

Appendix: bone archive

Archive of identified bone fragments

Selected elements were recorded using the diagnostic zones method described by Dobney and Rielly (1988). Remaining elements which could be identified to species were counted and have been included in the 'unidentified' fragment archive table. Other fragments, (also classified as 'unidentified') were grouped into the following categories: large mammal (assumed to be horse, cow or large cervid), medium-sized mammal 1 (assumed to be sheep, pig or small cervid), medium-sized mammal 2 (assumed to be dog, cat, hare or equivalent sized mammal), and totally unidentified.

Key: Ct = context number; Id. No. = unique identification number for each bone; Iso. tooth wear = wear stages for isolated mandibular teeth; No. frags = number of fragments; LT50 = less than 50% of the zone represented; GT50 = greater than 50% of the zone represented; P/F = proximal fusion data; D/F = distal fusion data; df = distal fused; du = distal unfused; pf = proximal fused; a = adult; j = juvenile; l = left; r = right; b = both.

Date	Ct	Id. No.	Species	Element	Iso. tooth wear	No. frags	Side	LT50	GT50	P/F	D/F	NOTES
4thC	1003	1	cattle	radius		1	l		123456789 XJ	pf	df	
4thC	1003	2	cattle	ulna		1	l		BCDEFGH			Almost certainly adult but proximal articulation gnawed away
4thC	1003	3	cattle	radius		1	l		3489XHJ		df	
4thC	1003	4	cattle	radius		1	r	2	156EF	pf		
4thC	1003	5	cattle	radius		1	r	25E	1D	pf		
4thC	1003	6	cattle	radius		1	l	2	15	pf		
4thC	1003	7	cattle	tibia		1	l	8	569X		df	Distal articulation a little eroded
4thC	1003	8	cattle	calcaneum		1	l		12345	pf		
4thC	1003	9	cattle	calcaneum		1	r		12345	pf		Proximal articulation dog gnawed

Date	Ct	Id. No.	Species	Element	Iso. tooth wear	No. frags	Side	LT50	GT50	P/F	D/F	NOTES
4thC	1003	10	cattle	astragalus		1	l		1234	a		Some damage from dog gnawing
4thC	1003	11	cattle	astragalus		1	l		1234	a		
4thC	1003	12	cattle	tibia		1	r		12347	pf		
4thC	1003	13	cattle	femur		1	l	6	78XY		df	Very poorly preserved
4thC	1003	14	cattle	femur		1	l	9	78XY		df	Articulation extensively dog gnawed
4thC	1003	15	cattle	metatarsal		1	l		12345678		df	
4thC	1003	16	cattle	metatarsal		1	r		1256	a		
4thC	1003	17	cattle	metatarsal		1	r	56	12	a		
4thC	1003	18	cattle	metatarsal		1	r		3478		df	
4thC	1003	19	cattle	metatarsal		1	r		3478		df	
4thC	1003	20	cattle	phalanx 1		2	l		123	pf		
4thC	1003	21	cattle	phalanx 1		1	r		123	pf		
4thC	1003	22	cattle	phalanx 1		1	r		3	a		
4thC	1003	23	cattle	phalanx 2		2	l		123	pf		
4thC	1003	24	cattle	phalanx 2		1	r		123	pf		
4thC	1003	25	cattle	phalanx 3		1	l		12	a		
4thC	1003	26	cattle	cranium		1	b		12345			Includes two horncores, frontal and temporal bone, occipital and top part of orbit. In unidentified fraction there are many cranium fragments and two maxilla with teeth <i>in situ</i> which

Date	Ct	Id. No.	Species	Element	Iso. tooth wear	No. frags	Side	LT50	GT50	P/F	D/F	NOTES
												probably form rest of the skull.
4thC	1003	27	cattle	cranium		1	b	135	24			Frontal bone also present and base of one horncore
4thC	1003	28	cattle	M1/M2	G	1	r					
4thC	1003	29	cattle	M1/M2	G	1	r					
4thC	1003	30	cattle	M1/M2	F	1	r					
4thC	1003	31	cattle	M3	C	1	r					
4thC	1003	32	cattle	M3	C	1	r					
4thC	1003	33	cattle	M3	L	1	l					
4thC	1003	34	cattle	cuboid-navicular		2	l					
4thC	1003	35	cattle	carpal/tarsal		1						
4thC	1003	36	cattle	mandible		1	l		3456			
4thC	1003	37	cattle	mandible		1	r	1	2			P3 only present
4thC	1003	38	cattle	mandible		1	r	1	2			P2 only present
4thC	1003	39	cattle	mandible		1	r	2	1			P2 only present
4thC	1003	40	cattle	isolated teeth		2						Incisor (permanent) and P3
4thC	1003	41	cattle	pelvis		1	r	5	123468			

Date	Ct	Id. No.	Species	Element	Iso. tooth wear	No. frags	Side	LT50	GT50	P/F	D/F	NOTES
4thC	1003	42	cattle	pelvis		1	l		389	a		
4thC	1003	43	horse	calcaneum		1	l		12345	pf		
4thC	1003	44	horse	calcaneum		1	l		12345	pf		
4thC	1003	45	horse	pelvis		1	r	7	12545			
4thC	1003	46	horse	isolated teeth		1	r					Upper P2 - quite well worn
4thC	1003	47	horse	metapodial		1						
4thC	1003	48	dog	femur		1	l		123456	pf	df	Same individual as bone id 49
4thC	1003	49	dog	femur		1	r	5	13456	pf	df	Same individual as bone id 48 and probably 50 and 51
4thC	1003	50	dog	tibia		1	r		1234	pf		Same individual as bone id 51 and probably 48 and 49. Bp = 28.42
4thC	1003	51	dog	tibia		1	l		123	pf		Same individual as bone id 50 and probably 48 and 49. Bp = 28.73
4thC	1003	52	dog	pelvis		1	r		12			Adult dog medium-sized
4thC	1003	53	dog	pelvis		1	l		2			Adult dog medium-sized
4thC	1003	54	pig	maxilla + teeth	2	1						
4thC	1003	55	pig	maxilla + teeth	1	r						
4thC	1003	56	pig	M3	A	1						
				isolated								

Date	Ct	Id. No.	Species	Element	Iso. tooth wear	No. frags	Side	LT50	GT50	P/F	D/F	NOTES
4thC	1003	57	pig	teeth		3						1 upper premolar, 2 unerupted teeth
4thC	1003	58	pig	scapula		1	r		12345		df	
4thC	1003	59	pig	humerus		1	r		78		a	probably adult but distal articulation gnawed by dog
4thC	1003	60	pig	radius		1	r		125	pf		
4thC	1003	61	pig	tibia		1	r		56X		df	
4thC	1003	62	pig	calcaneum		1	r		2345	a		
4thC	1003	63	pig	femur		1	r	23	678	j	j	
4thC	1003	64	pig	metatarsal 3		1	l		13			
4thC	1003	65	pig	5th metacarpal	1	1		13		du		
4thC	1003	66	pig	metatarsal 5		1	l		13			
4thC	1003	67	pig	phalanx 3		1	r		12			
4thC	1003	68	pig	phalanx 1		1	l		23	pu		
4thC	1003	69	pig	phalanx 1		1	r		12	pf		
4thC	1003	70	dog	fibula		1						
4thC	1003	71	caprovid	mandible		1	l		16			
4thC	1003	72	caprovid	M1/M2	9A	1						

Date	Ct	Id. No.	Species	Element	Iso. tooth wear	No. frags	Side	LT50	GT50	P/F	D/F	NOTES
4thC	1003	73	caprovid	M3	5A	1	l					3rd cusp broken
4thC	1003	74	caprovid	isolated teeth		1	l					Upper molar
4thC	1003	75	caprovid	scapula		1	r	9	123457		df	
4thC	1003	76	caprovid	metacarpal		1	l		125678			
4thC	1003	77	caprovid	metacarpal		1	r		26	sa		
4thC	1003	78	caprovid	metacarpal		1	i		5678			Juvenile - no articulations present
4thC	1003	79	caprovid	metatarsal		1	r	12	5678	j		
4thC	1003	80	caprovid	pelvis		1	l	Y	26	a		
4thC	1003	81	caprovid	pelvis		1	r		3			
4thC	1003	82	duck	coracoid		1	r		12	a		Slightly larger than mallard
4thC	1003	83	duck	scapula		1	r		12			Slightly larger than mallard
4thC	1003	84	duck	scapula		1	l		12			
4thC	1003	85	duck	femur		1	r	1	23		df	
4thC	1003	86	rook/crow	ulna		1	r		23			
4thC	1003	87	fowl	humerus		1	r		23			
4thC	1003	88	fowl	ulna		1	l		12	pf		
4thC	1007	89	cattle	radius		1	r		5689XJ		df	
4thC	1007	90	cattle	tibia		2	r		56X		df	Edges rounded

Date	Ct	Id. No.	Species	Element	Iso. tooth wear	No. frags	Side	LT50	GT50	P/F	D/F	NOTES
4thC	1007	91	cattle	isolated teeth		2						Upper molars
4thC	1007	92	pig	astragalus		1	l		1234	a		
4thC	1007	93	pig	humerus		1	r		78			Distal articulation chopped off
4thC	1007	94	pig	maxilla + teeth		1	r					Includes male canine tooth
4thC	1007	95	pig	M3		1						Upper tooth
4thC	1007	96	pig	2nd metacarpal		1	r		13		du	
4thC	1007	97	duck	coracoid		1	r		12			
4thC	1007	98	fowl	femur		1	l	2	1	a		
4thC	1007	99	duck	carpometacarpus		1	l		123	a		
4thC	1007	100	duck	radius		1	l					
4thC	1012	107	cattle	mandible		1	r	2	1			Rather battered and fragile
4thC	1017	108	dog	femur		1	r		345	pu	du	Medium-sized dog
4thC	1017	109	dog	pelvis		1	r		12	a		Medium-sized dog
4thC	1017	110	cattle	phalanx 1		1	l		123	pf		Very eroded and damaged by fresh breakage
L3rd/ E4thC	1025	101	cattle	metatarsal		1	l	78	1256	a		
L3rd/				cuboid-								

Date	Ct	Id. No.	Species	Element	Iso. tooth wear	No. frags	Side	LT50	GT50	P/F	D/F	NOTES
E4thC	1025	102	cattle	navicular		1						
L3rd/ E4thC	1025	103	cattle	phalanx 2		1	l		123	pf		
L3rd/ E4thC	1025	104	cattle	phalanx 2		1	r		123	pf		
L3rd/ E4thC	1025	105	cattle	pelvis		1	l	6	124	a		
L3rd/ E4thC	1025	106	caprovid	metacarpal		1	l		125678		du	
L3rd/ E4thC	1027	112	horse	scapula		2	l	67	23		df	

Archive of unidentified bone fragments

Date	Context	Category	Element/group	No. frags	Notes
4thC	1003	Bird	pelvis	1	?fowl
4thC	1003	Medium mammal 1	vertebrae	2	
4thC	1003	Large mammal	pelvis	3	
4thC	1003	Medium mammal 2	rib	5	
4thC	1003	Bird	shaft	6	
4thC	1003	Medium mammal 2	vertebrae	6	
4thC	1003	Medium mammal 1	rib	7	
4thC	1003	Large mammal	vertebrae	10	.
4thC	1003	Large mammal	mandible	13	
4thC	1003	Medium mammal 1	shaft	18	
4thC	1003	Large mammal	cranium	30	Some fresh breakage
4thC	1003	Large mammal	shaft	37	Quite fragmented
4thC	1003	Large mammal	rib	106	Much fresh breakage.
4thC	1003	Unidentifiable	unidentified	132	
4thC	1007	Bird	shaft	1	
4thC	1007	Bird	tarsometatarsus	1	Possibly fowl with spur scar
4thC	1007	Large mammal	vertebrae	1	
4thC	1007	Unidentifiable	horncore	1	

Date	Context	Category	Element/group	No. frags	Notes
4thC	1007	Medium mammal 2	vertebrae	1	
4thC	1007	Medium mammal 1	rib	2	
4thC	1007	Medium mammal 1	vertebrae	2	
4thC	1007	Unidentifiable	unidentified	4	4 burnt fragments
4thC	1007	Large mammal	shaft	10	
4thC	1007	Large mammal	rib	12	
4thC	1012	Medium mammal 1	vertebrae	1	
4thC	1012	Large mammal	rib	2	
4thC	1012	Medium mammal 1	shaft	2	
4thC	1014	Large mammal	rib	1	
4thC	1014	Large mammal	shaft	1	
4thC	1015	Large mammal	rib	1	
4thC	1015	Medium mammal 1	shaft	1	
4thC	1016	Large mammal	rib	1	
4thC	1016	Large mammal	vertebrae	1	
4thC	1016	Medium mammal 1	vertebrae	1	
4thC	1016	Unidentifiable	unidentified	2	
4thC	1017	Large mammal	shaft	1	
4thC	1017	Medium mammal 2	scapula	1	Possibly fragment of dog scapula

Date	Context	Category	Element/group	No. frags	Notes
4thC	1017	Medium mammal 2	vertebrae	1	?Vertebra fragment from dog
4thC	1017	Large mammal	vertebrae	2	
4thC	1017	Large mammal	rib	3	
L3rd/ E4thC	1025	Medium mammal 1	fibula	1	?Juvenile pig fibula
L3rd/ E4thC	1025	Medium mammal 1	pelvis	1	Burnt
L3rd/ E4thC	1025	Large mammal	vertebrae	2	
L3rd/ E4thC	1025	Medium mammal 1	shaft	2	
L3rd/ E4thC	1025	Large mammal	rib	4	
L3rd/ E4thC	1025	Large mammal	shaft	8	
L3rd/ E4thC	1025	Unidentifiable	unidentified	8	Six fragments are burnt

Butchery records

Key: sh/g = sheep/goat; kns = knife marks; ch = chop mark; sp = split longitudinally; zones follow those outlined by Dobney and Rielly (1988).

Date	Context	Id. No.	Species	Element	Type of butchery	Zone	Notes
4thC	1003	3	cattle	radius	ch	8H	
4thC	1003	4	cattle	radius	sp	15	Bone split and ulna chopped off
4thC	1003	5	cattle	radius	sp	2D	
4thC	1003	6	cattle	radius	sp	15	
4thC	1003	7	cattle	tibia	ch	89	Chopped through shaft
4thC	1003	16	cattle	metatarsal	ch	56	Chopped across shaft
4thC	1003	17	cattle	metatarsal	kns	56	Series of vertical chops just below proximal articulation
4thC	1003	18	cattle	metatarsal	ch	78	Chopped across shaft
4thC	1003	26	cattle	cranium	kns	frontal	
4thC	1003	27	cattle	cranium	kns	frontal	
4thC	1003	38	cattle	mandible	ch	2	Zone 7 chopped off
4thC	1003	61	pig	tibia	ch	X	Chopped down shaft
4thC	1003	75	sh/g	scapula	kns	123	Knife marks across bone
4thC	1003	79	sh/g	metatarsal	kns	56	Knife marks just below proximal articulation
4thC	1007	89	cattle	radius	ch	8	Chopped across shaft
4thC	1007	92	pig	astragalus	kns	12	

Date	Context	Id. No.	Species	Element	Type of butchery	Zone	Notes
4thC	1007	93	pig	humerus	ch	78	

Mandible and teeth records

*After O'Connor (1988); **After Payne (1973; 1987).

Date	Context	Id. No.	Species	Element	DP4	M2	Notes
4thC	1012	107	cattle	mandible	G		DP2 and 3 also present
4thC	1003	71	sh/g	mandible		BKN	
Date	Context	Id. No.	Species	Tooth	Tooth wear	*General age category	**Detailed age category
4thC	1003	28	cattle	M1/M2	G		
4thC	1003	29	cattle	M1/M2	G		
4thC	1003	30	cattle	M1/M2	F		
4thC	1003	31	cattle	M3	C	Adult 2	
4thC	1003	32	cattle	M3	C	Adult 2	
4thC	1003	33	cattle	M3	L	Elderly	
4thC	1003	56	pig	M3	A	Adult 1	
4thC	1003	72	sh/g	M1/M2	9A		
4thC	1003	73	sh/g	M3	5A	Adult 2	E (2-3 yrs)

Measurements

Measurements (in mm) follow those outlined by von den Driesch (1976) and Dobney *et al.* (1996).

Astragalus								
Date	Context	Id. No.	Species	Element	Bd	DI	GLI	GLm
4thC	1003	10	cattle	astragalus	41.83	36.55	63.3	-
4thC	1003	11	cattle	astragalus	36.77	30.55	56.37	-
4thC	1007	92	pig	astragalus	20.84	-	35.5	33.79

Calcaneum								
Date	Context	Id. No.	Species	Element	C	+D	DS	L
4thC	1003	8	cattle	calcaneum	27.14	48.37	42.42	140.61
4thC	1003	9	cattle	calcaneum	26.49	48.12	42.38	140.38
4thC	1003	43	horse	calcaneum	-	-	-	102.54
4thC	1003	44	horse	calcaneum	-	-	-	106.78
4thC	1003	62	pig	calcaneum	12.61	27.53	-	-

Femur								
Date	Context	Id. No.	Species	Element	GL	SD	Bd	Bp
4thC	1003	48	dog	femur	147.63	11.61		31.41

Femur								
Date	Context	Id. No.	Species	Element	GL	SD	Bd	Bp
4thC	1003	49	dog	femur			25.71	

Horncore								
Date	Context	Id. No.	Species	Element	45	46	BC	
4thC	1003	26	cattle	horncore	56.71	44.69	163	

Metacarpal								
Date	Context	Id. No.	Species	Element	SD	Bp	Dp	
4thC	1003	76	sh/g	metacarpal	13.25	22.1	16.23	

Metatarsal												
Date	Context	Id. No.	Species	Element	GL	SD	Bp	Dp	Bd	Dem	Dvm	Dim
L3/E4thC	1025	101	cattle	metatarsal	-	28.11	47.76	-	-	-	-	-
4thC	1003	15	cattle	metatarsal	222.3	28.47	50.71	44.76	56.57	24.38	31.8	28.84
4thC	1003	16	cattle	metatarsal	-	21.93	41.54	-	-	-	-	-
4thC	1003	17	cattle	metatarsal	-	-	46.7	-	-	-	-	-
4thC	1003	18	cattle	metatarsal	-	-	-	-	48.7	21.86	29.91	26.11
4thC	1003	19	cattle	metatarsal	-	-	-	-	45.59	18.86	25.67	23.67

Radius										
Date	Context	Id. No.	Species	Element	GL	SD	BFp	Bp	BFd	Bd
4thC	1003	1	cattle	radius	308	43.16	81.68	88.13	69.91	77.27
4thC	1003	3	cattle	radius	-	-	-	-	-	56.03
4thC	1007	89	cattle	radius	-	-	-	-	66.91	70.68
4thC	1003	60	pig	radius	-	-	-	25.32	-	-

Scapula					
Date	Context	Id. No.	Species	Element	SLC
4thC	1003	75	sh/g	scapula	17.67

Tibia						
Date	Context	Id. No.	Species	Element	Dd	Bd
4thC	1003	7	cattle	tibia	45.5	58.52
4thC	1003	61	pig	tibia	-	27.28