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ANCIENT AND MEDIEVAL CRIMEAN SKULLS

Crimea is interesting in that from ancient times to the present it has been settled by more peoples of extremely varied races than probably any other part of Europe. Some peoples disappeared for ever from Crimea, and we know only very little about them; other have left their traces.

In the clarification of the ethnic origins of these populations, an important part is played, in comparison with historical methods, by paleoanthropology.

The material recovered, consisting of approximately 130 skulls, belong to the period from the VIth century B.C. to the VIIIth A.D. inclusive.

About fifty ancient skulls (from the VIth to the IVth century B.C.) were studied at the Anthropological and Ethnographical Museum, Leningrad, in 1957. These skulls were discovered at various times and in various places:

1. From Greek burial grounds (IVth—IInd century B.C.) in Pantikapei (Ljucenko, 1860, and Škorpil, 1904), and also in Cherson (Leper 1908—1914), in Mirmekie (Gajdukevič, 1938), and in Nimfei (Chudjak, 1948);

2. From Scythian burial grounds (IVth—IIIrd cent. B.C.) in Melitopolis (Tecman, 1832, and Kornis, 1842), in Alexandrian Kurgan (Ljucenko, 1860), in Juz-Oba (Kerch) (Ljucenko, 1860), in Melitopolis (Braun, 1898, and Veselovskij, in the XIXth century, according to archival information);

3. Skulls from Greek burial grounds, Ist-IVth cent. A.D.—in Cherson (Leper, 1908—1914), in Olvia (Slavin, 1937), and in Nimfei (Chudjak 1940);

4. Deformed skulls, IInd-Vth cent. A.D.—in Pantikapei (Petrovskij, 1859), in Olvia (Farmakovskij, 1908), and Cherson (Leper, 1908 to 1915).

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Some contemporary archaeologist question the dating of skulls from Leper's excavations and suggest that they should be dated one to two centuries later. Even if, however, we bear in mind this correction, the overall chronological picture remains unchanged.

Skulls from the beginning of the medieval burial ground on the south-west slope of the natural fortress of Čufut-Kale were collected during excavations undertaken by V. V. Kropotkin in the years 1952—1961. This series, comprising 30 skulls, from the excavations of the year 1959, was studied by K. F. Sokolova at the Bachčisaraj Museum (Sokolova, 1958). The material from the excavations of 1957—1961 we studied at the Ethnographical Institute of the Soviet Academy of Sciences, where this material is also kept. At least half of this series, which comprises about 75 skulls, is badly preserved; thus, for most of the skulls, only age and sex were established. The other half, with the exception of a very few skulls, was restored, and the fragments reconstructed.

The first investigations on the south-west slope of Čufut-Kale were carried out in 1946—47; this work was done by P. P. Babenčikov, who was also the discoverer of this burial ground.

According to V. V. Kropotkin's latest information, this necropolis belongs to VIth—VIIIth cent. A.D. Earth vaults are predominant, less often there occur timbered graves. The youngest burials are in vaults, only in rare cases are the older burials disturbed by later ones (Veimarn, 1948). The fact that, in Čufut-Kale, there is no cultural layer of VIth—VII cent. A.D., does not facilitate the solution of the problem whether the burial ground in-

vestigated should be attributed to the inhabitants of the cave-town of Čufut-Kale (Kropotkin, 1958). It is possible that the burial ground is associated with the small medieval settlement situated in a valley near the Uspensky cloister; this hypothesis, however, "is not sufficiently substantiated by the factual material" (Kropotkin, 1958).

More than a third of the skulls studied were artificially deformed. They were found in roughly equal proportions in the earth vaults and in the timbered graves. The same proportion is also maintained in the classification of the deformed skulls according to sex.

As can be seen from diagram 1, it is not possible to come to any general demographic conclusions from the sampling of the Čufut-Kale burial ground according to sex and age. Skulls of children and young people occur in smaller numbers than usual. Children's skulls were apparently not too systematically collected and were, in addition, in all cases poorly preserved. Some cases of the burial of mother with child may be evidence of the occurrence of epidemics at that time.

Teeth were on the whole well preserved, even in old age, though worn down almost to the roots. In isolated cases caries occurs.

Long bones were unfortunately not collected, thus depriving us of the opportunity to establish body height. The frequent grave robbing which affected most of the vaults and timbered graves, being current in ancient times, meant that the material did not remain in its original positions. Thus it is very difficult to establish the number of burials. In the smaller vaults were found—judging by the number of skulls unearthed—a maximum of 4–5 burials, in the larger ones the remains of 7–9 skeletons. The timbered graves normally contained only one burial (Kropotkin, 1958).

The archaeological material indicates the spread of Christianity in "Gothia" during VIIth–VIIIth cent., which was "zealously disseminated by Byzantium" (Kropotkin, 1958), but during the first period it existed side by side with strong survivals of paganism. During the dynasty in the Taurus, the Christian population of Čufut-Kale was apparently expelled by the Karaims (Kropotkin, 1958).

ANCIENT SKULLS

The horizontal and vertical measurements of the cranial and facial bones of the skulls from the Greek burial grounds show the middle large skulls, and this applies both to male and female skulls. They were compared with some measurements (table 1) of ancient Greek skulls, published by Angel (Angel, 1944). Certain differences can be explained by the small number of skulls in our series (for example forehead width), but in spite of this, these differences are smaller than the quadratic variation.

The series is on the whole homogenous, and belongs entirely to the europeoid race, with the exception of one male skull (no. 5291–2), which is dated, according to Leper's information, in the IIIrd

cent. B.C. It is markedly flattened face, the orbits are high, the fossa canina missing. This all points to the presence of Mongoloid influence. But it is for the time being the only one existing find. We must bear in mind that it may be incidental. Further collection of material will enable us to clear up this question.

Very weak traces of deformation are to be found in three skulls: in two female (one from Mirmekie, no. 5671-1. Gajdukevič's excavation, 1938, the second from Pantikapei, no. 891-2, Skorpil's excavations, 1904), and in one, apparently male, from Cherson no. 5291-8, Leper's excavations (1908 to 1914). It was in all probability deformation caused by very light binding, which did not, however, change the overall shape of the skull. Even bearing in mind the chronological correction, it is possible to maintain that a certain kind of deformation was practised in the Crimea in the last centuries before Christ. We shall, however, deal with this in more detail later.

On the whole, it is possible to classify this series as the East Mediterranean type, and more concretely as type "B", described by Angel (Angel, 1944), who called it the "Classical Mediterranean Type". This type is characterised by gracilness, dolichocrany, medium-obliquely running forehead, leptoprosopy, and leptorrhiny.

TAB. 1

*Average Measurements
of Ancient Greek Skulls
(acc. to Angel, pg. 358)*

Maximal length	185.0
Maximal breadth	140.3
Cranial index	76.0
Basion-nasion length	100.7
Basion-bregma height	133.5
Minimal frontal diameter	96.4
Maximal frontal diameter	117.8
Bizygomatic diameter	131.0
Basion-prosthion length	95.9
Upper facial height	67.9
Facial index	87.7
Nasal height	49.9
Nasal breadth	24.5
Nasal index	48.5

The frontal diameter of the skulls is higher than according to Angel's information, and this leads us to the conclusion that there was already a mixed population in ancient times. We can assume that the Crimean Greek either mixed with the local population or were of the middle-east origin. Schlitz's view (Schlitz, 1913), that the dolichocranial Crimean type, with a broad forehead, is the "shield shape" occurring on the Balkan Peninsula in Macedonia and Thrace, is not proved. Thracians have the smallest frontal breadth of all Greek groups. The narrow face of the series observed shows above all their southern origin; however, on the basis of this insubstantial anthropological information, it is scarcely possible either to maintain or contest the

fact that skulls of Greek origin are concerned. It would be necessary to carry out more systematic study on more extensive material in order to establish the type of Greek colonists of the northern Black Sea in ancient times.

The skulls from the Scythian burial-grounds are distinguished by smaller length (184.0 mm.) and width (141.3 mm.), by a wider forehead (97.1 mm.) than the skulls from Greek burial grounds. The main skull index is 79.2 for men, 81.3 for women. The measurements for female skulls are in the lower range. Almost half of them are brachycephal, the width of the face is considerable. They are distinguished from the skulls from the Greek burial grounds by their striking robusticity.

In comparison with the information on Scythians from the Black Sea steppes (Table 2), our series also stand out for its great heterogenousness, and we find brachycranial elements in it. G. F. Debetz considers it a proven fact that Scythians from the Black Sea area show considerable admixture of brachycranial europeoid elements, which distinguishes them from the Dniepropetrov Scythians (G. F. Debetz, 1948). Scythians from the Black area are nearest, among all the other series of Scythians, to the nomadic Scythians from the lower Dnieper region (Table 3).

T. S. Konduktorova assumes that the difference in craniological type of Sarmatians and Scythians from the Black Sea steppes shows that there was no direct genetical link between Scythians and Sarmatians in the Ukraine (Konduktorova, 1956, 1958).

TAB. 2

Average values of Skull measurements
from the Black Sea steppes

	Men (9)	Women (6)
1. Cranial length	188.6	176.4
8. Cranial breadth	142.8	134.5
17. Basion-bregma height	137.2	135.0
5. Basion-nasion length	102.2	98.0
9. Minimal frontal diameter	97.9	96.1
45. Bizygomatic diameter	137.1	126.7
48. Upper facial height	69.5	68.7
32. Frontal angle	82.0	83.4
72. Total frontal angle	85.2	83.2
75(1). Angle of nasal bones with facial profile	35.7	20.0
Fossa canina %	80	50
Lower margin of the piriform aperture %	50	80
8 : 1 Cranial index	77.8	76.9
54 : 55 Nasal index	50.4	49.9
52 : 51 Orbital index	78.5	87.0

These differences relate above all to the width measurements of both the facial and the cranial parts of the skull. The occurrence of a brachycranial element in the series does not rule out completely another possibility. On the basis of extremely fragmented material (from burial in stone chambers) G. F. Debetz comes to the conclusion that brachycrany also predominated in the Taurians who lived in the Crimean mountains around the first thousand years B.C. (Debetz, 1948). It is possible that in this

TAB. 3

Mean values of ancient skulls from the northern Black sea area

2 Dnieper	Scythian shepherds of the middle Dnieper region (no. 24)	Nomadic Scythians of the lower Dnieper region (no. 18) (see also T. S. Kond., 1956)	Skulls from the middle Dnieper region (no. 16) (see also T. S. Kond., 176)	Skull around the sheep sheds of the "Pridn." cooperative (no. 36) (T. S. Kond., 1958)	Čufut-Kale burial ground (A. N. Pouli- nos)
1. Maximal length	189.2	189.3	185.6	189.2	184.0
8. Maximal breadth	138.8	141.2	134.3	139.8	141.3
17. Basion-bregma height	135.8	137.8	136.6	137.3	138.0
5. Basion-nasion length	103.4	104.3	104.4	101.3	102.7
9. Minimal frontal diameter	96.0	97.2	93.6	95.0	97.1
8 : 1. Cranial index	72.3	74.6	72.4	73.9	76.3
17 : 1. Height-length index	72.0	72.8	73.4	73.4	73.7
17 : 8. Height-breadth index	99.7	97.6	101.2	94.5	95.7
9 : 8. Transversal frontal index	70.2	68.8	69.8	68.3	68.7
40. Basion prosthion length	98.5	98.3	101.3	96.7	97.2
45. Bizygomatic diameter	133.2	136.8	132.0	130.0	135.6
48. Upper facial height	69.1	70.9	71.1	70.2	69.0
48 : 45. Upper facial index	51.9	51.8	53.8	54.0	50.5
40 : 5. Index of facial prominence	95.3	94.3	96.5	95.5	93.9
54 : 55. Nasal index	51.8	43.9	48.6	47.2	50.6
52 : 51a. Supraorbital index	80.8	79.9	78.3	80.2	78.6
32. Frontal profile angle	84.0	83.8	82.8	84.8	81.0
32. Facial profile angle	86.1	86.0	86.5	85.4	88.0
75 (1). Nasal bones angle	32.6	35.3	33.2	36.2	33.2
Fossa canina (0—4)	3.25	2.69	3.0	2.9	3.3
anterior nasal spine (1—5)	2.81	3.10	4.0	3.5	2.8

case brachycrany could have originated in some branch of the descendants of that race which ancient authors knew as Taurians. More extensive material will allow to solve this problem definitively. We can only say that in the Scythian period the population of the Crimea was not homogenous. A total three female skulls are from the 1st cent. A.D., also one male and one child skull (all from the Greek burials of the 1st-IVth cent. A.D.). The skulls from this period have a shorter head than from the preceding period. The change is produced by a shortening of length, while the width, facial diameter, smallest forehead width and almost all other measurements remain substantially unchanged. The female series of this period is nearest to the female series of Greek burials VIth-IInd cent. B.C. and is quite distinct from the female series from the Scythian burials. As to the similarity of their physical type (most of the skulls from this series, from ancient times and from the first centuries A.D., were found in Cherson), we may conclude that there is a certain part of these skulls coming from the Greek burials. It is apparent that traces of intermingling mentioned by ancient authors must be present in other places in the Crimea and the northern Black Sea area generally.

Though the material is not extensive, the shift of the head index is most probably to be explained by an environmental influence. It is not, of course, possible to rule out any intermingling.

SKULLS OF THE EARLY MEDIEVAL PERIOD

We shall give an account of the skulls which, because of their very poor state of preservation, were not measured. As far as possible an outline of their characteristics according to sex and age is given in chronological order.

1957-1958 Excavations:

In grave 67, vault 88 (83); recorded under the grave no. 59: there were found the scattered fragments of four skulls; they belong to one adult individual (maturus), apparently a woman, and the children (infants).

1959 Excavations:

Timbered grave no. 103. Fragments of two deformed skulls (juvenis) and one jawbone (senilis). Vault no. 106. Fragments of one skull (senilis), apparently female.

Vault no. 107. 1. Fragments of three deformed skulls, of one woman (adultus), of one child (infants) and of a third skull of unknown sex and age. 2. Fragments of two undeformed skulls, of one (maturus), in all probability female, and one child skull (infants).

Vault no. 108. On the right side of the entrance fragments of one skull, apparently female.

1961 Excavations:

Vault no. 110. Fragments of one male skull (maturus), one child skull (infants I) a further child skull (infants II), and fragments of one individual (senilis) of unknown sex.

Vault no. 111. Fragments of two male skulls, probably both senilis, one more skull (senilis) of unknown sex, and two children's skulls (infants II).

Vault no. 112. Fragments of the cranial and long bones of one child (infants), part of a deformed child cranium (infants II) and part of a cranial bone (senilis), sex unknown.

Vault no. 113. Fragments of the skulls of a child younger than seven (infants I), and of one adult

TAB. 4

	Burgundians (acc. to Sauser 86 skulls)		Swedes from the Westerhns (acc. to Gejvall 63 skulls)	
	Men	Woman	Men	Woman
1. Cranial length	185.0	176.4	187.4	180.2
8. Cranial breadth	141.3	137.6	142.0	135.6
17. Basion bregma height	132.7	128.0	132.5	127.9
5. Basion nasion length	100.8	95.5	100.8	96.8
9. Minimal frontal diameter	96.9	95.2	98.6	84.2
45. Bizygomatic diameter	133.0	120.0	134.9	125.2
1/K. E. Schreiner, Crania Norvegica II., 1946				
8. Upper facial height	68.5	68.2	70.5	66.7
32. Frontal angle (nasion-metopion to the horizontal line)	87.3	86.8	—	—
72. Total facial angle	85.7	84.8	85.8	84.5
8 : 1. Cranial index	76.5	78.2	75.8	75.3
54 : 55. Nasal index	49.03	49.0	46.7	48.8
52 : 51a. Supraorbital index	81.0	88.5	79.0	82.1

woman: in addition to these skull fragments a part of the long bones of two children (infants II) were found.

Vault no. 118. Fragments of a deformed frontal bone (senilis), apparently female.

Vault no. 118, no. 2. Fragments of two male skulls (senilis), of one child skull (infants I), and of a further child skull (infants II).

Vault no. 120. Fragments of two skulls (maturus), one male and one female, and of one skull (juvenis) of unknown sex.

Vault no. 122, no. 2. Fragments of a skull (maturus), apparently male, burnt on the endocranial side.

Vault no. 122, no. 3. Fragments of the bones of, apparently, an unusually large male skull (senilis), and part of a bone, most probably a shoulder blade.

As can be seen from the above account, deformed skulls occur both in vaults and in timbered graves.

The series of undeformed skulls is more homogeneous in structure than the series of ancient skulls. All studied skulls are of europeoid type, and there do not occur skulls with mongoloid characters. Male and female skulls have meso-dolichocranial shape (head index 76.3–78.7), and an average length of 175.2–184.0 mm (width 139.0–141.3 mm). The height of the skull from the basion is 138.0 mm, from the porion 115.4 mm. In female skulls it is 131.0 mm and 111.3 mm. The smallest frontal diameter in male skulls has a medium value (97.1 mm) in female a high one (96.2 mm). The slope of the forehead is medium. The angle of the forehead from the nasion is 81.0° in male skulls, 87.2° in female. The forehead relief is slight. The average degree of supraorbital relief is, according to Martin, 2.2 for male skulls, 1.3 for female. The facial bones are medium broad. The facial diameter of male skulls is 135.6 mm, of female 125.0 mm. The facial index has low values. In male skulls are 50.5 in female 49.3. The face is orthognath. The total facial angle is 88.0° in male skulls, 85.6° in female. The horizontal profile is strongly pronounced. The nasomalar angle is 138.8° for male skulls, the zygomaxillar 122.6°. For female skulls the angles are 139.8° and 127.6°. The fossa canina is deep: its average degree is 3.3 for men, 2.2 for women. The orbital index for male skulls is 93.6, for female 83.4. According to the index, the nose is medium. The nasal index of male skulls is 50.6, of female 47.2. The nasal bone angle is rather large. For male skulls it is 33.2, for female 22.2. The shape of the occipital squama is rounded.

The series from Čufut-Kafe is compared with various series in the inter-group proportion "σ" (see graphs II and III). As we have already mentioned, various hypotheses have been put forward as to the nature of the burial ground. In order to clear up the possibility of its Alanian origin, the Alanian series from the Zmejani burial ground was used, as investigated by K. Ch. Beslekojeva (Beslekojeva, 1957). In order to test the hypothesis concerning the Gothic nature of the burial ground, the large series of Burgundian skulls, which is

very similar to Goths, was used (M. Sauter, 1941). According to historical information, the Burgundians had already begun their migration to the south in the iron-age (VIII cent. B.C.) and continued it into the Christian era. They came from Scandinavia, and their name is connected with the island of Bornholm. We had at our disposition one more basic study, connected with the Swedish skulls from the Westerhuis burial ground which were investigated by G. N. Gejvall (Gejvall, 1960). An analysis of the average values of the absolute measurements showed that the skulls of the Burgundians are closer to the Čufut-Kale series than the skulls of the Swedes from Westerhuis, and for this reason we gave preference to the Burgundian series of skulls and took them as a basis for comparison in the graph. From the famous series of Scythian skulls which was described by G. F. Debetz and T. S. Konduktorova (Konduktorova, 1956), the closest to the Čufut-Kale series was the series of Scythian skulls from the Black Sea area. This series is compiled mainly from the Cherson museum collection, and may be very reasonably attributed to the nomadic Scythians. The average values of this series we calculated according to G. F. Debetz's information (G. F. Debetz, 1948).

Skulls from the Saltian burial ground were studied by V. P. Aleksejev (1959) in the Moscow, Leningrad, Odessa and Charkov museums. This series also belongs to the europeoid race, and within this race is similar to the dolichocranial variants with narrow faces, which prevailed among the medieval population of eastern Europe.

An analysis of graphs I and II shows that the Čufut-Kale series of Scythians from the Black Sea area, the Zmejani and Saltian burial ground series, are closer to each other than to the Burgundians on individual comparison of each series. It is known how difficult it is to distinguish a skull from the north from one from the south. According to the information compared, both groups are distinct in their vertical measurement (basion-bregma) and the length of the base of the skull (both sets of measurements are lower in the northern skulls) and the angle of inclination of the forehead (more marked in the southern). The southern groups have wider facial bones than the Burgundian ones, with the exception of the group from the Saltian burial ground, whose skulls show narrower facial bones than the Burgundian series. The Burgundian and Swedish series, even though varied, are distinct from the "southern" in the above-mentioned characters.

Schreiner writes that skulls of the Mediterranean type show such a similarity to the northern ones that in individual cases it is possible to distinguish between them only by their absolute measurements and their finer structure (K. E. Schreiner, 1949). Some of the measurements of the Burgundian and Swedish series are given for comparison in the table.

The series from the Saltian burial ground is also distinguished from all the others mentioned by

TAB. 5

*Difference in absolute
measurements between undeformed
and deformed skulls*

	Men	Women
1. Cranial length	-2.0	-1.2
2. Cranial breadth	-1.7	-2.6
17. Basion-bregma height	10.3	6.0
5. Basion-nasion length	7.1	6.8
20. Auricular height	3.1	7.0
9. Minimal frontal breadth	0.5	-0.2
10. Maximal frontal breadth	0.3	3.3
11. Auricular breadth	4.3	-1.2
12. Occipital breadth	4.4	-10.4
29. Frontal chord	14.8	10.2
30. Parietal chord	-7.4	-2.6
31. Occipital chord	5.4	2.0
Height of the frontal curve	-6.8	-8.1
Height of the occipital curve	-7.8	-12.0
45. Bizygomatic diameter	1.4	3.4
40. Basion prosthion length	-0.6	9.7
48. Upper facial height	-1.6	-1.3
43. Upper facial breadth	0.7	0.4
46. Middle facial breadth	4.7	-1.4
60. Alveolar length	-4.6	5.5
61. Alveolar breadth	-1.2	-1.3
62. Upper palate length	-4.0	-
63. Upper palatal breadth	-2.7	-0.6
55. Nasal height	-1.5	8.0
54. Nasal breadth	-1.4	1.6
51. Orbital breadth from mf.	1.8	-0.4
51a. Orbital breadth from d.	1.7	-1.0
52. Orbital height	2.1	2.9
50. Interorbital breadth	1.4	2.1
Height from the mf. mf.	0.5	-0.8
Bimalar chord	1.5	2.4
Height of nasion from b/m chord	1.1	4.4
Zygomaxilar chord (by Abinder)	4.2	-1.2
Height of Subspinale from z/mx	-3.0	-1.0
DC. Dacryal chord	0.0	4.3
DS. Dacryal height	-1.5	0.2
SC. Symotic chord	1.5	3.3
SS. Symotic height	-0.5	-0.3
32. Frontal angle to the horizontal line	-9.2	12.2
Frontal angle glab.-met. to the horizontal line	-11.1	-16.5
33(1). Angle of the upper part of the occipital bone	9.4	8.8
33(2). Angle of the lower part of the occiputinion-opisthion to the horizontal line	13.4	7.9
33(4). Angle of the occiput	23.0	17.0
34. Angle of the occipital opening	3.0	5.6
72. Total facial angle	0.5	-1.8
73. Nasal profile angle	3.3	-1.5
74. Alveolar profile angle	4.7	-4.2
75. Profile angle of the nasal bones to the horizontal line	6.3	-1.9
75(1). Angle of the nasal bones to the nasion-prosthion line	-5.2	-1.9
Supraorbital relief	0.1	1.9
Supraorbital arc (1-3)	-0.2	0.1

being the most dolichocranial, and by having the greatest facial height. It is as dissimilar to the "northern" as the other series. G. F. Debetz does not even rule out the possibility of a migration. To this may be added V. P. Aleksejev's comment (Aleksejev, 1959) that this series is similar to some series of western Slavs, but he does not exclude a genetical relation between the population of the Saltian burial ground and the Amanian, for there exists so far no information on the last named burial ground. According to the information given in the graphs, even though it is from small series, the series from the Saltian burial ground is distinct from the Scythian series, the Zmejan burial ground and Čufut-Kale, between which it is possible to find a comparatively great similarity. As to the relation between these three groups, the Scythian skulls and the Čufut-Kale skulls are more like each other than the Alanian skulls. K. F. Sokolova (Sokolova, 1958) compares the series from Čufut-Kale with those from Scythian Neapolis, from the Inkerman Valley burial ground at "Sugar Cone", and also from the burial ground at the Bastian settlement, and finds that the three series mentioned belong to the same anthropological type. The last two burial grounds come from the same period of time as that of Čufut-Kale, while the skulls from Scythian Neapolis show narrower facial measurements.

Judging by the studied material and that used for comparison, given in table 4, we can say that, although in the early medieval period Scythians were not yet an independent nation, the anthropological information provided gives us no reason to conclude that in the mountains of the Crimea, any other racial types appeared, than those known from the preceding epoch. This allows us to rule out the possibility that the population of the Čufut-Kale area is Gothic in nature, as is presumed by some writers. Thus our observations confirm the conclusions previously reached by K. F. Sokolova (Sokolova, 1958), concerning the similarity of the population of Čufut-Kale to that of Scythian Neapolis. Further, we may maintain that the population of the Čufut-Kale burial ground is still closer to the Black Sea Scythians. It is necessary to add that, in comparison with the older Scythian skulls, among which it is possible to find Sarmatian brachycranial elements, this element does not appear among the Čufut-Kale skulls. On this basis, we may conclude that among the Scythians, independent of the ethnic influence of the Sarmatians, there existed the custom of deforming the skull, which contradicts the view of K. F. Sokolova (Sokolova 1958). Whether or not there was a Sarmatian custom of head deformation it is no evidence of the penetration of Sarmatians. After all, "the Savromats speak Scythian" (Herodotes) and not vice versa.

According to the archaeological information, the early medieval burial grounds discussed were similar in the type of grave construction, and also chronologically. The custom of burial in earth vaults was especially widespread among the races and nations of the northern Black Sea. "This custom" writes V. V. Kropotkin, "old, local, began on

the northern Black Sea long before the beginning of our era, several centuries before Germanic races appeared there" (Kropotkin, 1959). Their inroad into Taurika was not associated with any appreciable changes in burial ceremonies (Kropotkin, 1959). According to the same author's description, the burial ground of Čufut-Kale is most similar to the necropolis of the cave-town of Eski-Kerman and the burial ground of Uzen-Baş (Kropotkin, 1958). A count of the vault and timbered grave burials shows a close analogy to other early medieval burial grounds of the south-west Crimea.

If the count indicates the spread of another culture in the Crimea during the period of the early middle ages, then the anthropological material directly shows the preservation of morphological characters consistent with "Scythians" or their descendants.

More than thirty per cent of skulls found at Čufut-Kale were deformed. The proportion of deformation is the same for men and women. Old age can be observed more frequently in undeformed skulls than in deformed. Did deformation, even if slight, have perhaps some effect on lifespan? V. V. Bobin (Bobin, 1957), points especially to the pathological consequences of deformation. This is obviously not supported by sufficiently reliable statistical information. About sixty per cent of the deformed skulls were found in earth vaults, the remainder in timbered graves. In spite of the rapid spread of Christianity during VIth—VIIth cent. A.D., the practice of deformation did not disappear; it actually survived in the Crimea until the 16th—18th century. However, if it is true that the timbered graves are of later date than the earth vaults, it is possible to maintain that there was a certain decline in the custom of deformation. The spread of Christianity led to the unification of funeral rites in the Crimea (Kropotkin, 1958); instead of vaults, timbered and earthen graves, there was a noticeable spread of burial in plank graves or stone vaults (Kropotkin, 1959).

It is not easy to establish the beginning of the custom of deformation. The first record of peoples who deformed the head is given in Herodotes (Herodotes, II, 104; VII, 78). He calls them "Makrokefals" or "Makrones"; they were a warlike nation from the north-east of the Black Sea, their neighbours being the Colchish and the Mosiniks. The Makrokefals took part in the march against the Greeks, along with the Persians. Xenophon mentions them also (Xenophon). According to Strabo they were called "Sanns", after which, in the Byzantine period, they were known as "Jans", who were conquered by the emperor Justinian I (527 to 565). Hippocrates knew of Makrokefals from Kerch (Crimea). Ber (K. E. von Ber, 1860), however, writes that the Greeks did not know exactly where the Makrokefals lived, "whereas, if the Makrokefals lived in Kerch or the vicinity, at the time when Greek colonies were flourishing there, they would certainly be well known to Herodotes and Hippocrates ...". Ber gives the view that the de-

formed skulls of the Crimea belonged to a nation which came to the Crimea comparatively late, at the start of the middle-ages, and that this nation were probably the Avar.

It has been stated above that Herodotes mentions Makrokefals to the north-east of the Black Sea in the VIth cent. B.C. Hippocrates, a later author than Herodotes, on the other hand, refers to the custom of deformation, to the north of the Black Sea, in Kerch, at the time of the flourishing of that town, in the IVth cent. B.C. It seems to us that in this chronological order of the shifting of the Makrokefals from the north-east to the north of the Black Sea area, does not contradict, but rather points to, the spread of this custom. The historical information is also confirmed by factual material. In the work named, V. V. Bobin describes a deformed skull from the Scythian town of Scythian Neapolis. Ber's idea of the "arrival" of the Makrokefals at the beginning of the middle-ages therefore becomes dubious. Apart from this, the finding of a deformed skull from the Scythian period to some extent confirms the accuracy of the dating of the ancient skulls we studied, in other words, even the correction makes no substantial change to the dating. There are apparently periods in the history of the Crimea when this custom was on the increase or on the decline. And it was undoubtedly on the increase at the beginning of the middle-ages.

It is important to establish whether the deformed skulls which were discovered belonged to a nation which came to the Crimea, or whether the custom merely spread. D. N. Anučin (Anučin, 1887) showed that the extent of the spread of the Makrokefals even reached western Europe.

V. V. Ginzburg and E. V. Žirov (Ginzburg and Žirov, 1949) showed that this custom came from the East. A privileged class had their skulls deformed—distinguished people, priests, who wanted to stand out from the other groups of their race. The same authors differentiate two basic forms of round deformation: high, brought about by a pressureband from forehead to occipital bone, and low, resulting from pressure in the line from coronal bone to lower jaw. An idea of the degree of deformation is given by a comparison of the greatest skull height (distance from the basion to the point further from the basion on the medial-sagittal line, which Ginzburg and Žirov called the antibasion) with the glabella-inion length, which is at right-angles to the preceding measurement. The Čufut-Kale average basion-antibasion is large to exceptionally large (142—179 mm.), especially for men. According to the Ginzburg—Žirov index of deformation, the male skulls belong to hypomacrocranial category (87.3), the female to the macrocranial category (92.4). The difference in deformation index, even if not very substantial, suggests differentiation according to sex. The difference between the longitudinal measurement and the frontooccipital distance amounts to 6.5 mm. for male skulls, while it is 10.0 mm for female. The analysis given in table 5 shows that the principle of applying the bandages was in round deformation almost the

same for men and women. This is especially shown by the changed orientation in measurements. In women, however, the bandages were applied more lightly, apparently in order to produce a more "lowershaped" head. This was probably dictated by the current idea of beauty. As a consequence of round binding of the child's head, the skull underwent the so-called "rear cylindrical pressing". The opisthocranium is placed very high, often in front of the lambda. The top of the deformed skull is usually situated above the bregma. The angle of the forehead takes on a strong slant (the forehead angle, glabellametopion, to the horizontal changes by 11.1 for men, 16.5 for women), the face is then flatter. The cheek-bone measurement increases for both sexes, as does the upper facial width, but the upper facial height decreases. The orbit increase in size, the symotic height decreases somewhat. The length and breadth of the skull decrease, the height (basion-bregma), the auricular height, and the length of the base of the skull increase. The greatest change is in the angle of the occipital arc, and this change even affects the angle of the great occipital foramen. The supraorbital arcs remain almost unaltered, and the supraorbital relief (according to Martin 1-6) increases somewhat in female deformed skulls. Round deformation has almost no effect on the absolute measurement of the minimal frontal breadth.

Starting from the above and from all other indications, and from the overall morphological type, we may reach the important conclusion that all the deformed skulls, male and female, belong to the same anthropological type. In the series observed we found no deformed skulls belonging to "emigrees". This points to the fact that the custom of deformation spread among the population of Čufut-Kale, rather than being introduced by some new anthropological element.

If K. F. Sokolova (Sokolova, 1958) established a similarity between the skulls from the Čufut-Kale burial ground and those of the same period from the burial ground in the Inkerman valley at "Sugar Cone" and those from the burial ground at the village of Bashtanka in the Kalin valley, it is possible to say that skulls of the same ethnic type are to be found in the latter burial grounds. The spread of "Sarmatian" customs, such as the deformation of the skull or others, need not always indicate a mixing of the Scythian and Sarmatian populations in the Crimea, as is assumed by some authors.

As regards the deformed skulls of the IIInd-Vth cent. A.D., the changes are on the whole similar to those in deformed skulls from Čufut-Kale. From the point of view of morphological type, they show a similarity to the undeformed type from Ist-IVth cent. A.D. from Greek burial grounds, especially the female series. The shape of round deformation is basically caused by double binding. The first binding goes across the frontal, coronal and distal bones. The second is taken from the upper part of the coronal bone, and lightly applied to the frontal and distal bones. The width of the second binding is less

than that of the first. The first application of the binding used to be carried out at a width of 6 cm. across the frontal bone, in the region of the forehead across the coronal and distal bones. Coronal lumps, across the coronal in the region of the sagittal bones are often flattened in the region of the sagittal suture and markedly elongated towards the front. We meet with this deformation in Austria (see, for example skull no. 5038-1 in the Museum of Ethnology and Anthropology, Leningrad) and in northern Caucasus (M. I. Čechovič, 1914).

The deformed skulls from Cherson (IIInd-Vth cent. A.D.) also belong to the europeoid race and do not show here any trace of mongoloid mixture. One child skull forms the single exception (Museum of Ethnol. and Anthropol., no. 5291-14), in which we can, with a certain measure of doubt, observe racial mixing of the europeoid-mongoloid type. As with the Čufut-Kale skulls, here too the female series displays a greater degree of deformation. In the description of skulls of the IIInd-Vth cent. A.D. from Greek burial grounds, as distinct from the Scythian series, we spoke of their southern origin. This does not, however, rule out the possibility of their belonging to the "Hellenic Barbarians", and of the presence of some mixing. One way or the other, this fact shows that the Greeks learned to deform the head at this early period. And D. N. Anučin has demonstrated that the Greeks deformed the head in the late middle-ages. He describes skulls from Bia-Sala in the Bachčisaraj area (V. I. Sizov's excavations). The skulls are dated to the XVth-XVIII th cent., and D. N. Anučin propounds from this that "Tauridian Greeks" may have taken the custom from some sort of turkish nations. In Greece itself, there were deformed skulls in Thessaly (I. G. Koumaris, 1931). Unfortunately, however, no characterization or dating of those skulls is provided. Material from the Ist cent. A.D. from the Crimea shows that it is even possible that the Greeks picked up this custom of deformation of the head in a new land, to which they had come as colonists.

GENERAL CONCLUSIONS

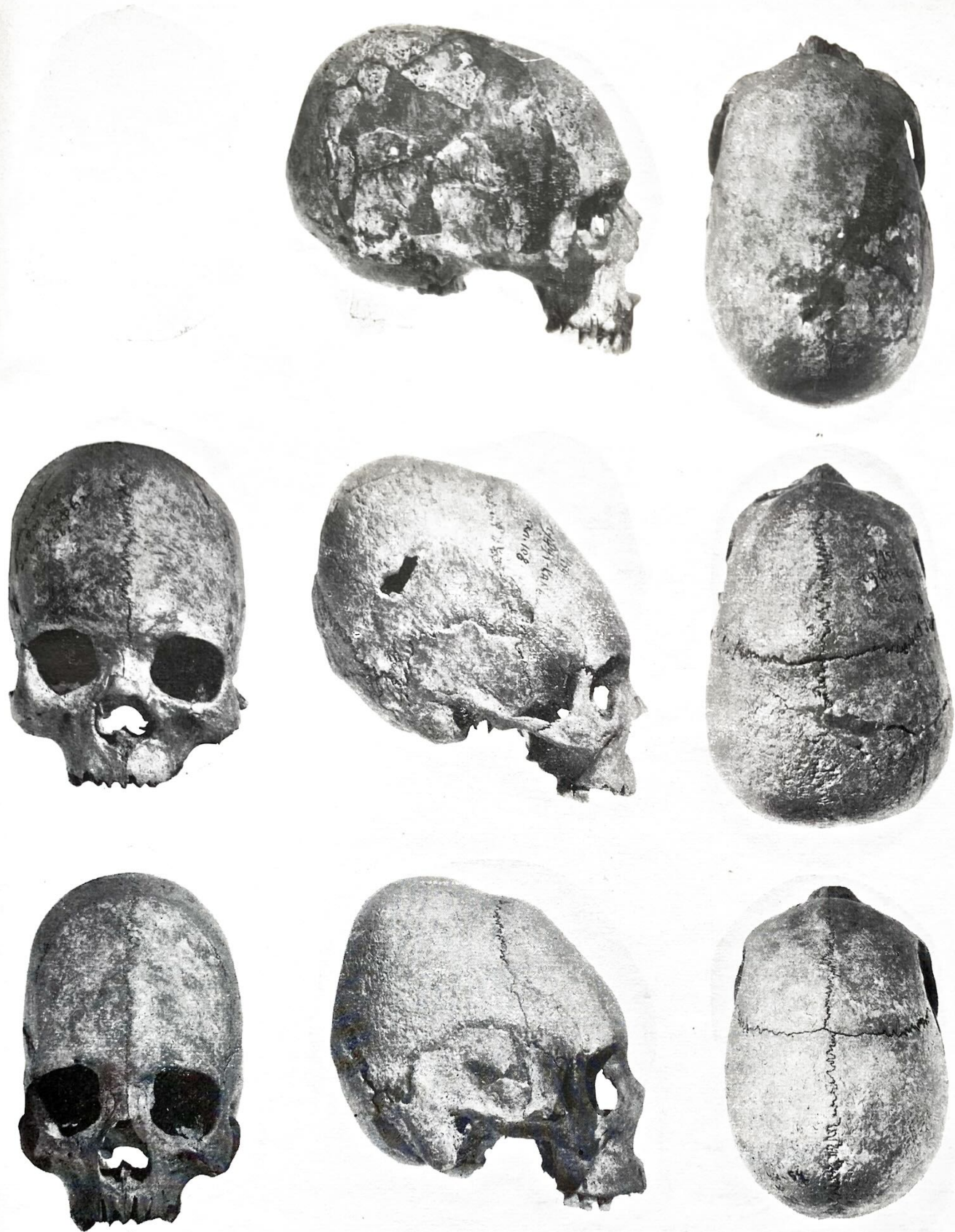
1. The ancient and medieval Crimean skulls belong to the europeoid great race. Mongoloid mixing was not established in the series described.
2. The medieval population of Čufut-Kale is markedly homogenous; it apparently belongs to one ethnic group.
3. In spite of the fact that it is very difficult to distinguish the northern from the southern series of the europeoids, such indications as mezo-dolichocrany, together with skull height, a slanting forehead and wide face, lead us to exclude the possibility of the Čufut-Kale series being of Gothic origin, as some writers believe.
4. On overall comparison, we find the series observed to bear the greatest similarity to certain series of Scythians from the north of the Black Sea area, then to Alanians, and less to the series from the Saltian burial ground.

5. According to the material so far, though scanty, the similarity between Alanians and Scythians is greater than that between the Alanian and the Saltian populations. We cannot, however, on this basis, completely exclude the possibility of a genetic link between the Alanians and the popula-

tion occurring in the Saltian burial ground, or even more likely, between the Alanian and the Çufut-Kale skulls.

6. Round deformation occurs here, more probably through a spreading of that custom, than through the coming of a new anthropological type.

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TAB. 1. Çufut-Kale, Crimea



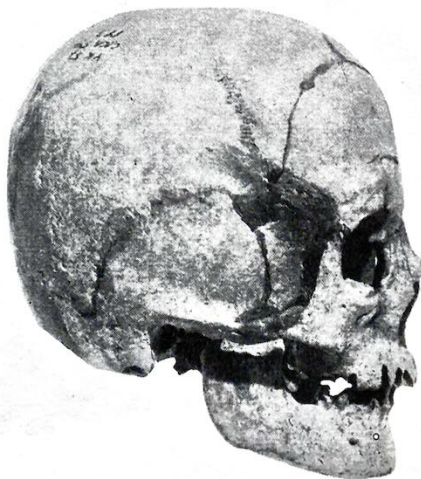
TAB. 2. Čufut-Kale, Crimea



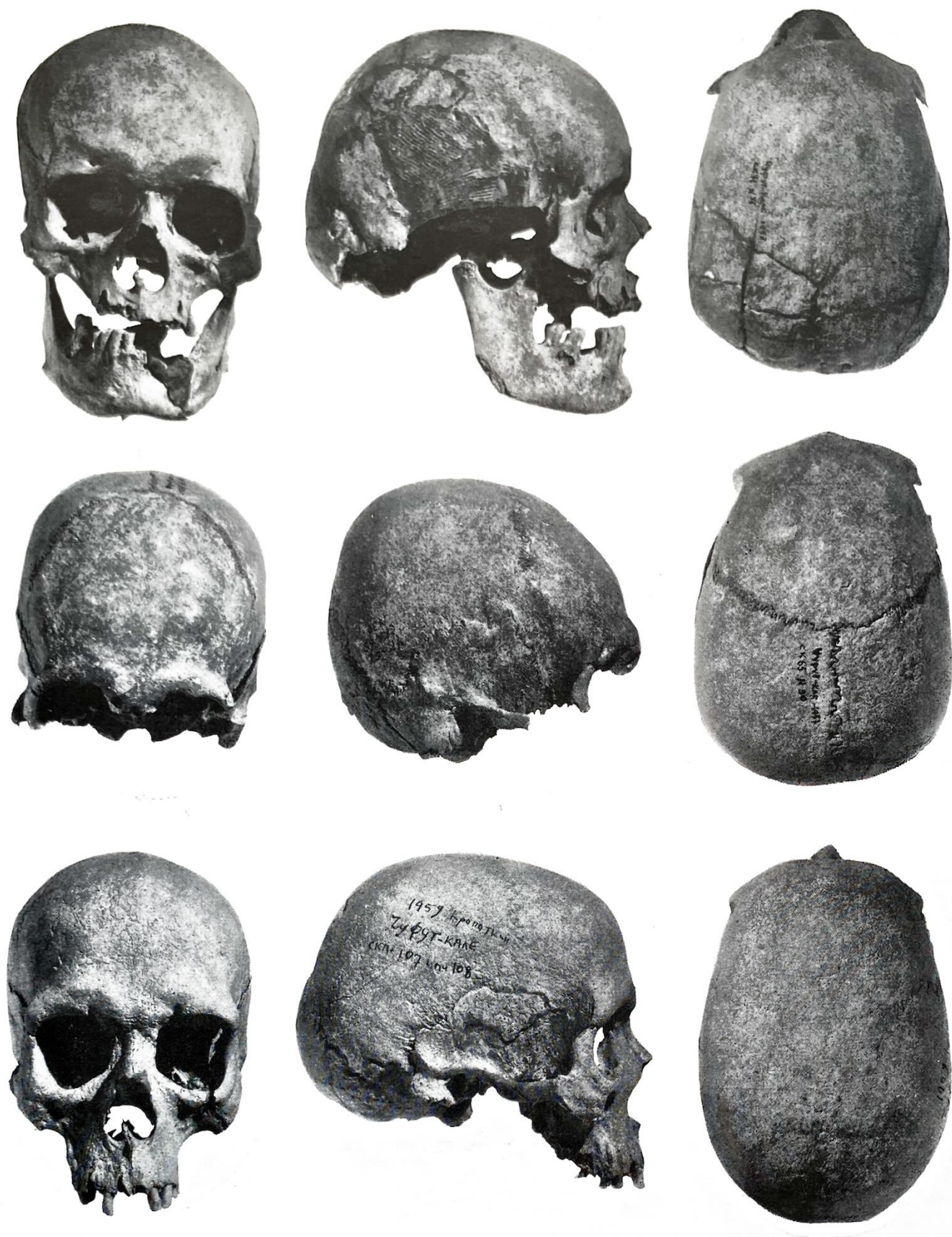
TAB. 3. Çufut-Kale, Crimea



TAB. 4. Čufut-Kale, Crimea



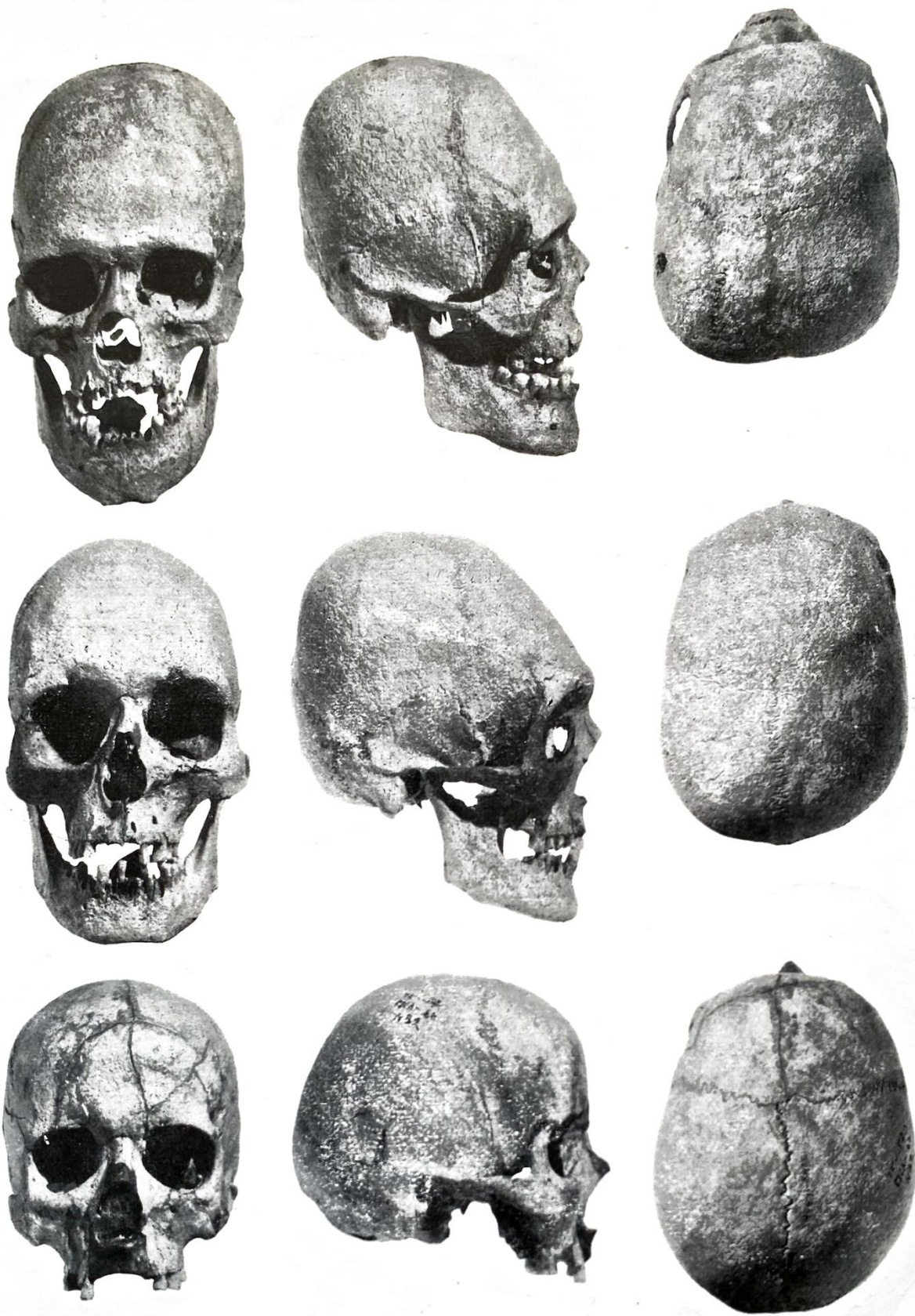
TAB. 5. Čufut-Kale, Crimea



TAB. 6. Čufut-Kale, Crimea



TAB. 7. Čufut-Kale, Crimea



TAB. 8. Çufut-Kale, Crimea



ТАБ. 9. Чуфут-Кале, Крым