

## HUMAN SKELETAL REMAINS FROM TOMBS AT KURSI-GERGESA

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Human remains were found in three burial chambers and one cist tomb at Kursi, dated to the Byzantine period (see Tzaferis, this volume). As the bones were mostly fragmentary and not found in anatomical articulation, they could not be sorted into individuals. Nonetheless, through anthropological analysis, including description of the diagnostic osteological elements, it was possible to estimate the number of individuals, their age and their sex. The frequencies of epigenetic traits were recorded whenever possible. After documentation, the bones were reburied in their original graves.

### *Tomb 1*

Only a few skeletal remains from this tomb were available for examination. These included the following indicative elements:

- 1) Long bone fragments indicative of a young child (<5 years old).
- 2) Proximal fragment of right femur: The vertical diameter of the head was measured as 42 mm, indicative of a female (Bass 1987).
- 3) Proximal fragment of a tibia: The articular surface manifested microporosity and lipping of the articular margins, suggesting a relatively old individual. The bone is big and robust, and shows prominent muscle attachment, typical of a male.

The small sample checked from this tomb is indicative of at least three individuals: a relatively old male, an adult female and a child <5 years old.

### *Tomb 2*

The scattered skeletal remains included fragmentary skull bones, teeth, and postcranial bones. The indicative elements were:

- 1) Femoral bones: 38 proximal fragments of femoral bones were sorted and measured (Table 1). They represent at least 19 adult individuals: 10 females, 7 males, and 2 individuals whose sex could not be determined. The sample also included right and left femoral shafts of a child (unknown age) and the shaft of an adolescent (distal epiphysis yet unfused).
- 2) Pelvic bones: Apart from adult pubic fragments, these bones included right and left small pubic bones of an infant (<1 year old) and the ischium of an infant (<1 year old) and of an older child (of unknown age).
- 3) Vertebrae: Lumbar vertebra manifesting large osteophytes (>3 mm), indicative of an old individual (Nathan 1962).
- 4) Lower jaws: All the jaws were found without their teeth. The lower jaws represented at least nine adult individuals. Six out of nine jaw fragments manifested antemortem tooth loss; in three of them, all the posterior teeth were lost, typical of old individuals.
- 5) Teeth: Four permanent right lower first molars were found, indicative of four children, aged: 1–2, 4–5, 4–6, 4–6 years (Hillson 1986). Five permanent upper incisors were indicative of two children, aged 4, 8–9, one adolescent, 10–15 years old (Hillson 1986), and an old individual (>50 years; Nagar and Winocur, forthcoming).

The skeletal remains in this tomb point to at least 26 individuals: 6 children, 1 adolescent and 19 adults of all ages. Among the adults were at least 10 females and 7 males.

### *Tomb 3*

The skeletal remains included fragmentary skull bones, teeth, and postcranial bones. The

**Table 1. Sex Distribution in Tomb 2, Based Upon Femoral Head Diameter (Bass 1987)**

Right Femur		Left Femur		Unknown Side	
Vertical Diameter (mm)	Sex	Vertical Diameter (mm)	Remarks	Vertical Diameter (mm)	Sex
39	Female	37	Female <sup>i</sup>	36	Female
<40	Female	~39–40	Female	37	Female
<40	Female	<40	Female	~40	Female <sup>iv</sup>
40	Female	40	Female	47	Male
42	Female	42	Female	50	Male
43	Female	42	Female		
43	Female	43	Female		
<44	Female	44	Female		
~43–45	Unknown	45	Male <sup>ii</sup>		
~45	Male	45	Male		
45	Male	45	Male		
46	Male	46	Male		
46	Male	46	Male		
46	Male	46	Male		
47	Male	?	? <sup>iii</sup>		
?	?	?	?		
?	?				

<sup>i</sup> Young individual, fusion line of the head still visible.

<sup>ii</sup> Old individual, porosity of the articular surface and lipping of the articular rim.

<sup>iii</sup> Young individual, fusion line of the greater trochanter still visible.

<sup>iv</sup> Old individual, porosity of the articular surface.

**Table 2. Sex Distribution in Tomb 3, Based Upon Femoral Head Diameter (Bass 1987)**

Right Femur		Left Femur		Unknown Side	
Vertical Diameter (mm)	Sex	Vertical Diameter (mm)	Remarks	Vertical Diameter (mm)	Sex
48	Male	45	Male	45	Male
		47	Male	>45	Male
				46	Male

bones were arranged in an east–west direction, head in the west. The bones in the western half of the room were more poorly preserved than the rest, leaving mostly tibiae, fibulae and feet available for examination. The indicative elements were:

1) Calcaneus bones: This was the most frequent skeletal element in the tomb—51 calcanei

indicating at least 26 individuals. These bones represent at least one child (<15 years) and 25 adults (posterior epiphysis fused; Ubelaker 1989).

2) Six proximal fragments of femoral bones were sorted and measured (Table 2). The femora listed in Table 2 represent at least 3 adult males.

3) Humerus: Distal ends of two humeri were measured. The epicondylar widths (51 mm; 61 mm) were indicative of at least one male and one female (Bass 1987).

4) Fibula and metatarsal bones of an adolescent, the distal epiphyses unfused.

5) Vertebrae: Cervical vertebra manifested advanced osteoarthritic lesions, typical of an old individual (Waldron 1991).

6) Teeth: Lower premolar at a development stage typical of a 7-year-old (Hillson 1986); Nine permanent lower second molars showing enamel attrition, indicative of at least 5 individuals 12–20 years old; Lower canine showing attrition of almost half-crown size, indicative of an individual >40 years old.

7) Pathology: Healed trauma in first metatarsal bone.

The skeletal remains in this tomb point to at least 27 individuals: 1 child (7 years old), 5 adolescents and 21 adults of all ages. Among the adults were at least one female and three males. Disintegration of most of the bones in this tomb could have resulted in a bias in which younger children were under-represented (Walker and Johnson 1988).

#### *Cist Tomb (L58)*

The skeletal remains were fragmentary and poorly preserved. They included skull bones, teeth and postcranial bones. The bones were

arranged in an east–west direction; skulls were found on both sides of the tomb. The indicative elements were:

1) Vertebrae: Thoracic vertebra with osteophytes ~1.5 mm, indicative of an individual >50 years old (Bass 1987). Vertebral fragment with ring epiphysis partially fused, indicative of an individual 18–25 years old.

2) Children's long bones: Complete long bones are listed in Table 3.

3) Permanent teeth: Permanent tooth attrition stages are summarized in Table 4 for the two most frequent tooth types. Age estimation based upon tooth attrition stages (Hillson 1986; Nagar and Winocur, forthcoming).

4) Children's jaws: Lower jaws with mixed dentition were indicative of 5 individuals. Age estimation, based upon tooth development stages: 1.5–2, 3–4, 4–6, 5–7, 6–7 years old (Hillson 1986).

**Table 3. Complete Long Bones of Children in the Cist Tomb**

Bone Type	Maximum Length (mm)	Remarks
Ulna	66	<1 year old
Humerus	76	<1 year old
Radius	58	<1 year old
Proximal femur	Non-measurable, not an infant	3 left-side fragments

**Table 4. Tooth Attrition in the Cist Tomb**

Tooth Type	No. of Teeth	Stage of Attrition	Age Estimation
Upper central incisor	2 (R+L)	Enamel attrition, root still open	7–8
	2 (R+L)	Dentine cup	30–40
	2 (R+L)	Half crown lost	50–60
Left lower first molar	2	Enamel attrition, root closed	10–15
	1	Dentine exposure in two cusps	15–20
	1	Dentine cup in one cusp	20–30
	1	Dentine cup in all cusps	30–40

**Table 5. Age and Sex Distribution of the Skeletal Remains from Kursi**

Tomb No.	MNI			Estimated Age at Death (years)						Adults of unknown age
	M	F	?	0–4	5–9	10–17	18–25	25–50	>50	
1	1	1	1	1	-	-	-	-	1	1
2	7	10	9	3	3	1	2	-	3	14
3	3	1	23	-	1	5	-	-	1	20
4	-	-	-	4	3	3	1	1	1	-
<i>Total</i>	<i>11</i>	<i>12</i>	<i>33</i>	<i>8</i>	<i>7</i>	<i>9</i>	<i>3</i>	<i>1</i>	<i>6</i>	<i>35</i>

The skeletal remains in this locus are indicative of at least 13 individuals, and age could be determined for 12 of them (<1, <1, 1.5–2, 3–4, 4–6, 5–7, 10–15, 10–15, 15–20, 20–30, 30–40, 50–60 years old). The number of children in Tomb 4 exceeded the number of adults.

#### *Summary and Conclusions*

The skeletal remains from the four tombs represent at least 69 individuals and include infants, children, and adults of both sexes (Table 5).

Evidence of primary burial was found in Tomb 3, in which the dead were laid in an east–west direction, head in the west. Burial practices in the other rooms are unknown.

Although the fragmentary skeletal sample (from Tombs 1–3) was too small for statistical analysis of frequencies of epigenetic traits, an unusually low frequency of squatting facet in the distal end of the tibia was noted. This trait, found in only 3 out of 24 tibiae in Kursi (12.5%), was very frequent among the populations of that period in Israel (an average of 50% was recorded in the IAA data bank, N = 296). This trait has a behavioral, rather than a genetic basis, being the result of habitual sitting posture (squatting). Its rarity at Kursi might suggest that the people buried at the site were of foreign origin (pilgrims?). It might also express different habits of the dwellers of the monastery and its surroundings than the general population.

#### REFERENCES

- Bass W.M. 1987. *Human Osteology: A Laboratory and Field Manual* (3rd ed.). Columbia, Mo.
- Hillson S. 1986. *Teeth*. Cambridge.
- Nagar Y. and Winocur E. Forthcoming. The Skeletal Remains from Assawir and Barkai South: Reconstruction of Some Demographic Parameters. In E. Yannai, 'En Esur ('Ein Asawir) II: Excavations at a Protohistoric Site and Adjacent Cemeteries in the Coastal Plain, Israel. *IAA Reports*.
- Nathan H. 1962. Osteophytes of the Vertebral Column: An Anatomical Study of Their Development according to Age, Race and Sex with Considerations as to Their Etiology and Significance. *Journal of Bone and Joint Surgery* 44:243–268.
- Tzaferis V. This volume. New Archaeological Finds from Kursi-Gergesa.
- Ubelaker D.H. 1989. The Estimation of Age at Death from Immature Human Bone. In M.Y. Iscan ed. *Age Markers in the Human Skeleton*. Springfield, Ill. Pp. 55–70.
- Waldron T. 1991. The Prevalence of and the Relationship between Some Spinal Diseases in a Human Skeletal Population from London. *International Journal of Osteoarchaeology* 1:103–110.
- Walker P.L. and Johnson J.R. 1988. Age and Sex Biases in the Preservation of Human Skeletal Remains. *American Journal of Physical Anthropology* 76:183–188.