

## Anthropometrical Investigation of Bone Remains from Medieval Church and Necropolis in the Countryside Selishte, Village of Novosel, Shumen Region (10<sup>th</sup>-15<sup>th</sup> Centuries AD) (preliminary report)

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The aim of the present work is to characterize anthropometrically the bone material from the medieval church and necropolis in countryside Selishte, Novosel village, Shumen region (10<sup>th</sup>-15<sup>th</sup> Centuries AD) and to make a comparison with the data for other medieval necropolises in the same region. The research includes 50 individuals. The methods of Martin-Saller, Y. Yordanov, Alekseev-Debetz are applied. The data are statistically processed. After the formula of Trotter-Gleser the mean stature for both genders comes under the category "tall". From the metrical characterization made of skulls belonging to the buried near to village Novosel, is ascertained that facial measurements in both genders, as well as cerebral features in males come mainly under the category "middle", and concerning females - cerebral sizes predominantly belong to the category "large". The comparison of the four medieval necropolises shows that basic differences assign to the buried from necropolis near to village of Sechishte.

*Key words:* medieval necropolis, anthropometrical characterization, sexual differences, index characterization.

### Introduction

The monument locates in the countryside Selishte, which lays North East to the village of Novosel, Shumen region. The excavations are made during the period July-August 2006. The necropolis is dated from 10<sup>th</sup> Century till 15<sup>th</sup> Century AD according to the archeological data [6]. Totally 68 graves of the necropolis are unearthed, 41 of them are fully investigated and the rest – partially destroyed: 11 graves are localized but they are still not revealed. The burials were made according to the Christian tradition (Figs. 1, 2). Frequently are the cases found in dislocated anatomical order and missing parts of the skeletons by reason of pits overlap (Figs. 3, 4). Concerning three of the cases is found 2 skeletons in each of the graves – mother with child (Fig. 5) and two children (Fig. 6).



Fig. 1. Scheme of Christian burials



Fig. 2. Christian grave No 13 belonging to a male individual (Adultus)



Fig. 3. Missing skull of the skeleton belonging to an adult male from Grave No 60



Fig. 4. Missing parts of the skeleton belonging to an adult female from Grave No 37



Fig. 5. Burial pit with two individuals – female (Maturus) in anatomical order (Grave № 19) and a child (Infans I) in dislocated anatomical order (Grave No 21)



Fig. 6. Burial pit (Grave No 48) – two children (Infans I)

Table 1. Demographic structure of the buried individuals in the medieval church and necropolis in countryside Selishte, near to Novosel village, Shumen region (10<sup>th</sup>-15<sup>th</sup> Centuries AD)

	Age group											
	Infans I	Infans II	Juvenilis	Adultus			Maturus			Senilis		
				♂	♀	♂ ♀	♂	♀	♂ ♀	♂	♀	♂ ♀
Total number	11	2	1	7	15	3	3	8	-	-	-	-

The **aim** of the present work is to characterize anthropometrically the bone material from the medieval church and necropolis in countryside Selishte, near to the village of Novosel, Shumen region (10<sup>th</sup>-15<sup>th</sup> Century AD) and to make a comparison with the data for other medieval necropolises in the same region.

## Material and Methods

The research includes 36 adults (10 individuals from male gender, 23 individuals from female gender, 3 individuals with undetermined gender), 1 juvenile, 2 children from second infant age and 11 children from first infant age, individuals from the senile age are absent (Table 1).

The analysis in the present work includes only the adults.

The methods of Martin-Saller [1], Y. Yordanov [7, 8] and Alekseev-Debetz [5] are applied.

The small number of skulls in the group of males and females does not enable to apply the classical variation statistics – submitted are the prime mean value and variation breadth.

The stature is assessed on the basis of long bones' extremity length by the formulae of Pearson [2] and Trotter-Gleser [3].

The sexual differences are assessed by Mann-Whitney U test and by the Index of Sexual Differences (ISD), calculated on the formula of Wolański [4] for relative intergroup differences:

$$ISD = 2 \times [(\bar{x}_{\text{males}} - \bar{x}_{\text{females}}) \times 100] / (\bar{x}_{\text{males}} + \bar{x}_{\text{females}}).$$

The t-criterion of Student at  $P < 0.05$  is used to determine the authenticity of the established sexual differences.

It is made also comparison with data from other medieval necropolises in North East Bulgaria, which data are published by Y. Yordanov et al.: Village of Trustenik, Rousse region [10]; Village of Batin, Rousse region [9]; Village of Sechishte, Novi Pazar municipality [11].

## Results and Discussion

The **stature** ranges from 164.9 to 178.3 cm (after the formula of Trotter-Gleser) and from 158.0 to 170.0 cm (after the formula of Pearson) concerning male individuals, and for the female ones – respectively from 151.4 to 170.0 cm and from 144.4 to 159.8 cm. In males the mean stature is 173.0 cm after the first formula and 165.4 cm after the second one, in females – accordingly 161.8 and 153.9 cm. The difference between both genders is 11.2 cm after the first formula, and after the second – 11.5 cm (the differences are statistical significant). After the formula of Trotter-Gleser the mean values come under the category “tall” (in accordance with the categories of Martin [1] for

European population), and after the formula of Pearson – respectively under the category “middle”.

The comparison with the data concerning another three medieval necropolises shows that the buried individuals near to the village of Batin from both genders have highest stature. The mean stature of males in the present investigation is very close to this one concerning male individuals from the necropolis near to the village Sechishte, and in females – the stature approaches this one concerning the investigated individuals from the village of Trustenik.

#### *Anthropometrical skulls' characterization of the buried individuals near to the village of Novosel*

According to the mean values of **absolute cerebral skull's features** the male individuals have “middle” cranial length and breadth, and “large” minimal frontal breadth. Concerning the female skulls, all three measurements belong to the category “large”.

About the **facial part of cranium for male individuals** the mean values come under the following categories – “small” upper face height, ocular breadth and height; “middle” nasal breadth and height; “middle” maxilloalveolare length and breadth; “large” palate breadth. The characterization of mandible bone is: “middle” bigonial breadth; “very large” length; “middle” height and “small” breadth of the branch.

Concerning the **facial part of female skulls** the characterization is as follows: “middle” upper face height, “small” ocular breadth but “middle” height; “middle” nasal breadth and height; “small” maxilloalveolare length but “large” breadth; “large” palate breadth; “large” bigonial breadth, and “very large” mandible length; “middle” height and “small” breadth of ramus mandibulae.

We have found statistical significant differences between both genders only for the mandible branch height, as well as for the ocular height.

#### *Angular features of facial skull's part*

Concerning individuals from the female gender, four basic facial skull angles are measured, while in males it was possible to measure only the mandibular angle. For both genders the mean values of measured angles belong to the category “middle”.

#### *Sexual differences*

To determine not only the extent but also the direction of sexual differences we have calculated the Index of Sexual Differences (ISD). These differences are largest for the mandible branch height followed by the maxilloalveolare length and stature. The margin is narrowest for the cranial length, and concerning cranial breadth any difference is missing. With priority for female individuals are only four features, from which ones the ocular height and mandibular angle have biggest considerable differences.

#### *Comparison between indices of skulls from the four medieval necropolises*

Comparing the indices of *brain skull's part concerning both genders* is established that the basic differences could be related to the skulls of buried individuals in the necropolis near to the village of Sechishte – being “brachycran” and “hypsycran”, while the skulls from the rest three necropolises are “mesocran” and “orthocran”.

The comparison between mean values of the indices for *facial skull's part* shows that **males** from all necropolises come under the same categories. Exceptions are observed only for the orbital index in the skulls from village of Sechishte, as well as for the maxilloalveolar index concerning the necropolis near to Trustenik.

As about jaw index the **female skulls** pertaining to the four necropolises fall into the same category like male ones – namely “orthognat”. According to the values for maxilloalveolar index all female skulls come also under one and the same category – “brachyuran”. Differences between the four necropolises are observed for the nasal index and like in males – for the orbital index.

## Conclusion

*Regarding buried individuals near to the village of Novosel:*

– after the formula of Trotter-Gleser the mean stature for both genders comes under the category “tall”, and after the formula of Pearson – respectively under the category “middle”;

– according to the metrical characterization of skulls, the facial measurements in both genders, as well as the cerebral features in males come mainly under the category “middle”; and concerning females the cerebral sizes predominantly belong to the category “large”;

– the most significant sexual differences for the skull’s features are established in the mandible branch height which is bigger in the male individuals.

*Comparison of data about the four medieval necropolises from North Eastern Bulgaria:*

– for both genders the mean values of stature fall into the category “high”;

– the index characterization of cerebral and facial skull’s part by categories shows that the basic differences could be related to the buried individuals in the Moslem necropolis near the village of Sechishte.

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