HOWE : B BALLIN H (Ed)

FICHE 1 CONT? TS LIST

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	Phase	Description
1	9	Topsoil.
2	9	Victorian trench.
3	8	Rubble.
4	9	Victorian trench.
5	9	Ploughsoil.
6	9	Rubble.
7	9	Rubble.
8	8	Shillet and earth.
9	8	Rubble, = 722.
10	-	Scrapped.
11	-	"
12	-	"
13	8	Wall.
14	9	Rubble.
15	9	Victorian trench fill.
16-21	8	Rubble.
22	-	Scrapped.
23	9	Ploughsoil.
24	-	Scrapped.
25	7	Broch Tower wall.
26	8	Rubble, = 722
27	-	Scrapped.
28	9	Rubble.
29	8/9	Rubble.
30	9	Wall.
31	9	Rubble.
32	8	Rubble.
33	-	Scrapped.
34	8	Rubble.
35	7	Rubble = 124.
36	"	" "
37	8	Rubble.
38	8	Wall.
39	8	Wall.
40	"	"
41	8	Wall.
43	"	"
44	"	"
45	"	"
46	"	"
47	-	Scrapped.
48	8	Flags.
49	8	Flags , = 50
50	"	" , = 49
51	8	Ground surface.
52	"	"
53	9	Victorian trench.
54	8	Flags.
55	"	"
56	8	'Occupation deposits'
57	-	Scrapped.
58	7	Rampart face.
59	7	Rubble.
60	7	Hearth.
61	7	Ground surface.
62	4/5	Clay bank.
63	7	Midden.
64	8	Ground surface.
65	9	Victorian trench.
66	4/5	Ground surface, = 170.
67	4/5	Silt clay.
68	-	Natural clay.
69	-	Scrapped.
70	-	Scrapped.
71	7	Rubble.
72	8	Wall.
73	8	Rubble.
74	9	Victorian trench.
75	"	"
76	9	Ground surface.
77	9	Flags.
78	9	Victorian fill.
79-83	9	Victorian walls.
84	9	Flags.
85	8	Flags and clay.
86	7/8	Ditch silts.
87	-	Scrapped.
88	-	"
89	7/8	Collapsed clay rampart.
90	4	Wall.
91-92	7	Rampart face.
93	8	Flags.
94	8	Sill.
95	8	Wall.
96	8	Wall.
97	-	Scrapped.
98	5-7	Clay silt.
99	7/8	Slip from clay rampart.
100	7	Broch II staircase.
101	7	Blocking.
102	8	Shillet.
103	7	Rubble.
104	-	Scrapped.
105	-	Scrapped (= 1).
106	9	Victorian wall.
107	8	Rubble.
108	9	Rubble.
109-110	9	Ploughsoil.
111	8	Sill.
112	8	Wall.
113	8	Wall.
114	7	Wall, = 330.
115	8	Rubble.
116	8	Flags.
117	9	Victorian spoil.
118	8	Ash patches.
119	8	Ground surface, = 64.
120	8	Entrance.
121	8	Rubble, = 722.
122	9	Flags.
123	7/8	Ground surface.
124	7	Rubble.
125-127	-	Scrapped.
128	7	Rubble, = 124.
129-132	9	Victorian fill.
133	9	Rubble.
134	9	Ploughsoil.
135	7/8	Rampart collapse.
136	7	Broch II foundation.
137	9	Rubble.
138	-	Scrapped.
139	7/8	Rampart collapse = 135.
140	5/6	Rampart face.
141	8/9	Ploughsoil, = 731.
142	-	Scrapped = 731.
143	-	" = 731.
144-146	9	Recent disturbance.
147	8	Shillet.
148	8	Rubble.
149	8	Midden.
150	8	Rubble.
151	7	Ditch fill.
152	8	Wall.
153	8	Rubble.
154	8	Wall.
155	8	Flags.
156	8	Walls.
157	-	Scrapped.
158	7	" = 211.
159	5/6	Rubble.
160	8	Rubble.
161	8	Wall, = 336.
162-3	-	Scrapped.
164	8	Wall.
165	8	Rubble, = 1495.
166-7	8	'Occupation deposit' - 204.
168	9	Rubble.
169	-	Scrapped.

170	4/5	Ground surface.
171	8	= 250
172	8	Rubble.
173-6	"	"
177	8	Ground surface.
178-9	8	Rubble.
180	9	Rubble.
181	8	Rubble.
182	8	Flags.
183	-	Scrapped = 371
184	8	Rubble.
185	-	Scrapped = 1225
186	8	Wall.
187	8	Floor.
188	8	Midden.
189	8	Flags.
190	8	Ground surface.
191	"	Rubble.
192	"	Levelling earth.
193	"	Rubble.
194	"	Floor.
195	"	Sill.
196	-	Scrapped.
197	8	Blocking.
198	"	Wall.
199	"	"
200	"	Flags.
201	-	Scrapped.
202	8	Wall.
203	"	"
204	"	›ation deposit.
205	"	›locking.
206	"	Rubble.
207	7	Rampart core.
208	-	Scrapped.
209	9	Victorian fill.
210	8	Earth floor.
211	7	Ground surface.
212	8	Earth floor = 210.
213	8	Flags.
214	"	Partition.
215	-	Scrapped.
216-220	8	Hearth deposits, = 357.
221	8	Occupation deposit.
222	"	Wall.
223	7	Rampart core.
224	8	Wall.
225	-	Scrapped.
226	8	Wall.
227	"	Flags.
228	"	Floor.
229	"	Orthostats.
230	"	Post setting.
231	"	Wall.
232	"	Post support (?).
233	"	Rubble, = 176.
234	"	Wall.
235	8	Entrance - blocking.
236	8	Wall.
237	-	Scrapped.
238	8	Path.
239	"	Flags.
240	9	Recent disturbance.
241	8	Rubble.
242	"	Path, = 238.
243	"	Wall face.
244	9	Rubble.
245	8	Rubble.
246	"	Ground surface, = 64.
247	"	Wall.
248	-	Scrapped.
249	8	Wall.
250	8	Floor.
251	9	Rubble.
252	9	Animal intuition.
253	8	Partition.
254	8	Blocking.
255	-	Scrapped.
256	-	Scrapped = 1278.
257	8	Hearth deposits.
258	8	Partition.
259	8	Floor levelling, = 460.
260	-	Scrapped = 90.
261-2	7	Broch II rampart core.
263	8	Earth floor, = 346.
264	-	Scrapped = 190.
265	7	Rampart core.
266	-	Scrapped.
267	7/8	Abandonment.
268	-	Scrapped = 655
269	8	Flags, = 539.
270	8	Charcoal spread.
271	"	Hearth deposit.
272-3	7	Rampart core.
274	8	Flags.
275	-	Scrapped = 605.
276	8	Orthostat.
277	8	'Alcove'.
278	"	Flags.
279	8	Rubble.
280	"	" (= 241).
281	"	Wall.
282	"	Flags.
283	"	Orthostat.
284	"	Earth floor.
285	"	Rubble, = 399.
286	7	Earth - floor.
287	8	Ground surface.
288	8	Rubble.
289	"	Entrance.
290	"	Flags.
291	"	"
292	-	Scrapped.
293	8	Hearth.
294	8	Wall.
295	5/6	Rampart core.
296	8	Hearth deposits.
297	8	Hearth, = 374.
298	"	Hearth deposits, = 357.
299	-	Scrapped = 384.
300	8	Hearth.
301	-	Scrapped.
302	5/6/7	Ditch silts.
303	8	Hearth deposits.
304	8	Earth floor.
305	5	Rampart revetment wall.
306	9	Ploughsoil.
307	8	Entrance.
308	8	Entrance.
309	9	Ploughsoil.
310	5-7	Ditch silts.
31	8	Hearth.
312-3	5-7	Ditch silts.
314	5-7	Ash.
315	5-7	Ditch revetment.
316	8	Flags.
317	"	Floor deposit.
318	-	Scrapped.
319	5-7	Rubble.
320	2/3	Ditch fill, = 684.
321	7	Rampart core.
322	-	Scrapped.
323	5/6	Rampart revetment, = 323.
324-6	-	Scrapped.
327-9	9	Victorian spoil.
330	7	Wall.
331	8	Rubble.
332	8	Flags, = 250.
333	9	Topsoil.
334-5	"	Victorian fill.
336	8	Wall.
337	8	Wall.

338	8	Wall.
339	"	Rubble.
340	"	"
341	"	Orthostat.
342-3	9	Victorian fill.
344	8	Wall.
345	8	Floor.
346	"	Floor.
347	"	Hearth.
348	7	Wall.
349	9	Victorian fill.
350	8	Floor.
351	"	Kerb.
352	"	Flags.
353	5	Clay core of rampart.
354	8	Partition.
355-6	"	Floors.
357	8	Hearth deposits.
358	"	Rubble, = 710/711.
359	5	East side of rampart entrance.
360	7	Flags.
361	7	Rubble.
362	8	Floor.
363	"	Wall.
364	"	Occupation deposit, = 221.
365	7	Wall.
366	8	Hearth slabs.
367	8	Hearth deposits.
368	8	Flooring.
369	"	" (= 368).
370	8	Hearth deposits.
371	8	Roof support.
372	"	"
373	"	Ground surface.
374	"	Hearth.
375	7/8	Ground surface, = 267.
376-8	8	Floors.
379	"	Hearth slabs.
380	8	Packing = 386.
381	8	Ground surface, = 710/711.
382	-	Scrapped.
383	8	Floor.
384	7	Wall.
385	8	Hearth slabs.
386	8	Hearth.
387	"	Hearth base slabs.
388	"	Hearth slabs.
389	"	Rubble, = 399.
390	"	Occupation deposit.
391-2	-	Scrapped.
393	8	Roof support.
394	"	Door post.
395-6	"	Packing.
397	-	Scrapped.
398	8	Sill packing.
399	8	Rubble.
400	-	Scrapped.
401	7	Partition, = 1581.
402	8	Flag.
403	"	Wall, = 226.
404	"	Flag.
405	"	Floor.
406	"	Post setting.
407	"	Entrance.
408	"	Hearth deposits.
409	"	Floor.
410	"	Rubble.
411	"	Levelling rubble.
412	"	Sill.
413	"	Packing.
414	"	Orthostat.
415	9	Wall.
416	8	Floor, = 228.
417	"	Fill of post setting.
418	"	Blocking.
419	"	Ground surface, = 177.
420	9	Victorian trench.
421	8	Wall, = 96.
422	9	Victorian fill.
423	8	= 177.
424	"	Rubble.
425	"	Orthostat.
426	"	Blocking.
427	"	Wall.
428	"	Rubble.
429	"	Ground surface.
430	"	Floor levelling.
431	"	Floor.
432	"	Wall.
433	"	"
434	"	"
435	"	"
436	"	Stake hole.
437	"	Wall.
438	"	Rubble.
439	9	Rubble.
440	"	Victorian fill.
441	8	Ground surface, = 550.
442	"	Paving.
443-4	-	Scrapped.
445	8	Rubble, = 245.
446	"	Wall.
447	"	Ground surface, = 537.
448	"	Rubble.
449	"	Wall.
450	8/9	Ploughsoil, = 731.
451	8	Midden.
452	"	Paving.
453	"	Orthostat.
454	"	Hearth deposits.
455	"	Hearth slabs.
456	"	Scrapped, = 239.
457	-	Scrapped = 750.
458	8	Levelling.
459	8	Packing.
460	"	Floor levelling.
461	"	Orthostat.
462	8	Wall core.
463	"	Blocking.
464	"	Roof support.
465	"	Flags.
466	9	Victorian fill.
467-469	9	Victorian spoil.
470-479	-	Scrapped.
480-2	8	Hearth deposits.
483	8	Flags, = 465.
484-492	8	Hearth and floor deposits.
493	8	Ground surface, = 64.
494	"	Hearth deposit.
495	"	Hearth.
496	9	Victorian hut base.
497	8	Floor.
498	"	Wall, = 433.
499	"	Floor.
500	"	Hearth uprights.
501	"	Wall, = 498.
502	"	Levelling rubble.
503-4	"	Hearth deposits.
505	"	Rubble, = 37.
506	"	Hearth deposits.
507	"	Hearth.
508	"	Hearth deposits.
509	"	Hearth slab.
510	"	Orthostat, = 435.
511	"	Packing.
512	-	Scrapped.
513	8	Ground surface, = 177.
514	"	Flags.
515	"	Wall core.
516	-	Scrapped.
517-8	8	Hearth deposits.
519	8	Rubble, = 37.

520	8	Stacked rubble.
521	"	Paving.
522	8	Wall.
523	"	Rubble.
524	"	Post setting.
525	"	Earth floor.
526	"	Rubble.
527	-	Scrapped.
528	8	Hearth deposit.
529	"	Levelling rubble.
530	"	Earth floor.
531	"	Wall.
532	"	Wall, = 750.
533	"	Wall.
534	"	Paving.
535	"	Wall.
536	"	Wall.
537	"	Ground surface.
538	"	Rubble.
539	"	Flags.
540	"	Wall core.
541	"	Rubble, = 734.
542	"	Stake holes.
543	"	Hearth deposits.
544	"	Flags.
545	"	Rubble.
546	"	Entrance.
547	"	Rubble.
548	"	Levelling.
549	"	Flags.
550	"	Ground surface.
551	"	Earth floor.
552	9	Wall.
553	8	Levelling rubble.
554	"	Wall core.
555	"	Levelling rubble.
556	"	Post setting.
557	"	Stake hole.
558	-	Scrapped, = 705.
559	"	Kerb.
560	"	Kerb.
561	"	Floor levelling.
562	"	Hearth.
563	8	Kerb.
564	"	Floor levelling.
565	"	Rubble.
566	"	"
567	9	Victorian fill.
568	8	Ground surface, = 177.
569	"	Hearth deposits.
570	"	[illegible]
571	"	[illegible]
572	"	[illegible]
573	"	[illegible]
574	"	Floor levelling
575	"	Orthostat.
576	"	Flags.
577	"	Earth floor.
578	"	Hearth deposits.
579	8	Packing.
580	9	Ploughsoil.
581	8	Floor levelling.
582	"	Rubble.
583	"	"
584	-	Scrapped.
585	8	Hearth deposits.
586	"	Wall.
587	"	Hearth deposits.
588	"	Post setting.
589	"	Occupation deposit.
590	"	Floor.
591	"	Orthostat.
592	"	Flags.
593	"	Ground surface, = 177.
594-596	"	Hearth deposits.
597	"	Floor deposit.
598	8	Levelling.
599	"	Flags.
600	"	Rubble.
601	"	Floor.
602	-	Scrapped = 734.
603	8	Wall.
604	"	Silt.
605-6	"	Hearth deposits.
607	"	"
608-9	8	Floor levelling.
610	8/9	Ground surface, = 731.
611	8	Earth floor.
612	"	Wall core.
613	"	Rubble.
614	"	Floor deposit.
615	"	Floor.
616	"	Flags.
617	9	Recent disturbance.
618	8	Wall core.
619	8	Blocking.
620	"	Floor.
621	"	Rubble.
622	"	Ground surface.
623	"	Floor.
624	"	Rubble, = 37.
625	-	Scrapped = 179.
626	8	Levelling.
627	"	Floor.
628	"	Ash patch.
629	"	Floor.
630	"	Midden.
631	"	OGS.
632	"	Wall.
633	"	Flags.
634	"	Floor deposit.
635	"	Levelling.
636	"	Floor.
637	"	Floor.
638	8	Hearth deposits.
639	"	Floor.
640	"	Hearth.
641	"	Levelling.
642	"	Ash.
643	"	Floor levelling.
644	"	Ash dump.
645	"	Floor deposit.
646	"	Post setting.
647-8	"	Stakeholes.
649	"	Flag, = 734.
650	-	Scrapped.
651	"	Wall core.
652	7	Wall, = 675, 676.
653	8	Hearth deposit.
654	8	Orthostat.
655	"	Earth floor.
656	8	Rubble, = 734.
657	8	Rubble, = 734.
658	"	Ground surface.
659	9	Ploughsoil.
660	8	Kerbing.
661	"	Flags.
662	-	Scrapped = 750.
663	8	Floor deposit.
664	"	Ground surface.
665	"	Rubble core.
666	"	Stakehole.
667	"	Wall packing.
668	"	Rubble, = 37.
669	"	Floor deposit.
670	"	Rubble = 734.
671	"	Rubble.
672	"	Flags, = 550.
673-4	-	Scrapped.
675	7	Wall.
676	8	Wall.
677	7	Rubble.

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678	-	Scrapped.
679	8	Wall, = 750.
680	8	Wall, = 750.
681	4/5	Ground surface.
682	7	Rampart foundation.
683	4/5	Ground surface.
684	2/3	Ditch fill.
685	8	Orthostat.
686	8	Entrance.
687	"	Orthostat.
688	"	Flags.
689	"	Flag, = 603.
690	"	Packing.
691	"	Ground surface, = 734.
692	"	Rubble, = 734.
693	"	Flags.
694-697	-	Scrapped.
698-9	8	Rubble, = 37.
700	8	Orthostat.
701	"	Flags.
702-3	5	Door jambs.
704	7	Wall.
705	9	Rubble.
706	8	Wall.
707	"	Rubble.
708	"	Ground surface.
709	"	Flags.
710-11	"	Ground surfaces.
712	-	Scrapped.
713	9	Recent disturbance.
714	9	Rubble.
715	8	Rubble.
716	5/6	Rampart.
717	8	Rubble, = 37.
718	7	Rubble.
719	8	Roof support.
720	"	"
721	9	Robbing trench.
722	8	Rubble.
723	7	Corbel.
724	9	Trench - Victorian.
725	7	Wall face.
726-7	7	Partitions.
728	7	Cupboard.
729	7/8	Rubble.
730	8	Flags.
731	8/9	Rubble.
732	-	Scrapped.
733	8	Rubble.
734	8	Rubble.
735	9	"
736	8	Hearth.
737	7	Partition.
738	7	Blocking.
739	7	Flag lid.
741-744	7	Orthostats.
745	7	Partition.
746	7	Flag lid.
747	7	Staircase.
748	"	Wall.
749	"	Orthostat.
750	8	Wall.
751	7	Cupboard.
752-3	7	Buttresses.
754	7	Floor.
755-759	7	Orthostats.
760	7	Partition.
761	"	Wall.
762	8	Flags.
763	7	Wall.
764	"	Rubble.
765	8	Earth floor.
766	"	Wall.
767	7	Flags.
768	"	Rubble.
769	7/8	'Platform'.
770	7/8	Rubble, = 729.
771	7/8	Partition.
772	8	Setting.
773	8	Setting.
774	8	Kerb.
775	"	Hearth.
776	"	Flag floor.
777	"	Wall.
778	"	Wall foundation.
779-81	"	Settings.
782	7	Wall, = 1078.
783	8	Ash.
784	8	Hearth deposit.
785	"	Ground surface.
786	"	Floor levelling.
787	"	Kerb.
788	7	Burning.
789	7	Rubble.
790	7	Soakaway.
791	7	Slag deposit.
792	"	Cell.
793	2	Tomb mound clay.
794	8	Levelling earth.
795	"	"
796	7	Cupboard.
797	7	Wall.
798	"	Floor.
799	"	Clay.
800	"	Flags.
801	"	Levelling.
802	9	Recent disturbance.
803	8	Tank = 398.
804	7	Hearth.
805	"	Rubble = 71.
806	"	"
807	6-9	Rubble.
808	-	Scrapped.
809	8	Ground surface.
810	8	" = 710/711.
811	"	Rubble.
812	"	"
813	"	Wall.
814	9	Rubble.
815	7/9	Robbing trench.
816	9	Ploughsoil.
817	8	Wall.
818	7	Wall.
819	8	Wall.
820	8	Wall.
821	"	"
822	"	Rubble.
823	"	" (= 173).
824	7/8	Rubble.
825	8	Rubble.
826	7/8	Floor.
827	7/8	Hearth.
828	7/8	Wall.
829	7	Levelling rubble.
830	7	Wall.
831-4	8	'Features in "Shed"'.
835	7/8	Hearth.
836	7/8	Setting.
837	7	Kiln?
838	7	Ash.
839	8	Midden.
840	7/8	Hearth.
841	8	Rubble.
842	"	Earth.
843	7/8	Furnace.
844	8	Rubble.
845	8	Flags.
846	8	Wall face.
847	"	Rubble wall core.
848	8	Wall.
849	"	Rubble.
850	"	Wall.

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851	8	Wall = 750.
852-4	"	Rubble.
855	"	Wall.
856	"	Rubble - Charcoal.
857	"	Wall.
858	7/8	Floor.
859	7/8	Rubble.
860	8	Stairs.
861	7	Burning.
662	7/8	Post setting.
863	7	Rubble.
864	"	Tank.
865	7/8	Flag cover.
866	7	Kiln.
867	7	Ground surface.
868	8	Flags.
869	7	Wall, = 1308.
870-3	8	Walls.
874	"	Paving.
875	"	Wall.
876	7	Floor.
877	"	Posthole.
878	8	Wall core.
879	7	Sill.
880	"	"
881	"	"
882	"	Partition.
883	"	Levelling rubble.
884-5	8	Orthostats.
886	8	Floor.
887	"	Partition.
888	"	Floor.
889	"	Flags.
890	"	"
891	"	Setting.
892	"	Floor.
893	"	Wall.
894	7/8	Ditch fill.
895	8	Floor.
896	"	Ash and slag.
897	"	Burnt clay.
898	6	Wall face.
899	8	Orthostats.
900	9	Recent disturbance.
901	8	Ground surface.
902	"	Flags.
903	"	Wall.
904	7	Flags.
905	"	Hearth.
906	"	Occupation deposit.
907	8	Yard surface.
908	8	Rubble.
909	7	Ash dump.
910	8	Rubble.
911	"	Hearth.
912	"	Rubble.
913	-	Scrapped.
914	?	Blocking.
915	8	Buttress.
916	7	Wall, = 1308.
917-8	8	Walls.
919	8	Orthostat.
920	"	Rubble.
921	"	Wall.
922	"	Ground surface.
923	"	"
924	"	Rubble.
925	"	Paving.
926	"	Ground surface.
927	8	Rubble.
928	-	Scrapped = 1318.
929	8	Wall, = 1150.
930	"	Wall.
931	"	Rubble.
932	"	Wall.
933	"	Flags.
934-6	8	Walls.
937	"	Rubble.
938	"	Wall.
939	"	Buttress.
940	"	Wall.
941	"	Flags, = 1119.
942	"	Sill.
943	7	Wall.
944	8	Wall.
945	-	Scrapped.
946	8	Flags.
947	"	Orthostats.
948	"	Flags.
949	"	Rubble.
950	"	Wall.
951	"	Rubble.
952	7	Floor levelling.
953	"	Packing.
954	7	"
955	"	Rubble.
956	"	Wall.
957	"	Doorway.
958	8	Wall.
959	7	Sill.
960	8	Ground surface, = 785.
961	7/8	Rubble.
962	8	Sill.
963	8	Floor.
964	-	Scrapped.
965	8	Occupation deposit.
966	7	Soakaway.
967	7	Orthostat.
968	"	Hearth.
969	7	Paving.
970	7	Wall.
971	7	Ash.
972	7	Earth floor.
973	"	Clay.
974	8	Floor.
975	7	Rubble.
976	8	Rubble, = 734.
977	"	Rubble.
978	7	Burning.
979	8	Flags.
980	-	Scrapped.
981	7	Dump.
982	8	Rubble.
983	"	Floor.
984	8	Silt and charcoal.
985	7	Floor.
986	7	Flags.
987	"	"
988	"	"
989	"	Orthostat.
990	"	Packing.
991	"	Packing.
992	"	Orthostat.
993	"	Flags.
994	"	Packing.
995	6	Packing.
996	7	Packing.
997	"	Orthostat.
998	"	"
999	5	Earth-house.
1000	6	Flags.
1001	5	Drain.
1002	7	Flag lid.
1003	"	Partition.
1004	8	Rubble, = 631.
1005	"	Sill packing.
1006	7	Packing.
1007	-	Scrapped.
1008	8	Wall.
1009	"	Flags, = 730.
1010	"	Wall, = 750
1011	5/6	Yellow clay.

1012	7	Hearth.
1013	-	Scrapped.
1014	7	Orthostat.
1015	7	Floor.
1016	"	Sill packing.
1017	"	Earth-floor.
1018	-	Scrapped.
1019	8	Rubble.
1020	5/6	Floor.
1021	8	Wall.
1022	"	"
1023	"	Flags.
1024-5	8	Partitions.
1026	"	Stone setting.
1027	9	Recent disturbance.
1028	8	Flags and sill.
1029-32	6	Partitions.
1033	5	Post-holes.
1034	6	Partition.
1035	6	Postholes.
1036	"	Partition.
1037	"	Packing.
1038	"	Hearth.
1039	"	Packing.
1040	"	Packing.
1041	8	Rubble.
1042	5	Clay.
1043	8	Hearth.
1044	"	"
1045	7	Hearth.
1046	"	Ash and stone levelling.
1047	7	Paving.
1048	"	Ash spread.
1049	7	Hearth.
1050	"	"
1051	"	Earth floor.
1052	"	Clay floor.
1053	"	Tank lid.
1054	7	Wall.
1055	"	"
1056	7	Wall.
1057	"	Paving.
1058	"	Stone setting.
1059	"	Wall.
1060	"	Paving.
1061	"	Post setting.
1062	"	Wall.
1063	"	"
1064	5/6	Rampart revetment.
1065	7	Paving.
1066	"	Wall.
1067	"	Rubble levelling.
1068	7	Sill.
1069	"	"
1070	"	Wall.
1071	"	Cupboard.
1072	8	Entrance.
1073	7	Hearth.
1074	8	Threshold flags.
1075	"	Wall.
1076	7	Levelled rubble = 883.
1077	8	Wall.
1078	7	Wall.
1079	8	Wall.
1080	7	Earth floor.
1081	"	Rubble.
1082	"	Levelling rubble.
1083	8	Rubble.
1084	7	Earth-house.
1085	"	Rubble.
1086-8	"	Levelling rubble.
1089	"	Earth floor.
1090	"	Wall.
1091	"	Wall.
1092	"	Hearth.
1093	"	Setting.
1094	8	Silled entrance.
1095	7	Flags.
1097	8	Rubble.
1098	"	Floor.
1099	7	Rubble, = 1085.
1100	8	Orthostat.
1101	"	Flags.
1102	7	Wall.
1103	"	Levelling rubble.
1104	"	Levelling rubble.
1105	8	Post setting.
1106	"	Ground surface, = 1181.
1107	"	Floor.
1108	7	Wall.
1109	8	Floor.
1110	"	Wall.
1111	"	Ground surface, = 1181.
1112	"	Floor.
1113	"	Hearth.
1114	"	Ash.
1115	7	Rubble.
1116	8	Rubble.
1117	"	Wall.
1118	"	Partition.
1119	"	Flags.
1120	"	Earth floor.
1121	-	Scrapped buttress = 1075.
1122	"	Hearth.
1123	"	Furnace dumps.
1124	7/8	Earth surface.
1125	8	Orthostat.
1126	"	Dump.
1127	"	Hearth.
1128	"	Ground surface/midden, = 1181.
1129	7	Post setting.
1130	"	Earth floor.
1131	"	Rubble and silt.
1132	"	Rubble.
1133	7	Flags.
1134	8	Blocking.
1135	"	Flags.
1136	"	Hearth.
1137	"	Floor, = 1143.
1138	"	Sill.
1139	7	Wall = 1179.
1140	8	Wall.
1141	"	"
1142	"	Door lintel.
1143	"	Floor, = 1137.
1144	"	Floor.
1145	"	Flags.
1146	"	Earth levelling.
1147	"	Hearth.
1148	-	Scrapped.
1149	7	Wall.
1150	8	Wall.
1151	"	Flags.
1152	7	Flags.
1153	7/8	Charcoal-earth.
1154	7/8	Wall.
1155	7	Levelling.
1156	7	Tank.
1157	7	Wall.
1158	8	Wall.
1159	"	Floor.
1160	-	Scrapped.
1161	7	Wall.
1162	7	Rubble.
1163	8	Rubble.
1164	7	Wall.
1165	9	Victorian trench.
1166	8	Wall.
1167	8	Rubble.
1168	-	Scrapped.
1169	-	Scrapped.
1170	8	Rubble, = 20.

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1171	8	Rubble.
1172	7	Buttress.
1173	-	Scrapped.
1174	7	Wall.
1175	7	Wall, = 1157.
1176	7	Cupboard.
1177	"	Levelling.
1178	"	Setting.
1179	"	Wall.
1180	-	Scrapped.
1181	8	Ground surface.
1182	7	Ash.
1183	8	Flags.
1184	7/8	Rubble = 1185.
1185	7/8	Earth and rubble.
1186	-	Scrapped.
1187	7	Rubble.
1188	7	Rubble and earth, = 1076.
1189	7	Rubble, = 71.
1190	9	Recent disturbance.
1191	"	"
1192	8	Recess.
1193	7	Flags = 1060.
1194	8	Sill.
1195	7/8	Rubble and earth.
1196	8	Flagged floor.
1197	7	Hearth.
1198	8	Hearth.
1199	8	Earth floor.
1200	"	Wall.
1201	7	Ash and rubble.
1202	8	Buttress.
1203	"	Wall.
1204	"	Entrance.
1205	"	Flags.
1206	7	Pit.
1207	7	Stone setting.
1208	"	Paving.
1209	5-7	Sill.
1210	7	Doorway.
1211	"	"
1212	"	Sill.
1213	"	Doorway.
1214	"	"
1215	"	Paving.
1216	"	"
1217	"	Flags.
1218	"	"
1219	"	"
1220	5/6	Orthostat.
1221	5/7	Blocking.
1222	7	Earth floor.
1223	7	Floor levelling.
1224	-	Scrapped.
1225	8	Buttress.
1226	"	Flags.
1227	7	Paving.
1228	7	Broch II phase 2 wall foundation.
1229	7	Paving.
1230	7	Buttress.
1231	7	Collapsed rampart face.
1232	7	Rubble.
1233	7	Rubble.
1234	-	Scrapped.
1235	8	Wall.
1236	7	Wall.
1237	7	Silt and rubble.
1238	8	Wall.
1239	8	Flags.
1240	8	Floor.
1241	7/8	Ditch fill - earth and charcoal.
1242	7/8	Ditch fill - shell midden.
1243	7	Earth floor.
1244	7	Shillet.
1245	"	Doorway.
1246	"	Paving and charcoal.
1247	7	Tank.
1248	"	Commode.
1249	8	Flags.
1250	7	Rampart wall.
1251	7	Rubble.
1252	[illegible]	Rubble.
1253	7	Post hole.
1254	-	Scrapped.
1255	7	Hearth.
1256	7	Wall, = 1265.
1257	8	Buttress.
1258	8	Entrance.
1259	8	Wall.
1260	"	Floor.
1261	7	Hearth.
1262	7	Hearth, = 1820.
1263	"	Hearth.
1264	8	Rubble.
1265	7	Wall.
1266	7	Ash.
1267	7	Rubble.
1268	9	Ploughsoil.
1269	8	Floor.
1270	8	Wall.
1271	7	Wall.
1272	8	Walls.
1273	"	Flags.
1274	7	Rampart face.
1275	7	Wall.
1276	7	Silt.
1277	8	Flags.
1278	8	Post setting.
1279	"	Entrance.
1280	"	Floor deposit.
1281	7	Earth floor.
1282	7	Rubble.
1283	8	Rubble.
1284	5/6	Rampart revetment.
1285	8/9	Wall.
1286	6/7	Rampart revetment.
1287	5/6	Rubble.
1288	8	Rubble.
1289	7	Hearth and ash.
1290	"	Soakaway.
1291	"	Clay floor.
1292	"	Cupboard.
1293	8	Buttress.
1294	"	Path.
1295	"	Entrance.
1296	7	Wall.
1297	"	Wall.
1298	"	Wall.
1299	"	Blocking.
1300	8	Hearth.
1301	"	Buttress.
1302	"	Stone setting.
1303	"	Packing.
1304	8	Earth floor.
1305	7	Clay.
1306	7	Rubble = 1326.
1307	8	Passage.
1308	7	Cell wall.
1309	7	Paving.
1310	7	Wall.
1311	7	Doorway.
1312	7	Oven.
1313	7	Wall.
1314	7	Rubble.
1315	8	Rubble.
1316	7	Buttress.
1317	8	Wall.
1318	8	Wall.
1319	8	Earth and flag floor.
1320	-	Scrapped.
1321	8	Earth floor.
1322	-	Scrapped.

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1323	7	Rubble.
1324	8	Paving and sill.
1325	6	Wall.
1326	7	Levelling rubble.
1327	8	Paving.
1328	8	Hearth.
1329	7	Earth floor.
1330	8	Rubble.
1331	7	Wall.
1332	7	Wall.
1333	7	Wall.
1334	7	Silt and rubble.
1335	7	Wall.
1336	7	Wall.
1337	7	Entrance.
1338	7	Wall.
1339	7	Paving.
1340	7	= 1323.
1341	8	Wall.
1342	7	Wall.
1343	7	Wall.
1344	7	Entrance.
1345	7	Paving.
1346	7	Paving.
1347	5	Rampart facing.
1348	7	Buttress.
1349	7	Clay 'luting'.
1350	7	Wall collapse.
1351	7	Wall.
1352	8	Floor.
1353	8	Floor.
1354	8	Wall.
1355	7	Double silled doorway.
1356	7	Earth floor.
1357	7	Earth floor.
1358	7	Stone setting.
1359	8	Rubble.
1360	8	Hearth deposits.
1361	7	= 1401.
1362	7	Furnace dump.
1363	7	Wall.
1364	7	Flag floor.
1365	-	Scrapped.
1366	-	Scrapped.
1367	7	Hearth.
1368	8	= 979.
1369	-	Scrapped.
1370	8	Hearth.
1371	8	Hearth.
1372	8	Stone setting.
1373	7	Wall.
1374	8	Sill.
1375	7	Ash and charcoal.
1376	7	Rampart facing.
1377	7	Earth floor.
1378	8	Paving and sill.
1379	8	Buttress.
1380	5/6	Rampart facing.
1381	8	Wall.
1382	8	Hearth.
1383	7	Hearth.
1384	7	Tank.
1385	7	Upper fill in it.
1386	7	Lower fill in it (Tank 1384).
1387	7	Wall.
1388	7	Ground surface.
1389	5/6	Rampart revetment.
1390	7	Clay refacing of rampart.
1391	7	Rampart revetment.
1392	7	Wall = 1760.
1393	5-7	Clay rampart core.
1394	7	Rubble.
1395	7	Earth floor.
1396	7	Cupboard.
1397	7	Alcove.
1398	7	Sill.
1399	7	Orthostats.
1400	7	Rubble.
1401	7	Earth and rubble.
1402	8	Paving.
1403	7	Clay loam.
1404	7	Ground surface.
1405	7	Broch II wall core.
1406	6	Broch I wall core.
1407	7	Rubble.
1408	7	Clay shimp.
1409	8	Buttress.
1410	8	Paving.
1411	8	Hearth.
1412	7	Wall core.
1413	7	Paving.
1414	7	Packing stones.
1415	7	Rubble.
1416	7	Earth levelling.
1417	7	Rebuild.
1418	7	Rampart face.
1419	7	Rampart face.
1420	7	Rampart core.
1421	7	Hearth.
1422	7	Rubble.
1423	7	Wall.
1424	7	Wall.
1425	7	Post packing.
1426	7	Silled entrance.
1427	7	Paving.
1428	8	Buttress.
1429	7	Ash.
1430	7	Cupboard.
1431	7	Wall facing.
1432	8	Buttress.
1433	7	Ash.
1434	7	Rubble.
1435	8	Collapsed orthostat.
1436	7	Earth floor.
1437	7	Paving.
1438	7	Collapse rubble.
1439	5/6	Revetment of clay mound.
1440	6	Cell.
1441	7	Outer wall face, repaired.
1442	7	Inner wall face.
1443	7	Wall core.
1444	7	Wall core.
1445	6	Stair.
1446	7	Ash and rubble.
1447	7	Wall face.
1448	7	Wall face.
1449	7	Post setting.
1450	7	Hearth.
1451	-	Scrapped.
1452	7	Stone setting.
1453	7	Silt and rubble.
1454	7	Clay and rubble.
1455	6	Wall core.
1456	7	Wall core and outer face.
1457	7	Inner wall face.
1458	7	Wall rebuild.
1459	-	Scrapped.
1460	-	Scrapped.
1461	7	Ash.
1462	7	Ash.
1463	6	Broch I stairs.
1464	8	Buttress.
1465	8	Orthostat.
1466	7	Ash.
1467	7	Wall = 1322.
1468	6	Cell.
1469	7	Rubble fill.
1470	7	Wall.
1471	7	Wall.
1472	7	Buttress.
1473	7	Paving.
1474	7	West side of Broch II entrance, bar hole.

1475	7	Earth ditch fill.
1476	7	Entrance.
1477	7	Silled doorway.
1478	7	Sill.
1479	7	Path.
1480	7	Rubble.
1481	7	Earth floor.
1482	7	= 1481.
1483	7	= 1481.
1484	7	Partition.
1485	7	Sill.
1486	7	1326.
1487	7	Buttress.
1488	5/6	Rubble.
1489	7	Orthostat.
1490	7	Earth and rubble floor.
1491	7	Floor.
1492	7	Orthostat screen, (includes 1489).
1493	8	Wall.
1494	7	Partition.
1495	8	Rubble.
1496	7	Rubble.
1497	7	Stone slab.
1498	7	Burnt roofing material.
1499	7	Rubble.
1500	7	= 1351.
1501	7	Rampart facing.
1502	6	Wall core.
1503	7	Bolt hole east.
1504	7	Midden.
1505	7	Shell midden.
1506	7	Cupboard.
1507	7	Earth floor.
1508	7	Rubble surface.
1509	7	Levelling rubble.
1510	7	Partitions.
1511	7	Paving.
1512	7	Silled doorway.
1513	7	= 1403.
1514	7	Flagging.
1515	7	Shell midden.
1516	8	Packing.
1517	7	Earth floor.
1518	7	Sill.
1519	7	Partition.
1520	7	Clay.
1521	-	Scrapped.
1522	7	Floor.
1523	7	Rubble surface.
1524	7	Clay earth floor.
1525	7	Wall.
1526	7	Ash.
1527	7	Ditch fill - silt stone.
1528	7	Earth floor.
1529	8	Buttress.
1530	7	Ash.
1531	7	Clay floor.
1532	7	Packing.
1533	7	Hearth.
1534	7	Paving.
1535	7	Paving.
1536	7	Paving.
1537	7	Paving.
1538	-	= 1282.
1539	7	Midden.
1540	8	Buttress.
1541	8	Entrance.
1542	7	Blocking.
1543	7	Earth and flag floor.
1544	7	Hearth.
1545	7	Earth floor.
1546	7	Sill.
1547	7	Paving.
1548	7	Paving.
1549	7	Tank cover.
1550	7	Levelling.
1551	7	Ash.
1552	7	Blocking.
1553	7	Clay.
1554	7	Wall.
15555	7	Ash and charcoal.
1556	7	Rubble and silt.
1557	7	Earth and flag floor.
1558	7	Flagging.
1559	7	Wall.
1560	7	Wall.
1561	7	Earth floor.
1562	7	Wall.
1563	7	Rebuild of wall.
1564	7	Levelled rubble.
1565	7	Socket.
1566	5/6	Rampart facing (= 1567)
1567	5/6	Rampart facing (= 1566).
1568	7	Paving.
1569	7	Wall.
1570	7	Sandy clay.
1571	7	Rubble.
1572	7	Posthole.
1573	5	Ditch revetment.
1574	5	Fill behind 1573.
1575	3	Silt.
1576	7	Wall.
1577	7	Wall.
1578	7	Flag surface.
1579	7	Wall core.
1580	7	Cupboard.
1581	6	Eastern entrance cell.
1582	7	Broch II wall core.
1583	7	Earth floor.
1584	5	Outer face of roundhouse.
1585	7	Partition.
1586	7	Silled doorway.
1587	7	Paving.
1588	7	Clay floor.
1589	7	Furnace.
1590	7	Rubble ditch fill.
1591	7	Earth floor.
1592	6	West staircell.
1593	7	Wall.
1594	7	Wall.
1595	7	Earth floor.
1596	6	Plinth.
1597	7	Rubble.
1598	7	Robber trench.
1599	7	Clay 'luting'.
1600	7	Clay.
1601	7	Paving.
1602	7	Soakaway.
1603	7	Soakaway capping.
1604	7	Paving.
1605	7	Hearth.
1606	7	Ash.
1607	7	Clay.
1608	7	Tank.
1609	6	Wall.
1610	7	Earth floor.
1611	6	Inner wall face.
1612	7	Wall rebuild.
1613	5/6	Rubble.
1614	7	Stakeholes.
1615	7	Stakeholes.
1616	7	Stakeholes.
1617	7	Stakeholes.
1618	7	Stakeholes.
1619	7	Furnace.
1620	7	Clay silt.
1621	7	Rubble.
1622	7	Rubble.
1623	7	Rubble.
1624	7	Hearth.
1625	7	Silt and rubble - ditch fill.
1626	-	Natural clay.

1627	7	Ash.
1628	7	Clay and stone.
1629	7	Ash and charcoal.
1630	7	Clay and charcoal.
1631	7	Clay.
1632	7	Socket.
1633	7	Hearth.
1634	7	Furnace.
1635	7	Rubble.
1636	7	Porch.
1637	7	Ash and earth floor.
1638	7	Clay and earth floor.
1639	7	Orthostat.
1640	7	Wall.
1641	7	Paving.
1642	-	Scrapped.
1643	7	Paving.
1644	7	Paving.
1645	-	Scrapped.
1646	7	Earth and flag floor.
1647	7	Wall.
1648	7	Buttress.
1649	7	Orthostat.
1650	7	Doorway.
1651	7	Orthostats.
1652	7	Orthostats.
1653	7	Clay.
1654	7	Wall.
1655	7	Rubble and ash.
1656	7	Hearth.
1657	7	Hearth.
1658	7	Paving.
1659	7	Clay.
1660	7	Floor.
1661	7	Cell.
1662	7	Slab.
1663	2	Wall = 1775.
1664	7	Floor.
1665	7	Hearth.
1666	7	Pink ash.
1667	6	Wall.
1668	7	Ash.
1669	7	Rubble.
1670	7	Rubble.
1671	6	Stairs.
1672	7	Buttress.
1673	7	Fill of soakaway.
1674	7	Ash.
1675	7	Ash.
1676	8	Sill.
1677	7	Hearth.
1678	7	Socket.
1679	7	Setting.
1680	7	Clay.
1681	7	Floor.
1682	7	Paving.
1683	7	Paving.
1684	7	Clay floor.
1685	7	Clay floor.
1686	7	Clay floor.
1687	5/6	Silt.
1688	7	Clay.
1689	7	Floor.
1690	7	Partition.
1691	7	Clay.
1692	7	Earth floor.
1693	7	Posthole or pit.
1694	7	Hearth.
1695	7	Stakeholes.
1696	7	Ash.
1697	7	Floor.
1698	7	Ash.
1699	7	Clay.
1700	7	Setting.
1701	7	Ash.
1702	7	Tank.
1703	7	Entrance.
1704	6	Stairs.
1705	7	Tank cut.
1706	7	Oven.
1707	5	Wall face.
1708	5/6	Clay slip.
1709	7	Levelling rubble.
1710	2	Inner cairn of tomb.
1711	5	Silt.
1712	7	Charcoal and ash.
1713	7	Clay and ash.
1714	5	Roundhouse masonry.
1715	5	Roundhouse masonry.
1716	7	Ash.
1717	7	Ash and stone chips.
1718	7	Furnace remnant or post hole.
1719	7	Earth floor.
1720	7	Ash.
1721	7	Ash.
1722	7	Paving.
1723	7	Pit.
1724	7	Ash and charcoal.
1725	7	Clay and rubble floor.
1726	7	Earth floor.
1727	7	Ash.
1728	7	Gravel spread.
1729	7	Rubble and earth.
1730	7	Tank fill.
1731	5/6	Hearth.
1832	5/6	Earth surface.
1733	5/6	Paving.
1734	7	Rubble.
1735	5-8	Ash surface.
1736	7	Clay floor.
1737	3/4	Pit fill.
1738	7	Levelling rubble.
1739	7	Clay floor.
1740	7	Hearth.
1741	7	Ash
1742	7	Earth floor.
1743	7	Burnt clay.
1744	7	Ash.
1745	7	Fill of tank.
1746	7	Tank
1747	7	Stakeholes.
1748	7	= Wall 1271/1373.
1749	7	Clay floor.
1750	7	Clay floor.
1751	7	Sill.
1752	7	Stakeholes.
1753	7	Stakeholes.
1754	7	Stakehole.
1755	7	Stakehole.
1756	7	Stakeholes.
1757	7	Stakeholes.
1758	7	Stakehole.
1759	7	Levelling rubble.
1760	7	Wall.
1761	7	Hearth.
1762	7	Wall.
1763	5/6	Rampart revetment.
1764	5/6	Cross wall.
1765	5/6	Silts.
1766	5/6	Rubble.
1767	5	Wall.
1768	7	Ash.
1769	7	Hearth.
1770	7	Hearth.
1771	7	Hearth.
1772	7	Ash.
1773	7	Hearth.
1774	5	Silt.
1775	2	Tomb facade.
1776	7	Earth floor.
1777	7	Gravel spread.
1778	6/7	Revetment.
1779	7	Floor silts.

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1780	7	Soakaway.
1781	5/6	Ash and burnt clay.
1782	7	Fill of soakaway.
1783	7	Partition.
1784	7	Oven.
1785	7	Partition.
1786	7	Hearth kerbing.
1787	7	Clay levelling.
1788	7	Rampart revetment.
1789	7	Wall.
1790	5	Revetment
1791	5	Clay bank.
1792	5	Clay bank.
1792	2/3	Ditch silts.
1793	5	Shillet bank.
1794	-	Scrapped = 1202.
1795	8	Buttress.
1796	8	Partition.
1797	-	Scrapped = 871.
1798	^	Collapse.
1799	7	Gravel and clay.
1800	7	Clay and earth floor.
1801	7	Partition.
1802	7	Partition.
1803	7	Rubble.
1804	7	Clay floor.
1805	7	Rubble.
1806	5/6	Revetment.
1807	7	Wall.
1808	5/6	Rubble.
1809	-	Scrapped.
1810	8	"
1811	8	"
1812	6	Cell.
1813	7	Earth floor.
1814	4	Wall 90.
1815	5	Shillet bank, = 1793
1816	7	Rubble surface.
1817	5/6	Revetment.
1818	5/6	Shillet.
1819	7	Sill.
1820	7	Hearth.
1821	7	Grey ash.
1822	7	Clay levelling.
1823	5	Clay behind 305.
1824	7	Tank fill.
1825	7	Clay.
1826	7	Paving.
1827	7	Hearth.
1828	7	Wall.
1829	7	Earth floor.
1830	7	Rubble levelling.
1831	7	Clay.
1832	7	Fill of cut 1833.
1833	7	Tank cut.
1834	7	Clay.
1835	7	Clay floor.
1836	7	Clay.
1837	5/6	Pubble.
1838	7	Earth floor.
1839	7	Paving.
1840	7	Rubble.
1841	7	Earth floor.
1842	7	Pit.
1843	7	Gravel layer.
1844	5/6	Silty clay.
1845	5/6	- 1856.
1846	5/6	- 1856.
1847	7	Ash.
1848	5/6	Silts.
1849	7	Clay.
1850	7	Ash and clay.
1851	7	Levelling rubble.
1852	7	Clay.
1853	5/6	Ash, silt, clay.
1854	7	Clay.
1855	-	Scrapped = 2000.
1856	5/6	Rampart revetment.
1857	5/6	Ditch silt.
1858	5/6	Ditch silt.
1859	7	Clay surface.
1860	5/6	- 1875.
1861	5	Rubble.
1862	3	Well steps.
1863	7	Rubble.
1864	7	Levelling rubble.
1865	7	Levelling rubble.
1866	7	Clay.
1867	5	- 305.
1868	5/6	Levelling rubble.
1869	5	Silt clay loam.
1870	5	Ditch revetment.
1871	7	Clay.
1872	7	Orthostats.
1873	7	Paving.
1874	5	Clay surface.
1875	5/6	Rubble.
1876	5/6	Rampart revetment.
1877	3	Well wall.
1878	7	Floor.
1879	4	Well.
1880	5	- 1974.
1881	7	Collapsed wall.
1882	7	Masonry.
1883	7	Charcoal and paving.
1884	5	Rubble.
1885	5	Ditch revetment.
1886	3	Silt.
1887	7	Hearth.
1888	7	Clay surface.
1889	5	Rampart clay.
1890	3	Clay wash.
1891	2	Tomb cairn revetment.
1892	2	Tomb cairn revetment.
1893	2	Tomb cairn revetment.
1894	5	Clay over earth-house.
1895	5	Wall.
1896	5	Wall.
1897	5	Wall.
1898	5	Wall.
1899	6	Repair to earth-house steps.
1900	5	Cut earth-house.
1901	4-6	Well silt.
1902	8	Earth floor = 874.
1903	-	Scrapped.
1904	8	Earth floor = 933.
1905	7	Paving.
1906	5/6	Well cut fill.
1907	5/6	Well cut fill.
1908	7	Partition.
1909	7	Partition and sill.
1910	7	Paving.
1911	7	Wall.
1912	7	Oven.
1913	5/6	Rampart face - 1975.
1914	5/6	Clay wash.
1915	7	Partition.
1916	7	Partition.
1917-1921	2	Central stone cairn.
1922	3	Surface.
1923	7	Tank.
1924	7	Hearth.
1925	5	Rubble.
1926	7	Ash and charcoal.
1927	3	Well silt.
1928	3	Well wall.
1929	3	Rubble collapse.
1930	7	Earth floor.
1931	7	Clay and ash.
1932	7	Clay.
1933	5	Rubble.
1934	5	Silt.

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1935	5	Earth-house roof.
1936-1947	2	Central stone cairn.
1948	7	Levelling rubble.
1949	5	Rubble = 359.
1950	5/7	Pit.
1951	5/7	Pit.
1952	7	Levelling rubble.
1953	7	Flags.
1954	5/6	Silt.
1955	5/6	Wall.
1956	5	Platform.
1957	4	Wall and flagging.
1958	7	- 1977.
1959	5	Drain.
1960	4	Silt clay.
1961	4	Clay.
1962	7	Surface.
1963	7	Rampart.
1964	5/6	Wall.
1965	5/6	Hearth.
1966	5/6	Kerbed feature.
1967	5/6	Earth surface.
1968	5/6	Hearth.
1969	4	Wall.
1970	5/6	Clay/earth surface.
1971	5/6	Kerbing.
1972	5/6	Tank?
1973	5	Rubble.
1974	5	Rampart face.
1975	5/6	Rampart face.
1976	1	Silt in pit.
1977	7	Rubble and clay.
1978	4	- 1980.
1979	4	- 1989.
1980	4	Tank?
1981	5/6	Clay loam.
1982	5	- 1985.
1983	5/6	Earth and charcoal.
1984	5/6	Rubble.
1985	5	Clay loam.
1986	5	Clay silt.
1987	5/6	Clay floor.
1988	2	Wall.
1989	4	Wall.
1990	4	Wall.
1991	4	Tank.
1992	4	Wall.
1993	4	Floor.
1994	4	Ash and charcoal.
1995	4	Hearth.
1996	4	Ashy surface.
1997	4	Setting.
1998	3/4	Rubble and clay.
1999	4	Wall.
2000	4	Paving.
2001	4	Clay.
2002	4	Ash.
2003	4	Paving.
2004	4	Surface.
2005	3	Top of 2061.
2006	3	Disturbed natural clay.
2007	-	Natural clay.
2008	3	Well wall.
2009	4	Pea gravel.
2010	4	Hearth.
2011	4	Uprights.
2012	4	'Settings'.
2013	7	Packing.
2014	3	Silt clay.
2015	4	Fill of well cut.
2016	2	Surface under tomb.
2017	4	Sill.
2018	5/6	Paving.
2019	7	= 2041
2020	4	Clay.
2021	5/6	Clay.
2022	4	Drain or soakaway.
2023	4	Sill.
2024	5	Drain fill.
2025	5/6	Clay.
2026	3	Midden.
2027	4	Silt clay.
2028	3	Silt clay.
2029	5/6	Ditch fill.
2030	4	Wall.
2031	4	Wall.
2032	4	Clay.
2033	5	Backing of 305.
2034	5	Ditch revetment.
2035	5/6	Ditch revetment.
2036	5-7	Ditch revetment.
2037	7	Rampart.
2038	7	- 2041
2039	3	'Feature'.
2040	3	Well wall backing.
2041	7	Ditch fill.
2042	7	Ditch fill.
2043	3	Rubble surface.
2044	2/3	Ditch silts.
2045	5/6	Clay and rubble.
2046	3	Midden.
2047	3	Tank.
2048	3	Paving.
2049	3	Silt.
2050	3	Hearth.
2051	3	Gully.
2052	4	Gully.
2053	3	Hearth.
2054	5	Cut (and its fill).
2055	3	Pit fill.
2056	3	Ditch silts.
2057	1	Clay surface.
2058	2	Facade.
2059	1	Hearth contents.
2060	2/3	Ditch silts.
2061	3	Clay wash.
2062	3	Rubble.
2063	3	Cut/pit.
2064	4	Gully.
2065	1	Flagged entrance.
2066	1	Flagged entrance.
2067	1	White clay, foundation.
2068	3	Gully.
2069	4	Wall.
2070	3(?)	Ashy spread.
2071	1	Hearth.
2072	1	Pre-Neolithic surface.
2073	3	Midden.
2074	4	Ditch fill.
2075	3	Well wall.
2076	4	Wall.
2077	7	Hearth.
2078	4	Wall.
2079	4	Floor with partitions.
2080	5/6	Wall.

7.2.1 PLANT REPORT

NOTES ON THE IDENTIFICATIONS

Fruit, seeds and charcoal were compared with those from a modern reference collection. The cell pattern of some of the carbonized seeds was examined using a Zenith metallurgical microscope with direct illumination at x200 magnification. This was particularly useful in distinguishing the nutlets of *Carex* species for which reference was also made to the characters used by Nilsson and Hjelmquist (1967). The same microscope was used to view the longitudinal faces of the charcoal.

Avena fatua (wild oats). The identification is based on the horseshoe shape of the floret base; the rachilla, when preserved, has hairs along its entire length.

Avena sp (wild or cultivated oats). It does not seem possible to identify an oat grain to the species level unless it is accompanied by a floret base or complete lemma. Pure samples of oat grains such as those from the late sample are more likely to have been cultivated and fourteen of these grains measure 5.0 (3.2-7.0) x 1.8 (1.2-2.4) x 1.6 (1.2-2.5)mm.

Hordeum vulgare var nudum (naked six-row barley). The naked grain was identified by its rounded shape in transverse section, plump apex, absence of dorsal ridges and the clear longitudinal cells of the epicarp which are seen as fine longitudinal wrinkles usually covering the cross cells of the pericarp. Under-developed grains often keep their glumes and it was sometimes possible to use the disappearance of the glume hairs leaving only a basal socket on carbonized glumes as shown by Körber-Grohne and Piening (1980), to distinguish the grain from that of hulled barley. It was possible to measure 100 grains from the later Phase 7 barley ears, they average 4.9 (4.2-6.0) x 3.3 (2.4-4.0) x 2.4 (1.7-3.3)mm. The few grains, which are not puffed or damaged, measured from Phase 5/6, early Phase 7 and Phase 8 were similar in size to those above. There was no evidence of grain becoming larger or smaller through time. The average size for fossil naked barley is 5.2 x 2.58 x 1.97mm whilst that for carbonized naked recent grain is 6.49 x 3.41 x 2.97mm (Renfrew 1973, 13).

H vulgare var vulgare (hulled six-row barley). Although little of the hulled barley is well preserved, the angular cross section, dorsal ridges, slightly tapered apex and closely adherent glume fragments enabled definite identification of some of the grain.

H.vulgare sl. (hulled or naked six-row barley). Grain which is poorly preserved but retains the elliptical barley shape when viewed from the side and contains a proportion of asymmetric grains is named *H.vulgare sl*. All the grain from Phase 4 to late Phase 7 determined thus is probably of naked barley; that from Phase 8 is of either naked or hulled barley.

Hordeum sp. (barley). These are occurrences of one or two symmetrical grains only which cannot certainly be distinguished from those of *H.distichon* (two-row barley).

Cereal straw. Many of the straw fragments have the shiny appearance of barley straw, long and short cells can sometimes be distinguished; where the stomata can be measured a tentative identification has been made. A small proportion of the straw has longer stomata resembling those of oats, probably wild oats.

Linum usitatissimum (flax, linseed). Six of the flax seeds measure 3.3-3.6 x 1.7-2.0mm, similar to those from the Norse houses at Saevar Howe, Birsay, Orkney (Dickson 1983).

Ranunculus ficaria (lesser celandine). Five well-preserved carbonized fusiform to clavate root tubers range from 2.9-3.7 x 0.9-1.4mm (illus 80). The epidermal cells are polygonal with raised margins and measure between 30 and 85uu m in diameter. Lengthwise splitting of one of the tubers showed well preserved polygonal parenchyma cells measuring 75-115 x 65-95um. The shape and cells match those of the smallest reference tubers of the lesser celandine. Some poorly preserved small tubers lack epidermal cells and are tentatively identified.

Roots. A single incomplete root, probably a tap root, had been split in two lengthwise before it was carbonized (illus 80), each half measured 29 x 10mm. Several rootlet bases were visible and starch cells and vascular strands were preserved. A second incomplete root, in fragments, was of similar appearance and dimensions.

Rhizomes. These are fragments, 10mm in diameter at most; it is likely that they originate from vegetation brought into the settlement, for example as part of heathy turf, and not from deliberate collection.

Larix (larch). Fragments of c10 x 10mm were found in one sample only. They are characterized by a sharp transition from early to late wood, biseriate tracheid pits and resin canals with ten or more epithelial cells. Although some of these cells are fused, as many as twenty small cells seem to be present in some canals. *Larix decidua* (European larch) has usually seven to twelve epithelial cells whereas *L.laricina* (American larch) is illustrated by Greguss (1955) with more than twelve small cells. Although the several species of larch are not clearly separable these fragments most resemble the American larch. The

outer rings of this charcoal show an increment of twenty-two years in only 5mm; fragments of the inner wood have an annual increment of 1-1.5mm.

Picea (spruce). The charcoal is identified as spruce by the presence of resin canals with usually seven to nine epithelial cells; if the epithelial cells are not countable it is designated cf *Picea*.

Coniferae (conifer). These are very small fragments of charcoal with clear bordered pits but lacking other distinguishing characters.

Burnt plant. Fragments of burnt plant material, the presence of which has been noted in the list of plants from each sample, were present in nearly fifty samples. All were of small fragments only a few mm in diameter, stem-like fragments could be seen in some of them and some were layered and more or less compressed. Unhumified peat could be present as could litter accumulated in the heathy turves, although the latter were only attested from later Phase 7 onwards. The burnt friable dung of weaned animals and humans could also have contributed.

Burnt dung. The largest fragment from Howe seems to have been very soft, the consistency of thick cream, before carbonizing into a smooth surfaced rather amorphous shape; some others from the same context, consisted of broken irregularly club-shaped ends (illus 78). These resemble the tapered ends of faeces and are a common feature of droppings of many mammals. All the fragments are strongly vesicular inside; the vesicles measure from less than 0.1mm upwards and irregularly shaped cavities are often present (illus 78b). The inside of the vesicles and cavities are smooth (viewed x200). Some of the fragments have adherent straw, wood or stems and clearly must have been soft when carbonized.

Plant and animal products likely to have been present at the site were carbonized and compared with the fragments. Barley grains, when cooked for a long time before carbonizing, develop vesicles from cells containing starch grains which partly fuse; however, these as described elsewhere are generally smaller, smooth walled cavities do not seem to develop. Prolonged heating and then carbonizing of milk can produce vesicles and cavities but the surface of the milk is usually rather rough. Beef flesh heated in water can form rather similar vesicles and cavities. Human faeces resulting from a mixed diet are friable, lack vesicles and contain plant fragments. Those from cows eating grass and straw are rather similar in internal appearance to the human faeces. Calves which are partly suckled but also eating hay produced faeces with vesicles but these also contain some plant fragments coated with an amorphous substance. Suckling babies and young animals produce faeces with a similar appearance to the Howe fragments; those from a

calf are of a thick creamy consistency and particularly similar in the appearance of the vesicles and internal cavities to the Howe fragments. It seems therefore that when the 'tail' is present with internal vesicles and cavities there can be little doubt that it represents dung, probably calf dung. However most of the material lacks the 'tails' and is sometimes of fragments of less than 10mm diameter, it cannot then be readily distinguished from the other substances discussed. The frequently adherent straw and other plant material increases confidence in the determination but nevertheless the bulk of the identifications must remain tentative. It may be noted that dried faeces do not produce vesicles when carbonized.

Burnt deposits on pot sherds. Burnt deposits which showed possible cell structure were scraped from pot sherds covering all contexts from Phase 3 to 8. They showed more or less rounded vesicles ranging from 60-300um in diameter. Occasionally cell walls were seen but often these appear to have fused with starch grains, thickening the wall and having a glassy appearance. Reference grains were prepared by heating in water for about two hours before boiling dry and carbonizing, starch grains seem to largely disappear on carbonization but the remaining parenchyma cells were very similar to those from the deposits. From a Phase 7 context, a tiny fragment resembling aleurone cells, 25-30um diameter, and another resembling the transverse pericarp cells of barley were found. Other sherds had vesicular deposits which may have been of either plant or animal origin. In conclusion, it seems probable that some of the pots were used for cooking cereals, presumably as broth or gruel but with one possible exception it has not proved possible to identify the cereal on this material. (For a complete list of seed impressions and carbon deposits on the pottery sherds, see Table 8, 9 1:D1-D2).

Key to plant tables

ab	abundant	n	nut or nutlet
a	achene	oc	occasional
adh	adherent	oo	oospore
ba	base	pe	perianth
bs	budscale	pl	plant
car	caryopsis	rac	rachis segment
carb	carbonized	r	rare
ch	chaff	rh	rhizome
c	charcoal	ro	root
cy	cypsela	s	seed
f	fruit	sh	shoot
fi	fibre	sp	spindle from leaf base
fl	floret	ste	stem
fr	fragment	str	straw
fq	frequent	th	thallus
fst	fruit-stone	t	tuber
g	grain	unc	uncarbonized
gl	glume	unident	unidentified
h	hulled six-row barley	w	wood
l	leaf or leafy	+	present
m	megaspore	++	barley, more than 50 grains
na	naked six-row barley	++	straw, more than 1/3 of sample

Table 1mf - Pollen analysis from the original ground surface below the chambered tomb mound. Pollen expressed as a percentage of the identified pollen and spores.

SF	7299	7302
Context	2016	2016
Sum of identified pollen and spores	555	513
Betula (Birth)	2.5	0.9
Pinus (Pine)	1.4	1.1
Ulmus (Elm)	-	0.2
Quercus (Oak)	0.5	-
Alnus (Alder)	1.8	1.3
Coryloid (Hazel or Bog Myrtle)	6.3	6.2
Betula / Coryloid	3.9	6.8
Lonicera (Honeysuckle)	-	0.2
Total trees and shrubs	16.4	16.7
Gramineae (Grass family)	50.4	54.0
Cyperaceae (Sedge family)	1.3	2.3
Calluna (Heather)	6.1	5.2
Artemisia (Mugwort or Wormwood)	0.2	-
Compositae (Daisy family)		
Tubuliflorae	1.1	1.1
Liguliflorae	0.9	0.4
Epilobium (Willow Herb)	-	0.2
Filipendula (Meadowsweet)	0.2	0.2
Plantago lanceolata (Ribwort)	7.4	1.3
P. major (Rat-tail Plantain)	+	-
P. maritima (Sea Plantain)	+	+
Plantago spp	2.0	1.7
Potentilla (Cinquefoil or Tormentil)	0.9	0.2
Ranunculaceae (Buttercup family)	2.0	0.9
Scabiosa/Succisa (Scabious)	0.2	0.4
Stellaria (Chickweed or Stitchwort)	0.5	0.2
Filicales (Fern)	8.8	14.0
Botrychium (Moonwort)	0.4	-
Ophioglossum (Adder's Tongue)	+	0.2
Polypodium (Common Polypody)	0.9	0.8
Sphagnum (Bog moss)	0.4	+
Unidentified (crumpled or degraded) as percentage of identified grains	72.0	89.4

Table 3mf Plant material and possible dung, Phases 4 to 6

Context	Provenance	Barley	Weeds	Heather	Willow	Spruce	cf Dung	Other
681	Phase 4/5 Ground surface		+	+				cf emmer wheat
1894	Phase 5 Clay sealing earth house	cf na		+	+			
1901	Phase 4-6 Silt within well	na		+				mosses, ls
1020	Phase 5/6 Roundhouse/Broch 1 earth floor	na		+	+	cf	+str	ash,c; birch,c
1857	Phase 5/6 Ditch fill	c2000na				+		
1837	Phase 5/6 Ditch fill	c4000na			+	+		
1875	Phase 5/6 Rubble in ditch between revetment walls	c-500na			+	+		alder,c
2045	Phase 5/6 Clay and rubble below late revetment (s end of drain)	cf na	+	+				straw
1468	Phase 6 Broch 1, W entrance cell	cf na			+			

Table 4mf Plant remains and dung from early Phase 7
Early settlement

Context	Provenance	Barley	Wild/Cult Oats	Straw	Weeds	Heather	Willow	Peat	cf	Dung	
	Broch tower										
751	Cupboard	+				+	-				cf dead-nettle,n;sheep's sorrel,n, spruce,c;cf common skull-cap;n.
978	Layer of burning in passage						+	+			
754	Floor of blocked intra-mural cell	cf na		+	+	+	+		+	straw	birch,c; cf lesser celandine,a,t; spruce,c.
	S W building										
1735	Yard, Phases 5-7	+	+	++	+	+	+	cf	+	straw	
1216	Entrance paving	cfna++		+	+	+	+			"	cf lesser celandine,t.
1386	Tank fill		+								stoneworts, oo.
1498	Possible roofing ?	na	Wild	++	+		+			" , w	
1429	Ash overlying 1498			++		+	+				shaped willow, c.
1349	Rubble, earth and underlying deposits	+	+	+	+	+	+	+	+	straw	brackish water,f; discrete lump of dung; larch,c.
	S building										
1103	Occupation debris in levelling rubble		+	+	+	+	+			" , w	brackish water,f; rowan,s;
	E building										
1292	Double cupboard	na				+	+				
1312	Oven					+		+		+	
1615	Stake-holes										of alder,w.
	S E building										
1266	Ash dump/deposit	cfna++			+						
1346	Paving	+	+			+	+				

TABLE 5MF - PLANT REMAINS FROM PHASE 7,
LATER SETTLEMENT, AND PHASE 7/8

Context	Provenance	Barley	Oats	Straw	Chaff	Seeds	Heathy Turf	Heather	Willow	Spruce	Peat	
	Broch tower, later Phase 7											
952	Floor 1, levelling below floor 2								+	+		
906	Floor 2, occupation deposit								+	+		
876	Floor 2, clay floor	cfna		+	+	+			+			
861	Floor 2, burning layer, ash floor	na		+	+	+			+			alder wood vessel c; shaped alder c; heather basket c; shaped willow,c; cf dung and straw
	whole ears of barley	na++		+	+	+						
866	Floor 2, ash fill of kiln	na	+			+	+	+				
838	Floor 2, ash fill of kiln 837	na++						+	+			
981	Dump outside tower, underlying 883	na										
683	Rubble underlying 867							+	+		cf	
867	Ground surface	cfna		+		+	+	+				
	S W building											
1223	Levelling over top of yard								+	+		
	S building											
1047	Paving								+			
1017	Earth floor	+				+	+	+	+		+	including willow roundwood (quern 2721)
	E building											
1356	Earth floor around hearth	na					+	+	+			split root
1481	Yard, earth floor	+				+		+	+		+	brackish water f (quern fragment 4971)
	N E building											
1583	Earth floor of cell	h,na++			+			+				
1362	Yard, furnace dump							+	+	cf	+	
	Broch tower, Phase 7/8											
843	Floor 3, furnace contents								+ +			including roundwood; rush 1/st
826	Floor 4, earth floor								+			including roundwood.

Table 6mf Plant remains and possible dung, from early Phase 8 buildings, stages 1-4

Context	Provenance	Barley	Wild/Cult Oats	Woods	Straw	Heathy Turf	Heather	Willow	Peat cf	Dung	
	Stalled building										
786	Floor levelling below paving	na		+	+	+	+	+		+	alder, c; flax/linseed s; seaweed, th, fr.
765	Earth floor	+		+	+	+	+	+		+	
734	Rubble over 765							+			
775	Hearth							+			alder, c, shaped.
784	Hearth deposits	cfh, cfna	+	+	+	+	+	+	cf		
783	Ash	+	+								
790	Soakaway							+			stoneworts, oo.
	NE building										
1352	Earth floor	+				+	+	+	+		heather-cottongrass peat
1371	Hearth					+	+	+			
1183	Flagged floor							+			
1098	S annexe, earth floor	na		+		+	+	+	cf		
1353	E cell, earth floor			+			+	+			seaweed, th, fr.
1198	Yard in E, hearth	+		+		+	+	+			
	W building										
984	Demolition deposit							+			
	E building										
736	Hearth	na, ++	+	+			+		+		gean/bird-cherry,c; juniper, fst..

Table 7af Plant remains from Phase 8
Later settlement, Stages 5-10

Stages	Context	Provenance	Barley	Wild/Cult Oats	Weeds	Heathy Turf	Heather	Willow	Peat	
5	376	Hearth deposit					+	+		
	284	Earth floor	h,na++	+	+	+	+	+		Flax/linseed,s.
	304	Earth floor	na	+			+			
	356	Earth floor					+	+		Flax/linseed,s.
	378	Earth floor	na	+	+		+	+		
	383	Earth floor	cfh,cfna		+	+	+	+		
	614	Floor deposit	+				+			conifer, c.
	644	Floor, ash dump under hearth		+		+	+		+	lesser celandine,t; seashore, plants,f.
6	1043	Hearth	h,na				+		cf	
	257	Hearth deposit	na	+	+	+	+	+		
	303	Hearth deposit					+			crowberry,fst; whortleberry/ cowberry,s.
	494	Hearth deposit					+		+	
	595	Hearth deposit	na	+		+	+	+		
	581	Earth floor				+	+		+	heather peat.
	615	Earth floor	cfh,na			+	+	+		seashore plant, f.
	636	Earth floor	+				+			spruce,c.
	250	Yard, S of N room, flags	h,na		+	+	+			ash,c; spruce,c; seashore plants,f.
7	298	Hearth deposit	na				+	+		black bearberry,fst; broad-leaved dock, 43n; crowberry,fst; juniper, fst; whortleberry/cowberry,s.
	357	Hearth deposit	na	+	+		+			
	551	Earth floor	na		+		+	+		conifer,c.
8	346	Earth floor	+				+			
	350	Earth floor						+		
	370	Hearth deposit					+			
9	605	Hearth deposits	na	+	+	+	+			
	611	Earth floor					+		cf	
	604	Silt	+				+			Flax/linseed,s.
	609	Levelling under floor					+		cf	Flax/linseed,s.
	901	Ground surface	na++	+	+		+	+		
10	481	Hearth deposit					+	+		hazel,n,fr.
	653	Hearth deposit	na	+	+		+			
		Hearth deposits (12 contexts)					+			
	886	Earth floor	na++	+			+	+		
	429	Ground surface					+	+		
	612	Wall core								root

Table 8mf Seed impressions on pottery sherds

Phase	SF No	Context	Description
1	7373	2057	unidentified, possibly spikelet base of grain or grass
2	6680	1946	deep unidentified impression, possibly grain or seed. ? monocot stem frag.
3	6553	1922	unidentified ribbed impression
	6956	2056	unidentified ? stems/leaves
4	7360	2052	ridged stems of possible cereal straw
5/6	3452	1020	unidentified small 'holes' not necessarily seeds
	6494	1875	unidentifiable
	6918	2045	unidentified - possible stem fragment
6-9	4400	807	unidentified impression and carbonised remains, could be cereal
7	2896	1067	unidentified impression and carbonised remains
	2954	1076	unidentified ? small seed
	4535	1219	unidentified 'v' shaped impression
	5672	1539	a well preserved impression of a leafy shoot of Calluna vulgaris
8	58	16	Hordeum vulgare cf var vulgare - grain impression
	765	590	Hordeum sp part of a carbonised grain
	1149	644	unidentified probably grass or cereal grain
	4533	1352	unidentified ? grass or cereal glume base
	5635	1410	possible grass impressions
9	860	1	cf Hordeum sp cf base of rachis segment
	934	335	unidentifiable

Table 9mf Carbon deposits on pottery sherds

See Plant report for notes on identifications and burnt deposits on sherds

Phase	SF No	Context	Description
3	7412	2068	cf cereal starch cells
	7412	2068	cf animal, ? meat
4	6722	1969	plant or animal
	6767	2031	cf cereal starch cells
5/6	2781	1020	amorphous
	2784	1020	amorphous
	3452	1020	no plant impressions seen
	5393	1708	amorphous
	7283	1875	plant or animal
	6569	1906	barley grain starch?
7	2130	804	cf cereal starch cells
	3670	1115	plant or animal
	5554	1216	? possible starchy substance
	5522	1664	? possible starchy substance
	6946	2037	cf barley pericarp and aleurone cells
7/8	4278	1195	plant or animal
8	3755	1353	cf cereal starch cells
	5635	1410	cf cereal starch cells
	3736	1304	cf cereal starch cells
	1972	736	cf cereal starch cells
	3087	785	cf cereal starch cells

BONE	MEASUREMENTS				PHASE
	GL	Bp	Bd	msw	
Radius	244	†	65	-	4
	285	85	†	-	5/6
	247	†	GR	-	7
	253	73	G	-	7/8
Metacarpal	169	49	50	28	7
	179	*	*	30	7
	176	55	†	†	7
	176	45	56	29	8
	183	*	63	33	8
	176	49	52	26	8
	178	50	50	25	8
	167	*	51	26	8
	191	57	58	31	8
	178	51	54	30	8
Metatarsal	189	44	51	25	7
	195	42	47	†	7
	193	†	†	-	7
	189	*	47	21	7
	197	39	44	22	8
	201	43	*	25	8
	203	42	50	25	8

Abbreviations

† = butchered
G = gnawed
GR = gnawed by rodents
* = eroded

Table 15mf Dimensions of complete cattle long bones

SITE	LENGTH RANGE	n	AUTHOR
Skara Brae (Neolithic)	201-203	3	Watson (1931)
Skara Brae (Neolithic)	183-202	4	Noddle (1983)
Jarlshof, Shetland (LBA/EIA)	175-183	2	Platt (1933-4)
Skaill (Pictish) Orkney	160-165	2	Noddle (1983)
Skaill (Viking) Orkney	182	1	Noddle (1983)
Buckquoy (Pre Norse) Orkney	172-178	5	Noddle (1976-7)
Howe of Howe	169-191	10	

Table 16mf Cattle metacarpal lengths from North Scottish sites

POSITION	NO	%
SF	19	38
DM	38	56
SF and DM	2	4
AP	1	2

Note:

SF = above supracondylar fossa
DM = medial to supracondylar fossa
AP = anterior proximal

Table 17mf Position of nutrient foramen of cattle femora

CATEGORY	NO OF BONES	%
F	77	2.5
J	15	0.5
J/I	1,244	40.0
I/A	937	30.1
A	839	27.0
TOTAL	3,112	

CATEGORY	AGE GROUP	CRITERIA USED
F	Foetal/neonate	All epiphyses unfused; All diaphyses small.
J	Juvenile	Scapula fused. All other epiphyses unfused.
J/I	Juvenile/immature	Late and intermediate fusing epiphyses unfused (eg proximal and distal femur and tibia, distal metapodials, tuber calcis etc).
I/A	Immature/adult	Early and intermediate epiphyses fused (eg scapula, distal humerus, proximal radius).
A	Adult	Late fusing epiphyses fused.

Comparable ages in modern terms would be:
J = up to c 18 months, I = 18 months-4 years, A = 4 years and over.

Table 18mf Number of cattle bones in each age category

CATEGORY	NO OF MANDIBLES	%
F	54	38.6
J	15	10.7
J/I	41	29.3
I/A	10	7.1
A	5	3.6
A+	15	10.7
TOTAL	140	

CATEGORY	DENTAL CHARACTERISTICS
F	Deciduous dentition unworn
J	Deciduous dentition only; in wear. 1st molar not yet erupted
J/I	1st molar erupted
I/A	2nd molar erupted
A	3rd molar erupted
A+	3rd pillar (5th cusp) of 3rd molar in wear

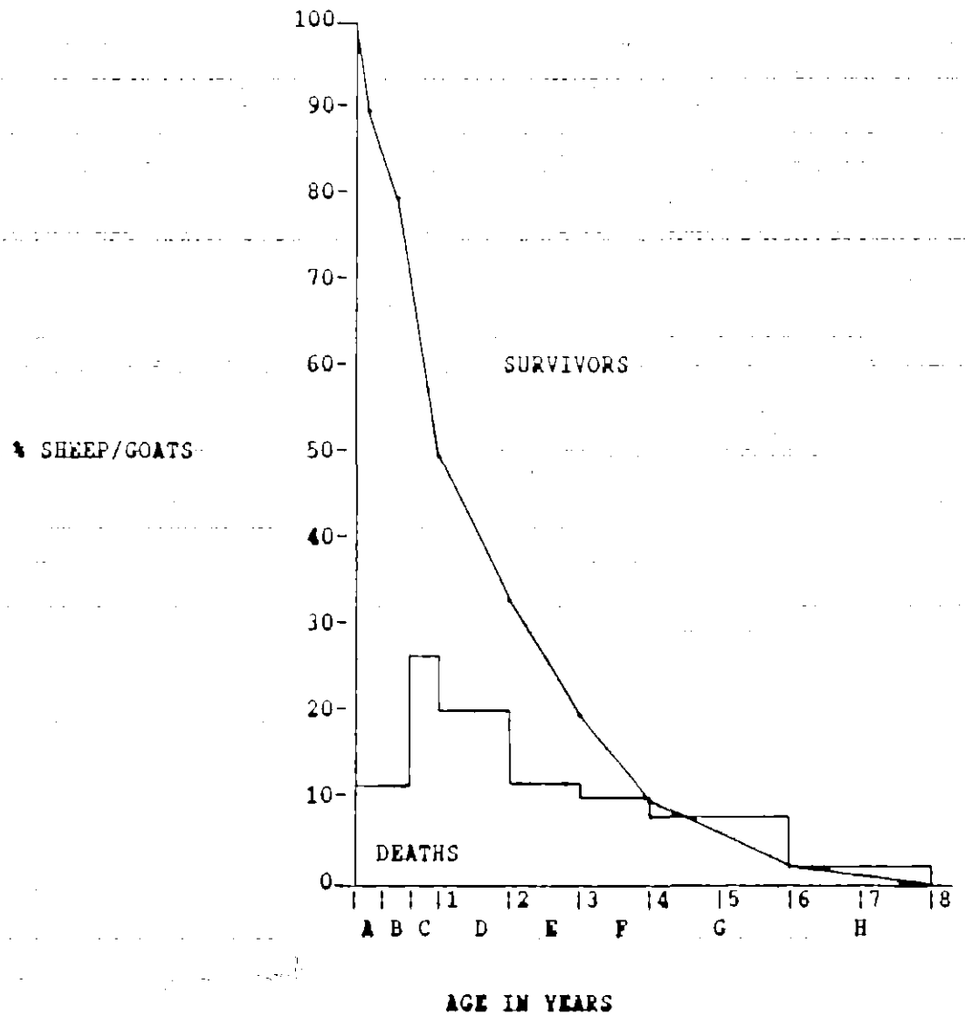
Table 19mf Number of cattle mandibles in each age category

	PHASE	GL	Bp	Bd	msw
HUMERUS		123	40	†	-
	8	128	32	25	-
	8	126	*	26	-
	8	146	40	†	-
	Soay	139	40	29	
RADIUS	3	136	†	23	-
	4	129	25	25	13
	7	147	27	24	*
	7	143	30	26	-
	7	147	27	*	-
	8	147	†	27	-
	8	133	26	25	15
	8	132	26	*	G
	8	144	*	27	15
	8	141	*	25	14
	8	141	27	25	14
	8	157	†	29	-
	8	141	29	24	14
	8	145	27	30	16
	8	146	29	28	16
	Soay	146	29	29	17
METACARPAL	5	119	20	22	11
	5/6	125	22	23	12
	5/6	111	20	22	12
	7	121	20	23	GR
	7	115	20	22	14
	7	128	22	†	14
	7	111	20	22	10
	7	120	20	22	12
	7	119	20	23	13
	7	118	21	23	13
	7	118	21	23	14
	7	117	20	22	12
	8	119	20	23	13
	8	122	24	*	15
	8	107	19	*	*
	8	122	22	23	11
	8	117	21	23	13
	8	108	19	*	12
	8	104	19	21	12
	8	114	20	23	12
	8	121	22	22	13
	8	114	20	23	12
	7/8	110	19	22	12
	7/8	117	20	22	12
	Soay	119	22	24	13
FEMUR	3	157	37	33	-
	7	154	41	33	14
	7	177	46	†	-
	Soay	166	43	37	15
TIBIA	7	197	37	24	
	8	213	†	25	
	Soay	196	40	Note	13
METATARSAL	3	142	20	24	11
	7	129	18	20	†
	7	129	18	20	11
	7	115	17	20	10
	7	135	20	24	12
	7	125	16	19	10
	7	125	18	21	10
	7	118	18	21	10
	7	120	19	21	11
	8	127	18	21	11
	8	127	18	21	11
	8	137	18	21	11
	8	129	19	21	10
	8	137	19	22	12
	8	124	18	21	10
	8	128	18	21	11
	8	118	16	*	10
	8	126	18	22	11
	Soay	132	19	23	11

Table 20mf Dimensions of complete sheep long bones

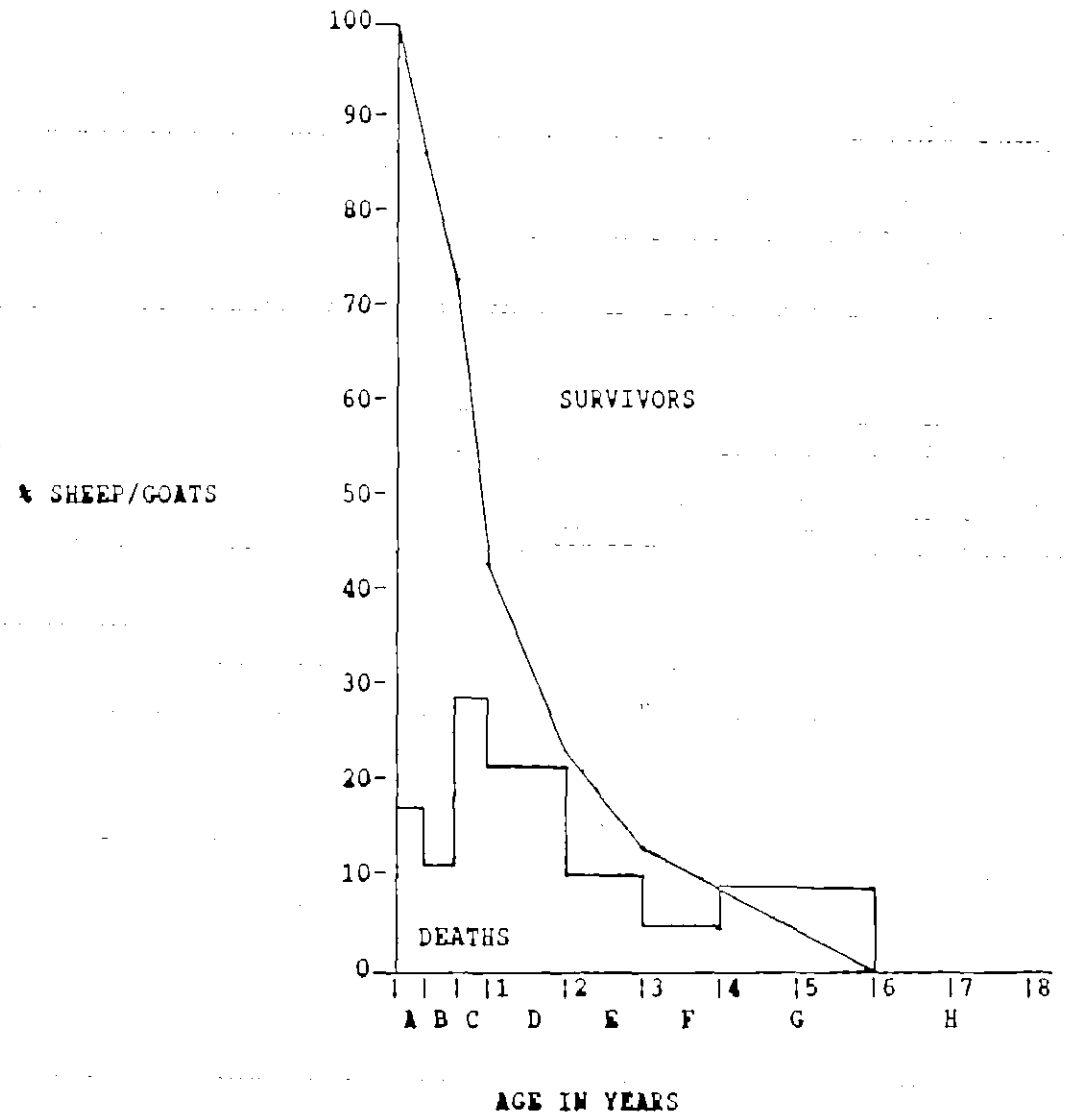
Position	Howe 3	5/6	7	8	7/8	Skaill Pictish	Skaill Viking	Skara Brae (Neo)	Soay
AP	100	80	58.3	47.8	50	50	80	24	85
PD	-	20	11.1	13.0	25	50	20	31	14
PM	-	-	16.7	19.6	-	-	-	45	1
APx2	-	-	2.8	-	-	-	-	-	-
AP&PD	-	-	5.6	10.9	25	-	-	-	-
AP&PM	-	-	5.6	8.7	-	-	-	-	-
Sample No	2	5	36	46	4	26	15	112	79

Table 21mf Percentage of nutrient foramen of sheep femora in each position



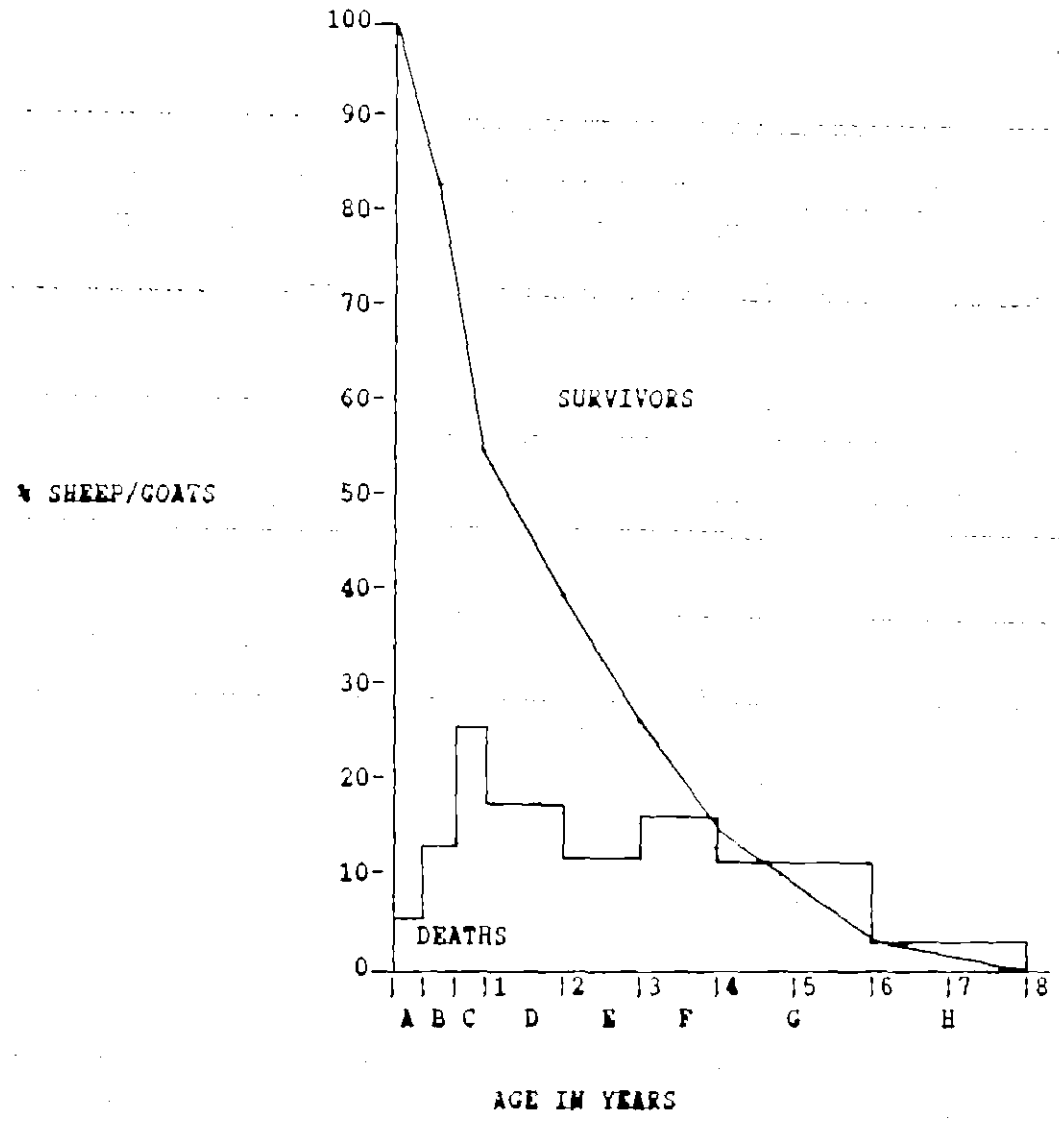
N=176	A	B	C	D	E	F	G	H
% DEATHS	11.4	11.4	26.1	19.3	11.9	9.7	8.5	1.7
% SURVIVORS	88.6	77.2	51.1	31.8	19.9	10.2	1.7	0

Table 22mf Sheep goat kill off pattern - whole site



N=84	A	B	C	D	E	F	G	H
% DEATHS	16.7	10.7	28.6	21.4	9.5	4.8	8.3	
% SURVIVORS	83.3	72.6	44.0	22.6	13.1	8.3	0	-

Table 23mf Sheep goat kill off pattern - Phase 7



N=72	A	B	C	D	E	F	G	H
% DEATHS	5.6	12.5	25.0	16.7	11.1	15.3	11.1	2.8
% SURVIVORS	94.4	81.9	56.9	40.2	29.1	13.8	2.7	0

Table 24mf Sheep goat kill off pattern - Phase 8

Table 25mf **Measurements of complete pig skeleton. (Phase 7, layer 863, small find nos. 2152 + 3011)**

	BONE	MEASUREMENT		
L.	Scapula	SLC	21	
		GLP	35	(Arthritic glenoid)
R.	Scapula	SLC	21	
		GLP	32	
L.	Humerus	GL	170	
		Bp	41	(eburnation of proximal articular
		Bd	34	surface corresponds with scapula)
		msw	15	
R.	Humerus	Bd	35	
L.	Radius	GL	124	
		Bp	25	
		Bd	29	
		msw	16	
R.	Radius	GL	124	
		Bp	25	
		Bd	30	
		msw	17	
L.	Ulna	DPA	31	
		SDO	26	
R.	Ulna	GL	171	
		DPA	31	
		SDO	26	
R.	Metacarpal III	GL	63	
		Bp	14	
		Bd	15	
L.	Metacarpal IV	GL	63	
		Bp	13	
		Bd	14	
R.	Metacarpal IV	GL	63	
		Bp	13	
		Bd	15	
L.	Innominate	LAR	25	
R.	Innominate	LAR	25	
		LFo	38	
L.	Femur	GL	180	
		Bp	46	
		Bd	36	
		msw	15	

Table 25mf contd

BONE		MEASUREMENT		
L.	Tibia	GL	165	
		Bp	40	
		Bd	*	
		msw	18	
R.	Tibia	GL	165	
		Bp	40	
		Bd	25	
		msw	18	
L.	Astragalus	GLe	35	
		GLm	32	
R.	Astragalus	GLe	35	
		GLm	32	
L.	Calcaneum	GL	65	
R.	Calcaneum	GL	64	(Arthritic)
L.	Metatarsal III	GL	71	
		Bp	14	
		Bd	14	
R.	Metatarsal III	GL	77	
		Bp	13	
		Bd	14	
R.	Metatarsal IV	GL	71	
		Bp	13	
		Bd	14	
R.	Metatarsal II	GL	51	
		Bd	8	(Arthritic)
R.	Metatarsal V	GL	56	
		Bd	8	
1st Phalange (3rd/4th digit)		GLpe	Bp	Bd
		33	14	13
		32	14	13
		33	13	13
		30	14	13
		31	15	13
1st Phalange (2nd/5th digit)		21	10	8
		21	9	7
		19	9	6
		21	10	8
2nd Phalange (3rd/4th digit)		21	14	12
		21	14	11
		21	14	12

GROUP	DENTAL CHARACTERISTICS	NO OF MANDIBLES	%
A	Deciduous teeth only; molars unerupted	31	30.7
B	1st molar erupted, 2nd molar unerupted	22	21.8
C	2nd molar erupted, 3rd molar unerupted	33	32.7
D	3rd molar erupted	15	14.9

A corresponds to less than c8 months

B corresponds to c8 months

C corresponds to c13 months

D correspons to c20 months and over

(after Habernehl (1975) and Payne & Bull (1982)

Table 26mf Pig mandibles - wear and eruption

SITE	%	AUTHOR
Warebeth Broch	42.9	Seller, T J (1982?)
Bu Broch	49.0	Noddle, B (forthcoming ?)
Buckquoy (Iron Age only)	38.8	Noddle, B (1976-7)
Howe of Howe	52.5	

Table 27mf Percentage of pigs killed in age range 0-1 year

	GL	Bp	Bd	msw	Phase
RADIUS	264	51	47	33	7
	256	50	44	29	7
METACARPAL	218	34	33	20	7
	222	*	34	18	7
	217	33	36	18	7
	230	34	36	20	7
	213	*	34	18	7

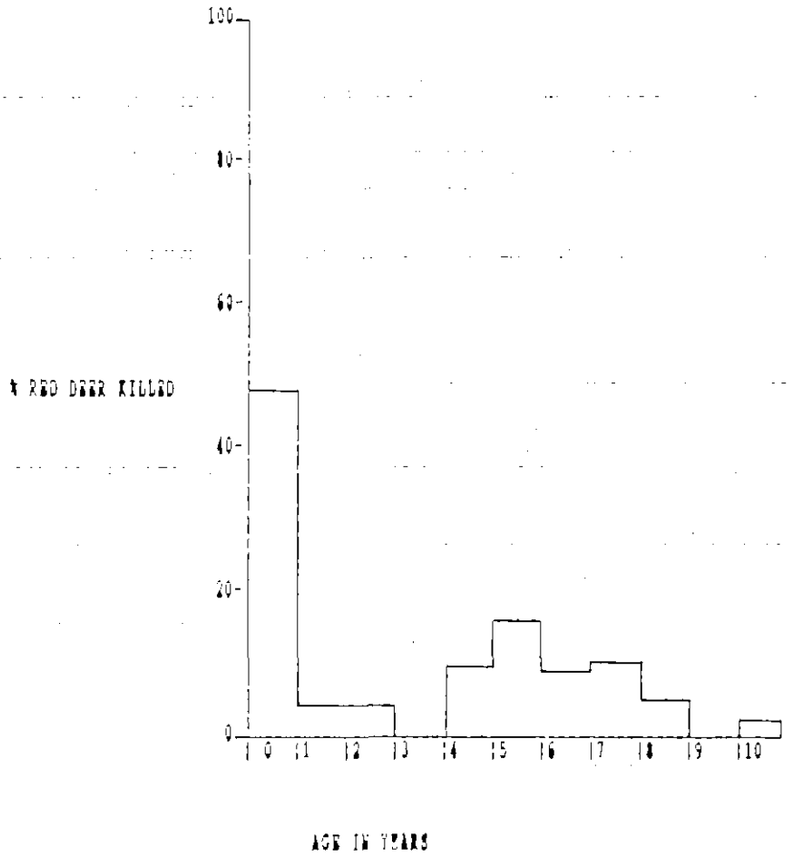
Table 28mf Dimensions of complete red deer bones

SCAPULA	SLC	29		HUMERUS	GL	219
	GLP	48			Bp	60
					Bd	51
RADIUS	GL	233		ULNA	DPA	41
	Bp	47			SDO	38
	Bd	44				
	msw	24				
METACARPAL	GL	211		FEMUR	GL	253
	Bp	35			Bp	70
	Bd	36			Bd	60
	msw	19				
TIBIA	GL	295		ASTRAGALUS	GLe	46
	Bp	63			Bd	29
	Bd	42				
CALCANEUM	GL	94		METATARSAL	Bp	32
					Bd	35
1st PHALANGE	GLpe	48 -	50	2nd PHALANGE	GLpe	
	Bp	17 -	19		Bp	NA
	Bd	17 -	18		Bd	
3rd PHALANGE	DLS	41 -	46			
	Ld	37 -	39			

Table 29mf Dimensions of modern adult (4.5 year old) red deer

AGE CLASS	NO	%
O/F	28	32.6
0	12	14.0
1	3	3.5
2	3	3.5
3	-	-
4	7	8.1
5	13	15.1
6	7	8.1
7	8	9.3
8	4	4.7
9	-	-
10	1	1.2
TOTAL	86	100.1

Table 30mf Number and percentages of red deer half mandibles in each age class.



N=66

AGE CLASS	O/F	0	1	2	3	4	5	6	7	8	9	10
% DEATHS	32.6	14.0	3.5	3.5	-	8.1	15.1	8.1	9.3	4.7	-	1.2

Table 31mf Percentage of red deer killed by probable age

MINIMUM AGE	TINES PRESENT	NUMBER OF FRAGMENTS
2nd year	Brow tine	38
3rd year	Brow and trez	12
4th year	1 or 2 crown tines	12
5th year	Brow and bez	2
6th year	3 crown tines	1

Table 32mf Minimum age of the shedding of 65 cast/indeterminate antler frags

UNFUSED BONE	PROPORTION	AGE OF FUSION
Dist radius	1/4	3½ years
Prox femur	4/9	3-3½ years
Prox and dist femur	1/9	3-3½ years
Calcaneum (tuber calcis)	1/9	3 years
Dist tibia	1/6	20-24 months

Table 33mf Proportions of unfused horse long bones

	GL	Bp	BFp	Bd	BFd
RADIUS	281	76	71	72	60
	GL	Bp	Dp	Bd	SD
METATARSAL	250	46	36	46	29
	245	47	·	44	30

Table 34mf Dimensions of complete horse long bones

MEASUREMENT		PHASE 7		PHASE 8	
		DOG 5959	DOG/WOLF 3867	FOX 2605	DOG JARLSHOF
I	Length	133	-	-	176
II	Occipital-nasion	76	-	76	90
III	Nasion-alveolare	67	-	-	93
IV	Max. zygomatic width	75.5	-	-	101
IX	Palatal length	67	-	-	83
X	Palatal width	47	76.2	39	57
XI	Max. cheek tooth row length	35.5	-	49	62
XII	Snout width	28	-	22 est	34
INDICES					
$\frac{IV}{I} \times 100$	Cephalic index	56.8	-	-	57
$\frac{III}{I} \times 100$	Snout index	50.4	-	-	53
$\frac{XII}{III} \times 100$	Snout width index	41.8	-	-	36

Table 35mf Dimensions of complete dog bones

Table 36mf Measurements of Dog/Wolf skull SF 3867 and comparative wolf skulls

MEASUREMENT	1	2	3
Length of upper PM4	22.1	24.5	24.0
Breadth of upper PM4	12.1	12.7	10.3
Length of upper M1	15.0	15.9	15.0
Breadth of upper M1	17.3	17.9	20.0
Length of upper M2	18.2	18.3	-
Breadth of upper M2	10.7	11.9	-
34. Paletal breadth	76.2	76.0	-
22. Greatest diameter of auditory bulla	25.3	27.1	1

1 Skull SF 3867
2 Female wolf of French origin in the collection of the British Museum (Natural History), No 1843.12.29.7.
3 Iberian wolf (von den Driesch 1972, 121)

ATLAS	GL 18	GB 33	BFcr 25	BFcd 18	
AXIS	LCDe 24	BFcr 14	BPacd 14	SBV 11	BFcd 9
SCAPULA	HS 64	SLC 13	GLP 14		
RADIUS	GL 102 95 93	Bp 9 8 8	Bd 14 13 12	SD 6 6 6	
FEMUR	104 104	20 19	17 17		
TIBIA	109	19	14		

Table 37mf Dimensions of complete cat bones

BONE	PROPORTION UNFUSED
Scapula	1/9
Radius, prox and dist	2/10
Femur, prox and dist	3/8
Femur, dist	1/6
Tibia, prox	2/6

Table 38mf Unfused cat bones

BONE	% UNFUSED
Humerus, prox	83.1
Humerus, dist	14.1
Radius, prox	3.0
Radius, dist	83.3
Femur, prox	4.1
Femur, dist	56.0
Tibia, prox	84.8
Tibia, dist	4.1

Table 39mf Percentage of unfused small mammal bones

Table 40mf COPROLITE IDENTIFICATIONS

PHASE	CONTEXT	DESCRIPTION
4-6	1901 E well silt (2 samples)	Contains animal bone and shell 1 sample possibly human
5-6	1906 E well cut (3 samples)	Contains bone
7 Early		
	1048 SE building ash	Contains bone
	1664 NE building floor	
	1709 NE building rubble	Contains bone
	1759 NE building rubble	Contains bone and hair
	1830 E building yard	Contains fish bone
7 Late		
	955 rubble (2 samples)	Contains bone
	972 SE workshop floor	Contains bone - animal or human
	973 SE workshop clay	Contains no noticeable bone - human?
	1067 S workshop rubble	Contains bones - human?
	1087 S workshop rubble	Contains animal bone
	1323 NE workshop rubble	Contains much bone - dog or animal
8	839 abandonment rubble	Contains bone - dog or animal
9	913	Contains bone

Table 41mf List of pathological specimens

I CATTLE

Layer	SF	Phase	Bone	
1539	5662	7	L. mandible	Congenital anomaly No alveolus for 2nd premolar present. Bone not roughened.
729	1989	7/8	R. mandible	Absence of 2nd premolar, as above.
1566	5731	5/6	L. mandible	Reduction of 3rd pillar (5th cusp) of 3rd molar.
981	3135	7	R. mandible	Exostosis of condyle.
1868	6472	5/6	L. calcaneum	Exostosis Tuber calcis has proliferative bony spicules. Interarticular lesions.
383	831	8	L. naviculo-cuboid	Spavin Lateral cuneiform (tarsal) fused on.
1848	6463	5/6	1st phalanage	"Degenerative arthritis" (osteo-arthrosis) Lipping and polishing (eburnation) at prox. end, peripheral half. Slight polishing at dist. end, achsial half.
1190	4235	9 (recent burial)	R. mandible	Periodontal disease = erosion of alveolar bone between 1st molar and 4th premolar.
981	3135	7	L. mandible	Has 2 mental foramina instead of one. (Baker & Brothwell (1980:35), mention similar examples from Skara Brae.)
1081	3472	7	L. mandible	2 mental foramina, as above.
II SHEEP				
715	1976	8	L. mandible	Probable congenital anomaly. 2nd premolar missing. Jaw bone slightly rough, therefore may have been present and subsequently lost.
1412	5608	7	L. mandible	Congenital absence of 2nd premolar.
631	1351	8	R. humerus (distal)	? Osteoarthrosis Some lipping at distal end. Lesions on caudal surface above trochlea.
1304	8722	8	L. radius (prox.)	? Healed injury Callus formation at midshaft. No apparent fracture line.

Table 41 contd

Layer	SF	Phase	Bone	
1402	5890	8	L. radius & ulna (pair)	? Osteoarthosis Prox. facet of radius with arthritic lipping. Coronoid process of ulna and interarticular region thickened - Volar surface of ulna distorted.
922	3347	8	L. metacarpal (prox.)	Osteoarthosis, or infective arthritis? Proximal surface greatly distorted. Bone deposition (knife cuts present).
1157	3607	7	R. metacarpal (prox.)	Proximal surface twisted at 45° to normal direction. Shaft twisted. (Animal was J/I at death).
722	1920	8	R. lunar & scaphoid	2 carpals completely fused; junction almost completely obliterated.
722	1920	8	R. femur (prox.) (prox. epiph. unfused)	Possible infection introduced by traumatic damage. Shaft with swelling and lesion. Distal end missing, but must have been twisted away from normal direction.
37	3009	8	L. naviculo-cuboid	Spavin Lateral cuneiform fused on. Junction still visible.
1357	3691	7	L. metatarsal and naviculo-cuboid.	Osteoarthosis/Spavin. Prox. surface of metatarsal completely fused with nav.-cub. and lateral cuneiform - whole structure massively deformed with heavy bone outgrowths. Prox. surface of nav.-cub. grooved.
			L. calcaneum	Calcaneum from same animal (not fused) has spicules and altered articulatory surface.
1456	3800	7	L. metatarsal	? Osteoarthrosis Prox. surface shows interarticular lesions. Spicules and distortion of shape. (Knife cuts at prox. end.)
1458	5889	7	1st phalange	Exostosis Spicule at dist. end.
1251	3773	7	1st phalange	Exostosis Spicules at prox. end.
1319	3700	8	2nd phalange	Exostosis Spicules near dist. end.
724	1987	9 (Recent)	L. Scapula	Osteoarthrosis Glenoid greatly distorted, with some lipping. Lesion in glenoid cavity, with some polishing.

Table 41 contd

Layer	SF	Phase	Bone	
335	933	9	L. innominate	(Congenital?) dislocation of hip. Acetabulum grossly distorted. Second false acetabulum with eburnation placed posterior to original; bony outgrowths posterior to false acetabulum shows fusion line and may be remains of fused-on trochanter of femur.
III PIG				
1086	3479	7	Skull fragment (young animal)	Healed fracture. Large hole/lesion above R. orbit. Small channel is evidence of blood vessel leading to fracture.
883	3101	7	L. mandible	Tooth crowding. 2nd molar apparently unable to erupt because of proximity of 1st molar.
1173	3605	Scraped Context	L. maxilla	Tooth crowding. 1st premolar rotated at right angles to normal direction.
863	2152	7	L. Scapula	Osteoarthrosis Glenoid cavity with arthritic lipping.
863	2152	7	L. humerus	Same animal. Proximal articular surface shows corresponding eburnation.
863	3011	7	R. calcaneum	Same animal. Exostosis of tuber calcis.
863	3011	7	R. MT II	Same animal. Eburnation and erosion of distal condyle.
-	126 ex 68	-		Partial skeleton of newborn piglet showing probable symptoms of rickets. L. femur (prox), L. humerus (dist), L. tibia (prox) and L. and R. illum all show lipping of metaphyses. L. femur (dist) shows swelling of shaft near distal end. L. tibia (prox.) shows flaring of metaphysis. L. and R. radii show erosion of shaft. All of the shafts of the above bones are comparatively thicker with respect to length than normal foetal pig. There is some evidence of osteoporosis.

Table 41 contd

Layer	SF	Phase	Bone	
				The condition of the bones may have been due to a deficiency of phosphorus relative to calcium, associated with a lack of Vitamin D (Baker, J. & Brothwell, D., 1980:49) perhaps before birth.
IV	**RED DEER**			
1067	3382	7	Mandible or loose lower 3rd molar	Congenital abnormality. Greatly reduced third pillar (5th cusp) on 3rd molar. In addition, 2 specimens with reduced 3rd pillar have evidence of periodontal disease between the third and fourth premolar with associated roughening and erosion of the jaw bone between the teeth.
1901	6630	5/6	"	
1906	6567	5/6	"	
1906	6567	5/6	"	
1906	6567	5/6	"	
978	3375	7	"	
1081	3472	7	"	
1088	3401	7	"	
1323	3711	7	"	
1323	3711	7	"	
2041	6924	7	"	
867	3139	7	"	
973	3359	7	"	
1737	3693	3/4	"	
955	3355	7	"	
981	3135	7	Mandibles	Periodontal disease occurring between 3rd and 4th premolars as above.
1051	3377	7		
2028	6779	3		
1115	3683	7		
1496	5794	7	R. tibia and Os malleolare	Os malleolare fused to distal tibia. Junction still visible. (Astragalus separate; not affected.)
1868	6472	5/6	R. naviculo-cuboid	Spavin. Lateral cuneiform fused on. Junction still visible.
1086	3479	7	L. naviculo-cuboid	Spavin. Lateral cuneiform fused on, as above.
729	1989	7/8	R. naviculo-cuboid	Spavin. Lateral cuneiform fused on. Some exostosis evident.
1323	3711	7	R. naviculo-cuboid	Spavin. Lateral cuneiform fused on. Junction obliterated. Some exostosis.
1323	3711	7	L. metatarsal (prox.)	Exostosis. Spicules at prox. end.
1067	3382	7	L. metatarsal (prox.)	?Osteoarthrosis. Proximal facet shows eburnation.

Table 41 contd

Layer	SF	Phase	Bone	
V DOG				
1458	5959	7	Skull	Congenital anomaly or traumatic tooth loss? No alveoli for 2nd premolars.
1170	3946	8	R. mandible	Traumatic tooth loss. 1st premolar missing. Alveolus resorbed - jawbone roughened.
26	1794	9	R. radius	Osteoarthrosis. Exostosis and erosion of proximal facet, with small patch of eburnation; ring of exostosis distal to prox. facet. Shaft slightly swelled. Exostosis at dist. end.
VI CAT				
1410	5654	8	L. femur	Healed fracture. Distal end of femur massively deformed. Bone depsition and erosion taking place. Part of fibula fused to shaft. Line of fracture not visible. (Knife cuts on other bones from same animal.)
535	1257	8	R. tibia	Healed fracture. Midshaft callus/swelling. Line of fracture still partially visible.
462	982	8	R. innominate	Osteoarthrosis of acetabulum (hip joint).
VII FOX and cf FOX				
FOX				
770	3041	8	L. & R. mandibles (condition identical in both)	Third molar (M3) never present - not resorbed. First premolar (PM1) possibly resorbed. (L. & R. dist. radii from same animal have exostoses).
767	3052	7	L. mandible	M3 probably never present - not resorbed.
876	3086	7	R. mandible	M3 never present - not resorbed. PM1 resorbed - roughness of jawbone and remains of alveolus.
1085	3400	7	L. mandible	M3 never present - not resorbed.

Table 41 contd

Layer	SF	Phase	Bone	
981	3135	7	L. & R. mandibles (condition identical in both)	M3 never present - not resorbed. PM1 never present - not resorbed.
580	3786	9 Recent	R. mandible	M3 never present - not resorbed.
-	126 ex 68	u/s	R. mandible	M3 never present - not resorbed.
cf FOX				
1868	6472	5/6	1st phalange	Exostosis of distal end.
863	2152	7	5 metacarpals 1 metapodial	Metacarpals - one affected by exostosis on shaft; others affected at prox. end. Metapodial - distorted at dist. end by exostosis and small lesion. Cause = infectious arthritis?
			L. calcaneum	Exostosis
			L. astragalus & tarsal	Slight bone deformation and erosion.
			1st phalange	Four affected by exostosis at prox. end and one at distal end.
			2nd phalange	Two affected by exostosis at prox. end.
VIII OTTER				
1844	6438	5/6	Skull	Dental pathology of R. maxilla. R. PM4 broken during life. One PM4 alveolus on buccal aspect resorbed. One root on buccal side and lingual part of tooth remaining. Also, PM lost during life and alveolus resorbed. In addition, an (unhealed) circular hole above the L. orbit may indicate that the animal was killed by a blow to the head.
1830	6459	7	L. innominate.	Exostosis of acetabulum.
IX BIRD				
1251	3773	7	L. Tibiotarsus	Probable healed fracture. Distal end bent up towards proximal end at 45° to vertical. Callus formation at angle. Leg probably not functional.

BONE	EXPECTED NO	EXPECTED %	CATTLE NO	CATTLE %	SHEEP NO	SHEEP %
Skull	1	1.1	312	3.4	374	5.0
Horn Core	2	2.2	100	1.1	163	2.2
Premaxilla	2	2.2	41	0.4	60	0.8
Maxilla	2	2.2	129	1.4	211	2.8
Mandible	2	2.2	930	10.1	650	8.6
Atlas	1	1.1	73	0.8	80	1.1
Axis	1	1.1	82	0.9	59	0.8
Scapula	2	2.2	690	7.5	507	6.7
Humerus	2	2.2	514	5.6	580	7.7
Radius	2	2.2	442	4.8	495	6.7
Ulna	2	2.2	276	3.0	183	2.4
Carpals	10	10.8	362	3.9	132	1.7
Innominate	2	2.2	556	6.0	426	5.6
Femur	2	2.2	576	6.2	505	6.7
Tibia	2	2.2	685	7.4	625	8.3
Patella	2	2.2	50	0.5	64	0.8
Os mall.	2	2.2	61	0.7	5	0.1
Astragalus	2	2.2	248	2.7	282	3.7
Calcaneum	2	2.2	269	2.9	225	3.0
Nav.-cuboid	2	2.2	106	1.1	70	0.9
Lat. cuneiform	2	2.2	37	0.4	6	0.1
Metapodial	4	4.3	1,097	11.9	970	12.9
Phalange I	8	8.6	605	6.5	553	7.3
Phalange II	8	8.6	455	4.9	206	2.7
Phalange III	8	8.6	221	2.4	106	1.4
Sesamoid	18	19.3	324	3.5	10	0.1
TOTAL	93		9,241		7,547	

Table 42mf Expected and actual numbers and percentages of bones from cattle and sheep

Table 43mf Animal burials - Appendix 2

Phase	Layer	SF	
CATTLE			
9	146	118	"Circular pit dug through ploughsoil L110." Heavily eroded partial skeleton of newly born or foetal calf. No evidence of butchery.
9	734	1,919	"S. Area, Trench G" Burial of nearly complete J/I calf with evidence of at least one other calf. No evidence of butchery.
9	735	1,998	"S. Area, Trench G" Burial of 2 newly born or foetal calves. No evidence of butchery.
9	802	2,119	"Cow? burial in pit (beneath L750 & above broch age rubble". Nearly complete Juvenile calf. No evidence of butchery.
9	900	2,534	"Trench K" Well preserved burial of immature/adult individual. Evidence of butchery: L. horn core sawn off at base; otherwise unbutchered.
9	1,027	2,785	"Modern cow burial pit fill Trench K." Friable skeleton of juvenile animal. No evidence of butchery.
9	1,190	4,235	"Fill of cow burial pit. Trench K." Well preserved burial of adult (A+) animal. Some evidence of periodontal disease between 1st molar and 4th premolar of R. mandible. The tibiae showed deep muscle attachment scars. The R. metacarpal was 4 mm longer than the L. metacarpal. The majority of the vertebrae were entire, but 2 were sawn in the sagittal plane. In addition the sternum was sawn neatly in half but the animal was otherwise unbutchered and all the long bones were entire. The animal must have been sliced open at the sternum before being dumped, perhaps as unfit meat.
7	1,076	3,379	"Mid-brown silty loam. Trench K." Possible intrusive burial of unbutchered cattle hind quarters (including innominates, tarsals, metatarsals and phalanges. Tibiae and femora not present).
8	765	3,150	"Remains of charcoaly occ. debris in a broch age building. Trench G, S. Area". Partial, possibly intrusive, calf burial (mainly fore limbs). Age - juvenile. Unbutchered.
8/9	731	1,933	"Large expanse of rubble and plough-soil (contaminated) Trench G, S. Area". Calf burial. Age - juvenile Unbutchered.

Table 43 contd

Phase	Layer	SF	
SHEEP			
9	158	152	"Scrapped - topsoil". Burial of sheep. Age - c 2 years (tooth stage D/E). Evidence of butchery: skull split sagittally; knife marks at bases of both horn cores. Otherwise the animal was unbutchered.
5/6	1,818	6,458	"Shillet." Nearly complete skeleton of sheep aged 1-2 years. Unbutchered, but 7 bones were gnawed by rodents.
7	883	3,101	"Levelling rubble. Trench S". Nearly complete, unbutchered skeletons of 2 newly born lambs (or foetuses), recovered along with large amount of typical animal bone refuse.
8	923	3,221	"Ground surface. Trench J". Burial of adult sheep aged 2-3 years. (Tooth stage E). Unbutchered, but 2 bones gnawed by rodents.
PIG			
7/8	858	2,221	"Floor level assoc. with hearth L840. Trench Z". Burial of nearly complete immature pig. Age - 13 months, approx. Unbutchered.
7	863	2152 3011	"Rubble collapse from E. side of broch entrance. Trench Z". Burial of complete, well preserved adult pig. Unbutchered. (See Table 25mf for measurements.)
Scrapped	1,018	3,259	"Rubble. Trench J". Burial of unbutchered pig. Age - c8-13 months.
HORSE			
9	145	117	"Friable grey silt. Trench G". Burial of foal aged 1-5 months. Evidence of deciduous canines inconclusive of sex.
DOG			
9	110	122 450	"Occ. small rubble ... ploughsoil. Trench G." Burial of nearly complete adult dog. Est. shoulder height (based on humerus and radius - 53.5 cm). (Harcourt, 1974). Sex unknown.
CAT			
8	462	982	"Rubble. Trench G". Partial cat skeleton; adult. No evidence of butchery. Osteoarthrosis of acetabulum of innominate. Tibia and radius gnawed by rodents.
8	537 604	1,210 1,214	"Earth floor. AG Baulk". "Mid brown friable sandy loam. AG Baulk". Same animal; found in layers 537 & 604. Adult.
8	1,269	3,687	"Floor. Trench J". Partial skeleton of kitten.

Table 44mf Bone size range summaries - Appendix 1

All measurements are in mm.
Measurements are, with a few exceptions, in accordance with the scheme proposed by *von den Driesch (1976)*.
Other abbreviations:
max - maximum
min - minimum
B.C. - basal circumference
O.C. - outer curvature
msw - midshaft width
n - sample number

1. CATTLE

Bone	Measurement	Range	n
Horn core	max	25-59	20
	min	19-47	20
	B.C.	73-173	19
	O.C.	23-138	5
Atlas	GL	43-83	8
	GB	115-120	2
	BFcr	71-95	7
	BFcd	69-97	6
Axis	BFcr	64-86	11
	LCDe	101-106	3
	SBV	42-49	11
	BPacd	61	1
	LAPa	80	1
	BFcd	44	1
Scapula	SLC	35-61	89
	GLP	47-74	53
Humerus	Bp	82-95	4
	Bd	66-80	23
Radius	GL	244-285	4
	Bp	59-85	19
	Bd	52-73	37
Ulna	DPA	41-61	27
	SDO	37-54	36
Carpals: magnum	GB	22-35	34
uniform	GB	25-37	44
Metacarpal	GL	167-191	10
	Bp	42-57	50
	Bd	48-63	37
	msw	25-31	10
Innominate	LAR	37-54	11
	LA	62-66	2

Table 44 contd

Bone	Measurement	Range	n
Femur	Bp	100	1
	Bd	61-86	15
Patella	GL	43-61	7
	GB	33-50	12
Tibia	Bp	55-89	9
	Bd	45-64	68
Os malleolare	GD	23-32	28
Astragalus	GL1	48-74	100
	Bd	30-48	95
Calcaneum	GL	108-133	29
Naviculo-cuboid	GB	34-58	45
Metatarsal	GL	189-203	7
	Bp	37-49	30
	Bd	44-57	42
	msw	21-26	7
1st phalange	Glpe	45-63	147
	Bp	18-36	169
	Bd	19-31	136
2nd phalange	GL	28-43	123
	Bp	19-33	205
	Bd	19-28	127
3rd phalange	DLS	40-72	60
	Ld	32-54	57

Table 44 contd

2. SHEEP

Bone	Measurement	Range	n
Skull	Driesch 24	34.2	1
	25	32.0	1
	27	36.7-41.0	6
	28	48.0-55.8	5
	29	16.4-20.5	6
	30	15.0-18.0	6
Horn core	max	19-51	45
	min	14-45	39
	B.C.	43-152	37
	O.C.	23-195	10
Atlas	GL	34-55	8
	GB	43-69	4
	BFcr	39-48	14
	BFcd	35-48	17
Axis	LCde	53-57	3
	LApa	32-44	4
	BFcr	33-45	25
	BPacd	22-32	12
	SBV	18-27	27
	BFcd	20	1
Scapula	SLC	22-32	136
	GLP	24-34	56
Humerus	GL	123-146	4
	Bp	30-40	10
	Bd	23-31	105
Radius	GL	129-157	15
	Bp	21-32	66
	Bd	22-30	56
	msw	13-16	8
Ulna	DPA	14-27	63
	SDO	13-24	74
Metacarpal	GL	104-128	24
	Bp	16-24	119
	Bd	21-25	27
	msw	11-15	20
Innominate	LAR	20-27	28
	LFo	31-38	6
Femur	GL	154-177	3
	Bp	36-46	21
	Bd	30-38	20
Patella	GL	26-29	3
	GB	16-22	21

Table 44 contd

Bone	Measurement	Range	n
Tibia	GL	197-213	2
	Bp	34-39	8
	Bd	20-27	82
Astragalus	GL1	20-30	162
	Bd	15-20	149
Calcaneum	GL	46-57	52
Naviculo-cuboid	GB	19-23	42
Metatarsal	GL	115-142	18
	Bp	16-20	92
	Bd	19-24	31
	msw	10-12	17
1st phalanage	Glpe	28-37	232
	Bp	9-13	277
	Bd	9-13	265
2nd phalange	GL	17-23	128
	Bp	9-13	151
	Bd	7-10	147
3rd phalange	DLS	21-32	72
	Ld	13-30	72

Table 44 contd

3. PIG

Bone	Measurement	Range	n
Atlas	GL	26-35	8
	GB	52	1
	BFcr	37	1
	BFcd	47	1
Axis	LAPa	18-32	4
	SBV	26-32	4
	BFcr	35-44	2
	BFcd	29-30	2
	BPacd	23-26	2
Scapula	SLC	17-24	12
	GLP	27-35	12
Humerus	GL	170	1
	Bp	41-42	2
	Bd	33-39	23
	msw	15	1
Radius	GL	125-132	3
	Bp	20-28	30
	Bd	21-31	24
	msw	16-17	3
Ulna	GL	171	1
	DPA	15-34	29
	SDO	13-27	51
Metacarpal II	GL	49	1
	Bd	10	1
Metacarpal III	GL	62-66	4
	Bp	11-17	29
	Bd	15-16	4
Metacarpal IV	GL	63-68	4
	Bp	9-14	32
	Bd	14-17	5
Innominate	LAR	25-30	10
	LFo	38	1
Femur	GL	180	1
	Bp	46	1
	Bd	36-45	11
	msw	15	1
Patella	GL	24-36	20
	GB	11-19	19
Tibia	GL	167	2
	Bp	25-42	10
	Bd	20-28	15
	msw	18	2

Table 44 contd

Bone	Measurement	Range	n
Astragalus	GL1	29-41	52
	GLm	27-36	42
Calcaneum	GL	64-71	4
Metatarsal II	GL	51	1
	Bd	8	1
Metatarsal III	GL	67 77	4
	Bp	12-15	29
	Bd	12-15	5
Metatarsal IV	GL	71-81	6
	Bp	12-16	29
	Bd	14-17	8
Metatarsal V	GL	56	1
	Bd	8	1
1st phalange (3rd or 4th digit)	GLpe	29-37	50
	Bp	11-16	80
	Bd	6-15	111
1st phalange (2nd or 5th digit)	GL	19-23	20
	Bp	9-12	20
	Bd	6-10	32
2nd phalange (3rd or 4th digit)	GL	18-31	85
	Bp	11-17	130
	Bd	9-17	113
2nd phalange (2nd or 5th digit)	GL	12	2
	Bp	8-9	2
	Bd	7-9	2
3rd phalange (3rd or 4th digit)	DLS	17-36	48
	Ld	16-28	48
3rd phalange (2nd or 5th digit)	DLS	16	1
	Ld	12	1

Table 44 contd

4. RED DEER

Bone	Measurement	Range	n
Atlas	GI	64-82	5
	BFcr	61-76	7
	BFcd	57-65	5
Axis	LCDe	88-92	4
	LAPa	60-76	2
	BFcr	55-65	8
	BPacd	41-49	4
	SBV	31-44	8
	BFcd	31-34	2
Scapula	SLC	26-35	50
	GLP	46-57	35
Humerus	Bp	53-64	12
	Bd	45-55	40
Radius	GL	256-264	2
	Bp	44-55	27
	Bd	39-49	33
	msw	29-33	2
Ulna	DPA	38-51	10
	SDO	35-47	10
Metacarpal	GL	213-230	5
	Bp	26-38	29
	Bd	32-41	26
	msw	18-20	5
Innominate	LFo	56-62	2
Femur	Bp	68-77	5
	Bd	43-63	14
Patella	GL	41-49	5
	GB	32-37	6
Tibia	Bp	62-67	7
	Bd	37-45	39
Astragalus	GL1	42-53	43
	Bd	27-34	52
Calcaneum	GL	94-111	21

Table 44 contd

Naviculo-cuboid	GB	31-42	34
Metatarsal	Bp	27-34	29
	Bd	35-40	27
1st phalange	GLpe	45-56	59
	Bp	16-21	75
	Bd	15-20	74
2nd phalange	GL	35-43	37
	Bp	14-21	54
	Bd	12-19	50
3rd phalange	DLS	33-52	37
	Ld	30-48	36

Table 44 contd

5. **HORSE**

Bone	Measurement	Range	n
Atlas	BFcr	80	1
	GB	96	1
Scapula	SLC	58	2
	GLP	68-84	2
Humerus	Bd	69-75	2
Radius	GL	281	1
	Bp	76	1
	BFp	71	1
	Bd	65-72	4
	BFd	55-60	3
Ulna	DPA	54-57	2
	SDO	45	1
Metacarpal	Bd	43-46	2
	Dp	29-30	2
	Bd	44	1
	Dd	32	1
Innominate	LAR	52	1
	LA	55	1
	LFo	63	1
	SB	20	1
Femur	Bp	105	1
	Bd	93	1
Patella	GL	55-60	3
	GB	57-60	2
Tibia	Bd	63-70	4
	Dd	44	1
Astragalus	GH	51-62	6
	GB	53-63	6
	LmT	50-57	4
	BFd	45-50	2
Calcaneum	GL	93-105	7
	GB	43-55	5
Navicular tarsal	GB	43-50	5
Lateral cuneiform	GB	41-46	6
Metatarsal	GL	245-250	2
	Bp	42-48	5
	Dp	36-42	4
	Bd	44-46	2
	SD	29-30	2

Table 44 contd

Bone	Measurement	Range	n
Distal sesamoid	GB	30	1
1st phalange	GL	71-81	3
	Bp	43-56	5
	BFp	47-48	2
	Dp	27-38	4
	Bd	40-44	2
	BFd	39-41	3
	SD	28-35	6
2nd phalange	GL	37-46	5
	Bp	42-48	6
	BFp	42	3
	Dp	28-31	4
	Bd	40-46	4
	SD	36-42	5
3rd phalange	Gl	60	1
	GB	63	1
	LF	24	1
	BF	46	1
	Ld	45-53	2

Table 44 contd

6. DOG

Bone	Measurement	Range	n
Scapula	SLC	20-28	4
	GLP	24-32	3
Humerus	Bd	35	1
Ulna	GL	185 (estimate)	1
	DPA	26	1
	SDO	22	1
Femur	Bp	32	1
	DC	16	1

Table 44 contd

7. **CAT**

Bone	Measurement	Range	n
Atlas	GL	18-34	3
	GB	19-33	2
	BFcr	25	1
	BFcd	18	1
Axis	LCde	24	1
	BFcr	14-16	2
	BPacd	14	1
	SBV	11	1
	BFcd	9	1
Scapula	HS	64	1
	SLC	10-14	7
	GLP	14-15	6
Humerus	Bp	16-17	3
	Dp	20-21	3
	Bd	15-20	3
Radius	GL	93-102	3
	Bp	8-9	7
	Bd	12-14	3
	SD	6	2
Ulna	DPA	10-12	5
	SDO	9-11	5
Innominate	LAR	12-13	2
Femur	GL	104	2
	Bp	19-20	2
	Bd	17	2
Tibia	GL	109	1
	Bp	18-19	2
	Bd	14-15	5
Fibula	GL	100	1
Astragalus	GL	15	1
Calcaneum	GL	26-27	3
1st phalange	GL	13-17	6
	Bp	4-6	8
	Bd	4-5	6
2nd phalange	GL	9-11	3
	Bp	4-5	4
	Bd	4	2

Table 45mf Anatomical distributions of bones over the whole site (excluding Phase 9) - Appendix 3

BONE		1. CATTLE				2. SHEEP			
		L	R	L/R	TOTAL	L	R	L/R	TOTAL
Horn Core		17	11	72	100	39	26	98	163
Skull Frags		-	-	312	312	-	-	374	374
Premaxilla		17	21	3	41	31	29	-	60
Maxilla		46	54	29	129	109	90	12	211
Max/Mand		-	-	8	8	-	-	-	-
Mandible		309	296	317	922	264	287	99	650
Atlas		-	-	73	73	-	-	80	80
Axis		-	-	82	82	-	-	59	59
Scapula		216	216	258	690	226	235	46	507
Humerus	prox	33	36	48	117	65	46	29	140
	dist	108	75	19	202	142	135	9	286
	shaft	86	66	42	194	69	74	6	149
	ent	-	1	-	1	2	3	-	5
Radius	prox	74	82	25	181	69	77	6	152
	dist	61	63	10	134	67	75	5	147
	shaft	32	27	64	123	74	61	46	181
	ent	2	2	-	4	8	7	1	15
Ulna		107	132	37	276	86	84	13	183
Carpal		145	205	12	362	57	66	9	132
Metacarpal	prox	86	88	21	195	79	81	10	170
	dist	17	20	65	102	25	16	14	55
	shaft	14	9	58	81	9	5	37	51
	ent	4	7	-	11	10	15	-	25
Innominate		193	185	178	556	184	208	34	426
Femur	prox	36	47	95	178	61	55	81	197
	dist	79	71	64	214	80	76	23	179
	shaft	36	46	102	184	47	46	33	126
	ent	-	-	-	-	2	1	-	3
Patella		19	27	4	50	34	24	6	64
Tibia	prox	90	95	33	218	43	64	5	112
	dist	80	91	27	198	90	97	20	207
	shaft	92	94	83	269	110	100	94	304
	ent	-	-	-	-	2	-	-	2
Fibula/Os Malleolare		35	23	3	61	4	1	-	5
Astragalus		114	123	11	248	140	135	7	282
Calcaneum		119	129	21	269	128	90	7	225
Navicular-Cuboid		47	55	4	106	42	28	-	70
Tarsal = Lateral Cuneiform		18	14	5	37	1	1	4	6
Carpal/Tarsal									
Metatarsal	prox	60	66	45	171	62	80	33	175
	dist	22	20	55	97	17	15	16	48
	shaft	5	7	82	94	6	3	79	88
	ent	5	6	-	11	9	9	-	18
Metapodial		-	-	335	335	-	-	340	340
1st Phalange		-	-	605	605	-	-	553	553
2nd Phalange		-	-	455	455	-	-	206	206
3rd Phalange		-	-	221	221	-	-	106	106
Sesamoid		-	-	324	324	-	-	10	10
TOTAL		2,424	2,510	4,307	9,241	2,493	2,445	2,609	7,547

Table 45 contd

BONE		3. PIG				4. RED DEER			
		L	R	L/R	TOTAL	L	R	L/R	TOTAL
Tine		-	-	-	-	-	-		858*
Skull Frags		-	-	306	306	-	-	90	90
Premaxilla		-	-	-	-	-	-	-	-
Maxilla		128	104	22	254	30	27	3	60
Max/Mand		-	-	2	2	-	-	-	-
Mandible		137	116	27	280	157	162	14	333
Atlas		-	-	38	38			14	14
Axis		-	-	15	15			12	12
Scapula		91	73	-	164	66	64	9	139
Humerus	prox	21	34	7	62	14	15	-	29
	dist	50	45	2	97	57	54	5	116
	shaft	46	39	1	86	21	9	-	30
	ent	1	-	-	1	-	-	-	-
Radius	prox	18	27	2	47	40	39	2	81
	dist	17	28	4	49	35	44	1	80
	shaft	18	17	9	44	26	22	16	64
	ent	1	2	-	3	1	1	-	2
Ulna		66	62	-	128	60	52	-	112
Carpal		44	47	9	100	55	30	1	86
Metacarpal	prox)					34	24	3	61
	dist)					3	5	43	51
	shaft) (PIG)					1	1	48	50
	ent)	51	59	20	130	3	2	-	5
Innominate		63	58	1	122	76	77	4	157
Femur	prox	35	28	18	81	16	15	12	43
	dist	40	39	8	87	33	27	7	67
	shaft	47	56	7	110	13	22	6	41
	ent	1	-	-	1	-	-	-	-
Patella		17	12	-	29	6	10	-	16
Tibia	prox	37	34	4	75	36	26	3	65
	dist	30	28	5	63	62	37	6	105
	shaft	36	41	1	78	27	24	2	53
	ent	1	1	-	2	-	-	-	-
Fibula/Os Malleolare		15	13	54	82	8	3	-	11
Astragalus		44	48	1	93	53	51	-	104
Calcaneum		38	35	1	74	52	47	1	100
Navicular-Cuboid						31	21	-	52
Tarsal		34	51	5	90	5	2	2	9
Carpal/Tarsal		-	-	3	3	-	-	-	-
Metatarsal	prox)					40	42	4	86
	dist)					14	11	48	73
	shaft) (PIG)					1	-	96	97
	ent)	41	43	14	98	-	-	-	-
Metapodial				209	209			105	105
1st Phalange				304	304			187	187
2nd Phalange				185	185			143	143
3rd Phalange				98	98			58	58
Sesamoid				6	6			18	18
TOTAL		1,168	1,140	1,388	3,696	1,076	966	963	3,005*
						*Excludes 858 Cast Antler Frags			

Table 45 contd

BONE		5. HORSE				6. DOG & cf DOG			
		L	R	L/R	TOTAL	L	R	L/R	TOTAL
Horn Core/Tine									
Skull				1	1			2	2
Premaxilla									
Maxilla			2		2	1			1
Max/Mand									
Mandible		1			1	4	1		5
Atlas				1	1				
Axis									
Scapula		6	2		8	2	2		4
Humerus	prox	1			1				
	dist	1	1		2	1			1
	shaft	2	1		3	2			2
	ent								
Radius	prox	1	1	1	3				
	dist	2	2		4				
	shaft								
	ent	1			1	1			1
Ulna		1	2		3	1			1
Carpal				10	10			2	2
Metacarpal	prox	2	1		3				
	dist	1			1				
	shaft								
	ent								
Innominate		3	3		6				
Femur	prox	7	3		10	1			1
	dist		1		1				
	shaft	2	2		4				
	ent								
Patella		1		3	4				
Tibia	prox	2			2				
	dist	5	1		6	1			1
	shaft								
	ent								
Fibula/Os Malleolare									
Astragalus		5	2		7				
Calcaneum		6	3		9				
Navicular Tarsal			2	4	6				
Tarsal		2	5	3	10				
Carpal/Tarsal				4	4				
Metatarsal	prox	3	1		4				
	dist								
	shaft								
	ent	1	1		2				
Metapodial				4	4			4	4
1st Phalange				10	10				
2nd Phalange				8	8				
3rd Phalange				5	5				
Sesamoid				11	11				
Splint				9	9				
TOTAL		56	36	74	166	13	4	8	25

Table 45 contd

BONE		7. CAT				8. FOX AND cf FOX			
		L	R	L/R	TOTAL	L	R	L/R	TOTAL
Horn Core/Tine									
Skull and Skull Frags		-	-	5	5			7	7
Premaxilla						-	-	-	-
Maxilla		3	5	-	8	1	2	-	3
Max/Mand		-				-	-	-	-
Mandible		2	6	-	8	6	7	-	13
Atlas				3	3	-	-	2	2
Axis				2	2	-	-	5	5
Scapula		3	6	-	9	5	3	-	8
Humerus	prox	3	2	-	5	3	-	-	3
	dist	3	-	-	3	2	2	-	4
	shaft	3	1	-	4	2	1	-	3
	ent	2	1	-	3	1	-	-	1
Radius	prox	2	3	-	5	3	3	-	6
	dist					1	3	-	4
	shaft	1	2	-	3	-	-	-	-
	ent	2	1	-	3	1	2	-	3
Ulna		4	5	-	9	3	6	-	9
Carpal						-	-	-	-
Metacarpal	prox								
	dist								
	shaft								
	ent								
Innominate		5	2	-	7	3	2	-	5
Femur	prox	1	-	-	1	-	3	-	3
	dist	2	-	-	2	2	2	-	4
	shaft	1	2	-	3	-	2	-	2
	ent	1	1	-	2	-	-	-	-
Patella									
Tibia	prox	-	2	-	2	2	3	-	5
	dist	1	2	-	3	2	2	-	4
	shaft					1	1	-	2
	ent	1	1	-	2	2	-	-	2
Fibula		2	3	-	5	-	-	4	4
Astragalus		-	1	-	1	4	2	-	6
Calcaneum		1	2	-	3	3	3	-	6
Naviculo - Cubold									
Tarsal									
Carpal/Tarsal		-	-	4	4	-	-	5	5
Metatarsal	prox								
	dist								
	shaft								
	ent								
Metapodial		-	-	23	23	-	-	44	44
1st Phalange		-	-	11	11	-	-	16	16
2nd Phalange		-	-	5	5	-	-	6	6
3rd Phalange						-	-	3	3
Sesamoid						-	-	-	-
Sacrum						-	-	3	3
TOTAL		43	48	53	144	47	49	95	191

Table 45 contd

BONE		9. OTTER				10. SEAL			
		L	R	L/R	TOTAL	L	R	L/R	TOTAL
Horn Core/Tine									
Skull		-	-	2	2				
Premaxilla									
Maxilla		1	-	-	1				
Max/Mand									
Mandible		1	2	-	3	1	1	-	2
Atlas									
Axis									
Scapula						1	-	1	2
Humerus	prox					2	1	-	3
	dist	1	-	-	1				
	shaft								
	ent								
Radius	prox								
	dist								
	shaft	-	1	-	1				
	ent	-	2	-	2				
Ulna		-	3	-	3				
Carpal									
Metacarpal	prox								
	dist								
	shaft								
	ent								
Innominate		2	1	-	3	1	1	1	3
Femur	prox					1	-	-	1
	dist	1	-	-	1				
	shaft								
	ent	1	-	-	1				
Patella									
Tibia	prox	2	1	-	3				
	dist								
	shaft					1	-	-	1
	ent								
Fibula									
Astragalus									
Calcaneum									
Naviculo - Cuboid									
Tarsal									
Carpal/Tarsal						-	-	2	2
Metatarsal	prox					-	-	1	1
	dist								
	shaft								
	ent					-	-	1	1
Metapodial		-	-	2	2	-	-	5	5
1st Phalange						-	-	3	3
1st or 2nd Phalange						-	-	6	6
3rd Phalange						-	-	6	6
Sesamoid									
TOTAL		9	10	4	23	7	3	26	36

Table 45 contd

BONE		11. SMALL MAMMAL (= PROB VOLE)				12. VOLE			
		L	R	L/R	TOTAL	L	R	L/R	TOTAL
Horn Core/Tine									
Skull						-	-	289	289
Premaxilla									
Maxilla						19	13	11	43
Max/Mand						-	-	16	16
Mandible						162	144	18	324
Atlas		-	-	12	12				-
Axis		-	-	9	9				
Scapula		11	11	4	26				
Humerus	prox	19	12	14	45				
	dist	39	40	11	90				
	shaft	2	1	18	21				
	ent	1	2	-	3				
Radius	prox	1	1	28	30				
	dist	-	-	14	14				
	shaft	-	-	5	5				
	ent	1	-	-	1				
Ulna		20	28	6	54				
Carpal									
Metacarpal	prox								
	dist								
	shaft								
	ent								
Innominate		46	43	3	92				
Femur	prox	61	91	6	158				
	dist	8	9	41	58				
	shaft	7	9	-	16				
	ent	10	8	-	18				
Patella									
Tibia	prox	33	27	9	69				
	dist	41	46	15	102				
	shaft	6	9	7	22				
	ent	4	4	-	8				
Fibula									
Astragalus		6	4	1	11				
Calcaneum		12	9	-	21				
Naviculo - Cubold									
Tarsal									
Carpal/Tarsal		-	-	1	1				
Metatarsal	prox								
	dist								
	shaft								
	ent								
Metapodial		-	-	154	154				
1st Phalange		-	-	28	28				
2nd Phalange		-	-						
3rd Phalange									
Sesamoid									
TOTAL		328	354	386	1,068	181	157	334	672

Table 45 contd

BONE		13. FIELD MOUSE				14. PYGMY SHREW			
		L	R	L/R	TOTAL	L	R	L/R	TOTAL
Horn Core/Tine									
Skull				2	2				
Premaxilla									
Maxilla		8	5	-	13				
Max/Mand									
Mandible		9	9	-	18	-	1	-	1
Atlas									
Axis									
Scapula									
Humerus	prox								
	dist								
	shaft								
	ent								
Radius	prox								
	dist								
	shaft								
	ent								
Ulna									
Carpal									
Metacarpal	prox								
	dist								
	shaft								
	ent								
Innominate									
Femur	prox								
	dist								
	shaft								
	ent								
Patella									
Tibia	prox								
	dist								
	shaft								
	ent								
Fibula/OS Malleolare									
Astragalus									
Calcaneum									
Navicuio - Cubold									
Tarsal									
Carpal/Tarsal									
Metatarsal	prox								
	dist								
	shaft								
	ent								
Metapodial									
1st Phalange									
2nd Phalange									
3rd Phalange									
Sesamold									
TOTAL		17	14	2	33	-	1	-	1

Table 45 contd

BONE		15. BROWN RAT				16. RABBIT*			
		L	R	L/R	TOTAL	L	R	L/R	TOTAL
Horn Core/Tine									
Skull		-	-	1	1				
Premaxilla									
Maxilla									
Max/Mand									
Mandible		-	1	-	1				
Atlas									
Axis									
Scapula									
Humerus	prox								
	dist						1		1
	shaft								
	ent								
Radius	prox								
	dist						1		1
	shaft								
	ent								
Ulna									
Carpal									
Metacarpal	prox								
	dist								
	shaft								
	ent								
Innominate									
Femur	prox		1		1				
	dist						1		1
	shaft								
	ent								
Patella									
Tibia	prox								
	dist						1		1
	shaft								
	ent								
Fibula/OS Malleolare									
Astragalus									
Calcaneum						1			1
Naviculo - Cubold									
Tarsal									
Carpal/Tarsal									
Metatarsal	prox								
	dist								
	shaft								
	ent								
Metapodial								5	5
1st Phalange									
2nd Phalange									
3rd Phalange									
Sesamoid									
TOTAL		-	2	1	3	1	4	5	10
						*All bones came from Phase 8			

Table 45 contd

17. BIRD

BONE	L	R	L/R	TOTAL
Cranium/Premaxilla	-	-	50	50
Mandible	5	7	31	43
Clavicle	-	-	17	17
Sternum	-	-	59	59
Coracoid	34	44	4	82
Scapula	16	15	10	41
Humerus	128	96	4	228
Radius	12	18	26	56
Ulna	80	75	9	164
Carpometacarpus	27	36	1	64
Innominate	14	10	54	78
Femur	69	62	5	136
Tibiotarsus	78	69	63	210
Fibula	-	-	7	7
Tarsometatarsus	77	56	16	149
Phalange 1 (Anterior of 2nd Digit)	-	-	13	13
Phalange (Other)	-	-	30	30
TOTAL	540	488	399	1,427

18. FROG/TOAD

BONE	L	R	L/R	TOTAL
Coracoid	-	-	2	2
Scapula	6	2	1	9
Humerus	40	31	-	71
Radio - Ulna	10	10	8	28
Ilium	14	16	-	30
Urostyle	-	-	6	6
Femur	31	49	5	85
Tibio - Fibula	2	2	99	103
Astragalus/Calcaneum	-	-	7	7
Metatarsal	-	-	1	1
Metapodial	-	-	1	1
Phalange	-	-	12	12
TOTAL	103	110	142	355

Table 46mf Bird bone species by their numbers and phase

Species	2	3	4	4/5	5	5/6	5/7	6	6/9	7	7/8	8	8/9	9
Great Northern Diver					2							2		
Slavonian Grebe												1		
Fulmar										3		1		
Sooty Shearwater										1				
Manx Shearwater										3	1			
Gannet						15		1		26*	1	16	1	10
Cormorant										15	2	6		4
Shag					2	4				15		6		2
Grey Heron										1				
Mute Swan										1		1		
Whooper Swan		2								9	2	5		1
White-Fronted Goose?												1		
Greylag Goose										11		3		1
Barnacle Goose										2				
Brent Goose										1		1		
Domestic/Greylag Goose										1		6		
Goose sp.										4				
Shelduck										1		1		
Wigeon										1		2		
Gadwall?										4		1		
Teal										2	1			1
Mallard?										5				
Mallard/Pintail										1	1	2		
Mallard/Domestic Duck														1
Pintail?							1					1		
Shoveller														2
Pochard										1				
Eider										3		2		
Long-Tailed Duck										1		1		
Common Scoter										1		1		
Velvet Scoter										1				
Goldeneye										4		3		
Smew										1				
Red-Breasted Merganser										2		4		1
Goosander										1				
Duck sp.		4								1		3		
Preditor sp.										1				
Red Kite												1		2

Table 46mf Bird bone species by their numbers and phase (cont'd)

Species	2	3	4	4/5	5	5/6	5/7	6	6/9	7	7/8	8	8/9	9
Buzzard/Goshawk												1		
Rough-Legged Buzzard						1								
Golden? Eagle												1		
Kestrel						2		1		9	5	5		
Merlin										4				
Peregrine						1				2				
Red Grouse						2		3	1	41	24	42*		25
Water Rail										2				
Spotted Crake												3		
Crane												8		
Moorhen												4		
Golden Plover			2							13	1	11		6
Grey Plover										1		1		1
Lapwing										1		1		
Knot														1
Stint sp										1				
Dunlin												1		
Ruff														2
Snipe										5		6		2
Woodcock												2		1
Godwit sp.										1				
Curlew										7		3		
Redshank										1				
Greenshank										2	1			
Green Sandpiper										1				
Turnstone										4	2	8		2
Wader sp.								1		1		2		
Black-Headed Gull										1		2		1
Common Gull										1		1		1
Lesser Black-Backed Gull										1				
Lesser Black-Backed/ Herring Gull										5		3		1
Herring Gull												3		
Great Black-Backed Gull												2		1
Great Black-Backed/ Glaucous Gull												1		
Gull sp.										4	1	3		1
Guillemot										6		8		5
Razorbill/Guillemot										1		2		
Razorbill														

Table 46mf Bird bone species by their numbers and phase (cont'd)

Species	2	3	4	4/5	5	5/6	5/7	6	6/9	7	7/8	8	8/9	9
Black Guillemot										1		6		
Little Auk						1				6	2	5		1
Puffin										2	1	5		
Auk sp.										1				1
Rock Dove								1	1	6	3	6		2
Stock Dove												1		
Tawny Owl										1				
Short-Eared Owl						1					7	17*		1
Skylark										1		4		1
Swallow												6		
Pipit?												1		
Great Grey Shrike/ Eastern European Thrush										4				
Waxwing										1		1		
Wren					1									
Warbler sp.										1				
Ringousel												4		
Ringousel/Blackbird										4		1		
Blackbird										1		7		1*
Fieldfare								2		5		2		1*
Song Thrush										8		7		
Song Thrush/Redwing						1				19		2		1
Redwing										2	2	5		
Mistle Thrush										1		8		
Thrush sp.										9*		13		1
Thrush/Starling										8		20		2*
Great Tit										6				
Rook/Crow										1		7		
Raven					2	11				19	21	10*		17
Starling	1					3			8*	108*	2	127*		40
Chaffinch										1				
Snow Bunting										1				
Reed Bunting										3				
Corn Bunting										1				
Lark/Bunting										2				
Finch sp.												1		
Small Passerine												1		
Domestic Duck											2			1
Domestic Fowl										5		3		58*
Domestic Goose										1				1