Jgg87a_ Fragmention

A method of recording fragmentation by hand.
Gill Jones 1987a

Talk at the Association for Enviromental Archaeology Animal Bone
Fragmentation Working Party, Durham.

Gill Jones described briefly a recording system and
a table summarising skeletal elements. The general method
is summarised in Jones (forthcoming, East Anglian
Archaeology):-

The total number of bones (BN) consists of all
identified pieces including shaft fragments and fairly
complete vertebrae but excluding ribs and fragmentary
vertebrae. Bones were recorded on two lists: a 'zone' and
a fragments list. On the zone list were recorded complete
bones or pieces as follows:

Skull- substantial pieces of horncore, frontal,
         lacrimal, malar, parietal, squamous temporal,
         occipital, premaxilla;
       - upper jaw and mandible with at least one
         tooth present;
       - loose teeth.
Long bones- where more than half the proximal end,
         shaft or distal end was present (and see note
         below on cattle and on shaft pieces). Where
         an immature bone was found with its epiphysis
         this was counted as one bone but otherwise
         both metaphyses and epiphyses were counted.
Other bones- more than half the following bones or
         bone elements: vertebra; scapula- the distal
         end; ulna- the proximal articulation; pelvis
         - the iliac, ischial and/or pubic part of the
         acetabulum; calcaneum- the articulation;
         phalanges.

With cattle, substantial pieces even if less than
half complete were included since these large bones are
normally more fragmented than those of sheep and pig, and
important epiphyseal fusion data would be lost if such
pieces were not recorded in detail. But if, for example,
two pieces of proximal tibia came from one layer and
could be from the same individual, only one was allotted
to the zone list.

With long bone shafts the zone count includes all
where more than half the bone shaft was present and in
addition the following smaller areas of bone: the distal
posterior part of the humerus, the proximal ulnar groove
of the radius and the supracondylar fossa of the femur.
Ideally these counts should be kept separate but for
brevity's sake they have been combined. (Note that
proximal, shaft and distal ends in the zone list cannot
be added to arrive at the number of bones present, since
one complete bone will figure in all three).

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Many bone elements occur uniquely in the skeleton, e.g. atlas vertebra, left proximal radius, and these are underlined and suggest the minimum number of individuals represented by that bone element.

Small pieces of bone were recorded on the fragments list as a simple count of each bone in the skeleton.

The primary record sheet is shown with some example humeri filled in:

    a) complete, right bone, both ends fused;
    b) complete bone, both ends unfused, epiphyses
       present;
    c) nearly complete bone, proximal end unfused
       (epiphysis missing), distal end partly fused;
    d) distal end (more than half complete, but see note
       on cattle, above), fused;
    e) shaft, similarly;
    f) just the distal posterior part of the shaft
       (where the rise into the condyles begin) is
       present;
    g) f) plus the distal, fused, end;
    h) a distal metaphysis and an epiphysis, which do
       not match.

Other examples, plus some left bones, follow. Some fragments are shown in the lower right of the page.

The 'zone' totals (italics), the fusion data (small print) and the number of bones - main list, fragments and total (encircled)- are shown.

The description given here is for discussion. It does not describe the method fully, i.e.: to the point where another worker would produce a nearly identical record from the same bone sample. For example, further points arise on other bones of the skeleton, and symbols are added to the records e.g.: measurement taken, pathology, note on back of sheet.

The system could be adjusted to any other number or descriptions of zones/elements e.g. more zones could use more lines, left and right could be combined. Counting up of bone elements is, for a manual system, simple. And as one works through a site, the recording sheets build up a general, visual representation of the bone e.g.: lots on the fragments list, many unfused, related vertebrae, metapodials often complete.

A copy of the skeletal analysis from period III (10th Century) at Thetford is shown (Table 2). It is certainly an imperfect summary, and it raises questions about what raw data should be published and how the zones and fragments might most usefully be defined. For 'data per square inch' and 'Why should this be so different from that?' I have found it interesting.

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Primary Record Sheet

Left column	Right column
Site	ti p
Species	L s
	d
	m.di.vt.
mc R	BODY 20
R	calc R
	prox
skull both	astr L
L	astr R
	L
	p
nc L	R s
mx R	mc d
L	p
md R	L s
L	d
teeth	p
	R s
HEAD —	mt d
atlas	p
axis	L s
other	d
cerv.	c/s dmp
thor	pig ab.ph
lumb.	ph 1st
sacr	2nd
cdl	3rd
VT	ab. ph.
sc R	FOOT —

zone — see text
BN — no. of bones
u — unfused
y — partly fused
F — fused

Summary	
'zone'	fusion u, y, F
5	prox. 4,1,2
11	dist.
10	5,1,9
2	BN z 20
4	fr 10
5	tot (30)

right
ZONE TOTAL 20
TOTAL 30
CONTEXT 10 g 3
MN
FRAGS TOTAL 10
hc
sk
mx
md
"
t
HEAD —
at/ax
sc
hu 8, 2
ra
ul
pe
fe
ti/fi
BODY 10
cp/tsl
mc
mt
mp
ph
FOOT —

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Table 2 Skeletal Analysis of Main Species , Period III

	Cattle No.of Bones	Cattle Zone L	Cattle Zone R	Sheep/Goat BN	S/G Zone L	S/G Zone R	Pig BN	Pig Zone L	Pig Zone R	
horncore	19	8	7	18 sh	5	11				hc
				3 gt	1	2				
skull	146	75		73	60		45	36		sk
maxilla	31	19	12	20	7	11	32	16	20	mx
mandible	127	31	34	112	43	37	60	15	23	md
loose teeth	63	54		41	37		33	27		t
Head 820	386	(225)		264	(212)		170	(132)		
vert.,atlas		15			12			12		at
axis		7			10			1		ax
other cerv.		33			18			4		cv
thoracic		34			10			14		th
lumbar		28			28			10		lu
sacrum		10			1			-		sa
caudal		9			-			-		cd
sub-total	141	136		79	79		42	41		vt
scapula	117	d 12	20	79	d 13	19	39	d 12	12	sc
humerus	69	p 5	4	57	p 2	1	43	p 1	2	hu
		s 10	14		s 15	16		s 19	18	
		d 10	12		d 6	13		d 9	5	
radius	66	p 9	21	97	p 24	17	21	p 7	5	ra
		s 6	8		s 35	36		s 5	9	
		d 9	11		d 12	12		d 2	2	
ulna	24	p 10	13	18	p 13	9	25	p 13	12	ul
pelvis	80	il 16	15	71	il 13	15	26	il 4	6	pe
		is 11	14		is 18	13		is 6	6	
		pu 6	13		pu 9	5		pu -	4	
femur	73	p 8	5	59	p 3	3	17	p 1	1	fe
		s 15	13		s 19	10		s 7	5	
		d 7	7		d 9	4		d 1	2	
patella	8	8		-			fib. 7			
tibia	106	p 9	9	135	p 1	6	36	p 5	3	ti
		s 7	12		s 31	35		s 8	12	
		d 21	19		d 23	26		d 9	6	
Body 1535	684	(444)		595	(435)		256	(218)		
calcaneum		22	17		11	2		1	6	ca
astragalus		17	11		2	1		2	1	as
carpal/tars.	199			17			10			c/t
metacarpal	77	p 13	40	60	p 14	18	15			mc
		s 15	33		s 14	23		III IV III IV		
		d 12	30		d 9	11		p 3 - 5 6		
								d 2 - 6 6		
metatarsal	78	p 15	26	95	p 25	22	12	p 2 3 2 5		mt
		s 14	29		s 33	33		d 2 1 2 4		
		d 13	20		d 12	8				
metapodial	5						abax 14 (mp+ph)			
phalanx	98	1st 63		16	1st 13		6	1st 6		ph
		2nd 18			2nd 3			2nd -		
		3rd 17			3rd -			3rd -		
Foot 600	357	(291)		186	(154)		57	(57)		
TOTAL 2960	1427	(960)		1050	(801)		483	(407)		

Unidentified	C/h-size	S/p-size	Small	Bird
vertebra	157	58	-	-
rib	643	740	1	5
other	623	374	5	23
Total 2629	1423	1172	6	28

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zone- see text; p- proximal; s- shaft; d- distal; il/is/pu- iliac/ischial/pubic part of acetabulum; C/h - cattle/horse; S/p - sheep/pig; underlining indicates min. no.