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The Later Stone Age occupation and sequence of the Mapungubwe landscape

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Appendix C.1: Table showing all the identified sites. Sites in grey were analysed (not all were grade A sites).

Grade A	Grade B	Grade C

Site no.	GPS co-ordinates								Length	Width	Soil	Erosion	Location	Habitat	Vegetation cover	Animal activity	Natural features	Human activity	Lithics	OES	Achatina	Iron	Ceramics	Beads	Rock art	Morabaraba	Sharpening grooves	Walling	Cupules	Grinding stone
1	22	15	34	S	29	20	12	E	12	3	1	7	6	3	1	1	2	3	y	y	y		y		y					
2	22	15	33	S	29	20	12	E					7																	
3	22	15	35	S	29	20	15	E	4	3	8	7	13	1	4	6	2	6	y											
4	22	15	35	S	29	20	15	E	1	1			13						y											
5	22	15	38	S	29	18	53	E	15	5	7	3	13	2	1	6	9	6	y							y				
6	22	15	38	S	29	18	54	E	10	10	7	3	13	2	1	6	9	6	y											
7	22	15	12	S	29	19	9.6	E	9	4	2	5	6	3	2	6	2	3	y											
8	22	15	11	S	29	19	7.8	E	10	3	9	3	14	1	3	6	2	3	y											
9	22	15	11	S	29	19	9	E					7					3									y			
10	22	15	40	S	29	18	33	E	12	7	9	3	7	1	4	6	2	6	y											
11	22	15	41	S	29	18	34	E	<1	<1									y											
12	22	15	43	S	29	18	36	E	5	5	9	3	7	3	2	6	2	6	y											
13	22	15	43	S	29	18	43	E	5	4	1	3	4	1	3	6	1	6	y											
14	22	15	39	S	29	18	40	E	13	8	9	5	7	2	1	6	2	6	y											
15	22	15	27	S	29	18	34	E	17	10	9	5	7	2	2	6	2	6	y											
16	22	15	26	S	29	18	56	E	15	10	3	5	9	2	1	6	2	6	y											
17	22	17	4.2	S	29	15	37	E	8	6	9	2	7	2	3	6	2	3	y											
18	22	13	22	S	29	20	21	E	6	6	1	3	16	3	1	5	2	6	y											
19	22	13	22	S	29	20	21	E	9	4	1	3	15	3	4	5	2	6	y											
20	22	13	20	S	29	20	22	E	9	5	9	2	16	3	1	5	2	6	y											
21	22	13	18	S	29	20	16	E	25	20	9	2	16	3	1	5	2	6	y											
22	22	13	20	S	29	20	13	E	5	1	9	1	1	3	1	5	2	6	y											
23	22	13	20	S	29	20	12	E	5	2	9	2	7	3	3	6	2	11	y											

24	22	13	18	S	29	20	11	E	50	5?	1	3	6	3	4	7	2	6	y						y		y				
25	22	13	17	S	29	20	9.9	E	7	5	9	3	13	3	1	7	2	6	y												
26	22	13	17	S	29	20	11	E																			y				
27	22	13	16	S	29	20	11	E	3	1	1	5	10	3	1	1	2	6	y												
28	22	13	16	S	29	20	11	E	5	1	1	5	14	3	1	1	2	6	y												
29	22	13	16	S	29	20	11	E	17	5?	9	5	6	3	4	6	2	6	y												
30	22	13	14	S	29	20	12	E	20?	20?	9	3	16	3	1	5	2	6	y												
31	22	13	17	S	29	20	13	E	5	2	9	3	14	3	3	2	2	6	y												
32	22	13	40	S	29	20	23	E	7	2	9	5	14	3	1	1	2	11	y	y	y		y	O		y				y	
33	22	13	39	S	29	20	23	E											y				y								
34	22	13	34	S	29	20	19	E												y											
35	22	13	24	S	29	20	21	E																							
36	22	13	12	S	29	20	8.2	E	17	9	9	2	16	3	1	5	2	6	y												
37	22	13	13	S	29	20	7.5	E	8	8	9	3	13	3	1	5	2	6	y												
38	22	13	8.6	S	29	19	57	E	15	9	9	2	16	3	1	7	2	6	y												
39	22	13	6.9	S	29	19	54	E																							
40	22	13	55	S	29	19	49	E	4	1	9	3	14	3	3	1	2	11	y												
41	22	14	11	S	29	20	1.8	E	15	2	9	3	14	3	2	7	2	11	y				y		y	Y	Y			Y	
42	22	14	10	S	29	20	2.1	E	6	2	9	3	14	3	1	1	2	11					y		y						
43	22	14	12	S	29	20	2.2	E	>10	1	1	1	1	3	2	7	2	11	y												
44	22	16	1.1	S	29	21	23	E	5	3	1	2	13	3	3	7	2	6	y												
45	22	16	1.6	S	29	21	22	E	18	2	9	1	13	3	4	7	2	6	y												
46	22	16	1.5	S	29	21	22	E	<1	<1	9	1	13	3	1	1	2	6	y												
47	22	16	2.1	S	29	21	21	E	6	2	1	2	13	3	1	1	2	6	y												
48	22	16	1.7	S	29	21	24	E	2	<1	9	2	13	3	1	7	2	6	y												
49	22	16	1.1	S	29	21	24	E	<1	<1	9	3	13	3	2	7	2	6	y												
50	22	16	2.1	S	29	21	22	E	2	2	9	3	13	3	3	7	2	6	y												
51	22	16	2.2	S	29	21	22	E	4	2	9	2	13	3	1	7	2	6	y												
52	22	15	55	S	29	21	30	E	5	2	9	3	6	3	1	7	2	6	y												
53	22	15	56	S	29	21	30	E	<1	<1	7	3	7	3	1	7	2	6	y												
54	22	15	56	S	29	21	32	E	3	1	7	3	7	3	1	7	2	6	y												
55	22	15	56	S	29	21	33	E	5	3	9	3	7	3	1	7	2	6	y												
56	22	15	57	S	29	21	35	E	4	2	9	3	7	3	1	7	2	6	y												
57	22	15	58	S	29	21	39	E	5	1	1	3	6	3	2	1	2	6	y												
58	22	15	58	S	29	21	40	E	10	6	9	3	13	3	1	7	2	6	y												
59	22	15	51	S	29	21	48	E	4	1	9	2	6	3	4	7	2	6	y												

60	22	15	51	S	29	21	47	E	6	2	9	3	7	3	4	7	2	6	y											
61	22	15	54	S	29	21	43	E	20	3	9	3	6	3	4	7	2	3	y	y	y									
62	22	15	58	S	29	21	38	E	<1	<1	9	3	6	3	1	7	2	6	y											
63	22	15	58	S	29	21	32	E	2	1	9	3	6	3	2	7	2	3	y											
64	22	15	59	S	29	21	31	E	7	2	9	3	6	3	3	7	2	6	y											
65	22	15	57	S	29	21	31	E	10	4	9	3	6	3	1	7	2	6	y											
66	22	15	56	S	29	21	31	E	4	2	9	4	7	3	1	7	2	6	y											
67	22	15	55	S	29	21	26	E	7	4	9	3	7	3	1	5	2	6	y				y							
68	22	15	30	S	29	21	13	E	<1	<1	1	3	6	3	3	7	2	6	y											
69	22	17	8.9	S	29	19	38	E	<1	<1	9	3	7	3	4	7	4	6	y											
70	22	17	9.4	S	29	19	36	E	<1	<1	9	3	7	3	4	7	4	6	y											
71	22	15	57	S	29	18	41	E	10	5	8	1	8	3	4	7	4	5	y	y										
72	22	15	57	S	29	18	41	E			1	2	14	3	4	3	4	6												
73	22	16	4.5	S	29	18	12	E	20	17	1	4	9	3	4	3	4	6	y				y							
74	22	18	47	S	29	17	19	E	>50	10	1	2	6	3	2	5	3	6	y											
75	22	17	2.6	S	29	15	34	E	?	?	8	2	7	1	3	7	4	6	y				y							
76	22	16	18	S	29	15	48	E	8	6	2	2	6	3	4	1	4	6	y											
77	22	16	20	S	29	15	40	E	5	2	9	2	7	3	4	7	4	6	y											
78	22	17	5.5	S	29	14	52	E	5	2	9	2	7	3	3	1	4	6	y											
79	22	17	9.5	S	29	14	56	E	17	2	9	3	7	3	3	7	4	6	y											
80	22	17	10	S	29	14	56	E	2	1	9	3	7	3	1	7	4	6	y											
81	22	17	11	S	29	14	56	E	6	3	9	2	7	3	1	7	4	6	y											
82	22	17	11	S	29	14	55	E	25	3	9	2	7	3	2	7	4	6	y											
83	22	17	10	S	29	14	55	E	7	4	9	3	7	3	1	7	4	6	y											
84	22	17	10	S	29	14	54	E	4	4	9	3	7	3	1	7	4	6	y											
85	22	17	10	S	29	14	54	E	4	1	9	3	7	3	3	7	4	6	y											
86	22	17	9.9	S	29	14	53	E	10	4	1	2	7	3	3	3	4	6	y											
87	22	17	10	S	29	14	53	E	4	2	1	3	7	3	1	2	4	6	y											
88	22	17	11	S	29	14	51	E	<1	<1	9	3	7	3	1	7	4	6	y											
89	22	17	10	S	29	14	51	E	3	1	9	3	7	3	2	7	4	6	y											
90	22	18	9.5	S	29	13	37	E	15	3	9	2	14	3	1	3	10	6	y											
91	22	18	9	S	29	13	37	E	18	8	1	3	8	3	3	7	10	6	y											
92	22	18	6.6	S	29	13	41	E	2	1	9	3	9	3	4	7	10	6	y											
93	22	18	9.9	S	29	13	55	E	4	3	9	3	9	3	2	7	10	6	y											
94	22	18	10	S	29	13	53	E	10	4	9	3	9	3	3	7	10	6	y											
95	22	18	10	S	29	13	53	E	20	10	9	2	9	3	3	7	10	6	y				y							

96	22	18	10	S	29	13	52	E	6	4	9	2	9	3	3	7	10	6	y				y								
97	22	18	11	S	29	13	49	E	8	3	9	2	9	3	1	7	10	6	y												
98	22	18	10	S	29	13	27	E	<1	<1	1	2	8	3	2	2	10	11	y												
99	22	18	11	S	29	13	26	E	4	4	9	2	10	3	1	2	10	6	y												
100	22	18	9.4	S	29	13	4.9	E	<1	<1	1	2	10	3	1	2	10	6	y												
101	22	18	8.1	S	29	13	3.3	E	20	8	2	2	10	3	2	5	10	6	y												
102	22	18	12	S	29	12	57	E	12	10	9	2	9	3	2	5	10	6	y												
103	22	18	12	S	29	12	58	E	5	1	9	2	9	3	1	5	10	6	y												
104	22	18	14	S	29	13	23	E	3	3	9	3	9	3	4	7	10	6	y												
105	22	18	14	S	29	13	22	E	3	2	9	3	9	3	4	7	10	6	y												
106	22	18	13	S	29	13	33	E	9	5	9	3	8	3	2	7	10	6	y												
107	22	18	16	S	29	13	53	E	60	5	2	1	8	3	1	7	4	5	y												
108	22	17	56	S	29	19	55	E	4?	2?	2	2	7	1	4	7	4	6	y				y								
109	22	17	56	S	29	19	60	E	6	5	9	2	14	1	1	2	4	6	y				y								
110	22	14	50	S	29	16	6.1	E	8	6	9	2	7	3	3	7	2	11	y				y	G							
111	22	14	47	S	29	16	4.3	E	20	15	9	2	7	3	2	7	2	11	y												
112	22	14	38	S	29	15	50	E	8	2	9	2	7	3	1	7	2	11	y												
113	22	14	40	S	29	15	42	E	6	3	9	3	14	3	3	7	2	11	y				y			y					
114	22	14	43	S	29	15	35	E	14	10	1	4	14	3	4	3	2	11	y				y			y	y				
115	22	14	45	S	29	15	37	E	20	20	9	3	7	3	1	7	2	11	y												
116	22	14	35	S	29	16	23	E	<1	<1	9	2	13	3	1	7	2	11	y												
117	22	14	34	S	29	17	6	E	10	2	9	3	14	3	2	2	2	11	y						y						
118	22	15	0.7	S	29	16	49	E	6	6	9	3	7	3	2	7	2	11	y												
119	22	15	0.6	S	29	16	50	E	7	3	9	4	7	3	2	7	2	1	y				y					y			
120	22	15	0.5	S	29	16	50	E	4	2	9	4	7	3	1	7	2	1	y				y					y			
121	22	15	0.3	S	29	16	50	E	3	2	9	4	7	3	2	7	2	11	y												
122	22	15	43	S	29	16	57	E	3	1	9	3	7	3	4	1	2	11	y												
123	22	15	41	S	29	16	39	E	5	4	9	3	7	3	2	7	2	1	y			y	y						y		
124	22	15	25	S	29	15	50	E	8	5	9	2	7	3	2	1	2	1	y				y						y	y	
125	22	15	24	S	29	15	58	E	6	4	9	2	7	3	4	7	2	1	y				y								
126	22	15	24	S	29	15	59	E	10	4	9	2	7	3	4	7	2	11	y												
127	22	15	3.6	S	29	16	34	E	20	2	9	2	7	3	3	7	2	11	y												
128	22	16	30	S	29	14	35	E	8	5	1	3	14	3	1	3	2	11	y				y		y						
129	22	16	31	S	29	14	36	E	<1	<1	1	3	14	3	2	3	2	11	y												
130	22	16	3.6	S	29	14	36	E	8	4	9	3	7	3	3	7	2	11	y												
131	22	15	59	S	29	14	33	E	8	6	9	2	7	3	2	7	2	11	y												

132	22	16	6.2	S	29	14	27	E	3	2	9	3	7	3	2	7	2	11	y												
133	22	16	17	S	29	14	23	E					7	3			2		y												
134	22	16	24	S	29	14	23	E	16	3	1	3	7	3	1	5	2	11	y												
135	22	16	24	S	29	14	22	E	2	1	1	2	7	3	1	5	2	11	y												
136	22	16	24	S	29	14	22	E	4	2	1	2	7	3	2	7	2	11	y												
137	22	16	24	S	29	14	20	E			9	2	7	3	1	7	2	11	y												
138	22	16	23	S	29	14	17	E			9	2	7	3	1	7	2	11	y												
139	22	16	13	S	29	13	39	E			9	2	7	3	1	7	2	11	y												
140	22	16	6.7	S	29	13	45	E	4	2	1	3	6	3	4	5	2	11	y												
141	22	16	7.2	S	29	13	32	E	4	2	1	2	6	3	1	5	2	11	y												
142	22	16	14	S	29	13	45	E	6	2	1	3	14	3	1	5	2	11	y						y						
143	22	18	33	S	29	17	4.5	E					14	3			2	11							y						
144	22	18	9.9	S	29	12	23	E	>10	9	8	2	6	3	3	5	2	3	y												
145	22	18	8.9	S	29	12	27	E			1	2	10	3		2	2	3							y						
146	22	18	21	S	29	11	17	E	<1	<1	9	2	14	3	1	3	2	11	y												
147	22	18	13	S	29	11	49	E	3	2	1	4	10	3	1	5	2	11	y												
148	22	18	14	S	29	11	52	E	20	10	1	3	14	3	2	5	2	11	y						y						
149	22	16	1.9	S	29	21	23	E			1	3	13	3	1	5	2	11	y												
150	22	15	56	S	29	21	26	E	5	2	9	3	13	3	3	7	2	11	y												
151	22	15	9.9	S	29	19	43	E	8	2	1	4	14	3	3	5	2	3	y		y		y		y						
152	22	15	8.8	S	29	19	42	E	6	3	1	4	14	3	2	5	2	3	y	y	y		y	o	y						
153	22	17	42	S	29	20	2.2	E											y												

Appendix C.2: Sites and their lithic analysis.

	Quartz																								
Site no.	Chips	Bipolar chunk	Lozenge chunk	Irregular core	Split cobble	Bipolar split cobble	Bipolar flaking	Bladelet core	Blade core	Bipolar bladelet core	Bipolar blade core	Single platform core	Rice seed	Preliminary flaked nodule	Battered piece	Flake	Cortical flake	Broken flake	End scraper (s)	End scraper (m)	Bladelet	Broken bladelet	Broken blade	Misc. retouch	Nodule
1	13	1						1								2		1							
5	294	44	6	1	2		5	5					2			9	1	69			3				
14	11																	7							
17	103	31	3		5			2				1				8		112				3			1
32																									
41	7	3																6			1				
45	17	5		1			2	1		1						1		11							6
50	7	8															2	1							
55	67	13			1		2	2									1	42							1
56	57	12	2	4	3			1					3			1	1	20			1				3
61	41	18	9	5	8		4	5	1	1						5	5	28			1				1
65	111	49	12	1	3		15	3					1			1	9	94						1	19
66	401	18	7	7	2		157			1			2			34		222	1		5	4			2
71	37	18			2											0		46					1		
76	11	6	1		1			1				1				2		23			1				
95	27	14		2	4			2			1					3		72				1			2
108	18	2														1		2				1			
110	42	61	3	1	2											3		199			3	1			
113	67	55	1		9			1						1		2	2	130				3			5
119	74	49	1		2											5		95		1	2		1		1
126	158	48	4		3	1			1				2			7		254			4	2			1
128		5			3													10				1			
151	29	6	9	1	1			3								2		25							1
152	57	17	4	1	2		3	1					1		1	2	2	37			3				2
153	3	3	1															7			1				

	Quartzite																					Crypto-crystalline			
Site no.	Chips	Bipolar chunk	Lozenge chunk	Irregular core	Prepared cores	Split cobble	Bipolar flaking	Bipolar core	Bladelet core	Blade core	Radial core	Flake	Utilised flake	Cortical flake	Naturally backed flake	Broken flake	Backed flake	Retouched broken flake	Plane	Bladelet	Broken bladelet	Chips	Bipolar chunk	Lozenge chunk	Irregular core
1																2						15		1	2
5	19	12		1				1				19				66	1				3	253	79	17	12
14	3															9						107	19		2
17	1											2				9						4	7		1
32																									
41																						1	1		1
45																						12	6	2	1
50	1																					12	3	2	
55	1									1		2		1		10						23	10	2	2
56	1																					36	22	4	11
61		2		1						1		3				8						31	27	16	3
65	5	2		2	2	2						2		3		16						46	31	9	7
66	8	1		2			4	1				7	1			31				1	1	131	22	11	8
71	1	2										1				10						28	16		1
76	1	1							1		1					3						7	11		
95												1				5						2	7		
108	1	1		1												1						7	3		
110												3				14						11	26		1
113	1	3				1						1				10			1			4	11		
119		5			1							5			1	35						22	24	1	1
126	4											14		0		57					2	42	9	1	
128												4										2	29	2	
151				2					1			5		1		10						37	23	2	
152	1	5	2	2					1			7				28		1	1	1	1	73	47	10	5
153		1														2						1	4		

	Crypto-crystalline																							
Site no.	Irregular core / awl	Split cobble	Bipolar flaking	Bipolar core	Bladelet core	Bladelet core (didn't work)	Blade core	Bipolar bladelet core	Single platform core	Double platform core	Rice seed	Prelim flaked cores/modules	Opposed platform + battered pc	Radial core	Battered piece	Battered pc / bip bladelet core	Flake	Retouched flake	Backed flake	Utilised flake	Facetted flake	Broken utilised flake	Cortical flake	Broken flake	Retouched flake
1		1	1		1																	1		1	
5		1	2		25			4	1	1	5	1	1		2		11						9	107	2
14		2			2			2							2		2						2	45	
17									1								2		1					22	
32																									
41									4															5	
45		2	1		1												1					2	1	3	
50					1												2						1	3	
55		2	1		3		1	1			2	1				1	6			1			1	24	
56					9	2	1				1	1			2		4			1			3	26	
61	1	1			13		2	2			1	1					5						4	42	
65	1	6	2		7			1				2					1						6	50	
66		1	42	2	4										2		27			2				155	
71					1			1									4							45	
76		1			2												1		1					7	
95					2																			24	
108					1												1							7	
110		2			3												7			1				75	
113		2			2			1							1		3							23	
119					2						1						4							65	
126	1											1		1			19	1	1					129	
128																			1	1				23	
151				2	13			3			1	1			1		9						5	38	2
152		4	1	1	14			2	1		2	2					7			1	1		6	52	
153																								3	

	Crypto-crystalline																							
Site no.	Broken retouched flake	End scraper (s)	End scraper (s) & br bladelet core	End, side + side scraper (s)	End, side + adze scraper (s)	End scraper (m)	End scraper (m) + adze	Side scraper (s)	Side scraper (m)	End & side scraper (s)	Backed scraper	Broken scraper	Segment	Backed flake	Adze	Adze / blade core	Awl	Backed flake	Bladelet	Backed bladelet	Naturally backed bladelet	Broken bladelet	Blade	Broken blade	Misc retouch
1																									
5		3	2	1			1	1					1		1				6			2			
14									1										2			8			
17		1						1	1										2			1			
32		5				2																			2
41																			1						
45																			0						1
50																									
55																						2			1
56								1					2		3				4			2	1		1
61								3		1									5	1		1			2
65		1																				1			1
66	2	1												1					10			4	2	4	3
71																									
76		1													1					1		1		1	
95																						2			
108												1										2			
110												1							3			4			
113								1											1						1
119					1														2					1	
126																1						7	1		
128																									
151										1							1		1			3			
152		6				2				2	1								14		1	2			
153																									

	Crypto...		Agate																						
Site no.	Misc backed	Nodule	Chips	Bipolar chunk	Lozenge chunk	Irregular core	Split cobble	Bipolar flaking	Bipolar core	Bladelet core	Bipolar bladelet core	Single platform core	Flake	Utilised flake	Cortical flake	Broken flake	Backed broken flake	End scraper (s)	End + side scraper (s)	Side scraper (s)	Side scraper (m)	Segment	Adze	Bladelet	Backed bladelet
1																									
5		3	6	1	1											3								1	
14																									
17		4														2									
32																									
41			1							1		1				2									
45		2																							
50																									
55																				1					
56		3		1						1						1				1			1		
61		2		1			1							1							1			1	
65		4		2	1	1										2									
66			2			1		4	1				1			4									
71	1		4										1		1	1									
76		1		2						1								1							
95			1				1									2									
108																1									
110			4	18	3											23			1					2	1
113			3	2						2				1		4									
119	1	1	1	17	1					3			1			9	1							2	
126				1	2								1			9									
128				2												2									
151		2	1		1		1			1						1		1							
152		1		4						4	1					4						1			
153				1																					

	Agate			Dolerite																	Ceramics				
Site no.	Broken bladelet	Segmented backed bladelet	Misc. retouch	Chips	Bipolar chunk	Irregular core	Split cobble	Bipolar core	Bladelet core	Battered piece	Utilised flake	Flake	Broken flake	Retouched broken flake	Broken bladelet	Blade	Broken blade	End scraper (m)	Nodule	Total	Plain	Decoration	Plain rim	Decorated rim	Rim top + neck deco
1												2								45	1				
5				4	3								7							1143					
14													5							231					
17				3									8			1				343	6				
32																					10				
41					1								2							38	1				
45																				80					
50					1								1							45					
55					1															230					
56							1						1							256					
61				6	4			1	1	1		5	10						1	345	5				
65						1	2													538					
66													10							1377					
71				2	2	1						2	6		1					236					
76							1						1							96	4	1	1		
95													2							177		1	2	1	
108		1		2									2							56	14	1	2		
110			1		1								2							522	14	1	2		
113				1	1								5					1		363	70	3	1		
119					1							1	3	1						445	13	1			
126	1				1	1					1		2		2		1			798					
128					5							2	3							95	17		3		
151												2	6							255	1				
152					5			1	3			3	11							478	3	1	1		2
153													1							28					

	Beads		Copper			Other					
Site no.	OES	Glass	Bangle	Wire	Peice	Lower grindstone	Upper grindstone	OES frags	Burnt bone	.22 bullet	Fresh water mussle
1								18			
5											
14											
17											
32	1	1									
41											
45											
50											
55											
56											
61								55			
65											
66											
71											
76						2	1				
95		2		1							1
108											
110											
113			1								
119		2	3		1						
126											
128	2					1			3		
151											
152	1										
153											

First site analysed. Different technique; only looked at critical variables.

Appendix C.3: Critical variables of open air assemblages: grid and timed analyses.

Grid analysis: critical variables

	Raw material ratios					Formal tools													Formal tool raw material					Intensification				Ceramics	Beads
Site	Crypto-crystalline	Agate	Quartz	Dolerite	Quartzite	Scrapers	Scraper %	Backed bladelets	Backed bladelet %	Segments	Segment %	Adzes	Adzes %	Other tools	Other tool %	Scrapers ratio	to Backed bladelets	including segments	and adzes	Crypto-crystalline	Agate	Quartz	Dolerite	Quartzite	Total artefacts	Total per square	Formal tools per square	Minimum total artefacts		
1	51.11	0.00	40.00	4.44	4.44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	45	9	0	153		
5	48.47	1.05	38.58	1.22	10.67	8	61.54	0	0	1	7.692	1	7.692	3	23.08	8	0	1	1	92.31	0.00	0.00	0.00	7.69	1143	87.92	1	4748		
14	84.85	0.00	7.79	2.16	5.19	1	100	0	0	0	0	0	0	0	0	1	0	0	0	100	0.00	0.00	0.00	0.00	231	38.5	0.17	770		
17	13.99	0.58	78.43	3.50	3.50	2	66.67	0	0	0	0	0	0	1	33.33	2	0	0	0	100	0.00	0.00	0.00	0.00	343	31.18	0.27	1029		
32	59.80	0.00	30.60	7.31	2.28	7	77.78	0	0	0	0	0	0	2	22.22	7	0	0	0	100	0.00	0.00	0.00	0.00	219	73	3	219	Leokwe	OES, glass
45	43.75	0.00	56.25	0.00	0.00	0	0	0	0	0	0	0	0	1	100	0	0	0	1	100	0.00	0.00	0.00	0.00	80	16	0.2	240		
50	55.56	0.00	40.00	2.22	2.22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	45	22.5	0	90		
55	36.52	0.43	56.09	0.43	6.52	1	50	0	0	0	0	0	0	1	50	1	0	0	1	50.00	50.00	0.00	0.00	0.00	230	46	0.4	690		
56	54.69	1.95	42.19	0.78	0.39	2	22.22	0	0	2	22.22	4	44.44	1	11.11	1	0	1	2	77.78	22.22	0.00	0.00	0.00	256	85.33	3	682.7		
61	43.18	1.62	42.86	7.47	4.87	5	55.56	1	11.11	0	0	0	0	3	33.33	5	1	0	0	88.89	11.11	0.00	0.00	0.00	345	38.33	1	1112		
65	32.71	1.12	59.29	0.56	6.32	1	25	0	0	0	0	0	0	3	75	1	0	0	0	75.00	0.00	25.00	0.00	0.00	538	48.91	0.36	2152		
66	31.52	0.94	62.67	0.73	4.14	2	33.33	0	0	2	33.33	0	0	2	33.33	1	0	1	0	83.33	0.00	16.67	0.00	0.00	1377	688.5	3	5508	Farmer	
71	41.10	2.97	44.07	5.93	5.93	0	0	0	0	0	0	0	0	1	100	0	0	0	0	100	0.00	0.00	0.00	0.00	236	59	0.25	708		
76	55.26	0.00	42.11	0.00	2.63	1	50	0	0	0	0	0	0	1	50	1	0	0	0	100	0.00	0.00	0.00	0.00	38	7.6	0.4	76		
108	39.29	3.57	42.86	7.14	7.14	1	50	1	50	0	0	0	0	0	0	1	1	0	0	50.00	50.00	0.00	0.00	0.00	56	14	0.5	56		
110	24.94	9.67	62.60	0.25	2.54	1	50	1	50	0	0	0	0	0	0	1	1	0	0	0.00	100	0.00	0.00	0.00	393	393	2	1572		Venda octagonal bead
113	14.29	3.03	74.46	2.16	6.06	0	0	0	0	0	0	0	0	1	100	0	0	0	0	100	0.00	0.00	0.00	0.00	231	46.2	0.2	693	Leopard Kopje - TK2	
119	27.37	6.39	54.48	0.77	11.00	1	33.33	0	0	0	0	0	0	2	66.67	1	0	0	0	33.30	0.00	33.30	33.30	0.00	391	195.5	1.5	782	Leopard Kopje, Khami, Venda	
126	26.82	1.75	60.78	1.00	9.65	0	0	0	0	0	0	1	25	3	75	0	0	0	1	100	0.00	0.00	0.00	0.00	798	399	2	4788		
151	56.86	2.35	30.20	3.14	7.45	2	40	0	0	0	0	0	0	3	60	2	0	0	0	80.00	20.00	0.00	0.00	0.00	255	36.43	0.71	510		
152	54.61	2.13	27.66	4.02	11.58	9	81.82	0	0	1	9.091	0	0	1	9.091	9	0	1	0	81.82	9.09	0.00	0.00	9.09	423	141	3.67	987	Bambata & Zhizo/Leokwe	OES

Timed analysis: Critical variables

	Raw material ratios					Formal tools									Formal tool raw material					Intensification					Ceram	Beads
Site	Crypto-crystalline	Agate	Quartz	Dolerite	Quartzite	Scrapers	Scraper %	Backed bladelets	Backed bladelet %	Segments	Segment %	Adzes	Adzes %	Other tools	Other tool %	Crypto-crystalline	Agate	Quartz	Dolerite	Quartzite	Total artefacts	Time walked	Artefacts per 10 minute	Formal tools per 10 minute	Total formal tools		
41	34.21	13.16	44.74	7.89	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	20	19	0	0		
76	25.86	6.90	53.45	3.45	10.34	1	33.33	1	33.33	0	0	1	33.33		0	75	25	0	0	0	58	10	58	3	3		
95	20.90	2.26	72.32	1.13	3.39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	177	20	88.5	0	0	Zhizo	2 small white glass
110	27.91	11.63	53.49	1.55	5.43	0	0	0	0	0	0	0	0	1	100	0	100	0	0	0	129	10	129	1	1		
113	12.88	3.79	78.79	2.27	2.27	2	100	0	0	0	0	0	0		0	50	0	0	50	0	363	10	363	2	2		
119	35.19	18.52	33.33	5.56	7.41	1	50	0	0	0	0	0	0	1	50	50	50	0	0	0	54	10	54	2	2		Khami small blue,
128	61.05	4.21	20.00	10.53	4.21	0	0	0	0	0	0	0	0	1	100	100	0	0	0	0	95	20	47.5	0.5	1		OES (2)
152	49.09	9.09	29.09	10.91	1.82	2	66.67	0	0	0	0	0	0	1	33.33	66.6	0	0	0	33.3	55	10	55	3	3		
153	28.57	0.00	53.57	3.57	10.71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	10	28	0	0		

Appendix C.4: Critical variables: excavated sites.

		Raw material ratios					Formal tools														Formal tool raw material					Intensification				
Site	Period	Crypto-crystalline	Agate	Quartz	Dolerite	Quartzite	Scrapers	Scraper %	Backed bladelets	Backed bladelet %	Segments	Segment %	Adzes	Adze %	Other tools	Other tool %	Scraper ratio	to Backed bladelets	including segments	and adzes	Crypto-crystalline	Agate	Quartz	Dolerite	Quartzite	Total artefacts	Total per spit	Percent per spit	Formal tools per spit	Total formal tool percent
Balerno Main Shelter																														
	17th century farmers	52.88	12.12	16.41	15.20	3.38	59	70.24	7	8.33	9	10.71	6	7.14	3	3.57	8.43	1	1.29	0.86	66.67	26.19	2.38	2.38	2.38	1980	282.86	14.29	12	4.24
	Leopard Kopje	50.35	13.31	17.16	14.63	4.54	163	66.53	22	8.98	30	12.24	19	7.76	11	4.49	7.41	1	1.36	0.86	69.39	25.31	2.86	1.63	0.82	7469	7469	100	245	3.28
	Zhizo	46.01	13.67	17.57	17.81	4.95	79	69.30	14	12.28	9	7.89	6	5.26	6	5.26	5.64	1	0.64	0.43	64.04	32.46	2.63	0.00	0.88	3336	3336	100	114	3.42
	Early ceramic	51.49	12.40	15.89	15.89	4.32	494	73.51	41	6.10	57	8.48	48	7.14	32	4.76	12.05	1	1.39	1.17	65.33	29.91	3.57	0.89	0.30	12213	3053.25	25	118	5.5
	Late pre-contact	45.76	18.23	15.75	14.47	5.79	115	64.61	17	9.55	18	10.11	17	9.55	11	6.18	6.76	1	1.06	1	52.81	41.01	3.37	1.12	1.69	9359	2339.75	25	94.5	1.9
Tshisiku Shelter																														
	Contact	37.37	15.17	19.25	24.85	3.36	19	55.88	4	11.76	2	5.88	2	5.88	7	20.59	4.75	1	0.50	0.5	62.07	31.03	3.45	3.45	0.00	982	327.33	33.33	9.67	3.46
	Early contact	38.48	15.10	20.58	22.12	3.72	44	77.19	3	5.26	5	8.77	2	3.51	3	5.26	14.67	1	1.67	0.67	70.91	25.45	3.64	0.00	0.00	1424	1424	100	55	4
	Late pre-contact	46.49	12.66	18.79	18.46	3.59	33	73.33	4	8.89	5	11.11	1	2.22	2	4.44	8.25	1	1.25	0.25	63.64	20.45	13.64	2.27	0.00	1224	1224	100	44	3.68
	2nd Early pre-contact	30.09	18.45	24.25	21.10	6.12	243	61.68	46	11.68	70	17.77	6	1.52	29	7.36	5.28	1	1.52	0.13	49.23	37.89	10.31	0.77	1.80	10726	3575.33	33.33	129.33	3.67
	Early pre-contact	40.17	10.55	23.19	17.79	8.30	107	32.52	78	23.71	85	25.84	21	6.38	38	11.55	1.37	1	1.09	0.27	59.42	23.38	13.31	1.62	2.27	11792	1684.57	14.29	44	2.79
Balerno Shelter 2																														
	Leopard Kopje	53.63	6.85	20.97	9.27	9.27	7	100	0	0	0	0	0	0	0	0	7	NA	NA	NA	85.71	14.29	0.00	0.00	0.00	248	248	100	7	2.82
	Early contact	46.34	5.27	24.67	10.45	13.27	65	78.31	0	0	5	6.02	9	10.84	4	4.82	7.22	NA	0.56	1	82.56	8.14	3.49	2.33	3.49	3263	1631.5	50	41.5	2.54
	Late pre-contact	44.96	5.62	24.79	5.95	18.68	9	75	0	0	2	16.67	1	8.33	0	0	9	NA	3	1	66.67	33.33	0.00	0.00	0.00	605	67.22	11.11	1.33	1.98
Balerno Shelter 3																														
	Leopard Kopje	49.07	9.94	26.40	5.59	9.01	15	100	0	0	0	0	0	0	0	0	15	NA	NA	NA	66.67	19.05	0.00	14.29	0.00	322	322	100	15	4.66
	Zhizo/Zhizo-Leokwe	49.08	7.33	32.88	5.11	5.59	33	94.29	0	0	1	2.86	0	0	1	2.86	33	NA	1	NA	78.95	13.16	5.26	0.00	2.63	1037	518.5	50	17.5	3.38
	Early contact	60.44	2.98	23.29	6.41	6.88	76	98.70	0	0	0	0	1	1.3	0	0	76	NA	1	NA	88.89	5.56	0.00	0.00	5.56	1949	1949	100	44	3.95
	Late pre-contact	50.79	5.91	29.77	5.29	8.23	66	89.19	1	1.35	3	4.05	1	1.35	3	4.05	66	1	3	1	81.93	14.46	1.20	0.00	2.41	5952	744	12.5	9.25	1.24
Little Muck Shelter																														
	Leopard Kopje	38.89	13.16	27.19	14.04	6.73	20	95.24	0	0	1	4.76	0	0	0	0	20	NA	1	NA	65.22	17.39	8.70	4.35	4.35	342	342	100	21	6.14
	Zhizo/Zhizo-Leokwe	33.73	17.23	27.65	15.22	6.17	186	92.54	0	0	4	1.99	2	1	9	4.48	46.5	NA	1	0.2	61.62	34.34	4.04	0.00	0.00	2333	2333	100	201	8.62
	Early contact	40.68	8.91	27.35	15.36	7.70	140	93.33	0	0	4	2.67	0	0	6	4	35	NA	1	NA	69.74	25.66	3.95	0.00	0.66	2468	2468	100	150	6.08
	Early pre-contact	24.00	17.42	33.81	15.61	9.16	40	83.33	0	0	3	6.25	0	0	5	10.42	13.33	NA	3	NA	62.50	27.08	8.33	0.00	2.08	775	775	100	48	6.19

Appendix C.5: Conceptual tables.

Period	Intensity	Raw Material	Formal tool frequencies	Formal tool materials	Ceramics
Balerno Main Shelter					
17th century farmers	Farmer occupation	CCS and dolerite increase slightly while the others decrease	Steep decrease in artefact densities	CCS drops slightly and dolerite and quartzite increase marginally	Present - sherds considered to be post-1700
Leopard Kopje	Remains constant	CCS increases, dolerite decreases and the rest remain similar	Marked increase in scrapers, segments, adzes and other tools, increase in the difference with all other tools backed bladelets	CCS peaks, agate decrease, dolerite increases and the rest drop	Present – Leopard Kopje
Zhizo	Remains constant	Decrease in CCS and slight increases in all other categories	Scrapers and adzes decrease slightly with segments and backed bladelets increasing	CCS remains, agate increase, dolerite and quartz decrease and quartzite increase	Present – Zhizo
Early contact		Increase in CCS, decrease in agate and the rest remain fairly constant	All tools increase with scrapers increasing the most substantially	CCS increases, agate drops a fair amount, quartz increases minimally and dolerite and quartzite decrease minimally	Present - Happy Rest (AD 350-500) and Bambata present
Late pre-contact	Large range of activities	Greater emphasis on all materials other than CCS. CCS is still dominant however	Less tool type diversity but high at 380-100 BC	CCS and Agate dominate formal tools followed by low amounts of quartz, then dolerite and finely quartzite	

Tshisiku Shelter

Contact	Decrease in lithics	Raw material remains fairly consistent from Early contact	Scrapers decrease noticeably, other tools decrease to a lesser degree	CCS drops, agate increases, dolerite appears and the rest remain constant	Present - 6 pieces in spit 2 belong to Leopard Kopje, several other pieces were refitted to form 2 pots from the Leopard Kopje tradition
Early contact	Slight increase in lithic densities	CCS drops, quartzite remains and the rest increase	Scrapers increase, few other changes, tool diversity increases slightly	CCS and agate increase, quartz drops steeply and dolerite disappears	Present
Late pre-contact	Not much change only lower densities, higher formal tools than Bal 2 & 3 and LM	CCS rises to the detriment of all other material types	Scrapers increase, fewer segments and backed bladelets, adzes vary, few other tools	Agate drops steeply and CCS picks up most off this, a little goes to quartz and dolerite and quartzite disappears	
2nd Early pre-contact	Highest density	Agate especially but also quartz and dolerite increase with CCS dropping steeply and quartzite less so	Scrapers increase considerably, segments peak, few other tools and adzes and backed bladelets only increase slightly	CCS decreases a fair amount with quartz, dolerite and quartzite decreasing slightly and agate taking up most of the excess	
Early pre-contact	Intense occupation	CCS dominates but other materials well represented except for quartzite	Scrapers, segments and backed bladelets are fairly similar and there few adzes	CCS dominates formal tool categories followed by agate (< half), quartz, dolerite and quartzite	

Balerno Shelter 2

Leopard Kopje	Decrease in lithics	CCS increases by a fair amount, agate only slightly, quartz drops slightly as does dolerite and quartzite	Scrapers drop considerably but not to as low as during the Late pre-contact period however all other tool classes have vanished	Only CCS and agate used = 6:1	Present - Mapungubwe jar and a Happy Rest/Gokomere bowl
Early contact		The only significant change is a substantial drop in quartzite and rise in dolerite	Tool diversity increases. Scrapers rise steeply (7 fold) followed by adzes, segments and other tools	CCS completely dominates by 35:3:2:1:2	Present
Late pre-contact	Ephemeral, formal tools almost non-existent	CCS is high, double quartz with agate and dolerite fairly similar and quartzite nearly 4 times them	Very few formal tools with scrapers dominating segments and adzes (9:3:1)	CCS to agate = 3:1 and no other materials were used	

Balerno Shelter 3

Leopard Kopje		Little change, only really in the decrease in quartz and increase in agate and quartzite (not by much though)	Scraper frequency remains similar with no other tools present	CCS drops by about 10%, agate rises to nearly 1/5, dolerite appears for the first time and quartz and quartzite are non-existent	Present
Zhizo/Zhizo-Leokwe	Decrease in lithics	CCS drops back to half, quartz increases up to more than in the Late pre-contact period (up to 33%)	Tool diversity is still very low with scrapers high, although they dropped off from Early contact period about 3 times	CCS drops to lowest yet but still about 2/5, agate less than 1/5, quartz increase but minimal and quartzite even less	Present
Early contact	Steep increase in artefacts	CCS increases fairly, dolerite only marginally while the rest decrease slightly	Tools drop of dramatically (only 1 adze) but scrapers increase steeply	CCS and quartzite frequencies increase and quartz disappears	
Late pre-contact	Ephemeral, formal tools almost non-existent	Half CCS, a quarter quartz and the rest fairly evenly distributed (quartzite the highest of the three)	Tools are well represented at this stage, but the density is very low and scrapers dominate (scrapers:backed bladelets = 66:1)	2/5 of tools on CCS, less than 1/5 on agate and a miniscule amount on quartzite with a slight increase in quartz	

Little Muck Shelter

Leopard Kopje		CCS increases and agate decreases slightly and the rest remain constant	Scrapers drop off considerably to 1/9 of previous levels and only 1 segment exists	CCS increases slightly, agate drops by half, quartz double and dolerite and quartzite increase slightly to about 5%	Present - K2
Zhizo/Zhizo-Leokwe	Still increase in lithics, more intense use of the shelter	CCS drops and agate rises to little more than dolerite, the rest of which remain the same as the Early contact (including dolerite)	Scrapers more than 4 fold from Early pre-contact, segments remain constant and other tools increase slightly	CCS decrease back to about 2/5 and agate increase to over 2.5/5 and a small amount of quartz	Present - Zhizo/Leokwe
Early contact	Steep increase in the lithics	CCS increases to dominate, quartz not far behind about double dolerite, and agate and quartzite fairly similar around 8%	Increase in scrapers a little more than 3 fold, other categories do not increase much (1 artefact)	CCS increases and agate, quartz and quartzite decrease	Present - Bambata/Happy Rest
Late pre-contact	Ephemeral	Quartz dominates but is closely followed by CCS, agate, dolerite and finally quartzite, however, frequencies are fairly consistent	Scrapers dominate with a few segments and some other tools	3/5 of tools are CCS, more than 1/5 are agate and the rest is quartz with a small quartzite contingency	None

Appendix C.6: Mbere Shelter.

Mbere Rock Shelter — **Quartz** — **1684** — **Qzt**

				1220	115	13	1	1	5	4	5	1	1	24	1	256	1	6	23	2	5	145
Square	**Level**	**Bag numbers**	**Quadrant**	**Chips**	**Bipolar chunk**	**Lozenge chunk**	**Irregular core**	**Split cobble**	**Split cobble core**	**Bladelet core**	**Single platform core**	**Rice seed**	**Preliminary flaked nodule**	**Flake**	**Cortical flake**	**Broken flake**	**Side scraper (m)**	**Bladelet**	**Broken bladelet**	**Misc. retoch**	**Nodule**	**Chips**
P8	99.650	18, 102	a													2						
	99.650		b																			
	99.650		c	5												1						
	99.650	79	d	2	2											1					1	
				7	2	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	1	0
	99.600	144	a	1																		1
	99.600	155, 160	b	2												2						2
	99.600	144	c	1																		1
	99.600	124	d	1	1											2						
				5	1	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4
	99.550	223, 234	a	7	1									1		1			1			3
	99.550	211	b	2												1						
	99.550	168	c	3	1																	
	99.550	185	d	3												4						
				15	2	0	0	0	0	0	0	0	0	1	0	6	0	0	1	0	0	3
	99.500	263	a	11										1								9
		266	a	110	6	2				1			1			8		1	2			32

	99.500	255	b	2						1									1			1
		260	b	22	2									1		2						1
	99.500	265	c	8												10			1			2
		262	c	7	1																	10
	99.500	264	d	25	2			1						1					1		1	2
		261	d	19			1									3			1			3
				204	11	2	1	1	0	2	0	0	1	3	0	23	0	1	6	0	1	60
	99.450	286	a		2											9		1	1			
		272	a	158	7	2					1			5		23			1			18
	99.450	270	b	92	12	2					1			4		19		1	2	2		9
	99.450	268	c	86	10	2										14			1			1
	99.450	269	d	121	10	1				1				3	1	31	1					11
				457	41	7	0	0	0	1	2	0	0	12	1	96	1	2	5	2	0	39
	99.400	279	a	119	6									3		28		2	2			7
	99.400	275	b	63	8				1		1					20			1			6
	99.400	280	c	127	12				1		1			1		20		1	2		2	15
	99.400	276	d	97	3	1						1		2		13			2			3
				406	29	1	0	0	2	0	2	1	0	6	0	81	0	3	7	0	2	31
	99.350	286	a	24	3									1		6						1
	99.350	287	b	21		1										1						3
	99.350	284	c	4												1			1			
	99.350	285	d																1			
				49	3	1	0	0	0	0	0	0	0	1	0	8	0	0	2	0	0	4
	99.300	289	a	9												3						
	99.300	288	b	4	1																	
	99.300	291	c	2	1																	1
	99.300	290	d																			
				15	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	1
				1158	91	11	1	1	2	3	4	1	1	23	1	225	1	6	21	2	4	142
Q8	99.650	90, ?	a	2																		1
	99.650	48	b	10	5					1						6						1
	99.650	51	c	3																		
	99.650	39	d	2	1	1			1							2					1	
				17	6	1	0	0	1	1	0	0	0	0	0	8	0	0	0	0	1	2

99.600	104	a	4	2				2							8						
99.600		b	3	5									1		2						
99.600	139	c	8	2	1										2						1
99.600	129	d	15	4						1					6			2			
			30	13	1	0	0	2	0	1	0	0	1	0	18	0	0	2	0	0	1
99.550	183	a	3												1						
99.550	174	b	3	2											4						
99.550	197	c	4	1																	
99.550	201	d	5	2																	
			15	5	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0
			62	24	2	0	0	3	1	1	0	0	1	0	31	0	0	2	0	1	3

				Quartzite								145			Crypto-crystalline								
				35	1	8	84	1	1	2	1868	241	7	31	2	4	1	39	2	5	20	1
Square	Level	Bags	Quadrant	Bipolar chunk	Bladelet core	Flake	Broken flake	Broken bladelet	Grooved stone	Nodule	Chips	Bipolar chunk	Lozenge chunk	Irregular core	Split cobble	Split cobble core	Bipolar core	Bladelet core	Blade core	Bipolar bladelet core	Single platform core	Double platform core
P8	99.650	18, 102	a								4	1										
	99.650		b																			
	99.650		c	1																		
	99.650	79	d	1							9	1		1								
				2	0	0	0	0	0	0	13	2	0	1	0	0	0	0	0	0	0	0
	99.600	144	a								6	1										
	99.600	155, 160	b	1			1	1		1	4	2										
	99.600	144	c				1				6											
	99.600	124	d								5	1		1				1				
				1	0	0	2	1	0	1	21	4	0	1	0	0	0	1	0	0	0	0
	99.550	223, 234	a	1							6			2				1				
	99.550	211	b								7	1										
	99.550	168	c								12											
	99.550	185	d				2				8	3										1
				1	0	0	2	0	0	0	33	4	0	2	0	0	0	1	0	0	0	1
	99.500	263	a				1				15	1		1								
		266	a	6			6				139	9						1		1		
	99.500	255	b								16	2		1								
		260	b	1					1		34	1		1					1			
	99.500	265	c				2				9	1										
		262	c	2			5				21	1		1								
	99.500	264	d								58	3		1	1			3				
		261	d								49	2						1				
				9	0	0	14	0	1	0	341	20	0	5	1	0	0	5	1	1	0	0
	99.450	286	a	1		2	5						1	1								

	272	a	1			8				214	23	1	1				2			2	
99.450	270	b	2		1	11			1	134	11		3				4	1		5	
99.450	268	c	2			2				94	11						2				
99.450	269	d	5		1	12				187	26	2	1			1	2			2	
			11	0	4	38	0	0	1	629	71	4	6	0	0	1	10	1	0	9	0
99.400	279	a	1			6				178	16		4				4			5	
99.400	275	b			1	6				105	19	1	2				2		1	2	
99.400	280	c	2			5				116	23		3		1		6		1	4	
99.400	276	d			1	2				169	6		1	1	1		5				
			3	0	2	19	0	0	0	568	64	1	10	1	2	0	17	0	2	11	0
99.350	286	a				2				51	10		1								
99.350	287	b								43	7				1						
99.350	284	c				1				11	2										
99.350	285	d								6											
			0	0	0	3	0	0	0	111	19	0	1	0	1	0	0	0	0	0	0
99.300	289	a								9	1	1									
99.300	288	b								3	1										
99.300	291	c								2											
99.300	290	d								1											
			0	0	0	0	0	0	0	15	2	1	0	0	0	0	0	0	0	0	0
			27	0	6	78	1	1	2	1731	186	6	26	2	3	1	34	2	3	20	1
Q8 99.650	90, ?	a	1							12	6										
99.650	48	b	1		2					9	11										
99.650	51	c	2			3				3	5		1								
99.650	39	d	2							6	4		1				2				
			6	0	2	3	0	0	0	30	26	0	2	0	0	0	2	0	0	0	0
99.600	104	a								11	2	1									
99.600		b	1			1				10	1						1		1		
99.600	139	c								14	4										
99.600	129	d				1				37	11		1		1						
			1	0	0	2	0	0	0	72	18	1	1	0	1	0	1	0	1	0	0
99.550	183	a		1						4	1		1				2				
99.550	174	b				1				20	5								1		
99.550	197	c	1							3											

99.550	201	d								8	5		1								
			1	1	0	1	0	0	0	35	11	0	2	0	0	0	2	0	1	0	0
			8	1	2	6	0	0	0	137	55	1	5	0	1	0	5	0	2	0	0

Crypto-crystalline

Square	Level	Bags	Quadrant	Rice seed	Prelim flaked cores/nodules	Opposed platform + battered pc	Battered piece	Flake	Retouched flake	Backed flake	Utilised flake	Utilised broken flake	Cortical flake	Broken flake	Broken retouched flake	End scraper (s)	End, side + side scraper (s)	End + side scraper (s)	End scraper (m)	Side scraper (s)	Side + side scraper (2)	Side scraper (m)
				5	3	1	2	55	1	1	1	1	2	477	3	37	1	7	3	8	1	1
P8	99.650	18, 102	a											3								
	99.650		b																			
	99.650		c					1														
	99.650	79	d					1						2								
				0	0	0	0	2	0	0	0	0	0	5	0	0	0	0	0	0	0	0
	99.600	144	a													1						
	99.600	155, 160	b																			
	99.600	144	c																			
	99.600	124	d		1																	
				0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
	99.550	223, 234	a											3								
	99.550	211	b											1								
	99.550	168	c											1								
	99.550	185	d											6								
				0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0
	99.500	263	a		1									3								
		266	a	1				2						14				1		3		
	99.500	255	b					1						1								
		260	b					1						2		1						
	99.500	265	c											6		1						
		262	c		1			1						1								
	99.500	264	d											6								

	261	d											3								
			1	2	0	0	5	0	0	0		0	36	0	2	0	1	0	3	0	0
99.450	286	a					2						11						1		1
	272	a	1				3						27			1		2	1		
99.450	270	b					1						39		3					1	
99.450	268	c				1	3						16		1						
99.450	269	d					9						44	2	1		1				
			1	0	0	1	18	0	0	0	0	0	137	2	5	1	1	2	2	1	1
99.400	279	a	1				5				1		68		9				2		
99.400	275	b	1		1		2		1			1	29	1	3		1				
99.400	280	c					6	1		1			45		9		2	1			
99.400	276	d					1						32		2						
			2	0	1	0	14	1	1	1	1	1	174	1	23	0	3	1	2	0	0
99.350	286	a				1	4						21		1						
99.350	287	b											17		2				1		
99.350	284	c					1						13		1						
99.350	285	d											4								
			0	0	0	1	5	0	0	0	0	0	55	0	4	0	0	0	1	0	0
99.300	289	a					1					1	4								
99.300	288	b											2								
99.300	291	c																			
99.300	290	d																			
			0	0	0	0	1	0	0	0	0	1	6	0	0	0	0	0	0	0	0
			4	3	1	2	45	1	1	1	1	2	424	3	35	1	5	3	8	1	1
Q8 99.650	90, ?	a											1								
99.650	48	b					3						11								
99.650	51	c											1								
99.650	39	d					1						2								
			0	0	0	0	4	0	0	0	0	0	15	0	0	0	0	0	0	0	0
99.600	104	a											8								
99.600		b					1						7		2						
99.600	139	c					4						7				2				
99.600	129	d					1						11								
			0	0	0	0	6	0	0	0	0	0	33	0	2	0	2	0	0	0	0

99.550	183	a											1								
99.550	174	b											1								
99.550	197	c	1										1								
99.550	201	d											2								
			1	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0
			1	0	0	0	10	0	0	0	0	0	53	0	2	0	2	0	0	0	0

				Crypto-crystalline																		2221
				2	8	1	4	2	1	19	1	2	1	1	1	2	78	1	2	16	4	5
Square	Level	Bags	Quadrant	Double-edged scraper (s)	Broken scraper	Segment	Adze	Awl	Plane	Bladelet	Utilised bladelet	Backed bladelet	Backed bladelet utilised	Naturally backed bladelet	Naturally backed utilised bladelet	Backed broken bladelet	Broken bladelet	Broken bladelet with battered proximal end	Broken blade	Misc retouch	Misc backed	Nodule
P8	99.650	18, 102	a																			1
	99.650		b																			
	99.650		c																			
	99.650	79	d																			
				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	99.600	144	a																			
	99.600	155, 160	b																			
	99.600	144	c																			
	99.600	124	d														1					
				0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
	99.550	223, 234	a																			
	99.550	211	b																			
	99.550	168	c														1					
	99.550	185	d																			
				0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
	99.500	263	a														1					
		266	a														2			2		2
	99.500	255	b														1					1

	260	b																				
99.500	265	c														1					1
	262	c						1														
99.500	264	d														2						
	261	d																				
			0	0	0	0	0	1	0	0	0	0	0	0	0	7		0	2	0	4	
99.450	286	a							2	1												
	272	a				1										3			2			
99.450	270	b		1		1			1							5			2			
99.450	268	c		1					1							1						
99.450	269	d	2	1					4						1	14		1	1	1		
			2	3	0	2	0	0	8	1	0	0	0	0	1	23		1	5	1	0	
99.400	279	a		1			1		2				1			8						
99.400	275	b				2										4						
99.400	280	c		2	1				5		1				1	9			3			
99.400	276	d							1							6			1			
			0	3	1	2	1	0	8	0	1	0	1	0	1	27	0	0	4	0	0	
99.350	286	a							1		1					2			2	1		
99.350	287	b														5			1	1		
99.350	284	c														1				1		
99.350	285	d															1					
			0	0	0	0	0	0	1	0	1	0	0	0	0	8	1	0	3	3	0	
99.300	289	a																				
99.300	288	b																				
99.300	291	c																				
99.300	290	d					1															
			0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
			2	6	1	4	2	1	17	1	2	0	1	0	2	67	1	1	14	4	5	
Q8	99.650	90, ?	a											1		1						
	99.650	48	b																			
	99.650	51	c																			
	99.650	39	d																			
			0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	
	99.600	104	a																			

99.600		b							2							2		1			
99.600	139	c										1				2					
99.600	129	d		2												3			2		
			0	2	0	0	0	0	2	0	0	1	0	0	0	7	0	1	2	0	0
99.550	183	a																			
99.550	174	b														2					
99.550	197	c														1					
99.550	201	d																			
			0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
			0	2	0	0	0	0	2	0	0	1	0	1	0	11	0	1	2	0	0

				Agate			34		Dolerite											492	
				18	5	1	10	256	46	2	3	2	18	154	1	6	1	1	1	1	5469
Square	Level	Bags	Quadrant	Chips	Bipolar chunk	Split cobble	Broken flake	Chips	Bipolar chunk	Irregular core	Bladelet core	Single platform core	Flake	Broken flake	End + side scraper (m)	Broken bladelet	Blade	Broken blade	Misc. Retouch	Nodule	Total
P8	99.650	18, 102	a																		11
	99.650		b																		0
	99.650		c											1	1						10
	99.650	79	d											1							22
				0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	43
	99.600	144	a			1			1												12
	99.600	155, 160	b																	1	17
	99.600	144	c											2							11
	99.600	124	d				1							1							16
				0	0	1	1	0	1	0	0	0	0	3	0	0	0	0	0	1	56
	99.550	223, 234	a						2					2							31
	99.550	211	b						1					1							14
	99.550	168	c	1					1												20
	99.550	185	d						3				1	1							32
				1	0	0	0	0	7	0	0	0	1	4	0	0	0	0	0	0	97
	99.500	263	a					3						1							48
		266	a					21	1				3	6							383
	99.500	255	b																		28
		260	b	2				4						2							79
	99.500	265	c					5						2							49
		262	c	1																	53
	99.500	264	d					11	2					5							125
		261	d					4	1					2							89
				3	0	0	0	48	4	0	0	0	3	18	0	0	0	0		0	854
	99.450	286	a				2				1			3							47
		272	a	3	1			38	6					13		1					570

	99.450	270	b		1		1	27	2		2	1	3	13		2	1	1			425
	99.450	268	c					11	1					2							263
	99.450	269	d		1			24	1				1	10		1					539
				3	3	0	3	100	10	0	3	1	4	41	0	4	1	1		0	1844
	99.400	279	a	1				17	7					12		1					518
	99.400	275	b				3	17	4	1			4	7		1					322
	99.400	280	c	1	1		1	17	1				1	26					1		479
	99.400	276	d		1		1	40						7							400
				2	2	0	5	91	12	1	0	0	5	52	0	2	0	0	1	0	1719
	99.350	286	a	3			1	8	2					2							149
	99.350	287	b	3				2						7							116
	99.350	284	c						2					3							42
	99.350	285	d											3							15
				6	0	0	1	10	4	0	0	0	0	15	0	0	0	0	0	0	322
	99.300	289	a					3													32
	99.300	288	b	1										1							13
	99.300	291	c											1							7
	99.300	290	d																		2
				1	0	0	0	3	0	0	0	0	0	2	0	0	0	0	0	0	54
				16	5	1	10	252	38	1	3	1	13	137	1	6	1	1	1	1	4989
Q8	99.650	90, ?	a					1	2					2							30
	99.650	48	b	2									2	1							65
	99.650	51	c						1												19
	99.650	39	d						1	1				4							32
				2	0	0	0	1	4	1	0	0	2	7	0	0	0	0	0	0	146
	99.600	104	a					1						2							41
	99.600		b						2					1							44
	99.600	139	c																		48
	99.600	129	d									1	1								100
				0	0	0	0	1	2	0	0	1	1	3	0	0	0	0	0	0	233
	99.550	183	a						1					1							16
	99.550	174	b											1							40
	99.550	197	c										1	1							14
	99.550	201	d					2	1				1	4							31

			0	0	0	0	2	2	0	0	0	2	7	0	0	0	0	0	0	101
			2	0	0	0	4	8	1	0	1	5	17	0	0	0	0	0	0	480

				Ceramics					Beads					Other		
				11	1	5	2	7	1	2	23	2	1	2	22
Square	Level	Bags	Quadrant	Plain	Plain rim	OES	OES incomplete	OES frag	Achatina	Achatina frag	Bone	Bone frag	Ochre	Dung	Shiny black stone
P8	99.650	18, 102	a												
	99.650		b												
	99.650		c												
	99.650	79	d												
				0	0	0	0	0	0	0	0	0	0	0	0
	99.600	144	a												
	99.600	155, 160	b												
	99.600	144	c												
	99.600	124	d												
				0	0	0	0	0	0	0	0	0	0	0	0
	99.550	223, 234	a										1		
	99.550	211	b												
	99.550	168	c												
	99.550	185	d												
				0	0	0	0	0	0	0	0	0	1	0	0
	99.500	263	a												
		266	a	3						1	2				2
	99.500	255	b												
		260	b			2									2
	99.500	265	c												
		262	c	2											
	99.500	264	d	3	1					1					
		261	d												
				8	1	2	0	0	0	2	2	0	0	0	4
	99.450	286	a	1							2				
		272	a				1				2				
	99.450	270	b	1				1	1		3				

	99.450	268	c												
	99.450	269	d			1		1			3	1			1
				2	0	1	1	2	1	0	10	1	0	0	1
	99.400	279	a	1				1			3				4
	99.400	275	b												3
	99.400	280	c				1	2			4	1			4
	99.400	276	d					2			1				4
				1	0	0	1	5	0	0	8	1	0	0	15
	99.350	286	a			1					1				1
	99.350	287	b												1
	99.350	284	c												
	99.350	285	d			1					1				
				0	0	2	0	0	0	0	2	0	0	0	2
	99.300	289	a								1				
	99.300	288	b												
	99.300	291	c												
	99.300	290	d												
				0	0	0	0	0	0	0	1	0	0	0	0
				11	1	5	2	7	1	2	23	2	1	0	22
Q8	99.650	90, ?	a											2	
	99.650	48	b												
	99.650	51	c												
	99.650	39	d												
				0	0	0	0	0	0	0	0	0	0	2	0
	99.600	104	a												
	99.600		b												
	99.600	139	c												
	99.600	129	d												
				0	0	0	0	0	0	0	0	0	0	0	0
	99.550	183	a												
	99.550	174	b												
	99.550	197	c												
	99.550	201	d												
				0	0	0	0	0	0	0	0	0	0	0	0

			0	0	0	0	0	0	0	0	0	0	2	0

Appendix C.7: Den Staat AB 32.

Den Staat AB 32

		Quartz																					1176		Quartzite		
Totals:		376	169	20	4	33	9	1	13	1	5	3	2	55	1	2	417	10	2	1	5	1	1	45	8	5	1
Square	Level	Chips	Bipolar chunk	Lozenge chunk	Irregular core	Split cobble	Bipolar flaking	Bipolar core	Bladelet core	Blade core	Bipolar bladelet core	Prelim flaked cores/nodule	Single platform core	Flake	Utilised flake	Cortical flake	Broken flake	Bladelet	Backed bladelet	Segmented backed bladelet	Broken bladelet	Broken blade	Misc backed	Nodule	Chips	Bipolar chunk	Blade core
A	1	68	47	3	1	10		1	7			1	1	14			92	1	1		2			16	3	2	
A	2	79	30	3		7			1			1		19		2	139	3			2		1	8	1		
A	3	10	4			1			1					3			24	4			1						1
A	4	13	8	1		3								2			32							4			
A	5	21	9						1		1			4			37		1					1		1	
A	6	122	36	9	1	6	7		2	1	3	1		10	1		41			1		1		8	3	2	
A	7	16	13	2		1	1				1			3			14							6			
A	8	13	10	2		4	1		1				1				18	1									
A	9	34	12		2	1											20	1						2	1		

		Qzt		14					Crypto-crystalline																	
		13	45	1	209	96	6	12	1	3	2	16	10	1	2	2	1	69	3	3	337	1	1	1	2	1	22
Square	Level	Flake	Broken flake	Nodule	Chips	Bipolar chunk	Lozenge chunk	Irregular core	Irregular core/adze	Split cobble	Bipolar core	Bladelet core	Bipolar bladelet core	Single platform core	Prelim flaked cores/nodules	Single platform core	Battered piece	Flake	Utilised flake	Cortical flake	Broken flake	End scraper (m)	End + 2 side scraper (s)	Broken scraper	Segment	Adze	Bladelet
A	1	2	14		31	19	1	1		1		9	1	1	1			21			67	1		1	1	1	6
A	2	7	15	1	39	17		3				1	2		1	1		18		2	117		1				5
A	3	1	3		11	5			1			1						5	1		20						2
A	4	1	1		7	12				1								6			24						2
A	5		1		5	8		1			2	1	1			1		9			18						3
A	6	2	6		91	23	4	5				4	3				1	4	1		30						3
A	7		3		11	3							1					3			19						
A	8		1		6	4	1	1		1								1			20						
A	9		1		8	5		1					2					2	1	1	22				1		1

			Crypto...			801									Agate										112		Dolerite		
		2	25	4	5	1	11	12	22	3	2	1	3	1	12	41	1	2	1	5	1	2	3	21	12	3	1
Square	Level	Segmented backed bladelet	Broken bladelet	Broken blade	Misc retoch	Misc backed	Nodule	Chips	Bipolar chunk	Lozenge chunk	Irregular core	Split cobble	Bladelet core	Bipolar bladelet core	Flake	Broken flake	End + 2 side scraper (s)	Segment	Adze	Bladelet	Segmented backed bladelet	Broken baldelet	Misc backed	Chips	Bipolar chunk	Irregular core	Bladelet core
A	1		9	2			5	5	8				1		2	11		2		2	1		2	4	2	1	1
A	2	2	8		2	1	3	4	9				1		6	15						1		1	6	1	
A	3		2		1								1		2	4				2				2	1		
A	4				1		3		3			1				3			1				1				
A	5		3	1	1				1							1	1					1					
A	6		3	1				2	1	2	1				1	2								12	2		
A	7							1						1	1	2								1	1	1	
A	8									1						1											
A	9										1					2				1				1			

Dolerite **37**

1190

		45	3	160	6	4	4	
Square	**Level**	**Flake**	**Cortical flake**	**Broken flake**	**Bladelet**	**Broken bladelet**	**Broken blade**	**Total**
A	1	6	1	32	1		2	270
A	2	12	1	54		2		296
A	3	4	1	12			1	49
A	4	1		4	2	1		63
A	5	6				1	1	76
A	6	7		23				255
A	7	5		15				57
A	8	3		7				51
A	9	1		13	3			73