CHAPTER 6

THE HUMAN REMAINS AND ASPECTS OF PYRE TECHNOLOGY AND CREMATION RITUALS

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INTRODUCTION

This analysis represents the first comprehensive study of cremated remains from a later Romano-British cemetery associated with one of the northern frontier forts. The discussion arising from the presented data demonstrates the potential for recovery of a wide range of information both pertaining to the cremated individuals and illustrative of the complexity of the rituals and rites surrounding this form of disposal of the dead, and the variety of deposit types which may be represented archaeologically.

Cremated bone from 322 contexts and sub-contexts was included in the analysis. Bone was recovered from 241 of the features issued with 'burial', 'cist' or 'feature' numbers during the 1966 and 1967 excavations. In 48 of these contexts, bone was collected from one or more individually coded sub-deposits, being separated either for the purpose of environmental sampling or because it appeared to represent a discrete deposit. Bone from six other 'contexts' comprised unstratified material from clearance layers. The remains of a burial lifted during the insertion of an electricity pylon in 1958 were also examined (**349**).

All the deposits are of third or very early fourth-century date. A variety of cremation-related deposits are represented, predominantly urned burials, many of which also had redeposited pyre debris incorporated within the grave fill. Some unurned burials and individual formal deposits of pyre debris were also present (see below).

METHODS

What is known of the excavation procedure has been discussed on p. 13. Where a context had been excavated as a series of sub-contexts the division was maintained throughout analysis to preserve any evidence for different rituals, such as the presence of more than one type of deposit or those relating to the remains deriving from different cremations.

Osteological analysis followed the writer's standard procedure for the examination of cremated bone (McKinley 1994a, 5–21). Age was assessed from the stage of skeletal and tooth development (van Beek 1983; McMinn and Hutchings 1985; Webb and Suchey 1985), and the general degree of age-related changes to the bone (Bass 1987). Sex was ascertained from the sexually dimorphic traits of the skeleton (Gejvall 1981; Buikstra and Ubelaker 1994).

The northern half of deposit **198** was excavated on site and the southern half was lifted *en masse* encased in wax. The preserved half of the deposit was excavated by the writer in a series of seven stratigraphic levels and horizontal divisions to demonstrate in detail the distribution of the archaeological components, and infer the formation process of the deposit.

The stratigraphic data and evidence from the cremated remains was used to deduce the type of deposits represented and the formation processes.

RESULTS

A basic summary of the results from the examination of the cremated remains is given with the details of each deposit in Chapter 4. The 'total weight' of cremated bone includes all cremated bone be it human, animal or artefactual; the extracted weight of the latter two is indicated in brackets following this. The pyre goods and pyre debris recorded as part of the human bone entry refer only to those items recovered by the writer during osteological examination and do not necessarily represent the total amount of material recovered. The key to the abbreviations used in these entries will be found at the beginning of Chapter 4 on p. 44.

DEPOSIT TYPES

The definition of deposit types was based on the interpretation of the primary field records, the evidence derived from the osteological analysis and the other archaeological components within the deposit (see p. 16). The excavators had assumed that all the deposits represented burials – hence the original numbering as 'burials' – and that those deposits which did not conform with the expected characteristics had been robbed. Consequently, in some cases, the primary field data is insufficiently detailed in description and/or the integrity of the deposit in too much doubt to assist in interpretation and the deposit type remains unknown or, at least, questionable.

Four basic types of deposit were identified, all of which have been recognised amongst cremation-related deposits of most periods in Britain and previously defined by the writer (McKinley 1997a; 1997b, 56–7; 2000a; 2000b; 2000c). Most correspond with similarly varied types of funerary deposits recorded across a wide geographic range in the rest of Europe (e.g. Todd 1977; Flouest 1993; Witteyer 2000, figs 13 and 14). The funerary deposits recognised at Brougham include:

Burials – urned, unurned or otherwise 'contained' – with or without redeposited pyre debris in the grave fills.
Accessory burials (urned or unurned).
Discrete, formal deposits of pyre debris.
Cenotaphs.

Urned burials are where the bone has been buried within a vessel. Unurned burials comprise a discrete concentration of cremated bone, probably originally contained in some form of organic container (cloth, leather, basket), usually placed at the base of the grave. The burial itself may be preceded by the deposition of pyre debris (see below) as the primary deposit within the grave as, for instance, in one burial at South Shields (Snape 1994) and at least one at Beckfoot (Bellhouse and Moffat 1959).

The accessory burials tend to be directly related to the main burial, be that of the remains from a single or dual cremation, and generally contain small quantities of bone.

The cenotaphs appear to represent substitutes for the formal burials, the vast majority of the cremated remains having been disposed of outside the confines of the cemetery. These deposits are characterised by possessing many of the same archaeological components as within the burials – e.g. similar groups of pots – with the exception that they contain *very* small quantities of bone. For example, the undisturbed deposit **42** contained 6.4g of adult human bone, which represents a maximum of 0.6% of the weight of bone remaining from an adult cremation (McKinley 1993). It is inaccurate to refer to such deposits as 'token burials' since all archaeological cremation burials could be described as such, in that they very rarely, if ever, contain the total quantity of bone which would remain after cremation (McKinley 1997a; 2000d). Where it is clear that more than 99% of the expected minimum weight of bone is absent from an undisturbed deposit it obviously does not represent a 'burial' in the same way as others containing more representative proportions.

Pyre debris represents all the material remaining at the pyre site after the bone and pyre goods intended for formal 'burial' has been removed. If redeposited, pyre debris comprises a

mix of archaeological components, predominantly fuel ash (charcoal), often including varying quantities of cremated bone and pyre goods, and – depending on soil type – burnt flint, burnt clay/soil and fuel ash slag. Deposits of pyre debris may be found in various forms in most periods within which the rite of cremation was practised in Britain (McKinley 1997a; 2000a), including within grave fills, over graves, redeposited in existing features and within apparently deliberately excavated features. The nature of this material generally means that there is a formal 'burial' to which it should relate somewhere within close proximity to where it is deposited.

There are 62 deposits (21.4%) of uncertain (23 burials with redeposited pyre debris or just redeposited pyre debris) or unknown (39) type. The majority were disturbed or of uncertain integrity and contained less than 50g of bone.

DISTURBANCE AND CONDITION OF THE BONE

The level of truncation within the cemetery appears to have been relatively low, though some undoubtedly did take place. The majority of deposits were made into relatively deep stone-lined cists or pits, with a small number recovered from the 'topsoil' – presumably originally placed within relatively shallow cuts.

Approximately 33% of deposits had suffered some level of disturbance and an unknown quantity of bone could potentially have been removed. The bone which did remain in these deposits was probably, at least in part, redeposited. In a further 4% of deposits the surviving records imply that only a 'sample' of the bone was retained, which limits the potential not only for the recovery of demographic and pathological data, but for ascertaining aspects pertaining to the type of deposit and the attendant ritual processes. The surviving records for about 8% of the deposits were insufficient to ascertain the level of disturbance or lack of it, rendering them of questionable integrity.

In situ crushing or fracturing of urned burials had occurred in 14% of the deposits, primarily as a result of the cist capstones collapsing in on the assemblage either in antiquity or during excavation machining. Although consequent physical removal of bone from these deposits is unlikely, the disturbance may have affected the bone fragment size and survival, some fragments possibly being reduced to dust. Only 41% of the cemetery assemblage can be classified as totally undisturbed, rendering these deposits of primary use in all subsequent areas of study. Nine of the urned burials were lidded and in four cases (**160**, **168**, **171** and **188**) no soil had infiltrated the interior of the vessels.

There are only two cases in which the bone physically appears in poor condition, that from **33** (21g) being abraded and that from **62** (2.2g) being worn and chalky. The latter is commonly observed in bone from highly acid burial environments. The former deposit was clearly disturbed which is likely to have contributed to its appearance. The deposit type and integrity of **62** are uncertain but the condition of the bone demonstrates exposure to different environmental conditions from all the other deposits, probably exacerbated by disturbance and redeposition.

The physical appearance of cremated bone can be deceptive. It has previously been observed that trabecular bone (e.g. vertebrae, pelvic bones, articular surfaces) suffers preferentially from the affects of aggressive soil conditions (generally acidity), crumbling to dust on excavation which if unrecorded at the time would pass unnoticed in the archaeological record (McKinley 1997b, 57). The presence of large quantities of charcoal should have a neutralising effect on an acidic burial environment. It was noted by the writer during excavation of **198**, that fragments of pyre goods comprising trabecular bone sometimes crumbled badly despite great care in lifting. The potential significance of this observation should be measured against the fact that these bone fragments already comprised dry bone at the time of cremation and that the deposit had been encased in wax in a dry atmosphere for 33 years prior to excavation, both factors which may have affected their survival. A comparison was made between the relative amounts of trabecular bone recovered from the four urned burials into which no soil had infiltrated and the bone from other deposits, from which a number of general observations

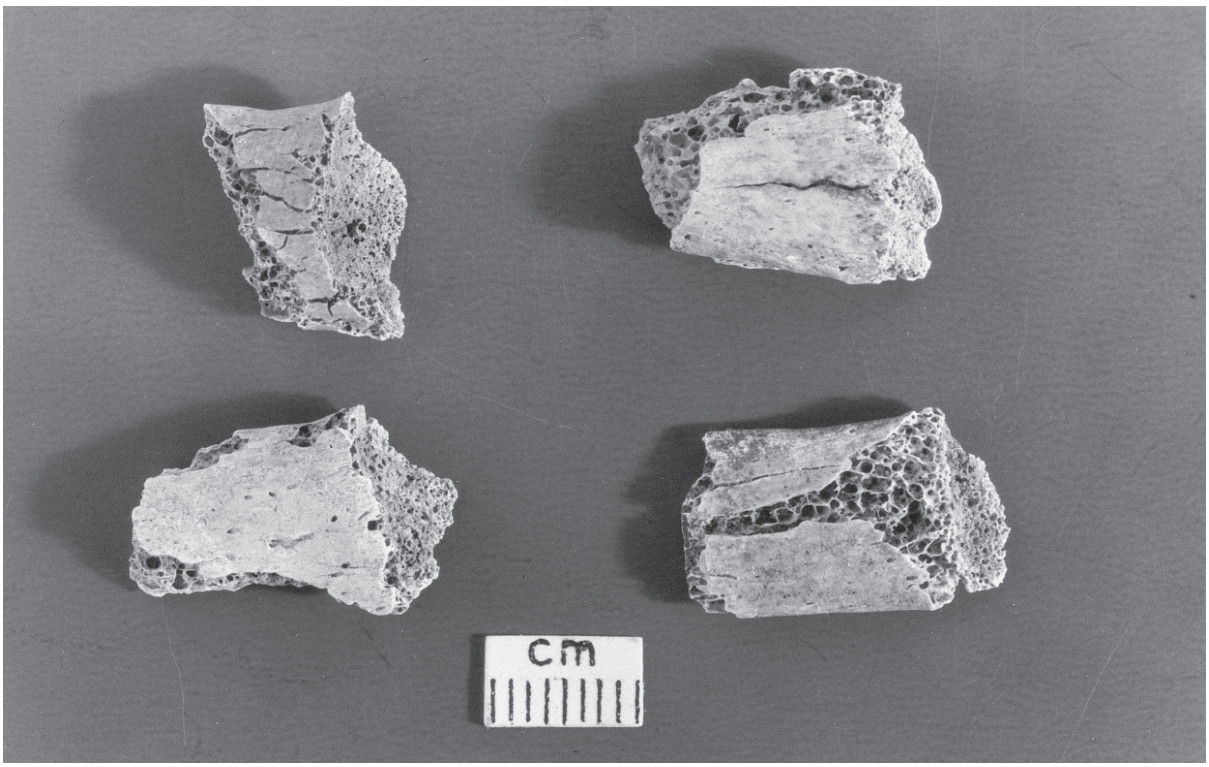

FIG. 6.1 Very rare survival of sternal ends of ribs from **237**.

may be made. Generally, larger quantities of trabecular bone fragments were observed in the urned burials than in other types of deposit, and those urned burials which were undisturbed or only fractured/crushed also appeared to contain more than the disturbed ones. From this it may be deduced that although the bone generally appears in good condition (see for example FIG. 6.1), there is likely to have been a degree of destruction of trabecular bone in some deposits.

The bone from 28 deposits (10%) showed varying levels of charcoal staining from slight to heavy. In one instance (**270**) only some of the bone was stained and in another (**160**) only six fragments from a large collection (545.6g) were stained. The majority of these contexts (21) comprised discrete deposits of pyre debris in specifically cut features, and the rest were from urned (5) or unurned (2) burials in which redeposited pyre debris had been incorporated in the grave fills. Such staining to bone deposited amongst a mass of fuel ash is not unexpected, what may be more open to question is why staining was noted to bone from only 40% of the redeposited pyre debris. If the single factor necessary for charcoal staining was the incorporation of bone within pyre debris, it may be expected that bone from all such deposits would be stained.

The staining to six bone fragments from the 'urned burial' **160** may be explained by the recorded presence of redeposited pyre debris in the fill around the urn from which there was no separate collection of bone. The six fragments are likely to have been within this different burial environment but incorporated with the rest of the bone from the burial in excavation/post-excavation. The differential staining to the bone in **270** probably results from the disturbance to the deposit, some bone being moved away from the mass of charcoal in the fill.

The levels of staining – including apparent absence – may be illustrative of the quantity of fuel ash within the deposit. Unfortunately, the hypothesis is difficult to test since the written records commonly make no mention of the presence or absence of charcoal (recorded in only half the cases where staining was observed), or of the quantities observed (a relative statement was made in only seven cases). In some instances records categorised under 'bone and charcoal' specify no charcoal was present, thereby casting doubt on others in this category where no specific mention of charcoal is made. There are records of 'samples' taken from some deposits

but no sample size is specified. The few deposits (*c.* 8%) with extant remains from the samples do not include all those from which samples were apparently taken and do include some for which no 'sample' was specified in the records. Only five of the deposits containing stained bone have extant samples (the rest appear not to have been sampled), four containing 'rare' charcoal (0–10 fragments) and one 'moderate' amounts (11–50 fragments). The bone from the latter was not noticeably more heavily stained than the others and two deposits with heavily stained bone contained 'rare' quantities of charcoal in the sample. Any potential correlation – or lack of it – must be qualified by the fact that the size of the samples is unknown as, often, is their exact location within the fill.

Just how representative these quantities of charcoal may be of the total amounts which were originally present is highlighted by the substantial quantity of 303.3g recovered by the writer from **198** (total bone weight 603.2g). No charcoal sample was taken from the other half of this deposit excavated in 1967, described as comprising a 'rich black fill'.

The only obvious pattern in the staining is that where an urned burial was made with redeposited pyre debris in the grave fill (each a product of the same cremation), the bone from the former was not stained whilst that from the latter was. Where the burial was unurned, the bone from both the burial and the redeposited pyre debris was stained. Neither observation is surprising and conforms with staining due to the post-depositional close proximity of the fuel ash, a characteristic commonly observed in deposits of this type. The majority of the bone in the redeposited pyre debris represented the remains of adults, including both sexes, and most was present in small quantities of less than 100g.

The most obvious explanation for the apparent absence of staining in bone from redeposited pyre debris would be the small quantity of fuel ash present, a hypothesis supported by the fact that no deposits without redeposited pyre debris contain any stained bone. Confirmation is however not forthcoming due to the erratic levels of recording. There are two other possibilities. Variation in the burial environment, perhaps those holding more moisture (?closely packed cist stones) may have encouraged charcoal staining. Alternatively, some form of pre-depositional treatment of pyre debris after collection of bone for burial may have encouraged the charcoal to adhere to the surface of the bone, for example 'anointing' with oils or unguents. There are records of pyres being 'cooled' with wine (*Iliad* 23: 250; McKinley 1997b, 68), though this is likely to have occurred prior to collection of the bone to be included in the burial rather than just that remaining amongst the pyre debris. The possible presence of more adhesive substances is suggested by one of Ausonius' epitaphs '… Sprinkle my ashes with pure wine and fragrant oil of spikenard: Bring balsam, too, stranger, with crimson roses ...' (Toynbee 1971, 63). The presence of libation pipes for post-depositional offerings may also have affected the absorbency of the bone and charcoal (Toynbee 1971, 52). There is a slight possibility these may have been present at Brougham (see p. 402).

DEMOGRAPHIC DATA

The minimum number counts include two sets of figures (TABLE 6.1). The basic minimum number count includes only those contexts known to represent the remains of burials and their associated deposits, or those classified as cenotaphs (see p. 284). The second, higher minimum number count includes those deposits which may represent the remains of burials but which may equally represent formal deposits of pyre debris, and those deposits of unknown type which may be burials, cenotaphs or redeposited pyre debris. The formal deposits of pyre debris have not been included in either count since, by definition (see above), they probably derive from the same cremations as represented amongst the burials. Four contexts dated to Phase 4 (**15, 24, 26** and **67**) have also been excluded from the figures as they probably represent very late or post-Roman redeposited material.

For ease of analysis and comparison, the ages of individuals presented in Chapter 4 have been divided into a number of age ranges. The size of the age ranges varies considerably, particularly within the adult groups, as a result of the wide variation in the quantity and quality of osteological evidence available from which to assess the age of the individual. This

TABLE 6.1: AGE RANGES AND SEXING BY PHASE (EXCLUDING PHASE 4 MATERIAL)

Age categories (in years)	**Phases 1–2 A.D. 200–270**	**Phases 3–3b A.D. 270–310**	**Unphased**	**Total**
Infant (0–5)	16/?17 (20%/17%)	3 (6%)	?1 (2%)	19/?21 (13%/10%)
Infant–juvenile (0.5–10)	6 (7.5%)	3 (6%)	?1 (2%)	9/?10 (6%/5%)
Juvenile (5–12)	2 (2.5%)	4 (8%)	1 (7%)	7 (5%)
Juvenile–subadult (5–18)	4 (5%)	1/?3 (2%/5%)	–	5/?7 (3%/3%)
Subadult (13–18)	–	1 (2%)	1 (7%), F: 1	2 (1%), F: 1
Immature (0–18)	1 (1%)	–	–	1 (0.5%)
Subadult–young adult (13–25)	1 (1%)	1 (2%), F: 1	?1 (2%)	2/?3 (1%/1%) F: 1
Young adult (18–25)	–	1 (2%), F: 1	1/?4 (7%/9%) F: 1/?3, M: ?1	2/?5 (1%/2%) F: 2/?4, M: ?1
Young–mature adult (18–45)	5/?8 (6%/8%) F: 3	3/?4 (6%/6%) F: 2	1/?2 (7%/4.5%) F: 1	9/?14 (6%/7% F: 6
Mature adult (25–45)	7 (9%), F: 4	–	–	7 (5%), F: 4
Younger mature–older adult (>25)	1 (1%), M: 1	1 (2%), M: 1	–	2 (1%), M: 2
Older mature adult (30–45)	10 (12.5%) F: 3, M: 1	7 (14%) F: 3, M: 3	2/?3 (14%/7%) F: 2, M: ?1	19/?20 (13%/9%) F: 8, M: 4/?5
Older mature–older adult (>30)	5/?6 (6%/6%) F: 2, M: 1	7 (14%) F: 1, M: 2	2/?3 (14%/7%) M: 1/?2	14/?16 (9.5%/7.5%) F: 3, M: 4/?5
Older adult (>45)	2 (2.5%) M: 1	2 (4%) F: 1, M: 1	?1 (2%)	4/?5 (3%/2%) F: 1, M: 2
Adult (>18)	12/?17 (15%/17%), F: ?1	14/?19 (27%/30%) F: 1, M: 4/?5	3/?10 (21%/23%) M: 1/?2	29/?46 (20%/24%) F: 1/?2, M: 5/?7
Juvenile–adult (>5)	2/?3 (2.5%/3%)	–	–	2/?3 (1%/1%)
Subadult–adult (>13)	5/?13 (6%/13%)	4/?7 (8%/11%)	2/?16 (14%/35%)	11/?36 (7.5%/17.5%)
Unknown	1 (1%)	–	1 (7%)	2 (1%)
Total	80/?99 F: 12/?13 M: 4	52/?63 F: 10 M: 11/?12	14/?45 F: 5/?7 M: 2/?6	146/?207 F: 27/?30 M: 17/?22

was particularly difficult where only very small quantities of bone (<50g) were present for examination, resulting in a large number of individuals falling within the adult (>18 years) or subadult–adult (>13 years) categories. TABLE 6.1 presents the minimum number counts within each age range by phase (data from the earlier two phases, 1 and 2, and the later two, 3 and 3b, being combined to give more meaningful number counts) and as a total, together with the representative percentage for the phase and total. The number of females and males identified within each category is also given, these figures include all levels of confidence as shown in Chapter 4 (i.e. unquestioned, probable (?) and most likely (??)).

The minimum number of individuals identified was 146, with a substantial increase to 207 where the uncertain and unknown deposit types are included. It should be noted, however, that the excavated features represent only a proportion of the entire cemetery, the full extent of which was not established (see p. 25). Consequently, the following observations, although relevant to the excavated deposits, may not pertain to the cemetery as a whole.

The majority of dated features fall within the longer earlier phases; consequently it is not unexpected that the largest proportion of individuals was recovered from this earlier period (TABLE 6.2). Although there is a relatively large percentage of 'unphased' individuals, comparison of the percentage of individuals within the phase groups and the percentage of the cemetery's overall date range covered by them suggests the rate of use of the cemetery is likely to have remained relatively stable throughout, with, if anything, a slight increase in the later phases.

TABLE 6.2: DISTRIBUTION OF DEPOSITS OVER TIME

	Phases 1–2 (70 years)	**Phases 3–3b (40 years)**	**Unphased**
Deposits	47.3%	28.4%	22.8%
Minimum no. individuals	54%/48%	36%/30%	10%/22%
Cemetery date range	64%	36%	

Of the total number of individuals identified the majority were adults at 60% (80% including unknown deposit types, TABLE 6.3), but there was a relatively substantial proportion of immature individuals at 29% (23% including unknown deposit types). The latter is not in itself unexpected, but is not commonly encountered within cemetery populations; it is considerably greater than has been observed in many other – predominantly early – Romano-British cremation cemeteries, where figures of between 7.7% and 12.8% have been recorded, e.g. Puckeridge/Skeleton Green, Welwyn and Cirencester (Wells 1981), East London cemetery (McKinley 2000b), Baldock Area 15 cemetery (McKinley 1991) and Westhampnett (McKinley 1997b). An even lower figure of 7.4% of immature individuals was observed from Lodge Hill, one of several cemeteries connected with the military settlement at Caerleon (Wilkinson 1997). The closest comparable figure, at 21%, was recorded at the St Stephen's cemeteries in St Albans, Hertfordshire (McKinley 1992). Comparison with other northern-frontier fort cemeteries is hampered by small 'sample' sizes and a lack of detail (including definitive identification of deposit type), but similar age ranges were observed at Low Borrowbridge, Cumbria (18 individuals; McKinley 1996), adults and juveniles were present at Brough under Stainmore, Cumbria (scraps of bone from seven of a possible 50 deposits were examined; Hodgson 1977; Wells 1977) and from amongst the eight individuals identified from Petty Knowes, Northumbria (Charlton and Mitcheson 1984).

TABLE 6.3: DISTRIBUTION BY PHASE OF IMMATURE INDIVIDUALS AND ADULTS (FIRST SET OF FIGURES REPRESENTS BURIALS, ASSOCIATED CONTEXTS AND CENOTAPHS, THE SECOND SET INCLUDES THE DEPOSITS WHICH MAY BE BURIALS OR REDEPOSITED PYRE DEBRIS)

		Total	**Phases 1–2**	**Phases 3–3b**	**Unphased**
Immature – 0–18 yr	nos	43/?48	29/?30	12/?14	2/?4
	%	29%/23%	36%/30%	23%/22%	14%/9%
Adults >18 yr	nos	88/?166	43/?52	35/?42	9/?28
	%	60%/80%	54%/52%	67%/67%	64%/62%
subadult–adult >13 yr	nos	11/?36	5/?13	4/?7	2/?16
	%	7.5%/17%	6%/13%	8%/11%	14%/35%

There is no conclusive evidence for infants of less than 6 months (only one infant was attributed the age range of 0–4 years), a culturally derived norm within cemeteries of this date, though two neonates were found in the St Stephen's cemetery at St Albans (McKinley 1992).

The only noticeably significant variation between the phases lies in the percentage of immature individuals represented, particularly infants. In the earlier phases, *c*. 20% of the

cemetery population comprised infants compared with the substantially lower 6% in the later phases. Although there may be various factors affecting the 'visibility' of immature individuals, particularly infants, within the population of a cremation cemetery (see below p. 303; McKinley 2000b), their remains have survived very well in burials at Brougham (FIG. 6.2, **250**), and at least the relative proportions within the different phases are likely to be a realistic representation. There are a number of factors which may explain this variation. It is known that the entire cemetery was not excavated and it is possible that more infants within the later phase were buried outside the area of excavation, and this possibility is further considered on p. 444. There may have been health reasons – linked to diet or infection – which resulted in higher infant mortality (highly susceptible to both factors) in the earlier rather than the later phase. However, it seems most likely to be reflective of a shift in the general nature of the population, the earlier phases being characterised by young, 'active' domestic groups, the later phase comprising fewer young families. It has been argued (Larsen 1999, 338) that demographic data from archaeological cemetery populations is a reflection of 'birth rate and fertility' as much as, if not more than, 'mortality', the presence of 'a relatively high number of young individuals … (representing) more individuals entering the population through higher fertility.'

FIG. 6.2 Infant burial from **250**.

Only 60/?72 (68%/43% of adults) individuals could be placed within one of the more specific adult age ranges, the majority of which fell into the median range of between 30–45 years, though a substantial proportion was also recorded as being in excess of 30 years, with a minimum of *c*. 3% of the population in the older adult range. There is no significant difference between the two phases in relation to this distribution of adults.

Similar distributions within the adult age ranges were noted at Caerleon (Wilkinson 1997), Baldock Area 15, the St Stephen's cemeteries in St Albans, Westhampnett and East London (McKinley 2000b, 266), with the majority of adults falling within the >30 year ranges in each case. One noticeable difference was within the older adult (>45 years) category, in that the non-military town cemeteries had relatively high percentages of between 7% (East London) and 16% (Baldock and the St Stephen's cemeteries), in comparison with *c*. 2%–3% from Caerleon and Brougham; none from Low Borrowbridge could be placed in the 'older' category but there may have been some (>30 and >18 years common; McKinley 1996). Clearly, where such substantial proportions of adults have not been categorised within age limits or fall within very broad ranges (*c*. 30% of total) observations could be misleading, but the relatively low proportion of older adults conclusively identified from the cemeteries associated with the forts as compared with the other settlements appears significant.

Although none of the tombstones or inscriptions from the vicinity can be linked with individual graves within the cemetery, they do contain information pertaining to individuals buried somewhere within its confines and can give insights into their – at times probably approximate – age, sex and family relationships (see Chapter 10). 'Nittiunis' was 40 years old when she died (***1***), another individual '… lived 70 years' (***14***), someone's uncle lived to 80 years (***17***), as did at least one woman (***19***). Others were less fortunate: '… Crescentinus lived 18 years' (***22***), another '…32 years more or less' (***25***). The registration of two elderly individuals admirably demonstrates the fact that there have always been those who carry the potential to survive into old age and illustrates the shortcomings of currently accessible osteological techniques which are limited to identifying individuals as 'older' once beyond the age of 45–50 years (Cox 2000), particularly where that individual has been cremated (McKinley 2000d).

It was possible to sex only 45 individuals (31%; ?52 at 25% if the uncertain and unknown context types are included) that is 51% (?31%) of adults. As with ageing, the identification rate reflects the quality and quantity of sexually dimorphic criteria available for identification, and sexing this percentage of adults is within the average range for cremation cemeteries (McKinley 2000d). These overall figures include the various confidence levels (TABLE 6.4) comprising definite (20/?20 individuals), probable (5/?7 individuals) and 'most likely' (20/?26 individuals).

TABLE 6.4: NUMBER AND INTEGRITY OF SEXED INDIVIDUALS BY PHASE (FOR KEY SEE TABLE 6.3)

	Female				**Male**			
	definite	?	??	total	definite	?	??	total
Phases 1–2	6	–	7	13/?15	3	–	1	4
Phases 3–3b	5	2	3	10	6	1	4/?5	11/?12
Unphased	–	1	4/?6	5/?7	–	1/?2	1/?4	2/?6
Total	11	3	14/?16	28/?32	9	2/?4	6/?10	17/?22

A greater proportion of the overall population was sexed as female (19%, or 14% including the uncertain and unknown deposit types) than male (12%/?11%), that is 32% (?18%) and 19% (13%) of the adult population respectively. It has been noted elsewhere by the writer that there appears to be a bias towards the ease of the identification of females from cremated remains (McKinley 2000b, 266), and consequently the apparent discrepancy should be viewed with caution, particularly since it was not possible to sex 49% of the adult population. The percentage of sexed individuals in the earlier phases is particularly small, rendering any comparison between the phases inappropriate. There are no clearly significant differences between the sexes on the basis of age, and given the small numbers and overlaps between age ranges further comment would be inappropriate.

The cemetery population generally has a 'domestic' appearance, there being individuals of both sexes with no apparent bias and a broad range of ages from young infant to older adult. There are indications of changes in the population profile between the earlier and the later phases, with fewer 'young families' in the latter. There is also a relatively lower proportion of older adults detectable in the population than in the – predominantly early to mid-Roman – Romano-British cemeteries not attached to forts, though there are similarities with the cemetery at Caerleon. The rate of use of the cemetery seems to have remained relatively constant throughout the overall temporal range, with a potential slight increase in the later phases. As the complete cemetery has not been excavated and the percentage of the cemetery represented by the excavated portion is unknown, it was not felt appropriate to attempt to calculate the crude mortality rate and estimation of population size.

PATHOLOGY

Pathological lesions were observed in the remains of 37 individuals (25%; 19% including uncertain/unknown deposits).

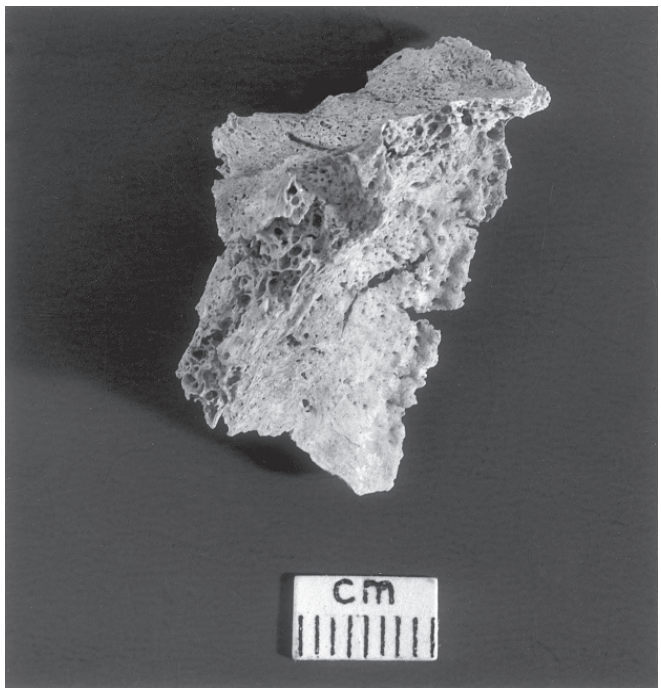

FIG. 6.3 Right maxilla from **240**. View of palate showing extensive tooth loss and resorption of sockets.

Ante mortem tooth loss was observed in three dentitions (unsexed adults). There was extensive mandibular and maxillary tooth loss in **240**, with full resorption of the alveolus (FIG. 6.3); there were no associated lesions to suggest the cause of the tooth loss, which is likely to have been due to excess wear. One of seven mandibular sockets from **36** was resorbed, the tooth loss probably resulting from some other dental disease such as caries. The singular loss of the first maxillary incisor from **35** (1/10) is likely to have be in consequence of a blow to the face – accidental or deliberate – breaking the tooth, with subsequent infection and eventual loss of the tooth.

Dental abscesses were observed in four maxilla, all were in the left side; three affecting molar sockets, one a canine and adjacent incisor socket. In two individuals the lesion had drained buccally, doubtless leaving the afflicted individual with both a bad taste in their mouth and an unpleasant odour, the pain, at least, having mellowed due to death of the associated nerves. Dental abscesses most commonly result from the spread of infection from a carious tooth. No carious lesions were observed in this assemblage, which may in part be due to the relatively small number of tooth roots (31; 11%) included in the deposits.

The presence of infection was indicated in the remains of three individuals. Several fragments of femur shaft from the juvenile in **23** showed destruction of the cortical bone with thick, open (active) new bone over the cortical surface and within the medullary cavity, the original dimensions and morphology of bone being obscured. No destructive loci were evident and no lesions were observed in the other bones present. The specific cause of the infection is unknown, and one of several factors could have been involved (Adams 1986, 50) although there was no sign of direct trauma. Its affects would have been seriously debilitating to the general health of the child and the spread of the infection to other parts of the body could have been the cause of death. Slight endosteal new bone in the medullary cavity of a radius fragment from **191** (mature adult female) is indicative of a similar, though substantially less severe infection. One of five thoracic vertebral bodies from **102** (an older adult male) showed destructive lesions and irregular new bone in the superior body surface, which may be indicative of the early stages of a tuberculous lesion (Adams 1986, 58–61). Whilst osteological evidence for pulmonary tuberculosis at this time in Britain is relatively rare (Manchester 1983, 41), Greek and Roman medical writers made frequent reference to the disease and it seems to have been viewed as a common complaint (Jackson 1988, 180–1).

The majority of observed lesions were indicative of some form of joint disease. Twenty-one individuals (*c*. 14%) had one or more lesions in one or more joints, all were adults, including seven females (25%) and six males (35%). Osteophytes (new bone on joint surface margins) may occur alone, where they are largely seen as age related, or in association with other lesions where they may be indicative of diseases such as osteoarthritis or degenerative disc disease (Rogers and Waldron 1995). Lone lesions were seen in eleven individuals, most commonly around the hip joint (five individuals) or thoracic/lumbar body surface margins (five individuals). Between one to ten sites were affected, the most extensive lesions being observed in burial **262** (older adult female).

Degenerative disc disease, resulting from a breakdown in the intervertebral disc, generally reflects wear-and-tear and is related to age. Seven individuals (four males and one female) had lesions in the cervical, first sacral and thoracic vertebrae, only one area of the spine being affected in each case. Schmorl's nodes, resulting from a rupture in the intervertebral disc, were observed in five spines, the thoracic vertebrae being affected in every case. Lesions were seen in both males and females (two of each), affecting between one and six vertebrae in each individual. These lesions most commonly occur in the lower thoracic vertebrae where the natural curvature of the spine loads the greatest mechanical stress. Lesions indicative of osteoarthritis (Rogers and Waldron 1995) were observed in only three individuals, two females and one male, at one site in each.

Exostoses (new bone at tendon/ligament insertions) and various types of destructive lesions may develop in response to a number of conditions and it is not always possible to ascertain the specific cause of individual lesions (Rogers and Waldron 1995). Exostoses were observed in 16 individuals, mostly in the patella and along the iliac crest; all were lone lesions and are most likely to be indicative of repetitive minor muscle stress.

General comment on the health, lifestyle and status of the population as reflected in the pathological lesions observed is severely limited in this instance. The nature of the assemblage – often with only part of a skeletal element available for examination – renders calculation of prevalence rates inappropriate and potentially misleading. Although various different types of lesions relating to dental health, infection and joint disease are present, a true picture of their extent and frequency probably is not, because of the often relatively small amount of bone present in the deposits (see below) and the relative scarcity of certain skeletal elements, for example tooth roots and phalanges.

PYRE TECHNOLOGY AND CREMATION RITUALS

Efficiency of cremation

Cremation is a process of dehydration and oxidation of the organic components of the body (McKinley 1994a, 76–8; 2000d, 404–6). The completeness of the process may be assessed macroscopically from the colour of the bone, ranging from the black of charred bone, through hues of blue and grey to the white of fully oxidised bone (Holden *et al.* 1995a; 1995b). The process of oxidation is influenced by three factors – time, temperature and oxygen supply – a shortfall in any one of the three may result in 'incomplete' cremation (McKinley 1994a, 72–81; 2000d). The factors which may affect the efficiency of cremation have been discussed elsewhere by the writer (*ibid*) but there are a number of major points to remember. Cremation takes time, the soft tissues of the body must be burnt off before the bone itself can be burnt. The body is not a good conductor of heat so the maximum temperature of the pyre will not necessarily be reflected in the condition of the bone (the temperature attained by the bone is reflected microscopically by the crystal structure; Holden *et al*. 1995a; 1995b; McKinley 2000d), and the bone may not be fully exposed until the pyre has started to burn down and lose its force. Oxygen supply may be curtailed or cut off by a number of factors including wrapping the body in leather, skins or furs, or laying it on dense, closely spaced planking with no spaces for oxygen circulation.

The vast majority of the cremated bone from the deposits was white in colour, indicating a high level of oxidation of the bone. Variations were observed in some bone from 13 deposits

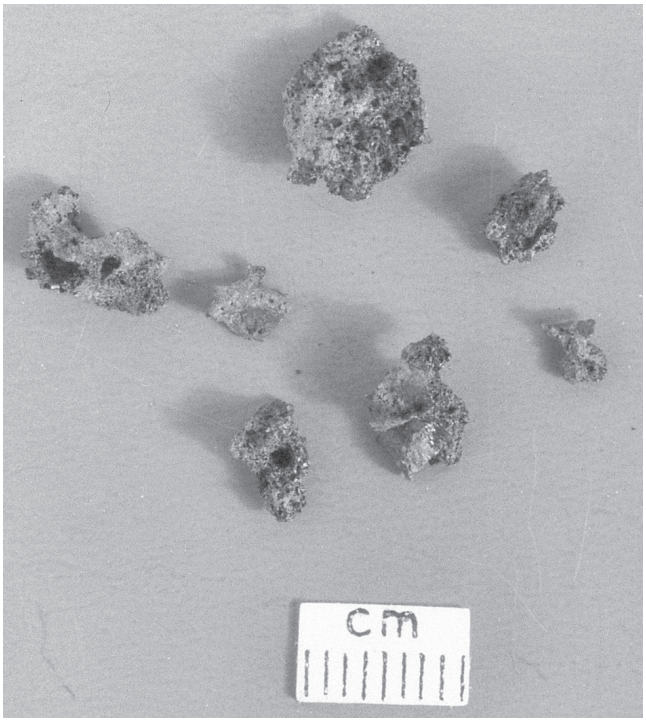

FIG. 6.4 Soft tissue residue from **227**.

(4.5%), all except one – a 'contained burial' – representing urned burials. All the burials were of adults, including five females (18%) and four males (25%), with the exception of one 3–7-year-old. The level of variation is lower than at some other Romano-British cemeteries; *c*. 23% of burials from Westhampnett showed colour variations (McKinley 1997b), with an even greater number from the East London cemetery including 66% of the urned burials and 50% of the unurned burials/redeposited pyre debris (McKinley 2000b, 268–9). Conversely, all the bone recovered from the deposits at Low Borrowbridge was fully oxidised (McKinley 1996).

Variations ranged from slightly grey or blue, sometimes affecting only the interior (bone burns from the outside in), to the dark blue or black (two cases only) indicative of charring. In most cases colour variations were noted in only one or two fragments from a limited skeletal area, most commonly the skull vault or the hip. In three cases the distribution was more extensive, though again only including a minority of fragments; **201** showing black, blue and grey burning mostly to fragments from the lower half of the body, **298** blue and grey burning mostly to fragments from the upper limb, with all skeletal areas of one of the individuals in **227** showing some fragments from black to grey. A few small fragments of soft tissue residue (FIG. 6.4) were also recovered from the latter. This very brittle, 'slag-like' material rarely survives in archaeological contexts due to its extreme fragility, but it has occasionally been recovered from other Romano-British deposits (McKinley 2000b, 269). Its presence demonstrates the fact that charred human remains other than just the bone may have been included in burials.

There are numerous factors which may affect the efficiency of cremation, a combination of which may come into force in any one case. Poor burning to individual areas of the skeleton is likely to reflect specific factors, and that the effects are noticeable in only parts of the element suggests a problem late in the process. Poor oxidation of skull fragments may be related to the peripheral position of the head on the pyre, to the deceased wearing a leather/fur hat or hood (cutting off oxygen) or to skull fragments becoming buried in wood ash towards the latter part of the cremation. The mass of soft tissues around the hip, thigh and lower vertebrae slows down exposure of the bone to burning. Preferential poor cremation to fragments from one or other half of the body may reflect an uneven burning and collapse of the pyre, as may result from a veering wind and one half of the body dropping low into the poorly oxygenated areas of the pyre. An overall shortfall as seen in one of the individuals in **227** suggests a more

general problem; insufficient fuel for cremation, curtailing of the process possibly due to poor weather, or a cut-off in oxygen supply as may result if the individual was wrapped in or laid on a skin/fur.

In general, the level of burning is good and appears slightly superior to that seen in the non-military cemeteries. This may be indicative of a consistent good supply of fuel for cremation, more efficient tending by the cremation attendants (*ustores* – official or adopted) or an absence of pressure on the pyre sites which may have been suffered in some of the larger towns.

Weights of bone for burial

The weights of bone recovered from individual deposits varied enormously from a minimum of 0.2g from a disturbed deposit of pyre debris, to a maximum of 1508.1g from an undisturbed urned burial. Both cultural and non-cultural influences may affect the weight of bone recovered from a deposit (McKinley 2000d). In the latter category lay such factors as the levels of disturbance, the influence of the burial environment, and the age (immature versus adult) and, potentially, the sex of the individual (McKinley 1993). In the former category, the type of deposit will influence the degree of protection offered to the bone within the burial environment. The number of individuals within the deposit may also be of relevance, as may the inclusion of certain types of pyre good. Consideration of these 'measurable' factors leaves one factor more difficult to interpret, that of the decision as to how much of the bone to include in the burial itself (see p. 284).

As has been demonstrated previously (McKinley 1994b), the type of deposit and level of disturbance are primary factors in the average weights of bone recovered. The undisturbed and complete but crushed urned burials contained significantly greater average weights of bone than did either the undisturbed unurned burials or undisturbed deposits of pyre debris (TABLE 6.5). That bone had been lost or removed from the disturbed deposits was also demonstrated by the considerably lower weights of bone recovered from the disturbed deposits of each type.

Factors of no apparent significance included the number of individuals within the deposit, the sex of the individual or the age of the adult. The weights of bone recovered from the undisturbed urned burials containing the remains of two individuals (see dual deposits p. 303) ranged from 77.8g to 651.6g; considerably greater weights of bone were recovered from many of the single burials than from those containing two individuals. There was no significant difference in the average weights of bone recovered from male and female burials; the maximum bone weight in each category (where sex could be assigned) was recovered from female burials, and in general the average was also slightly higher for the latter. The relatively small number of adults categorised as 'young' or 'older' within deposit type and condition groups may bias any calculations, but a general scan suggests there was little significant difference in the average weights recovered from the different adult age categories. Obviously, there were differences between the size of the ranges and average weights from adults as compared with immature individuals (TABLE 6.5), but within the immature age categories, it did not necessarily follow that the younger the individual the lower the weight of bone recovered.

The retention of a lid was also of little significance to the amount of bone recovered, a range of between 173.5g to 545.6g being recorded from these deposits. Crushing of the urn does not appear to have had any significant effect on the quantity of bone surviving *in situ* where the complete vessel remained.

The maximum amount of bone recovered from a single deposit was 1643.1g from an undisturbed deposit of pyre debris made in the grave prior to the insertion of the burial itself (**102**). This deposit was unusual, however, in that at least half comprised cremated horse bone and, as may be seen from the average weights recovered in this category (TABLE 6.5), most of these types of deposit contained substantially lower weights of bone (see discussion below of redeposited pyre debris p. 304).

TABLE 6.5: BONE WEIGHT RANGES AND AVERAGES FOR DIFFERENT DEPOSIT TYPES AND CONDITIONS (R=RANGE, A=AVERAGE)

Deposit type/ condition	Overall Range	Adults	Immature	Females	Males	Phase 1–2 adults	Phase 3–3b adults
Urned burials							
undisturbed	14.1–1324.6g	R 24–1324.6g A 397.7g	R 14.1–312g A 80.7g	R 97–1324.6g A 503.6g	R 107.2–1078.5g A 539.5g	R 54.6–1324.6g A 444.6g	R 29.6g–1078.5g A 403.0g
complete but crushed	1.9–1508.1g	R 58.1–1508.1g A 393.7g	R 1.9–47.7g A 17.3g	R 121.4–1508.1g A 545.1g	R 306–329.5g A 317.7g	R 58.1–745g A 304.5g	R 104.2–1508.1g A 496.8g
disturbed	1–460.3g	R 13.3–460.3g A 143.7g	R 1–189.8g A 29.4g	R 100.7–460.3g A 337.9g	R 153.6–282g A 217.8g	R 24–460.3g A 153.6g	R 13.3–433.7g A 143.9g
Unurned burials							
undisturbed	6.3–484.9g	R 62.5–484.9g A 228.7g	6.3g (only one)	R 100.3–484.9g A 292.6g	176.1g (only one)	121.3g (only one)	R 62.5–119.5g A 91g
Redeposited pyre debris							
undisturbed	2.2–1643.1g	R 9.5–1643.1g A 147.2g	–	R 30.9–137.4g (only two)	R 10.4–158g A 87.8g	R 9.5–1643.1g A 202.4g	R 29.7–158g A 92.2g
disturbed	0.4–60.9g	R 11–60.9g A 35.7g	–	17.7g (only one)	26.1g (only one)	R 11–60.9g (only two)	60.5g (only one)
Type unknown							
undisturbed	–	3.5g (only one)	–	–	–	–	–
disturbed	0.4–202.1g	R 7.1–202.1g A 59.8g	0.6–9.6g (only two)	–	–	R 7.1–202.1g A 79.6g	7.2g (only one)
uncertain	5.7–1254.1g	R 5.7–1254.1g A 288.4g	–	85.7–1254.1g (only two)	116g (only one)	R 106.6–162.1g (only two)	5.7g (only one)

The average weight of bone recovered from the undisturbed urned adult burials (397.7g) represents a maximum of only 40% of the expected weight of bone from an adult cremation (McKinley 1993), probably more in the region of 25%. The maximum weight of bone (1324.6g: NB the 1508.1g from the complete but crushed burial **303** includes a minimum of 167.2g animal bone) although within the upper range of weights from cremation burials of any period (McKinley 1997a), still does not represent the entire cremated remains which would have existed, but *c*. 83%. The minimum weight of 24g from the undisturbed urned adult burials represents a maximum of only 2.4%, probably more in the region of 1.5%. Whilst it is probable that a small proportion of the original bone deposit may have crumbled away during excavation (see p. 285; it has been estimated from work elsewhere (pers. obs.) that *c*. 5% of the total weight of bone may be lost in this way) it is unlikely that substantial weights of bone have been lost.

Cremation burials of any period very rarely, if ever, contained all the bone which would have remained at the end of cremation (McKinley 1997a; 2000b; 2000d) and such wide ranges in bone weights is common. What is unclear, however, is why such great variations existed, the only pattern in British burials to date is the consistently high weights recovered from primary Bronze Age barrow burials. This suggests that one potentially significant factor may be the 'status' of the individual, whatever criteria that may be measured by – wealth, occupation or personal regard.

Comparison of the Brougham weights with those from other Romano-British cemeteries (TABLE 6.6) shows a similarly wide range, but a possibly significant difference in the averages. Where adult and undisturbed burials can be distinguished, averages for the urned burials appear to be consistently lower in the cemeteries associated with military establishments. Unfortunately, no bone weights are available for the deposits from Petty Knowes (Charlton and Mitcheson 1984), Brough under Stainmore (Jones 1977) and Lanchester (Turner 1990); the Petty Knowes report at least implies only small quantities of bone were present, attributing its absence to high soil acidity (though the high levels of charcoal in many of these deposits would have had an ameliorating effect on the acidity of the natural sediments). It is possible that the apparent difference in the figures are indicative of a slight variation in rite between the two types of cemeteries.

What is further unclear is what happened to the rest of the bone, that not included in the burial, which at times could apparently amount to 98.5% of the bone, i.e. well in excess of

TABLE 6.6: COMPARATIVE BONE WEIGHT RANGES AND AVERAGES

Cemetery	**Weight ranges**	**Averages**
Puckeridge (Wells 1981)	84–2127g (all individuals, types and condition of burials)	Series A: 214g, Series B: 634g, SG: 796g
Welwyn (Wells 1981)	37–2381g (all individuals, types and condition of burials)	584g
Baldock Area 15 (McKinley 1991)	undisturbed adult burials: unurned 1–1599.1g, urned 100–1419g	452.0g 619.2g
St Stephen's, St Albans (McKinley 1992)	undisturbed adult burials: urned 71–1447.2g	899.6g 824g (unurned)
Low Borrowbridge (McKinley 1996)	all burials 1–498.9g (only one totally undisturbed)	179.1g
Westhampnett (McKinley 1997b)	undisturbed adult burials: 302.9–687.1g	531.7g
Caerleon (Wilkinson 1997)	undisturbed adult deposits: 3–1530g	292.3g
East London (McKinley 2000b)	undisturbed adult burials: 57.3–1731.1g	845.0g

1000g. Our knowledge of the components of pyre debris demonstrates that at least some bone remained amongst the rest of the debris. However, both here and elsewhere where such debris has been recovered in association with the appropriate burial (McKinley 1997a), it is clear that what would have been the full weight of bone is still not represented (range at Brougham 196.9–750.3g). Was further debris containing bone deposited where it cannot be seen in the archaeological record, or was bone separated out for other purposes? (See discussion of cenotaphs p. 306 and redeposited pyre debris p. 304.)

Fragmentation

Cremated bone is by nature fragmentary and brittle; dehydration during cremation leads to shrinkage, and the formation of cracks and fissures in the bone (McKinley 1994a; 2000d). Subsequent burial, with infiltration of soil into the fissures and the effects of wet/dry, freeze/thaw, result in further fragmentation along the dehydration fissures, particularly if the bone is disturbed in the ground, and during excavation and post-excavation processing of the bone (McKinley 1994b; 2000d).

The effects of what may be termed 'natural' fragmentation have been demonstrated elsewhere (McKinley 1994b), and indications may be seen in comparison of deposits of different type and condition from Brougham (TABLE 6.7). Some caution is needed over the figures, the 0% and 100% results generally arising from the very small deposits of bone where 25g or less was recovered (as a guide to how little this is, an average calcaneum and talus – the two larger bones in the foot – weigh *c*. 30g). The maximum fragment sizes were recovered from the undisturbed urned burials, where the average maximum fragment was noticeably greater than those from the disturbed urned burials or other types of deposit. Similarly, although the ranges in all categories were fairly broad, on average slightly higher percentages of the bone were recovered from the 10mm sieve fraction in the undisturbed urned burials. What this demonstrates is the additional fragmentation resulting from disturbance of the deposit, and the protection afforded the bone by the urn. The absence of soil from the burial environment, as in the lidded vessels, is an even greater asset, maximum fragments of 50–78mm being recovered even from infant burials.

Maximum fragment sizes of up to 195mm have been recorded from modern British crematoria (prior to deliberate mechanical pulverisation – cremulation – of the bone within a cremulator) where it is known no deliberate fragmentation had occurred, only that due to cremation and raking-down of the bone (McKinley 1993). The average maximum was 128mm and the percentage of bone in the 10mm fraction ranged from 43–71%, with an average of 55% (*ibid*). Comparison of these figures with those from Brougham suggests no great differences when the additional stresses of burial, disturbance, excavation and subsequent treatment of the archaeological material is considered. There is no evidence to suggest deliberate fragmentation of the bone prior to burial, or of the bone deposited together with the other pyre debris. Any tending or movement of the bone during collection is likely to have been commensurate with that in modern crematoria, possibly involving a degree of raking to encourage the break-down of soft tissue residues and re-oxygenation of the dying pyre, and possibly to assist in pulling together the bone intended for burial.

Skeletal elements

Cremation burials generally comprise, apparently, a random selection of bone fragments from all skeletal areas. Incidental cases where this may not occur include deposits containing small quantities of bone (particularly <25g), which may include heavily disturbed deposits or immature individuals. Bone fragments are classified as 'identifiable' only where they can be allocated to a particular bone, e.g. femur, humerus, talus; the ease with which this can be done depends partly on the degree of fragmentation and the area of the skeleton represented. The greater the degree of fragmentation the more difficult it becomes to identify a specific bone, and small fragments of skull have a far more distinctive morphology than do small fragments of long bone shaft – for example, 10mm fragments of ulna, radius or fibula mid-shaft may be difficult to distinguish.

TABLE 6.7: BONE FRAGMENTATION WITHIN DIFFERENT DEPOSIT TYPES AND CONDITIONS, ADULTS ONLY (R=RANGE, A=AVERAGE)

Deposit type/ condition	**10mm fraction**	**5mm fraction**	**2mm fraction**	**Maximum fragment**
Urned burials				
undisturbed lidded	R 69–83% A 76%	R 13–22% A 18%	R 4–10% A 7%	98mm A 76mm
undisturbed	R 45–93% A 75%	R 7–54% A 20%	R 0–12% A 4%	119mm A 58mm
complete but crushed	R 28–100% A 57%	R 0–69% A 36%	R 0–25% A 6%	71mm A 49mm
disturbed	R 42–100% A 70%	R 0–57% A 27%	R 0–9% A 3%	72mm A 48mm
Unurned burials				
undisturbed	R 59–79% A 72%	R 17–35% A 24%	R 2–5% A 4%	68mm A 54mm
Redeposited pyre debris				
undisturbed	R 29–100% A 69%	R 0–55% A 26%	R 0–32% A 4%	81mm A 35mm
disturbed	R 62–85% A 70%	R 12–38% A 29%	R 0–3% A 1%	51mm A 35mm

Consequently, most deposits will contain a substantial proportion of 'unidentifiable' fragments comprising long bone shaft or undistinguished fragments of trabecular bone, the disturbed or unurned deposits tending to have a lower percentage of identifiable fragments. Where only small quantities of bone are present within a deposit, for whatever reason, the proportional amount of identifiable bone may present a biased view. Hence, in TABLE 6.8, where the lower end of the ranges are at 0% or the upper end disproportionally high, the results must be treated with caution and given individual consideration rather than taken at face value.

The average percentage distribution of skeletal elements within the undisturbed lidded urns, that is those from which no bone had been lost and in which fragmentation should have been at its lowest, bore a very close proximity to the 'normal distribution' of elements (TABLE 6.8). In all other categories, most variation was observed in the skull and axial skeleton categories; this is a common observation and generally reflects the ease with which small fragments of skull may be identified and the fragility and consequential preferential destruction of trabecular bone which comprises a high proportion of the axial skeleton (see p. 285). Disproportionately low average percentages of upper limb appear to be present in the unurned burials and undisturbed deposits of pyre debris, with apparently disproportionately low and high average percentages of lower limb bone in the complete but crushed urned burials and disturbed deposits of pyre debris respectively. What significance may be attached to these observations is debatable, there are numerous potentially pertinent variables, particularly in the latter case where in general only small quantities of bone are present (most containing <100g) and disturbance may have removed bone.

It cannot be stated with any confidence that specific skeletal areas were being preferentially included in certain types of deposit. The distribution within those most likely to still contain all that was originally deposited – the lidded urns – fits closely with the notion of a proportional sum from each skeletal area being included in the burial.

Some skeletal elements were notable in their relative scarcity. Tooth roots and phalanges are commonly recovered in cremation burials of all periods, and their relative paucity in the

TABLE 6.8: PERCENTAGE IDENTIFICATION OF SKELETAL ELEMENTS, ADULTS ONLY (R=RANGE, A=AVERAGE)

Deposit type/ condition	Identifiable elements	Skull	Axial skeleton	Upper limb	Lower limb
Urned burials					
undisturbed lidded	R 37-63% A 47%	R 15-23% A 18%	R 6-30% A 18%	R 21-28% A 24%	R 31-53% A 40%
undisturbed	R 20-75% A 47%	R 8-54% A 27%	R 0-35% A 15%	R 8-44% A 21%	R 11-61% A 39%
complete but crushed	R 14-62% A 36%	R 0-98% A 44%	R 0-45% A 14%	R 0-64% A 17%	R 0-59% A 23%
disturbed	R 0-67% A 39%	R 8-50% A 32%	R 0-59% A 16%	R 0-49% A 24%	R 0-43% A 28%
Unurned burials					
undisturbed	R 29-49% A 42%	R 22-47% A 40%	R5-14% A 9%	R 3-25% A 13%	R 21-46% A 38%
Redeposited pyre debris					
undisturbed	R 0-92% A 37%	R 0-92% A 28%	R 0-79% A 13%	R 0-78% A 20%	R 0-94% A 34%
disturbed	R 22-75% A 49%	R 0-47% A 24%	R 0-29% A 13%	R 0-27% A 14%	R 29-80% A 50%
normal distribution	whole skeleton (unburnt)	18%	21%	23%	38%

deposits from Brougham was noticeable. Tooth roots – the enamel and crown of erupted teeth commonly shattering into small fragments during cremation and subsequently being lost – were recovered from only 31 deposits (11%), mostly urned burials (20; *c.* 17%) and some deposits of pyre debris (4, *c*. 7%). The majority contained only a single root or fragment, only two deposits containing more than two roots. The burials of individuals across the age ranges contained roots, with a slight predominance of females (28%) over males (18%). A higher proportion of the deposits from the later phase (16%) contained tooth roots than did those of the earlier phases (8%). A similarly limited number of deposits contained finger or foot phalanges (11% and 3% respectively), again mostly urned burials (22% and 7%), with some debris deposits containing finger bones (6%). Bones or fragments were generally singular, with only six burials containing more than two finger phalanges. Juvenile, subadult and adult burials included the small bones, as did both male and female burials (35% and 43% respectively with finger phalanges). Again, a higher proportion of Phases 3–3b (11%) than Phases 1–2 (9%) contained finger phalanges, with a slight reversal for the foot phalanges (Phases 1–2, 4%, Phases 3–3b, 2%).

This apparent scarcity of small bones from the deposits could be associated with the collection procedures employed after cremation. It has already been noted (p. 297) that, in general, relatively small quantities of bone were collected for burial. Were it considered necessary to include only a specific proportion of bone from each skeletal area, the temptation might have been to concentrate on picking up the larger, more easily accessible fragments, the smaller ones being overlooked. Collection may have been by hand directly off the pyre site, or bone fragments may have been raked together first, a process which would have produced a bias towards the larger fragments. The potential use of tongs and shovels implied

by their occasional recovery in 'appropriate' deposits (Jessup 1959) could have had a similarly limiting effect on the size of recovered bone fragments (though presumably the presence of these items in a burial could be related to the occupation of the deceased rather than the recovery of their bones for burial, i.e. they were grave goods). Why then was a higher proportion of the small fragments not recovered from amongst the pyre debris? A possible problem with interpretation here is that it cannot be guaranteed that the excavators recovered all the pyre debris from within a deposit (see Chapter 2). Based on the half of one complete deposit of pyre debris we know we do have – **198**, excavated by the writer as part of this analysis – it is known that although small bones were recovered from the deposit – one tooth root and four finger phalanges – these were still insufficient to suggest the debris contained all that should have remained after collection of the bone for burial. As in the consideration of bone weights, we are left with the impression that cremated bone or possibly pyre debris, was being deposited or dispersed outside the cemetery.

Whilst it is difficult to pick out any more specific patterns there are two instances where no skull was identified, which, given the ease with which such fragments can be distinguished, is likely to represent a genuine absence and is unusual. Both deposits (urned burial **170** and redeposited pyre debris **301**) contained >100g of bone, and both were of earlier phase adults. This is a very rare occurrence in any period of the rite and suggests deliberate exclusion; the symbolic significance of the skull may have rendered it most suitable for some other ritual purpose in these instances (see below).

There are also four cases, three urned burials (**20**, **236** and **283**) and one deposit of pyre debris (in **102**), where relatively low percentages of skull were recovered (<9%) at the same time as substantial high proportions of lower limb bone (>50%). In all cases where >300g of bone was recovered the remains were those of adults, and included three males with deposits from both phase groups. Whilst there may appear to be some significance in that most of these deposits were of males, the same pattern was not observed in other male burials. Similar distributions have occasionally been seen elsewhere, for example at Puckeridge (Wells 1981, 291) and in the East London cemetery (McKinley 2000b, 271). The significance of the observations is unclear but may be similar to that where skull is totally absent.

Pyre goods

Pyre goods had been removed from amongst the cremated bone during excavation and in post-excavation processing of the remains, and this material had been catalogued and assessed/analysed before osteological analysis commenced. During the latter, however, pyre goods of various forms were recovered from 159 (55%) of the deposits. This serves to illustrate that pyre goods, particularly fragments of worked bone, may be very difficult to distinguish from a mass of other cremated bone by other than an osteologist (McKinley 1994c).

Most of the additional pyre goods were from urned burials (70; 58% of urned burials), with 29 from redeposited pyre debris (55% of redeposited pyre debris), seven from unurned burials (64%) and five from the cenotaphs (50%). There was no significant difference between the phases (Phases 1–2 57%, Phases 3–3b 54% and unphased 52%).

The most common type of pyre good was worked bone, which was recovered from 114 (39%) of the deposits. The quantities recovered were generally relatively small at between 0.2–29.3g, with most <5g; the largest quantity, 298.1g, was recovered from the half of the pyre debris deposit **198**, excavated by the writer. Although the highest proportion was recovered from urned burials (42 deposits), more deposits of pyre debris (47%) contained fragments of worked bone than did urned burials (35%), unurned burials (36%) or the cenotaphs. There was little significant difference between the phases other than in a higher percentage of the redeposited pyre debris from the later phases (66%) containing fragments of worked bone compared with the earlier phases (48%). A slightly higher proportion of the identified males had worked bone in the deposits (62%) compared with females (54%), and only 7% of immature individuals (mostly infants) compared with 54% of adults. These figures are based only on

the material recovered during osteological analysis and do not represent the total amount of worked bone recovered (see Chapters 4, 5 and 9). Over 1000 fragments of veneers had been extracted prior to osteological analysis, some of relatively large size. All of the material illustrated in Chapter 4, for example, had been removed prior to the author's work.

Animal bone was also recovered during the osteological analysis and this is discussed in the following chapter.

Small numbers of other items were recovered from deposits during the osteological analysis, including fragments of copper alloy, iron and glass. Some items or materials were found fused to bone fragments, and staining – due to the presence of iron or copper alloy – was noted on other fragments. Adhering iron fragments or staining due to its presence may have 'rusted' on to bone post-depositionally. Fusion of melted glass or copper alloy, however, will have occurred during cremation when the materials were in a semi-solid or even liquid state. Such materials most commonly represent items of personal adornment (earrings, lengths of glass beads, copper-alloy and silver brooches are amongst the items identified in the Brougham assemblage; see Chapter 9) and, given the way in which a pyre collapses – slowly down on itself (McKinley 1997a) – and the usual position of the corpse on the pyre – supine and extended at or towards the top – it is mostly likely that such items will have fused to bones over which, or close to which they were placed in 'laying out' of the body.

Items or staining from items was observed in bone from 22 deposits (8%); melted copper alloy was found adhering in six deposits with staining in a further four; melted glass was found adhering in seven deposits; iron – mostly nails – was found adhering in six deposits with staining in a further three. The copper-alloy and associated staining showed a discrete distribution, the upper skeleton being involved in seven of the ten cases, including skull (mandible, maxilla and vault), rib and upper limb bones (forearm and elbow region). The femur was involved in two cases and staining was seen in fragments of animal bone in one case. All except one individual – an infant – were adults, including four females and one male. In three cases the adhering fragments are all that remained of the pyre goods, and in several other cases the pyre goods recovered suggest that the items represented were not jewellery but vessels (see p. 104, **77**). Melted glass was recorded fused to vault fragments (two cases, one temporal region), rib (one) and long bone (two); including two infants, one subadult and three adult females. As with the copper alloy, the adhering fragments were frequently all that survived of the objects. There appears to be a predominance within the early phases (Phases 1–2 10%, Phases 3–3b 6%, unphased 5%).

This pattern of distribution has been noted elsewhere, particularly within the early Saxon period due to the common form of dress and personal adornment in the period (McKinley 1994a, 83–4). The predominance of the upper part of the body and female adults implies the presence of items of jewellery as outlined above and in Chapter 9, which lay in position on the corpse throughout the cremation, to cool and fuse before collection of the remains for burial. Items around the neck (necklaces; e.g. **141**) or at the shoulders (brooches) may fuse to ribs, or slip slightly and fuse to the temporal vault or lower facial parts. The involvement of the forearm and elbow region may indicate that the arms were flexed across the chest in some instances; the wearing of bracelets would not be a common fashion in the third century (Hilary Cool pers. comm.). Some of the identified glass and copper-alloy pyre goods in these deposits also demonstrated the inclusion of vessels in both materials, which, given the points of fusion, must have been placed adjacent to the head (e.g. **250**), chest or waist of the deceased. Immature individuals clearly may also be supplied with personal adornment or other items. The positioning of the adhering material not only illustrates the careful laying out of the body both in terms of dressing and arranging the deceased with their accompanying goods on the pyre, but suggests minimum tending was required in these cases since enthusiastic stirring may have disturbed items from their original position. The apparent predominance of items in the earlier phases may be fortuitous, but may be indicative of a slight change in aspects of the rite pertaining to dress.

Dual deposits

The deposits containing the remains of more than one individual took several forms; the remains from a dual cremation made as a single burial deposit (**76**, **219** and **243**), the remains from a dual cremation made as two mixed burial deposits (**135** and **138**), the remains from two separate cremations made as separate burial deposits within the same grave (**36**, **192** and **203**), and what appears to represent remains from separate cremations deposited in various forms within a single grave (**227**).

The last-mentioned four burials do not qualify as a dual cremation or a dual burial as such, but do demonstrate a tradition which was to become more common in the subsequent early Saxon period (McKinley 1994a, 102–4). The Saxon examples, mostly comprising urned burials, included graves containing predominantly two or three burials, but also on occasions what appeared to be a 'family plot'. The burials may have been made contemporaneously, but the deaths and cremations may not have been – urned burials, particularly those exclusive of redeposited pyre debris in the grave fills – may have been kept above ground for some time prior to burial. Alternatively, graves, particularly cist graves of the type predominant at Brougham, could have been re-opened for a secondary interment and have left no trace of what would have been a careful, ritual activity. The 'emptied' graves discussed on p. 15 certainly indicate that primary deposition could be followed by secondary opening. Graves of this type appear to have been relatively rare in Romano-British cemeteries, the only other recorded instances comprising 1 of 833 burials from Baldock (McKinley 1991) and 2 of 356 from the St Stephen's cemeteries in St Albans (McKinley 1992). Two of the Brougham graves contained burials of an adult (one a female) and an infant (**36** and **203**). In the two other cases the individuals were both adults, one a male plus a female (**192**), the other a male with an unsexed individual (**227**). The latter was particularly complex; the majority of the bone (801g) in the 'main' burial comprised the remains of an adult male, with a few fragments from a second adult. More of the latter (20g) was recovered from an accessory vessel and within redeposited pyre debris (29.7g, ?plus 45.3g from the fill outside of the cist containing the urned burial) from the grave fill. That the two individuals were from separate cremations was indicated by the clear differences in levels of oxidation between the two sets of bones. Unfortunately, it is not known from where in the 'main' burial the few fragments of the second individual derived. If it were known whether the bone was from the top of the fill, the base or mixed amongst the rest, more could have been deduced about the formation process of the burial. The use of 'burial plots' or 'sepulchres' for the burial of 'family' members or burial club members is attested from epigraphic evidence (e.g. Saller and Shaw 1984; Toynbee 1971, 54–5), and these cist graves may represent a more lowly form of the same.

Five burials (*c*. 4%) contained the remains of two individuals, all representing those of an immature individual (infant or juvenile) with those of an adult or subadult–adult (all three sexed adults were female). The percentage of dual cremations is within the range commonly identified from all periods in which the rite was used, the combination of adult female and young immature individuals being that most frequently encountered (McKinley 1994a, 100–2; 1997a; 2000b, 272). In other Romano-British cemeteries the range of dual cremations varies from 2% at Welwyn (Wells 1981) to 8% at Owslebury, Hampshire (Wells 1981) and Plot 2 at East London (McKinley 2000b, 272), though none were recorded from Lankhills, Winchester (Clarke 1979), Walls Field and Walls Common, Baldock (Stead and Rigby 1986) or Puckeridge (Wells 1981). No dual cremations were identified within the other frontier fort cemeteries which have been subject to excavation – Petty Knowes, Lanchester, Brough under Stainmore and Low Borrowbridge – nor from the Caerleon Lodge Hill Cemetery (Evans and Maynard 1997). The picture could, however, be misleading. It has been noted that both at Brougham and the other 'military' cemeteries, the quantities of bone within the burials is small, and where only 10% or less of what would have remained from a adult cremation has been included in the burial, it is possible that the remains from an infant or small child cremated on the same pyre – although they would survive and be recognisable (see above and McKinley 1997a) – may be totally excluded from the burial. The potential for such an occurrence may be the

same within any period in which the rite was used (e.g. McKinley 1994a, 101–2) but in these cemeteries it is exacerbated by the consistently small amounts of bone apparently collected for burial.

'Accessory' burials

Eight graves each contained an 'accessory' burial in addition to the 'main' burial; in two cases the 'accessory' burial was unurned and in six they comprised urned deposits. All except one were of adults, including two males and one female. Both the unurned accessories and one of the urned accessories contained greater quantities of bone than did the 'main' burial (50.5–58% of the bone from the graves), which may lead to questioning their attribution as 'accessories'. The presence of a vessel within the grave may have led to the assumption in excavation that it represented the 'main' burial, when in fact the vessel comprised an accessory to the unurned burial. The slightly unusual case of **227** has been discussed above, and rather than representing an accessory, this may have been the 'main' burial of the second individual within this grave. The other accessory burials contained less bone than the main burials, with between 0.1% and 46% of the bone from the grave.

Unurned burials with accessory vessels (not burials), and combined unurned and urned burials of a single individual (most of the bone unurned) were seen in the Late Iron Age cemetery at Westhampnett (McKinley 1997b, 56–7). In the Romano-British period, although the provision of accessory vessels within graves was relatively common (Philpott 1991, 30–44), there are few references to them containing cremated bone, i.e. the vast majority were accessory vessels not accessory burials. The only other cemetery from which such deposits have currently been recorded is Baldock Area 15, where 8.1% of burials seem to fall within this category (McKinley 1991). It could realistically be argued that some small quantities of bone may have entered the secondary vessels by accident, but in cases such as **290** at Brougham, where the 'accessory' contained more bone than the 'burial' in an undisturbed grave, this is unlikely, and the division of the bone was clearly deliberate.

Redeposited pyre debris

A minimum of ten urned burials (8%) and three unurned burials (23%) had redeposited pyre debris somewhere within the grave fill. The figure is likely to be greater but omissions within the site records and problems with deposit type interpretation renders further quantification difficult. The bone and pyre goods from the pyre debris can be seen, in the vast majority of cases, to be commensurate with the remains from the burial within the same grave, and can be taken to have derived from the same cremation. In only one instance, the burial of an infant (**158**), did the redeposited pyre debris originate from a different cremation, that of an adult; what is unclear is if its inclusion in this grave was accidental or deliberate (the precise location in the grave fill is unclear).

In all these graves, a greater proportion of the bone was contained within the burial than amongst the debris, though there is substantial variation with between 1.3% and 40.7% being recovered from the pyre debris. The location of the pyre debris within grave fills was not always recorded, but in most cases (where it is stated) it appears to have been around the burial, that is, made subsequent to it. In two instances, **29** and **268**, debris was placed within accessory vessels, in four cases it seems to have been placed external to the grave slabs (**49**, **227** and **253**) or over the capstone (**298**) and in one case (**102**, the majority of which was horse bone) it was placed in the base of the grave and the burial made over it. The latter series of deposits particularly, show a deliberation in the deposition of this material, and where debris has apparently been incorporated within the structure of the cist, the implication is that the grave was constructed subsequent to the cremation, the remains from which it was intended to hold.

The recovery of redeposited pyre debris from Romano-British grave fills is relatively common (McKinley 2000a), including all the graves from Low Borrowbridge (McKinley 1996), 78% of the unurned burials from Baldock Area 15 (McKinley 1991), 50% of the burials from St

Stephen's in St Albans (Niblett pers. comm.; McKinley 1992), 5% of the burials from Trentholme Drive in York (Wenham 1968, 27–8) and an unspecified number from Caerleon (Evans and Maynard 1997). The trait may also be seen elsewhere in the Roman Empire, for example 'remnants of the pyre' are frequently recovered from cremation graves in Raetia (Struck 1995).

A minimum of 41 contexts (14%) were interpreted as formal deposits of pyre debris made within specifically constructed cists or cuts. Most of these deposits contained relatively small quantities of bone (range 2.3–603.2g from undisturbed deposits, majority less than 100g) and, consequently, are very difficult to link conclusively with any of the burials within the cemetery. A fragment of worked bone from one deposit of pyre debris (**154**) was found to join a fragment from the undisturbed urned burial **123**, made *c*. 20m to the west. This demonstrates that different deposit types potentially (see below) deriving from the same cremation may not necessarily be made in the immediate vicinity of each other. The spatial distribution of these deposits shows them to be scattered across the site, placed amongst the graves, with no suggestion of any specific distribution or links with specific graves.

Deposits of this type have been recognised within other Romano-British cemeteries, for example at Holborough, Kent (Jessup 1959) and in the East London cemetery where *c*. twelve were confidently identified (7% of all deposits; McKinley 2000b, 265). The distribution is likely to be more widespread, but an apparent reluctance to see deposits containing cremated bone as anything other than 'burials' has probably limited the numbers identified. Some of the deposits from the St Stephen's cemeteries in St Albans (McKinley 1992) and Low Borrowbridge certainly have the characteristics of this type of deposit rather than of burials (McKinley 1996), as do others from the northern frontier forts. Wells (1977) observed that the deposits from Brough under Stainmore were 'much contaminated with soil, charcoal and debris' and commented on the very small quantities of bone recovered, and earlier in the Brough under Stainmore report it was noted that at least some deposits contained fuel ash and only sherds of pottery (Jones 1977). Turner (1990) noted that a large proportion of the 'cremation pits' at Lanchester (possibly 22 of the 29 identified) contained mixed deposits of bone and charcoal, at least some of which are likely to represent redeposited pyre debris (there was a high level of truncation on the site which may have affected the integrity of deposits). Some of the deposits from Corbridge contained charcoal and sometimes pyre goods with very little or no cremated bone (Casey and Hoffmann 1995), and are likely candidates for formal deposits of debris. The charcoal-rich deposits from Petty Knowes differ in that the *in situ* burning evident within most of the rectangular pits containing the deposits (only one – B12 – appears not to have *in situ* burning; Charlton and Mitcheson 1984) signify that rather than being redeposited, the pyre debris was probably *in situ* at the pyre site. Although some did contain urned burials, the extreme paucity of bone from most of the deposits, including a total absence in some cases, suggests that many of these deposits represented only *in situ* pyre debris (i.e. that remaining on the pyre site) and not the burial as well, i.e. they are not *busta*. Up to 20 shallow (<0.12–0.4m) 'cremation pits' in the walled cemetery at Derby Racecourse contained little or no cremated bone but much fuel ash (Wheeler 1985), and whilst some may represent pyre debris deposited in the base of a grave prior to insertion of the burial, others are likely to be formal deposits of debris. The mixed deposits of pyre debris containing 'only a small amount [no weights given] of calcined human bones' recovered from 'graves' in the cemetery at Matrica in Hungary (Topal 1981) suggest such deposits may also exist elsewhere in Europe.

The excavation of **198** by the writer presented an opportunity to examine the formation process of one of these deposits in detail (FIG. 4.164). In this instance the deposit had not been made in a cist, but into a cut of rather uneven profile. Of the 603.2g of bone recovered, 49% represents fragments of worked bone, 0.5% animal bone, the rest the remains of an unsexed adult. Substantial quantities of charcoal were recovered (603.5g), together with at least 253.6g of iron fragments and more than 85.2g of glass. The bone and fragments of artefact were dispersed throughout the dense deposit of fuel ash *c*. 0.50 x 0.25m and 0.15m deep. There was no evidence from the material or osteological finds to suggest the deposit was the product of

more than one cremation, so it was interesting to note a small spread of the reddish brown silty clay natural (level 5a and 5c) in between the areas of dense black towards one side. Its inclusion may have been deliberate, but it seems most likely that in shovelling pyre debris into the hole, an over-enthusiastic *ustor* accidentally caught up a shovelful of the natural upcast.

The presence of pyre debris, in whatever form, indicates the relatively close proximity of the pyre sites to the graves (McKinley 2000a). The cemeteries were not just places of burial, but also functioned as crematoria, containing one or more *ustrina*, i.e. areas in which the cremations were conducted. Although one deposit at Brougham (**221**) associated with an area of cobbling may possibly represent the remains of a pyre site, there are no clear indications of the existence of *ustrina* within the confines of the known cemetery. Given the dispersed nature of the debris deposits, both within graves and formal deposits, it is possible that there were several pyre sites spread across the cemetery – subsequently truncated – as was found in East London (Barber and Bowsher 2000, 63). The area of cobbling at Brougham does have a possible parallel with the 'cobble platform' which seems to have formed one of two pyre sites within the *ustrina* at Corbridge (Casey and Hoffmann 1995), which was clearly separated from the cemetery to the west by *c*. 20m and an enclosure ditch (*ibid,* fig. 2). The *ustrina* at Brougham could have been similarly distant and beyond the area of excavation.

What is not entirely clear about the formal deposits of pyre debris is why they were made. On a purely practical level, clearance of the pyre site – possibly to allow it to be reused – would have maintained a 'tidy' cemetery. The quantity of fuel ash remaining at the end of cremation may be relatively small (20–30 litres or less, pers. obs.), particularly if the pyre were left to burn overnight and if there was a moderate wind to disperse the smaller particles; the quantity recovered from **198** would be commensurate with such an occurrence. However, some of these deposits – certainly most of those from Brougham – were obviously quite deliberate, indicating they were made as a formal part of the funerary rite.

As was noted earlier (p. 297), it is apparent that the entire cremated remains were not being included in the burials at Brougham, only *c*. 25–40%. What is also clear is that even with the additional weight of bone from the associated redeposited pyre debris, bone from individual cremations must be missing from the archaeological record. If this is the case and some bone was being removed for deposition outside the cemetery – some or all possibly being distributed to friends and relatives as suggested by Wells (1981, 291) – do the formal deposits of debris represent the remains from a clearing-up process and are they linked to burials within the cemetery, or do they represent some other form of deposit?

Cenotaphs or 'memorials'

There are records from the Roman world for the use of cenotaphs (sepulchral monuments without a burial) 'for some person whose remains were buried elsewhere' (Toynbee 1971, 54). A cenotaph, in the form of an altar, within the town of Herculaneum was constructed over the pyre site of *M. Nonius Balbus*, his remains having been collected for burial elsewhere (Pagano 2000, 28). It is worth noting that the latter occurrence appears in contradiction to recorded Roman laws stating '... the dead shall be neither buried nor burnt in the city' (Cicero *On the laws* 2, 23, 58, from Jones 1987). There is demonstrable evidence from the Roman period (Wenham 1968, 25) and later (Oestigaard 1999), that military leaders who died whilst campaigning or away from home were, at least on occasions, cremated where they fell and their remains transported back to their place of origin. Topal (1981, 76) interpreted four 'graves' devoid of bone in the cemetery of Matrica, Hungary, '… as cenotaphs to those people (mostly soldiers) who died abroad'. Wheeler (1985) believed some of the Derby roadside tombs may have been 'memorials [a monument in remembrance of] for people whose remains were lost or interred elsewhere'. 'Empty pits amid graves' have been observed in various Roman Iron Age cemeteries in Germany and have been interpreted as 'cenotaphs' (Todd 1977, 39), as have features similarly devoid of bone in some Iron Age cemeteries in France (Flouest 1993, 204).

One of the graves at Brougham contained two sets of grave vessels but only the remains of one individual. In **102** the grave contained substantial quantities of horse bone and it is possible that the second set of vessels was to accompany the animal rather than the human dead. Certainly within the later early Saxon period, within which the inclusion of horse in this way is most closely paralleled in Britain, horse remains may be found as individually urned burials within the same graves as the humans they accompanied (McKinley 1994a) and there are instances of lone urned horse burials (Manchester 1976; Harman 1989).

Four of the undisturbed deposits from Brougham were interpreted as probable cenotaphs or memorials by the writer (**22, 42, 69** and **184**). As outlined in the defined *deposit type* (see above), the features from which they were recovered had similar characteristics and inclusions to the graves, but contained very small quantities of cremated bone, *c*. 99% of what would have remained at the end of cremation being absent from the deposit. A number of Romano-British cemeteries have yielded deposits the characteristics of which suggest they are of a similar nature, including Camelon, Falkirk (Philpott 1991, 19–20), St Stephen's in St Albans (McKinley 1992) and Low Borrowbridge (McKinley 1996). The eleven deposits containing no bone and ten containing less than 10g from Caerleon (Evans and Maynard 1997) are also likely candidates. The 'burial' from High Torrs, Galloway (Breeze and Ritchie 1980) is almost certainly a cenotaph/memorial; fuel ash, burnt stone and the remains of pyre goods were buried (possibly *in situ* at the pyre site) below a stone cairn together with only 140g of bone, none of which could be conclusively identified as human (i.e. most of the human remains had been removed). It was concluded that the deceased was probably 'Roman', most likely a soldier with travelling companions, the deposit dating to a time subsequent to the withdrawal of most of the Roman army from Scotland.

The fate of the rest of the bone derived from the same cremations as that contained within the 'cenotaphs' must have included some form of disposal outside the confines of the cemetery. (NB It may also be argued that the formal deposits of pyre debris may represent a similar type of deposit rather than being related to a burial within the cemetery.) The cremation and subsequent transportation 'home' of the remains of individuals serving in armies away from their place of origin has been discussed above; clearly this practice was extant amongst the élite. Whilst there is a general paucity of evidence as to the origins of the military personnel serving along the northern frontiers of Britain (Dobson and Mann 1973), there is sufficient to demonstrate the presence of individuals and units drawn from across the Roman Provinces including Stratonican cavalry from the east, Tungrians, Vettonians and Pannonians from the Germanic Provinces (Jarrett 1994; Birley 1979; see also p. 434). There are also strong indications that many recruits were native Britons, or the descendants of veterans who had settled where they were previously stationed (Dobson and Mann 1973). There is, however, evidence for a deliberate policy – particularly in the Germanic regions following mutinies in the first century A.D. – of recruitment of 'ordinary' military personnel from areas other than that in which they were to serve (Dobson and Mann 1973; Saller and Shaw 1984). Saller and Shaw (1984) also argue for a relatively low average age of death for many *milites*, i.e. possibly before they had the opportunity to establish local ties and families of their own. Is it not possible that some individuals serving away from their place of origin and immediate family may occasionally have been afforded the same treatment as some of their superiors, a proportion of their remains being returned to their homeland with a cenotaph or memorial remaining at the place of their cremation (McKinley 1996; 2000a)? Whilst it may be argued that there is no written evidence for such a practice amongst the lower orders, or to the 'return of any German … to his homeland on completion of his army service' (Breeze and Ritchie 1980; Dobson and Mann 1973), the available sources of information are admitted to be 'scant' (Breeze and Ritchie 1980) and the universal settlement of veterans in their place of service 'assumed' rather than proven. The occasional practice of returning the remains of ordinary soldiers to their place of origin after cremation may not have been considered worth recording, or records may not have survived. Such a practice may explain the (apparent) predominance of these types of deposit in association with military cemeteries in Britain.

The role of these deposits in the cemetery is further explored on p. 457.

CONCLUDING REMARKS

The cemeteries of the northern frontier forts may be distinguished from their contemporary British 'civilian' counterparts by one major characteristic – the persistence of disposal by cremation as the predominant rite in the mid to late Roman period, at a time when the majority of the Roman world had adopted the practice of inhumation burial (Todd 1977; 1987; Jones 1987). Late Romano-British cremation burials have been found in some of the large urban cemeteries, but they are very rare (e.g. McWhirr *et al.* 1982, 134). Cremation had, however, remained predominant amongst the northern Germanic peoples, particularly in the Saxon coastlands around the Elbe and Weser basins (Todd 1987, 147–51), whilst Topal (1981, 75) considers it remained the norm from north of the Alps to the Black Sea. The military in Britain are known to have included non-native personnel (Jarrett 1994), and the significance of the persistence of the cremation rite in such a confined area of Britain and the northern, particularly Saxon, Germanic regions cannot be ignored. Other, relatively rare (in Roman Britain) aspects of the cremation rite observed within the cemetery at Brougham, such as the inclusion of large quantities of cremated horse bone, 'animal accessory' burials, and the use of graves for more than one burial – all of which became common features within the later, Anglo-Saxon, cremation burials in Britain – also possibly imply some, albeit very limited, connection with the Saxon areas of northern Germany.

There are indications that cremation was generally more thoroughly executed in the military *ustrina*, which may not have been subject to the same pressures for fuel, time and space as those of the civilian urban cemeteries. The weights of bone collected for burial appear consistently lower in the military compared with the civilian burials, with a general paucity in the number of smaller bones included which may signify variations in the procedures for collection of bone for burial. There also appears to be a greater variety, or rather a higher number of various cremation-related deposits in the military compared with the civilian cemeteries, which may be related to the ethnic origins and native rites of some of those stationed in the military establishments. The writer believes it possible that the cenotaph/memorial deposits, of which there appear to be a relatively high number in the northern frontier forts, may be related to cremated remains of some foreign soldiers being returned to their place of origin as is occasionally documented for some of the Roman elite.

Although the cemetery population has a 'domestic' appearance, there appears to be a temporal change in the demographic profile from one suggestive of fertile, young families in the early phases to older family groups producing fewer children in the later phases. This may be reflective of a change (or persistence, with fewer new young recruits) in the type of army personnel or their interaction with the native population. There was no indication of a decrease in general activity in the vicinity in the latter 40 years of the cemetery's use, there being, if anything, a slight increase in the numbers being buried. There was no detectable indication of a temporal increase in the age of adults within the cemetery population and the overall number of identifiable 'older' adults was relatively low. This apparent lack of 'older' adults appears to have similarities in some of the other military cemeteries in Britain, and there does seem to be a significant difference between the military and 'civilian' cemeteries. This may be reflective of a lower percentage of the male population surviving into old age due to the additional pressures to which military personnel are subject both as result of combat, practice and dense communal living (e.g. increased risk of infection).

The analysis of the cremated material from Brougham presented an important opportunity to study the various aspects of the cremation rite in military establishments in the third century in the light of two decades of increasing understanding of cremation as a process and a complex series of interlinked rituals within a rite which leaves more evidence of its varied parts than just a burial. It has also produced data indicative of the possible origin of some of the military personnel. The analysis has undoubtedly been hampered to some extent by shortfalls in the excavation recording of the assemblage, but the wealth of evidence which has been produced is of great value, and has changed and substantially enriched our understanding of the rite in

this temporal and geographic location. Reassessment of the cremated material from the other excavated northern frontier fort cemeteries is now needed to provide directly comparative data. The numerous characteristics of different deposits and postulated hypotheses would, however, best be tested with more extensive modern excavation of one of these fascinating cemeteries.

A NOTE ON THE AGE AND SEX CATEGORIES USED IN THE ANALYSES

By H.E.M. Cool

In order to explore the interactions in all categories of data it has been necessary to use the age and sex data presented above in a simplified form. This loses some subtlety where age is concerned but does make it possible to examine the different ways in which adults and children, males and females were treated in death.

The category adult is taken to be all individuals which McKinley has designated adult, other than those she designated male and female adults who are included in the tables under the title male and female. These include all the adults so-designated irrespective of the certainty level attached (see p. 288). Infants are defined according to McKinley's criteria. Immature includes the McKinley categories 'juvenile' and 'subadult'. It also includes such categories as 'infant/juvenile'. Uncertain contains all those individuals for which an age could not be suggested, most frequently this was McKinley's 'subadult/adult' category. The age and sex breakdown for all the funerary related deposits of the third-century cremation cemetery is shown in TABLE 6.9. The designation 'double' has been used for all deposits where the remains of two individuals have been recognised. The individuals in these have not been included in the 'adult', 'female', 'male', 'infant' and 'immature' categories in the table.

TABLE 6.9: SIMPLIFIED BREAKDOWN OF AGE/SEX DISTRIBUTION OF ALL CREMATION CEMETERY FUNERARY DEPOSITS

	Phase 1	**Phase 2**	**Phase 3**	**Phase 3b**	**Unphased**	**Total**
Adult	10	25	14	7	17	73
Female	6	7	8	1	5	27
Male	1	6	6	4	7	24
Double	4	2	3	–	1	10
Infant	4	11	–	–	–	15
Immature	3	9	9	1	1	23
Uncertain	14	14	6	4	17	55
Total	42	74	46	17	48	227