

ANALYSIS OF THE ANTHROPOLOGICAL MATERIAL OF THE 10—11th CENTURY CEMETERY IN ALDEBRŐ-MOCSÁROS

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(Received October 31, 1967)

The circumstances of the excavation

The museologist J. Szabó from Eger made rescue excavations in 1962 in the area of Aldebrő-Mocsáros and opened up 31 graves. They were all oriented in West-East direction, their age can be ranged into the second part of the 10th century. The western part of the cemetery is ruined, but the peripheries of the other parts could be reached in all directions (Szabó, 1963). As the archeological material has been so far not been reported it seemed advisable to give a short archeological description of the cemetery.

At least 50 per cent of the graves have no finds (mostly male and children graves). Generally the other graves contained: ear rings, bracelets, quivers, iron knives, iron clasps, rings, stirrups, and eared buttons. Among the archeological finds of this cemetery the discs ornamented with griffins from the 20th grave are remarkable (Szabó, 1963). The archeological finds of the graves suitable for anthropological analysis are according to the notes of J. Szabó as follows.

Author wishes to express her thanks to J. Szabó for placing the list of graves of the 10—11th century cemetery in Aldebrő-Mocsáros at her disposal.

Grave 9: Quiver packed with arrows, iron knife, iron clamp, horses harness, a pair of stirrups. Length of the skeleton measured in the grave: 162 cm. Depth 80 cm; male.

Grave 10: Iron knife. Skeletal length: 165 cm. Depth 54 cm; male.

Grave 14: Had no find. Skeletal length: 159,9 cm. Depth 66 cm; male.

Grave 15: Clay pot, silver hair rings, ring. Skeletal length: 161 cm. Depth 57 cm; female.

Grave 16: Ring. Skeletal length: 160 cm. Depth 65 cm; male.

Grave 19: Arrow tips, iron knife, iron clamps, eared button. Skeletal length: 154,2 cm. Depth 42 cm; male.

Grave 24: Had no find. Skeletal length: 164 cm. Depth 78—85 cm; female.

Grave 25: Two eared buttons. Skeletal length : — . Depth 71 cm; female.

Grave 29: Had no find. Skeletal length: 146,8 cm. Depth 82 cm; female.

Anthropological analysis

The Museum of Eger sent the material of 30 graves to the Anthropological Institute of the József Attila University to be examined. The finds of 16 are well preserved (therefore suitable for metrical analysis). 10 adults (6 males and 4 females) the others are subadults

and children. From 8 graves skulls and skeletons, from 1 grave only the skull and from 1 only the skeleton were unearthed. There were 14 fragmentary skeletons (thus unsuitable for metric analysis) the outlined analyses of which are summarized at the end of the paper in Table 6.

According to the age categories, the majority of the males can be ranged into the mature group, whereas most of the females can rather be considered as members of the adult one.

On the basis of Martin's method (Martin, 1928) the general analysis of the series according to Table 1. and taking also the morphological characteristics into consideration is, as follows. (Owing to the insignificant quantity of well — preserved — thus measurable — anthropological material, parameters were not calculated.)

The *crania* of the males mostly show a dolichocranic tendency, whereas the cranial indices of the females are higher (brachycrany and mesocrany). The *cranium* of the males is usually hypsicranic and metriocranic, and that of the females rather orthocranic and tapeino-cranic. The cranial capacity of the males is characterised by oligencephaly, whilst that of the females by euen- and aristencephaly. The frontals are in both sexes eurymetopic. The *glabella* is generally pronounced (degrees 3 and 4) in the males and slight in the females (degrees 0 and 1). The contour of the *cranium* of the males is very variable in the vertical norm: pentagonoid, ellipsoid, ovoid; that of the females mostly ovoid. In the case of both sexes is gable shaped the occipital norm. The *protuberantia occipitalis externa* is in males generally of degree 2, while in females it is rather of degree 10 and 1. The *processus mastoideus* is pronounced in males and slight in females. Leptoprosopy is characteristic for the faces of the males and mesoprosopy for those of the females. The upper facial index is usually in both sexes mesene. The *fossa canina* is mostly deep or of medium deep. The orbital index is mesoconch and chamaeconch in males and meso- and hypsiconch in females. The nose protrudes slightly or to a medium extent, according to their indices meso- and chamaerhiny dominates. The *spina nasalis anterior* is in the males of degree 2 and 3 and in the females it is generally broken. On the basis of the facial profile angle both sexes are orthognath. Their alveolar prognatism is usually of degree 2. The stature of the males is short and short medium or tall-medium and that of the females rather short medium (Table 2).

Table 3 shows the metrical characters of the adults and Table 4 those of the subadults and children.

The anatomical variations which can be seen on the skulls are as follows. In males the *os epiptericum* was found twice (grave 19, on the right; grave 14, on the left) and in females once (grave 24, on the right). Suture bones in the lambdoid region occurred only in a male in one case (grave 10). On the skull of grave 16 a manifestation of *atlas* can be detected.

The skull of grave number 20 is trephined and that of grave number 29 is symbolically trephined. (The detailed analysis of these two *crania* will be reported in a later paper together with the description of trephined *crania* of another cemetery.)

From this small series far reaching conclusions cannot be drawn; the anthropological description of the series reveals that there is no marked difference between males and females (only the cranial index shows some difference). The performed taxonomical analysis also confirms this.

P. Lipták kindly helped me with the taxonomic analysis; it was performed by his method. Author would like to express her thanks to him.

The *crania* belonging to the brachycranic group can be well distinguished (graves 19, 25, 29). All the three represent the Pamirian race particularly grave 25 (Plate I). Brachycrany, orthocrany and tapeinocrany characterise its *cranium*, the *glabella* is shallow. The vertical profiling is moderate. The frontal is steep, according to its index it is eurymetopic. The nose protrudes moderately, is slightly bent, on the base of its index chamaerrhine. In the temporal norm a slight lambdoid flattening can be noted. The *crania* of graves 19 (Plate II) and 23 also show Pamirian characteristics but these main features are mixed with some other characteristics. Three graves also belong to the Mediterranean group: graves 14 (Plate III), 16 (Plate IV) and 24 (Plate V). The skeletal material of grave 14 exhibits Mediterranean features — the *cranium* is dolichocranic, hypsicranic, akrocranic, the stature short medium — but they are also mixed with Cromagnoid-A and some other undetermined characteristics. The orbits are rectangular, according to the index mesoconch, the nose is protruding, erect, low and broad (euryprosopic, euryene), the face slightly angular. The other two *crania* show definite Iranian characteristics associated with some secondary component. Their common trait is a low cranial vault, a sloping forehead, and a strongly protruding nose which is also sloping. After the first mentioned two groups the Nordoid one should be ranged containing 1 male and 1 female (graves 9 and 15). The *cranium* of grave 15 is characterised by dolichocrany, hypsicrany and akrocrany, the forehead is slightly sloping, the face leptoprosopic, mesene, the orbits are moderately angular, on the base of its index is mesoconch. The stature is tall medium. Among the males the archaic form of the Nordics (protonordics) characterised by a marked relief can also be found. This *cranium* is hyperdolichocranic, the forehead eurymetopic, the orbits angular and the stature tall medium. The cromagnoid group is the last having only 1 male representative; grave 10 (Plate VI). Within this large group this *cranium* clearly shows the features of the Cromagnoid-A race. The *cranium* is mesocranic, the forehead eurymetopic, slightly sloping, the face hyper-*euryprosopic*, euryene, the orbits are rectangular, the mandible is high, the region of the gonion protrudes markedly, the stature is tall. (The detailed diagnosis of the main taxonomical groups are described in a previously published work of P. Lipták [1962]).

Taking the metric, morphological and taxonomical analyses into account it is striking that the subjects belonging to the same large group show a certain morpho-taxonomical similarity. Such a resemblance can, for example, be found between the Protonordic type of grave 9 and the Nordic one of grave 15, between the Iranian types of graves 16 and 24

as well as between the Pamirian types of graves 19 and 25. The resemblance between these individuals is probably due to a family connection thus it may be concluded that we are obviously dealing with a larger family burial place.

Comparison

The skeletal remains unearthed in the area of Hungary of our days are particularly important because they also shed light on the systematical position of the Europoid and Mongoloid races which lived in Eastern-Europe. The analysis of the series is equally important in small and large series because in this way we can get better acquainted with the anthropological aspect of the analysed population, furthermore the questions of morpho-taxonomical relationship and genetical correlations can be approached. The anthropological component of the conquering Hungarians contains a large percentage of Turanian, Uralian, Pamirian and other Europoid types (Lipták, 1955). Although the Turanian type belongs ethnologically to the Turkish groups in the Ural region, the Hungarians actually mixed at several periods with Turkish ethnic groups, thus bringing into the Carpathian basin a considerable Turanian element. As generally in the case of the Ugrian populations, the Uralian race represents also an appreciable anthropological component of the Hungarian people. As a result of P. Lipták's work the Pamirian type can also be demonstrated among the conquering Hungarians, it was linked to the Turkish component of the Hungarians in the 10th century. The ruling class is usually characterised by the Turanian, Uralian and sometimes by the Pamirian types, the middle class by the Europoid component: the Mediterranean, Nordic and Brachycranial types (Lipták, 1965).

The anthropological elaboration of the 10—11th century cemeteries was mainly performed by Lipták (1953, 1958), Lipták-Farkas (1967), Nemeskéri (1946—48), Acsádi-Nemeskéri (1957, 1958, 1959), Bartucz-Farkas (1956). The 10—11th century cemetery Aldebrő—Mocsáros — taking the small amount of well preserved material into account — resembles, owing to the cranial indices and taxonomical distribution, especially the material found in Veszprém—Sashegy and Székesfehérvár—Kuruudomb (Table 5). Reviewing the taxonomical analysis of the cemeteries presented in Table 5 it is striking that in the cemetery of Aldebrő the Europeo-Mongoloid component is completely absent. Thus the domination of the Europoids and in them the presence of the Pamirian type in the 10—11th century cemetery of Aldebrő—Mocsáros provides a certain help for the anthropological analysis of the people belonging to the middle class of the conquering Hungarians, although the cemetery of Aldebrő cannot be considered to be exclusively a cemetery of the occupation.

TABLE 1. Aldebró-Mocsáros: Distribution of the principal metrical characters

	Characters		Males	Females	Total	
8:1 Cranial index	Hyperdolichocranic	65,0—69,9	1	—	1	
	Dolichocranic	70,0—74,9	2	—	2	
	Mesocranic	75,0—79,9	1	2	3	
	Brachycranial	80,0—84,9	—	2	2	
	Hyperbrachycranial	85,0—89,9	1	—	1	
	Total:		5	4	9	
17:1 Length- height index	Chamaecranial	x—69,9	—	—	—	
	Orthocranic	70,0—74,9	1	3	4	
	Hypsocranic	75,0—x	3	1	4	
	Total:		4	4	8	
17:8 Breadth- height index	Tapeinocranic	x—91,9	1	3	4	
	Metriocranic	92,0—97,9	2	—	2	
	Acrocranial	98,0—x	1	1	2	
	Total:		4	4	8	
9:8 Fronto- parietal index	Stenometopic	x—65,9	1	1	2	
	Metriometopic	66,0—68,9	—	—	—	
	Eurymetopic	69,0—x	4	3	7	
	Total:		5	4	9	
47:45 Facial index	Hypereuryprosopic	x—79,9	1	—	1	
	Euryprosopic	80,0—84,9	1	—	1	
	Mesoprosopic	85,0—89,0	—	2	2	
	Leptoprosopic	90,0—94,9	2	1	3	
	Total:		4	3	7	
48:45 Upper facial index	Euryene	45,0—49,9	2	—	2	
	Mesene	50,0—54,9	3	3	6	
	Leptene	55,0—59,9	—	1	1	
	Total:		5	4	9	
52:51 Orbital index	Chamaeconch	x—75,9	2	—	2	
	Mesoconch	76,0—84,9	3	2	5	
	Hypsiconch	85,0—x	—	2	2	
	Total:		5	4	9	
54:55 Nasal index	Leptorrhine	x—46,9	—	1	1	
	Mesorrhine	47,0—50,9	2	2	4	
	Chamaerhine	51,0—57,9	2	1	3	
	Total:		4	4	8	
38. Cranial capacity		Males	Females			
	Oligencephalic	x—1300	x—1150	4	—	4
	Euencephalic	1301—1450	1150—1300	—	2	2
	Aristencephalic	1451—x	1300—x	—	2	2
	Total:			4	4	8
72. Total facial angle	Prognathous	70°—79,9°	—	—	—	
	Mesognathous	80°—84,9°	1	1	2	
	Orthognathous	85°—92,9°	3	3	6	
	Total:		4	4	8	
Calculated stature		Males	Females			
	Short	150—159,9	140—148,9	2	—	2
	Short medium	160—163,9	149—152,9	2	2	4
	Medium	164—166,9	153—155,9	2	—	2
	Tall medium	167—169,9	156—158,9	2	—	2
	Tall	170—179,9	159—167,9	2	1	3
	Total:			10	3	13

TABLE 2. Aldebró-Mocsáros: Measurements of long bones

Grave No	Inventory No	Femur		Tibia		Humerus		Radius		Calculated stature
		right	left	right	left	right	left	right	left	
		M A L E S								
9	DI. 7.	453	449	387	388	332	330	255	259	167
10.	DI. 8.	464	458	388	387	346	—	252	256	170
11.	DI. 9.	469	466	399	397	—	—	—	—	171
14.	DI.12.	417	420	362	361	296	280	—	232	160
16.	DI.14.	458	453	—	383	331	325	261	262	166
17.	DI.15.	—	—	375	—	334	337	257	—	168
18.	DI.16.	436	433	366	363	340	335	242	240	165
19.	DI.17.	413	403	346	350	300	298	227	223	159
22.	DI.19.	432	438	—	—	318	312	—	233	162
27.	DI.23.	418	421	337	—	—	—	—	210	159
F E M A L E S										
15.	DI.13.	434	432	356	357	320	—	—	234	163
20.	—	394	392	325	322	287	283	220	—	151
25.	DI.20.	398	400	331	330	290	289	—	230	152

TABLE 3. Aldebró-Mocsáros: Males and females

No. of measurements (Martin)	Measurements and indices									
	9. Mat. Male	10. DI.8 Mat. Male	14. DI.12 Ad. Male	15. DI.13 Fem. Fem.	16. DI.14 Male	19. DI.17 Mat. Male	24. DI.21 Ad. Fem.	25. DI.20 Ad. Fem.	29. DI.25 Sen. Fem.	
1.	187	178	179	180	181	166	176	165	175	
1c.	175	170	175	181	175	160	170	167	172	
5.	—	104	103	94	104	93	101	92	96	
8.	129	138	133	137	134	135	136	134	142	
9.	93	101	95	95	94	93	97	93	86	
17.	134	136	136	140	130	128	124	122	130	
20.	111	113	113	115	112	112	108	110	113	
32/1-a.	48°	50°	55°	52°	50°	49°	46°	52°	50°	
38.	—	1276	1294	1425	1249	1268	1216	1158	1335	
40.	—	102	100	91	99	90	96	90	(88)	
43.	129	135	131	125	(130)	133	128	125	127	
46.	—	95	101	(102)	98	98	90	96	—	
47.	—	107	107	115	119	126	114	111	—	
48.	(69)	65	65	68	71	71	73	65	67	
51.	39	39	38	41	37	37	41	39	40	
52.	29	25	24	23	32	30	32	33	37	
54.	—	25	24	24	25	27	24	26	26	
55.	51	51	44	49	50	50	50	45	52	
62.	48	50	47	—	42	46	42	43	46	
63.	—	39	39	34	37	36	33	39	—	
65.	129	128	118	(120)	122	122	113	118	121	
66.	114	110	99	98	90	104	92	101	95	
69.	—	28	32	32	36	40	30	32	—	
70.	62	64	59	69	67	65	62	58	62	
71.	32	34	30	32	34	34	27	31	34	
72.	—	85°	83°	80°	86°	90°	86°	87°	90°	
8:1	68,98	77,53	74,30	76,11	74,03	87,35	77,27	81,21	81,14	
17:1	—	75,28	75,98	77,78	71,82	77,11	70,45	73,94	74,29	
17:8	—	97,10	102,26	102,19	97,01	88,28	91,18	91,04	91,55	
9:8	72,09	73,19	71,43	69,34	70,15	64,19	71,32	69,40	60,56	
47:45	—	79,26	81,68	92,00	(91,54)	94,74	89,06	88,80	—	
48:45	(33,46)	46,15	49,62	54,40	(54,62)	53,98	57,03	52,00	52,76	
52:51	74,36	84,21	82,93	80,00	80,00	81,08	92,68	84,62	92,50	
54:55	—	49,02	54,55	46,94	46,00	54,00	46,00	57,78	50,00	
65:62	—	78,00	82,88	—	75,51	82,61	78,57	90,70	—	
Norma verticalis	Ellip.	Pent.	Pent.	Ovoid	Ovoid	Ovoid	Pent.	Ovoid	Ovoid	
Giabella	4	4	3	2	4	4	0	1	0	
Prouberantia occipitalis externa	2	1	2	1	1	2	2	0	0	
Fossa canina	3	3	3	3	3	2	4	3	4	
Spina nasalis anterior	3	2	2	—	2	—	4	—	—	
Alveolaris prognathia	2	2	3	3	2	2	2	3	1	
Taxon	pn	cra	m-cra-x	n-x	i-x	p-x	i-x	p	p-x	

TABLE 4. Aldebró-Mocsáros: Subadults and infants

No. of measure- ments (Martin)	Measurements and indicis	Measurements and indicis					
		2. DI.1 Juv.	5. DI.4. Inf.II.	13. DI.11. Inf.II.	21. DI.18. Juv.	28. DI.24. Juv.	30. DI.26. Inf.II.
1.	Glabello-occipital length	167	160	174	168	158	155
5.	Basion-nasion length	91	89	90	93	89	—
8.	Maximum breadth of cranium	136	131	130	136	—	—
9.	Minimum frontal breadth	91	86	89	90	87	83
17.	Basion-regma height	127	125	121	121	115	—
20.	Porion-bregma height	109	103	103	—	—	—
40.	Sup. facial length	88	85	84	85	89	—
45.	Bizygomatic breadth	116	—	117	—	—	—
46.	Maxillary breadth	90	86	84	—	88	78
47.	Total facial height	107	99	100	98	98	83
48.	Upper facial height	62	56	59	61	62	52
51.	Orbital breadth	38	36	36	41	34	32
52.	Orbital height	30	30	30	30	35	30
54.	Nasal breadth	22	21	20	—	22	20
55.	Nasal height	47	40	40	46	48	34
62.	Palatal length	47	41	41	—	—	35
63.	Palatal breadth	40	31	32	30	33	30
65.	Bicondylar-diameter	109	111	110	103	104	90
66.	Bigonial-diameter	90	84	89	93	90	—
69.	Mental height	30	27	28	27	24	24
70.	Ramus height	54	53	52	52	57	42
71.	Ramus breadth	30	30	30	30	23	30
8:1	Cranial index	81,44	81,88	74,71	80,95	—	—
17:1	Length-height index	76,05	78,13	89,54	72,02	72,78	—
17:8	Breadth-height index	93,38	95,42	93,08	88,97	—	—
9:8	Transvers. frontopar. index	66,91	65,65	68,46	66,18	—	—
47:45	Facial index	92,24	—	85,47	—	—	—
48:45	Upper facial index	53,45	—	50,43	—	—	—
52:51	Orbital index	78,95	83,33	83,33	73,17	102,94	93,75
54:55	Nasal index	46,81	52,50	50,00	—	45,83	58,82
63:62	Palatal index	85,11	75,61	78,05	—	—	85,71

TABLE 5. Aldebrő-Mocsáros: Comparison of the anthropological remains of the 10—11th century cemetery

Site of excavation	Period	Author, year of publication	Number of well preserved crania	Distribution of cranial indices					Main taxons
				x—70	70—75	75—80	80—85	85—x	
Szob—Kiserdő	10—11th century	Nemeskéri 1946—1948	Male : 3 Fem. : 4	—	2	1	—	—	Nordic, East-Europid, Turanian
Piliny—Sirány	10—11th century	Lipták 1953	Male : 8 Fem. : 1	—	1	3	1	—	Nordic
Rád	10—11th century	Lipták 1953	Male : 4 Fem. : 2	—	—	1	—	2	Brachycephal (p), Nordic
Csongrád—Felgyő	10—11th century	Bartucz—Farkas 1956	Male : 17 Fem. : 16	—	4	9	4	—	Turanian, Nordic, Cromagnoid
Veszprém—Kálváriadomb	10—11th century	Acsádi—Nemeskéri 1957	Male : 19 Fem. : 11	—	1	5	13	—	Brachycephal, Dinaric,
Veszprém—Sashegy	10—11th century	Acsádi—Nemeskéri 1957	Male : 3 Fem. : 6	—	1	1	1	—	Atlanto-mediterranean
Csongrád—Vendelhalom	10—11th century	Lipták 1958	Male : 3 Fem. : 2	—	2	—	—	—	Brachycephal, Nordic
Sárosd	10—11th century	Acsádi—Nemeskéri 1958	Male : 3 Fem. : 4	—	1	2	—	—	Nordic, Mediterranean, Brachycephal (p)
Székesfehérvár—Kurucdomb	10—11th century	Acsádi—Nemeskéri 1959	Male : 6 Fem. : 8	—	—	4	2	—	Brachycephal, Cromagnoid,
Békés—Povárdzug	11—12th century	Lipták—Farkas 1967	Male : 25 Fem. : 29	2	16	5	2	—	Atlanto-mediterranean, Nordic, Mediterranean
Aldebrő—Mocsáros	10—11th century	—	Male : 5 Fem. : 4	1	2	1	—	2	Brachycephal, Mediterranean, Nordic

TABLE 6. Aldebrő-Mocsáros:

Fregmentary (not measurable) anthropological material

Grave number	Inventory number	Preservation and morphological characterization of the material	Age Sex
3.	DI.2.	Cranial fragments. Prot. occ. ext.: 4. Mastoid process medium. Mandible very high, pronounced. Gonial region and Prot. mentalis marked.	Sen. Male
4.	DI.3.	Cranial fragments and skeletal remains.	Inf.II. —
6.	DI.5.	Cranial fragments and skeletal remains.	Inf.I. —
7.	DI.6.	Cranial fragments and skeletal remains.	Inf.I. —
8.	DI.30.	Cranial fragments and skeletal remains.	Inf.I. —
12.	DI.10.	Mandible fragments.	(Ad.) Fem.
17.	DI.15.	Cranial fragments. Dolichomorphic. Vertical norm.: ellipsoid. Glabella: 2. Prot. occ. ext.: 2. Mastoid process medium. Forehead steep. Mandible medium high, prot. mentalis very protruding. (The mandible probably does not belong to this cranium.)	(Mat.) Male
18.	DI.16.	Cranial fragments. Dolichomorphic. Vertical norm.: ovoid. Prot. occ. ext.: 2. Fossa canina: 1—2. Alveolar prognathism: 1. Mastoid process medium. Glabella: 3. Mandible medium high. Marked gonion region.	Mat. Male
20.	—	Mandible and well preserved skeleton.	(Ad.) Fem.
22.	DI.19.	Cranial fragments. Prot. occ. ext.: 1. Mastoid process pronounced. Mandible marked, medium high, strongly protruding, marked gonial region.	Mat. Male
27.	DI.23.	Cranial fragments. Prot. occ. ext.: 0. Mastoid process medium.	Male (Mat.)
32.	DI.27.	Cranial fragments.	Inf.I. —
34.	DI.28.	Left ramus mandibulae gracile.	(Mat.) Fem.
35.	DI.29.	Fragmentary skeleton.	Ad. Fem.

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- Plate I. Aldebrő-Mocsáros, 10—11th century
Grave 25. p, (Fem.)
- Plate II. Aldebrő-Mocsáros, 10—11th century
Grave 19. p—x, (Male)
- Plate III. Aldebrő-Mocsáros, 10—11th century
Grave 14. m—crA—x, (Male)
- Plate IV. Aldebrő-Mocsáros, 10—11th century
Grave 16. i—x, (Male)
- Plate V. Aldebrő-Mocsáros, 10—11th century
Grave 24. i—x, (Fem.)
- Plate VI. Aldebrő-Mocsáros, 10—11th century
Grave 10. crA, (Male)

PLATE I



PLATE II





PLATE IV

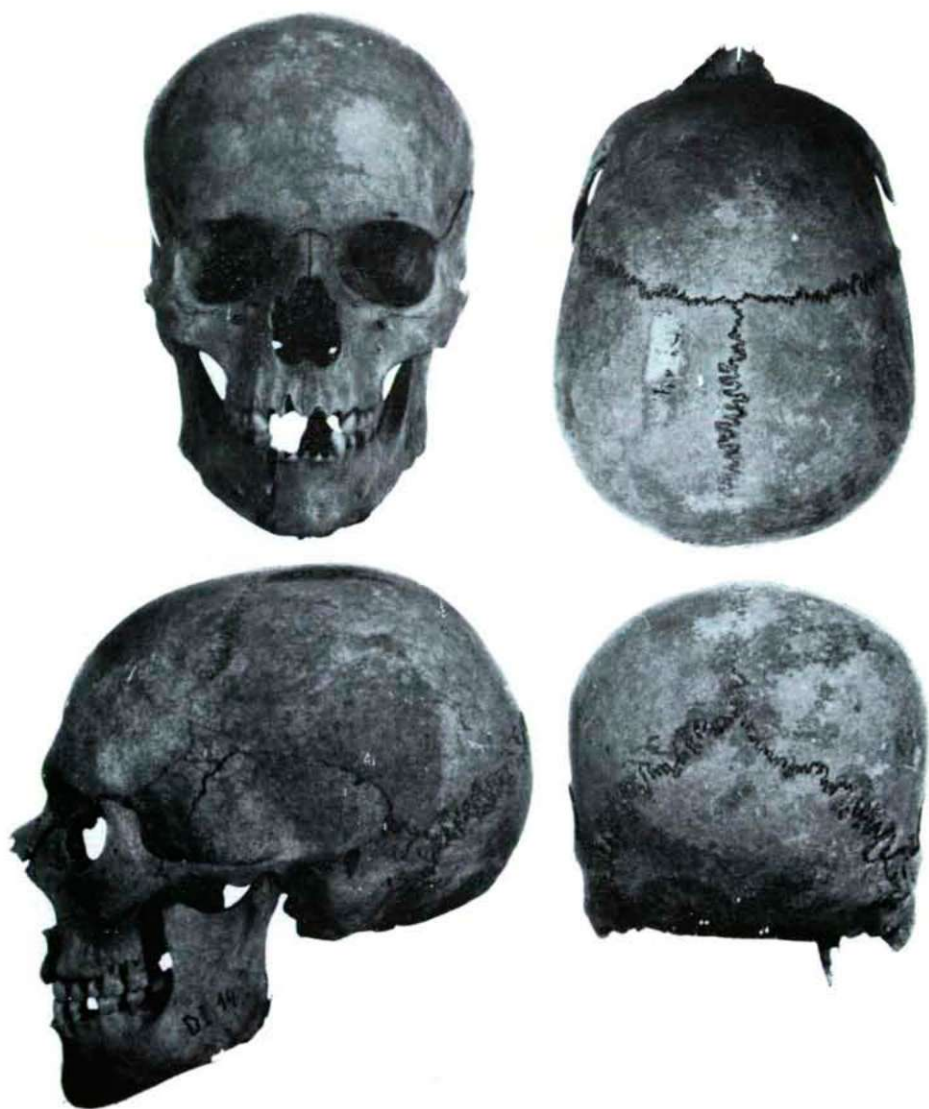


PLATE V

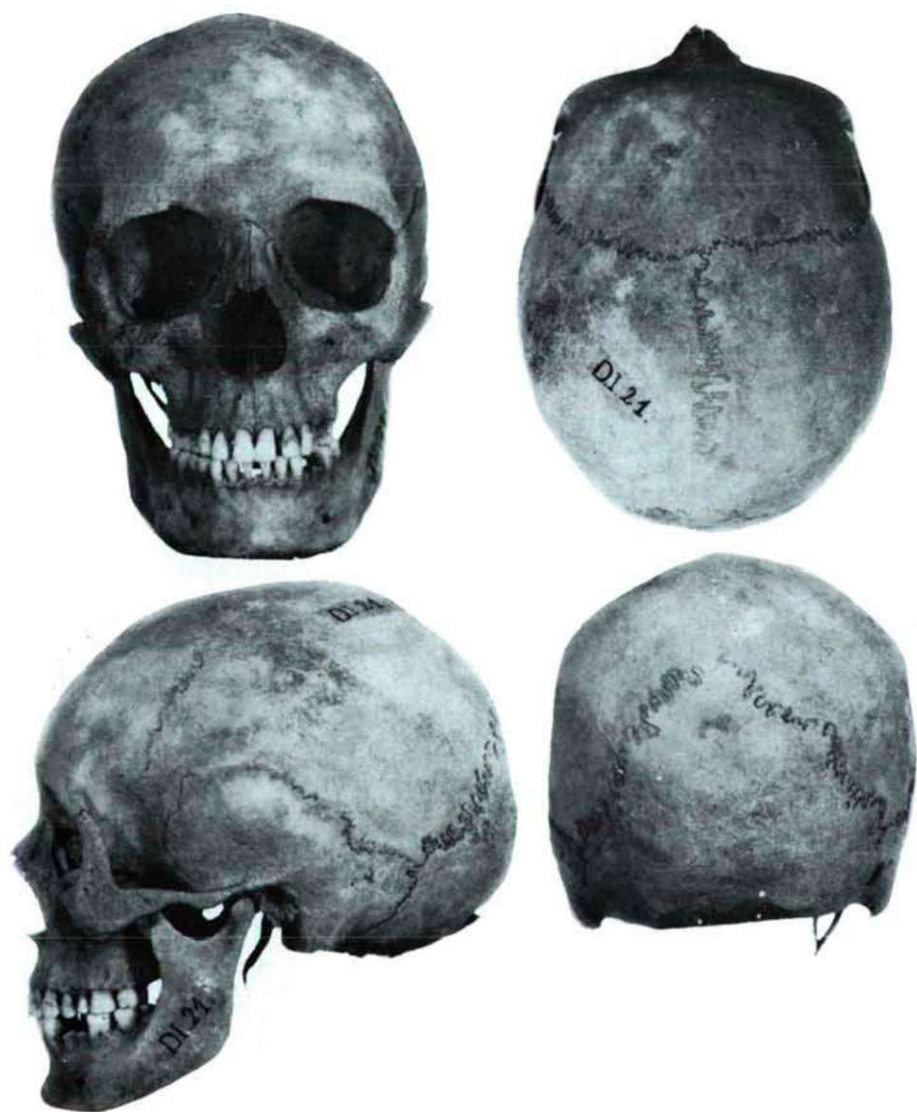


PLATE VI

