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The Department Of Archaeology.

Ceramic Production and Consumption in the Maya Lowlands During the Classic to Postclassic Transition: A Technological Study of Ceramics at Lamanai, Belize

VOLUME III

by

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A thesis submitted in fulfillment of the requirements for the degree of Doctor of Philosophy

Department of Archaeology
The University of Sheffield
December 2005

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CATALOGUE OF VESSELS/SHERDS INCLUDED IN THE PETROGRAPHIC, NAA AND SEM ANALYSES

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
1	LA72/4	Fine	Monochrome Orange Slipped and Incised	bowl, out-curving	grog	
2	LA583/1	Fine	Monochrome Orange Slipped and Incised	bowl, rounded	grog	
3	LA68/1	Fine	Monochrome Orange Slipped and Incised	chile grinder (molcajete or grater bowl)	grog	
4	LA198/2	Fine	Monochrome Orange Slipped and Incised	chile grinder (molcajete or grater bowl)	grog	
5	LA92/2	Fine	Monochrome Orange Slipped and Incised	chile grinder (molcajete or grater bowl)	grog	
6	LA621/9	Fine	Monochrome Orange Slipped	bowl, rounded	grog	
7	LA916/18	Fine	Monochrome Orange Slipped	bowl, rounded, strap handles	grog	3c
8	LA716/1	Fine	Monochrome Orange Slipped	chalice	grog	
9	LA621/8A	Fine	Monochrome Orange Slipped	tripod bowl, out-curving	sascab-quartz A	
10	LA716/2	Fine	Monochrome Orange Slipped	bowl, out-curving	sascab-quartz A subgroup	3a
11	LA678/2	Fine	Monochrome Orange Slipped	bowl, out-curving	sascab-quartz A subgroup	
13	LA102/4	Fine	Monochrome Orange Slipped	tripod bowl, out-curving	sascab-quartz A subgroup	3b
14	LA580/2	Fine	Monochrome Orange Slipped	tripod bowl, flaring	sascab-quartz A	
15	LA690/4	Fine	Monochrome Orange Slipped	composite silhouette bowl	calcite D	
16	LA562/1	Fine	Monochrome Orange Slipped and Incised	jar, globular, vertical neck	sascab-quartz A subgroup	
17	LA650/1	Coarse	Unslipped Utilitarian	comal (thick-walled plate)	quartz sand	2a
18	LA825/1	Fine	Monochrome Red Slipped	jar, globular, slightly insloping neck	calcite C	6a
19*	LA345/1	Fine	Monochrome Red Slipped	jar, globular (?), low vertical neck	calcite C	outlier at end
20	LA717/1	Fine	Buff/Cream Slipped	bowl, rounded	calcite E	
21	LA490/1	Fine	Monochrome Orange Slipped	composite silhouette dish with a ring base	sascab-quartz A	5a
22	LA258/5	Fine	Monochrome Red Slipped	composite silhouette dish with a ring base	calcite C	4d
23*	LA872/4	Fine	Monochrome Red Slipped	composite silhouette dish with a ring base	calcite C	4e
24	LA569/4	Fine	Monochrome Orange Slipped	composite silhouette bowl with a ring base	calcite C	4e

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
26	LA105/1	Fine	Monochrome Red Slipped	composite silhouette dish	calcite B subgroup	
27	LA842/3	Fine	Monochrome Red Slipped	bowl, rounded	sascab-quartz A	
29	LA486/3	Fine	Monochrome Red Slipped	composite silhouette bowl	calcite C subgroup	
30	LA630/2	Fine	Monochrome Red Slipped	dish, rounded	calcite A	
31	LA673/5	Fine	Buff/Cream Slipped	dish, rounded	calcite A	6a
32	LA656/2	Fine	Monochrome Red Slipped	composite silhouette bowl (slightly angular profile)	sascab-quartz A	5a
33	LA578/8	Fine	Monochrome Red Slipped	bowl, rounded	sascab-quartz A	
34	LA515/2	Fine	Monochrome Red Slipped	composite silhouette bowl	sascab-quartz A	
35	LA489/3	Fine	Monochrome Red Slipped	bowl, flaring	sascab-quartz A	
36	LA569/1	Fine	Monochrome Red Slipped	composite silhouette bowl with a ring base	calcite D	
37	LA656/6	Fine	Monochrome Red Slipped and Notched	composite silhouette bowl with a ring base	calcite E	
38	LA662/2	Fine	Monochrome Brown	tripod bowl, out-curving, 'Ik-shaped' slab feet	calcite C	
39*	LA814/1	Fine	Monochrome Black	vase, cylindrical	marl-based A	6b
40*	LA706/1	Fine	Monochrome Black	deep bowl	marl-based A	6b
42	LA706/2	Fine	Monochrome Black	deep bowl	marl-based A	
43	LA515/4	Fine	Monochrome Black	vase, cylindrical	marl-based A	
44	LA630/4	Fine	Monochrome Black	bowl, flaring	marl-based A subgroup	
45	LA656/7	Fine	Monochrome Black	bowl, rounded	marl-based A subgroup	5a
47	LA656/5	Fine	Red-Orange-Black Resist	dish, out-curving	marl-based D	3d
48*	LA244/2	Fine	Black on Red Slipped and Painted	massive bowl	sascab-quartz A	4f
49	LA347/1	Fine	Black on Red Slipped and Painted	dish, rounded	sascab-quartz A	4f
50	LA504/4	Fine	Polychrome Slipped and Painted	dish, rounded	sascab-quartz A	5a
51	LA712/2	Fine	Black on Red Slipped and Painted	dish, rounded	sascab-quartz A	

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
52	LA254/1	Fine	Black on Red Slipped and Painted	dish, rounded	sascab-quartz B	4f
53	LA304/1	Fine	Polychrome Slipped and Painted	composite silhouette bowl with a ring base	calcite C	4d
54*	LA664	Fine	Polychrome Slipped and Painted	composite silhouette bowl with a ring base (?)	calcite C	outlier 5/6
55	LA690/2	Fine	Monochrome Red Slipped	tripod bowl, flaring, solid nubin feet	volcanic glass B	1a
56	LA115/33	Fine	Monochrome Red Slipped and Model-Carved	bowl, flaring	calcite I	3d
57	LA722/1	Fine	Monochrome Orange Slipped	tripod vase, cylindrical	calcite C	
59	LA107/3	Fine	Monochrome Orange Slipped and Incised	bowl, out-curving	grog	
60	LA705/2	Fine	Monochrome Orange Slipped	bowl, rounded	grog	
61	LA155/1	Fine	Monochrome Orange Slipped	bowl, rounded	grog	1a
62	LA95/7	Fine	Monochrome Orange Slipped and Incised	bowl, out-curving	grog	
63	LA76/2	Fine	Monochrome Orange Slipped	bowl, rounded	grog	
64	LA68/6	Fine	Monochrome Orange Slipped and Incised	composite silhouette bowl	calcite C subgroup	3a
65	LA705/1	Fine	Monochrome Orange Slipped and Incised	bowl, out-curving	grog	
66	LA68/4	Fine	Monochrome Orange Slipped and Incised	bowl, rounded	grog	
67	LA243/12	Fine	Monochrome Orange Slipped and Incised	bowl, rounded	grog	
68	LA176/3	Fine	Monochrome Orange Slipped and Incised	bowl, rounded	grog	
69	LA127/3	Fine	Monochrome Orange Slipped and Incised	bowl, out-curving	grog	
70	LA123/5	Fine	Monochrome Orange Slipped and Incised	bowl, out-curving	grog subgroup A	3a
71	LA95/6	Fine	Monochrome Orange Slipped and Incised	pedestal-based jar (censer)	sascab-quartz A subgroup	3a
72	LA243-10	Coarse	Unslipped Utilitarian	pedestal-based censer	quartz sand	2a
73	LA122/2	Fine	Monochrome Orange Slipped	composite silhouette bowl with a pedestal base	sascab-quartz A subgroup	
74	LA149/1	Fine	Monochrome Orange Slipped and Incised	chalice	grog	3c
75	LA319/1	Fine	Monochrome Orange Slipped and Incised	chalice	grog	

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
76*	LA243/4	Fine	Monochrome Orange Slipped	chalice	sascab-quartz A subgroup	4b
77	LA72/3	Fine	Monochrome Orange Slipped and Incised	chalice	grog	
78	LA245/6	Fine	Monochrome Orange Slipped and Incised	chalice	grog	
80	LA75/2	Fine	Monochrome Orange Slipped and Incised	chalice	grog	
81*	LA243/1	Fine	Monochrome Orange Slipped	dish, out-curving	grog	3c
82	LA127/6	Fine	Monochrome Orange Slipped and Incised	tripod bowl with a segmented basal flange	grog	
83	LA135/2	Fine	Monochrome Orange Slipped and Incised	tripod bowl with a segmented basal flange	grog	
84	LA176/2	Fine	Monochrome Orange Slipped and Incised	tripod dish, out-curving with a basal ridge	grog	3b
85	LA127/5	Fine	Monochrome Orange Slipped and Incised	tripod bowl with a segmented basal flange	grog	
86	LA127/2	Fine	Monochrome Orange Slipped and Incised	tripod bowl with a segmented basal flange	grog	
87	LA13/7	Fine	Monochrome Orange Slipped and Incised	tripod bowl with a segmented basal flange	sascab-quartz A subgroup	3a
88	LA13/8	Fine	Monochrome Orange Slipped and Incised	tripod bowl with a segmented basal flange	grog	3c
89	LA13/9	Fine	Monochrome Orange Slipped and Incised	tripod bowl with a segmented basal flange	grog	3a
90	LA469/2	Fine	Monochrome Orange Slipped	tripod bowl, out-curving	grog	
91	LA82/1	Fine	Monochrome Orange Slipped	tripod dish, rounded	marl-based B subgroup	
92	LA62/71	Fine	Monochrome Orange Slipped	tripod bowl, rounded	grog	
93	LA640/6	Fine	Monochrome Red Slipped	bowl, rounded	calcite A	6a
94	LA13/12	Fine	Monochrome Orange Slipped	tripod bowl, out-curving	grog	
95	LA13/6	Fine	Monochrome Orange Slipped	tripod bowl, rounded	sascab-quartz A subgroup	
96	LA246/2	Fine	Monochrome Orange Slipped	tripod bowl, rounded	grog	
97	LA13/14	Fine	Monochrome Orange Slipped	tripod bowl, rounded	grog	
98	LA246/3	Fine	Monochrome Orange Slipped	tripod bowl, rounded	grog	
99*	LA176/1	Fine	Monochrome Orange Slipped	tripod dish, out-curving	sascab-quartz A subgroup	3d

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
100	LA245/5	Fine	Monochrome Orange Slipped and Incised	tetrapod bowl	sascab-quartz A subgroup	3a
101	LA640/4	Fine	Monochrome Orange Slipped	jar, globular, low vertical neck	calcite A	
102	LA133/1	Fine	Monochrome Orange Slipped	jar, globular, low flaring neck, strap handles	grog	3a
103	LA69/3	Fine	Monochrome Orange Slipped and Incised	jar, globular to slightly maliform, vertical neck, flaring rim	grog	
104	LA102/5	Fine	Monochrome Orange Slipped and Incised	jar, globular, low vertical neck	grog	
105	LA243/2	Fine	Monochrome Orange Slipped and Incised	jar, globular, flaring neck	grog	
106	LA75/1	Fine	Monochrome Orange Slipped	jar, globular to slightly maliform, low out-curving neck	sascab-quartz A subgroup	
107	LA13/5	Fine	Monochrome Orange Slipped and Incised	tetrapod bowl	grog	
108	LA718/1	Fine	Polychrome Slipped and Painted	composite silhouette dish with a ring base (?)	sascab-quartz A	5a
109	LA578/6	Fine	Polychrome Slipped and Painted	dish, rounded	sascab-quartz A	
110	LA568/1	Fine	Polychrome Slipped and Painted	dish, rounded	sascab-quartz A	5a
111	LA166/7	Fine	Polychrome Slipped and Painted	dish, rounded, incipient ring base	sascab-quartz A	
112	LA630/5	Fine	Polychrome Slipped and Painted	composite silhouette bowl with a high ring base	marl-based D	6a
113	LA585/4	Fine	Polychrome Slipped and Painted	dish, rounded	sascab-quartz A	
115	LA503/2	Fine	Polychrome Slipped and Painted	vase, cylindrical	volcanic glass E	outlier 5/6
116	LA630/3	Fine	Monochrome Red Slipped	vase, cylindrical	calcite C	4d
117	LA244/1	Fine	Black on Red Slipped and Painted	dish, rounded	sascab-quartz B	4f
118*	LA240/1	Fine	Black on Red Slipped and Painted	dish, rounded	sascab-quartz B	4f
119	LA504/3	Fine	Monochrome Black	deep bowl	marl-based A	5b
120	LA251/1	Fine	Monochrome Black	deep bowl	marl-based A	5b
121	LA706/3	Fine	Monochrome Black	bowl, flaring with a basal ridge	marl-based A	6b
122	LA674/1	Fine	Monochrome Black	deep bowl	marl-based A	
123	LA258/3	Fine	Monochrome Black	bowl, in-curving	calcite A	

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
124*	LA658/1	Fine	Monochrome Black	vase, cylindrical	marl-based A	5b
125*	LA508/7	Fine	Monochrome Black	vase, cylindrical	calcite C	4e
126*	LA508/6	Fine	Monochrome Black	vase, barrel-shaped	calcite C	6a
127	LA657/1	Fine	Monochrome Black	deep bowl	marl-based A	5b
128	LA630/1	Fine	Monochrome Red Slipped and Incised	vase, cylindrical	calcite C	6a
129	LA637/2	Fine	Monochrome Orange Slipped	composite silhouette dish with a ring base	calcite A	
130	LA569/3	Fine	Monochrome Orange Slipped	tripod bowl, out-curving, solid slab feet	calcite A	
131	LA469a	Coarse	Unslipped and Incised (appliqué impressed fillet)	jar, low flaring rim, strap handles	quartz sand	2a
132	LA469b	Coarse	Unslipped and Incised (appliqué impressed fillet)	jar, low flaring rim, strap handles	quartz sand	2a
133	LA515/3	Fine	Monochrome Red Slipped	tripod bowl, out-curving	calcite C	
134	LA637/3	Fine	Monochrome Red Slipped	tripod bowl, out-curving, 'Ik-shaped' slab feet	calcite C	
135	LA124/1	Fine	Monochrome Orange Slipped and Incised	composite silhouette dish	grog	
136*	LA630/7	Fine	Monochrome Red Slipped	composite silhouette dish with a ring base	calcite C	4e
138	LA469/1	Fine	Monochrome Orange Slipped	tripod bowl, out-curving	grog	
139	LA258/2	Fine	Monochrome Red Slipped	bowl, rounded	calcite A	7a
140	LA285/1	Fine	Monochrome Red Slipped	composite silhouette bowl (slightly angular profile)	sascab-quartz A	
141	LA655/2	Fine	Monochrome Red Slipped	dish, rounded	sascab-quartz A	
142	LA656/4	Fine	Monochrome Red Slipped	bowl, rounded	sascab-quartz A	5a
143	LA350/1	Fine	Monochrome Red Slipped	dish, rounded	sascab-quartz A	
144*	LA693/1	Fine	Monochrome Red Slipped	dish, rounded	sascab-quartz A	5a
145	LA578/4	Coarse	Unslipped/Smoothed-Buff	bowl, broad flaring everted rim	calcite C	
146	LA487/1	Coarse	Unslipped Striated	jar, globular, high vertical neck and a heavily bolstered rim	calcite G	outlier 5/6
147	LA630/8	Fine	Monochrome Brown	torch	calcite A	6a

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
148	LA656/1	Fine	Monochrome Red Slipped and Groove-Incised	bottle (in-sloping vase with a basal angle)	calcite C	
149	LA515/1	Fine	Monochrome Red Slipped and Groove-Incised	bottle (in-sloping vase with a basal angle)	calcite A	
150	LA131/3	Fine	Monochrome Orange Slipped	drum, double chamber	grog	3a
151	LA131/4	Fine	Monochrome Orange Slipped	drum, double chamber	grog	
152*	LA71/1	Fine	Monochrome Orange Slipped	drum, single ovoid chamber	marl-based C	7a
154	LA567/5	Fine	Monochrome Orange Slipped and Incised	drum, bell chamber, flaring everted rim	grog	3b
155	LA102/3	Fine	Monochrome Orange Slipped and Incised	drum, bell chamber, flaring everted rim	grog	
156	LA123/1	Fine	Monochrome Orange Slipped	composite vessel	grog	4a
157	LA 77/1	Fine	Monochrome Orange Slipped and Incised	tripod or tetrapod stand with a segmented basal flange	marl-based B	7a
158	LA1115	Fine	Buff/Cream Slipped	bowl, rounded	volcanic glass C	1a
159	LA1115	Fine	Monochrome Orange Slipped and Incised	bowl, rounded	grog	3a
160	LA1119	Fine	Monochrome Orange Slipped	pedestal base, short	grog	
161	LA1119	Coarse	Unslipped and Incised (appliqué impressed fillet)	jar handle (strap)	quartz sand	2a
162	LA1119	Fine	Monochrome Orange Slipped and Incised	drum, bell-chambered	grog	
163	LA1348	Fine	Monochrome Orange Slipped	vase	volcanic glass A	1a
164	LA1351	Fine	Monochrome Orange Slipped and Incised	chalice	sascab-quartz A subgroup	4c
165	LA1355	Fine	Monochrome Orange Slipped	drum, bell-chambered or double chamber	grog	4c
166	LA1355	Fine	Monochrome Orange Slipped and Incised	frying pan censer	grog	4c
167	LA1355	Fine	Monochrome Orange Slipped	drum, bell-chambered or double chamber	grog	
168	LA187	Fine	Monochrome Orange Slipped and Incised	whistle	grog	
170	LA187	Fine	Monochrome Orange Slipped and Incised	chile grinder (molcajete or grater bowl)	grog	
171	LA187	Fine	Monochrome Orange Slipped	dish, out-curving	grog	
172	LA187	Fine	Monochrome Orange Slipped	jar, neckless	grog	

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
173	LA1114	Fine	Monochrome Orange Slipped and Groove-Incised	drum, single chamber or double chamber	grog	
174	LA1114	Fine	Monochrome Orange Slipped and Incised	drum, bell-chambered	grog	
175	LA1114	Fine	Monochrome Orange Slipped and Incised	jar, very low neck	grog	3a
176	LA1114	Fine	Monochrome Orange Slipped	drum, bell-chambered or double chamber	grog	
177	LA187	Fine	Monochrome Orange Slipped	drum, bell-chambered or double chamber	grog	
178	LA187/2	Fine	Monochrome Orange Slipped	miniature jar	grog	
179	LA187	Fine	Monochrome Orange Slipped	composite vessel	grog	
180	LA187	Fine	Monochrome Orange Slipped	drum, single ovoid chamber	grog	
181	LA187	Fine	Monochrome Orange Slipped and Incised	frying pan censer	grog	
200	LA717	Fine	Polychrome Slipped and Painted	dish, rounded	sascab-quartz A	5a
201	LA717	Fine	Polychrome Slipped and Painted	dish, rounded	sascab-quartz A	
202*	LA717	Fine	Polychrome Slipped and Painted	dish, rounded	sascab-quartz A	5a
203	LA717	Fine	Polychrome Slipped and Painted	dish, rounded	sascab-quartz A	
204	LA717	Fine	Polychrome Slipped and Painted	dish, rounded	sascab-quartz A	
205	LA717	Fine	Polychrome Slipped and Painted	dish, rounded	sascab-quartz A	
206	LA717	Fine	Polychrome Slipped and Painted	dish, rounded	sascab-quartz A	
207*	LA717	Fine	Polychrome Slipped and Painted	dish, rounded	sascab-quartz A	5a
208	LA717	Fine	Polychrome Slipped and Painted	dish, rounded	sascab-quartz A	
209	LA717	Fine	Polychrome Slipped and Painted	composite silhouette bowl	marl-based D	6a
210	LA717	Fine	Polychrome Slipped and Painted	bowl, flaring	volcanic glass A	1a
212	LA717	Fine	Polychrome Slipped and Painted	bowl, flaring	volcanic glass A subgroup	1a
213	LA717	Fine	Polychrome Slipped and Painted	vase or deep bowl	volcanic glass A	1a
215	LA717	Fine	Polychrome Slipped and Painted	bowl, flaring	volcanic glass D	1a

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
216	LA717	Fine	Polychrome Slipped and Painted	dish, rounded	sascab-quartz A	5a
217	LA717	Fine	Polychrome Slipped and Painted	dish, rounded	sascab-quartz A	
218	LA717	Fine	Polychrome Slipped and Painted	composite silhouette bowl	sascab	4d
219	LA717	Fine	Polychrome Slipped and Painted	composite silhouette bowl	calcite C subgroup i	outlier 5/6
220	LA717	Fine	Monochrome Grey (Plumbate)	pedestal base	calcite E	6a
221	LA717	Fine	Monochrome Orange Slipped	tripod bowl, out-curving	grog	
222	LA717	Fine	Monochrome Orange Slipped and Groove-Incised	vase	volcanic glass A	1a
223	LA717	Fine	Monochrome Orange Slipped and Incised	bowl, out-curving	sascab-quartz A subgroup	
224	LA717	Fine	Monochrome Orange Slipped and Incised	bowl, rounded	grog	
225	LA717	Fine	Monochrome Orange Slipped and Groove-Incised	vase? (possibly same vessel as 222)	volcanic glass A	1a
226	LA717	Fine	Monochrome Orange Slipped and Incised	chalice	grog	4b
227	LA717	Fine	Monochrome Black	vase, cylindrical	calcite F	
228	LA717	Fine	Monochrome Black	bowl, flaring	calcite F	
229	LA717	Fine	Monochrome Black	bowl, flaring	marl-based A	7a
230	LA717	Fine	Monochrome Black	bowl, rounded	calcite F	
231	LA717	Fine	Monochrome Black	vase, cylindrical	calcite F	
232	LA717	Fine	Monochrome Red Slipped	jar, slightly insloping neck, everted rim	calcite D	
233	LA717	Fine	Monochrome Red Slipped	jar, vertical neck, everted rim	calcite D	
234	LA717	Fine	Monochrome Red Slipped	bowl, flaring	calcite C	
235	LA717	Fine	Monochrome Orange Slipped	bowl, rounded	calcite C	outlier 5/6
236	LA717	Fine	Monochrome Orange Slipped	bowl, rounded	calcite C	
237	LA717	Fine	Monochrome Red Slipped and Notched	bowl, rounded	calcite D	
238	LA717	Fine	Monochrome Orange Slipped	bowl, rounded	calcite C	

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
239	LA717	Fine	Monochrome Orange Slipped	bowl, rounded	grog	
240	LA717	Fine	Monochrome Orange Slipped	bowl, rounded	sascab-quartz A	5a
241	LA717	Fine	Monochrome Orange Slipped	bowl, rounded	sascab-quartz A	
242	LA717	Fine	Monochrome Orange Slipped	bowl, flaring	volcanic glass A	1a
243	LA717	Fine	Monochrome Red Slipped	bowl, flaring	calcite F	
244	LA717	Fine	Monochrome Orange Slipped	bowl, rounded	grog	
245	LA717	Fine	Monochrome Orange Slipped	composite silhouette bowl	calcite D	
246	LA717	Fine	Monochrome Red Slipped	bowl, rounded	calcite A subgroup	7a
247	LA717	Fine	Monochrome Red Slipped	bowl, rounded	calcite C	
248	LA717	Fine	Monochrome Red Slipped	bowl, rounded	calcite C	6a
249	LA717	Fine	Monochrome Red Slipped	bowl, rounded	calcite B	6a
250	LA717	Fine	Monochrome Red Slipped	bowl, rounded	calcite A subgroup	
251	LA717	Fine	Monochrome Red Slipped	bowl, rounded	calcite D	6a
252*	LA717	Fine	Monochrome Red Slipped	bowl, rounded	calcite B	7a
253	LA717	Fine	Monochrome Orange Slipped	bowl, rounded	calcite B subgroup	
254*	LA717	Fine	Monochrome Orange Slipped	bowl, rounded	calcite B subgroup	3b
255	LA717	Fine	Monochrome Red Slipped	bowl, rounded	calcite C	
256	LA717	Fine	Monochrome Orange Slipped	bowl, rounded	sascab-quartz A	5a
257*	LA717	Fine	Monochrome Red Slipped	bowl, rounded	calcite A	6a
258	LA717	Fine	Monochrome Orange Slipped	bowl, rounded	calcite A subgroup	7a
259	LA717	Fine	Buff/Cream Slipped	bowl, rounded	sascab-quartz A	5a
260	LA717	Fine	Monochrome Red Slipped	bowl, rounded	calcite C	6a
261*	LA717	Fine	Monochrome Orange Slipped	dish, rounded	sascab-quartz A	5a

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
262	LA717	Fine	Monochrome Red Slipped	dish, rounded	sascab-quartz A	5a
263	LA717	Fine	Monochrome Red Slipped	bowl, rounded	calcite A	6a
264	LA717	Fine	Monochrome Red Slipped	dish, rounded	calcite B	
265	LA717	Fine	Monochrome Red Slipped	dish, rounded	sascab-quartz A	
266	LA717	Fine	Monochrome Orange Slipped	bowl, rounded	sascab-quartz A	
267	LA717	Fine	Monochrome Orange Slipped	dish, rounded	sascab-quartz A	
268	LA717	Fine	Monochrome Orange Slipped	dish, rounded	sascab-quartz A	5a
269	LA717	Fine	Monochrome Orange Slipped	dish, rounded	sascab-quartz A	
270	LA717	Fine	Monochrome Orange Slipped	chalice	grog	3a
271	LA717	Fine	Monochrome Orange Slipped	chalice	grog	3b
272	LA717	Fine	Monochrome Orange Slipped	chalice	sascab-quartz A subgroup	
273	LA717	Fine	Monochrome Red Slipped	composite silhouette dish	calcite C	
274	LA717	Fine	Monochrome Red Slipped	composite silhouette dish	calcite C	
275	LA717	Fine	Monochrome Red Slipped	composite silhouette dish	calcite C	
276	LA717	Fine	Monochrome Red Slipped	composite silhouette dish	calcite C	4c
277	LA717	Fine	Monochrome Red Slipped	composite silhouette dish	calcite D	
278	LA717	Fine	Monochrome Red Slipped	composite silhouette dish	calcite C	6a
279	LA717	Fine	Monochrome Red Slipped	composite silhouette dish	calcite C	
280	LA717	Fine	Monochrome Orange Slipped	composite silhouette dish	calcite C	
281*	LA717	Fine	Monochrome Orange Slipped	composite silhouette dish	calcite C	4e
282	LA717	Fine	Monochrome Orange Slipped	composite silhouette dish	calcite D	
283	LA717	Fine	Monochrome Orange Slipped	composite silhouette dish	calcite C	
284	LA717	Fine	Monochrome Red Slipped	bowl, rounded	sascab-quartz A	

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
285	LA717	Fine	Monochrome Red Slipped	composite silhouette dish	calcite D	
286	LA717	Fine	Monochrome Red Slipped	composite silhouette dish	calcite C	7a
287	LA717	Fine	Monochrome Red Slipped	composite silhouette dish	calcite D	
288	LA717	Fine	Monochrome Red Slipped	composite silhouette dish	calcite D	6a
289*	LA717	Fine	Red-Orange-Black Resist	composite silhouette dish	calcite C	4d
290	LA717	Fine	Red-Orange-Black Resist	composite silhouette dish	calcite C	4d
291*	LA717	Fine	Red-Orange-Black Resist	composite silhouette dish	calcite C	6a
292	LA717	Fine	Red-Orange-Black Resist	composite silhouette dish	calcite C	3a
293	LA717	Fine	Red-Orange-Black Resist	composite silhouette dish	calcite C	4c
294	LA717	Fine	Red-Orange-Black Resist	composite silhouette dish	calcite C	
295*	LA717	Fine	Red-Orange-Black Resist	composite silhouette dish	calcite C	4d
296*	LA717	Fine	Red-Orange-Black Resist	composite silhouette dish	calcite C subgroup	4d
297	LA717	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite D	
298	LA717	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite D	3a
299	LA717	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite A	
300	LA717	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite A	7a
301	LA717	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite A	7a
302	LA717	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite A	
303	LA717	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite B	6a
304	LA717	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite A	
305	LA717	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite A	7a
306	LA717	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite B	
307	LA717	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite A	

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
308	LA717	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite A	6a
309	LA717	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite A	
310	LA717	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite B	
311	LA717	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite A	
312	LA717	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite B	
313	LA717	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite A	
314	LA717	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite A	7a
315	LA717	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite A	7a
316	LA717	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite A	
317	LA717	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite B	
318	LA717	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite B	6a
319	LA717	Coarse	Red-Brown-Striated	jar	calcite G	7a
320	LA717	Coarse	Red-Brown-Striated	jar	calcite G	
321	LA717	Coarse	Red-Brown-Striated	jar	calcite G	7a
322	LA717	Coarse	Red-Brown-Striated	jar	calcite G	7a
323	LA717	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite B	
324	LA717	Coarse	Unslipped Utilitarian	jar	quartz sand	
325	LA717	Coarse	Unslipped Utilitarian	jar	quartz sand	
326	LA717	Fine	Monochrome Orange Slipped	chalice	sascab-quartz A subgroup	
327*	LA243	Fine	Monochrome Orange Slipped and Incised	chalice	grog	3b
328	LA243	Fine	Monochrome Orange Slipped and Incised	chalice	grog	
329	LA243	Fine	Monochrome Orange Slipped and Incised	chalice	grog	
330	LA243	Fine	Monochrome Orange Slipped and Incised	chalice	grog	

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
331	LA243	Fine	Monochrome Orange Slipped and Incised	chalice	grog	
332	LA243	Fine	Monochrome Orange Slipped	chalice	sascab-quartz A subgroup	
333*	LA243	Fine	Monochrome Orange Slipped	chalice	sascab-quartz A subgroup	3d
334	LA243	Fine	Monochrome Orange Slipped	chalice	grog	
335*	LA243	Fine	Monochrome Orange Slipped	chalice	grog	3d
336	LA243	Fine	Monochrome Orange Slipped	chalice	sascab-quartz A subgroup	
337	LA243	Fine	Monochrome Orange Slipped	chalice	grog	
338	LA243	Fine	Monochrome Orange Slipped	chalice	sascab-quartz A subgroup	3b
339	LA243	Fine	Monochrome Orange Slipped	chalice	grog	
340	LA243	Fine	Monochrome Orange Slipped	chalice	grog	
341	LA243	Fine	Monochrome Orange Slipped	chalice	grog	3d
342	LA243	Fine	Monochrome Orange Slipped	chalice	sascab-quartz A subgroup	
343	LA243	Fine	Monochrome Orange Slipped	chalice	grog	
344	LA243	Fine	Monochrome Orange Slipped	chalice	grog	
345	LA694/3	Fine	Monochrome Red Slipped	dish, rounded	sascab-quartz A	
346	LA507/2	Fine	Red-Orange-Black Resist	composite silhouette dish with a ring base	calcite C	4e
351	LA694/8	Fine	Monochrome Red to Orange Slipped (interior-slipped)	dish, rounded	sascab-quartz A	
353	LA694/9	Fine	Monochrome Red to Orange Slipped (interior-slipped)	dish, rounded	sascab-quartz A	
356	LA491/3	Fine	Monochrome Red Slipped	composite silhouette bowl with a ring base	grog	3b
357	LA701	Fine	Polychrome Slipped and Painted	dish, rounded	sascab-quartz A	outlier 5/6
358	LA701	Fine	Polychrome Slipped and Painted	dish, rounded	sascab-quartz A	
359	LA701	Fine	Polychrome Slipped and Painted	dish, rounded	sascab-quartz A	
360	LA701	Fine	Black on Red Slipped and Painted	massive bowl	sascab-quartz A	

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
361	LA701	Fine	Monochrome Orange Slipped	chalice	grog	
362	LA701	Fine	Monochrome Orange Slipped	pedestal base, short	grog	
363	LA701	Fine	Monochrome Orange Slipped	chalice	sascab-quartz A	
364	LA701	Fine	Monochrome Orange Slipped	pedestal base, short	calcite C	
365	LA701	Fine	Monochrome Orange Slipped and Incised	chalice	grog	3b
366	LA701	Fine	Monochrome Orange Slipped and Incised	chalice	grog	
367	LA701	Fine	Monochrome Orange Slipped and Incised	chalice	grog	
368	LA701	Fine	Monochrome Orange Slipped	pedestal base, short	sascab-quartz A subgroup	
369	LA701	Fine	Monochrome Orange Slipped and Incised	bowl, out-curving	grog	
370	LA701	Fine	Monochrome Orange Slipped and Incised	bowl, out-curving	grog	
371	LA701	Fine	Monochrome Orange Slipped and Incised	bowl, out-curving	grog	
372	LA701	Fine	Monochrome Orange Slipped and Incised	bowl, rounded	grog	
373	LA701	Fine	Monochrome Orange Slipped and Incised	bowl, rounded	grog	
374	LA701	Fine	Monochrome Orange Slipped and Incised	bowl, rounded	grog	
375	LA701	Fine	Monochrome Orange Slipped and Incised	bowl, rounded	grog	
376	LA701	Fine	Monochrome Orange Slipped and Incised	bowl, rounded	grog	
377	LA701	Fine	Monochrome Orange Slipped and Incised	bowl, rounded	grog	
378	LA701	Fine	Monchrome Orange to Red Slipped - Notched and Incised	composite silhouette bowl	grog	
379	LA701	Fine	Monochrome Orange Slipped and Incised	bowl, out-curving	grog	
380	LA701	Fine	Monochrome Orange Slipped and Incised	frying pan censer	grog	
381	LA701	Fine	Monochrome Orange Slipped and Incised	chalice	grog	
382	LA701	Fine	Monochrome Orange Slipped and Incised	pedestal-based jar (censer)	grog	3a
383	LA701	Fine	Monochrome Orange Slipped	bowl, rounded	grog	

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
384	LA701	Fine	Monochrome Orange Slipped	bowl, rounded	grog	
385	LA701	Fine	Monochrome Orange Slipped	bowl, out-curving	grog	
386	LA701	Fine	Monochrome Orange Slipped	bowl, rounded	grog	
387	LA701	Fine	Monochrome Orange Slipped	bowl, rounded	grog	
388	LA701	Fine	Monochrome Orange Slipped	bowl, rounded	grog	
389	LA701	Fine	Monochrome Red Slipped	bowl, rounded	grog	
390	LA701	Fine	Monochrome Orange Slipped	bowl, out-curving	grog	
391	LA701	Fine	Monochrome Orange Slipped	bowl, out-curving	grog	
392	LA701	Fine	Monochrome Orange Slipped	bowl, out-curving	grog	
393	LA701	Fine	Monochrome Orange Slipped	bowl, rounded	sascab-quartz A	
394	LA701	Fine	Monochrome Orange Slipped	bowl, rounded	grog	
395	LA701	Fine	Monochrome Orange Slipped	tripod bowl, out-curving	sascab-quartz A subgroup	
396	LA701	Fine	Monochrome Orange Slipped	tripod bowl, out-curving	grog	
397	LA701	Fine	Monochrome Orange Slipped	tripod bowl, rounded	grog	
398	LA701	Fine	Monochrome Orange Slipped	tripod bowl, rounded	grog	
399	LA701	Fine	Monochrome Orange Slipped	tripod bowl, rounded	grog	
400	LA701	Fine	Monochrome Orange Slipped	tripod bowl, rounded	grog	
401*	LA701	Fine	Monochrome Orange Slipped	composite silhouette dish	calcite D	4e
402	LA701	Fine	Monochrome Red Slipped	composite silhouette dish	calcite C	4d
403	LA701	Fine	Monochrome Orange Slipped	composite silhouette dish	calcite C	
404	LA701	Fine	Monochrome Red Slipped	composite silhouette dish	grog	
405	LA701	Fine	Monochrome Orange Slipped	composite silhouette dish	calcite C	
406	LA701	Fine	Monochrome Red Slipped	composite silhouette dish	calcite C subgroup	

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
407	LA701	Fine	Monochrome Orange Slipped	chalice	grog	
408	LA701	Fine	Monochrome Orange Slipped	chalice	grog	
409	LA701	Fine	Monochrome Orange Slipped	chalice	grog	
410	LA701	Fine	Monochrome Orange Slipped	chalice	grog	
411	LA701	Fine	Monochrome Orange Slipped	chalice	grog	
412	LA701	Fine	Monochrome Red Slipped	chalice	grog	
413	LA701	Fine	Monochrome Orange Slipped	chalice	grog	
414	LA701	Fine	Monochrome Orange Slipped	chalice	grog	
415	LA701	Fine	Monochrome Orange Slipped	chalice	grog	
416	LA701	Fine	Monochrome Orange Slipped	dish, rounded	sascab-quartz A	
417	LA701	Fine	Monochrome Orange Slipped	dish, rounded	sascab-quartz A	
418	LA701	Fine	Monochrome Orange Slipped	dish, rounded	grog	
419	LA701	Fine	Monochrome Orange Slipped	dish, rounded	sascab-quartz A	
420	LA701	Fine	Monochrome Orange Slipped	dish, rounded	grog	
421	LA701	Fine	Monochrome Orange Slipped	jar, low vertical neck	grog	
422	LA701	Fine	Monochrome Red Slipped	jar, low vertical neck	marl-based B	6b
423	LA701	Fine	Monochrome Orange Slipped	jar, flaring neck	sascab-quartz A subgroup	
424	LA701	Fine	Monochrome Orange Slipped	jar, out-curving neck	grog	
425	LA701	Fine	Monochrome Orange Slipped	jar, slightly out-curving neck	grog	
426	LA701	Fine	Monochrome Orange Slipped	jar, slightly out-curving neck	grog	
427	LA701	Fine	Monochrome Orange Slipped	jar, out-curving neck	sascab-quartz A	
428	LA701	Fine	Monochrome Red Slipped	jar, vertical neck, everted rim	calcite D	
429	LA701	Fine	Monochrome Orange Slipped	jar, out-curving neck	grog	3a

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
430	LA701	Fine	Monochrome Orange Slipped	jar, globular, necked	grog	
431	LA701	Fine	Monochrome Orange Slipped	jar	sascab-quartz A subgroup	
432	LA701	Fine	Monochrome Red Slipped	jar	calcite D	
433	LA701	Fine	Monochrome Orange Slipped	jar, maliform, necked	grog	
434	LA701	Fine	Monochrome Orange Slipped	jar, strap handles	marl-based B	
435	LA701	Fine	Monochrome Orange with Appliqué	bowl, rounded	grog	
436	LA701	Fine	Monochrome Orange with Appliqué	bowl, rounded	grog	
437	LA701	Fine	Monochrome Orange with Appliqué	bowl, rounded	grog	
438	LA701	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite B	
439	LA701	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite A	
440	LA701	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite D	
441	LA701	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite B	
442	LA701	Fine	Monochrome Orange Slipped	jar, out-curving neck	calcite F	
443	LA701	Fine	Monochrome Red Slipped	jar, out-curving neck	calcite J	
444	LA701	Fine	Monochrome Red Slipped	jar, out-curving neck	sascab-quartz A	
445	LA701	Fine	Monochrome Orange Slipped	jar, slihgtly out-curving neck	calcite G	
446	LA701	Fine	Monochrome Red Slipped	jar, out-curving neck	calcite B	
447	LA701	Coarse	Unslipped/Smoothed-Buff	jar	quartz sand subgroup	7a
449	LA701	Fine	Monochrome Red Slipped	deep bowl	calcite C	
450	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
451	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
452	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
453	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
454	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
455	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
456	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
457	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
458	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
459	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
460	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
461	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
462	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
463	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
464	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	2a
465	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	2a
466	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
467	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
468	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
469	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
470	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
471	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
472	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
473	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
474	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
475	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
476	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
477	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
478	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
479	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	2a
480	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
481	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
482	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
483	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
484	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
485	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
486	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
487	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
488	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
489	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
490	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
491	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
492	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
493	LA701	Coarse	Unslipped/Smoothed-Buff	jar	calcite H	
494	LA701	Coarse	Unslipped/Smoothed-Buff	jar	calcite H	
495	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	2a
496	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
497	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
498	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
499	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
500	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
501	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
502	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
503	LA701	Coarse	Unslipped/Smoothed-Buff	jar	calcite H	
504	LA701	Coarse	Unslipped/Smoothed-Buff	jar	calcite H	
505	LA701	Coarse	Unslipped/Smoothed-Buff	jar	calcite A	
506	LA701	Coarse	Unslipped/Smoothed-Buff	jar	calcite B	
507	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
508	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
509	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	2a
510	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
511	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
512	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
513	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
514	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
515	LA701	Coarse	Unslipped/Smoothed-Buff	jar	calcite B	
516	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
517	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
518	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
519	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
520	LA701	Coarse	Unslipped Utilitarian	jar	quartz sand	
521	LA701	Coarse	Unslipped Utilitarian	plate/lid	quartz sand	2a
522	LA701	Coarse	Unslipped Utilitarian	plate/lid	quartz sand	

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
523	LA701	Coarse	Unslipped Utilitarian	plate/lid	quartz sand	
524	LA701	Coarse	Unslipped Utilitarian	plate/lid	quartz sand	
525	LA701	Coarse	Unslipped Utilitarian	plate/lid	quartz sand	
526	LA701	Coarse	Unslipped Utilitarian	plate/lid	quartz sand	
527	LA701	Coarse	Unslipped Utilitarian	plate/lid	quartz sand	
528	LA701	Coarse	Unslipped/Smoothed-Buff	bowl, rounded	calcite H	
529	LA701	Coarse	Unslipped/Smoothed-Buff	bowl, rounded	calcite H subgroup	
530	LA701	Coarse	Unslipped/Smoothed-Buff	bowl, rounded	calcite H	
531	LA187	Fine	Monochrome Orange Slipped and Incised	chalice	grog	
532	LA187	Fine	Monochrome Orange Slipped and Incised	chalice	grog	
533	LA187	Fine	Monochrome Orange Slipped and Incised	chalice	grog	
534	LA187	Fine	Monochrome Orange Slipped and Incised	chalice	grog	
535	LA187	Fine	Monochrome Orange Slipped and Incised	chalice	grog	3b
536	LA187	Fine	Monochrome Orange Slipped and Incised	chalice	grog	
537	LA187	Fine	Monochrome Orange Slipped and Incised	tripod bowl with a segmented basal flange	grog	4a
538	LA187	Fine	Monochrome Orange Slipped and Incised	tripod bowl with a segmented basal flange	grog	
539	LA187	Fine	Monochrome Orange Slipped and Incised	tripod bowl with a segmented basal flange	grog	
540	LA187	Fine	Monochrome Orange Slipped and Incised	chile grinder (molcajete or grater bowl)	grog	4a
541	LA187	Fine	Monochrome Orange Slipped and Incised	chile grinder (molcajete or grater bowl)	grog	
542	LA187	Fine	Monochrome Orange Slipped and Incised	chile grinder (molcajete or grater bowl)	grog	4a
543	LA187	Fine	Monochrome Orange Slipped and Incised	chile grinder (molcajete or grater bowl)	grog subgroup A	
544	LA187	Fine	Monochrome Orange Slipped and Incised	chile grinder (molcajete or grater bowl)	grog	
545	LA187	Fine	Monochrome Orange Slipped and Incised	tripod bowl with a segmented basal flange	grog	

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
546	LA187	Fine	Monochrome Orange Slipped and Incised	bowl, out-curving	grog subgroup A	3a
547	LA187	Fine	Monochrome Orange Slipped and Incised	bowl, out-curving	grog subgroup A	3a
548	LA187	Fine	Monochrome Orange Slipped and Incised	bowl, rounded	grog	
549	LA187	Fine	Monochrome Orange Slipped and Incised	bowl, rounded	grog	
550	LA187	Fine	Monochrome Orange Slipped and Incised	bowl, rounded	grog	
551	LA187	Fine	Monochrome Orange Slipped and Incised	bowl, out-curving	grog	
552	LA187	Fine	Monchrome Orange to Red Slipped - Notched and Incised	composite silhouette bowl	grog	3c
553	LA187	Fine	Monochrome Orange Slipped and Incised	bowl, rounded	grog	
554	LA187	Fine	Monochrome Orange Slipped and Incised	bowl, out-curving	grog	
555	LA187	Fine	Monochrome Orange Slipped and Incised	bowl, out-curving	grog	
556	LA187	Fine	Monochrome Orange Slipped and Incised	bowl, out-curving	grog	
557	LA187	Fine	Monochrome Orange Slipped and Incised	bowl, out-curving	grog	
558	LA187	Fine	Monochrome Orange Slipped and Incised	bowl, out-curving	grog	4b
559	LA187	Fine	Monochrome Orange Slipped and Incised	bowl, out-curving	grog	
560	LA187	Fine	Monochrome Orange Slipped and Incised	bowl, out-curving	grog	
561	LA187	Fine	Monochrome Orange Slipped and Incised	bowl, out-curving	grog	
562	LA187	Fine	Monochrome Orange Slipped and Incised	pedestal-based jar (censer)	sascab-quartz A subgroup	3c
563	LA187	Fine	Monochrome Orange Slipped and Incised	pedestal-based jar (censer)	grog	
564	LA187	Fine	Monochrome Orange Slipped and Incised	pedestal-based jar (censer)	grog	
565	LA187	Fine	Monochrome Orange Slipped and Incised	pedestal-based jar (censer)	grog	
566	LA187	Fine	Monochrome Orange Slipped and Incised	jar	grog	
567	LA187	Fine	Monochrome Orange Slipped and Incised	jar	grog	
568	LA187	Fine	Monochrome Orange Slipped	jar, neckless	grog	3a

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
569	LA187	Fine	Monochrome Orange Slipped	chalice	grog	
570	LA187	Fine	Monochrome Orange Slipped	chalice	grog	
571	LA187	Fine	Monochrome Orange Slipped	chalice	grog	4a
572	LA187	Fine	Monochrome Orange Slipped	bowl, rounded	grog	
573	LA187	Fine	Monochrome Orange Slipped	bowl, rounded	grog subgroup A	
574	LA187	Fine	Monochrome Orange Slipped	bowl, rounded	grog	
575	LA187	Fine	Monochrome Orange Slipped	bowl, in-curving, bolstered rim	grog	
576	LA187	Fine	Monochrome Orange Slipped	bowl, in-curving, bolstered rim	grog	
577	LA187	Fine	Monochrome Orange Slipped	bowl, rounded	grog subgroup A	4a
578	LA187	Fine	Monochrome Orange Slipped	bowl, rounded	grog	
579	LA187	Fine	Monochrome Orange Slipped	bowl, rounded	grog	
580	LA187	Fine	Monochrome Orange Slipped	tripod bowl, rounded	grog	
581	LA187	Fine	Monochrome Orange Slipped	tripod bowl, rounded	grog	
582	LA187	Fine	Monochrome Orange Slipped and Incised	frying pan censer	grog	
583	LA187	Fine	Monochrome Orange Slipped and Incised	frying pan censer	grog	
584	LA187	Fine	Monochrome Orange Slipped	bowl, rounded	grog	
585	LA187	Fine	Monochrome Orange Slipped	bowl, rounded	calcite H subgroup	
586	LA187	Fine	Monochrome Orange Slipped	bowl, rounded	grog	
587	LA187	Fine	Monochrome Orange Slipped	bowl, rounded	marl-based B subgroup	
588	LA187	Fine	Monochrome Orange Slipped	jar, out-curving neck	grog	
589	LA187	Fine	Monochrome Orange Slipped	jar, out-curving neck	grog	
590	LA187	Fine	Monochrome Orange Slipped	jar, high out-curving neck, exterior-thickened rim	grog	
591	LA187	Fine	Monochrome Orange Slipped	jar, out-curving neck	grog	

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
592	LA187	Fine	Monochrome Red Slipped	jar, high out-curving neck, bolstered rim	marl-based B	6a
593	LA187	Fine	Monochrome Orange Slipped	jar, out-curving neck	grog	
594	LA187	Fine	Monochrome Orange Slipped	jar, strap handles	grog	
595	LA187	Fine	Monochrome Orange Slipped	jar, strap handles	grog	
596	LA187	Fine	Monochrome Orange Slipped	plate/lid	grog	4a
597	LA187	Coarse	Unslipped/Smoothed-Buff	plate/lid	calcite B	4b
598	LA187	Coarse	Unslipped/Smoothed-Buff	plate/lid	calcite H	
599	LA187	Coarse	Unslipped/Smoothed-Buff	plate/lid	calcite B	
600	LA187	Coarse	Unslipped Utilitarian	plate/lid	quartz sand	
601	LA187	Coarse	Unslipped Utilitarian	plate/lid	quartz sand	
602	LA187	Coarse	Unslipped Utilitarian	plate/lid	quartz sand	
603	LA187	Coarse	Unslipped Utilitarian	plate/lid	quartz sand	
604	LA187	Coarse	Unslipped Utilitarian	plate/lid	quartz sand	2a
605	LA187	Coarse	Unslipped/Smoothed-Buff	plate/lid	calcite H	
606	LA187	Coarse	Unslipped Utilitarian	plate/lid	quartz sand	
607	LA187	Fine	Monochrome Orange Slipped	jar, high out-curving neck, bolstered rim	calcite A	7a
608	LA187	Fine	Monochrome Orange Slipped	jar, high out-curving neck, folded rim	calcite B	
609	LA187	Fine	Monochrome Orange Slipped	jar, high out-curving neck, bolstered rim	marl-based B subgroup	7a
610	LA187	Fine	Monochrome Orange Slipped	jar, out-curving neck	calcite B	
611	LA187	Coarse	Unslipped/Smoothed-Buff	jar	calcite H	
612	LA187	Coarse	Unslipped/Smoothed-Buff	jar	calcite H	6a
613	LA187	Coarse	Washed/Smoothed	jar	quartz sand	2a
614	LA187	Coarse	Unslipped/Smoothed-Buff	jar, out-curving neck, folded rim	calcite H	6a

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
615	LA187	Coarse	Unslipped Utilitarian	jar	quartz sand	2a
616	LA187	Coarse	Unslipped Utilitarian	jar	quartz sand	
617	LA187	Coarse	Unslipped/Smoothed-Buff	jar	calcite B	
618	LA187	Coarse	Unslipped/Smoothed-Buff	jar	calcite B subgroup	
619	LA187	Coarse	Unslipped/Smoothed-Buff	jar	calcite B	
620	LA187	Coarse	Unslipped/Smoothed-Buff	jar	calcite H	3a
621	LA187	Coarse	Unslipped/Smoothed-Buff	jar	calcite H	4a
622	LA187	Coarse	Unslipped Utilitarian	jar	quartz sand	
623	LA187	Coarse	Unslipped/Smoothed - Perforated	incense burner	quartz sand	
624	LA187	Coarse	Unslipped/Smoothed - Perforated	incense burner	calcite B	
625	LA187	Coarse	Unslipped/Smoothed - Perforated	incense burner	quartz sand	2a
626	LA187	Coarse	Unslipped/Smoothed-Buff	jar	calcite B	4f
627	LA187	Coarse	Unslipped/Smoothed-Buff	jar	calcite H	
628	LA187	Fine	Monochrome Orange Slipped and Incised	jar, globular	calcite C	4d
701	LA 1428	Fine	Polychrome Slipped and Painted	dish, rounded	sascab-quartz A	5a
702	LA1379	Fine	Polychrome Slipped and Painted	dish, rounded	sascab-quartz A	outlier at end
703	LA717/5	Fine	Polychrome Slipped and Painted	composite silhouette dish	sascab-quartz A	
704	LA1396	Fine	Polychrome Slipped and Painted	dish, rounded	sascab-quartz A	
705	LA1374	Fine	Polychrome Slipped and Painted	dish, rounded	sascab-quartz A	outlier at end
707	LA1444	Fine	Polychrome Slipped and Painted	composite silhouette bowl	marl-based D	6a
708	LA1419	Fine	Polychrome Slipped and Painted	composite silhouette bowl	grog	
709	LA1466	Fine	Polychrome Slipped and Painted	composite silhouette bowl	sascab-quartz A	outlier at end
710	LA1412	Fine	Polychrome Slipped and Painted	composite silhouette bowl	sascab	4d

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
711	LA717/5,1451,1406	Fine	Polychrome Slipped and Painted	tripod deep bowl with slab feet	volcanic glass A subgroup	1a
712	LA667	Fine	Polychrome Slipped and Painted	tripod deep bowl	volcanic glass A	1a
713	LA1428	Fine	Polychrome Slipped and Painted	vase	calcite F	
714	LA1499	Fine	Monochrome Orange Slipped and Groove-Incised	vase	volcanic glass A	1a
715	LA1450	Fine	Polychrome Slipped and Painted	vase	volcanic glass A	1a
716	LA1371	Fine	Polychrome Slipped and Painted	vase	sascab-quartz A	6a
717	LA1427	Fine	Monochrome Black	vase	marl-based A	
718	LA1410	Fine	Monochrome Black	vase	marl-based A	6b
719	LA1419	Fine	Monochrome Black	vase	marl-based A	5b
720	LA1428	Fine	Monchrome Orange to Red Slipped - Notched and Incised	composite silhouette bowl	grog	
721	LA1438	Fine	Monchrome Orange to Red Slipped - Notched and Incised	composite silhouette bowl	grog	
722	LA1446	Fine	Monchrome Orange to Red Slipped - Notched and Incised	composite silhouette bowl	grog	
723	LA1438	Fine	Monchrome Orange to Red Slipped - Notched and Incised	composite silhouette bowl	grog	3c
724	LA1427	Fine	Monochrome Orange Slipped and Incised	bowl, rounded	grog	
725	LA1436	Fine	Monochrome Orange Slipped and Incised	bowl, rounded	grog	
726	LA1512	Fine	Monochrome Orange Slipped and Incised	bowl, out-curving	grog	
727	LA1433	Fine	Monochrome Orange Slipped and Incised	bowl, rounded	grog	
728	LA1362	Fine	Monochrome Black	composite silhouette bowl	calcite F	
729	Harold Midden?	Fine	Polychrome Slipped and Painted	composite silhouette dish	sascab-quartz A	4f
730	LA701	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite A	
731	LA701	Coarse	Slipped Rim/Lip - Smoothed Body	jar	calcite B	
732	LA1114	Fine	Monochrome Black	deep bowl	marl-based A	
733	LA1352	Fine	Polychrome Slipped and Painted	composite silhouette bowl	marl-based D	6a

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
734	LA1355	Fine	Monochrome Orange Slipped and Incised	bowl, rounded	volcanic glass A	1a
735	LA1355	Fine	Monochrome Orange Slipped and Incised	tripod bowl with a segmented basal flange	grog	
736	LA1356	Fine	Monochrome Red Slipped and Notched	bowl, rounded	calcite D	
737	LA187	Fine	Monochrome Orange Slipped	jar, strap handles	grog subgroup B	7a
738	LA187	Fine	Monochrome Orange Slipped	jar, strap handles	sascab-quartz A	6a
739	LA187	Fine	Monochrome Orange Slipped	jar, strap handles	grog	3a
740	LA187	Coarse	Unslipped Utilitarian	jar	quartz sand	2a
741	LA187	Coarse	Unslipped/Smoothed-Buff	jar, flaring neck	calcite B	4b
742	LA187	Coarse	Unslipped/Smoothed-Buff	jar, flaring neck	calcite B subgroup	outlier 5/6
743	LA187	Fine	Monochrome Orange Slipped	tripod bowl, out-curving	marl-based C	7a
744	LA187	Coarse	Unslipped/Smoothed-Buff	jar, flaring neck	calcite B	
745	LA187	Fine	Monochrome Orange Slipped	jar, strap handles	grog	
746	LA187	Coarse	Unslipped/Smoothed-Buff	jar, bolstered rim	calcite B	
747	LA187	Fine	Monochrome Orange Slipped	bowl, rounded	grog	
748	LA187	Fine	Monochrome Orange Slipped	sieve	grog	
749	LA187	Fine	Monochrome Orange Slipped	composite silhouette bowl	grog	3a
750	LA187	Fine	Monochrome Orange Slipped	jar, high out-curving neck, bolstered rim	grog	
751	LA187	Coarse	Unslipped/Smoothed-Buff	jar	calcite G	3b
752	LA187	Coarse	Unslipped/Smoothed-Buff	jar, flaring neck	calcite A	4b
753	LA187	Fine	Monochrome Orange Slipped and Incised	tripod bowl with a segmented basal flange	grog	
754	LA187	Coarse	Unslipped Utilitarian	jar	quartz sand	
755	LA187	Coarse	Unslipped Utilitarian	jar	quartz sand	
756	LA1114	Fine	Polychrome Slipped and Painted	dish, rounded	sascab-quartz A	5a

Sample No.	Vessel Number/ Lot Number	Ware	Stylistic Group	Form	Fabric Group	NAA Group
757	LA1114	Fine	Monochrome Orange Slipped and Incised	bowl, rounded	grog	
758	LA1114	Fine	Monochrome Orange Slipped	drum, bell-chambered	grog	

Note: * = sample analyzed by SEM

APPENDIX II
STYLISTIC GROUP DESCRIPTIONS

All of the complete vessels referred to in the text by vessel number are illustrated and described in detail in Appendix IX, in which they are presented in numerical order.

FINE WARE

Polychrome Slipped and Painted

Frequency: Polychrome Slipped and Painted vessels constitute one of the smaller groups within the assemblage, comprising just 5.5% of the fine ware and 3.0% of all vessels. A minimum number of 74 vessels is represented, including 10 whole vessels and 64 rim fragments. All of the fragmentary examples were recovered from the midden associated with structure N10-27. The majority of vessels are rounded dishes (60% of fragments and 40% of whole vessels), followed by composite silhouette bowls (25% of fragments and 40% of whole vessels). There are comparatively fewer vases (1 whole vessel and 5 fragments), tripod bowls (2 fragments) and large open vessels (3 fragments), which are possibly basins.

Principal Identifying Modes: Vessels with slipped or polished surfaces that also display a painted decorative treatment comprising more than one colour.

Paste and Firing: Medium- to fine-textured pastes, frequently with firing horizons. Rim fragments and vessels exhibiting a single homogenous colour throughout the cross section are brownish-buff or light brown. Rim fragments and vessels with firing horizons have darker coloured cores of varying thickness (light grey, grey, dark grey) and buff, brownish-buff, light brown, greyish-brown, light orange or orange margins. Base and lower body fragments from rounded dishes are dark grey with a brownish-buff or buff interior margin. The different firing horizons observed for the rims vs. bases of dishes likely relates to the way in which these vessels were positioned during firing. Inclusions are white to greyish-white (opaque or semi-translucent), grey (opaque) and colourless and, in most cases, are abundant. In some of the volcanic ash tempered examples (e.g. 714 and 715) inclusions are not perceptible at the macroscopic level. The volcanic ash tempered pastes are further distinguished by their powdery feel. Differences in colour, including firing horizons, appear to cross cut fabric groups, with

the exception of the volcanic ash tempered pastes which are completely oxidized. However, pastes tempered with crystalline calcite are distinguished by their 'sparkly' appearance, owing to the highly light reflective nature of the colourless calcite fragments.

Surface Treatment and Decoration: The surface treatment is generally glossy and well-smoothed and can not be removed when scratched with a fingernail. Burnishing or smoothing marks are visible on some examples, especially dishes, and on the interior surfaces of the tripod bowls and vases. They are generally absent on the exterior surface of these two forms. The finished surfaces are usually slipped, and painted decorative motifs occur on either the interior or exterior surface, depending on the shape of the vessel, and never on both. On at least two bowls and one dish, however, the painted decoration appears to have been rendered on an unslipped surface that was highly polished to produce an overall glossy appearance. The painted decoration occurs on the exterior surface of the vases and bowl forms, whereas it occurs on the interior surface of the dish forms. The interior surface of the bowl forms are most often slipped red, although at least two bowls (both tripods) have orange slipped interiors. The interior surfaces of the vases are always unslipped below the rim area, which usually features a least one painted horizontal band of colour. In regard to the exterior surface on the dish forms, the slip is most often confined to the upper portion of the vessel.

The decorative treatment of the polychrome bowls and vases most frequently comprises black and red or black, red and orange painted motifs on a cream or buff-coloured slipped background (N=9). The next most frequent decorative treatment, observed on six vessels, comprises black and red painted motifs on an orange slipped background. Other decorative treatments observed include black and red painted motifs on a natural reddish-orange background (N=1); black, red, orange and white painted motifs on a cream-coloured slipped background (N=1); and red and white painted motifs on a natural cream-coloured background (N=1). Among the dishes, the most frequent decorative treatment comprises black and red painted motifs on an orange to dark orange slipped back ground. Black, red and orange painted motifs on a cream-coloured slipped background was observed on four dishes, whereas black and red painted motifs on a cream-coloured slipped background occurred in three cases. Decorative treatments represented by only one example include black and orange painted motifs on a natural cream-coloured background and red and orange painted motifs on a cream-coloured slipped background. Thirteen vessels (10 dishes and 3 bowls) had surfaces that were too eroded to permit a confident assessment of their decorative treatment.

The painted decoration that is a prominent and eye-catching feature of the polychrome vessels combines simple linear, curvilinear and geometric abstract design elements and conventionalized zoomorphic motifs in a variety of ways. The exact composition of the painted decoration on each vessel appears to be unique. On the more complete examples of the bowls, the painted motifs tend to occur in a wide band on the upper portion of the vessel and individual motifs are often repeated across the surface. In contrast, the painted decoration on the dishes mainly comprises continuous bands of geometric, linear and curvilinear motifs, and these cover most of the interior surface. On two of the best preserved dishes, these bands encircle a zoomorphic figure situated centrally on the bottom of the vessel. This decorative convention also has been observed on similar vessels from recent excavations at Lamanai (not included here), suggesting that it may have been more common than is apparent among the fragmentary and eroded examples that were examined in the present study.

Forms and Dimensions: The vessel shape classes represented in the Polychrome group include vase, bowl and dish forms. Only one example of a vase had a complete enough profile to assess its exact morphology and this was a cylindrical vase with a direct rim, a squared lip and a flat base. The more fragmentary examples that are rim sherds have direct rims with rounded to squared lips. The rim diameters of the vases range from 13cm - 17cm (mean=15.1cm) and wall thickness is consistently between 0.4cm and 0.5cm.

The bowl forms represented within this surface treatment group include deep tripod bowls with flaring sides, bowls with a composite silhouette, and bowls with flaring, or rarely, rounded sides. The tripod bowls are deep with flaring to slightly out-curving sides, a direct rim and a rounded lip. The base is flat and at least one example has solid slab feet. The rim diameters of the two examples identified were 17cm and 21cm respectively and both had a wall thickness of 0.6cm. The composite silhouette bowls have rounded lower sides that rise to an angular junction (or medial angle) from which the upper sides rise vertically, flare slightly or in-slope slightly. Most examples have a bolstered rim and a rounded lip that has a slightly angular interior margin. Two examples, however, have direct rims and rounded lips. The more complete examples of this bowl form have a ring base and fragments of similar bases also occur among the sherd assemblages. Rim diameter ranges from 10cm - 30cm and the mean wall thickness is 0.6cm. The flaring-side bowls have a direct rim, a rounded to slightly pointed lip and a flat base. Rim diameter could be measured on only one example and this was 11.5cm. Mean wall thickness is 0.5cm. The single example of a round-side

bowl that was identified had a direct rim and a rounded lip. The base was absent. The rim diameter is 17.5cm and the thickness of the wall is 0.5cm.

Most polychrome dishes have rounded sides, a direct rim and a rounded, slightly squared or slightly pointed lip. On the more complete examples, the base is most often slightly rounded, although one example had a rounded base with a raised circular ridge or 'incipient ring base'. The rim diameter of these dishes ranges from 10cm to 42 cm and the mean wall thickness is 0.7cm. These rounded dishes have the same general morphology as the rounded dishes in the Monochrome Red Slipped and Monochrome Orange Slipped groups, on which the slip on the exterior surface is also confined to the upper portion of the vessel.

Three examples of polychrome dishes with a composite silhouette are also represented. These dishes have rounded lower sides that rise to an angular junction, from which the upper sides curve slightly outward. Rims are slightly everted and slightly bevelled on the interior surface and lips are rounded. Although the bases of these dishes are missing, vessels with an identical morphology occur in other surface treatment groups (see Monochrome Red Slipped, Monochrome Orange Slipped and Red-Orange-Black Resist composite silhouette dishes) and these tend to have a ring base. The rim diameters of the polychrome dishes are 34cm, 42cm and 46cm, and the mean wall thickness is 0.8cm.

A final vessel represented is large and open, possibly a large bowl or basin. All three examples that were identified were body sherds (1cm – 2cm in thickness).

Black on Red Slipped and Painted

Frequency: Black on Red Slipped and Painted vessels are comparatively rare within the assemblage, representing less than one per cent (0.6%) of fine ware as well as the total number of vessels (0.3%). A minimum number of 8 vessels was identified, including 6 whole vessels and 2 rim fragments . Both of the fragmentary examples were recovered from the midden associated with structure N10-27. Five out of the six whole vessels are rounded dishes. The remaining whole vessel is a massive bowl and both rim fragments derive from morphologically similar bowls.

Principal Identifying Modes: Rounded dishes and massive bowls with a red slip and black painted decoration.

Paste and Firing: All pastes are medium-textured; however, dishes are reddish-brown and buff throughout the cross section – i.e. completely oxidized – whereas the massive

bowls have thick grey cores and light orange or buff margins. Inclusions are white to greyish white (opaque and semi-translucent) and grey (opaque). Pastes that are reddish-brown also contain common reddish-brown concretions.

Surface Treatment and Decoration: The surfaces of these vessels are generally well-smoothed and very glossy. Red slip covers the interior and exterior surfaces of the bowls, but is confined to the interior surface and rim area of the exterior surface on dishes. The remainder of the exterior surface of the dishes is unslipped and the exterior surface is generally less well smoothed than the interior. Drag marks are also present. The slip is well preserved on all examples and can not be removed when scratched with a finger nail. Slip colour is highly consistent across the slipped surfaces of the dishes, but some firing clouding was observed on the exterior surface of the only complete example of a bowl, especially close to the base. Burnishing marks are clearly visible, and on the interior surfaces of the dishes they appear to occur in a regular, cross-hatched pattern. The black painted decoration is confined to the interior surface of the dishes and the exterior surface of the bowls. The decoration on the bowls consists of a few painted bands of varying thickness running horizontally and vertically across the surface. The dishes feature parallel bands and chevrons encircling the upper portion on the interior wall and a centrally placed, cartoon-like, zoomorphic figure. In all cases the black paint has a 'watery' appearance.

Forms and Dimensions: Black on Red vessels are exclusively rounded dishes and massive bowls. The dishes have a direct rim, a rounded lip that is slightly bevelled out and a slightly rounded base. Three out of the four dishes have a rim diameter of 39cm - 42cm and the fourth measures 24cm. Wall thickness is a consistent 0.5cm-0.6cm. The bowls are very large, with rim diameters of 36cm, 38cm and 40cm respectively, and a wall thickness of between 0.8cm and 0.9cm. The lone complete example has flaring lower sides that rise to a slightly angular junction, and vertical to slightly rounded upper sides. The rim is direct, the lip is rounded and the base is flat. The fragmentary examples, both of which are rim sherds, also have direct rims and rounded lips.

Red-Orange-Black Resist

Frequency: Vessels with a resist surface treatment comprise one of the least well represented groups within the assemblage, constituting just 1.9% of the fine ware and 1.0% of all vessels. A minimum number of 25 vessels is represented, including 2 whole vessels and 23 rim fragments. All of the fragmentary examples were recovered from the midden associated with structure N10-27. One of the whole vessels is an out-

curving dish and the other is a composite silhouette dish with a ring base. All of the vessels fragments derive from composite silhouette dishes .

Principal Identifying Modes: Bichrome, red and black dishes on which the slip has been purposely manipulated during firing through a 'resist' technique to produce comparatively large, bold, decorations. The dominant colour on the vessel (colour of exterior and majority of interior) can be either deep red to orange or black and the decoration, which appears as irregular-shaped or amorphous blotches, occur in the opposite colour - i.e. they are red on a predominantly black vessel and black on a predominantly red vessel.

Paste and Firing: Generally medium-textured pastes, frequently with firing horizons of varying thickness. Rim fragments and vessels exhibiting a single homogenous colour throughout the cross section are orangish-buff, dark orange, light orange or greyish-brown. Rim fragments and vessels with firing horizons have grey, dark grey, black or rarely, greyish-buff cores and buff, brownish-buff, greyish-buff, light brown, orangish-brown, brown, light orange or rarely, pinkish-orange margins. A few examples have grey to dark grey cores bordered by brownish-buff, greyish-buff or yellowish-buff horizons and light orange or orangish-brown margins. The thickness and presence/absence of firing horizons varies along the vessel profile. Inclusions are greyish white to light grey (opaque) and colourless, and some pastes have frequent fine inclusions in addition to the larger ones. One rim fragment also contains a fragment of snail shell. Differences in colour, including the nature of firing horizons, appear to cross cut fabric groups, whereas slight differences in inclusions appear to reflect significant compositional differences.

Surface Treatment and Decoration: The surfaces of these vessels are well smoothed and range from a very glossy and somewhat waxy finish, to a slightly glossy finish. Burnishing marks are clearly visible on the less glossy examples, whereas they are completely absent on examples with a very glossy finish. The surface finish on the glossiest examples has an almost waxy feel, which is reminiscent of surface treatments of the Preclassic period. The distinguishing feature of this surface treatment is the bichrome colour of the slip on the interior surface of the vessel. This colouring effect appears to have been brought about by means of a 'resist' technique involving the purposeful manipulation of slip colour during firing (see Chapter 10 for a more detailed discussion of this decorative technique). The slip on the exterior surface of these vessels is either monochrome dark red to orange or monochrome black, and the interior

surface is predominantly either dark red to orange or black, with blotches in a contrasting colour (either dark red to orange or black). The monochrome colour of the exterior surface is the same as the predominant colour on the interior surface. Only one vessel within the assemblage departs from this specific pattern, a morphologically unique dish, and this vessel has resist decoration on both the interior and exterior surface (see below). On the more complete vessels, the blotches on the interior surface occur at regular intervals to produce a regular or purposeful decorative pattern. In these cases, the general shape and relative positioning of the blotches rendered on individual vessels are highly consistent, suggesting the blotches may in fact be a motif of sorts. On the two complete vessels that were studied, the blotches are reminiscent of the hand of a cartoon figure or an abstract rendering of a bird or animal. On the fragmentary examples, the blotches are generally irregular-shaped, or amorphous, making pattern recognition difficult.

Forms and Dimensions: With only one exception, the resist surface treatment is associated with composite silhouette dishes ('basal break' dishes). These dishes have round lower sides that rise to an angular junction, from which the upper sides curve outward. Rims are slightly everted, most often with a bevel on the interior surface, and lips are rounded. Based on the complete example as well as base fragments identified in the sherd assemblages, it would appear that these dishes have a ring base. Rim diameters range from 17cm - 56cm, with very few vessels measuring over 45cm. Wall thickness ranges between 0.5cm and 1.6cm, but for the majority of vessels, wall thickness falls between 0.8cm and 1.0cm. The one morphologically unique vessel within this surface treatment group (LA 656/5) is a dish with out-curving sides and a slightly incurving base.

Monochrome Black

Frequency: Monochrome Black vessels constitute another of the least well represented groups within the assemblage, comprising just 2.8% of the fine ware and 1.5% of all vessels. A minimum number of 37 vessels is represented, including 15 whole vessels and 22 rim fragments. All but one of the fragmentary examples were recovered from the midden associated with structure N10-27. The majority of vessels are bowls (81.8% of fragments [N=17] and 66.7% of whole vessels [N=10]), flaring bowls and deep bowls being the most common forms. Comparatively fewer vessels are vases (5 whole vessels and 4 fragments).

Principal Identifying Modes: Black slipped vessels, principally bowls and vases, with or without a secondary decorative treatment (addition or alteration to the vessel's surface). Secondary decorative treatments include incising, gouging, groove-incising, appliqué, stamping, false gardooning, impressing and punctuation, and on vases, these different treatments occur together in varying combinations.

Paste and Firing: Pastes are generally fine- to medium-textured and firing horizons are always present. Cores vary in thickness but are normally thicker than the margins, and intermediary horizons of colour between the core and the margins are common. Cores are usually black (rarely dark greenish-grey) and in most cases are bordered by very thin brown to light brown horizons and black vessel margins. For cross sections that exhibit only two colours, cores are black, dark brown, greenish-brown, brown, brownish-buff or orangish-brown and margins are, dark brown, brownish-black or black. Inclusions are white to light grey (opaque), and rarely black (opaque). Sherds and vessels containing crystalline calcite temper tend to have lighter coloured cores, but dark coloured cores were also observed.

Surface Treatment and Decoration: The best preserved monochrome black vessels have finished surfaces that are smooth to very smooth to the touch, and range from very glossy and hard to somewhat glossy and fairly soft (i.e. the black slip flakes away when scratched with a finger nail). Colour ranges from deep black to brownish-black and a few vessels have orange mottles, or oxidized areas, on the exterior surface. Bowls are finished on both the interior and exterior surfaces, where as vases are finished on the exterior surface only. The interior surface of the vases is generally untreated, in that it is always less well-smoothed and lacks the glossy, often hard finish of the exterior surface. On vessels with the most severely eroded surfaces, very little of the original surface finish often remains, exposing the reduced clay body underneath. Variation in the preservation of the surface of these vessels may be due, in part, to differences in post depositional environment, leading to more severe alteration of vessel surfaces within particular contexts. However, there is also some evidence that this variation may be equally related to differences in the surface treatment techniques used in the manufacture of monochrome black vessels. It is clear that some of the vessels have a black slip. In these cases, the surface finish tends to be less glossy, the slip sits atop the ceramic body and is easily removed when scratched with a finger nail. The exposed clay body is grey in colour. In contrast, on the vessels with a very glossy, hard surface finish, evidence of a true layer of slip is less than clear, even on the examples with heavily eroded surfaces. In these cases, when the surface is scratched with a fingernail,

a small amount of the ceramic body comes away with the surface finish. An independent layer of slip is not apparent and the colour of the underlying ceramic body is a dark grey colour. It appears that that the technique employed to bring about the high quality surface finish involved heavy burnishing and polishing of the surface, and not the application of a slip to a prepared (smoothed) surface alone. Burnishing marks and facets are clearly discernable in some cases, sometimes on an obvious layer of slip, but are often completely obliterated on the bowl forms. The vessels with the glossy, hard surface finish often have less eroded surfaces than slipped examples, even when they derive from the same context, suggesting that the finishing techniques have a direct effect on the durability of the surface treatment. Surface treatments relating to the monochrome black group are discussed further in Chapter 10, on the basis of SEM results.

Monchrome black vessels have either plain or decorated surfaces. Of the vessels with plain surfaces, the majority are bowls (N=10), which vary in form. Only one plain vase was identified. Decorated surfaces are produced using a number of different techniques including incising, gouging, groove-incising, appliqué, stamping, false gardooning, impressing, punctuation and modelling. Bowls are most often decorated using a single technique, whereas the vases tend to display multiple of techniques, which are combined in different ways on individual vessels.

Of the eight decorated bowls, the majority (N=6) are groove-incised, one has incised decoration and one has an appliqué at the junction of the body wall and base in the form of an impressed fillet. The deep bowls (see below for a description) tend to be groove-incised in a specific fashion, with a series of horizontal grooves encircling the body wall. The grooves have the same glossy finish as an unaltered surface and they appear to have been rendered in a continuous fashion by turning the vessel (as opposed to rendering individual, parallel grooves), using a blunt instrument with a fairly wide tip (approximately 5mm in width). The grooves are fairly shallow and their margins are smooth and unraised, suggesting that they were produced at the leather hard stage. The decoration on the incised bowl appears to have been rendered with a comparatively sharp instrument and, although the surface finish on this vessel is heavily eroded, appears to have been done prior to slipping. The image or motif portrayed on the remaining fragment of this vessel appears to be a bird.

The most complete examples of decorated monochrome black vases include LA508/6, LA508/7, LA515/4, LA658/1. The decoration on each vessel, including the

fragmentary examples, is unique, and on the more complete examples, tends to combine at least two techniques. All alterations to the vessel's surface appear to have been done prior to slipping and when the vessel was in a leather hard state. The margins of the different decorative elements, whether they be rendered through stamping, punctuation, gouging or groove-incising are always clean, smooth and unraised. On the more complete examples, the decorative treatment follows a particular scheme and is organized vertically and/or horizontally in wide bands or panels. Individual elements such as stamped symbols and punctations are patterned in a specific way – i.e. they form a band or a particular shape – and these patterns are repeated across the surface.

Forms and Dimensions: Monochrome black vessels are exclusively bowls or vases. Vase forms include cylindrical (N=3) and barrel-shaped (N=1), although form was indeterminable for the fragmentary body sherds. Regardless of form, rims are direct, lips are rounded to slightly pointed and bases are flat. Rim diameter ranges from 8cm to 16cm and mean wall thickness is 0.5cm. Of the eighteen bowls that were identified, thirteen are deep bowls. These bowls have vertical, flaring, or out-curving sides; a direct, or rarely, a slightly interior thickened rim; and a flat base. The next most frequent bowl form has flaring sides, most often a direct rim and a pointed lip, and a flat base. One example has a bolstered rim and a rounded lip. Other forms include: bowls with rounded sides (N=3) and in-curving sides (N=1). The rounded bowls have a direct rim that is slightly interior thickened, a rounded lip and a flat base. One example has a raised ridge at the junction between the body and base. The in-curving bowl has a direct rim, a rounded lip and a slightly flat base. A rim fragment of a monochrome black, incised bowl with a bolstered rim and a rounded lip, possibly from a composite silhouette bowl, was also identified. Bowl rim diameters range from 8cm - 21cm and wall thickness is 0.4cm - 0.6cm.

Monochrome Red Slipped

Frequency: Red Slipped vessels constitute one of the smaller groups within the assemblage, comprising 8.4% of the fine ware and 4.6% of all vessels. A minimum number of 113 vessels is represented, including 27 whole vessels and 86 rim fragments. Most of the fragmentary examples (N=80) were recovered from the midden associated with structure N10-27, where as only 6 fragments derive from the midden at structure N10-9. Among the red slipped vessels, bowls are most common (46.5% of fragments and 48.1% of whole vessels), followed by dishes (33.7% of fragments and 33.3% of whole vessels) and there are a variety of forms represented in both of these shape

classes. There are comparatively fewer jars (2 whole vessels and 13 fragments) and tripod bowls (3 whole vessels and 3 fragments), and only one fragment from a vase.

Principal Identifying Modes: Vessels with a red to dark red slip.

Paste and Firing: Pastes are generally medium to fine textured and dark cores of varying thickness are common. Rim fragments and vessels exhibiting a single homogenous colour throughout the cross section are light grey, dark grey, buff, orangish-buff, brownish buff, light orange and orange. Firing horizons, when present, most often comprise a black, dark grey, grey, light brown or brownish-buff core bordered by buff, orangish-buff, brownish-buff, light brown, light orange or pinkish-orange margins Fewer examples have grey to dark grey cores bordered by brownish-buff or yellowish-buff horizons and light orange or orangish-brown outer margins. The thickness and presence/absence of firing horizons varies along the vessel profile and bowl forms with firing clouding on the base tend to have reduced interior margins in cross section (generally a lighter colour of grey than the core). As with polychrome dishes, dish bases are often reduced with oxidized interior margins. Inclusions are white to grey (opaque) or colourless, and dark brown to black concretions sometimes occur. Volcanic ash tempered fabrics tend to be completely oxidized, have a powdery feel and contain comparatively few inclusions. In general, however, differences in colour, including the nature of firing horizons, appear to cross cut fabric groups.

Surface Treatment and Decoration: The surfaces of Monchrome Red Slipped vessels are plain and undecorated, except for the slip. Surface finishes are generally smooth to the touch, and range from slightly glossy to very glossy. Some of the composite silhouette dishes are very glossy and somewhat waxy in appearance, as with some of the conformal dishes in the Red-Orange-Black Resist group. The general 'quality' of the slip is also variable. On most vessels, the colour and coverage of the slip appears to be fairly consistent. On some of the rounded dishes and bowls (these are slipped on the interior and on the exterior to just below the rim area), however, the slip appears to be more inconsistent, both in terms of its colour and relative thickness. On vessels with a less glossy surface finish, the slip easily flakes away when scratched with a fingernail. On vessels with a very glossy to waxy surface finish, however, the slip is very hard and is not removed when scratched. Burnishing marks and facets are sometimes visible on the best preserved examples and especially on the interior surfaces of some of the rounded dishes. On these vessels, the burnishing marks often form a cross hatched pattern and produce a visual effect, in which the higher gloss of the burnishing marks

contrasts with the unaltered portion of the vessel surface. Burnishing marks and facets tend to be completely absent on the dishes with a waxy or very glossy surface finish. Within the Monchrome Red Slipped group as a whole, slip colour generally ranges from dark red to orange red. On vessels that the colour of the slip is inconsistent, it grades from red to orange or more orange shades of red.

The vessel surfaces on which slip has been applied vary according to shape class and form. Jars are slipped on the exterior and on the rim area of interior surface. The remainder of the interior surface is unslipped and less well-smoothed. Bowls are generally slipped on both the interior and exterior, however, some rounded bowls (interior slipped bowls) are slipped on the interior and to just below either the lip or the rim area on the exterior, with the remainder of the exterior surface left unslipped but well smoothed. Tripod bowls are slipped on both surfaces, including the feet on the complete examples. Composite silhouette dishes with ring bases and chalices (only dish body fragments are present) are generally slipped on both interior and exterior surfaces. On some complete composite silhouette dishes and bowls, however, the exterior appears to be unslipped below the angular junction on the body wall, but this area is still well smoothed. As with some rounded bowls, rounded dishes are slipped on the interior surface and to just below the rim area on the exterior surface. The remainder of the exterior surface is unslipped and less well smoothed than the interior. Drag marks also occur .

Forms and Dimensions: Red slipped vessels are almost exclusively bowls, dishes and jars, with only one small fragment from a vase identified. Bowl forms include tripod bowls; composite silhouette bowls, with or without a ring base; deep bowls; and bowls with rounded or flaring sides. The most common bowl form is the rounded bowl. Rims are most often direct with rounded lips. Fewer vessels have bolstered rims and rounded to slightly squared lips, or direct rims and squared or slightly bevelled-out lips. On the most complete examples, base morphology varies from rounded, to slightly rounded or flat, to flat. Rim diameter varies widely from 11cm - 36cm, with no apparent tendency toward a particular diameter range. Wall thickness ranges from 0.4cm - 0.8cm (mean=0.6cm). The rounded bowls on which the slip on the exterior surface is confined to the rim area have direct, or rarely, slightly interior thickened rims and rounded to slightly squared lips. Rim diameter ranges from 13cm - 45cm, with most diameters measuring 16cm - 24cm. Wall thickness ranges from 0.5cm - 1.0cm (mean=0.7cm). Only three examples of flaring bowls were identified. These vessels are

morphologically similar to conformal vessels in the Monochrome Black group, having direct rims and rounded to slightly pointed lips. Likewise, the one complete example has a flat base. Rim diameters fall within a more restricted range than those of the rounded bowls, measuring 13cm, 14cm, 16cm and 20cm. Wall thickness is fairly consistent at 0.5cm - 0.7cm. Only one deep bowl was identified. This vessel has the same morphology as comparable Monochrome Black deep bowls, having out-curving sides, a direct rim, a rounded lip and a flat base. The rim diameter of this vessel is 16cm and wall thickness is 0.6cm. The morphology of the composite silhouette bowls is less consistent than other bowl forms. There is variation in the exact curvature of the profile of these bowls and the complete vessels have either flat or ring bases. Of the two composite silhouette bowls with ring bases, one has rounded, lower sides that rise to an angular junction, from which slightly rounded upper sides rise to meet a direct rim with a slightly squared lip. The other vessel has flaring lower sides and rounded upper sides, a direct rim and a rounded lip. The rim diameters and wall thickness of these vessels are 16cm and 22cm respectively, and 0.9cm and 0.6cm respectively. The composite silhouette bowls with flat bases have rounded lower sides that most often rise to an only slightly angular junction (vessel LA486/3 has an angular junction). The curvature of the upper sides of these vessels is very variable and can be in-curving, rounded, out-curving or slightly in-sloping. Rims are direct or slightly interior-thickened and lips are most often rounded, sometimes with a slight bevel or angular interior margin. One vessel has a squared lip. Rim diameters range from 14cm to 25 cm and wall thickness ranges from 0.5cm to 0.9cm. A rim fragment from a composite vessel has flaring upper sides, a bolstered rim and a rounded lip. Its rim diameter is 22cm and its wall thickness is 0.7cm. The general morphology of this vessel is similar to some of the composite silhouette bowls in the Polychrome and Monchrome Black groups. Since complete Polychrome bowls tend to have a ring base, it is possible that the Monochrome Red Slipped bowl also originally had a ring base.

The tripod bowls most often have slightly out-curving to out-curving sides and a flat base. One of the rim fragments appears to derive from a composite silhouette form with out-curving sides and an angular junction between the body and base. The rims of the tripod bowls are most often direct and lips are rounded, bevelled-out or slightly bevelled-out. One of the complete vessels, however, has a slightly everted and interior-thickened rim and a rounded lip. Of the three complete tripod bowls, two have a pronounced ridge at the angular junction between the base and the body wall. The two complete vessels with feet have solid nubbin feet (LA690/2) and solid, 'Ik-shaped', slab

feet (LA637/3). Although only the foot attachments remain on vessel LA515/3, the feet appear to have been of the solid, slab type. The rim diameters of the tripod bowls ranges from 14cm to 24cm and wall thickness ranges from 0.4cm - 0.7cm.

Dish forms include composite silhouette dishes, rounded dishes and 'chalices' (composite silhouette dish with a pedestal base). Composite silhouette dishes most often have rounded lower sides that rise to an angular junction, from which the upper sides curve outward to a slightly everted rim that is sometimes bevelled on the interior surface ('basal break' dishes). Lips tend to be rounded, sometimes with an angular interior margin. On one of the complete vessels, the rim is also interior-thickened, and the lip is slightly pointed. All of the complete vessels have a ring base and there is some variation in base height. The base fragments that were identified also vary in height, ranging from ring bases to low, flaring pedestal bases. These red slipped dishes are morphologically identical to dishes of the same form in the Black-Red-Orange Resist and Monochrome Orange Slipped groups. Rim diameters of the red slipped vessels range from 23cm - 67cm, with most vessels measuring between 35cm - 43cm. Wall thickness ranges from 0.5cm - 1.7cm, with a mean thickness of 0.85cm. One of the complete dishes (LA105/1) has a composite silhouette form that appears to be unique, or at least comparatively rare, in the Lamanai assemblage. This vessel has flaring sides that curve upward at the rim. The rim is interior thickened, the lip is rounded and slightly bevelled-in, and the base is flat. Rim diameter is 31cm and wall thickness is 0.7cm. The rounded dishes (slip is confined to the rim area of the exterior surface) have direct rims and flat to slightly rounded bases. Lip form is more variable, ranging from rounded to slightly pointed or squared, and the rounded lips sometimes have an angular interior or exterior margin. Rim diameter ranges from 8cm - 52cm, with most vessels measuring between 30cm and 40cm. Wall thickness ranges from 0.5cm - 1.3cm (mean=0.9cm). Only three fragments of red slipped 'chalices' were identified, all of which derive from the dish portion of this vessel form. The red slipped fragments appear to be morphologically identical to the orange slipped vessels with plain or incised pedestal bases (see chalices in the Monochrome Orange Slipped and Monochrome Orange Slipped and Incised groups). The rim diameters of the red slipped fragments are 31cm, 34cm and 35cm, and wall thickness is 0.6 - 0.8cm.

There are only two nearly complete examples of Monochrome Red Slipped jars. In both cases, the body is globular in shape, and the base is rounded on the only vessel with an intact base (LA 825/1). Vessel LA345/1 has a vertical neck, a direct rim and a

squared lip. LA825/1 is morphologically similar, except that its neck is slightly in-sloping and shorter in height. The dimensions of these two jars are also very similar: rim diameters = 9cm and 8cm; neck diameter = 8cm and 6cm; neck height = 3.7cm and 3.5cm; and the wall thickness of both vessels is 0.6cm. Within the sherd assemblages, however, red slipped jars most often have out-curving necks, direct rims and rounded to slightly pointed or slightly squared lips. Fewer jars have vertical necks, direct rims and rounded lips, or vertical to slightly in-sloping necks, flaring to horizontal everted rims and rounded lips. One jar has an exterior-thickened rim. Rim diameters show a very restricted range of 9cm - 11cm. Neck height ranges from 2.7cm - 5.2cm and wall thickness is 0.4cm - 0.6cm. Rare jar forms include a jar with a very low, flaring neck and a bolstered rim and a jar with a high, out-curving neck and a bolstered rim. The jar with the low, flaring neck has a rim diameter of 22cm, a wall thickness of 0.5cm and a neck height of 2.5cm. The jar with the high, out-curving neck has a rim diameter of 13cm, and a wall thickness of 0.6cm. Both of these jars have the same morphology as conformal vessels in the Monochrome Orange Slipped group.

Monochrome Orange Slipped

Frequency: Orange Slipped vessels form the largest fine ware groups within the assemblage, comprising 40.5% of the fine ware and 21.9% of all vessels. A minimum number of 544 vessels is represented, including 37 whole vessels and 507 rim fragments. This group is well represented in both of the midden assemblages. A total of 309 fragmentary examples were recovered from the midden associated with structure N10-27 and 198 fragments derive from the midden at structure N10-9. The majority of orange slipped vessels are either bowls or tripod bowls (53.8% and 15.8% of fragments, and 27.0% and 37.9% of whole vessels, respectively), and a variety of different forms are represented. There are comparatively fewer dishes (13.5% of whole vessels and 9.8% of fragments), jars (8.1% of whole vessels and 14.4% of fragments) and durms (8.1% of whole vessels and 4.1% of fragments). Rare forms include composite vessels (1 whole vessel and 2 fragments), vases (2 fragments), a tripod vase (whole vessel) and a sieve (fragment). The principal dish forms are rounded dishes, chalices and composite silhouette dishes, whereas jar morphology is more variable.

Principal Identifying Modes: Vessels with an orange to reddish-orange or brownish-orange slip.

Paste and Firing: Pastes are medium to fine-textured and there is considerable variation in paste colour, including the specific nature of firing horizons. Darker

coloured cores are frequent and vary in thickness and the thickness and presence/absence of firing horizons varies along the vessel profile. Rim fragments and vessels that are homogenous in colour throughout the cross section range from buff, orangish-buff or greyish-buff to light orange, orange or light brown. When firing horizons are present they most often comprise a grey, dark grey or black core bordered by buff, brownish-buff, light brown, greyish-brown, grey or orange outer margins. Comparatively less frequent are cross sections comprising a black or dark brown core and dark brownish-grey margins, and a dark grey core bordered by thin buff horizons and light orange outer margins. In most cases inclusions are white, greyish white (opaque and less frequently semi-translucent) or colourless and fine orangish-brown inclusions (likely grog) and dark brown concretions also occur. A distinctive paste is orange in colour throughout the cross section and contains comparatively densely packed and evenly distributed, fine white particles, giving the paste a 'dusty' appearance. This paste corresponds to the Dolomitic-Calcitic Marl-based fabric class discussed in Chapter 8. The rare volcanic ash tempered pastes have the same distinguishing characteristics as are described for other surface treatment groups (see Polychrome Slipped and Painted). Nevertheless, as with other surface treatment groups, compositionally different pastes on the microscopic level, in some instances, are not distinguishable with the naked eye owing to the overlap between these pastes in colour, the presence/absence and nature of firing horizons and inclusion types.

Surface Treatment and Decoration: Finished surfaces are plain and undecorated except for the slip, and are generally smooth to the touch and range from somewhat glossy to very glossy in appearance. The general 'quality' and thickness of the slip is highly variable. A few of the composite silhouette dishes ('basal break' dishes) have a glossy and somewhat waxy appearance, as is the case with conformal vessels in the Monochrome Red Slipped and Resist groups. The slip on vessels with a less glossy surface finish flakes away easily when scratched with a fingernail, whereas the glossier finishes are more resistant. Burnishing marks and facets are often visible, and on some of the bowls, the slip has a streaky appearance due to burnishing after the slip was applied. Burnishing marks and facets tend to be absent on vessels with a somewhat waxy surface finish. Slip colour grades from orange to reddish-orange and brownish-orange. It is sometimes inconsistent across the vessel surface, grading from orange to redder or browner shades of orange. Fire clouding occurs on the interior and exterior bases of some bowl forms and the slip on these affected areas is a washed out yellow, yellowish-brown or brown grey colour.

The slipped vessel surfaces vary according to shape class and form. Vase, jar and drum forms are slipped on the exterior and on the rim interior, the remainder of the interior being unslipped and less well-smoothed. With the exception of some rounded bowls, bowls are slipped on the interior and exterior. On some of the tripod bowls, this includes the feet. As with conformal bowls in the Monochrome Red Slipped group, some rounded bowls are slipped on the interior and to just below either the lip or the rim area on the exterior surface. The remainder of the exterior is unslipped and well smoothed. Chalices and most composite silhouette dishes are slipped on both interior and exterior surfaces, with the exception the interior of the base, which is unslipped and generally less well smoothed. On some complete composite silhouette dishes and bowls, however, the exterior surface is unslipped below the angular junction on the body wall, but this area is still well smoothed. As with conformal dishes in the Monochrome Red Slipped and Polychrome groups, the rounded dishes are slipped on the interior and to just below the rim area on the exterior. The remainder of the exterior surface is unslipped, less well smoothed than the interior, and drag marks are visible on it. The only example of a plate/lid that was identified is slipped and well smoothed both the interior and exterior.

One of the chalices has Maya Blue on the exterior surfaces of the body and base and appears to have been applied directly onto the slipped surface after the vessel was fired.

Forms and Dimensions: The Monochrome Orange group contains a greater range of forms than the other Fine Ware groups, but bowl, dish, jar and drum forms clearly predominate. Rarer forms include a vase, a plate/lid, 2 sieves, 2 composite vessels, a miniature tripod bowl and miniature jars.

Only a single fragment of a vase was identified. The exact form it derives from is unknown due to the small size of the sherd. The rim area was intact, however, and it was direct with a rounded lip. The rim diameter is 7cm and wall thickness is 0.5cm.

A variety of bowl and tripod bowl forms is represented. Bowl forms include composite silhouette bowls; and bowls with flaring, in-curving, out-curving or rounded sides. The most common form is the rounded bowl. Most often, rims are direct and lips are rounded. Fewer examples, however, have bolstered rims with rounded to slightly squared lips; interior- thickened rims and rounded lips (sometimes with a slight bevel on the interior or exterior surface, or an angular interior margin); or flaring everted rims with rounded to slightly squared lips. Rim form also varies on the in-curving bowls, which tend to have direct rims with rounded to slightly bevelled-out lips; interior-

thickened rims with rounded lips; or bolstered rims with rounded to slightly squared lips. The out-curving bowls have interior-thickened rims and rounded lips. The complete examples of the bowl forms described have slightly rounded, or very rarely, rounded bases. Most base fragments are morphologically similar, except that some have a circular concavity or impression on the exterior. Two base fragments appear to be flat or slightly in-curving. Composite silhouette bowls are represented by three fragmentary and two complete examples, and three slightly different basic morphologies were identified. The first form has rounded lower sides that rise to an angular junction, from which upper sides flare slightly to meet a bolstered rim that has a slightly squared lip (bases are missing in both cases). The morphology of these bowls is practically identical to complete examples of the same form in the Monochrome Red Slipped and Polychrome groups. These complete examples have a ring base, suggesting that the Monochrome Orange Slipped examples may have also had a ring base. Vessel LA122/2 is similar in shape, except for its lip, which is bevelled-in, and a ridge that occurs on its interior surface below the angular junction of the exterior profile. This vessel has a low flaring pedestal base. Fragments of similar bases occur in the sherd lots, but it is uncertain whether these derive from this particular vessel form. The second composite silhouette bowl form is represented by a single fragmentary example, which has rounded lower sides that rise to a slightly angular junction, from which slightly rounded upper sides rise to a direct rim that has a rounded lip (the base is missing). This fragment is also morphologically similar to complete examples in the Monochrome Red Slipped group. The third composite silhouette bowl form (LA569/4) has flaring lower sides that rise to an angular junction, from which slightly rounded upper sides rise to a direct rim with a rounded lip (slightly bevelled out). This vessel has a high ring base and is identical to LA569/1, which has a red slip. The flaring bowls, all fragmentary examples, have direct rims and rounded to slightly pointed lips. Their morphology is identical to complete examples in the Monochrome Red Slipped and Monochrome Black groups, suggesting that their bases are most likely flat.

One fragment of an interior-slipped bowl was also identified, which is morphologically identical to the Monochome Red Slipped vessels with the same surface treatment, as well as the vessels on which slip colour grades between red and orange (Monochrome Red to Orange Slipped). The orange slipped vessel has a direct rim and a rounded lip, with a rim diameter of 22cm and a wall thickness of 0.7cm.

Tripod bowls tend to have rounded sides, out-curving sides, or out-curving sides with an angular junction between the body and base (a composite silhouette form). There is also one complete tripod, a composite silhouette form, that has flaring sides and an angular junction between the body and base (LA 580/2). This vessel has a flaring everted rim, a slightly squared lip, a slightly rounded base and effigy feet that contain 'rattles.. The rounded tripod bowls have direct, flaring everted or slightly bevelled rims, and lips are most often rounded with a slightly angular interior margin. The complete examples have rounded, or rarely, slightly rounded bases, and hollow oven, ovoid, or slightly bulbous feet. Out-curving tripod bowls tend to have direct or bevelled-in rims and rounded lips with an angular exterior margin. The one complete example has a slightly rounded base and hollow globular feet that contain 'rattles'. The composite silhouette tripods (out-curving walls with a basal angle) most often have direct rims and rounded lips. One vessel has a flaring everted rim and a rounded lip. The complete examples have slightly rounded bases and hollow ovoid, oven or slightly bulbous feet, which sometimes contain 'rattles'. One of the complete vessels (LA569/3), however, has solid slab feet.

The rim diameters of bowls and tripod bowls ranges from 11cm - 39cm (mean = 24cm), with the majority of rims measuring between 20cm and 30cm. Rim diameters cluster at 19cm - 20cm, 23cm - 25cm and 28cm - 29cm. Wall thickness ranges from 0.3cm - 0.9cm, with a mean value of 0.5cm.

The most common dish forms are composite silhouette dishes ('basal break' dishes) and 'chalices', but more rarely include rounded dishes (slipped to just below the rim on the exterior surface), an out-curving dish and tripod dishes. The composite silhouette dishes are morphologically identical to the Red-Orange-Black Resist and Monochrome Red Slipped composite silhouette dishes with out-curving upper sides and a ring base. Rim diameters of the orange slipped examples range between 30cm and 50 cm and cluster at 30cm - 35cm. Mean wall thickness is 0.7cm. The 'chalice' form can be described as an out-curving dish with a pedestal base, on which rounded lower sides of the vessel body rise to a broad, flaring everted rim. The interior profile of the rim is concave and the lip is slightly squared to rounded. There is a ridge on the interior wall below the everted rim. The pedestal base has flaring or slightly in-curving sides, and a direct rim with a rounded to slightly squared lip. The rim diameter of the dish portion of the chalices ranges from 15cm - 40cm, but the majority of vessels measure between 27cm and 35cm. Wall thickness ranges between 0.4cm - 1.0cm (mean = 0.6cm). The

rounded dishes, which are slipped on the interior surface and to just below the rim on the exterior surface, are identical in form to the rounded dishes of the Monochrome Red Slipped and Polychrome groups. The rim diameters of the two orange slipped vessels are 33cm and 44cm and wall thickness is 0.8cm and 0.6cm, respectively. Out-curving dishes includes only three examples. Two of these, one a rim fragment and the other a complete vessel, have horizontal everted rims and slightly pointed lips. The base of the complete vessel is slightly rounded. The third rim fragment has a direct rim and a rounded lip. Rim diameters are 31cm, 37cm and 43cm, respectively, and wall thickness is 0.4cm - 0.5cm. There are three complete examples of tripod dishes. Two of these vessels (LA176/1 and LA176/2) have out-curving sides, direct rims, a pronounced ridge and the junction between the body and base, and effigy feet. There other tripod dish (LA82/1) has rounded sides, a direct rim, a rounded base, and hollow conical feet. The feet of all three of these vessels contain 'rattles'. The two out-curving tripod dishes have comparatively smaller rim diameters (19.5cm and 21cm, respectively) than the rounded tripod dish (26cm), whereas the wall thickness of all three vessels is 0.5cm - 0.6cm.

There is considerable variation is jar morphology within the Monochrome Orange Slipped group, specifically in relation to the profile of the jar above the shoulder. Only three complete examples of Monochrome Orange jars have been recovered at Lamanai, and there are significant differences in form even among these three vessels. LA75/1 has a globular to slightly maliform body, a low out-curving neck, a direct rim, a bevelled-in lip and a flat base. LA640/4 is a smaller jar and has a more globular body, a low vertical neck, a slightly bolstered rim, a slightly squared lip and a rounded base. LA133/1 is closer in size and form to LA75/1, but has strap handles, a more globular body, a low flaring rim, and a pointed lip that is slightly bevelled-out. Among the lots of fragmentary material, some rim-to-neck sherds display similar morphological characteristics to these three complete examples. Generally speaking, however, there is considerable variation in details of the neck and lip form. The few jar base fragments encountered, are either flat or slightly incurving. Most often, jar necks are out-curving to slightly out-curving and rims are direct. Lip form varies from rounded to slightly squared or pointed. One jar fragment has a loop handle straddling the rim to neck area. The rim diameter of the jars with an out-curving neck ranges from 6cm - 24cm, but clusters between 7cm and 13cm. Neck height ranges from 1.5cm - 5.4cm, with most

necks measuring between 2cm and 4cm in height. Wall thickness ranges from 0.3cm - 0.9cm (mean = 0.7cm).

Jars with low vertical or flaring necks are comparatively less frequent. Rims are direct and lips tend to be rounded, sometimes with an angular interior margin. Rim diameters measure between 9cm to 13cm, which is the same size range as the majority of the jars with out-curving necks. Neck height, however, shows a more restricted range of 3cm to 3.5cm. Wall thickness ranges from 0.4 - 0.8cm (mean = 0.6cm).

Also less frequent are jars with a high out-curving neck and an exterior thickened to bolstered, or rarely, folded rim. Lips are rounded. The rim diameters of the four fragments that were large enough to measure were a consistent 13cm - 14cm. Neck height was measurable on two examples and these were 6cm and 7cm. Wall thickness is also consistent, measuring 0.5cm - 0.6cm. Jars with this same rim to neck morphology occur in the Unslipped/Smoothed-Buff group. One red slipped fragment was also identified.

Comparatively rare jar forms include those with a very low flaring to slightly out-curving neck, 'neckless' jars and a jar with a vertical to slightly flaring neck and an everted rim. This last form has direct parallels in the Monochrome Red Slipped group. The jars with very low, flaring to slightly out-curving necks have either a bolstered or direct rim and rounded lips. In some cases, the rim-neck morphology is very similar to that found on Monochrome Orange Slipped and Incised 'censers' (pedestal-based jars), in terms of its overall triangular shape. The rim diameter of these jars ranges from 21cm - 48cm and clusters at 24cm. Neck height ranges from 1.3cm - 2.4cm and wall thickness ranges from 0.5cm - 0.8cm. On the 'neckless' jars, the upper body walls curve inwardly to meet bolstered rim that has a rounded lip. The three fragments that were large enough to measure had rim diameters of 8cm, 11cm and 31cm. Wall thickness is 0.4cm - 0.6cm.

Slipped plates/lids are extremely rare within the assemblage as a whole, represented by a single example, which has an orange slip. This vessel is morphologically identical to unslipped examples with rounded sides, a direct rim and a bevelled-in lip. The rim diameter of the orange slipped vessel is 33cm and wall thickness is 0.5cm.

Drums include both single and double chambered forms (e.g. LA71/1 and LA131/4). A distinctive feature of all three of the drum forms is that one of the projection tubes (or in the case of double drums, the larger projection tubes) has a flaring everted rim with a

groove just below it on the exterior surface. The broad flaring everted rims of the bell-chambered drums also have a distinctive morphology. Hence, it is possible to identify fragments deriving from drums based on these morphological features. The most common drum fragments that were encountered derive from projection tubes with flaring everted rims (N=13). Rim diameters range from 8cm - 19cm and cluster at 8cm - 10cm, and mean wall thickness is 0.5cm. The three examples of broad flaring rims deriving from bell-chambered drums have rim diameters of 9cm, 14cm and 16cm. Three shoulder fragments of bell chambered or double drums, and two shoulder fragments of single ovoid chamber drums (both of these fragments have handle attachments) were also identified. A unique fragment within the sherd assemblages that might also derive from a drum form has a bolstered rim and a rounded lip. Its rim diameter is 5cm and its wall thickness is 0.3cm.

A highly distinctive vessel from within the Monochrome Orange Slipped group is the composite vessel. The shape of this vessel can generally be described as a small jar with a hollow tube coming out of the lower side of the body wall and attaching to a projection tube, which has a closed, flat base and an open end. Like the drums, the jar portion of the vessel has a flaring everted rim and groove just below the rim on the exterior surface. This similarity may suggest that these vessels may be some sort of drum. Only two composite vessels were identified. The most complete example is LA123/1. The fragmentary example if morphologically similar.

Two fragments of vessels that are best described as 'sieves' have distinctive circular perforations in the base, similar to a sieve or colander. The form can generally be described as a dish with out-curving sides, a direct rim and a rounded lip. The base is slightly rounded and there is an angular junction between the body and the base. On the measurable example, the rim diameter is 16cm and wall thickness is 0.7cm.

Miniature vessels within the Monochrome Orange Slipped group include a tripod bowl and four jars, which vary in form. The jars are illustrated in Chapter 7.

Monochrome Orange Slipped and Incised

Frequency: Orange Slipped and Incised vessels form the second largest fine ware group within the assemblage, comprising 24.8% of the fine ware and 13.4% of all vessels. A minimum number of 333 vessels is represented, including 38 whole vessels and 295 fragments. This group also is well represented in both of the midden assemblages, with 160 fragmentary examples were recovered from the midden

associated with structure N10-27 and 135 recovered from the midden at structure N10-9. Approximately half of the orange slipped and incised vessels are either bowls or tripod bowls (45.4% and 17.6% of fragments, and 28.9% and 26.3% of whole vessels, respectively), with out-curving and rounded forms being the most common. Chalices are next most abundant (24.4% of fragments and 13.2% of whole vessels), followed by jars (8.4% of fragments and 13.2% of whole vessels), half of which are pedestal based jars (N=17). Comparatively fewer vessels are drums (1.7% of fragments and 5.3% of whole vessels; N=7), frying pans (4 fragments) or whistles (3 fragments). Rare forms include tetrapod bowls (2 whole vessels) and a tripod or tetrapod stand (whole vessel).

Principal Identifying Modes: Vessel with an orange to red-orange slip and post slip-pre firing incised and gouged decoration.

Paste and Firing: The same range of variation that was observed for the Monochrome Orange Slipped group occurs in the Monochrome Orange Slipped and Incised group. In general, however, dark coloured cores are more frequent within this group and orangish-brown inclusions (grog) are more common. As is most often the case, the presence/absence and nature of firing horizons varies within the group and also along the profile of individual vessels. Notably, the cross section of pedestal bases is commonly grey to dark grey in colour with a buff to light orange or orange exterior margin, likely as a result of the way in which pedestal-based vessels were positioned during firing. In addition, only one vessel within this surface treatment has a volcanic ash tempered paste..

Surface Treatment and Decoration: Surface finishes are generally smooth to the touch and range from somewhat glossy to glossy in appearance. The general 'quality' of the slip is somewhat variable, in that it appears to have been applied more thickly and consistently on some vessels and has a more 'watery' appearance on others. On most vessels, the slip is easily removed when scratched with a fingernail. Burnishing marks and facets are almost always visible, and on some vessels the slip has a streaky appearance due to burnishing done after the slip was applied. Burnished areas of the surface also seem to be more resistant to post depositional alteration and erosion. As with the Monochrome Orange Slipped vessels, slip colour grades from orange to reddish-orange and brownish-orange. The colour of the slip is sometimes inconsistent across a vessel's surfaces, owing to inconsistencies in the thickness or coverage of the slip and the differential burnishing of the surface. More heavily burnished areas and streaks tend to be darker in colour. Fire clouding occurs on the interior and exterior

bases of bowl forms, on the exterior lower sides and bases of jars, and on the exterior surface of the lower portion of pedestal bases. The slip on the affected areas is generally a washed out yellow, yellowish-brown or brownish-grey colour.

The surfaces of a vessel that are slipped vary according to shape class and form. Jar and drum forms are slipped on the exterior surface and on the rim area of interior surface. The remainder of the interior surface is unslipped and less well-smoothed, as is the interior surface of base on the pedestal-based jars. Bowls are always slipped on both the interior and exterior surfaces. On some of the tripod bowl forms, this includes the feet. Chalices are slipped on both interior and exterior surfaces, with the exception the interior surface of the base, which is always unslipped and generally less well smoothed. Frying pan censers are slipped on the exterior surface, including the handle, and on the interior surface of the dish portion of the vessel.

The decorative treatment of the Monochrome orange Slipped and Incised vessels is highly distinctive, and is produced by gouging out small areas of the slipped surface to accentuate an incised design. The decorative work appears to have been done after the vessels were slipped, when they were in a leather hard state, and before the vessels were fired. The incisions expose the natural colour of underlying ceramic body, thereby creating a vivid colour contrast between orange slipped areas the light brown to beige incised areas. The incised decoration is confined to the exterior surfaces on most vessel forms, and most often forms a wide band that is bordered on the top and bottom by incised horizontal lines. The exception to this is the chile grinders (mocajetes or grater bowls), which have a circle of incised decoration on the interior base and a plain exterior. Incision on jars is confined to the shoulder, and on chalices, to the pedestal base. Pedestal-based jars ('censers') are often incised on the upper shoulder and pedestal base, whereas on bell chamber drums the decoration occurs on the broad flaring rim of the vessel and sometimes on the chamber. The composition of the incised designs is highly variable, comprising simple and complex combinations of abstract, naturalistic and conventionalized design elements. The abstract design elements range from simple linear and curvilinear motifs and geometric shapes, to complex curvilinear designs such as the 'mat motif' or 'scrolls' and 'spirals' and rarely, glyph-like symbols. On some of the chalices and bell chambered drums, the incising is combined with piercework (or openwork) to produce a 'lace- like' decoration.

Some vessels are further embellished by the application or addition of hand fashioned effigies and anthropomorphic and zoomorphic heads and other body parts. Anatomical

features and other details are often rendered on these additions through further incising or appliqués. Vessels featuring these decorative embellishments are comparatively infrequent, and such additions appear to be associated with particular vessel forms. These forms include: tripod and tetrapod bowls and stands, on which they occur as effigy feet; frying pan censers, which sometimes have effigy handles; and globular jars and bell chamber drums, which sometimes have bird heads placed on the shoulder area. Vessel LA13/5, which is a tetrapod bowl, also has an anthropomorphic head on its side. Effigy handles and decorative additions that occur on the vessel body are slipped like the rest of vessel's finished surfaces, where as effigy feet generally unslipped. In rare instances, the effigy feet and the bird head appliqués are painted with Maya Blue or stucco, or stuccoed and painted.

Forms and Dimensions: Monochrome Orange Slipped and Incised vessels are predominantly bowls, tripod bowls, chalices, jars and drums. Rare forms include a tripod vase, a composite silhouette bowl, a tetrapod bowl, a tetrapod or tripod stand and a composite silhouette dish. Bowls either have out-curving or rounded sides, with the former being most common and most often having interior thickened to slightly interior-thickened rims and rounded lips. Fewer out-curving bowls have direct or flaring everted rims and lips can be slightly pointed, slightly squared or slightly bevelled out. The complete vessels most often have slightly rounded bases, sometime with a circular concavity or impression in the exterior wall. Rim diameters range from 12cm - 35cm and cluster at 20cm - 25cm. Wall thickness ranges from 0.2cm - 0.7cm (mean = 0.4cm). Rounded bowls tend to have direct rims and rounded to slightly pointed lips. Rims are less often interior-thickened, and rarely flaring everted, and lips less often are bevelled-in to slightly bevelled-in. The most complete rounded bowls have slightly rounded bases and none have a circular impression in the exterior wall. Rim diameters range from 9cm - 27cm, and as with the out-curving bowls, cluster at 20cm - 25cm. Wall thickness is also the same as the out-curing bowls, ranging from 0.2cm - 0.7cm (mean = 0.4cm). One bowl has a composite silhouette profile in which the rounded lower sides rise to an angular junction, from which the upper sides curve outward slightly. This bowl has an interior-thickened rim, a rounded lip and a flat base that has an impressed circular concavity in the exterior wall. The rim diameter is 17cm and wall thickness is 0.6cm.

Tripod bowls include chile grinders and vessels with a segmented basal flange. The chile grinders have rounded sides, a direct rim and slightly squared to squared lip,

which on some vessels is slightly bevelled-out. The complete vessels have rounded bases and hollow oven feet that contain 'rattles'. The rim diameters of the complete chile grinders are 30cm, 26cm and 24cm and wall thickness is 0.5cm - 0.6cm. The tripod bowls with a segmented basal flange most often have rounded sides, a horizontal everted to flaring everted rim and a rounded to squared lip. Two vessels have a somewhat composite silhouette profile, with a slight angle where the flange joins to the body wall. One fragmentary example has slightly out-curving sides. The complete vessels have slightly rounded bases and hollow oven or effigy feet, which sometimes contain rattles. Rim diameters range from 11cm to 34cm, with most vessels measuring 20cm - 25cm. Wall thickness ranges from 0.4cm - 0.7cm.

Comparatively rare footed vessels include a tripod dish (LA176/2), tetrapod bowls (LA13/5, LA245/5) and a tripod or tetrapod stand (LA77/1), both with a segmented basal flange, and a cylindrical tripod vase (LA722/1).

The 'chalices' or pedestal-based, out-curving dishes have the same shape as examples in the Monochrome Orange Slipped group: the rounded lower sides of the vessel body rise to a broad, flaring everted rim. The interior profile of the rim is concave and the lip is slightly squared to rounded. There is a ridge on the interior wall below the everted rim. The pedestal base has flaring or slightly in-curving sides, and a direct rim with a rounded to slightly squared lip. A few bases have bevelled-in or flaring everted rims.

The most common jar forms are globular and slightly maliform jars with vertical to flaring necks and pedestal-based jars ('censers'). The most complete globular jars (LA102/5, LA243/2, LA562/2) have direct rims, either rounded or squared lips and rounded to slightly rounded bases. Rim diameters are 9cm or 11cm, neck height ranges from 3.2cm to 5.2cm, and wall thickness is 0.4cm - 0.5cm. The jar with a slightly maliform body (LA69/3) has a bird head appliqué on its upper shoulder. This vessel has a vertical neck, a flaring everted rim and a squared lip. Its dimensions are similar to the globular jars, with a rim diameter of 9cm, a neck height of 5cm and a wall thickness of 0.5cm. A fragment of a jar shoulder with a bird head appliqué on it also appears to derive from a maliform vessel. The pedestal based jars are composite silhouette in form. The rounded lower sides of the body rise to an angle from which the shoulder curves inward to the base of a very low flaring neck. Rims are direct and triangular shaped, and lips are rounded. The pedestal base tends to be out-curving and some of the complete vessels have a segmented basal flange. Comparatively rare jar forms include 'neckless' jars and a jar with very low, slightly out-curving neck. Both of these forms

have direct parallels in the Monochrome Orange Slipped group. The incised 'neckless' jars have bolstered rims and rounded lips, with. rim diameters of 7cm - 11cm and wall thicknesses of 0.2cm - 0.5cm. The jar with the very low neck has a direct rim and a rounded lip. Its rim diameter is 10cm and its wall thickness is 0.7cm.

Drums appear to be restricted to the bell chamber form, on which the thinner projection tube has a broad flaring everted rim. The two complete examples (LA102/3, LA567/5) have bell-shaped central element or chamber, from which projection tubes protrude out of either end. The wider projection tube has a flaring rim and a pointed lip and the thinner one has a broad flaring everted rim and a rounded lip. All of the fragments that were identified derive from the distinctive broad flaring everted rim of this drum form. As with the complete vessels, these rims tend to have rounded lips, sometimes with an angular interior margin. Rim diameters range from 7cm to 12cm (mean = 9.2cm) and wall thickness of the rim is a consistent 0.4cm - 0.5cm.

A comparatively rare form in this group is the frying pan censer (N=3). These vessels can best be described as rounded dish that has a hollow projection tube or handle protruding from one side. On the most complete example, the hollow handle forms a zoomorphic effigy, possibly a crocodile head. The top of the head is oriented towards the base of the vessel, suggesting that the vessel was used in an inverted fashion, as a lid would be. The dish, or body, portion of the three examples that were identified is rounded and has a direct rim. Two of the vessels have rounded lips and one has a slightly bevelled in lip. Rim diameters are 25cm (the most complete example), 24cm and 20cm, and wall thickness is 0.4cm, 0.5cm and 0.4cm, respectively.

Monochrome Orange Slipped and Groove-Incised

Frequency: Orange slipped vessels with groove incised decoration are rare within the assemblage, representing 0.1% of all ceramics and 0.2% of all fine ware vessels. The group comprises just 3 fragmentary examples, all of which were recovered from the midden associated with structure N10-27. Two of the fragments derive from vases and one is from a drum.

Principal Identifying Modes: Thin-walled vases and drums with an orange slip on the exterior surface only and multiple grooves encircling the body. The orange slip covers the grooves, which are oriented either horizontally or vertically. The vases are ash tempered.

Paste and Firing: Pastes are fine-textured and only one vessel - the drum – exhibits firing horizons. Both of the vases are completely oxidized, exhibiting a single homogenous colour (brownish-buff) throughout the cross section. The drum has a dark grey core and light brown outer margins. The vases are tempered with volcanic ash, have a powdery feel, and contain comparatively few, fine inclusions (light grey in colour) visible at the macroscopic level. Inclusions (grey to white, colourless and orangish-brown [grog]) are more common in the drum and slightly larger.

Surface Treatment and Decoration: The orange slip is fairly glossy and smooth to the touch. On the fragmentary examples analysed, the slip covers the entire exterior surface, including the incised grooves that occur at regular intervals across the body. The interior surface is well smoothed and generally unslipped, except for the immediate rim area. The grooves appear to have been incised into the surface using a blunt instrument with a fairly wide tip (approximately 5mm in width), and was done prior to slipping. The grooves are oriented horizontally on the vases and vertically on the drum, and are fairly shallow, with smooth and unraised margins, suggesting that the work was done when the vessel was in a leather hard state. The examples identified are too small to determine whether the horizontal grooving was done in a continuous fashion (as with the monochrome black grooved deep bowls) or as individual bands.

Forms and Dimensions: The vases have vertical sides, direct rims and rounded to slightly pointed lips. Although more complete or reconstructable examples of the lower portion of these particular vases were absent, the base of the vases was likely flat, as is the case with all complete examples of vases in the assemblage. Rim diameters could be obtained for only two of the vases and these are 10cm and 15cm. The wall thickness of these vessels is 0.4cm and 0.5cm respectively. The drum fragment derives from a projection tube component of this form. The rim is flaring and the lip is rounded. Like other rim fragments from drums, a groove occurs on the exterior surface just below the rim. The rim diameter is 6cm and the wall thickness is 0.5cm.

Monochrome Orange to Red Slipped - Notched and Incised

Frequency: Orange or red slipped vessels with notched and incised decoration are also rare within the assemblage, comprising just 0.3% of all ceramics and 0.5% of all fine ware vessels. A minimum number of 7 vessels is represented, all of which are fragments. Four of the fragments were recovered from the midden associated with structure N10-27 and three derive from the midden at structure N10-9. All of these vessels are composite silhouette bowls.

Principal Identifying Modes: Orange or red slipped, composite silhouette bowls with a bolstered rim and impressed and incised, or just impressed, decoration.

Paste and Firing: Pastes are fine textured and firing horizons are always present. Most cross sections exhibit a thick black core, which is bordered by very thin orangish-buff outer margins. Less often the core is grey and bordered by yellowish-brown horizons of the same thickness and very thin light orange outer margins. Inclusions are white to light grey (opaque), and all but one fragment also contained orangish-brown inclusions (grog). Semi-translucent white inclusions were observed in the lighter coloured pastes.

Surface Treatment and Decoration: The interior and exterior surfaces of these bowls are slipped all over with a red or orange slip that preserves well. The surface finish is glossy and smooth and burnishing marks were observed on most examples. Fire clouding was not observed on any of the analysed sherds, although a section of the base was not intact on any of the sherds. Two of the bowls have a red slip and five of them have an orange slip, and no apparent gradation was observed between these two colours. The notched decoration was made prior to slipping and consists of triangles or elipses arranged in lines on the rim area, just above the medial ridge, or on both areas. The incised decoration appears to have been done after slipping but before firing and most often occurs as simple lines that are confined to the upper portion of the vessel.

Forms and Dimensions: All of the vessels in this group are bowls and the form is the same regardless of the colour of the slip. They have rounded lower sides rising to an angular junction, with vertical to slightly flaring upper sides and a bilaterally bolstered rim. The angular junction forms a ridge on the exterior surface, whilst the profile of the interior surface is rounded. The interior bolster of the rim can either be the same height as or taller than the corresponding exterior bolstering, and lips are slightly bevelled-in or slightly bevelled-out. The rim diameter of the orange-slipped examples ranges from 27cm - 34cm (mean = 30.8) and the mean wall thickness is 0.3cm. Only one of the red-slipped rim sherds was large enough to measure and the diameter of this bowl is 33.5cm. Both of the bowls with a red slip have a wall thickness of 0.6cm.

Monochrome Orange with Appliqué

Frequency: Orange slipped vessels with an appliqué impressed fillet form another of the rare groups within the assemblage, constituting just 0.6% of all ceramics and approximately 1.0% of all fine ware vessels. A minimum number of 14 vessels is represented and all of these are fragments that derive from rounded bowls. All but one

of these bowl fragments were recovered from the midden associated with structure N10-27. Four of the fragments are rim sherds and the remaining 10 are body sherds.

Principal Identifying Modes: Orange slipped, rounded bowls with an impressed fillet encircling the body below the rim area.

Paste and Firing: Pastes are fine textured and always exhibit firing horizons – thick grey to dark grey cores bordered by very thin buff to light orange outer margins. Inclusions are white to light grey (opaque), colourless and organish-brown (grog).

Surface Treatment and Decoration: An orange slip covers both the interior and exterior surfaces of these bowls, including the impressed fillet which encircles the body, 1.5cm to 3.5cm below the rim area. The slip occurs as a thin layer, which flakes away easily with a fingernail, and is heavily eroded on most examples. On the examples with large areas of better preserved slip, burnishing marks are absent. The decorative impressed band appears to be an appliqué that was likely produced by adding a coil or thin band of clay to the exterior surface of the bowl after the basic, rounded form had been achieved, and subsequently impressing the band with a circular instrument at close intervals. When viewed in profile the decorative band forms a ridge on the exterior surface and the overall decorative effect that is produced looks very much like the finished edges of a 'pie crust'.

Forms and Dimensions: All examples are bowls with rounded sides. Rims tend to be direct and lips tend to be rounded. One example, however, has an exterior-thickened rim and there are two examples with bilaterally thickened rims. With regard to the latter two examples, the thickness of the rim area is far greater than the thickness of the body wall, giving the rim area a 'swollen' appearance. Due to the small size of most of the rim sherds, rim diameter and wall thickness could be obtained for only four examples. Based on these measurements, rim diameter ranges from 21cm to 33cm (mean = 27.3cm), with each vessel having a different measurement. Wall thickness, however, was found to be very consistent, ranging from 0.4cm - 0.7cm .

Rare Surface Treatments

Buff/Cream Slipped – Plain on Incised: This group is represented by two rims sherds and two whole vessels (LA673/5 and LA717/1). Both of the rim sherds derive from rounded bowls, and LA717/1 is also a rounded bowl. The other whole vessel (LA673/5) is a rounded dish. All of these vessels have a buff or cream coloured slip on the interior and the exterior surface and a glossy to waxy surface finish. Burnishing

marks are visible in each case. Vessel LA 717/1 has a band on incised decoration on the exterior surface of the body, and the other vessels have plain surfaces.

Pastes are mostly fine textured but LA673/5 is medium textured. In addition, all examples except one of the bowl rims are oxidized, exhibiting a single homogenous colour (buff to light brown) throughout the cross section. The bowl rim that is different has a grey core, which is bordered by buff outer margins. Inclusions vary due to significant compositional differences among the vessels within this group. LA673/5 is tempered with crystalline calcite (inclusions are colourless), whereas LA717/1 is tempered with limestone (inclusions are white and opaque). One of the bowl fragments is tempered with volcanic ash (fine white to greyish-white inclusions) while the other is tempered with sascab (comparatively larger, grey, opaque inclusions; and white to greyish-white, opaque or semi-translucent inclusions).

Monochrome Grey Slipped (Plumbate ware) – Only a single sherd was encountered with this surface treatment. This sherd appears to derive from a small, low pedestal base, possible from a vase form. The paste is fine-textured, light brown throughout the cross section and contains few white and light grey opaque inclusions.

Monochrome Brown Slipped – There are two vessels with this surface treatment, LA662/2 and LA630/8. Vessel LA 662/2 is a tripod bowl and LA630/8 can best be described as a 'torch'. In both cases the paste is fine textured and contains abundant grey, white and colourless inclusions. LA662/2 is light brown with a dark brown interior margin and LA630/8 has a thick brownish-black core bordered by light brown outer margins.

Monochrome Red Slipped and Incised – This cylindrical vase (LA630/1) has incised decoration that is highly distinctive and unique within the assemblage as a whole. The decorative design comprises repeating panels of incised decoration. Two of the panels feature large, conventionalized, 'glyph-like' motifs, which are rendered through a combination of incising and gouging. The other two panels are in-filled with lines of opposing oblique incisions. The paste is fine-textured, exhibits a thick black core bordered by very thin light orange outer margins and contains abundant white, grey and colourless inclusions.

Monochrome Red Slipped, Stuccoed and Painted – This surface treatment was encountered on only one vessel, LA 630/3, which is a cylindrical vase. The paste is

fine-textured, orange throughout the cross section with very thin dark brown margins, and contains abundant white, grey and colourless inclusions.

Monochrome Red Slipped and Model-Carved – This bowl (LA115/33) is the only vessel within the assemblage with model-carved decoration. The paste is fine-textured, dark brown in colour with a light brown exterior margin and contains abundant white, grey and colourless inclusions as well as fewer dark brown concretions.

Monochrome Red Slipped and Groove-Incised – There are two vessels, LA656/1 and LA515/1, with this surface treatment. The vessels are conformal and their shape, which is similar to a 'bottle', can best be described as an in-sloping vase with a sharp basal angle.In both cases, the paste is fine textured and exhibits a single homogenous colour throughout the cross section.. LA656/1 is orange in colour and contains abundant white, grey and colourless inclusions, whereas LA515/1 brownish-buff in colour and colourless inclusions predominate.

Monochrome Red Slipped and Notched – This group includes three rim sherds and one whole vessel (LA656/6). Two of the rim sherds derive from large bowls (rounded or possibly with a slightly angular juncture on the body) with bolstered rims and rounded lips and the third is from a composite silhouette dish with a ring base. All of these vessels have red slip on their interior and exterior surfaces and a line of regular-spaced notches encircle the body on the exterior surface. On the composite silhouette dish the notching occurs on the angular junction between the upper and lower body. In each case, the notching was done before the vessels were slipped. The whole vessel (LA656/6) is a ring-based composite silhouette bowl. This vessel also has a bolstered rim and a rounded lip, but the red slip on the exterior surface is restricted to the upper portion of the body. Pastes are fine- (LA656/6) to medium- textured and contain abundant white, grey and colourless inclusions. LA656/6 has a thick light grey core and brownish-buff margins. Of the three rim fragments, two (a bowl and the dish) are buff throughout the cross section, whilst the other (a bowl) is buff with a slightly darker exterior margin.

COARSE WARE

Slipped Rim/Lip-Smoothed Body

Frequency: This group comprises 8.4% (N=209) of all ceramics and 18.4% of the coarse ware component of the assemblage. A total of 202 diagnostic sherds recovered at N10-27 and only 7 recovered from N10-9. These totals include both rim and neck sherds and all but one of the vessels are jars.

Principal Identifying Modes: Coarse-textured, calcite tempered jars with out-curving or out-flaring rims that are red-slipped to either just below the lip or to the base of the neck, a and body that is either well smoothed or has fine striations.

Paste and Firing: Coarse textured pastes, frequently with firing horizons. Rim and neck fragments exhibiting a single homogenous colour throughout the cross section are brownish buff, pinkish-buff and less frequently, dark grey. Those with firing horizons have darker coloured cores of varying thickness (black, brown, greyish-brown, grey, dark grey) and buff, brownish-buff, orangish-buff or pinkish-brown outer margins. Inclusions are abundant and angular, and are white, light grey or pinkish-white (opaque), or colourless, with rare dark grey concretions.

Surface Treatment and Decoration: These jars have a red slip applied to the rim area. The exterior surface of the rim is slipped to either just below the lip or to the base of the neck and the interior surface is slipped to at or just below the neck. The slip is very glossy and hard and largely unblemished with no evidence of fire clouding on any of the rim and neck sherds. Burnishing marks were visible in some cases. The bodies of these jars are most often smoothed on the exterior surface, but examples with fine striations also occur. These striations are very shallow and fine and appear as though they resulted from wiping the vessel surface when it was leather hard with something fibrous such as grass. Fire clouding is visible on the exterior surface of some body sherds but not on the interior surface. The interior surface sometimes exhibits abrasion but otherwise appears to be relatively free of stains or other blemishes. Since fire clouding only appears to occur on the exterior surface of the body and not on the rim and neck area, it seems mostly like that the dark clouding happened during firing and is not the result of cooking activities.

Forms and Dimensions: All but one of the sherds derive from jars. The lone sherd was distinguished based on its larger wall thickness (rim area) and on the different profile of the rim. It appears to derive from a very large vessel with a restricted orifice or perhaps

a large basin. The jars that are slipped to the base of the neck tend to have thick, out-curving rims, although there are a few comparatively thin-walled examples. Lips are generally rounded, with some examples that have a more squarish appearance. Many rims are thicker in the lip area, giving them a swollen appearance. Rim diameter ranges from 15cm - 64cm, with a mean value of 30.5cm. The majority of the jars, however, have a rim diameter of between 20cm - 40cm. Neck diameter ranges from 11cm to 58cm (mean = 26.1cm) and rim to neck height ranges from 1cm - 6cm (mean = 2.98cm). The mean thickness of the body wall between the neck and shoulder is 0.8cm.

The jars that only have slip on the lip area of the external surface have a similar rim morphology, however, in most cases the rim has less of a curvature and is out-flaring and not out-curving. Most rims are direct with rounded lips, and rarely the rims thickened in the lip area. These jars are smaller on average than the jars that are slipped to the base of the neck, having a mean rim diameter of 21.6cm, a mean neck diameter of 15.9cm. Rim to neck height ranges from 1cm 0 4cm. Wall thickness was only obtainable for one sherd and was 2cm, although judging from the thickness of the neck area of most sherds it appears as though these vessels most often had thinner body walls.

The correlation statistics indicate a direct positive relationship between all of the metric measurements at a 0.01 significance level, meaning that the rim diameter, neck diameter, rim to neck height and wall thickness of these jars varies directly with vessel size (Table II.1). Rim diameter and neck diameter are the most strongly correlated, whereas wall thickness and rim to neck height are only weakly correlated with both each other and the diameter measurements. These relationships reveal that the basic form and proportions of these jars remains fairly consistent regardless of vessel size.

Red-Brown - Striated

Frequency: A total of 17 diagnostic sherds (rim and neck sherds) comprise this group, all of which were recovered from the N10-27 midden. This group represents 0.7% of the whole assemblage and constitutes 1.5% of the coarse ware. All vessels are jars.

Principal Identifying Modes: Coarse-textured, calcite-tempered, unslipped jars with tall, slightly out-curving rims and striated bodies. Particularly distinctive to these jars are the pointed ridge that encircles the rim, below the lip area, and the red-brown to pinkish colour of the vessel surface.

Table II.1: Pearson correlation of metric attributes of all Slipped-Unslipped jars

		Rim Diameter	Neck Diameter	Wall Thickness	Neck Height
Rim Diameter	Pearson Correlation	1	.984(**)	.640(**)	.592(**)
	Sig. (2-tailed)	.	.000	.000	.000
	N	147	96	40	88
Neck Diameter	Pearson Correlation	.984(**)	1	.684(**)	.611(**)
	Sig. (2-tailed)	.000	.	.000	.000
	N	96	96	40	82
Wall Thickness	Pearson Correlation	.640(**)	.684(**)	1	.667(**)
	Sig. (2-tailed)	.000	.000	.	.000
	N	40	40	40	37
Neck Height	Pearson Correlation	.592(**)	.611(**)	.667(**)	1
	Sig. (2-tailed)	.000	.000	.000	.
	N	88	82	37	88

** Correlation is significant at the 0.01 level (2-tailed).

Paste and Firing: Pastes are coarse textured, with abundant angular inclusions that are white, pinkish-white or light grey (semi-translucent) or colourless. Black concretions are common. Paste colour ranges from reddish- brown to brown and dark greyish-brown cores often occur.

Surface Treatment and Decoration: These jars are unslipped and well-smoothed on the interior and exterior, from the lip to above the shoulder. A pointed ridge runs horizontally, just below the lip area and this ridge is generally well smoothed. The bodies of these jars are characterized by heavy striations, which are generally deep, regularly spaced and form in a cross-hatched pattern, perhaps produced by a toothed instrument. The general absence of raised ridges at the borders of the striations and where they intersect suggests that the surface treatment was applied when the vessel was in a leather-hard state. Fire clouding and stains are generally absent on both the interior and exterior surfaces.

Forms and Dimensions: These jars have comparatively tall, slightly out-curving necks, rounded lips and the necks tend to more constricted in comparison to the jar forms of other coarse ware groups. The fragmentary state of the material made a confident assessment of the shape of the body impossible, however, in general these jars appear to have been globular or possibly slightly piriform. Based on the measurements that were recorded, these jars appeared to have a comparatively restricted size range. Rim diameters range from 32cm to 50cm, with the majority of examples having a rim diameter of around 44cm. Neck diameter and wall thickness could be obtained from only two examples. The neck diameters were 23cm and 43cm and both of these jars both had a wall thickness of 1cm. Only one neck height was recorded and this was 8cm. Correlation statistics could not be obtained for these jars due to the small sample size (N=17).

Unslipped/Smoothed - Perforated

Frequency: This group comprises 0.8% (N=19) of the whole assemblage and 1.7% of all coarse ware. A total of 4 sherds were recovered from the midden associated with N10-27, where as 15 derive from the midden at structure N10-9. All vessels are incense burners

Principal Identifying Modes: Small globular vessels with a restricted orifice and small, circular, irregular-spaced perforations in the body.

Paste and Firing: Coarse- to medium-textured sandy fabrics, with sub-angular to rounded inclusions that are white, pinkish-white and light grey (semi-translucent). Fewer pastes contain colourless inclusions and these are tempered with crystalline calcite. Paste colour ranges from dark grey to black sometimes with light brown to dark greyish-brown outer margins.

Surface Treatment and Decoration: These vessels are unslipped and the exterior surfaces are generally well-smoothed. The interior surfaces tend to be less well smoothed and always display fire sooting and sometimes carbon deposits. Small, circular perforations encircle the body and these are generally confined to the middle area of the vessels and never occur on the base. The positioning of the perforations generally yields an irregular pattern, although on some examples there may be a more regular pattern.

Forms and Dimensions: This group only includes small, globular, vessels with restricted offices and rounded bottoms. The rims are always direct and the lips are pointed to rounded. This form has been called an incense burner due to the presence of

fire sooting and carbon deposits on the interior surface, the presence of the perforations as well as the small size of the vessels - attributes, which when taken together, suggest that this vessel was used to burn a small amount of some slow burning substance. The perforations would have permitted air flow to the interior of the vessel, helped to regulate the temperature of contents and encouraged smoke to be drawn up through the orifice.

The rim diameter of the incense burners ranges from 4.7cm to 6.0 cm, with a mean rim diameter of 5.4cm. The maximum diameter of the body ranges from 6.5cm - 8.0cm (the mean diameter is 7.3cm) and the mean thickness of the wall is 0.7 cm.

Unslipped/Smoothed - Buff

Frequency: This group comprises 4.0% (N=100) of the whole assemblage and 8.83% of all coarse ware and includes only one whole vessel. Of the 99 vessel fragments that were recovered, 23 derive from the N10-27 midden and 76 derive from the midden at N10-9. Approximately 77% (N=76) of the vessels in this group are jars, where as 18.2% (N=18) are plates/lids and 4.0% (N=4) are bowls.

Principal Identifying Modes: Unslipped, thin walled jars and less frequently plates/lids and bowls with a light brown or buff coloured surface. These vessels tend to be calcite tempered, although a very few examples appear to have grog tempered fabrics which are identical in appearance to the grog tempered fabric that is typical of the Orange Slipped and Incised vessels discussed above. The forms that occur in both the calcite and grog tempered fabrics, however, appear to be identical (e.g. jars with high-out-curing necks and bolstered rims).

A prominent feature of the exterior surfaces of the calcite tempered vessels is their 'flecked' appearance, which derives from the white inclusions of calcite that occur across the surface. This feature is absent on the grog tempered vessels. The jars, in particular, tend to be well made – i.e. they have well-smoothed surface, are high fired and often have exterior thickened or bolstered rims. Some jars appear to have had strap handles.

Paste and Firing: Pastes are coarse- to medium-textured and paste colour, including the nature of firing horizons varies somewhat. Paste colour ranges from buff, brownish-buff or light brown to greyish-brown or dark grey and black cores or varying thickness are frequent. Calcite tempered pastes contain abundant angular inclusions that are white, light grey, or colourless. The grog tempered pastes generally are finer-textured

and contain, in addition, orangish-brown inclusions (grog). Surface colour is most often buff to light brown, except for heavily reduced examples, which have grey surfaces.

Surface Treatment and Decoration: All forms tend to be unslipped and decorative additions or alternations to the exterior surface are entirely absent. The jars tend to be well made with well-smoothed interior and exterior surfaces (lip to base), although the interior surface is often less well-smoothed. Some jars have less well-smoothed, uneven, exterior surfaces and drag marks from inclusions during wiping or smoothing. Fire clouding and stains are generally absent on both surfaces.

The bowls and plates are also generally well made, although only the interior surfaces are well-smoothed. The exterior surfaces tend to be only hastily smoothed over and drag marks commonly occur.

Forms and Dimensions: Jars form the most abundant shape class within this group, with comparatively fewer bowls and plates/lids represented. The jars are comparatively thin walled, have flaring to slightly out-curving necks, globular to piriform bodies and rounded to slightly flattened bases. The jars with slightly out-curving necks tend to have exterior thickened or bolstered rims and rounded to slightly pointed lips. The bolstered rims sometimes appear to have been rolled or folded down during manufacture in order to create a bolster, which was incompletely smoothed over. The rim diameter of the jars with out-curving necks ranges from 8cm to 32cm (mean = 23cm) however, the majority of the jars have a rim diameter of 20cm - 25cm, with far fewer jars with rim diameters above and below this range. Rim form does not appear to bear any particular relationship to vessel size (using rim diameter as an indicator of relative size). Neck diameter ranges from 6.5cm - 28cm (mean = 19.2cm), the mean neck height is 2.4cm and the mean thickness of the body wall is 0.5cm. Rim diameter, neck diameter and neck height are strongly correlated indicating that the basic form of these jars remains consistent regardless of size (Table II.2). In contrast, the thickness of the body wall does not correlate with any of the other measurements and is very consistent regardless of the size of the vessel, as is clearly indicated by the low standard deviation of this measurement (Table II.3). The metric data suggests a high degree of standardization in terms of the basic form and thickness of these jars, and although a range of sizes are evident, the majority of the jars fall within a fairly restricted size range.

Table II.2: Pearson correlation of metric attributes of Unslipped/Smoothed-Buff jars with out-curving necks

		Rim Diameter	Neck Diameter	Wall Thickness	Neck Height
Rim Diameter	Pearson Correlation	1	.990(**)	-.275	.711(**)
	Sig. (2-tailed)	.	.000	.341	.001
	N	37	19	14	18
Neck Diameter	Pearson Correlation	.990(**)	1	-.215	.697(**)
	Sig. (2-tailed)	.000	.	.461	.001
	N	19	19	14	18
Wall Thickness	Pearson Correlation	-.275	-.215	1	-.701(**)
	Sig. (2-tailed)	.341	.461	.	.005
	N	14	14	14	14
Neck Height	Pearson Correlation	.711(**)	.697(**)	-.701(**)	1
	Sig. (2-tailed)	.001	.001	.005	.
	N	18	18	14	18

** Correlation is significant at the 0.01 level (2-tailed).

Table II.3: Metric attributes of Unslipped/Smoothed-Buff jars with out-curving necks

	N	Minimum	Maximum	Mean	Std. Deviation
Rim Diameter	37	8.0	32.0	23.000	4.3269
Wall Thickness	14	.4	.6	.464	.0842
Neck Diameter	19	6.5	28.0	19.237	4.9339
Neck Height	18	1.4	3.4	2.350	.5125
Valid N (listwise)	14				

The jars with flaring necks tend to have direct rims with rounded to slightly square lips and the angle at the neck tends to be quite sharp. One example of a flaring neck jar, however, has a collared rim (a wide bolster) and another an exterior thickened rim. The rim diameter of the comparatively well made examples of the flaring neck jars has a fairly restricted range, from 23cm - 33 cm (mean = 27cm), which in turn, indicates that the size of these jars is fairly restricted (Table II.4). This size range closely approximates that of the majority of the jars with out-curving necks. The mean neck diameter of the well made flaring neck jars is 23.3cm, the mean neck height is 1.8cm

Table II.4: Metric attributes of Unslipped/Smoothed-Buff jars with flaring necks

	N	Minimum	Maximum	Mean	Std. Deviation
Rim Diameter	8	23.0	33.0	27.250	3.3700
Neck Diameter	4	20.0	28.0	23.250	3.4034
Wall Thickness	3	.4	.5	.433	.0577
Neck Height	4	1.6	2.0	1.850	.1732
Valid N (listwise)	3				

and the mean thickness of the body wall is 0.4cm. As with the jars with the out-curving necks, the rim diameter and neck diameter of the well made flaring neck jars are strongly correlated and the wall thickness is highly consistent (Table II.5). Neck height, like wall thickness, does not vary directly with vessel size, which again, suggests a high degree of standardization in terms of vessel form and wall thickness.

The less well made examples of the jars in this group tend to have flaring necks and direct rims, but the lips are most often rounded (although one example had a slightly pointed lip and another, a slightly exterior-bevelled [bevelled-out] lip). Although the rim diameter of these jars ranges from 15cm - 35cm, the majority of the jars have rim diameters between 15cm and 23cm (mean = 22cm), indicating that the less well made jars tend to be smaller in size in comparison to the higher quality jars in this group. The mean neck diameter of the less well made jars is 19.2cm and the mean thickness of the body wall is 0.4, which is slightly less than that of the well made jars. Like the other jars in this group, there is a strong correlation between the rim diameter and neck diameter of the less well made jars. However, neck height and wall thickness are weakly correlated to each other as well as the diameter measurements, suggesting a low level of standardization in terms of vessel form and wall thickness.

The presence of wide, strap handles with identical fabrics to those of the jars suggests that at least some of the jar forms sometimes had strap handles. The handle fabrics seem to be closest in their visual appearance to those of the out-curving neck jars with exterior thickened or bolstered rims, which seems to suggest that the handles come from jars having these particular rim forms. The general morphology of the handle fragments with a section of the jar body still attached indicates that the handles were likely situated on the shoulder or upper body of the jar.

Table II.5: Pearson correlation of metric attributes of Unslipped/Smoothed-Buff jars with flaring necks

		Rim Diameter	Neck Diameter	Wall Thickness	Neck Height
Rim Diameter	Pearson Correlation	1	.976(*)	.000	-.677
	Sig. (2-tailed)	.	.024	1.000	.323
	N	8	4	3	4
Neck Diameter	Pearson Correlation	.976(*)	1	.189	-.820
	Sig. (2-tailed)	.024	.	.879	.180
	N	4	4	3	4
Wall Thickness	Pearson Correlation	.000	.189	1	-.500
	Sig. (2-tailed)	1.000	.879	.	.667
	N	3	3	3	3
Neck Height	Pearson Correlation	-.677	-.820	-.500	1
	Sig. (2-tailed)	.323	.180	.667	.
	N	4	4	3	4

* Correlation is significant at the 0.05 level (2-tailed).

The bowls of this group are identical in form to the bowls of the Unslipped Utilitarian group (described below), having rounded sides, direct rims and rounded lips. The plates/lids are also identical to conformal examples of the Unslipped Utilitarian group (described below). The majority of the plates/lids (N=11) had rounded to slightly squared lips and only two had bevelled-in lips.

This group also contains a unique vessel form which is best described as a deep bowl with a broad flaring rim (LA578/4). This vessel has vertical sides that rise to a very large, flaring everted rim. The lip is rounded with an angular interior margin and the base is flat. The rim diameter is 37cm and wall thickness is 0.5cm.

Forms which occur with grog tempered fabrics include: two jars with an out-curving neck and a bolstered rim; a jar with an out-curving neck and an interior thickened rim; a

jar with a flaring neck and a rounded to squarish rim; a large, rounded, deep bowl with a bolstered rim and four plates/lids (3 with bevelled-in lips and 1 with a rounded lip).

Unslipped Utilitarian

Frequency: This group, which includes 2 whole vessels and 784 fragments, is the most ubiquitous within the overall assemblage, comprising 31.6% (N=784) of the whole assemblage and 68.9% of all coarse ware. A total of 565 fragments of these vessels were recovered from the midden associated with N10-27, where as 217 were recovered from the midden at structure N10-9 midden. The majority of the vessels in this group are jars (85.4%, N=668). Plates/lids comprise 10.2% (N=80) and bowls represent 2.8% (N=22).

Principal Identifying Modes: These vessels are comparatively thick-walled, are unslipped and have crudely smoothed interior and exterior surfaces. The fabrics are coarse-textured and have a sandy look and feel. The vessel surfaces tend to be dark colours such as brown, grey and dark grey to black. Principal vessel forms include jars with flaring to slightly out-curving necks, direct rims and rounded lips, rounded bowls and dishes and plates/lids. Very rarely, the jars have loop handles straddling the neck.

Paste and Firing: Coarse-textured, sandy fabrics containing abundant sub-angular to rounded inclusions that are generally white, pinkish-white, greyish-white, or grey and frequently, semi-translucent. Several pastes also contain rare fragments of snail shell. Paste colour and firing horizons vary considerably. Pastes exhibiting a single homogeneous colour in cross section are black, dark grey, greyish-brown, yellowish-brown or brown. Just as common are mottled pastes displaying a mixture of colours – e.g. greyish-brown and yellowish-brown; dark brown, orangish-brown and brown; and orangish-brown, dark grey, purplish-grey, pinkish-brown, and brick red. When firing horizons are present, as they are in the majority of cases, cores are black or dark grey, vary in thickness, and are bordered by brown, dark brown, light brown, greyish-brown, orangish-brown or rarely, yellowish-brown outer margins.

Surface Treatment and Decoration: The vessels of this group are unslipped and decorative additions or alterations to the exterior surface are entirely absent. The interior and exterior are only crudely smoothed over and drag marks are very common. The interior surface of the jars, bowls, dishes and plates sometimes look as though a wash was applied to it or that the vessel is self-slipped on the interior surface. The colour of the 'treated' surface, however, is generally the same as or only a fraction lighter than the margins of the vessel when viewed in fresh fracture, and the surface

finish is consistent and always matte. Such an effect could be produced by simply rinsing out a newly made vessel with water, thereby producing a film of fine clay particles on the surface.

Forms and Dimensions: The vessel forms that comprise this group primarily include, jars, bowls, dishes and plates/bowls, however, there are a few forms that are unique to this group, such the comal, a basin, censers with a pedestal base and an insloping jar. These later forms are extremely rare, and in the case of the basin and the censer, may represent an attempt to imitate or replicate certain fine ware forms, on a larger scale, using a coarse ware paste recipe.

There is a lot of variation in the specific morphology of the jars comprising this group and a continuum of variation in most categorical attributes was observed. The jars generally have flaring to slightly out-curving necks, direct rims, rounded to slightly squared lips, globular to piriform bodies and rounded bases. A few examples have loop handles straddling the rim to neck area. The curvature of the profile at the neck varies greatly, forming a sharp acute angle, a 90° angle, a sharp obtuse angle or a more gentle curvature. The height of the rim, from the neck to the lip, varies continuously from very short (0.5cm) to quite tall (5.4cm) and four examples had a horizontal groove encircling the neck, just below the inflection point. Rim diameter ranges from 8cm - 49cm (mean = 23.2cm), with most rims measuring between 18cm and 27cm. Neck diameter ranges from 6cm - 42cm (mean = 19.1cm) and the thickness of the body wall ranges from 0.1cm - 2.8cm (mean = 2.5cm). Based on the rim diameter measurements, a range of jar sizes is clearly represented, but there are substantially fewer large jars (jars with rim diameters over 30cm). According to the correlation statistics, rim diameter and neck diameter strongly correlate with each other, where as the thickness of the body wall and neck height only weakly correlate to both each other and to the diameter measurements (Table II.6). This pattern indicates that the variation in wall thickness and neck height is independent of vessel size, which in turn suggests an absence of standardization in terms of basic vessel form, and also that these aspects of vessel morphology do not vary directly with vessel size.

Among the jars there is a subgroup that may have been used for heating liquid substances or perhaps cooking. The fabric typical of these jars has an over-fired appearance, being black in colour throughout the break and containing ubiquitous large bloating pores. The exterior surface of these vessels almost has a 'crazed' appearance,

Table II.6: Pearson correlation of metric attributes of Unslipped/Utilitarian jars

		Rim Diameter	Neck Diameter	Wall Thickness	Neck Height
Rim Diameter	Pearson Correlation	1	.966(**)	.055	.698(**)
	Sig. (2-tailed)	.	.000	.395	.000
	N	400	365	243	331
Neck Diameter	Pearson Correlation	.966(**)	1	.060	.662(**)
	Sig. (2-tailed)	.000	.	.356	.000
	N	365	365	241	325
Wall Thickness	Pearson Correlation	.055	.060	1	.127(*)
	Sig. (2-tailed)	.395	.356	.	.048
	N	243	241	244	241
Neck Height	Pearson Correlation	.698(**)	.662(**)	.127(*)	1
	Sig. (2-tailed)	.000	.000	.048	.
	N	331	325	241	332

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

as small, hairline cracks are numerous. These features are consistent with what would result from fast firing during manufacture or perhaps subjecting a vessel to repeated heating events, although carbon deposits and entirely absent on the interior surfaces. Other than the obvious differences in the general appearance of the fabric and exterior surface, these vessels are identical to the other jars of the Unslipped Utilitarian group in the way of vessel morphology and surface treatment. These jars also occur in the same range of sizes as the jars described above, although the majority have rim diameters below 20cm, suggesting that these vessels tend to be smaller on average than other jars.

Dishes in this group are thin walled, round sided, have direct rims and rounded to slightly exterior-bevelled (bevelled out) lips. Rim diameter ranges from 20cm - 31cm (mean = 27cm) and the mean thickness of the body wall is 0.6cm.

The bowls are also thin walled, rounded and have direct rims. Lips are rounded to slightly squared, rim diameter ranges from 19cm to 36cm (mean = 27) and mean wall thickness is 0.7.cm.

The plates/lids are thin-walled, round sided and have direct rims. Lips are commonly bevelled-in or, more rarely, rounded or slightly squared.. Rim diameter ranges between 19cm - 34cm (mean = 27.5cm), with the diameters of most plates/lids measuring above 24cm. The mean thickness of the body wall is 0.5cm and wall thickness is very consistent regardless of vessel size. The correlation statistics obtained for the plates/lids lend support to this observation, showing no apparent direct relationship between rim diameter and wall thickness (Table II.7).

This group also contains four unique vessel forms. The first form is a large, thick walled plate or comal, which has rounded sides, a direct rim and a rounded lip. Three fragments and one complete vessel (LA650/1) occur in the assemblage. The rim diameter of the complete vessel is 41cm and wall thickness is 0.8cm. The second from is represented by a fragment of a large ring base. The sherd presumably comes from a basin, judging from the well-smoothed interior surface, and may be similar in form to the fine ware composite silhouette dishes that occur in the Monochrome Red Slipped, Monochrome Orange Slipped and Red-Orange-Black Resist groups (see above). The third form, which is represented by one fragment and one complete vessel (LA243/10), is a jar or censer with a pedestal base. The fragment, which comes from the base of the jar, where it intersects with the pedestal base, has a segmented flange, suggesting that the original vessel may have been similar in form to the pedestal jars of the Monochrome Orange Slipped and Incised group. The complete vessel has appliqué spikes on the exterior surface of the vessel body and a flange at the junction between the body and base (LA243/10). The body has rounded sides that curve inwards to the base of the slightly out-curving rim. The lip is rounded and the base is slightly out-curving. The rim diameter is 23cm and wall thickness is 0.7cm. The final unique form can best be described as an in-sloping, 'neckless' jar. The vessel has very thick walls, a flat base, and the sides slope inwards to a direct rim with a pointed lip.

Washed/Smoothed

Frequency: This group is less well represented, comprising only 0.2% of all ceramics (N=6) and 0.5% of all coarse wares. All fragments were recovered from the midden associated with N10-27 and all derive from jars.

Principal Identifying Modes: Thick-walled jars with crudely smoothed interior and exterior surfaces and a orange to reddish-orange wash on the exterior surface. Fabric wise, these jars are identical to the Unslipped Utilitarian jars in that the fabrics are coarse-textured and have a sandy look and feel.

Table II.7: Pearson correlation of metric attributes of Unslipped/Utilitarian plates/lids

		Rim Diameter	Wall Thickness
Rim Diameter	Pearson Correlation	1	-.171
	Sig. (2-tailed)	.	.234
	N	51	50
Wall Thickness	Pearson Correlation	-.171	1
	Sig. (2-tailed)	.234	.
	N	50	74

Paste and Firing: Pastes are coarse-textured and contain the same range of inclusions as the Unslipped Utilitarian pastes. Paste colour ranges from brown to dark grey and 4 out of the 6 rim fragments have black cores.

Surface Treatment and Decoration: The interior and exterior surfaces of these jars are crudely smoothed and exhibit many drag marks. An orange to reddish-orange coloured wash occurs on the exterior surface and other decorative alterations or additions to the surface are entirely absent. The wash has a thin, watered down appearance and the depth of colour of the wash varies across the surface.

Forms and Dimensions: Morphologically, these jars are identical to the Unslipped Utilitarian jars, having flaring or slightly out-curving necks, direct rims and rounded lips. The rim diameter of the washed jars falls within the same range as the Unslipped Utilitarian jars (16cm to 32.5cm) and four out of the five washed jars that were measurable have rim diameters between 26cm and 32.5cm. Neck diameter and wall thickness could be measured on only one example and these were 25cm and 0.6cm respectively.

Rare Coarse Ware Vessels

Unslipped-Striated – This vessel (LA487/1), which is a jar, appears to be unique within the assemblage. The body of the jar is globular and it has a high, vertical neck and a bolstered rim. The interior and exterior surfaces of the vessel are unslipped. The exterior surface is well-smoothed from the rim to the shoulder and the body has deep striations. The interior surface is less well smoothed. The paste is reddish brown throughout the cross section and contains coarse light grey to white (opaque) and colourless inclusions.

Unslipped with Appliqué - This group is represented by two partial vessels (LA469a and LA469b), both of which are jars. Necks are flaring, rims are direct and lips are bevelled-out. In both cases, vertical, grooved, strap handles straddle the neck. A similar strap handle was recovered from the midden associated with structure N10-27, and might also derive from this type of jar. The interior and exterior surface of the jars is unslipped and the undecorated areas of the exterior surface are well-smoothed. An appliqué impressed fillet encircles the upper shoulder of both jars and LA469a has incised decoration between the fillet and the neck. Pastes are yellowish brown with a thin brown exterior margin and contain coarse white, pinkish-white and light grey, semi-translucent inclusions.

APPENDIX III
MUNSELL CORRELATES OF THE BASIC COLOURS MENTIONED IN THE TEXT

Colour	**Munsell Designation**
Light Orange	5YR 7/4
Orange	2.5YR 6/18-7/20
Dark Orange	5YR 6/6
Red	7.5R 4/8-4/20
Light Brown	7.5YR 7/3-6/3
Brown	10YR 5/3
Dark Brown/Brownish Black	10YR 3/2
Brownish Buff	5YR 7/3-7/4
Buff	10YR 7/3-8/3
Greyish Buff	10YR 7/2
Light Grey	Gley1 7/N
Dark Grey	Gley1 5/N
Black	10YR 2/1

APPENDIX IV
CLAY FIRING EXPERIMENT

The clay firing experiment was conducted under laboratory conditions in the Department of Archaeology at the University of Sheffield. The main objective of the experiment was to produce a collection of fired local clays that could serve as a comparative base for the identification of clay resources used in local pottery manufacture at Lamanai through chemical and petrographic analysis of the clays and ceramics. A secondary aim was to gauge the suitability of the various local clays in their natural state for pottery manufacture by recording evidence of clay body instability and low strength after drying and firing. The formation of cracks and crumbling of the unfired and fired clay body were viewed as indicators of instability and low strength.

METHODS

Preparation of the Briquettes

Briquettes measuring approximately 2cm x 2cm x 5cm were hand fashioned from each of the thirty five clay samples taken in the field. The clays were not processed prior to briquette making beyond the removal of larger rock fragments (>1cm - 2cm) from some samples and these were picked out by hand. Three briquettes were made from each clay sample to produce three sets of thirty-five clays. The three sets of briquettes were left to dry in the laboratory for 3 days and then transferred to a Gallen Kamp drying oven to continue drying at 60°C for a further 7 days. After this period, the sets were removed and examined for cracks. The number of briquettes displaying cracks was recorded for each clay (Tables IV.1 to IV.3).

Firing

After the drying period, one of the sets was put aside for reference and the other two were kiln fired separately, under oxidizing conditions, at 750°C and 850°C respectively. These temperatures were selected in order to achieve examples of local clays fired within the same temperature range as the archaeological ceramics, which is generally thought to have been below 900°C, the approximate maximum temperature reached in open firings (Rice 1987:155-157) Since it was known the many of clays contained calcium carbonate in the form of limestone fragments and shell, temperatures were chosen below that at which calcite decomposes (870°C -900°C) and, thereby, creates an unstable fired clay body with very low strength (Rice 1987:98). The firing parameters

that were applied to the two sample sets were the same, apart from the maximum firing temperature, and these are as follows:

- kiln temperature increased from room temperature to 300°C over a 1 hour period
- temperature held at 300°C for 3 hours
- temperature increased to maximum temperature (750°C and 850°C) at a rate of 100°C /hour
- temperature held at maximum for 45 minutes
- kiln load cooled naturally to room temperature

After firing, the sample sets were returned to the drying oven a left for a period of one week. The sample sets were then removed and examined for additional cracking and crumbling.

OBSERVATIONS

The observations recorded during the firing experiment are summarized in Tables IV.1 to IV.3 according to environmental and geological area.

Clays from the Site and Inland Sources West of the Lagoon

All of the briquettes made of clays from the west side of the lagoon displayed hair line cracks after drying, and in three cases (EHAR, MIL1 and MIL2) comparatively large cracks had formed. Cracks were observed on two or all three briquettes for 50% of the clays, and in most cases, the cracks had formed in the vicinity of larger inclusions. After firing at 750°C only one of the clay samples (MIL5) exhibited additional cracks, indicating that firing at this temperature did not cause additional flaws. Among the briquettes fired at 850°C, however, additional cracks had formed on two (JAG1 and JAG 3) and a further five had started to crumble. In the majority of these later cases, major flaws (large cracks) had formed in the clay body prior to firing. The instability that resulted in some cases from firing at 850°C is most likely due to the decomposition of calcite in association with larger fragments of limestone.

Clays from Sources along Creeks and Rivers within Areas of Fresh Water Swamp

Of the seven clay samples taken from creek and river deposits, hair line cracks had formed in only three cases (DCM, DCB and BM3). Two of these clays were taken from deposits along Dawson Creek, situated to the east of the lagoon, and the third was a sample taken from the Bar Mouth deposit. After firing at 750°C, two additional samples from Bar Mouth displayed comparatively large cracks (BM1 and BM2) and the sample from the unnamed stream east of the lagoon (UNC) had started to crumble.

Firing at 850°C produced an expansion in size and extensive crumbling of the briquettes made from the Bar Mouth clays, as well as the samples from the unnamed stream. This damage is most likely due to the decomposition of calcium carbonate in association with the shell in these clays. In contrast, the briquettes made from the Barber Creek and Dawson Creek clays were undamaged after firing at both temperatures. The only briquettes in which flaws did not develop during drying or after firing were those made from the Barber Creek clay.

Clays from Sources East of the New River Lagoon within Areas of Pleistocene Alluvium

All of the clay samples taken from the inland deposit exhibited hairline cracks in one out of three briquettes after drying, whereas cracks formed in only one of the samples from the creek deposit (DC1). None of the briquettes from either location developed flaws after firing at 750°C and 850°C.

Table IV.1: Clays from the Site and Inland Sources West of the New River Lagoon

Sample Number	Cracking After Drying at 60°C/ number	Cracking and Crumbling after Firing at 750°C	Cracking and Crumbling after Firing at 850°C
TCTT1	yes / 1	no change	no change
TCTT2	yes / 2	no change	no change
TCTT3	yes / 1	no change	no change
JAG1	yes / 3	no change	cracking
JAG2	yes / 2	no change	no change
JAG3	yes / 1	no change	cracking
JAG4	yes / 1	no change	no change
HAR1	yes / 1	no change	no change
HAR2	yes / 1	no change	no change
T HAR1	yes / 1	no change	no change
T HAR2	yes / 1	no change	no change
E HAR	yes - major / 3	no change	cracked and starting to crumble
N HAR	yes / 2	no change	cracked and starting to crumble
MIL1	yes - major / 3	no change	starting to crumble
MIL2	yes - major / 2	no change	starting to crumble
MIL3	yes / 3	no change	no change
MIL4	yes / 2	no change	no change
MIL5	yes / 2	cracking	starting to crumble
MIL6	yes / 1	no change	no change
NAS	yes / 1	no change	no change

Table IV.2 Clays from Sources along Creeks and Rivers within Areas of Fresh Water Swamp

Sample Number	Cracking After Drying at 60°C	Cracking and Crumbling after Firing at 750°C	Cracking and Crumbling after Firing at 850°C
DCM	yes / 1	no change	no change
DCB	yes / 1	no change	no change
UNC	no	cracking and some crumbling	expansion in size and extensive crumbling
BM1	no	cracking	expansion in size and extensive crumbling
BM2	no	cracking	expansion in size and extensive crumbling
BM3	yes / 2	no change	expansion in size and extensive crumbling
BC	no	no change	no change

Table IV.3: Clays from Sources East of the New River Lagoon within areas of Pleistocene Alluvium

Sample Number	Cracking After Drying at 60°C	Cracking and Crumbling after Firing at 750°C	Cracking and Crumbling after Firing at 850°C
DSV1	yes / 1	no change	no change
DSV2	yes / 1	no change	no change
DSV3	yes / 1	no change	no change
DSV4	yes / 1	no change	no change
DC 1	yes / 2	no change	no change
DC2	no	no change	no change
DC3	no	no change	no change
DC4	no	no change	no change

CONCLUSIONS

It would appear that the Barber Creek clay and the samples taken from deposit on Dawson Creek within the area of Pleistocene alluvium produce the most stable clay bodies since these were the only briquettes in which visible flaws were entirely absent after drying and firing. The results of the experiment also suggest that the clays from Bar Mouth and the unnamed stream east of the lagoon are the least suitable for pot making as major flaws developed in the briquettes even when fired at the lower temperature of 750°C. All of the briquettes made using clays from the west side of the lagoon exhibited visible flaws after drying and many incurred more severe damage when fired at 850°C This evidence would seem to suggest that these clays are perhaps unsuitable, or at the very least problematic, for pot making when used in their natural state.

APPENDIX V

NEUTRON ACTIVATION ANALYSIS COMPOSITIONAL DATA FOR LOCAL CLAY SAMPLES (IN PPM EXCEPT CA, NA AND FE WHICH ARE IN %)

Chemical Group	Sample No.	Sm	Lu	U	Yb	As	Sb	Ca	Na	La	Ce	Th	Cr	Hf	Cs	Tb	Sc	Rb	Fe	Ta	Co	Eu
A	LMCL14A	8.53	0.63	2.83	5.37	0.00	1.46	0.68	0.08	36.30	107.00	13.80	61.30	10.50	6.63	1.09	12.00	60.60	3.28	1.93	13.40	1.61
A	LMCL16A	8.82	0.57	2.82	4.81	5.68	1.31	0.74	0.08	34.00	129.00	13.90	60.90	10.10	6.57	1.13	12.00	58.80	3.10	1.92	12.40	1.62
A	LMCLDSV2	7.72	0.52	2.60	4.43	6.35	1.30	0.71	0.07	35.20	91.80	12.30	77.80	10.50	6.45	0.96	11.70	61.40	3.29	1.59	12.50	1.43
A	LMCLDC2	7.83	0.47	2.42	3.93	2.10	1.12	0.76	0.08	41.70	103.00	12.70	51.70	10.10	5.64	1.02	10.40	53.20	2.65	1.61	8.51	1.40
A	LMCL15A	8.70	0.52	2.32	4.54	6.22	1.24	7.15	0.08	52.20	76.00	12.00	52.60	7.19	6.04	1.12	10.50	56.10	2.83	1.44	10.40	1.60
A	LMCL11A	9.76	0.55	2.47	4.83	2.80	1.22	0.92	0.09	52.80	126.00	14.90	57.40	10.80	5.63	1.17	10.80	60.70	2.59	1.90	7.22	1.84
A	LAMCL9A	15.70	0.79	3.46	6.56	2.02	1.32	2.18	0.09	81.00	191.00	22.00	62.30	10.90	5.63	2.04	11.90	50.90	2.47	2.84	9.93	2.77
A	LMCL10A	13.80	0.75	3.10	6.30	0.00	1.35	0.85	0.09	75.60	173.00	20.30	63.90	11.50	5.89	1.50	12.80	58.60	2.62	2.60	10.90	2.60
A	LMCL12A	12.30	0.93	15.70	5.91	2.32	1.66	1.16	0.06	61.00	137.00	20.70	86.60	10.10	7.51	1.32	18.10	36.90	3.20	2.64	7.81	2.09
B	LMCL3A	15.60	0.96	1.94	8.17	16.90	2.40	2.87	0.04	84.10	197.00	20.10	97.00	14.10	2.31	2.19	16.20	22.10	4.85	1.56	24.40	2.79
B	LMCL23A	16.20	0.84	1.14	8.01	16.40	1.85	9.51	0.05	84.70	412.00	17.60	71.90	8.91	2.84	2.19	14.30	22.80	4.22	1.43	35.90	2.86
B	LMCLJAG2	9.86	0.67	1.31	5.69	7.91	1.75	12.30	0.04	51.50	126.00	14.90	71.70	10.10	1.16	1.33	12.70	9.81	3.58	1.18	13.60	1.73
B	LMCL2A	10.40	0.70	1.62	5.90	7.81	1.96	8.64	0.04	55.20	86.50	16.50	79.90	11.00	1.27	1.46	13.90	6.91	3.93	1.38	9.22	1.83
B	LMCL1A	13.40	0.81	1.46	6.93	11.40	2.04	8.76	0.05	72.20	165.00	17.30	81.40	11.70	1.10	1.72	14.00	8.34	4.03	1.41	20.40	2.36
B	LMCL26A	7.71	0.68	1.42	5.66	13.10	2.07	2.04	0.08	32.80	130.00	22.20	87.30	12.20	4.09	0.97	16.60	25.40	4.93	1.71	19.40	1.33
B	LMCL27A	9.19	0.74	1.64	5.84	12.30	2.07	1.56	0.07	38.50	153.00	22.80	87.00	12.20	4.39	1.27	16.90	21.70	4.92	1.74	21.60	1.62
B	LMCL22A	12.80	0.88	1.83	7.78	9.28	2.00	2.57	0.06	65.10	125.00	22.60	86.40	13.00	1.81	1.83	17.40	11.90	4.76	1.82	14.60	2.31
B	LMCL25A	13.00	0.89	1.61	7.73	18.20	2.75	2.73	0.06	63.20	162.00	23.60	113.00	12.60	2.21	1.91	19.70	14.70	5.27	1.98	14.40	2.32
B	LMCL24A	10.10	0.84	1.86	6.86	16.00	2.73	2.23	0.06	46.80	101.00	23.20	115.00	12.80	2.36	1.48	20.20	14.50	5.20	2.01	10.30	1.88
B	LMCL28A	9.25	0.78	1.61	6.54	15.80	2.54	5.75	0.07	44.00	91.00	20.20	110.00	12.20	2.03	1.32	17.60	18.40	4.90	1.70	14.00	1.71
BC	LMCL21A	8.83	0.60	2.28	5.27	1.63	1.13	1.13	0.02	38.80	104.00	14.00	38.20	11.60	1.36	1.18	8.91	7.95	1.97	1.24	4.81	1.43

Chemical Group	Sample No.	Sm	Lu	U	Yb	As	Sb	Ca	Na	La	Ce	Th	Cr	Hf	Cs	Tb	Sc	Rb	Fe	Ta	Co	Eu
C	LMCL7A	3.64	0.29	1.04	2.39	12.30	1.05	26.70	0.02	18.40	49.80	8.03	43.40	4.75	0.51	0.42	7.48	7.54	2.56	0.63	11.50	0.65
C	LMCL8A	3.68	0.28	0.75	2.33	10.60	1.31	25.50	0.02	19.60	41.30	7.63	62.10	4.90	0.77	0.47	8.08	9.20	2.36	0.77	6.20	0.68
C	LMCL4A	3.53	0.26	1.07	2.26	7.20	1.25	22.20	0.03	19.30	44.70	7.97	44.90	5.39	1.47	0.48	7.83	15.40	2.17	0.74	7.50	0.61
C	LMCL5A	5.67	0.44	0.94	3.54	34.60	1.44	19.00	0.02	26.00	65.30	10.20	47.00	5.17	0.80	0.86	8.93	13.80	3.32	0.87	15.20	1.00
C	LMCLHAR2	2.40	0.19	0.73	1.64	8.97	1.09	30.20	0.02	13.40	29.90	4.95	31.90	2.84	0.46	0.31	5.67	6.59	1.89	0.50	5.45	0.45
C	LMCL6A	2.95	0.22	1.76	1.74	0.91	0.58	32.60	0.02	15.40	29.20	4.25	29.10	2.96	0.62	0.35	4.65	7.31	1.05	0.53	2.00	0.52
C	LMCL13A	3.20	0.21	2.90	1.54	0.00	0.46	31.00	0.03	16.70	37.10	6.09	25.30	2.66	2.50	0.34	5.00	13.10	1.13	0.70	2.89	0.55
D	LMCL19A	2.48	0.15	0.59	1.28	0.00	0.28	30.20	0.04	13.00	28.10	3.27	11.40	2.47	0.43	0.29	2.34	2.63	0.61	0.29	1.40	0.43
D	LMCL20A	2.65	0.16	1.05	1.29	0.51	0.28	31.90	0.04	13.90	29.50	3.58	12.20	2.65	0.42	0.32	2.45	5.32	0.59	0.29	1.93	0.43
D	LMCL18A	1.62	0.12	0.73	0.90	0.56	0.21	34.70	0.03	8.59	19.20	2.50	12.50	2.20	0.45	0.17	1.88	1.56	0.47	0.25	1.10	0.29
D	LMCL17A	1.01	0.08	0.58	0.62	0.27	0.15	36.80	0.02	4.77	9.47	1.53	7.02	0.81	0.22	0.11	1.44	1.53	0.44	0.16	0.98	0.21

APPENDIX VI

NEUTRON ACTIVATION ANALYSIS COMPOSITIONAL DATA FOR THE CERAMIC SAMPLES (IN PPM EXCEPT CA, NA AND FE WHICH ARE IN %)

Chemical Group	Sample No.	Sm	Lu	U	Yb	As	Sb	Ca	Na	La	Ce	Th	Cr	Hf	Cs	Tb	Sc	Rb	Fe	Ta	Co	Eu
1	163	6.93	0.45	4.00	3.55	9.80	1.59	6.04	1.31	33.20	72.70	14.50	30.50	5.62	9.91	0.83	8.32	165.00	1.90	1.16	5.63	0.78
1	715	6.95	0.43	3.80	3.46	9.30	1.66	6.34	1.29	34.20	72.70	14.20	32.30	5.64	10.10	0.77	8.70	160.00	2.03	1.28	5.84	0.80
1	242	6.86	0.47	4.10	3.80	9.40	1.60	5.93	1.28	32.50	72.80	14.50	30.60	5.72	9.29	0.97	8.46	160.00	1.92	1.19	5.64	0.73
1	210	7.04	0.48	4.00	3.77	9.50	1.67	7.11	1.22	32.90	71.60	14.80	30.80	5.69	9.54	0.77	8.91	160.00	2.02	1.19	5.21	0.86
1	225	5.45	0.35	3.20	2.68	7.80	1.31	5.94	1.17	32.30	67.30	13.40	25.80	4.94	10.00	0.69	6.69	158.00	1.87	1.08	5.21	0.82
1	734	5.19	0.35	3.60	2.76	7.90	1.38	5.42	1.17	33.00	69.10	13.90	30.90	5.13	11.30	0.70	6.91	223.00	1.93	1.14	5.37	0.83
1	712	5.77	0.41	2.10	3.43	9.40	1.24	5.78	0.97	27.10	63.80	10.50	35.10	5.54	16.20	0.75	9.50	134.00	2.34	0.92	6.93	0.97
1	222	5.27	0.39	2.10	3.14	8.00	1.31	6.59	1.23	25.70	55.30	8.90	28.40	5.18	7.19	0.76	7.99	128.00	1.95	0.82	5.78	0.84
1	714	5.12	0.37	1.90	2.93	7.70	1.31	6.79	1.15	25.10	54.60	8.90	30.00	4.85	7.21	0.59	7.86	123.00	1.92	0.77	5.76	0.84
1	212	4.86	0.33	2.00	2.57	5.80	1.15	9.79	0.92	25.30	55.20	8.30	26.50	5.12	4.95	0.57	7.03	103.00	1.73	0.74	5.26	0.85
1	711	4.47	0.32	1.90	2.60	5.80	1.17	9.81	0.92	23.90	51.50	8.10	27.10	4.93	5.14	0.50	7.09	101.00	1.78	0.75	5.12	0.76
1	213	4.47	0.36	2.20	2.88	6.20	1.13	9.90	0.98	23.10	50.20	7.30	31.50	4.83	5.16	0.53	6.99	97.20	1.71	0.66	4.20	0.78
1 - outlier	55	6.61	0.54	4.10	4.41	11.40	1.63	1.61	1.29	36.90	75.20	19.10	28.20	6.74	6.97	0.83	9.19	117.00	2.37	1.15	5.35	1.12
1 - outlier	215	4.42	0.36	2.80	2.92	7.40	2.42	1.34	1.02	20.70	48.90	9.20	31.70	6.83	7.00	0.63	11.10	128.00	2.82	0.99	7.14	0.75
1 - outlier	610	6.72	0.50	7.10	3.61	5.60	1.32	6.35	0.45	33.60	73.80	15.20	84.20	6.61	12.10	0.89	17.80	115.00	2.74	1.54	6.55	1.17
1 - outlier	158	7.24	0.50	3.10	3.95	15.30	2.05	2.02	0.62	42.10	96.80	19.90	94.30	6.98	8.43	0.90	13.60	151.00	3.71	1.66	9.63	1.38
2	465	8.54	0.52	4.50	4.02	0.00	1.08	0.81	0.05	42.40	95.80	13.60	55.30	7.75	6.48	1.04	11.90	34.20	2.37	1.65	5.93	1.54
2	509	8.05	0.51	4.70	4.04	2.20	1.16	0.90	0.07	40.50	90.10	13.50	58.80	7.99	5.64	0.83	12.20	37.90	2.50	1.82	6.47	1.41
2	131	5.40	0.41	2.10	3.31	3.00	0.92	0.77	0.08	29.60	66.20	10.10	46.40	11.20	2.99	0.74	7.79	29.40	2.06	1.56	4.54	1.02
2	161	5.79	0.43	3.10	3.46	1.70	0.87	0.85	0.09	29.30	69.40	12.20	44.20	9.41	4.03	0.75	8.01	34.10	1.58	1.58	3.71	0.97
2	17	5.91	0.43	2.70	3.48	1.60	1.06	1.26	0.09	30.60	69.20	11.00	50.10	6.44	4.85	0.76	9.58	37.90	2.00	1.51	4.01	0.99
2	479	8.86	0.54	2.50	4.72	4.80	1.00	0.92	0.17	43.70	88.00	12.40	55.40	8.50	6.00	1.12	10.20	92.00	2.54	1.51	7.75	1.66

Chemical Group	Sample No.	Sm	Lu	U	Yb	As	Sb	Ca	Na	La	Ce	Th	Cr	Hf	Cs	Tb	Sc	Rb	Fe	Ta	Co	Eu
2	625	7.65	0.52	2.70	4.57	2.20	1.10	1.02	0.17	40.30	94.50	13.90	49.60	11.20	6.19	0.96	9.39	81.20	2.17	2.17	6.30	1.38
2	495	7.08	0.45	2.30	3.81	3.30	0.91	1.02	0.27	38.00	79.30	12.50	52.10	7.04	6.44	0.97	10.80	90.30	2.56	1.35	7.62	1.26
2	740	8.18	0.50	3.10	4.13	2.60	1.05	1.44	0.22	39.40	89.60	12.80	57.70	7.44	8.42	1.03	12.30	98.00	2.58	1.49	5.31	1.56
2	604	6.33	0.44	4.80	3.10	4.80	1.17	1.35	0.16	30.50	74.60	11.80	66.80	6.86	7.75	0.77	12.20	65.50	2.65	1.33	7.75	1.09
2	464	7.12	0.45	2.40	3.79	2.10	1.04	1.28	0.28	39.10	96.90	10.60	40.50	8.50	3.87	0.95	7.67	43.70	1.76	1.63	7.60	1.29
2	132	10.10	0.62	4.50	4.88	3.20	1.25	2.09	0.08	52.60	118.00	17.10	71.90	7.88	7.72	1.23	14.80	48.70	3.13	1.87	6.77	1.94
2	521	10.80	0.61	4.00	5.06	2.30	1.13	1.49	0.17	53.60	126.00	15.60	64.40	7.38	7.05	1.25	13.90	61.40	2.71	1.67	5.77	2.08
2 - outlier	613	4.14	0.32	3.20	2.32	4.30	1.32	1.81	0.14	19.00	42.70	13.00	72.00	5.76	11.90	0.58	16.60	130.00	2.91	1.12	3.90	0.70
2 - outlier	615	4.69	0.35	2.60	2.68	4.10	1.08	1.42	0.10	22.30	48.40	12.40	62.20	7.32	10.20	0.57	14.40	94.90	2.30	1.04	4.61	0.83
2 - outlier	72	6.59	0.40	2.80	3.49	2.80	1.00	1.24	0.14	31.00	63.20	10.70	44.30	7.40	16.30	0.90	8.91	112.00	2.17	1.68	5.30	1.16
3a - outlier	292	5.48	0.34	1.70	2.89	0.00	1.08	20.70	0.13	32.00	59.10	8.80	67.70	4.70	3.62	0.60	9.92	50.90	2.58	0.91	6.45	1.05
3a - outlier	298	5.86	0.36	1.80	2.92	7.80	1.26	20.80	0.13	32.00	60.70	9.50	68.90	5.12	4.02	0.61	9.90	58.80	2.63	1.00	6.49	1.04
3a	710	6.22	0.41	2.20	3.63	2.80	1.04	14.80	0.11	34.10	73.50	12.00	54.10	6.23	2.83	0.82	11.30	29.60	2.79	1.23	7.37	1.15
3a	102	5.39	0.40	4.60	2.98	6.40	1.07	16.40	0.16	28.30	58.60	10.90	59.80	4.87	5.61	0.53	12.20	64.00	2.31	1.06	4.38	0.99
3a	150	5.49	0.39	3.50	3.10	7.60	1.15	15.10	0.16	26.80	58.30	11.70	63.30	5.35	5.84	0.63	12.40	69.20	2.46	1.19	5.21	0.96
3a	100	5.76	0.41	4.60	3.11	4.80	1.04	15.40	0.13	29.20	64.70	12.60	57.80	5.62	5.47	0.76	11.00	50.60	2.35	1.41	4.73	1.03
3a	568	5.50	0.37	3.10	2.83	4.10	1.07	12.60	0.15	29.50	64.10	12.60	57.10	5.73	5.24	0.71	11.30	46.80	2.49	1.31	5.22	1.07
3a	547	5.38	0.35	2.10	2.98	0.00	0.91	12.70	0.16	28.10	61.70	11.20	49.60	5.23	4.82	0.74	10.60	39.70	2.40	1.17	5.79	0.97
3a	739	5.92	0.38	2.40	3.14	3.90	1.21	14.90	0.16	29.60	68.30	13.00	49.80	5.76	4.71	0.81	10.50	41.50	2.74	1.40	5.71	1.08
3a	429	4.91	0.38	2.20	3.06	3.30	1.10	12.40	0.14	26.70	62.50	12.80	55.00	6.14	4.35	0.72	12.00	42.60	2.96	1.32	5.93	0.92
3a	87	5.02	0.36	3.40	2.82	7.10	1.14	15.10	0.15	24.60	56.00	12.50	68.40	5.58	6.78	0.60	13.60	73.80	2.61	1.08	5.21	0.89
3a	382	5.55	0.45	8.80	2.73	2.70	1.19	16.80	0.12	26.60	57.20	12.00	63.20	5.17	7.26	0.66	13.00	80.10	2.47	1.08	5.15	0.90

Chemical Group	Sample No.	Sm	Lu	U	Yb	As	Sb	Ca	Na	La	Ce	Th	Cr	Hf	Cs	Tb	Sc	Rb	Fe	Ta	Co	Eu
3a	159	6.37	0.47	8.90	3.00	3.30	1.30	13.50	0.15	30.20	66.40	12.90	69.60	5.85	7.27	0.75	14.70	94.30	2.80	1.19	5.97	1.04
3a	64	5.94	0.37	2.10	3.20	5.20	1.10	14.80	0.10	30.20	72.40	12.90	52.70	6.31	4.40	0.85	10.40	52.30	2.97	1.50	5.49	1.09
3a	175	5.76	0.37	1.90	3.14	4.20	1.08	11.50	0.09	28.10	77.50	13.70	54.20	6.84	3.86	0.78	10.00	39.00	2.77	1.39	6.25	1.04
3a	70	5.53	0.35	2.30	3.00	6.90	0.90	12.70	0.12	30.30	64.70	11.10	52.70	7.42	3.84	0.64	9.70	41.50	2.38	1.28	5.04	1.07
3a	546	5.29	0.33	1.80	2.66	3.90	0.89	12.10	0.11	27.90	59.70	11.00	58.30	5.67	5.13	0.66	10.50	41.40	2.38	1.07	5.46	1.02
3a	270	5.98	0.37	2.90	3.10	2.40	1.31	17.90	0.12	31.00	70.40	10.90	51.30	5.26	4.37	0.73	10.30	46.20	2.23	1.06	5.43	1.05
3a	620	5.52	0.36	2.10	2.91	3.40	0.96	15.50	0.09	28.50	59.30	12.40	51.80	5.09	5.29	0.71	11.10	53.80	2.78	1.37	6.50	1.04
3a	10	6.28	0.41	3.60	3.17	4.50	0.90	6.99	0.10	32.00	62.90	11.20	61.50	7.25	5.79	0.90	10.30	63.20	2.15	1.27	4.59	1.05
3a	89	5.95	0.38	2.30	3.34	6.50	1.07	9.26	0.15	31.80	68.90	13.10	56.60	7.13	5.32	0.87	10.10	49.10	2.67	1.53	4.91	1.12
3a	749	6.97	0.42	1.80	3.70	3.30	1.03	10.50	0.10	38.20	75.70	12.30	53.10	7.74	6.89	0.78	10.50	42.40	2.51	1.38	6.09	1.25
3b	84	7.44	0.46	3.20	3.78	4.60	1.13	16.60	0.14	38.30	89.50	14.10	60.20	6.07	5.13	0.99	12.40	48.50	2.44	1.32	5.44	1.37
3b	365	7.48	0.44	3.40	3.59	2.40	1.19	17.00	0.12	38.50	90.60	12.60	55.50	5.29	5.31	0.93	11.80	49.60	2.42	1.15	4.68	1.34
3b	154	7.10	0.44	2.70	3.53	3.40	1.04	15.40	0.12	40.40	82.50	12.30	58.10	6.20	4.23	0.84	12.20	37.40	2.81	1.28	6.11	1.28
3b	327	6.49	0.41	3.40	3.37	4.30	1.30	15.20	0.13	32.80	124.00	12.80	50.50	6.40	6.94	0.72	13.10	89.20	2.54	1.24	6.16	1.13
3b	338	7.12	0.41	2.70	3.54	3.40	0.85	14.20	0.11	38.00	132.00	12.10	42.00	6.24	6.51	0.81	10.80	79.90	2.39	1.34	7.55	1.35
3b	13	8.61	0.52	3.50	4.18	2.50	1.09	14.00	0.10	43.50	101.00	15.50	56.40	7.16	4.49	1.07	11.60	47.30	2.26	1.72	4.95	1.51
3b	271	8.39	0.55	2.40	4.83	3.10	1.01	12.50	0.09	41.00	111.00	13.10	48.00	7.67	3.99	1.19	9.40	40.20	2.08	1.67	6.74	1.58
3b - outliers	356	6.72	0.52	1.60	4.52	7.80	1.77	13.70	0.13	28.30	66.80	16.70	93.00	8.86	3.66	1.01	13.80	38.80	3.02	1.29	4.14	1.25
3b - outliers	751	5.49	0.40	1.40	3.22	4.70	1.15	13.10	0.13	29.10	72.20	17.70	63.10	11.60	4.39	0.63	10.10	70.20	2.61	1.29	5.54	1.04
3b - outliers	254	5.41	0.45	1.60	3.89	3.70	2.18	9.54	0.23	24.60	57.80	18.80	109.00	9.69	2.38	0.81	16.50	60.90	2.53	1.43	5.19	0.94
3b - outliers	535	5.08	0.35	2.10	2.81	3.00	1.03	11.80	0.35	29.70	59.60	11.10	51.10	5.41	4.11	0.68	10.70	51.60	2.40	1.21	4.88	0.98

Chemical Group	Sample No.	Sm	Lu	U	Yb	As	Sb	Ca	Na	La	Ce	Th	Cr	Hf	Cs	Tb	Sc	Rb	Fe	Ta	Co	Eu
3c	81	6.75	0.45	3.10	3.82	3.20	1.43	7.46	0.17	34.60	83.80	16.10	69.30	8.03	9.26	0.91	13.80	70.00	2.86	1.88	6.37	1.24
3c	88	7.78	0.56	5.90	4.42	7.50	1.16	8.32	0.16	36.80	82.80	16.70	68.70	8.95	6.73	1.04	13.60	75.60	2.72	1.88	5.52	1.26
3c	562	7.37	0.46	3.20	3.71	3.30	1.18	10.50	0.17	37.80	87.50	15.00	60.80	7.60	5.05	0.93	12.40	45.70	3.09	1.74	7.06	1.36
3c	74	7.91	0.48	3.70	4.19	4.30	1.41	8.97	0.10	39.10	94.60	17.20	72.70	7.40	7.25	1.08	14.80	44.90	3.71	2.03	8.51	1.46
3c - outlier	552	5.97	0.47	3.30	3.64	4.80	1.50	7.05	0.12	32.00	66.20	18.00	86.60	8.78	9.86	0.93	17.80	97.80	3.36	1.83	6.52	1.08
3c	7	5.53	0.53	3.20	4.10	10.00	1.28	4.78	0.14	30.80	61.30	14.10	63.70	9.46	5.45	0.93	13.80	82.80	2.95	1.57	5.24	0.96
3c	723	7.71	0.53	3.90	4.18	4.50	1.26	4.35	0.14	39.30	83.90	16.50	68.40	7.97	5.63	1.00	14.00	69.40	3.47	1.82	7.03	1.40
3d	333	8.68	0.49	2.20	4.41	3.00	1.03	10.90	0.12	40.40	191.00	13.80	37.90	8.21	5.24	0.98	8.97	61.60	2.05	1.87	5.89	1.61
3d	335	9.75	0.54	2.80	4.62	2.20	1.02	9.67	0.14	46.70	194.00	12.60	42.40	8.45	9.82	1.06	10.20	93.30	2.28	1.55	7.19	1.84
3d	99	9.11	0.46	2.30	4.26	4.60	1.06	13.60	0.13	53.80	109.00	14.30	50.10	6.42	13.10	1.04	9.70	50.40	2.03	2.05	5.83	1.64
3d	341	5.73	0.36	2.50	3.09	2.70	1.18	15.60	0.12	28.60	130.00	11.70	42.10	6.25	12.70	0.65	11.20	79.50	2.51	1.20	5.51	1.08
3d - outlier	47	10.10	0.55	1.20	4.78	2.30	0.70	19.80	0.11	54.90	54.20	8.80	71.20	5.06	4.01	1.27	7.64	32.60	2.02	0.70	8.56	2.10
3d - outlier	56	8.27	0.51	3.60	4.23	16.60	1.62	13.80	0.18	35.80	74.40	12.20	62.30	6.73	4.22	0.97	14.70	55.70	4.74	1.08	15.30	1.65
4a	540	4.58	0.34	3.00	2.56	4.40	1.02	17.30	0.12	22.90	51.40	12.30	62.60	5.03	7.04	0.65	13.00	65.50	2.30	1.02	4.27	0.79
4a	571	4.61	0.33	3.10	2.43	4.30	1.14	15.70	0.15	22.20	49.00	12.40	65.30	4.92	7.35	0.52	13.20	76.00	2.33	1.13	4.30	0.78
4a	156	4.57	0.33	3.80	2.30	7.20	1.08	15.50	0.13	20.80	47.50	12.00	67.60	4.58	8.70	0.59	14.00	92.50	2.50	1.00	3.80	0.80
4a	577	4.67	0.35	5.60	2.47	0.00	0.95	15.30	0.15	22.40	48.20	10.40	54.10	4.56	7.14	0.45	11.20	74.70	2.05	1.05	4.44	0.79
4a	542	4.02	0.30	2.50	2.30	4.30	0.99	16.40	0.16	20.50	48.70	12.00	58.50	5.17	6.27	0.89	12.10	72.70	2.63	1.07	5.06	0.71
4a	596	4.78	0.34	2.40	2.48	4.00	1.06	17.00	0.20	22.70	50.90	11.50	61.90	4.19	9.28	0.60	13.00	82.20	2.40	1.00	4.64	0.86
4a	537	4.44	0.36	4.50	2.66	4.60	1.13	15.30	0.10	20.70	45.80	12.60	69.20	4.58	8.55	0.63	15.20	89.80	2.67	1.10	5.06	0.74
4a	621	5.08	0.40	6.60	2.63	0.00	1.20	10.40	0.13	23.30	50.30	12.10	67.00	4.83	7.40	0.64	14.50	72.60	2.12	1.19	4.66	0.83

Chemical Group	Sample No.	Sm	Lu	U	Yb	As	Sb	Ca	Na	La	Ce	Th	Cr	Hf	Cs	Tb	Sc	Rb	Fe	Ta	Co	Eu
4b	76	4.57	0.35	9.60	2.21	2.40	0.94	16.90	0.11	20.50	44.20	9.10	52.70	4.43	6.67	0.51	10.80	76.10	1.97	0.91	4.47	0.70
4b	226	4.30	0.32	3.80	2.25	4.30	1.07	17.70	0.10	19.90	43.10	9.40	52.30	3.60	6.01	0.56	11.40	86.20	2.17	0.90	3.92	0.69
4b	752	4.07	0.31	5.10	2.24	3.90	0.85	18.90	0.10	17.90	39.80	10.40	56.80	4.04	5.93	0.45	12.20	69.10	1.91	0.96	3.02	0.71
4b	741	3.98	0.29	4.80	2.00	2.40	0.86	22.20	0.12	20.40	44.00	9.00	51.50	3.24	7.98	0.43	10.70	80.90	1.61	0.86	3.25	0.67
4b	558	3.94	0.28	3.30	2.13	4.50	1.01	18.10	0.21	19.20	42.20	10.80	59.00	4.08	6.99	0.51	12.50	74.40	2.34	0.97	3.68	0.73
4b	597	3.79	0.29	3.60	2.10	3.60	1.01	18.50	0.15	16.60	37.00	10.10	63.30	3.51	8.63	0.47	13.10	79.70	2.21	0.76	3.53	0.69
4c	276	5.59	0.32	1.30	2.75	0.00	0.86	22.50	0.12	30.30	68.20	8.20	45.60	3.88	3.79	0.78	8.42	47.60	1.67	0.78	4.17	1.00
4c	293	4.99	0.30	1.40	2.46	2.60	0.59	23.10	0.11	24.90	52.10	8.10	47.90	3.65	3.88	0.61	8.48	66.40	1.70	0.81	4.24	0.92
4c	165	4.95	0.34	3.40	2.64	2.90	1.03	16.30	0.11	25.50	56.80	11.30	54.50	4.91	5.02	0.50	9.63	59.90	2.04	1.06	3.86	0.88
4c	166	4.45	0.29	3.20	2.25	2.10	0.88	16.30	0.10	25.00	54.20	9.50	45.10	5.18	4.64	0.53	8.18	52.00	1.66	1.08	3.56	0.83
4c	164	5.15	0.35	2.60	2.94	2.80	0.92	19.80	0.08	27.70	62.40	11.00	47.00	5.76	3.84	0.59	8.57	35.40	1.86	1.37	4.74	0.91
4d	295	3.87	0.28	2.00	2.17	3.80	0.86	21.00	0.13	18.20	38.30	8.70	58.90	3.65	3.94	0.57	10.70	72.80	1.62	0.80	3.36	0.68
4d	402	3.92	0.27	1.90	2.18	0.00	1.00	21.50	0.09	18.80	42.90	9.00	58.30	3.98	3.62	0.49	10.30	44.20	1.76	0.73	3.88	0.68
4d	218	4.48	0.27	2.40	2.11	4.00	1.13	23.00	0.11	22.70	42.80	9.80	63.80	3.78	4.46	0.44	10.70	84.50	2.30	0.75	3.69	0.75
4d	296	3.77	0.27	2.00	2.04	5.70	1.44	20.50	0.13	18.10	37.10	8.60	55.90	3.50	4.96	0.51	10.40	99.20	2.32	0.77	4.50	0.69
4d	289	4.65	0.33	1.60	2.74	3.00	1.27	21.90	0.13	20.60	40.50	8.20	76.70	3.70	4.28	0.66	10.80	79.00	1.96	0.73	4.69	0.79
4d	290	4.25	0.28	1.60	2.31	0.00	0.95	22.60	0.18	21.40	45.50	8.70	64.20	3.76	4.33	0.52	10.30	70.50	1.79	0.79	5.01	0.79
4d	628	4.22	0.31	4.60	2.17	2.80	0.69	23.50	0.07	19.60	46.30	9.20	44.60	4.06	4.79	0.51	9.10	53.70	1.76	0.96	4.09	0.75
4d	710	4.14	0.28	1.40	2.31	6.60	1.16	26.40	0.08	21.30	41.30	7.80	57.50	2.97	4.47	0.60	9.24	44.80	2.78	0.70	5.69	0.73
4d - outlier	22	5.09	0.29	0.90	2.51	2.30	0.72	28.40	0.05	24.80	45.70	7.10	100.00	3.47	3.35	0.63	9.20	46.10	1.59	0.51	3.24	0.93
4d - outlier	116	4.88	0.30	0.90	2.59	2.50	0.89	26.40	0.11	25.20	41.30	6.90	121.00	3.88	4.99	0.62	9.26	38.40	1.88	0.53	4.81	0.93

Chemical Group	Sample No.	Sm	Lu	U	Yb	As	Sb	Ca	Na	La	Ce	Th	Cr	Hf	Cs	Tb	Sc	Rb	Fe	Ta	Co	Eu
4d - outlier	53	4.75	0.31	1.40	2.66	0.00	0.88	20.10	0.06	24.40	49.50	10.30	65.60	4.46	14.10	0.59	11.30	55.60	1.91	1.00	4.32	0.94
4e	24	5.24	0.31	1.60	2.54	4.80	1.44	23.10	0.07	29.10	59.00	7.80	41.80	3.66	2.72	0.65	8.74	27.80	2.25	0.77	5.70	0.97
4e	125	5.03	0.32	2.00	2.61	7.30	1.42	18.30	0.08	26.50	61.10	8.80	51.00	4.46	2.04	0.64	9.23	24.80	3.05	0.93	5.03	0.91
4e	136	4.07	0.27	1.90	2.20	5.30	1.12	21.50	0.06	22.70	62.80	7.80	44.00	3.93	1.85	0.51	8.08	23.70	2.27	0.91	4.60	0.78
4e	281	4.31	0.27	2.50	2.07	0.00	1.70	24.50	0.06	24.30	50.50	6.60	30.60	3.07	2.66	0.48	7.11	28.10	1.64	0.59	3.49	0.81
4e	401	5.16	0.30	2.00	2.43	3.90	1.50	23.90	0.08	28.50	62.40	7.80	38.40	3.31	2.25	0.62	8.84	31.60	1.65	0.74	2.93	0.95
4e - outlier	346	3.39	0.22	1.50	1.83	0.00	0.71	25.80	0.05	17.80	76.90	8.10	27.60	3.42	4.22	0.41	6.94	32.10	1.13	0.89	3.77	0.64
4e - outlier	23	5.71	0.37	2.20	3.04	13.20	0.86	20.20	0.03	29.80	71.00	10.50	46.30	5.57	2.78	0.76	8.94	9.00	1.60	1.28	4.00	1.16
4f	52	6.56	0.41	3.10	3.35	4.00	0.86	5.81	0.24	43.10	88.30	10.00	74.30	9.87	3.14	0.64	13.50	28.40	2.60	0.91	4.62	1.10
4f	117	6.65	0.45	3.20	3.52	4.50	0.85	6.24	0.25	44.00	83.60	10.40	70.60	9.60	3.08	0.68	14.90	29.30	2.94	0.87	4.40	1.12
4f	729	6.48	0.44	1.70	3.62	0.00	0.98	6.86	0.16	35.50	65.20	10.20	44.10	9.49	1.73	0.85	8.35	21.10	2.07	1.14	4.93	1.14
4f	48	7.77	0.44	1.90	3.83	4.70	0.97	12.50	0.23	45.60	77.00	9.80	39.00	6.50	2.50	1.00	7.85	26.20	1.81	1.00	3.67	1.41
4f	49	5.02	0.33	2.40	2.67	6.20	0.77	3.97	0.18	37.20	64.10	15.90	62.80	12.70	1.90	0.43	9.14	21.30	2.02	0.82	2.51	0.83
4f	118	11.50	0.46	3.40	3.66	4.50	1.10	4.32	0.37	56.90	119.00	13.20	78.10	11.90	3.16	1.15	15.10	41.50	3.03	1.10	5.55	2.13
4f - outlier	626	9.98	0.61	2.10	5.34	5.80	1.59	16.80	0.11	48.40	111.00	18.60	89.50	9.65	1.57	1.28	12.70	36.90	2.07	1.34	3.12	1.87
5a	216	2.46	0.26	1.80	2.01	2.30	0.93	9.78	0.19	14.70	30.60	10.20	35.50	8.33	2.82	0.40	8.37	39.60	1.76	1.12	4.85	0.41
5a	262	2.58	0.26	1.80	2.03	2.70	0.91	10.80	0.20	14.80	30.70	9.40	40.20	7.45	3.12	0.30	8.30	52.50	1.83	1.08	4.46	0.43
5a	200	2.89	0.27	2.10	2.11	0.00	1.02	11.70	0.12	18.40	37.10	10.90	42.20	8.19	3.41	0.34	9.08	33.70	1.88	1.31	5.42	0.49
5a	701	3.10	0.27	2.30	2.13	2.70	0.98	12.10	0.16	19.20	39.70	11.40	41.60	9.29	3.95	0.42	9.43	34.60	2.02	1.27	5.57	0.52
5a	240	2.91	0.25	1.80	1.95	3.60	0.93	13.70	0.16	16.80	36.50	11.30	38.50	6.81	3.78	0.48	8.91	37.20	1.86	1.16	6.10	0.51

Chemical Group	Sample No.	Sm	Lu	U	Yb	As	Sb	Ca	Na	La	Ce	Th	Cr	Hf	Cs	Tb	Sc	Rb	Fe	Ta	Co	Eu
5a	108	2.96	0.29	1.90	2.29	2.60	0.87	12.50	0.19	17.50	35.80	10.20	36.10	7.56	3.08	0.42	9.17	41.60	1.85	1.19	5.24	0.46
5a	202	2.88	0.29	1.90	2.18	2.60	0.97	13.30	0.14	17.90	30.30	9.80	39.50	7.56	3.62	0.42	8.87	29.70	1.92	1.10	4.67	0.49
5a	207	3.29	0.32	2.00	2.54	2.40	1.04	8.31	0.12	21.60	41.00	11.60	40.40	9.79	3.69	0.39	9.39	33.50	1.99	1.50	5.16	0.56
5a	256	2.82	0.29	2.00	2.33	0.00	1.05	7.88	0.13	18.10	36.60	11.50	45.00	8.86	3.26	0.41	9.19	39.50	1.95	1.31	5.39	0.45
5a	261	2.43	0.26	1.70	2.12	2.40	0.83	11.40	0.14	13.30	27.60	9.00	33.70	6.42	2.33	0.37	7.47	44.10	1.56	0.96	4.06	0.43
5a	268	2.34	0.23	1.50	1.91	2.60	1.05	13.00	0.13	13.60	29.40	8.70	36.00	6.57	3.30	0.41	8.42	48.40	1.76	0.98	4.23	0.41
5a	756	2.17	0.26	2.10	1.89	2.30	0.94	10.00	0.10	13.70	28.00	10.40	40.30	7.80	3.09	0.31	8.73	29.80	1.93	1.15	4.05	0.39
5a	144	2.53	0.27	1.80	2.05	2.70	1.02	4.42	0.15	15.50	32.70	10.60	47.30	9.24	3.13	0.33	8.77	35.10	1.99	1.33	4.50	0.47
5a	350	2.70	0.29	2.20	2.27	3.00	0.97	4.14	0.13	16.30	33.30	11.60	40.10	9.64	3.82	0.47	8.56	34.00	1.95	1.28	4.52	0.49
5a - outlier	259	3.49	0.31	1.90	2.62	2.20	1.03	4.61	0.15	22.30	43.20	12.50	44.80	9.62	3.36	0.47	10.20	54.70	2.16	1.34	5.15	0.55
5a	50	2.48	0.24	1.90	1.97	5.20	1.01	6.43	0.11	15.40	31.90	11.80	41.10	8.94	4.59	0.36	8.33	27.60	2.07	1.43	3.30	0.44
5a	110	2.76	0.26	2.00	1.99	2.90	0.92	7.47	0.13	15.40	34.10	10.00	35.50	9.03	3.58	0.35	7.08	24.80	1.66	1.18	3.75	0.48
5a - outlier	21	3.59	0.29	2.20	2.36	2.80	1.03	5.36	0.12	23.30	48.90	11.90	43.20	9.80	6.34	0.44	9.26	51.50	2.11	1.35	4.87	0.60
5a	32	2.39	0.21	1.70	1.73	2.80	0.92	13.30	0.16	14.30	29.00	9.70	36.60	6.77	6.91	0.27	8.41	34.70	1.86	1.08	3.85	0.41
5a	142	2.17	0.21	1.70	1.70	3.00	0.96	9.26	0.15	14.00	27.50	9.50	37.90	8.41	8.13	0.32	8.16	40.80	1.84	1.11	3.50	0.38
5a	45	2.29	0.19	1.30	1.42	1.80	0.86	13.00	0.10	13.20	31.50	9.70	47.90	5.78	5.13	0.35	7.91	34.30	2.15	0.86	3.38	0.48
5b	120	2.27	0.21	1.40	1.65	2.20	0.92	11.90	0.08	12.30	32.10	10.70	51.30	7.02	2.41	0.35	8.08	24.90	2.21	0.90	2.99	0.44
5b	124	2.37	0.21	1.40	1.70	0.00	0.89	12.70	0.06	12.60	32.00	10.50	51.60	7.61	2.89	0.32	7.82	17.50	2.23	0.89	2.84	0.42
5b	119	2.76	0.22	1.40	1.73	2.60	0.87	10.90	0.06	16.00	38.00	11.10	50.80	7.15	4.43	0.38	7.89	30.20	1.97	0.95	2.83	0.52
5b	127	2.98	0.23	1.70	1.83	0.00	1.07	8.97	0.08	14.00	40.10	11.90	57.50	7.44	2.26	0.38	9.04	29.00	2.39	1.06	3.39	0.55
5b	719	3.31	0.23	1.40	1.84	2.10	1.05	9.86	0.12	18.30	42.50	11.00	59.20	6.50	2.04	0.42	9.37	36.80	2.51	0.96	4.25	0.66

Chemical Group	Sample No.	Sm	Lu	U	Yb	As	Sb	Ca	Na	La	Ce	Th	Cr	Hf	Cs	Tb	Sc	Rb	Fe	Ta	Co	Eu
outlier	357	1.68	0.18	1.40	1.50	2.00	0.84	7.37	0.08	11.00	21.80	7.00	25.50	6.07	2.93	0.36	6.47	26.70	1.34	0.79	2.93	0.35
outlier	115	1.76	0.19	2.10	1.36	4.20	1.37	14.40	0.27	10.00	23.50	11.70	80.00	5.10	3.65	0.24	8.62	42.00	2.28	1.08	3.71	0.30
outlier	146	1.93	0.26	1.50	1.72	6.70	1.31	13.00	0.13	12.50	23.90	16.00	77.30	9.59	2.82	0.40	10.80	51.10	3.33	1.15	3.49	0.36
outlier	54	2.62	0.19	1.10	1.55	4.80	1.27	25.90	0.07	13.70	29.90	5.80	43.40	2.67	6.52	0.36	8.41	48.10	2.09	0.55	3.21	0.53
outlier	742	3.21	0.25	3.70	1.66	3.80	0.85	23.80	0.08	13.90	31.20	8.70	50.10	2.94	7.52	0.39	11.10	71.20	2.02	0.71	2.92	0.53
outlier	219	2.36	0.17	1.50	1.38	0.00	0.59	28.90	0.11	11.20	21.40	4.90	28.50	1.87	3.18	0.35	6.13	57.00	1.17	0.46	2.23	0.38
outlier	235	2.60	0.20	1.40	1.61	5.10	1.05	25.90	0.11	13.30	26.00	6.30	43.40	2.57	3.06	0.57	7.01	55.00	1.51	0.54	3.28	0.45
6a	278	4.10	0.31	0.90	2.81	1.60	1.32	21.40	0.14	17.70	43.80	11.70	65.10	5.63	1.16	0.55	9.84	32.80	1.49	0.90	2.80	0.77
6a	257	3.69	0.30	0.80	2.50	0.00	1.19	21.20	0.13	14.40	38.30	11.10	63.60	5.55	1.11	0.50	9.44	39.40	1.40	0.83	2.73	0.71
6a	263	3.96	0.29	0.90	2.59	1.90	1.33	21.70	0.12	18.00	43.00	10.70	61.00	5.32	0.94	0.54	9.17	31.60	1.44	0.81	2.42	0.72
6a	260	2.64	0.24	0.80	2.07	1.50	1.21	20.70	0.13	13.40	29.50	11.50	72.10	5.78	1.02	0.44	10.00	37.50	1.46	0.87	2.32	0.47
6a	318	2.75	0.26	0.70	2.19	1.30	1.15	23.40	0.12	11.90	28.10	9.70	58.20	4.94	1.18	0.40	8.38	39.10	1.31	0.79	2.47	0.49
6a	147	3.31	0.27	0.70	2.38	3.60	1.07	26.10	0.08	15.20	31.90	9.70	56.40	5.32	1.53	0.52	7.24	19.50	1.31	0.73	1.80	0.59
6a	249	3.44	0.22	0.60	1.98	1.70	0.99	26.20	0.08	14.90	36.80	8.50	48.50	4.08	0.85	0.51	7.14	31.10	1.11	0.66	1.92	0.60
6a	31	4.92	0.39	0.70	3.44	2.80	1.14	24.20	0.09	16.40	40.40	11.00	63.10	5.02	3.35	0.81	9.00	18.00	1.52	0.83	2.16	0.94
6a	93	3.96	0.33	0.80	2.98	2.00	1.15	23.10	0.12	15.00	37.90	11.90	70.60	6.25	2.16	0.67	9.81	29.20	1.50	0.94	2.48	0.74
6a	128	4.12	0.33	1.80	2.63	4.60	1.21	22.80	0.07	19.30	44.10	7.50	64.70	5.36	1.88	0.51	8.81	27.10	1.98	0.73	3.36	0.86
6a	707	3.96	0.31	1.60	2.44	2.30	1.03	23.20	0.09	19.00	45.30	7.00	37.30	4.90	1.43	0.57	8.87	29.20	1.84	0.68	3.34	0.80
6a	733	3.60	0.29	1.40	2.35	0.00	0.96	25.10	0.10	17.60	40.50	6.40	32.70	4.67	1.67	0.54	8.23	31.70	1.79	0.64	3.69	0.72
6a	308	4.00	0.27	1.40	2.21	0.00	1.14	21.30	0.13	20.50	38.40	7.60	42.50	3.83	1.43	0.45	9.13	47.50	1.98	0.82	3.56	0.76

Chemical Group	Sample No.	Sm	Lu	U	Yb	As	Sb	Ca	Na	La	Ce	Th	Cr	Hf	Cs	Tb	Sc	Rb	Fe	Ta	Co	Eu
6a	220	3.36	0.26	1.70	2.03	0.00	1.34	22.10	0.10	16.40	33.50	6.80	29.60	3.99	2.32	0.50	9.33	30.80	2.24	0.63	3.26	0.66
6a	112	3.61	0.28	1.40	2.34	0.00	0.99	23.50	0.06	17.00	39.80	6.80	35.70	4.46	1.62	0.47	8.26	23.40	1.85	0.69	2.59	0.75
6a	291	3.59	0.22	1.30	1.89	2.90	1.05	25.20	0.08	18.90	42.20	6.50	34.00	3.01	1.57	0.38	7.06	33.60	1.76	0.65	3.15	0.68
6a	251	2.67	0.22	1.30	1.85	3.60	1.20	23.00	0.10	13.90	28.80	7.20	29.50	4.17	1.37	0.36	8.50	23.20	2.08	0.56	3.52	0.48
6a	209	3.59	0.27	1.30	2.25	2.40	0.95	24.60	0.08	17.70	40.00	6.30	30.90	4.22	0.75	0.48	8.01	27.80	1.75	0.62	3.84	0.73
6a	126	3.54	0.28	1.30	2.21	3.30	1.14	23.60	0.07	18.50	44.40	8.70	31.00	6.71	1.11	0.44	6.46	17.70	1.72	0.76	2.00	0.69
6a	91	2.92	0.19	0.90	1.65	6.60	0.47	20.10	0.10	17.60	43.20	7.20	54.00	5.63	1.56	0.41	6.39	22.90	1.84	0.75	2.62	0.53
6a	738	2.85	0.23	1.90	1.87	2.50	0.48	19.60	0.10	14.40	28.80	6.10	40.50	4.86	2.74	0.39	6.51	38.00	1.60	0.58	2.20	0.55
6a	288	3.26	0.26	2.00	1.94	2.40	1.24	22.40	0.18	17.10	30.30	5.90	24.30	3.61	2.14	0.44	7.02	44.20	1.65	0.60	4.19	0.62
6a	278	2.71	0.19	1.20	1.59	2.10	0.91	27.90	0.06	13.50	32.40	5.20	30.60	2.97	0.95	0.33	6.23	23.60	1.33	0.54	2.33	0.54
6a - outlier	303	4.03	0.25	0.80	2.27	1.20	0.84	28.90	0.09	22.60	51.20	6.50	40.90	3.38	0.66	0.49	6.09	19.60	0.97	0.61	1.85	0.75
6a - outlier	614	4.00	0.18	0.90	1.55	4.30	0.45	28.50	0.14	22.60	51.10	5.70	36.20	3.70	0.70	0.45	4.78	12.30	1.38	0.57	1.70	0.74
6a - outlier	592	3.98	0.23	1.10	1.89	5.50	0.57	20.80	0.14	21.70	53.40	7.00	61.90	5.22	0.93	0.46	6.33	16.10	1.80	0.71	3.91	0.75
6a - outlier	612	3.76	0.23	0.90	2.00	4.30	0.47	27.20	0.23	19.00	71.80	6.70	47.20	4.49	0.80	0.49	6.36	10.70	1.46	0.60	2.35	0.66
6a - outlier	18	3.19	0.28	0.80	2.42	10.10	1.00	26.90	0.03	14.10	29.90	9.30	56.30	4.82	1.55	0.47	8.05	5.20	1.42	0.79	1.76	0.60
6a - outlier	716	3.28	0.16	0.90	1.23	6.00	0.61	19.60	0.03	14.70	34.00	9.70	37.10	5.09	0.90	0.36	5.83	4.00	1.51	0.64	2.66	0.52
6b	39	2.23	0.19	1.40	1.41	3.90	0.79	11.50	0.14	12.50	30.10	9.40	48.40	5.66	1.35	0.30	7.47	17.80	2.14	0.80	3.23	0.42
6b	40	2.04	0.18	1.30	1.45	1.80	0.76	11.50	0.13	11.80	28.50	9.30	44.90	5.78	0.96	0.25	7.09	31.10	1.83	0.77	2.36	0.41
6b	121	2.49	0.21	1.20	1.68	2.00	0.88	10.50	0.12	13.60	34.70	10.70	53.30	6.63	0.78	0.40	8.20	26.60	2.18	0.92	3.39	0.47
6b	422	1.89	0.18	1.30	1.40	3.50	0.84	18.80	0.09	9.40	25.80	10.10	74.10	4.79	1.33	0.27	7.63	18.00	2.08	0.70	4.12	0.32
6b	718	1.24	0.14	1.10	1.05	3.10	0.76	15.60	0.09	6.60	24.80	9.40	48.00	4.60	1.07	0.15	7.01	16.10	1.85	0.75	2.45	0.25

Chemical Group	Sample No.	Sm	Lu	U	Yb	As	Sb	Ca	Na	La	Ce	Th	Cr	Hf	Cs	Tb	Sc	Rb	Fe	Ta	Co	Eu
7	301	5.30	0.35	3.10	2.71	2.50	1.31	19.00	0.14	27.30	62.90	9.80	51.90	4.75	1.62	0.70	11.40	35.70	2.12	1.08	3.94	1.00
7	314	4.92	0.31	2.00	2.52	2.20	1.15	19.80	0.11	28.60	63.90	8.50	46.50	4.41	1.43	0.64	9.91	41.60	1.89	0.90	3.31	0.97
7	157	5.24	0.25	1.40	2.10	9.80	0.64	20.70	0.14	29.00	75.00	8.00	53.00	5.90	1.37	0.52	7.49	15.90	1.84	0.80	3.14	1.01
7	743	4.74	0.24	1.10	2.14	3.90	0.60	25.40	0.10	26.70	72.30	7.20	45.90	5.35	1.29	0.48	5.79	17.70	1.50	0.61	2.73	0.94
7 - outlier	152	6.44	0.26	1.20	2.23	5.40	0.54	23.30	0.13	36.50	92.40	7.40	59.20	5.38	1.63	0.78	6.71	25.60	1.70	0.81	2.24	1.25
7	609	5.53	0.28	1.40	2.50	8.60	0.62	16.10	0.13	28.60	76.20	9.30	67.70	6.80	0.93	0.62	7.81	14.30	2.25	0.94	2.69	1.00
7	286	6.20	0.40	2.30	3.27	2.10	1.12	24.50	0.09	31.80	71.20	7.50	41.30	4.11	1.21	0.79	8.36	17.70	1.61	0.80	4.26	1.13
7	305	7.25	0.44	2.40	3.71	1.90	1.03	20.20	0.14	36.10	79.10	8.00	38.70	5.24	1.08	0.94	8.25	26.50	1.65	0.93	3.41	1.39
7	315	5.43	0.32	1.70	2.71	2.00	1.03	22.00	0.15	30.00	68.10	7.60	38.50	4.28	1.74	0.68	8.21	33.80	1.60	0.83	5.60	1.06
7	252	5.33	0.34	1.30	2.99	2.20	1.35	19.80	0.13	23.80	58.30	12.10	75.90	6.93	2.21	0.78	10.70	49.70	1.51	0.95	2.71	0.97
7 - outlier	258	5.69	0.42	1.30	3.68	2.40	1.53	15.30	0.16	24.10	58.50	14.60	81.00	7.12	1.74	0.78	12.50	51.10	1.91	1.13	2.95	1.03
7	114	6.57	0.44	1.40	3.64	6.70	1.20	17.30	0.13	37.50	86.20	13.80	66.50	8.38	1.76	0.90	10.80	42.40	2.08	1.04	3.46	1.15
7	300	7.17	0.44	1.40	3.79	5.00	1.43	21.20	0.15	35.30	88.60	13.40	64.70	6.84	0.96	0.91	10.70	41.30	1.98	1.06	3.05	1.28
7 - outlier	447	7.58	0.36	1.30	3.23	4.20	0.52	18.50	0.26	41.30	99.90	8.80	68.30	8.46	1.19	0.83	7.07	10.40	1.96	0.84	2.47	1.56
7 - outlier	607	8.77	0.29	1.20	2.69	6.10	0.59	23.80	0.17	50.70	119.00	8.60	60.20	5.62	1.19	0.99	7.94	14.70	1.92	0.85	3.52	1.69
7	139	5.38	0.37	0.90	3.22	0.00	1.45	23.50	0.06	25.20	60.70	11.60	65.30	5.76	1.13	0.66	8.94	26.10	1.27	0.88	1.85	1.05
7 - outlier	321	3.07	0.29	1.20	2.43	5.20	1.21	16.40	0.12	16.70	67.80	15.30	46.50	8.93	1.44	0.44	10.30	44.20	2.79	1.09	4.23	0.56
7 - outlier	322	3.05	0.26	1.10	2.09	4.50	1.03	20.40	0.14	17.80	87.40	13.00	41.20	7.80	1.47	0.38	9.05	39.00	2.46	0.95	5.12	0.55
7	737	3.70	0.34	2.40	2.57	3.20	1.25	12.40	0.12	20.60	48.80	18.40	58.00	12.40	1.09	0.55	11.00	30.60	2.88	1.34	4.46	0.63
7	229	3.53	0.29	2.00	2.31	5.60	1.27	13.90	0.12	16.90	50.50	11.80	38.10	7.89	0.79	0.50	8.70	31.80	2.44	0.84	6.92	0.67
7	246	5.13	0.34	0.90	3.03	0.00	1.29	18.70	0.11	27.50	57.00	11.30	48.30	7.11	2.29	0.67	8.83	51.20	2.11	0.97	4.91	0.92
7 - outlier	319	3.89	0.30	1.30	2.62	5.80	1.10	18.20	0.14	22.80	40.80	13.50	54.50	7.54	1.45	0.56	8.88	57.90	2.50	1.02	4.85	0.73

Chemical Group	Sample No.	Sm	Lu	U	Yb	As	Sb	Ca	Na	La	Ce	Th	Cr	Hf	Cs	Tb	Sc	Rb	Fe	Ta	Co	Eu
outlier	19	4.80	0.36	1.40	3.06	3.50	1.62	19.30	0.42	20.10	64.10	13.70	72.40	6.14	1.17	0.67	11.60	22.60	2.07	1.18	2.69	0.84
outlier	702	23.90	0.49	2.40	4.75	0.00	0.68	17.10	0.10	102.00	628.00	10.70	46.10	6.18	1.81	1.62	9.46	17.50	1.29	0.72	4.17	4.06
outlier	705	21.70	0.41	2.10	3.99	3.10	0.66	19.00	0.11	90.50	539.00	9.90	42.50	5.77	2.13	1.48	8.67	19.10	1.17	0.72	4.00	3.58
outlier	709	13.70	0.30	1.20	2.84	2.70	0.82	17.10	0.10	71.00	180.00	6.70	30.80	4.81	0.83	0.99	6.61	30.60	1.57	0.71	4.94	2.32

APPENDIX VII
PLATES

Plate VII.1: Arial view of Lamanai looking northwest with the New River Lagoon in the foreground and N10-43, a large ceremonial structure, in the background.

Plate VII.2: Arial view of the central precinct at Lamanai looking southwest, showing forest cover and areas cleared for tourist viewing (N10-43 plaza group).

Plate VII.3: North-south trench looking south showing black clayey topsoil containing occupation debris overlying olive grey clay, which grades into light brown to white clay. Note the ferromanagiferous stains in the lower trench profile.

Plate VII.4: North-south trench profile showing lowest horizon containing limestone at various stages of weathering and a large limestone nodule (foreground).

Plate VII.5: Samples of local limestone and sascab; a) Cretaceous limestone with ferromanganiferous veins; b) cream-coloured Cretaceous limestone; c) sascab (soft limestone); d) sascab with ferromanganiferous veins and inclusions of finely-crystalline calcite.

Plate VII.6: Outcrop of Cretaceous limestone at Lamanai at the edge of the New River Lagoon.

Plate VII.7: Outcrop of sascab situated west of Indian Church Village.

Plate VII.8: Quarried block of sascab, solidified after exposure to sun and air.

Plate VII.9: Photograph of east section of north-south trench through structure N10-12 in area of central access of OttawaGroup elite residential and administrative complex showing core fill comprised of nodules of Cretaeous limestone overlying an infilled building with cut facing stones of soft limestone (lithified sascab) on its exterior.

Plate VII.10: Area of fresh water swamp east of the New River Lagoon.

Plate VII.11: Inland area of Pine Ridge Savannah east of the New River Lagoon underlain by Pleistocene alluvium.

Plate VII.12: Clay sampling in the area south of structure N10-9. Pink flags mark the locations of the test pits.

Plate VII.13: Excavation unit 3 in the 'Harbour' area, from which clay sample THAR2 was taken.

Plate VII.14: Water hole at Raul Arevalo's milpa, from which samples MIL26 and MIL27 were taken.

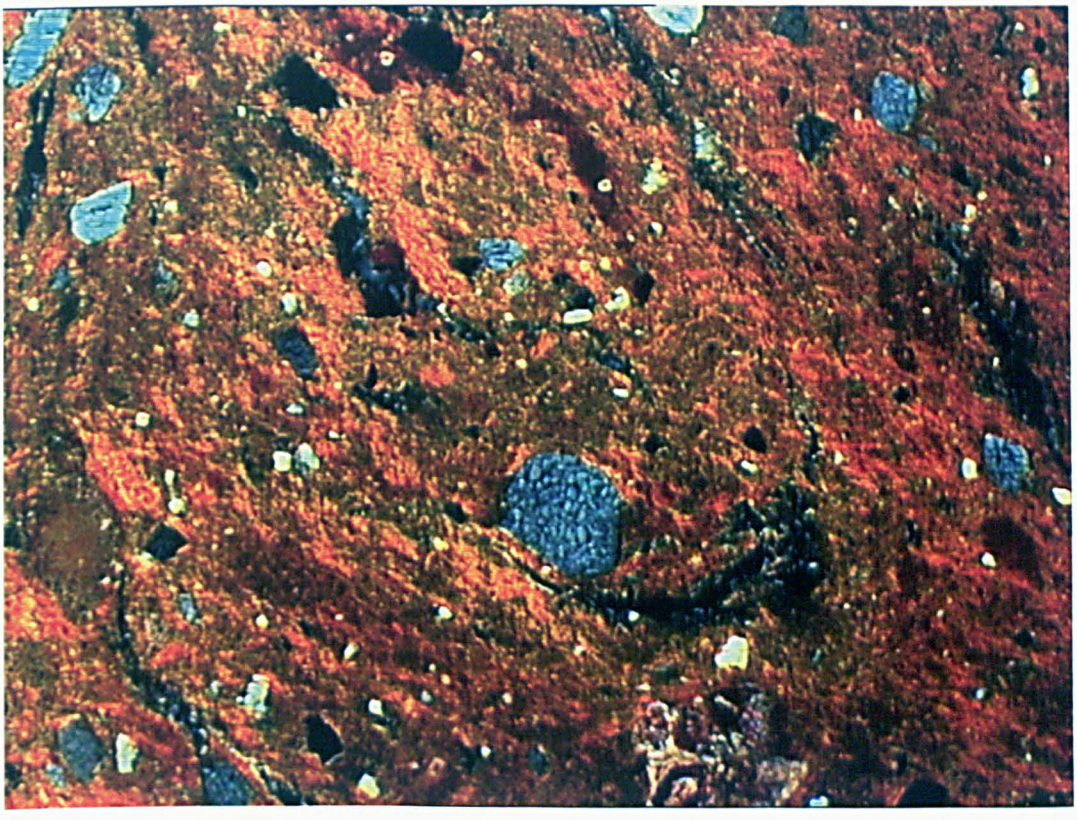


Plate VII.15: Photomicrograph of fired clay sample (TCTT1) deriving from the subsurface clay horizon within the area of Yalbac soils (x25) showing typical features.

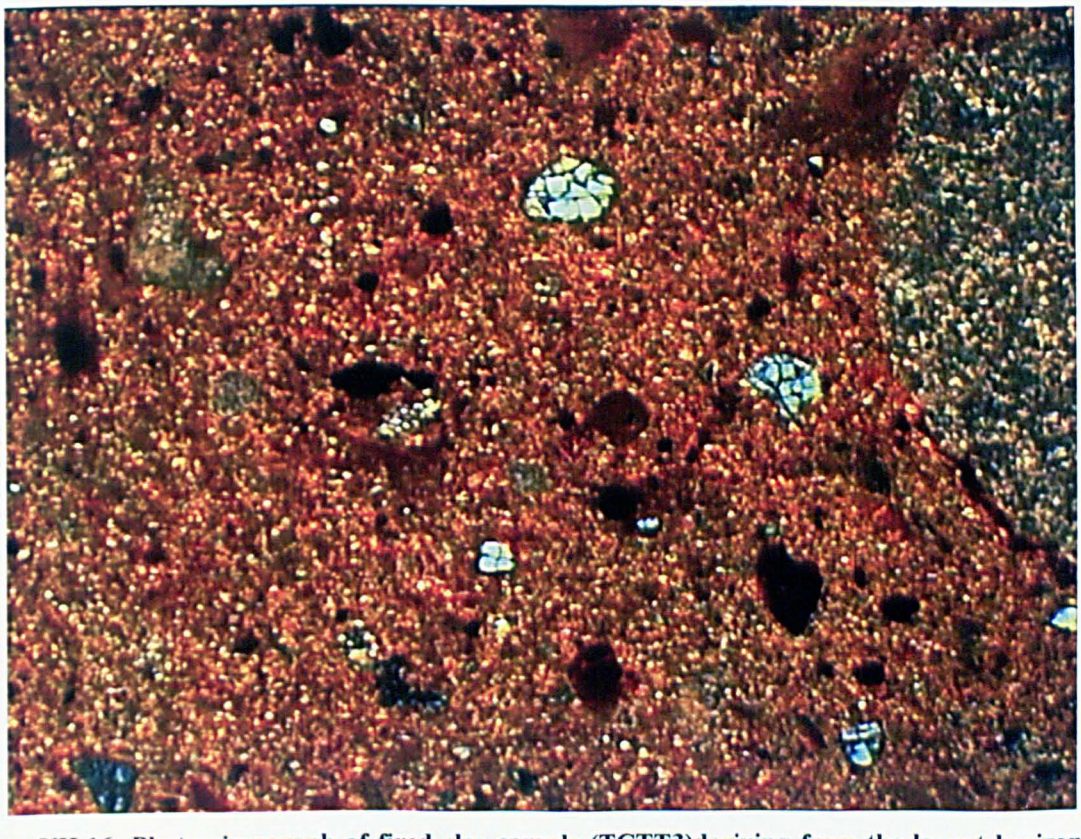


Plate VII.16: Photomicrograph of fired clay sample (TCTT3)deriving from the lowest horizon of the north-south trench profile containing weathered limestone (x25).

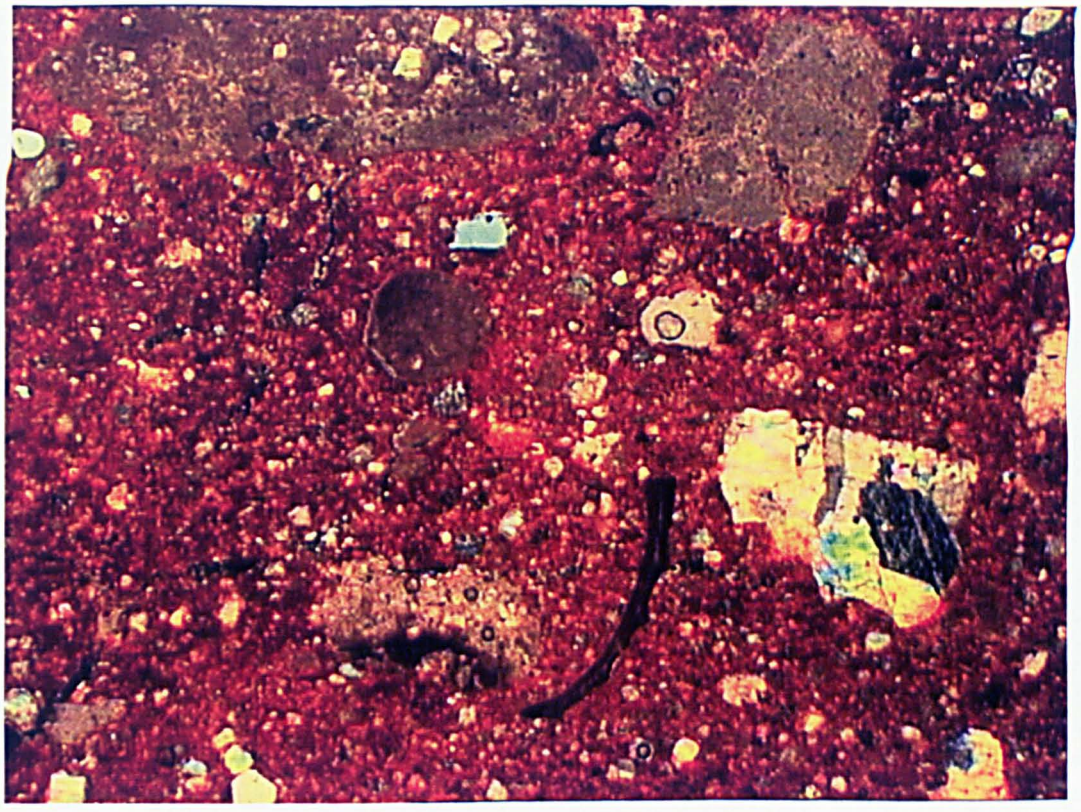


Plate VII.17: Photomicrograph of fired clay sample (N HAR) from the 'Harbour' area containing dominant calcite inclusions and shell fragments (x25).

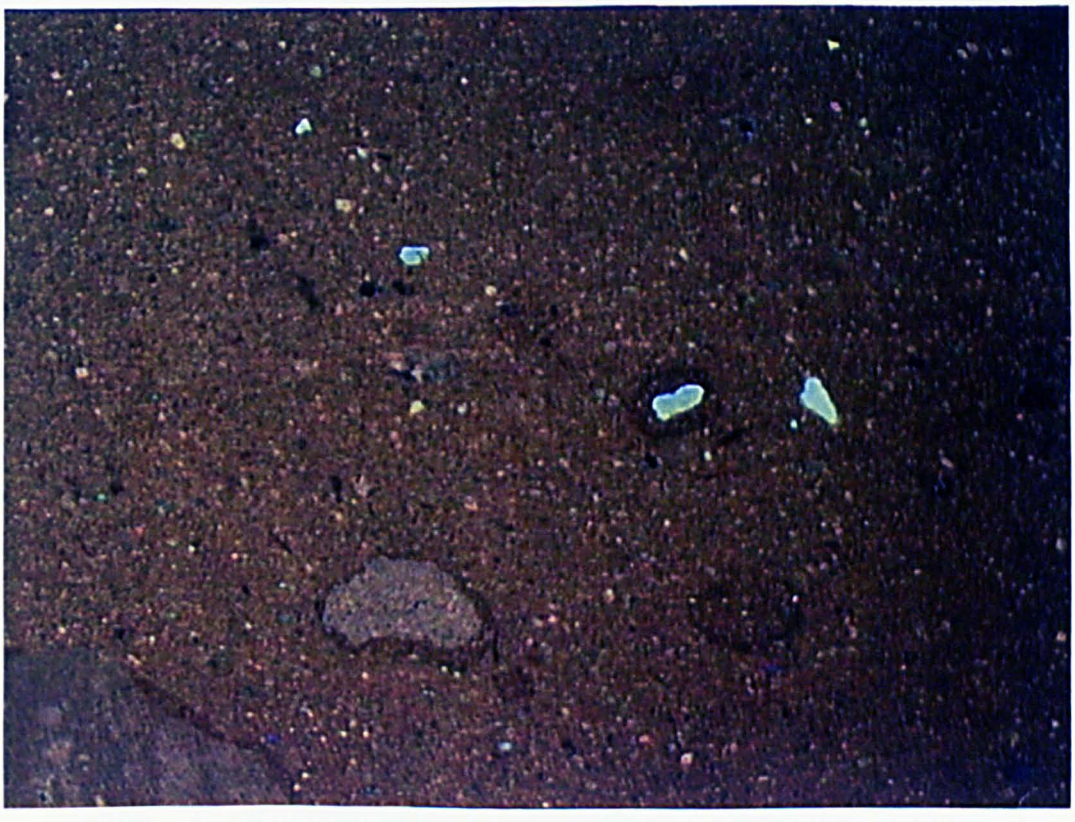


Plate VII.18: Photomicrograph of T HAR2 (fired) showing fewer aplastic inclusions (x25).

Plate VII.19: Clay deposit on the north bank of Dawson Creek, 100m upstream from the New River Lagoon.

Plate VII.20: Clay deposit on the north bank of the unnamed stream north of Dawson Creek, 100m upstream from the New River Lagoon.

Plate VII.21: Clay deposit on the west bank of the New River at Bar Mouth.

Plate VII.22: Clay deposit on the west bank of Barber Creek.

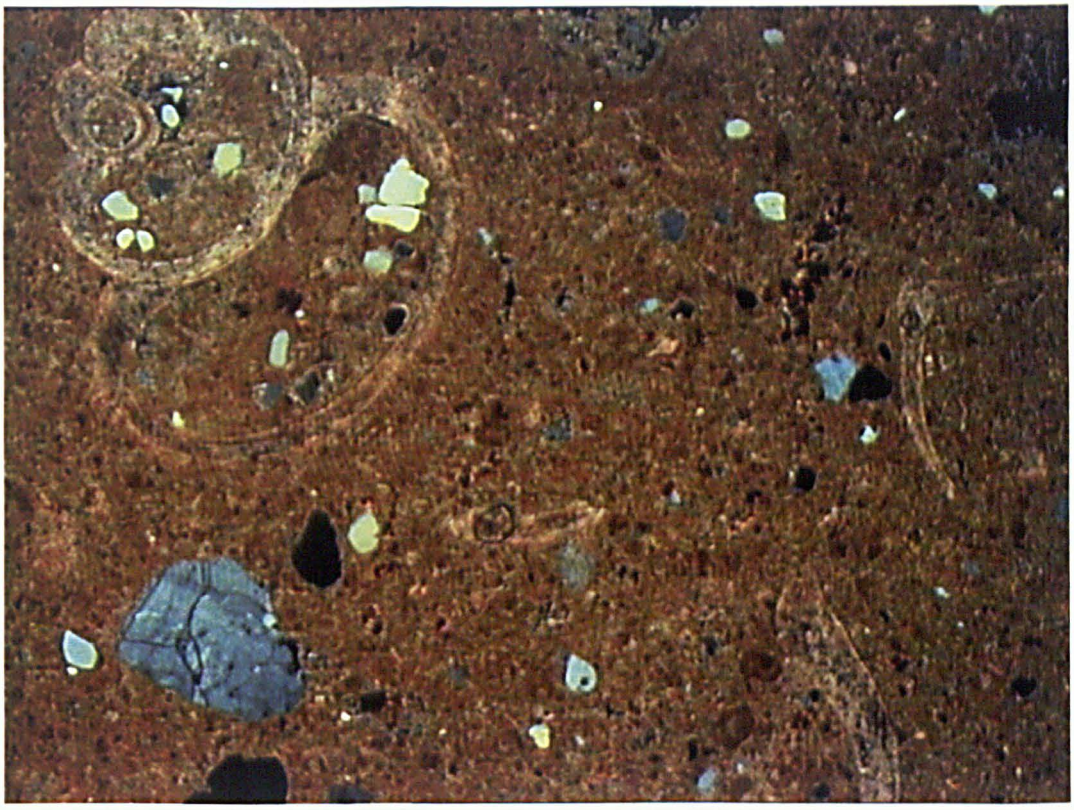


Plate VII.23: Photomicrograph of fired clay sample from the deposit at Bar Mouth (BM2) showing a micritic matrix with inclusions of quartz and shell (x25).

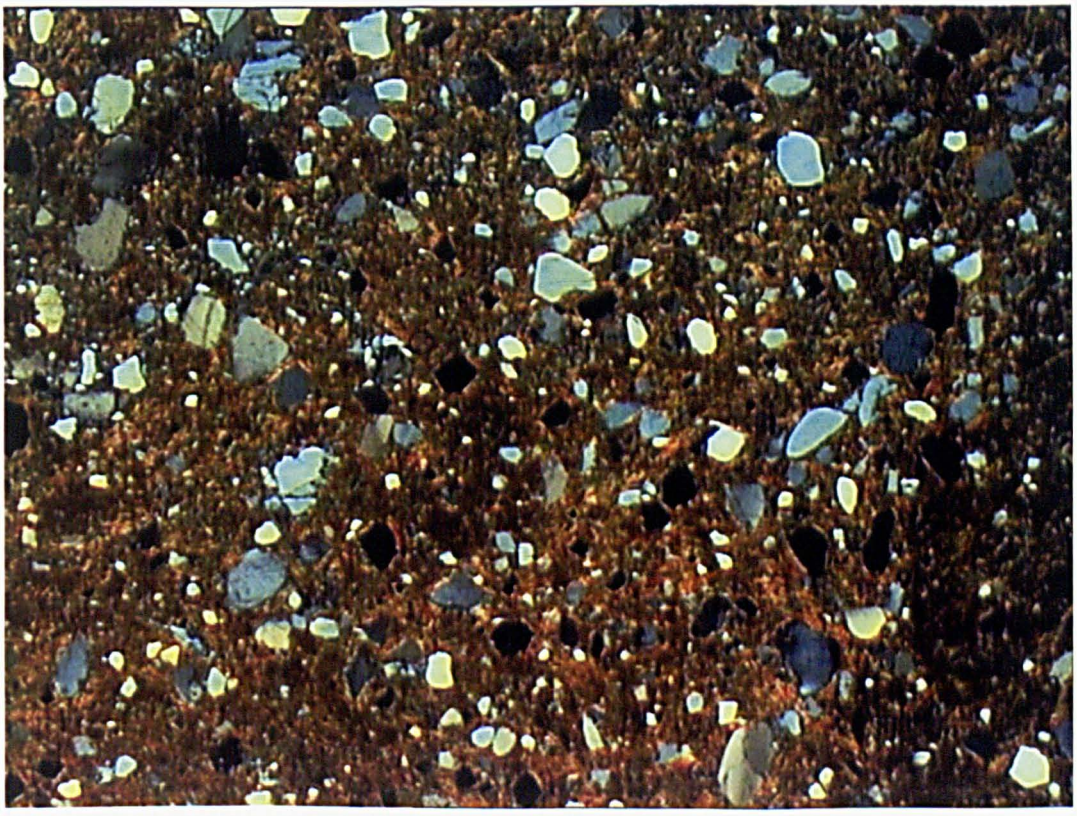


Plate VII.24: Photomicrograph of the clay sample from Barber Creek (BC) showing a micritic matrix with well sorted, rounded to subrounded inclusions of quartz (x25).

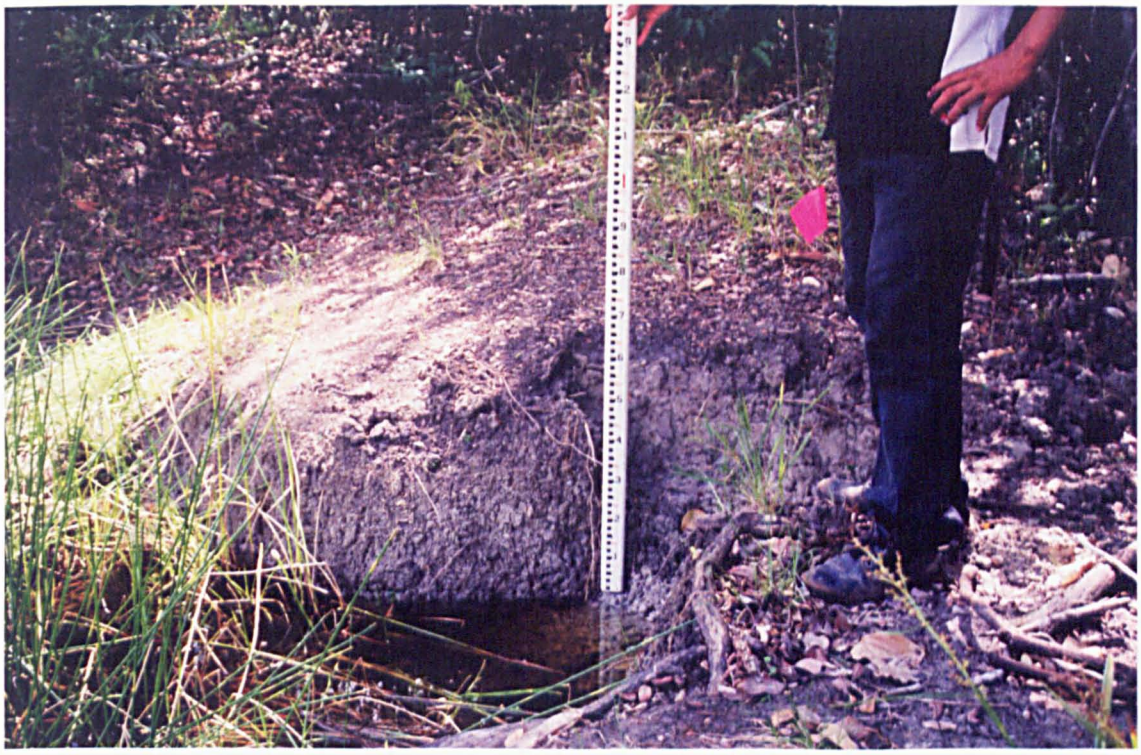


Plate VII.25: Clay deposit on the south bank of Dawson Creek, 1km upstream from the New River Lagoon, within in the area of Boom soils.

Plate VII.26: Area of clay sampling situated 50m south and inland from the Dawson Creek deposit , within the area of Boom soils.

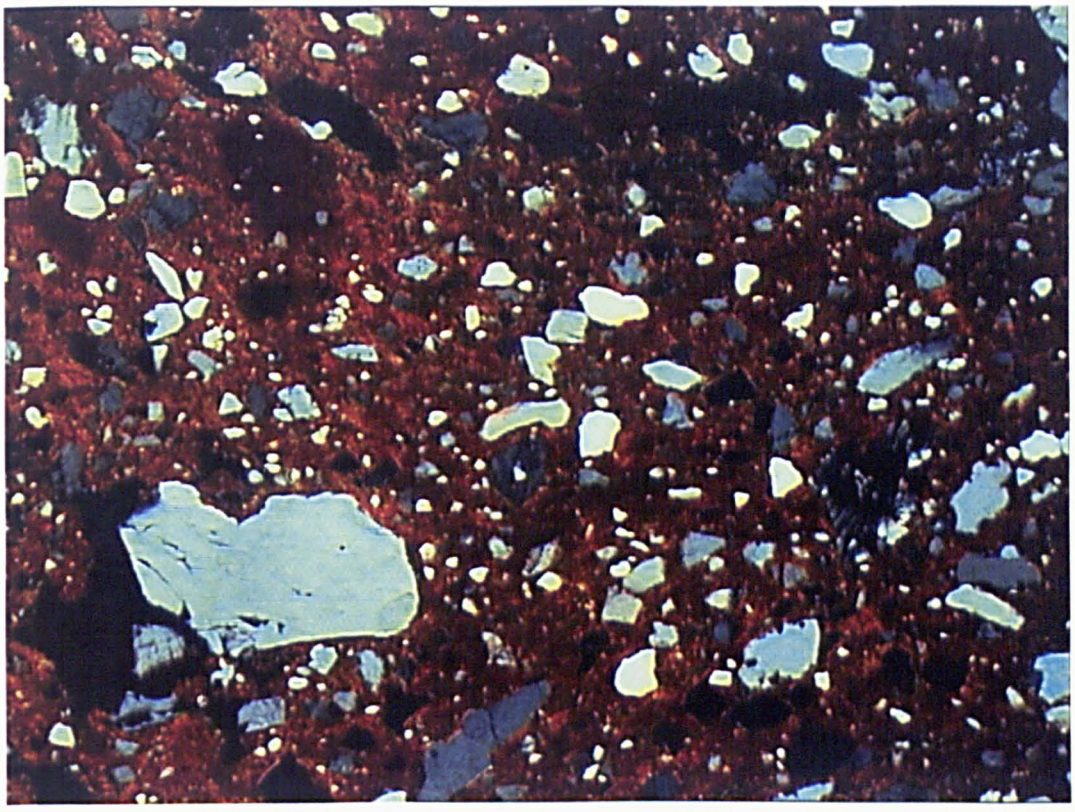


Plate VII.27: Photomicrograph of a fired clay sample from the inland area of Boom soils (DSV1) showing a non-calcareous matrix with predominant inclusions of quartz (x25).

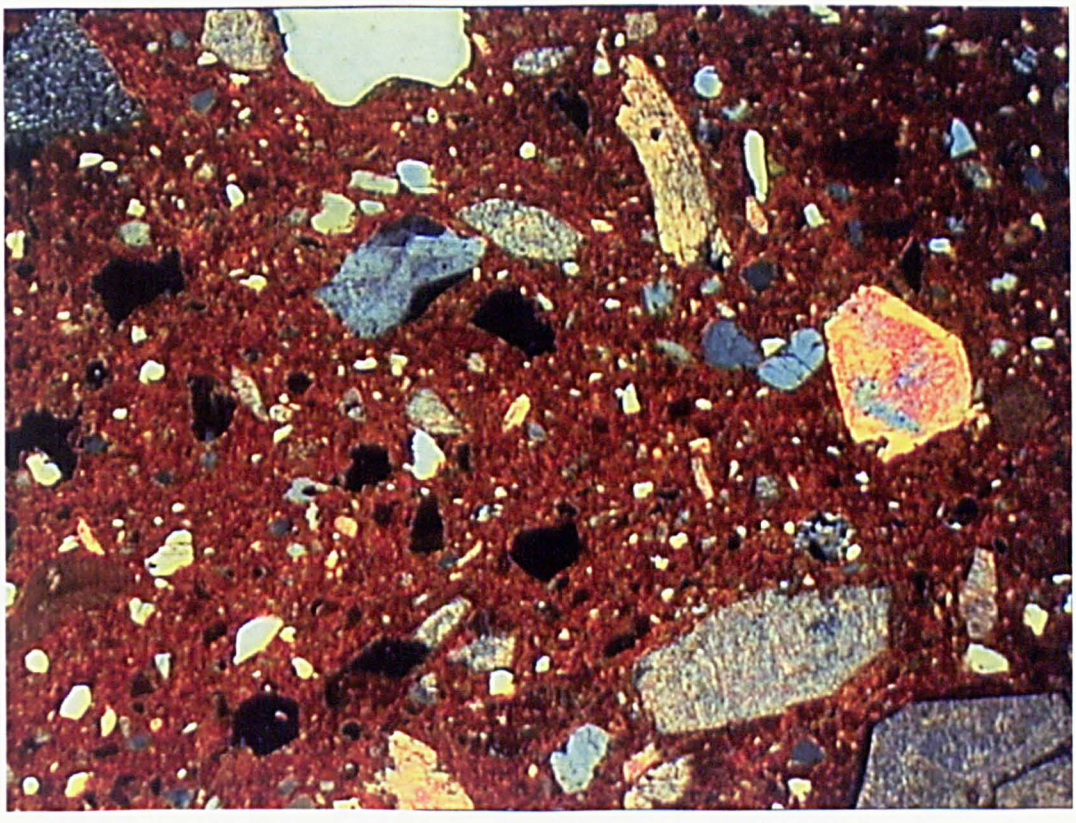


Plate VII.28: Photomicrograph of sample DSV3 taken from a depth of 1m at the inland at the inland location within the area of Boom soils (DSV1) showing inclusions of gypsum (x25).

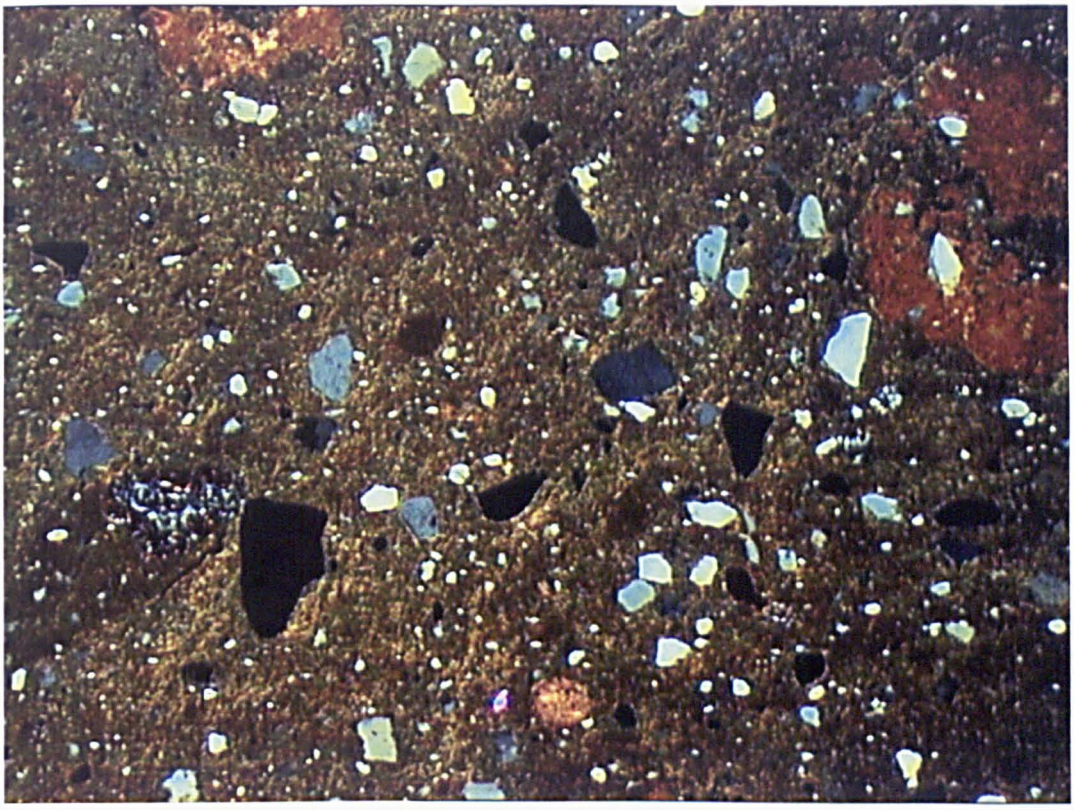


Plate VII.29: Photomicrograph of a fired clay sample from the Dawson Creek deposit within the area of Boom soils (DC1) showing a non-calcareous matrix with inclusions of micrite and fewer siliceous inclusions (x25).

Plate VII.30: Structure N10-9. The midden originally abutted the left side of the lowest terrace face.

Plate VII.31: Excavation of the midden at structure N10-9 by the Lamanai Archaeological Project Field School (facing north east).

Plate VII.32: Close up of the midden fill showing a black, highly organic matrix containing large fragments of pottery vessels and faunal remains. Note how the greasy textured soil adheres to the artifacts.

Plate VII.33: Structure N10-27.

Plate VII.34: A replica of the stela discovered at the base of the central stair of structure N10-27.

Plate VII.35: Excavations of the midden deposit situated at the south front of structure N10-27 (undertaken by Graham in 2000).

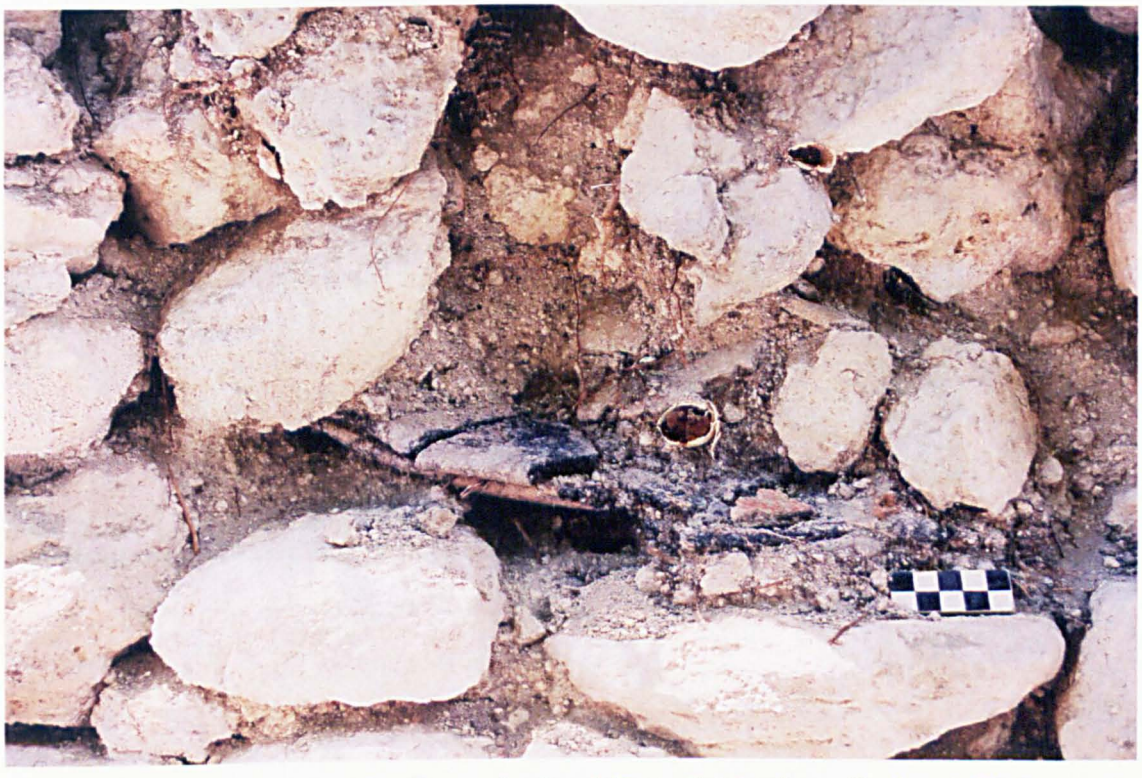


Plate VII.36: A 'lip to lip' cache (2 vessels placed lip to lip) in the wall of an infilled room in structure N10-12 of the Ottawa Group elite residential and administrative complex.

Plate VII.37: A burial interred beneath the floor of structure N10-12 of the Ottawa Group containing smashed Early Postclassic pottery.

Plate VII.38: Polychrome rounded dishes.

Plate VII.39: Polychrome composite silhouette bowls.

Plate VII.40: top row - polychrome tripod bowl with slab feet, polychrome deep bowl or tripod bowl, polychrome vase; bottom row - monochrome orange groove-incised vase, polychrome vase, polychrome vase

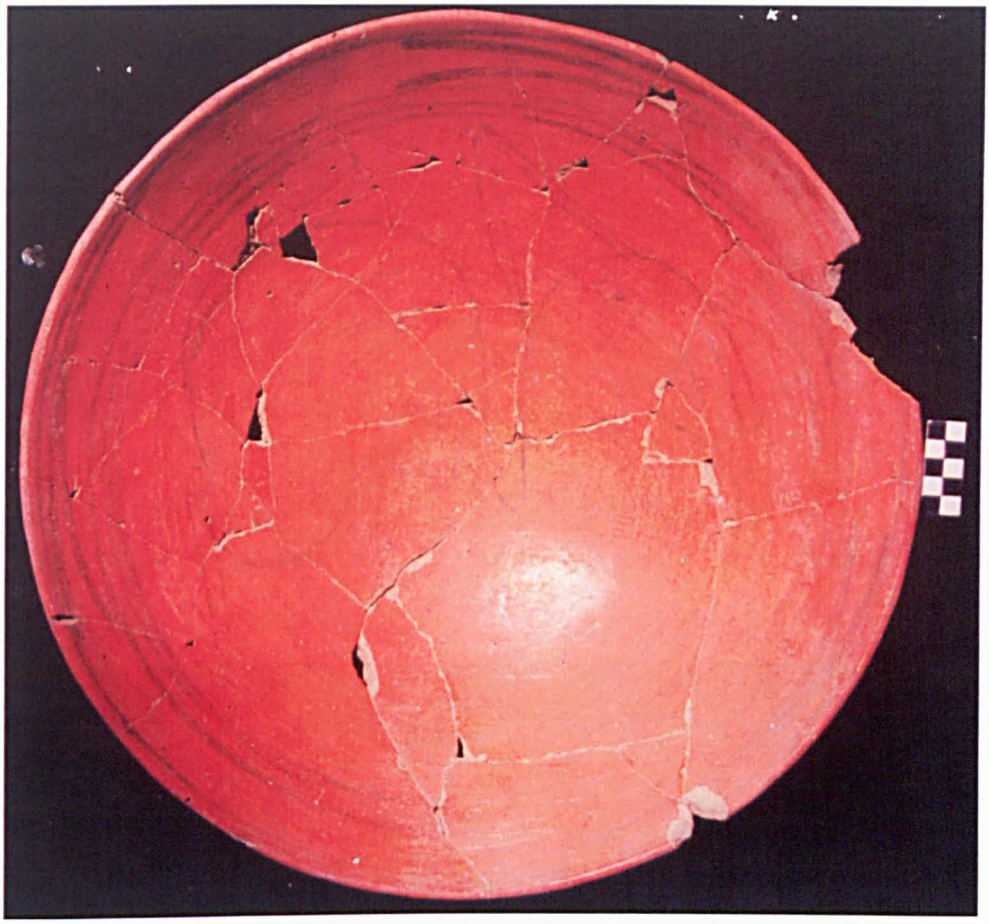


Plate VII.41: Black on Red rounded dish.

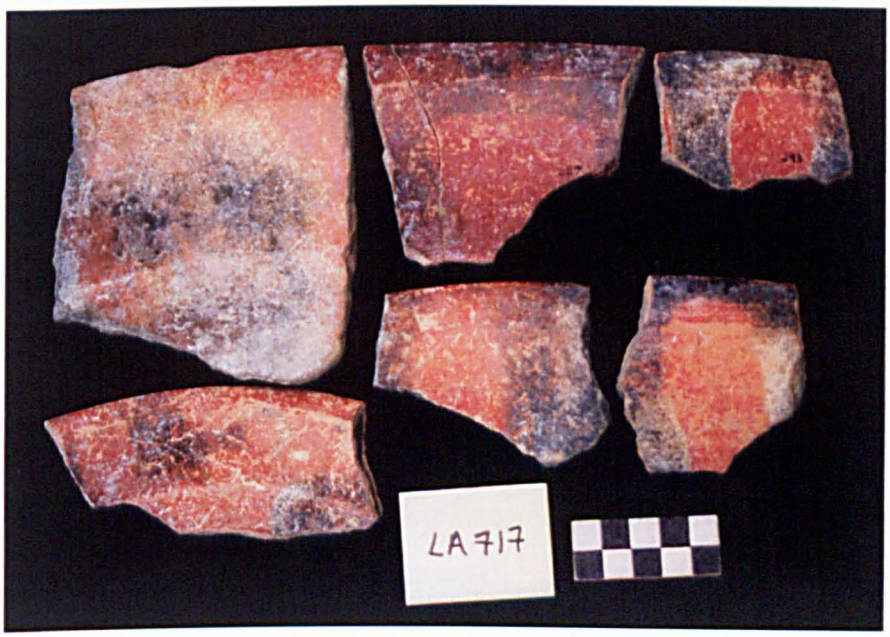


Plate VII.42: Red-Orange-Black Resist composite silhouette dishes.

Plate VII.43: Monochrome Black vase fragments with incised, punctate and gouge-incised decoration.

Plate VII.44: Monochrome Black flaring and out-curving bowl fragments

Plate VII.45: Monochrome Red Slipped rounded bowl.

Plate VII.46: Monochrome Red Slipped flaring bowl.

Plate VII.47: Monochrome Red Slipped composite silhouette dishes.

Plate VII.48: Monochrome Red Slipped jars (rim to neck fragments) with flaring and horizontal everted rims.

Plate VII.49: Monochrome Red Slipped and Monochrome Orange Slipped (centre) 'interior-slipped' dishes. Sherd on the right shows exterior view.

Plate VII.50: Monochrome Red and Monochrome Orange Slipped 'interior-slipped' bowl; all are exterior surfaces except bottom right which shows the interior surface

Plate VII.51: Monochrome Orange Slipped bowls: rounded, rounded, composite silhouette, flaring (from left to right).

Plate VII.52: Monochrome Red Slipped and Monochrome Orange Slipped jars.

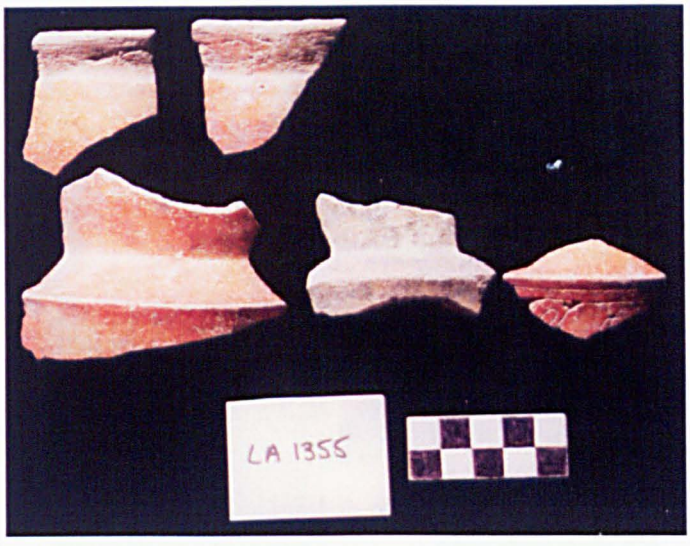


Plate VII.53: Monochrome Orange Slipped and Monochrome Orange Slipped and Incised drum fragments.

Plate VII.54: Monochrome Orange Slipped and Monochrome Orange Slipped and Incised "neckless" jars (centre and right top) and jars with low flaring necks (left top and bottom).

Plate VII.55: Monochrome Orange Slipped composite silhouette dish (left) and chalice (right).

Plate VII.56: Monochrome Orange Slipped and Incised out-curving (top row and far left sherd in bottom row) and rounded bowls.

Plate VII.57: Monochrome Orange Slipped and Incised tripod bowls with a segmented basal flange.

Plate VII.58: Monochrome Orange Slipped and Incised and Monochrome Orange Slipped (last two in bottom row) chalice base fragments.

Plate VII.59: Monochrome Orange Slipped and Incised pedestal-based jar.

Plate VII.60: Monochrome Orange to Red Slipped –Notched and Incised bowls.

Plate VII.61: Monochrome Orange with Appliqué bowls.

Plate VII.62: Monochrome Red Slipped and Notched very large bowl.

Plate VII.63: Slipped Rim/Lip-Smoothed Body jars (rim to neck fragments).

Plate VII.64: Slipped Rim/Lip-Smoothed Body jars (rim to neck fragments), slip is confined to the lip area of the exterior surface (bottom right shows the slipped interior surface of the neck area).

Plate VII.65: Red-Brown-Striated Jar.

Plate VII.66: Unslipped/Smoothed-Perforated incense burners

Plate VII.67: Unslipped/Smoothed-Buff jars with bolster rims(top) and direct rims(bottom).

Plate VII.68: Plates/lids: top row – Unslipped/Smoothed-Buff, Monochrome Orange Slipped, Unslipped/Smoothed-Buff; bottom row – Unslipped utilitarian.

Plate VII.69: Unslipped Utilitarian jars.

APPENDIX VIII
RECONSTRUCTED VESSELS INCLUDED IN THE STUDY AND THEIR ARCHAEOLOGICAL CONTEXTS

Petrographic Sample Number	Vessel Number	Surface Treatment	Form	Provenance	Archaeological Context
107	LA13/5	Monochrome Orange Slipped and Incised (appliqué anthropomorphic head on body)	tetrapod bowl	Burial N10-1/1	Ceremonial structure (very small platform, uncertain use)
95	LA13/6	Monochrome Orange Slipped	tripod bowl, rounded	Burial N10-1/1	Ceremonial structure (very small platform, uncertain use)
87	LA13/7	Monochrome Orange Slipped and Incised	tripod bowl with a segmented basal flange	Burial N10-1/1	Ceremonial structure (very small platform, uncertain use)
88	LA13/8	Monochrome Orange Slipped and Incised	tripod bowl with a segmented basal flange	Burial N10-1/1	Ceremonial structure (very small platform, uncertain use)
89	LA13/9	Monochrome Orange Slipped and Incised	tripod bowl with a segmented basal flange	Burial N10-1/1	Ceremonial structure (very small platform, uncertain use)
94	LA13/12	Monochrome Orange Slipped	tripod bowl, out-curving	Burial N10-1/1	Ceremonial structure (very small platform, uncertain use)
97	LA13/14	Monochrome Orange Slipped	tripod bowl, rounded	Burial N10-1/1	Ceremonial structure (very small platform, uncertain use)
92	LA62/71	Monochrome Orange Slipped	tripod bowl, rounded	Midden west of Buk	Refuse deposit associated with a ceremonial structure (temple)
3	LA68/1	Monochrome Orange Slipped and Incised	chile grinder (molcajete or grater bowl)	Burial N10-4/2	Residential structure
66	LA68/4	Monochrome Orange Slipped and Incised	bowl, rounded	Burial N10-4/2	Residential structure
64	LA68/6	Monochrome Orange Slipped and Incised	composite silhouette bowl	Burial N10-4/2	Residential structure
103	LA69/3	Monochrome Orange Slipped and Incised (appliqué bird head on shoulder)	jar, globular to slightly maliform, vertical neck, flaring rim	Burial N10-4/3	Residential structure

Petrographic Sample Number	Vessel Number	Surface Treatment	Form	Provenance	Archaeological Context
152	LA71/1	Monochrome Orange Slipped	drum, single ovoid chamber	Burial N10-4/5	Residential structure
77	LA72/3	Monochrome Orange Slipped and Incised (piercework)	chalice	Burial N10-4/9	Residential structure
1	LA72/4	Monochrome Orange Slipped and Incised	bowl, ou-tcurving	Burial N10-4/9	Residential structure
106	LA75/1	Monochrome Orange Slipped	jar, globular to slightly maliform, low out-curving neck	Burial N10-4/12	Residential structure
80	LA75/2	Monochrome Orange Slipped and Incised	chalice	Burial N10-4/12	Residential structure
63	LA76/2	Monochrome Orange Slipped	bowl, rounded	Burial N10-4/13	Residential structure
157	LA 77/1	Monochrome Orange Slipped and Incised	tripod or tetrapod stand with a segmented basal flange	Burial N10-4/14	Residential structure
91	LA82/1	Monochrome Orange Slipped	tripod dish, rounded	Burial N10-4/20	Residential structure
5	LA92/2	Monochrome Orange Slipped and Incised	chile grinder (molcajete or grater bowl)	Burial N10-4/30	Residential structure
71	LA95/6	Monochrome Orange Slipped and Incised	Pedestal-based jar (censer)	Burial N10-7/1	Ceremonial structure (large structure)
62	LA95/7	Monochrome Orange Slipped and Incised	bowl, out-curving	Burial N10-7/1	Ceremonial structure (large structure)
155	LA102/3	Monochrome Orange Slipped and Incised	drum, bell chamber, flaring everted rim	Burial N10-7/2	Ceremonial structure (large structure)
13	LA102/4	Monochrome Orange Slipped	tripod bowl, out-curving	Burial N10-7/2	Ceremonial structure (large structure)
26	LA105/1	Monochrome Red Slipped (interior slipped)	composite silhouette dish	Cache N10-7/1	Ceremonial structure (large structure)
59	LA107/3	Monochrome Orange Slipped and Incised	bowl, out-curving	Isolated find atop floor of 'Gom', N10-2	Residential/administrative structure

Petrographic Sample Number	Vessel Number	Surface Treatment	Form	Provenance	Archaeological Context
56	LA115/33	Monochrome Red Slipped and Model-Carved	bowl, flaring	Isolated find in 'Gom' core, N10-2	Residential/administrative structure
73	LA122/2	Monochrome Orange Slipped	composite silhouette bowl with a pedestal base	Burial N10-2/18	Residential/administrative structure
156	LA123/1	Monochrome Orange Slipped	composite vessel	Burial N10-2/19	Residential/administrative structure
70	LA123/5	Monochrome Orange Slipped and Incised	bowl, out-curving	Burial N10-2/19	Residential/administrative structure
135	LA124/1	Monochrome Orange Slipped and Incised (notches and appliqué impressed fillet)	composite silhouette dish	Isolated find in camp garbage pit#3, depth ca. 55cm	Miscellaneous
86	LA127/2	Monochrome Orange Slipped and Incised	tripod bowl with a segmented basal flange	Burial N10-2/20	Residential/administrative structure
69	LA127/3	Monochrome Orange Slipped and Incised	bowl, out-curving	Burial N10-2/20	Residential/administrative structure
85	LA127/5	Monochrome Orange Slipped and Incised	tripod bowl with a segmented basal flange	Burial N10-2/20	Residential/administrative structure
82	LA127/6	Monochrome Orange Slipped and Incised	tripod bowl with a segmented basal flange	Burial N10-2/20	Residential/administrative structure
150	LA131/3	Monochrome Orange Slipped	drum, double chamber	Burial N10-2/23	Residential/administrative structure
151	LA131/4	Monochrome Orange Slipped	drum, double chamber	Burial N10-2/23	Residential/administrative structure
102	LA133/1	Monochrome Orange Slipped	jar, globular, low flaring neck, strap handles	Burial N10-4/41	Residential structure
83	LA135/2	Monochrome Orange Slipped and Incised	tripod bowl with a segmented basal flange	Isolated find in core, N10-2 stair, below 'Xloc'	Residential/administrative structure

Petrographic Sample Number	Vessel Number	Surface Treatment	Form	Provenance	Archaeological Context
74	LA149/1	Monochrome Orange Slipped and Incised (piercework)	chalice	Burial N10-2/33	Residential/administrative structure
61	LA155/1	Monochrome Orange Slipped	bowl, rounded	Isolated find - sherd feature 3, N10-2	Residential/administrative structure
111	LA166/7	Polychrome Slipped and Painted (interior slipped)	dish, rounded, incipient ring base	Burial N10-7/3	Ceremonial structure (large structure)
99	LA176/1	Monochrome Orange Slipped	tripod dish, out-curving	Burial N10-2/45	Residential/administrative structure
84	LA176/2	Monochrome Orange Slipped and Incised	tripod dish, out-curving with a basal ridge	Burial N10-2/45	Residential/administrative structure
68	LA176/3	Monochrome Orange Slipped and Incised	bowl, rounded	Burial N10-2/45	Residential/administrative structure
4	LA198/2	Monochrome Orange Slipped and Incised	chile grinder (molcajete or grater bowl)	Miscellaneous Burial 8	Miscellaneous
118	LA240/1	Black on Red Slipped and Painted	dish, rounded	Cache N10-9/8	Ceremonial structure (temple)
81	LA243/1	Monochrome Orange Slipped	dish, out-curving	Large cache of smashed vessels over stair, N10/9	Ceremonial structure (temple)
105	LA243/2	Monochrome Orange Slipped and Incised	jar, globular, flaring neck	Large cache of smashed vessels over stair, N10/9	Ceremonial structure (temple)
76	LA243/4	Monochrome Orange Slipped (painted with Maya Blue)	chalice	Large cache of smashed vessels over stair, N10/9	Ceremonial structure (temple)
72	LA243-10	Unslipped Utilitarian (appliqué spikes)	pedestal-based censer	Large cache of smashed vessels over stair, N10/9	Ceremonial structure (temple)

Petrographic Sample Number	Vessel Number	Surface Treatment	Form	Provenance	Archaeological Context
67	LA243/12	Monochrome Orange Slipped and Incised	bowl, rounded	Large cache of smashed vessels over stair, N10/9	Ceremonial structure (temple)
117	LA244/1	Black on Red Slipped and Painted	dish, rounded	Cache N10-9/9	Ceremonial structure (temple)
48	LA244/2	Black on Red Slipped and Painted	massive bowl	Cache N10-9/9	Ceremonial structure (temple)
100	LA245/5	Monochrome Orange Slipped and Incised	tetrapod bowl	Burial N10-9/10	Ceremonial structure (temple)
78	LA245/6	Monochrome Orange Slipped and Incised (piercework)	chalice	Burial N10-9/10	Ceremonial structure (temple)
96	LA246/2	Monochrome Orange Slipped	tripod bowl, rounded	Burial N10-4/45	Residential structure
98	LA246/3	Monochrome Orange Slipped	tripod bowl, rounded	Burial N10-4/45	Residential structure
120	LA251/1	Monochrome Black	deep bowl	Burial N9-70/1	Residential structure
52	LA254/1	Black on Red Slipped and Painted	dish, rounded	Isolated find in core of 'Smedley' stair, N10-10	Ceremonial structure (small platform)
139	LA258/2	Monochrome Red Slipped	bowl, rounded	Isolated find in core of N9-71	Residential structure
123	LA258/3	Monochrome Black	bowl, in-curving	Isolated find in core of N9-71	Residential structure
22	LA258/5	Monochrome Red Slipped	composite silhouette dish with a ring base	Isolated find in core of N9-71	Residential structure
140	LA285/1	Monochrome Red Slipped	composite silhouette bowl (slightly angular profile)	Isolated find atop floor at base of main platform, N10-43	Ceremonial structure (temple)
53	LA304/1	Polychrome Slipped and Painted	composite silhouette bowl with a ring base	Burial N9-33/3	Residential structure

Petrographic Sample Number	Vessel Number	Surface Treatment	Form	Provenance	Archaeological Context
75	LA319/1	Monochrome Orange Slipped and Incised	chalice	Burial N10-2/49	Residential/administrative structure
19	LA345/1	Monochrome Red Slipped	jar, globular (?), low vertical neck	Isolated find in core of N10-43	Ceremonial structure (temple)
49	LA347/1	Black on Red Slipped and Painted	dish, rounded	Cache N10-43/3	Ceremonial structure (temple)
143	LA350/1	Monochrome Red Slipped (interior slipped)	dish, rounded	Cache N10-43/4	Ceremonial structure (temple)
131	LA469a	Unslipped and Incised (appliqué impressed fillet)	jar, low flaring rim, strap handles	Midden east of N10-18	Post abandonment refuse deposit associated with a residential/administrative structure
132	LA469b	Unslipped and Incised (appliqué impressed fillet)	jar, low flaring rim, strap handles	Midden east of N10-18	Post abandonment refuse deposit associated with a residential/administrative structure
138	LA469/1	Monochrome Orange Slipped	tripod bowl, out-curving	Midden east of N10-18	Post abandonment refuse deposit associated with a residential/administrative structure
90	LA469/2	Monochrome Orange Slipped	tripod bowl, out-curving	Midden east of N10-18	Post abandonment refuse deposit associated with a residential/administrative structure
29	LA486/3	Monochrome Red Slipped (interior slipped)	composite silhouette bowl	Isolated find east face N10-18	Residential/administrative structure
146	LA487/1	Unslipped Striated	jar, globular, high vertical neck and a heavily bolstered rim	Isolated find in courtyard, drain area, N10-18	Courtyard area of a residential/administrative structure
35	LA489/3	Monochrome Red Slipped	bowl, flaring	Burial P8-102/1	Residential structure

Petrographic Sample Number	Vessel Number	Surface Treatment	Form	Provenance	Archaeological Context
21	LA490/1	Monochrome Orange Slipped	composite silhouette dish with a ring base	Burial P8-102/2	Residential structure
356	LA491/3	Monochrome Red Slipped	composite silhouette bowl with a ring base	Burial P8-102/3	Residential structure
115	LA503/2	Polychrome Slipped and Painted	vase, cylindrical	Cache P8-104/2	Residential structure/ special use
119	LA504/3	Monochrome Black (groove-incised)	deep bowl	Burial P8-102/10B	Residential structure
50	LA504/4	Polychrome Slipped and Painted (interior slipped ?)	dish, rounded	Burial P8-102/10B	Residential structure
346	LA507/2	Red-Orange-Black Resist	composite silhouette dish with a ring base	Burial P8-104/2	Residential structure/ special use
126	LA508/6	Monochrome Black (raised band with a central groove)	vase, barrel-shaped	Burial P8-102/15	Residential structure
125	LA508/7	Monochrome Black (groove-incised and punctated)	vase, cylindrical	Burial P8-102/15	Residential structure
149	LA515/1	Monochrome Red Slipped and Groove-Incised (false gardooning)	bottle (in-sloping vase with a basal angle)	Refuse at south end N10-18	Refuse deposit associated with a residential/administrative structure
34	LA515/2	Monochrome Red Slipped	composite silhouette bowl	Refuse at south end N10-18	Refuse deposit associated with a residential/administrative structure
133	LA515/3	Monochrome Red Slipped	tripod bowl, out-curving	Refuse at south end N10-18	Refuse deposit associated with a residential/administrative structure
43	LA515/4	Monochrome Black (groove-incised and punctated)	vase, cylindrical	Refuse at south end N10-18	Refuse deposit associated with a residential/administrative structure
16	LA562/1	Monochrome Orange Slipped and Incised	jar, globular, vertical neck	Cache N10-12/1	Residential/administrative structure

Petrographic Sample Number	Vessel Number	Surface Treatment	Form	Provenance	Archaeological Context
154	LA567/5	Monochrome Orange Slipped and Incised (piercework and appliqué bird head on chamber)	drum, bell chamber, flaring everted rim	Burial N10-28/1	Residential/administrative structure
110	LA568/1	Polychrome Slipped and Painted (interior slipped)	dish, rounded	Burial P7-12/6	Residential structure
36	LA569/1	Monochrome Red Slipped	composite silhouette bowl with a ring base	Refuse west of P8-102	Refuse deposit associated with a residential structure
130	LA569/3	Monochrome Orange Slipped	tripod bowl, out-curving, solid slab feet	Refuse west of P8-103	Refuse deposit associated with a residential structure
24	LA569/4	Monochrome Orange Slipped	composite silhouette bowl with a ring base	Refuse west of P8-103	Refuse deposit associated with a residential structure
145	LA578/4	Unslipped/Smoothed-Buff	bowl, broad flaring everted rim	Cache N10-14/6	Residential/administrative structure
109	LA578/6	Polychrome Slipped and Painted (interior slipped)	dish, rounded	Cache N10-17/8	Residential/administrative structure
33	LA578/8	Monochrome Red Slipped	bowl, rounded	Cache N10-17/8	Residential/administrative structure
14	LA580/2	Monochrome Orange Slipped	tripod bowl, flaring	Burial N10-14/1	Residential/administrative structure
2	LA583/1	Monochrome Orange Slipped and Incised	bowl, rounded	Burial N10-14/2	Residential/administrative structure
113	LA585/4	Polychrome Slipped and Painted (interior slipped)	dish, rounded	Burial N10-17/2	Residential/administrative structure
9	LA621/8A	Monochrome Orange Slipped	tripod bowl, out-curving	Burial N10-15/1	Residential and possibly administrative structure

Petrographic Sample Number	Vessel Number	Surface Treatment	Form	Provenance	Archaeological Context
6	LA621/9	Monochrome Orange Slipped	bowl, rounded	Burial N10-15/1	Residential and possibly administrative structure
128	LA630/1	Monochrome Red Slipped and Incised	vase, cylindrical	Isolated find in 'Bak' floor core, N10-15	Residential and possibly administrative structure
30	LA630/2	Monochrome Red Slipped (interior slipped)	dish, rounded	Isolated find in 'Bak' floor core, N10-15	Residential and possibly administrative structure
116	LA630/3	Monochrome Red Slipped, Stuccoed and Painted	vase, cylindrical	Isolated find in 'Bak' floor core, N10-15	Residential and possibly administrative structure
44	LA630/4	Monochrome Black	bowl, flaring	Isolated find in 'Bak' floor core, N10-15	Residential and possibly administrative structure
112	LA630/5	Polychrome Slipped and Painted	composite silhouette bowl with a high ring base	Isolated find in addition east of N10-15	Residential and possibly administrative structure
136	LA630/7	Monochrome Red Slipped	composite silhouette dish with a ring base	Isolated find in 'Bak' floor core, N10-18	Residential/administrative structure
147	LA630/8	Monochrome Brown	torch	Isolated find in 'Bak' floor core, N10-15	Residential/administrative structure
129	LA637/2	Monochrome Orange Slipped	composite silhouette dish with a ring base	Burial N10-66/1	Residential structure
134	LA637/3	Monochrome Red Slipped	tripod bowl, out-curving, 'Ik-shaped' slab feet	Burial N10-66/1	Residential structure
101	LA640/4	Monochrome Orange Slipped	jar, globular, low vertical neck	Isolated find in levine pit, N10-15	Residential and possibly administrative structure
93	LA640/6	Monochrome Red Slipped (interior slipped)	bowl, rounded	Cache N10-15/2	Residential and possibly administrative structure
17	LA650/1	Unslipped Utilitarian	comal (thick-walled plate)	Isolated find on surface atop 'Bloulders' floor, 'Ottawa'	Residential/administrative complex

Petrographic Sample Number	Vessel Number	Surface Treatment	Form	Provenance	Archaeological Context
141	LA655/2	Monochrome Red Slipped (interior slipped)	dish, rounded	Cache N10-15/3	Residential and possibly administrative structure
148	LA656/1	Monochrome Red Slipped and Groove-Incised	bottle (in-sloping vase with a basal angle)	Levine hole, N10-15	Residential and possibly administrative structure
142	LA656/4	Monochrome Red Slipped (interior slipped)	bowl, rounded	Levine pit, N10-15	Residential and possibly administrative structure
32	LA656/2	Monochrome Red Slipped (interior slipped)	composite silhouette bowl (slightly angular profile)	Levine pit, N10-15	Residential and possibly administrative structure
47	LA656/5	Red-Orange-Black Resist	dish, out-curving	Levine hole, N10-15	Residential and possibly administrative structure
37	LA656/6	Monochrome Red Slipped	composite silhouette bowl with a ring base	Levine pit, north east core, N10-15	Residential and possibly administrative structure
45	LA656/7	Monochrome Black	bowl, rounded	Levine pit, N10-15	Residential and possibly administrative structure
127	LA657/1	Monochrome Black	deep bowl	Cache N10-66/1	Residential structure
124	LA658/1	Monochrome Black (groove-incised and stamped)	vase, cylindrical	Burial N10-66/3	Residential structure
38	LA662/2	Monochrome Brown	tripod bowl, out-curving, 'Ik-shaped' slab feet	Isolated find in west centre room, N10-15	Residential and possibly administrative structure
54	LA664	Polychrome Slipped and Painted	composite silhouette bowl with a ring base (?)	General refuse, Ottawa complex	Residential/administrative complex
31	LA673/5	Buff/Cream Slipped (plain)	dish, rounded	Cache N10-14/7	Residential/administrative structure
122	LA674/1	Monochrome Black (groove-incised)	deep bowl	Burial N10-66/12	Residential structure

Petrographic Sample Number	Vessel Number	Surface Treatment	Form	Provenance	Archaeological Context
11	LA678/2	Monochrome Orange Slipped	bowl, out-curving	Refuse dump west end of N10-15	Refuse deposit associated with a residential and possibly administrative structure
55	LA690/2	Monochrome Red Slipped	tripod bowl, flaring, solid nubin feet	Burial N10-67/1	Residential structure
15	LA690/4	Monochrome Orange Slipped	composite silhouette bowl	Burial P8-102/2	Residential structure
144	LA693/1	Monochrome Red Slipped (interior slipped)	dish, rounded	Cache N10-15/7	Residential and possibly administrative structure
345	LA694/3	Monochrome Red Slipped (interior slipped)	dish, rounded	Cache N10-15/8	Residential and possibly administrative structure
351	LA694/8	Monochrome Red to Orange Slipped (interior slipped)	dish, rounded	Cache N10-15/8	Residential and possibly administrative structure
353	LA694/9	Monochrome Red to Orange Slipped (interior slipped)	dish, rounded	Cache N10-15/8	Residential and possibly administrative structure
65	LA705/1	Monochrome Orange Slipped and Incised	bowl, out-curving	Isolated find in topmost stratum, base of N10-27, southwest corner	Ceremonial structure (temple)
60	LA705/2	Monochrome Orange Slipped	bowl, rounded	Isolated fine, topmost stratum, base of N10-27, southwest corner	Ceremonial structure (temple)
40	LA706/1	Monochrome Black (groove-incised)	deep bowl	Isolated find in north front terrace, N10-27	Ceremonial structure (temple)
42	LA706/2	Monochrome Black (groove-incised)	deep bowl	Isolated find in middle terrace north face, N10-27	Ceremonial structure (temple)
121	LA706/3	Monochrome Black (appliqué - impressed fillet)	bowl, flaring with a basal ridge	Isolated find middle north terrace , N10-27	Ceremonial structure (temple)

Petrographic Sample Number	Vessel Number	Surface Treatment	Form	Provenance	Archaeological Context
51	LA712/2	Black on Red Slipped and Painted	dish, rounded	Isolated find, Stela 9 addition core, N10-27	Ceremonial structure (temple)
8	LA716/1	Monochrome Orange Slipped	chalice	Burial N10-30/2	Post abandonment interment (structure of uncertain use)
10	LA716/2	Monochrome Orange Slipped	bowl, out-curving	Burial N10-30/2	Post abandonment interment (structure of uncertain use)
20	LA717/1	Buff/Cream Slipped and Incised	bowl, rounded	Midden southwest corner of N10-27	Ceremonial structure (temple)
108	LA718/1	Polychrome Slipped and Painted	composite silhouette dish with a ring base (?)	Refuse north stairside outset N10-27 (midden)	Ceremonial structure (temple)
57	LA722/1	Monochrome Orange Slipped	tripod vase, cylindrical	Refuse, west side of N10-72	?
39	LA814/1	Monochrome Black (groove-incised with false gardooning)	vase, cylindrical	Isolated find west of N11-7	Residential structure
18	LA825/1	Monochrome Red Slipped	jar, globular, slightly insloping neck	Isolated find northeast corner, N11-5 base	Residential structure
27	LA842/3	Monochrome Red Slipped (interior slipped)	bowl, rounded	Burial N11-9/3	Residential structure
23	LA872/4	Monochrome Red Slipped	composite silhouette dish with a ring base	Burial N11-5/5	Residential structure
7	LA916/18	Monochrome Orange Slipped	bowl, rounded, strap handles	West pit, N11-18	Residential structure ('Cacique's House')

APPENDIX IX

CATALOGUE OF WHOLE AND RECONSTRUCTED VESSELS

(DESCRIPTIONS FOLLOW THE ILLUSTRATIONS)

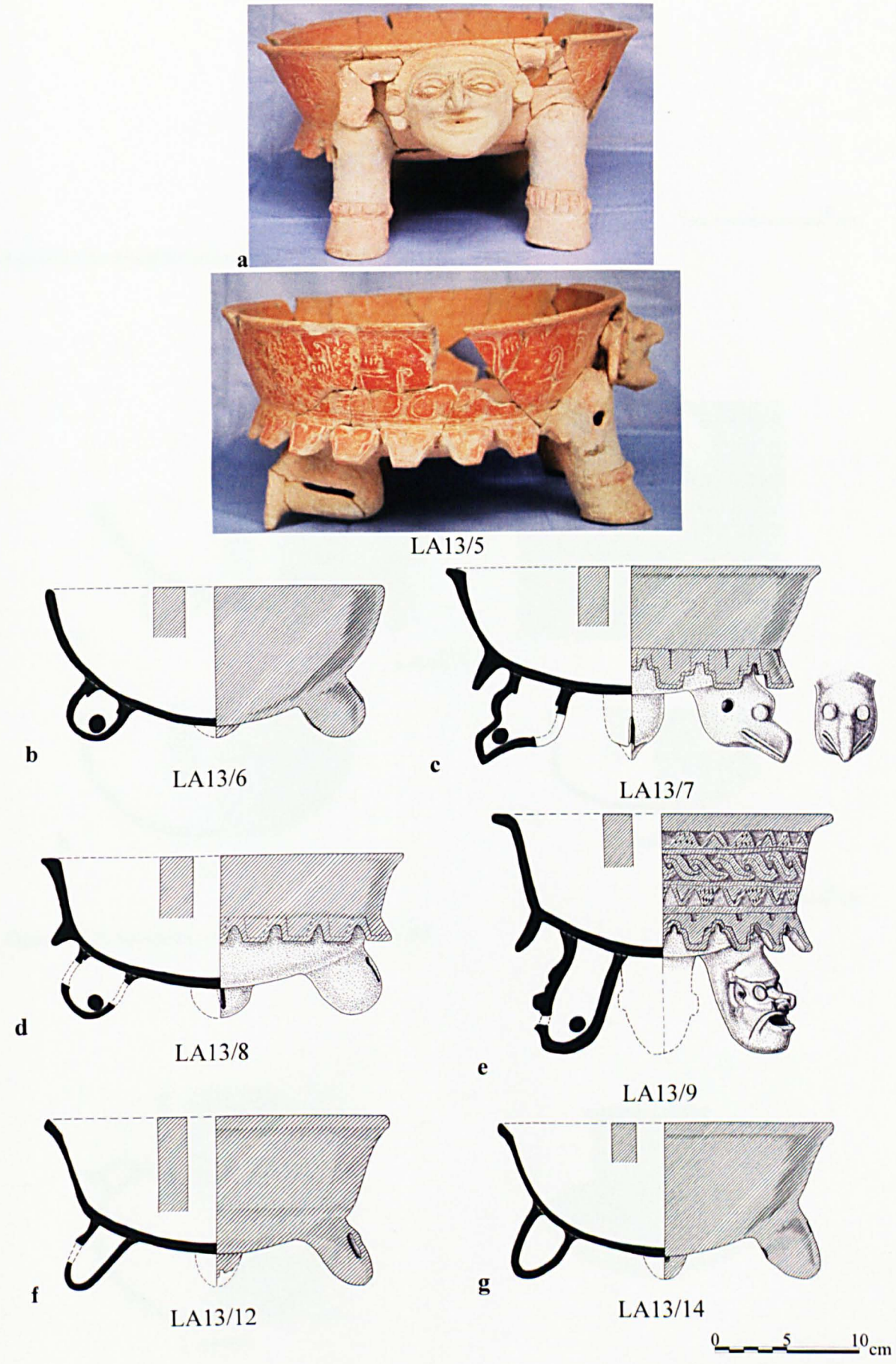
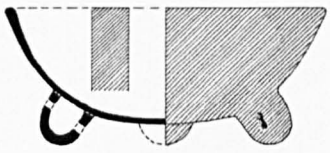


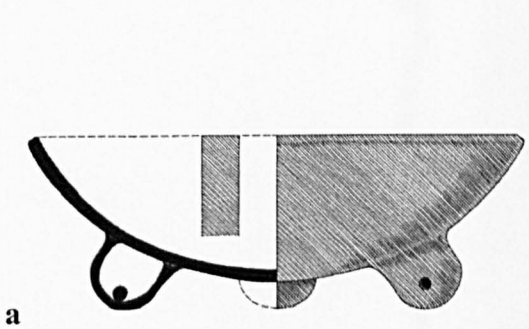
Figure IX.1: Sampled vessels from burial N10-1/1



LA62/71

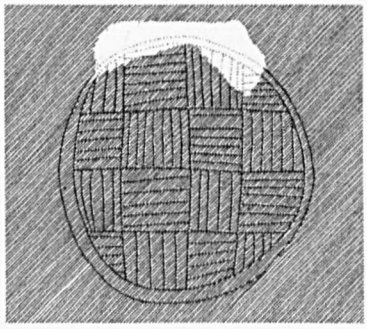
0 5 10 cm

Figure IX.2: Sampled vessel from midden at structure N10-9



a

LA68/1



b

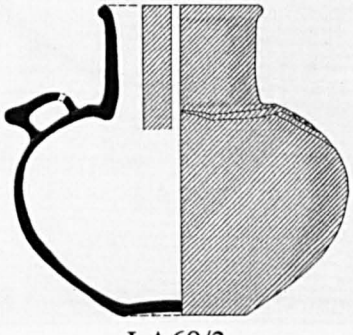
LA68/4

c

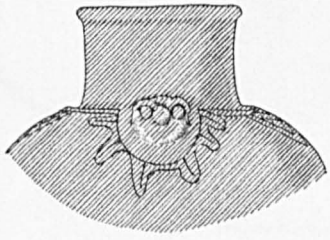
LA68/6

0 5 10 cm

Figure IX.3: Sampled vessels from burial N10-4/2

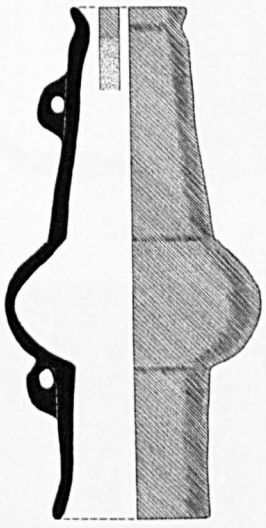


LA69/3



0 5 10 cm

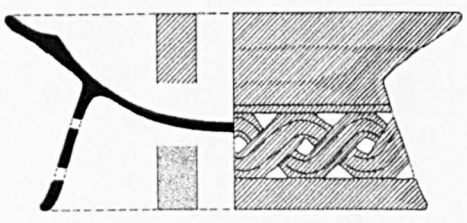
Figure IX.4: Sampled vessel from burial N10-4/3



LA71/1

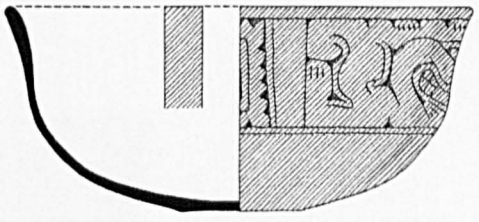
0 5 10 cm

Figure IX.5: Sampled vessel from burial N10-4/5



LA72/3

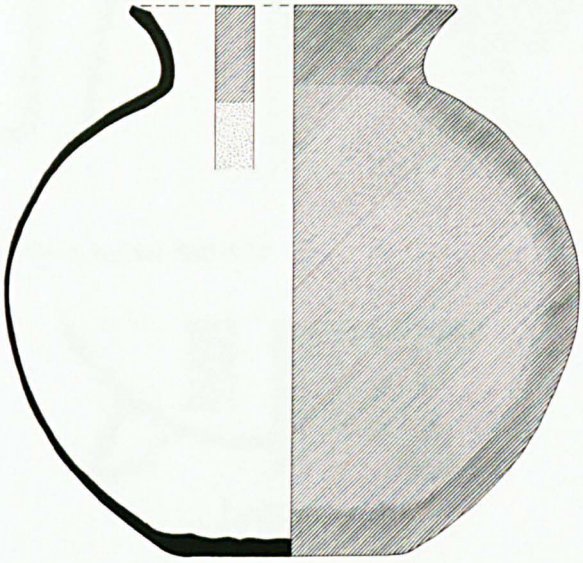
b



LA72/4

0 5 10 cm

Figure IX.6: Sampled vessels from burial N10-4/9



a

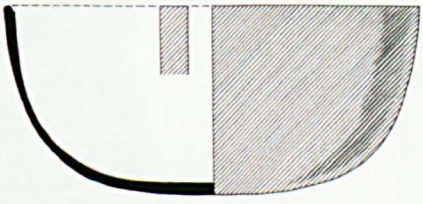
LA75/1

b

LA75/2

0 5 10 cm

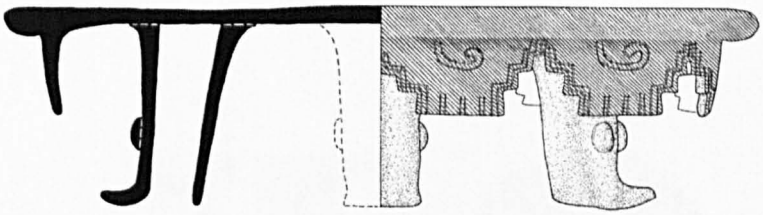
Figure IX.7: Sampled vessels from burial N10-4/12



LA76/2

0 5 10 cm

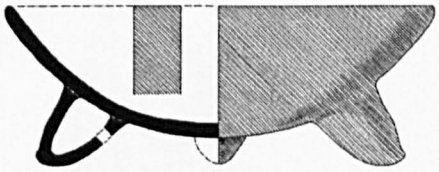
Figure IX.8: Sampled vessel from burial N10-4/13



LA77/1

0 5 10 cm

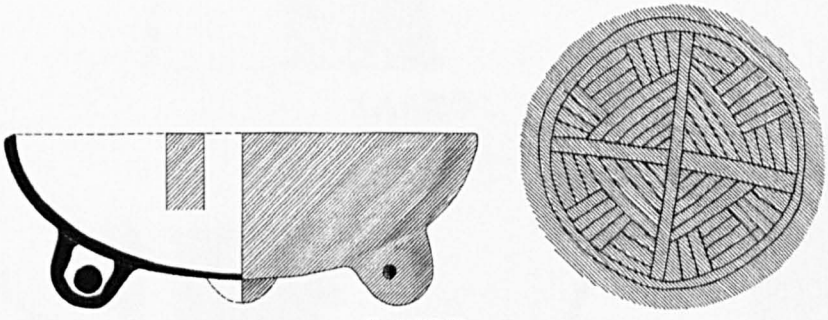
Figure IX.9: Sampled vessel from burial N10-4/14



LA82/1

0 5 10 cm

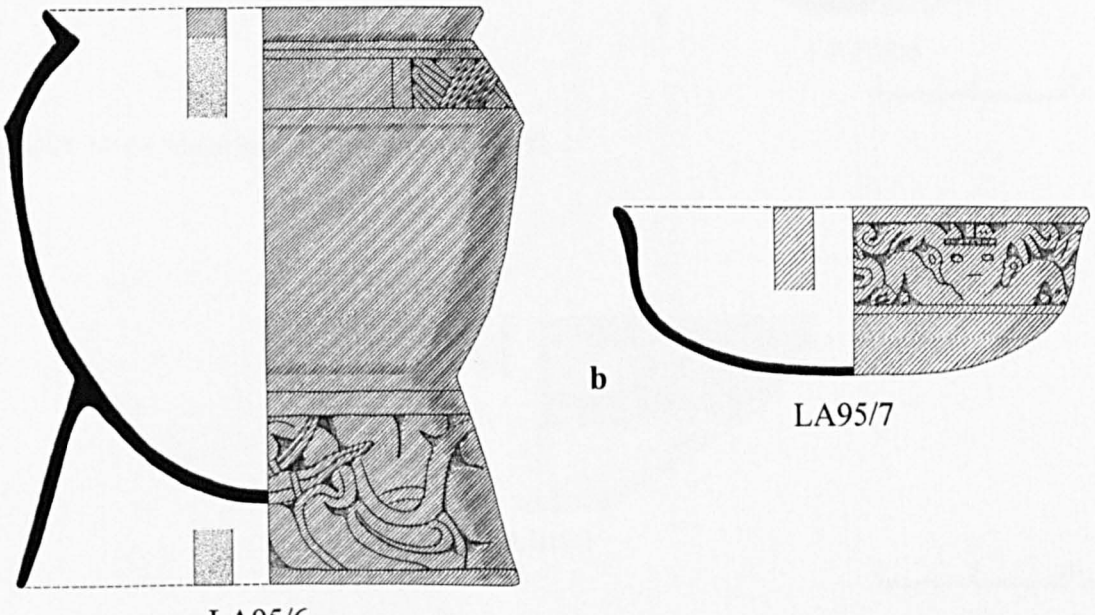
Figure IX.10: Sampled vessel from burial N10-4/20



LA92/2

0 5 10 cm

Figure IX.11: Sampled vessel from burial N10-4/30



a

LA95/6

b

LA95/7

0 5 10 cm

Figure IX.12: Sampled vessels from burial N10-7/1

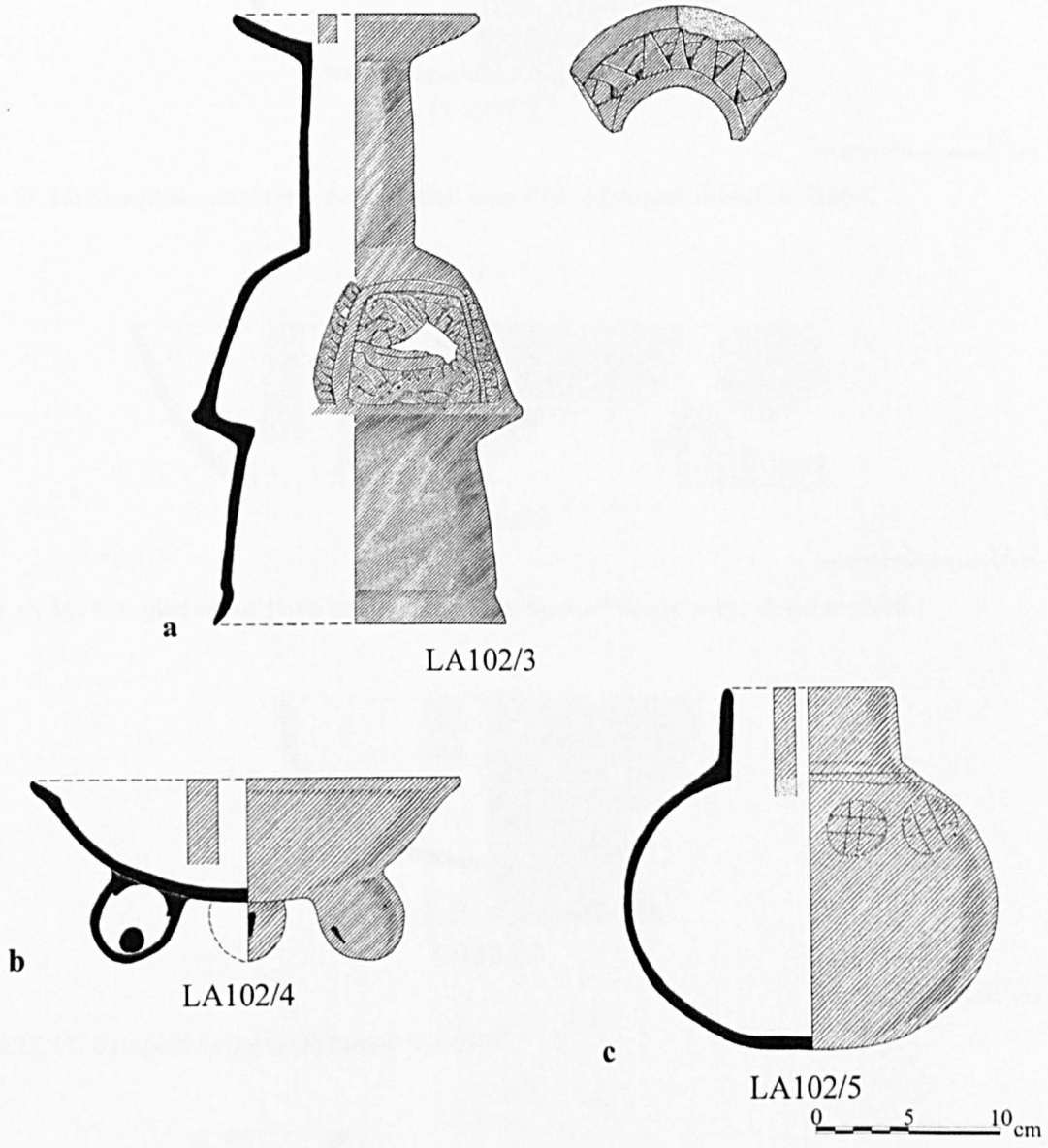


Figure IX.13: Sampled vessels from burial N10-7/2

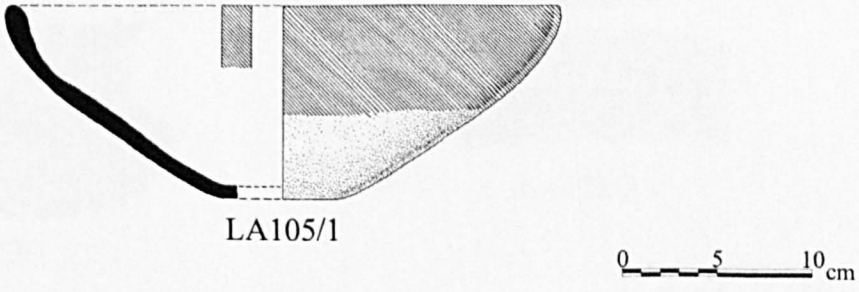
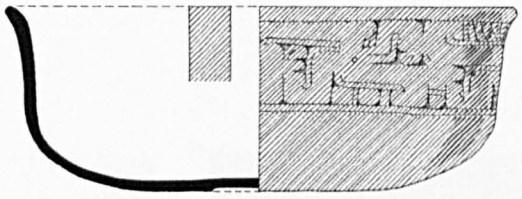


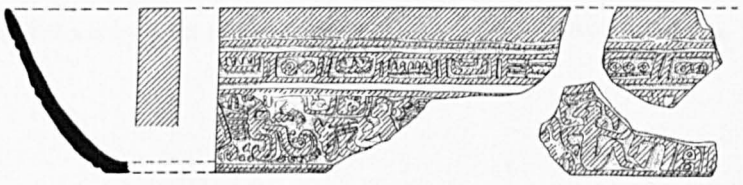
Figure IX.14: Sampled vessel from cache N10-7/1



LA107/3

0 5 10 cm

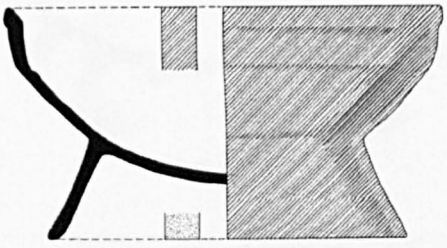
Figure IX.15: Sampled vessel from isolated find atop floor of 'Gom', structure N10-2



LA115/33

0 5 10 cm

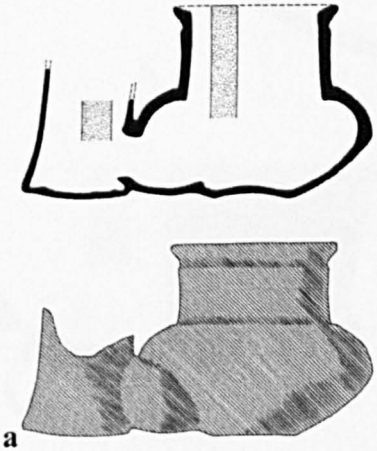
Figure IX.16: Sampled vessel from isolated find atop floor of 'Gom' core, structure N10-2



LA122/2

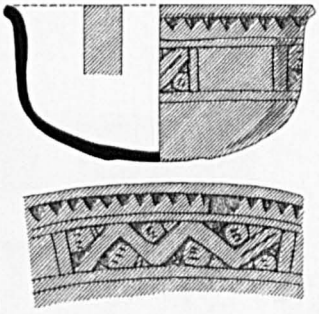
0 5 10 cm

Figure IX.17: Sampled vessel from burial N10-2/18



a

LA123/1



b

LA123/5

0 5 10 cm

Figure IX.18: Sampled vessels from burial N10-2/19

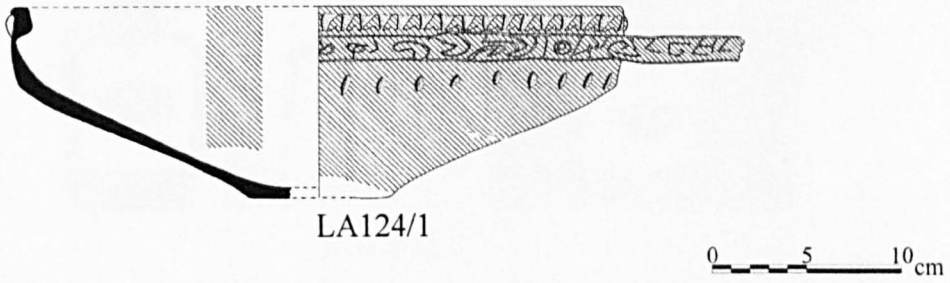


Figure IX.19: Sampled vessel from isolated find in camp garbage pit #3, depth ca. 55 cm

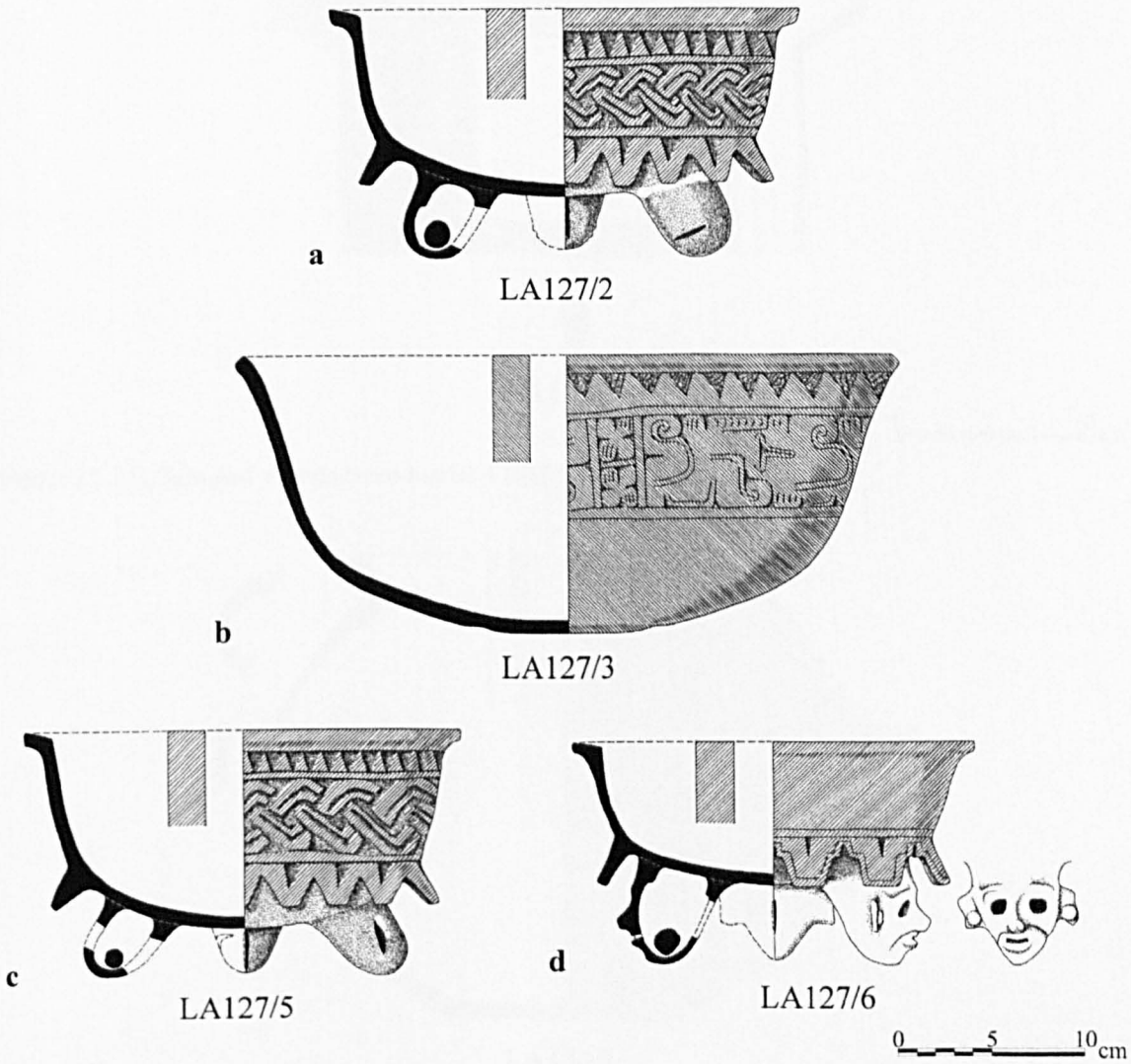
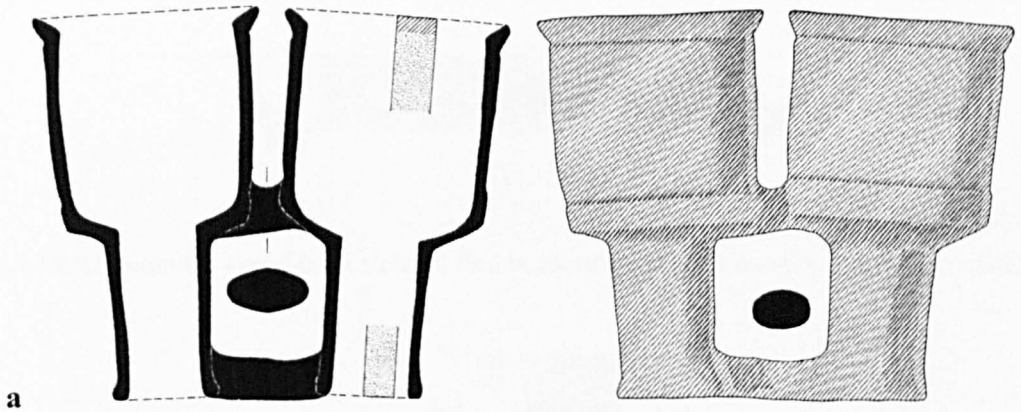
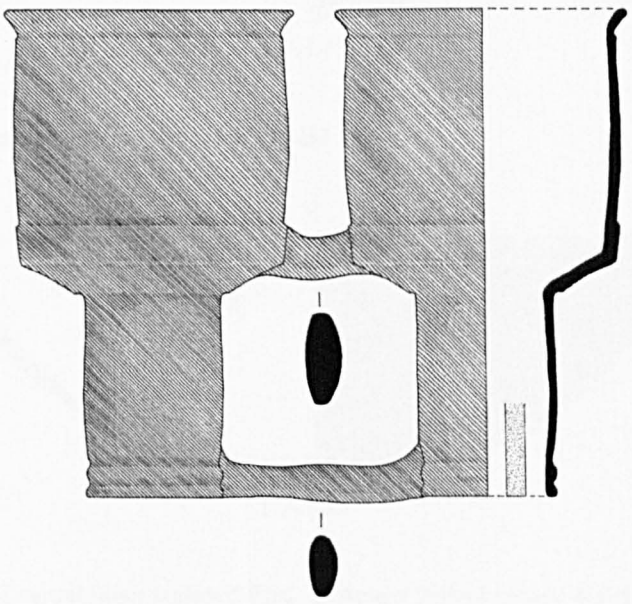


Figure IX.20: Sampled vessels from burial N10-2/20



a

LA131/3

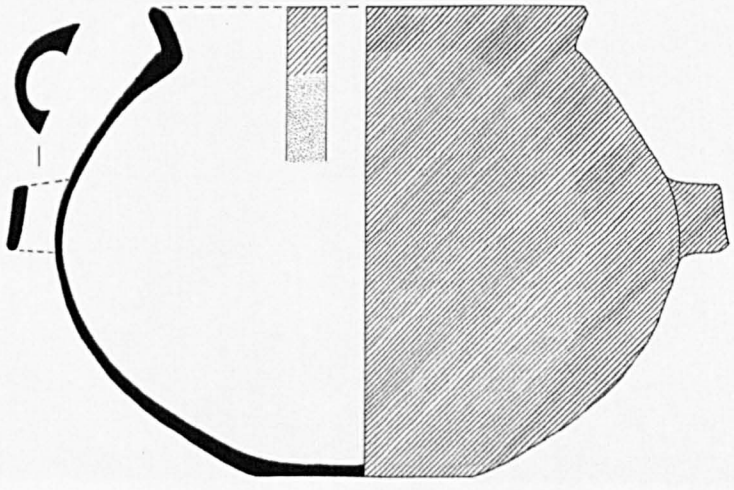


b

LA131/4

0 5 10 cm

Figure IX.21: Sampled vessels from burial N10-2/23



LA133/1

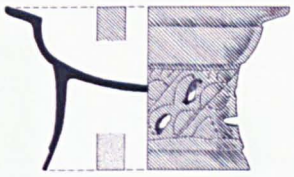
0 5 10 cm

Figure IX.22: Sampled vessel from burial N10-4/41

LA135/2

0 5 10 cm

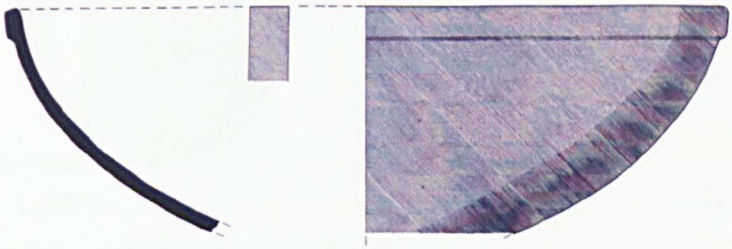
Figure IX.23: Sampled vessel from isolated find in core of stair, structure N10-2, below 'Xloc'



LA149/1

0 5 10 cm

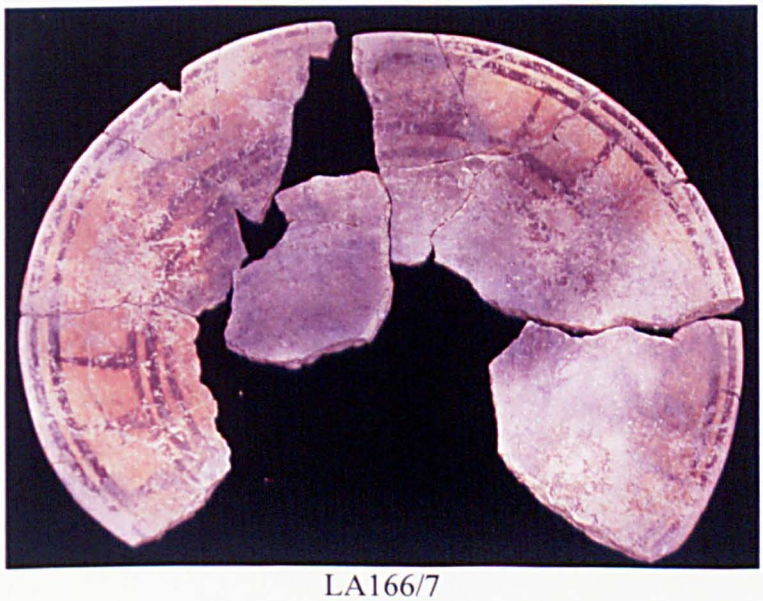
Figure IX.24: Sampled vessel from burial N10-2/33



LA155/1

0 5 10 cm

Figure IX.25: Sampled vessel from isolated find, structure N10-2 (sherd feature 3)



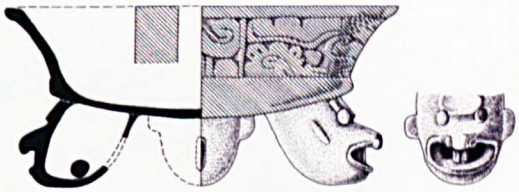
LA166/7

0 5 10 cm

Figure IX.26: Sampled vessel from burial N10-7/3

a

LA176/1



b

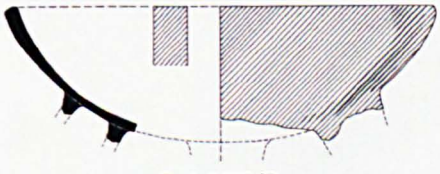
LA176/2

c

LA176/3

0 5 10 cm

Figure IX.27: Sampled vessels from burial N10-2/45



LA198/2

0 5 10 cm

Figure IX.28: Sampled vessel from miscellaneous burial 8

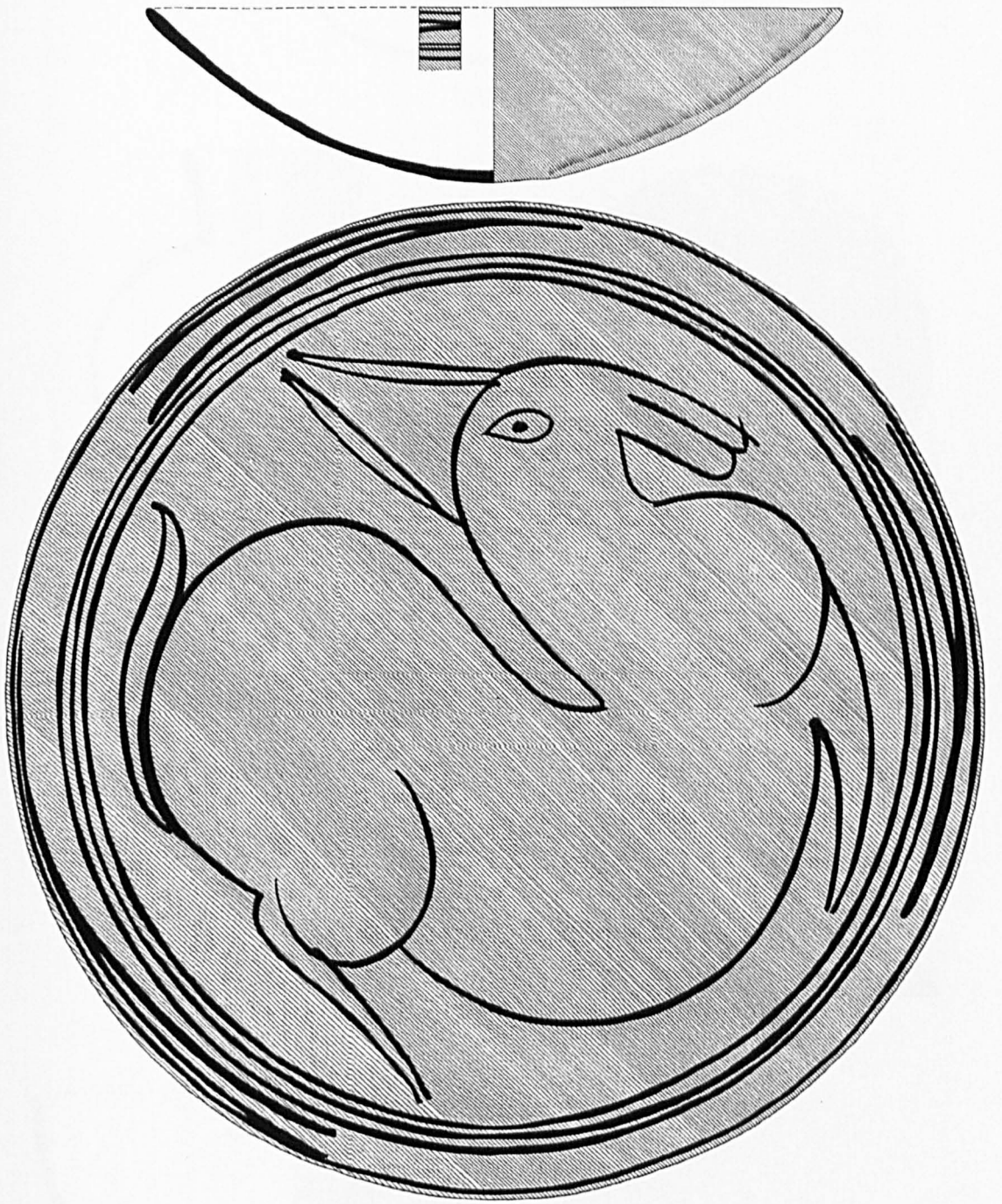


Figure IX.29: Sampled vessel from cache N10-9/8

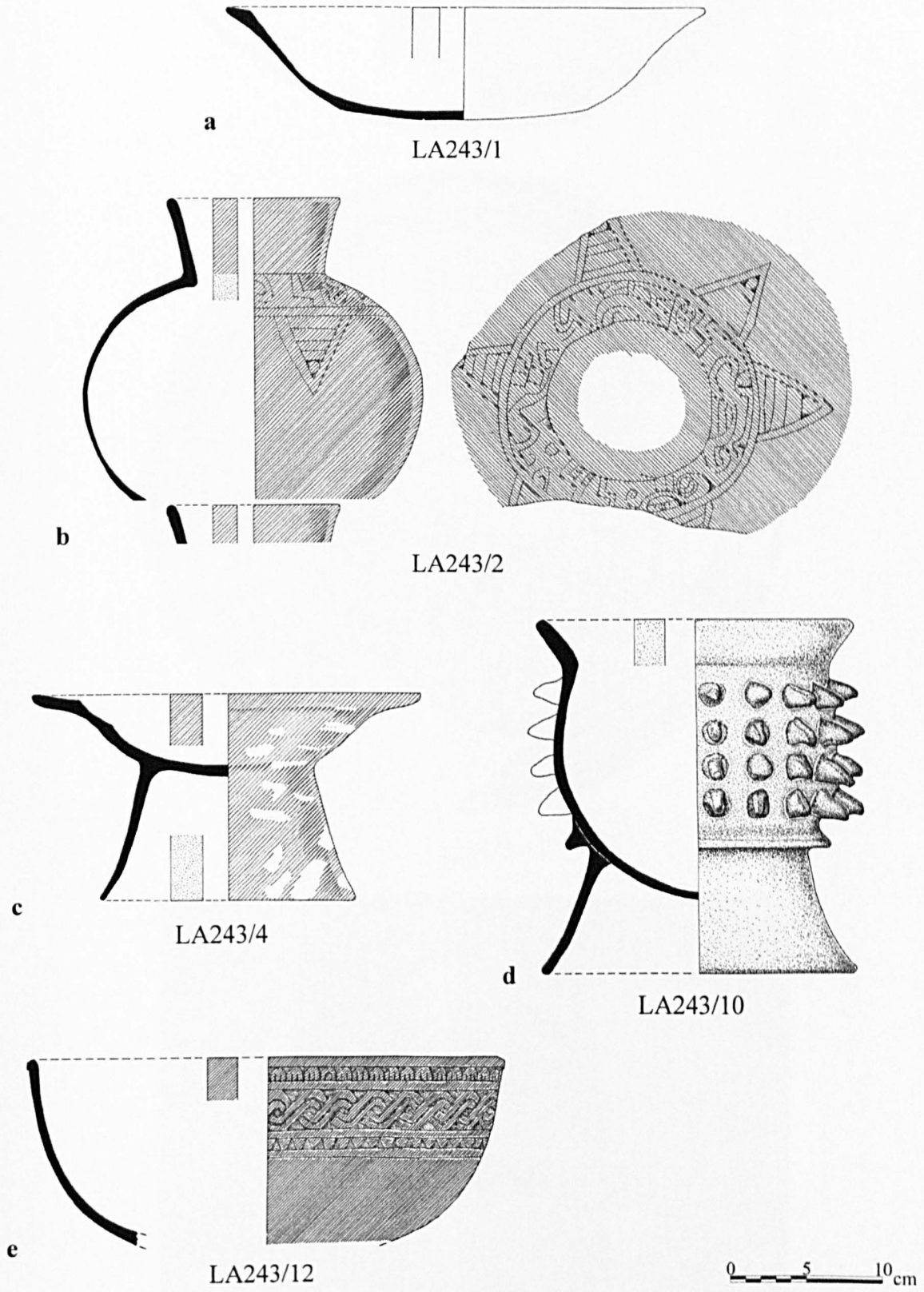
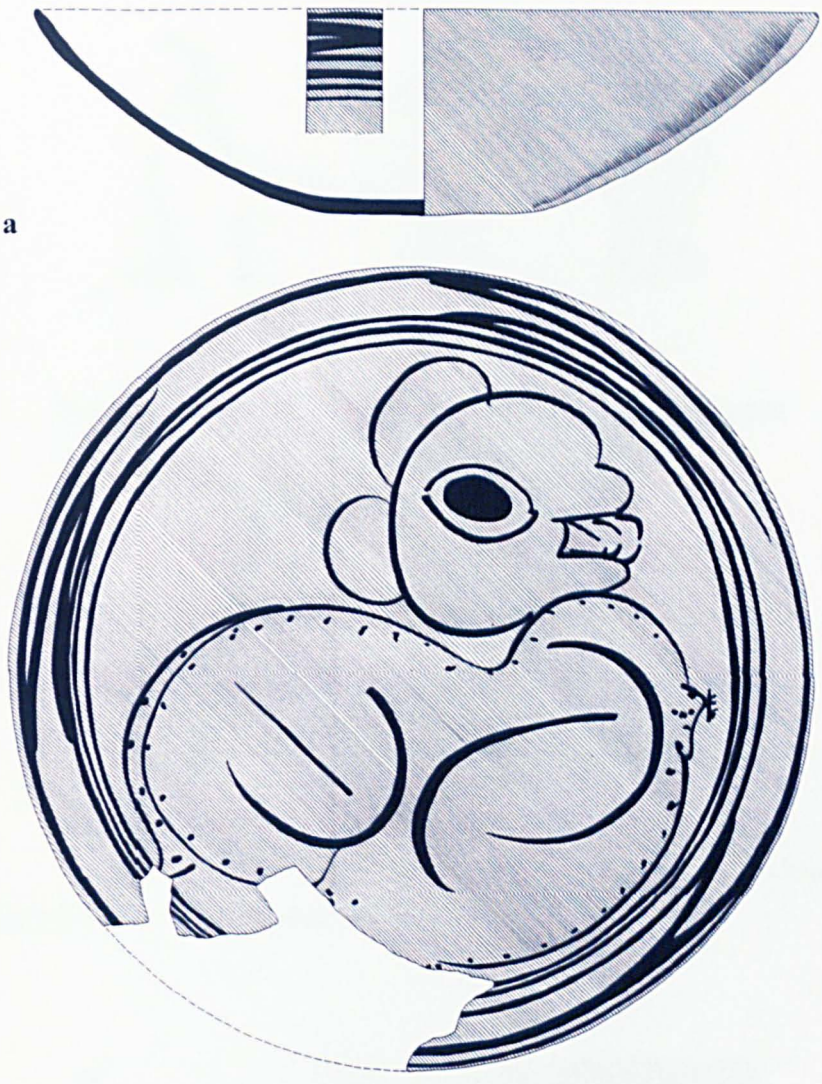


Figure IX.30: Sampled vessels from large cache of smashed vessels over stair, structure N10/9

a



LA244/1

b

LA244/2

0 5 10 cm

Figure IX.31: Sampled vessels from cache N10-9/9

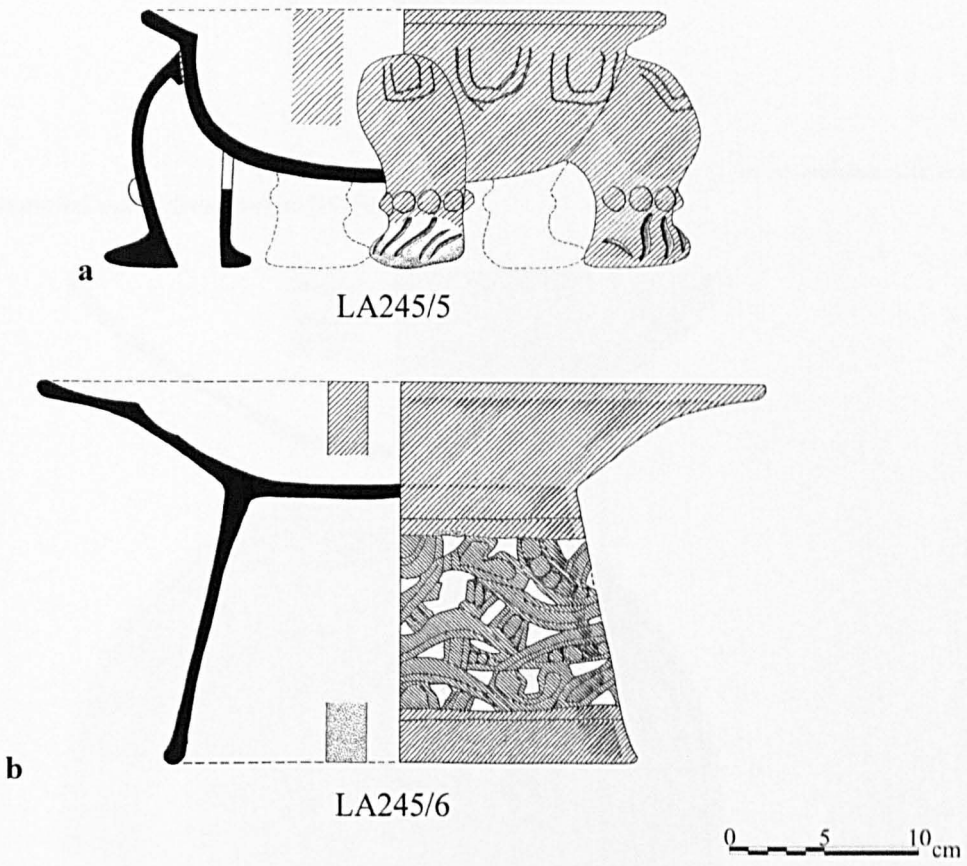


Figure IX.32: Sampled vessels from burial N10-9/10

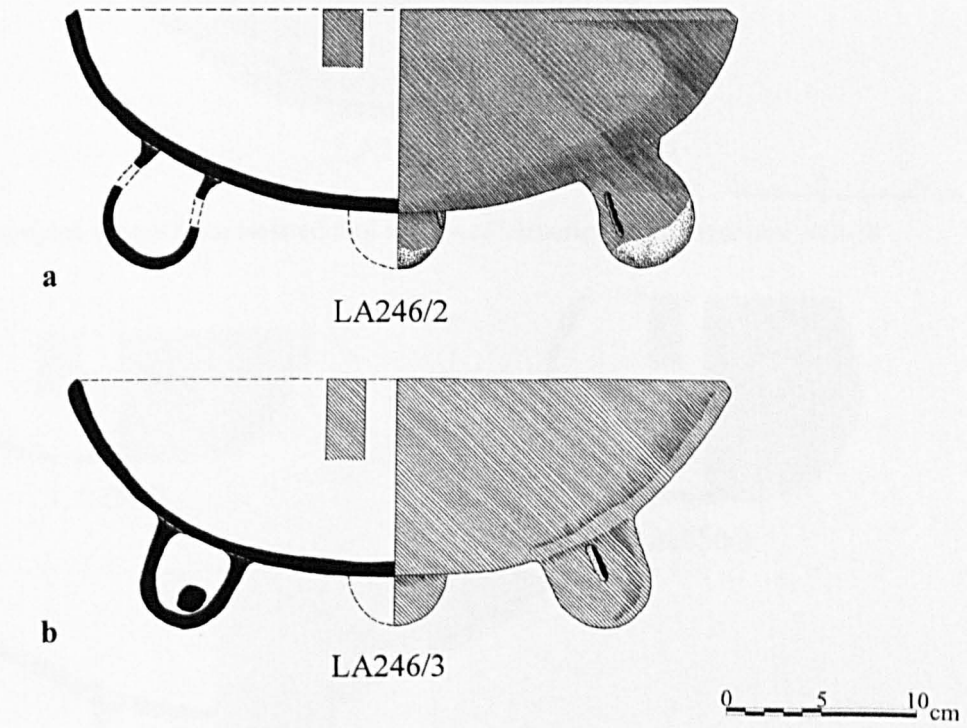
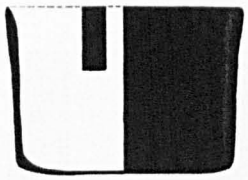


Figure IX.33: Sampled vessels from burial N10-4/45



LA251/1

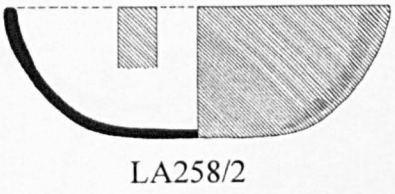
0 5 10 cm

Figure IX.34: Sampled vessel from burial N9-70/1

LA254/1

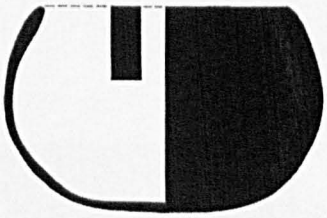
0 5 10 cm

Figure IX.35: Sampled vessels from isolated find in core of 'Smedley' stair, structure N10-10



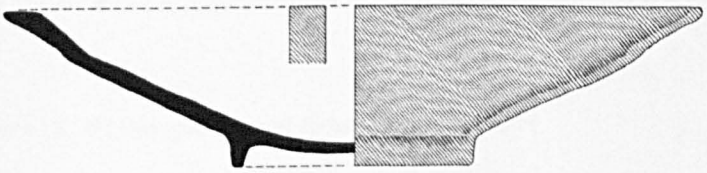
a

LA258/2



b

LA258/3

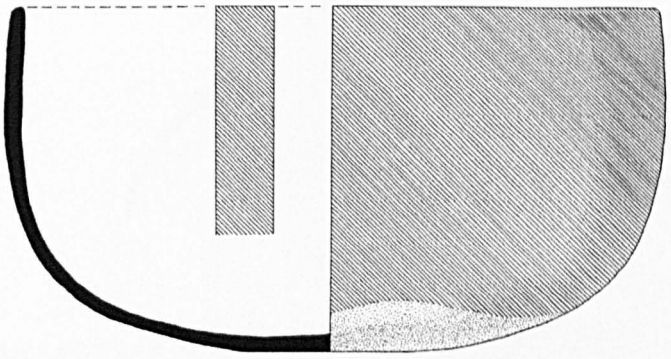


c

LA258/5

0 5 10 cm

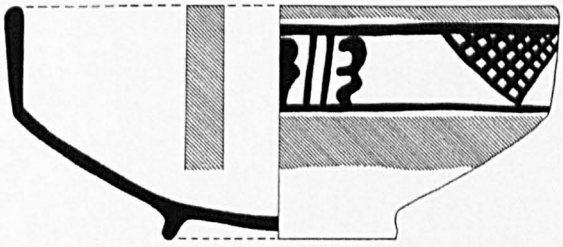
Figure IX.36: Sampled vessels from isolated find in core of structure N9-71



LA285/1

0 5 10 cm

Figure IX.37: Sampled vessel from isolated find atop floor at base of main platform, structure N10-43



LA304/1

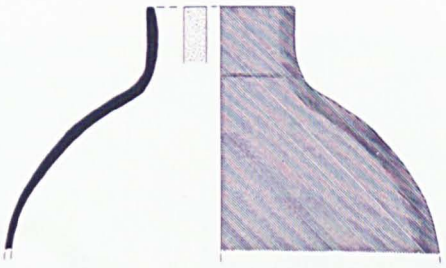
0 5 10 cm

Figure IX.38: Sampled vessel from burial N9-33/3

LA319/1

0 5 10 cm

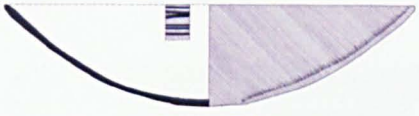
Figure IX.39: Sampled vessel from burial N10-2/49



LA345/1

0 5 10 cm

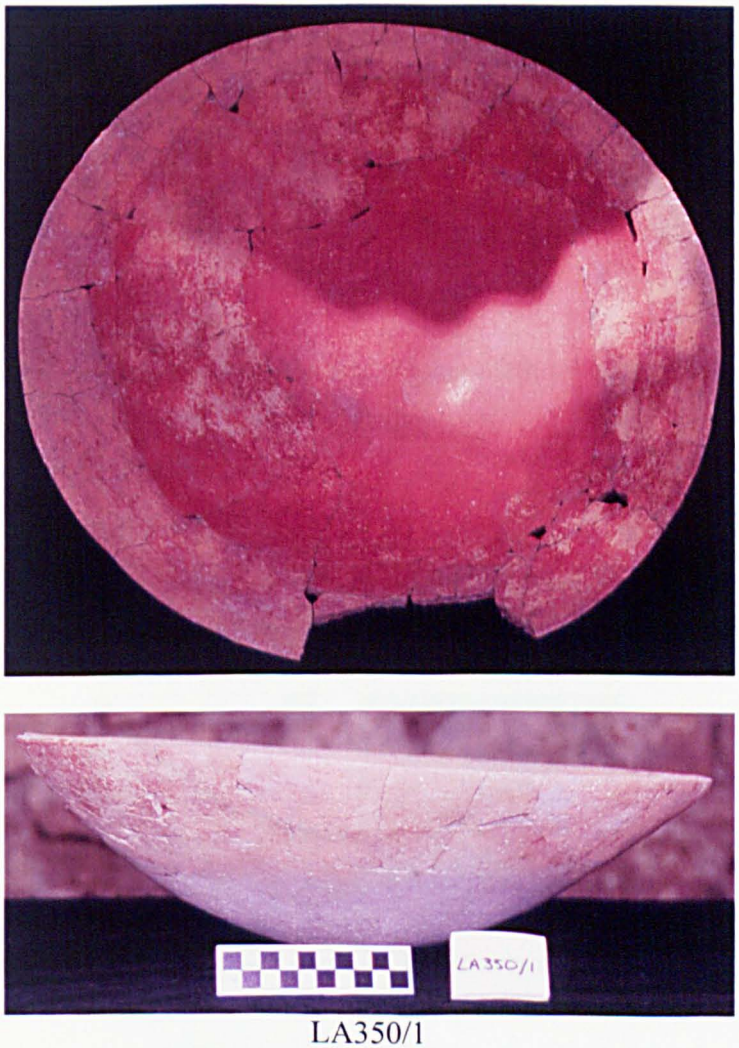
Figure IX.40: Sampled vessel from isolated find in core of structure N10-43



LA347/1

0 5 10 cm

Figure IX.41: Sampled vessel from cache N10-43/3



LA350/1

0 5 10 cm

Figure IX.42: Sampled vessel from cache N10-43/4

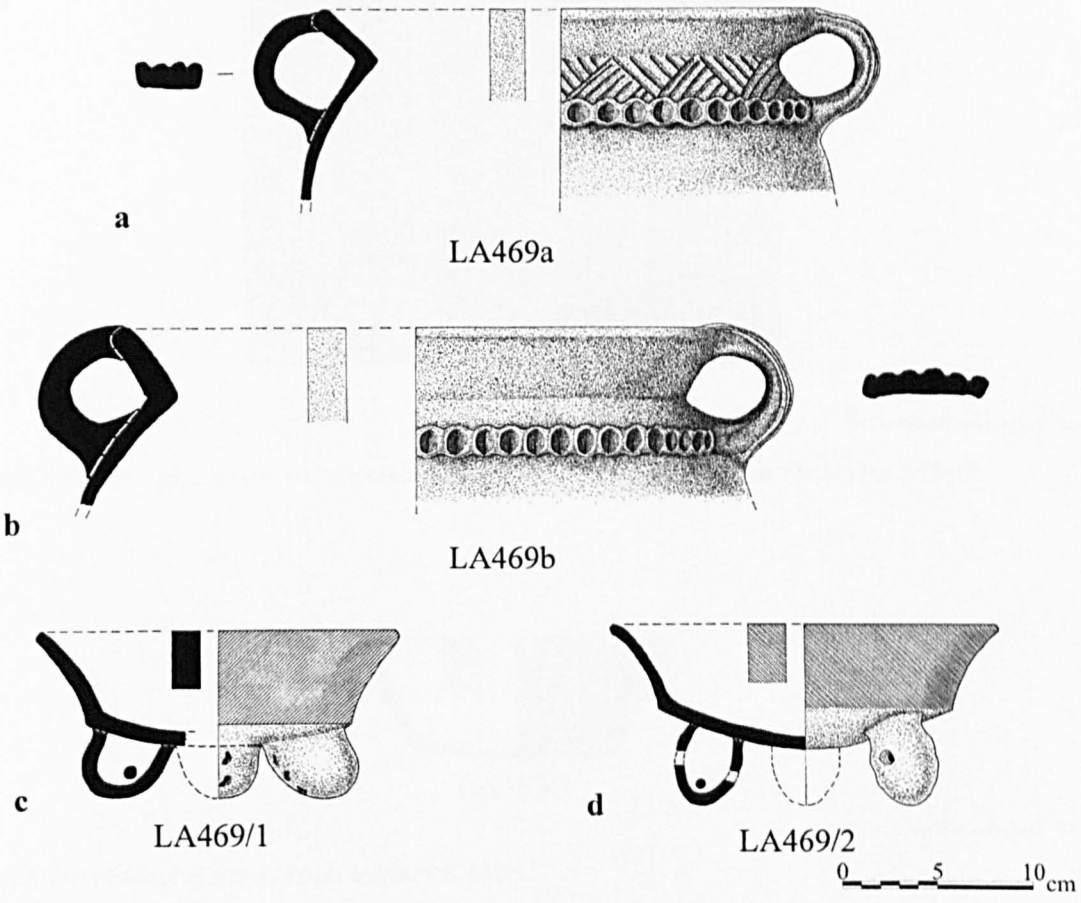


Figure IX.43: Sampled vessels from midden east of structure N10-18

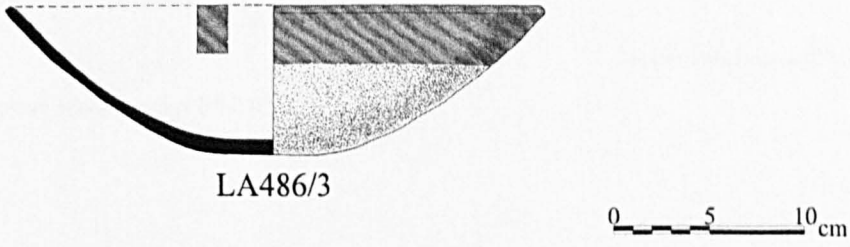


Figure IX.44: Sampled vessel from isolated find east face of structure N10-18

LA487/1

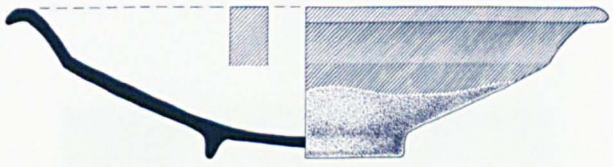
0 5 10 cm

Figure IX.45: Sampled vessel from isolated find in courtyard, drain area, structure N10-18

LA489/3

0 5 10 cm

Figure IX.46: Sampled vessel from burial P8-102/1



LA490/1

0 5 10 cm

Figure IX.47: Sampled vessel from burial P8-102/2

LA491/3: no illustration available
see LA304/1 for a similar form (Figure IX.38)

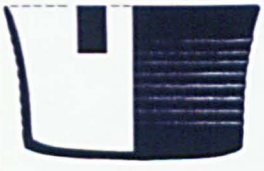
0 5 10 cm

Figure IX.48: Sampled vessels from burial P8-102/3

LA503/2

0 5 10 cm

Figure IX.49: Sampled vessel from burial P8-104/2



a

LA504/3

b LA504/4: no illustration available see LA585/4 for a similar form (Figure IX.61)

0 5 10 cm

Figure IX.50: Sampled vessels from burial P8-102/10B

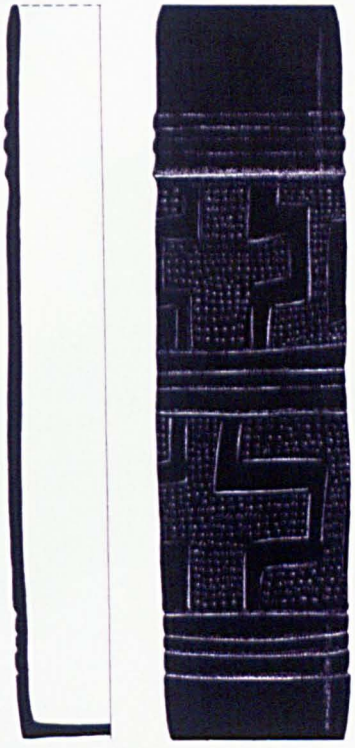
LA507/2

0 5 10 cm

Figure IX.51: Sampled vessel from burial P8-104/2

a

LA508/6



b

LA508/7

0 5 10 cm

Figure IX.52: Sampled vessels from burial P8-104/2

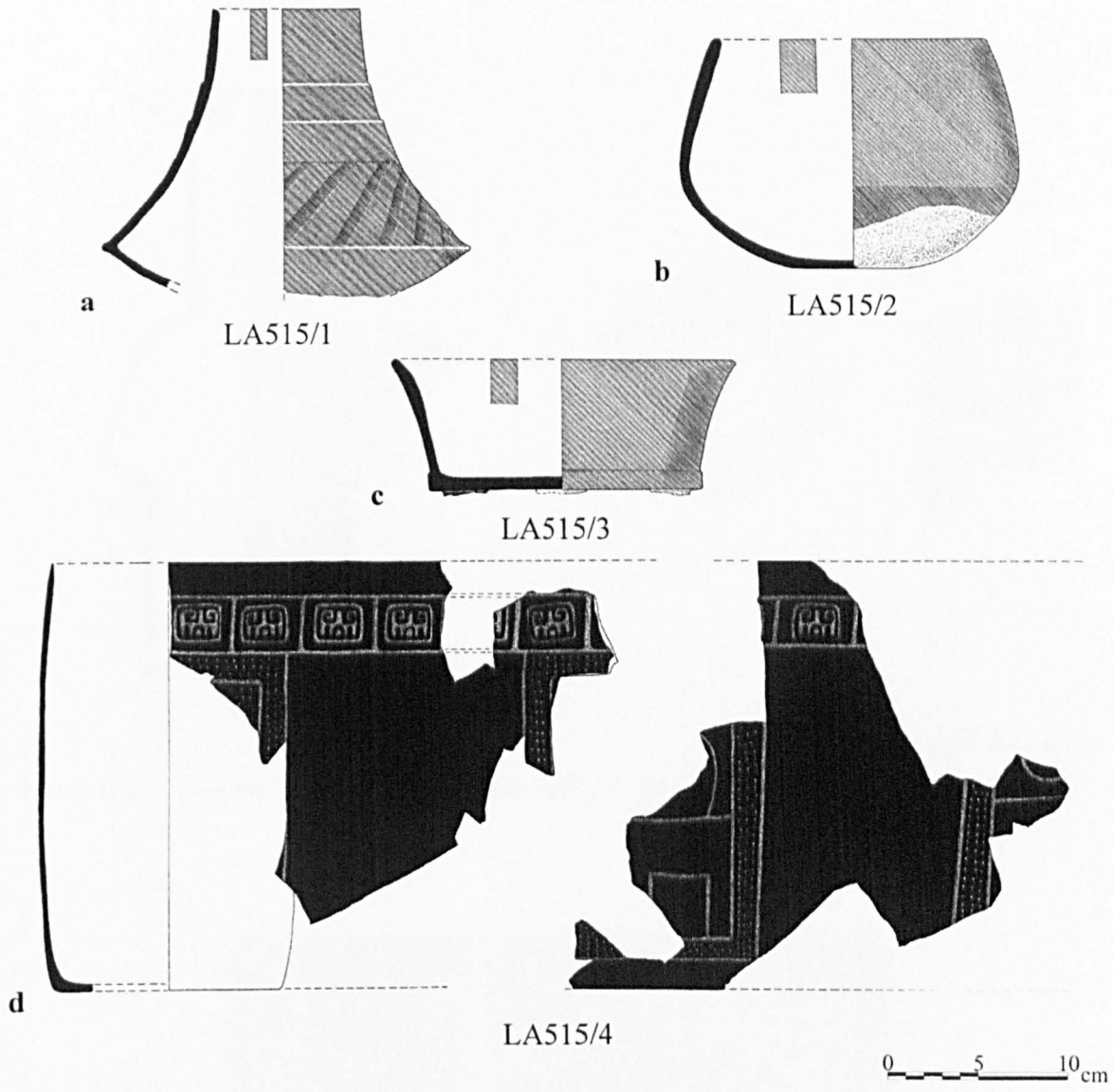


Figure IX.53: Sampled vessels from refuse at south end of structure N10-18

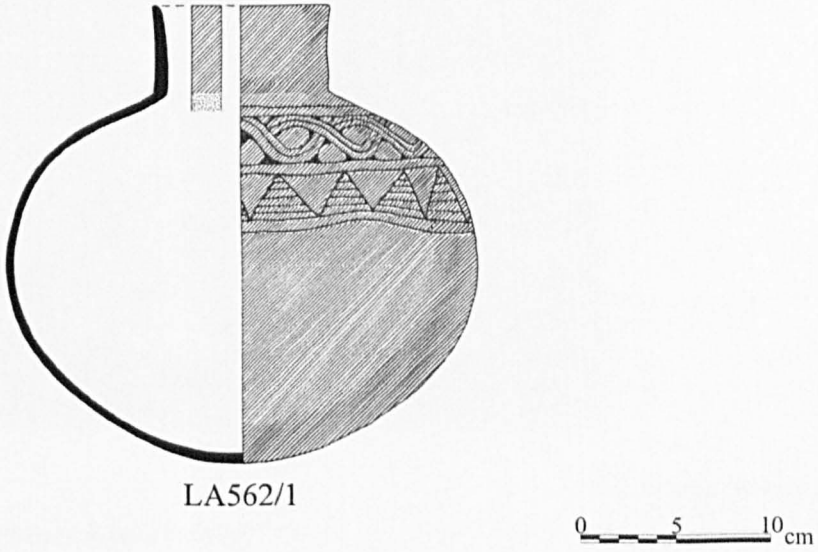


Figure IX.54: Sampled vessel from cache N10-12/1

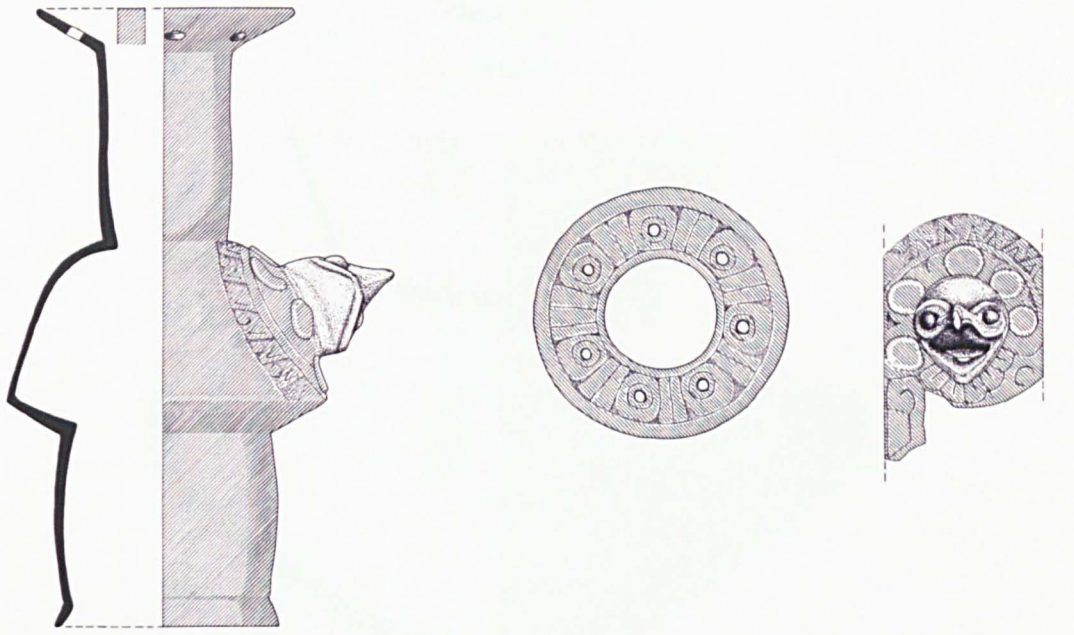


Figure IX.55: Sampled vessel from burial N10-28/1

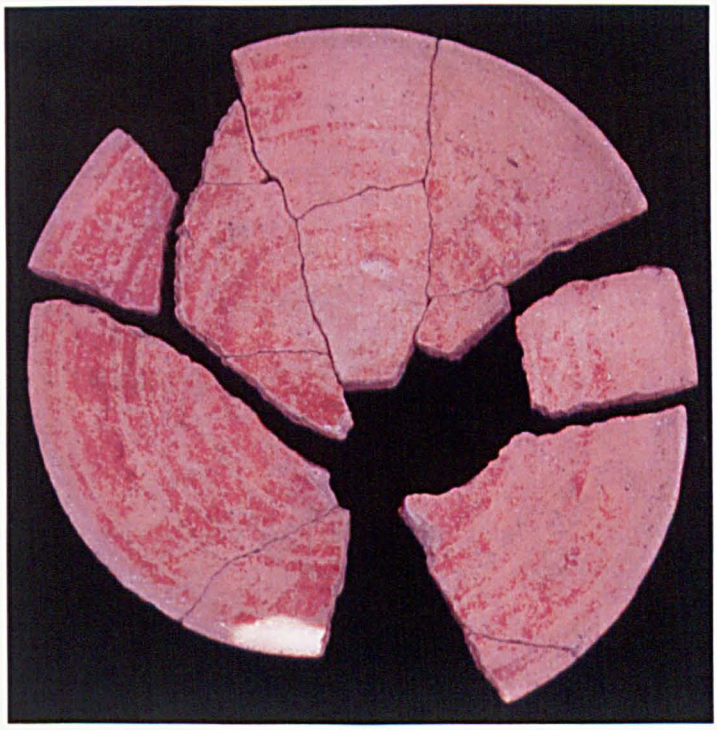


Figure IX.56: Sampled vessel from burial P7-12/6

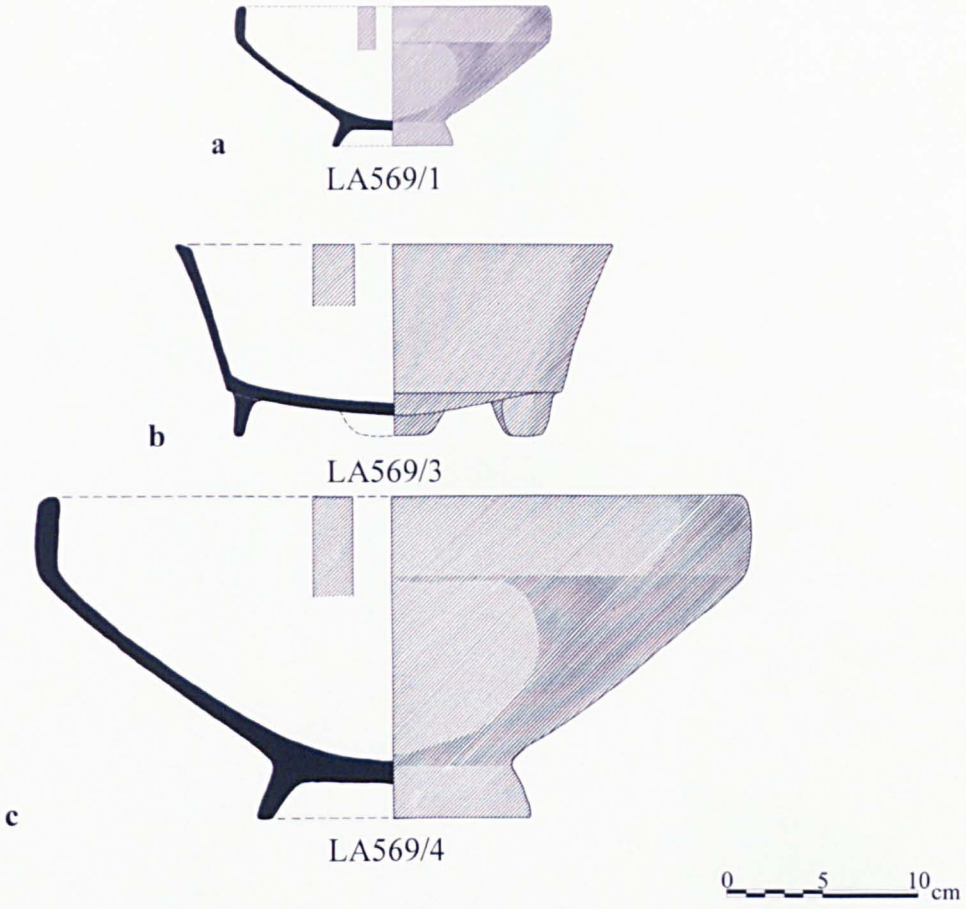


Figure IX.57: Sampled vessels from refuse west of structure P8-103

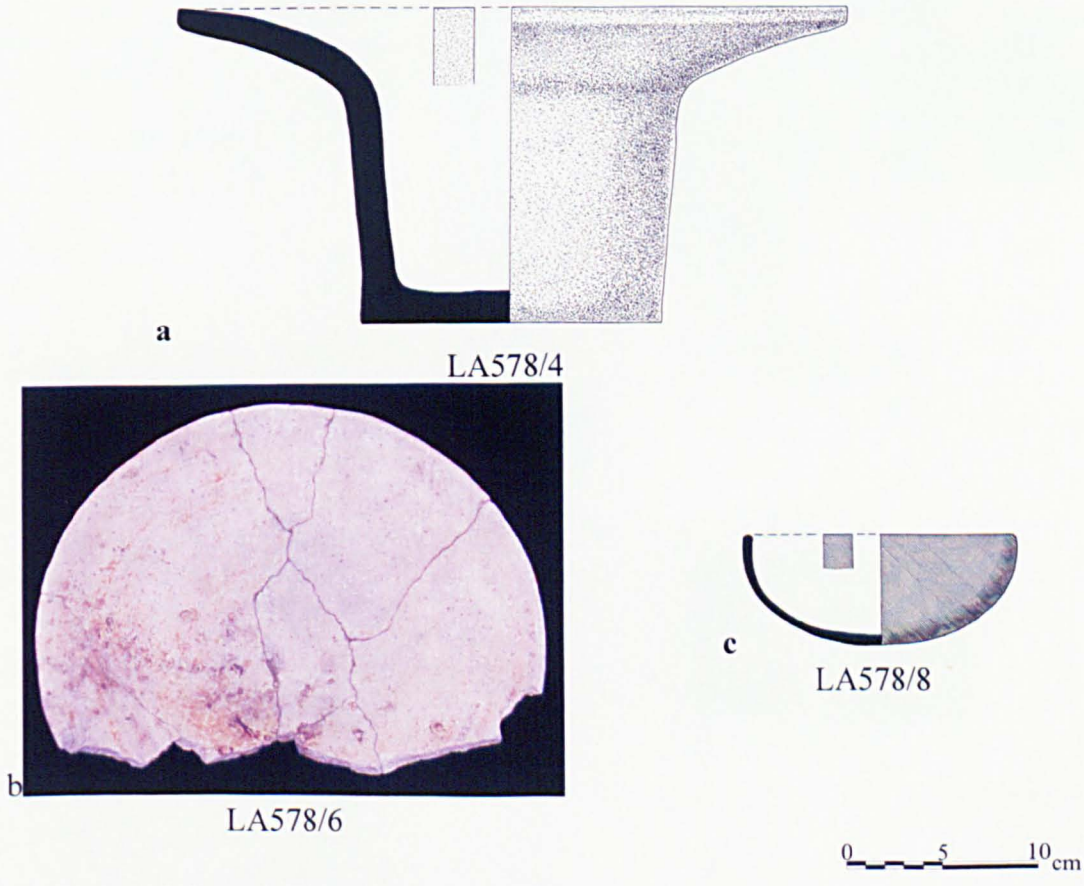
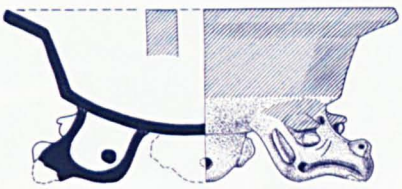


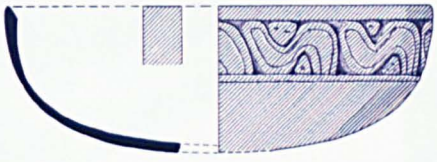
Figure IX.58: Sampled vessels from a) cache N10-14/6 and b) and c) cache N10-17/8



LA580/2

0 5 10 cm

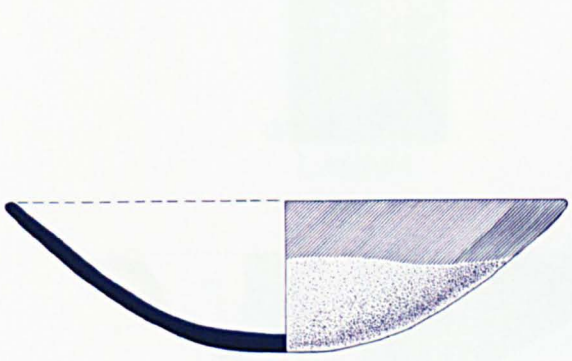
Figure IX.59: Sampled vessel from burial N10-14/1



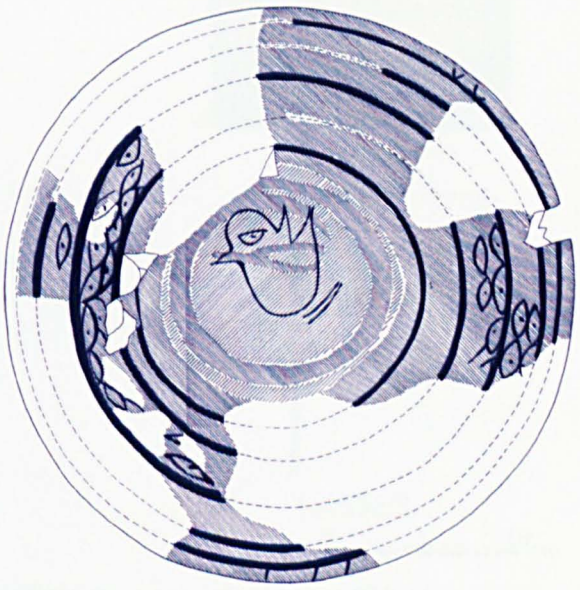
LA583/1

0 5 10 cm

Figure IX.60: Sampled vessel from burial N10-14/2



LA585/4



0 5 10 cm

Figure IX.61: Sampled vessel from burial N10-17/2

a

LA621/8A

b

LA621/9

0 5 10 cm

Figure IX.62: Sampled vessels from burial N10-15/1

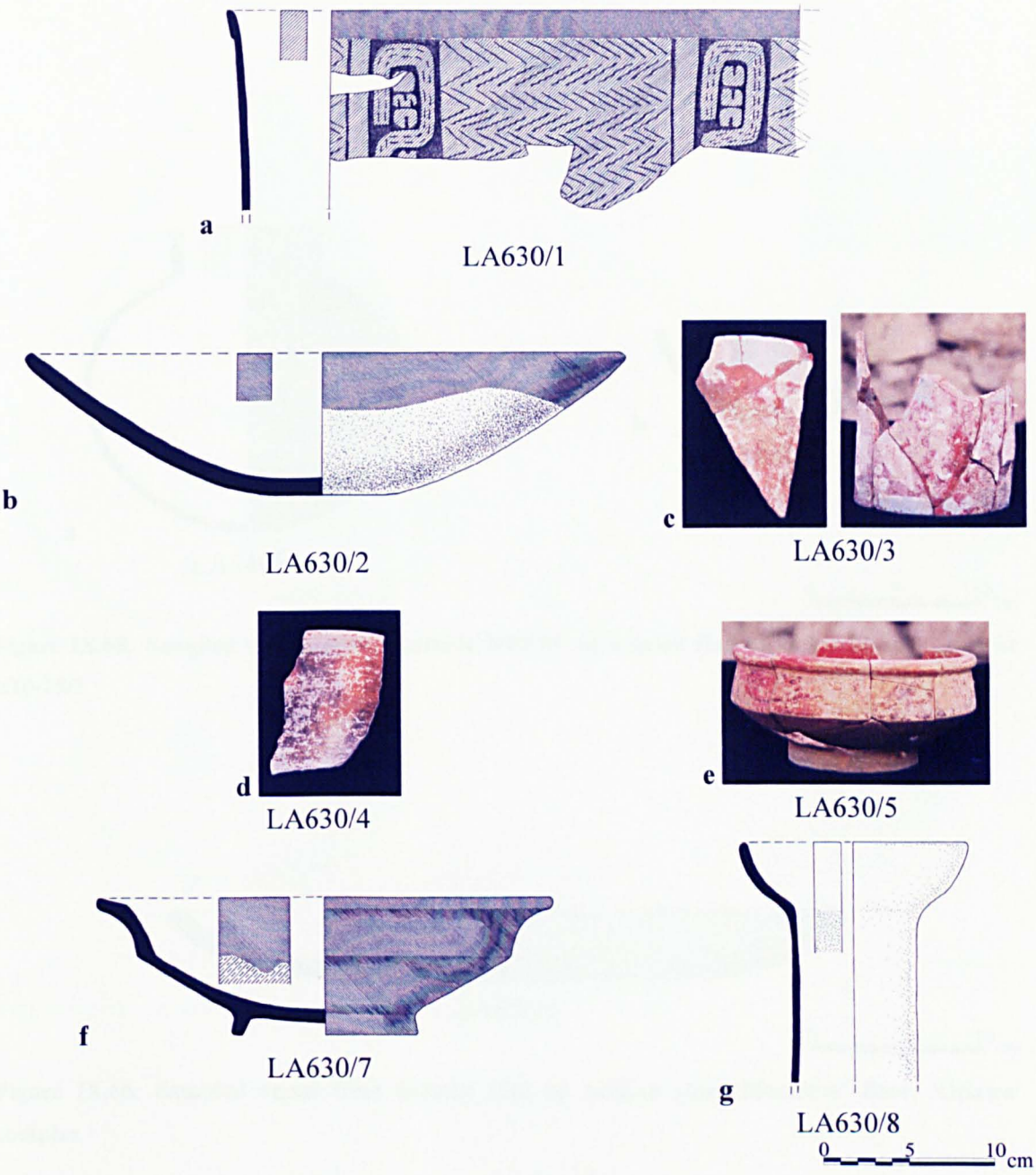


Figure IX.63: Sampled vessels from isolated finds in 'Bak' floor core of structure N10-15

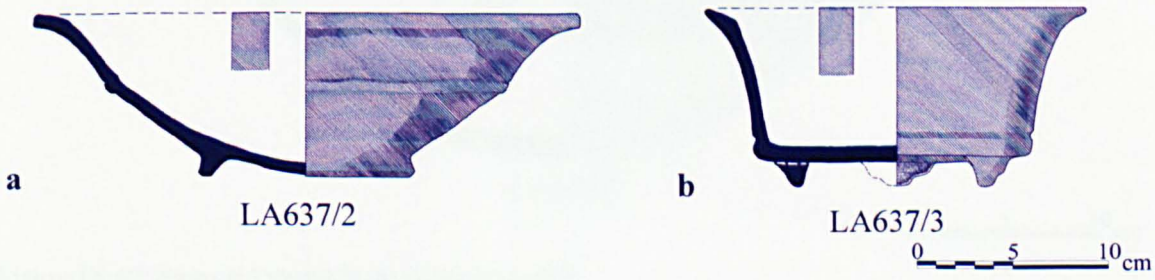


Figure IX.64: Sampled vessels from burial N10-66/1

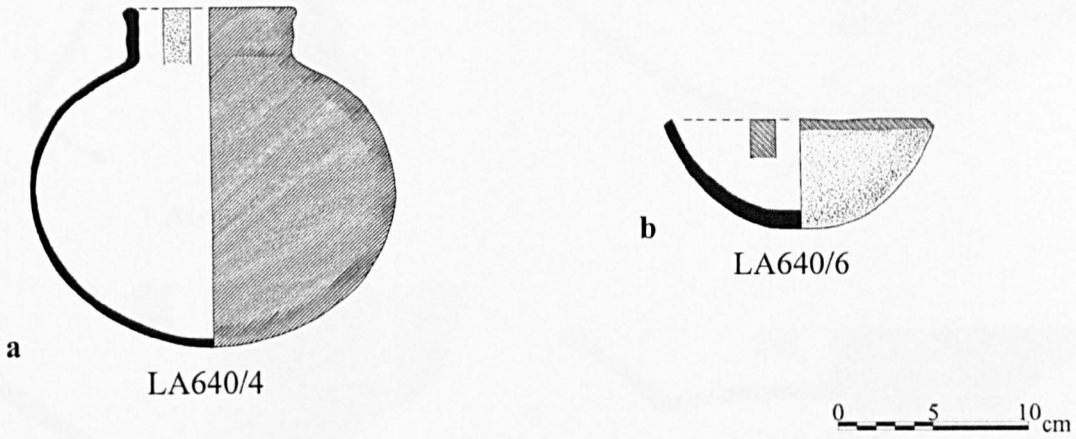


Figure IX.65: Sampled vessels from structure N10-15: a) isolated find in levine pit and b) cache N10-15/2

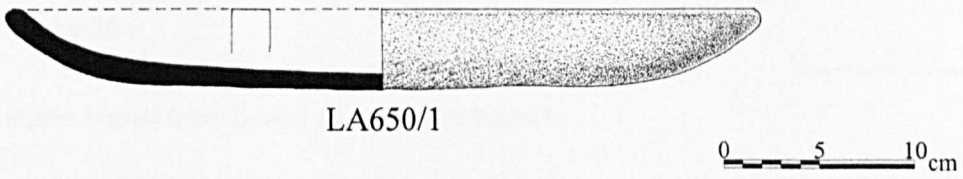


Figure IX.66: Sampled vessel from isolated find on surface atop 'Bloulders' floor, 'Ottawa' complex

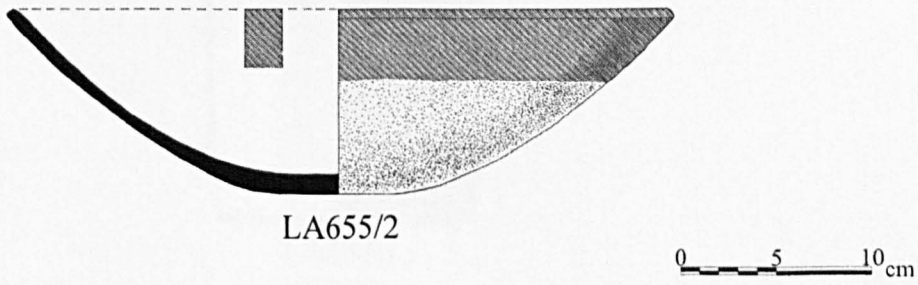


Figure IX.67: Sampled vessel from cache N10-15/3

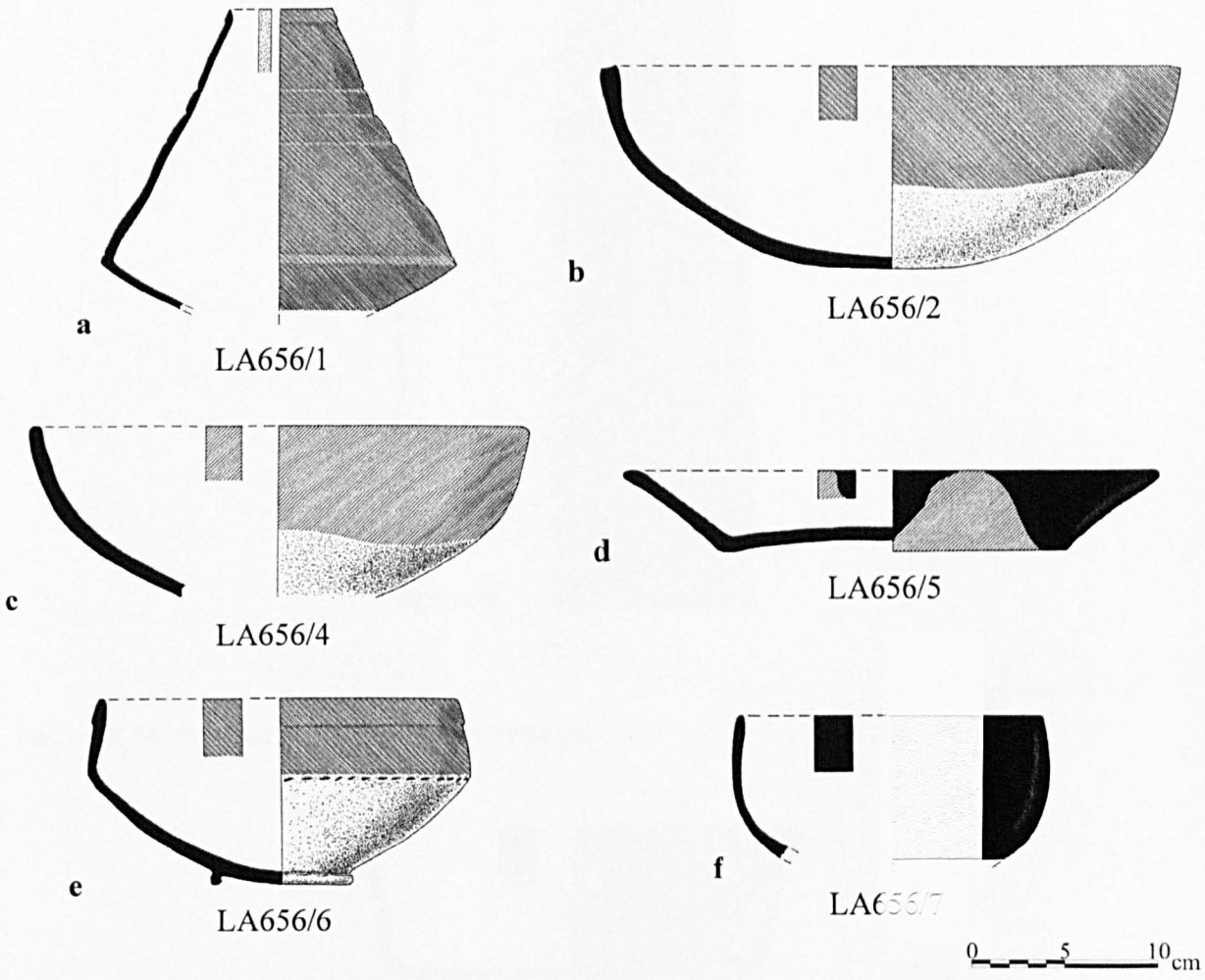


Figure IX.68: Sampled vessels from Levine pit, structure N10-15

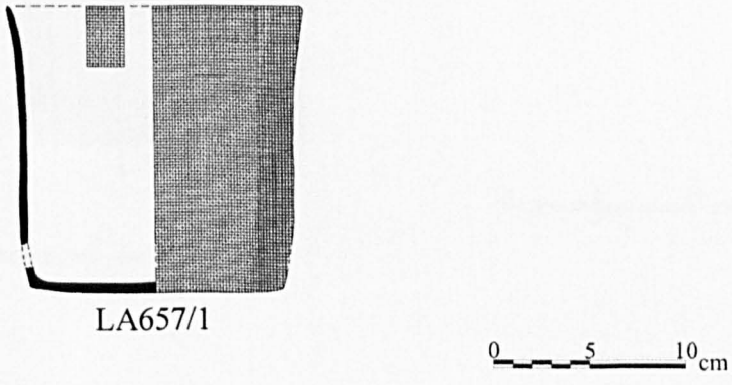
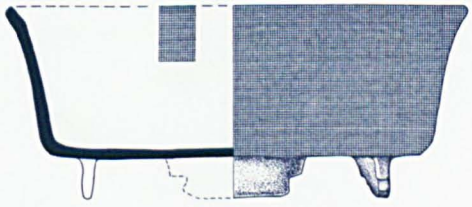


Figure IX.69: Sampled vessel from cache N10-66/1

LA658/1

0 5 10 cm

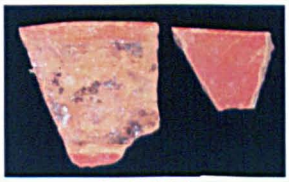
Figure IX.70: Sampled vessel from burial N10-66/3



LA662/2

0 5 10 cm

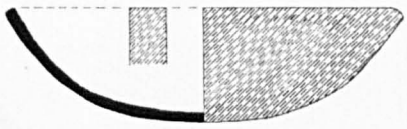
Figure IX.71: Sampled vessel from isolated find in west centre room, structure N10-15



LA664

0 5 10 cm

Figure IX.72: Sampled vessel from unknown, no card



LA673/5

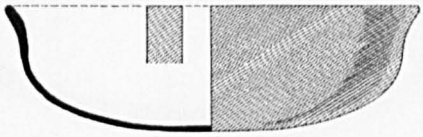
0 5 10 cm

Figure IX.73: Sampled vessel from cache N10-14/7

LA674/1

0 5 10 cm

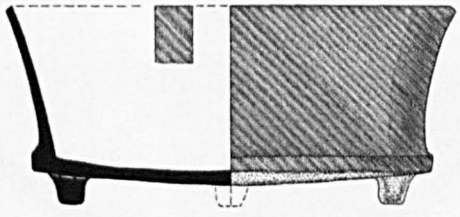
Figure IX.74: Sampled vessel from burial N10-66/12



LA678/2

0 5 10 cm

Figure IX.75: Sampled vessel from refuse dump west end of structure N10-15



LA690/2

0 5 10 cm

Figure IX.76: Sampled vessel from burial N10-67/1

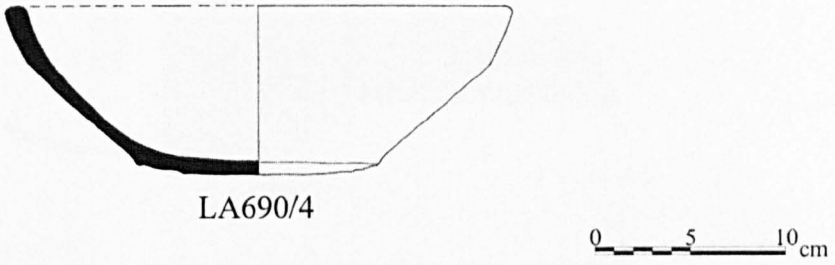


Figure IX.77: Sampled vessel from burial P8-102/2

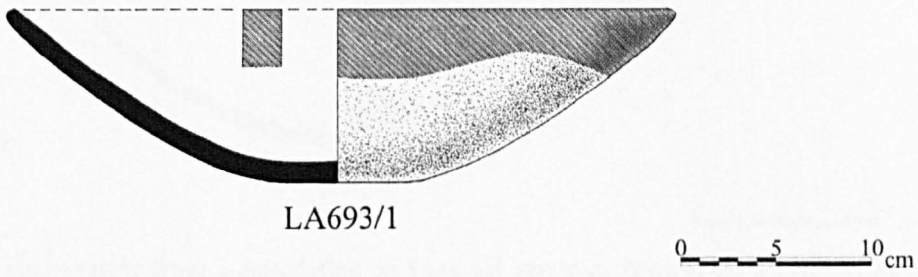


Figure IX.78: Sampled vessel from cache N10-15/7

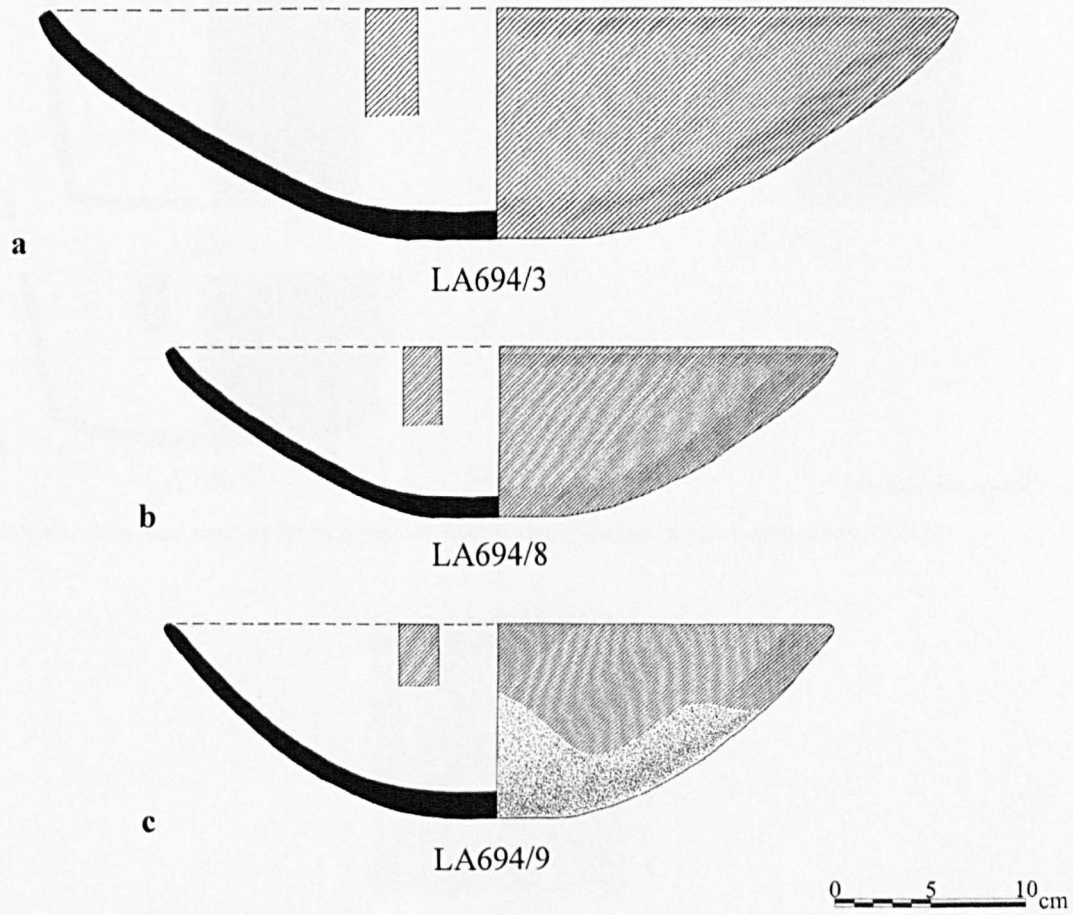


Figure IX.79: Sampled vessels from cache N10-15/8

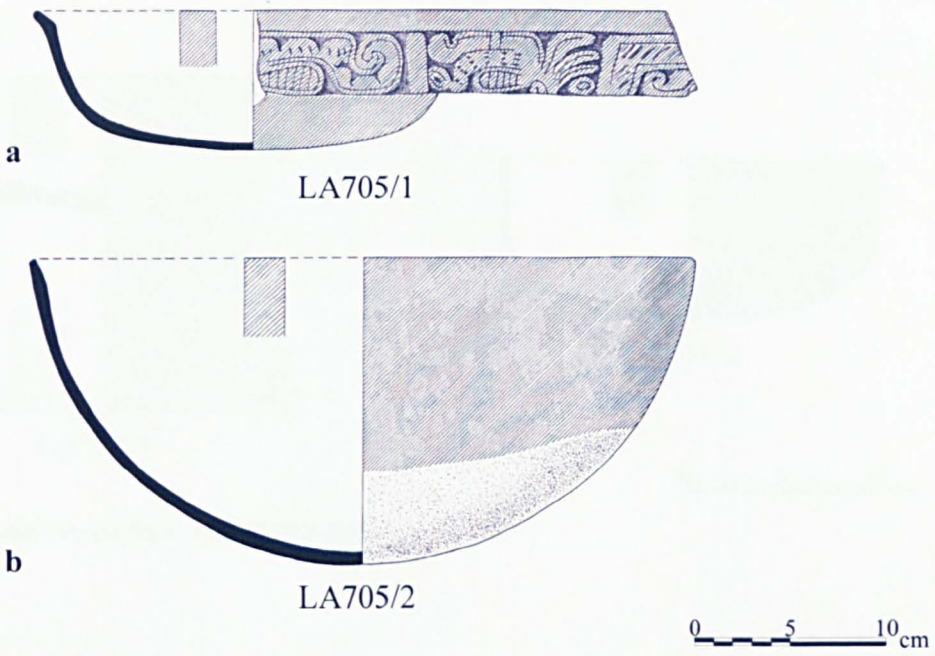


Figure IX.80: Sampled vessels from isolated find in topmost stratum, base of structure N10-27, southwest corner

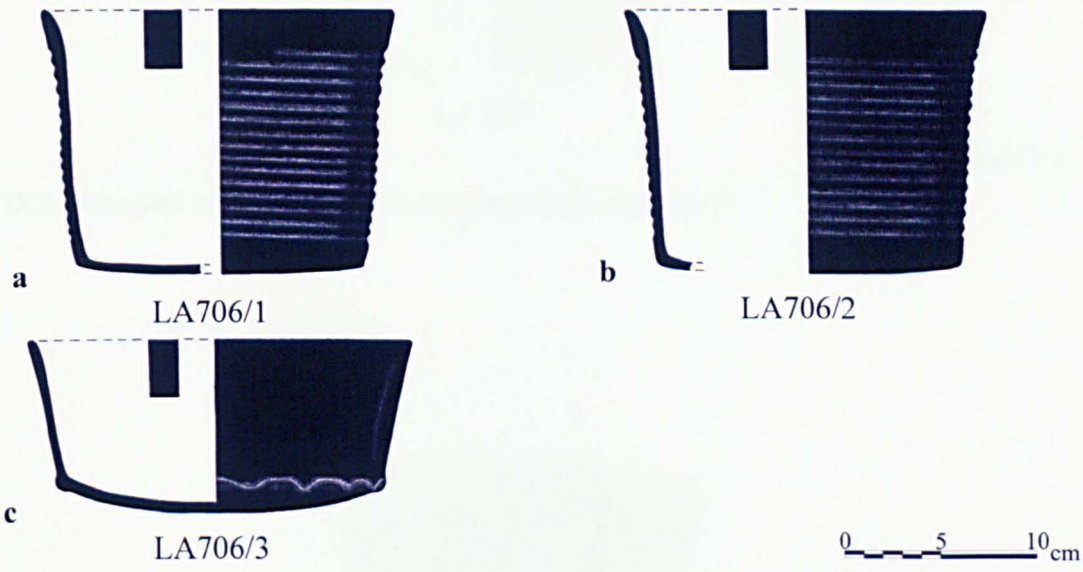


Figure IX.81: Sampled vessels from isolated find in north front terrace, structure N10-27

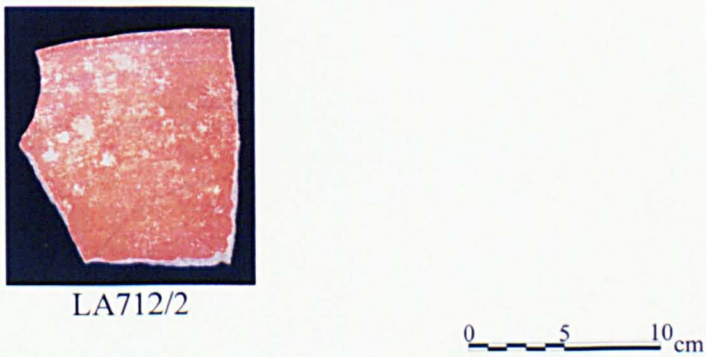


Figure IX.82: Sampled vessel from isolated find, Stela 9 addition core, structure N10-27

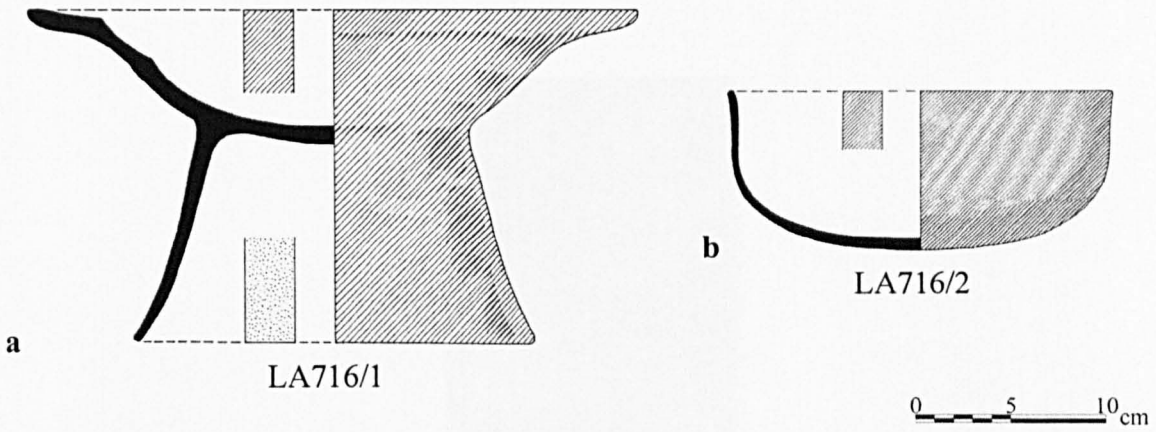


Figure IX.83: Sampled vessels from burial N10-30/2

Figure IX.84: Sampled vessel from midden southwest corner of N10-27

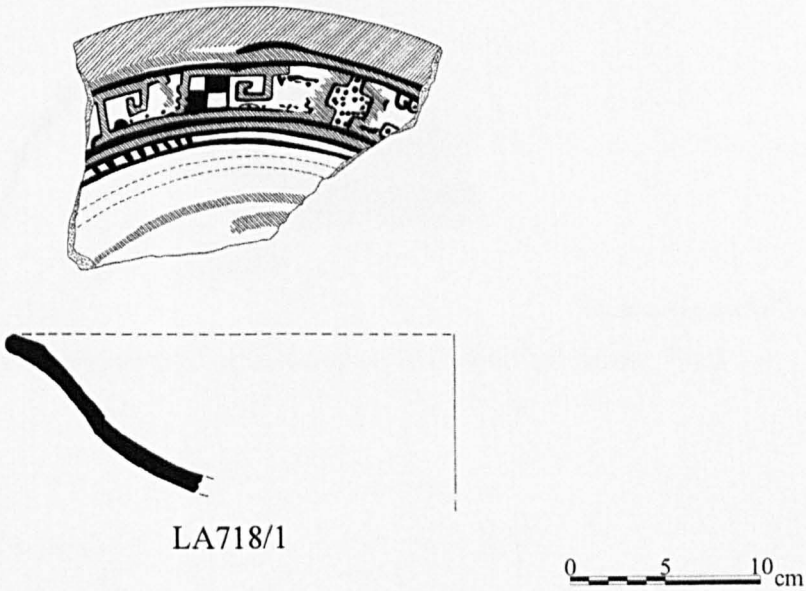


Figure IX.85: Sampled vessel from refuse north stairside outset of structure N10-27 (midden)

LA722/1

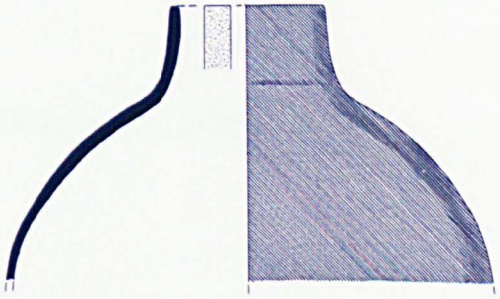
0 5 10 cm

Figure IX.86: Sampled vessels from refuse, west side of structure N10-27

LA814/1: no illustration, see LA508/7 for a similar form (Figure IX.52)

0 5 10 cm

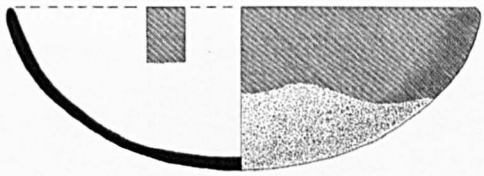
Figure IX.87: Sampled vessel from isolated find west of structure N11-7



LA825/1

0 5 10 cm

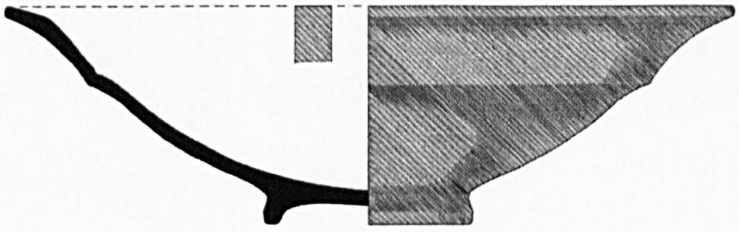
Figure IX.88: Sampled vessel from isolated find northeast corner at base of structure N11-5



LA842/3

0 5 10 cm

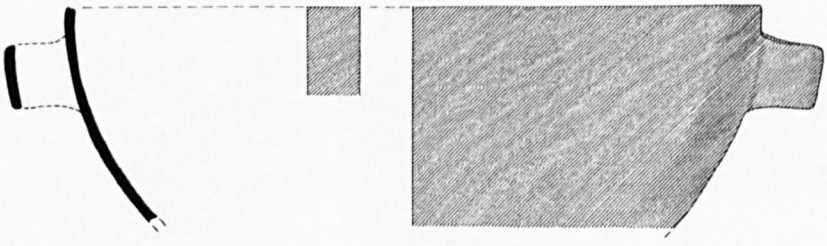
Figure IX.89: Sampled vessel from burial N11-9/3



LA872/4

0 5 10 cm

Figure IX.90: Sampled vessel from burial N11-5/5



LA916/18

0 5 10 cm

Figure IX.91: Sampled vessel from west pit, structure N11-18

Figure IX.1: Sampled vessels from burial N10-1/1

a) LA13/5 Tetrapod bowl, round sides, horizontal everted rim, rounded lip that is slightly bevelled in, segmented basal flange, slightly rounded base, four feet (see below). Decoration: orange slip on interior surface and exterior surface including flange, base is unslipped; postslip-prefiring incising and gouging on exterior only; human head appliqué on side (front); modelled animal-like front legs and human, kneeling back legs, legs painted with Maya blue postfiring. Motifs: curvilinear, linear and geometric.

Dimensions: diam. 34 cm; ht. 16.3 cm; th. 0.7 cm.

b) LA13/6 Tripod bowl, round sides, direct rim, rounded lip that is slightly bevelled out, rounded base, three hollow oven feet with anterior-posterior opposing single vertical slit vents. Decoration: orange slip on interior and exterior surfaces including feet.

Dimensions: diam. 24 cm; ht. 10.9 cm; th. 0.5 cm.

c) LA13/7 Tripod bowl, round sides, horizontal everted rim, squared lip that is slightly bevelled out, segmented basal flange, slightly rounded base, three effigy feet. Decoration: orange slip on interior surface and exterior surface including flange, unslipped base; postslip-prefiring incising on flange only; feet are modelled bird heads painted with Maya blue postfiring. Motifs: linear.

Dimensions: diam. 30 cm; ht. 13 cm; th. 0.7 cm.

d) LA13/8 Tripod bowl, round sides, horizontal everted rim, squared lip, segmented basal flange, slightly rounded base, three hollow oven feet with anterior-posterior opposing single vertical slit vents. Decoration: orange slip on interior surface and exterior surface including flange, base and feet are unslipped; postslip-prefiring incising on flange only. Motifs: linear.

Dimensions: diam. 24 cm; ht. 11 cm; th. 0.7 cm.

e) LA13/9 Tripod bowl, round sides with a slight interior basal angle at junction with the segmented flange, horizontal everted rim, rounded lip, segmented basal flange, slightly rounded base, three (one is missing) large effigy feet. Decoration: orange slip on interior surface and exterior surface including flange, unslipped base and feet; postslip-prefiring incising and gouging on exterior body and flange and plain interior; feet are modelled, human-like heads with open mouths (vents), tab ears and projecting noses. Motifs: linear, curvilinear and geometric in bands.

Dimensions: diam. 23 cm; ht. 15.2 cm; th. 0.6 cm.

f) LA13/12 Tripod bowl, slightly out-curving sides with a slight basal angle, flaring everted rim, rounded lip with an angular interior margin, slightly rounded base, three hollow ovoid feet with anterior-posterior opposing vertical slit vents. Decoration: orange slip on interior and exterior surface including feet.

Dimensions: diam. 24 cm; ht. 11.6 cm; th. 0.6 cm.

g) LA13/14 Tripod bowl, round sides, flaring everted rim, rounded lip with an angular interior margin, slightly rounded base, three hollow ovoid to slightly conical feet with anterior-posterior opposing single perforation vents. Decoration: orange slip on interior and exterior surface including feet.

Dimensions: diam. 23 cm; ht. 10.3 cm; th. 0.6 cm.

Figure IX.2: Sampled vessel from midden

LA62/71 Tripod bowl, round sides, direct rim, rounded lip that is slightly bevelled out, rounded base, three hollow oven feet with opposing lateral slit vents. Decoration: orange slip on interior and exterior surfaces including feet.

Dimensions: diam. 19 cm; ht. 7.1 cm; th. 0.5 cm.

Figure IX.3: Sampled vessels from burial N10-4/2

a) LA68/1 Chile Grinder/Molcajete, round sides, direct rim, squared lip, rounded base, three hollow oven feet with rattles and two opposing lateral perforation vents. Decoration: orange slip on interior and exterior surfaces including feet; postslip-prefiring incising on interior surface at bottom, plain exterior . Motifs: linear checkerboard pattern.

Dimensions: diam. 30 cm; ht. 9 cm; th. 0.6 cm.

b) LA68/4 Bowl, round sides, direct rim, rounded to slightly pointed lip, slightly rounded base. Decoration: orange slip on interior and exterior surfaces; postslip-prefiring incising and gouging in a wide band on upper sides, plain interior. Motifs: linear and complex curvilinear.

Dimensions: diam. 19 cm; ht. 9 cm; th. 0.5 cm.

c) LA68/6 Composite silhouette bowl, rounded lower sides rising to an angular junction from which upper sides curve outward, direct and slightly interior thickened rim, rounded lip, small flat base with an impressed circular concavity. Decoration: orange slip on interior and exterior surfaces; postslip-prefiring incising and gouging in a wide band on upper sides, plain interior. Motifs: linear and panels of complex curvilinear.

Dimensions: diam. 17 cm; ht. 7 cm; th. 0.6cm.

Figure IX.4: Sampled vessel from burial N10-4/3

LA69/3 Jar, periform to maliform body, vertical neck with a flaring rim, squared lip that is slightly bevelled out, flat to slightly in-curved base. Decoration: orange slip on exterior surface, unslipped interior except upper portion of neck; postslip-prefiring incising and gouging at base of neck and encircling effigy appliqué on shoulder; modelled bird head effigy on shoulder with two vents at top rear of head, appliqué is stuccoed. Motifs: linear and geometric.

Dimensions: max. diam. 17 cm; rim diam. 9 cm; orifice diam. 6.5 cm; neck ht. 5 cm; ht. 16 cm; th. 0.5cm.

Figure IX.5: Sampled vessel from burial N10-4/5
LA71/1 Single Ovoid Chamber Drum, ovoid centre element with projection tubes of different lengths and diameters. At junction of centre element with shorter tube and on the upper portion of the longer tube are loop handles. Both projection tubes have flaring rims and rounded lips. A horitizontal groove is situated just below the rim of the longer tube. Decoration: orange slip on exterior surface, interior surface is unslipped except for the rim area of the longer tube.

Dimensions: diam. of centre 13 cm; rim diam. of short tube 9 cm; rim diam. of long tube 6 cm; ht. 26.6 cm; th. 0.6cm.

Figure IX.6: Sampled vessels from burial N10-4/9
a) LA72/3 'Chalice' or Out-Curving Pedestal Based Dish, rounded lower sides rising to a broad flaring everted rim, the interior of which is concave, ridge on interior lower sides, rounded lip, flaring pedestal base. Decoration: orange slip on interior and exterior surfaces of body and exterior of pedestal base, interior surface of pedestal base is unslipped; postslip-prefiring incising and piercework on pedestal base, interior and exterior surfaces of body are plain. Motifs: linear and complex curvilinear.

Dimensions: diam. 24 cm; ht. 10.1 cm; th. 0.5cm; base diam. 21 cm.

b) LA72/4 Bowl, out-curving sides, interior-thickened rim, rounded lip, slightly rounded base with a circular impressed concavity. Decoration: orange slip on interior and exterior surfaces; postslip-prefiring incising and gouging in a wide band on upper sides, plain interior. Motifs: linear and panels of complex curvilinear.

Dimensions: diam. 25 cm; ht. 10.6 cm; th. 0.5cm.

Figure IX.7: Sampled vessels from burial N10-4/12
a) LA75/1 Jar, globular to slightly maliform, low out-curving neck, direct rim, bevelled in lip, flat base. Decoration: orange slip on exterior surface, unslipped interior except upper portion of neck.

Dimensions: max. diam. 29 cm; rim diam. 17 cm; orifice diam. 12 cm; neck ht. 3.8 cm; ht. 28 cm; th. 0.5cm.

b) LA75/2 'Chalice' or Out-Curving Pedestal Based Dish, rounded lower sides rising to a broad flaring everted rim, the interior of which is concave, slight ridge on interior lower sides, rounded lip, flaring pedestal base. Decoration: orange slip on interior and exterior surfaces of body and exterior surface of pedestal base, interior surface of pedestal base is unslipped; postslip-prefiring incising on pedestal base, interior and exterior surfaces of body are plain. Motifs: linear and complex curvilinear.

Dimensions: diam. 32 cm; ht. 26.2 cm; th. 0.5cm; base diam. 27 cm.

Figure IX.8: Sampled vessel from burial N10-4/13
LA76/2 Bowl, round sides, direct rim, bevelled in lip, slightly rounded base. Decoration: orange slip on interior and exterior surfaces.

Dimensions: diam. 24 cm; ht. 9.9 cm; th. 0.5 cm.

Figure IX.9: Sampled vessel from burial N10-4/14
LA77/1 Tripod or Tetrapod Stand, circular plate, thickened at edges and overlapped beneath, overlap extends to a segmented basal flange, at least two high columnar feet. Decoration: orange slip on top, under edge and face of flange, underside and feet are unslipped; postslip-prefiring incising on flange; modelled high, hollow,columnar feet with 'toe-shaped' open bases and four appliqué bosses encircling the bottom of each, feet are stuccoed.

Dimensions: diam. 38 cm; ht. 10.2 cm; th. 0.8cm.

Figure IX.10: Sampled vessel from burial N10-4/20
LA82/1 Tripod Dish, round sides, direct rim, rounded lip, rounded base, three hollow conical feet, bottoms turned slightly outward, with rattles and single perforation vents in posterior surface. Decoration: orange slip on interior and exterior surfaces including feet.

Dimensions: diam. 22 cm; ht. 8 cm; th. 0.6 cm.

Figure IX.11: Sampled vessel from burial N10-4/30
LA92/2 Chile Grinder/Molcajete, round sides, direct rim, squared lip that is slightly bevelled out, rounded base, three hollow oven feet with rattles and two opposing lateral perforation vents. Decoration: orange slip on interior and exterior surfaces including feet; postslip-prefiring incising on interior surface at bottom, plain exterior . Motifs: patterned linear.

Dimensions: diam. 26 cm; ht. 9 cm; th. 0.6 cm.

Figure IX.12: Sampled vessels from burial N10-7/1
LA95/6 Censer/Pedestal Based Jar, round sides rising to an angle from which shoulder curves inward to the base of a very low flaring neck; direct rim, rounded lip, slightly out-curving pedestal base. Decoration: orange slip on exterior surface of body and pedestal base, interior surface of body and pedestal base are unslipped, except interior of flaring neck; postslip-prefiring incising on shoulder forming a wide band of panels and on pedestal base. Motifs: linear and complex curvilinear.

Dimensions: max. diam. 27 cm; rim diam. 22 cm; orifice diam. 19 cm; base diam. 27 cm; neck ht. 1.8 cm; ht. 30.5 cm; th. 0.7cm

LA95/7 Bowl, out-curving sides, interior-thickened rim, rounded lip, slightly rounded base. Decoration: orange slip on interior and exterior surfaces; postslip-prefiring incising and gouging in a wide band on upper sides, plain interior. Motifs: complex curvilinear and anthropomorphic.

Dimensions: diam. 25 cm; ht. 8.8 cm; th. 0.6 cm.

Figure IX.13: Sampled vessels from burial N10-7/2
a) LA102/3 Single Bell Chamber Drum, bell-shaped centre element with projection tubes of different lengths and diameters. The wider projection tube has a flaring rim and a pointed lip and the thinner projection tube has a broad flaring everted rim and a rounded lip with an angular interior margin. A horizontal groove is situated just below the rim of the wider tube. Decoration: orange slip on exterior surface, interior surface is unslipped except for the rim area of the thinner tube; postslip-prefiring incising and

gouging on centre element and interior surface of broad flaring everted rim. Motifs: linear and complex curvilinear.

Dimensions: diam. of centre 16 cm; rim diam. of thin tube 13.5 cm; rim diam. of wide tube 16 cm; ht. 31.6 cm; th. 0.7cm.

b) LA102/4 Tripod bowl, round sides that curve outward at rim, bevelled in rim, rounded lip with an angular interior margin, slightly rounded base, three hollow globular feet with rattles and single posterior vertical slit vents. Decoration: orange slip on interior and exterior surface including feet.

Dimensions: diam. 25 cm; ht. 6.8 cm; th. 0.5 cm.

c) LA102/5 Jar, globular, low vertical neck, direct rim, squared lip, slightly rounded base. Decoration: orange slip on exterior surface, unslipped interior except neck; postslip-prefiring incising on shoulder: Motifs: linear and geometric .

Dimensions: max. diam. 19 cm; rim diam. 9 cm; orifice diam. 8 cm; neck ht. 3.2 cm; ht. 18.6 cm; th. 0.4cm.

Figure IX.14: Sampled vessel from cache N10-7/1
LA105/1 Composite silhouette dish, flaring sides, curving upward at rim, interior thickened rim, rounded lip that is slightly bevelled in, flat base. Decoration: red slip on interior surface and upper sides of exterior surface, lower sides of exterior and base are unslipped.

Dimensions: diam. 31 cm; ht. 10.3 cm; th. 0.7 cm.

Figure IX.15: Sampled vessel from isolated find atop floor of 'Gom', structure N10-2
LA107/3 Bowl, out-curving sides, rounded lip that is slightly bevelled out, slightly rounded base with an impressed circular concavity. Decoration: orange slip on interior and exterior surfaces; postslip-prefiring incising and gouging in a wide band on upper sides, plain interior. Motifs: complex curvilinear.

Dimensions: diam. 27 cm; ht. 9.8 cm; th. 0.7 cm.

Figure IX.16: Sampled vessel from isolated find atop floor of 'Gom' core, structure N10-2
LA115/33 Bowl, flaring sides, direct rim, rounded lip that is slightly pointed, flat base. Decoration: red slip on interior and exterior surfaces; preslip carving and modelling-carving or possibly stamping on exterior sides, plain interior. Motifs: cartouches and anthropomorphic and complex curvilinear motifs.

Dimensions: diam. 20 cm; ht. 8.3 cm; th. 0.7 cm.

Figure IX.17: Sampled vessel from burial N10-2/18
LA122/2 Composite silhouette bowl with a pedestal base, rounded lower sides rising to an angle from which rounded upper sides rise to a bolstered rim, slight ridge on interior surface below angle, bevelled in lip, low flaring pedestal base. Decoration: orange slip on interior and exterior surfaces of body and exterior of base, interior of base is unslipped.

Dimensions: diam. 23 cm; ht. 12.4 cm; th. 0.5cm; base diam. 19 cm.

Figure IX.18: Sampled vessels from burial N10-2/19

a) LA123/1 Composite Vessel (possibly a water drum), rounded lower sides rising to a shoulder from which in-curving body sides rise to a tall vertical neck with a flaring bevelled in rim, pointed lip, in-curved base. A horizontal groove encircles the base of the rim. From the lower body a tube extends connecting the main jar shaped element to a vertical sided element with a flat base (top is missing). Decoration: orange-red slip on exterior surfaces, interior surfaces are unslipped except for the bevelled rim.

Dimensions: max. diam. of main element 13 cm; rim diam. 9 cm; orifice diam. 6.5 cm; neck ht. 4.2 cm; ht. 10.1 cm; th. 0.4cm; diam of vertical element at base 6 cm.

b) LA123/5 Bowl, out-curving sides, flaring everted rim, rounded lip that is slightly bevelled out, slightly rounded base with an impressed circular concavity. Decoration: orange slip on interior and exterior surfaces; postslip-prefiring incising and gouging below rim and in a wide band of panels on upper sides, plain interior. Motifs: geometric and complex curvilinear.

Dimensions: diam. 16 cm; ht. 8 cm; th. 0.6 cm.

Figure IX.19: Sampled vessel from isolated find in camp garbage pit #3, depth ca. 55 cm

LA124/1 Composite silhouette dish, flaring lower sides rising to an angle from which slightly rounded upper sides rise vertically to rim, slightly exterior thickened and interior bolstered rim, rounded lip, flat base. Decoration: orange-red slip on interior and exterior surfaces;

preslip impressing on rim and angle; postslip-prefiring incising in a band on upper sides; plain interior. Motifs: impressed fillets and notches, complex linear (including symbols?) incising.

Dimensions: diam. 31 cm; ht. 10.3 cm; th. 0.6 cm.

Figure IX.20: Sampled vessels from burial N10-2/20

a) LA127/2 Tripod bowl, round sides, slightly flaring everted rim, squared lip, segmented basal flange, slightly rounded base, three hollow oven feet with rattles, opposing lateral horizontal slit vents and large vertical posterior slit vent. Decoration: orange slip on interior surface and exterior surface including flange, base and feet are unslipped; postslip-prefiring incising and gouging on exterior body and flange, plain interior. Motifs: linear, curvilinear and geometric in bands.

Dimensions: diam. 25 cm; ht. 13 cm; th. 0.6 cm.

b) LA127/3 Bowl, out-curving sides, rounded lip that is slightly bevelled out, slightly rounded base with a circular impressed ring. Decoration: orange slip on interior and exterior surfaces; postslip-prefiring incising and gouging in a wide band on upper sides, plain interior. Motifs: linear and complex curvilinear.

Dimensions: diam. 36 cm; ht. 14 cm; th. 0.9cm.

c) LA127/5 Tripod bowl, round sides, slightly flaring everted rim, squared lip, segmented basal flange, slightly rounded base, three (one missing) hollow oven feet with rattles. One foot has opposing anterior-posterior vertical slit vents and a crescent-shaped slit at one side, and the other foot has an anterior vertical slit vent and a posterior crescent-shaped slit vent. Decoration: orange slip on interior surface and exterior surface including flange, base and feet are unslipped and feet are stuccoed; postslip-prefiring incising and gouging on exterior body and flange; plain interior. Motifs: linear, curvilinear and geometric in bands.

Dimensions: diam. 23 cm; ht. 13 cm; th. 0.5 cm.

d) LA127/6 Tripod bowl, round sides, horizontal everted rim, squared lip, segmented basal flange, slightly rounded base, three effigy feet with rattles. Decoration: orange slip on interior surface and exterior surface including flange, base and feet are unslipped and feet are stuccoed; postslip-prefiring incising and gouging on flange only; feet are modelled human-like heads with large perforated eyes, small horizontal slit vent mouths and posterior vertical slit vents. Motifs: linear.

Dimensions: diam. 21 cm; ht. 11.8 cm; th. 0.6 cm

Figure IX.21: Sampled vessels from burial N10-2/23

a) LA131/3 Double Chamber Drum, two slightly bulging-side cylinders with a raised band at shoulder, angle at shoulders slopes inward to meet vertical-side tubes with direct rims. The cylinders have flaring rims and rounded lips. A horizontal groove encircles each cylinder at the base of the rim and two horizontal grooves encircle the rim area of each tube. The two elements are joined at the shoulder and tube rims by flat straps. Decoration: orange slip on exterior surfaces, unslipped interior surfaces.

Dimensions: diam. of cylinder 12 cm; diam. of tube 6 cm; ht. 21.2 cm; th. 0.7-0.9 cm

b) LA131/4 Double Chamber Drum, two slightly bulging-side cylinders with a raised band at shoulder, angle at shoulders slopes inward to meet vertical-side tubes with direct rims. The cylinders have flaring rims, rounded lips. A horizontal groove encircles each cylinder at the base of the rim and two horizontal grooves encircle the rim area of each tube. The two elements are joined at the shoulder and tube rims by flat straps. Decoration: orange-red slip on exterior surfaces, unslipped interior surfaces.

Dimensions: diam. of cylinder 15 cm; diam. of tube 7 cm; ht. 26.5 cm; th. 0.7 cm

Figure IX.22: Sampled vessel from burial N10-4/41

LA133/1 Strap Handle Jar, globular, low flaring neck, direct rim, pointed lip that is slightly bevelled out, flat base, two horizontal strap handles on body at area of maximum diameter. Decoration: orange slip on exterior surface including handles, unslipped interior except neck.

Dimensions: max. diam. 30 cm; rim diam. 23cm; orifice diam. 21 cm; neck ht. 2.4 cm; ht. ca. 23.5 cm; th. 0.5cm.

Figure IX.23: Sampled vessel from isolated find in core of stair, structure N10-2, below 'Xloc'
LA135/2 Tripod bowl, round sides, horizontal everted rim, rounded lip, segmented basal flange, slightly rounded base, three feet (missing). Decoration: orange slip on interior surface and exterior surface including flange, unslipped base; postslip-prefiring incising on flange only. Motifs: linear.

Dimensions: diam. 11 cm; ht. (not including feet) 4.1 cm; th. 0.4 cm.

Figure IX.24: Sampled vessel from burial N10-2/33
LA149/1 'Chalice' or Out-Curving Pedestal Based Dish, rounded lower sides rising to a broad flaring everted rim, rounded lip, out-curving pedestal base. Decoration: orange slip on interior and exterior surfaces of body and exterior surface of pedestal base, interior surface of pedestal base is unslipped; postslip-prefiring incising and piercework on pedestal base, interior and exterior surfaces of body are plain. Motifs: linear and curvilinear.

Dimensions: diam. 16 cm; ht. 8.4 cm; th. 0.3cm; base diam. 11 cm.

Figure IX.25: Sampled vessel from isolated find, structure N10-2 (sherd feature 3
LA155/1 Bowl, round sides, bolstered rim, slightly squared lip, slightly rounded base. Decoration: orange slip on interior and exterior surfaces.

Dimensions: diam. 35 cm; ht. 11.2 cm; th. 0.8 cm.

Figure IX.26: Sampled vessel from burial N10-7/3
LA166/7 Dish, round sides, direct rim, rounded lip, rounded base with an incipient ring base. Decoration: light orange slip on interior surface, exterior surface is unslipped except for rim area; black and possibly red painted motifs on interior surface only. Motifs: linear and geometric.

Dimensions: diam. 36 cm; ht. ca.10.8 cm; th. 1.0 cm.

Figure IX.27: Sampled vessels from burial N10-2/45
a) LA176/1 Tripod dish, out-curving sides, direct rim, bevelled in lip that is slightly pointed, pronounced basal ridge, slightly rounded base, three effigy feet with rattles. Decoration: orange slip on interior and exterior surfaces, unslipped base and feet; feet are modelled human-like heads with large perforated eyes, large up-turned noses, horizontal slit vent mouths and single posterior round perforation vents.

Dimensions: diam. 19.5 cm; ht. 9.4 cm; th. 0.6 cm.

b) LA176/2 Tripod dish, out-curving sides, direct rim, bevelled in lip that is rounded, pronounced basal ridge, slightly rounded base, three effigy feet with rattles. Decoration: orange slip on interior and exterior surfaces, unslipped base and feet; postslip-prefiring incising and gouging on exterior body; plain interior; feet are modelled zoomorphic heads (bat deity?) with appliqué boss eyes, projecting noses, large penetrating mouths with two central teeth, and single posterior vertical slit vents. Motifs: complex curvilinear

Dimensions: diam. 21 cm; ht. 9.5 cm; th. 0.5 cm.

c) LA176/3 Bowl, round sides, flaring everted rim, slightly pointed lip, slightly rounded base. Decoration: orange slip on interior and exterior surfaces; postslip-prefiring incising and gouging in a wide band on upper sides, plain interior. Motifs: linear, curvilinear and geometric in bands.

Dimensions: diam. 24 cm; ht. 10.9 cm; th. 0.4 cm.

Figure IX.28: Sampled vessel from miscellaneous burial 8
LA198/2 Chile Grinder/Molcajete, round sides, direct rim, squared lip, rounded base, three feet (missing). Decoration: orange slip on interior and exterior surfaces; postslip-prefiring incising on interior surface at bottom, plain exterior . Motifs: linear.

Dimensions: diam. 24 cm; ht. 6.8 cm; th. 0.5 cm.

Figure IX.29: Sampled vessel from cache N10-9/8
LA240/1 Dish, round sides, direct rim, rounded lip that is slightly bevelled out, slightly rounded base. Decoration: red slip on interior surface, exterior surface is unslipped except for rim area; black painted motifs on interior surface only. Motifs: linear with a central animal figure (deer?).

Dimensions: diam. 42 cm; ht. ca.10.2 cm; th. 0.5 cm.

Figure IX.30: Sampled vessels from large cache of smashed vessels over stair, structure N10/9
a) LA243/1 Dish, out-curving sides, hortizontal everted rim, slightly pointed lip, slightly rounded base. Decoration: orange slip on interior and exterior surfaces except base.

Dimensions: diam. 31 cm; ht. 7.3 cm; th. 0.4 cm.

b) LA243/2 Jar, globular, flaring neck, direct rim, rounded lip, rounded base. Decoration: orange slip on exterior surface, unslipped interior except upper neck; postslip-prefiring incising from base of neck to shoulder. Motifs: linear, geometric and complex curvilinear.

Dimensions: max. diam. 22 cm; rim diam. 11cm; orifice diam. 10 cm; neck ht. 5.2 cm; ht. 22.6 cm; th. 0.4cm.

c) LA243/4 'Chalice' or Out-Curving Pedestal Based Dish, rounded lower sides rising to a broad flaring everted rim, the interior of which is concave, ridge on interior lower sides, slightly squared lip, flaring to slightly out-curving pedestal base. Decoration: orange slip on interior and exterior surfaces of body and exterior surface of pedestal base, interior surface of pedestal base is unslipped; exterior surface of base is painted with Maya Blue postfiring.

Dimensions: diam. 25 cm; ht. 13 cm; th. 0.6 cm; base diam. 17 cm.

d) LA243/10 Pedestal Based Censer, rounded sides, curving inwards to base of slightly out-curving rim, rounded lip, slightly out-curving pedestal base, flange at junction between body and base,. Decoration: unslipped exterior and interior surfaces, appliqué spikes and traces of stucco on exterior body.

Dimensions: max. diam. 19.5 cm; rim diam. 23 cm; orifice diam. 18 cm; base diam. 21 cm; ht. 23 cm; th. 0.7 cm.

e) LA243/12 Bowl, round sides, direct rim, rounded lip that is bevelled in, missing base. Decoration: orange slip on interior and exterior surfaces; postslip-prefiring incising and gouging in a wide band on upper sides, plain interior. Motifs: linear, curvilinear and geometric in bands.

Dimensions: diam. 31 cm; ht. 11.9 cm; th. 0.5 cm.

Figure IX.31: Sampled vessels from cache N10-9/9

a) LA244/1 Dish, round sides, direct rim, rounded lip that is slightly bevelled out, slightly rounded base. Decoration: red slip on interior surface, exterior surface is unslipped except for rim area; black painted motifs on interior surface only. Motifs: linear with a central animal figure (cat?).

Dimensions: diam. 41 cm; ht. ca.10.6 cm; th. 0.6 cm.

b) LA244/2 Massive Bowl, flaring lower sides rising to a slight angular junction with vertical to slightly rounded upper sides, direct rim, rounded lip, very low ring base. Decoration: red slip on interior and exterior surfaces except base area; painted black motifs on exterior surface only. Motifs: linear.

Dimensions: diam. 38 cm; ht. 26 cm; th. 0.8 cm.

Figure IX.32: Sampled vessels from burial N10-9/10

a) LA245/5 Tetrapod bowl, round sides, flaring everted rim, rounded lip with angular margins, slightly rounded base, four feet (one missing; see below). Decoration: orange slip on interior surface and exterior surfaces including feet; postslip-prefiring incising on exterior body and feet, plain interior. Feet are modelled hollow human-like legs that are bent at the knee and have open bottoms and appliqué boss anklets. Motifs: curvilinear.

Dimensions: diam. 28 cm; ht. 14 cm; th. 0.7 cm.

b) LA245/6 'Chalice' or Out-Curving Pedestal Based Dish, rounded lower sides rising to a broad flaring everted rim, the interior of which is concave, slight ridge on interior lower sides, slightly squared lip, flaring pedestal base. Decoration: orange slip on interior and exterior surfaces of body and exterior surface of pedestal base, interior surface of pedestal base is unslipped; postslip-prefiring incising and piercework on pedestal base, interior and exterior surfaces of body are plain. Motifs: linear and complex curvilinear.

Dimensions: diam. 38 cm; ht. 19.9 cm; th. 0.5cm; base diam. 27 cm.

Figure IX.33: Sampled vessels from burial N10-4/45

a) LA246/2 Tripod bowl, round sides, direct rim, rounded lip with an angular interior margin and that is slightly bevelled out, rounded base, three hollow and slightly bulbous feet with opposing lateral vertical slit vents. Decoration: orange slip on interior and exterior surfaces including feet.

Dimensions: diam. 35 cm; ht. 12.7 cm; th. 0.7 cm.

b) LA246/3 Tripod bowl, round sides, direct rim, squared lip that is slightly bevelled out, rounded base, three hollow oven feet with opposing lateral vertical slit vents and rattles. Decoration: orange slip on interior and exterior surfaces including feet.

Dimensions: diam. 35 cm; ht. 12.4 cm; th. 0.7 cm.

Figure IX.34: Sampled vessel from burial N9-70/1
LA251/1 Deep Bowl, flaring sides, direct rim, pointed lip, flat base, angular junction between base and body. Decoration: black slip on interior and exterior surfaces.

Dimensions: diam. 13 cm; ht. 8.6 cm; th. 0.5 cm.

Figure IX.35: Sampled vessels from isolated find in core of 'Smedley' stair, structure N10-10
LA254/1 Dish, round sides, direct rim, rounded lip, slightly rounded base. Decoration: red slip on interior surface, exterior surface is unslipped except for rim area, black painted motifs on interior surface only. Motifs: linear with a central animal figure (deer?).

Dimensions: diam. 39 cm; ht. ca.9.8 cm; th. 0.5 cm.

Figure IX.36: Sampled vessels from isolated find in core of structure N9-71
a) LA258/2 Bowl, rounded sides, direct rim, rounded lip, slightly flat base. Decoration: red slip on interior and exterior surfaces.

Dimensions: diam. 19.5 cm; ht. 6.5 cm; th. 0.5 cm.

b) LA258/3 Bowl, in-curving sides, direct rim, rounded lip, slightly flat base. Decoration: black slip on interior and exterior surfaces.

Dimensions: diam. 13.5 cm; ht. 12.2 cm; th. 0.5 cm.

c) LA258/5 Composite silhouette dish with a ring base, rounded lower sides rising to an angle from which upper sides curve outward, slightly everted rim that is interior thickened and bevelled slightly on the interior surface, slightly pointed lip, ring base. Decoration: red slip on interior and exterior surfaces except interior surface of ring base
.

Dimensions: diam. 33 cm; ht. 8.8 cm; th. 0.7 cm; base diam. 12 cm.

Figure IX.37: Sampled vessel from isolated find atop floor at base of main platform, structure N10-43
LA285/1 Composite silhouette bowl, rounded sides that in-curve slightly at rim, direct rim, rounded lip that is slightly bevelled out, slightly flat base. Decoration: red slip on interior and exterior surfaces except base area.

Dimensions: diam. 30 cm; ht. 17 cm; th. 0.8 cm.

Figure IX.38: Sampled vessel from burial N9-33/3
LA304/1 Composite silhouette bowl with a ring base, rounded lower sides rising to an angular junction with vertical upper sides, direct rim, rounded lip that has an angular interior margin, ring base. Decoration: red slip on interior surface and on lip area and on upper portion of lower body, buff slip on upper body below the lip and on the lower portion of the lower sides and base; black painted motifs on the buff slipped area of the upper sides only, plain interior. Motifs: linear and curvilinear.

Dimensions: diam. 30 cm; ht. 12.4 cm; th. 0.7 cm; base diam. 12 cm.

Figure IX.39: Sampled vessel from burial N10-2/49
LA319/1 'Chalice' or Out-Curving Pedestal Based Dish, rounded lower sides rising to a broad flaring everted rim, the interior of which is concave, slight ridge on interior lower sides, slightly squared lip, flaring pedestal base. Decoration: orange slip on interior and exterior surfaces of body and exterior surface of pedestal base, interior surface of pedestal base is unslipped; postslip-prefiring incising and gouging on pedestal base, interior and exterior surfaces of body are plain. Motifs: linear and complex curvilinear.

Dimensions: diam. 17 cm; ht. 10.3 cm; th. 0.5cm; base diam. 13 cm.

Figure IX.40: Sampled vessel from isolated find in core of structure N10-43
LA345/1 Jar, globular, vertical neck, direct rim, squared lip, missing base. Decoration: red slip on exterior surface, unslipped interior surfaces.

Dimensions: max. diam. n/d; rim diam. 9 cm; orifice diam. 8 cm; neck ht. 3.7 cm; ht. n/d; th. 0.6cm

Figure IX.41: Sampled vessel from cache N10-43/3
LA347/1 Dish, round sides, direct rim, rounded lip that is slightly bevelled out, slightly rounded base. Decoration: red slip on interior surface, exterior surface is unslipped except for rim area; black painted motifs on interior surface only. Motifs: linear.

Dimensions: diam. 24 cm; ht. 5.2 cm; th. 0.5 cm.

Figure IX.42: Sampled vessel from cache N10-43/4
LA350/1 Dish, round sides, direct rim, slightly pointed lip, flat base. Decoration: red slip on interior surface, exterior surface is unslipped except for rim area.

Dimensions: diam. 48 cm; ht. 13.2 cm; th. 0.5 cm.

Figure IX.43: Sampled vessels from midden east of structure N10-18
a) LA469 Strap Handle Jar, body form unknown, flaring neck, direct rim, bevelled out lip, two vertical grooved strap handles straddling neck, missing base. Decoration: unslipped interior and exterior surfaces, appliqué band or impressed fillet on upper shoulder, plain interior.

Dimensions: max. diam. n/d; rim diam. 34 cm; orifice diam. 28 cm; neck ht. 5.0 cm; ht. n/d; th. 1.0 cm

b) LA469 Strap Handle Jar, body form unknown, flaring neck, direct rim, bevelled out lip, two vertical grooved strap handles straddling neck, missing base. Decoration: unslipped interior and exterior surfaces, prefiring incising on upper shoulder directly above an appliqué band or impressed fillet, plain interior.

Dimensions: max. diam. n/d; rim diam. 29 cm; orifice diam. 24 cm; neck ht. 3.7 cm; ht. n/d; th. 1.0 cm

c) LA469/1 Tripod bowl, out-curving sides, direct rim, rounded lip that is slightly bevelled out, angular junction between sides and base, slightly rounded base, three hollow oven feet with rattles and three vertical slit vents in a vertical line on posterior. Decoration: orange slip on interior surface and exterior surface except base and feet.

Dimensions: diam. 20 cm; ht. 9.8 cm; th. 0.6 cm.

d) LA469/2 Tripod bowl, out-curving sides, direct rim, rounded lip, angular junction between sides and base, slightly rounded base, three hollow slightly bulbous feet (one missing) with rattles, single opposing lateral perforation vents and single posterior perforation vents. Decoration: orange slip on interior surface and exterior surface except base and feet.

Dimensions: diam. 21 cm; ht. 9.9 cm; th. 0.6 cm.

Figure IX.44: Sampled vessel from isolated find east face of structure N10-18
LA486/3 Composite silhouette bowl, rounded lower sides rising to an angular junction from which upper sides curve outward, slightly interior thickened rim, rounded lip that has an angular interior margin, flat base. Decoration: red slip on interior surface, unslipped exterior surface except rim area.

Dimensions: diam. 24 cm; ht. 6.6 cm; th. 0.6 cm.

Figure IX.45: Sampled vessel from isolated find in courtyard, drain area, structure N10-18
LA487/1 Jar, globular, high vertical neck, bolstered rim, rounded lip, rounded base. Decoration: unslipped interior and exterior surfaces, striated body starting from base of neck, plain neck, rim and interior surface.

Dimensions: max. diam. n/d; rim diam. 19 cm; orifice diam. 16 cm; neck ht. 7.0 cm; ht. n/d; th. 0.6 cm

Figure IX.46: Sampled vessel from burial P8-102/1
LA489/3 Bowl, flaring sides, direct rim, rounded to slightly pointed lip, angular junction between body and base, flat base,. Decoration: red slip on interior and exterior surfaces.

Dimensions: diam. 20 cm; ht. 6 cm; th. 0.6 cm.

Figure IX.47: Sampled vessel from burial P8-102/2
LA490/1 Composite silhouette dish with a ring base, rounded lower sides rising to an angle from which upper sides curve outward, out-curving everted rim that is slightly interior thickened, rounded lip, ring base. Decoration: orange-red slip on interior surface and exterior surface except lower sides and ring base (very eroded).

Dimensions: diam. 31 cm; ht. 7.8 cm; th. 0.6 cm; base diam. 10 cm.

Figure IX.48: Sampled vessels from burial P8-102/3
LA491/3 Composite silhouette bowl with a ring base, rounded lower sides rising to a slight angle with slightly rounded upper sides, direct rim, slightly squared lip, low ring base. Decoration: red slip on interior surface and rim area of exterior surface; possibly a red wash or thinly applied slip on the remainder of the exterior surface.

Dimensions: diam. 22 cm; ht. n/d cm; th. 0.6 cm; base diam. 9 cm.

Figure IX.49: Sampled vessel from burial P8-104/2
LA503/2 Cylindrical Vase, vertical sides, direct rim, squared lip, angular junction between body and base, flat base. Decoration: very eroded; orange slip on exterior surface a least; red and black painted motifs on exterior surface; plain interior surface. Motifs: too eroded to assess.

Dimensions: diam. 13.5 cm; ht. 19.1 cm; th. 0.5 cm; base diam. 13 cm.

Figure IX.50: Sampled vessels from burial P8-102/10B
a) LA504/3 Deep Bowl, out-curving sides, direct rim, pointed lip, angular junction between body and base, flat base. Decoration: black slip on interior surface and exterior surface except base; preslip lateral groove-incising on exterior body, plain interior.

Dimensions: diam. 13.5 cm; ht. 7.8 cm; th. 0.6 cm.

b) LA504/4 Dish, round sides, direct rim, slightly squared lip, slightly rounded base. Decoration: very eroded; orange slip on interior surface at least; red and black painted motifs on interior surface. Motifs: too eroded to assess.

Dimensions: diam. 26 cm; ht. 5.6 cm; th. 0.7 cm.

Figure IX.51: Sampled vessel from burial P8-104/2
LA507/2 Composite silhouette dish with a ring base, rounded lower sides rising to an angle from which upper sides curve outward, slightly everted rim, rounded lip, ring base. Decoration: slipped on interior and exterior surface, resist effect on interior surface, exterior surface is black; black and red mottling on interior surface, with black as the predominant colour.

Dimensions: diam. 43 cm; ht. ca. 10 cm; th. 0.8 cm; base diam. 15 cm.

Figure IX.52: Sampled vessels from burial P8-104/2
a) LA508/6 Barrel-Shaped Vase, slightly rounded sides that curve inward to a restricted orifice, direct rim, slightly pointed lip, angular junction between body and base, flat base. Decoration: black slip on exterior surface except base, unslipped interior surface; raised band with and centre ridge on upper sides of exterior, plain interior.

Dimensions: diam. 9 cm; ht. 26.9 cm; th. 0.4 cm; base diam. 13.5 cm.

b) LA508/7 Cylindrical Vase, vertical sides, direct rim, rounded lip, angular junction between body and base, flat base. Decoration: black slip on exterior surface except

base; unslipped interior surface; preslip lateral groove-incising and two vertical panels of preslip patterned groove-incising and punctations on exterior body, plain interior. Motifs: linear and geometric.

Dimensions: diam. 9 cm; ht. 38 cm; th. 0.5 cm; base diam. 9 cm.

Figure IX.53: Sampled vessels from refuse at south end of structure N10-18
a) LA515/1 Bottle, rounded lower sides curving up to a very sharp angle from which upper sides curve sharply inward to an insloping neck, direct rim, pointed lip that is slightly bevelled in, missing base. Decoration: red slip on exterior surface, unslipped interior surface that is heavily blackened; preslip diagonal grooving on exterior mid-body producing a false gardooning effect; two step-like bands with raised upper margins on exterior upper mid- body; plain interior.

Dimensions: diam. 7 cm; ht. n/d; th. 0.7 cm; base diam. n/d.

b) LA515/2 Composite silhouette bowl, rounded sides sloping in to a restricted orifice, direct rim, rounded lip, flat base. Decoration: red slip on interior surface, exterior surface is unslipped except rim area.

Dimensions: diam. 16 cm; ht. 12.4 cm; th. 0.7 cm.

c) LA515/3 Tripod bowl, out-curving sides, direct rim, rounded lip that is slightly bevelled out, pronounced basal ridge, flat base, three possibly solid slab feet (missing). Decoration: red slip on interior surface and exterior surface except base.

Dimensions: diam. 20 cm; ht. (not including feet) 7.6 cm; th. 0.4 cm.

d) LA515/4 Cylindrical Vase, vertical sides, direct rim, slightly pointed lip, angular junction between body and base, flat base. Decoration: black slip on exterior surface except base, unslipped interior surface; preslip groove-incising, punctations and possibly stamping on exterior sides, plain interior. Motifs: cartouches and linear and curvilinear motifs.

Dimensions: diam. 14 cm; ht. n/d; th. 0.5 cm; base diam. 13 cm.

Figure IX.54: Sampled vessel from cache N10-12/1
LA562/1 Jar, globular, vertical neck, direct rim, rounded lip, rounded base. Decoration: orange slip on exterior surface, unslipped interior except neck area; postslip-prefiring incising and gouging from base of neck to shoulder: Motifs: linear, geometric and complex curvilinear.

Dimensions: max. diam. 24.5 cm; rim diam. 9 cm; orifice diam. 8 cm; neck ht. 4 cm; ht. 22.4 cm; th. 0.5cm.

Figure IX.55: Sampled vessel from burial N10-28/1
LA567/5 Single Bell Chamber Drum, bell-shaped centre element with projection tubes of different lengths and diameters. The wider projection tube has a flaring rim and a slightly pointed lip and the thinner projection tube has a broad flaring everted rim and a rounded lip. A horizontal groove is situated just below the rim of the wider tube. Decoration: orange slip on exterior surface, interior surface is unslipped except for the

rim area of the thinner tube; modelled bird head bordered by appliqué bosses on side of centre element; postslip-prefiring incising and gouging around the modelled bird head and postslip-prefiring incising, gouging and piercework on interior surface of the broad flaring everted rim. Motifs: linear, geometric and curvilinear.

Dimensions: diam. of centre 17 cm; rim diam. of thin tube 13.5 cm; rim diam. of wide tube 12 cm; ht. 32.5 cm; th. 0.6cm.

Figure IX.56: Sampled vessel from burial P7-12/6
LA568/1 Dish, round sides, direct rim, rounded lip that has an angular interior margin, slightly rounded base. Decoration: eroded; interior surface has red and orange painted motifs on a buff or possibly natural background; exterior surface is unslipped/unpainted except for rim area. Motifs: linear and geometric(?).

Dimensions: diam. 34 cm; ht. 8.4 cm; th. 0.6 cm.

Figure IX.57: Sampled vessels from refuse west of structure P8-103
a) LA569/1 Composite silhouette bowl with a ring base, flaring lower sides rising to an angle from which slightly rounded upper sides rise to a direct rim, rounded lip, high ring base. Decoration: red slip on interior and exterior surfaces of body and exterior of base, interior of base is unslipped.

Dimensions: diam. 16 cm; ht. 7.4 cm; th. 0.9cm; base diam. 6 cm.

b) LA569/3 Tripod bowl, slightly out-curving sides, direct rim, bevelled in lip, angular junction between body and base, slightly rounded base, three solid slab feet. Decoration: dark orange slip on interior and exterior surfaces including feet.

Dimensions: diam. 22 cm; ht. 9.6 cm; th. 0.6 cm.

c) LA569/4 Composite silhouette bowl with a ring base, flaring lower sides rising to an angle from which slightly rounded upper sides rise to a direct rim, rounded lip that is slightly bevelled out, high ring base. Decoration: orange slip on interior and exterior surfaces of body and exterior of base, interior of base is unslipped.

Dimensions: diam. 37 cm; ht. 16.5 cm; th. 0.5 cm; base diam. 14.5 cm.

Figure IX.58: Sampled vessels from a) cache N10-14/6 and b) and c) cache N10-17/8
a) LA578/4 Broad Rimmed Bowl, vertical sides rising to a very large flaring everted rim, rounded lip that has an angular interior margin, angular junction between body and base, flat base. Decoration: unslipped interior and exterior surfaces.

Dimensions: diam. 35 cm; ht. 16.1 cm; th. 1.2 cm.

b) LA578/6 Dish, round sides, direct rim, slightly pointed lip, slightly rounded base. Decoration: light orange slip on interior surface and rim area of exterior surface, remainder of exterior surface is unslipped; red and black painted motifs on interior surface only. Motifs: linear and geometric at least (fire clouding on interior bottom).

Dimensions: diam. 34 cm; ht. 8.4 cm; th. 0.6 cm.

c) LA578/8 Bowl, rounded sides, direct rim, rounded lip that is slightly bevelled out, slightly rounded base. Decoration: red slip on interior and exterior surfaces.

Dimensions: diam. 14 cm; ht. 5.5 cm; th. 0.5 cm.

Figure IX.59: Sampled vessel from burial N10-14/1
LA580/2 Tripod bowl, flaring sides, flaring everted rim, slightly squared lip, angular junction between sides and base, slightly rounded base, three hollow effigy feet with rattles, single opposing lateral perforation vents and single posterior perforation vents. Decoration: orange slip on interior surface and exterior surface except base and feet; feet are modelled zoomorphic heads (birds?) with bulging eyes, down-turned beaks and single perforation vents in forehead, at mouth corners and in posterior surface.

Dimensions: diam. 21 cm; ht. 9.1 cm; th. 0.6 cm.

Figure IX.60: Sampled vessel from burial N10-14/2
LA583/1 Bowl, rounded sides, interior thickened rim, pointed lip that is slightly bevelled in, slightly rounded base. Decoration: orange slip on interior and exterior surfaces; postslip-prefiring incising and gouging in a band on upper sides, plain interior. Motifs: linear and complex curvilinear.

Dimensions: diam. 22 cm; ht. 7.7 cm; th. 0.3 cm.

Figure IX.61: Sampled vessel from burial N10-17/2
LA585/4 Dish, round sides, direct rim, rounded lip, slightly rounded base. Decoration: light orange slip on interior surface and rim area of exterior surface, remainder of exterior surface is unslipped; red and black painted motifs on interior surface only. Motifs: linear and complex curvilinear with a central bird figure.

Dimensions: diam. 30 cm; ht. 7.5 cm; th. 0.7 cm.

Figure IX.62: Sampled vessels from burial N10-15/1
a) LA621/8A Tripod bowl, out-curving sides, direct rim, slightly pointed lip, angular junction between sides and base, slightly rounded base, three hollow oven feet with single opposing lateral perforation vents. Decoration: very eroded; orange slip on interior and exterior surfaces of body at least.

Dimensions: diam. 23 cm; ht. 10.5 cm; th. 0.4 cm.

b) LA621/9 Bowl, rounded sides, interior thickened rim, pointed lip that is slightly bevelled in, slightly rounded base. Decoration: orange slip on interior and exterior surfaces (2 mend holes).

Dimensions: diam. 23 cm; ht. 9.4 cm; th. 0.3 cm.

Figure IX.63: Sampled vessels from isolated finds in 'Bak' floor core of structure N10-15
a) LA630/1 Cylindrical Vase, vertical sides, slightly flaring bolstered rim, rounded lip, missing base. Decoration: eroded; red slip on exterior surface, unslipped interior surface; preslip groove-incising and gouging on exterior sides in panels, plain interior. Motifs: linear and complex curvilinear.

Dimensions: diam. 15 cm; ht. n/d; th. 0.4 cm; base diam. n/d.

b) LA630/2 Dish, round sides, direct rim, squared lip, flat base. Decoration: red slip on interior surface, exterior surface is unslipped except for rim area.

Dimensions: diam. 20 cm; ht. 5.4 cm; th. 0.5 cm.

c) LA630/3 Cylindrical Vase, vertical sides, direct rim, rounded lip, angular junction between body and base, flat base. Decoration: eroded interior surface; dark red slip on interior and exterior surfaces; exterior surface and interior rim area are stuccoed and painted with motifs (in blue, turquoise and dark red). Motifs: linear, complex curvilinear and naturalistic(?).

Dimensions: diam. 12 cm; ht. n/d; th. 0.6 cm; base diam. 11.5 cm.

d) LA630/4 Bowl, flaring sides, bolstered rim, rounded lip, angular junction between body and base, missing base. Decoration: black slip with some orange mottling on interior and exterior surfaces.

Dimensions: diam. 14 cm; ht. 10.5 cm; th. 0.5 cm.

e) LA630/5 Composite silhouette bowl with a ring base, rounded lower sides rising to an angular junction with slightly in-sloping upper sides, bolstered rim, rounded lip that has an angular interior margin, high ring base. Decoration: red slip on interior surface and on rim of exterior surface; orange slip on exterior surface including base; black painted motifs on upper sides only, plain interior. Motifs: linear, complex curvilinear and zoomorphic(?).

Dimensions: diam. 16 cm; ht. 6.2 cm; th. 0.6 cm; base diam. 9 cm.

f) LA630/7 Composite silhouette dish with a ring base, rounded lower sides rising to an angle from which upper sides curve outward, slightly everted rim that is bevelled on the interior surface, rounded lip, high ring base. Decoration: red slip on interior and exterior surfaces.

Dimensions: diam. 29 cm; ht. 7.7 cm; th. 0.7 cm; base diam. 10 cm.

g) LA630/8 Torch, tubular handle opening to a mouth with round sides, a direct rim and a slightly bevelled out lip. Decoration: brown (possibly originally orange) slip on exterior surface and possibly interior surface of mouth (heavily eroded), interior of handle is unslipped.

Dimensions: rim diam. 12 cm; handle diam. 7.7 cm; ht. n/d; th. 0.5 cm.

Figure IX.64: Sampled vessels from burial N10-66/1

a) LA637/2 Composite silhouette dish with a ring base, rounded lower sides rising to an angle from which upper sides curve outward, slightly everted rim that is slightly bevelled on the interior surface, rounded lip that has an angular exterior margin, pronounced ridge on exterior at junction between upper and lower sides, ring base. Decoration: orange slip on interior and exterior surfaces.

Dimensions: diam. 30 cm; ht. 8.1 cm; th. 0.5 cm; base diam. 12 cm.

b) LA637/3 Tripod bowl, out-curving sides, slightly everted rim that is bevelled on the interior surface and interior thickened, rounded lip, pronounced basal ridge, flat base, three 'Ik-shaped' solid slab feet. Decoration: red slip on interior surface and exterior surface except base.

Dimensions: diam. 20 cm; ht. 9.5 cm; th. 0.5 cm.

Figure IX.65: Sampled vessels from structure N10-15: a) isolated find in levine pit and b)
a) LA640/4 Jar, globular, low vertical neck that bulges slightly in the middle, slightly bolstered rim, slightly squared lip, rounded base. Decoration: red slip on exterior surface, unslipped interior surfaces.

Dimensions: max. diam. 19 cm; rim diam. 9 cm; orifice diam. 7 cm; neck ht. 2.8 cm; ht. 17.6 cm; th. 0.5cm

b) LA640/6 Bowl, rounded sides, direct rim, squared lip that is slightly bevelled out; flat base. Decoration: red slip on interior surface, unslipped exterior surface except for lip area.

Dimensions: diam. 14 cm; ht. 6.1 cm; th. 0.7 cm.

Figure IX.66: Sampled vessel from isolated find on surface atop 'Bloulders' floor, 'Ottawa'
LA650/1 Comal/Thick Plate, rounded sides, rounded lip that has an angular interior margin, flat base. Decoration: unslipped interior and exterior surfaces; lightly striated on exterior surface only.

Dimensions: diam. 41 cm; ht. 4 cm; th. 0.8 cm.

Figure IX.67: Sampled vessel from cache N10-15/3
LA655/2 Dish, round sides, direct rim, squared lip, slightly rounded base. Decoration: red slip on interior surface, exterior surface is unslipped except for rim area.

Dimensions: diam. 32 cm; ht. 9.4 cm; th. 0.6 cm.

Figure IX.68: Sampled vessels from Levine pit, structure N10-15
a) LA656/1 Bottle, rounded lower sides curving up to a very sharp angle from which upper sides curve sharply inward to a small orifice, direct rim, pointed lip, missing base. Decoration: red slip on exterior surface, unslipped interior surface; preslip horizontal groove-incising on exterior below rim and on upper body producing a stepped effect, plain interior.

Dimensions: diam. 5 cm; ht. n/d; th. 0.7 cm; base diam. n/d.

b) LA656/2 Composite silhouette bowl, rounded sides with a slight medial angle, slightly interior thickened rim, squared lip, flat base. Decoration: red slip on interior surface and exterior surface except lower sides and base.

Dimensions: diam. 32 cm; ht. 10.8 cm; th. 0.8 cm.

c) LA656/4 Bowl, rounded sides, direct rim, rounded lip, missing base. Decoration: red slip on interior surface and exterior surface except lower sides and base.

Dimensions: diam. 26 cm; ht. n/d; th. 0.9 cm.

d) LA656/5 Dish, out-curving sides, direct rim, rounded lip that is bevelled in, angular junction between body and base, slightly in-curved base. Decoration: slipped with a resist effect on interior and exterior surfaces, black and red mottling on interior and exterior surfaces with black as the predominant colour.

Dimensions: diam. 27 cm; ht. 4.2 cm; th. 0.6 cm.

e) LA656/6 Composite silhouette bowl with a ring base, rounded lower sides rising to an angular junction with slightly in-sloping upper sides, bolstered rim, rounded lip that is slightly pointed, ring base. Decoration: red slip on interior surface and on upper sides of exterior surface, lower sides of exterior surface and base are unslipped; a row of preslip impressions (dashes) encircle body at medial angle. Motifs: linear .

Dimensions: diam. 26 cm; ht. 9.7 cm; th. 0.6 cm; base diam. 7 cm.

f) LA656/7 Bowl, rounded sides, direct rim that is slightly interior thickened, rounded lip that is slightly pointed, missing base. Decoration: black slip with some orange mottling on interior and exterior surfaces.

Dimensions: diam. 18 cm; ht. n/d; th. 0.5 cm.

Figure IX.69: Sampled vessel from cache N10-66/1

LA657/1 Deep Bowl, out-curving sides, direct rim, pointed lip, angular junction between body and base, flat base. Decoration: heavily eroded, black slip on interior and exterior surfaces. Originally there may have been preslip lateral groove-incising on the exterior body but the surface is too heavily eroded to conclude this with certainty.

Dimensions: diam. 15 cm; ht. 13.3 cm; th. 0.4 cm.

Figure IX.70: Sampled vessel from burial N10-66/3

LA658/1 Cylindrical Vase, vertical sides that in-curve slightly, direct rim, pointed lip, angular junction between body and base, flat base. Decoration: black slip on exterior surface except base, unslipped interior surface; preslip groove-incising and possibly stamping on exterior sides, plain interior. Motifs: cartouches and linear motifs.

Dimensions: diam. 9 cm; ht. ca. 49 cm; th. 0.5 cm; base diam. 10 cm.

Figure IX.71: Sampled vessel from isolated find in west centre room, structure N10-15

LA662/2 Tripod bowl, out-curving sides, slightly everted rim that is bevelled on the interior surface and interior thickened, rounded lip, angular junction between body and base, flat base, three 'Ik-shaped' solid slab feet. Decoration: brown-black slip on interior surface and exterior surface except base.

Dimensions: diam. 25 cm; ht. 10.6 cm; th. 0.7 cm.

Figure IX.72: Sampled vessel from unknown, no card
LA664 Composite silhouette bowl with a ring base (?), rounded lower sides rising to an angular junction with slightly flaring upper sides, bolstered rim, rounded lip that has an angular interior margin, pronounced ridge at junction between body and base, missing base. Decoration: red slip on interior surface and on rim and lower sides of exterior surface; orange slip on upper sides between rim and ridge; black painted motifs and traces of stucco on upper sides only, plain interior. Motifs: linear and complex curvilinear.

Dimensions: diam. 25 cm; ht. n/d; th. 0.7 cm; base diam. n/d.

Figure IX.73: Sampled vessel from cache N10-14/7
LA673/5 Dish, round sides, direct rim, squared lip that is slightly bevelled out, slightly rounded base. Decoration: buff slip on interior surface, exterior surface is unslipped except for rim area.

Dimensions: diam. 21 cm; ht. 6.1 cm; th. 0.5 cm.

Figure IX.74: Sampled vessel from burial N10-66/12
LA674/1 Deep Bowl, slightly flaring sides that curve out at rim, direct rim, slightly pointed lip, rounded junction between body and base, flat base. Decoration: black slip on interior surface and exterior surface except base; preslip lateral groove-incising on exterior body, plain interior.

Dimensions: diam. 16.5 cm; ht. 13.4 cm; th. 0.5 cm.

Figure IX.75: Sampled vessel from refuse dump west end of structure N10-15
LA678/2 Bowl, out-curving sides, slightly interior thickened rim, rounded lip, slightly rounded base. Decoration: heavily eroded; orange slip on interior and exterior surfaces.

Dimensions: diam. 22 cm; ht. 6.3 cm; th. 0.5cm.

Figure IX.76: Sampled vessel from burial N10-67/1
LA690/2 Tripod bowl, slightly out-curving sides, direct rim, bevelled out lip, pronounced ridge at junction between body and base, flat base, three solid nubin feet. Decoration: red slip on interior surface and exterior surface except base and feet.

Dimensions: diam. 24 cm; ht. 8.7 cm; th. 0.7 cm.

Figure IX.77: Sampled vessel from burial P8-102/2
LA690/4 Composite silhouette bowl, flaring lower sides rising to an angle from which upper sides flare slightly, interior thickened rim, rounded lip that has an angular interior margin, flat base but possibly re-smoothed after low pedestal or ring base was removed. Decoration: red slip on interior surface and exterior surface except base.

Dimensions: diam. 27 cm; ht. 10.6 cm; th. 0.6 cm.

Figure IX.78: Sampled vessel from cache N10-15/7
LA693/1 Dish, round sides, direct rim, rounded lip that has an angular interior margin, flat base. Decoration: red slip on interior surface, exterior surface is unslipped except for rim area.

Dimensions: diam. 35 cm; ht. 7.5 cm; th. 0.9 cm.

Figure IX.79: Sampled vessels from cache N10-15/8
a) LA694/3 Dish, round sides, direct rim, rounded lip that has an angular interior margin, slightly rounded base. Decoration: red slip on interior surface, exterior surface is unslipped except for rim area.

Dimensions: diam. 52 cm; ht. 17.1 cm; th. 0.8 cm.

b) LA694/8 Dish, round sides, direct rim, rounded lip that has an angular interior margin, slightly rounded base. Decoration: red to orange slip (varies with thickness) on interior surface, exterior surface is unslipped except for rim area.

Dimensions: diam. 38 cm; ht. 8.8 cm; th. 0.7 cm.

c) LA694/9 Dish, round sides, direct rim, rounded lip that has an angular exterior margin, slightly rounded base. Decoration: red to orange slip (varies with thickness) on interior surface and upper sides of exterior, unslipped lower exterior sides and base.

Dimensions: diam. 37 cm; ht. 9.5 cm; th. 0.7 cm.

Figure IX.80: Sampled vessels from isolated find in topmost stratum, base of structure N10-27, southwest corner
a) LA705/1 Bowl, out-curving sides, flaring everted rim, rounded lip, slightly rounded base. Decoration: orange slip on interior and exterior surfaces; postslip-prefiring incising and gouging below rim and in a wide band on upper sides, plain interior. Motifs: complex curvilinear.

Dimensions: diam. 23.6 cm; ht. 7.6 cm; th. 0.6 cm.

b) LA705/2 Bowl, rounded sides, interior thickened rim, bevelled out lip, rounded base. Decoration: orange slip on interior surface and exterior surface except lower sides and base.

Dimensions: diam. 35 cm; ht. 15.9 cm; th. 0.5cm.

Figure IX.81: Sampled vessels from isolated find in north front terrace, structure N10-27
a) LA706/1 Deep Bowl, vertical sides that curve out at rim, slightly interior thickened rim, slightly pointed lip, angular junction between body and base, flat base. Decoration: black slip on interior surface and exterior surface except base; preslip lateral groove-incising on exterior body, plain interior.

Dimensions: diam. 18 cm; ht. 13.8 cm; th. 0.6 cm.

b) LA706/2 Deep Bowl, vertical sides that curve out at rim, slightly interior thickened rim, slightly pointed lip, angular junction between body and base, flat base. Decoration: black slip on interior surface and exterior surface except base; preslip lateral groove-incising on exterior body, plain interior.

Dimensions: diam. 16 cm; ht. 13.5 cm; th. 0.6 cm.

c) LA706/3 Bowl, flaring sides, direct rim, rounded lip with an angular exterior margin, slightly rounded base. Decoration: black slip on interior surface and exterior surface except base; preslip applied broad fillet that is pinched at intervals encircling base at junction between body and base, plain interior.

Dimensions: diam. 21 cm; ht. 8.1 cm; th. 0.4cm.

Figure IX.82: Sampled vessel from isolated find, Stela 9 addition core, structure N10-27

LA712/2 Dish, round sides, direct rim, rounded lip that is slightly bevelled out, slightly rounded base. Decoration: red slip on interior surface, exterior surface is unslipped except for rim area; black painted motifs on interior surface only. Motifs: linear with a central figure (zoomorphic?).

Dimensions: diam. 39 cm; ht. ca.10 cm; th. 0.5 cm.

Figure IX.83: Sampled vessels from burial N10-30/2

a) LA716/1 'Chalice' or Out-Curving Pedestal Based Dish, rounded lower sides rising to a broad flaring everted rim, the interior of which is concave, slight ridge on interior lower sides, slightly squared lip, flaring pedestal base. Decoration: orange slip on interior and exterior surfaces of body and exterior surface of pedestal base, interior surface of pedestal base is unslipped.

Dimensions: diam. 32 cm; ht. ca. 18.0 cm; th. 0.5cm; base diam. 25 cm.

b) LA716/2 Bowl, out-curving sides, slightly interior thickened rim, rounded lip with an angular exterior margin, slightly rounded base. Decoration: eroded; orange slip on interior and exterior surfaces.

Dimensions: diam. 20 cm; ht. 7.8 cm; th. 0.5cm.

Figure IX.84: Sampled vessel from midden southwest corner of N10-27

LA717/1 Bowl, rounded sides, direct rim, slightly pointed lip, missing base. Decoration: buff slip on interior and exterior surfaces except lower sides and base; postslip-prefiring incising in a band on upper sides, plain interior. Motifs: linear and geometric.

Dimensions: diam. 14 cm; ht. n/d; th. 0.5cm.

Figure IX.85: Sampled vessel from refuse north stairside outset of structure N10-27 (midden)

LA718/1 Composite silhouette dish with a ring base (?), rounded lower sides rising to an angle from which upper sides curve outward, slightly everted rim that is bevelled on the interior surface, rounded lip, missing base (ring base?). Decoration: buff slip on interior surface and on upper sides above medial angle on exterior surface,

remainder of exterior surface is unslipped; red, black and orange painted motifs on interior surface only. Motifs: linear and complex curvilinear.

Dimensions: diam. 46 cm; ht. n/d; th. 1.0 cm; base diam. n/d.

Figure IX.86: Sampled vessels from refuse, west side of structure N10-27
LA722/1 Cylindrical Tripod Vase, vertical sides, missing rim area, pronounced ridge at junction between body and base, slightly rounded base, three feet (?) (one attachment present). Decoration: dark orange slip on exterior surface, unslipped interior surface; postslip-prefiring (or possibly postfiring) incising and gouging on exterior sides, plain interior. Motifs: curvilinear and athropomorphic.

Dimensions: diam. n/d; ht. n/d; th. 0.5 cm; base diam. n/d.

Figure IX.87: Sampled vessel from isolated find west of structure N11-7
LA814/1 Cylindrical Vase, vertical sides, direct rim, rounded lip, angular junction between body and base, flat base. Decoration: heavily eroded; black slip on interior and exterior surfaces; preslip lateral groove-incising on upper and lower sides and bordering a panel of diagonal groove-incising producing a false gardooning effect, plain interior. Motifs: linear.

Dimensions: diam. 12 cm; ht. 16 cm; th. 0.6 cm; base diam. n/d.

Figure IX.88: Sampled vessel from isolated find northeast corner at base of structure N11-5
LA825/1 Jar, globular (?), low slightly insloping neck, direct rim, slightly squared lip, rounded base. Decoration: red slip on exterior surface, unslipped interior surface except rim area.

Dimensions: max. diam. n/d; rim diam. 8 cm; orifice diam. 6 cm; neck ht. 3.5 cm; ht. n/d; th. 0.6cm

Figure IX.89: Sampled vessel from burial N11-9/3
LA842/3 Bowl, rounded sides, direct rim, rounded lip, rounded base. Decoration: red to orange slip (colour varies across surface) on interior surface and exterior surface except lower sides and base.

Dimensions: diam. 25 cm; ht. 8.8 cm; th. 0.9cm.

Figure IX.90: Sampled vessel from burial N11-5/5
LA872/4 Composite silhouette dish with a ring base, rounded lower sides rising to an angle from which upper sides curve outward, slightly everted rim that is bevelled on the interior surface, rounded lip that has an angular exterior margin, ring base. Decoration: red slip on interior and exterior surfaces.

Dimensions: diam. 42 cm; ht. 10.2 cm; th. 0.9 cm; base diam. 10 cm.

Figure IX.91: Sampled vessel from west pit, structure N11-18
LA916/18 Strap Handle Bowl, rounded sides, direct rim, slightly bevelled in lip, missing base. Decoration: orange slip on interior and exterior surfaces.

Dimensions: diam. 34 cm; ht. n/d; th. 0.5cm.

APPENDIX X
FABRIC GROUP DESCRIPTIONS

Introductory Comments

All of the measurements that appear in the following fabric descriptions were taken with respect to long diameter of the inclusion. In addition, a selected sample of fabrics from each group was stained to confirm the mineralogy of rock and mineral inclusions, as well as to assist estimation of their relative frequencies. Staining with alizarin red S and potassium ferricyanide aided the discrimination of carbonate inclusions containing dolomite. Staining with sodium cobaltinitrite and potassium rhodizonate aided the identification of alkali feldspars and plagioclase. This staining was done by the Earth Sciences Laboratory at the University of Birmingham. The various comparison charts used to characterize physical and textural properties of the fabrics are those standards recommended by Whitbread (1995:365-396, 1989, 1986).

The Crystalline Calcite-Tempered Class

Calcite A

Sample No: 30, 31, 93, 101, 123, 129, 130, 139, 147, 149, 257, 263, 299, 300, 301, 302, 304, 305, 307, 308, 309, 311, 313, 314, 315, 316, 439, 505, 607, 730, 752

I Microstructure

(a) Voids: Few to very few voids - dominantly mesovughs, with common to rare mesovesicles, common to very rare meso- to macrochannels and very rare macrovughs. Meso- and macrochannels are common in only a few samples (299, 316, 315, 572, and 308) and all samples except 308 display dark-coloured cores bordered by lighter-coloured margins.
(b) c/f related distribution: a single-spaced to close-spaced, porphyric related distribution. Points of contact are common between the calcite inclusions.
(c) Preferred orientation: strong preferred orientation of voids parallel to vessel margins. The orientation of aplastic inclusions is weakly developed.

II Groundmass

(a) Homogeneity: Some variation across the group with respect to 1) the size distribution of inclusions, 2) their sorting, and 3)the relative amount of crystalline calcite present. The colour of the clay matrix also varies, primarily due to the presence of dark-coloured cores of varying thickness in a few samples. In two samples (730 and 607), the calcite inclusions at the vessel margins are calcined, penetrating up to 2.4mm into the body wall. Within individual fabrics, voids and inclusions are evenly distributed and the colour of the clay matrix varies only in those samples with dark-coloured cores.
(b) Micromass: optically active to very active with predominantly a mosaic speckled to random striated B-fabric. Some granostriation also occurs. Colour: PPL (x40) = brown and, rarely, orangish-brown or reddish-brown throughout, or light brown, brown and, rarely, orangish-brown grading into a brown or dark brown core; XP(x40) = brown, yellowish-brown or orangish-brown throughout, or brown or, rarely, orangish-brown grading into a brown or dark brown core.
(c) Inclusions: Minor variation across the group with respect to the size distribution and sorting of inclusions, and significant variation in the roundness and shape of the carbonate and siliceous inclusions. The size distribution of inclusions is predominantly unimodal, ranging from 2.24mm to 0.02mm, with a mode size of fine sand, and sorting is predominantly poor. Calcite inclusions are angular and rhombic to irregular-shaped, whereas the inclusions of siliceous rocks and minerals are predominantly subrounded and equant. Three samples (129, 101 and 149) have a finer texture and a bimodal appearance, with an upper size mode exclusively comprising fragments of crystalline calcite. The size distribution of inclusions is more

restricted in these samples, ranging from 0.8mm to 0.02mm, with a mode size of very fine sand. In addition, inclusions are moderately sorted. The textural differences in these fabrics are, at least in part, due to the fact that they contain fewer aplastic inclusions in comparison to other samples in the group.

c:f:v $_{10\mu}$ = between 40:55:5 and 35:55:10 to 25:70:5

Coarse Inclusions (>0.062mm)

Predominant: CRYSTALLINE CALCITE – rhombic and irregular-shaped spar fragments and discrete grains; very angular to angular and, rarely, subangular. In many cases these are terminal grades of the accompanying coarsely crystalline to medium crystalline calcite mosaics. Size = 2.24mm to 0.062mm and mode size = 0.24mm.
Few to Rare: MONOCRYSTALLINE QUARTZ – predominantly subrounded to rounded, but ranging from subangular to well-rounded, equant to slightly elongated, commonly with undulous extinction. Size = 1.36mm to 0.062mm and mode size = 0.15mm

Few to Very Rare: COARSELY CRYSTALLINE TO FINELY CRYSTALLINE CALCITE MOSACIS – angular to subangular; equant. Size = 1.76mm to 0.16mm and mode size = 0.64mm. Internal grain size ranges from 0.9mm to 0.02mm and the mode size is 0.15mm (fine sand-sized). Coarsely to medium crystalline mosaics are predominant and finely crystalline mosaics (grain size = 0.02mm) are very rare. Sample 93 contains a mosaic which is attached to a piece of chert.

Rare to Very Rare: MICRITE LUMPS – rounded to well-rounded: rarely containing Iron-rich segregations. Size = 0.8mm to 0.08mm and mode size = 0.32mm.

Very Rare: POLYCRYSTALLINE QUARTZ – subrounded; equant to slightly elongated; occasionally with undulous extinction. Size = 0.6mm to 0.2mm.
CHALCEDONY – subrounded; equant to elongated. Size = 2.16mm to 0.16mm.
CHERT – subrounded to well-rounded; equant to slightly elongated. Size = 0.3mm to 0.062.

Fine Inclusions (<0.062 mm)
Predominant: crystalline calcite (terminal grades and spar fragments)
Few to Very Few: monocrystalline quartz
Very Rare: chert

III Textural Concentration Features (Tcf)

Clay pellets - rare (1-2% of total field of view) – equant; brown to reddish-brown in PLL(x40) and greyish-brown to dark brown in XP(x40). They frequently contain inclusions of rounded monocrystalline quartz and iron-rich nodules (size = >0.04mm). They have a high optical density, and boundaries are clear to merging and subrounded to rounded. The internal preferred orientation of the pellets is discordant with surrounding orientation features. Size = 0.64mm to 0.4mm.

IV Amorphous Concentration (depletion) Features (Acf)

1) Rare to very rare iron-rich **nodules** – In fully oxidized fabrics they are rusty- to dark reddish-brown in PPL (x40) and XP(x40) and when associated with dark –coloured cores they are very dark brown to black in PPL (x40) and XP(x40). They have a high optical density and boundaries are sharp to diffuse. Size = 0.56mm to 0.01mm and mode size = 0.08mm.
2) Very rare **hypocoatings** in association with voids where organic matter has burnt out of the clay during firing and carbon residues have impregnated the clay matrix surrounding the resultant void. Boundaries are diffuse to merging. Colour: PPL (x40) = black, XP(x40) = dark brown.

Comment

This fabric group is characterized by predominant angular, rhombic and irregular-shaped inclusions of crystalline calcite, which occur together with a very small quantity of rounded

siliceous rocks and minerals, predominantly monocrystalline quartz. Also distinctive is the rarity of micrite lumps, finely crystalline calcite mosaics and their associated terminal grades (see Calcite groups B and C). The crystalline calcite fragments and mosaics constitute a freshly crushed temper that was added to the clay, as suggested by their roundness (angular), the continuous variation in their abundance and the bimodality of some fabrics. The large size of the spar fragments, as well as the grains comprising some mosaics, suggest that the temper derives from the 'colourless', coarsely crystalline form of calcite that occurs as veins in the limestone bedrock underlying the site and the surrounding area west of the New River Lagoon. The clay component of these fabrics, containing a small quantity of rounded siliceous inclusions and iron-rich nodules, is mineralogically, compositionally and texturally consistent with samples of local clay taken from directly below the ground's surface and above horizons of weathering limestone on the site-side of the lagoon (Yalbac Subsuite). It is inferred, therefore that these ceramics were manufactured locally.

Calcite A subgroup – grog-tempered variant

Sample: 246, 250, 258

This subgroup of fabrics shares the same compositional properties and features as the main group, except that these fabrics contain a small amount of grog, or crushed sherd temper. In addition, these fabrics generally exhibit a comparatively fine texture and better sorting. Inclusions over 1.0mm in size are rare and the mode size is that of very fine sand. The presence of Tfc's in the form of grog is the main distinguishing characteristic of the subgroup.

Textural Concentration Features (Tcf)

Grog: few to very few (>15% of the field of view); dark brown, reddish-brown or brown in PPL(x40) and XP(x40); predominantly optically inactive. They are prolate to equant and angular to subrounded, predominantly with a high optical density. Boundaries are predominantly sharp to clear and occasionally diffuse in XP. In instances where the boundaries are diffuse, the internal composition, orientation and colour of the grog is very similar to that of the surrounding matrix. The internal preferred orientation of the grog is discordant with surrounding orientation features Channel voids or 'shrink' voids commonly encircle the grog inclusions, either partly or fully. Size = 1.15mm to 0.8mm and mode size = 0.24mm. In most cases, the compositional characteristics of the grog, especially the mineralogy of their aplastic inclusions, are the same as the surrounding matrix, containing predominantly angular inclusions of crystalline calcite and rare rounded quartz inclusions (>0.16mm). This compositional similarity may suggest that the grog derives from a similar (or the same) fabric type. Occasionally the grog is clearly compositionally distinct from the surrounding matrix. These fragments are generally dark brown in colour and contain common, subangular to rounded inclusions of quartz, micrite and, rarely, chalcedony. This grog is compositionally and visually similar to Sascab-Quartz A fabrics and, consequently, quite possibly derive from fabrics of this type. Grog deriving from the two different fabric types occurs together in some thin sections.

Calcite B

Sample No: 249, 252, 264, 303, 306, 310, 312, 317, 318, 323, 438, 441, 446, 506, 515, 597, 599, 608, 610, 617, 619, 624, 626, 731, 741, 744, 746

The microstructural properties and features of this fabric group are the same as those for Calcite A and C. The optical activity and colour of the clay matrix also exhibits the same range of variation as Calcite A and C. The distinguishing characteristics of this group relate to the texture and composition of inclusions, as well as to the relative proportion of the coarse and fine fractions. Of particular significance is that the fine component of these fabrics contains larger amounts of aplastic inclusions in comparison to Calcite A fabrics.

I Microstructure

Same properties, features and range of variation as Calcite A.

II Groundmass

(a) Homogeneity: Homogeneous across the group, as well as within individual fabrics, with respect to the size distribution of inclusions and their sorting. There is some variation, however, in the relative frequency of aplastic inclusions, as well as the relative proportion of the coarse and fine fractions. Dark-coloured cores of varying thickness are present in nearly half of the samples. In a few samples (619, 744, 624, 741, 438), calcite inclusions close to the vessel margins are calcined or completely decomposed due to exposure to temperatures exceeding 850°C (the temperature at which calcium carbonate starts to decompose). Within individual fabrics, inclusions and voids are evenly distributed.

(b) Micromass: Same properties and range of variation as Calcite A

(c) Inclusions: The size distribution of inclusions is distinctly bimodal, with an upper size mode predominantly comprising angular to subangular finely crystalline calcite mosaics, discrete grains of calcite and fragments of calcite spar (mode size = c. 0.48mm) The lower size mode dominated by discrete grains of calcite (terminal grades of the mosaics) (mode size = 0.06mm). The 'grainy' appearance of the matrix, owing to the presence and abundance of fine calcite grains, is a distinctive characteristic of these fabrics. Sorting is poor to moderate and inclusions range in size from 3.2mm to 0.01mm. A few samples contain comparatively fewer aplastic inclusions.

c:f:v $_{10\mu}$ = between 50:45:5 and 45:40:10 to 60:35:5

Coarse Inclusions (>0.062mm)

Frequent: CRYSTALLINE CALCITE – angular to subangular; equant, irregular-shaped and, occasionally, rhombic. These discrete grains are predominantly terminal grades of the accompanying calcite mosaics. Size = 2.16mm to 0.062mm and mode size = 0.32mm.

Frequent to Common: FINELY CRYSTALLINE TO COARSELY CRYSTALLINE CALCITE MOSACIS – very angular to subangular; equant. Size = 3.2mm to 0.062mm and mode size = 0.48mm. Internal grain size ranges from 0.32mm to 0.062mm, and the mode size is 0.06mm. Finely crystalline mosaics are predominant (grain size = 0.06mm). Sample 625 contains a fragment of limestone comprising a finely crystalline aggregate of calcite grains and micrite.

Few to Rare: MONOCRYSTALLINE QUARTZ – predominantly subrounded to rounded, but ranging from subangular to well-rounded; equant to slightly elongated; commonly with undulous extinction. Size = 1.36mm to 0.062mm and mode size = 0.15mm.

Very Few to Very Rare: MICRITE LUMPS – rounded to well-rounded; rarely containing iron-rich segregations. Size = 0.8mm to 0.08mm and mode size = 0.32mm.

Very Rare: POLYCRYSTALLINE QUARTZ – subrounded; equant to slightly elongated; occasionally with undulous extinction. Size = 0.6mm to 0.2mm.
CHALCEDONY – subrounded; equant to elongated. Size = 2.16mm to 0.16mm.
CHERT – subrounded to well-rounded; equant to slightly elongated. Size = 0.3mm to 0.062.

Fine Inclusions (<0.062 mm)

Predominant: crystalline calcite (mostly terminal grades)
Common: aggregates of calcite grains comprising 2 or more grains
Few to Very Few: monocrystalline quartz
Very Rare: chert

III Textural Concentration Features (Tcf)

Clay pellets – rare (>2% of the field of view) - same properties and characteristics as those in Calcite A fabrics

IV Amorphous Concentration (depletion) Features (Acf)

1) Rare to very rare **nodules** – same properties and characteristics as those in Calcite A fabrics
2) Very rare **hypocoatings** - same properties and characteristics as those in Calcite A fabrics

Comment

This fabric group is characterized by frequent calcite mosaics, discrete grains of calcite and spar fragments, occurring in a clay matrix dominated by fine grains of calcite and containing a small quantity of rounded siliceous rock and mineral inclusions. The bimodality of these fabrics, the prevalence of fine calcite grains in the fine fraction and the comparative rarity of micrite lumps are characteristics that clearly distinguish this group from the other calcite-tempered fabric groups, especially Calcite A and C. The bimodality of these fabrics, together with and the angular nature of the calcite inclusions, suggests that at least some of the calcite constitutes freshly crushed temper. The small grain size of the calcite mosaics suggests the added calcite derives from the white, sugary-textured form of the mineral that occurs as nodules in horizons of weathered limestone underlying the site and the surrounding area west of the New River Lagoon.

The clay component of these fabrics, containing frequent calcite inclusions, primarily in the form of fine discrete grains, as well as rare inclusions of quartz and iron-rich nodules, is mineralogically and texturally consistent with samples of local clay taken from horizons of weathering limestone in the north-south trench and in proximity to limestone outcrops in the 'harbour' areas of the site (Yalbac Subsuite). A local provenance is therefore inferred for this fabric group.

Calcite B subgroup – grog-tempered variant

Sample: 618, 742, 26, 253, 254

This subgroup of fabrics shares the same compositional properties and features as the main group, except that they contain a small amount of grog. In addition, these fabrics generally exhibit a finer texture and are moderately sorted. Inclusions over 1.0mm in size are absent and the mode size is that of fine sand. The presence of Tfc's in the form of grog is the main distinguishing characteristic of the subgroup.

Textural Concentration Features (Tcf)

Grog: very few (>5% of the field of view); dark brown, brown or orangish-brown in PPL(x40) and dark brown to brown in XP(x40); optically inactive to slightly active. They are prolate to equant and angular to subrounded, with a neutral to high optical density. Boundaries are predominantly sharp to diffuse in PPL and commonly sharp to merging in XP. In instances where the boundaries are diffuse or merging, the internal composition, orientation and colour of the grog is very similar to that of the surrounding matrix. The internal preferred orientation of the grog is discordant with surrounding orientation features, and they are commonly partly or fully surrounded by a channel void. Size = 0.95mm to 0.12m and mode size = 0.24mm. In most cases, the grog is similar in colour and compositionally identical to the surrounding matrix, containing angular inclusions of crystalline calcite and very rare rounded quartz inclusions (>0.16mm). These similarities suggest that the grog derives from compositionally similar calcite-tempered fabrics, and possibly calcite B fabrics in particular.

Calcite C

Sample No: 18, 19, 22, 23, 24, 38, 53, 54, 57, 116, 125, 126, 128, 133, 134, 136, 145, 148, 234, 235, 236, 238, 247, 248, 255, 260, 273, 274, 275, 276, 278, 279, 280, 281, 283, 286, 289, 290, 291, 292, 293, 294, 295, 346, 364, 402, 403, 405, 449, 628

The microstructural properties and features of this fabric group are the same as those for Calcite A and B. The optical activity and colour of the clay matrix also exhibits the same range of variation as these groups. As with Calcite B fabrics, the fine component is dominated by discrete grains of calcite. The distinguishing characteristic of this group is the greater quantity of micrite present, in the form of subrounded to well rounded lumps. The presence of the micrite affects the textural properties of these fabrics, as well as the relative frequency of inclusion types.

I Microstructure

Same properties, features and range of variation as Calcite A and B.

II Groundmass

(a) Homogeneity: Homogeneous across the group, as well as within individual fabrics, with respect to the distribution of aplastic inclusions and voids. There is notable variation across the group in terms of the size distribution of inclusions, which ranges from unimodal to bimodal. Dark-coloured cores of varying thickness are present in several samples (405, 280, 236, 279, 283, 401, 402, 273, and 145). In three samples (289, 283 and 285), calcite inclusions close to the vessel margins are calcined or completely decomposed. Within individual fabrics voids and inclusions are evenly distributed.

(b) Micromass: Same properties and range of variation as Calcite A and B

(c) Inclusions: The size distribution of inclusions is dominantly bimodal and, less frequently, unimodal. In bimodal fabrics, the upper size mode predominantly comprises micrite lumps and angular to subangular inclusions of calcite - medium to finely crystalline calcite mosaics, discrete grains and spar fragments – with a mode size of c. 0.48mm (medium sand-sized). The lower size mode dominated by discrete grains of calcite (terminal grades of the mosaics) and spar fragments (mode size = 0.06mm – i.e. fine sand-sized). The 'grainy' appearance of the matrix, owing to the presence and abundance of the calcite grains, is a distinctive feature. Sorting is generally poor and inclusions range in size from 1.68mm to 0.01mm. In unimodal fabrics, sorting tends to be moderate, with inclusions only rarely exceeding 1.2mm.

c:f:v $_{10\mu}$ = between 50:45:5 and 45:40:10 to 60:35:5

Coarse Inclusions (>0.062mm)

Frequent to Common: CRYSTALLINE CALCITE (discrete grains and spar fragments) - angular to subangular and, rarely, subrounded; equant, irregular-shaped and rhombic. The discrete grains appear to be terminal grades of the accompanying calcite mosaics. Size = 1.12mm to 0.062mm and mode size =s 0.32mm.

Common: MICRITE LUMPS – subrounded to well-rounded; equant to elongated. Size = 1.68mm to 0.062mm and mode size = 0.4mm. These occasionally contain iron-rich segregations and grains of crystalline calcite.

Common to Very Few: FINELY CRYSTALLINE TO COARSELY CRYSTALLINE CALCITE MOSACIS – very angular to subangular; predominantly equant and, rarely, elongated. Size = 1.2mm to 0.062mm and mode size = 0.4mm. Internal grain size ranges from 0.32mm to 0.062mm and mode size = 0.06mm. Finely crystalline mosaics are predominant (grain size = 0.06mm).

Few to Rare: MONOCRYSTALLINE QUARTZ – predominantly subrounded to rounded, but ranging from subangular to well-rounded; equant to slightly elongated; commonly with undulous extinction. Size = 1.36mm to 0.062mm and mode size = 0.15mm

Very Rare: POLYCRYSTALLINE QUARTZ – subrounded; equant to slightly elongated; occasionally with undulous extinction. Size = 0.6mm to 0.2mm.

CHALCEDONY – subrounded; equant to elongated. Size = 2.16mm to 0.16mm.

CHERT – subrounded to well-rounded; equant to slightly elongated. Size = 0.3mm to 0.062.

OOLITES – only present in sample 232

Fine Inclusions (<0.062 mm)

Predominant: crystalline calcite (mostly terminal grades)

Common: micrite lumps

Common to Very Few: aggregates of calcite grains (comprising 2 or more grains)

Few to Very Few: monocrystalline quartz

Very Rare: chert

III Textural Concentration Features (Tcf)

Clay pellets - rare (>2% of the field of view) - same properties and characteristics as in Calcite A and B fabrics.

IV Amorphous Concentration (depletion) Features (Acf)

1) Rare to very rare **nodules** – same properties and characteristics as in Calcite A and B fabrics.

2) Very rare **hypocoatings** - same properties and characteristics as in Calcite A and B fabrics.

Comment

This fabric group is characterized by common micrite lumps and calcite inclusions (mosaics, discrete grains and spar fragments), occurring in a clay matrix dominated by fine grains of calcite and containing a small quantity of rounded siliceous inclusions. The comparatively high frequency of micrite lumps in these fabrics clearly distinguishes them from the other calcite-tempered groups, especially Calcite A and B. The tendency towards bimodality, in terms of the size distribution of inclusions, with an upper size mode dominated by lumps of micrite and fragments of crystalline calcite, suggests that both the micrite and the calcite represent constituents added to the base clay. This interpretation is supported by the angular character of inclusions in the case of the crystalline calcite, suggesting a freshly crushed temper. The rarity of limestone fragments consisting of crystalline calcite and micrite strongly suggests that the crystalline calcite and micrite lumps derive from different source materials. With regard to the crystalline calcite, variation across the group in the relative frequency of the spar fragments and discrete grains vs. aggregates of grains (mosaics) suggests a connection to both the coarsely crystalline, colourless form of the mineral and the white, sugary-textured form, as the source of the temper. Both of these types of calcite occur locally. The micrite lumps are identical in appearance and composition to samples of sascab that were taken from the outcrop/quarrying site situated south east of the central precinct at Lamanai. Particularly significant is the absence of quartz inclusions in the micrite lumps, suggesting a connection to local sascab deposits associated with Cretaceous limestone, as opposed to those associated with the Tower Hill and Orange Walk group formations prevalent in areas to the north of the site, as these deposits characteristically contain quartz sand.

As with Calcite B, the clay component contains abundant fine grains of calcite and rare siliceous inclusions and iron-rich nodules. These fabrics, therefore, bear mineralogical and textural similarities to the clay samples taken from horizons of weathering limestone in the north-south trench and in proximity to limestone outcrops at the site (Yalbac Subsuite). Based on the similarity of the clay component of these fabrics to raw materials available locally, a local provenance is inferred for this group.

Calcite C subgroup – grog-tempered variant

Sample: 29, 219, 296, 406

This subgroup of fabrics shares the same compositional properties and features as the main group, except that they contain a small amount of grog.

Textural Concentration Features (Tcf)

Grog - very few to rare (>5% of the field of view) - brownish-black, dark brown, brown or orangish-brown in PPL(x40) and brownish-black, dark brown, greyish-brown, orangish-brown or brown in XP(x40); optically inactive to slightly active. They are prolate to equant and angular to subrounded, with a neutral to high optical density. Boundaries are sharp to merging and, in instances where the boundaries are diffuse or merging, the internal composition, orientation and colour of the grog is very similar to that of the surrounding matrix. The internal preferred orientation of the grog is predominantly discordant with surrounding orientation features. It is concordant only occasionally. They are rarely associated channel voids or 'shrink voids. Size = 0.88mm to 0.16m and mode size = 0.32mm. The grog is predominantly similar in colour, as well as compositionally identical, to the surrounding matrix, containing angular inclusions of crystalline calcite, lumps of micrite and very rare rounded quartz inclusions (>0.16mm). Rare examples appear to be related to Sascab-Quartz A fabrics, as they contain micrite and quartz and only rarely crystalline calcite. The two different types of grog occur together in a few fabrics.

Calcite C subgroup i – mineralogical variant

Sample: 64

This sample shares the same compositional properties and features as the fabrics comprising the main group except that its micromass (clay matrix) is highly micritic. This dissimilarity, which gives the clay matrix a distinctive 'powdery' appearance, suggests the use of a different, but mineralogically related, clay. The paste technology is otherwise the same.

Calcite D

Sample No: 15, 36, 232, 233, 237, 245, 251, 277, 282, 285, 287, 288, 297, 298, 401, 428, 432, 440, 736

The compositional, textural and mineralogical characteristics of this fabric group overlap with Calcite groups A, B and C. The characteristics that distinguish it are: 1) the grain size of the crystalline calcite present (mosaics and terminal grades), 2) the presence of rare shell fragments and 3) the presence of distinctive quartz inclusions containing microlites, vacuoles and inclusions of volcanic glass. These quartz inclusions are clearly associated with the crystalline calcite, as indicated by rare instances in which they are attached to an aggregate of calcite (mosaic).

I Microstructure

(a) Voids: Few to very few voids - predominantly mesovughs, with common to rare mesovesicles.

(b) c/f related distribution: a single-spaced to close-spaced, porphyric related distribution. Points of contact are common between the calcite inclusions.

(c) Preferred orientation: weakly developed preferred orientation of voids and inclusions parallel to vessel margins.

II Groundmass

(a) Homogeneity: Homogenous across the group with respect to the size distribution of inclusions and their sorting. Some variation in the colour of the clay matrix, primarily due to the presence of dark-coloured cores of varying thickness in a few samples (277, 298 and 288). In a few samples (e.g. 736), the calcite inclusions at the vessel margins are calcined to partially decomposed. Within individual fabrics, voids and inclusions are evenly distributed and the colour of the clay matrix only varies in those samples with dark-coloured cores.

(b) Micromass: optically active to slightly active with predominantly a mosaic speckled to random striated B-fabric. Colour: PPL (x40) = brown to dark brown; brown grading into a dark brown core; XP(x40) = brown, yellowish-brown; brown grading into a dark brown core.

(c) Inclusions: The size distribution of inclusions in unimodal, ranging from 1.6mm to 0.02mm, with a mode size of fine sand. Inclusions are moderately sorted and predominantly equant to irregular-shaped (crystalline calcite) and subangular to angular.

c:f:v $_{10\mu}$ = 40:55:5 to 35:55:105

Coarse Inclusions (>0.062mm)

Predominant: CRYSTALLINE CALCITE – very angular to subrounded; equant, irregular-shaped and rarely rhombic. These are predominantly discrete grains which appear to be the terminal grades of the accompanying calcite mosaics. Occasionally they are spar fragments. Size = 1.6mm to 0.062mm and mode size = 0.15mm.

Few to Very Few: MEDIUM CRYSTALLINE TO COARSELY CRYSTALLINE CALCITE MOSACIS – angular to subangular; equant, irregular-shaped and, rarely, elongated. Size = 1.28mm to 0.3mm and mode size = 0.24mm. Internal grain size ranges from c. 0.5mm to 0.04mm, and the mode size is 0.15mm. Medium crystalline mosaics are predominant (grain size = 0.15mm). In sample 288, a grain aggregate is attached to an inclusion of monocrystalline quartz containing microlites etc. (see below).

Few to Very Rare: MICRITE LUMPS – subrounded to well-rounded; equant to elongated. Size = 0.8mm to 0.062mm and mode size = 0.3mm. These occasionally contain discrete grains of crystalline calcite and grain aggregates.

Very Few to Very Rare: MONOCRYSTALLINE QUARTZ – predominantly subrounded to rounded, but ranging from subangular to well-rounded, equant to elongated, commonly with undulous extinction. Size = 0.32mm to 0.062mm and mode size = 0.15mm.

Very Rare: MONOCRYSTALLINE QUARTZ CONTAINING MICROLITES ETC. - Angular to subangular; equant to irregular-shaped. These contain microlites (micas and zircon?), vacuoles, volcanic glass fragments and iron oxides (?). Size = 1.28mm to 0.24mm.

CHALCEDONY – angular to subrounded; equant to irregular-shaped. Size = 1.04mm to 0.32mm.

POLYCRYSTALLINE QUARTZ – subangular; equant to elongated. Size = 0.72mm to 0.32mm.

CHERT – subrounded to well-rounded; equant to slightly elongated. Size = 0.3mm to 0.062.

SHELL FRAGMENTS (pomacia and bi-valve species) – Size = 1.84mm to 0.24mm.

OOLITES

Fine Inclusions (<0.062 mm)
Predominant: crystalline calcite
Few to Very Few: monocrystalline quartz
Few to Very Rare: micrite lumps

III Textural Concentration Features (Tcf)

Very rare **Clay pellets** – equant to elongated; brown to reddish-brown in PLL(x40) and dark brown in XP(x40); commonly containing inclusions of rounded monocrystalline quartz and iron-rich nodules (size = >0.08mm).. They have a high optical density. Boundaries are clear to merging and subrounded to rounded. The internal preferred orientation of the pellets is discordant with surrounding orientation features. Size = 0.64mm to 0.16mm.

IV Amorphous Concentration (depletion) Features (Acf)

Rare to very rare iron-rich **nodules** –dark brown in PPL (x40) and XP(x40). They have a high optical density and boundaries are sharp to diffuse and rounded. Size = 0.4mm to 0.01mm and mode size = 0.08mm.

Comment

This fabric group is characterized by predominant inclusions of crystalline calcite, dominantly terminal grades of the accompanying mosaics, occurring in a clay matrix containing rounded siliceous inclusions and rare shell fragments. The angular character and abundance of the calcite inclusions suggests that they represent, for the most part, a freshly crushed temper, deriving from a form of calcite that is likely white in appearance (based on the grain size) and has a 'sugary' texture. The distinguishing features of this group are: 1) the physical properties and compositional features of the parent limestone from which the calcite temper derives and 2) the presence of shell fragments in the clay component. The mode grain size of the calcite mosaics and associated terminal grades indicate a medium to coarsely crystalline limestone, comprising equant to irregular- shaped crystals of a fairly uniform size. The occurrence of an inclusion comprising calcite grains and monocrystalline quartz containing microlites etc. suggests that these distinctive quartz inclusions were present in the limestone used for temper rather than the clay component. The presence of these quartz inclusions and their association the parent source of the calcite temper is significant because quartz with these compositional features was not observed in any of the samples of local limestone and clay. The presence of this quartz, taken together with the distinctive physical characteristics of the limestone, suggests

a non-local provenance for the Calcite D group or, at the very least, that the limestone used as a tempering material was non-local.
The clay component of these fabrics contains shell fragments, suggesting a connection to creek and river deposits, as demonstrated by the nearly exclusive association of shell with these particular deposits in the survey of local clays. The clay component is mineralogically and compositionally similar to the samples of local clay taken from the area of Yalbac Subsuite soils bordering the New River and the New River Lagoon on the west. Although no dissimilarity to local clays can be demonstrated on mineralogical, compositional or textural grounds, the presence of the shell fragments in nearly all the samples comprising the Calcite D group, would appear to be a significant and, perhaps, distinctive characteristic.

Calcite E

Sample No: 20, 37, 220

I Microstructure

(a) Voids: Few voids - mesovughs, with very rare mesovesicles.
(b) c/f related distribution: a single-spaced to close-spaced, porphyric related distribution. Points of contact are common between the calcite inclusions.
(c) Preferred orientation: weakly developed preferred orientation of voids parallel to vessel margins. Random orientation of inclusions

II Groundmass

(a) Homogeneity: Homogenous within and between fabrics, except that in sample 220, calcite inclusions close to one margin have been completely destroyed during firing.
(b) Micromass: optically active with a mosaic speckled B-fabric. Colour: PPL (x40) = brown to dark brown; XP(x40) = brown to dark brown.
(c) Inclusions: The size distribution of inclusions in unimodal, ranging from 1.6mm to 0.02mm, with a mode size of fine sand. Inclusions are moderately sorted and predominantly equant and subangular to subrounded.

c:f:v $_{10\mu}$ = 55:40:5

Coarse Inclusions (>0.062mm)

Predominant: CRYSTALLINE CALCITE – very angular to well-rounded; equant and irregular-shaped. Size = 1.6mm to 0.062mm and mode size is 0.15mm.

Few to Rare: MEDIUM CRYSTALLINE AND FINELY CRYSTALLINE CALCITE MOSACIS – the medium crystalline mosaics are very angular to angular and equant. Size = 0.65mm to 0.3mm and mode size = 0.24mm. Crystal size is predominantly c. 0.15mm, with occasional larger-sized crystals. Finely crystalline mosaics are present in sample 220 only. These are subrounded and equant to irregular-shaped. The mode crystal size is 0.02mm. Size = 0.45mm to 0.18mm

Few to Rare: MICRITE LUMPS – subangular to subrounded; equant to elongated. Size = 0.32mm to 0.062mm and mode size = 0.32mm. These rarely contain discrete grains of crystalline calcite.

Very Few: MONOCRYSTALLINE QUARTZ – predominantly subangular, but ranging from angular to subrounded; equant to elongated. Size = 0.16mm to 0.062mm and mode size = 0.1mm.

Very Rare: MONOCRYSTALLINE AND POLYCRYSTALLINE QUARTZ CONTAINING MICROLITES ETC. – subangular; equant to irregular-shaped; straight extinction. These contain microlites (crystalline calcite and mica?), vacuoles, volcanic glass fragments and iron oxides (?). The monocrystalline grains appear to be terminal grades of the polycrystalline inclusions. The size of the monocrystalline grains = 0.25mm to 0.55mm. The size of the polycrystalline inclusions = 0.6mm to 0.45mm.

FINELY CRYSTALLIZED POLYCRYSTALLINE QUARTZ – subangular; irregular-shaped; with a strongly undulous extinction and common crenulated borders. These contain microlites, inclusions of volcanic glass, chalcedonic quartz and iron oxides (?). The chalcedonic quartz often surrounds the iron-rich inclusions Size = 1.6mm to 0.15mm.
OOLITES

Fine Inclusions (<0.062 mm)
Predominant: crystalline calcite
Few to Very Few: monocrystalline quartz
Few to Very Rare: micrite lumps

III Textural Concentration Features (Tcf)

Very rare **Clay pellets** (in sample 220 only) – equant; dark brown in PLL(x40) and XP(x40); containing rounded inclusions of monocrystalline quartz and iron-rich nodules (size = >0.08mm); partly surrounded by channel voids. They have a high optical density and boundaries are sharp to merging and rounded. The internal preferred orientation of the pellets is discordant with surrounding orientation features. Size = c. 0.35mm.

IV Amorphous Concentration (depletion) Features (Acf)

1) Rare to very rare iron-rich **nodules** –dark brown in PPL (x40) and XP(x40). They have a high optical density and boundaries are sharp to diffuse and rounded. Size = 0.4mm to 0.01mm and mode size = 0.08mm.
2) Rare to very rare iron-rich **nodules** –deep red in PPL (x40) and XP(x40). They have a high optical density and boundaries are sharp to clear and rounded. Size = 0.64mm to 0.02mm.

Comment

This fabric group is characterized by predominant equant inclusions of crystalline calcite and rare inclusions of monocrystalline and polycrystalline quartz containing microlites etc. and finely crystallized polycrystalline quartz, occurring in a clay matrix containing rounded inclusions of calcite, monocrystalline quartz and, possibly, micrite. The distinguishing features of this fabric group are: 1) the presence of the distinctive quartz inclusions, particularly the polycrystalline varieties and 2) the co-occurrence of angular and rounded calcite grains. The rounded calcite grains are undoubtedly associated with the clay component, whereas the angular grains, being the same size and shape as those comprising the accompanying mosaics, appear to derive from freshly crushed rock. The abundance of calcite inclusions in these fabrics, together with the presence of mosaics and their terminal grades suggests the addition of calcite as temper. The presence of the distinctive quartz inclusions, together with the textural and compositional dissimilarity to the clays sampled from the local area, indicates a non-local provenance for this group. That the clay component contains rounded inclusions of crystalline calcite and micrite - i.e. carbonate sand – suggests a connection to areas adjacent to north east coast of northern Belize and in Yucatan, Mexico, where carbonate sands are prevalent. The connection to the Yucatan area is supported by the fact that two of the three vessels in this group are stylistically equivalent to well-known wares that are presumed to have been produced in Yucatan based on their prevalence there (Plumbate ware and Slate ware).

Calcite F

Sample No: 227, 228, 230, 231, 243, 442, 713, 728

I Microstructure

(a) Voids: Few voids – predominantly mesovughs, with rare to very rare mesovesicles and mesochannels.
(b) c/f related distribution: generally a single-spaced to double-spaced, porphyric related distribution, with occasional close-spaced inclusions.

(c) Preferred orientation: moderately developed preferred orientation parallel to vessel margins. The preferred orientation is primarily due to voids and only weakly developed with respect to inclusions.

II Groundmass

(a) Homogeneity: Predominantly homogenous throughout with respect to the distribution of voids and inclusions, except for samples 228 and 713, in which areas of the groundmass contain fewer inclusions. In half of the samples (227, 228, 230 and 728), the margins of the vessel are a darker colour than the core. These firing horizons are likely due to a period of heavy reduction during the final stages of firing to produce the black-coloured exterior surface.
(b) Micromass: highly optically active with a prostriated to striated B-fabric. Colour: PPL (x40) = brown, brown to dark brown core grading into dark brown to brownish-black margins XP(x40) = brown, brown to dark brown core grading into dark brown to brownish-black margins.
(c) Inclusions: In all samples except 442, the size distribution of inclusions in unimodal, ranging from 1.28mm to 0.02mm, with a mode size of fine sand. Inclusions are well sorted and predominantly equant and subangular to subrounded. In sample 442, sorting is poor and the size distribution of inclusions is bimodal, with an upper size mode comprising calcite mosaics (mode size = c. 1.0mm) and a lower size mode comprising their terminal grades and other inclusion types (mode size = c. 0.16mm). Sample 442 is also the only member of the group in which calcite mosaics are common. Mosaics are few to rare in all other samples.

c:f:v $_{10\mu}$ = 20:70:10 to 30:65:5

Coarse Inclusions (>0.062mm)
Predominant: CRYSTALLINE CALCITE – predominantly subangular to subrounded but ranging from angular to well-rounded; equant and irregular-shaped. Size = 1.2mm to 0.062mm and mode size is 0.16mm.
Common to Rare: MEDIUM CRYSTALLINE CALCITE MOSACIS – angular to subangular; equant. Size = 1.28mm to 0.32mm and mode size = c. 0.96mm. Crystal size is predominantly c. 0.16mm, with occasional larger-sized crystals.
Very Few to Rare: MONOCRYSTALLINE QUARTZ – predominantly subangular to subrounded, but ranging from angular to rounded; equant to elongated. Size = 0.88mm to 0.062mm and mode size = 0.1mm.
Rare to Very Rare: MICRITE LUMPS –predominantly subrounded and very rarely subangular; equant to elongated. Size = 0.9mm to 0.1mm and mode size = 0.24mm. These rarely contain discrete grains of crystalline calcite.
FINELY CRYSTALLIZED POLYCRYSTALLINE QUARTZ – angular to subrounded; equant to irregular-shaped; with a strongly undulous extinction and common crenulated borders. These contain microlites, inclusions of volcanic glass, chalcedonic quartz and iron oxides (?). Size = 0.34mm to 0.1mm and mode size = 0.16mm.
Very Rare: CHALCEDONY – subangular to subrounded; equant. Size = 0.6mm to 0.12mm.
CHERT – subrounded; equant. Size = 0.16mm to 0.08mm.

Fine Inclusions (<0.062 mm)
Dominant: crystalline calcite
Frequent: monocrystalline quartz

III Textural Concentration Features (Tcf)

Very rare **Clay pellets** – equant; reddish brown to dark brown in PLL(x40) and XP(x40); rarely containing rounded inclusions of monocrystalline quartz and nodules (size = >0.1mm). They have a high optical density, and boundaries are sharp to diffuse and rounded. They are rarely completely or partly surrounded by a channel void. The internal preferred orientation of the pellets is discordant with surrounding orientation features. Size = 0.75mm to 0.15mm.

IV Amorphous Concentration (depletion) Features (Acf)

1)Very few to rare iron-rich **nodules** – reddish brown to brownish-black in PPL (x40) and XP(x40). They have a high optical density and boundaries are sharp to diffuse and rounded. They rarely contain inclusions of quartz. Size = 0.64mm to 0.01mm and mode size = 0.05mm.
2) Very rare **hypocoatings** - adjacent to voids, impregnating the surrounding matrix, and rarely lining voids; brownish-black in PPL (x40) and XP(x40).

Comment

This fabric group is characterized by predominant equant inclusions of crystalline calcite (discrete grains and mosaics) occurring together with a small quantity of finely crystallized polycrystalline quartz, monocrystalline quartz, chalcedony, chert and micrite. The distinguishing features of these fabrics are: 1) that with the exception of sample 442, they are well sorted, 2) they contain several different types of siliceous inclusions, including a distinctive polycrystalline variety, and 3) the co-occurrence of both rounded and angular inclusions of calcite. The roundness of a significant proportion of the calcite inclusions, as well as the other inclusion types, suggests that these inclusions occurred naturally in the clay component. Nonetheless, the overall abundance of calcite inclusions in these fabrics, together with their uneven distribution in a few samples and the angular character of some, suggests that the calcite represents a tempering material. The presence of calcite mosaics in all samples, albeit few in most cases, together with the similarity in crystal morphology among the grain aggregates and some of the discrete grains may suggest a crushed limestone as the source of the temper. This interpretation is most certain in the case of sample 442, in which calcite mosaics form a distinct size mode of larger inclusions, with their terminal grades dominating the smaller size mode. Sample 442 can best be described as a coarser version of a Calcite F fabric. The comparative rarity of calcite mosaics in all samples except 442, together with the more restricted size distribution of inclusions in comparison to other calcite tempered groups and the fact that the inclusions are well sorted indicates a careful processing of raw materials.
Based on the presence of the distinctive finely crystallized polycrystalline quartz, which also occurs in Calcite E fabrics, as well as the apparent textural and compositional dissimilarity of these fabrics to the samples of local clays analyzed, a non-local provenance is inferred for this group. The sandy nature of the clay component and the presence of rounded calcite inclusions suggests a connection to areas adjacent to north east coast of northern Belize and in Yucatan, Mexico, where carbonate sands are prevalent.

Calcite G

Sample No146, 319, 320, 321, 322, 445, 751

I Microstructure

(a) Voids: Few voids – frequent to common mesovughs and very rare macrovughs and meso- and macrochannels. Channels are particularly prevalent in samples 320 and 751.
(b) c/f related distribution: predominantly a single-spaced porphyric related distribution. Close-spaced inclusions are rare, except in sample 319, in which they are common.
(c) Preferred orientation: moderate to strong preferred orientation parallel to vessel margins with respect to voids and inclusions. The preferred orientation of inclusions is less well-developed than that of voids.

II Groundmass

(a) Homogeneity: Notable variation across the group with respect to the relative amount of crystalline calcite present (751, 445 and 146 contain comparatively fewer inclusions than the other samples) and minor variation in the colour of the clay matrix. Within individual fabrics, voids and inclusions are evenly distributed and the colour of the clay matrix only varies in sample 751, which has a darker-coloured core.
(b) Micromass: very optically active with a monostriated and granostriated B-fabric. Granostriation occurs in association with larger inclusions. Colour: PPL (x40) = brown to

reddish- or orangish-brown; brown grading into a dark brown core (751); XP(x40) = brown to golden yellowish-brown or dark orangish-brown; brown grading into a dark brown core (751).
(c) Inclusions: Significant variation in the roundness and shape of carbonate vs. siliceous inclusions relating to differences in the nature of inclusions associated with the clay component vs. the added temper. The size distribution of inclusions is predominantly unimodal, ranging from 2.48mm to 0.05mm with a mode size of medium sand, and sorting is poor. Calcite inclusions are angular and dominantly rhombic to irregular-shaped, whereas the siliceous inclusions are predominantly subrounded and equant. Sample 751 has a slightly bimodal appearance, with an upper size mode exclusively comprising mosaics of crystalline calcite and large spar fragments. The textural differences in sample 751 is partly due to the fact that it contains comparatively fewer aplastic inclusions. Comparatively fewer inclusions also occur in samples 445 and 146.

c:f:v $_{10\mu}$ = 30:60:10 to 20:70:10

Coarse Inclusions (>0.062mm)
Predominant to Frequent: CRYSTALLINE CALCITE – rhombic and irregular-shaped spar fragments and discrete grains; very angular to angular and rarely subangular. Some are clearly terminal grades of the accompanying calcite mosaics. Size = 1.6mm to 0.062mm and mode size is 0.48mm.
Few to Very Few: VERY COARSELY CRYSTALLINE TO COARSELY CRYSTALLINE CALCITE MOSACIS – very angular to angular; predominantly equant and, rarely, elongated. Size = 2.48mm to 0.32mm and mode size = 0.64mm. These very rarely (in two cases) are attached to a piece of chalcedony.
MONOCRYSTALLINE QUARTZ – predominantly subangular to subrounded, but ranging from angular to rounded; equant and, rarely, elongated; commonly with undulous extinction. Size = 0.36mm to 0.062mm and mode size = 0.12mm.
Very Rare: POLYCRYSTALLINE QUARTZ – subrounded to rounded; equant; with strongly undulous extinction. These are fine-grained. Size = 0.5mm to 0.1mm.
CHALCEDONY – subangular to subrounded; equant. Size = 0.48mm to 0.1mm.
MUDSTONE (?) – comprising a terrigenous matrix containing an inclusion that is light brown in PPL, with low order yellow birefringence in XP, and undulous extinction. Only one inclusion was observed and this occurs in sample 320. Size = 0.8mm.

Fine Inclusions (<0.062 mm)
Dominant: monocrystalline quartz
Frequent: crystalline calcite (predominantly spar fragments)

Very Rare: chert

III Textural Concentration Features (Tcf)

Very few **Clay pellets** - – equant; brown to very dark brown in PLL(x40) and dark brown to brownish-black in XP(x40). They occasionally contain rounded inclusions of monocrystalline quartz and chalcedony, as well as iron-rich nodules (size = >0.24mm), and are commonly partly surrounded by a channel void. They have a high to neutral optical density, and boundaries are sharp to merging and rounded. The internal preferred orientation of the pellets is discordant with surrounding orientation features. Size = 1.68mm to 0.24mm.

IV Amorphous Concentration (depletion) Features (Acf)

1) Few to common iron-rich **nodules** – These are predominantly dark reddish-brown in PPL (x40) and XP(x40), but in association with the dark –coloured core in sample 751 they are black in PPL (x40) and very dark brown XP(x40). They are equant, have a high optical density and boundaries are sharp to diffuse and rounded. Size = 1.84mm to 0.02mm and mode size = 0.05mm.

2) Very rare **hypocoatings** - adjacent to voids, impregnating the surrounding matrix. Colour: PPL (x40) = brownish-black, XP(x40) = brownish-black.

Comment

This fabric group is characterized by the predominance of angular, rhombic to irregular-shaped fragments of crystalline calcite, occurring in a clay matrix containing common iron-rich nodules and a small quantity of quartz. The angular character of the calcite inclusions (discrete grains and mosaics), together with variation across the group in their abundance, are indicative of the addition of a freshly crushed temper. The large size of the spar fragments, as well as the grains comprising some mosaics, suggests that the temper derives from a colourless, coarsely crystalline form of calcite. The occurrence of calcite aggregates containing chalcedony might be a significant compositional feature of the calcite used in the production of these fabrics, as similar inclusions were not observed in any of the other fabric groups containing coarsely crystalline calcite as temper (e.g. Calcite A and H). Calcite G fabrics are distinguished from Calcite A fabrics, to which they are most compositionally and texturally similar, by a significantly greater quantity of iron-rich nodules and, in most cases, by the comparatively smaller amount of calcite inclusions present. The common occurrence of the nodules in the clay component of these fabrics represents a significant compositional difference from the samples of local clay that were analysed. A non-local provenance can therefore be inferred for the Calcite G group. The mineralogy, composition and textural properties of the clay component suggest a connection to deep clay beds overlying horizons of weathering limestone in the inland areas west of the New River.

Calcite H

Sample 493, 494, 503, 504, 528, 530, 598, 605, 611, 612, 614, 620, 621, 627

I Microstructure

(a) Voids: Few voids – predominantly mesovughs, with rare mesovesicles and few mesochannels. Channels are the dominant void type in sample 621. Their prevalence is this fabric relates to a significant difference in firing, as this an 'over-fired' fabric.
(b) c/f related distribution: predominantly a single-spaced porphyric related distribution. Close-spaced inclusions are rare, except in sample 621, in which they are common.
(c) Preferred orientation: generally a random to weakly developed preferred orientation parallel to the vessel margins with respect to voids and inclusions. In sample 621, the preferred orientation of the inclusions and voids is comparatively well-developed, and strongly developed with respect to channel voids.

II Groundmass

(a) Homogeneity: Significant variation across the group in terms of: 1) the relative frequency and roundness of different inclusion types and 2) the colour and optical activity of the clay matrix. This variation is continuous across the group. Within individual fabrics, voids and inclusions are evenly distributed, but the colour of the clay matrix often varies across the section. Dark cores of varying thickness and mottling are present in a few samples, as are calcined to partly decomposed calcite inclusions, which occur in the vicinity of the vessel margins. Three samples (493, 494 and 627) contain distinctive carbon residues in association with voids and the long axes of large aplastic inclusions.
(b) Micromass: dominantly optically active to slightly active and occasionally optically inactive (612, 614, 493). When optically active, B-fabric is monostriated and granostriated, but is less well developed in optically slightly active fabrics. Colour: PPL (x40) = brown, dark brown, brownish-black; brown; dark brown or brownish-black with a brown, dark brown or brownish-black core; brown grading into dark brown mottles; XP(x40) = dark brown, brownish black; brown; dark brown or brownish black with a dark brown, yellowish-brown or brownish black core; brown grading into dark brown mottles Slightly optically active fabrics tend to be brownish black (PPL and XP) and comparatively channely.

(c) Inclusions: Significant variation in the roundness and shape of aplastic inclusions, which relates primarily to differences in the nature of inclusions associated with the clay component vs. the added temper. The size distribution of inclusions is bimodal, with an upper size mode predominantly comprising angular, coarse sand-sized inclusions of calcite. Inclusions are poorly sorted and range in size from 2.16mm to 0.06mm. The calcite inclusions are angular and dominantly rhombic to irregular-shaped, whereas the siliceous inclusions are predominantly subangular to subrounded and equant to elongated. Samples 605 and 621 contain comparatively fewer aplastic inclusions.

c:f:v $_{10\mu}$ = between 50:45:5 and 20:75:5 to 20:70:10

Coarse Inclusions (>0.062mm)

Dominant to Frequent: CRYSTALLINE CALCITE – rhombic, equant and irregular-shaped spar fragments and discrete grains; very angular to subangular. Some are clearly terminal grades of the accompanying calcite mosaics. Size = 2.16mm to 0.062mm and mode size = 0.32mm.

Frequent to Few: MONOCRYSTALLINE QUARTZ – predominantly subangular to subrounded, but ranging from angular to well-rounded; equant to elongated; commonly with undulous extinction. Size = 0.96mm to 0.062mm and mode size = 0.24mm.

Few to Rare: MEDIUM TO COARSELY CRYSTALLINE CALCITE MOSACIS – angular to subangular; predominantly equant and elongated. Size = 1.2mm to 0.1mm and mode size = 0.48mm. Crystal size ranges from 0.45mm to 0.06mm. In sample 504, a few grain aggregates contain inclusions of chalcedony and, very rarely, polycrystalline quartz (size = 1.68mm to 0.4mm).

Few to Very Rare: LUMPS OF MICRITE – subrounded to well-rounded; equant to elongated. Size = 2.0mm to 0.062mm and the mode size = 0.32mm. One of the lumps in sample 493 contains a couple of inclusions of monocrystalline quartz.

Rare to Very Rare: POLYCRYSTALLINE QUARTZ – dominantly subangular, but ranging from angular to rounded; equant; frequently with undulous extinction. Size = 1.12mm to 0.16mm.

CHALCEDONY – angular to subrounded; equant and elongated. Size = 0.64mm to 0.24mm.

Very Rare: CLINOPYROXENE(?) – Only one grain was observed (sample 504) and this is well rounded, slightly elongated and 0.16mm in size.

SHELL FRAGMENTS – Only one fragment was observed (sample 614). Size = 0.56mm.

Fine Inclusions (<0.062 mm)

Dominant: crystalline calcite (predominantly spar fragments)

Frequent: monocrystalline quartz

III Textural Concentration Features (Tcf)

Very rare **Clay pellets** – equant; brown to dark brown in PLL(x40) and dark brown in XP(x40). They occasionally contain rounded inclusions of calcite (size = >0.06mm) and are commonly partly surrounded by a channel void They have a neutral optical density and boundaries are clear in PLL, diffuse to merging and rarely clear in XP, and rounded to well rounded. The internal preferred orientation of the pellets is discordant with surrounding orientation features. Size = 0.36mm to 0.08mm.

IV Amorphous Concentration (depletion) Features (Acf)

1) Rare **nodules** – These are black and dark reddish-brown in PPL (x40) and brownish-black and dark reddish-brown in XP(x40). They are equant, have a high optical density and boundaries are sharp to diffuse and rounded . Size = 0.56mm to 0.03mm.

2) Very rare **hypocoatings** - adjacent to voids, impregnating the surrounding matrix. Colour: PPL (x40) = brownish-black, XP(x40) = brownish-black.
3) Very few **Carbon Residues** – only present in samples 493, 494 and 627. These are vugh- or channel-shaped deposits of carbon residue, frequently containing mesovesicles and mesovughs. They have a strongly developed preferred orientation parallel to the vessel wall, as well as the long axes of inclusions, when they are adjacent to them. Their association with voids and their relatively consistent size and shape may suggest that they represent an organic material intentionally added as temper. This interpretation, however, requires further investigation.

Comment

This fabric group is characterized by dominant to frequent angular inclusions of crystalline calcite (spar fragments, mosaics and their terminal grades), occurring together with varying amounts of monocrystalline quartz and a small quantity of polycrystalline quartz, chalcedony and micrite. The bimodality of these fabrics, with the upper size mode comprising calcite mosaics and spar fragments, in addition to the angular character of the calcite inclusions, suggests a freshly crushed temper. The large size of the crystals comprising the mosaics, as well as many spar fragments, indicates the colourless, coarsely crystalline form of the mineral is the source of the temper. The main characteristics that distinguish Calcite H from the other calcite-tempered groups, particularly Calcite A, are that: 1) these fabrics contain a greater quantity of quartz and other siliceous inclusions, 2) the quartz grains tend to be larger in size (mode ==0.24mm vs. 0.15mm in Calcite A), 3) these fabrics generally contain comparatively less crystalline calcite and large inclusions are more prevalent, and 4) the presence of carbon residues in some samples.
There is significant variation across the group in terms of the presence/absence and frequency of different aplastic inclusion types and their roundness. This variation is interpreted as relating to natural differences in the raw materials used to make these fabrics and perhaps, slight differences in paste recipes. For example the presence in sample 504 of calcite fragments containing inclusions of chalcedony, as well as the greater quantity of chalcedony in general, points to a significant difference in the raw materials used to make this particular fabric. Similarly, the absence of micrite in some samples suggests compositional differences in raw materials, most likely having to do with the clay component. In comparison, the presence in three samples of carbon residues displaying a consistent morphology may suggest the addition of an organic temper. Accordingly, the variation within this group may reflect differences in both paste technology and raw material sources.
With the exception of sample 504, no geologically significant dissimilarity to local raw material resources can be demonstrated on mineralogical and compositional grounds. Nonetheless, the clay component of these fabrics is sufficiently dissimilar to the clay samples deriving from horizons of weathering limestone, as well as areas Pleistocene alluvium bordering the east side of the New River Lagoon and situated north of Lamanai, to discount these clays as possible sources. The clay component of Calcite H fabrics is most similar to local clay samples taken from directly below the ground's surface and above horizons of weathering limestone on the site-side of the lagoon (Yalbac Subsuite).
Based on these apparent differences among the fabrics and their potential technological and geological significance, however, it seems likely that this group comprises ceramics of both local and non-local origin.

Calcite H subgroup – grog-tempered variant

Sample: 529, 585
This subgroup of fabrics shares the same compositional properties and features as the main group, except that they contain a small amount of grog. Sample 585 is also comparatively fine-textured, containing fewer large inclusions of crystalline calcite. Inclusions larger that 0.46mm are rare in this fabric.
Textural Concentration Features (Tcf)
Grog – very few (>5% of the field of view); brownish-black, dark brown, brown or orangish-brown in PPL(x40) and XP(x40); optically inactive to slightly active. They are prolate to

equant and angular to subrounded with a neutral to high optical density. Boundaries are predominantly sharp and, rarely, diffuse or sharp to merging. The internal preferred orientation of the grog is discordant with surrounding orientation features and they are commonly partly or fully surrounded by a channel void. Size = 0.88mm to 0.12m and mode size = 0.32mm. In most cases, the grog is similar in colour and to the surrounding matrix and contains similar types of inclusions (size >0.24mm), except that quartz is rare in the grog. This grog appears to derive from crystalline calcite-tempered fabrics. Rarely, the grog appears to be compositionally similar to Sascab-Quartz A fabrics, containing exclusively rounded to subangular inclusions of micrite and quartz (>0.1mm). The two different types of grog occur together in the rare fabrics containing both kinds of grog.

Calcite I

Sample: 56

I Microstructure

(a) Voids: Very few voids – mesovughs
(b) c/f related distribution: predominantly a single-spaced porphyric related distribution. Close-spaced inclusions are very rare.
(c) Preferred orientation: random orientation of inclusions and voids.

II Groundmass

(a) Homogeneity: Homogenous with respect to the distribution of voids and inclusions. The colour of the clay matrix varies across the section, as there are two distinct bands of colour running parallel to the vessel wall.
(b) Micromass: very optically active with a monostriated B-fabric. Colour: PPL (x40) = dark brown with one orangish-brown margin; XP(x40) = dark brown with one orangish-brown margin.
(c) Inclusions: The size distribution of inclusions is unimodal, ranging from 0.96mm to 0.06mm, with a mode size of very fine sand. Inclusions are moderately sorted and predominantly equant to irregular-shaped.

c:f:v $_{10\mu}$ = between 30:68:2

Coarse Inclusions (>0.062mm)
Predominant: CRYSTALLINE CALCITE – spar fragments mosaics and their terminal grades. Spar fragments and discrete grains are very angular to subangular and predominantly equant to irregular-shaped, but occasionally rhombic. Size = 0.88mm to 0.06mm and mode size = 0.1mm. The mosaics, of which there are few, are angular to subangular and predominantly equant to elongated. The crystal size is consistent with a medium crystalline limestone. Size = 0.96mm to 0.15mm and mode size = 0.2mm.
Very Few: MONOCRYSTALLINE QUARTZ – predominantly subangular to rounded and rarely angular; equant; commonly with undulous extinction; occasionally containing microlites and vacuoles. Size = 0.35mm to 0.062mm.
Rare: POLYCRYSTALLINE QUARTZ – angular; equant. Size = 0.12mm to 0.062mm.
Very Rare: LUMPS OF MICRITE – subangular; equant, containing grains of crystalline calcite. Size = c. 0.4mm.
CHERT – only one grain was observed and this was angular, elongated and 0.2mm.

Fine Inclusions (<0.062 mm)
Dominant: crystalline calcite (spar fragments)
Frequent: monocrystalline quartz
Very Rare: feldspar, chert

III Textural Concentration Features (Tcf)

None

IV Amorphous Concentration (depletion) Features (Acf)

Common iron-rich **nodules** – These are black to brownish-black in PPL (x40) and brownish-black in XP(x40). They are equant and rarely elongated, have a high optical density and boundaries are sharp to clear. Some of the larger nodules contain quartz (>0.1mm). Size = 0.56mm to 0.007mm and mode size is 0.04mm.

Comment

This fabric group is characterized by predominant inclusions of crystalline calcite (spar fragments, mosaics and their terminal grades), occurring in a clay matrix containing common and, often large-sized, iron-rich nodules and a small quantity of quartz, chert, feldspar and perhaps calcite. The angular character and abundance of calcite, in addition to the presence of calcite mosaics, suggests a freshly crushed calcite temper. The main distinguishing feature of this fabric is the quantity of nodules present and their distinctive character. Similar nodules with this frequency of occurrence do not occur in any of the other archaeological specimens or the geological samples analysed. Another distinctive feature of this fabric is the presence of very fine inclusions of feldspar in the fine fraction. Feldspar was not observed in any of the other calcite-tempered fabric groups. The distinctive compositional characteristics of this fabric indicate that it was not produced locally. It could be argued based on the uniqueness of this fabric within the sample set analyzed, especially when considering its dissimilarity to fabric groups that are generally consistent with the geology of northern Belize, that its provenance lay outside of this general region. The mineralogy of the fabric suggests a connection to areas underlain by limestone, with no apparent geological linkage to igneous formations of the Maya Mountains and Sierra Madre.

Calcite J

Sample: 443

I Microstructure

(a) Voids: Few voids – predominantly mesovughs, with very few mesochannels.
(b) c/f related distribution: a single-spaced, porphyric related distribution.
(c) Preferred orientation: moderate preferred orientation parallel to the vessel margins with respect to voids and inclusions.

II Groundmass

(a) Homogeneity: Homogenous with respect to the distribution of voids and inclusions and the colour of the clay matrix.
(b) Micromass: slightly optically active with a monostriated B-fabric. Colour: PPL (x40) = orangish-brown margin; XP(x40) = dark orangish-brown margin.
(c) Inclusions: The size distribution of inclusions is bimodal, with an upper size mode predominantly comprising lumps of micrite and crystalline calcite mosaics and spar fragments. Inclusions are poorly sorted, predominantly equant to irregular-shaped, and range in size from 2.08mm to 0.04mm.

$c:f:v_{10\mu} = 35:55:10$

Coarse Inclusions (>0.062mm)

Frequent: CRYSTALLINE CALCITE – very angular to subrounded; equant to irregular-shaped or rhombic. These are terminal grades of the accompanying mosaics and spar fragments. Size = 1.28mm to 0.062mm and mode size = 0.32mm.

Frequent: LUMPS OF MICRITE – subrounded to well-rounded; equant to elongated; commonly containing grains of crystalline calcite, as well as iron-rich nodules and

segregations. The large amount to iron-rich segregations and nodules in the lumps give them a dark to rusty-brown colour in PPL as opposed to the more usual light brown or grey. Size = 2.08mm to 0.062mm and mode size = 0.24mm.

Common: MONOCRYSTALLINE QUARTZ – angular to subrounded; equant and elongated; occasionally with undulous extinction. Size = 0.48mm to 0.062mm and mode size = 0.24mm.

Few: MEDIUM TO COARSELY CRYSTALLINE CALCITE MOSACIS - angular to subrounded; equant to irregular-shaped. Size = 1.2mm to 0.16mm and mode size = 0.32mm.

Very Few: MUSTONE/SILICFIED LIMESTONE - angular to subrounded; equant and prolate. These are brownish-grey to light rusty-brown in PLL and ghost structures of a grain aggregate comprising rhombic crystals are clearly visible. In XP they have a very fine-grained structure (as with chert) with low interference colours. The commonly contain iron-rich segregations. Size = 0.64mm to 0.08mm and mode size = 0.4mm.

LIMESTONE FRAGMENTS – angular to subangular; equant to irregular-shaped. These comprise micrite, grains and mosaics of crystalline calcite and inclusions mudstone/silicified limestone. Size = 1.04mm to 0.14mm and mode size = 0.4mm

Rare: POLYCRYSTALLINE QUARTZ – subangular to subrounded; equant. Size = 0.32mm to 0.16mm.

Fine Inclusions (<0.062 mm)
Dominant: crystalline calcite (spar fragments)
Common: monocrystalline quartz
Few: micrite

III Textural Concentration Features (Tcf)

None

IV Amorphous Concentration (depletion) Features (Acf)

1) Common iron-rich **nodules and segregations** – These are rusty red to dark rusty-brown in PPL (x40) and XP(x40). The nodules are equant to irregular-shaped. They have a high optical density and boundaries are sharp to merging. They occasionally contain inclusions of quartz and crystalline calcite (>0.08mm). Size = 0.64mm to 0.02mm and mode size = 0.16mm.

Comment

This fabric group is characterized by frequent angular inclusions of crystalline calcite and lumps of micrite, commonly containing iron-rich segregations and nodules, occurring alongside inclusions of silicified limestone/mudstone, in a clay matrix containing common quartz inclusions and, possibly, a small quantity of calcite and micrite. The bimodal size distribution of inclusions, with angular inclusions crystalline calcite and micrite lumps dominating the upper size mode, together with the abundance of the calcite and micrite inclusions, suggests that these inclusions represent tempering materials added to the clay component. The main distinguishing characteristics of this fabric are: 1) the compositional characteristics of the micrite lumps, containing are iron-rich nodules and segregations, 2) the presence of fragments of silicified limestone and 3) the frequency of iron-rich nodules and segregations. The presence of silicified limestone/mudstone suggests a connection to the Orange Walk Group formation prevalent in areas north of the New River Lagoon, which characteristically contain a lithified carapace. A non-local provenance and a geological association with the northern part of northern Belize is therefore inferred. The large quantity of iron-rich Acf's in both the micrite lumps and the clay component is a highly distinctive compositional characteristic that clearly discriminates this fabrics from the remainder of the sample set analysed.

The Calcitic-Dolomitic Marl-based Class

Calcitic-Dolomitic Marl-based A

Sample: 39, 40, 42, 43, 119, 120, 121, 122, 124, 127, 229, 717, 718, 719, 732

I Microstructure

(a) Voids: Very few voids – predominantly mesovughs, with rare mesovesicles.
(b) c/f related distribution: a close-spaced to single-spaced, porphyric related distribution. Single spacing is more prevalent in sample 229.
(c) Preferred orientation: a partial preferred to weak orientation of voids parallel to vessel margins. The inclusions are randomly orientated.

II Groundmass

(a) Homogeneity: Generally homogenous with respect to the distribution of voids and inclusions. Notable variation in the colour of the groundmass relating to differences in firing. The group contains fully oxidized and reduced fabrics. Colour is consistent among the oxidized fabrics but varies among the reduced fabrics. All but one of the reduced fabrics (119) contain a darker coloured core.
(b) Micromass: very optically active with a granostriated B-fabric. Colour: oxidized samples - PPL (x40) = light brown; XP(x40) = yellowish brown; reduced samples - (x40) = dark brown; XP(x40) = dark brown.
(c) Inclusions: The size distribution of inclusions is unimodal, generally ranging from 2.4mm to 0.01mm, with a mode size of fine sand. Inclusions are well sorted, and predominantly rhombic and angular to subangular, with fewer equant, subrounded inclusions. Samples 732 and 719 are comparatively fine textured, with a mode size of inclusions of 0.1mm (this is still equivalent to fine sand, however).

c:f:v $_{10\mu}$ = 60:35:5 to 40:55:5
c:f $_{250\mu}$ = 5:95

Coarse Inclusions (>0.001mm)

Predominant: DOLOMITE / PARTIALLY DOLOMITIZED CALCITE – predominantly discrete rhombic grains with fewer irregular-shaped grain fragments and mosaics; angular to subrounded, but predominantly angular to subangular. The discrete grains have a microcrystalline texture (i.e. they lack an internal crystal structure) and appear to be the terminal grades of the accompanying medium crystalline dolomitic mosaics. The mosaics are generally angular to subangular and irregular-shaped. Staining showed that 10% to 40% of these inclusions contain some calcium carbonate. When calcium carbonate is present, the stained region of the grain surface of individual grains ranges from 5% and 90% of the total cross sectional area. The size of the discrete grains and grain fragments = 0.32mm to 0.01mm and mode size = 0.12mm. The size of the mosaics is 0.16mm to 0.5mm and mode size = 0.16mm.

Very Few: MONOCRYSTALLINE QUARTZ – predominantly subrounded and ranging from angular to rounded; equant; commonly with a slightly undulous extinction. Size = 0.32mm to 0.02mm and mode size = 0.05.

Very Few to Rare: CRYSTALLINE CALCITE – very angular to angular; rhombic and less often equant. Size = 0.4mm to 0.02mm and mode size =s 0.24mm.

Very Few to Very Rare: CHERT – subangular to rounded; equant. Size = 0.56mm to 0.04mm and mode size = 0.24mm.
CHALCEDONY – subrounded to rounded; equant. Size= 0.64mm to 0.08mm and mode size = 0.16mm.

Rare: FINE-GRAINED POLYCRYSTALLINE QUARTZ – subrounded to rounded; equant; strongly undulous extinction. Size= 0.64mm to 0.08mm and mode size is 0.16mm.

Very Rare: FELDSPAR – subangular; equant. One piece was observed. Size = 0.1mm.

DOLOMITIC LIMESTONE FRAGMENTS – very angular to subangular; equant and rarely elongated. These inclusions comprise rhombic grains of dolomite and crystalline calcite spar in a dolomitic to calcitic cement. Size = 2.24mm to 0.2mm and mode size = 0.4mm.

III Textural Concentration Features (Tcf)

Clay pellets - rare to very rare (718) – equant and, rarely, slightly distorted; brown to dark brown in PPL (x40) and greyish-brown to dark brown in XPL (x40); containing iron-rich nodules and segregations and quartz (size <0.15mm). They have high optical density, and boundaries are sharp to clear and rounded to well rounded. The internal preferred orientation of the pellets is discordant with surrounding orientation features. Size = 1.36mm to 0.3mm.

IV Amorphous Concentration (depletion) Features (Acf)

1) very few to very rare iron-rich **nodules** – These are dark orange to dark rusty-brown in PPL (x40) and XP(x40). They are predominantly equant, but occasionally distorted and have a high optical density. Boundaries are sharp. Size = 0.32mm to 0.02mm and mode size = 0.05mm.
2) very few to very rare **hypocoatings** – adjacent to voids and clay pellets. Colour: PPL (x40) and XPL (x40) = dark rusty-brown to brownish-black.

Comment

This group is characterized by the predominance of rhombic grains of dolomite displaying a microcrystalline texture, which occur together with very few inclusions of quartz. The fine, uniform texture and the abundance and even distribution of the aplastic inclusions suggest an untempered clay, perhaps highly processed. The distinguishing characteristics of this fabric group are: 1) the predominant rhombic grains of dolomite, which display a microcrystalline texture and 2) the comparative rarity of all other inclusion types, especially crystalline calcite, quartz, chert and chalcedony. The group is connected geologically to fine-textured magnesium-rich deposits formed above Pleistocene to Recent limestones and dolomitic limestones that occur in areas adjacent to the north eastern coast of northern Belize. A non-local provenance relating to coastal regions in northern Belize (possibly extending into southern Yucatan) can therefore be inferred.

Calcitic-Dolomitic Marl-based A Subgroup – mineralogical variant

Sample: 44, 45

These two samples are similar to those comprising the main group of fabrics, in all respects, except that they contain very rare shell fragments and microfossils and inclusions of crystalline calcite are more frequent (common). The greater quantity of crystalline calcite inclusions changes slightly the composition of inclusions – inclusions of dolomite / partially dolomitized calcite are dominant as opposed to predominant and inclusions of crystalline calcite are common as opposed to very few to rare. The crystalline calcite inclusions are predominantly subrounded to rounded and equant and their size ranges from 0.66mm to 0.02mm, with a mode size of 0.16. The roundness of these inclusions suggests that they occurred naturally in the clay and is indicative of a high energy environment, reinforcing the connection of coastal deposits.

Calcitic-Dolomitic Marl-based B

Sample: 157, 422, 434, 592

I Microstructure

(a) Voids: Few voids – predominantly mesovughs, with fewer meso- and microvesicles.
(b) c/f related distribution: a close-spaced to single-spaced, porphyric related distribution.
(c) Preferred orientation: a moderate to partial preferred orientation of voids and inclusions parallel to the vessel margins. Orientation is weakly developed with respect to inclusions.

II Groundmass

(a) Homogeneity: Homogenous with respect to the distribution of voids and inclusions, except for a few areas containing fewer inclusions. The colour of the clay matrix is homogeneous throughout the section.

(b) Micromass: very optically active, with a monostriated to granostriated B-fabric. Colour: PPL (x40) = light brown; XP(x40) = yellowish brown.

(c) Inclusions: The size distribution of inclusions is unimodal, ranging from 1.6mm to 0.01mm, with a mode size of medium sand. Inclusions are well sorted and predominantly rhombic and equant.

$c:f:v_{10\mu}$ = 50:40:10 to 60:35:5
$c:f_{250\mu}$ = 5:95 to 15:85

Coarse Inclusions (>0.001mm)

Predominant: CALICTE GRAINS WITH A MICROCRYSTALLINE TEXTURE – predominantly discrete rhombic grains with fewer equant inclusions and irregular-shaped to equant mosaics; very angular to rounded, but predominantly subangular to subrounded. These inclusions are high distinctive as they are rhombic in shape but have a microcrystalline texture (i.e. they lack an internal crystal structure). The discrete grains appear to be the terminal grades of the accompanying calcitic mosaics. The mosaics are finely to medium crystalline and are generally angular to very angular, equant and occasionally contain grains that have a partially crystalline internal structure. Staining showed an absence of dolomite. The size of the discrete grains = 0.4mm to 0.01mm and mode size = 0.32mm. The size of the mosaics is 0.88mm to 0.24mm and mode size = 0.64mm.

Few: MONOCRYSTALLINE QUARTZ – predominantly rounded to well rounded and rarely subrounded; predominantly equant and rarely elongated; commonly with a slightly undulous extinction. Size = 0.32mm to 0.02mm and mode size = 0.1.

Few to Very Few : CRYSTALLINE CALCITE (discrete grains and mosaics) - angular to subangular. The discrete grains are rhombic and, less often, equant, and the mosaics are equant to irregular-shaped. The size of the discrete grains is 0.4mm to 0.01mm and mode size = 0.24mm. The size of the mosaics is 0.56mm to 0.25mm and the mode size = 0.25mm

Very Rare: CHERT – subangular to rounded; equant. Size = 0.16mm to 0.14.
CHALCEDONY – rounded to subangular; equant. Size= 0.4 mm to 0.04mm.
POLYCRYSTALLINE QUARTZ – rounded; equant. Size= 0.06mm.
FELDSPAR (orthoclase)– rounded; equant. Size = 0.2mm to 0.02mm.
AMPHIBOLE – well rounded; equant. Size = 0.08mm.
MICRITE LUMPS – well rounded; equant. These contain iron-rich segregations and quartz inclusions. Size = 1.6mm to 1.36mm.

III Textural Concentration Features (Tcf)

Clay pellets – very rare – equant; brown in PPL (x40) and XPL (x40); containing iron-rich nodules and, commonly, inclusions of quartz and crystalline calcite (size <0.1mm). They have high optical density, and boundaries are sharp and rounded to well rounded. The internal preferred orientation of the pellets is discordant with surrounding orientation features and they tend to be surrounded by a channel void. Size = 0.3mm to 0.4mm.

IV Amorphous Concentration (depletion) Features (Acf)

Rare iron-rich **nodules** – These are brownish-black to dark rusty-brown in PPL (x40) and XP(x40). They are equant, well rounded to subrounded, have a high optical density and boundaries are sharp. The rarely contain inclusions of quartz (c. 0.05mm). Size = 0.4mm to 0.05mm.

Comment

This group is characterized by the predominance of rhombic grains of calcite displaying a microcrystalline texture, which occur together with a small quantity of crystalline calcite, quartz and fragments of siliceous rocks, and very rare grains of amphibole and feldspar and lumps of micrite. The uniform texture and the abundance and even distribution of the aplastic inclusions may suggest an untempered clay. The distinguishing characteristic of this group is the predominance of rhombic grains of calcite that display a microcrystalline texture. The group is connected geologically to fine-textured calcareous deposits formed above Pleistocene to Recent limestones that occur in areas adjacent to the northern coast of northern Belize. A non-local provenance relating to coastal regions in northern Belize (possibly extending into southern Yucatan) can therefore be inferred.

Calcitic-Dolomitic Marl-based B Subgroup – grog-tempered variant

Sample: 91, 587, 609

These three samples display the same compositional and textural characteristics as those comprising the main group of fabrics except that they contain Tfc's in the form of grog.

Textural Concentration Features (Tcf)

Grog: rare (c. 2% of field of view) orangish-brown to dark organish-brown in PPL(x40) and dark orangish-brown to dark brown in XP(x40); slightly optically active. They are prolate to equant and angular to subangular. Boundaries are predominantly sharp to clear and the internal preferred orientation of the grog is discordant with surrounding orientation features. Channel voids commonly at least partly surround these inclusions. Size =0.72mm to 0.15mm.

The compositional characteristics of the grog are clearly different that of the surrounding matrix. The grog contains fewer inclusions and these exclusively include quartz and crystalline calcite (size = >0.01mm). These compositional differences suggest that grog does not derive from Calcitic-Dolomitic Marl-Based B fabric.

Calcitic-Dolomitic Marl-based C

Sample: 152, 743

I Microstructure

(a) Voids: Few voids – predominantly mesovughs, with fewer mesovesicles and rare microvesicles.

(b) c/f related distribution: generally a single-spaced, porphyric related distribution, with some single-spaced inclusions present.

(c) Preferred orientation: a partial preferred orientation of voids and inclusions sub-parallel (c. 45°) to the vessel margins.

II Groundmass

(a) Homogeneity: Homogenous with respect to the distribution of voids and inclusions and the colour of the clay matrix.

(b) Micromass: very optically active with a monostriated to granostriated B-fabric. Colour: PPL (x40) = light brown; XP(x40) = yellowish-brown.

(c) Inclusions: The size distribution of inclusions is unimodal, ranging from 1.44mm to 0.01mm, with a mode size of very fine sand. Inclusions are well sorted and dominantly equant to elongated and, less frequently, rhombic.

$c:f:v_{10\mu} = 50:40:10$

$c:f_{250\mu} = 5:95$

Coarse Inclusions (>0.001mm)

Frequent: CRYSTALLINE CALICTE (discrete grains and mosaics) – very angular to rounded, but predominantly rounded to subrounded; equant to irregular-shaped, and less

frequently rhombic. The rhombic grains appear to be the terminal grades of the accompanying medium to coarsely crystalline mosaics, which are rare. The size of the discrete grains = 0.28mm to 0.01mm and mode size = 0.08mm. The size of the mosaics is 0.48mm to 0.08mm and mode size = 0.44mm.

Common: DOLOMITE AND DOLOMITIC LIMESTONE (discrete grains of dolomite and mosaics) – very angular to subrounded, but predominantly angular to subangular. The discrete grains are predominantly equant or rhombic and, less frequently, irregular-shaped. The mosaics are finely to medium crystalline and tend to be irregular-shaped. The size of the discrete grains is 0.32mm to 0.02mm and mode size = 0.05mm. The size of the mosaics is 0.3mm to 0.08mm and mode size = 0.25mm

MONOCRYSTALLINE QUARTZ – predominantly subrounded to well rounded but ranging from angular to well rounded; predominantly equant and rarely elongated; commonly with an undulous extinction. Size = 0.45mm to 0.02mm and mode size = 0.12.

Few: LUMPS OF MICRITE – subrounded to well rounded; equant and rarely elongated. Some lumps contain larger grains crystalline calcite (>0.48mm) and dolomite (c. 0.05mm). Size = 1.44mm to 0.12mm and mode size = 0.4mm.

Very Rare: SHELL FRAGMENTS – angular. Size = 0.3mm to 0.12mm.

ANHYDRITE – only one piece was observed and this was an angular lath measuring 0.14mm.

III Textural Concentration Features (Tcf)

Grog – These only occur in sample 152 and there are very few (<5% of the total field of view). They are brown in PPL (x40) and yellowish-brown in XPL (x40), angular to subangular, equant to prolate and are slightly optically active. They have a high to neutral optical density and sharp to merging boundaries. The internal preferred orientation of the grog is discordant with surrounding orientation features. The grog is compositionally similar to the surrounding matrix, containing inclusions of calcite, micrite, dolomite and quartz(>0.2mm), suggesting that they may derive from vessels with Calcitic-Dolomitic Marl-based C fabrics.

IV Amorphous Concentration (depletion) Features (Acf)

Rare iron-rich **nodules** – These are brownish-black to dark rusty-brown in PPL (x40) and XP(x40). They are equant, well rounded to subrounded, have a high optical density and sharp boundaries. The rarely contain inclusions of quartz (c. 0.05mm). Size = 0.4mm to 0.05mm.

Comment

This group is characterized by the predominance of inclusions of crystalline calcite, occurring together with common inclusions of dolomite, quartz and fragments of dolomitic limestone, and rare inclusions of anhydrite and shell fragments. The uniform, fine texture, together with the abundance and even distribution of the aplastic inclusions may suggest an untempered clay. The distinguishing characteristics of this fabric group are: the co-occurrence of crystalline calcite and dolomite grains 2) the roundness of the aplastic inclusions and 3) the common occurrence of quartz. The roundness of the inclusions suggests a high energy environment and the abundance of aplastic inclusions, in general, is indicative of a sandy textured clay. The presence of carbonate sand in these fabrics connects them geologically to coastal regions of northern Belize or, possibly, southern Yucatan, where calcareous sands and fine-textured calcareous deposits containing this sand overly Pleistocene to Recent limestone and dolomitic limestone. A non-local provenance relating to coastal regions in northern Belize, extending into southern Yucatan, can therefore be inferred.

Calcitic-Dolomitic Marl-based D

Sample: 152, 743

I Microstructure

(a) Voids: Few voids – predominantly meso- and microvughs, with rare microvesicles.
(b) c/f related distribution: a close-spaced, porphyric related distribution.
(c) Preferred orientation: a weakly developed partial preferred orientation of voids and inclusions sub-parallel (c. 45°) to the vessel margins.

II Groundmass

(a) Homogeneity: Homogenous with respect to the distribution of voids and inclusions, but notable variation within the group in optical activity. The colour of the clay matrix varies somewhat across the group but is consistent within individual samples, except in the case of sample 707, which contains a darker-coloured core.
(b) Micromass: very optically active (112) to non-active(733 and 47). In cases where the matrix is highly to slightly optically active a monostriated to granostriated B-fabric is present. Colour: PPL (x40) = greyish-brown to light brown; greyish-brown margins with a dark brown core (707); XP(x40) = greyish-brown to light brown; greyish-brown margins with a dark brown core (707).
(c) Inclusions: The size distribution of inclusions is bimodal, with a lower size mode predominantly consisting of fine grains of crystalline calcite and dolomite (fine sand-sized) and an upper size mode consisting predominantly of crystalline calcite mosaics, clay pellets, quartz and rare micritic lumps. The bimodal appearance of these fabrics relates to the fine calcite inclusions that dominant the fine component. Inclusions range in size from 0.8mm to 0.01mm, are well sorted and dominantly equant.

c:f:v $_{10\mu}$ = 60:35:5 to 30:65:5
c:f $_{250\mu}$ = 10:90

Coarse Inclusions (>0.062mm)
Frequent: CRYSTALLINE CALCITE AND DOLOMITE (discrete grains and mosaics) – angular to subrounded; equant to irregular-shaped and, less frequently, rhombic. The grains appear to be the terminal grades of the accompanying finely to medium crystalline mosaics. The mosaics generally comprise fine crystalline calcite grains, commonly dolomitized at the crystal boundaries, and dolomite grains, with occasional calcite spar c. 0.48mm is size. The size of the discrete grains = 0.72mm to 0.062mm and mode size = 0.15mm. The size of the mosaics is 1.6mm to 0.1mm and mode size is 0.16mm.
Few to Very Few: MONOCRYSTALLINE QUARTZ – subrounded to rounded; predominantly equant and, rarely, slightly elongated; commonly with a slightly undulous extinction. Very rare pieces contain iron oxides, vacuoles and possibly microlites (size = 0.8mm to 0.2mm). Size = 0.8mm to 0.062mm and mode size = 0.16.
Few to Rare: LUMPS OF MICRITE – subrounded to well rounded; equant and rarely elongated. A few lumps contain grains of crystalline calcite and mosaics of finely crystalline calcite. Size = 0.8mm to 0.16mm and mode size = 0.24mm.
Very Rare: CHERT – subrounded to rounded; equant. Size = 0.45mm to 0.15.
CHALCEDONY – subrounded to rounded; equant to slightly elongated. Size= 0.15 mm to 0.4mm
POLYCRYSTALLINE QUARTZ – rounded; equant. Size= 0.8mm to 0.4mm.
FELDSPAR (orthoclase?) – subrounded; equant. Size = c. 0.1mm.
LIMESTONE FRAGMENTS – subangular; equant. Size = c. 0.25mm. These contain crystalline calcite and very rare inclusions of chalcedony.

Fine Inclusions (<0.062 mm)
Frequent: crystalline calcite, dolomite
Frequent: monocrystalline quartz, micrite

III Textural Concentration Features (Tcf)

Clay pellets – very few to very rare(>5% of the total field of view) - equant; well rounded to rounded; brown to dark brown in PLL(x40) and XP(x40); frequently containing inclusions of rounded monocrystalline quartz and iron-rich nodules (size = >0.16mm).. They have a high optical density, and boundaries are predominantly sharp, but occasionally sharp to merging, and subrounded to rounded. The internal preferred orientation of the pellets is discordant with surrounding orientation features. Size = 1.12mm to 0.16mm.

IV Amorphous Concentration (depletion) Features (Acf)

1) Rare iron-rich **nodules** – These are brownish black in PPL (x40) and XP(x40). They are equant, well rounded to rounded, have a high optical density and sharp boundaries. Size = 0.32mm to 0.08mm.
2) Very rare **hypocoatings** in association with voids, impregnating the clay matrix. Boundaries are diffuse to merging. Colour: PPL (x40) = brownish-black, XP(x40) = brownish-black.

Comment

This fabric group is characterized by predominant fine inclusions of crystalline calcite and dolomite, which appear to be terminal grades of the accompanying mosaics, occurring together with few to rare siliceous inclusions. The distinguishing features of this group are 1) the composition of the rare limestone fragments, which contain inclusions of chalcedony, 2) the predominance of fine inclusions of crystalline calcite and dolomite and 3) the comparative rarity of siliceous inclusions. Although these fabrics have a bimodal appearance, the low frequency of the dolomitic mosaics suggests and untempered clay. The predominance of calcite and dolomite grains in the fine fraction connects this clay to horizons or deposits containing weathering limestone. The rarity of siliceous inclusions may suggest an association with deposits formed in association with Cretaceous limestones and dolomitic limestone, which characteristically contain very little quartz and other siliceous inclusions. The presence of dolomite in these fabrics clearly discriminates them from local clay resources. A provenance in inland areas of northern Belize is suggested, likely in the vicinity of outcrops of Cretaceous limestone and dolomitic limestones, which only occur in three principal areas: along the New River, in the escarpment west of Booth's River and in the escarpment west of the lower reaches of the Rio Bravo.

The Grog-Mixed Carbonate Class

Grog-Mixed Carbonate

Sample No: 1, 2, 3, 4, 5, 6, 7, 8, 59, 60, 61, 62, 63, 65, 66, 67, 68, 69, 74, 75, 77, 78, 80, 81, 82, 83, 84, 85, 86, 88, 89, 90, 92, 94, 96, 97, 98, 102, 103, 104, 105, 107, 135, 138, 150, 151, 154, 155, 156, 159, 160, 162, 165, 166, 167, 168, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 221, 224, 226, 239, 244, 270, 271, 327, 328, 329, 330, 331, 334, 335, 337, 339, 340, 341, 343, 344, 356, 361, 362, 365, 366, 367, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 394, 396, 397, 398, 399, 400, 404, 407, 408, 409, 410, 411, 412, 413, 414, 415, 418, 420, 421, 424, 425, 426, 429, 430, 433, 435, 436, 437, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 544, 545, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 574, 575, 576, 578, 579, 580, 581, 582, 583, 584, 586, 588, 589, 590, 591, 593, 594, 595, 596, 708, 720, 721, 722, 723, 724, 725, 726, 727, 735, 739, 745, 747, 748, 749, 750, 753, 757, 758

I Microstructure

(a) Voids: Very few to common voids, predominantly mesovughs and vesicles, with rare mesochannels. The channel voids tend to occur in association with aplastic inclusions,

especially grog. The amount and relative frequency of the types of voids present varies continuously across the group. In general, however, vesicles and channels are more prevalent in fabrics which appear to have been fired at a comparatively high temperature, as indicated the optically inactivity of the micromass. In addition, a few fabrics are characterized by 'vughy' (e.g. 590) or 'channely'(e.g. 388) microstructures due to the predominance of meso- and macro-vughs and channels, respectively.

(b) c/f related distribution: generally a single-spaced to close-spaced, porphyric related distribution.

(c) Preferred orientation: Notable variation across the group. Many of the fabrics display a moderately developed preferred orientation with respect to inclusions and voids parallel to the vessel margins (e.g. 399). In other fabrics, preferred orientation is only weakly developed (with respect to both voids and inclusions) (e.g. 750). Voids and inclusions are randomly oriented in a few fabrics (e.g. 89).

II Groundmass

(a) Homogeneity: Notable variation across the group with respect to the size distribution of inclusions, their sorting, and the relative amount of inclusion types present. The colour of the micromass and its level of optical activity also vary. The majority of fabrics (>60%) display firing horizons and the thickness of the darker-coloured core varies considerably, from very thick to very thin. Within individual fabrics, voids and inclusions are evenly distributed, but the colour of the clay matrix often varies due to the presence of darker-coloured cores and intervening subsurface horizons. When darker-coloured cores are present, their margins are characteristically sharply defined. This tendency is distinctive of the fabrics in this class. Variation in the colour of fully oxidized fabrics and the oxidized margins of fabrics displaying firing horizons is partly due to differences in firing temperature, as indicated by variation in the optical activity of the micromass. Generally, fabrics that are optically slightly active to inactive have a darker hue than optically active fabrics.

(b) Micromass: Dominantly optically slightly active to inactive. In fewer fabrics the micromass is optically active to highly optically active. B-fabric ranges in form. Fully oxidized fabrics range from light brown to brown and reddish-brown in PPL (x40) and yellowish-brown, light brown, greyish-brown, brown and reddish brown in XP. When present, darker coloured cores range from dark brown, brownish-black to black in PLL (x40) and dark greyish-brown, dark brown to brownish black in XP (x40).

(c) Inclusions: Notable variation with regard to the size distribution of inclusions, their sorting and the relative frequency and presence/absence of inclusion types. In Most cases, the size distribution of inclusions is unimodal (e.g. 371). In many fabrics, however, it is bimodal, with an upper size mode predominantly comprising inclusions of quartz and micrite (e.g. 89, 394). In others, bimodality is due to the presence and abundance of fine grains of crystalline calcite in the fine fraction (e.g. 397, 708, 739). The sorting of inclusions ranges from poorly sorted (e.g. 417, 739 and 397) to well sorted (e.g. 394, 590, 388, 384), but the majority of fabrics are moderately sorted (e.g. 750, 569, 172, 89). The inclusions are generally equant but frequently elongated or irregular-shaped. Crystalline calcite inclusions (discrete grains and mosaics) are characteristically angular and the discrete grains exhibit the typical rhombic shape. Most other types of rock and mineral inclusions (e.g. micrite, quartz and chert) are predominantly subangular to rounded. Inclusions range in size from 2.88mm (calcite mosaic) to 0.05mm (quartz), with a mode size generally ranging generally from medium to fine sand.

c:f:v $_{10\mu}$ = between 30:65:5 (89)0 and 25:65:10 (4) to 35:50:15 (590), and 10:30:60 (172)
c:f:v $_{62\mu}$ = 20:70:10 (4) to 15:75:10 (739)

Coarse Inclusions (>0.062mm)

Dominant to Very Few: MICRITE LUMPS – subangular to well rounded; predominantly equant and less frequently elongated. These occasionally contain iron-rich segregations and discrete grains and finely crystalline mosaics of crystalline calcite. Size = 1.28mm to 0.0.62mm and mode size = 0.18mm.

MONOCRYSTALLINE QUARTZ – predominantly subangular to subrounded, but ranging from angular to well-rounded; predominantly equant, less frequently elongated and , rarely, prolate; commonly with undulous extinction Size = 1.12mm to 0.062mm and mode size = 0.12mm.

Frequent to Very Few: CRYSTALLINE CALCITE (discrete grains and finely to medium crystalline mosaics). The discrete grains are very angular to angular and rhombic, and equant or irregular-shaped. The mosaics are predominantly subrounded to subangular, but range from angular to rounded, and are predominantly equant. The size of the discrete grains = 1.28mm to 0.62mm and mode size = 0.08mm. The size of the mosaics = 2.88mm to 0.16mm and the mode size = 0.4mm.

Few to Very Rare: POLYCRYSTALLINE QUARTZ – subangular to rounded; equant to elongated. Size = 1.12mm to 0.16mm and mode size = 0.48mm.
CHALCEDONY - angular to rounded; predominantly equant and less frequently elongated. Size = 0.64mm to 0.1mm and mode size = 0.32mm.
CHERT – subangular to rounded; equant to elongated. Size = 0.56mm to 0.08mm and mode size = 0.24mm.

Very Few to Very Rare: LIMESTONE FRAGMENTS – angular to subangular; equant and prolate. These predominantly consist of crystalline calcite spar and chalcedony. Size = 0.56mm to 0.2mm. Rare fragments are oolitic limestone consisting of oolites in a micritic cement. Size = 0.56mm to 0.32mm.

Very Rare: FELDSPAR (alkali and plagioclase) – angular to rounded; equant. Size = 0.32mm to 0.24mm.
SHELL FRAGMENTS – these generally have a crystalline internal structure. Size = c. 0.64mm (length).
AMPHIBOLE – rounded; equant. Size = c. 0.4mm

Fine Inclusions (<0.062 mm)
Predominant to Few: crystalline calcite
Frequent to Very Few: monocrystalline quartz
Few to Very Rare: micrite

III Textural Concentration Features (Tcf)

Textural Concentration Features (Tcf)

1) **Grog** – common to few (5-30% of the field of view) – Considerable variation is terms of its colour and mineralogical composition. Color ranges from black, brownish-black, very dark grey, dark brown, brown or reddish-brown in PLL(x40) and black, brownish-black, dark brown, brown, reddish-brown and orangish-brown in XP(x40). In XP the grog is often difficult to distinguish from the surrounding matrix due to similarities in colour and composition. They are angular to subrounded, equant and prolate, have a high to neutral optical density, and are predominantly optically inactive, even in fabrics displaying an optically active micromass. Boundaries are predominantly sharp or clear but, occasionally, sharp to merging. In instances where the boundaries are merging, the internal composition, orientation and colour of the grog is the same as that of the surrounding matrix. The internal preferred orientation of the grog is dominantly is discordant with surrounding orientation features, but occasionally concordant. Size = 1.28mm to 0.0.16mm and mode size = 0.32mm.
There is significant variation in the mineralogy of the grog, which reflects the fact that it derives from different types of ceramic fabrics. Mineralogically different grog occurs together in individual fabrics. There are at least five different kinds of grog that can be distinguished mineralogically:

1) fragments predominated by angular inclusions of crystalline calcite (reflecting a crystalline calcite-tempered fabric)
2) fragments exclusively containing inclusions of micrite and quartz (similar to Sascab-Quartz fabrics)
3) fragments exclusively containing inclusions of quartz (similar to Quartz Sand fabrics)

4) fragments containing fragments of volcanic glass (reflecting a volcanic ash-tempered fabric)
5) fragments containing calcite, micrite and grog (reflecting a Grog-Mixed Carbonate fabric)

Among these different types, fragments containing volcanic glass and grog are comparatively rare, observed in only one or two samples. The grog is commonly associated with channel voids or 'shrink' voids, which partly or fully encircle the inclusion.

2) **Clay Pellets** – rare to very rare (>2% of the total field of view) – predominantly equant and, rarely, slightly distorted; well rounded to rounded; brown in PLL(x40) and yellowish-brown in XP(x40), occasionally containing inclusions of rounded monocrystalline quartz and iron-rich nodules (size = >0.16mm).. They have a neutral to high optical density, and boundaries are predominantly sharp, but occasionally sharp to merging. The internal preferred orientation of the pellets is predominantly discordant with surrounding orientation features. Size = 0.88mm to 0.16mm.

IV Amorphous Concentration (depletion) Features (Acf)

1) Very few to rare **hypocoatings** in association with voids and, less frequently, inclusions. Boundaries are merging. The frequency of these Afc's is particularly high in sample 47. Colour: PPL (x40) = dark brown to black, XP(x40) = dark brown to black.
2) Rare to very rare iron-rich **nodules** which are dark rusty-brown to black in PPL (x40) and XP(x40) and have a high optical density. They rarely contain inclusions of monocrystalline quartz (>0.16mm). Boundaries are sharp to clear and rounded. Size = 0.1.28mm to 0.02mm.

Comment

These fabrics are characterized by common to few inclusions of grog, occurring together with varying amounts of micrite, crystalline calcite (mosaics, discrete grains and spar fragments) and quartz. There is considerable variation across this group with regard to the compositional characteristics and physical properties of the groundmass, and this variation is continuous in nature. Variation in the size distribution of aplastic inclusions, their sorting and the relative frequency and presence/absence of inclusion types appears to relate, in part, to the use of multiple temper types, including different forms of crystalline calcite (coarsely crystalline and finely crystalline), sascab, grog and, perhaps is some cases, sand. Some this variation is also appears to relate to natural differences in the clay component of the pastes, deriving from differences in the geological contexts within which the clays were formed, as well as to the specific combination and proportions of the raw materials used. Taking into account the variation that appears to relate specifically to human factors, the overall mineralogical similarity of these fabrics can be interpreted as relating to the existence (or representation) of clays with slightly different, but geologically related, compositions. No significant dissimilarity can be demonstrated, on geological grounds, to local clays that occur in the immediate area surrounding Lamanai (the area in which Yalbac soils occur), suggesting these fabrics were manufactured locally. In some cases the clay component of these fabrics bear significant similarities to local Yalbac clays formed directly below the ground's surface or those formed in association with subsurface horizons containing limestone at various stages of weathering. In other fabrics the clay component appears to be mineralogically similar to clayey soils associated with wash deposits of Pleistocene alluvium situated adjacent to the site on the north (Filipe Subsuite soils).
Additional variation within the group with respect to the physical properties of the groundmass relate to differences in firing, as indicated by differences in the optical activity of the clay matrix as well as the presence/absence of dark-coloured cores of varying colour and thickness.
The distinguishing characteristics of this group of fabrics are:) the presence and frequency of grog, 2) the consistent co-occurrence of grog, lumps of micrite and fragments and mosaics of crystalline calcite, 3) the fine texture of the groundmass in comparison to other fabric groups ascribed a local provenance, 4) the high level of variability within the group and 5) the comparatively high frequency of fabrics exhibiting optical inactivity, as well as dark-coloured cores displaying sharply defined margins.

Grog-Mixed Carbonate subgroup A – mineralogical variant

Samples: 70, 543, 546, 547, 573, 577

These samples share the same compositional properties and features as the fabrics comprising the main group except that their micromass (clay matrix) is highly micritic. The highly micritic micromass gives these fabrics a distinctive 'powdery' appearance. The different compositional and visual properties of the clay matrix of these fabrics relate to natural differences in the clay used to make them. Mineralogical similarities to the main group suggest that this clay is related geologically to the other clays that are represented. The paste technology is otherwise the same as for the main group.

Grog-Mixed Carbonate subgroup B – mineralogical variant

Grog – subgroup B

Sample: 737

This sample has been distinguished due to the distinctive composition of the grog inclusions it contains. This grog is by characterized a high frequency of close-spaced, fine inclusions of calcite (or possibly dolomite or partially dolomitized), which are accompanied by rare quartz inclusions. This grog bears striking compositional and visual similarities to Dolomitic-Calcitic Marl-based fabrics. Although compositionally different grog also occurs in this fabric, the large majority have this distinctive composition. The presence and predominance of this distinctive grog may relate to a difference in provenance, possibly reflecting non-local manufacture.

The Quartz Sand Class

Quartz Sand

Sample No: 17, 72, 131, 132, 161, 324, 325, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 495, 496, 497, 498, 499, 500, 501, 502, 507, 508, 509, 510, 511, 512, 513, 514, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 600, 601, 602, 603, 604, 606, 613, 615, 616, 622, 623, 625, 740, 754, 755

I Microstructure

(a) Voids: Vughy to channely microstructure: few to common voids, predominantly meso- and macrovughs and macrochannels, with few microvesicles. Notable variation exists in the frequency and mode size of voids owing to differences in firing temperature. Comparatively 'high-fired' or 'over-fired' fabrics (see below) generally contain more and larger voids, and macro- vughs, channels and vesicles are common. In a few sections, voids in close proximity to the vessel margins are lined with secondary calcite.

(b) c/f related distribution: generally a close-spaced to single-spaced, porphyric related distribution. Double-spacing, however, is common in fabrics containing comparatively fewer aplastic inclusions.

(c) Preferred orientation: weak to strong preferred orientation parallel or sub-parallel (c. 45°) to the vessel margins. Strongly developed orientation is largely due to voids and less well-developed with respect to inclusions. Differences in the degree of orientation are largely a function of the orientations of the thin sections in relation to the vessel wall, as well as the anatomical area of the vessel that was sampled. Thin sections of vessel rims have a comparatively well developed preferred orientation.

II Groundmass

(a) Homogeneity: Significant variation across the group in terms of: 1) the frequency and mode size of voids; 2.) the relative quantity, packing, sorting and roundness of aplastic inclusions; and 3) the colour and optical activity of the clay matrix. The continuous nature of this variation precludes further subdivision of the group. Within individual fabrics, voids and inclusions are evenly distributed, but the colour of the clay matrix often varies across the section. Dark cores and mottling are present in most.

(b) Micromass: dominantly optically very active to active and commonly slightly active. B-fabric is unistrial to granostriated, and is less well developed in optically slightly active fabrics.

Colour: PPL (x40) = brown, reddish brown, grayish brown, dark brown, brownish black; black; brown to dark brown with a black core; brown grading into reddish-brown mottles; XP(x40) = brown, reddish brown, greyish-brown, dark brown, brownish-black, black; brown to reddish-brown with a brownish black to black core, brown grading into reddish- to orangish brown margins; brown grading into yellowish-brown, brownish-red or orangish-brown mottles. Slightly optically active fabrics tend to be brownish-black to black (PPL and XP) and comparatively channely..

(c) Inclusions: Predominantly a unimodal size distribution of inclusions, ranging from 0.02mm – 2.88mm, with a mode size of medium sand. Granule-sized inclusions (>2.0mm) are rare. A few fabrics have a bimodal appearance, with the upper size mode comprising very coarse- to coarse-sand-sized inclusions. Inclusions are predominantly equant, subangular to subrounded and poorly sorted and occasionally, rounded to well rounded and moderate to well sorted. In the latter cases, the size range of inclusions is more restricted - 0.02mm - 0.96mm (medium silt-sized to coarse sand-sized). The relative amount of inclusions present, as well as the quantity of certain inclusion types, varies continuously across the group.

c:f:v $_{10\mu}$ = between 30:60:10 to 20:70:10 and 25:55:20

Coarse Inclusions (>0.062mm)

Predominant: MONOCRYSTALLINE QUARTZ – angular to well-rounded; equant to elongated; commonly with undulous extinction. Size = 1.76mm to 0.062mm (long diameter) and mode size = 0.16mm . Inclusions < c. 0.5mm in size tend to be angular to subangular and many appear to be terminal grades of the polycrystalline quartz that is also present. The larger inclusions (> c. 0.5mm) are mostly subangular to subrounded, however, in well sorted fabrics, they tend to be subrounded to well rounded.

Few to Rare: POLYCRYSTALLINE QUARTZ – angular to subrounded; equant to elongated. Size = 2.16mm to 0.062mm and mode size = 0.56mm.

Few to Very Rare: CHERT – subangular to rounded; equant to elongated. Size = 2.88mm to 0.062mm and mode size = 0.48mm

CHALCEDONY - subangular to rounded; equant to elongated. Size = 0.96mm to 0.62mm and mode size = 0.4mm

Very Few to Rare: FELDSPAR – ALKALI FELDSPAR -simple twinning; angular to subrounded; equant to prolate. Size = 0.48mm to 0.2mm and mode size = 0.35mm. MICROCLINE – 'tartan twinning'; angular to subrounded; equant to prolate. Size = 1.04mm to 0.18mm and mode size = 0.4mm. PLAGIOCLASE – multiple twinning; subangular to subrounded; equant to elongated. Size = 0.72mm to 0.12mm and mode size = 0.4mm.

Very Rare: SANDSTONE: subrounded to rounded; equant. It comprises inclusions of mono- and polycrystalline quartz (c. 0.48mm - 0.05mm) in a micritic matrix. Size = 2.4mm-0.8mm.

MICRITE – rounded to well rounded; equant to elongated. Some contain inclusions of monocrystalline quartz (c. 0.1mm - 0.05mm). Size = 2.48mm to 0.24mm and mode size = 0.64mm.

SHELL FRAGMENTS – They appear to derive from *pomacia* (apple snail) and very rarely, bi-valve species. Size = 1.44mm – 0.88mm (long diameter/length). A couple of snail shell fragments contain clay or quartz inclusions, suggesting the presence of the shell fragments is incidental (naturally occurring in the clay in these particular incidences).

OLIVINE – subrounded; equant to elongated. Size = 0.18mm to 0.14mm.

AMPHIBOLE – subangular to subrounded; equant to elongated. Size = 0.1mm to 0.6mm.

CLINOPYROXENE (AUGITE) – rounded; equant. Size = 0.18mm to 0.08mm.

GYPSUM – angular to subangular with characteristic lenticular shape. Size = 1.04mm to 0.24mm.

CRYSTALLINE CALCITE – Only one fragment was observed (sample 755): subangular; equant. Size = 0.4mm.

Fine Inclusions (<0.062 mm)
Predominant: monocrystalline quartz
Very Few to Very Rare: polycrystalline quartz
Rare to Very Rare: chert, chalcedony, micrite

III Textural Concentration Features (Tcf)

Clay pellets - brown in PLL(x40) and reddish-brown to dark brown in XP(x40); frequently containing inclusions of angular to subrounded monocrystalline quartz (size = 0.12mm to 0.02mm). Inclusions are absent in some. Boundaries are clear to merging and subrounded to rounded. The internal preferred orientation of the pellets is discordant with surrounding orientation features. Size = 0.95mm to 0.32mm and the mode size is c. 0.5mm. These are rare, when present (1-2% of total field of view) and absent in most samples.

IV Amorphous Concentration (depletion) Features (Acf)

1) Very few **hypocoatings** in association with voids where organic matter has burnt out of the clay during firing and carbon residues have impregnated the clay matrix surrounding the resultant void. Boundaries are merging. Colour: PPL (x40) = black, XP(x40) = dark brown to black.
2) Very few to rare iron-rich **nodules** which are dark brown to black in PPL (x40) and dark reddish-brown to dark brown in XP(x40). They have a high optically density. Boundaries are sharp to clear and rounded. Size ranges from = 0.4mm to 0.04mm, with a mode size of 0.15mm.

Comment

This group is characterized by predominant siliceous inclusions, occurring together with igneous-related accessory minerals. Also distinctive is the rarity of carbonate inclusions, which are entirely absent in most samples. The reddish brown to brown fired colour of the clay matrix in the oxidized fabrics suggests a non-calcareous or low calcareous clay. The bimodality of some examples may suggest the addition of sand as a tempering material, in some cases, perhaps in an attempt to improve the workability of the paste.
These fabrics are mineralogically and compositionally consistent with clayey soils that form in association with deep deposits of Pleistocene alluvium that occur throughout northern Belize. The presence of igneous-related accessory mineral such as olivine, clinopyroxene and the feldspars emphasizes a connection to the Maya Mountains as the original source of the alluvium. Nonetheless, some of the fabrics are virtually identical to the clay samples taken from the area of Pleistocene alluvium (Boom Subsuite soils) situated directly east of Lamanai, across the New River Lagoon. The striking similarity between the archaeological specimens and the samples of local clays taken from both inland and creek-side localities within this particular alluvial deposit suggests that at least some of the fabrics in the group derive from local raw materials.
The variation within this group in terms of the overall amount of inclusions present, the abundance and presence/absence of inclusion types and Tfc's, as well as the roundness, packing and sorting of the aplastic inclusions is interpreted as relating to natural compositional differences within and among the specific clay used to make different fabrics within the group. That is, although all of the fabrics derive from non- to low calcareous clays that form in association with deep deposits of Pleistocene alluvium, a range of different clays, deriving from local and no-local sources and, perhaps, from different localities within individual sources, appears to be represented. Based on comparison with the multiple samples taken from creek-side and inland localities within the deposit situated directly east of the site, as well as published descriptions the compositional characteristics of the soils associated with similar deposits in other areas of northern Belize, the following observations can be made:
1) Fabrics containing greater amounts of chert and chalcedony probably derive from clays associated with alluvial deposits situated at some distance to the east of Lamanai, between the coast and the Northern Lagoon drainage system, since these rock types are characteristically more prevalent in the soils of this particular area of northern Belize. Moreover, the clay

samples taken from the alluvial deposit situated directly across the lagoon from Lamanai clearly contain noticeably less inclusions of these rock types.
2) Fabrics containing comparatively fewer inclusions that are comparatively well sorted and rounded mostly likely derive clays associated with waterways. The presence of shell fragments and lumps of micrite in some samples also suggests a connection to river or creek deposits. These are compositional characteristics that clearly distinguish the samples of local clay taken from creek-side vs. inland localities.
3) Among the local clays, gypsum only occurs in one sample, which was taken from the inland locality and at a depth of 1m. The occurrence of gypsum in one of the archaeological fabrics suggests an important difference in the vertical depth from which the clay used to make this particular fabric derives.
Based on these apparent differences among the fabrics and their geological significance, it is postulated that this group comprises fabrics deriving from non-local as well as local clay sources, and from different localities within particular areas of Pleistocene alluvium. The characteristic that unites the group is that all of the fabrics derive from the same general type of clay. The continuous nature of the variation among these fabrics does not permit more discrete provenance distinctions based on the current set of archaeological and geological samples alone.

Quartz Sand Subgroup – calcite-tempered variant

Sample No: 447
This fabric shares the same compositional properties and features as the main group, except that it contains in addition, a significant quantity of crystalline calcite and limestone fragments. The crystalline calcite is the dominant inclusion type and the size distribution of inclusions is bimodal, with angular, equant to rhombic fragments of crystalline calcite comprising a larger size mode that is distinct from that of the other inclusion types present. The angular character of the calcite and limestone fragments, in addition to the bimodality of the fabric, suggests that these inclusions constitute a freshly crushed tempering material that was intentionally added. The fabric is therefore interpreted as sandy clay, compositionally consistent with soils that form in association with deep deposits of Pleistocene alluvium, tempered with crystalline calcite. A local provenance can not be ruled-out on mineralogical grounds.

I Microstructure

(a) Voids: Common meso- vughs, vesicles and channels with very rare macrovughs.
(b) c/f related distribution: a close-spaced to single-spaced, porphyric related distribution
(c) Preferred orientation: a moderate to partial preferred orientation sub-parallel (c. 45°) to vessel margins, with respect to voids and inclusions

II Groundmass

(a) Homogeneity: Homogenous throughout in terms of colour and distribution of voids and inclusions.
(b) Micromass: optically slightly active and exhibiting a weakly developed granostriated B-fabric. Colour: PPL (x40) = reddish-brown; XP(x40) = brown
(c) Inclusions: a bimodal size distribution of inclusions, with the upper size mode comprising granule- to very coarse sand-sized inclusions of angular, equant to rhombic fragments of crystalline calcite. The overall size range of inclusions is 0.02mm – 3.2mm, with a mode size of medium sand and sorting is poor.

c:f:v $_{10\mu}$ = between 35:45:20

Coarse Inclusions (>0.25mm)
Dominant: CRYSTALLINE CALCITE –.very angular to angular; equant, prolate and rarely rhombic. Size = 3.2mm to 0.25mm and mode size = 0.4mm. These are primarily fragments of spar and grain aggregates.

Frequent: MONOCRYSTALLINE and POLYCRYSTALLINE QUARTZ – subangular to well rounded; equant to elongated; commonly with undulous extinction. Size = 0.48mm to 0.25mm and mode size = 0.32mm

Rare: LIMESTONE FRAGMENTS comprising crystalline calcite spar and micrite. These are angular to subangular and equant. Size = 0.48mm to 0.062mm.
MICRITE – rounded, equant. Size = 0.35 to 0.62mm.

Fine Inclusions (<0.25 mm)
Frequent: crystalline calcite, monocrystalline quartz
Very Few: micrite
Rare: chert, chalcedony, amphibole, feldspar

III Textural Concentration Features (Tcf)

None.

IV Amorphous Concentration (depletion) Features (Acf)

Same as noted for main group.

The Sascab Class

Sample: 218, 710

I Microstructure

(a) Voids: Few voids – predominantly mesovughs and mesovesicles, with rare macrovughs.
(b) c/f related distribution: generally a single-spaced, porphyric related distribution. Inclusions are rarely close-spaced.
(c) Preferred orientation: generally a weak partial preferred orientation of voids parallel to the vessel margins. Preferred orientation is weakly developed with respect to inclusions.

II Groundmass

(a) Homogeneity: Homogenous with respect to the distribution of voids and inclusions. Both samples contain dark-coloured cores of different colours, but the colour of the margins is the same in both cases..
(b) Micromass: optically inactive in sample 710 and slightly optically active in sample 218, which displays a monostriated B-fabric. Colour: PPL (x40) = brown with a greyish-brown (710) or dark brown (218) core; XP(x40) = orangish-brown with a brown (710) or dark brown (218) core.
(c) Inclusions: The size distribution of inclusions is bimodal, with a lower size mode predominantly consisting of fine grains of crystalline calcite (fine sand-sized), which appear to be terminal grades of the accompanying micrite lumps and calcite mosaics . Lumps of micrite dominate the upper size mode. Inclusions range in size from 2.8mm to 0.01mm, are moderately sorted, and are dominantly equant.

c:f:v $_{10\mu}$ = 60:30:10
c:f $_{62\mu}$ = 40:60

Coarse Inclusions (>0.062mm)
Predominant: LUMPS OF MICRITE – subrounded to well rounded; equant and rarely elongated. A few lumps contain grains of crystalline calcite. Size = 1.76mm to 0.06mm and mode size = 0.216.
Few: CRYSTALLINE CALCITE (discrete grains and mosaics) – very angular to subangular; equant, irregular-shaped and rhombic. The discrete grains, in many cases, appear to be the terminal grades of the accompanying finely to medium crystalline mosaics. The mosaics are generally rare and occasionally contain coarsely crystalline sized grains of crystalline calcite. The size of the discrete grains =

0.96mm to 0.062mm and mode size = 0.16mm. The size of the mosaics is 0.8mm to 0.15mm and mode size is 0.16mm.

Rare: MONOCRYSTALLINE QUARTZ – angular to rounded; equant; occasionally with an undulous extinction. Size = 2.8mm to 0.062mm.

Very Rare: SHELL FRAGMENTS – one was observed in sample 218 and this was 0.96mm in length.

LIMESTONE FRAGMENTS – subangular; equant. Size = 1.12mm to 0.2mm. These consist of micrite, crystalline calcite mosaics and discrete rhombic grains of crystalline calcite.

Fine Inclusions (<0.062 mm)
Dominant: crystalline calcite (terminal grades)
Common: micrite
Rare: monocrystalline quartz

III Textural Concentration Features (Tcf)

None

IV Amorphous Concentration (depletion) Features (Acf)

1) Very few iron-rich **nodules** – These are black to rusty brown in PPL (x40) and XP(x40). They are equant, well rounded to subrounded, have a high optical density and sharp boundaries. Size = 0.8mm to 0.05mm and mode size = 0.05mm.
2) Very rare **hypocoatings** in association with voids. Boundaries are diffuse to merging. Colour: PPL (x40) = black, XP(x40) = black.

Comment

This class of fabrics, which is represented by only two samples, can be characterized as highly micritic clay tempered with sascab. The bimodality of these fabrics, with an upper size mode exclusively comprising micrite lumps, or crushed lithified sascab, and a lower size mode dominated by discrete fine grains of crystalline calcite and micrite, suggests that the micrite lumps constitute an added temper. The main distinguishing characteristic of these fabrics is the rarity of quartz and other inclusion types, except for micrite lumps and fine inclusions of crystalline calcite. The clay component of these fabrics is dominated by fine inclusions of micrite and crystalline calcite, suggesting a connection to clays that form in association with horizons of weathering limestone. The fact that the clay contains very little quartz, and the sascab temper contain none, is suggestive of an association with Cretaceous limestone, as opposed to Tertiary formations, since sascab deposits associated with the latter characteristically contain a significant quantity of sand. Cretaceous limestone formations outcrop at only three principal locations north of the Maya Mountains: below an escarpment situated west of the southern end of the Rio Bravo, below the Booth's River escarpment, and along the western edge of the New River Lagoon. Nonetheless, the samples of local clay associated with Cretaceous outcrops that were analysed as part of the present study, generally contain more quartz than is present in these archaeological fabrics. Considering the distinctiveness of the Sascab fabrics within the sample set as a whole, it is quite possible that these two vessels were not manufactured locally.

The Sascab-Quartz Class

Sascab-Quartz A

Sample No: 9, 14, 21, 27, 32, 33, 34, 35, 48, 49, 50, 51, 108, 109, 110, 111, 113, 140, 141, 142, 143, 144, 200, 201, 202, 203, 204, 205, 206, 207, 208, 216, 217, 240, 241, 256, 259, 261, 262, 265, 266, 267, 268, 269, 284, 345, 351, 353, 357, 358, 359, 360, 363, 393, 416, 417, 419, 427, 444, 701, 702, 703, 704, 705, 709, 716, 729, 738, 756

I Microstructure

(a) Voids: Few to very few voids, predominantly meso- vughs and vesicles, with rare microvughs, microvesicles and macrovughs ,and very rare macrochannels. In some sections, voids in close proximity to the vessel margins are lined or partially in-filled with secondary calcite.

(b) c/f related distribution: a close-spaced to single-spaced, porphyric related distribution.

(c) Preferred orientation: a weak to moderate preferred orientation parallel to vessel margins. The moderately developed orientation is primarily due to voids, especially macrovughs, whereas the orientation of inclusions is poorly developed

II Groundmass

(a) Homogeneity: Some variation across the group with respect to the size distribution of inclusions, their sorting, and the relative amount of inclusion types present. The amount of micrite lumps present varies in particular and, in a few sections, there are notable differences in the compositional properties of the micrite. Minor variation in the colour of the clay matrix also occurs. Within individual fabrics, voids and inclusions are evenly distributed except for samples 27 and 208, which each contain an area of clay matrix devoid of carbonate inclusion (micrite and calcite), but containing siliceous inclusions. The colour of the clay matrix varies in only a few sections that have dark cores.

(b) Micromass: predominantly optically active to very active with a crystallic B-fabric. Sample 444 is the only fabric that is optically inactive. Colour: PPL (x40) = light brown, brown, dark brown; light brown grading into a dark brown core; XP(x40) = brown to greyish-brown; reddish- to greyish-brown grading into a dark brown core.

(c) Inclusions: The size distribution of inclusions is most often bimodal, with the upper size mode predominantly comprising granule- to very coarse sand- sized lumps of micrite (c. 1.5mm to 3.2mm). A few fabrics have a trimodal appearance owing to the presence of an additional lower size mode dominated by discrete, rhombic to irregular-shaped, coarse silt-sized grains of crystalline calcite (0.04mm-0.06mm). These grains appear to derive from the micrite or sascab component of these pastes, as the accompanying lumps of micrite also contain these grains. A unimodal size distribution of inclusions is also present in a few fabrics.

Inclusions are predominantly equant and very poorly to moderately well sorted. Size range = 3.36mm to c. 0.02mm, with a mode size of medium sand. The comparatively well sorted fabrics (e.g. samples 14 and 9) have a finer texture. In these, granule- and very coarse sand-sized inclusions are entirely absent and inclusions over 0.64mm are very rare.

c:f:v $_{10\mu}$ = between 20:70:10 to 30:65:5

Coarse Inclusions (>0.125mm)

Dominant to Common: MONOCRYSTALLINE QUARTZ – predominantly subrounded but ranging from subangular to well rounded; equant to elongated; commonly with undulous extinction. Size = 1.84mm to 0.125mm (long diameter) and mode size = 0.24mm

Frequent to Few: MICRITE LUMPS – subangular to well rounded; equant to elongated. Size = 3.36mm to 0.125mm and mode size = 0.4mm. These occasionally contain iron-rich segregations and very rarely inclusions of quartz. In some thin sections the lumps contain discrete grains and finely crystalline mosaics of crystalline calcite (grain size is typically 0.04mm to 0.6mm). These inclusions are particularly prevalent in fabrics in which discrete grains of crystalline calcite are abundant in the fine fraction. In samples 48 and 140, some micrite lumps contain oolites.

Few to Very Rare: CRYSTALLINE CALCITE – discrete grains and finely crystalline mosaics. Grains are rhombic- to irregular- shaped and very angular to subangular. Mosaics are equant and angular to subangular. Size = 0.88mm to 0.125mm and mode size = 0.16mm.

Very Few to Very Rare: POLYCRYSTALLINE QUARTZ – angular to subrounded; equant to elongated. Size = 2.24mm to 0.125mm and mode size = 0.25mm.

Rare to Very Rare: CHERT – subangular to rounded; equant to elongated. Size = 4.4mm to 0.125.
CHALCEDONY - subangular to rounded; equant. Size = 3.2mm to 0.125mm.
FELDSPAR – ALKALI FELDSPAR -simple twinning and possibly, tartan twining; subangular to subrounded; equant to elongated. Size = 0.2mm to 0.125mm. PLAGIOCLASE – multiple twinning; subangular to rounded; equant to elongated. Size = 0.2mm to 0.15mm.
Very Rare: AMPHIBOLE – rounded; equant. Size = c. 0.1256mm
CLINOPYROXENE (AUGITE) – rounded; equant. Size = 0.25mm to 0.125mm.
SHELL FRAGMENTS – Only one fragment was observed and it has a crystalline internal structure. Size = 0.75(length).
OOLITES – discrete grains and aggregates; angular. Size = c.0.125mm. Aggregates were observed in only three samples (201, 202 and 9) Size of aggregates = c. 0.5mm.

Fine Inclusions (<0.125 mm)
Dominant to Few: crystalline calcite
Frequent to Few: monocrystalline quartz, micrite lumps
Very Rare: chert, chalcedony, clinopyroxene

III Textural Concentration Features (Tcf)

None

IV Amorphous Concentration (depletion) Features (Acf)

1) Very few **hypocoatings** in association with voids where organic matter has burnt out of the clay during firing and carbon residues have impregnated the clay matrix surrounding the resultant void. Boundaries are merging. Colour: PPL (x40) = dark brown to black, XP(x40) = dark brown to black.
2) Rare to very rare iron-rich **nodules** which are dark brown to black in PPL (x40) and XP(x40) and have a high optical density. They rarely contain inclusions of monocrystalline quartz. Boundaries are clear and rounded. Size = 0.5mm to 0.04mm.
3) Rare to very rare iron-rich **nodules**. These are rusty-brown in PPL (x40) and deep red in XP(x40) and have a high optical density. Their boundaries are clear and rounded. Size = 0.1mm - 0.04mm.

Comment

This fabric group is characterized by dominant inclusions of siliceous minerals and rocks occurring together with frequent lumps of micrite and related calcite inclusions. The light colour of the clay matrix and the presence of calcite in the fine fraction indicates a calcareous clay. The lumps of micrite, which are a prominent feature in these fabrics, appear to constitute a tempering material since, in many cases, they dominate a larger size mode that is clearly distinct from the inclusions of quartz etc. that are also present. In most cases, the micrite lumps in the archaeological fabrics are identical in appearance and composition to samples of sascab that were taken from the outcrop/quarrying site situated south east of the central precinct at Lamanai. They contain the same relic structures of gastropods and foraminifera and lack inclusions of quartz, suggesting a connection to sascab deposits associated with Cretaceous limestone as opposed to Tertiary limestone, of which quartz inclusions are characteristic. The oolites (discrete grains and aggregates) that are present in a few fabrics appear to derive from the sascab temper, since they also occur in the micrite lumps in these fabrics. The presence of oolites, therefore, would seem to relate to natural compositional differences in the sascab used for temper in these particular cases and, thus, to differences in the source of the tempering material. The calcite inclusions also appear to derive primarily from the tempering material, since discrete angular grains and aggregates occasionally occur in the micrite lumps.
The clay component of these fabrics, constituting a sandy calcareous clay, is mineralogically and compositionally consistent with published descriptions of Filipe Subsuite soils that occur in association with the wash deposit containing Pleistocene alluvium situated directly north of the

site, adjacent to Barber Creek. The clay samples taken from the western bank of Barber Creek bear striking similarities to the archaeological fabrics (except for the rarity of micrite lumps), especially those in which the siliceous inclusions are comparatively well sorted.
Variability within the group with regard to the relative amount of siliceous inclusions vs. micrite lumps and related inclusions present relates to the proportional amount of tempering material added to the clay. Fabrics containing a greater quantity of lumps of micrite generally contain less siliceous inclusions and thus less clay component and vice versa.
Based on the similarities to both the local clay and sascab samples, this fabric group is interpreted as locally produced.

Sascab-Quartz A Subgroup – grog-tempered variant

Sample No.: 10, 11, 13, 16, 71, 73, 76, 87, 95, 99, 100, 106, 164, 223, 272, 326, 332, 333, 336, 338, 342, 368, 395, 423, 431, 562
This subgroup of fabrics shares the same compositional properties and features as the main group, except that these fabrics contain a small amount of grog. Within this subgroup there is some variability in terms of the frequency of the quartz inclusions and the colour of the groundmass, which relates to the presence/absence of firing horizons. Differences in firing, therefore, are more prevalent in the subgroup. When present, dark brown to black cores (PPL and XP) exhibit sharply defined margins. In addition, these fabrics generally exhibit a finer texture in comparison to the main group and micrite lumps tend to be the dominant inclusion type (dominant to predominant). Inclusions over 1.5mm in size are rare and these are exclusively micrite lumps. The mode size of inclusions is that of fine sand. Quartz tends to have a common occurrence and the composition of inclusions is otherwise the same, except that oolites and shell fragments were not observed in the subgroup. As with the main group, fabrics containing a comparatively greater quantity of micrite lumps, contain fewer siliceous inclusions. The presence of Tfc's in the form of grog is the main distinguishing characteristic of the subgroup.
Textural Concentration Features (Tcf)
Grog: brown to dark brown in PPL(x40) and black, dark brown, brown and occasionally orangish-brown in XP(x40); predominantly optically inactive. They are prolate to equant and angular to subrounded. Boundaries are predominantly sharp to clear, but occasionally sharp to merging. In instances where the boundaries are merging, the internal composition, orientation and colour of the grog is the same as that of the surrounding matrix. The internal preferred orientation of the grog is dominantly discordant with surrounding orientation features, but occasionally concordant. Size =0.96mm to 0.1mm and mode size = 0.32mm.
There are important differences in mineralogical composition of the grog inclusions which reflect the fact that it derives from at least three different classes of ceramic fabrics. Grog that is compositionally identical to the main group of Sascab-Quartz A fabrics predominates and no instances of the grog-tempered variant, Sascab-Quartz A subgroup, were observed. In a few instances the grog is compositionally similar to Quartz Sand fabrics, since carbonate inclusions are completely absent and they exclusively contain siliceous inclusions. Similarly, some of the grog clearly derives from a crystalline calcite-tempered fabric, as indicated by the absence of siliceous inclusions and micrite and the presence of angular to subangular inclusions of crystalline calcite. Grog deriving from different fabric classes occurs together in some thin sections.
Grog generally represents c. 2% to 10% of the entire field of view. However, the quantity of grog is difficult to judge in fabrics containing thick black cores and since, in many instances, the internal composition and orientation of the grog is the same as the surrounding matrix.

Sascab-Quartz B

Sample No: 52, 117, 118

I Microstructure

(a) Voids: Few to very few voids, predominantly meso- vughs and vesicles, with few to very few, thin mesochannels running between inclusions.
(b) c/f related distribution: a single spaced to close-spaced, porphyric related distribution.
(c) Preferred orientation: a weak to moderate preferred orientation parallel to vessel margins. The moderately developed orientation is due to voids and inclusions. In sample 118 the orientation of the channel voids is strongly developed parallel to the vessel margins.

II Groundmass

(a) Homogeneity: Homogenous throughout with respect to the distribution of voids and inclusions. The colour of the clay matrix is homogenous in samples 52 and 118, whereas some mottling occurs in sample 117, adjacent to the lip of the vessel.
(b) Micromass: optically active except in sample 117, in which it is slightly optically active. A monostriated to granostriated B fabric occurs in all cases. Granostriated B fabric primarily occurs in association with the larger aplastic inclusions. Colour: PPL (x40) = reddish-brown; reddish-brown grading into brown mottles in the lip area in sample 117; XP(x40) = brick red; brick red grading into greyish-brown mottles in sample 117. The colour of the clay matrix is a distinctive characteristic of this fabric group.
(c) Inclusions: The size distribution of inclusions is bimodal in samples 117 and 52 and unimodal in sample 118. The upper size mode of the bimodal fabrics predominantly comprises lumps of micrite, with the remainder of inclusion types primarily confined to the lower size mode (the exception is quartz). Inclusions are moderately sorted, predominantly equant, and range in size from 3.5mm to 0.02mm, with a mode size of fine sand. Granule-sized inclusions are rare.

c:f:v $_{10\mu}$ = 25:60:15 to 25:65:10

Coarse Inclusions (>0.125mm)
Dominant : MONOCRYSTALLINE QUARTZ – predominantly subangular but ranging from angular to rounded; equant to elongated; commonly with undulous extinction. Some contain microlites. Size = 1.52mm to 0.125mm and mode size = 0.24mm.
Common: MICRITE LUMPS AND FINELY CRYSTALLINE CALCITE MOSAICS (grain size is typically 0.02mm – 0.06mm) – subangular to well rounded; equant to elongated. Size = 3.7mm to 0.125mm and mode size = 0.24mm. The micrite lumps rarely contain inclusions of quartz and biotite, discrete grains of crystalline calcite and iron-rich nodules. Size of inclusions = > 0.24mm.
Very Few: CHALCEDONY – angular to subangular; equant to slightly elongated. Size = 1.04 mm to 0.15mm and mode size = 0.24mm.
CHERT – subangular to subrounded; equant and rarely, elongated. Size = 0.4mm to 0.125mm and mode size = 0.24mm.
FELDSPAR – ORTHOCLASE – subangular to subrounded; equant. Size = 0.64m to 0.16mm and mode size = 0.32mm. Identified through staining.
Rare: POLYCRYSTALLINE QUARTZ – subangular; equant and irregular-shaped. Size = 0.72mm to 0.15mm.
BIOTITE – angular to subangular laths which are commonly distorted. These are light brown to yellowish-brown in PPL, have low relief and one good cleavage. Sweeping extinction and twinning in XP. Size = 0.15mm to .0125mm.
Rare to Very Rare: SANDSTONE – subrounded; equant. Size = 1.36mm to 0.48mm. These comprise inclusions of quartz in a micritic matrix.

Fine Inclusions (<0.125 mm)
Frequent: quartz
Frequent to Common: biotite,

Few: micrite lumps, discrete grains of crystalline calcite (terminal grades of the finely crystalline calcite mosaics)
Very Few: chert
Rare to Very Rare: amphibole, olivine, chlorite, feldspar

III Textural Concentration Features (Tcf)

None

IV Amorphous Concentration (depletion) Features (Acf)

1) Very few iron-rich **nodules** - equant to elongated; brownish-black to black in PPL (x40) and XP(x40); high optical density. They rarely contain inclusions of monocrystalline quartz (>0.08mm). Boundaries are clear to sharp and subangular to well rounded. Size = 0.64mm to 0.02mm and mode size = 0.16mm.
2) Rare iron-rich **nodules** – equant to elongated; dark red to brownish-red in PPL (x40) and brownish-red to deep red in XP(x40); high optical density. They occasionally contain inclusions of monocrystalline quartz (>0.12mm). Boundaries are clear to sharp and subrounded to well rounded. Size = 1.44mm to 0.02mm and mode size = 0.2mm.
3) Very rare **hypocoatings** (present in sample 117 only) in association with channel voids that run parallel to the lip profile. Boundaries are merging. Colour: PPL (x40) = dark brown to black, XP(x40) = dark brown to black.

Comment

This fabric group is characterized by dominant inclusions of siliceous minerals and rocks occurring together with common micrite lumps and related finely crystalline calcite mosaics, and frequent fine inclusions of biotite. The brick red fired colour of the clay matrix and the presence of biotite are highly distinctive of this fabric group. The lumps of micrite and finely crystalline calcite, which are a prominent feature in these fabrics, appear to constitute a tempering material given the bimodality of two of the three samples in this group. The presence of quartz inclusions in the micrite lumps suggests a connection to sascab associated with the Tower Hill or Orange Walk group formations characteristic of areas to the north of the New River Lagoon.
The clay component of these fabrics, constituting a sandy, red-firing clay is consistent with published descriptions of Pembroke Suite soils (particularly Xaibe Subsuite soils) that overly Orange Walk Group limestone in the Corozal District, between the Rio Hondo and Corozal Town. The presence of the quartz inclusions, their quantity and roundness suggests an association with alluvial deposits. The presence of biotite, in both the clay component and the sascab temper, is highly distinctive. The ultimate source of the biotite is likely the Sierra Madres in Chiapas, Mexico. The Rio Hondo drains areas of Central Peten, Guatemala, in which the soils are noted to contain mica, ultimately deriving from the Sierra Madres (Rands and Bishop 1980, Fry 1980). In addition, mica ('micaceous flecks') is noted to commonly occur in the ceramics at Cerros (Robertson-Freidel 1980, Robertson 1983), situated on Chetumal Bay, the mouth of the Rio Hondo. The presence of amphibole, olivine, chlorite and feldspar in the clay reinforces the connection to igneous formations.
The mineralogical and compositional properties of this fabric group indicate a non-local provenance for these ceramics. The area adjacent to Chetumal Bay and bordering the Rio Hondo is suggested as a possible source area of the raw materials.

The Volcanic Glass Class

Volcanic Glass A

Sample: 242, 163, 210, 213, 222, 225, 712, 714, 715, 734

I Microstructure

(a) Voids: Few voids – predominantly mesovughs, with fewer mesovesicles.

(b) c/f related distribution: a single-spaced, porphyric related distribution.
(c) Preferred orientation: a weakly developed preferred orientation of voids and inclusions *parallel to the vessel margins.*

II Groundmass

(a) Homogeneity: Homogenous across the group with respect to the distribution of voids and inclusions, as well as the colour of the clay matrix. In a few samples the distribution of the volcanic glass fragments is uneven, with areas containing fewer inclusions.
(b) Micromass: slightly optically active with a granostriated B-fabric. Colour: PPL (x40) = dark brown; XP(x40) = yellowish-brown to slightly reddish-brown.
(c) Inclusions: The size distribution of inclusions is unimodal, ranging from 1.28mm to 0.01mm, with a mode size of medium sand. Inclusions are moderately sorted. The volcanic glass fragments are predominantly lunate and sickle shaped, whereas the mineral inclusions are predominantly equant (e.g. quartz and micrite) or laths (e.g. biotite and feldspar).

c:f:v $_{10\mu}$ = 35:60:5

Coarse Inclusions (>0.062mm)
Dominant: VOLCANIC GLASS AND TUFF – the glass fragments are very angular to angular and predominantly display characteristic shapes associated with volcanic ash (sickle, lunate and lath-like). Equant fragments are rare. The tuff fragments are angular to rounded, equant to elongated and contain vacuoles and very angular, lath-like inclusions of quartz, biotite and feldspar (>0.15mm). The size of the glass fragments = 0.4mm to 0.062mm and mode size = 0.16mm. The size of the tuff fragments is 1.28mm to 0.1mm and mode size is 0.24mm.
Common: MONOCRYSTALLINE QUARTZ – very angular to subrounded; predominantly equant and occasionally elongated. Size = 0.24mm to 0.062mm and mode size = 0.08.
Common to Rare: LUMPS OF MICRITE – ranging from subangular to rounded, but predominantly subrounded to rounded; equant to elongated. These commonly contain volcanic glass fragments, crystalline calcite and, rarely, feldspar. Size = 1.2mm to 0.062mm and mode size = 0.32mm.
Very Few: BIOTITE– very angular to subangular laths. Size = 0.4mm to 0.062mm and mode size = 0.15mm
Very Few to Rare : FELDSPAR– very angular to angular; equant and lath-like. Size = 0.16mm to 0.062mm and mode size = 0.1mm
Very Rare : CRYSTALLINE CALCITE– angular to subangular; equant. Size = 0.15mm to 0.062mm and mode size = 0.1mm

Fine Inclusions (<0.062 mm)
Frequent: volcanic glass
Common: quartz, crystalline calcite
Few: biotite
Very Few: feldspar

III Textural Concentration Features (Tcf)

Clay pellets – very few to very rare (>5% of filed of view) – These are dark brown in PLL(x40) and greyish-brown to slightly reddish-brown in XP(x40) and frequently contain inclusions of quartz, biotite, micrite and crystalline calcite (> 0.14mm). Boundaries are sharp to merging and rounded to well rounded. They are predominantly equant and, rarely, slightly distorted and have a high optical density. The internal preferred orientation of the pellets is discordant with surrounding orientation features. Size = 2.16mm to 0.16mm.

IV Amorphous Concentration (depletion) Features (Acf)

rare iron-rich **nodules** – These are orangish-brown in PPL (x40) and rusty-brown in XP(x40). They are equant, well rounded to subrounded, have a high optical density and sharp boundaries. They are commonly party surrounded by a channel void. Size = 0.15mm to 0.05mm.

Comment

These fabrics are characterized by dominant fragments of volcanic glass and tuff, occurring together with common inclusions of quartz and a small amount of biotite and feldspar, in a micritic clay matrix containing lumps of micrite. The uneven distribution of the volcanic glass and tuff fragments in some samples provides some evidence that the ash and tuff represent added constituents. The distinguishing characteristic of this fabrics group, apart from the presence of the volcanic glass and tuff fragments, is the common micrite inclusions. The presence of micrite suggests a connection to a limestone geology. The clay component is clearly compositionally different from fabrics ascribed a local provenance, as well as those for which a geological connection to northern Belize, both inland and coastal regions, can be demonstrated. The apparent dissimilarity of the Volcanic Glass A fabrics to other calcitic fabrics groups would seem to suggest that their provenance lay outside of this general region.

Volcanic Glass A subgroup – mineralogical variant

Sample: 212, 711

These two samples have been distinguished as a subgroup as they contain polycrystalline quartz and very rare chert and chalcedony inclusions, which were not observed in the samples comprising the main group, and also larger amounts of crystalline calcite. The slightly different composition of inclusions changes slightly the relative frequencies of inclusion types:

Dominant: volcanic glass

Very Few: micrite

Few: monocrystalline quartz, feldspar, crystalline calcite (0.24mm to 0.08mm)

Rare: biotite, fine-grained polycrystalline quartz (subangular to subrounded, equant, 0.35mm to 0.1mm).

Very Rare: chert (0.1mm), chalcedony (0.17mm) (One piece was observed in each case).

Otherwise these fabrics have the same textural and physical characteristics are the main group.

Volcanic Glass B

Sample: 55

I Microstructure

(a) Voids: Few voids – predominantly mesovughs, with rare mesovesicles.

(b) c/f related distribution: a single-spaced, porphyric related distribution.

(c) Preferred orientation: a moderately developed preferred orientation of voids and inclusions parallel to the vessel margins.

II Groundmass

(a) Homogeneity: Homogenous across the group with respect to the distribution of voids and inclusions, as well as the colour of the clay matrix.

(b) Micromass: highly optically active with a unistrial B-fabric. Colour: PPL (x40) = light brown margins with a dark brown core; XP(x40) = light yellow margins with a yellowish-brown core.

(c) Inclusions: The size distribution of inclusions is bimodal in appearance owing to the presence of an upper size mode exclusively comprising medium sand-sized inclusions of tuff. The inclusions are moderately sorted and range in size from 1.44mm to 0.01mm, with a mode size of fine sand. The volcanic glass fragments are predominantly lunate and sickle shaped,

whereas the mineral inclusions are predominantly equant (e.g. quartz and *feldspar) or laths (e.g.* mica).

c:f:v $_{10\mu}$ = 30:60:10

Coarse Inclusions (>0.062mm)
Predominant: VOLCANIC GLASS AND TUFF – the glass fragments are very angular to angular and predominantly display characteristic shapes associated with volcanic ash (sickle, lunate and lath-like). Equant fragments are rare. The tuff fragments are subangular to rounded, equant to elongated, and contain vacuoles, volcanic glass fragments and very angular, lath-like inclusions of quartz, biotite and feldspar (>0.1mm). The size of the glass fragments = 0.48mm to 0.062mm and mode size = 0.15mm. The size of the tuff fragments = 1.44mm to 0.2mm and mode size =s 0.25mm.
Very Few: MONOCRYSTALLINE QUARTZ – very angular to angular; predominantly equant and occasionally prolate. Size = 0.24mm to 0.062mm and mode size = 0.08.
FELDSPAR– very angular to angular; equant and lath-like. Size = 0.15mm to 0.062mm and mode size = 0.08mm.
Rare: MICA (biotite and muscovite) – angular laths. Size = 0.24mm to 0.062mm and mode size = 0.1mm.
Very Rare: AMPHIBOLE – well rounded; equant. Size = c. 0.12.
BASALT - well rounded; equant. Size = c. 0.12.

Fine Inclusions (<0.062 mm)
Predominant: volcanic glass
Very Few: feldspar, quartz
Rare: biotite, muscovite

III Textural Concentration Features (Tcf)

None

IV Amorphous Concentration (depletion) Features (Acf)

1) very few iron-rich **nodules** – These are brownish-black in PPL (x40) and XP(x40). They are equant, well rounded to subrounded, have a high optical density and sharp boundaries. Size = 0.6mm to 0.02mm and mode = 0.15mm.

Comment

This fabric is characterized by predominant fragments of volcanic glass and tuff, occurring together with a small amount of quartz, feldspar and rare inclusions of mica, amphibole and basalt. The mineral inclusions are very fine. The bimodality and the groundmass, with a large size mode comprising exclusively large-sized fragments of tuff, suggests that the tuff represents a tempering material. The distinguishing characteristics of this fabric are 1) its bimodal appearance due to presence of large tuff fragments (medium sand-sized), 2) the very small size of the mineral inclusions and 3) the presence of muscovite, amphibole and basalt. The mineralogy of this fabric is clearly inconsistent with local raw material resources, indicating it is non-local. The absence of sufficiently distinctive rock and mineral inclusions precludes provenance ascription. The absence of carbonate inclusions, however, suggests that this fabric does not derive from raw materials formed in areas underlain by limestone. Consequently, a provenance outside of northern Belize, the Yucatan Peninsula and Central Peten is implied.

Volcanic Glass C

Sample: 158

I Microstructure

(a) Voids: Few voids – predominantly mesovughs, with rare macrovughs and mesochannels
(b) c/f related distribution: a single-spaced to double-spaced, porphyric related distribution.
(c) Preferred orientation: weakly developed preferred orientation of voids and inclusions sub-parallel (i.e. at 45°) to the vessel margins.

II Groundmass

(a) Homogeneity: Voids are evenly distributed. The distribution of inclusions is uneven, with areas of the groundmass containing fewer inclusions. The colour of the clay matrix varies across the section.
(b) Micromass: highly optically active with a prostriated and granostriated B-fabric. Colour: PPL (x40) = light brown to greyish-brown; XP(x40) = olive green to light yellow.
(c) Inclusions: The size distribution of inclusions is unimodal, but has a somewhat bimodal appearance owing to the presences of large-sized tuff fragments. Inclusions range in size from 0.88mm to 0.01mm, with a mode size of very fine sand. Inclusions are moderately sorted. The volcanic glass fragments are predominantly lunate and sickle shaped, whereas the mineral inclusions are predominantly equant (e.g. quartz and feldspar).

c:f:v $_{10\mu}$ = 25:65:10

Coarse Inclusions (>0.062mm)
Predominant: VOLCANIC GLASS AND TUFF – the glass fragments are very angular to angular and predominantly display characteristic shapes associated with volcanic ash (sickle, lunate and lath-like). Equant fragments are rare. The tuff fragments are subangular to rounded, equant to elongated, and contain vacuoles, volcanic glass fragments and very angular, lath-like inclusions of quartz, biotite and feldspar (>0.2mm). The size of the glass fragments = 0.4mm to 0.062mm and mode size = 0.1mm. The size of the tuff fragments is 1.88mm to 0.12mm and mode size is 0.35mm.
Few: MONOCRYSTALLINE QUARTZ – very angular to angular, predominantly equant and occasionally prolate. Size = 0.2mm to 0.062mm and mode size = 0.1.
FELDSPAR– very angular to angular; equant. Size = 0.2mm to 0.062mm and mode size = 0.1mm.
Very few: BIOTITE – angular to subangular laths. Size = 0.15mm to 0.062mm and mode size = 0.05mm.
Very Few: MICRITE – subangular to rounded, equant and elongated. These commonly contain volcanic glass fragments and iron-rich nodules. Size = 0.8mm to 0.08mm and mode = 0.17mm.
Very Rare: CHALCEDONY - subrounded; equant. Size = c.. 0.12.

Fine Inclusions (<0.062 mm)
Dominant: volcanic glass
Common: feldspar, quartz, biotite

III Textural Concentration Features (Tcf)

1)**Clay pellets** – common (15-30% of field of view) – These are light brown in PLL(x40) and brown to greyish-brown in XP(x40). Boundaries are clear or sharp to merging, and rounded to well rounded. The pellets are predominantly equant and have a neutral optical density. The internal preferred orientation of the pellets is discordant with surrounding orientation features. Size = 0.8mm to 0.05mm and mode = 0.24mm.

2) **Clay pellets** – very few (>5% of field of view) – These are orangish-brown in PPL(x40) and XP(x40). Boundaries are sharp to merging and rounded to well rounded. The pellets are predominantly equant and have a high optical density. The internal preferred orientation of the pellets is discordant with surrounding orientation features. Size = 0.32mm to 0.07mm and mode = 0.1mm.

IV Amorphous Concentration (depletion) Features (Acf)

Very few iron-rich **nodules** – These are brownish-black in PPL (x40) and XP(x40). They are equant, well rounded to subrounded, have a high optical density and sharp boundaries. Size = 0.1mm to 0.02mm and mode = 0.05mm.

Comment

This fabric is characterized by predominant fragments of volcanic glass and tuff, occurring together with common clay pellets (two distinct varieties) in a groundmass containing fine mineral inclusions. The angular character and large size of the tuff fragments suggests they constitute a tempering material. The distinguishing characteristics of this fabric are 1) the distinctive olive green colour of the clay matrix in XP and 2) presence of chalcedony and the distinctive clay pellets. The mineralogy of this fabric is clearly inconsistent with local raw material resources indicating it is non-local. The absence of sufficiently distinctive rock and mineral inclusions precludes provenance ascription, but the fabric is still compositionally dissimilar to all other fabric groups, especially those connected geologically to inland and coastal areas of northern Belize. Nonetheless, the vessel from which this sample derives is connected stylistically to wares assumed to have been produced in the northern lowland region (Yucatan). Direct comparison to similar pottery from sites in the Yucatan area is required to demonstrate a compositional connection to pottery types prevalent in this area.

Volcanic Glass D

Sample: 215

I Microstructure

(a) Voids: Few voids – predominantly mesovughs, with rare mesochannels.
(b) c/f related distribution: a single-spaced to double-spaced, porphyric related distribution.
(c) Preferred orientation: a moderate to strong preferred orientation of voids and inclusions parallel to the vessel margins. The preferred orientation is less strongly developed with respect to inclusions.

II Groundmass

(a) Homogeneity: Generally homogenous with respect to the distribution of voids and inclusions, expect for the presence of layer along one of the margins that contains fewer and smaller-sized inclusions. The clay matrix exhibits mottled colours.
(b) Micromass: optically active with a monostriated B-fabric. Colour: PPL (x40) = orangish-brown with reddish-brown mottles; XP(x40) = orangish-brown with reddish-brown mottles.
(c) Inclusions: The size distribution of inclusions is unimodal, ranging in size from 0.9mm to 0.02mm, with a mode size fine sand. Inclusions are poorly sorted. The volcanic glass fragments are predominantly lunate and sickle shaped, whereas the mineral inclusions are predominantly equant (e.g. quartz and feldspar).

$c:f:v_{10\mu} = 30:65:5$

Coarse Inclusions (>0.062mm)
Common: VOLCANIC GLASS AND TUFF – the glass fragments are very angular to angular and predominantly display characteristic shapes associated with volcanic ash (sickle, lunate and lath-like). Equant fragments occasionally occur. The tuff fragments (comparatively rare) are subangular to rounded, equant to elongated and

contain vacuoles and fragments of volcanic glass. The size of the glass fragments = 0.35mm to 0.062mm and mode size = 0.15mm. The size of the tuff fragments is 0.75mm to 0.2mm.

MONOCRYSTALLINE QUARTZ – very angular to subrounded; predominantly equant and rarely elongated; commonly with slightly undulous extinction. Size = 0.65m to 0.062mm and mode size = 0.12.

VOLCANOCLASTIC AND ALTERED IGNEOUS ROCK FRAGMENTS – angular to subangular; equant to prolate. The volcanoclastic rocks consist of biotite, muscovite, mono- and polycrystalline quartz and feldspar. The altered igneous rocks consist of silicified (?) tuff containing inclusions of volcanic glass, mica and iron oxides. Size = 0.9mm to 0.08mm and mode size = 0.1mm.

FELDSPAR– very angular to subangular; equant and prolate. Size = 0.3mm to 0.062mm and mode size = 0.12mm.

Few: MICA (biotite and muscovite) - angular to subangular laths. Size = 0.2mm to 0.062mm and mode size = 0.1mm.

Very Few: POLYCRYSTALLINE QUARTZ – angular to subrounded, equant. Size = 0.3mm to 0.06mm and mode = 0.2mm.

Fine Inclusions (<0.062 mm)
Frequent: volcanic glass
Common: monocrystalline quartz
Few: biotite, feldspar,

III Textural Concentration Features (Tcf)

None

IV Amorphous Concentration (depletion) Features (Acf)

very few iron-rich **nodules** – These are brownish-black to dark rusty-brown in PPL (x40) and XP(x40). They are equant, well rounded to subrounded, have a high optical density and sharp boundaries. Size = 0.3mm to 0.02mm and mode = 0.05mm.

Comment

This fabric is characterized by predominant fragments of volcanic glass and tuff, occurring together with common fragments of volcanoclastic and altered igneous rocks, in a groundmass containing common inclusions of quartz and feldspar. Although the size distribution of inclusions is unimodal, the angular character of the rock fragments and their larger size, in comparison to most of the mineral inclusions present, suggests that these inclusions may represent a tempering material. The principal distinguishing characteristic of this fabric is the presence of the volcanoclastic and altered igneous rock fragments. These rocks are characteristic of the Bladen volcanic member of the Santa Rosa group, which occurs along the southern fringe of the Maya Mountains. Hence, a provenance in the vicinity of the Bladen volcanic member or, at minimum, in proximity to the Maya Mountains can be assumed.

Volcanic Glass E

Sample: 115

I Microstructure

(a) Voids: Few voids – predominantly mesovughs with fewer microvughs and microvesicles.
(b) c/f related distribution: a single-spaced to double-spaced, porphyric related distribution.
(c) Preferred orientation: a weakly developed preferred orientation of voids and inclusions parallel to the vessel margins.

II Groundmass

(a) Homogeneity: Homogenous with respect to the distribution of voids and inclusions, as well as the colour of the clay matrix.
(b) Micromass: very optically active with a monostriated B-fabric. Colour: PPL (x40) = light brown; XP(x40) = light yellow.
(c) Inclusions: The size distribution of inclusions is bimodal, with an upper size mode predominantly comprising grains of crystalline calcite, and a lower size mode dominated by volcanic glass fragments. Inclusions are well sorted and range in size from 0.8mm to 0.05mm. The volcanic glass fragments are predominantly lunate and sickle shaped, whereas the mineral inclusions are predominantly equant (e.g. crystalline calcite)

c:f:v $_{10\mu}$ = 20:75:5

Coarse Inclusions (>0.125mm)
Dominant: CRYSTALLINE CALCITE (discrete grains, medium crystalline mosaics and rare spar fragments) – predominantly subangular to subrounded but ranging from angular to rounded; predominantly equant and irregular-shaped and, rarely, rhombic. There are very few mosaics. The size of the discrete grains = 0.8mm to 0.125mm and mode size = 0.2mm. The size of the mosaics is 0.3mm to 0.2mm.
Frequent: VOLCANIC GLASS AND TUFF – the glass fragments are very angular to angular and predominantly display characteristic shapes associated with volcanic ash (sickle, lunate and lath-like). Equant fragments are rare. The tuff fragments are angular to subangular, equant to elongated and contain vacuoles and fragments of volcanic glass. The size of the glass fragments = 0.2mmto 0.125mm and mode size = 0.15mm. The size of the tuff fragments is 0.2mm to 0.1mm.
Rare: MONOCRYSTALLINE QUARTZ – subrounded; equant. Size = 0.15mm to 0.125mm.
CHALCEDONY – subangular; predominantly equant and rarely elongated. Size = 0.35mm to 0.13mm.
Very Rare: BIOTITE– angular laths. Size = c. 0.15mm

Fine Inclusions (<0.062 mm)
Frequent: volcanic glass
Common: quartz, crystalline calcite
Very Few: biotite
Rare: chalcedony
Very Rare: feldspar

III Textural Concentration Features (Tcf)

None

IV Amorphous Concentration (depletion) Features (Acf)

1) very few iron-rich **nodules** – These are reddish-brown to dark rusty-brown in PPL (x40) and dark reddish-brown in XP(x40). They are equant, well rounded to subrounded, and have a high optical density. Boundaries are sharp. Size = 0.17mm to 0.02mm and mode size = 0.05mm.

Comment

These fabrics are characterized by dominant subangular to subrounded inclusions of crystalline calcite, occurring alongside frequent fragments of volcanic glass, in a groundmass containing a very small quantity of quartz and chalcedony and very rare biotite. A distinctive characteristic of this fabric is the co-occurrence and high frequency of crystalline calcite and volcanic glass fragments. The roundness of the calcite inclusions not only suggests that they are naturally occurring in the clay, but also implies a high energy environment. The roundness of the calcite inclusions, together with their frequency suggests a clay containing carbonate sand. These characteristics suggest an association with a coastal environment. A connection to coastal areas

of northern Belize, extending into southern Yucatan, where sandy calcareous deposits overly Pleistocene to Recent limestone is therefore, suggested.