

**AVAR PERIOD ANTHROPOLOGIC FINDINGS FROM  
BAČKA-TOPOLA SITE (YUGOSLAVIA)  
(PUBLICATION OF DATA)**

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**Abstract**

The main characteristics of 49 Avar-Age male and 52 female skeletons excavated at the Bačka-Topola-Bánkert site (Yugoslavia), an area extremely rich in archeological furniture, are reviewed. Some of the skeletons are of Mongolid character.

In the same area Sarmatian graves were also found. The occurrence of skeletons of Mongolid character in these graves points to Sarmatian-Avar relationships.

A detailed evaluation of the skeletons from the paleopathological viewpoint has already been published. The publications are listed under References.

*Key-words:* Avar Age, Mongolid character, Bačka-Topola site.

**Introduction**

The archeologists of the Subotica City Museum, with the leadership of LÁSZLÓ SZEKERES, archeologist, excavated a total of 220 graves between 1958-1977 in Yugoslavia in the Bačka-Topola-Bánkert area, which is alongside the highway leading from Subotica to Novi Sad (SZEKERES, 1978, VÉKONY, 1983).

For the present evaluation the graves No. 1-196 were at our disposal.

The findings can be divided into two archeological periods: Sarmatians from the 3rd and 4th centuries and Avars from the 6th to 8th centuries.

There were no skeletons in five Avar graves (Nos 19, 53, 56, 85, 185) and in six Sarmatian graves (Nos 4, 37, 67, 81, 115, 132). At the same time, there had been dual burials in 11 Avar graves (Nos 18, 57, 86, 96, 124, 129, 149, 165, 188, 191, 194), and in one Sarmatian grave (No. 127). Further two findings (one of which was Mongolid) had been excavated in 1958 (FARKAS, 1971).

Numbered till No. 196 — also taking into account the dual burials (dual graves = 12, and two graves from 1958) — the total number of graves was 210. From these the number of graves containing skeletons from the Avar Age was 166, and those containing skeletons from the Sarmatian Age was 33. In the present paper we deal with the findings from the Avar Age — with the exception of the two Avar skulls excavated in 1958. The graves No. 197-220 excavated in 1977 were not at our disposal.

## Methods

Table 1 gives information on the distribution of the excavated findings by sex, age of death and archeological period. To decide the sex, 22 characters were considered; the age of death was determined on the basis of the morphological characteristics of the sutures, of the teeth and of the facies symphyseos.

According to the method of MARTIN (MARTIN and SALLER 1956), 9 neurocranium and 17 splanchnocranium measurements were taken and six morphological characteristics were considered; furthermore, with the method of BREITINGER and BACH (BREITINGER, 1937, BACH, 1965) the stature values were calculated from the measurements of the long bones. These individual values for adults are presented in Tables 4 and 5 and those for the fragmentary material are given in the text.

Tables 2 and 3 compare some important parameters of the characteristics and indices regarding both sexes (sample size, range, arithmetic mean, standard deviation). The calculations were carried out with a table calculator.

## Results

From the findings 57 were males, 65 were females and 40 (24%) were children. The sex could not be determined in two cases.

As to the age of death the male findings were almost equally distributed in the age groups *adultus*, *maturus* and *senilis*, whereas a conspicuously high proportion of the female ones (49%) died while being "*adulta*" i. e. 25–40 years old.

This result is consistent with the experiences gained from other Avar-Period cemeteries.

The data are presented in Tables 2 and 3, the two sexes may be characterized in the following:

Males: the neurocranium is medium long, moderate wide, low, medium high; the brain capacity is medium, the base of the skull is short and medium long; the forehead is narrow and medium wide. On the basis of the indices the neurocranium is short (brachycranic), its height is medium (orthocranic); the forehead is narrow (stenometopic). From *norma verticalis* the most frequent are the pentagonoid and sphenoid forms, the glabella is mainly of grade 3–4; the *protuberantia occipitalis externa* is of grade 3.

According to the absolute measurements the splanchnocranium is moderately wide and high; the upper face is medium high and high; the orbit is narrow and high; the nasal cavity is wide and high and very high; the palate is medium long and medium wide; the mandible is medium wide and wide. The face is straight (orthognathous). On the basis of the indices, the face is narrow (leptoprosopic), the upper face is narrow and medium wide (leptene and mesene); the orbit is high (hypsiconchous); the nasal cavity is medium wide (mesorrhine); the palate is very short (hyperbrachystaphyline). The fossa canina is flat, but is completely filled up in many cases (23.5%); the *spina nasalis anterior* is mainly of grade 2; the alveolar prognathism is mostly moderate.

The males are of tall-medium stature according to the stature mean, on the basis of the frequency of the stature categories they are mainly of medium stature. The difference in stature between the two sexes is 7.7 cm, in favour of the males, on the basis of the means.

Females: their neurocrania are medium long, medium wide, low and medium high, according to the absolute measurements. Their brain capacities are medium and large, their foreheads are narrow and medium wide. According to the indices

they are short (brachycranic), medium high and low (orthocranic and chamaecranic); the forehead are medium wide (metriometopic). From norma verticalis the most frequent is the pentagonid contour, the glabella is firstly of grade 2, and the protuberantia occipitalis externa is of grade 0.

According to the absolute measurements, the splanchnocranium is medium wide and high; the upper face is high; the orbit is narrow and medium high; the nasal cavity is medium wide and high; the palate is medium long and short, medium wide and narrow; the mandible is medium wide; the face is straight (orthognathous). On the basis of the indices, the splanchnocranium is narrow (leptoprosopic); the upper face is medium wide and narrow (mesene and leptene); the orbit is high (hypsiconchous); the nasal cavity is wide (chamaerrhine); the palate is wide (hyperbrachystaphyline). The fossa canina is filled up and flat; the spina nasalis anterior is mainly of grade 2; the alveolar prognathism is moderate.

On the basis of the stature mean and also according to the distribution in the stature categories, the female were of tall stature.

The general characterization presented above shows no basic differences between the female and the male skeletons.

The taxonomic analysis of the findings will soon be reported.

Tables 4 and 5 demonstrate the individual measurements and characteristics of the well-preserved findings. The appropriate data of the fragmentary findings are given in the following:

#### Males:

- Grave 7. — Sexual index: +1.7. Stature: 163.5.  
 Grave 28. — G-op: 186, m-op: 180, n-ba: 92, eu-eu: 146, ft-ft: 102, po-b: 113. Juv. Sexual index: +1.0. N. vert.: pent. Glabella: 3, prot. occ. ext.: 0, stature: 168,7.  
 Grave 31. — Ad.-Mat. Sexual index: +1.3.  
 Grave 68. — Id-gn: 32, width of ramus mandibulae: 35. Ad. Sexual index: +1.2. N. vert.: plag. Prot. occ. ext.: 1.  
 Grave 86a. — G-op: 185, m-op: 187, eu-eu: 144, id-gn: 30, height of ramus mandibulae: 56, width of ramus mandibulae: 30. Mat. Sexual index: +0.7, N. vert.: plag. Prot. occ. ext.: 3. Stature: 163,9.  
 Grave 109. — Width of nasal cavity: 28, ol-sta: 43, enm-enm: 43, height of ramus mandibulae: 60, width of ramus mandibulae: 33. Ad. Sexual index: 0. Glabella: 1, prot. occ. ext.: 0, fossa canina: 2, sp. n. ant.: 2, alv. progn.: 2, stature: 169,3.  
 Grave 118. — Eu-eu: 153, go-go: 96, height of ramus mandibulae: 63, width of ramus mandibulae: 31. Juv. Sexual index: +1.1. Prot. occ. ext.: 1, stature: 173,8.  
 Grave 149a. — Mat. Sexual index: +1.2. Glabella: 0.  
 Grave 162. — Go-go: 103, Juv. Sexual index: +2,0.

#### Females:

- Grave 2. — Id-gn: 27. Ad. Sexual index: -2.0, Glabella: 1.  
 Grave 8. — Ad.-Mat. Sexual index: -0.6. Glabella: 1.

- Grave 15. — G-op: 190, m-op: 187. eu-eu: 146, po-b: 112, height of ramus mandibulae: 66, width of ramus mandibulae: 38, Ad. Sexual index: -1.5. N. vert.: pentagonoid, Glabella: 1, prot. occ. ext.: 0.
- Grave 22. — G-op: 187, m-op: 185, eu-eu: 124, ft-ft: 91, id-gn: 31. Sen. Sexual index: -0.7. N. vert.: ell. Glabella: 1, prot. occ. ext.: 0, stature: 163.3.
- Grave 42. — Eu-eu: 152, ft-ft: 98, po-b: 110. Sen. Sexual index: -1.3. N. vert.: plag. Stature: 161,1.
- Grave 74. — G-op: 181, m-op: 178, eu-eu: 143, ba-b: 107, id-gn: 24, height of ramus mandibulae: 63, width of ramus mandibulae: 30. Sen. Sexual index: -0.9. N. vert.: pent. Prot. occ. ext.: 0, stature: 155,6.
- Grave 134. — Eu-eu: 129, go-go: 88, height of ramus mandibulae: 52, width of ramus mandibulae: 27. Ad. Sexual index: -1.6. N. vert.: plag. Prot. occ. ext.: 0, stature: 158,9.
- Grave 139. — Ft-ft: 90, width of ramus mandibulae: 28. Sen. Sexual index: -1.3, N. vert.: sphen. Glabella: 3.
- Grave 153. — G-op: 174, m-op: 174, eu-eu: 146, ft-ft: 99, ba-b: 100, width of ramus mandibulae: 28, Ad. Sexual index: -1.1. N. vert.: ell. Glabella: 1, prot. occ. ext.: 0, alv. progn.: 2, stature: 157,6.
- Grave 177. — G-op: 191, eu-eu: 133, ft-ft: 91, ol-sta: 41, id-gn: 33, height of ramus mandibulae: 66. Mat. Sexual index: -0.2. N. vert.: plag. Glabella: 1, prot. occ. ext.: 0, alv. progn.: 3, stature: 155,7.
- Grave 182. — Go-go: 96. Ad. Prot. occ. ext.: 0.
- Grave 190. — Eu-eu: 130. Ad. Sexual index: -1.0. Prot. occ. ext.: 0.

Table 1. Distribution of findings by age of death, sex and archeological periods  
Avars

Age of death		Inf. I. II.		Males		Females		Underfinable		Total	
		n	%	n	%	n	%	n	%	n	%
Avars	Infantia I.	12	30.0	—	—	—	—	—	—	12	7.3
	Infantia II.	28	70.0	—	—	—	—	—	—	28	17.1
	Juvenis	—	—	4	7.0	7	10.8	1	50.0	12	7.3
	Adultus	—	—	15	26.3	32	49.2	—	—	47	28.6
	Maturus	—	—	15	26.3	12	18.4	—	—	27	16.5
	Senilis	—	—	18	31.6	12	18.4	—	—	30	18.3
	Unknown	—	—	5	8.8	2	3.1	1	50.0	8	4.9
Together		40		57		65		2		164	
Sarmatians	Infantia I.	1	20.0	—	—	—	—	—	—	1	3.0
	Infantia II.	4	80.0	—	—	—	—	—	—	4	12.1
	Juvenis	—	—	1	6.3	—	—	—	—	1	3.0
	Adultus	—	—	6	37.5	4	66.7	3	50.0	13	39.4
	Maturus	—	—	3	18.7	1	16.6	—	—	4	12.1
	Senilis	—	—	5	31.2	—	—	—	—	5	15.2
	Unknown	—	—	1	6.3	1	16.6	3	50.0	5	15.2
Together		5		16		6		6		33	

Table 2. Parameters of some important measurements and indices for Avar males

No. (Martin)	<i>n</i>	<i>w</i>	$\bar{X}$	<i>s</i>
1.	42	167-200	181.95	6.54
1c.	41	163-188	178.29	6.44
5.	29	86-111	96.83	5.26
8.	43	135-155	145.58	4.54
9.	42	82-103	95.67	4.30
17.	30	116-142	129.20	6.09
20.	36	106-122	114.06	3.79
32/la.	31	41-51	47.42	2.66
38.	30	1214-1580	1405.90	89.29
40.	26	85-107	93.73	6.16
45.	32	124-146	133.94	5.84
46.	34	87-113	99.65	5.66
47.	33	112-140	124.48	7.66
48.	35	65-86	74.83	5.11
51.	38	35-41	38.12	1.42
52.	38	28-47	35.40	3.41
54.	35	22-34	26.94	2.57
55.	35	48-62	53.17	3.23
62.	30	37-52	43.33	3.21
63.	35	33-44	39.34	2.82
65.	27	103-136	122.04	6.00
66.	32	92-118	102.03	5.69
69.	37	29-42	34.30	3.35
70.	38	54-81	65.97	6.72
71.	41	29-38	33.37	2.77
72.	28	78-97	85.61	4.48
Stature	44	160.1-174.0	167.16	3.28
Sex. i.	50	0-+2	0.96	0.46
5:8	29	57-82	66.48	5.10
20:1	36	55-70	62.83	2.52
20:8	36	72-88	78.28	4.10
66:45	25	70-86	75.84	4.20
45:8	32	85-99	91.94	3.82
9:45	32	65-82	71.50	3.35
8:1	42	68-88	80.05	4.05
17:1	30	67-77	71.10	2.93
17:8	30	80-104	88.63	5.89
9:8	41	58-75	65.85	3.11
47:45	28	79-103	92.43	5.43
48:45	30	46-63	55.57	3.57
52:51	38	76-124	90.45	8.62
54:55	34	42-61	50.68	5.07
63:62	29	75-105	90.93	7.28

Table 3. Parameters of some important measurements and indices for Avar females

No. (Martin)	<i>n</i>	<i>w</i>	$\bar{X}$	<i>s</i>
1.	39	161-191	176.51	7.00
1c.	39	161-187	173.95	6.47
5.	26	85-110	95.46	5.69
8.	44	124-154	140.43	7.41
9.	42	85-102	92.71	3.95
17.	27	114-142	124.93	6.54
20.	35	100-119	109.49	4.83
32/1a.	25	42-54	47.76	3.18
38.	26	1134-1516	1307.00	109.30
40.	20	82-108	92.60	7.01
45.	29	110-144	126.10	7.10
46.	31	88-109	95.39	5.49
47.	30	101-130	114.30	7.08
48.	29	62-78	70.28	4.14
51.	34	34-44	37.41	1.96
52.	33	29-38	33.61	2.18
54.	29	22-30	25.59	2.24
55.	30	51-57	50.26	2.93
62.	29	37-63	42.45	5.17
63.	28	33-49	38.50	3.38
65.	27	108-133	118.52	8.11
66.	30	85-114	96.20	6.32
69.	40	20-37	30.10	3.90
70.	38	51-72	60.42	4.75
71.	42	26-41	32.00	3.53
72.	22	79-93	85.55	4.11
Stature	39	153.1-167.6	159.45	3.01
Sex. i.	52	0--2	-1.07	0.47
5:8	25	58-83	67.72	5.36
20:1	32	57-68	62.19	2.69
20:8	34	72-90	77.74	4.21
66:45	21	65-87	76.91	5.25
45:8	27	73-97	89.15	5.27
9:45	28	65-82	73.61	3.65
8:1	38	66-93	79.90	5.03
17:1	25	65-77	71.24	2.88
17:8	26	79-108	89.04	6.81
9:8	37	57-73	65.81	3.55
47:45	25	81-101	90.60	3.55
48:45	25	50-61	55.40	3.30
52:51	32	81-112	90.38	6.51
54:55	27	39-61	50.74	5.33
63:62	25	65-129	90.64	12.70

Table 4. Individual measurements and morphological characters — Avar males

No. (MARTIN)	No. of graves									
	9.	18a.	20.	25.	33.	34.	36.	41.	46.	48.
1.	184	—	173	177	181	184	200	189	183	184
1c.	183	—	—	169	174	185	188	182	184	181
5.	—	—	—	90	99	95	111	94	—	99
8.	148	—	143	149	152	147	136	152	149	149
9.	97	96	100	92	99	103	99	96	98	96
17.	—	—	—	124	129	126	135	126	131	130
20.	117	—	—	111	113	114	118	111	110	117
32/1a.	50	—	—	45	41	46	—	48	—	50
38.	—	—	—	1338	1321	1458	1434	1444	1512	1476
40.	—	—	—	95	87	89	—	95	—	99
45.	—	—	—	135	—	144	—	137	—	143
46.	—	104	97	99	—	103	—	101	—	105
47.	—	137	140	122	133	130	—	127	—	128
48.	—	83	86	74	80	77	—	75	—	81
51.	40	40	37	38	41	39	—	37	—	39
52.	38	36	39	35	38	35	—	32	—	35
54.	—	28	27	29	34	28	—	28	—	30
55.	—	58	62	53	58	52	—	51	—	54
62.	48	41	—	41	—	—	—	45	—	37
63.	41	41	—	37	43	38	35	42	—	—
65.	128	124	—	122	124	124	—	—	—	123
66.	106	98	—	105	103	110	—	101	110	108
69.	34	37	—	37	35	37	39	36	—	37
70.	72	69	—	68	71	63	69	72	—	57
71.	37	37	—	34	33	37	37	32	33	38
72.	—	—	—	78	—	82	—	83	—	82
Age	Ad. +0.7	Mat. +0.6	Mat.-Sen. +1.4	Sen. +1.1	Mat. +1.1	Ad. 0.0	Mat.-Sen. +1.4	Ad. +1.5	Ad. +1.3	Sen. +1.0
Sex. index										
N. vert.	Ovoid	—	Spher.	Romb.	Sphen.	Ell.	Plag.	Sphen.	Plag.	Ovoid
Glabella	2	3	2	3	4	2	5	4	3	3
Prot. o. ext.	1	—	—	1	1	2	4	1	—	2
Fossa can.	—	2	—	1	—	2	1	2	—	2
Sp. n. ant.	2	1	—	1	—	—	—	2	—	—
Alv. progn.	3	2	2	2	2	—	3	2	—	3
Stature	161.3	166.7	166.3	169.2	165.1	168.2	166.5	168.9	165.2	166.3

Table 4. (continuation 1)

No. (MARTIN)	No. of graves									
	58.	62.	64.	66.	75.	77.	83.	87.	93.	96b.
1.	180	180	187	167	191	181	184	187	173	186
1c.	179	174	187	163	182	177	180	184	170	183
5.	100	—	92	—	—	98	97	98	97	—
8.	147	148	147	147	147	142	150	155	142	145
9.	97	96	93	97	101	97	101	94	82	95
17.	135	127	128	—	—	134	128	132	125	—
20.	115	—	121	112	106	112	118	114	109	—
45	45	—	45	46	46	50	46	45	51	45
32/1a.	1485	1379	1494	—	—	1414	1458	1580	1274	—
38.	94	—	86	—	—	99	98	88	94	—
40.	136	137	132	136	142	131	137	132	127	126
45.	102	—	96	102	103	105	104	99	87	97
46.	134	—	113	—	112	124	129	128	113	127
47.	80	—	73	70	65	76	73	76	68	75
48.	37	—	38	38	41	38	37	39	37	39
51.	36	—	34	37	31	33	35	35	30	35
52.	27	—	28	23	28	27	27	26	22	24
54.	56	—	55	54	50	52	53	54	48	53
55.	44	—	43	—	52	47	43	—	44	42
62.	37	—	37	43	43	39	39	34	33	37
63.	127	130	123	—	105	120	119	119	126	—
65.	108	118	106	—	105	96	98	92	100	107
66.	32	30	31	—	32	37	38	37	33	—
69.	71	70	70	—	61	73	68	63	60	58
70.	36	38	33	—	36	31	30	30	29	29
71.	87	—	87	—	80	81	86	90	86	97
72.	—	—	—	—	—	—	—	—	—	—
Age	Sen. +1.0	Ad. +1.5	Sen. +0.8	Ad. +0.6	Sen. +1.3	Mat.-Sen. +1.1	Mat.-Sen. +0.9	Mat. +0.2	Mat. +0.7	Mat. +1.0
Sex. index	Sphen. 3	Pent. 4	Ovoid 2	Sphen. 3	Pent. 4	Pent. 4	Pent. 4	Pent. 4	Sphen. 4	—
N. vert.	3	4	2	3	4	4	4	4	4	4
Glabella	3	3	2	2	3	3	—	3	3	3
Prot. o. ext.	2	—	2	3	3	1	2	2	2	2
Fossa can.	3	—	3	—	2	—	4	—	4	—
Sp. n. ant.	3	—	3	—	2	—	4	—	4	—
Alv. progn.	2	—	1	1	2	2	2	1	2	1
Stature	170.2	170.2	166.8	169.4	166.7	174.0	171.9	168.0	165.7	164.1

Table 4. (continuation 2)

No. (MARTIN)	No. of graves												Age Sex. index
	100.	101.	102.	107.	116.	120.	122.	129a.	131.	140.			
1.	186	195	180	190	183	179	185	180	183	177	140.		
1c.	185	181	177	188	178	171	185	179	175	169			
5.	—	—	97	108	—	101	93	86	99	—			
8.	140	135	144	136	144	144	146	152	152	141			
9.	93	89	89	102	91	96	127	97	99	89			
17.	—	—	129	142	—	136	127	127	125	—			
20.	117	—	114	120	113	118	116	115	112	—			
32/1a.	50	—	48	49	48	50	50	45	—	46			
38.	—	—	1388	1500	—	1396	1282	1489	1405	—			
40.	—	—	85	96	—	93	86	85	107	—			
45.	129	—	126	124	125	139	134	129	131	—			
46.	88	97	90	90	101	98	102	104	98	97			
47.	121	123	120	123	114	137	—	133	128	117			
48.	70	73	71	70	67	76	80	81	82	67			
51.	38	37	37	38	37	40	38	41	39	37			
52.	32	36	36	34	30	33	35	38	36	28			
54.	22	26	24	26	28	—	28	28	30	23			
55.	52	51	49	53	48	51	57	56	57	49			
62.	40	45	37	44	45	42	—	—	44	44			
63.	39	41	37	36	40	41	—	39	40	37			
65.	118	113	—	—	121	122	—	119	—	—			
66.	97	—	94	—	104	104	—	—	—	97			
69.	31	33	31	31	33	42	—	38	37	34			
70.	69	69	57	76	59	71	—	68	—	61			
71.	30	36	29	34	31	34	—	35	34	33			
72.	90	—	92	86	81	91	93	85	—	84			
	Mat. 0.0	Ad. +0.7	Ad. 0.0	Sen. +1.1	Sen. +1.0	Mat. +1.2	Mat. +0.7	Ad. +1.0	Mat. +1.0	Ad. +0.7			
N. vert.	Pent. 4	Ovoid 5	Pent. 3	Ovoid 5	Pent. 4	Sphen. 5	Pent. 1	Pent. 2	Ovoid 3	Pent. 4			
Giabella	0	3	3	3	3	3	2	0	2	2			
Prot. o. ext.	2	3	1	4	2	3	—	1	1	1			
Fossa can.	3	4	5	4	2	2	—	—	3	—			
Sp. n. ant.	2	2	2	1	1	3	2	3	3	2			
Alv. progn.	—	—	—	—	—	—	—	—	—	—			
Stature	165.5	168.2	164.0	166.5	166.8	167.1	170.0	170.9	166.1	—			

Table 4. (continuation 3)

No. (MARTIN)	No. of graves										
	142.	145.	156.	157.	159.	179.	186.	194a.	194b.	196.	
1.	177	183	171	172	187	178	181	173	174	179	
1c.	176	182	170	169	188	174	178	172	169	178	
5.	—	90	89	97	102	101	98	96	94	96	
8.	148	143	145	142	139	147	142	145	144	146	
9.	95	98	95	100	98	90	93	90	93	96	
17.	—	127	116	133	142	134	129	120	122	120	
20.	109	113	109	120	122	113	110	112	113	111	
32/1a.	—	50	49	51	—	45	46	—	43	50	
38.	—	1405	1251	1335	1528	1432	1379	1303	1214	1335	
40.	—	85	92	91	—	101	93	98	96	103	
45.	—	132	131	133	130	144	137	129	136	136	
46.	—	102	94	98	—	101	96	—	100	105	
47.	—	121	117	125	—	128	123	116	122	112	
48.	—	73	69	79	—	77	74	73	78	69	
51.	37	39	35	38	35	37	38	38	38	39	
52.	29	34	33	36	29	37	32	35	47	35	
54.	—	26	30	26	—	27	25	24	27	28	
55.	—	53	49	55	—	54	52	55	57	49	
62.	—	45	41	47	—	41	40	39	46	44	
63.	—	44	37	38	—	43	40	39	43	39	
65.	—	122	—	122	—	—	125	115	121	128	
66.	105	96	97	—	—	103	105	96	99	98	
69.	31	34	29	33	—	37	34	29	33	33	
70.	56	68	54	81	—	72	76	55	65	64	
71.	32	29	32	32	—	34	33	34	32	37	
72.	—	86	82	86	—	88	85	—	88	80	
Age	Mat. +1.1	Sen. +1.6	Sen. 0.0	Sen. +1.6	Ad.-Mat. +1.1	Ad. +1.2	Sen. +1.0	Juv.-Ad. +0.8	Sen. +0.8	Sen. +0.5	
Sex. index	Sphen. 4	Pent. 5	Sphen. 3	Sphen 4	Pent. 5	Sphen. 2	Pent. 4	Pent. 3	Sphen. 3	Sphen. 3	
N. vert.	—	—	—	—	—	—	—	—	—	—	
Glabella	—	—	—	—	—	—	—	—	—	—	
Prot. o. ext.	3	1	3	5	4	1	4	0	2	3	
Fossa can.	—	1	5	4	—	3	3	3	3	2	
Sp. n. ant.	—	2	1	2	—	2	1	3	2	—	
Alv. progn.	—	2	3	3	—	2	2	—	1	3	
Stature	167.5	172.3	160.0	172.8	167.1	166.4	166.4	160.5	164.2	161.9	

Table 5. Individual measurements and morphological characters — Avar females

	No. of graves									
	3.	12.	13.	16.	21.	26.	35.	38.	45.	50.
1.	184	182	171	—	173	185	172	175	—	177
1c.	180	177	168	—	171	182	169	173	—	174
5.	93	102	—	—	94	110	96	96	—	94
8.	154	146	140	—	142	132	145	145	—	138
9.	92	94	95	88	98	89	91	90	—	94
17.	127	136	—	—	120	142	128	123	—	127
20.	119	118	110	—	115	119	110	104	—	107
32/1a.	54	50	51	—	47	—	47	51	—	48
38.	1516	1467	—	—	1240	1406	1347	1308	—	1291
40.	101	—	—	—	98	108	83	87	—	89
45.	125	—	132	—	134	119	130	127	—	125
46.	97	—	97	101	95	103	93	89	101	95
47.	126	—	120	—	112	113	120	116	127	108
48.	76	—	74	77	68	72	70	71	76	69
51.	37	38	36	34	40	35	36	37	—	37
52.	33	34	32	38	35	36	34	35	—	36
54.	26	—	22	22	24	29	25	29	30	25
55.	52	—	57	57	49	51	54	48	50	47
62.	38	—	—	—	41	43	37	40	43	39
63.	49	—	40	40	40	40	40	36	42	37
65.	127	126	129	—	124	125	112	112	—	—
66.	101	106	—	—	104	103	85	94	—	—
69.	36	—	32	34	32	32	31	29	36	30
70.	62	61	57	—	61	72	62	60	—	—
71.	36	37	30	—	35	35	33	33	—	30
72.	86	—	84	—	83	—	90	90	—	85
Age	Ad.	Ad.	Mat.	Ad.	Ad.	Ad.	Ad.	Ad.	Ad.	Ad.
Sex. index	-0.1	-0.6	-1.1	-0.6	-1.2	-1.0	-1.5	-1.2	0.0	-1.0
N. vert.	Romb.	Ovoid	Ovoid	—	Ovoid	Ell.	Sphen.	Ovoid	—	Pent.
Glabella	3	3	2	4	1	2	2	1	—	3
Prot. o. ext.	0	0	1	—	0	1	0	0	—	0
Fossa can.	2	1	2	2	1	1	3	2	—	2
Sp. n. ant.	—	—	2	2	2	1	—	3	1	2
Alv. progn.	3	3	3	2	2	2	3	2	2	2
Stature	164.0	158.5	161.2	160.0	160.5	158.8	158.6	163.7	—	164.7

Table 5. (continuation 1)

No. (MARTIN)	No. of graves									
	55.	59.	63.	65.	69.	71.	76.	79.	90.	91.
1.	180	177	177	179	161	179	177	176	170	165
1c.	180	175	174	176	161	175	174	176	169	165
5.	—	93	103	96	—	96	102	96	92	—
8.	146	144	148	137	150	149	137	134	144	137
9.	102	94	98	93	86	94	96	94	90	87
17.	—	120	129	123	—	128	124	127	115	—
20.	106	111	111	108	—	113	103	108	103	112
32/1a.	47	49	51	42	—	50	42	42	45	—
38.	—	1291	1427	1265	—	1405	1214	1231	1226	—
40.	—	92	92	87	—	106	92	91	—	—
45.	124	129	137	125	110	144	125	126	120	—
46.	100	90	106	92	88	—	94	93	—	—
47.	121	121	116	114	106	119	114	113	—	—
48.	71	72	71	71	67	73	68	68	—	—
51.	40	37	39	37	37	39	39	39	36	—
52.	36	35	35	34	30	33	35	34	31	—
54.	27	24	27	24	25	—	23	—	—	—
55.	50	54	52	52	49	50	49	47	—	—
62.	45	44	43	39	41	—	38	40	—	—
63.	38	37	43	33	35	—	34	—	—	—
65.	—	122	—	112	108	—	113	119	—	—
66.	96	89	—	86	—	136	101	93	—	—
69.	34	32	32	28	27	114	—	30	23	20
70.	62	60	62	61	51	58	58	60	58	63
71.	33	30	34	26	29	34	35	31	29	27
72.	81	87	92	90	—	80	88	84	—	—
Age	Juv.-Ad.	Sen.	Mat.	Ad.	Juv.	Mat.	Ad.	Ad.	Sen.	Mat.
Sex. index	-1.8	-1.2	-1.0	-1.2	-1.4	-0.9	-0.4	-0.9	-1.2	-1.0
N. vert.	—	Pent.	Pent.	Pent.	Plag.	Plag.	Pent.	Pent.	Sphen.	Pent.
Glabella	1	2	1	2	1	2	3	3	2	4
Prot. o. ext.	0	0	0	0	1	2	3	0	2	0
Fossa can.	1	2	1	1	1	2	4	1	3	—
Sp. n. ant.	—	3	1	2	2	2	—	1	—	—
Alv. prog.	2	3	3	2	3	2	2	2	—	—
Stature	—	159.3	160.4	157.4	160.3	159.7	158.4	160.4	158.1	—

Table 5. (continuation 2)

No. (MARTIN)	No. of graves										
	98.	104.	114.	117.	121.	124b.	133.	138.	150.	152.	
1.	169	169	182	178	—	177	—	168	—	182	
1c.	166	168	181	176	—	176	167	164	—	183	
5.	85	87	103	87	—	85	—	92	—	94	
8.	144	142	149	145	—	146	128	142	136	125	
9.	96	88	93	98	95	96	—	90	—	89	
17.	114	121	133	—	—	123	120	116	—	132	
20.	105	108	115	—	—	110	107	105	—	109	
32/1a.	47	48	—	—	—	—	46	45	—	45	
38.	1192	1251	1503	—	—	1344	—	1176	—	1249	
40.	82	82	—	—	—	—	89	92	—	92	
45.	130	115	134	—	121	—	123	114	—	114	
46.	100	92	90	—	90	—	89	88	101	88	
47.	102	111	113	—	112	—	101	110	118	110	
48.	—	64	64	—	68	—	62	68	72	68	
51.	37	36	36	—	36	—	38	36	40	36	
52.	34	29	33	—	36	—	33	33	36	33	
54.	27	26	—	26	27	—	23	24	29	24	
55.	51	46	—	—	51	—	—	49	52	49	
62.	—	63	—	41	—	—	42	44	53	44	
63.	39	41	—	37	—	—	36	38	37	38	
65.	122	111	127	111	—	119	—	111	117	111	
66.	92	94	99	93	95	91	—	92	91	94	
69.	25	26	28	32	28	29	27	26	34	27	
70.	59	64	61	51	52	63	61	60	64	61	
71.	34	28	30	28	26	35	31	35	37	31	
72.	—	89	—	—	—	—	—	83	—	81	
Age	Ad. -1.1	Sen. -0.7	Sen. -0.3	Juv.-Ad. -1.1	Mat. -1.3	Ad.Mat. -1.0	Mat. -1.6	Ad. -1.6	Ad.-Sen. -0.3	Ad. -1.6	Ad. -1.6
Sex. index	Pent.	Pent.	Pent.	Pent.	Plag.	Ovoid	Pent.	Pent.	—	Pent.	Pent.
N. vert.	2	2	2	2	1	2	—	2	—	2	2
Glabella	2	0	1	0	0	1	0	0	0	0	0
Prot. o. ext.	1	1	—	4	1	—	—	2	3	2	2
Fossa can.	—	—	—	3	4	—	—	3	—	2	2
Sp. n. ant.	—	—	3	2	2	—	—	2	3	2	3
Alv. progn.	—	2	—	—	—	—	—	—	—	—	—
Stature	—	161.8	164.4	160.9	157.3	156.3	156.6	—	—	—	157.5

Table 5. (continuation 3)

No. (MARTIN)	No. of graves											
	153.	161.	165a.	169.	174.	180.	187.	188a.	188b.	191a.		
1.	186	173	172	168	176	—	179	184	—	164		
1c.	182	174	172	165	178	—	179	180	—	163		
5.	96	—	—	94	97	—	95	—	—	90		
8.	149	132	136	135	134	—	148	148	—	138		
9.	97	89	92	86	91	—	93	97	—	85		
17.	131	—	—	120	123	—	117	—	—	126		
20.	118	—	111	101	108	—	108	—	—	108		
32/1a.	50	—	52	45	46	—	—	—	—	49		
38.	1494	—	—	1134	1214	—	1335	—	—	1191		
40.	91	—	—	94	86	—	—	—	—	91		
45.	133	—	124	126	130	—	—	126	—	120		
46.	98	—	96	98	97	—	—	—	96	88		
47.	130	—	101	110	—	—	—	—	115	109		
48.	78	—	62	68	—	—	—	—	—	64		
51.	39	—	34	36	37	—	—	—	—	37		
52.	36	—	30	34	33	—	—	—	—	30		
54.	24	—	24	28	24	—	—	—	—	—		
55.	52	—	46	46	52	—	—	—	—	—		
62.	45	—	38	44	38	—	—	—	—	—		
63.	33	—	38	42	38	—	—	—	—	—		
65.	137	113	112	112	—	—	—	—	—	112		
66.	104	95	96	95	—	—	—	—	—	101		
69.	37	34	28	28	—	—	—	—	—	35		
70.	69	56	54	63	—	—	—	—	—	67		
71.	32	31	31	30	—	—	—	—	—	33		
72.	86	—	87	79	93	—	—	—	—	41		
Age	Mat.	Ad.-Mat.	Ad.	Sen.	Sen.	Ad.	Ad.	Mat.	Ad.	Sen.		
Sex. index	-0.1	-1.7	-1.5	-1.4	-1.2	-1.5	-1.2	-0.7	-1.5	-1.6		
N. vert.	Ovoid	Pent.	Pent.	Pent.	Pent.	—	Pent.	Ovoid	Plag.	Pent.		
Glabella	2	1	1	2	2	1	2	4	1	2		
Prot. o. ext.	2	0	0	0	4	—	0	5	0	1		
Fossa can.	2	3	3	3	1	—	—	—	—	3		
Sp. n. ant.	3	—	2	1	3	—	—	—	2	3		
Alv. progn.	3	2	2	2	2	3	2	—	3	3		
Stature	167.5	160.0	154.8	157.7	161.8	153.1	160.7	158.3	—	154.5		

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