

THE 1993 AND 1994 SEASONS AT UMM AL-JIMĀL
UMM AL-JIMĀL 1993: A CIST BURIAL

by
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Introduction

Tomb Z.1 is a cist burial chamber measuring 0.71 m x 2.03 m. The depth is 1.08 m from the top of the tomb architecture to the bottom of the grave. The perimeter of the shaft is constructed of roughly hewn large basalt blocks with a bedrock floor. Small rocks are wedged into the sides of the tomb walls. All stones are of variable size and shape.

The tomb was disturbed, most likely due to a robbing in antiquity some time after the Byzantine period. The lack and type of grave goods support this theory. Two painted glass Byzantine beads, one polished limestone bead and a small fragment of a piece of copper jewelry were uncovered. These most likely belonged to full necklaces or other types of adornment prior to robbery. Irregular patches of badly decayed wood, occurring in sporadic pockets above the bone material, suggests the presence of a coffin lid which may have been chopped through or removed partially to get at the burial remains and grave goods (Fig.1).

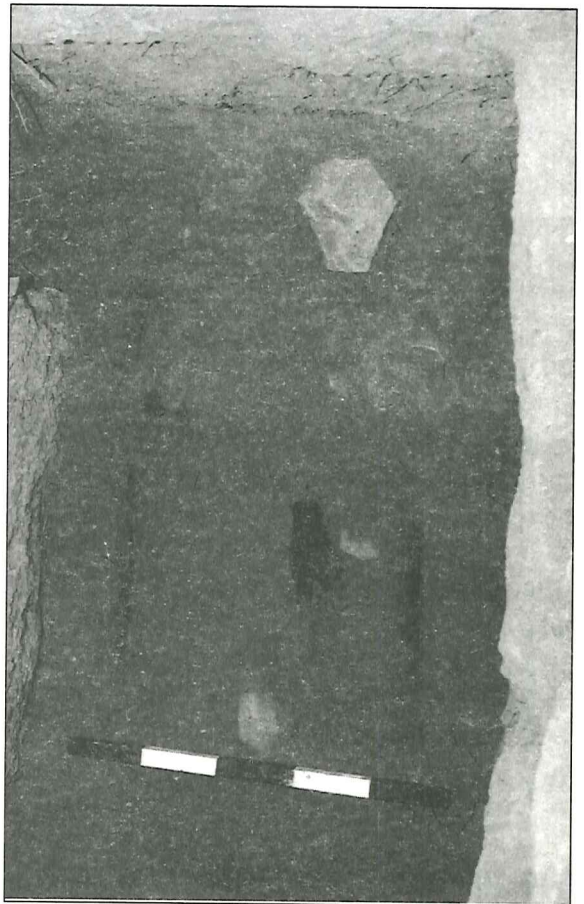
Beneath the bones, the wood occurs in a regular pattern in the shape of a rectangular box. These wood fragments have been designated as the remains of the coffin. A metal peg found associated with the mass of bones within the perimeter of the wood may have been used to keep the coffin closed. The last piece of evidence used to conclude that a robbery occurred is the placement of the bones themselves within the tomb. The majority of bone material was located in a large pile in the western half of the tomb (Fig. 2).

Less than fifty small scattered fragments were found above this pile mixed in with the tomb's backfill. The aggregation of

bone material off to one side, points to the action of grave robbers systematically searching through bone material for grave goods.

In addition to disturbance through robbery, some natural processes also contributed to the condition of the tomb. Irrigation of olive trees above the grave produced a very moist environment for the bones and wood fragments. CaCO₃ deposits indicate that water leached through the soil from above. This moist environment accounts for the badly decayed condition of bones and wood.

A figurine (Fig. 3) carved from a piece of long bone, most likely animal, was also



1. West half of tomb Z.1; dark patches are remnants of decayed coffin wood (photo by R. Fahey).

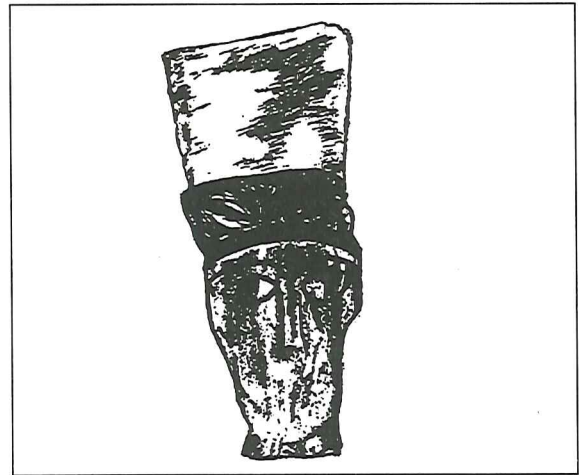


2. West half of tomb Z.1 showing large pile of human bone material; coffin side appears as dark line on the right (photo by R. Fahey).

found. Its placement, upside down and disguised within a mass of human bones, probably caused it to be overlooked by grave robbers. Similarly, a broken bone artifact mixed in with the human bones was also overlooked by robbers or else not considered worth stealing. When reconstructed, an animal bone artifact with filing and regularly patterned holes was revealed. It may have been some kind of domestic tool used for weaving. In addition to these bone artifacts, pottery fragments were uncovered which were all given field dates in the Byzantine period. Pottery evidence in conjunction with the identification of this tomb as a typical common class cist grave from the Byzantine period provides us with a reliable dating for the tomb.

Results

Morphological and metric analysis of Grave Z.1 skeletal material revealed the



3. Bone figurine from Grave Z.1.

presence of a minimum number of four individuals; one adult male, one subadult female between the ages of 18-20, a subadult of age six to twelve and another subadult of age one to three. Table 1 summarizes the number of possible individuals and the associated diagnostic material. The inability to sex and age every individual creates a possibility of overlap or overestimation of number of individuals, a problem that will be sorted out in the following discussion.

Discussion

Very little notable pathology could be distinguished from the analysis of the human remains. In one case, that of the adult mandible, alveolar resorption was visible in the location of the left first molar and right second premolar. This indicates that tooth loss occurred some time prior to death. Some resorption in the region of the left second molar was also observed. Dental caries is the most likely cause of pre-mortem tooth loss because no recession of the alveolar bone is present, as would be expected in severe cases of Pyorrhoea or chronic dental abscesses (Brothwell 1992: 151). The large adult femur also reveals a level of pathology interpreted as a bone trauma most likely inflicted by some type of missile object. A wound 3 cm long and 0.5 cm deep resulted and was healed prior

Table 1. Possible individuals and associated diagnostic material.

Individual	1	2	3	4	5	6
Diagnostic Material	scarm 2 ox coxac fermur calcaneus matatarsal	long bones ilium ribs	jaws ilium long bones	pelvis	jaws	long bones sacrum
Age	adult over the age of 25	1-3 years	6-12 years	adult	adult 35 years or over	18-20 years
Sex	male	unknown	unknown	female	unknown male ?	unknown female ?
Pathology or Anomaly present	pre-mortem depression femur-possible trauma wound	none	unerupted lower 2nd mola	none	alveolar resorption	none

to death.

Finally, the x-rays of two subadult tibias and one fully ossified fibula revealed the presence of possible Harris lines. These lines, which are associated with periods of arrested growth, reveal some evidence of disease or dietary deficiency for these individuals (Brothwell 1992: 68). It must be noted, however, that the absence of Harris lines does not indicate a general state of health for an individual or population, as these lines are strikingly individual features (Stloukal and Vyhnanek 1991: 93). The relationship of persistent Harris lines with epiphyseal lines, as well as the questions surrounding the mechanism of continuation up into adulthood are not completely understood. Diagnostic work with Harris lines may be significant for Umm al-Jimāl population studies if considered in conjunction with environmental data and faunal analysis of dietary information, and if the poly-etiological nature of these lines is kept at the forefront.

As for anomalies in the collection, the conspicuous absence of skull material must be noted. A total of 14 small cranial fragments were identified, suggesting the pos-

sibility of post-mortem loss due to robbery. If the skulls had been removed as part of a ritualistic burial practice, then the complete absence of cranial material would have been expected. The presence of skulls in a similar Byzantine cist burial termed tomb AA.1, excavated in a rescue operation, also negates the possibility of culturally related removal.

In addition to the valuable information gained from interpretation of context, pathology and anomalies, sexing and aging of skeletal material provided insight into the number of individuals present. Table 1 illustrates the possibility that six incomplete individuals are represented in this sample. As previously stated, however, the inability to sex and age every individual creates a possibility for overlap or over-estimation which must be addressed if Minimum Number of Individuals (MNI) is to be calculated. To begin with, it can be established that one adult male is represented. The massiveness of several of the bones including a femur, calcaneus and metatarsal, along with the sexing and large size of the two ox coxae (Fig. 4) and sacrum strongly substantiate the presence of a male adult in-

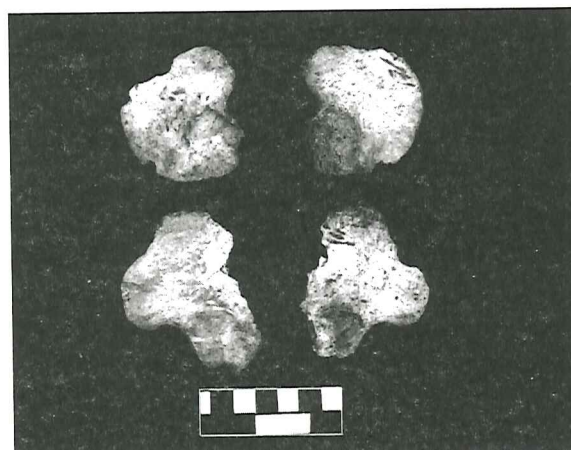
dividual. Precise aging of the individual is difficult as the pubic symphyses are absent in both ox coxae. However, complete ossification of the femur and sacrum indicate an age of at least twenty-five for this person (Bass 1987: 103, 207).

The second individual, a one to three year old, is represented by long bones, ribs and two ilia. The developmental stage and size of the tibia and ilium provide valuable evidence for the aging of this individual. Due to young age, sexing is almost impossible, even with the recovery of two pelvic bones. Similarly, two slightly larger and more developed ilia suggest a third individual (Fig. 5), another subadult who can not be sexed. A developmental age between six and twelve, established through pelvic fragments, is further supported by the presence of a mandible and its associated dentition. The erupted first molar (erupts at age 6), and unerupted second molar (erupts at age 12), substantiates the age bracket of six to twelve years. The lack of any significant wear on the first molar suggests that the actual age of this individual at death was closer to the lower end of the range. A fibula, similar in size to those recorded for five and six year olds, may belong to this subadult and also suggests a younger age range.

The fourth individual represented by the right ox coxae (Fig. 6). This fragmentary

bone, preserved only from the auricular surface to the acetabulum, indicates a female of at least eighteen years of age as the ilium and ischium have already fused and the complete union of the anterior iliac crest has occurred (Bass 1987: 199). The wide sciatic notch confirms that this pelvic bone belongs to a female (Workshop of European Anthropologists 1980: 519-520). However, more precise aging is impossible due to the loss of the pubic symphysis some time in the history of the burial.

The adult jaw, over the age of 35, may belong to a fifth individual or, more likely, to the adult male established previously. As mentioned above, the lack of a pubic symphysis in either ox coxae makes it difficult to estimate the age of the male individual,



5. Ilia from sub-adult individuals.



4. Left, adult male ox coxae.



6. Right female ox coxae.

although complete femoral ossification makes 35 at least a possible guess. The jaw was aged through wear patterns noted on two loose molars and in situ canine and first premolar. If the molar with greatest wear is taken to be the first molar from the right side of the mandible (it was already noted that the first and possibly second molar of the left mandibular body were lost pre-mortem and had resorbed), then 35 would be the youngest possible age of the individual. Because this age has been shown not to conflict with the evidence for individual number one, it will not be considered indicative of a fifth individual for the purpose of establishing MNI.

Long bones with incomplete epiphyseal closure, including distal ulna (Fig. 7) and proximal humerus segments, suggest the presence of an 18-20 year old individual (White 1991: 314). Sex cannot be established for this individual in the absence of related comparative material which could provide scales for the relationship of massiveness in long bones to sex. However, while all of the long bones occur in fragmented forms, a significant decrease in size can be noted between the adult male and the bones from this pre-adult individual. For this reason, it is possible that these long bones, which point to an individual between 18 and 20 years of age, also indicate



7. Distal ulna fragment with incomplete ossification.

a female. It is then possible that the ox coxae attributed to individual number four may belong to the same skeletal group as the not fully developed long bones. For this reason, MNI will remain at four for the grave Z.1 burial even with the addition of incompletely fused long bones.

A largely reconstructable sacrum, of much flatter nature than the one used in the sex estimation of individual one, the adult male, indicates the presence of a female in the collection. While age estimation is normally possible with intact sacra, the fragmentary nature of this one makes aging difficult. The sacrum is broken between the first and second and second and third segments. No billowing or evidence of epiphyseal plates can be seen between bodies. As these bodies tend to fuse from below towards the upper end of the 18-25 year range (Bass 1987: 103), it can be assumed that this individual was at least within this age range, if not older, because the last two vertebrae have already fused. Whether or not the other segments had already fused prior to the sacrum's post-mortem destruction is difficult to determine. However, the lack of apparent epiphyseal surfaces suggests that the first three sacral segments may have already begun to fuse. The developmental stage would again suggest the possibility of this sacrum belonging to the individual with incompletely fused long bone epiphyses.

In summary, Minimum Number of Individuals has been established at four. This would include (1) a male adult, age 25 or older represented by two ox coxae, a sacrum, femoral fragments, other miscellaneous and massive bones and possible mandible, (2) a female between the age of 18 and 20 represented by the right ox coxae, incompletely fused long bones and a sacrum (Note: the ox coxae and sacrum could actually belong to an older separate female), (3) a subadult between the ages of

one and three represented by long bones, ribs and both ilium, and (4) a subadult between the ages of six and twelve, confidently identified through jaw and ilium fragments. The developmental stage and size of the vertebrae in the collection further substantiate a MNI estimation of four individuals. At least two individuals are represented by billowed centrums. The largest of these demonstrate epiphyseal surfaces which should fuse between 17-25 years of age (Bass 1987: 96). These must be indicative of the late subadult between the age of 18 and 20, as some of the centrums are too large to be attributable to the individual of between six and twelve years of age. Centrums and unfused neural arches are also present, which can be assigned to the subadult between the ages of one and three, as arches and vertebral bodies fuse between three and seven years of age (Bass 1987: 96). The vertebral sample from this individual is too fragmented to tell whether synostosis of the two halves of the vertebral arch has been initiated. This would begin to occur between the first and third year (Bass 1987: 93) but cannot be determined from this collection. Fully developed adult vertebrae bodies are also present and can be attributed to the adult male in the collection. This is a relative estimation, as age and sex is difficult to determine from a single vertebrae sample. However, this information does seem to lend further support for the estimated Minimum Number of Individuals present.

Conclusion

The combined evidence from the burial architecture and the preliminary analysis of human remains points to a common class cist burial from some time in the sixth century, containing at least four incomplete individuals. The incompleteness of the skeletons can be attributed to the robbery some time in antiquity. All of the individuals had

to have been buried some time before that robbery as all of the individuals are represented within the borders of the coffin remains and are found stratigraphically below soil backfill which has been dated to the Byzantine period through pottery analysis.

With this evidence established, what can be concluded about burial practices and cause of death in this population? Unfortunately, very little can be gained concerning either of these questions as analysis of one sample cannot provide accurate evidence or a basis for judgement. However, some tentative theories may be proposed to explain this burial based primarily on comparative studies, and secondarily on the information gained from the excavation and analysis of grave Z.1. At the very least, these theories may be used as tools for comparison and contrast with the tombs planned for excavation in the 1994 season at Umm al-Jimāl.

Loculi tombs are significant for understanding the social history of Umm al-Jimāl, as similar types have been uncovered at Heshbon, a rural Levant site 26 kilometers to the southwest of 'Ammān in Jordan and at Umm al-Jimāl. During the 1971 season, a number of tombs were examined at Heshbon. Of the four general types excavated, two were described as "popular" or "common" during Byzantine times (Boraas and Horn 1973: 114). These types had loculi or rectangular vertical shaft openings attached to a main chamber. Each opening or shaft was constructed to hold a body or bodies which could be added from the main chamber over an extended period of time. Similarly, tomb V excavated at Umm al-Jimāl in the 1984 field season and associated with the Early Roman / Late Roman village contained a side chamber, main chamber and eight burial loculi (UJ 84 Field Notes 1984: 148). This tomb evidenced an extended period of use as subsequent burials were added and older re-

mains were removed from the main chamber's loculi and deposited in a side chamber or ossuary (UJ 84 Field Notes 1984: 148).

Grave Z.1 obviously differs from tomb V in its scale and construction. The loculi burials at Heshbon and grave V at Umm al-Jimāl were both constructed to accommodate several individuals over an extended period of time. Conversely, tomb Z.1 was dug to hold one or more individuals, all buried in close temporal proximity to one another. It is unlikely, given the almost worldwide ritualistic avoidance of uncovered or exposed decaying corpses and the lack of chemical preservation, that any of the four individuals from tomb Z.1 were left in an open grave for an extended period of time. Most likely, a period of no more than a few weeks or even days passed before the basalt beams were laid across the cist and covered with earth. As space does not seem to be a factor, and time and energy expenditure for this type of tomb construction must have been negligible, it can be assumed that cists would have been dug whenever a death or deaths made it necessary. What then caused these individuals, covering such a wide range of ages, to die and be buried around the same time as each other?

Initial response points towards the possibility of famine, endemic disease or warfare which would have killed a number of individuals within a short period of time. Perhaps shifts in environmental patterns prevented subsistence agriculture, or maybe a plague of small pox or measles brought destruction. However, this type of analysis must be encountered with sufficient caution as a large sample of comparative material is not yet available.

Written sources and related archaeological evidence become valuable at this point for understanding this burial and its total historical context. John of Ephesus, a Syriac writer and ascetic of the sixth century, describes in detail the plague of Justinian

and its recurrences which ravaged the Palestinian and Syrian countryside from 542 AD on. John describes how on his travels through the Syrian hinterland, he found only dead corpses occupying the houses and way stations (Conrad 1986: 146). The fields were ready for harvest, but so many had died in the ravages of the bubonic plague that there were not enough survivors to till the fields (Conrad 1986: 146). Procopius further supports these observations with a general reference to abandonment of agricultural fields (Conrad 1986: 146 and *Secret History* xxiii). In short, those who survived the ravages of the disease, later had to deal with the famine and economic despair that followed.

As the plague of Justinian and its recurrent cycles can be well established through written sources up until the final climax of the plague in 746-7 AD, it still remains to be established whether the plague actually extended all the way to Umm al-Jimāl. Michael the Syrian listed 100,000 deaths for Bostra and its vicinity in the pandemic of the seven hundreds (de Vries, *Toward*, 14). Umayyad caliphs left Damascus during this period and took refuge in desert castles in order to escape the ravages of plague (Conrad 1981: 333-337). Given that plague and other diseases tended to move and spread along trade routes, it is possible that inland areas like Umm al-Jimāl may have been inflicted with the deadly epidemic through contact with other areas of Umayyad administration and commerce like Bostra (de Vries, *Toward*: 14). While the gradual diminishing of population at Umm al-Jimāl, which occurred between its pinnacle in the sixth century and final abandonment perhaps some time in the ninth century, would tend to support such a theory, it must be acknowledged that all of the evidence for a verdict has not yet been submitted.

House 119, excavated at Umm al-Jimāl

in the 1993 field season, may offer some additional evidence for the history of disease at Umm al-Jimāl. The excavation of a one by two meter trench revealed that Umayyad builders removed and burned Byzantine occupation materials. The resulting dump contained a large amount of pottery, bone, soil and other trash (UJ 93 Field notes) all deposited in a short time period. This unusual sanitation and disposal of previous occupation materials by Umayyad occupants may be related to the plagues of the late sixth century. In order to restore disease-free habitation, Umayyad people may have conducted a clinical cleansing of the site (de Vries, *ACOR Newsletter*, Winter 1993).

In order to keep this evidence in perspective, some of the considerations put forth by Jean Durliat must be noted. Durliat reminds us of the tentative reliability of ancient written sources (Durliat 1991: 112-113). With the heavy influence of Thucydides and classicism, as well as the tendency to exaggerate mortality rates, one must admit that the true impact and character of plague in antiquity is at best difficult to ascertain. The absence of archaeological evidence for the mass burials discussed in sources like John of Ephesus (Allen: 12) and Procopius (*Wars*, II.xxiii) further casts a shadow on our understanding of the role of plague in the demographic, social and religious trends of late antiquity.

The key to understanding the demographic trends and eventual depopulation at Umm al-Jimāl and other rural Syro-Palestinian communities, may lie in the bu-

rials and human remains of these sites. However, precise excavation of a large sample and a complete analysis of the written source material must first be undertaken if these questions are to be answered. More research in burial tradition must be attempted in order to provide a basis for comparison and a clearer understanding of typology. Death curves, similar to those compiled by NESCO describing mortality and health statistics, must be established for this region of the world in order to provide a basis for ethnographic comparison. In short, the information presented here represents just the tip of the iceberg and a preliminary basis for comparative study, as historians and osteo-archaeologists unite to uncover one of the great mysteries of ancient Syro-Palestinian social structure and the influence of disease.

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