherulitic aggregates of a birefringent substance, resembling the clay mineral, beidellite. It stains like beidellite. X-ray powder photographs, taken by Dr. E. Posnjak, show the blue pigment, beidellite, and a blue chromiferous clay, to be similar. Not enough of the blue clay was available to give decisive tests for chromium, but, like the blue clay, the color is not discharged by boiling nitric acid nor by heating much below redness. The conclusion seems justified that this is an inorganic color.

"The *green* paints are mixtures of this blue with yellow ocher."

#### BRUSHES

Although no brush has survived, the quality of the drawn line and the paint-covered surfaces bespeak the excellence of the implements with which the pigment was spread. Some were delicate and so constructed as to point neatly when wet, and must have made supple, pliant tools, admirable for a painter's use. Bold curves, delicately tapering lines and tiny, plane surfaces, smoothly and exactly filled are not possible to a ragged, coarse brush. In size, they appear to have graded from 1 mm. to 8 cm. in width. Those of the latter dimension were utilized for smearing in the great stretches of red background in the Chac Mool Temple (Plate 132).

#### SCHEME OF DECORATION

The following section deals briefly with the general plan of decoration, observed by the mural painters of the three structures under consideration. Each of the points mentioned will be discussed at greater length in the pages devoted to the individual buildings.

No roof stones were recovered from the Chac Mool Temple; those from the Northwest Colonnade, owing to shallow burial, bore no traces of paint; but the Warriors Temple vaults would seem to have been ornamented with huge serpents,

trees, humans and scrolls. They were lined in with rough sweeping strokes—the coloring, in some places, applied directly to the stone itself, suggesting inadequate plastering. The capstones were covered with scroll work, carelessly handled.

The jutting molding below the spring of the arch of the last-named structure was painted a solid blue on its top and face, while its underside was colored in accordance with the background of the scenes covering the walls beneath. This situation is repeated in the red-painted bench from the Sanctuary of the Warriors Temple, where the red coloring from the side ran up under the jutting edge, although the face of the cornice itself was painted blue.

The walls of all three buildings were covered, from the floor to a height of about 1.68 meters, with a multicolored banded dado (pages 363 and 383), above which extended a scenic strip reaching to the molding and adorned with land and seascapes, formal processions, great serpents, and intimate scenes from the daily life of the ancient builders.

Various sections of this pictorial strip were allotted to different painters and the task of distinguishing between their work is not a difficult one. Distinct stylistic mannerisms, predilections for certain colors, choice of subjects and even the sheer ability to draw serve as criteria in making the necessary distinctions.

In the Chac Mool Temple, for instance, such internal evidence reveals that the serpents on the walls of the front chamber were painted by a different hand from that which executed those in the Sanctuary (p. 365). On the south bench, the face A (fig. 262) is ascribable to one painter and faces B and C to another (p. 369), while most of the north bench is from a hand manifestly different from both (p. 370).

The problem in the Temple of the Warriors is more complicated, for at least fifteen distinct painters would seem to have been engaged in the task of covering those great wall expanses with the complicated minutiae of the murals. The sections allotted to each artist are recorded by the alphabetic lettering in figure 272. The diagnostic characteristics of each painter's work will be reviewed in detail in the description of areas, undertaken on pages 382 to 431. This does not take into account the painters of the corbelled arches, as in most instances not enough material was recovered to make ascriptions secure; moreover, such evidence as might be obtained for the vaults would be weakened by the exigencies of working on the high sloping walls, as well as by the tradition of a larger, cruder style for vault ornamentation. On the walls, however, where uniform conditions obtain throughout, stylistic distinctions carry more weight.

The distribution of paintings gives little evidence of directive control in the Temple of the Warriors, although the Chac Mool Temple, which is adorned with simpler *motifs*, suggests a certain amount of cooperation between the workers. Each of the score or more of painters in the upper temple appears to have preempted a certain amount of wall surface, delimiting it from that of their neighbors with hastily drawn perpendicular lines, and then to have covered the space as their fancy dictated, with kaleidoscopic results. Broad blue or black framing bands were utilized at the corners and at the edge of the door jambs.

In but two cases did tradition in regard to form or to the type of subject-matter seem to be coercive, and then only to a limited extent. One of these instances occurs in Area 30, where precedent demanded the presence of a zoned panel above the altar. Another was Area 11, wherein was found the specially treated capstone (page 431), which, from its position among the débris, must have occupied its time-honored place in the central section of the middle vault of the room, similar to those still *in situ* in Uxmal and other cities of Yucatan.

#### PRELIMINARY OUTLINING

The preliminary step in mural painting involved a general lining-in of the figures, later to be filled with solid colors. A reddish copper-tan tint was almost invariably selected for this purpose. Details were omitted, as well as certain simple, obvious effects, such as the black waves in marine scenes.

It was at this moment that the main problems in composition were solved. The field selected by each painter was divided into several large units, in accordance with whatever plans he had in mind for landscaping, such as the separation of the water scenes from the land or the distinctions between red background and green.<sup>1</sup>

Within these divisions, the artist sketched his individual figures in bold, copper-colored lines, courageous in conception, then filled the outlines with flat contrasting colors and, finally, as a finishing touch outlined them a second time in vivid black. Most of these preliminary guide lines were destined to disappear when the picture was completed, but a few remained, affording interesting evidence concerning the painter's technique. There is some doubt as to whether the second outlining was always undertaken by the same hand as the first, on account of the marked discrepancies which sometimes exist between the two. On repeated occasions the black would appear to have been put on by someone who did not feel much responsibility toward the first draftsman's work, or else the man himself overlined with a sublimely carefree attitude toward his own original drawing. The four stones on Plate 140 admirably illustrate this point. A detail, *a*, which is redrawn in figure 258*a*, shows the original red lines of the eye, mouth and ear as being quite distinct from the secondary, black outline. The *mélange* of the two was allowed to remain on the wall when finished. The same condition is noted in *c* of the same plate (detail, fig. 258*b*). On the colored plate, *b* shows traces of a red-outlined scroll-form beneath the kneeling figure, which was completely ignored in the subsequent black overlining, while, through a probable oversight, the edge of the temple cornice in *d* was allowed to stand in red. The human head in figure 258*c* and the shell in Plate 148*a* are further examples. A modification of the method is to be observed in the preliminary plaster scratching and subsequent painted outlines on the north bench of the Chac Mool Temple (see page 370 and figs. 264 and 265).

<sup>1</sup> This point is exemplified in Plate 167*b*, wherein the thin line bounding the lake was drawn first. When the time came to sketch in the knife carried by a member of the captive-warrior procession, it overlapped the water's edge, and its unpainted white blade permitted the previously made black line to show through. The right-hand balustrade, in Plate 168*d*, was sketched in before the detail of the cornice angle was added, and, as the building is also white, the original false line remained uncovered.



## APPLICATION OF LOCAL TONES

After the preliminary framing was completed, the outlines so composed were filled with brilliant, flat colors. There was no reproduction of light and shade, nor any attempt at accenting or fading the pigments in order to produce the effect of modeled relief.<sup>1</sup> The lack of such contrast, as well as the closely related values of the colors, is excellently adapted to maintaining unbroken the continuity of the plane surface. The architectural tenet of retaining a flat unaccented wall surface was carried by the Maya artist to its logical conclusion. In principle, whatever contrast was necessary for design was indicated by a change in color alone.

This in itself was sufficient to convey some sense of plastic relief, and as a matter of fact a skilful adaptation of the scheme in the Chac Mool Temple carried the technique to its limit of possibility. The painters of the benches from this temple slightly overlap their various colors, and by this interplay of tones succeed in giving to the eye the effect of intersecting planes. In other words, when only two planes are shown, that of the background and the parallel plane of figures painted thereon, the overlapping suggests a third or lateral plane. In this manner, without violating their principles of wall decoration, the painters succeeded in indicating the third dimension, thereby solving the problem in much the same fashion as does the sculptor in low-relief carving. In the latter technique, the adroit worker achieves the desired result by sinking the recessed areas only sufficiently to permit the play of light and shadow to produce the optical illusion of figures in the round. The painter has attacked the same problem and solved it in a somewhat similar manner. Whereas the sculptor works his effect of full figure modeling with the manipulation of incisions, sometimes less than one centimeter in depth, the painter achieves the same result by overlapping his colors and in minute deviations from outline.

A certain inherent quality achieved by imperfections of mixing and impurities of color goes far to overcome the monotony engendered by flat tones. The murals in the Chac Mool Temple (Plates 133 and 138*b*) most clearly exemplify this condition. How much of this overlapping and color variation was accidental and how much was intentional, it is impossible to state with any degree of certitude. But when one considers the Maya potentialities for exactness, as expressed in innumerable other instances, and the almost studied care with which some of these "inaccuracies" seem to have been brought about, one may well be convinced that, at least in many cases, intention ruled the slightly deviating brush.

## COLOR SYMBOLISM

In the selection of the colors used in delineating the details of these paintings, convention and realism are curiously mingled. A color language is established, wherein a certain hue is invariably employed to describe a particular object, just as, in spoken idiom, a single word suffices to symbolize a complete trend of thought.

<sup>1</sup>It is interesting to note that, similar to the Maya, neither Egyptian, Greek, Cretan, nor Etrurian painters made any use of *chiaroscuro* in the earlier phases of their work. Moreover, these schools would appear to have followed an identical line of procedure in doing their preliminary outlining by incision or red outline, by filling these outlines with flat color, and by subsequently reoutlining in black.

According to this color symbolism, water is expressed by a blue ground, crossed with horizontal, wavy black lines; and thatched roofs by a yellow ground, striped with thin, black, L-shaped lines and capped by a strip resembling basket weaving. Feathers are green in color; masonry structures are white; certain typical garments are constantly one color, while other styles are as consistently of a different hue.

Some of these symbols are true to fact, as in the case of white masonry and the green plumes which were, presumably, derived from the tail of the quetzal bird; some partake of the nature of impressionistic approximation, as the treatment of the sea and the thatched roof; while a few, which depict formal and more or less imaginary concepts, such as the plumed serpent and the fish (see pp. 471 and 472), utilize purely arbitrary color formulas established by centuries of tradition and habit.

The importance of color symbolism can not be too greatly emphasized in the study of Central American cultures. Each locality and period would seem to have developed its own conventions and rigidly adhered to them—a condition which enormously lightens the task of deciphering faded and fragmentary paintings.

#### SUBJECT-MATTER AND COMPOSITION

The general purport of the painted scenes was limited, to some extent, by tradition, but much of the content was drawn from direct observation. Religious concepts and legend played their part. However, it is obvious that most of the painters' attention was caught by the pageantry of daily life. From a lifetime of association with the impressive ritualistic ceremonial of the city, and an even more complete knowledge of the recurrent details of daily occupation, they were provided with ample material for their work.

It is perhaps of interest to mention here certain observations on the relative importance of persons and scenes, as seen through the eyes of those who painted them. Men were almost the only humans represented, either in sculpture or in painting; there were but few women and no children. There was no preoccupation with sex and no delineation of the intrinsic beauty of the human body, such as are to be found in the works of the Old World.

Taken as a whole, the composition of the scenes was extremely well organized. The plan is clear and precise, but at no time wooden; every figure is fairly instinct with life and adroitly placed in accord with subtle equilibrium. The drawing, at times, is more naïve than skilful, but again one is often startled by the clever proficiency of the painters. They possessed a remarkably coordinated eye and hand that enabled them to sketch the continuous contours of their figures with a single flexible line, without hesitation or necessity of correction.

One feature common to all the compositions is particularly striking. At no time could the Maya artist of any period understand the contrast value of blank space. A vacuum was never so abhorred—anything and everything was crowded in to fill the spaces not covered by the essentials of the pattern. When pertinent devices were exhausted, scrolls for scrolls' sake were made to absorb whatever remaining space had chanced to be neglected.

The dominant intention of all the scenes was a striving for clarity, which the painters considered to exist in a depiction of full, rather than of ordinarily visible detail. Viewed from that angle, foreshortening would be considered a real defect, since it obscured, rather than aided, a clear presentation of an object or group of objects. The concept is one of true realism.

Artists of the Old Empire were masters of the device of foreshortening, nor was it an art completely lost at the time of the construction of the Warriors Temple, for, occasionally, the painters seem to have used it almost as though they were dropping back into a long discarded idiom. It can be noted in the bird wings, in Plate 158*c, d*, as well as in numerous anatomical adjustments on the sculptured columns. However, considered as a whole, foreshortening is not commonly employed, nor was there even much necessity for its use. Very rarely does this omission result in actual awkwardness, although the case of necklaces viewed in profile form a notable exception to the rule (Plates 165 and 167*d*). The problem of the necklace bothered the Maya draftsman throughout the whole course of his history, and this is the more remarkable in view of the fact that the circular "back-shields," offering an identical problem in perspective, were very satisfactorily rendered.

Human and animal faces were always represented in profile, except when utilized in full face as heraldic devices on shields (Plate 133) or as roof ornaments (Plate 168*a, b*). In two instances, bodies are viewed full front (Plates 144*a* and 146), but as a rule they too are in profile or three-quarters turned. In the latter case, the face and feet are in strict profile, a system similar to, but much more subtle than the stiff Egyptian method, wherein under the same circumstances, the shoulders were inconsistently presented in full face, whereas the Maya artist arranged that the three planes of two arms and body were to be viewed, one behind the other as they would naturally appear.

Although foreshortening of individual figures was occasionally indulged in by the painter, perspective was ignored in the larger scenic effects which were handled in a manner more in keeping with the painter's efforts to clarify the picture. A mechanical artifice was employed, similar to that of the Italian primitives, of expressing a receding background by an ascending vertical plane. Thus, the scenes at the top are to be thought of as being at a greater distance from the observer than those at the bottom. The perspective to which our eye is educated today is atmospheric and involves the optical illusion of diminution on the receding plane. From this point of view, Maya work appears as childish ineptitude, until one realizes that, by further amplification of the idea, the artists not only expressed their own satisfaction with the device but carried it through to a conclusion, amazingly sophisticated and quite as logical as our own. I refer to their technique of counter perspective, which is so excellently adapted to mural paintings that are executed on a large scale. Contrary to the rules of perspective, but in entire accord with the laws of optics, the figures at the tops of the walls were drawn to a scale distinctly larger than those on the lower levels. Since the striped dado runs from the floor to about 1.68 meters in height, the lowest figures in the scenic pictures begin at the average

level of the eye. As the portrayal recedes upward, the scale becomes gradually larger and though the distance from the eye increases, no change in size can be noted.

It may be said that the mannerism of Maya painting is a script that must be learned. But when the basic concepts upon which the art was founded are thoroughly grasped, the frozen silhouettes melt into animation, and, in the remembered light of the old altar fires, appear to reflect again their one-time vibrant life.

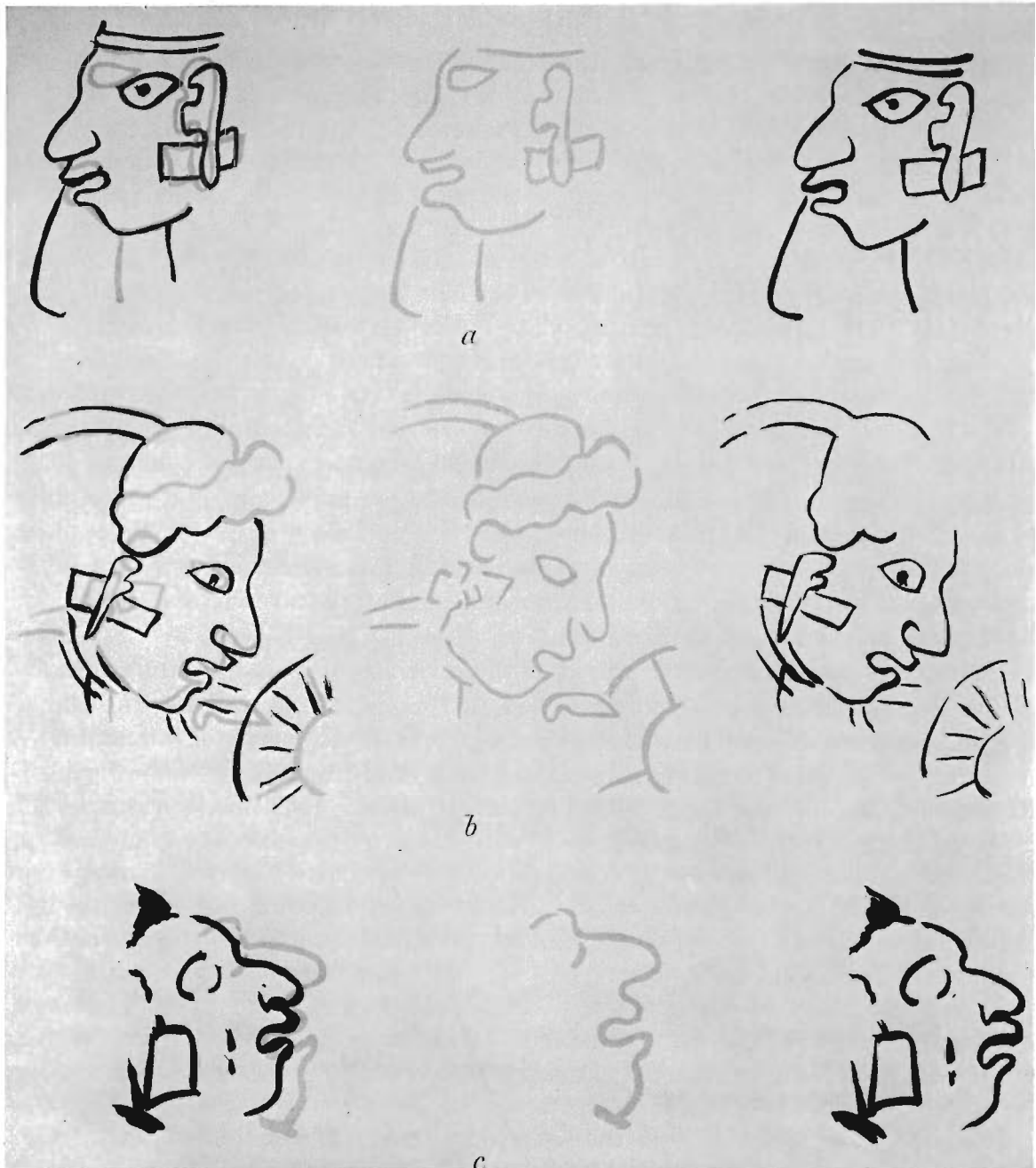


FIG. 258—EXAMPLES OF PRELIMINARY AND SECONDARY OUTLINING OF FIGURES

Red sketch lines, here in gray, were applied to unpainted plaster, then flat colors of design were filled in and the whole reoutlined in black. Corrections and resulting discrepancies are evident on left head in each row.

## TEMPLE OF THE CHAC MOOL

The Temple of the Chac Mool, encysted as it was within the very core of the pyramid which supported the Temple of the Warriors, gave promise of containing frescoed walls existing under unique conditions of preservation. Buried deeply enough to escape the fluctuations of temperature, beyond the range of the great tree roots of the enveloping forest, and, above all, safe in a damp, cellarlike state from destructive variations of humidity, almost ideal conditions obtained for the preservation of painted surfaces. Nor was expectation unrewarded, for, early in excavation, color of astonishing brilliancy and in satisfying quantity became evident. Walls, columns, floors alike emerged with painted surfaces intact to an unparalleled degree.

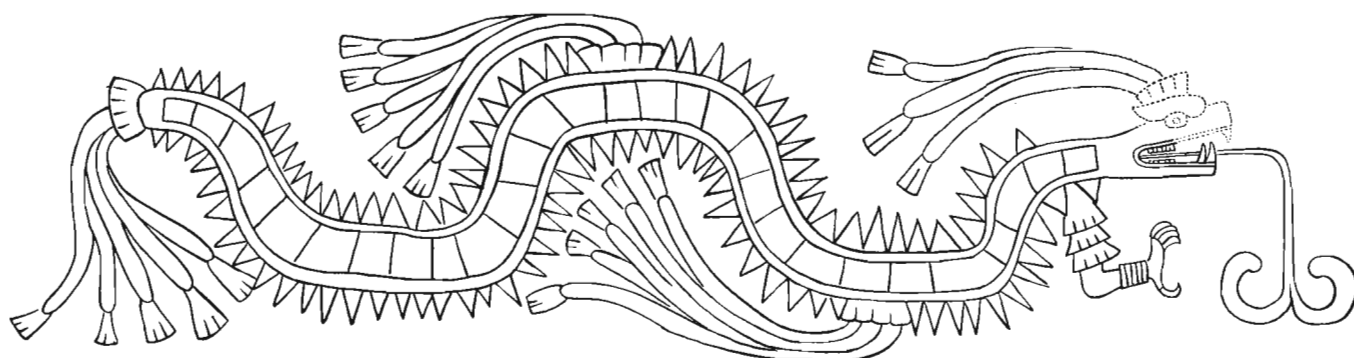


FIG. 259—RESTORATION OF TYPICAL SERPENT. WALLS OF CHAC MOOL TEMPLE

## WALL PAINTING

The walls, torn down to an average height of 2.29 meters, or to about two-thirds of their original altitude, when the temple was dismantled (see Plate 4) bore a zoned design of such magnitude that, although its upper reaches were lost, the nature of the pattern remained clear and easily decipherable (see Plate 132). The walls of both chambers were decorated in a similar fashion. Although only the south half of this structure was contained in the Warriors Pyramid, in all probability the fresco plan was repeated in its major aspects on each side of the median axis of the temple, drawn from east to west, or the door-altar axis. A plan of the structure may be found in Plate 13.

The basal zone in both chambers, black in color, reached to a height of 81 cm. above the floor. Above this, lay in sequence three bands of color—red, yellow and blue—each of an approximate width of 14 cm. and each outlined with a thin line of black. Finally, above the whole, or extending from 1.23 meters above the floor to the spring of the arch, upon a background of rich, dark red, stretched the main *motif*—a highly conventionalized serpent, sweeping sinuously

across the walls in superb and highly colored curves. Originally, there were eight of these serpents, four to each chamber, symmetrically distributed, so that two opposing heads faced each other across the doorways and from either side of the altar, leaving the pairs of tails to meet in the center of the end walls of each room.

The dimensions of the dado stripes and the outline of the serpents were sketched in charcoal upon the white, plastered wall. This original, grey line can



FIG. 260

be seen on Plate 132*b*, where the bench, built against the lowest stripe, prevented the application of color as previously planned. These outlines were then filled with flat washes of various hues which were finally reoutlined in black. The colors, probably in powder form, seem to have been mixed with an extremely viscous fluid which did not readily accept the pigment in solution. This condition resulted in an uneven application of color, striated with myriad threads of the clear, untinted medium. The strokes on the great stretches of background reveal the use of coarse, flat brushes, as much as 8 cm. in width, while the thinner lines were delicately limned with tiny, finely pointed brushes.

As the serpent upon the partition wall of the inner chamber was in a better state of preservation when recovered than were any of the others, it will be described in detail (Plate 132*b, c, d*). A drawing with restorations will give a general impression of the essential features of these serpents (fig. 259). A fairly exact identity with one from the Zouche Codex may be noted in figure 260.<sup>1</sup>

The slim, reptilian head, blue in color, with open jaws, outlined in brown, was equipped with two long, white fangs, an upper and lower set of supplementary molars and a long curving, bifurcated tongue. The eye is missing, as well as the fangs probably present originally in the upper jaw. An unusually naturalistic touch is found in the indicated fold of skin at the stretched corner of the jaws. From immediately behind the head, projects a single shoulder and claw-bearing arm, seen in profile. The arm to the elbow is dressed in a polychrome sleeve and the wrist is encased in a green cuff. From the head, the body flows away in great loops, geometric in their rigid conventionality. Outlined with a narrow blue band, the body surface is filled in with multicolored blocks which follow one another in sequence—red, green, yellow, red, white, blue; whilst triangular forms, done in the same colors but with no established color order, provide a continuous, regular, sharply serrated border on the two sides. From the bottom of each curve, flowing from a sort of yellow bulb, issue a graceful cluster of flowerlike appendages, brown at the root and with blue stems, capped by yellow petals. It may be inferred that these are merely another rendering of conventionalized plumes. Drooping bits of these same yellow petals give proof that the upper curves of the snake as well as the head-dress were festooned in a similar manner. The trailing backward sweep of this *panache* and the sinuous curves of the body rather aptly suggest the reptile in motion. The tails, which occurred at the center of the side walls of each chamber, are unfortunately missing, owing to an upward swing which carried them beyond the existing height of the walls. However, protruding bits of the

<sup>1</sup> Nuttall, 1902, page 53.

drooping, yellow petals indicate that the same flowerlike stems formed a part of their design which curved up and over the creature's back. It is significant that the painter carried his design over the corners, as he was free to do since all of the space was his, instead of its being divided into definite areas to be differently treated, as was the case in the Temple of the Warriors.

The second serpent in this half of the inner chamber is drawn tail-to-tail with the first and practically duplicates the features just described. With the exception of bits of the head-dress, the claw, the sleeve and the forked tongue, the head is almost completely missing. This serpent was so spaced that the open mouth was immediately adjacent to the edge of the wall panel, or formal rectangle, reserved behind the altar for a particularly elaborate panel. It was exceedingly unfortunate that but a tiny fragment of the latter remained *in situ*, as all indications point to its having been an unusually fine piece of work (Plate 132*a*). The turquoise-colored background, delicately lined in copper-red with occasional accents of black, seems to be divided by a horizontal band into at least two sections. Tips of feathers and beads, drawn to a very fine scale, suggest rather elaborate personal adornment in the lower segment, while above there appears to be a bit of a plant *motif*. Further discussion of the rather unique qualities of such altar panels may be found on pages 414 and 441.

The serpents from the outer chamber (Plate 132*e*) at first sight appear identical to their fellows in the Sanctuary. Bits of the claw and bifurcated tongue were noted at the time of excavation, but the badly shattered plaster almost immediately fell away. Although the sleeve is slightly more ornate, the essential features of the body remain the same. Closer attention, however, gives conclusive proof that these serpents were executed by a second painter, who, although working from an identical model, was more skilful than the first. The color is very brilliant, having been mixed so carefully that the pigment and medium were completely amalgamated. The result was a thick, opaque application of great intensity. The segmented body colorations were not arranged in exact sequence, as they were in the other room, and on the whole the quality of drawing reveals a superior degree of skill. The great curves are more elegant, and the shapes of the smaller details, such as the yellow roots of the *panache*, were handled with far greater care. Where the æsthetic necessity for a prescribed curve involved an overlapping of bits of the design—a most unusual feature in Chichen Itzá murals—the painter appears to have ignored any expedient of mechanical adjustment, but, on the contrary, attentively and frankly worked out his coincident shapes.

All things considered, these huge, richly colored serpents are an exceedingly appropriate and effective subject for temple murals. From a purely practical point of view, the extensive stretches of wall were decorated to a far better advantage by drawings done to a large scale than they would have been by the multitude of tiny figures which covered the walls of the Temple of Warriors. When the problem of lighting is taken into consideration, although the outer room would have been adequately illumined by the doorways when the obscuring curtains

were lifted, the Inner Sanctuary must have been shrouded in a perpetual gloom only relieved by the uncertain flicker of torches. For this purpose, heavily colored paintings, enormous in size, would serve the purpose far better than the minute drawings of the later structure. Moreover, the subject of the work was singularly appropriate, since the impressive, repeated rendering of the patron deity of sacred Maya ritual would have created an atmosphere far more in keeping with the place than the delineation of purely *genre* scenes would have done.

An interesting parallel is noted between these plumed serpents and those represented in mosaic upon the turquoise disk, which was an altar-offering in the same temple (see Frontispiece). The outstanding features are essentially similar—the plumed head-dress, tooth-set gaping jaws, arm with claw and bracelet, and

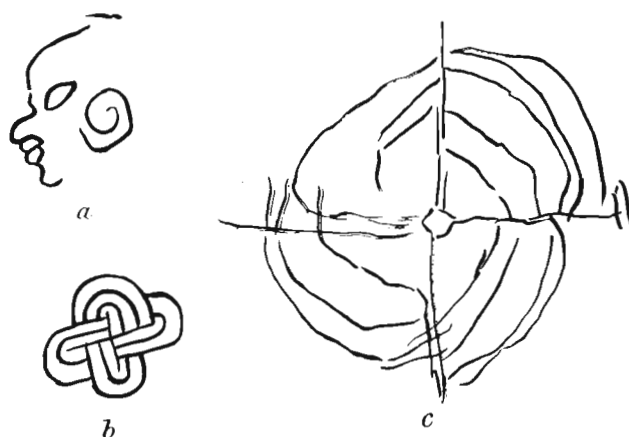


FIG. 261—FROM CHAC MOOL TEMPLE

*a*, human profile sketched in charcoal; *b* and *c*, graffiti of mazelike device

coiled body—all executed with abrupt angular curves. On the whole, there is a stricter adherence to some basic pattern common to both, than adaptation to different fields and exigencies of medium would lead one to expect.

The basal zones of banded colors tell an interesting tale today of how the masons, who filled up the temple for the purpose of erecting a second structure upon its top, went about their work. Perpendicular lines, rudely slashed through the paint into the white plaster (Plate 132*e*) at intervals about a meter apart were used as guide marks in partitioning off their separate units of work. A complete description of this method for the consecutive filling of block units in mass masonry construction will be found on page 146.

In the Sanctuary, the black basal zone was interrupted along part of the back and the entire side wall by a bench which was torn out when the temple was being dismantled. The unpainted interval proved that the colors were applied



to the walls after the bench had been put in place. On this white surface, some forgotten hand had sketched in charcoal the upper parts of an Atlantean figure (fig. 163) and a human profile (fig. 261*a*). The naive touch supplied by these tiny informal drawings came as a pleasant revelation of the humanity of the anonymous workers who, so long ago, spent their lives carving in stone or painting on plaster. Two additional figures (fig. 261*b, c*), small mazelike devices, had been scratched through the painted body of one of the serpents above the bench.

#### BENCH PAINTING

In the course of the excavation it was considered desirable to free the temple nucleus from the enclosing shell of masonry imposed by its burial in the great pyramidal substructure of the Warriors. Single frescoed stones began to appear sporadically during this digging (see page 156), which excited the greatest interest on account of the beauty of their treatment and the superb state of their preservation. The original place and position of these stones were long matters of baffling conjecture, for, while the rubble fill with which the pyramid mass was constructed had been found to be richly salted with bits of sculpture and painted blocks, it was impossible to determine the derivation of any of them. But when large quantities of these particular stones, so similar in technique, began to come to light, it was found that not only did they fit together in coherent pattern, but they contained certain intrinsic characteristics which considerably narrowed the possible fields of their original placement.

Finally it was conclusively determined that they had at one time fitted into the faces of the two missing benches within the Chac Mool Temple. The synthesis of the bits of evidence, which confirmed this conclusion and verified the allocation of each upon its proper side of the temple, made one of the nicest pieces of archeological detective work ever confronting an investigator.

#### PROOF OF ORIGINAL LOCATION

To begin with, although the whole of the northern half of the buried temple had been torn away when it was cut to the proposed dimensions of the new pyramid which was being built we felt that we could assume customary bilateral symmetry as a matter of course. The south half of the temple remained, with walls comparatively intact to a height of about 2.29 meters and was solidly filled with plaster and stone designed to serve as the foundation for the superimposed Warriors Temple. The conclusions reached concerning this latter half of the temple, therefore, were considered to pertain to the north half as well.

The north bench, of course, was completely missing and the south bench had been torn out for some reason now unknown, although the latter left clear evidence of its original position and dimensions. It was clear from our findings, that in the course of the construction of the Temple of the Chac Mool, the walls had been raised and plastered before the various fittings, such as the altar and benches, were installed in the inner chamber. Subsequent to their installation,

the whole interior was painted from top to toe in flat color and design. Therefore, when the bench was removed, the one-time hidden wall surface gave ample evidence, in unpainted silhouette, of the existence and proportions of the covering feature (Plate 132*c*).

Each bench had been L-shaped (fig. 262), the longer arms (*A*) lying along the entire length of either the north and south wall, as the case might be, and the right-angled turn (*B*) following the east or back wall to a distance within 2.46 meters of the centrally placed altar. The exposed vertical face of each bench, the part with which we are here concerned, then consisted of three divisions: *A*, that bordering the longer expanse; *B*, that facing the front of the chamber; and *C*, the one lying parallel to the side of the altar. The width of the bench, 1.40 meters, was plainly indicated by the breadth of the rectangle of unpainted plaster upon the west wall. Having this dimension, it was possible to fix the length of

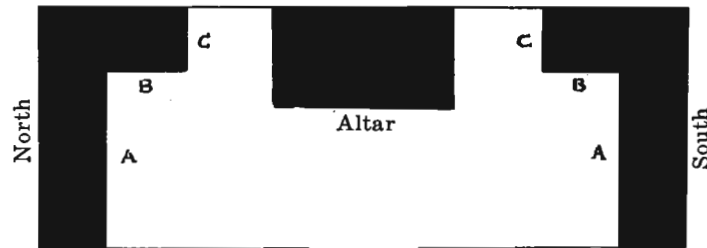


FIG. 262—PLAN OF BENCHES, CHAC MOOL TEMPLE

the three faces within a very small margin of error. Subtracting the width of the bench from the width of the chamber (5.79 meters), we have a length of 4.39 meters for *A*. Likewise, taking the width of the bench from 3.40 meters, which is the distance between the southwest corner of the chamber and the line at which the painted plaster upon the east wall terminated, gives a length of 2.00 meters for *B*; it then follows that the length of *C* is the width of the bench or 1.40 meters. Thus the total length of the exposed faces was 7.79 meters. The height of the vertical face again clearly indicated by the contour of the bench, outlined at the right-hand edge upon the west wall by the juncture of painted with unpainted plaster, was 84 cm. (Plate 132*c*).

In assembling the painted stones above referred to, which was done by means of the elements of painting which they severally bore, it became evident that some, with a bordering band of blue, pertained to the top of whatever the field had been, and others, with a comparable border of blue, were elements of the vertical margins of the right and left-hand edges. Still others had occurred at the base of the area and these were equipped with a wider strip of blue, copiously daubed and splashed toward its nether margin with red pigment and smudged with the stain of floor filth.

Eventually stones were found which permitted the bridging of the painted pattern between the upper and lower border lines. This organization showed the

field to have been a narrow panel of only three courses of stone, 84 cm. high. And since a considerable number of the component blocks were at hand, it was evident that it had been a panel, long in proportion to its height. The distance between the cornice of the bench and the floor was 84 cm., identical to the altitude of the panel. Moreover, at the point of juncture with the wall, the black paint of the dado was splashed and streaked with a blue of the same quality as that forming the border of the panel (Plate 132*c*). Also, the floor of the temple was of dark red, the same as that which was so plentifully smeared upon the blue of the nether border. This disfiguration of the clear pigment is quite evident in Plate 134. These three facts seemed to suggest, almost beyond the possibility of a doubt, that the panel in question was none other than the vertical face of the dismantled bench. When the search for the blocks was terminated, a total of seventy-eight was recovered.

Turning to the character of the stones themselves, two broad, stylistic differences immediately became evident. The one, evidencing a polychrome technique, brilliant in color and executed with nicety of detail, was markedly contrasted with great, crude, broadly outlined stones, carelessly painted in shades which were almost exclusively of red. Assuming, temporarily, that these two techniques could bear no immediate relation to each other, the former group of stones, forty in number including the single cornice stone which had been found, was arranged in pattern in accordance with the continuity of painted design. This frieze, part of which is illustrated on Plates 133 and 134, depicted human figures seated one behind the other in a long line. It measured 84 cm. in height—exactly the altitude required for the missing bench. The humans so figured fell into two groups, dependent on the direction in which they faced. A strip 6.40 meters long was left-facing, while another, 1.40 meters long, fronted in the opposite direction. As it is logical to believe that the altar was the center of interest in the room, the humans on the frieze would presumably be oriented so as to face in that direction. With this in mind, the longer series may be supposed to have come from sides *A* and *B* of the south bench. The shorter strip of 1.40 meters represents the exact length required for that portion fronting the altar's side. Since it would be more natural to paint the figures reversed toward the room in this manner rather than as heading into the blank wall, and as one end of the strip was represented by a cornerstone with bits of figures on its two sides, face to face with one another, this group of stones was likewise felt to be correctly allocated to the south bench on side *C* (Plate 134, figures XIII and XIV).

The long strip, all left-facing figures, subdivided once more on a basis of technique. A study of the paintings revealed that they had been allotted to two different artists and that the division line between the two occurred at a point 4.39 meters from the right end of the line, or exactly where the bench makes its right-angled turn toward the altar (Side *A*). A second evidence of internal proof that the angle occurred at this point, is the relative spacing accorded to the priests holding the incense bowls (Plate 133). The one at the extreme right is drawn in scale with the other figures, but they become markedly larger, or rather broader,

until the final one at the left (fig. 263) which, even though swelled out of all proportion, failed to quite fill the remaining space. This forces the conclusion that some division mark at this point, as such an angle would be, rendered the insertion of another figure impossible. The intermediate face of the bench (Side B, Plate 134) was 2.00 meters long. Unfortunately, the fact of missing stones cuts into the sequence here. Whereas, the stones of the 1.22 meter-strip which we possess all tie to one another and in turn to the cornerstone, bearing parts of Nos. XII and XIII (Plate 134), there is a 61-cm. gap which must have occurred at the right end of Side B. With the exception of this interval, enough stones were recovered to furnish a continuous single line from one end of the bench to the other.

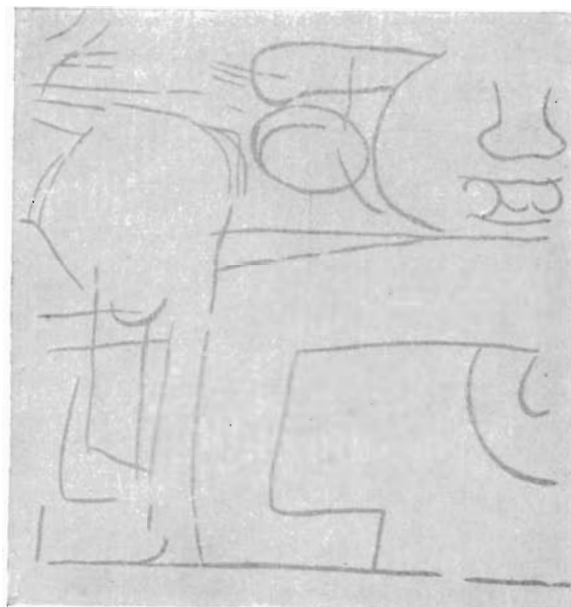
Only one cornice stone was recovered. It fulfilled the height qualifications of 15 cm. In addition, the blue plaster ran under the lower edge for exactly the 10 cm. of the estimated cornice overhang, as derived from the silhouette on the wall. The plumed rattles on its face (Plate 138*d*) indicated the usual feathered serpent.



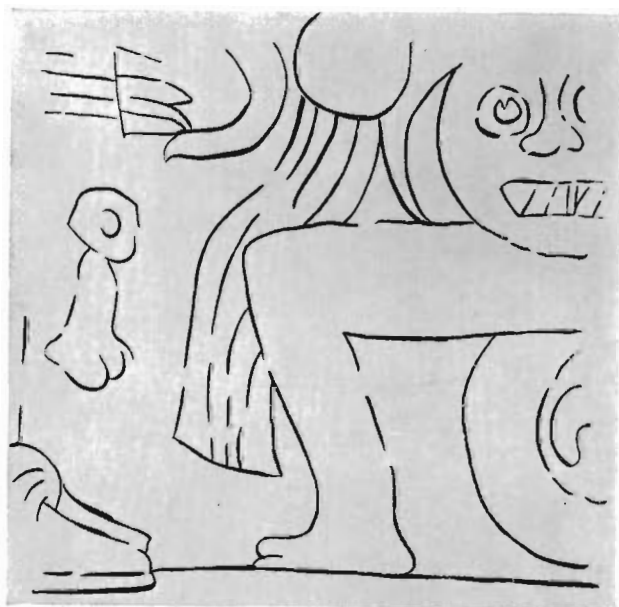
FIG. 263—FRAGMENT OF HUMAN FIGURE WIDENED OUT OF PROPORTION IN ORDER TO ADJUST TO REQUIRED SPACE, CHAC MOOL TEMPLE, SOUTH BENCH

As mentioned above, two broad stylistic differences were observed in the first division of the stones. Whereas, those just described were allotted to the south bench, the remaining group gave equal evidence of having come from the north bench (Plate 135).

One notable distinction between the two lay in the preparation of the plaster before it was painted upon. The stones of the south bench were covered with a thick layer, smoothed down to an almost glassy surface, while those opposite were hastily treated with a slap-dash coat, so thin and so unevenly applied that parts of the surface permitted the paint to rest directly upon the bare stone itself. The



*a*



*b*



*c*

FIG. 264—EXAMPLE OF PRELIMINARY AND FINAL OUTLINING OF FIGURES, CHAC MOOL TEMPLE, NORTH BENCH

*a*, original line scratched in wet plaster; *b*, later painted outline; *c*, appearance of finished work resulting from superimposition of the two

rough coating while still wet was then scratched and scored with a general outline of the subject, after which the paint was massed on, and finally definitely outlined with heavy black. This hit-or-miss method argued a great familiarity with the subject, particularly since the blocked-in colors did not follow the original scratchings with any care. Figure 264*c* illustrates the resulting maze of double lines on one of

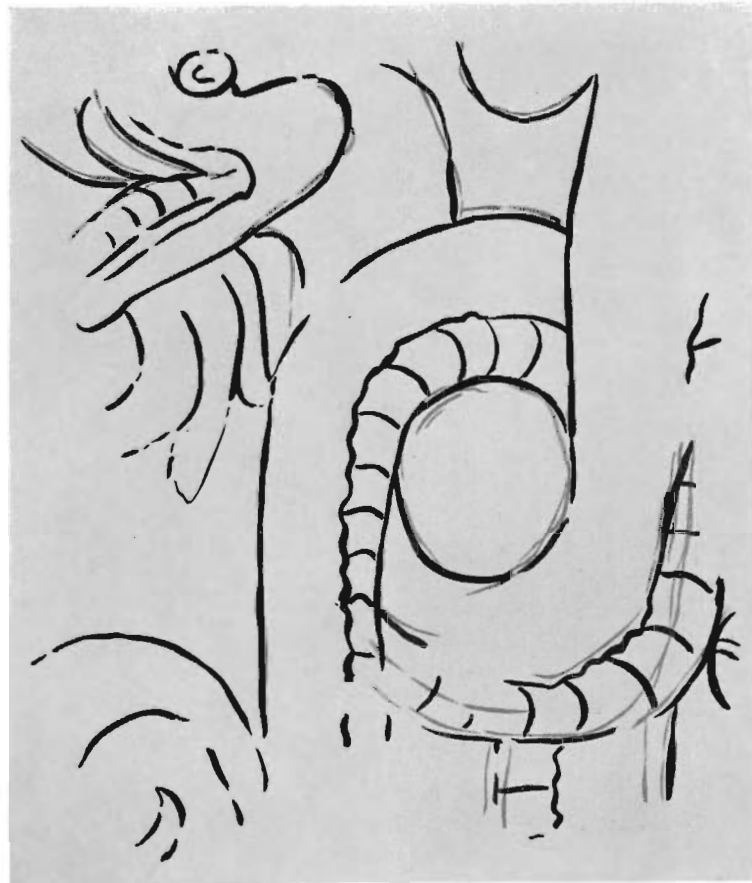


FIG. 265—EXAMPLES OF DOUBLE OUTLINE WHEREIN THE PAINTING CLOSELY FOLLOWED ORIGINAL SCRATCHING, CHAC MOOL TEMPLE, NORTH BENCH

the stones from the series in figure 266; the gray represents the scratched line and the black the ultimate outlining of the painted masses. As the plaster was fairly fluid, the scratchings became somewhat obliterated by the overpainting, and the finished product, when viewed in a direct light, did not appear as confused as the illustration would here indicate. The sketchy character of the original scratches is evident in figure 264*a*, which presents the outline before the painter began his work, while the final painted lines, elaborated and corrected, are separately depicted in *b*. It will be noted (*c*) that not one of the original lines was retained.



FIG. 266—WARRIORS SEATED UPON JAGUAR CHAIRS (PARTIAL RESTORATION INDICATED BY DOTTED LINE), CHAC MOOL, TEMPLE, NORTH BENCH, SIDE A

More care was exerted when one of the cornerstones of the bench was decorated (Plate 137*a*), where it appears that the painted lines followed the scratchings pretty faithfully (fig. 265).

The smaller details, such as the eye and the necklace of the warrior in Plate 135, were outlined in orange paint before the conclusive black was applied. On the other hand, after the plaster surface was prepared for the south bench, all of the preliminary outlines were most carefully sketched in orange. These were then filled with color and finally overlined in black with accurate adherence to the originals. There are but few places where any discrepancies between the two outlines can be detected. However, the final line did not follow so closely the color masses, and a study of the work gives an impression that this was accomplished designedly (see page 359). Although fewer of the thirty-seven blocks from the north bench could be fitted to one another in long continuous lines, one fairly large group was obtained and four separate groups of twos. The same system of orientation was in force. The general scheme of decoration involved a line of seated figures, as did the south bench. The sides which correspond to A and B, in figure 262, bore warriors seated upon jaguar chairs. On A, the animals were figured with the head front facing or as if looking straight across the room (fig. 266). On B, the same animals are turned with the flank toward the spectator while they themselves face toward the altar (Plate 136). This determination is arrived at because the line of front-facing jaguars is too long to fit into the 2.03 meter dimension of side B, whereas, the groups allotted to side B come well within the limits afforded them. On C, the single human figure recovered is reversed in direction so as to face out into the room, as do those on the homologous face of the south bench. The height from head to foot, computed from Plate 135, coincides exactly with the required bench altitude.

A further reason for assigning these stones to the north bench is found in their miserable state of preservation, for they are uniformly more battered than those of the opposite bench. Presumably, since the entire north half of the temple was cut away before building operations on the Warriors Pyramid could have proceeded very far, the north bench stones were probably stacked with the rest of the débris to be used in the later construction. This procedure entailed several handlings and more or less weathering, with a corresponding destruction of the frescos on their surface. But the south bench would seem to have been reserved until the pyramid had progressed nearly to the floor level of the Chac Mool Temple. It was then taken down, stone by stone, each one being carried but a few steps to be received by the builders and laid rather carefully, face down, in their final position. The darkness, constant temperature, and invariable humidity in the heart of the masonry pyramid preserved the slightly marred surfaces more perfectly than could the most fully equipped museum.

#### SOUTH BENCH

The better-preserved portions of the south bench are illustrated on Plates 133 and 134. In the former the missing parts have been tentatively restored in grey



outlines, which conform strictly to similar features found intact on other portions of the same bench. The only exception to this rule lies in the fringe on the bottom of the priests' skirts (Nos. VI-VII). Although no evidence on the bench confirms this feature, it was found to be an invariable adjunct to the priestly costume in the frescos from the Warriors Temple and in the columns from both that temple and the Temple of the Chac Mool.

The south bench depicted a row of fourteen human figures, seated upon white blocks, draped with fringed cloth, green or red, and upholstered in jaguar skin. The

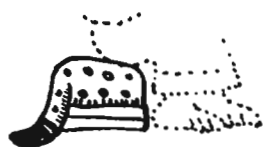


FIG. 267—SEAT UPHOLSTERED WITH JAGUAR SKIN



FIG. 268—HUMAN HEAD AND MASK HEAD-DRESS, FIGURE NO. 1, SOUTH BENCH, CHAC MOOL TEMPLE

blocks, sometimes slightly rounded at the bottom, are plain white in color, but when drawn with vertical or flaring sides are crossed by diagonal lines of black dots topped by tiny crescents. There is nothing to indicate from what material these blocks were made. Similar seats are found in the Zouche Codex from Mexico (fig. 267).

The figures appear to be arranged in an order of possible hierarchical significance, with the members of each type separately grouped (fig. 271). Figures I to V counting from the far end of the long arm of the bench toward the altar, are dressed as God Impersonators. A typical figure of this class is illustrated in figure 305*a* and fully analyzed on page 453. In all the essentials, this file of five conform to the

required features: God B mask head-dress and face mask, serpentine body painting, mosaic shoulder cape, loin-cloth of jaguar skin, mosaic belt adorned with shells, bifurcated girdle flaps, shield and ceremonial staff which is a form of the Manikin Scepter (see page 455). In addition, the serpent speech scroll is a constant accompanying feature of the God Impersonator on this bench. Certain latitude in the presentation of minor details is noticeable, but nothing sufficiently radical to disturb the set pattern. For instance, Numbers III and V carry shields with human faces wrought on their surface, while I and IV have the petalled variety draped with cloth; the body paint on III and IV is blue with yellow ventral scales, while No. V is pink. Green plumes on the head-dress are associated with a pink back-crest, but if the plumes are pink, the back-crest is done in green. The hat masks are double-decked on Numbers I, IV and V and single on II and III, and the space in the semi-

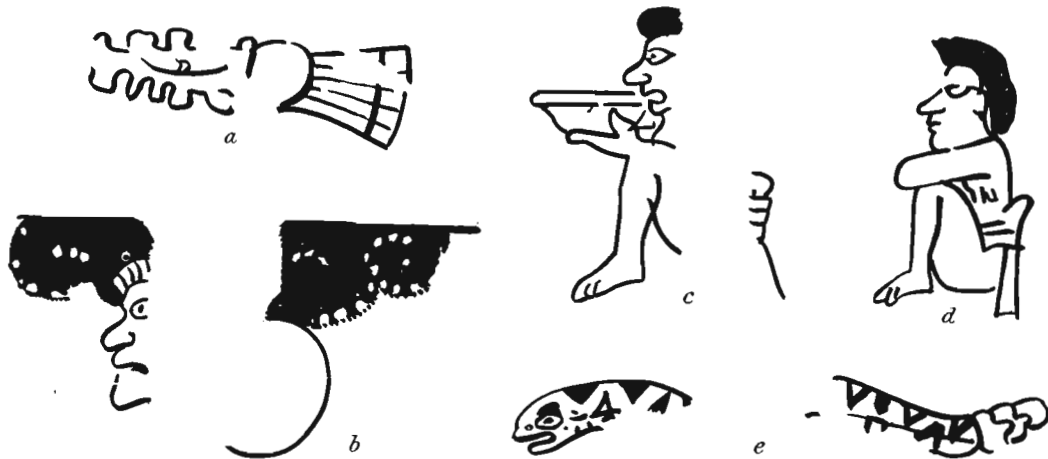


FIG. 269.—NAME GLYPHS, SOUTH BENCH, CHAC MOOL TEMPLE

circular handlelike device, from which depend the head plumes, is either left empty, filled with diamond shapes or with two crossbars. This last-named feature, as restored on No. III, is found on No. I, which was not included in the color plate. A cut of the latter, with restorations in finer line, exemplifies the crossbar arrangement as well as additional nose-scrolls on the face mask, which is a fairly constant feature on the sculptured columns, but unique in fresco (fig. 268).

The remaining three figures on Side A, numbered VI to VIII, represent priests. One is very young and another is very old; the age of the third can not be conjectured because the face is missing. They are dressed in accordance with the Priest type, as delineated in figure 302, with plumed hat, green mosaic shoulder cape, long robe, studded with green beads and girdled at the waist by a green mosaic belt; they carry a shield in one hand and a bowl of incense cones in the other.

This accounts for the file up to the included corner (Side A). The first figure on Side B is found on Plate 137c. Number IX represents the "Old Man with a

Bone" (see page 451). This curious aged person, with wrinkled stomach, bony knees, black and white cloak, quilted head cloth, yellow beaded ear pendant and bone suspended from neck, is identical with one found on Column 6 in the same chamber (Plate 37*w*).

Number X appears to introduce another order of official personage which will be called Dignitary A, characterized by an unusual emblazoned shield, breast-plate and beribboned staff. The torso is found on Plate 162*e*, while the feet as well as the remainder of Side B are to be found on Plate 134*b*. Unfortunately, not enough remains of No. X, and even less of the next two in line, to permit further description of this new social or occupational type. One point, however, is evident—a second and less skilful painter was at work upon the awkwardly drawn torso. The feet of numbers X and XI are normally shod, but the adjustment of the jaguar pelt skirt, with tail to the front instead of to the rear and hence unrelated to the flaps, is a novel feature.

That figures XII at the left corner of Side B, and XIII and XIV which compose Side C, were panoplied in yet another fashion is clearly evident (Plate 134*a*) although all that remains of them are the lower limbs and parts of the back crests. The legs are gaudily wrapped with particolored spiral puttees; the ankles are cuffed with two flaring blue ruffles, and the knees are shielded with terraced guards of green mosaics hung with white shells. This type is called Dignitary B on the diagram.

The blank spaces throughout are sprinkled with scrolls and above the head of each figure is a tiny device which suggests a name glyph. That before No. I is a fragment of undetermined significance (fig. 269*a*). No. II is missing. Before No. III, there is a black, convoluted, cloudlike mass stippled with white dots, and as if descending therefrom—a human face is joined at the back to a white ovoid (*b*).

Next in order is a small human, drinking from a blue bowl (*c*); above No. V there is a similar seated figure, with arms clasped about its knees (*d*), and finally above the priest (No. VI) there is a rattlesnake (*e*).

#### NORTH BENCH

Although thirty-seven stones were recovered from the north bench, the greater number were battered almost beyond recognition or else represented disjointed bits of the pattern which could not be fitted into a large continuous strip, as was done in the case of the opposite bench. However, one group of twelve, from Side A, provided a key to the pattern on that face (fig. 266). This is seen to be composed of a row of the "classical" type of Warriors, seated upon jaguar benches. Similar animal-form furniture, carved from stone, has actually been unearthed in several places in Chichen Itzá (fig. 270). These jaguars were sculptured in the round with grotesque moon faces, identical to those of the frescos. The latter are presented full front, with the tail adroitly indicated as if appearing between the spread legs. The warriors are sitting sideways upon the back. The color is reddish

*a**b*

FIG. 270—SCULPTURED JAGUAR SEATS, CHICHEN ITZA  
*a*, from small mound west of Ball Court  
*b*, from Temple of Tigers

brown or pink—a convention so different from the usual black-spotted, yellow hides in the murals, as to suggest that such was the manner in which the seats were actually painted when in use, and that the painter was attempting a distinction between the real animal and its stone counterpart.

The warriors were mentioned as being of the “classic,” that is “Toltec,” type (see page 456). On Plate 135, the characteristic features of blue cylindrical hat, round blue ear-plug, blue “back-shield,” flowing white back-flap and darts can be seen. The upraised right hand holds an *atlatl*, the top of which is just visible adjacent to the green and yellow scroll. In the line drawing of the whole (fig. 266), certain of the missing parts are restored in dotted lines, and in the color plate in paler tints.

The scroll lying in front of the full-figure warrior appears to be an adaptation of characteristic features derived from the Long-Nosed God. Green proboscis, yellow fangs and white eye are worked into a highly conventionalized scroll form—a fantasy rather more elaborate than the usual space-filling expedients employed in Chichen Itzá temples. A similar device is found on Column 13 S from the Warriors Temple (Plate 55). Reading toward the right (fig. 266), we see three more jaguar chairs and fragments of their accompanying seated humans. The darts and blue “back-shield” from which hang the white flaps suggest that the entire row was made up of the same standard type of Warrior figures.

Plate 136 represents two examples of the jaguar seat, viewed from the side. In *b* the warrior is sitting in such a manner as to obscure the head, while the animal's long, curved tail supports the back-flap. The warrior is armed with darts, *atlatl*, fending stick, defensive sleeve and blue “back-shield”. The one above, however, appears to be mounted on a beast of somewhat distorted anatomy. Although the leg is drawn in side view, as if representing the hinder parts, the full front head is abruptly joined where one would normally expect the tail, while the back-flap falls from the blue shield and appears like a beard below the jaguar's chin. Darts are held in the warrior's left hand, while the right, with two fingers thrust through the loops, grasps an *atlatl*. The drawing of this weapon and of the legs is exceedingly well handled, hence it is curious that so evident a master of anatomy and design should have become involved in such difficulties with his jaguar. It must be that in striving for variety in his rather monotonous series of warriors, he ventured beyond the field of practised convention. The quality of the work is superb, indeed it is one of the best examples of Maya painting which has ever been recovered.

Two further fragments, probably done by the same hand, were recovered. These are illustrated on Plate 138: *c* depicts the head of one of the warriors and *b* the nose and mouth and part of the torso of another. Both exemplify characteristic “Toltec” features. In *b* the hand is portrayed as holding the *atlatl* with fingers caught in the two loops, while the cotton defensive sleeve, adjusted so as to leave the shoulder bare, is illustrated to better advantage than in any other place in the temple. The jaguar ear in the lower right corner suggests that the warrior was sitting astride his mount, in a manner reminiscent of the

figure in the sun-disk from the upper row of bas-reliefs adorning the west wall of the Lower Chamber in the Temple of the Tigers.

It was stated above that the figures on the full-front jaguars originally were located on Side A. There are four of these which would have accounted for 2.13 meters, or practically half its length. Those viewed from the flank obviously came from side B, since, as seen from Plate 136, there are fragments of four such figures, which, on the basis of the width of the complete ones, would have composed for B exactly the same length as that possessed by this face in the south bench.

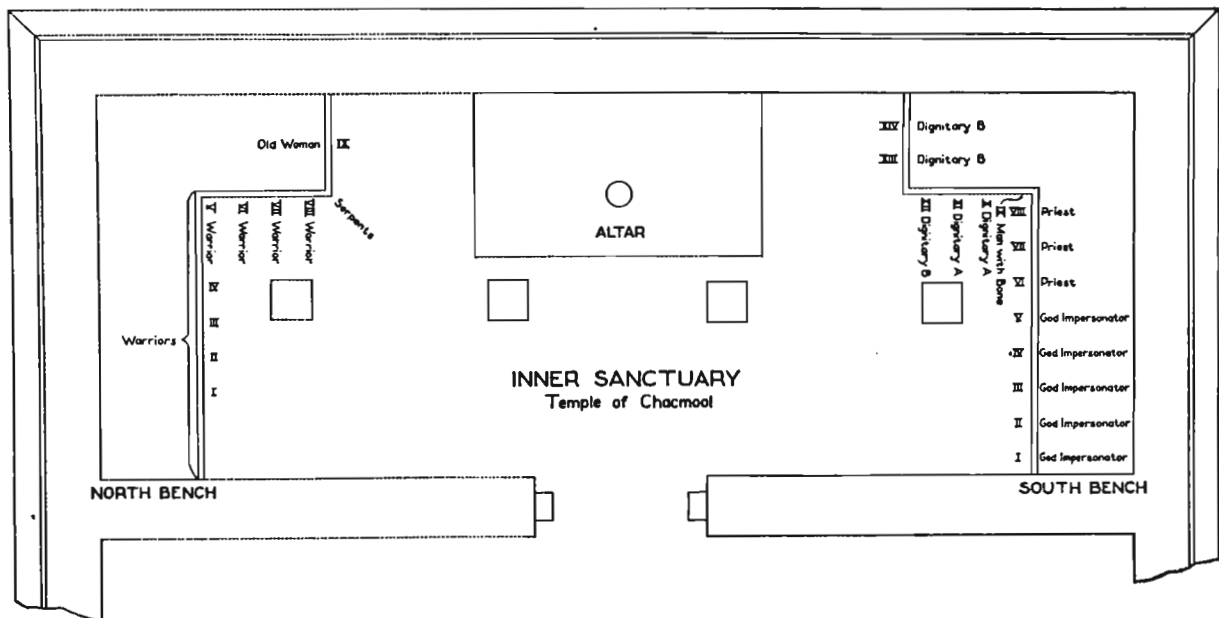


FIG. 271—PLAN OF SANCTUARY ILLUSTRATING SEQUENCE OF FIGURES ADORNING THE TWO BENCHES, CHAC MOOL TEMPLE

This brings us to the corner by the altar. A single corner block was recovered (Plate 137a) depicting on the side facing the altar (Side C) the head of a serpent adorned in the usual manner, with blue supra-orbital plate and yellow beard. There appear to be more than enough body coils to suffice for this one head, so in all probability the original drawing was composed of two intertwined serpents. On the other face of the stone (Side B) there seems to be another of the more or less animate scrolls, similar to that including features of the Long-Nosed God. This device has serpentine characteristics—an eye surmounted by a blue plate, bead-like fangs and a bifurcated, yellow tongue, similar in shape to the pink, forked tongue of the other more conventional serpent. The tongue of the latter can be noted as rounding the corner in order to complete its full length.

The only other stones belonging to the bench are allocated to Side C. These two (Plate 137*b*) have been assigned to this place by a process of elimination. While left-facing, they could not possibly belong to the opposite bench, because the torso does not fit with any of the row of feet (see Plate 134), although stylistically similar. Since all the figures on Sides A and B of the north bench are right-facing, the only place for a left-facing human would logically fall on Side C. It is probable that the similarity of style with Sides B and C of the south bench is due to the fact that Side C of the north bench is the work of the same painter. The figure, part of which appears on these two stones, seems to be related to the Old Sorceress found on column 16 E. of the Warriors Temple (Plate 58), because of the following similar features: the line of the breast, pendulous and wrinkled stomach, blue textile belt, white skirt, and pot which the carved figure carries in her hand, and which, in the present instance, is tied around the waist.

A plan of the sequence of the figures on these two benches will clarify the above description (fig. 271). Whether this arrangement is in accord with some recognized classification, based on hierarchical or social standards, is not determinable from the scanty documentary information available on such matters. It is a striking coincidence, however, that on the altar from the Northwest Colonnade, a disposition is made of warriors to the left of the basket of offerings, which is the central division point, and the more gaudily caparisoned figures to the right, exactly as occurs on the benches.

A rather amusing hypothesis can be built on the fact that the benches were decorated in this manner, by supposing that the different types of figures with their corresponding name signs were meant to delineate the priests and acolytes, the nobles and captains of war who were destined actually to sit in designated places immediately above. The pictures may have been facsimiles intended to specify the particular owners of a certain reserved space, or they may have served as a schematic presentation of the *chorège* attendant on the liturgical ceremonies. It seems highly probable that the painters were working with one of these concepts in mind.

One final group of stones was unearthed from the part of the pyramid hearting whence came the bench blocks. Two of these are figured on Plate 138*a*. The background was reserved in uncolored plaster, on which were drawn in black outline exceedingly graceful flower and plant *motifs*. The panel was edged with a striking polychrome band, obliquely striped. This contrast of white and color would have made a very effective mural decoration. If these stones had come from the Temple of the Chac Mool, since they are not vault blocks, they would necessarily have been fitted into the triangular spaces at the end of the roof arches, as these are the only vertical walls in the entire building which remain unaccounted for. However, as we have no evidence which confirms such a disposition, it is quite as probable that they came from some unknown structure.

## TEMPLE OF THE WARRIORS

## AREA ANALYSIS

Our knowledge of the nature and distribution of the paintings covering the wall surface within the Temple of the Warriors is dependent, to a large extent, upon a method that was devised for grouping and recording the color-bearing wall and roof stones found among the wreckage which filled the rooms to the column tops. So that order might be brought out of this chaos, the entire mass was arbitrarily divided into rectangular areas, each bounded by four columns, or by columns and

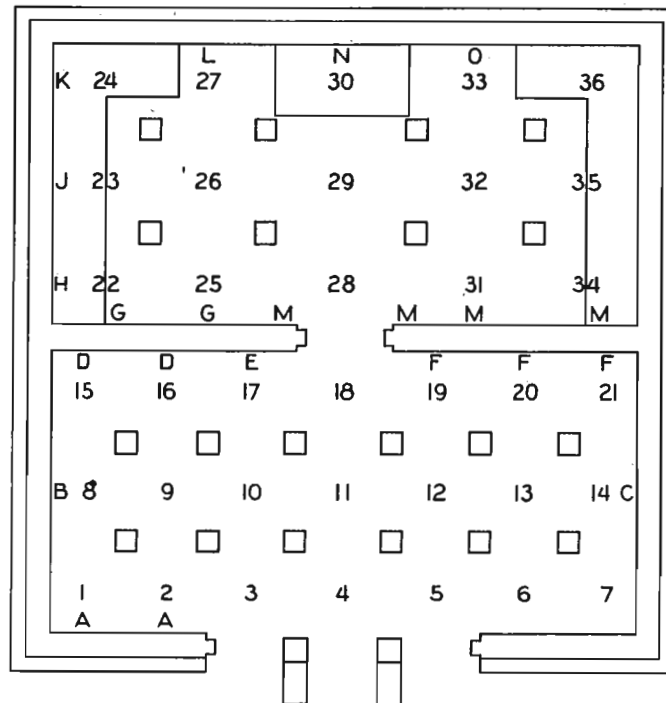


FIG. 272—PLAN OF WARRIORS TEMPLE

Numbers indicate areas; letters, wall units decorated by different painters, as determined from a study of technique

lateral walls, as illustrated in the plan (fig. 272). These sections are numbered in accordance with the direction of the covering roof vaults. Those in the outer chamber include areas 1 to 21, inclusive, and those in the inner room, 22 to 36. In the outer chamber, the first tier is numbered from 1 to 7, extending from left to right, or north to south. In the second tier, the numbers 8 to 14 extend in the same direction as do those in the final group of 15 to 21. In the inner sanctuary, the numeration changes in coincidence with the trend of the roof arches;



from west to east, at the left end of the chamber, the areas are numbered 22 to 24. Areas 25 to 27 form a second tier; 28 to 30 follow the median line from doorway to altar; and 31 to 33 and 34 to 36, respectively, denote the two final tiers.

The advantages of this simple scheme become evident, on consideration of the fact that when the walls gradually collapsed inward, the veneer of stones comprising the painted surfaces, fell immediately below their point of original placement. Therefore, such a system of area numbering conclusively delimits the relation of each stone to the wall above, within an average distance of about two meters, or the space between column center and column center, or column and wall. This was of immense assistance in refitting and assembling sections of the wall face, as well as in the investigation of the general subject-matter which was treated upon surfaces too nearly destroyed to permit of restoration. When the failure of the walls was sudden and accompanied by a precipitate thrust, some of the stones were hurled beyond the limits of their proper areas. In these cases, a stylistic analysis provided sufficient basis for the separation of the intrusive blocks, the decoration of which was foreign to that of the locality in which they were found.

As the painting on those stones which were buried most deeply would stand the best chance of survival, it follows that the center of the mound, which was piled high with débris, would afford a more fruitful locality than the four side slopes, from which enough of the protective covering had fallen away to leave the stones beneath subject to the corrosion of moisture and the action of tree roots. Another cause for the relatively better preservation of the stones from the central district lay in the fact that previous to collapse the frontal chamber had been exposed to fluctuations of humidity and temperature because of the three great portals which were open to the western sun. As a result of this exposure, the paintings recovered from this chamber are uniformly paler in hue than those from the darkened sanctuary. The temple was in use over a considerable period, to judge by the 131 replasterings upon its exterior. If, as seems likely, the murals were painted upon the walls immediately upon the completion of the structure,<sup>1</sup> the fact that they endured at all during so many years of exposure bespeaks the excellence of the pigments used.

It was unfortunate that the bases of walls, where possibilities for preservation were the best, were devoted to a dado of plain-banded colors, while the pictorial sections did not begin until a height of 1.68 meters from the floor. The first dado band in the sanctuary, 1.07 meters in height, was black. This basal strip was capped by a blue zone, 13 cm. in width, a red band of 15 cm., a yellow one of 13 cm., and a final, black zone, 18 cm. high. The red strip was outlined by narrow, black lines. For some reason, the original coloring of the basal zone was red upon the north half of the front room and black upon the south. A repainting reversed this coloration, still leaving them unmatched.

<sup>1</sup> With the exception of part of the dado, there was no under painting or replastering visible on the inner walls except for the few sporadic instances of single reused stones from some previously dismantled structure.

## FRONT CHAMBER

Very few stones bearing recognizable fragments of painting were recovered from the front room, with the exception of those which had originally been built into its back wall. These were relatively more numerous, since, as the central part of the mound was piled highest with débris, the paintings under its crest would naturally have been the better preserved; while the natural course of decay which tumbled the peripheral fallen elements down the side of the pyramid left such painted stones as remained without adequate covering. Hence, areas 1 to 7, or the districts between the front wall and the first range of columns, contained few stones of consequence, and Areas 8 to 14, lying as they do down the central axis of the room and non-contiguous in the greater part of their length to any walls at all, produced even more scanty results. A few of these, important because of some unique features, will be figured in line cut.

## AREA 1

Area 1, lying in the northwest corner of the frontal chamber, appears to have been decorated with quite an expanse of white background crossed by black horizontal lines. This would indicate a depiction of temple architecture, as that is the only purpose for which extensive unpainted, white plaster surfaces were reserved. The remainder of the area has the usual red background, and immediately above the top black dado stripe there would seem to have been a row of walking men, at least one of whom is marked by perpendicular red lines on his skin (fig. 273*a*). Figure *b* presents the legs and torso of a human in a very curious posture—crouched body, balanced on one flexed leg with the other stretched straight before him. The body is dressed in a white tunic, decorated with wavy, black lines, and the red striped legs are adorned with black-and-white knee garters. A blue bundle tied with a red cord is represented in *c*. As a whole, the pictures in this area present a striking departure from the manner of painting current throughout the remainder of both the Temple of the Warriors and that of the Chac Mool, in that the original copper-red outlines of the human figures have usually been made to suffice, without the secondary overlining in black (see page 358).

## AREAS 2 TO 9

Area 2 was undoubtedly painted by the same hand as the one previously mentioned. Red outlines without the black overpainting, and a black, wavy line over a white ground, similar to the textile in Area 1, are utilized to depict the feathered ends of a sheaf of darts (fig. 273*d*). In all probability, figure 323*g*, which comes from this area is meant to be a form of the "way-sign," discussed on page 480.

No painted stones were recovered from Area 3.

Since Area 4 lies just within one of the main doorways, no wall stones were expected. A few roof stones, fallen from the corbelled arch, would seem to have been painted in very small scale, unusual for the decoration of the upper portion of the building. Fragments of a serpent, a blue and yellow scroll, and a bit

of temple architecture are all that could be identified. Again, there was no black outlining present.

No painted stones were recovered from Areas 5 to 9.

AREA 10

As Area 10 lies near the center of the frontal chamber, it is not contiguous to any wall, and the single wall stone found therein (fig. 273*e*) must either have come from the wall fronting Area 17, or from the end of the room in Area 8.



FIG. 273—TRACINGS OF MURAL FRAGMENTS, WARRIORS TEMPLE

*a*, human legs, Area 1; *b*, crouched figure, Area 1; *c*, bundle, Area 1; *d*, feathered end of arrow sheaf, Area 2; *e*, crouched figure, Area 10; *f*, foot and scroll, Area 10.

The latter is more probable, since stylistic considerations indicate that it is not the work of the painter of Area 17. It represents a human in the same posture as *b*, although rather more elaborately executed. It is drawn to a very small scale, with an elaborate black-and-white short-sleeved tunic, blue knee garters, green necklace, and carries some sort of blue bundle upon the back. The arms are crooked at the elbows with the hands lifted to the head. The figure is painted against a red ground and the original copper-red outlines are overpainted with black. Two roof stones, crudely painted in large scale, were found, the best of which (*f*) is illustrated. There is a yellow scroll upon the left, above which is the white sandal, anklet and part of the *maxtli* of a human figure with black skin.

Areas 11 and 12 contained no material.

## AREA 13

Area 13 produced but one stone, probably thrown there by the collapse of the south wall of the room. According to subject-matter, it could not have come from the back wall of the room, a large portion of which was found *in situ*. Therefore, the side wall—that fronting Area 14—must have been the source. This stone (fig. 321j) depicts a white temple pyramid against a red ground. At the extreme right, the parallel horizontals are meant to represent the staircase. To its left is found the balustrade with the conventional square cap at the top, and beyond is a row of three rather highly painted little shapes, strongly suggestive of masked figures with round eyes and jagged saw-teeth. Similar objects are found on a stone from Area 33 (fig. 321f), which also depicts temple architecture. The constant features in both these lie in the general outline, green and blue painted body, and rounded yellow cap, which in one case is outlined by dots. It may be suggested that they represent a highly stylized type of *incensario*. Such vessels, with a human face built up in full relief on one side, are recorded by Tozzer as still surviving among the present-day Lacandones.<sup>1</sup> The dotted character of the contents conforms closely to the bead-studded balls of incense known to have been taken from the Sacred Cenote.

## AREA 14

It is entirely probable that one of the two stones marked as having been recovered from Area 14 comes from the triangular space above the molding of the room where the corbelled arch abuts the side wall of the temple. In Plate 170c, the blue band that always seems to have footed these triangular spaces shows clearly. Above this there is a curving line of green bush, silhouetted against the red ground, much in the same manner as is found in Plates 139. The blue-green tail of a rattlesnake, rather more naturally drawn and colored than usual, lies on the left. To the right is a copper-red hand and the foot of a human carrying a pot or basket pendant on a rope. These items, without doubt, fulfill the two chief requisite accessories (basket and snake) of a "Sorcerer" (page 451). The unusually small scale of the snake substantiates this view.

Plate 168e represents an almost complete temple, white, with black outlines on a red ground. The open door is done in the usual blue (page 476). The scale is so tiny as to preclude any thought of natural representation. It is obviously intended as a miniature, and as such gives an excellent portrait of the salient architectural features of such a structure—multimembered cornice, doorway and sloping base resting upon a platform. Comparable temple miniatures are found in the Zouche Codex. Across the bottom of the stone is a black-striped, green band similar to that in Plate 160c, which, in the latter instance, serves as a floor under a seated human figure.

## AREAS 15 AND 16

These two areas (Plate 139) are to be considered together since they represent a large, continuous scene of which enough stones have been recovered to make possible a fairly adequate restoration of the wall's original appearance. The repro-

<sup>1</sup> Tozzer, 1907, pages 89-92, plates 15-17.

duction of this wall section has been more fully reconstructed than any other part of the temple frescos, but by handling it in such fashion I felt that a great share of interest is retained which otherwise would be almost entirely lost.

Five or six lines of approach were observed in the reassemblage of the fallen and disarticulated stones, and when a given block would lend itself to position in accord simultaneously with all of these chains of reasoning, I considered its placement as practically proven. However, in the restoration of missing elements but a single formula was observed. Missing fragments of clothing, ornaments, anatomy, etc., were filled in with parts traced from more complete figures in the same area. This engenders a certain monotony, perhaps not present in the original, yet it insures against the dangers of imaginative restoration, for although the artistic character of the composition may suffer, the scientific value remains unharmed by the attempt to clarify and unite the broken design. Where no satisfactory evidence of specific content existed, blank spaces have been left.

The drawing accompanying Plate 139 is a black-and-white tracing showing the dimensional arrangement of the stone blocks which were assembled to compose the area, as well as such portion of the painted pattern as remained on their surface.

A detailed discussion of the restoration will be undertaken at this point, as I wish the reader to be thoroughly conversant with the procedure followed in reassembling the fallen stones and in reconstructing those portions of the painting which have been restored.

It is true, of course, that the best evidence for the juxtaposition of stones is derived from outlines and color masses, broken at the edge of one and beginning again upon the margin of that next adjacent. Certain groups are thus bound together. Perhaps the best example is the three fighting warriors in the lower left-hand corner of the body of water, upon stones B 1, C 1 and 2. The use of this test alone, however, would have limited us to a number of small, detached units, interesting in detail, but of little value in portraying the character and composition of the great scene as a whole. Therefore, other criteria will be brought to bear which considerably amplify the field of result.

In going about this rather delicate matter, a plot was made of that wall at the foot of which the thirty fallen stones had been recovered. The surface in question included Areas 15 and 16. The height of the wall was 4.04 meters, from which the altitude of the dado, or 1.65 meters, was subtracted, leaving the height of the area to be covered with pictures 2.39 meters and the width 4.87 meters. In reallocating the fallen stones, it was obvious that all adjustments would have to be made so as not to exceed the above-mentioned limits. As a point of fact, the restoration fell into those allotted dimensions very neatly, with a height of 2.31 meters and a length of 4.29 meters.

The second step involved the separation of the stones into three groups according to the color of the background—red, green or blue. The last named, exemplifying the conventional black, waved, water technique, was outlined with a black-and-white border. Such blocks as carried two or more of these colored grounds simul-

taneously were laid aside. For convenience to the reader, the rows of assembled stones in the drawing accompanying Plate 139, have been lettered A to E, vertically, top to bottom, and the stones in each row numbered from left to right. It was found that the blocks in row D, 1-4 and 6-7 have the upper half of the ground colored green, which is separated from the red, lower part by a strong, black division line. This indicated that a long horizontal color division must have extended over at least part of the picture. Furthermore, B 1, C 1 and D 1 all carry the green ground with an indication either of the lake or its white rim. There were two stones which bore fragments of all three colors on their surfaces: (D 1), which put the left lower corner of the body of water into relation with the long, green-red horizontal zone, and B 5, which showed the white rim running perpendicularly, adjoining a green and red ground with a curvilinear separation, distinct in character from the lower horizontal division.

Upon the completion of this step, the fact becomes evident that somewhere, immediately above the long, straight, green-red zone, there is a body of water with indications that it is enclosed on at least three sides. Then, when a collection was made of all the stones bearing bits of the black-and-white rim design, it was found that, in addition to the three already cited, there was a lower edge in C 3 and C 5 as well as a corner turn upon the latter. B 4 reveals the edge running vertically with the indication of a corner again evident. A 5, 4, 3, 2 shows the rim as a top boundary. The circuit is completed with the corner A 1. This all goes to prove that the water is completely enclosed, but indicates nothing as to its dimensions.

One of these, the vertical, can be determined by the association of three stones (A 3, B 2 and C 3) standing one above the other. A 3 bears a fragment of a man with striped legs. A striped foot on B 2 fits logically below on account of the placing of the bit of the temple foundation on the same stone, which has the angle and dimensions which mark it as the complement of the left profile of the building found on A 2. Finally, the bit of canoe prow, in the lower right of B 2, can tie with the bottom edge of the boat on top of C 3. Therefore, since the upper and lower water edges are found respectively on A 3 and C 3, the vertical dimension of the lake may be considered to be established as 1.35 meters. However, this can be checked further, in connection with the entire vertical height of the wall, by considering the replacement of the parts beneath.

These have been restored as a long procession of warriors and captives. The entire rows marked D and E are seen to be made up of fragments of two kinds of humans. The one variety is stark naked, with rope-bound arms and striped body; the other consists of ordinary warrior types with black painted bodies, armed and dressed in the usual manner. Stone E 3 reveals the relationship between the bound figures and the warriors to be that of captives and conquerors. The alternating succession of striped and dressed heads and of bare and sandaled feet (D 2, E 1, 2, 3, 7) suggests the sequence of the procession.

Moreover, E 1 establishes the fact that throughout part of the picture, at least, there were two parallel rows of these couples. It would seem reasonable that this spacing should have occurred under those heads on the left side of the scene which were thrust above the black dividing line, for those fragments of captives and warriors found in the right half are placed too far below the division line to permit of the insertion of another row, since E 4, which carries the black basal zone on its lower edge, fixes the lower boundary of the picture without question. In addition, the presence of the plumed serpent, E 6 and 7, effectively fills what remaining space there was.

Finally, the shape and size of the stone blocks play no small part in the assembling of this as well as other portions of the fresco. As has been stated, it was the custom for the masons to align their stones in rather careful horizontal rows. It will be noted that row D, in the main, is made up of blocks more nearly square than were the long ones of row E. With these two rows superimposed, we arrive at a level but a few centimeters above the bounding black basal zone as indicated on E 4. In confirmation, when Area 15, or the left side of this picture, was excavated, the black zone found *in situ* and nearly intact was made up of stones, some of which carried on their upper edges fragments of a red background. The first four stones from the stub of this north wall were practically of uniform height, and it was these that bore the margin of red. The next beyond is 19 cm. lower, thus lacking about 8 cm. of reaching the top of the black dado. The former are undoubtedly the blocks which fitted under and completed E 1, 2, 3, while the 19 cm. drop is neatly filled by E 4.

These points are all that are needed to complete the argument for the placing of our first two rows of stones with their double file of painted human figures.

It has been noted that D 1 establishes the width for green ground between the edge of the lake and red zone. If the heights of the red ground and the green ground are added, we get the sum of 97 cm. Subtract this from the total possible height of the pictured area, as previously determined, and 1.42 meters remain to be devoted to the height of the water area. According to the calculations on page 388, this was given as probably being 1.35 meters and hence checks to within 7 cm. When one considers indeterminable thickness of mortar and chinking between blocks, this close approximation proves the arrangement beyond all reasonable doubt.

So much for vertical height and for the complementary adjustment of pattern on the left half of the scene. Carrying in mind that the warriors and captives must be arranged in alternating sequence, that they proceed in double file, that those partially outlined against a green ground must go at the top of this double line, that the stone blocks must align in height, and finally, of course, that a broken design must be placed in satisfactory conjunction with that upon the stone next adjacent, the arrangement was made which is figured in the lower left-hand portion of Plate 139.

A reiteration of the principles of the restoration of missing elements becomes pertinent at this point. The only restoration attempted was the filling in of missing fragments of clothing, ornament, human anatomy, etc., with parts traced from more complete figures or features in the same area. Where no bits comparable to those missing could be found, a blank space has been left, as for example, the figure on E 1 which seems to be wearing some kind of skirt. It is entirely possible that this is a female captive.

As for those blocks bearing bits of the blue lake, a harder task was in store. Certain of the marginal stones have already been mentioned. Those three in the lower left-hand corner tie so closely as to present no doubts. Proceeding upward along the left bank and around the top corner we find a shell, a fragment of a fish and the profile of a temple façade. The missing parts of the fish have been restored in accord with the other two in the same scene.

The temple restoration involves the one deviation from the strict rule of replacing missing parts only with those features which are to be found in the same area. Since, with slight variation, the building appears to be an almost exact duplication of that depicted in the scene of human sacrifice (Plate 145), a doorway similar to that found in the latter area has been inserted. For the rest, the ornamented top and structural lines have merely been carried out horizontally. The width of the building was partially determined by the position of the three stones (A 3, 4, 5). A 3 ties with B 2 and the temple base, as before noted, and again with A 4 through the tail of the tadpole-like water creature. A 5 has been placed adjacent to the latter in order to leave clearance for the figures in the canoe indicated at its right. Since this boat adjoins the right shore, no other space for the stone could be found. However, further discussion of the temple's width is to be found in a subsequent paragraph.

At this point it would be well to mention again the vertical axis of the three stones already of proven placement, A 3, B 2 and C 3. This leaves but three blocks to be set in position. C 4, the crab, adjoins C 3 through the medium of a claw. The jaguar, C 5, since it contains a beginning of the up-curve of the black-and-white rim and hence establishes our fourth corner, is readily put in place. B 3 alone remains unspoken. It represents the end of a canoe, and the size of the block upon which it is painted is found to fit nicely into the space where the stern of the lower boat would naturally be found. In addition, its placement here and the inclusion of supposititious passengers would conflict in no way with the canoe above. It may well be that the blank space below the temple contained a third barque, as did Area 31 (Plate 159).

The assumption of the horizontal dimension of this lake could, in two places, possibly prove false. There are two straight breaks from top to bottom, one which cleaves the temple and reaches to the water's nethermost margin; the other, a perpendicular line of breakage, lying just before the nose of the jaguar. In both of these, auxiliary lines of stones could have existed originally. There is now no way of determining this. But whatever loophole for lateral extension there may



be, we do know that the whole wall area covered by this scene could not have been much longer than 4.87 meters. In the restoration, as given, 4.29 meters have been included. Granting some slight extension to complete both the right and left sides of the picture, which is without definitive lateral boundaries, but little opportunity remains to widen substantially any of its parts.

In the matter of restoring the lake the same rule was observed—to fill out with adjacent material, when such was at hand, and to leave blank those spaces, the content of which could not be absolutely determined. Where no figures were to be completed the background was slightly extended in order to unify the whole.

A determination of the pattern of the right half of the area is next to be considered. In this instance, but a single file of humans is to be found in the procession. The lower space does not seem to have accommodated a second row of human figures, for what is known of it is devoted to scrolls and the inevitable plumed serpent.

From this point the assemblage of the stones becomes very difficult on account of the scarcity of the remaining fragments of painting. Although there are certain provable relationships between blocks, in the main, the placing has depended upon care that the various pattern masses, when assembled, should not conflict with one another.

The whole design centers around the temple structure or open colonnade standing upon the division line separating the green background from the red. Four stones carry bits of this building (C 7, 8 and D 4, 5); two of the top ornamented section and two of its foundation and floor. Four human figures are associated with the structure in various active poses. When the only possible reconstitution of these blocks is made, the group is found dependent for placement upon the bit of white hut foundation on the left edge of C 7. Keeping this in mind, it will be noted that the tiers of stones in these three lower rows have been cut to equal heights with great care. Therefore, the block to be placed at the left of C 7 should be of the same height as that stone, and must at the same time carry the continuation of the foundation of the hut precisely to align with the corner already mentioned. This demand is fulfilled accurately in C 6, while D 3 fits into the space beneath, continuing the green-red division line as well as the curious feather device beside the temple, which may possibly be another form of the "way sign" (page 480). But now the allocation of the whole group of six stones is still to be determined. The house foundation on stones C 6 and 7 requires a roof to complete the structure. The only available bit of yellow thatch found at a correct height to make a logical association, and at the same time unencumbered by a figure which might clash with the kneeling man on C 6, is found on B 5. This finally attaches the temple group to an established point through the medium of the lake margin which is found on the same stone. The missing features of house, temple and humans have been restored according to the principles repeatedly stated.

At this point, the peculiar curvilinear division existing between the green and the upper red background has to be taken into consideration. The meaning of

this will be discussed later, but the mere fact of its existence as an undulating line across the top of the picture succeeds in confining those stones which have a green background to the central part of the area, while at the same time it successfully allocates A 6 and B 6 and tentatively gives a place to A 7.

The small figure seated in the hut based upon a red ground in A 7 must have belonged in this irregularly shaped red area at the top of the picture. But whether it lies where I have placed it or slightly to the right is purely a matter of conjecture. There is room for two such houses in this section, but only the fragment of one remains to us.

This leaves only the question of the two right-hand house units to be settled. In depicting a bit of foundation above one of the processional warriors' heads, D 7 is logically topped with C 9 which completes the structure to a correct scale. For the same reason, A 8 and B 8 have been placed in conjunction and allotted to the only space left in the composition which is large enough to accommodate a full-sized house.

In summing up the reconstitution of the whole picture, I wish the reader to understand clearly the reasoning involved. In most cases, the placing of the stones is subject to developed proof. In three, those concerning A 7 and A 8 and B 8, a negative proof is made to suffice—that stylistically they undoubtedly formed a part of the composition and therefore were assigned to an unoccupied spot, adapted in size and background-color to such figures. On the whole, however, five or six different methods of procedure, described above in detail, were utilized and when these interlocked to confirm the placing of a given block it was assumed that a fair degree of certainty had been obtained. By venturing thus far into partially supposititious replacement and consequent restoration, it was felt that the value of a relatively complete and coordinated picture would compensate for the slight margin of error which might be involved.

A consideration of this area with regard to subject-matter is more than usually interesting. There is an undoubted unity in the whole composition. The picture tells a story, probably historical, and the unraveling of the tale is a fascinating problem.

The scene as a whole can be briefly characterized. In and about a village standing beside a lake, a battle is in progress between the striped inhabitants and a force of black-painted warriors. The latter have the upper hand, as may be judged from events in the foreground, where, upon the broad, red-paved highway which passes both lake and village, moves a procession of the outlanders, each herding before him a leashed and naked captive.

At any rate, the stripes on the captives certainly serve as distinguishing markings, in comparison with their black-painted masters. And when we consider that the village above with its land-locked lake is almost solely peopled by similarly striped persons, it would certainly appear that this painted decoration was used by the artist to distinguish between two opposing factions, much as "colors" are used on a football field or a race track. Assuming that it was from this village

that the captives were obtained, we see some of the natives, armed and ready for combat in defense of their city, and others loaded with goods as if in preparation for flight. One definitive difference in armament between the two warrior types that should be noted is the shield. The black-painted men are equipped with plain, round ones, while the striped warriors invariably carry the "daisy-petalled" shield over which is flung a kind of textile drapery.

In the upper right corner, we have a house and its striped owner attacked by a black warrior. In the structure below, we see one of the triumphant conquerors. At the right of the upper corner of the lake, the peculiar position of one of the striped people may indicate that from the branches of a tree he is observing movements of the approaching enemy. The group of three warriors at the lower left corner of the lake provides several details worthy of notice. The implications of the scene are a little obscure and lend themselves to at least two inter-

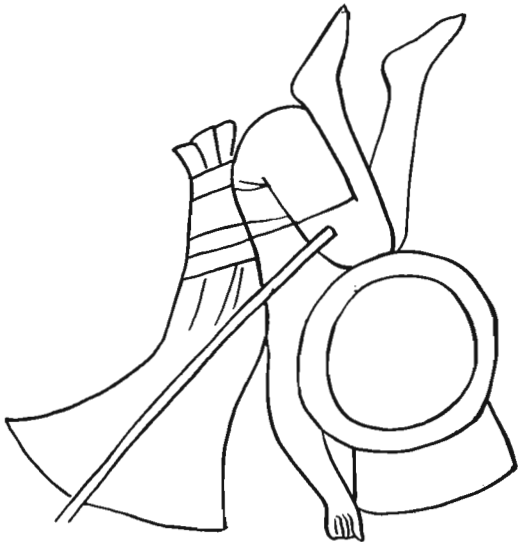


FIG. 274—WOUNDED WARRIOR DRAWN HEAD DOWNWARD, PROBABLY INDICATING DEATH, TEMPLE OF THE TIGERS



FIG. 275—WOUNDED WARRIOR DRESDEN CODEX

pretations; the more probable one is that the upper human figure, presented up-side-down with head hidden behind his shield, has been mortally wounded in battle and now lies prone with the *atlatl* drooping from relaxed fingers. This view is substantiated by comparison with the battle picture from the walls in the Temple of the Tigers. In the latter scene (fig. 274), the figure transfixed by a long dart is depicted as being in an identical posture—upside down, with concealed head and drooping hand. If this reading is correct, the center warrior is raising his shield in an attempt to ward off the weapon that is outlined against his tunic, which has been launched from outside the restored area on the left. This short sword or dagger, although unfamiliar in shape, is closely paralleled in a similar scene from the Dresden Codex (fig. 275). In that case, the third figure in the group, with upraised weapon, would be poised to attack the unseen enemy.

The second interpretation of this scene would assume the intricate use of perspective on the part of the painter. It has been noted (page 361) that according to the orthodox Maya system, a receding background was depicted by an ascending vertical plane. This presents the scenes at the top as being the most distant and those at the bottom as being nearest the spectator. A further amplification, if applied to the case at hand, would suggest that the artist endeavored to overcome the deception involved in this method by having the upper figure lean downward from his purely fortuitous altitude, in order to launch from his *atlatl* the dart aimed at the central warrior's stomach. This solution of the problem, while possible, does not conform with the theory that the combat lies between the black and the striped men.

There are various isolated features of interest to be remarked. The red cone-shaped object, with an eruptive feather adornment upon the left side of the temple platform, in the upper left corner, is significantly reminiscent of the banner support found in position in front of the Northwest Colonnade (fig. 35 and page 51).

The jaguar in the lower right corner of the lake can not well be dismissed without comment. In the first place, this beast, the crouching jaguar at the head of the temple staircase (Plate 151) and the jaguars upon the North Bench in the Temple of the Chac Mool (fig. 266 and Plate 136) are the only painted representations of animals in the field of our study. None of these are actual animals. The last mentioned are merely animal-form articles of furniture; the crouching jaguar before his incense bowl manifests himself as a presiding deity; and the upright jaguar wading along the lake edge resembles even less the ordinary beast of prey. The upright posture and the more human length of limb must be anthropomorphically meant, with the yellow spotted skin enclosing the attributes and probably the body of a man. Yet, even with the latitude granted by such an assumption, the exact purpose of placing the creature where found is difficult to imagine.

The forms of sea life are commonplace repetitions of those more fully delineated in Area 31 (Plate 159), with the exception of the humanized crab. The amusing parody of a human face accords nicely with the possible touch of fantasy in the upright tiger.

A further excellent example of the painter's sense of humor is found in the depiction of the captives. There is much more life in these figures than in the stilted little warrior heroes. Their unfortunate situation is vividly reflected in anguished facial expression, and the artist is maliciously poking fun by their waving tufts of hair. Plate 141c, a detail from the scene, attests the cleverness of this caricature.

For the rest, there is probably no feature of any note not already discussed in connection with other scenes, or that will not be dealt with categorically in comparative studies of vesture, architecture, etc., in later pages.

Some of the individual stones incorporated in this scene are of such quality that they merit publication even at the risk of repetition. The unique beauty of some of the fragments, as well as the information to be derived from them as to

the method of their painting, should prove of value to the student. Moreover, they serve far better as representations of the real appearance of the old mural than does the restoration. The schematic quality of the latter, constructed for purposes of clarity and severely outlined in black, with an eye toward preserving the detail in the face of the great reduction of scale required by publication, can not do justice to the original painter. For this reason, Plates 140, 141, 142*a*, and 143*c* have been included in the illustrations of the present volume.

Two additional fragments, recorded as having come from this area, are also figured. Plate 167*b* depicts a black-faced man holding a knife and Plate 143*d* a warrior of the conventional type usual to this area. There are several blank spaces left in the restoration in which these could originally have found a place, but as there was no way of tying them in positively, they were omitted from the picture and are presented separately. All of these plates are discussed in detail in the captions.

#### AREA 17

About twenty stones were recovered from the wall facing Area 17, but in no case were the edges sufficiently preserved to enable them to be fitted to one another. Such fragments as are of importance have been figured separately.

There is an unmistakable association between this area and those preceding it, both regarding subject-matter and the manner in which the various parts of the painting were distributed upon the wall. The lower part, immediately above the black dado, was covered by a horizontal red band upon which the striped leg and foot in figure 276*a* indicate a striking parallel with the procession of captives and warriors in Areas 15 and 16. Further similarity is noted in the presence of an olive-green background, divided from the red beneath it by the heavy, black, horizontal line. This green again meets the red ground with the same sort of curvilinear junction as is found upon the neighboring section. Moreover, the human figures themselves further satisfy the parallelism. There are the same two types of warrior (as depicted upon Plate 142*b*), one, striped and equipped with "daisy-petalled" shield; the other, black, with the plain round shield. In addition, the nude striped men, present in this scene, appear to be in even a worse situation than the unfortunates of Areas 15 and 16 for in several cases they lie prone upon the ground, in all probability lifeless. Plate 144*b* depicts the body of a man painted with light red stripes, lying upon his back with knees drawn up toward the trunk. One might consider that this is a victim, already sacrificed, who has been cast aside. The deep angular V in the body presumably indicates the cut made by the priest in order to reach the heart. The slit in this drawing is not between the ribs, as de Landa has described,<sup>1</sup> but occurs at a lower point in the torso. This is quite in keeping with common sense, because the intercostal space would prove difficult for the admission of a human hand, while an incision made just below the ribs would provide ample room for ripping out the still beating heart. The knees drawn back against the body, probably indicate convulsive muscular

<sup>1</sup> See caption Plate 145.

contraction. Such points of grisly realism mark the painter of this area as an acutely observing and appreciative witness of such exhibitions. Figure 276*b* presents a fragment of the legs and knees of a body in a similar position, and *c* depicts the back and feet of yet another. This last cadaver would appear to have been flung into a henequin field.

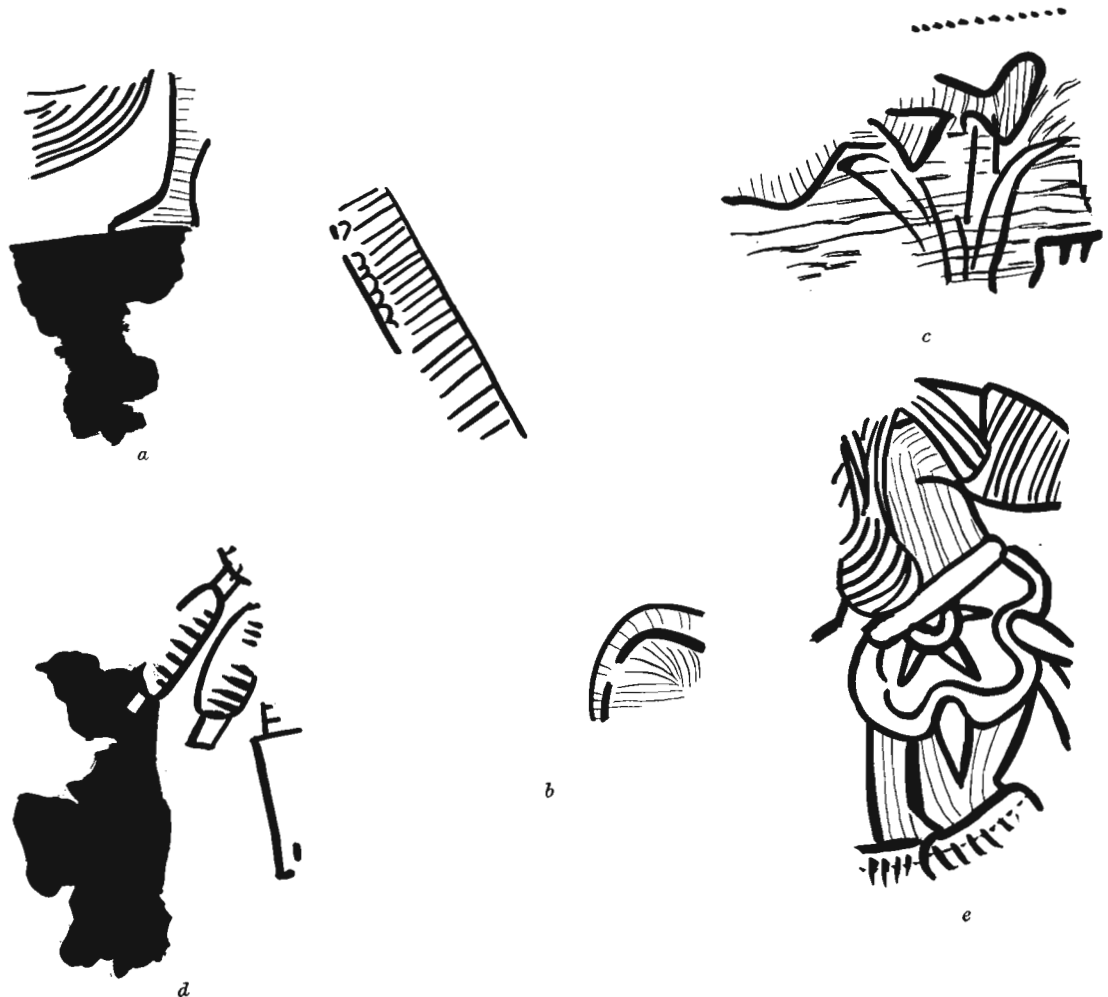


FIG. 276—MURAL FRAGMENTS, AREA 17, TEMPLE OF WARRIORS

*a*, human foot on black basal zone; *b*, contracted knees and slanting "way sign;" *c*, corpse in henequin field; *d*, perpendicular black framing zone; *e*, warrior wearing "planet symbol" skirt

Another striped figure is shown on Plate 144*c*. This is an arresting fragment, bearing witness to an ambitious attempt upon the part of the painter to delineate his subject in a most unusual posture. To the left, the outline of a warrior's foot is silhouetted against the white foundation of a house or temple; above a horizontal line, and reclining upon the line as if upon a plane surface, is a bit of a human figure, lying upon the stomach, with one leg bent sharply up

and back. The chin rests upon the elbows of the folded arms. There is a well-defined hole or slit just below the lobe of the left ear from which three streams of purplish blood are pouring forth. It is only reasonable to suppose that this is a wound inflicted in battle by the warrior with the white-sandaled black foot, and that his stricken opponent is writhing upon the ground.

All of the foregoing bears out the similarity between Area 17 and Areas 15 and 16, hence the pronounced disparity in technique is the more remarkable. The two scenes could not possibly have been painted by the same hand. The painter of Areas 15 and 16 handled his human posture in a perfectly straightforward, conventional manner. As opposed to this, the painter of Area 17 indulged in unusual postures and tricky perspective. He had a quick eye for realism, as is witnessed by the contracted limbs of his sacrificial victims and, what is more important, he employed a markedly different practical technique. His lines are more angular than usual and he handled his outlining in a quick, heavy, nervous manner, without the easy gracefulness of his *confrère*. He made much use of a dark greenish-gray pigment which again contrasts with the fresh clear colors upon the adjacent area.

Therefore, if the two scenes are complementary parts of a whole, it is quite probable that two painters were requisitioned for the task; but if the two compositions bore no relation to each other it seems strange that so much of their subject-matter and detail should be so markedly similar.

Further information concerning Area 17 was derived from a study of the remaining stones. It was seen that a black band continued upward from the dais, like a casing panel bordering the doorway. Figure 276*d* exemplifies this condition, as well as the juxtaposition of the lateral black strip to the green background. The body painting is of various sorts. The black-painted warriors seem to be all of one color without the red profile and hands of other areas (Plate 142*b*), and when striped the figures likewise appear to be decorated with some diversification. Stripes of gray and red are applied both horizontally and perpendicularly. Figure 276*e* depicts the man clad in the planet-sign skirt (see page 460) with white cotton defensive sleeve, breast-plate and necklace. Figure 314, from this area, also perpendicularly striped, appears to be unusually scantily clothed.

Two methods of bundle carrying are shown upon Plate 143*a*—the lower individual balances his burden upon his head, while the upper figure bears his rolled bundle between the shoulders, held in place by a band knotted in front of the throat.

A final curiosity is to be noted in the two black-patterned white rectangles which lie diagonally across a red background in figures 323*h* and *j*. To all appearances they are merely other examples of the upper section of the usual "way sign," as described on page 480. It is difficult, however, to reconcile this diagnosis with their deviation from the perpendicular, unless they had been overturned during the fight.

## AREA 18

But one stone came from Area 18. It was a roof stone, decorated with blue triangles in large scale, without known meaning. The scarcity of material at this point is hardly remarkable, since the door into the Inner Sanctuary took up most of the area.

## AREAS 19, 20, 21

These three areas will be treated together as they would seem to have been painted by a single artist who concerned himself with a series of related episodes. Part of the wall was found with the paintings *in situ*, part has been pieced together, and the remainder is represented only by isolated fragments, most of which are interesting in themselves, even when separated from their context.

As for that part found *in situ* (Plate 146), excavation revealed a water scene of vigorous action and more than a suspicion of humor. The water was completely enclosed by an 8-cm. white band, chequered with broad black lines, which gives an impression of a stretch of beach, or more likely the beaten foam at the water's edge. The curve occurring at the lower left-hand corner marking the water's limits on that side was not found in place but is presented in figure 278*a*. The upper edge is illustrated on Plate 143*b* and reveals at the same time the fact that the water does not run the full height of the wall, but is overtopped by a red background strip of sufficient width to accommodate a human figure. Upon the surface of the waves, a lively scene of combat was taking place between conventionally garbed black-skinned warriors and a red people with long, flowing, yellow hair. The scattered stones from the fallen portions of the section give additional details of this battle (Plates 147, 148 and figs. 278, and 313).

The aquatic part of the picture would seem to have extended over the two last-named areas, or from the southeast corner of the front room, two-thirds of the distance toward the central doorway. The final third, lying to the left of the marine section, contained one of the most interesting frescos in the entire temple—that of the formal consummation of a human sacrifice (Plate 145). The victim is one of the yellow-haired people, and this leads to the rather obvious conclusion that the scene is directly linked with the one adjacent, where the same folk are manifestly suffering defeat in battle. Moreover, it appears that the work was undertaken by the same painter, as it is drawn to the same scale, exhibits the same facial contortions of the principal figures, and stylistically reveals great similarity throughout.

The five stones from Area 19, illustrated in Plate 145, when assembled in their proper relationship according to the method described on page 401, were found to present the central portion of a scene of human sacrifice. Fortunately, sufficient details were recovered to leave no doubt as to the meaning of the painting. However, for purposes of clarity a restoration of the determinable features is added to the caption sheet of the colored plate.

There is a curious association of reality and symbolism in this picture, best indicated by the very authentic human victim stretched over an upraised coil of



a mammoth serpent's body. Use of the serpent instead of the customary sacrificial stone, as depicted in a similar scene in the Temple of the Tigers (see captions of Plate 145) or the one actually present in front of the sculptured



FIG. 277—MURALS FROM ROOF VAULT, AREA 19, TEMPLE OF WARRIORS

*a*, serpent rattles; *b*, *c*, human legs



FIG. 278—SIGNIFICANT FRAGMENTS FROM MARINE BATTLE, AREA 21, TEMPLE OF WARRIORS

*a*, white chequered boundary of lower left corner of lake; *b*, warriors silhouetted against water background; *c*, left edge of lake and man clad in the green-spangled red tunic usually associated with priests

dais in the Northwest Colonnade (Plate 9), can not be interpreted otherwise than symbolically. The introduction of the Plumed Serpent, lying coiled across the composition, strongly emphasizes the metaphysical note. The dominance of this creature-god is apparent in every manifestation of Maya-Toltec existence, but it is nowhere expressed more strikingly than in this mural. The temple is erected in his honor, the priesthood is dedicated to his service, and sacrifice itself is in propitiation of his dread power. The artist is recording not only what he sees, but also what he knows to be the fundamental purpose of the ceremony.

The victim, a spoil of battle, as was the custom, is one of a copper-red people having flowing, yellow hair, bespangled with green beads. He is bent backward across the curve of the symbolic altar, with breast stretched taut to tear more readily beneath the descending blade. Wrists and ankles are firmly grasped by two kneeling priestly attendants with black-painted skins—the one, garbed in a blue tunic and the other in a loin-cloth of the same color. The officiating priest stands with knife upraised over his terrified victim. He, too, is painted black except for his hand which is red, perhaps with the blood of a previous sacrifice. A blue wrist cuff, hung with yellow fringe, and a fragment of a short blue sleeve bedeck the uplifted arm. A green coronet to which was applied a yellow-rimmed white disk and three surmounting feathers, artificially adorned, reveal the elaborateness of his head-dress. A bit of a red, green and yellow adornment, pendant from the shoulders, completes the record of vestments.

The ceremony seems to be taking place upon a low platform in front of a temple. A separation between the two structures is indicated by an intervening strip of red background. The platform, white in color and horizontally lined, probably indicates an unpainted plaster surface, constructed with jutting cornice and narrow basal zone.

The question of a possibility of dual perspective arises here. Although the temple façade is rendered as a flat architectural elevation, the feet of the kneeling priests, as well as the coils of the serpent, do not rest upon the surface of the platform, but appear rather as if outlined against the perpendicular front. However, since it seems obvious that it must be the surface of the structure upon which the ceremony is taking place, the platform is not to be viewed as a silhouette, but from an elevated position instead. Therefore, from a practical standpoint, it is doubtful if the painter indulged in these complications intentionally. Probably he had in mind only the clear presentation of all details simultaneously, which he achieved best in a manner technically naïve.

The temple itself, likewise white-plastered, lies against a red background. The upper zone is elaborately decorated with cornices and intermediate elements resembling the ornamental engaged columns found in the entablature of the Mercado at Chichen Itzá. Three parallel lines, passing horizontally across the medial temple wall, may be meant to indicate some such feature as the sloping zone at the base of the Temple of the Warriors, or that on the miniature temple from Area 14 (Plate 168e). The doorway is cased in red. The included rectangle

is colored blue—a definitely impressionistic treatment of the deep-shadowed interior. The temple rests on the usual plain white foundation.

The great reptilian head of Kulkulkan is of the conventional type. Open jaws, with yellow gums, reveal lines of closely set teeth, tipped by long-pointed fangs. The head is green, and the white-irised eye is marked with a vicious little black pupil. Over the eye there is the usual blue plate and above the nose rests a yellow crown from which sweep backward trailing green plumes. A yellow chin-beard and blue and yellow speech scroll complete the sum of essential Kulkulkan head attributes. The body also follows convention, having a yellow-scaled belly, and a back ornamented with trailing green feathers. The blue rattles, conventionally delineated, are completed by a red-and-white button from which sweep graceful, green plumes.

Clearly, the serpent is the dominating *motif*. There is artistry in the manner in which the horizontal lines of the temple are reflected by the lines of his body; the strong, constructive function of the perpendiculars and sharp angles is obvious, even in the fresco's shattered state. The powerful, abrupt coils of the body, in their brutal, tense harmony, give an eloquent summation of the dreadful power of the reptile. The presence of the god completely overshadows the wretched human who is yielding up his life.

The evidence which gave sanction to the assembling of these five stones, in itself provides an interesting point. The tying-in factors are minute but conclusive. The red upright and bit of blue interior of the temple above the victim's face fit nicely to the stone above. The bit of snake and fragment of the temple base, above the left-hand kneeling priest, without doubt indicate his position, logical as it is. A continuation of the sacrificial altar coil, and more of the temple base, corroborates the placing of the right-hand kneeling figure. The tiny fragment of red lintel above the sacrificial priest's head, as well as the unusual square shape of the stone, designate his position in the *ensemble*. And finally a single example of the carved ornament at the temple's top, found between the upper fang and the speech scroll of the serpent, is noted in repetition upon the upper right-hand stone depicting part of the temple façade.

The four roof stones noted as having fallen from the vault above Area 19 contain a few new facts. Plate 167*a* depicts a kneeling figure, red striped and adorned with white scarification or facial painting. He is fitted with a nose plug, knee ornaments and sandals, all of which are green in color. In addition to these, he wears a peculiar and unique breast ornament, which, to judge from construction and coloration, appears to have been made from braided and worked strips of leather. This pendant ornament is hung around his neck by a strap or twisted cord of the same material. Two pairs of human legs (figs. 277*b* and *c*) and the tip of a serpent's tail, with the usual rattle and plumes, outlined against a white masonry structure, *a*, complete the material derived from this most interesting area.

Areas 20 and 21, adjacent to that last discussed, have been briefly mentioned. The total material of value recovered from this section of the wall is to be found

in the large scene on Plate 146; the single stones on Plates 143*b*, 147, 148, and 149*d* and the text figures 278 and 313.

It has been stated that a marine combat between black warriors and a fair-skinned, yellow-haired people was taking place. The latter type is altogether significant. Quite obviously the painter is stressing an acute dissimilarity between his own people and those of another sort. The long, flowing, yellow hair, interwoven with green beads, so painstakingly delineated in this scene as well as in that of the human sacrifice, is undoubtedly meant to emphasize a difference of tribe, or even of race. I suspect that this device was stressed by the artist because the nudity of the figures precluded the use of details of dress as a distinguishing feature. There is but one exception to this absence of vesture (Plate 149*d*); it is to be found in the unique yellow-brimmed hat, apparently made of woven straw, which crowns a head of yellow hair. Just what this unusual disparity of type may mean is purely a matter of conjecture, but it can not help but bring to mind legends rife throughout the American continent concerning the fair skin and golden hair of a mythical race. If the picture is a historical record, speculation would become even more interesting.

However this may be, the fair-haired folk are certainly suffering reverses in battle. One is being grasped by the hair and his face is fittingly distorted by unpleasant emotion (Plate 147*b*). Another has his arms bound rudely behind his back (*c*). A third is being dragged backward over the prow into a canoe (*a*). In this group, the two feet project into the left fragment while the knotted shoulder muscles, arm and hand are shown on the right. The wrist is grasped by a red hand at the extremity of a black arm. The victim's face, rendered in profile as stretching up and back, lies inside the triangle formed by the joining of the two arms. The open mouth and the end of the nose are visible, while the rest of the head passes behind the grasping arm and the white side of the boat. Finally, we see one of the same people who has leaped into the water in an attempt to escape from his enemies by swimming, although he thereby places himself in imminent peril because of the very voracious red and white fish (Plate 146). An outflung arm in 147*a* in all probability indicates yet another swimmer.

The conquering tribe, on the other hand, is represented in two different positions—some in canoes and others advancing to the attack through water close to shore. The latter are represented rather cleverly with feet obscured from view, and the water, instead of cutting a sharp, false horizontal, curves around the ankles in realistic fashion (Plate 148*c* and fig. 313*a*).

The construction and function of the canoes used by the Maya is several times noted in the Spanish chronicles:

"There are tree trunks of cedar so thick that they make canoes of a single piece with which they navigate and fish."<sup>1</sup>

"They saw a huge fleet of canoes all decked out in warlike array approaching . . . from whence the Itzás shot arrows at the invaders."<sup>2</sup>

<sup>1</sup> *Relaciones*, 1898-1900, p. 91.

<sup>2</sup> Account of Avendaño, Means, 1917, p. 84.

Bits of five reddish-colored canoes were found in Areas 20 and 21 and these make an interesting point in themselves, as two of them at least were equipped with animal figure-heads upon the prows (Plate 146 and Plate 147a). In the former, snout and lower jaw are visible; in the latter, although much is destroyed, one can detect the curve of the tooth-set lower jaw, the upper lid of the eye, and the whiskers or wrinkles radiating back across the face. An excellent paddle appears on Plate 148d with graphic depiction of the manner in which the shaft of the oar was inserted into the blade. For the rest, the boats must have appeared much as do those in Area 31 (Plate 159) except for some kind of white side-boards or apron above the gunwales which is found in Plate 147a and is to be seen again in figure 287a from Area 30. A further fact concerning one of these boats should perhaps be noted in detail. This is the diagonal tilt of the ship as it lies across Plate 146. Plainly, once again the painter was involved in the difficulties of perspective. At first examination, the curious presentation seems to indicate that the boat is sinking and, moreover, going down with all on board, if one may judge from the fragmentary row of shields held in strict position by valiant Casabianca-like little warriors. (These shields with blue outline enclosing a yellow disk decorated with black zigzags are better represented in a more perfect example from the same area, figure 315b.) Further consideration, however, would seem to indicate that the boat was safely afloat, and that the painter had in mind merely that its bow was drawn up on the beach. The foam at the water's edge and the shallow character of the water in the lower part of the picture, as evidenced by the waders, gives credence to the belief that the shore upon which the spectator is supposedly standing lies just beneath the white foam line. This involves merely the usual Maya perspective, that of ascending vertical height representing a receding horizontal plane; while the former opinion, which considers the ship as sinking, would imply the use of a complicated dual perspective, combining the one just described with that which would make the lowest stretches of water also betoken sea bottom. Another example of the canoe, diagonally placed across the surface of the water, is found in figure 287b.

The garments of the black-painted men are of the conventional sort and, although nowhere seen in complete *ensemble*, the several fragments serve to make clear the general appearance of clothing and ornament. These are illustrated in figures 278b, and 313a as comprising a white skull cap adorned with white feathers, a more or less decorated white tunic, rectangular blue breastplate, *atlatl*, darts and the blue and yellow shield previously described. Figure 278c depicts an unusual type of tunic—red, covered with green disks, of the sort which, when extended to ankle length, is usually associated with priests (fig. 302). Plate 143b presents a few additional points which are extremely important, for the round blue ear-plug, the blue bird-form breastplate, the white cotton sleeve, the blue nose button and the basket all are items characteristic of the conventional or "Toltec" warrior type (see page 456). It was a stroke of fortune to find them all here associated on so small a fragment.

A study of the marine life from this section of the wall brings out many interesting features. There are two convoluted shells (Plates 149*d* and 148*a*); from the former, a small snail-like creature is emerging. Five fish are found in whole or part, each of which is treated in a somewhat different manner. Three of these conform more or less to the conventional Chichen Itzá fish type, having open mouth, outlined by a yellow ridge, supra-orbital plate of the same color, tiny back scales in green or white with larger yellow plates over the belly, two or more fins and a tail in red and finally a curious appendage, probably a conventionalized gill, resembling nothing so much as a red muffler which curves from the eye down around the creature's "neck" and ends in a sweeping curve under its "chin." Plate 148*c* and *d* illustrates these points to perfection and offers comparison with similar fish in Areas 31, 15 and 16. The same details are observed without the distinctive coloration in the right-hand fish on Plate 146, although the "muffler" here has been replaced by a more normal gill. The fish to the left, with a red body and white face and tail, palpably a man-eater, is depicted in an unusual fashion with the obvious intention of portraying a different species, although its identification, as well as that of the one described above, can be only a matter of conjecture. Plate 148*c* also represents the fore part of what must have been intended for a jelly fish, though the addition of eyes and mouth give it a most personalized appearance. To bestow character and emotion upon such a gelatinous creature is to credit the painter with imagination and humor far beyond the ordinary. The great white fish rearing upon his tail in shocked surprise before the oncoming canoe is another touch that might be expected from a painter who individualized to such an extent that not even the canoes themselves were free from the animate character he cast upon his work.

The final detail of interest recovered from the wall is a water plant (Plate 148*b*), which will be more fully described in another connection (page 469).

The vaults in this section of the room must have been beautifully painted. Plate 169*d* depicts the head of a fairly large feathered serpent, which, although hurriedly and boldly drawn, reveals a perfect mastery of effective presentation. Stripped of non-essential details and colored in a simplified manner, the finished painting would have had tremendous character, not a little of which is evident from the fragment remaining to us.

Various points in composition should be noted before these areas are finally dismissed. The scale is larger than in the other sea scenes and the water is sketched with some carelessness. More than that, the scene is free from cluttering. Large figures, boldly drawn take the place of the usual, over-crowded surface, as in Area 31 (Plate 159). But above all, the composition of the group is done in an admirable and consciously constructive manner. The strong horizontal of the base line is repeated in the parallel bodies of man and fish. These two masses are cut sharply on the left by the two perpendicular lines of hair and arm. On their right, they are bounded by the strong diagonal of the beached canoe, which is repeated in its turn, and rather subtly, by the upright fish. Every line, every mass,

is selective—this artist was not obsessed by the prevalent idea that every unit of space must be filled. One regrets that more of his work did not remain in position.

#### INNER SANCTUARY

##### AREAS 22 AND 25

These two areas are to be found on the Inner Sanctuary side of the partition wall which extends from the central doorway northward to the end wall of the room. Inasmuch as the arches in this room ran at right angles to those in the outer chamber, or from east to west, the system of area numeration was adapted to conform with the new orientation. This places Area 22 in the north-west corner of the room (see fig. 272), while Areas 23 and 24 follow the course of the north wall and Area 25 lies immediately to the south of Area 22.

The whole wall facing Areas 22 and 25 was painted by the same hand. Above the long rectangle lying between dado and molding were two large triangular areas which formed the ends of the arches roofing this section of the room. These were covered with paintings, as were the walls below, but of different subjects. The disarticulated stones, seventy-nine in number, from all of these surfaces were precipitated to the floor beneath in a chaotic heap, extremely difficult to disentangle and reassign to their proper places. Furthermore, it will be seen from the plan of the temple that Area 22 represents a corner and, therefore, that paintings from a section of the north wall would also have added themselves to the confusion. From a careful study of all the stones, the following conclusions have been derived.

##### WEST WALL

The west wall face, stretching from the door to the corner, was covered with rows of warriors, priests and dignitaries marching in formal procession. The exact sequence of these cannot be determined, but it would appear from examination that the two lower rows were facing to the left; the next two, to the right; while the last or top row was again facing left. In support of these conclusions is the fact that three figures belonging to the lowest row were found *in situ* and, as stated, fronted left. From the conjunction of head and feet facing in the same and opposing directions, upon a number of other stones in the wall, the rest of the plan was worked out. The arrangement above indicated provides for every possible combination to which the fragments could conform—two left-facing rows, one above the other, two similar rows, proceeding to the right, one combining a left-facing head with right-facing feet above, and one illustrating the reverse of the latter position. As the height of the wall from the dado to the cornice measures approximately 2.62 meters, there would be slightly more than sufficient room to accommodate five rows of these figures which stand on an average about 46 cm. high.

The whole picture was surrounded by a broad blue frame. Parts of this were found *in situ* immediately above the black dado stripe, when the wall was uncovered, and it is again to be noted, running perpendicularly up the side of the stone figured in Plate 150*b*, where it marks the north boundary of the scene. In the latter case, it is found in association with a highly stylized serpent *motif*, designated by the

yellow ventral scales, emitting white triangular rays. Figure 279 probably denotes another trace of this corner boundary in the arrangement of the head-dress, the longer parts of which turn sharply upward from the head, instead of sweeping back and down in accordance with convention and the laws of gravitation. This unusual adjustment suggests that the painter was crowded for space and, what is more important, that he did not have the adjoining wall at his disposal for the completion of his figure. This conclusion is substantiated by the different quality of work found on the latter surface.

Traces of two snakes were found; one (fig. 280) is of the usual sort (see page 472); and the other (Plate 169*b*), although without any particular distinguishing charac-



FIG. 279—MURAL FRAGMENT OF HUMAN FIGURE, TEMPLE OF WARRIORS, SHOWING BY UPWARD SWING OF HEAD-DRESS THAT PAINTER OF AREA 25 WAS CONFINED WITHIN A PREVIOUSLY DELIMITED SPACE



FIG. 280 — SERPENT HEAD, AREA 25, TEMPLE OF WARRIORS

teristics apart from the normal, provided such an excellent example of the fine quality of the painter's work in the matter of coloring and composition, that it has been included among the illustrations.

These areas have proved to be a mine of invaluable information concerning dress and ornament. Practically every one of the usual types is encountered—Priest, Sorcerer, God Impersonator, "Toltec" Warrior, Warrior with Planet Sign Skirt, and Bird Warrior (Plates 142*d*, 150*b-d*, 152*a*, 155*b-d*, 156*b-c*, 157*a* and *d*, 161*c-d*, 162*b*). As the value of detailed study on such equipment lies in its segregation into more or less fixed types, for purposes of comparative analysis the whole discussion will be deferred to page 443, wherein the problems of dress and equipment throughout the temple will be considered collectively.



## NORTH WALL

Two stones have been assigned to the north wall of this corner area. They also represent warriors (Plate 155*a* and *e*), but are so obviously of different style and type as to preclude the possibility of their having been done by the same painter, or of their having been included in the long procession previously described. There is an unwholesome softness, a kind of rounded weakness and a wooden awkwardness which contrasts exceedingly unfavorably with the crisp, incisive, almost boisterous character of the processional figures. Figure *e* is categorically analyzed on page 460. Figure *a* is a poor example of the "Classical Warrior" type (page 456); its deviations from the normal are pointless, however, and quite in keeping with the work of so inept a painter.

## TRIANGULAR ARCH ENDS

The same qualities characterizing the painter of the west wall are evident upon the two triangular spaces above the molding—rapid work, sometimes careless, but withal tremendously vital and distinctive.

When it comes to the question of formulating a satisfactory hypothesis concerning the original appearance of these areas, the situation is not so simply elucidated. Scale has been the determinative factor in placing the fragments here allocated. It is distinctly larger than that utilized on the wall below, and the outlines are careless and sweeping, with less attention to detail, as in the case of the warriors on Plate 152*a*, which are of a wholly different type from those on the lower wall (Plate 156*b*). There seem to be several unit groups, fairly clear in themselves, but there is, unfortunately, insufficient data for correlating them with one another. As it was impossible to reassemble all of these units completely, the key patterns to each group will be separately figured.

Plate 151 proved an exception, and inasmuch as the five stones which make up the scene bear an indisputable relationship one to the other, it was possible to reassemble them in their original order. This plate portrays the central part of a white temple pyramid, rising out of massed green bush against a background of red. At the top of the stair is a jaguar of heroic proportions. The view was handled by the painter as an architectural elevation with the steps of the staircase and the horizontal decorative zones or terraces shown in plan. The stair is flanked by balustrades, topped by small rectangular blocks which jut laterally beyond the line of the sloping ramp. They undoubtedly represent perpendicular cap blocks protruding from the top of the balustrade, identical to those found upon the altar steps in the Northwest Colonnade (Plate 10). Red lanceolate figures, marked with conventional shell design, are aligned along the three terrace levels. A fragment recording the profile of the cornice of the temple is to be seen in Plate 152*c*.

On the top of the pyramid a jaguar of tremendous size crouches in front of an *incensario*. The bowl is of the conventional tripod type and is painted with horizontal green and white stripes, crossed by groups of black bars. The head of the beast, unfortunately missing, is not needed to enforce the conception of vigorous

realism conveyed by the magnificently drawn hindquarters. The brilliant yellow coat, closely spotted with black, and the heavy curves of the haunches focus the attention at first glance and form an effective contrast to the simple lines and coloration of the remainder of the composition.

The lack of any conclusive finish at the base of the structure is an interesting point. The flowing uneven line of the massed bush is projected immediately against the stone work and gives a clear feeling that a complete view of the architecture is obscured by curtaining trees.

The scene is made up of five stones. Four of the five include some part of the central staircase and so were easily assigned to position. The fifth was found to belong to the two lower terraces by virtue of their varying width. As the decorative device upon the red shells faced the left, it was plain which was the bottom of the stone; and as the shells occur in alternating sequence, instead of one beneath the other, the situation of the block is evident. It is a matter of regret that we do not possess more fragments, illustrating the actual width of the pyramid and further details of its profile.

Depictions of a great amount of green vegetation mentioned as occurring at the foot of the temple were found among the stones from these areas. One example delineated in great detail can be seen on Plate 153*c*.

A group of eight stones was found, all of which have bits of a broad black band on their lower edge. One of these has just been mentioned (Plate 153*c*). From the same plate, *a* and *b* provide further representations of vegetation. On a light-green background, probably outlined against the same massed bush, are two excellent specimens of cactus. One has a yellow stalk and blue lanceolate leaves with scalloped edges, carefully indicated. The very fact that blue has been used in contrast against a green ground speaks eloquently for the powers of observation of the painter in his depiction of this silvery blue-green plant. The other has been done in a heavier green than the ground, with spatulate leaves bearing red fruit at their tips and with a trunk of striated yellow.

A further treatment of vegetation occurs in the tree on Plate 154*a*, done more or less in the conventional fashion (see page 468) with a brown trunk supporting two rounded lobes of greenery on outspread boughs.

Another interesting subject under the same heading is found in what appears to be a fenced henequin field. Many units with this pattern were found, and Plate 152*b* was chosen as being representative as well as possessing several unique features. The field is painted against a red background. The plants themselves, tri-foliolate, are green in color and protrude above a fence constructed of yellow crossbars which are enclosed by a green border divided into small squares. If this device is a fence, in all probability it represents a brush enclosure, with the interwoven boughs still retaining their leaves. The structure is supported by a white strip which might be regarded as masonry; this appears to continue beyond the field. An additional detail in this illustration has to be accounted for, and that is the object found in the upper right-hand corner. Without any doubt it represents

a human hand held up to the face in a position identical to that seen in the little figure, immediately adjacent to the upper right-hand corner of the lake in Plate 139. However, in the present case the design is completely inverted and hence is presented upside down. Putting it into its proper position seriously affects the henequin field. Hence, I have reason to believe that the great number of stones on which fragments of this field are visible imply that the fence enclosed a square and, therefore, the bit now under consideration would have come at the top. This involves, of course, a distinctly false perspective, but one not at all out of keeping with the practise of the painters.

Plate 154*b* bears a striking resemblance to the tribute rolls, as they appear in the Mexican Codices, and to the enforced contributions so often mentioned in the *Relaciones de Yucatan*.<sup>1</sup> The bowl, filled with vegetable matter or incense, the ends of the two lengths of cloth, and the "back crest," isolated from its wearer, are all not only unrelated one to another, but they seem to have no special relevancy to any of the subjects found in these areas. However, their singular and solitary state becomes more intelligible if they are considered as symbolic representations of temple tribute or spoils of war. The bowl appears to be of the ordinary tripod type of red pottery, decorated with circular bands, and is filled with grains of a green substance that can not be positively identified. The "back crest," comparable to those discussed on page 449, is made up of a yellow band, marked with the Greek key pattern, in which a crest of green plumes is inset. The two lengths of what appears to be white textile are fringed and elaborately embroidered in black. It is the opposite ends of these cloths no doubt which appear upon *d*. Another textile is found on *a*, this time singly represented and differently decorated. The central item on *d*, although associated with these objects, would appear to be a typical form of the "way-sign" which is discussed in greater detail on page 480.

All of these stones carry bits of the black band upon their lower edge, implying a horizontal distribution along a set plane, as do the two figured on Plate 152*a*. The latter, mentioned above, depict two warriors dressed more or less in the conventional garb, as described on page 456, upon a background which shifts from red to the vegetational green, current throughout so much of this section.

A land-locked body of water, hastily and carelessly drawn, adorned one of these triangular arch ends. It was enclosed on its two sides by the massed green bush, and above and below it was bounded by a red ground. Plate 152*d* illustrates a portion of this scene. There was no peripheral black-and-white framing strip indicating beaten foam or a beach, as seen in Plates 139 and 146. The pool, or lake, manifestly was small, for although dotted with tiny shells it is unencumbered with boats or the larger varieties of aquatic life evident in all the other water scenes in the temple. It occurs as an intriguing possibility that this may be a representation of the Sacred Cenote itself—small, forest rimmed, devoid of boats and the larger aquatic creatures, and linked with a white temple platform and a collection of offerings.

<sup>1</sup> *Relaciones*, 1898-1900, pp. 41, 57, 67-68, 150.

But one stone from this area remains to be discussed (Plate 158*a*). It bears a design resembling in every essential particular the planet- and star-symbols, current in the Valley of Mexico. It is identified elsewhere in the temple frescos and sculptures as a part of the dress of warriors (fig. 310). These signs are painted upon a broad black strip of background below which occur bits of a red background. It seems reasonable to suppose that the planet-symbol appears as if transected horizontally in a manner similar to its presentation in the Codices and hung as if suspended from a line. This must be taken into consideration when establishing the original location of the black band upon which it was outlined. It seems possible that it may have occurred in either of two positions—one in the very peak of the arch high above the rest of the room, and the other immediately above the long lines of warriors on the walls below. In the latter case there would have been just sufficient room remaining above the warriors for the insertion of the necessary 23-cm. black band. This presupposes a long strip of such symbols, the remainder of which are now lost to us.

From the diversity of these various pattern units, it will be appreciated how difficult was their interpretation and tentative arrangement. In every case the stones which would have furnished the key for the uniting of one or more of these groups most unfortunately lacked their painted surfaces when excavated. And so the forest, the lake, the temple, the tribute and the cactus field must stand each alone and isolated as might a few scattered words forever separated from the context of a printed page.

#### AREA 23

According to the numeration of areas in the Inner Sanctuary, Area 23 represents the center of the north wall of the room. There appears to have been painted thereupon a large temple, three fragments of which are to be found on Plate 168*a*, *b* and *c*. The former two are bits of the top of the structure which was white and lay against a red background. The upper left-hand corner and part of the profile of the building are illustrated in *a*. Together *a* and *b* depict the broad upper cornice with ornate masonry decoration, surmounted by a fretwork of decorative elements, patterned as pairs of small, moon-faced humans which were further elaborated by crests upon their heads. The building would seem to have been laid off in horizontal zones, the lower one of which was decorated with lozenge-shaped figures, orange in color, having serrate margins (*c*). The tip of one of these elements also is to be discerned upon block *b* on the same plate. On the left edge of *c*, a part of the balustrade with its customary square cap can be seen, and obscuring part of this is a barely recognizable fragment of the head of the Death God. Fortunately, for purposes of identification, this figure is similar in several particulars to the Death God portrayed so vividly on Plate 150*a*. The skull is enshrouded in an identical cowl-like hood with the knot or loop at the neck, beneath which material of the same kind and color flares into a widely flowing cape. In addition, there is the same flint knife protruding from the nose socket,

decorated in the precise manner of the figure above mentioned, as well as of that occurring in the exterior fresco upon the north wall of the temple (Plate 164).

Two human figures were recovered. One is elaborately bedecked with gaudy and intricate coiffure and garments (Plate 142c). The other figure is of a vastly different character (Plate 156a). It represents a warrior, postured as if in active combat. The skin is colored a dark brown and the dress consists of a tunic molded to the legs and elaborately decorated with a black design. The left hand carries shield, darts, fending stick and *atlatl*, leaving one to wonder with what the hand of the right arm, which is thrown in front of the face, might have been engaged. A bit of a plant appears upon the right edge of the stone. The drawing on this stone is admirably executed, with flexible line and dynamic spirit.

## AREA 24

It is regrettable that but two fragments from this area remain to hand, since in subject-matter they provide a very pleasant contrast to the monotonous run of warriors, lakes and temples. Plate 158c and d portray seven birds, some fragmentary and a few entire. At one time there must have been quite a large number of these little creatures adorning the northeast corner of the Inner Sanctuary and, to judge by the diverse directions taken in their milling and fluttering, it would appear that the painter caught them in that indecisive moment when the whole flock hovers just above the ground before undertaking a definite line of flight. Their coloration seems to have depended more upon fancy and the dictates of pattern than upon an attempt at realism. The beaks and feet are invariably yellow, but the remainder of the body is painted green, blue, red and yellow, with careful attention seemingly paid only to the matter of getting no two systems of pigmentation alike. In three cases the heads and body are of the same shade, although in one the color has been modified at the neck line. The wings, which are striped longitudinally in an effort to depict the long wing quills, are always of blue and yellow, but with the shoulder plumage differentiated from the remainder of the pinion. The breasts of the birds are covered with little half circles to give an effect of short, downy feathers. In the beaks alone does any differentiation of varieties seem to have been made. That the painter's abilities of observation were particularly well developed is quite evident from the fact that in the four bird beaks depicted on these stones, four different and easily recognizable varieties are to be picked out. The long beak on d somewhat resembles that of a kingfisher, while the others seem to be different varieties of the parrot. In representing birds on the wing, in every imaginable position, the question of drawing is obviously difficult, particularly to painters unpractised in the use of foreshortening. This problem is fairly well handled under the circumstances. In fact, it provides one of the few occasions where the use of such perspective was an aid and not a positive detriment to a clear, schematic presentation of the subject, which ever was the painter's aim.

Area 25 has been described in connection with Area 22.

Area 26 yielded no paintings.

## AREA 27

Rather a heterogeneous collection has been attributed to Area 27. Its diversity can be accounted for, however, by three possible sources from which the stones may have been derived—the vault, the triangular area above the molding at end of vault, and the wall itself. A further opportunity for the introduction of foreign matter lay in the possibility of a sudden collapse of the north wall, precipitating its parts far out into the room. None of the blocks fitted to one another. Despite this, the stones, considered singly, possess great value and interest. One of the most significant paintings found in the entire temple is figured in Plate 157*b*. This is a beautiful rendering of a human head, wearing a head-dress in the form of a mask. This personage would seem to have been elaborately garbed, though few of the details are present upon the stone. He carries the ceremonial spear, so often noted upon the sculptured columns. The details of hair, nose and ear-plug are quite clear, but it is to the head-dress, representing a mask of the Long-nosed God, that the stone owes its real importance. Although a unique example of this form of head-dress in the frescos of the Temple of the Warriors, it occurs several times on the frescos from the Temple of the Chac Mool. It is from the similarities and differences of detail in its composition that the elements of structure and the essentials sustained by tradition are identified. It provides one of the very few instances where a direct comparison of identical subjects in the two temple murals is possible.

Plate 161*b* presents the faint traces of a somewhat poorly executed figure of the typical warrior variety, painted against a red background. The man's skin is of a brown-orange tint, and long, yellow braids emerge from under the blue ear-plug and cap. He wears a blue necklace of many strands and is wrapped with a fairly ornate blue and red loin-cloth. All of this equipment is quite of the usual sort (see page 456), but it is varied by an unusual defensive sleeve. From what can be observed, it would seem to consist of a white center crossed by thin black lines and surrounded by a red band. It is peaked at the upper corners and is not molded to the arm, as might be expected of a woven fabric. It probably is meant to represent a textile shield tied around the upper left arm, similar to those appearing elsewhere.

Plate 167*d* figures a warrior of a yet different type, drawn to a much smaller scale than either of the foregoing figures. His body is painted with perpendicular orange stripes, and his face is covered with curious black and white scalelike markings. Whether or not this is paint or tattooing, scarification or actual deformation, the point remains that it is a singular type of facial description and has been found in no other instance in either temple. The black and white color scheme has been utilized consistently throughout the man's dress. Perhaps the only items of moment lie in the manner in which the locks of hair have been fringed at the ends instead of coming to the usual point, and in the skirt, resembling the Venus-sign (see page 460). He is carrying darts in the hand, obscured from view.

Two fragments of a painted temple were found. The one (fig. 321*l*) depicts the crest and part of the left profile of the building outlined against a red back-

ground; the other (fig. 321*g*) presents the staircase, with a bit of the balustrade, while the open door, done in the usual blue, is partially closed by a white textile drop curtain. Further examples of the last-named feature can be found on figures 321*c*, *d* and *f*. A serpent's head was at one time outlined against the temple (fig. 281*a*). This head and its plumes have been rendered in hachure to distinguish the colored mass from the white temple. A second serpent was found (*b*) which lay on the usual red background.



FIG. 282—*a*, SERPENT BODY; *b*, PORTION OF TREE FROM ROOF VAULT; AREA 27, TEMPLE OF WARRIORS



FIG. 281—SERPENT HEADS, AREA 27, TEMPLE OF WARRIORS



FIG. 283—RUSH STOOL, DRESDEN CODEX

All of the foregoing paintings and drawings were derived from wall stones. The arched roof was decorated in a flamboyant manner and was drawn to an enormous scale, providing an excellent idea of the sort of work which adorned fully 75 per cent of the temple's vaults. The great yellow segment of a snake's body, 13 cm. wide (fig. 282*a*), and the huge green leaf markings, each 6 to 8 cm. broad (*b*), are splashed on carelessly, but, it must be admitted, not the less effectively when the great height of the building, the steep inclination of the walls, and the poor lighting available in the Inner Sanctuary are all taken into account.

AREA 28

Area 28 spans the east face of the doorway between the two chambers of the temple. For this reason, but few wall stones were to be found in its débris. What material there was, led to the conclusion that the aperture itself was utilized

as a decorative feature, and was not considered merely as an interruption of wall surface, as was the case upon the opposite side of the partition. The door, regarded as a panel, was framed on each side by a perpendicular row of seated figures. Traces of two of these were found *in situ* upon both sides, just above the dado, and both were seated, so as to face the opening, upon small stools which would appear to have been made of bundles of rushes or grass, bound into the shape of cushions. Similar ones are figured in the Dresden Codex (fig. 283). Plate 160c represents one of these figures, seated with the knees drawn up to the chin. The face and arms are black and the rest of the body is draped with a long yellow toga-like garment, one end of which is thrown over the shoulder. As such raiment is unusual, it is possible that the figure is meant to represent a woman. The fringed end of a dark scarf, probably connected with the missing head-dress, falls from beneath a white spiral, suggestive of a shell. Stylistically, these peripheral doorway decorations indicate the work of the artist who painted 31, the adjoining area. A stone on this same plate, from Area 31 (Plate 160d), presents the parallel quite clearly. Both paintings are worked out impressionistically. The absence of detail, the soft pastel effect of color, the large scale, and the free manner in which they are executed suggest a marked similarity between the two.

## AREA 29

As Area 29 lay in the exact center of the Sanctuary, there was remote possibility of finding wall stones in it. In fact, only roof stones were found, and but one of them possessed interest of any kind. This painting (Plate 162c) is remarkable for the smallness of its scale, which may be accounted for by the fact that as the arch was wider here than normal, and hence possessed a flatter bevel, its surface would have been more easily decorated and more readily visible. Perhaps its prominent position directly above the aisle from door to altar was an additional reason recommending it for especially careful treatment. The stone in question depicts a fragment of a little green man, crouched beside a white masonry structure, adorned with a well-painted device resembling an Ace of Spades. Just what part of the building this is meant to represent is not clear, but it would appear to be on a line with the ground, to judge from the red background strip which crosses the lower edge of the illustration.

## AREA 30

Area 30 is of peculiar importance because it contained the altar panel and hence occupied the most prominent position of any mural in the temple. Situated immediately above the great altar on the central axis of the temple, it lies directly in line with the two doorways. The panel so placed usually is definitely contrasted with the remainder of the mural decorations. In the Temple of the Tigers this distinction was achieved by enlarging the figures occupying this central position to approximately eight times the size of the remainder of the paintings. In the Northwest Colonnade a comparable effect was obtained by rows of little warriors, intricate with detail, in contra-distinction to the enormous sweep of the coils of



the stylized serpent which adorned the flanking walls (see Plate 166 and fig. 294). Again, in the Temple of the Chac Mool, small figures against a blue ground were contrasted with a huge undulating serpent, done on red (Plate 132*a*).

Whereas great care and skill usually were expended upon the altar panels, the one in the Temple of the Warriors was markedly inferior. Instead of being better done than the rest of the painting, this normally important commission must have fallen to the hand of a hopelessly incompetent amateur.

A strip, about 60 cm. high, running across the lower edge of the panel, remained *in situ*, delineating the plumed serpent, wretchedly executed (fig. 284). Without doubt, this bit is the worst Maya mural that has ever come to light. Against the red background sprawls the awkwardly undulating body from which sprout graceless plumes of green. The small yellow segments are set off with transverse black lines and the whole is outlined in black. Curiously enough, these yellow scales, which usually depict only the ventral portions of the serpent, are here made to suffice for the entire body. Unfortunately, neither the head nor tail is present, and one wonders how so inept a painter would have handled them.



FIG. 284—BODY OF SERPENT FROM ALTAR PANEL, TEMPLE OF WARRIORS

His work lacks every element of artistic propriety. The coils angle stiffly and, although evidently conceived with some sort of geometric scheme in mind, are distributed with a careless disregard for even spacing. Probably his crowning failure lies in the unskillfully bunched or painfully isolated plumes which usually were the glory of Maya draftmanship. The line drawing of this serpent with dotted restoration does not give an adequate idea of the material which was copyable in color. Although the black outlines were badly destroyed, bits of the background and pattern coloration were present to assist materially in plotting the missing parts.

Above this serpent strip, the distribution of pattern is rather difficult to work out. Among the stones recovered there would seem to have been several units of design or subject groups, and these could be allotted to the altar panel itself, the triangular vault end above, or to the neighboring walls. According to precedent, altar panels were handled in a formal manner, hence it would seem logical to dimidiate the available material with this point in mind. In the present instance, this results in the assignment to the panel of a procession of humans, two exceedingly conventionalized serpents, a bit of a sun disk and, possibly, a third snake, somewhat more normally executed.

Plate 142*e* presents the almost complete dress detail of one of the processional figures. The scale is quite small, with exquisite attention to detail, although done in a stiff, awkward manner. The figure is curiously caparisoned, having the red

skirt of a priest (page 447), studded with green beads, and wearing the conventional type of "back-crest" made up of a basic yellow foundation strip from which falls a narrow fringe of small black and white feathers and great lengths of sweeping green plumes. More plumes, which doubtless emanate from the end of the missing head-dress, drape down across the top of the back-crest. The tunic, far more elaborate than usual, again consists of green feathers, across the bottom of which run four bands of particolored cloth variously arranged and twisted. A fringe of yellow hair falls over the shoulders.

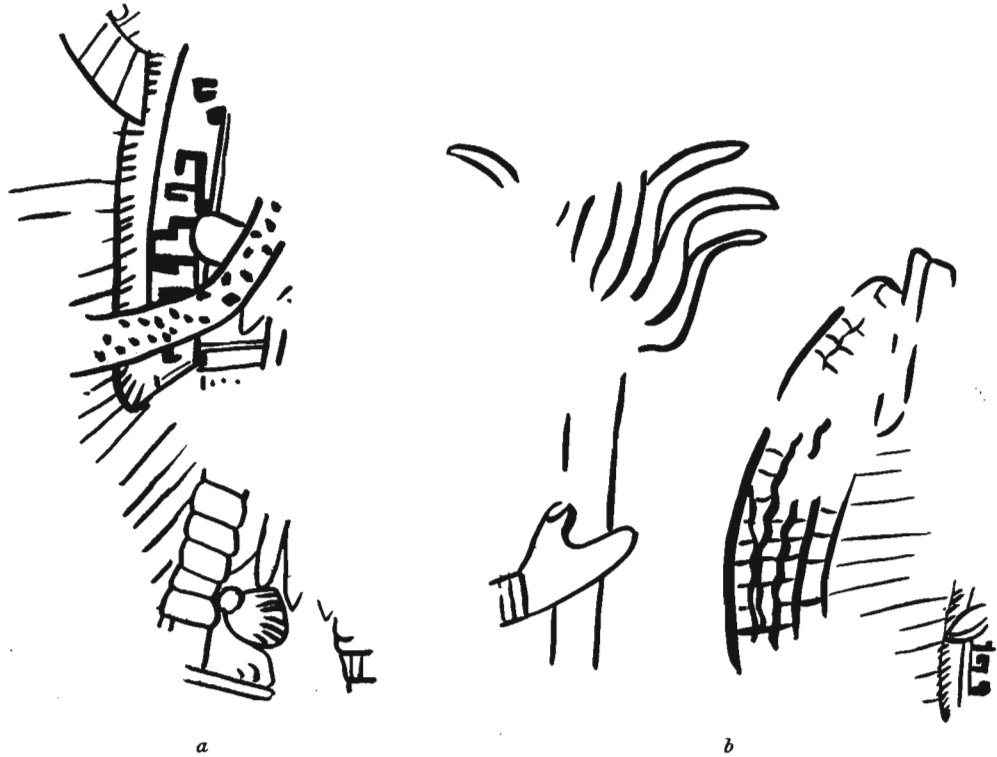


FIG. 285—SIGNIFICANT MURAL FRAGMENTS, AREA 30, TEMPLE OF WARRIORS

*a*, feet and elaborate back-crest; *b*, torch and "back-crest"

Figure 285*a* repeats most of these elements with a substitution of spirally wrapped puttees for the long skirt. In this case, the spiral wrappings are of alternate red and yellow stripes, similar to those figured from the Temple of the Chac Mool in Plate 134.

Figure 285*b* illustrates another variation of the back-crest with red plumes, rimmed on the outer edge with a broad white band chequered by undulating black lines. A large hand, badly drawn, which holds a torch or ceremonial staff, completes the picture obtained of this variety of elaborately gowned dignitaries.

Plate 160*a* depicts a warrior taking part in the procession. He is garbed in the sky-sign skirt, white necklace, long yellow braids, white feathery adornment of ankle and knee—all essential items to this peculiar warrior type (see page 460).

As the three dignitaries are all facing to the right and the warrior looks in the opposite direction, it would appear that they represent two files of persons marching as if to converge at some central point, as do those on the altar in the Northwest Colonnade (page 340).

Two highly conventionalized serpents ascribed to this area reveal more complete stylization than any other examples in the temple. In the case of Plate 170*a*, the serpent is clearly functioning as a pedestal for the upright figure of a small warrior who is equipped with a cotton sleeve and fending stick, and is garbed in an ornate black and white tunic. He is standing with feet concealed within the serpent's upturned and flaring jaws, as if issuing from the throat. All the conventional serpent attributes are present; the teeth and long curved fangs, yellow lips, green head, blue eye plate and the elaborate tri-colored head-dress, which in the present instance curves down from the upturned head, as does the yellow and green body.

In all probability, Plate 170*b* represents a like *motif*, similarly treated. The painting of this second group has not been handled with the skill of the former one. The serpent itself has suffered more modification, so that although all of the essential characteristics including the yellow chin beard are present, its identity as a snake is almost lost. The object emerging from the jaws is even more obscure. It would be reasonable to expect in this position a human figure somewhat similar to *a* on the same plate, but the broad white device scarcely lends itself to such an interpretation. The body of the serpent is singular in that the ventral scales are colored green instead of the usual yellow.

Figure 320*e* from this area, with its well-drawn fragment of serpent body and plumed rattles, in all probability, pertains to the head figured in Plate 170*a*.

The formal presentation of these two serpents stands in decided contrast to a small, realistic snake from the area to be found on Plate 169*a*. In the latter, not a trace of conventionalization is to be found, nor at the same time is a single essential serpent characteristic omitted in outline, detail or coloration. The snake is surprising in its naturalism, when one considers with what faithfulness the centuries-long tradition of convention and modification had been observed. The manner in which its extremity is treated can not help but arouse the imagination. From the unusual way in which the outlines fade into the roundish red device, it would seem as if an effort was being made to depict something more than the ordinary one-dimensional flat figure. Hence, it seems not unlikely that this snake was pictured as if emerging from a hole in the ground. Occasionally, the fresco painters changed their usual conventions of perspective in favor of some new device, such as the silhouetted hills, indicating height, in the Temple of the Tigers. In the present instance, a similar departure to express depth appears to have been indulged in, particularly because of the fact that the curved black line above seems in all probability to indicate further attempts at depicting a broken landscape. The curve of a sun disk appears below the serpent.

A second group of stones, quite different in subject and style, was found mingled with those just described, but as they appear to be more or less homo-

geneous with those from the neighboring wall to the south (Area 33), they will be described under the heading of that area. When the temple fell into ruin, the upper central portions of the back wall of the sanctuary and the greater part of the vault ends above were thrown backward, out and down the slopes and hence, were weathered away through the ensuing years. Therefore, since stones from the vault end are not to be expected among the ones recovered from Area 30, those of different character from the altar panel have been assigned to Area 33.

## AREA 31

Area 31 (Plate 159) represents what is probably the most successful attempt to reassemble the decoration of any of the fallen temple walls. A section, 3.81 meters long and 2.34 meters high, was recovered from the seemingly hopeless tangle of débris. These dimensions include only the pictured panel and exclude the colored dado zone which was found *in situ*. The panel, as figured, begins about 1.65 meters from the floor and runs to within a few centimeters of the top of the wall, or to the line immediately below the molding. Horizontally, it extends from Area 33 northward to a point a short distance from the Inner Sanctuary doorway.

An explanation of the reassembling and the restoration of this area will be given in some detail. Such an organization of disarticulated elements is risky, and in some archæological fields has too often been attempted without sufficient data. However, in the present case, I believe that enough different criteria of placement have been brought to bear on each stone to justify its inclusion at the point selected.

In the first place, it is well to remember that the painted stones precipitated at the base of the wall bounding Area 31 must have come from its original face since the area to the left was found *in situ*, and that to the right was occupied almost wholly by the door between the two rooms of the temple. The height of the wall above the dado was 2.34 meters. Its lateral boundaries included 3.81 meters of width. Above the molding, the inverted V-shaped decorated space, such as occurs at the ends of the vaulted arches, contained work of an entirely different character. In the latter the scale was large, the drawing crude, in keeping with the usual pattern of the roof, and was thus easily separable from that of the lower wall. For purpose of contrast with the main wall, an example of the arch-end decoration is given in figures 286*a* and *b*. In the portion now to be analyzed we find approximately 9 square meters available to accommodate about 78 stones of the average size (28 by 40 cm.). Of this estimated number, 58, or three-fourths of the whole, were recovered and have been incorporated in the figured assemblage. The preliminary plan used in reallocation included the following five separate steps:

- (1) Primarily, the design upon each stone was reproduced in water color because the blocks themselves were far too cumbersome to admit of the necessary handling.

- (2) Secondly, these copies were adjusted and arranged in the order in which the stones must have appeared when embedded in their original places in the wall.

The explanation for each step in this replacement will be given at length in later paragraphs.

(3) At this point the whole scene was reduced to a manageable size by means of an ink drawing presenting, in dotted lines, the dimensions of each stone, their placement in relationship to one another, and an outline of whatever painted pattern was present on the blocks when found (see drawing accompanying Plate 159).

(4) Then a restoration of the missing parts was effected in line drawing, according to the principles explained in ensuing paragraphs.

(5) And, finally, the restoration was colored to conform to the hues actually found upon the stones themselves (Plate 159).

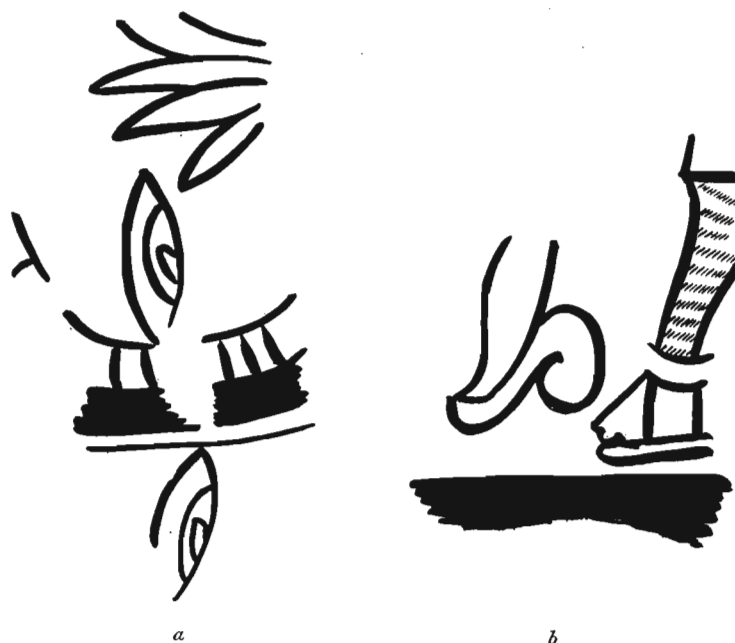


FIG. 286—SIGNIFICANT MURAL FRAGMENTS, AREA 31,  
TEMPLE OF THE WARRIORS

*a*, Serpent body; *b*, human foot

In the matter of restoration, only those features which could be completed by an exact duplication of elements found in this or in adjacent areas have been filled out. The trees are finished in the symmetrical manner usual to the Maya artist; the restored anatomical parts of fishes and humans are direct copies of others to be found in this same area. The same generalization applies to architectural features. Where the manner of figure depiction was doubtful, a space has been reserved, but, in the parts where no painted figures were to be found, the surfacing of blue sea or red land was extended to prevent a too ragged appearance. Since the reason for this presentation lay in the desire to give an adequate idea of the appearance of the painting when the temple was in use, I felt justified in taking these few liberties.

The second and more important point is that of justifying the placing of these paint-bearing stones in the given relationship to one another. When the broken design is clearly carried from the edge of one stone to that placed adjacent, no question can be raised. Those stones which at first sight might appear to have been arbitrarily arranged, have been adjusted in accordance with the following definite principles.

The shore line, indicated by the shift from red to blue background, manifestly divides the painting into halves. Some of the twelve stones bearing the boundary line fall into place on account of the patterns on their lower surfaces which relate to the boatmen. It may be noted that the oarsmen, standing at the prows of the canoes, are taller than their warrior passengers. Therefore, when a head is found at a higher level than that of a following man, as in the first and third boats, or on an equal level with part of the protruding armament, as in the second boat, we may be fairly certain that we have there indicated one of the three profiles belonging to boatmen. The posture of the man and the angle of the oar connect the two halves of the right-hand boatman (C 9 and B 5) without question. The remaining bits of the second boatman, on C 6 and B 3, obviously fit together, as do the group of stones bearing parts of the one to the left. Each boat has a different color; therefore, the warrior passengers are easily allotted to their proper craft. Their heads, when found on some of the shore-line stones, assist in tying the latter into position. The three boats are placed in the sequence here given by means of those shore line stones which relate to them and which in turn were allocated in conformance with the pattern of the land scene above.

A second absolutely definitive line of difference lies on the stones of Row A which bear parts of the black dado and as a consequence undisputably lie along the lowest edge of the pictorial section of the mural.

On these stones the paddle tips fit too neatly to all three boats to admit of further shifting. A portion of the black, tadpole-like creature, an edge of the canoe bottom, and bits of the two white shells tie together four left-hand stones of the bottom row (A 1 to 4). A 5, carrying the paddle tip of the second boat, falls into place immediately to the right. In A 6 we have a fragment of a white crab which combines with more of the animal in A 7. This ties both to the paddle above (C 6) and to the striped ray fish on its right (A 8).

By relating the three rows of sea stones with regard to all these factors, the majority of the stones in Rows A, B and C fall inevitably into place.

From the shore line upward, the background is a flat red. Adjustment of the various fallen elements characterized by this color is aided materially by the change in scale which enlarges the figures in the upper reaches. It is safe to say that the placement of those stones on which the pattern is plainly carried over from one block to the next constitutes a nucleus, undoubtedly correct in the relationship of its component parts. A third useful working principle is based on the tendency of the Maya workman to lay up his walls in evenly aligned tiers. This was not an invariable habit by any means but is quite worth bearing in mind. Often, however, two small stones were used to fill the space of one of normal size

and in addition thick insertions of small rubble filling were sometimes introduced, dependent on the plaster surface covering their deficiencies. The paint over such parts immediately crumbled to dust when the walls fell.

An arrangement of the loose elements in accordance with the above three principles narrowed the field of conjecture considerably and provided a firm ground of fact for much of the work done in this area.

To discuss this in detail—seven of the twelve shore-line stones have already been tentatively located by relating them to the boats (C 1, 2, 6, 7, 9, 10, 11). These give a basis for further construction. The remaining five have been set in accordance with the requirements of space or pattern. For instance, C 3 completes the white shell pattern on C 2, while C 5, bearing a bit of the swordfish, fits with the “way-sign” on D 1 and C 6. C 8 adjoins the fragment of tree on D 3, later to be explained. This leaves C 4 and C 12 to be allocated only in a manner such as not to conflict with any pattern which may occur above. Proceeding upward from C 5, along the central axis of the picture, we see that the “way-sign” stone portrays on its upper surface a pair of human legs and the corner of a thatched roof. There are three thatched roofs without left-hand corners, or rather, which lack corners that could fall within the bounds of the same stone. But of these three, this is the only one where the jutting eaves of the thatch would fall directly across the corners of two juxtaposed stones. The under edge of the eaves establishes a line carried out by the same roof at the right (D 2), and completes the record for the fish loft. Its central location is not surprising, considering that the picture seems largely concerned with piscatorial matter.

The pair of legs on D 1 ties with the man carrying a bundle on his head (E 4). The block immediately to the left (E 3) completes, in turn, the tree seen behind the same man; while the thatched roof to the left of the tree tallies appropriately with the yellow triangle found slightly below the corner of E 2.

Above the roof of the fish loft is part of a seated figure, completed by the head on F 5 and occupationally explained by the edge of flame from the cooking pot to the right. The same flames place the stone immediately above the pot (F 6).

A series of walking figures, drawn to the larger scale of the top stones and done by careless, sweeping brush strokes, characteristic of the picture at this same height, proceed from left to right across the center. The same large hasty drawing obtains in the burning roof and the half of the kneeling figure busy over a *metate* of F 8. The character of the painting and the alignment of the stone adapts it to this position. These same factors place the group of the four figures in the upper left-hand corner (F 1, 2, 3 and E 1). They belong to this area by right of style and, moreover, they were found within its limits. They conform to the coursing of the wall in Row F, and carry the same broad treatment as the upper central parts of the drawing. And so, in spite of the lack of definitive tying-in factors, it is more than probable that they fit in this large and otherwise unoccupied space.

To understand the placement of the remainder, we must begin in the upper right-hand corner. On F 9, 10 and 11 we have three clearly consecutive stones

bearing sections of a plumed serpent's body. A lower coil lies against a part of the green arcade on E 12, as do the completing rattles and their adornment on E 13. The arcade itself, then, takes up the sequence. Its white foundation provides one line of definition on D 5, 6 and 7. The uprights give another, and the continuation of the with-bound roof a third (E 10, 11, 12 and 13). This integrated unit accommodates itself admirably to the space here allotted, stretching as it does over such a large section of the land area. The lower edges are satisfactorily complete, since they possess no features which require filling out, except for the head of the seated woman C 11, which easily would have fitted below the basket of fish on D 6.

There remains a middle section illustrating three trees and a bird. The three stones (E 7, 8, 9) depicting the bird and the tree from which it is taking flight reveal their relationship without question. A second fragment of foliage will be found to tie with the great trunk growing above the boatman's head on C 9. The third tree falls into place on D 3 between C 8 and D 4. The arrangement of this entire group of seven stones, when fitted to the water line, as is required in two cases, and adjusted to the lateral boundaries already established on its other three sides, fills the last vacant space too narrowly to admit of its being merely a coincidence.

Due to the number of missing stones, the larger scale of the painted figures, and their relatively greater mutilation, it was more difficult to reassemble this area than Areas 15 and 16. The points of proof are in some cases necessarily less definite, and more reliance had to be placed in the assignment of large groupings of proved internal relationship to spaces so sized, shaped and aligned as to accommodate them. However, after a tremendous amount of experimental adjusting, I reached the present arrangement which appeared to be the only one which accounted satisfactorily for every debatable point. Therefore, I present the restoration convinced that it closely follows the original, on fragments of which it is based.

Much valuable information is to be derived from this fishing village scene. Land and water are crowded with figures and incident, and the whole, although reduced to a small scale, gives an excellent idea of the huge decorated panels as they originally appeared.

A physical description of the design must first take into account the division between land and water. The latter is portrayed by the conventional blue ground, crossed horizontally by wavy black lines. The land is painted a flat red color. The water, occupying the lower part of the picture, is represented as being nearer, while the land recedes from the coast line toward the top of the wall, quite in accord with the usual fresco perspective (see page 361).

The dominant features patterned upon the water background are the three canoes. Each carries two armed warriors and an oarsman. All three of the figures are standing upright, a posture natural enough for the pilot who is sculling the boat by means of a single, long paddle, but one that appears a bit awkward for the passengers. In one area (fig. 287), the passengers are represented as being seated in the boat, but this is a unique occurrence. In Plates 139 and 146, as well as in Area 31, they are invariably standing. Whether this was an actual custom or an



expedient of the painter is unknown, although the latter seems more probable.

The six warriors are garbed in uniform which is more or less consistent. The skin is painted a dark brown with the exception, often before noted, of the hands. Each wears a small, unadorned white skull cap and a short tunic, hung from the shoulders by straps or fitted to the neck and reaching to the middle of the thighs. These garments are variously ornamented. Those in the first boat are decorated with painted or embroidered black starlike spots; those in the second have a blue top hem above yellow cloth, while with those in the rear boat the dress is green with some trace of crisscross decorative lines of black. The flowing ends of the loin-cloth fall at the back and front. All carry darts and circular shields with red-rimmed white centers. These factors are constant, though the additional armament varies slightly. The warriors in boat No. 1 carry a curved club in the left hand, in addition to their darts and shield, and in the other hand, held in rigid "present arms" position, they grasp objects which, from similar but more careful drawings, can be identified as *atlats* or spear throwers. The cylindrical objects, carried in the same way in the second boat, are probably likewise *atlats*, but of an unusual form.

The oarsmen have unpainted bodies and very little clothing. Skull caps and white loin-cloths knotted about their waists—garments as scanty as those of the workers on shore—are made to suffice.

Their posturing is admirably adapted to the task at hand. Strength and grace are expressed and also a fidelity in representing three successive positions taken in the process of rowing. As this continuation of the same motion proceeds in order from left to right, it appears as if the painter were attempting to box three seconds of time into three units of space, much as does the film of a motion picture. The man at the left commences his stroke, eyes front, with nearly perpendicular paddle just touching the water. The second stage, as expressed by the middle one of the three oarsmen, pictures a deeper, more slanting, backward thrust of the paddle and a head turned to follow its direction. Despite the conventional position of the arms, the third rower has driven his paddle far rearward, his knees braced for the effort, his glance following the direction of the thrust. We have no way of knowing whether the effect was consciously arrived at or not. But the coincidence remains, as does the beautiful progressive expression shown in the three slanting pattern lines of the composition.

The remaining surface of the sea is peppered with marine life. In those sections of the plastered surface which remained to us, few were the spaces not tenanted by some aquatic resident. That there are a few unoccupied gaps in the colored reproduction is due to my carrying the blue sea over restored portions to obviate the jagged, broken edges which would have interfered with the clarity of the design as a whole. Fourteen distinct kinds of sea creatures are represented, almost in caricature, but with their salient features so well delineated that even the amateur naturalist finds no trouble in recognizing familiar forms.

The flat white fish in the lower right corner, with the distinctive spike protruding from his tail, recalls the sting-ray or stingaree. The white and the red

crabs, with their armored bodies, jointed legs and claw fingers, can not be mistaken. The toothed, thick-bodied fish, at the right of the red crab, is without doubt a different species from that on its left, while immediately above the prow of the second boat there is a fish with a long, yellow spike, which surely represents a sword fish. At the extreme left, under the first boat, there is something that resembles nothing so much as a giant tadpole. It probably depicts another form of ray.

Shells caught the artist's attention, with interesting results. The convoluted circular ones may represent the snail. At all events, the one situated between the first and second boats is revealing its inhabitant—a little creature, most amusingly drawn, which appears to be gifted with almost human expression. Another example of this same sea animal is found in Plate 149*d*.

The pointed oval shells with decorated tips, both red and white in color, are of a variety which closely resemble the olivella. An open bivalve is to be found above boat 3, and possibly a closed member of the same species is to be seen above boat 1.

The painter's disregard for actual scale in portraying these sea creatures must be taken into consideration in their identification. It would seem that the materialization of each image, as it came to the painter's mind, had a unique value and importance which bore no size relationship to the picture as a whole. For the moment, a snail was as big as a crab, and a fish larger than a man. It is a variation of the same point of view that explains the presentation of an almost anatomical chart of a turtle swimming above the second boat. As can better be observed in the detail of Plate 149*a*, the turtle has been drawn with great delicacy. The head is a portrait, but the four flippers, so flatly extended, and the creature's body, apparently appearing in the yellow strip between the upper and lower shell plates, are treated in the descriptive perspective so often employed. The turtle is painted as he *is*, not as he *looks*.

In the other half of the scene which fills Area 31, houses, trees, fish and people are dotted over the entire landscape. We have here a village scene—a fishing town, filled with workers going about their daily tasks. The whole is handled in such an artless, unstudied manner, as to carry complete conviction of the close relationship between this painting and the actual daily life of the people represented.

The five houses, with plastered walls, each built upon a dark-colored platform, have yellow roofs, cleverly simulating the straw thatch utilized in ancient times in much the same manner as it is on the dwelling houses of the Maya at this very day. The high-peaked roofs with jutting eaves are marked with rows of L-shaped figures representing the overlapping series of palm leaves laid in even horizontal bands over a wooden frame. That these division lines are not apparent from the outside provides another instance of the tendency of the painter to indicate the structural ribs of his subject rather than its more purely impressionistic aspect. The crests of the roofs receive a more complicated treatment, resembling a basketry pattern. In any Maya hut of the present time, the ridge of

the gable is finished differently from the slopes. The peak is the point most vulnerable to wind and rain, and consequently it is covered with an extra thickness of thatch, carefully and elaborately fastened down.

The little porch inset into four of the houses, the roof above which is supported by a pillar of something not self material, indicated by the change in color, is identical with the examples of domestic architecture found in the murals of the Temple of the Tigers.

The centrally located yellow-roofed house seems to have been allotted to the storing of fish. A scaffold, supporting a yellow basketlike ventilated loft, has been let into the center of the structure. Fish, stacked with a packed sardinelike precision, fill the secondary story. The background of blue conforms to the usual manner of illustrating a shadowed interior. This house has no porch, a condition which heightens its aspect of commercial fish-mongery. Indeed, the whole landscape is dedicated to fish. Dead, they dot the landscape—heaped under trees and clustered in baskets; alive, they infest the sea. They set the note for the whole composition.

The yellow thatched house, found immediately above the white bird, is embellished with a number of yellow and blue scrolls so oddly grouped around the structure as to arouse curiosity. They are the conventional representation of a speech scroll, and if taken as such surely indicate a council house fairly bursting with discussion of grave import. However, it is unusual to utilize these devices without the speaker himself being in evidence. According to another interpretation, they might resemble tongues of flame, accompanied by thin blue curling smoke. No one seems to be paying any attention to this phenomenon, but then in this scene the single-minded inhabitants are pursuing their business with enough concentration to be quite oblivious, even to the distractions of a fire.

A double arcade, constructed of green boughs or reeds, lies at the right. There seem to be no walls and only slender supports for the covering roof. As usual, the interior is indicated by blue. The presence of the plumed serpent suggests that the structure may have a ceremonial function, or the reptile might be a heraldic device to distinguish the house of royalty. The serpent is drawn with absolute adherence to the uniform conventionalized pattern.

The trees attract attention by the rigid mold of form into which each has been cast—a smoothly swelling trunk of brown which leans slightly to the right or left and divides into two separating branches, having forked tips and nominally supporting two large, green puff balls of foliage. This phrase would serve as a description for every tree drawn on the temple walls. Tiny differences in marking the foliage stand as the only indications that the painters were aware of any individuality in form or species, a strange condition of affairs to be found among a people dependent upon the forest for so many necessities.

Fifteen humans are present in this village. They are all engaged in the ordinary daily pursuits, grinding corn on a *metate*, carrying bundles and jars, watching the pot boil, or merely engaged in serene contemplation. Their

clothing is very simple. A breech clout functions as the sole garment in several cases. Sandals and a small skull cap occasionally are added, and sometimes there appears a white nightgown-like garment or a two-piece blue and brown dress, presumably indicating the garb of women. There is no elaboration of any kind. Our villagers were simple folk; the ornaments and elaborate raiment of the warriors and priests were not for them.

Two methods of bundle carrying are noted. In one, the burden is balanced on the head, while the more bulky pack was carried on the back by means of a tump line across the forehead. In the case of the man beside the burning house, an enormous *olla*, caught in a woven net bag, is being easily and securely carried by means of a forehead band. For a second example of this method of transfer, Plate 160*b* is cited as being a detail from the large picture here described. The sunken cheek line of this subject, undoubted evidence of age, should be noted, as well as the tremendously elongated and flattened forehead. Probably nowhere do we find a better portrait of the results produced by artificial deformation than in this figure.

An excellent and elaborate type of the "way-sign" is found to the left of the fish loft in this area. A collection of these mysterious devices from all parts of the temple will be discussed in detail on page 480.

The long-necked, long-legged, white bird which is pictured as swooping head-long from a tree is in all probability a heron. Disregard for relative size, so evident in the depiction of the fish and in the relations between the humans and their houses, is again apparent. The black body-markings are quite diagrammatically exact in the portrayal of the quill-ribbed wings and softer feather-down of the breast. A black and white fragment immediately below this bird may be a part of the wings and tail of a second bird.

A few of the stones which are incorporated in this area have been separately figured in order that a better grasp of the painter's technique may be derived through study of them. In a restoration of such a great surface, wherein the scale is tremendously diminished, as may be seen by comparison with Plates 160*d* and 149*a*, the finer points of color and of line are apt to be lost. There is a simple nobility in the seated figure and a salty piquancy in the turtle which is unfortunately lost in the larger picture. Old age and head deformation are beautifully illustrated in Plate 160*b*, while Plate 153*d* presents the finest example of tree depiction recovered from the entire temple. Again, the broken fragments of painted plaster still adhering to the stone, in many cases, accidentally compose into tiny, roughly framed designs, far more interesting in composition and arrangement of color masses than one would realize were he to view it only as a part of a great, composite whole. In this connection, the play of flames about the rotund pot with its three loop handles (Plate 158*b*) offers a beautiful study in nearly parallel sequent curves. Such examples give far better evidence of the real power of the artist than do those larger scenes in which we are more concerned with the painter's capacity as an illustrator.

## AREA 32

Since Area 32 lies along the central axis of the chamber it is not juxtaposed to any wall. Therefore, the single wall stone found in its débris must have come from some distance. And since part of the south wall that did not remain in place was precipitated down the slope on the outside of the temple, the stone figured in Plate 161*a* must have come from the triangular wall above Area 31 or else from Area 33. There is no way of deciding this question because neither the subject nor the style seem immediately allied to either section. It represents a human, garbed in a long, green, feather cloak and some kind of headgear protruding in a sharp peak over the forehead. In all probability the whole dress is of the bird-mask variety. The face is colored red and black and the hand, which is grasping the limp wrist of a red-striped captive, is red, exactly as those of the warriors in Areas 15 and 16.

A unique serpent fragment was recovered from the roof débris in this area (Plate 170*d*). The ventral scales are yellow as usual, but in the dorsal parts the conventional green feathers are replaced by a white band heavily marked with a complicated black pattern. The curve of the body follows a right-angled turn as closely as possible, and at this point it is twisted so as to reverse the relative position of back and belly.

## AREA 33

It was mentioned in connection with a few stones found in Area 30, that they did not conform to the pattern of the altar panel, but did accord perfectly with many more recovered from Area 33. When the wall collapsed, this intermingling of the two areas could easily have taken place. A rather complicated scene would seem to have adorned this section of the back wall. There was a body of land, red-painted as usual, and entirely surrounded by water. We have evidence of at least three shores of this rectangular island, and it is probable that at one time a fourth completed the circuit. Plate 154*c* illustrates the lower right corner of the land, with the black undulations of the sea following its contours. This results in presenting the boat, a fragment of the prow of which is visible, as lying across the waves instead of on their surface. A splendid example of the "way-sign" (see page 480) is here present. The upper shore line, as in figure 287*a*, shows the wave lines returned to their normal horizontal position and again bearing a boat upon their surface; also, *b* depicts another deviation from the normal—a boat, copper-tan in color, which lies slanting across the stone. This seems in every respect similar to the phenomenon represented in Areas 20 and 21 and is probably attributable to the same cause—the desire of the painter to present his boat as touching the shore just before being launched upon the water. All three boats from this area (figs. 287*a*, *b*, *c*) portray the figures of oarsmen and passengers seated within them, a position naturally to be expected, but one quite unusual in the frescos of the temple (see Plates 139, 146 and 159). Figure 287*a* depicts the use of the white sideboard rising above the gunwale of the boat, as was seen in Area 20-21.

The forms of sea life from this area present some new figures which are interesting. Plate 149*b* illustrates a sort of jelly fish, with vague, indecisive body markings trailing the fine hairlike streamers characteristic of one type of this creature. On the same plate, *c* depicts the fragment of an octopus with rounded body, centrally placed eye, and thick waving tentacles, one of which bears a suction cup.

On the island or land body there was a temple structure (fig. 321*f*) with white base and green uprights, similar to the one in Plate 159. The interior was colored the usual blue, and one of the openings was hung with a white curtain, ornamented with a black pattern which suggests embroidery. Before the temple, standing upon a red background, is a row of those curious objects thought to be jars filled with incense (see page 476). The heaped-up contents are yellow, while the vessel

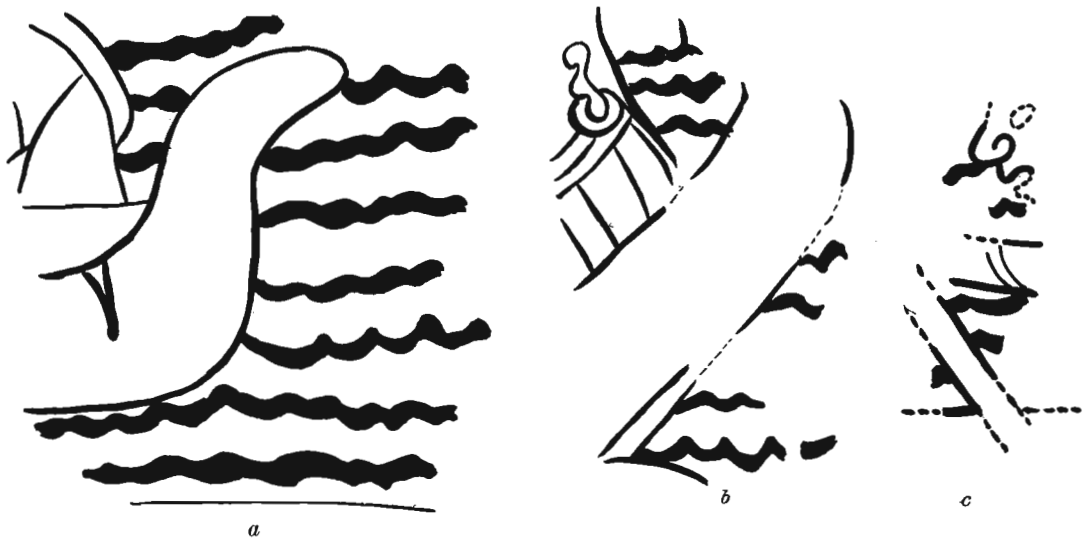


FIG. 287—MURAL FRAGMENTS ILLUSTRATING CANOES AND BOATMEN, AREA 33, TEMPLE OF WARRIORS

itself is patterned in blue and green, as were those recorded from Area 13. The foundation of the temple occurs again upon Plate 150*a*, and silhouetted just below its base is a beautiful example of the Death God mask. The figure is rendered wholly in red except for the green orbital socket and teeth. The fleshless nose is adorned with the usual lanceolate flint, as are similar masks from Area 23 and from the north exterior fresco (Plate 164). The skull is hooded by a cowl attached to a cape of the same color, the material of which is decorated at the nape of the neck with a black-marked loop.

The presence of the Death God in this vicinity is explained by the intensely interesting fragment on Plate 144*a*, the entire significance of which, regrettably, can only be conjectured. Two persons are represented, a male and a female. The former is lying flat upon his back, while the woman is viewed from the side, with the line of her abdomen, breasts and folded arms silhouetted against a red background. Undoubtedly the male is the residuum of a

sacrifice. Death is portrayed by the closed eye, with lashes drooping upon the cheek.<sup>1</sup> The black oval on the man's torso probably marks the rent made by the sacrificial knife to permit the extraction of the heart.

Blue, the color associated with sacrificial death, is used largely in the picture. The man has a blue face, blue upraised arms and a single blue leg. The woman, likewise, has arm and leg decorated in the same color, as well as some type of blue head-dress. The delineation of the facial character of the male is strongly reminiscent of death with preternaturally rigid, sunken mouth and a skull-like outline of the jawbone.

The figures in this area are clumsy creations, solid without the fastidious detail of the gaudy personage on Plate 142*e* who is accredited to the neighboring Area 30, but they are, at the same time, well knit and possess an inherent strength which is conspicuously wanting in that figure. Without doubt the painter of this area worked with a heavy hand, but one not lacking in power.

#### AREA 34

Area 34 lies in the southwest corner of the Sanctuary or in that part of the room which suffered so severely during the hailstorm of April 14, 1925. Of the two walls which enclosed this corner, the south had fallen outward with the collapse of the temple roof, and hence none of the fallen stones were recovered. Few remained *in situ* above the dado, and on these only the slight indications of a marine scene were evident. The west bounding wall, found almost entirely in position, revealed a continuation of the water painting of Area 31 (Plate 159), including the red land strip upon its upper reaches. When this area was uncovered, a photograph was taken of the wall surface, and, although the latter was in wretched condition, the subject could be deciphered to a certain extent. A narrow strip, not exceeding 61 cm. in height, lay in place above the dado. Upon it a boat with upright oarsmen, similar to those in Area 31, and fragments of several fish were visible. Above this strip, due to the root action from the one-time forest above, only an occasional, meaningless splotch of color remained. Shortly after the area had been cleared and before materials for its preservation and recording had arrived, a shower, seemingly of the ordinary sort, came up, which suddenly turned into a hailstorm of unparalleled fury that completed the destruction.

From the débris at the foot of the wall, four stones of interest were recovered. One had come from the roof, and the remaining three probably had fallen from the triangular vault end above the area just described. The roof stone (Plate 167*c*) depicts a head of perfect Negroid type, black in color, with features distinctly unlike the Maya. It is silhouetted against a white background with curving black line decoration—probably a temple. The other stones also illustrate a white temple background.

Plate 157*c* is a beautiful fragment, representing a man of the laboring class with copper-red skin, dressed in a white skull cap and plain white tunic with short sleeves. He is crouched in front of the narrow temple stair holding by a long

<sup>1</sup> The same characterizing feature is employed in both Mexican and Mayan Codices to denote death.

handle a bowl from which flames are apparently curling upward. The temple was zoned or terraced horizontally, and the stair was flanked by a balustrade with the lower parts rather ornately treated.

The upper section of the same stair is seen on Plate 168*d*, where it debouches upon the pyramid platform immediately in front of the door. The interior of the building is indicated by the usual blue, and the door is hung with a black and white cloth curtain. The sides of the pyramid are treated in an unusual manner. What appears to be the projecting edge of a narrow, overhanging cornice is presented with an effort toward perspective which seems to conflict with the stair outline already drawn. Below the cornice, a disk pattern probably represents carved ornaments. The little red-and-white striped human planted across the stair at such a peculiar angle presents a puzzle. The hand and whatever object it was holding were too blurred to be read with certainty. If the object is a trowel, as seems possible, we might postulate a temple in the course of construction or of refinishing by striped slaves, but without the corroborative data now lost to us any interpretation can be nothing but supposition.

The third fragment of the temple or pyramid may be seen in figure 321*e* and illustrates one of its profiles. This appears to depict steps viewed in silhouette, and if such is the case, the structure would have been adorned by more than one stair case, as is the Castillo at Chichen. But, again, there can be no substantiation without the assistance of surfaces no longer extant.

#### AREA 35

From the scant traces of paint remaining on the lower reaches of the wall in Area 35, bits of a marine scene were evident. Owing to the outward collapse of this wall, however, but one stone of value was preserved in the débris (Plate 162*a*). This depicts an oarsman clad in a short-sleeved, white tunic unusually embellished with black design. The posture of legs and body is well drawn, emphasizing the strain involved in wielding an oar. In the upper left corner is seen what would appear to be the head of one of the yellow-haired people so familiar in Areas 20 and 21. But just how and why it appears in such a position can not be determined.

#### AREA 36

The greater part of the walls in the southeast corner were thrust outward at the time of collapse, and as a result no frescoed stones were recovered.

Thus the roll of areas from the Temple of the Warriors has been called. Each has been described with as much detail regarding subject-matter and style as seemed to be of immediate significance. A few noteworthy comparisons have been drawn and some analysis of the various features has been made. However, a more complete study of minutiae and more detailed comparisons and analyses of the various subject-matters will be undertaken after the general description of the



frescos in the remaining group of structures under consideration has been completed, so that the additional material thus afforded can be coordinated with that just described.

#### CAPSTONE

The focal point of temple frescos during the period under consideration is found on the capstone which roofs the precise center of the chamber. On every occasion where the paintings are still visible, this particular block is treated as a single decorative unit, usually framed in blue lines to set it apart from all nearby paintings. Not only is it thus isolated from the point of view of subject-matter, but the very technique differs widely from that otherwise utilized. Whereas, the usual range of capstones was decorated with carelessly drawn scroll patterns, differing both from those upon the vault slopes and upon the vertical walls and meaningless in the light of the fragments thus far found, these especial blocks show that much skill and the greatest care were expended upon their decoration.

When the Warriors Temple was excavated, one of these blocks was found in Area 11 or in the very center of the frontal chamber. Unfortunately, the subject was completely erased, leaving only the characteristic two blue bands, 3.8 cm. wide, situated about 7.6 cm. from the ends of the stone. The section which had borne the detailed pattern measured 20 by 24 cm. A general idea of the type of ornamentation which may have adorned its surface at one time can be derived from a broken block, fortunately discovered in the North Colonnade (Plate 163). Its exact location as originally placed is unknown. It was found face upward on a heap of waste stone some time after excavation, when a heavy shower had washed away the coating of lime which had completely hidden the painting, thus revealing more than an ordinary chunk of rubble. About a third of the block was missing; however, the remainder is ample for the study of this significant and unique fresco.

Three of the blue marginal bands remain, as well as an additional yellow band upon which stands the human figure which filled the main panel. All of these strips were bordered with a thin red line.

A feature of the work is its stenciled appearance. The various codices utilize the stencil style rather extensively, and on the whole it might be looked upon as a manuscript rather than a mural characteristic. In the present instance, however, some doubt is cast upon the technique employed, since it will be noted that a trace of gray actually outlines the fingers of the right hand. This suggests the possibility that at one time all the white interstices were filled with this fugitive tint. What is more probable though, is that on the hand we have a trace of the preliminary work with which the painter blocked in his outlines, in strokes delicate enough to suppose their being completely obliterated by the clear color masses which were to cover them. The fact that the pink hand painting is missing from the gray outlined fragment, and that these outlines in their turn are invisible where the pink of the hand does appear, confirms this latter hypothesis. Moreover, the entire figure has been executed with a delicacy of detail and a grace of outline that credits the artist with a perceptive skill too great to have permitted

him to have robbed his composition of its beauty and effectiveness by blotting it out with filling lines of heavy black. A further manuscript characteristic is the use of wrist cuffs and leg greaves, identical with those constantly employed in the Dresden Codex.

The human being depicted on this stone conforms rather consistently to the God Impersonator type which is analyzed on page 453. While it is true that the most definitive characteristics of that type lie in the face mask and head-dress, the greater part of which is missing from the present fragment, the remainder of



FIG. 288—FRESCOS FROM EXTERIOR BASAL ZONE, WARRIORS TEMPLE, NORTH SIDE

the body reveals identities common to the more complete figures on the south bench of the Chac Mool Temple (fig. 305*a*). The bit of the chin which is visible could well represent the serpent jaw on the face masks, and the tail of the snake which hangs from the head-dress concurs with the serpent-like character of the God B mask. The body is painted serpent-wise, as are the Chac Mool Temple figures, with ventral scales, indicated and contrasted in color to the supposed dorsal section, but in this figure the scales are distributed in a different manner, without the

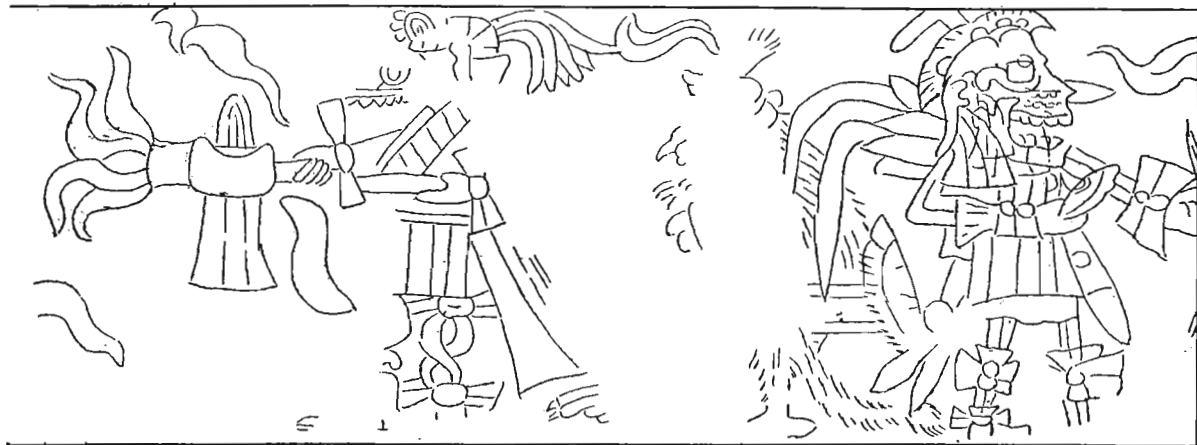


FIG. 289—SKETCH

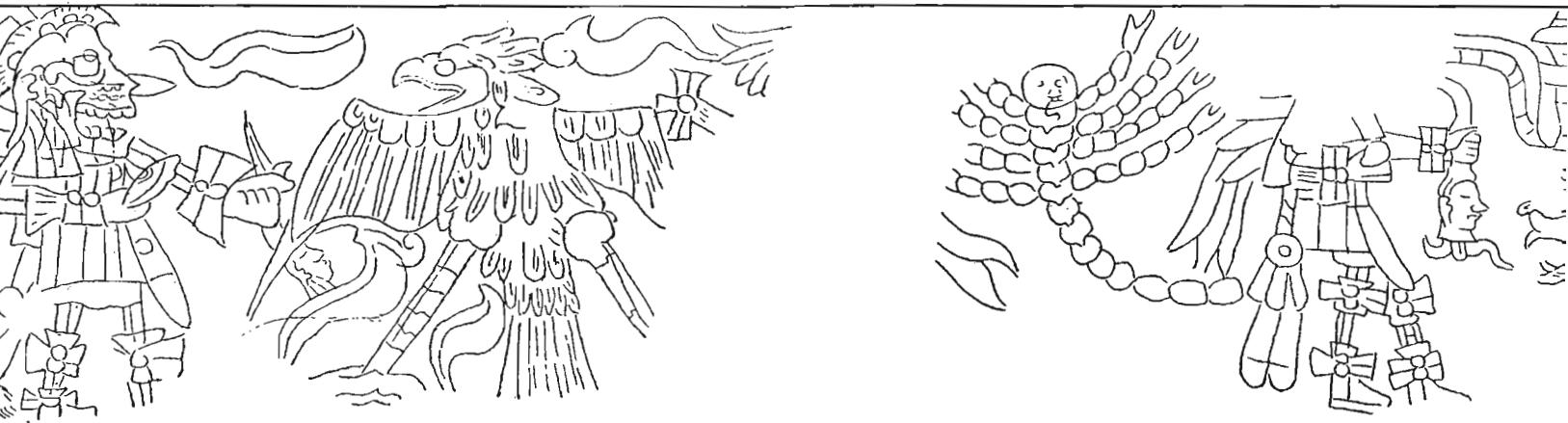
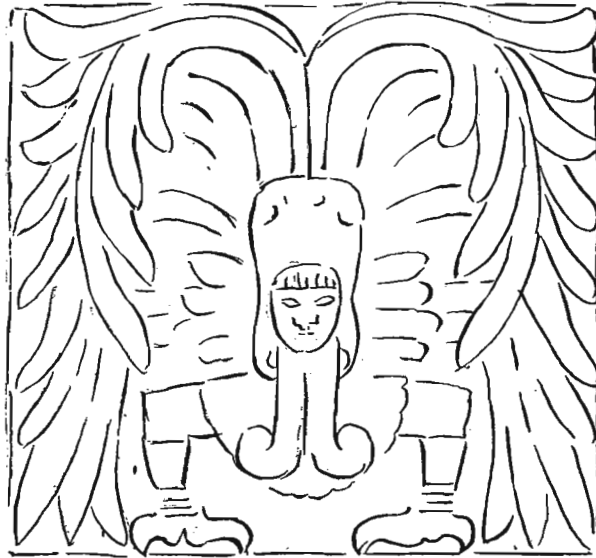
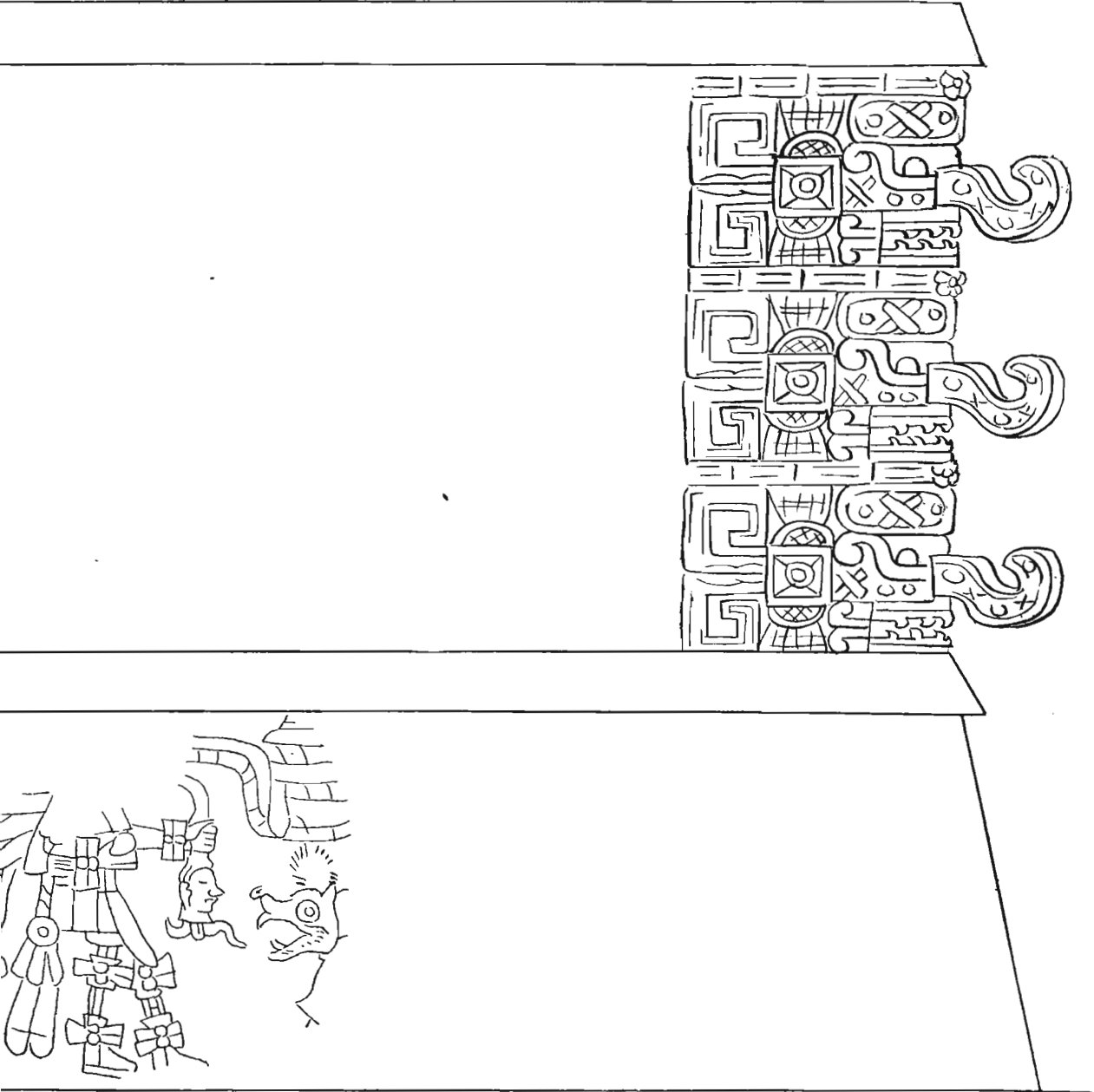


FIG. 289—SKETCH OF ENTIRE DESIGN RECOVERED, SET IN RELATION TO WALL AS A WHOLE, BASAL ZONE, NORTH SIDE, WARRIORS TEMPLE



H SIDE, WARRIORS TEMPLE

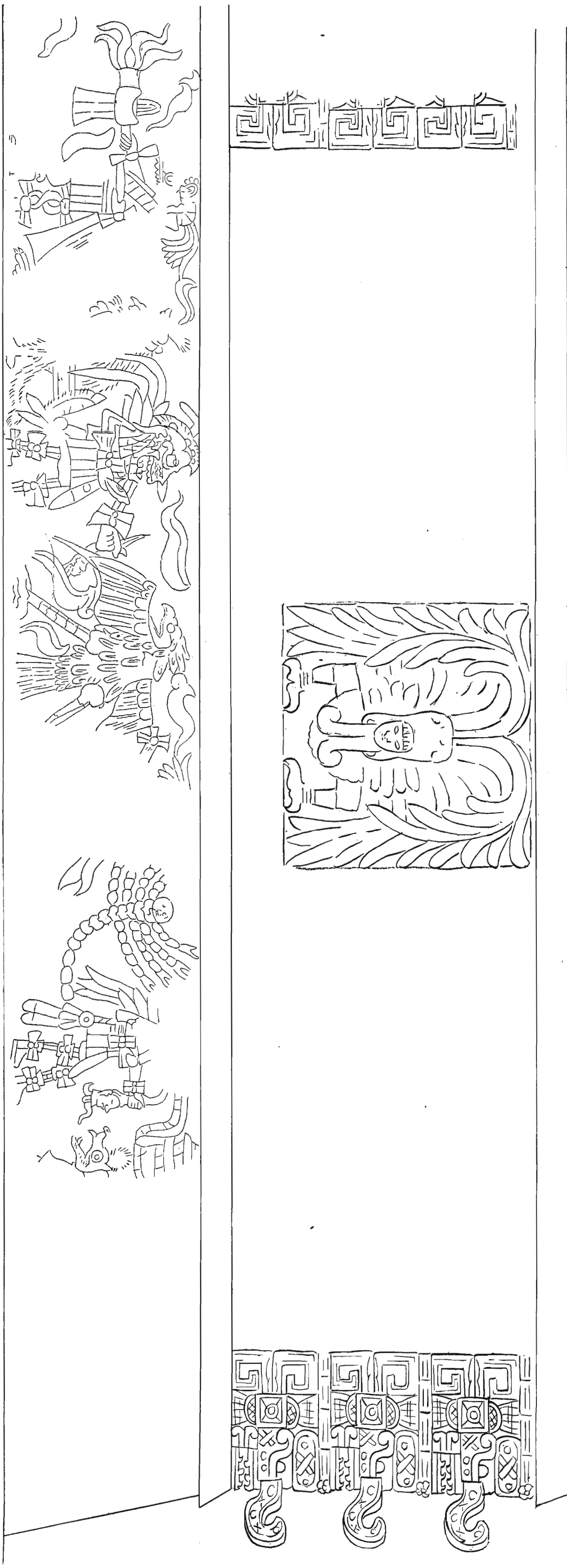


FIG. 289—SKETCH OF ENTIRE DESIGN RECOVERED, SET IN RELATION TO WALL AS A WHOLE, BASAL ZONE, NORTH SIDE, WARRIORS TEMPLE

care to place them on the softer, hidden body parts. The loin-cloth, marked with what appears to be a glyph, is held in place by a green mosaic belt; the wrist cuff and shoulder cape, both of which are green, and the green and yellow plumes from the head-dress are all features characteristic of the God Impersonator. A divergence from type, however, is to be noted in the long necklace with pendant oval adorned with beads and feathers, which swings free from the neck. This is a characteristic Atlantean adornment, according to M. Charlot (page 239). The fusion of these features, in addition to the unusual presence of a marking glyph, emphasizes the formality of the figure. The mystic connotations of god impersonation, linked with the half mythical Atlantean, suggest the ultimate of ceremonial and ritualistic intention.

## EXTERIOR FRESCOS

### NORTH ZONE

In the course of excavation outside the Warriors Temple, a fragment of plaster fallen from the north face of the sloping basal zone revealed bits of a colored pattern which was covered by numerous coats of superimposed plaster. This circumstance was surprising as the presence of elaborate fresco painting had never been observed on a temple's exterior at Chichen. Investigation revealed that at least 131 fresh plaster coats had been applied to the wall, some of them so paper-thin as to make an accurate count difficult, and that the twenty-second one, counting from the wall, bore a boldly executed fresco. The design was brought to light by a painstaking stripping of the overlying thin laminæ. Root action had played havoc with parts of the decorated field. Networks of tiny tendrils had wedged into every crevice and had forced the painted layer away from the one beneath, with the result that when the covering was removed it crumbled into thousands of tiny scales. Every unit of surface retaining plaster of a thickness sufficient to bear a portion of the painting was worked over with keenly pointed dentist's picks which sometimes brought off flecks of appreciable size, but more often freed less than a square millimeter at a time. Some areas of the slope adhered to the background with sufficient tenacity to make possible the clearing of large sections which remained in place long enough to be photographed (fig. 288) and copied at leisure. But it was necessary to transcribe the greater part of it to paper as quickly as the direction of a line, the trend of a curve, or the boundary of a patch of color could be ascertained. One dared not blow away the dust loosened by the picking tool, lest the slightest tremor should complete the dissolution of the fragile crust.

Eventually, a strip of frescos 7.92 meters long was recovered, which began 2.44 meters from the west end of the wall and continued thence eastward. The height of this band was 1.42 meters. Figure 289 is a sketch of the painted outlines of the design, given in relation to the wall as a whole, and to the sculptures occurring upon the medial zone, while Plate 164 depicts the colored representation.

The fresco appears to be an unrelated succession of figures, human and animal, executed with no apparent significance of sequence. Counting from left

to right, the first figure represents a human, painted almost entirely in red (Plate 164*b*). The face is adorned with green Tlaloc eye and teeth, and the yellow hands hold a great ceremonial staff or torch. The red dress is somewhat intricately adorned with self-color trappings. Green sandals and a green plumed head-dress of an unusual style complete the costume. Torch and mask recall the human beings on the sculptured bands of the pyramid (figs. 25-28).

FIG. 290—DEATH HEADS  
a, Zouche Codex; b, Tulum



Next in line, comes an almost obliterated animal (Plate 164*a*), characterized by the hairy body and short tail of the zoologically unclassified beast which, also, is found upon the sculptured bands in endless repetition. It appears to be a composite of a bear and a coyote. Unlike the sculptured representation, however, this animal is dressed with the triple-striped belt and blue "back-shield" so typical of the Warrior (see page 456), as well as with the blue beaded necklace tying at the back of the neck. The painter probably had some anthropomorphic concept in mind.

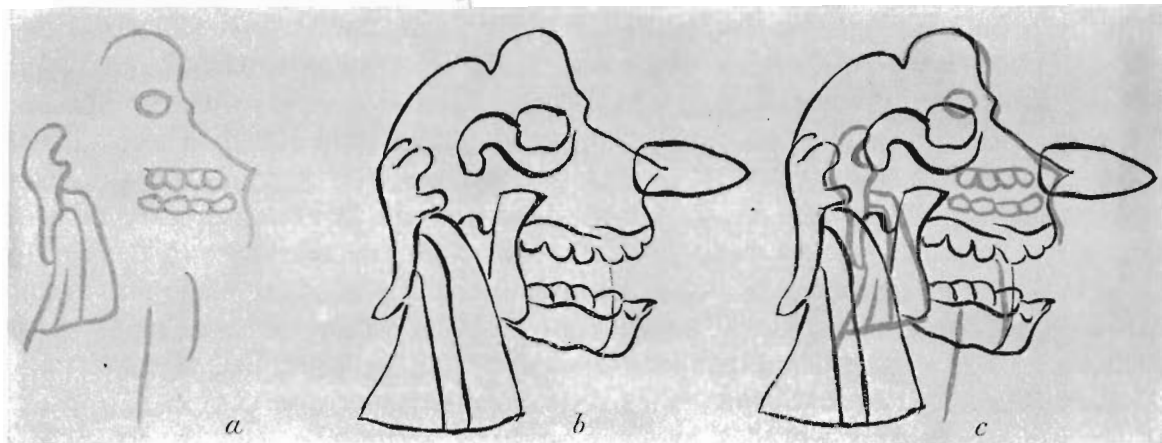


FIG. 291—DEATH HEADS, NORTH BASAL ZONE, TEMPLE OF WARRIORS  
a, preliminary drawing; b, overpainting; c, composite skull as it appeared when uncovered

After this bearlike creature, there is an interesting presentation of the Death God (according to Schelhaus, God A)<sup>1</sup> carrying by the hair a tiny human head. The god is clothed in blue, with bow-knots at wrist, knee and ankle, as is characteristic of the similar sculptured figures on the columns (Plates 105 N and 106 W). Although the hands and feet are flesh covered, the rest of the body reveals the

<sup>1</sup> Dr. Paul Schelhaus, *Gods in the Maya Codices*.



skeletal structure. The outstanding features of the skull—fleshless jaw, grinning teeth and truncated nose, adorned with the sacrificial flint knife—are found in the Dresden and Trocortesianus Codices, and in much of the later Mexican work. Figure 290*a* from the Zouche Codex illustrates all of these points, as well as similar hair and feather decoration. Probably the most interesting feature, however, is its dual presentation. A somewhat similar situation obtains in the Temple of Frescos at Tulum, where the two skulls are drawn, one before the other (fig. 290*b*). In the present instance, the smaller of the two heads was sketched in first (fig. 291*a*) and of such a size as to fit consistently with the rest of the body. Then the larger head (*b*) was painted directly over the first, producing the composite drawing (*c*). The first outline was quite skilfully utilized in the second drawing as far as possible, but the discrepancies were left frankly uncovered, indicating that the twofold result was intentional.

In his right hand, the god carries what may be either a red shell or a knife, and in his left a small human head grasped by the hair. There is such an enormous difference of scale between this tiny head and the great hand that some metaphysical relationship is apparently suggested. The alternative explanation, that of adjustment to a limited space, depends on whether the painter was working from left to right or proceeding in the opposite direction. It will be noted that each figure overlaps the one to its left. Although this condition would seem to indicate that the painting was done from right to left and that the major contours of the figures were lined in before the adjustment of detail was considered, this point can not be definitely determined.

Next in line is a great bird, identified by Dr. A. Wetmore as the harpy eagle (*Harpia harpyja*). The bird is figured in heraldic posture and, for all its stylization, is easily recognizable. The yellow beak and legs are skilfully handled and especial care has been devoted to distinguishing the long quills of the pinions from the shorter down of the head and breast. The plumage is white and the wing tips are gray.

Beyond the eagle, the plaster was gone from an expanse great enough to accommodate a single figure, and then comes a scorpion, purple-gray in color (Plate 164*c*). Although there is little similarity between this rendering and the actual living insect, it bears enough likeness to the scorpions figured in the Trocortesianus Codex to leave no doubt of identity. The peculiar form of the scorpion's front legs and grasping organs has been repeated in the present instance for the entire set of legs. In the Trocortesianus (fig. 292*a*), the insect carries the grasping organ on all the legs and on the sting in the end of the tail. In another example from the same Codex (*b*) the sting is represented by a human hand. But in the Warriors Temple scorpion (*c*) the stinging apparatus is not represented at all. The legs are segmented, as are the ones in the codices, and in addition the upper part of the body is made up of sections similar to the conventionalized serpent rattle, although the tail is composed of ovoid sections like the legs. The face in all instances has distinctly human eyes, nostrils and mouth, but the Warriors scorpion differs from the others in having a single curvilinear tongue in place of the bifurcation.

To the right of the scorpion is a second Death God, again holding a human head suspended by the hair. The skull is missing, but the remainder of the body is identical to the one above described, except that the entire figure, garments and limbs alike, is done in yellow.

At the extreme right of the fresco is a small animal's head, with grey-white fur, yellow eye and blue necklace. Above this head is what appears to be the heaped-up segments of a serpent's body with ventral scales distinguished from the dorsal parts. This may have been an attempt at representing a serpent as it appears when coiled.

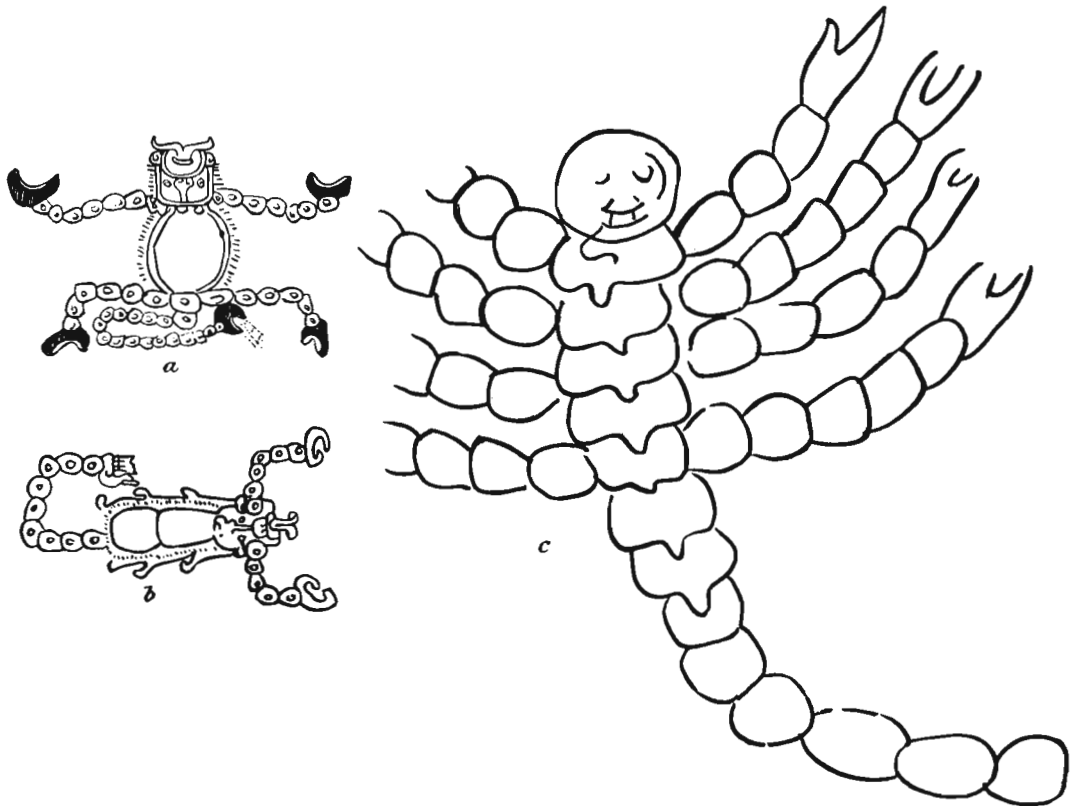


FIG. 292—SCORPIONS

*a, b*, Codex Trocortesianus; *c*, Temple of Warriors

#### SOUTH ZONE

Such success in recovering the frescos from the basal zone on the north side of the temple augured equal fortune on the south. In fact, since the heavy plaster was unusually sound on the latter side great hopes were raised. Before the twenty-second coat was laid bare, however, disaster was found to have overtaken the whole zone a few years after the painted portion had been covered by the subsequent

replasterings. At that time the whole cohesive plaster mass had fallen from the wall to within a few centimeters of the top and later the recess had been filled with a solid block of material, thick enough to level off the surface. In only two isolated spots, one 4.95 meters, the other 14.40 meters from the west end, did any of the frescoed portion remain. Each of these bore the head of a furry bearlike animal (Plate 165), balancing a blue ball on the tip of the nose and wearing a blue necklace knotted at the back. One wears an ear-plug situated as it would be in the case of a human, but far removed from the actual position of the animal's own ear.

Both the north and south zones were executed in a sweeping style, bold and free, with no regard for the relative size of the subjects. In every case, the painting



FIG. 293—PAINTED SCROLLS, SLOPING ELEMENT OF FIRST COMPOUND ZONE, TEMPLE OF WARRIORS

was as large as the space permitted, even though this resulted in a scorpion as tall as a man. It is probable that visibility from a distance was the objective of this grand scale. The effectiveness of the painting, when viewed from the Temple of the Tables, would tend to confirm such an assumption.

Although some of the pyramid facing remained in place, all the painted plaster that may once have decorated it had fallen away except that on the sloping element of the first compound zone, immediately under the cornice on the north side of the pyramid, where a few red painted scrolls were found *in situ*, as illustrated in figure 293.

#### NORTHWEST COLONNADE

When the Northwest Colonnade was constructed along the foot of the front face of the Warriors Pyramid, it covered much of the area previously occupied by the Demolished Colonnade which had stood in a comparable position at the foot of the Chac Mool substructure. In fact, the back wall of the older building was re-used in the new colonnade from the Warriors staircase southward. However, to the north of the stair the original wall swung so far out of alignment that the later builders demolished it and constructed a new one, correcting the direction.

When the mural painters set to work upon the section lying to the north of the stair, a single coat of plaster upon the new wall had been prepared for their brushes. On this surface they first painted the usual dado stripes, each averaging about 13 cm. in width, which commenced at the top of the sloping back-rest of the bench and proceeded upward in the order of black, blue, red and yellow. The lower stripe of black was extended down over the back-rest to the top of the bench.

The walls above the colored bands were embellished with great semicircular scrolls. Subsequent excavation of the Chac Mool Temple made it possible to identify them as parts of serpent bodies (Plate 132). The scrolls, a sample of which appears in figure 294, covered the back wall from end to end and from dado to arch, and followed a right-angled turn on to the side of the stair ramp. The bodies were divided into yellow, blue, red, green and white segments, repeated without

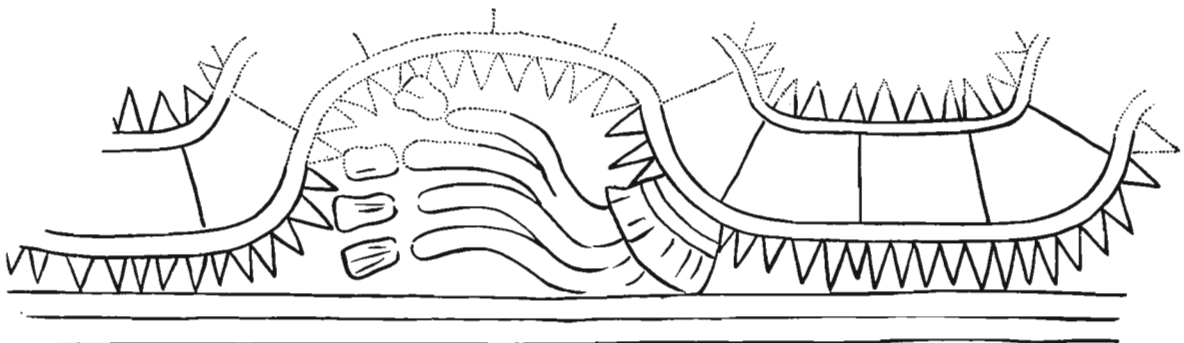


FIG. 294—FRAGMENT OF SERPENT BODY, NORTHWEST COLONNADE, BACK WALL, NORTH OF STAIRCASE

definite order and adorned with floral appendages almost identical to those found in the Chac Mool Temple (fig. 259). The head and upper parts of the body scrolls were drawn in all probability in a comparable manner. From the fact that an identical pattern appeared upon the walls of both structures, it may be inferred that but a brief interval elapsed between the construction of the two.

To the right of the great stair, as mentioned above, the builders utilized a standing wall which had been built at an earlier time. A doorway through this old colonnade wall was found lying directly under the superimposed staircase. Excavation along a short distance of its west or inside face revealed the original mural pattern to be made up entirely of bands of various colors, irregularly spaced. The arrangement is schematically illustrated in figure 295 and represents the only trace of mural decoration extant from the columned hall contemporaneous with the Temple of the Chac Mool. When the Northwest Colonnade was built south of the stair, the old wall was replastered to provide a fresh surface for a presentation of serpents similar to those on the north wall. These also passed around the corner on to the more recently constructed vertical face of the ramp. But, whereas the faced stone of the latter bore but one coat of paint and plaster, on the back wall evidences of the original striped design were visible where the

secondary coat of plaster had peeled off. Moreover, when an excavation was made into the altar which lies against this old wall, traces of the original color banding were again found. Naturally, the portions of the wall which were so obscured were not replastered.

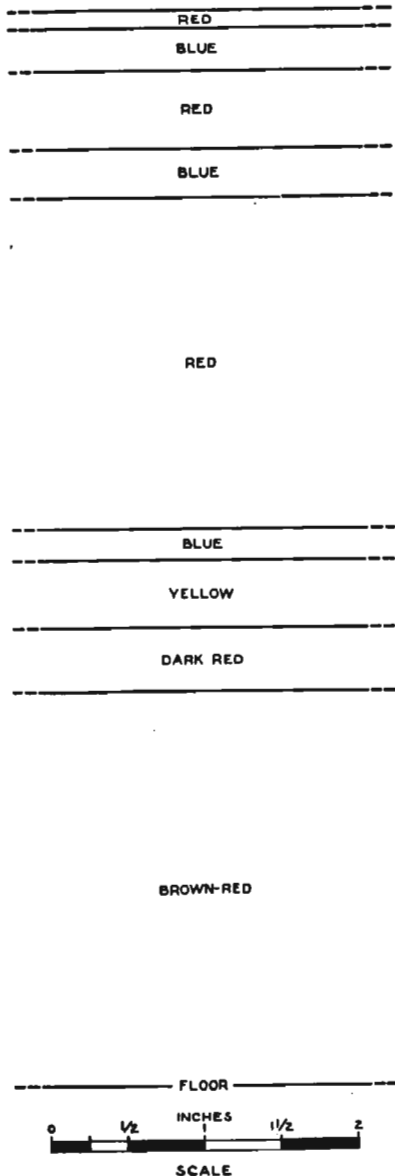


FIG. 295—SCHEMATIC PRESENTATION OF MURAL STRIPES FROM BACK WALL OF STRUCTURE PRECEDING NORTHWEST COLONNADE

ALTAR PANEL

The space immediately over the above-mentioned altar was adorned by a specially treated rectangle of painted decoration. Such altar panels seem to be a rather constant feature of the later structures at Chichen Itzá. They are known to have been present in three temples beside the one in question—the Tigers, the Warriors and the Chac Mool. None is present on the wall above the altar which lies to the north of the stair in this same colonnade. However, this is accounted for by the

fact that the south altar was an original part of the architectural plan, whereas the north altar was clearly a secondary construction or afterthought (see page 57).

The complete change of design, characteristic of altar panel treatment (page 414), is evident in the one which was partially recovered from the fallen débris which lay on the top of the south altar. Sixteen stones with a background of deep carmine and figured with fragments of human beings drawn to an exceedingly small scale, were unearthed at this place. Fifteen of the sixteen could be fitted back into their original relative positions, and they were so excellently preserved that no reconstruction is necessary in their presentation.

The reconstitution of this area was effected in a rather circuitous manner, which can be followed by reference to the illustration (Plate 166). Commencing with the left-hand block of the middle row, we find first an incomplete warrior with yellow legs, followed by a black-outlined red-colored figure with a missing head and left arm. On the stone immediately to the right of this there is a red-painted arm and hand holding three darts, correctly spaced to fit the body at its left. Moreover, the tips of green feathers above this arm tie to those on the stone above and belong to the decoration of a head, which from size, color and placement upon the stone, satisfactorily completes the figure. The big yellow scroll, occurring above and behind this head, is carried to a finish on the top middle stone. In the single green tip found in the lower right-hand corner of this stone, we have a tenuous tie with the scallop-skirted warrior below. But when, in addition the red arm of the same warrior is seen to tie with such nicety to the hand and wrist on its left, the matter is clinched.

Continuing to the right, green feather-ends from the head-dress finish with appropriate line and length on the margin of the adjacent stone. At this point, the complicated blue scroll assumes responsibility and, when carefully followed, is seen to fix four blocks in position and to connect the three ranges of stones to one another at a single stroke. The scroll commences with a bifurcation upon the fourth stone from the left in the middle row. Curving upward across the block above, it throws out a voluted offshoot and then drops behind the warrior below. It again emerges in front of his head, becomes almost lost behind the hand and feathered *atlatl* and finally is seen to descend in narrowing spirals to its tip before the sandaled feet of the lower right-hand figure. Various other details on the three important stones of this group substantiate the correctness of their placing.

The situation of the extreme lower right-hand block is fully justified by plumes from the skirt and the feathered helmet which tie accurately with the masked figure at its left. Proceeding to the left, again green feather tips<sup>1</sup> are the agency of adjustment, occurring as they do at a height which definitely associates them with the head-dress of the yellow-skinned man. The completion of his hand is found upon a narrow stone of equal perpendicular dimension—one manifestly cut to fill this very space. Further confirmation is received from the yellow scroll found at the top of the block. Careful inspection reveals a tiny, yellow tip of this device upon the stone above and to its left. On this same stone, the yellow-scalloped skirt and green-scalloped belt tie with like elements immediately to the left.

<sup>1</sup>These green feather tips show white on the plate.

The two blocks placed next to the left, which complete the picture, although they undoubtedly join one with the other, introduce the first element of conjecture. The height correctly fits the masonry pattern and the yellow scrolls in the lower right corner presumably join with those adjacent. Nevertheless, an absolutely confirmatory tie is unfortunately lacking. With this final exception, the association of the group of stones as given should meet with no valid objection.

A scheme of coloration, different from any other thus far discovered in the city, was used in the panel. The background was a dark, rich red, laid on so thickly and evenly as to indicate that several coats of paint had been applied. This red was made to cover the entire panel, instead of merely filling in the ground between the figure delineations, as was customary elsewhere. When the subsequent greens, blues and yellows were applied on top of the red, they took on an opaque quality much more startling than the fresh "water-color" appearance of the frescos in the Temple of the Warriors, and even more intense than the heavy, oily effect in the Chac Mool Temple. Another novel effect was obtained by the utilization of the background self-color for parts of the human figures, leaving all delineation to black outline. The black is too near in value to the red to have served as a very clear definition, so the final result accentuated the light color shapes, where such occur, out of all proportion. The effect is strange and rather beautiful.

The subject of the fresco is a double row of warriors in processional arrangement. There is nothing to indicate how the upper portion of the panel was decorated, for the lines of warriors clearly were not repeated in ascending tiers, since there is ample space above the upper row to have included the feet of a third zone, if placed as closely together as were rows 1 and 2. The large fulsome scrolls above indicate, likewise, the presence of a certain amount of blank space which the painter endeavored thus to fill. Since a small foot was found *in situ* on the wall above the altar, this procession occurred on the panel's lower edge and was of course the better preserved as it was buried more deeply than were the stones which had fallen from above. There is evidence in the Chac Mool Temple that the altar panel reached to the top of the wall but was divided into zones, and there is equally good evidence in the Warriors Temple that a long narrow strip of decoration occurred immediately above the altar top; for the undulating serpent in the latter (fig. 284) seems to be a complete horizontal unit in itself. The conclusion is therefore reached that this panel also must have been divided into sections, possibly threefold, as were the Santa Rita paintings.<sup>1</sup>

The figures are elaborately clothed and ornamented. Without exception, they may all be classified as belonging to the Warrior type in spite of their great diversity, inasmuch as they all carry darts, *atlalls* or fending sticks.<sup>2</sup> It will be noted from a comparison with the various warrior types, analyzed on pages 456-463, that several outstanding sub-types are present in whole or in part. In no case is the standard type represented *in toto*, but its many characteristic features which are distributed

<sup>1</sup> Gann, 1900.

<sup>2</sup> The *atlall* is the feather duster variety associated with the more ceremonial representations of the warrior type (page 459).

throughout the entire procession can not be ignored. The weapons have been mentioned; in addition, blue terraced helmets, adorned with the small bird, blue back-shields, three-ply belts, and cotton defensive sleeves are to be noted; as are also the scalloped skirts of planet-sign affiliations and the face mask. However, the presence of these features is not so remarkable as the rather exceptional discrepancies. Although some few definitive traits are accorded to each figure there is not a single example of what we have come to regard as a complete warrior uniform. Just what this departure from recognized procedure may signify, there is no way of knowing. Obviously, it is not a chronological development, because the Northwest Colonnade was built at about the same time as the Warriors Temple, the figures of which conform strictly to the standard warrior dress. More probably mere individual eccentricity would account for it, just as it does for the unusual technique of opaque painting.

The body painting is of interest, but this again should not be taken too literally. The background self-color outlined in black has been mentioned. In addition, there is all-yellow tinting, all-blue, mixed red-and-yellow, and blue-and-red. The impression derived from such diversification is that the three colors are used with no idea of realism, but mainly for the purpose of introducing variety and of building up a design. The accented spot pattern, resulting from the exag-

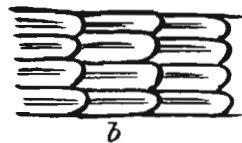


FIG. 296—FEATHER DECORATION  
a, Zouche Codex; b, Northwest Colonnade

gerated color technique, demanded consciously careful artistry. For instance, the predominance of blue at the right end of the panel appears to reflect the huge blue scroll; while the search for contrast is carried almost to absurdity in the motley jumble of nudity and vestments.

The isolated stone (Plate 167*e*) found mingled with the blocks from the fallen panel deserves particular mention. Technically it belongs to the group and probably came from another part of the procession or even possibly from one of the upper zones. It represents a human head enclosed in snake jaws and was rendered with great purity of profile. A fending stick appears raised in one of the hands.

The cornice of the bench lying to the right of the altar was adorned with fragments of fresco which suggest the reuse of stones already painted. A serpent head of the conventional Warriors Temple type (see page 472) lies immediately facing the altar. Beyond this, for some yards, the design is completely obliterated. When picked up again, it is changed into a rigid pattern of parallel feathers, multi-colored without regard to a set plan. A similar representation is found in the Zouche Codex (fig. 296).



When excavations were made in the floor of the Northwest Colonnade in order to determine the presence and location of the various earlier structures, a single painted stone came to light which had been thrown into the foundation fill of the platform. This depicted the head of a "classical" warrior type, with yellow painted face and blue hat and blue ear-plug. The technique of the drawing is unusual, as can be seen in Plate 167*f*, because there was no final outlining in black. Where required, as in the delineation of the nose, a red line is utilized and, contrary to all precedent, the usual white eye marked with black pupil is done completely in red. The whole effect is strikingly impressionistic. It has been suggested (page 90) that at one time this block was a mural feature of the old Demolished Colonnade.

## CLASSIFICATION AND ANALYSIS OF HUMAN TYPES AND COSTUME

When found, the painted stones and mural fragments were in much the condition of uncatalogued archives dealing with a little known subject. Obviously, from such a bulk of material, deductions both various and valuable were to be drawn. But before the nature of these could be ascertained, the many diverse elements of the mass had to be subjected to the careful analysis that would reveal the actual character and relative importance of their basic components. It is hoped that this has been accomplished in the foregoing pages, where, bit by bit, the entire body of material has been carefully dissected with due regard to chronological sequence and to position within the particular structure to which each unit pertained. It now remains to classify and synthesize; to draw together the threads of warp and woof which have been freed from the tangle, into a culture-fabric that, though it be patched and ragged, will, both in weave and pattern, bear a close resemblance to the original portrayal of Maya life.

### PHYSICAL CHARACTERISTICS

Many of the Spanish writers recorded comments on the Maya as they appeared at the time of the Conquest, which, when compared with the material in the present volume, give striking corroborative proof of the exactness with which Maya representational art followed the original models. Concerning the physical characteristics of the Maya it is written:

"These Itzaes are well featured, . . . nearly all of light complexion and of very perfect stature. Most of them have their faces cut and rubbed in with black and some are streaked like black negros."<sup>1</sup>

De Landa carries this a bit further:

"The Indians of Yucatan are a tall, well-made race, quick and very strong but generally bow-legged; for in their infancy their mothers carry them from one place to another astride their hips. Their heads and foreheads are flattened which was also the work of their mothers; the ears were pierced when they were very small<sup>2</sup>. . . they [the mothers] put the head

<sup>1</sup> Means, 1917, p. 22.

<sup>2</sup> Landa, 1864, p. 115.

[of the child] between two small planks; one on the forehead, the other under the occiput, squeezed with force and kept them in pain for some days; the head thus moulded remained forever flattened."<sup>1</sup> The custom existed of painting the body and the face red.<sup>2</sup> The Indians tattooed the body and the more they did this, the more brave and valiant were they considered.<sup>3</sup> They did not have beards. They wore the hair long like the women; on the crown they burnt it off in the manner of a large tonsure permitting the locks to grow all around while the hair of the tonsure remained short."<sup>4</sup>

It would appear that this was the usual type of coiffure for we find again in the *Relaciones de Yucatan*:

"... cutting the hair from the front to the middle of the head, and all the rest they permitted to grow like the hair of a woman."<sup>5</sup> (fig. 297*a* and *b*.)

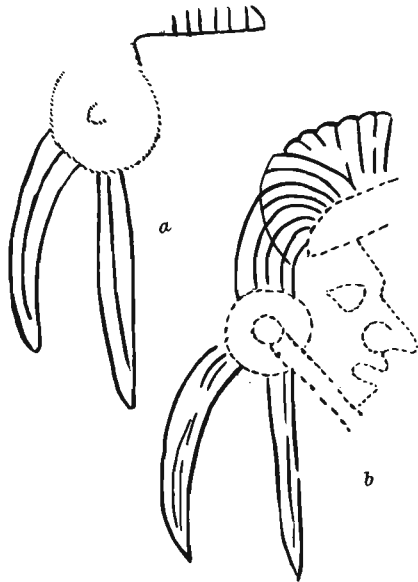


FIG. 297—HAIRDRESSING

*a*, North Bench, Temple of Chac Mool; *b*, Area 23, Temple of Warriors

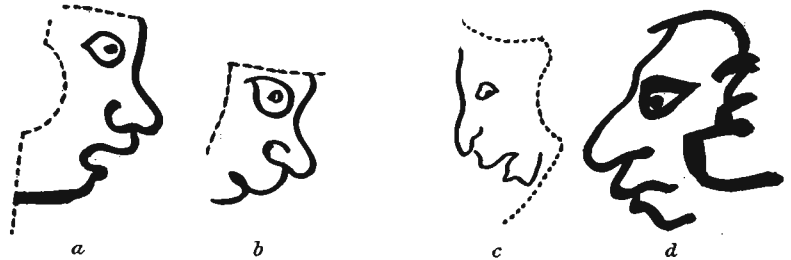


FIG. 298—TYPICAL PROFILES

*a*, *b*, "Toltec"; *c*, *d*, Maya



FIG. 299—HEAD WITH NEGROID CHARACTERISTICS, AREA 34, TEMPLE OF WARRIORS

Sketches of the two typical methods of hair treatment in the frescos (fig. 297) illustrate this point to a nicety. While in *b* the short ends of hair may be seen to stick up above the head band, in *a* the cap crowds these tufts down on the forehead with much the appearance of bangs.

It will be seen by a comparison with the accompanying figures, and in fact with the totality of material dealing with human beings, that all of the features above mentioned are duplicated in the paintings and sculptures, while at the same time many additional traits are depicted.

The conspicuous features of Maya physiognomy are the flattened deformed skull and the prominent Hebraic nose (fig. 298*c* and *d*). The "Toltec" warrior of

<sup>1</sup> Landa, 1864, p. 181.

<sup>2</sup> *Loc. cit.*, p. 117.

<sup>3</sup> *Loc. cit.*, p. 121.

<sup>4</sup> *Loc. cit.*, p. 115.

<sup>5</sup> *Relaciones*, 1898-1900, p. 80.

supposed Mexican derivation (see page 483), on the other hand, is depicted with blunted features, a snub nose and normal frontal bones (fig. 298*a* and *b*). On the whole, the expressions of the latter are rather naïve and ingenuous, while the Maya countenance is endowed with perfect serenity and a certain force of character, suggesting that the painter felt neither sympathy nor respect for the alien.

A third extremely interesting type (fig. 299) reveals a distinctive Negroid cast of feature. The short flat nose, pouting lips, and low bulging forehead, as well as the black pigmentation, are all too typical of the Negro and too unlike the Maya to be readily taken for accident.

Captives might almost be considered as a race apart. Grotesquery is emphasized at the expense of all else. Those whom the Maya had destroyed they after-

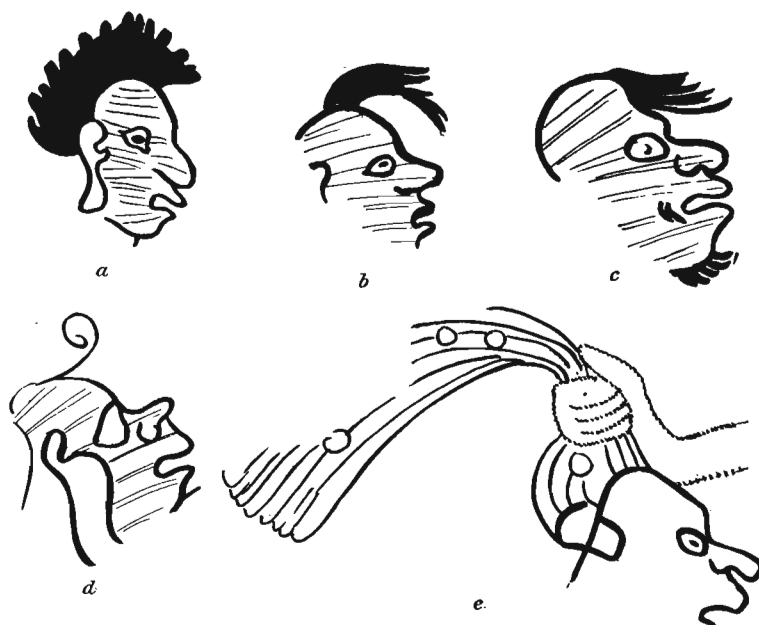


FIG. 300—GROTESQUE FACES OF CAPTIVES, TEMPLE OF WARRIORS

*a-c*, Area 15; *d*, Area 34; *e*, Area 20

ward subjected to caricature. Figures 300*a*, *b* and *c*, details from Plate 139, are excellent illustrations of the manner in which the painter indulged his rather caustic wit. The nude bodies are striped from tip to toe, the skulls are deformed—a significant point inasmuch as it would suggest that they were of the Maya race—and the hair and features are extravagantly burlesqued, registering a monstrous bathos at their unfortunate situation. The tiny lateral whiskers and short chin beard on figure *c* may well be a further expression of derision, since a hairless face was the custom. Figure *d*, similarly handled, might be considered as belonging to this category in the capacity of a forced laborer, since he appears to be engaged in constructing a temple (see page 430).

Figure 300*e* exemplifies an exceedingly interesting type of unfortunates who are being overwhelmed by armed men in Areas 20 and 21, and who later are sac-

rificed in Area 19. The figures possess neither clothing nor weapons, and, aside from the rather unusual circumstance of appearing with unpainted, natural, light-colored skins, they have extraordinary yellow hair, very long and thick and always twined with green beads. The burlesqued countenance, distorted with anguish, is a usual captive feature, and the deformed skull again suggests a Maya. It is difficult, however, to reconcile all of these physical qualities with a member of that race. The painter, in depicting the hair and skin with such care in order to contrast them with their black-painted armed captors, evidently had some notion of a distinct physical difference in his two sets of actors. But whether he was dealing with the familiar puppets of a folk tale, with intertribal wars, or with some more historically significant combat, we have no means of knowing (see page 402).

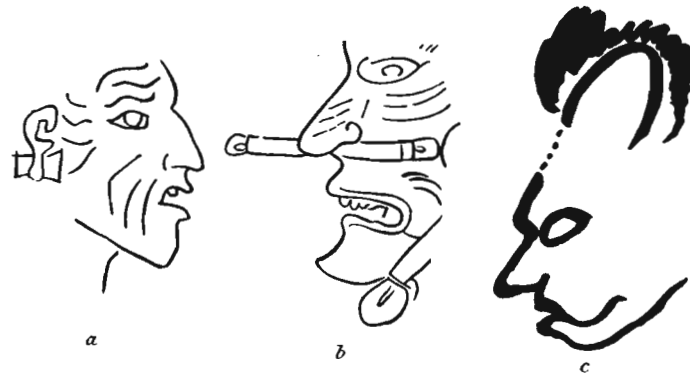


FIG. 301—CHARACTERISTIC TREATMENT OF OLD AGE

*a*, Codex Mendocino; *b*, South Bench of Chac Mool Temple; *c*, Area 31, Temple of Warriors

Face painting is characteristically handled in Plate 141*b*; the front of the face is painted in red as far as the outer corner of the eye socket, while the remainder is black. The hands are red in this case also, but the rest of the body is solid black. White circles around the eyes and mouth are frequent in the Sorcerer Type (see page 449); round dots are found on Plate 150*b*, and what appears to be black scarification appears on Plates 142*d* and 167*d*. Elaborate serpentlike body painting is seen on Plate 133, where the yellow ventral scales are contrasted by color from the dorsal parts and occur on the soft hidden portions of the torso, arms and legs, much as they do on the belly of the snake itself. Painted stripes are usually applied horizontally and, while not limited to captives and slaves, are fairly rare upon warriors and never appear upon those of the winning side, as they are evidently marks of ignominy.

Evidences of great age as it affects the face are carefully delineated. The Chac Mool Temple method of depicting this condition is with numerous parallel wrinkles, sharp, bony chin, and jagged teeth in the upper jaw (fig. 301). The Codex Mendocino, in representing a centenarian, utilizes the same devices (*b*). An even more realistic treatment is accorded the old man of Area 31, where the steeply sloping peaked skull deformation assists the illusion of sagging cheeks and toothless shrunken jaws (*c*).

Women are rarely represented. In fact, but a single instance, that of the death scene in Plate 144*a*, can be considered as having been conclusively determined. It is possible that Plate 137*b* provides a second illustration, judging from the long, flowing, black hair and the fragment of the breast-line. And again in Area 31 (Plate 159) it is highly probable that the figure seated in front of the boiling pot is also a woman. The costume compares rather exactly with that described in the *Relaciones de Yucatan*:

“. . . the women go covered from the belt to the middle of the leg with a cloth of colored thread, and with a shirt without sleeves . . . and they wear their hair very long and . . . very black.<sup>1</sup> They pierce . . . the ears to insert pendants in imitation of their husbands.”<sup>2</sup>

#### COSTUME

In studying the great bulk of both sculpture and fresco obtained from the Temples of the Warriors and of the Chac Mool, certain repetitions of costume and equipment are noticed. These have been sorted from the heterogeneous mass of material and have been divided into fairly definite types, which seem to correspond with various occupations and social classes. In many instances, the vestments are surprisingly similar, indicating definite, fixed uniforms expressive of caste and function. In other cases the dividing lines are not so sharply differentiated and a mixture of costume somewhat confuses the issue. The question of foreign importations also arises, though this was found very difficult to determine with any degree of certainty. However, the present chapter will endeavor to classify a number of types, specifying the constant features of each and indicating whatever deviations from the normal there may be. Since the shattered condition of the frescos resulted in many fragmentary figures, a correlation will be undertaken, when needed, between them and the more complete representations upon the sculptured columns, not only to substantiate the findings in regard to typical features, but also, in some few instances, to fill out missing details of apparel and accessories. Moreover, when the findings are similar in both carving and painting, more confidence is felt that the portraiture is exact. Certain stylizations must always be taken into consideration in both representational arts, but a cross check between the two tends to eliminate purely adventitious elaborations, leaving those features which are considered to be typical and necessary by both sculptor and fresco painter.

#### PRIEST

The first type to be delimited is the priest (fig. 302). On the south bench, Temple of the Chac Mool (Plate 133), are three excellent examples of this magnificently invested figure. Here, as on the sculptured columns (Plate 35, N, W, S and Plate 52), the priest is depicted holding a bowl filled with yellow, cone-like objects—presumably incense (see page 478). Both very old and very young men fill the rôle. Their skins are painted yellow, and the hair, with square-cut ends, falls loose over the shoulders. A great broad-brimmed hat, hung with short blue drapery or fringe and supporting an enormous green bulb in which

<sup>1</sup> *Relaciones*, 1898-1900, p. 80.

<sup>2</sup> Landa, 1864, page 181.



FIG. 302—TYPICAL PRIEST, TEMPLE OF THE CHAC MOOL

is rooted a tuft of flowing plumes, is worn on the head. This feature differs from the conventional boat-shaped, high-crowned headgear found on similar figures in the Warriors frescos and sculptures (Plate 52). A stick nose-plug with crimson tips and a green disk ear-plug with long green stem adorn the face. The body is completely covered from neck to feet with a long, sleeveless, reddish robe, sewn with green beads below the waist, where it is girdled with green mosaic plates fringed with white beads. The garment fits the upper body tightly, but is fairly full in the skirt. Columns and paintings alike show the skirt to be fringed at its hem with green or yellow material and the feet to be clad in green sandals. The wrist ornaments are interesting in that they are similar to the constant Dresden Codex type. They are constructed of three green plates lying lengthwise of the arm, the proximal ends of the outer two being adorned with white beads, while the middle one terminates in a point. The shoulders are covered with a cape or heavy collar of green mosaic, banded with pink, from which hang more of the white bead-like objects. The back is adorned with an elaborate "back-crest" which fastens to the shoulders and hangs slightly below the waist. This trapping is composed of long green and tiny white feathers thrust into a more or less stiff foundation strip of yellow, which is ornamented with a black Greek-key pattern. The effect achieved is much that of the well-known feather regalia of a Sioux chieftain. The left arm carries a shield, rectangular in shape, with white central panel decorated in black diagonals and outer edges hung with overlapping rows of red, blue and yellow textile or feather fringes. This shield, although of frequent occurrence in the frescos, is evidently a feature not monopolized by the priests, since the only place where it is found on the columns is in conjunction with an entirely different class of figures (Plate 36 S.).

#### SORCERER

A subsidiary priestly type can be separated from the long-skirted figures. It is closely allied in some respects and possesses definite, constant characteristics found both in sculpture and fresco. The extreme age of the persons depicted and the mystical qualities of their accessories suggested the term "Sorcerers" by which they are here designated (fig. 303*a*). Examples of this type are found on Plate 155*b* and *d*, Plate 170*c*, Plate 50 S., and figure 303*a* taken from south face of column 1, Northeast Colonnade.

They are represented as decrepit from age, with bent back and wrinkled paunch, affording a striking contrast to the erect carriage of the usual human figure. On the whole the dress is simple. The boat-shaped hat, tufted with orange and white feathers and long green plumes, is identical with that found upon the priests in the Temple of the Warriors. From under this appears a white cloth decorated with black crescents, which wrapped the head and fell around the shoulders, framing the face much as do wigs in the English courts of law. This feature is one of the preeminent constants utilized in identifying the type. The face is painted with white circles around the eye and white markings around the mouth. The body is nude to the waist, striped horizontally with white and red, and is girt with a short

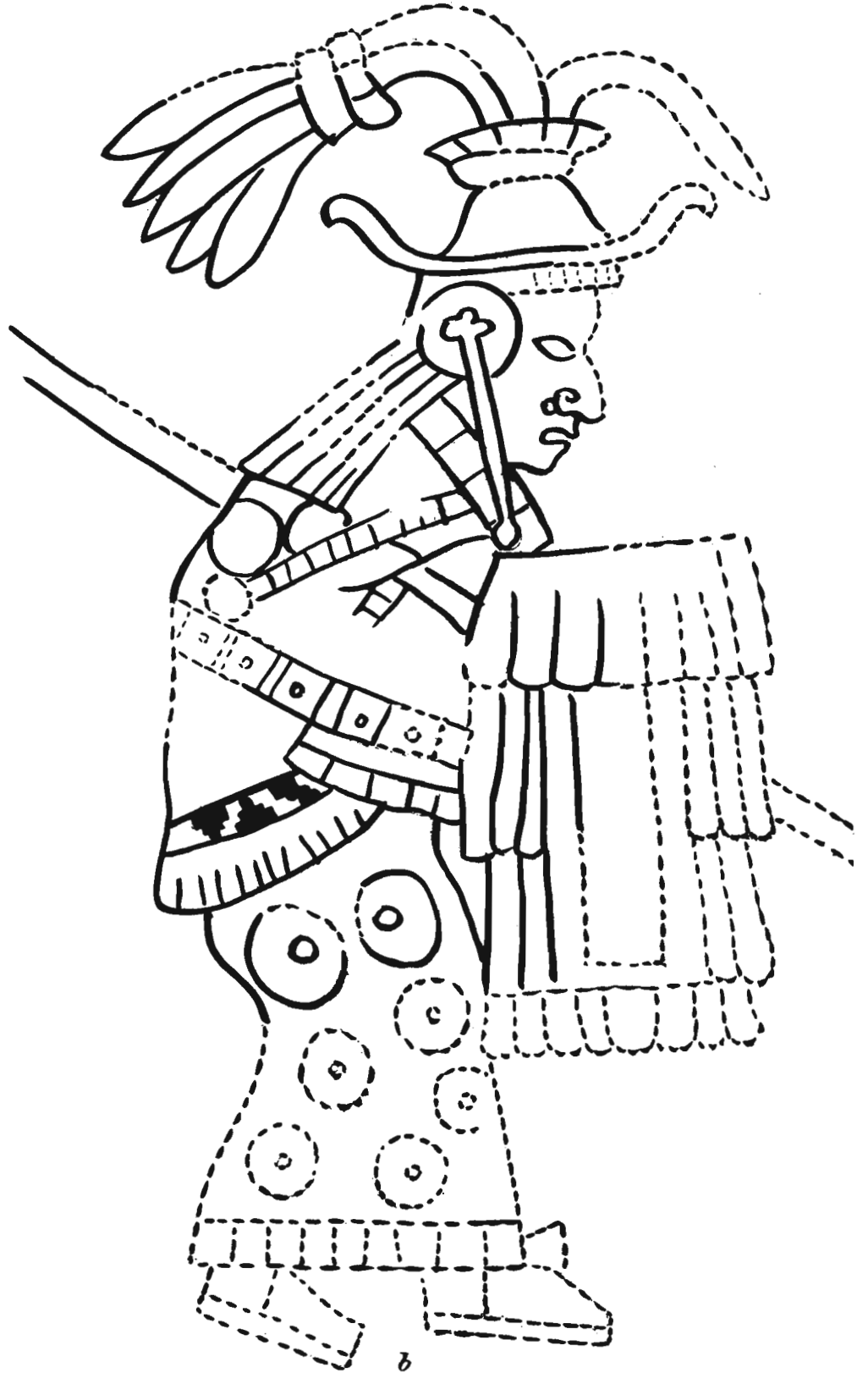
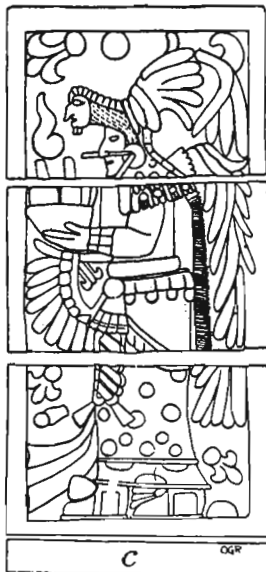


FIG. 303—TYPICAL COMPOSITE SORCERERS

*a*, Sorcerer, Northeast Colonnade; *b*, composite Sorcerer-Priest, Temple of Warriors; *c*, same, Northeast Colonnade



white skirt, also decorated with black crescents. The sorcerer carries a writhing serpent, manifestly the living reptile, not conventionalized into a staff, and a small basket or pot. The ear is pierced by a long, white, twisted, cylindrical device. Breast-plaque, simple knee ornaments and sandals complete the list of characteristic features. Various points of similarity to the garments of the priestly caste are found on Plate 155*b*, wherein appear the green mosaic belt and back-crest.

Figure 303*b*, taken from Plate 156*c*, represents an intermediate type having features both of the priest and the sorcerer. This figure combines the priestly robe and shield with the hat common to both, and, moreover, wears the white skirt of the sorcerer, superimposed over the long red gown. He carries a long rigid staff, characteristic of neither. This type is also noted on the east face of column 4 (fig. 303*c*) of the Northeast Colonnade, with the exception of the fact that the bowl of incense and back-crest are there represented, which confuses the issue. Such figures only go to prove that too much reliance can not be placed on type divisions. Because of the occasional intermingling of features, complete definitive characterization is impossible. However, a few representative forms can certainly be ascertained as being functionally distinct one from the other, and it is our purpose to winnow them out of the confusion.

In connection with the Human Sacrifice, described in Area 19 (Plate 145), three members of the priesthood are illustrated. None of them corresponds with the types above analyzed. The very simplicity of the garment of the kneeling figures suggests that they are of a lower order—more of acolyte rank. The head-dress, even of the officiating priest, does not conform to what we know of the more important members of the ecclesiastical hierarchy. Therefore, it seems probable that he belongs to yet a third category. The following quotation from de Landa might clear up this doubtful point.

“. . . the priests were called *Chilans*. The *Chacs* were four old men selected each time as needed to aid the priest to completely fulfill his duties during the celebrations. The title of *Nacon* . . . he it was who opened the breasts of the human victims who were sacrifices.”<sup>1</sup>

Accordingly, the Head Priest, clad in the long red robe, was the *Chilan*. The old men with priestly functions (Sorcerers) might be the *Chacs*; while the *Nacon*, or the one who did the actual sacrificing, is the type represented in Plate 145.

#### OLD MAN WITH A BONE

This peculiar figure is very rare (fig. 304). In fact, but for examples discovered both upon column and fresco, identical in their every eccentricity, there would be no justification for their classification as a separate type. Plate 137*c* illustrates the fresco, a fragment from the south bench of the Chac Mool Temple while Plate 37*w*, taken from a column in the same temple, represents the sculpture. In both of these the exceptional black and white textile cloak, identically patterned, is present, as is the quilted cloth thrown over head and shoulders and strings of yellow beads pendant from the ear. The individuals are of great age, as is evident from the wrinkled stomach and bony knees. But the most striking feature

<sup>1</sup> Landa, 1864, p. 161.



FIG. 304—OLD MAN WITH BONE, TEMPLE OF  
THE CHAC MOOL

lies in the bone which each wears hung around the neck upon a cord. This appears to be the femur of some animal, perhaps even of a human being, with the head and lesser trochanter carefully drawn. Because of perforations, (Plate 137c) it has been suggested that it is a musical instrument, but it is more probable that the tiny circles merely indicate devices for suspension. The bone is repeated in the hat of the sculptured figure and probably also would have been similarly present had the head of the painted one been recovered. It is represented as thrust into a white fillet, which ties the quilted head-cloth in place.

#### GOD IMPERSONATOR

There is a type of dignitary having none of the characteristics of priest or warrior, which carries as badge of office a ceremonial ax or staff, inset with celts, beribboned at the top and ending in a serpentine extremity.

“. . . each [chieftan] established in his house an *intendant*, who carried for ensign a *baton* short and thick, that they called *Caluac*.”<sup>1</sup>

Functionally they may have been some sort of official, but in ceremonial presentation they are accoutered with the elaborate coefficients of God B, or the Long-nosed God.<sup>2</sup> For this reason they have been called “God Impersonators.” The most striking features of the type are the god-masks, worn on a broad-brimmed hat or upon both face and hat. Those on the south bench of the Chac Mool Temple carry this point still further, on occasion having two masks upon the hat in addition to the one upon the face. The characteristics of the hat mask are the “elephant” proboscis, surmounted by nose-plugs; a suborbital plate, as well as one over the eye; threefold ear-plug with round center and upper and lower embellishments, to the back of which a crescentic, rigid form is attached; and, finally, a three-member head-dress with frontal and top ornament, garnished behind with a short upstanding jaguar or serpent tail. All of these traits, as figured in the typical specimen (fig. 305a), find striking confirmation in a representation of God B from the Dresden Codex (fig. 305b).

The face masks are identical with those of the hat as to nose, eye and ear, but undergo a variation in the lower parts. The jaw is serpentine with green scales yellow lips and a single upstanding tooth. It encases the jaw of the human, but does not completely obscure the mouth and chin as the nose and eye are obscured by their corresponding parts of the mask. This feature, while perfectly consistent with the ophidian characteristic of God B,<sup>3</sup> at the same time fuses with the concept of the human head, placed within a head dress of widely spread animal jaws.

The ear is covered with the triple disk found on the hat masks, and the nose carries a stick-plug. The square-cut hair falls to the shoulders, which are covered with a green mosaic cape similar to those worn by priests. The loin-cloth, which in the instance of the Chac Mool fresco is of jaguar pelt, is adorned, front and rear,

<sup>1</sup> Landa, 1864, p. 41.

<sup>2</sup> Schellhaus, 1904, p. 17.

<sup>3</sup> Spinden, 1913, p. 63.

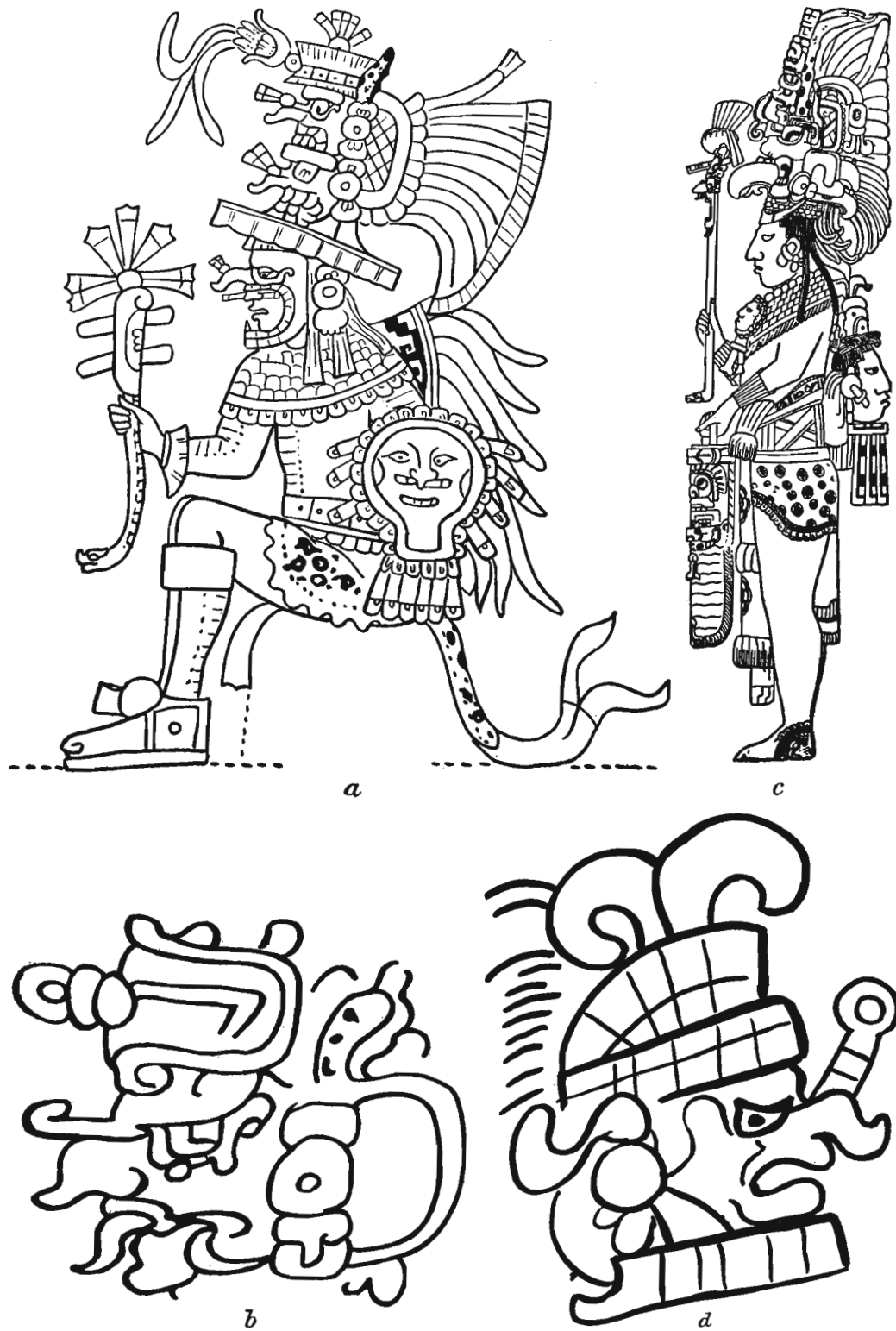


FIG. 305—GOD IMPERSONATOR

*a*, Temple of Chac Mool; *b*, God B, Dresden Codex; *c*, Tzendales; *d*, Warriors Temple

with hanging flaps, for one of which the tail of the animal, with variously colored bifurcated tips was utilized. The belt is green mosaic, fringed with red shells and white beads, and there are green sandals on the feet.

"They had another sort of money made of certain red shells which served also as decoration for their persons."<sup>1</sup>

The torso, legs and arms are adorned with reptilian painting, wherein the yellow ventral scales of the snake are put upon the equally soft or hidden parts of the body—the stomach, inside the elbow and under the knee.

Spirally wrapped leggings are found in some instances in both fresco and sculpture. In fact, Plate 134 depicts this sort of equipment, supplemented by elaborate knee ornaments and at the ankle by unusual blue cuffs. However, it is quite uncertain that this foot-gear belongs to the God Impersonator type, since, although processional arrangement permits repetition of similar figures, a more or less hierarchical sequence of groups seems to obtain. Therefore, since feet ornamented in this manner are widely separated from the assured God Impersonators it would appear probable that they belong to yet another order.

The God Impersonator carries an elaborate shield, roughly circular in shape, covered with long textile drapes, or else one inscribed with a human face and hung with short draperies and beads. In the Warriors Temple (Plate 157*b* and fig. 305*d*), the sole representative of this type wears the mask hat, somewhat simplified although the essential features are present. The face, however, is completely bare, unless the strip of green below the ear-stick may represent a vestigial bit of the serpent jaw.

The capstone (Plate 163), a painting executed in a radically different manner, depicts some of the characteristics of the God Impersonator. Here the reptilian body painting is further carried out by the serpent tail hanging from the back of the head, while green mosaic sandals, belt, cape and bits of what is probably the green and yellow serpent jaw are conspicuous.

#### MANIKIN SCEPTER

The ceremonial staff which this figure carries can be identified, beyond all reasonable doubt, as a vestigial form of the Manikin Scepter, a curious and highly stylized staff prevalent in Old Empire sculpture. The human or god face has disappeared, but the celt thrust through the top of the bar remains, as do the ribbon decorations. In addition, the bar is rigid for the greater part of its length but terminates in a flexible body with serpent head and ventral markings. Its association with the Long-Nosed God is apparent throughout the course of its history, and this is borne out by the god masks of those who carry it at Chichen Itzá. Its elaboration, as first noted in the Old Empire sites, would appear gradually to have suffered modification and curtailment, until, in this later Chichen Itzá occurrence, it seems to have turned into a mere skeletal shadow of its former self. The clearest definitive illustration of the transition may be found on the stela

<sup>1</sup> Landa, 1864, p. 13.

from Tzendales (fig. 305c) which, although bearing the relatively early date of 9-13-0-0-0, is carved in the manner of the best period.<sup>1</sup> The likeness between the two scepters is unmistakable. And what is equally significant, the costume of the scepter bearer is nearly identical with that worn by the God Impersonator. The composition of the head-dress with God B features—short, upstanding, tiger tail, hooplike back structure adorned with cross-bars and flowing feathers, the long, flowing, square-cut hair, the mosaic shoulder cape and tiger-pelt loin-cloth—all combine to make the presence of this form of the Manikin Scepter of even greater interest. Only rare evidences of the scepter are found in the culture of North Yucatan. Since, according to Spinden,<sup>2</sup> the speech scrolls with God B faces represent the terminal phase of its appearance, its undoubted presence at Chichen Itzá suggests that the line of descent split, at some previous point in time, into two derivatives, one being the Manikin Scroll and the other the Serpent-celt Scepter.

#### WARRIOR

The problems encountered in segregating the Warrior from the manifold clutter of fixed and mixed types are not too readily solved. The figures under this heading which have been selected for analysis are of two definite kinds: first, active warriors engaged in the actual practise of their profession; and second, what may well be the same persons with the same weapons, but in more festal array, as they might appear as participants in important ceremonies. Those engaged in combat are clad principally in their own skins, and being, therefore, fairly undramatic for the formal presentation customary upon the rectangular columns, they are completely unrepresented in sculpture. The great stretches of frescoed wall offered a much freer field for their strenuous activities. For this reason, the establishing of type-constants, common to both sculpture and painting, will begin with those ceremonially clad. Even these, when invested with full equipment, fall far short of the magnificence of their theatrically garbed contemporaries—Priests, God Impersonators, etc.

Since the warrior on parade is so frequently depicted with a constant range of paraphernalia, he may be regarded as the standard depiction of the type (fig. 306). This warrior is identified as the Toltec invader by Tozzer,<sup>3</sup> and the student will observe many distinct Mexican affiliations (see page 483). The skull is not deformed like that of the Maya, and a blunt, snub nose takes the place of the latter's distinctive Hebraic one (see page 444). He wears a blue cylindrical cap as a foundation for variously colored ornamentation. A blue bird, sometimes so realistic as to suggest taxidermy, is usually fastened to the front, and the brim is further garnished with a small upright insignia or pennon, always white in color. In the Temple of the Warriors a further constant feature consists of an ear-flap, with terraced outline, attached to the cap and overlapping the ear-plug. However, in the earlier Chac Mool Temple this characteristic feature was not yet developed,

<sup>1</sup> Spinden, 1913, p. 197.

<sup>2</sup> Spinden, 1913, p. 211.

<sup>3</sup> Tozzer, 1930.



FIG. 306—TYPICAL "TOLTEC" WARRIOR, TEMPLE OF CHAC MOOL

for there the flap descended only as far as the upper edge of the ear-plug. The nose-plug was a blue pendant bead and the ear-plug was a disk of the same color. The hair fell in long locks from under the hat and was colored yellow.

A very important feature of the costume was the necklace, always blue, but varying between two styles—one, a many-stranded affair adorned with pendant beads, the other composed also of several strands, but overlapped at the center by a conventionalized bird-form plaque (fig. 307). Either the bird on the necklace or the bird on the hat, or both, are invariable in this type of costume.

A short white tunic or a loin-cloth with front and rear flaps, sufficed as a rule for the major garment. This was bound at the waist by a three-ply textile belt, knotted in front and composed of two red border stripes with a white one between. On the back of it was fastened the blue "back-shield," represented as a half circle. This device is one of the most important items of the uniform since it invariably



FIG. 307—BIRD-FORM NECKLACE,  
TEMPLE OF WARRIORS



FIG. 308—QUILTED DEFENSIVE SLEEVE,  
TEMPLE OF WARRIORS

persists throughout all the variations and amalgamations to which the warrior type was subjected. It is an interesting point that this blue shield is marked into divisions identical with those of the turquoise mosaic disk unearthed in the Chac Mool Temple (Frontispiece). The small circular center, radiating division lines and scalloped edge are to be seen in both.

Wrist and ankle ornaments are of white feathers and the sandals also are white. An outstanding characteristic is the heavy, white, defensive sleeve worn from shoulder to wrist upon the left arm. Such a device must have been an effective substitute for a shield, since the two are never found together. The structure of these sleeves is carefully delineated on the sculptured columns of the Warriors Temple (Plate 43), as a series of thick, bulging rings encircling the arm. They are white in color, with each ring crossed by a series of short, parallel, black dashes. Thus portrayed, the device might appear to be a spiral wrapping, but the treatment in the frescos suggests that it was a rectangle caught together on the nether side to form a one-piece sleeve (fig. 308). Since Diego de Landa gives a description of the construction of a sort of textile coat of mail having the form of



a tunic, by a process which he said the Maya learned from the Mexicans,<sup>1</sup> it seems more than probable that these sleeves were made in the same manner.

"They wore also a tunic of quilted cotton stuffed with salt crystals which offered extraordinary resistance."<sup>2</sup>

Another source speaks of the same defensive tunics as being quilted with cotton.<sup>3</sup>

The basket noted in the bas-reliefs of the Temple of the Tigers is found but once in the frescos (Plate 143*b*) and once in the sculptures of the Warriors Temple. In the latter instance it is carried, together with darts and *atlatl*, by the god emerging from the sun disk (Plate 59 E). The only weapons shown are the *atlatl* of trefoil type, darts and fending stick.

The *atlatl* or throwing stick, although usually ascribed to late Mexican influence, has been found in the same trifoliate form upon an early stela from Uaxactun thus revealing that it was known to the Maya long before the late Toltec invasion. The essential structural points of the *atlatl* are the hooked tip,

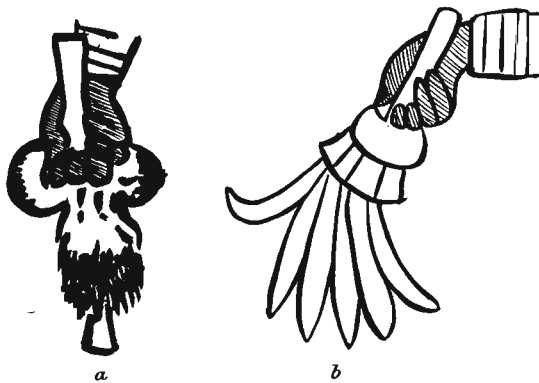


FIG. 309—ATLATLS

*a*, trefoil type, Temple of Warriors;  
*b*, bouquet or feather duster type,  
Northwest Colonnade

the shaft and two finger loops placed near the base. The instrument as such, however, is never rendered literally in stone or paint. Loops and shaft alike are buried under masses of short, fluffy, black-and-white feathers which swell the slim outline to the semblance of a clover leaf (fig. 309*a*), or are depicted as decked with long green plumes which give it much the appearance of a bouquet or feather duster (*b*). A description of the *atlatl*, as found in de Landa, mentions its dimensions:

"They had the art of throwing darts with a piece of wood three fingers in width, pierced at one-third its length and six palms long, with which they threw powerfully and accurately."<sup>4</sup>

The trifoliate form is used by the standard warrior type, while the elaborate "feather duster" rendering, even more functionally disguised, is found only in connection with the ceremonial derivatives of the warrior costume, which are discussed in the ensuing paragraphs.

<sup>1</sup> Landa, 1864, p. 49.

<sup>2</sup> *Loc. cit.*, p. 171.

<sup>3</sup> *Relaciones*, 1898-1900, p. 41.

<sup>4</sup> Landa, 1864, p. 46.

## STAR-SYMBOL WARRIOR VARIANT

The first variation of the standard warrior type is characterized by the addition of a short scalloped skirt to the normal ensemble. It is found, many times repeated, in both sculpture and fresco (fig. 310*a*). The skirt is handled in a manner strikingly suggestive of the "star" or "planet-sign." According to Spinden, in the highlands of Mexico a simple method of representing stars and planets as "celestial eyes" was in vogue.<sup>1</sup> The characteristic symbol, as found in Mitla (fig. 310*b*),<sup>2</sup> the Vienna Codex (*c*) and the Zouche Codex (*d*), is also found on the walls of the Warriors Temple (*e*). The one last named is taken from Plate 158*a* which represents a portion of the top of Area 25.

In these examples, the central figure, a red disk or "eye," occurs immediately beneath a black horizontal line. Below the "eye," its extremities impinging upon the black line, is a white curve, in form suggesting the suborbital plates as used upon the masks. Sharp red points hang from it. Parallel to the suborbital plate is a larger scallop done in yellow, from each ascending arc of which also flares a red point. Intervening between the scallops is a scalelike network in black upon a white ground. This is the sign which is identified with the scalloped skirt worn by the first type of warrior variant. It appears to repeat carefully all of the definitive points, and at the same time adjusts itself nicely to the necessities of apparel. As has been stated, the standard warrior type is thought to be Toltec, and since this variant is manifestly also of Nahua extraction, more than a fortuitous coincidence is suggested.

## ANIMAL VARIANTS OF WARRIOR

Although mammal, serpent and bird forms of the standard warrior type are to be found on the columns, from the frescos one serpent and several birds were recovered, but no mammal variants.

The serpent variant is noted upon Plate 167*e*, a figure from the procession of warriors on the altar panel of the Northwest Colonnade. Here, only the head and fending stick are visible, but since on the columns the disguise is limited to the head-dress, it can be assumed that the remainder of the body was treated in the fashion characteristic of the ordinary warrior type. The diagnostic feature is the human face encased in widely gaping serpent jaws of green, bordered with yellow.

The bird variant is more frequently represented. What is perhaps the best example, taken from Plate 150*c*, has been figured in line drawing with the warrior qualities distinguished from the bird attributes by a dotted outline (fig. 311*a*). Unlike the serpent form, the bird disguise is not limited to the head-dress, which in this case appears as a fragment of a bird's beak. The whole body is covered with feathers hung with beads, and the hands and feet are shaped like claws, yellow in color, realistically segmented into scales and ending in sharp talons.

<sup>1</sup> Spinden, 1913, p. 209.

<sup>2</sup> Seler, 1904.

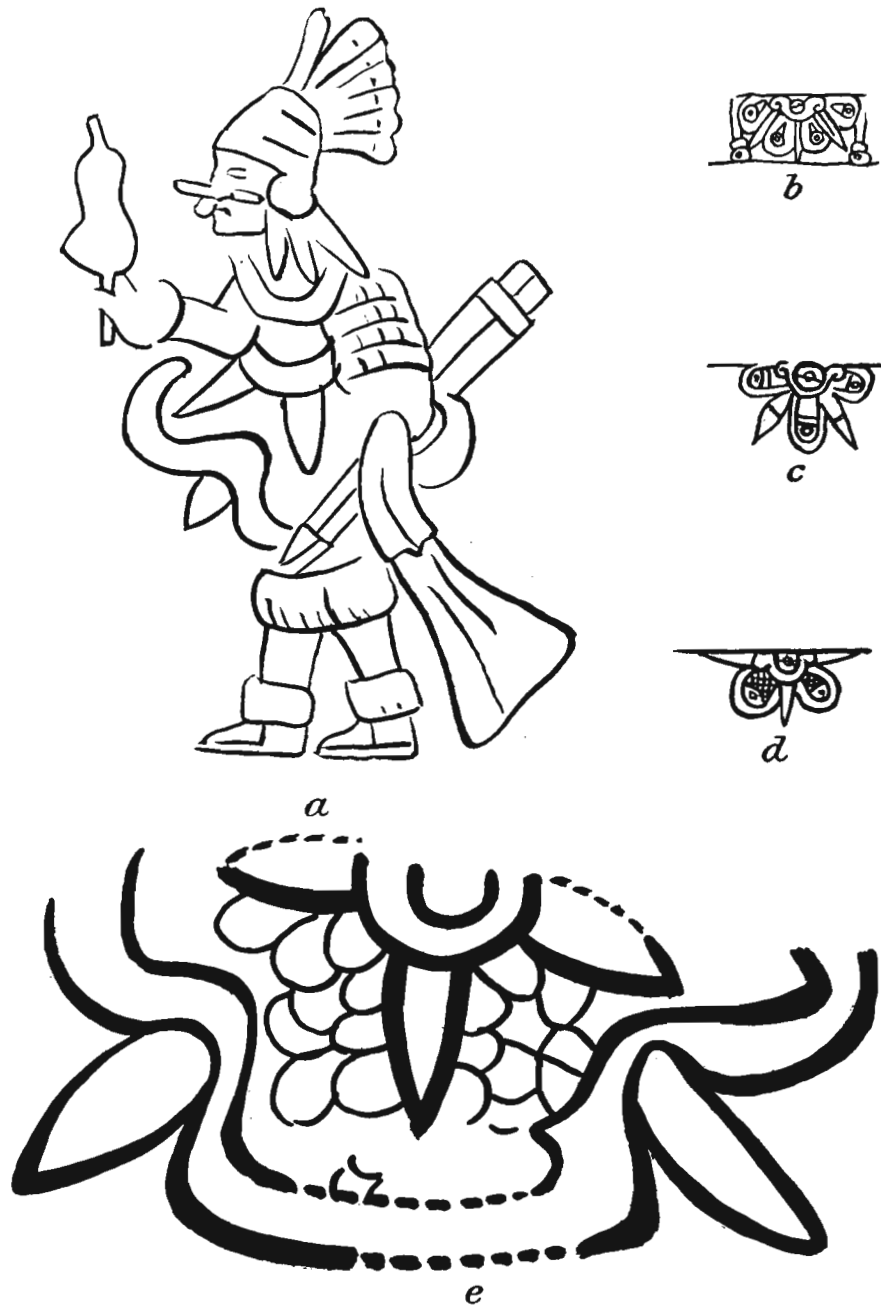


FIG. 310—PLANET SYMBOLS

*a*, used as skirt for warrior; *b*, Mitla; *c*, Vienna Codex; *d*, Zouche Codex;  
*e*, Temple of the Warriors

Of the warrior, the human face, breast-plate, textile belt, blue “back-shield” and cotton sleeve are all that remain, but these are characteristics distinctive enough to establish identity. In Plate 161*a* and upon the columns, the human hands are not disguised. Two more complete depictions of the bird head are found in line drawings (fig. 311*b* and *c* taken from Plates 155*e* and 150*d*). This type, particularly the examples with claw hands, must be intended to represent a mythical concep-

tion—a deified bird, intrepid enough to claw at the body of the great Plumed Serpent.

#### GOD-WARRIOR VARIANT

This sub-type is unusual, and in fresco it is represented only upon the altar panel of the Northwest Colonnade. The distinctive characteristic of the figure is the face-mask with both God B and Tlaloc affiliations. In the Chac



FIG. 311—BIRD VARIANTS OF WARRIOR TYPE, AREA 23,  
TEMPLE OF WARRIORS

Mool Temple both sculpture and fresco ascribe these masks only to priests and dignitaries. Not until the later structures were erected, were the essentials of the god-mask utilized by the warrior, and then only in simplified form. In figure 312, taken from Plate 166, it can be seen that only the indispensable features were retained. The original mask covering the entire head, except for a

mouth aperture, has shrunk to an eye ring and a proboscis, probably attached by clamping two forked fasteners across the cheeks and tying them behind the ears. As on the columns, feathers are added to the costume as cloaks or skirts. Aside from these features, all of the complete warrior equipment is found. The ceremonial *atlatl* is usually present.

#### WARRIOR IN COMBAT

At the beginning of the discussion of warrior types, mention was made of a difference between the figures actually engaging in combat and those more formally attired. The foregoing analysis has dealt only with the latter. The warrior in the field would seem materially to have reduced his fine raiment; although parade trappings are banished, his increment of practical armament remains constant. The padded or quilted tunics, previously cited, are much in evidence. These loose sacklike garments are sleeveless and hang to the middle of the thigh (fig. 313). They are white in color and usually reveal marks of quilting and of rather elaborate decorative embroideries and stitching.

The bodies are painted black from head to foot except for the hands and the front half of the face, which are rendered in copper-red. These findings check nicely with a passage from the *Relaciones de Yucatan* (page 41):

"They wear tunics without sleeves, padded with cotton, and in order to demonstrate ferocity and to appear more fierce and valiant they smear nose and face and body and arms with black and yellow."



FIG. 312—GOD VARIANT OF WARRIOR TYPE,  
NORTHWEST COLONNADE

Where the warriors are painted with stripes, as in Area 15-16 (Plate 139), it seems fairly evident that such coloration is merely utilized as a device for distinguishing the native village defenders from their conquerors (page 392).

When the tunic is not worn, a loin-cloth is made to suffice. It is wrapped around the body and arranged with front and rear flaps falling to the ankles. It would seem from a description of this garment in de Landa that the flaps are an integral part of the belt or loin-cloth itself, and hence that the tunic when worn is put on over the constant under garment.

"Their clothing was a belt of the width of a hand which served as sort of short pantaloons. They wrapped the loins many times in such a manner that one end fell in front and the other behind. These ends were worked with a good deal of care by the women who ornamented them with embroideries and clusters of plumes."<sup>1</sup>

This embellishment of the flaps is not evident in the frescos, but many examples may be noted on the columns. The warrior represented in figure 314 is equipped with neither loin-cloth nor tunic, although otherwise seeming to be normally shod

<sup>1</sup> Landa, 1864, p. 115.

and armed. This man is the only example of nudity observed, except in the cases of the captives and sacrificial victims.

Skull caps, or the simplest type of hat, and plain white sandals are worn. There are no nose-plugs—an exceedingly practical omission. The usual weapons are carried—*atlatl*, darts and fending stick, and usually the round shield as well.

“. . . round shields made of little bars strongly plaited one with the other . . . similar to ours [Spanish], with hand strap and garniture of the skins of deer and tiger.”<sup>1</sup>



FIG. 313—QUILTED AND EMBROIDERED TUNICS,  
TEMPLE OF WARRIORS

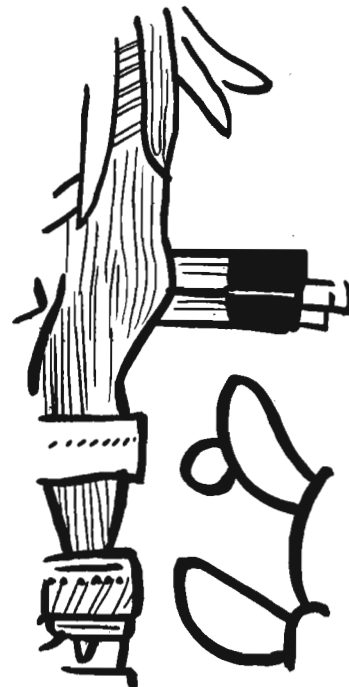


FIG. 314—WARRIOR—TEMPLE OF  
WARRIORS

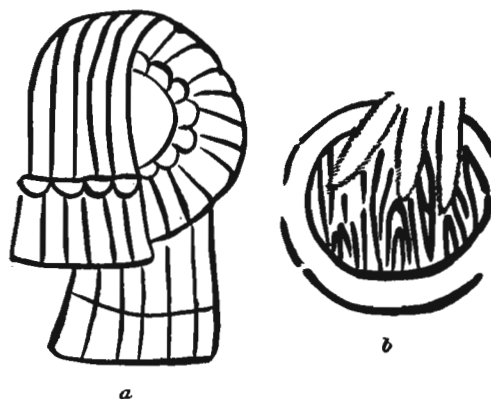


FIG. 315—SHIELDS, TEMPLE OF WARRIORS

These shields are embellished in various ways, more indicative of structure than suggestive of heraldic devices individual to warrior or tribe as is found in the

<sup>1</sup> *Relaciones*, 1898-1900, p. 80.

Temple of the Tigers. One type is plain white, rimmed in red; others have white rims with yellow center crossed by straight or zigzag black lines (fig. 315*b*); in *a*, the yellow center is outlined with white scallops, the whole resembling a daisy. Such shields are hung with textile drapery. As may be seen, these shields are much more simple than those carried ceremonially by the Priests and God-Impersonators.

#### LABORERS

The individuals engaged in various capacities of menial labor were members of the lower classes, thieves condemned to servitude,<sup>1</sup> or slaves captured in war. While a few of the captives were sacrificed to the gods, the great bulk evidently were assigned as servants to their captors.<sup>2</sup> Their garments were exceedingly simple, according to the Spanish writers:

"The common people do not wear garments nor other festal array, nor ornaments . . . [they wear] on their feet sandals of deer hide, and others wear those made of henequin, with ties which pass between the toes and others which encircle the heel and come to tie at the ankle." <sup>1</sup>

Such persons are found only in the frescos, since the sculptures deal solely with greater dignitaries laden with regalia. Those in servant status were very scantily dressed (Plate 159, Area 31). A breech clout was the only body covering; the head was bare or protected by a skull cap; and the feet usually were unshod. A few wore sandals, and some a white tunic (Plate 157*c*), commonly plain, but occasionally ornate with black embroideries, as in the case of the oarsman (Plate 162*a*).

Universal applicability of the findings of this method of classification can not be expected. Beyond doubt, analysis has revealed a few standard uniforms expressive of social class or function. However, the criteria of dress were sufficiently flexible to permit circumstances and individual fancy to alter to some degree the normal ensemble. Such a situation is admirably illustrated in Plate 150*b* where the painted figure has evidently suffered from all possible processes of mutation. This sport is endowed with a Death-God head composed of green eye disk and teeth and well-defined jawbone (see *a* from the same plate); with the cotton defensive sleeve of the Warrior, the claw of a bird or jaguar; and, finally, with the skirt and sandals of a Priest.

Fortunately for the cause of systemization, such conditions are rare. Nor in the long run do they interfere materially with the value of methodical classification. The analysis of costume, as completed in the foregoing pages, is backed by enough repetitive evidence to make it a sound basis of departure for the investigator who may undertake further research in the same field. The following table is derived from the preceding classification and analysis of costume.

<sup>1</sup> *Relaciones*, 1898-1900, p. 80.

<sup>2</sup> Landa, 1864, pp. 51, 101, 115, 175.

<sup>3</sup> *Relaciones*, 1898-1900, p. 80.

## Table of Constant Costume Features

	Fresco	Sculpture
<b>PRIEST</b> (fig. 302, page 447):		
Physical Type....	Very old or very young men.....	Same.
Head-dress.....	Chac Mool: Straight brim, built high with trailing feathers.....	High-crowned hat on top of coronet.
	Warriors Temple: Boat-shaped rim, high crown, trailing feathers...	Same surmounting diadem base.
Hair.....	Hangs below shoulder, square-cut.....	Same.
Ear.....	Green disk with stem.....	Same.
Nose.....	Stick plug.....	Same.
Garment.....	Long red robe falling from neck to feet, adorned with green beads below waist.....	Same.
Shoulders.....	Green mosaic cape or collar.....	Same.
Back-crest.....	Long plumes from yellow foundation strip, ornamented with Greek key pattern.....	Same.
Sandals.....	Green.....	Same.
Accessories.....	Bowl of incense, no weapons.....	Same.
Shield.....		Not present.
<b>SORCERER</b> (fig. 303a, page 449):		
Physical Type....	Decrepit, bent old man with paunch.....	Same.
Body Painting....	White circles on face. Red and white stripes on body.....	Same.
Head-dress.....	Boat-shaped hat tufted with feathers and head wrapped in white, wiglike cloth decorated with crescents.....	Same.
Garment.....	White skirt. Bare legs and torso.....	Same.
Ear.....	Long rigid plug of twisted, white substance.....	Same.
Accessories.....	Basket. Living snake.....	Same.
<b>OLD MAN WITH BONE</b> (fig. 304, page 451):		
Physical Type....	Aged man with wrinkled stomach and bony knees.....	Same.
Head-dress.....	Gray, quilted cloth over shoulders. Head missing.....	Same in yellow, tied in place by fillet. Bone inserted at front.
Ear.....	Long, yellow pendant of beads.....	Same.
Cloak.....	Black and white textile cape with striking geometric design.....	Same.
Necklace.....	Bone.....	Same.
<b>GOD-IMPERSONATOR</b> (fig. 305, page 453):		
Head-dress.....	Broad-brimmed hat supporting one or more God B masks.....	Same.
Face.....	Chac Mool: God B mask over eye and nose. Mouth and chin framed in serpent jaws.....	Chac Mool: Same.
	Warriors: No decoration.....	Warriors: Similar to above.
Body Painting....	Serpentine characteristics.....	Not present.
Nose.....	Stick.....	Same.
Ear.....	Triple disk.....	Same.
Shoulders.....	Green mosaic cape.....	Same.
Belt.....	Green mosaic with bead and shell ornament.....	Same.
Garment.....	Loin-cloth or tiger pelt. Back-flap with colored, bifurcated tips..	Same.
Foot-gear.....	Green sandals. Sometimes leggings.....	Same.
Weapons.....	Ceremonial staff or ax, manikin scepter, spear and shield.....	Staff, spear, or ax.
<b>WARRIOR, "CLASSICAL" OR "TOLTEC" TYPE</b> (fig. 306, page 456):		
Physical Type....	Undeformed head; snub nose and rounded features.....	Same.
Head-dress.....	Blue, cylindrical cap, usually decorated with blue bird and upright, white insignia.....	Same.
	Warriors Temple: Ear flaps in stepped outline over ear-plugs.	
	Chac Mool: Ear-flaps pass under ear-plug.	
Hair.....	Yellow braid falling to shoulders.....	Same.
Nose.....	Blue pendant bead.....	Same.
Ear.....	Round blue plug.....	Same.
Necklace.....	Many strands of blue or same with conventionalized blue bird breast-plaque.....	Same.
Garment.....	Tunic or loin-cloth with <i>maxtli</i> .....	Same.
Belt.....	Three-ply textile with blue back-shield.....	Same.
Wrist and ankle ornament.....	White feathers.....	Same.
Weapons.....	Fending sleeve, fending stick, <i>allatl</i> darts.....	Same.



## CLASSIFICATION OF MISCELLANEOUS SUBJECT-MATTER

In addition to the foregoing study of physical types and classification of dress, it has seemed desirable to collate various other categories of material scattered throughout the fragments of painting upon which this report is based. One of the most fundamental points to be considered is the manner in which the artists handled the problem of landscape.

## LANDSCAPE AND VEGETATION

All of the land surfaces represented in these frescos are flat. There are no mountains or hills evident, as in the case of one of the paintings from the Temple of the Tigers. As before mentioned, receding perspective is indicated by an ascending vertical plane. The lowest parts of the picture represent those scenes nearest the spectator, and the higher portions the more distant landscape. The horizon line or sky is never expressed—the effect being much that of a bird's-eye view from a considerable height. When this idiom of expression is once understood, the absence of true perspective does not make itself felt.

The unpainted plaster was never utilized except for the delineation of temples and masonry pyramids which were necessarily white. For the backgrounds of purely formal scenes, such as the succession of heraldic figures on the Warriors Temple exterior wall (Plate 164) or the great snakes on the Chac Mool Temple walls (Plate 132), red was almost invariably used. The sole exception to this occurs in the blue-green ground of the Altar Panel in *a* of the last-mentioned illustration. The use of red seemed to have been an instinctive reaction of the Maya decorator. Roads, courts, floors, altars, recessed backgrounds of bas-reliefs and the greater parts of interior walls and arches were sodden with this omnipresent hue.

When specific features of landscape were figured on the walls, red seems to have served as an indication of cleared ground. The village scene of Plate 159, shaded by a few scattered trees, illustrates this point. It is used again as a background for the procession of warriors and captives in Plate 139. Here, the long, straight strip appears to be a road, such as transected every town, or even one of the causeways connecting distant cities, as for example the great trunk road between Cobá and Yaxuná. It is entirely possible that a similar roadway is here portrayed as being traveled by the striped persons who were torn from their homes and led captive to the city of their conquerors.

A light green ground, such as encloses the raided village (Plate 139), served as an alternate color in landscape presentations. Every indication suggests that this color was intended to represent cultivated ground. The henequin plant between the two huts at the extreme right of the picture, to all appearances stands in relation to its surroundings, as a symbolical representation of a planted field. It may be a case of pure impressionism, for certainly a henequin fields *looks* green. However that may be, the single plant is more than realistically painted, as it is visible, root, leaf and branch, from above and below ground at the same time. Another

painter in the temple depicted two large plants, which resemble the foregoing, also as standing against a green ground. One of them (Plate 153*a*), resembling the sisal or henequin as grown today in Yucatan, has been tentatively classified as an *Agave*. The stalk is yellow and the jagged leaves are painted a silver blue—a point revealing rather acute observation on the part of the artist. The other (Plate 153*b*) resembles the branched *Opuntia*, a cactus plant, painted with yellow stalk and dark green nodes, tipped with red fruit.

An adaptation of the green ground is illustrated in Plates 153*c* and 152*a*, where vegetation is represented by uneven, curving, boundary lines, expressing overlapping mass, which enclosed variously colored buds, flowers and fruit, pendant from the tangle of foliage—an excellent portrayal of the lush growth of vegetation common to the land. With all allowance for stylization, the effect certainly is more realistic and convincing than the rigid, formal, arboreal specimen in Plate 153*d*, which stands lonely, like a symbol on an ancient map saying “trees grow here.”

All tree representations are obstinately alike. Convention evidently ruled their design with an iron hand, for even the individual idiosyncrasies of the various painters failed to break the rigid mold. As will be seen from figure 316 and Plate 153*d*, a slightly swelling brown trunk invariably supports two lobes of green foliage on two symmetrical branches. Whatever powers of observation the artists may have possessed, they evidently considered that minute variations of foliage details compensated for all differences of genus and species.

The short jagged branch of a plant on Plate 156*a* is unidentifiable. The green growth, so evidently enclosed in a fence (Plate 152*b*) which is discussed in detail on page 408, probably represents the cultivated henequin which the Maya utilized for sandals and other cordage both before and since the coming of the Spaniards.<sup>1</sup>

#### WATER SCENES

The presence of water is always indicated by a wash of light blue crossed by black undulating lines, a convention which admirably expresses the restless movement of waves. When the water stretches over the entire face of a wall, as is the case with the contiguous Areas 31 and 34, there is no way of knowing whether or not the scene is marine or lacustrine, but lakes are evidently intended in the case of the smaller landlocked bodies of water. The many fishes and shells in both are of no avail in such a determination, for, unlike the Peruvian, the Maya was not given to great accuracy in his portrayal of life forms.

The black-and-white chequered bands outlining the water (Plates 139 and 146) probably may be interpreted as the beaten foam at the shore's edge, or perhaps they stand for the stretch of sandy beach itself. This feature is not invariably present, since Plates 152*d* and 159 illustrate its omission.

The presence of waders in Areas 20 and 21, would seem to indicate that the usual land perspective obtained in the case of water, since the shallow portions, or the parts nearest the spectator, are lowest on the wall. However, the slanting canoe

<sup>1</sup> Landa, 1864, p. 80 and 91.

introduces an element of doubt, for, if it is intended to be shown as sinking, the lowest stretches of the wall at the same time may have been intended to represent the bottom of the sea. But, on the other hand, if the prow is merely drawn up on the beach, no idea of dual perspective entered into the painter's calculations.

A second possible departure from the usual is found in Plate 139, which figures a wader at the water's upper edge and a temple apparently standing in the midst of the lake and attached to the shore only by its crest. The Maya painters were so evidently addicted to real fact at the expense of optical perspective, that this probably means just what it seems—that the temple was standing on a small islet or artificial sub-water foundation. However, the circumstance that the water's upper edge coincided with the top of the space to be decorated may have had something to do with this seemingly eccentric arrangement.



FIG. 316—TREES, TEMPLE OF WARRIORS

#### WATER PLANT

The water plant *motif* has played a very important part throughout Maya art, and the Temple of the Tigers bears evident witness of its significance in this city. However, the sole example of its occurrence on the painted walls and carved columns of the Temple of the Warriors or on any of its immediate architectural adjuncts is figured on Plate 148*b*. From instances of its use in connection with fish, as in the Temple of the Tigers, at Palenque, and at Copan, it would appear that the water plant was used as a symbol, not only associated with water, but to express the metaphysical concept associated in the Maya mind with the presence of water. In the present instance, however, there is little doubt that the plant is realistically intended, although its portrayal is curiously handled. As may be seen in the illustration, the profile of a cup-shaped flower with yellow calyx and blue petals, attached to a tangled growth of green stems, can be seen floating on the face of the water. Immediately above this, almost as if presented in flat plan, lies a plant with green center rimmed by white petals and those in turn by green leaves. Projecting from the center is a green stamenlike object, topped by a tiny white bulb. The upper flower certainly resembles a water lily, and its relation to the lower growth may be one of double perspective, enabling the flower to be viewed from above and at the same time in silhouette.

#### MARINE LIFE

With few exceptions, the lower forms of life are all executed with far more carelessness than those in the Codices. In fact, in a good many cases the treatment is so cursive as to destroy the definitive characteristics by which accurate identifica-

tion is made possible. Although the creatures of the Codices are conventionally represented, anatomically they are relatively more exact; whereas, the painters of the Warriors Temple were content with simpler, more generalized drawings, which bore no ulterior symbolic significance.

Three or four types of molluscs occur in these frescos. In figure 317*a*, the *oliva* is undoubtedly represented; *b* appears to be a conventionalized bivalve; *c* has been tentatively identified as a form of *Livona*, while a similar shell *e*, from which its red-brown inhabitant is emerging, appears as a rather free sketch of a snail. The same creature is found on Plates 149*d* and 159. In both instances the rabbit-like ears and long front leg are insisted upon. These characteristics are, of course, foreign to the snail, but one can scarcely imagine what else the painters had in mind. A fourth, univalvular shell, *d*, is conventionalized beyond all pos-

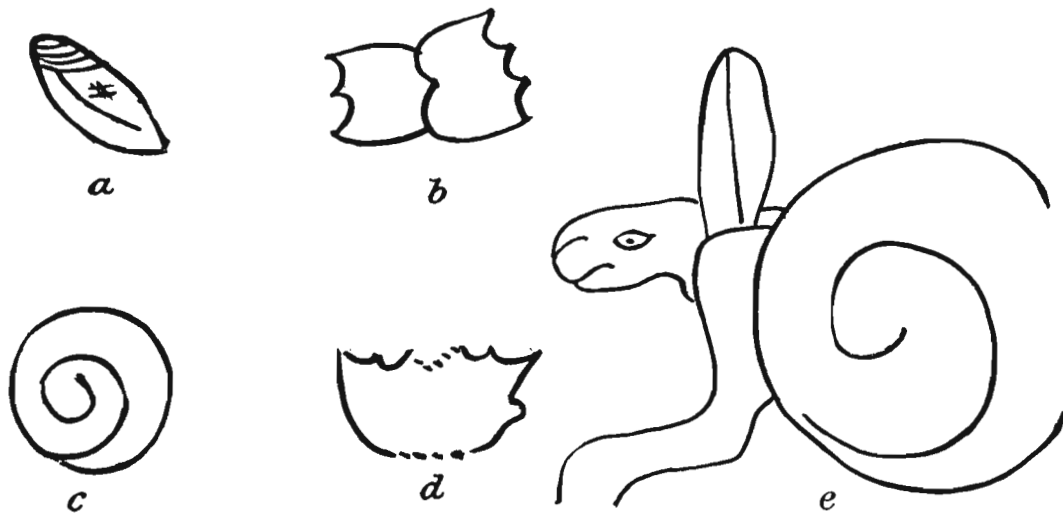


FIG. 317—SHELLS, TEMPLE OF WARRIORS

sibility of identification. Certain shell forms, possibly of *oliva*, are used as decoration for clothing (Plate 133) and also are painted on the exterior of a temple pyramid (Plate 151).

The crustaceans, although similarly conventionalized and simplified, are more obvious. In figure 318*a*, the crab has been endowed with a human face covering the entire back, while the four jointed legs are all tipped with the characteristic pincerlike organ. In *b* and *c* the same four claws are to be observed, but the shell is more accurately shaped and the two protuberances at the top appear to be representations of what, on a real crab, are eye stalks.

A single turtle is represented in Plate 149*a*. It has been suggested that it may be the Green Turtle or *Chelonia mydas*, which is equipped with four flippers and has a central ridge of back plates which, since they have become rather worn and polished with time, could correspond to the yellow strip across the center of the painted creature's shell. The head is viewed in profile. A second interpretation suggests that, with the exception of the flippers, the entire body is turned

in profile and the yellow strip is an indication of the body as it appears between the dorsal and ventral plates.

Apparently the octopus is represented in Plate 149*c*, for, although only a part of the rounded body and a single eye are visible, the thick waving tentacles, one of which is adorned with a circular suction cup, are fairly definitive.

A jelly-fish, probably of the *Medusa* type, is illustrated on Plate 149*b* with numbers of the streaming fiberlike appendages quite carefully drawn. While the gelatinous looking creature on Plate 148*c* also has a jelly-fish appearance with humanized eyes and mouth, it more nearly suggests a sea anemone of the type *Bolocera*, with scalelike markings which stand for the enveloping fringe. This same creature occurs also in Area 34.

There are many fish represented in the water scenes and, with but a few exceptions, they are almost identically alike (fig. 319). It would seem that throughout

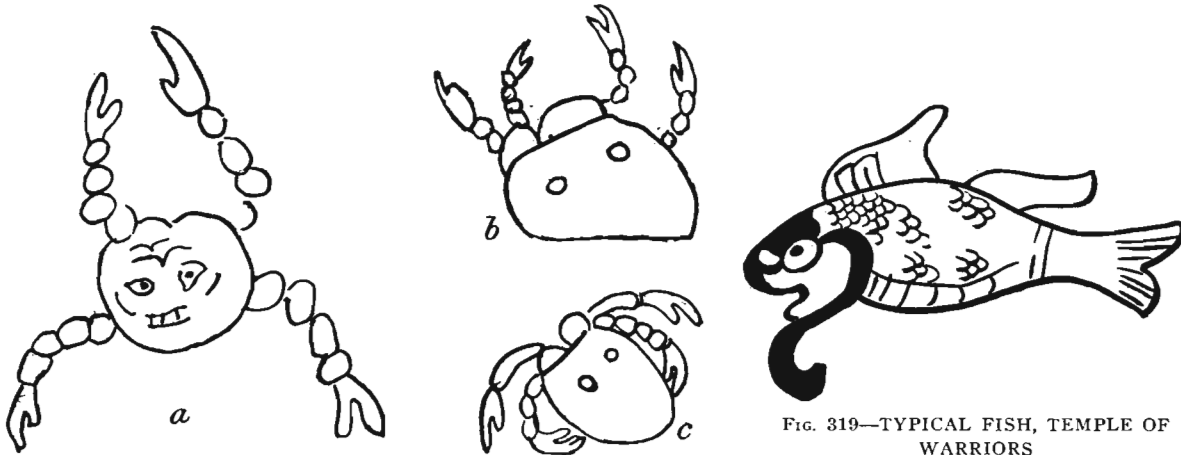


FIG. 318—CRABS, TEMPLE OF WARRIORS

FIG. 319—TYPICAL FISH, TEMPLE OF WARRIORS

the course of Maya art, the depiction of fish had undergone a process of stylization comparable to that of the serpent. As a matter of fact, several of the conventions employed could have been derived from the treatment accorded that unnaturally elaborated reptile. The yellow ventral scales, sharply differentiated from the dorsal parts and the supra-orbital plate, are identical features; while the exaggerated red gill-slit ornament which curves down beneath the chin is reminiscent of the serpent's beard. Aside from these elements, we find a green scale-marked back, yellow parted lips, red tail and a varying number of red fins, ventral and dorsal. This typical or standard variety of fish is found in almost all the water scenes (Plates 139, 148*c* and *d* and 159). In the last illustration, an addition to the normal type is observed in a similar fish equipped with a long yellow beak—possibly a sword fish. In the same scene there is a toothed fish and two round-bodied creatures, of which the black-and-white striped one is tentatively identified as a sting-ray and the brown one as another type of ray. The red-and-white fish from Plate 146, which appears to be in pursuit of the swimmer, somewhat resembles a dog shark, but the all-white one from the same scene is unidentifiable.

The general impression derived from these marine forms is more that of caricature than of careful portraiture. Outstanding characteristics are emphasized at the expense of accuracy, and it would seem that a standardized symbolism is used to indicate the presence of the creatures, with no attempt to portray their specific anatomical peculiarities.

#### BIRDS

Only six bird drawings were recovered from the various murals of the Temple of the Warriors. One of these, the harpy eagle (*Harpia harpyja*), has been discussed in connection with its occurrence in the exterior painted frieze (page 435, Plate 164). Its large scale and formal presentation set it apart from the five small more naturalistic birds on the interior walls. The white bird with an attenuated beak and exceptionally long yellow legs, which is figured in Plate 159 as if taking flight from a tree, is probably a heron.

The remaining four birds (Plate 158*c* and *d*) come from the same area and in all probability are part of a large flock represented as if milling and fluttering a short distance above the ground before setting forth in concerted flight. The only notable differentiation between the birds attempted by the painter, is to be found in the shape of the beaks. Four different types are represented, of which the long-pointed bill resembles that of a kingfisher and the remaining three that of different varieties of the parrot. The coloration of the plumage is of no assistance in these determinations, since green, blue, red and yellow are freely distributed with more regard for variety than for realism. Beaks and feet are always yellow. The shoulder plumage is differentiated in color from the rest of the wing, and longitudinal markings stripe the pinions, in contrast to the tiny half circles representing the downy feathers of the breast. A rather unusual amount of foreshortening is employed in the delineation of the wings.

#### SERPENTS

It is no exaggeration to state that the serpent must have appeared several score of times upon the temple frescos. In the small proportion of the walls' surface which were still decipherable at the time of recovery, twenty-four representations of the reptile were found. Four of these were naturalistic and the remainder possessed the insignia and attributes of the deified Plumed Serpent.

The common rattlesnake of the country (*Crotalus durissus*) presumably served as the model for all serpent representations.

" . . . the ground color is rich yellow or pale olive; a chain of large brown rhombs, bordered with light yellow, extends along the back."<sup>1</sup>

These markings are apparent on figures 320*a* and *b*, and the coloring is rather exact on the former which is taken from Plate 169*a*.

More often the serpent was endowed with features foreign to reality but significant of its predominant place in Maya theology. An early established pattern was followed with careful exactitude throughout the course of Maya history and

<sup>1</sup> Ditmars, 1910.

is found in Chichen Itzá, unmodified in any essential feature. Differences contingent on individual artistic caprice there certainly were, but the standardized, conventionally constant factors were rarely ever lost. Figure 320*d*, taken from Plate 145, provides an excellent example of Kulkulkan head attributes. Widely gaping yellow jaws, set with fangs and molar teeth; green head; black-pupiled eye; blue supra-orbital plate; head crowned by rigid, yellow head-dress, from which emerge sweeping green plumes; yellow chin beard; and speech scroll make up the list of formal elaborations. The body is composed of yellow ventral scales and green dorsal plumes and terminates in blue rattles adorned with additional

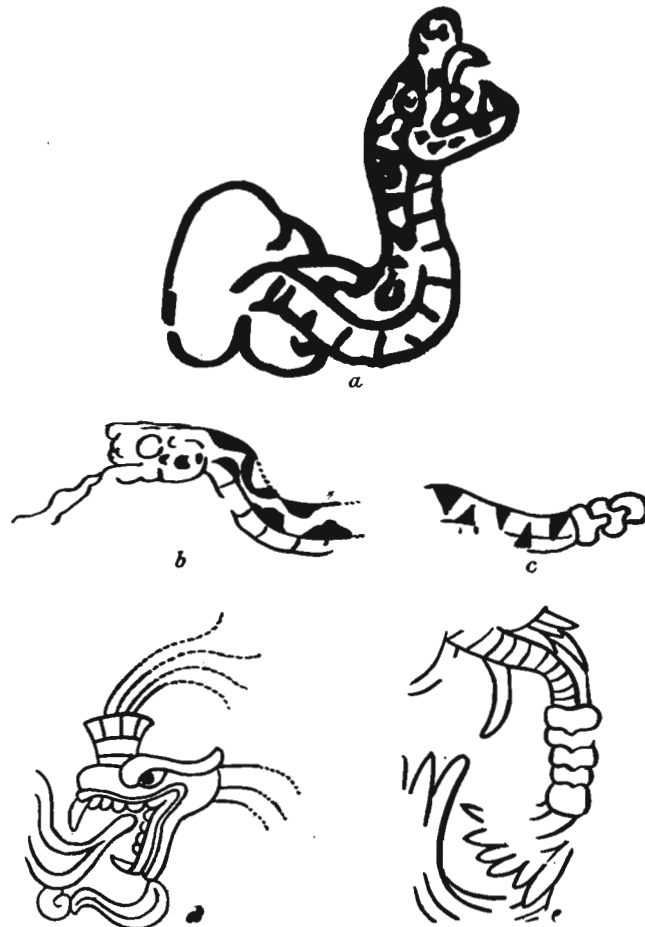


FIG. 320—SERPENTS, TEMPLE OF WARRIORS

green plumes (fig. 320*e*). Plates 169*b, c* and *d*, 138*d*, 159, figures 280, 281 and 284 illustrate these same general features, in each case slightly modified by the affectations of the individual painter. Conventionalization is carried to its highest degree in the serpent from Area 30 (Plate 170*a*). All of the characteristic modifications are present, and in addition the head is turned completely upside down with jaws flung wide so as to make a straight angle, which served as a pedestal for a small human figure; *b*, of the same plate, illustrates a somewhat similar arrangement.

A fragment of a slim blue-green serpent with rattles and greatly simplified plumage is to be found in *c*. The small scale and its position in relation to the hand and basket suggest that it is part of the equipment of the Sorcerer type of human (see page 449), and is thus a living snake and not a carved serpentine staff such as is carried by the God-Impersonator (page 453). An unusual form of the reptile occurs in *d*. Although the customary yellow ventral scales are present, the dorsal parts are painted with an elaborate black-and-white crisscross design, further complicated by a convolution which twists the body as it makes the right-angled turn.

#### TEMPLE ARCHITECTURE.

There were at least twenty temple representations among the Warriors frescos, and two graffiti of the same subject were scratched upon the low ramp to the east of the stair between the Northwest Colonnade and the West Colonnade. These two graffiti occurred side by side (figs. 321*a* and *b*) and would seem to have been drawn some time after the final plastering of the wall, by a person crouching in such a position as to be able to see the nearby Castillo through one of the open colonnade doorways, for, beyond all reasonable doubt, both incised drawings are representations of that temple. A nine-terraced pyramid with balustraded stair and surmounting temple certainly very like the Castillo<sup>1</sup> is depicted in *b*, while *a*, more crudely executed, depicts the rounded, protuberant, corner cornices decorating the successive zones as well as the roof ornaments. The orientation of the latter, symmetrically distributed from the central axis, is significant, for if our unknown scribbler can be trusted these G-shaped adornments could, upon this basis, be correctly restored to their original position.

A third graffito (*c*), found upon one of the jambs of the north door of the Caracol, is included at this point because it so fully typifies all the essential structural features of a temple. The pyramidal substructure, with central stair, flanked by balustrades and square buttresses at the top, above which rises a temple with sloping basal zone, perpendicular upper walls, multimembered cornice and curtained door, all are found in the various fresco paintings, but invariably in a fragmentary state and never grouped in a single whole as in this instance. These features are strikingly duplicated in *d*, a Mexican temple representation from the Zouche Codex.

There is but one example of a pyramid without its surmounting temple (Plate 151). In place of it a great naturalistic jaguar, crouching before an *incensario*, occupies the entire platform.

A pyramid with a stairway on more than one side appears to be represented in Area 34 (see page 430). The lower part of one of the stairways and some of the terraced zoning are figured in Plate 157*c*; the upper part of the same steps and a cornice with disk ornaments is seen in Plate 168*d*; while the second staircase, drawn in silhouette, is illustrated in figure 321*e*. At the top of the full-front stair (Plate

<sup>1</sup> Although the Castillo originally possessed ten terraces, succeeding fills had raised the court level almost high enough to obscure the lowest one by the time of the erection of the ramp upon which the graffiti were found.





FIG. 321—TEMPLE ARCHITECTURE

a, b, graffiti, Northwest Colonnade; c, graffito, Caracol; d, Zouche Codex; e-n, frescos, Temple of the Warriors

168*d*), a temple doorway is pictured as screened with a white cloth curtain marked with a black design. Although in the paintings, doorways are not invariably fitted with curtains, the small holes, rings or pegs, found both at the top and bottom in either side of practically all temple doorways extant, suggest that textile hangings for such openings were customary. A description of Uxmal written in 1586 bears witness to this feature.

“At the door of each of the rooms of this building on the inside, there are four rings of stone, two on one side and two on the other—two of them being high up and two low down and all coming out of the same wall. The Indians say that from these rings those who lived in these buildings hung curtains and portieres. . . The rooms were therefore rather dark, especially when they were made double, one behind the other . . .”<sup>1</sup>

The curtains are illustrated further in figures 321*c, d, f, g*. In all of these frescos, as well as in the fully open temple and house doors, the apertures, or those portions of them not obscured by curtains, are painted blue, which gives a clever impressionistic rendering of a building's shadowed interior.

Bits of the square-capped balustrade usually bear some kind of carving indicated by means of crossed or parallel lines (Plate 168*c*, figs. 321*g, h, j*). Ornamented pyramid faces are represented by the red shells of Plate 151, the orange lozenges of Plate 168*c*, the circle of Plate 168*d*, the arrowhead shape of Plate 162*c*, and the scrolls of Plate 167*c*. One of the most curious adjuncts to the temple is found in the row of tall, oval, similarly colored forms of figures 321*f* and *j*. They suggest vases of incense, to judge from the dotted caps of yellow which bulge from the tops. The bodies of the objects are colored blue and green and, in *j*, are ornamented with black lines, an arrangement which is reminiscent of a human face. The ball-like feet resemble the tripod bases of the shallower type of *incensario* (fig. 322*d*).

The more complete temple representations delineate the silhouette of buildings not situated on pyramids, but standing on low white foundations. An example in miniature, with all of the diagnostic features illustrated, is found in figure 321*k*, taken from Plate 168*e*. Here the lower molding is indicated, but the wall beneath is not represented as sloping. The three-member cornice and the red door jambs and lintel with blue aperture are all typical. The silhouette is similar to that of figure 321*l*, although the cornice members of the latter seem to have been more ornate.

A typically elaborated cornice is found on the two temples, illustrated in the captured village scene (fig. 321*m* and *n*). That of the human sacrifice (Plate 145) is similar. In all probability, they are meant to depict small engaged columns such as adorn the Mercado at Chichen. In *n* the entire outline of one side of a temple with sloping basal zone is noted, as well as a conical stone standard supporting a bunch of waving plumes, which is identical with similar objects found at the corners of the Warriors Pyramid itself. Figure *m*, taken from Plate 139, probably denotes a colonnade structure, since the blue painted apertures are separated only by pillarlike masonry uprights.

<sup>1</sup> Account written by Alonzo Ponce, a Franciscan delegate in the year 1586, Ponce 1872, LVIII, p. 455.

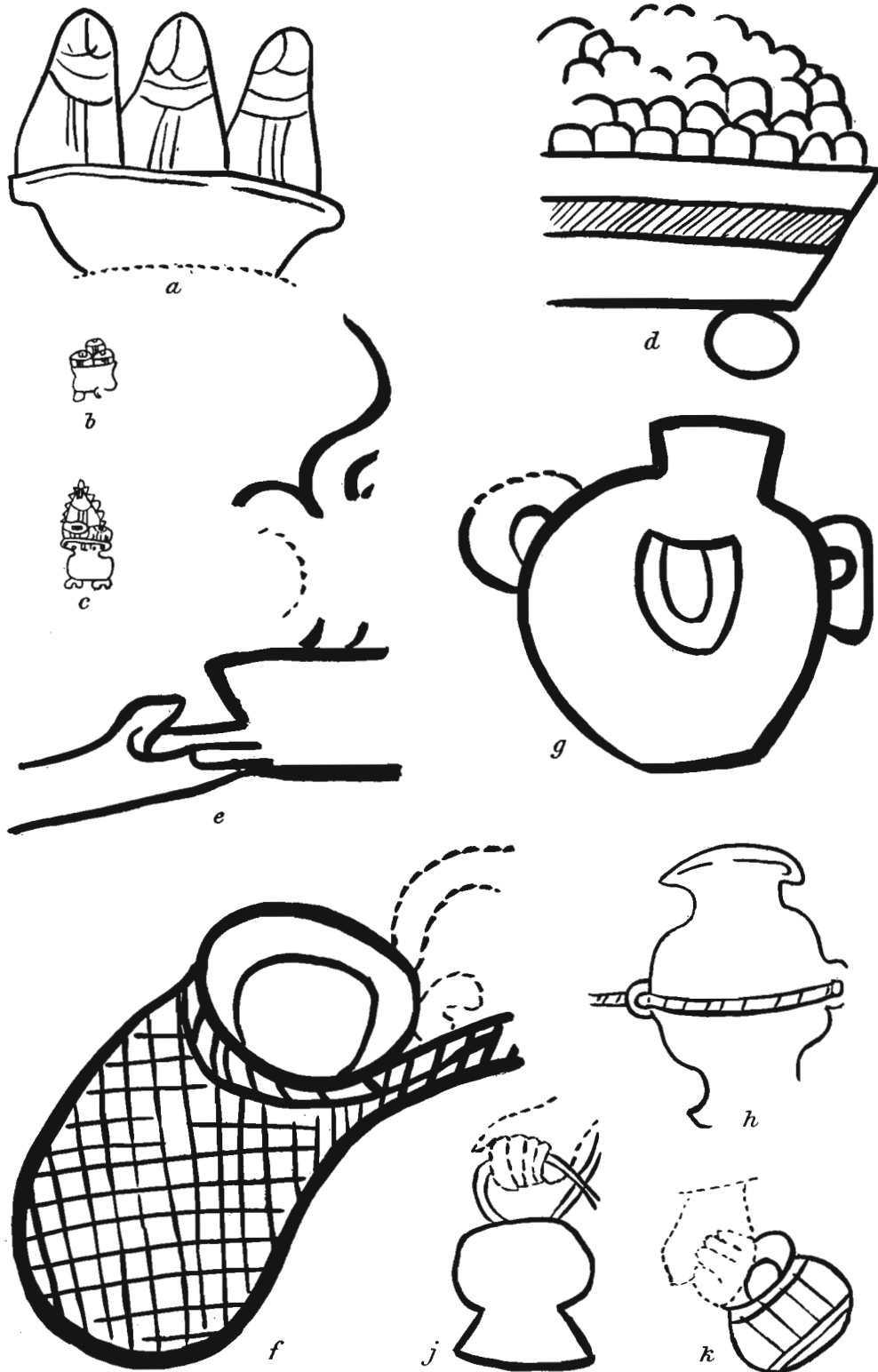


FIG. 322—POTTERY VESSELS

*a, h, Chac Mool Temple; b, c, Codex Trocortesianus; d, e, f, g, j, k, Temple of Warriors*

Extremely ornate roof embellishments, comparable to the stone frets figured on page 66, from the roof of the Northwest Colonnade, are noted on the temple in Plate 168*a* and *b*. Small moon-faced humans with high crested head-pieces serve as the units of decoration upon them. The upper zones of the structure bear traces of yet another type of sculptured ornamentation.

#### DOMESTIC ARCHITECTURE

Judging from the frescos, the houses of the common people appear to have been constructed just as they are today, with walls of wattle work, sometimes plastered, and with palm-thatched roofs. A number of the structures are to be seen in Plate 159, and a description written by de Landa of the conditions soon after the Spanish conquest corroborates the testimony of the paintings.

“The manner of constructing the houses in Yucatan was to cover them with straw of which they had an abundance of good quality, or with the leaves of the palm, well adapted to this purpose; they elevated the roof giving it a considerable declination in such a way that the rain was not able to penetrate.”<sup>1</sup>

The roofs in the murals are colored yellow and are marked with rows of L-shaped figures representing layers of thatch which are woven over a reticulated frame of saplings so as to overlap one another in the manner of shingles. The roof ridge appears to have been plaited in a heavier, more elaborate manner, as it is to this day, in order to protect that most vulnerable point from leakage. The structures are built upon low platforms usually with small porches at one end, similar to the houses in the village scene from the Temple of the Tigers.

One of these houses would seem to have been constructed as a storehouse for fish, for it was equipped with a loft, which would have provided the necessary ventilation from beneath. A second type is found in the upper right-hand corner of the same scene, which combines the features of a colonnade with a roof having rounded ends, apparently made of green rushes bound in bundles.

There are no examples of the circular thatched house with pointed roof crest, such as are present in the battle scene from the Tigers Temple and in the Mexican Codices.

#### POTTERY

Several distinct pottery shapes are represented in the frescos, in some cases with an indication of function. A bowl, as a container for incense, occurs in figure 322*a*. It is carried in the right hand of a priest (Plate 133) and contains three yellow cones, presumably incense. Similar objects with almost identical markings, likewise represented in vessels, are found in the Trocortesianus Codex (322*b* and *c*).

A similar bowl, decorated with encircling colored bands and provided with ball-like tripod feet, is placed in front of the jaguar in Plate 151, probably also serving as an *incensario*. Yet another vessel, *d*, from the tribute scene (Plate 154*b*), is heaped with small green pellets and possibly functions as a food bowl.

<sup>1</sup> Landa, 1864, p. 111.

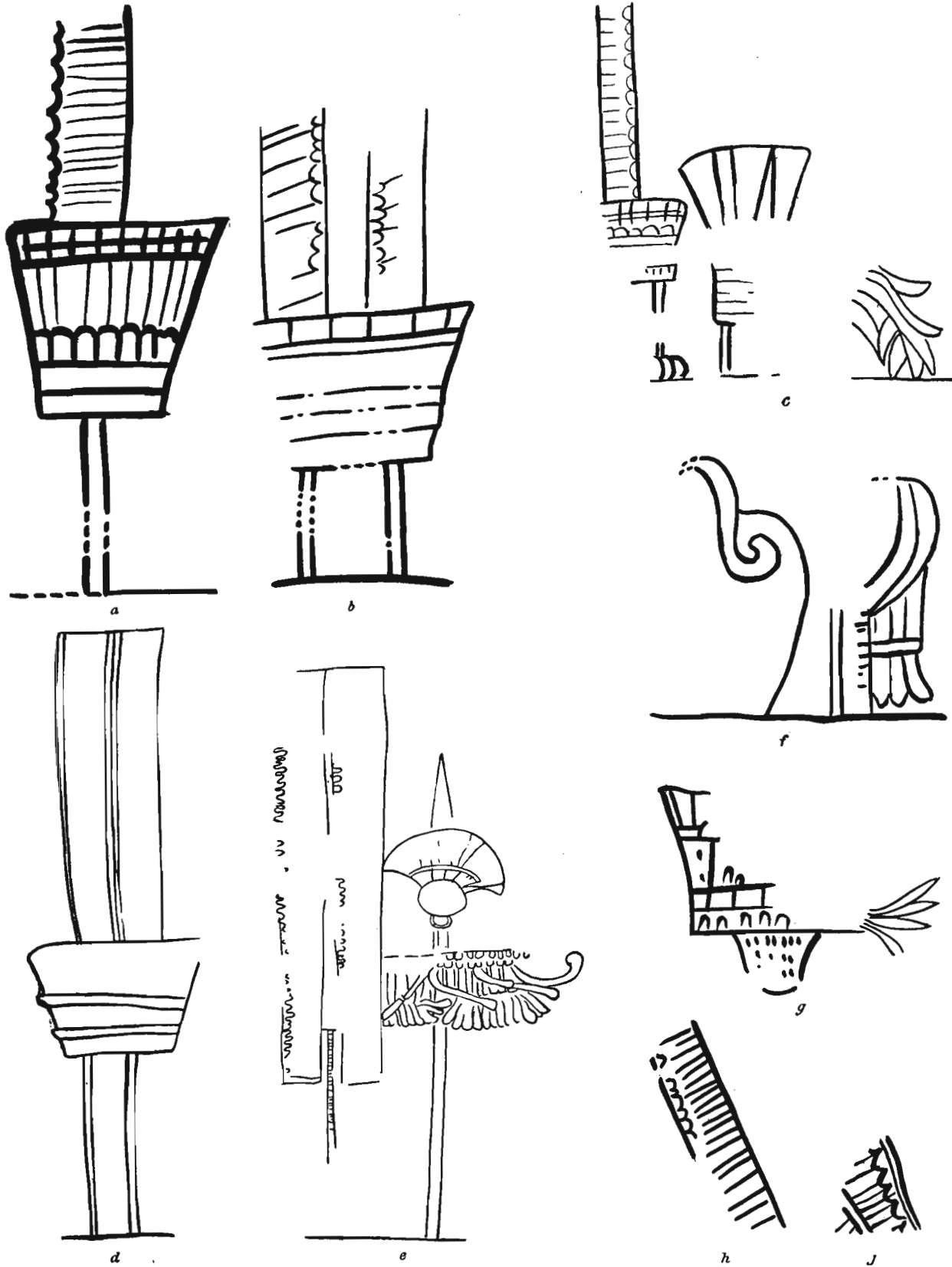


FIG. 323—WAY-SIGNS

a, b, c, f, g, h, j, Temple of Warriors; d, e, Temple of Tigers

The shallow basin, *e*, from which flames apparently are emerging, is provided with a long straight handle attached near the bottom. In all probability *f* is a large water or storage jar which, in order to facilitate transportation, is caught in a net sack and suspended from a cord or tump-line passing around the carrier's head. A jar, *g*, of the olla type, provided with three loop handles at the girdle is being utilized as a cooking vessel in the sea-coast village scene (Plate 159). The vessel, *h*, which the old sorceress is carrying by a cord tied through the side handles and passing around her waist, has a widely flaring standard base. The flaring base is found again in *j*, although in this case the rope suspension attaches to the rim. A basket more than a pottery container is suggested by *k*, to judge from its yellow color, cross-line decorations and heavy handle of self-color.

#### WAY-SIGNS

The greatest mystery encountered in the identification of objects represented in the murals has been the interpretation of a recurring symbol possessing certain constant characteristics of evident significance to the painters. Perhaps the feature of greatest importance which is embodied in this device is the tall, white, upright rectangle decorated with one scalloped edge and crossed horizontally by numerous fine black lines. The insignia, which somewhat resembles Chinese commercial signs, occurs singly or in duplicate, and is planted in a variously colored trapezoid with equally diverging sides, which, in turn, is supported upon slim yellow poles (figs. 323*a*, *b* and *c*). The original paintings from which these cuts are taken are to be found in Plates 154*c* and *d* and 159. An identical device is found in the frescos from the Temple of the Tigers (*d*). A similar one (*e*) from the same temple, where the "Chinese sign" is supported directly upon the pole without the intervening trapezoidal block, is accompanied by a spear-shaped banner with decoration at the hafted point and a horizontal crossbar of swirling plumes. A different secondary device stands beside the sign in *c*. From Plate 139, *f* is composed of two features quite unlike any of the foregoing except for the small fragment of the "Chinese sign" which is based directly upon the ground. An adaptation of the trapezoid with side plumes and cuplike base is found in *g*, while *h* and *j* represent two fragmentary bits of the white device which are inclined at an angle.

To my mind, the most important aspect of these puzzling devices lies in their location. In every instance, it will be noted that they stand either upon the shores of a water scene, at the side of a road, or placed on one of the long horizontal division lines which serve as the base of some particular scene separating it from an entirely different mural treatment occurring below. With this point in mind, the following quotation from de Landa may possess some significance:

"The Indians placed signals between the trees in order to identify the road to follow in going and coming by water between Tabasco and Yucatan."<sup>1</sup>

This interpretation would explain the strategic position invariably occupied by the signs, their evident height, and even the utilization of white for purposes of

<sup>1</sup> Landa, 1864, p. 9.

easy identification from a distance. The position of the fragments *h* and *j*, from the invasion scene of Area 17, could be accounted for by assuming that they were supposed to be lying upon the ground after the destruction of the village.

### CONCLUSION

Owing to the few remains of mural paintings which have been recovered from the Maya area, little opportunity is given for comparative study. No frescos from the Old Empire are available; while from the New, the greater part of the known material comes from the same city of Chichen Itzá and dates from a period very near to that which witnessed the decoration of the Temples of the Warriors and of the Chac Mool. Therefore, to a large extent, a prevailing local spirit influenced the expression of most of those painters with whose work we are familiar, impressing upon it the mark of general similarity.

Three classes of mural design are evident in the group. One is exemplified by the colossal serpent *motif*; a second, by formal processional figures; and a third, by narrative and descriptive scenes. Despite the fact that these types of depiction are so markedly different from one another, every example of mural painting in the city that has yet been observed falls readily into one of the three classes. Thus, frescos from the Temple of the Tigers and from the Monjas, in the matter of content and technique, are closely similar to those from the Temple of the Warriors. In the Tigers they are somewhat better done, in the Monjas somewhat more poorly, but the difference is one of quality and not of kind or content. Even in the field of bas-relief, most of the work shows adherence to the first two of the three methods of treatment.

To some degree, all fields of artistic endeavor, whether expressed in paint, stone, or other media, keep step with one another throughout the cycle of a people's history. But, on the other hand, each field gradually becomes possessed of a heritage of tradition which grows more inflexible as time goes on, and exhibits a constant tendency to divorce the sister arts from one another and to guide them along divergent paths. Differences thus arising between sculpture and painting are accentuated by the restraints which space, scale and material exercise upon the possibilities of expression in stone carving, whereas painting is inherently more plastic and less restricted by the shape and form of the architectural features, whereupon it is used as the only embellishment. Therefore, it is infinitely better adapted than sculpture to unhampered delineation. Hence, in mural decoration, one would expect just what is borne out in the paintings at Chichen; namely, a wide range of subjects and a freely handled depiction of objects and events, salted by frequent reversion to a certain formalism both in subject and style.

It might be expected that the same parallel ideals of expression would have obtained also in the Old Empire. Although we do not know positively what the conventions of the past were in regard to the art of mural painting, we may expect them to have been rather rigid and inflexible on occasion, as witnessed by the examples from Santa Rita and Tulum which partake of a distinctly Old Empire

quality, although of contemporary or more recent date than those at Chichen. But, on the other hand, a comparison of the free style of mural painting at Chichen with the realistic ceramic painting of the Old Empire reveals a significant relationship between the two. Without doubt, since they also worked in color upon flat surfaces, the vase painters would have received their inspiration from the masters who embellished the great temple walls. If extensive Old Empire murals eventually come to light, it may reasonably be expected that some of them will be similar to those of the prevalent "lively" type at Chichen. Should this prove to be the case they would be a priceless source of information concerning the human side of life in the cities of the great period, which is an aspect of the problem that will never be illuminated by the study of sculpture or hieroglyphs.

Although a period of time elapsed between the construction of the Temple of the Chac Mool and the raising of the Temple of the Warriors and the Northwest Colonnade, the interval appears to have been too brief to have witnessed sufficient change to establish an entirely satisfactory basis for study of art sequence. On the whole, the work is fairly homogeneous, both in subject-matter and in quality. In addition to the formalized *motifs*, battle scenes, the quiet pursuit of daily occupation, cities dominated by numerous great white temples, solemn ceremonies, long processions of gorgeously clad figures—in fact life itself, as it was lived just outside the temple doors and in neighboring villages known and visited, was caught on the wing and imprisoned on the walls with conscious fidelity to the model. The capacity for graphic narration, wherein a succession of events is depicted within the bounds of the same picture, is much greater in wall painting than in sculpture, for, aside from technical differences, sculpture tends to the purely decorative, while painting is inherently a pictorial art. Advantage was taken of the possibilities it affords by the Chichen painters. Their progressively historical manner of presentation is exemplified in the battle scenes from the Temple of the Tigers, and in several instances in the Temple of the Warriors.

In the history of Old World civilization, only religious and political liberty have ever broken completely the archaic mold of art. If it is permissible to assume that the same sequence would have obtained in the New World, it is evident that a great relaxation of theocratic control was taking place at Chichen Itzá, where the murals deal so largely with freely drawn *genre* scenes of a most intimate quality, and of pronouncedly different flavor from the succession of gods and historical personages that confront one in other localities. The great distinction probably lies in the fact that the persons involved are *doing* something collectively, rather than just *being*. Ritualistic symbolism must have been on the wane. Only the most outstanding calligraphic features were retained, while the infinity of detail, characteristic of the Old Empire, was simplified to nullity, or had progressed so far from the spiritual source that significance was almost lost. The difference is nowhere more evident than in the delineation of the portrait faces, both carved and painted, which replace the old generalized, monotonously mimetic profile. Such vivid personality and acutely individualized character, so infinitely diversified, could



only have been derived from actual models immediately at hand. This process extends even to representations of garments and minor accessories. These may be looked upon as closely mirroring the actual apparel of the people of the various classes who are actors in the scenes, while in the old graven style of figure, reality was obscured by the necessity of expressing mystical significance. We find that a very pleasing naïveté replaces the old, abstract, grand style, and a sincerity that successfully counterbalances the stiffness and mechanical expression common to archaism and its derivative cultures. Apparently a feeling of self-consciousness and self-assertiveness among the people themselves must have been creeping into Maya polity, and with strength enough to wrest the craft of art from the hands of the priest-kings.

Let us assume that the Chichen school had slipped the leash of the centuries to follow a scent of its own predilection, and that in so doing it brought the virility of the past to bear upon a tremendously widened scope of subject. In groping for the reasons accountable for the new access of self-assertion and the infusion of new spirit into a decaying art, one is justified in suspecting the ubiquitous "Toltec" who so evidently projected himself into Maya affairs at about this period. Evidence of foreign influence is present on every hand at Chichen Itzá, and the *ensemble* of features extraneous to the Maya confirms a contact with the broad but still poorly defined Toltec culture which had its center in what is now continental Mexico.

In the field of mural art, a congeries of Toltec elements was revealed by the analysis of the standard or typical warrior, undertaken on page 456. The physical type is pronouncedly different from the Maya, not exhibiting the artificially deformed skull and the prominent nose of the latter people. The "back-shield" is identified with what Seler calls the "dorsal mirror" or *texcacuit lapilli*.<sup>1</sup> The bird-form necklace conventionalized in the Mexican manner, and the blue bird on the hat, as well as the back-shield, are common to the Atlantean figures found both at Chichen and in the Mexican highlands. The Toltec nose-button contrasts with the long Maya stick thrust through the septum. According to de Landa the custom of quilting defensive armor, which in this case may also mean the sleeve, was learned from the Mexicans. One variant of the warrior type is dressed in the scalloped skirt, identical with the "planet" symbol of the Mexican highlands. Still another variant associates characteristics of Tlaloc and God B in the face masks. Lastly, the basket and the *atlatl*, which make up part of the warrior's equipment, are found in association with the oft-repeated, carved figures emerging from a definitely Nahua sun disk (Plate 59 E).

In addition, the speech scroll, the formal planet and star symbols, the processional grouping of warriors accompanied by identifying glyphs,<sup>2</sup> and the Death God skull with flint knife worn in the nose socket, all exemplify characteristics identical with those from the Valley of Mexico.

<sup>1</sup> Seler, 1915, p. 275.

<sup>2</sup> Spinden, 1913, p. 206.

When all of these factors are added to the architectural features common to both districts, the case may be regarded as proven. But what is not so evident is the center of origin. Whether all the apparently foreign characteristics were imported by conquering Toltec mercenaries on occasion of the war with Hunac Ceel, or whether the procedure was reversed and some of the local Chichen Itzá habits and customs were spread in one way or another to Mexico where they were adopted, is not readily determined. The former hypothesis is the one usually entertained, but in this connection it must be remembered that the "Toltec" civilization derived much of its structure from the Maya at an earlier date and probably still retained evidences of this source at the time of reversion to Yucatan; and, in addition, that much of the material under argument has been derived from the Mexican codices, most of which were not written until the time of the Conquest, or more than two hundred years after the building of the Temple of the Warriors, thus allowing plenty of time for a more recent borrowing and acclimatization in either or both directions.

At our present stage of knowledge, Chichen Itzá may be likened to an ingot of some rare alloy. But we know not the proportion of the component metals, nor the nature of the flame which fused them into one. Its Mexican affiliations are as indubitable as its general Maya character, yet the city stands as isolated from its contemporary principalities in quality and style as it is in physical fact. Three major problems will have to be solved before it can be viewed in its proper cultural setting, or as other than an episodic phenomenon. The first of these will be a more complete analysis of pre-Aztec Mexico, which will permit segregation and coordination of the threads of history in that long and chaotic period. The second will comprise definite characterization and more absolute dating of the several chronological periods in Chichen Itzá itself, together with a study of nearby towns which presumably were subject to its influence, and a detailed comparison with those great rival cities with which it was in competition. The final problem, probably the most important of all, relates to a practically untouched field. It will have to deal with the connecting links between the New Empire and the Old, which are roughly coincident between the Northern and Southern cultures. The few results now at hand are suggestive rather than definitive. Some three to four hundred years of time are accounted for only in the sketchiest fashion, and, when the civilization appears in its new home, it has dropped many old qualities and acquired many new ones, nobody knows where nor how. Not until the archeologist has back-tracked along the old lines of march from south to north, and has followed to their end all of the ramifying by-paths, can the life history of Maya culture be written in full.

## BIBLIOGRAPHY

- Beltran, de Santa Rosa Maria, P.  
1859. Arte de el idioma Maga reducio a succintas reglas y semilexicon Yucateco, 2d ed. Merida.
- Ditmars, R. L.  
1910. Reptiles of the world. New York.
- Gamio, M.  
1922. La poblacion del valle de Teotihuacan. *Direccion de Antropologia*. Mexico City.
- Gann, T.  
1897. On the contents of some mounds in Central America. *Proc. Soc. Antiqu. London*, 2d ser., vol. XVI, pp. 308-317. London.  
1900. Mounds in northern Honduras. *19th Ann. Rep. Bur. Am. Ethnol.*, pt. 2, pp. 661-692. Washington.
- Holmes, W. H.  
1895. Archaeological studies among the ancient cities of Mexico. Part I: The monuments of Yucatan. *Field Columbian Mus. Anthropol. Ser.*, vol. I, Chicago.
- Landa, D. de  
1864. Relation des choses de Yucatan—texte espagnol et traduction française—par l'Abbé Brasseur de Bourbourg. Paris.
- Lothrop, S. K.  
1924. Tulum, an archaeological study of the east coast of Yucatan. *Carnegie Inst., Wash., Pub. No. 335*. Washington.
- Maudslay, A. P.  
1889-1902. Archaeology. *Biologia Centrali-Americana*. 4 vols. plates, 1 vol. text. London.
- Means, P. A.  
1917. History of the Spanish conquest of Yucatan and of the Itzas. *Papers of the Peabody Mus. of Amer. Arch. and Ethnol., Harvard Univ.*, vol. VII. Cambridge.
- Nuttall, Z.  
1902. Codex Nuttall [Zouche]. *Pub. of Peabody Mus. of Harvard Univ.* Cambridge.  
1904. A penitential rite of the ancient Mexicans. *Arch. and Ethnol. Papers of the Peabody Mus., Harvard Univ.*, vol. I, no. 7. Cambridge.
- Ponce, A.  
1872. Relacion breve y verdadera de algunas cosas de las muchas que sucedieron al Padre Fray Alonzo Ponce, Comissario General, en las provincias de Nueva España. *Coleccion de documentos inéditos para la historia de España*, LVII, LVIII. Madrid.
- Rady y Delgado, J. de D. de la  
1892. Códice Maya denominado cortesiano que se conserva en el Museo Arqueológico Nacional. Madrid.
- Relaciones  
1898-1900. Relaciones de Yucatan. *Coleccion de documentos inéditos relativos al descubrimiento, conquista y organizacion de las antiguas posesiones españolas de Ultramar*, 2d Ser., XI (1898), XIII (1900). 2 vols. Madrid.
- Ruppert, K.  
1925. Report on secondary constructions in the Court of the Columns. *Carnegie Inst. Wash., Year Book No. 24*, pp. 269-270. Washington.  
1926. Report on sculptured elements at the Temple of the Warriors. *Carnegie Inst. Wash., Year Book No. 25*, pp. 264-267. Washington.
- Saville, M. H.  
1922. Turquoise mosaic art in ancient Mexico. *Contrib. from the Mus. of the Amer. Indian, Heye Foundation*, vol. VI. New York.
- Schellhaus, P.  
1904. Representation of deities of the Maya manuscripts. *Papers of the Peabody Mus. of Amer. Arch. and Ethnol., Harvard Univ.*, vol. IV, no. 1. Cambridge.
- Seler, E.  
1904. The wall paintings of Mitla. *Bull. 28, Bur. Amer. Ethnol.*, pp. 243-323. Washington.  
1915. Die Ruinen von Chich'en Itzá in Yucatan. *Gesammelte Abhandlungen zur Amerikanischen Sprach- und Alterthumskunde*, vol. V. Berlin.
- Spinden, H. J.  
1913. A study of Maya art. *Mem. Peabody Mus. of Amer. Arch. and Ethnol., Harvard Univ.*, vol. VI. Cambridge.
- Stephens, J. L.  
1843. Incidents of travel in Yucatan. 2 vols. New York.
- Tozzer, A. M.  
1907. A comparative study of the Mayas and the Lacandonos. *Arch. Inst. Am.*, New York.  
1930. Maya and Toltec figures at Chichen Itza. *Proc. 23rd Inst. Cong. Am., New York, 1928*, pp. 155-164. New York.

