

# Anthropological Characteristics of Gagauzes from Kavarna

*Racho Stoev*

*Institute of Experimental Morphology, Pathology and Anthropology with Museum of BAS, Bulgaria, Sofia-1113, Acad. G. Bonchev Str., bl. 25*

Corresponding author e-mail: rastesto@abv.bg

## Abstract.

The aim of this study is to make an anthropological characterization of an interesting small ethnic group in Bulgaria – the Gagauzes from Kavarna, based on the archives of the Section of Anthropology and Anatomy of IEMPAM-BAS. Data from individual anthropological blanks of 112 males have been processed statistically and analyzed. Based on this characterization the Gagauzes from Kavarna should have been formed as a population in the Balkans. This coincides with the results of the dermatoglyphic and genetic studies in Gagauzes outside Bulgaria.

*Key words:* Gagauzes, Anthropological characteristics, europoid elements, mongoloid elements, methodics of Michalski

## Introduction

The Gagauzes are an interesting ethnic group – Turkic-speaking Orthodox Christians, whose origin is still unclear. They appear on the world scene only in 19<sup>th</sup> century – before 1868 there is no mention of them. In the beginning of 19<sup>th</sup> century they live in the lands of Eastern Bulgaria intermixed with Bulgarians, Greeks, Albanians, Turks, Tartars and Gypsies. After the Russo-Turkish wars of 1806-12 and 1828-29 a great part of them migrate to the Russian Empire (together with Bulgarians and Albanians from the region). These who rested on the Balkans gradually assimilated with Bulgarians and Greeks, but these in Moldova developed proper national identity and received an regional autonomy. Today in Northeastern Bulgaria there exist only a limited number nonassimilated Gagauzes in some localities as Kavarna.

The anthropological studies among them are few. Such ones are carried out first by Pittard [9] in the beginning of 20<sup>th</sup> century, than after comparable methods with modern ones by Dyachenko in Moldova in 1958, published 1965 [3] and by Pulianos in Bulgaria in 1963, published 1967 [10]. The dermatoglyphic of the Gagauzes in Moldova has been studied by Dolinova [2] and by Segeda [11]. In the last years there are also studies on Y-chromosomal DNA haplogroups, as also on autosomal DNA [12, 4].

The purpose of this work is to make an anthropological characterization of the Gagauzes in Bulgaria based on materials from the scientific archive of IEMPAM-BAS collected in 1982 on an anthropological expedition in Kavarna, under the leadership of P. Boev.

## Material and Methods

Individual data on 112 Gagauz-men were analyzed. A standard statistical processing has been made. In some traits it was found significant methodological difference from the standard anthropological methods, which require certain adjustments or exclude these features of analysis. A standard statistical processing was made. An anthropological analysis after methodology of Michalski with some adjustments was made also [5,6,7,8]. These adjustments are an evaluation of the phenotypic presence of the anthropological elements in the intermediary anthropological types, for example AE not to be calculated as 50% a and 50% e, but to pay attention on the anthropological fraction, i.e. Ae = 75% a, 25% e, ae = 50% a, 50% e, aE = 25% a, 75% e and so on. Typological analysis has been made of 109 men only because the lack of eye color in three individual research blanks.

The primary analysis of some anthropologic traits showed a significant deviation in the methodic of their measuring or evaluating from the standard anthropological methods, which necessitated some adjustments or excluding of some traits from analysis.

1. Most cephalometric measurements are close and intermediate to these found by Dyachenko [3] and Poulianos [10]. There is, however great difference in average bizygomatic breadth (132,8 mm) and in its standard deviation (7,8 mm). In reality such values are out of the norms for europoid populations. That's why for the typologic analysis a correction of the bizygomatic breadth has been made according to the formula

$BB_{cor} = (BB - 132,8) \times 5,1/7,8 + 140,8$ , thus the average bizygomatic breadth and its standard deviation has been made equal to the mean of their values after Dyachenko and Poulianos.

2. Doubtful are also the high recorded frequency of epicanthus, of strong protrusions of the cheekbones, of flat face prothile – all of them had to be excluded from further analysis.

3. It seems that dark hair color frequency is overstated and eye color is evaluated by 12 grade scale and not by the standard scale of Martin (16 grades). Thus a connexion of these traits to the standard scales of Martin and Fischer-Saller has been made.

4. The skin color compared with the data of other investigations is decidedly too bright. It apparently is evaluated thus: 3 – white skin, 7 – matte skin, 4-6 intermediate colors, over 8 – swarthy.

## Results

The results of the analysis show that the Gagauzes are of average height – 167,3 cm, brachycephals – head index 82,9%, meso- and leptoprosops – morphological facial index 87,8%, leptorrhins – nasal index 66,6%, with straight and curved nose – mean mark after Michalski 67,5, which is higher than straight, hazel eyes, brown hair, well-developed hair on the face and the chest, straight and slightly wavy hair, white and matte skin (**Table 1**).

**Table 1.** Basic anthropological characteristics of Gagauzes from Kavarna

Anthropological trait	N	M	SD	SE	MIN	MAX
<b>Body height, cm</b>	<b>110</b>	<b>167,3</b>	<b>6,9</b>	<b>0,7</b>	<b>150,4</b>	<b>189,0</b>
Head length, mm	112	185,0	5,8	0,5	170	199
Head breadth, mm	112	153,4	5,8	0,5	138	167
Head height, mm	110	127,1	10,8	1,0	100	165
<b>Head index, %</b>	<b>112</b>	<b>82,9</b>	<b>3,4</b>	<b>0,3</b>	<b>72,6</b>	<b>92,2</b>
Bizygomatic breadth, mm	112	140,8 (132,8)	5,2 (7,8)	0,5 (0,7)	129 (114)	152 (150)
Morphological face height, mm	112	123,5	6,3	0,6	109	140
<b>Morphological facial index, %</b>	<b>112</b>	<b>87,8 (93,3)</b>	<b>5,2 (6,7)</b>	<b>0,5 (0,6)</b>	<b>74,8 (77,5)</b>	<b>104,7 (116,4)</b>
Nasal height, mm	112	55,2	4,5	0,4	44	67
Nasal breadth, mm	112	36,5	2,9	0,3	30	42
<b>Nasal index, %</b>	<b>112</b>	<b>66,6</b>	<b>8,0</b>	<b>0,8</b>	<b>50,8</b>	<b>88,6</b>
<b>Nasal profile after Michalski, 10-100</b>	<b>112</b>	<b>67,5</b>	<b>20,6</b>	<b>1,9</b>	<b>10</b>	<b>100</b>
<b>Eye color after Martin</b>	<b>109</b>	<b>7,3</b>	<b>4,1</b>	<b>0,4</b>	<b>2</b>	<b>16</b>
<b>Hair color after Michalski, 10-70, in parentnesses after Fisser-Saller</b>	<b>112</b>	<b>51,3 /U/</b>	<b>12,6</b>	<b>1,2</b>	<b>20 /M/</b>	<b>65 /W-Y/</b>
<b>Skin color</b>	<b>111</b>	<b>4,0</b>	<b>1,7</b>	<b>0,2</b>	<b>2</b>	<b>7</b>
<b>Face hair</b>	<b>90</b>	<b>3,90</b>	<b>0,87</b>	<b>0,09</b>	<b>2</b>	<b>5</b>
<b>Chest hair</b>	<b>91</b>	<b>3,03</b>	<b>1,57</b>	<b>0,16</b>	<b>0</b>	<b>5</b>
<b>Hair form</b>	<b>111</b>	<b>2,57</b>	<b>1,01</b>	<b>0,10</b>	<b>1</b>	<b>5</b>

According the typological analysis the population of Kavarna's Gagauzes is heterogeneous. Among the individual anthropological types prevail Subnordic – 24%, Dinaric – 15%, Northwestern / Atlanto Pontic / – 11%, Finnish and Alpine – 7% each one (**Table 2**).

Phenotypically prevail Europoid elements / 72.7 % against 27,3% /. The typical for Central end Eastern Asia archimorphic Mongoloid elements (m, z) are only 1.6%, the rest are the protomorphic, which are presented in Europe from antiquity (l, q). Among the Europoid elements Southeuropoid and Northeuropoid elements are almost equally / 47,3% against 52.7% / (**Table 3**).

Such anthropological structure after Cheboksarov [1] means that the group under study (in this case the Gagauzes) belongs to the Middle European populations, for which is typical the combination of Northerneuropoid (a, y) with Balkanocaucasian (h) and Uralolaponoid (l, q) traits. At the same time, the Mediterranean and Oriental elements (e, k), which show a shift from Central Europe to southeast, are quite pronounced. This coincides with the results of the already mentioned genetic studies, according which Gagauzes belong to the Balkan populations and are most close to Northern Macedonians, to the native inhabitants of Greek Macedonia, to the Bulgarians and Romanians, but in the same time they with Hungarians and Romanians are classified together with West and South Slavs as an “inter-slavic group of populations” [4, 12].

**Table 2.** Individual typological structure of Gagauzes from Kavarna (classification of Michalski-Henzel)

Anthropological type	Symbol	N	%
Nordic	AA	1	0,9
Armenoid	HH	3	2,8
Teutonish	AY	1	0,9
Egean	AB	1	0,9
<b>Northwestern (atlanto-pontic)</b>	<b>AE</b>	<b>12</b>	<b>11,0</b>
Amoritic	AK	2	1,8
<b>Dinaric</b>	<b>AH</b>	<b>16</b>	<b>14,7</b>
<b>Subnordic</b>	<b>AL</b>	<b>26</b>	<b>23,9</b>
Eurasian	AZ	1	0,9
<b>Finnish</b>	<b>AQ</b>	<b>8</b>	<b>7,3</b>
Rifean	YB	1	0,9
Atlantic	YE	1	0,9
Pseudoalpean	YH	2	1,8
Pseudocromagnoid	YQ	1	0,9
Levantinean	BH	2	1,8
Suboriental	EK	1	0,9
Litoral	EH	3	2,8
Sublaponoid	EL	4	3,7
Southeastern	EQ	2	1,8
Subarmenoid	KH	5	4,6
Western asian	KL	3	2,8
Orientalo-Mongolian	KM	1	0,9
<b>Alpean</b>	<b>HL</b>	<b>8</b>	<b>7,3</b>
Turanian	HM	1	0,9
Anatolian	HZ	1	0,9
Pseudolitoral	HQ	2	1,8
Total		109	100

In bold – anthropological types with significant (over 5%) presence)

**Table 3.** Phenotypic anthropological structure of Gagauzes from Kavarna (classification of Michalski-Henzel)

Anthropological element	a	y	b	e	k	h	l	m	z	q	Eastern complex	South-europoid complex
%	31,9	2,5	2,3	10,3	6,9	18,8	21,6	0,7	0,9	4,1	27,3	52,7

## Conclusion

Based on the analysis above the Gagauzes from Kavarna should have been formed as a population in the Balkans. This coincides with the results of the already mentioned dermatoglyphic and genetic studies in Gagauzes outside Bulgaria.

**Acknowledgements:** To my friend Lukasz Macuga for the help during the work on this paper.

## References

1. **Cheboksarov, N. N.** The Anthropological structure of recent Germans. – *Uchenye Zapiski MGU*, LVIII, 1941, 271-308 [in Russian].
2. **Dolinova, N. A.** Dermatoglyphics of Moldavian population. – In: *Polevye issledovaniya Instituta etnografii AN SSSR*, M., 1978, 174-179 [in Russian].
3. **Dyachenko, V. D.** Anthropological structure of Ukrainian people. – *Naukova dumka, Kiiv*, 1965, 1-151 [in Ukrainian].
4. **Kushniarevich, A., O. Utevska, M. Chuhryaeva, A. Agdzoyan, K. Dibirova, I. Uktveryte, M. Möls, L. Mulahasanovic, A. Pshenichnikov, S. Frolova, A. Shanko, E. Metspalu, M. Reidla, K. Tambets, E. Tamm, S. Koshel, V. Zaporozhchenko, L. Atramentova, V. Kučinskas, O. Davydenko, O. Goncharova, I. Evseeva, M. Churnosov, E. Pocheshchova, B. Yunusbaev, E. Khusnutdinova, D. Marjanović, P. Rudan, S. Rootsi, N. Yankovsky, P. Endicott, A. Kasian, A. Dybo, The Genomic consortium, C. Tyler-Smith, E. Balanovska, M. Metspalu, T. Kivisild, R. Villems, O. Balanovsky.** Genetic heritage of the Balto-Slavic speaking populations: A synthesis of autosomal, mitochondrial and Y-chromosomal data. – *PLoS One*. **10(9)** 2015.
5. **Michalski, I.** Anthropological structure of Poland. – *Acta Universitatis Lodzianensis*, Lodz, 1949, 1-261 [in Polish].
6. **Michalski, I., T. Henzel.** Principles of human classification after Tadeusz Henzel and Ireneusz Michalski. – *Przegląd Antropologiczny*, **21**, 1-2, 1955 [in Polish].
7. **Orczykowska, Z.** An attempt of constructing an anthropological key on the base of classification of Michalski. – *Przegląd Antropologiczny*, **22**, **1**, 1959, 212-229 [in Polish].
8. **Orczykowska, Z.** Anthropological analysis of Tajiks from Pamir. – *Materiały i Prace Antropologiczne*, **46**, 1959 [in Polish].
9. **Pittard, E.** Contribution to Anthropological Study of Gagauzes. – *Revue Anthropologi Que*, **26** (1916), 419-432 [in French].
10. **Poulianos, A.** Anthropological studies on the Balkans, Athens, 1967 [in Greek].
11. **Segeda, S. P.** The Dermatoglyphics of Ukrainians. – *Ph.D. thesis*, Moscow, 1980 [in Russian].
12. **Varzari, A., V. Kharkov, W. Stephan, V. Dergachev, V. Puzyrev, E. H. Weiss, V. Stepanov.** Searching for the origin of Gagauzes: inferences from Y-chromosome analysis. – *Am. J. Hum. Biol.*, **21**, 2009, **3**, 326-36.