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ANTHROPOLOGY

ANTHROPOLOGICAL DATA ON THE 16th–19th CENTURY NECROPOLIS DISCOVERED AT ARONEANU MONASTERY (IAŞI COUNTY, ROMANIA)

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The present paper represents an anthropological study performed on a sample of 79 skeletons, originated from inhumation tombs and reburials, discovered in the necropolis of Aroneanu Monastery of Iași (Iași county, Romania). The necropolis, dating from the 16th-19th centuries, was discovered in 2014. After estimating the age at death and sex, followed by metric data analysis, a typological and paleodemographic study was done. Most skeletons were recorded in the *maturus* category (59.49%), followed by *infans I* and *II* (21.52%), *adultus* (11.39%), *senilis* (5.06%) and *juvenis* (2.53%). The estimated average lifespan for the entire sample subjected to study (0–x years) is 37.07 years, while the values recorded for sex (20-x years) were of 47.73 years in male and 41.97 years in female subjects, respectively. Distribution by sex categories indicates a higher masculinity index.

Typologically, the skeletal sample analysed corresponds to the general tendency of population mixture in the medieval period. Thus, we observed the predominance of the Mediterranido-Dynaric elements, to which Alpinoid and Nordoid influences were added.

Keywords: paleoanthropology, necropolis, 16th–19th centuries, Aroneanu Monastery (Iași county, Romania)

1. INTRODUCTION

The archaeological excavations carried out in 2014 at Aroneanu Monastery of Iași (Iași county, Romania) (N47.156392, E27.587453), as part of a rehabilitation project for this monument, led to the discovery of a necropolis. According to the data provided by Dr. Stela Cheptea, principal archaeologist at the Centre for European History and Civilization of Iaşi, the necropolis was used between the first half of the 16th century and the beginning of the 19th century. Aroneanu Monastery, also known in medieval documents as "Aron Vodă" Monastery or

"Sf. Nicolae" Monastery of Iaşi or the Greek Monastery of the Earthly "Sf. Nicolae", was built in 1594 by Aron Vodă in the northeastern part of Iași. Improper administration repeatedly led the monastery complex to ruins. Nowadays, from the old monastery complex it is only the church of "Sf. Nicolae" that remained, which was restored in 1907, becoming the parish church of the Aroneanu village [4].

79 skeletons, originated from inhumation tombs and reburials, were brought to light. The skeletons are positioned on west-east direction, facing to sunrise, according to the Christian ritual. For now, no details on archaeological context have been published. This study comprises a paleodemographic evaluation, skull and postcephalic morphometric data (*e.g*. dimensions and indices) concerning a small segment of the medieval and postmedieval population of Iaşi.

2. MATERIAL AND METHODS

The analysed sample contains 79 skeletons (originated from inhumation tombs and reburials) exhumed in 2014 from the 16th–19th century necropolis of the Aroneanu Monastery of Iași.

Each skeleton was analysed according to the standard methodology of paleoanthropological research. To estimate the age at death, we used criteria related to different stages of growth (children 0–14 years, adolescents, adults, matures and seniles). In the case of children and adolescents (*i.e*. subjects under 20 years: children – *infans I, infans II* and adolescents – *juvenis*), we took into account: the eruption of the temporary and permanent teeth, the development stage of the tooth buds, the long bones epiphyses welding with the associate diaphyses, etc. [12,25,29,34]. The age at death for subjects over 20 years (*i.e*. adults, matures and seniles) was established using the following criteria: dental attrition [8,23], transformation of facies symphysialis and sacro-iliac surface [10,30], changes in the spongy tissue from the humeral and femoral epiphyses, skeletal involution, shape of rib heads, as well as specific pathologies that can appear with age [22,34]. Sex estimation for the subjects over 20 years of age was based on the following aspects: the development of bone relief, shape and degree of forehead inclination, mastoid apophysis size, mandible robustness, teeth shape and size [35], pelvis characteristics [6, 9,13], the development of muscle insertions, size of the joint surfaces, skeleton's massiveness and robustness [10,34].

The anthropometric and conformational study of each skeleton has been done with the Martin and Saller techniques [26]; for dimensional evaluation we used the dimorphic scales of Alexeev and Debeț [2]. For somatoscopical and typological characterization we have used the methods and scales of Eickstedt [11]. Stature was estimated based on the dimensions of the long bones from the lower limbs; the dimensional scales proposed by Bach, Breitinger, Manouvrier, Trotter and Gleser

[3,7,24,32] were applied. The absolute and relative values resulted from direct measurements and calculation of the conformational indices have been positioned in the scales proposed by Olivier [28].

After estimating the age at death and sex for each subject, we proceeded to demographical evaluation, based on the sample of 79 skeletons. Distribution according to age and sex of the deceased ones is actually a demographic *post mortem* representation of a live population. Therefore, the frequency of death at different stages of age, the ratio of each sex, the average age at death but also life expectancy are indicators of great importance. Infant mortality is also an important parameter that allows estimation of the general mortality level in population and induces modifications of other important demographic parameters – such as life expectancy at birth and natality [1,33].

3. RESULTS AND DISCUSSION

3.1. PALEODEMOGRAPHIC ANALYSIS

Paleodemographic studies provide important information about ancient populations' style of life and help us better understand populational dynamics during historic and prehistoric times [27].

Life expectancy at birth, called average duration of life, the most complete measurement of the level of mortality, represents the medium number of years that one has to live from birth to the limit age [33]. The average duration of life is, on the other hand, the most important indicator that characterizes the mortality regime of a population and even the degree of social and economic development under the influence of the biological, sanitary, social or environmental factors [14,33]. An accurate determination of skeleton age and sex, based on the available methods, is especially important in reconstructing the demographic features of past populations. Based on the paleodemographic analysis of various human communities, we can estimate the number of people that inhabited a specific settlement and population density, the general and infantile mortality, the distribution by age and sex, as well as life expectancy. In the historic periods when a high infantile mortality was registered, life expectancy at birth was considerably influenced by the mortality rate in the first years of life [20].

The sample of 79 skeletons, exhumed from the 16th–19th century necropolis at Aroneanu Monastery of Iași, is in a satisfying state of preservation, allowing a complete demographic study. Out of the 79 skeletons, 17 were children (0–14 years), 2 – adolescents (14–20 years; one male and one female), 9 – adults (20–30 years; four males and five females), 47 – matures (30–60 years; 36 males and 11 females) and only 4 – elderly (over 60 years, one male and three females). The frequency of child skeletons (*infans I* and *II*) reaches a value of 21.52%, the highest rate being

recorded amongst children aged between 0 and 7 years (about 15.19%). The frequency of adolescent skeletons is significantly lower (2.54%). For the 20-x years age group, the highest frequency is recorded among matures (59.49%), whereas the adults and the subjects over 60 years are fewer (11.39% and 5.06%, respectively) (Table 1).

Table 1

Structure on sexes and ages at death: the 16th–19th century skeletal sample from Aroneanu Monastery of Iași

Sex	**Male**		**Female**		**Indeterminable**		**Total**	
Age (years)	N*	%	N	%	N	%	N	%
Infans I (0–7 years)	–	–	–	–	12	15.19	12	15.19
Infans II (7–14 years)	–	–	–	–	5	6.33	5	6.33
Juvenis (14–20 years)	1	1.27	1	1.27	–	–	2	2.53
Adultus (20–30 years)	4	5.06	5	6.32	–	–	9	11.39
Maturus (30–60years)	36	45.57	11	13.92	–	–	47	59.49
Senilis (60-x years)	1	1.27	3	3.80	–	–	4	5.06
Total	**42**	53.16	**20**	25.32	**17**	21.52	**79**	100

*N=number of estimated individuals

The masculinity index or the sex ratio (the report between the number of males and the number of females) in the sample indicates a higher male frequency as opposed to female (53.16% compared to 25.32%). Life expectancy upon birth, in the total analysed sample, was calculated to 37.07 years (age range 0-x years). For the subjects aged over 20 years, the estimated life expectancy is 27.73 years in males and 21.97 in females. The average death age, calculated for adults (individuals older than 20 years of age), is 47.73 years for males and 41.97 years for females.

Compared to other human groups inhabiting in Iaşi during the same period, those buried in the necropolis of Aroneanu Monastery had a slightly higher average lifespan (37.07 years – Aroneanu Monastery necropolis; 35.92 – "Curtea Domnească" [15]; 35.63 years – "Banu" Church [16] and 34.06 "Sfântul Nicolae – Ciurchi" Church [31], and a lifespan nearly equal to that of the sample from the Roman Catholic Cathedral – 36.94 years [17] (Fig. 1).

In the 20-x years specimens, the average lifespan calculated separately by sex is, on the average, higher in males compared to females (with approximately one year in the sample of the Roman Catholic Cathedral, two years at the "Sf. Nicolae – Ciurchi" Church, three years at "Curtea Domnească" and six years at Aroneanu Monastery); the only exception is encountered in the sample from the necropolis of the "Banu" Church, where the average lifespan in females is approximately four years higher compared to the males (Fig. 2).

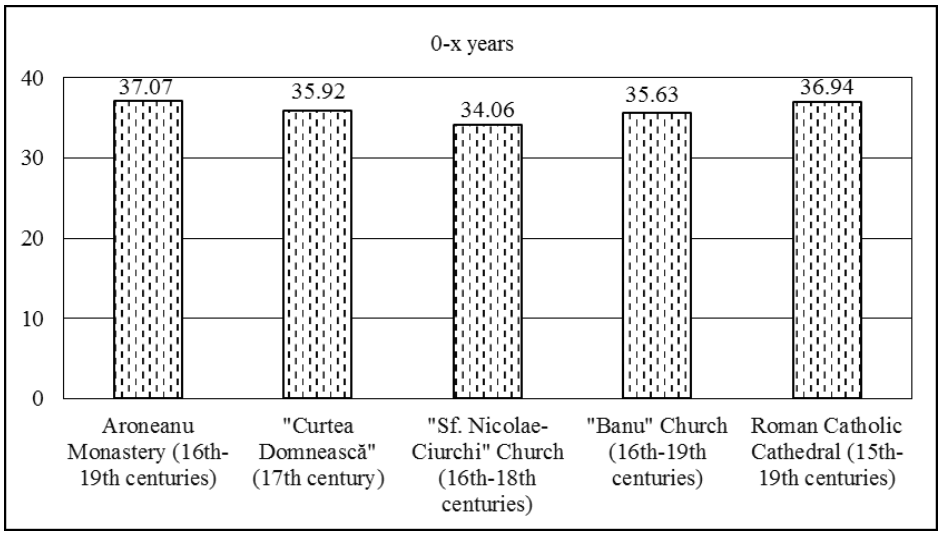

Fig. 1. Estimated average lifespan for the investigated sample compared to other synchronous series (0–x years).

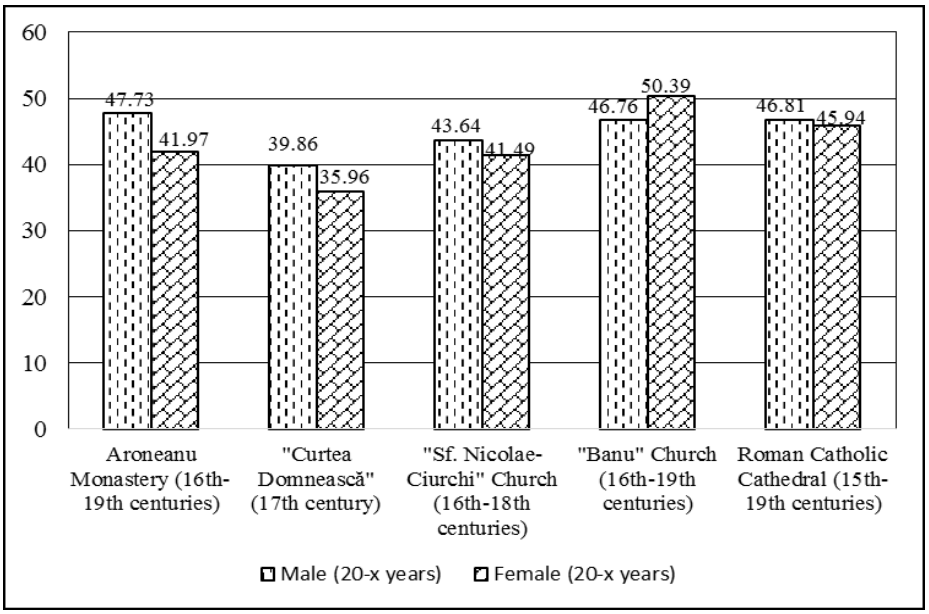

Fig. 2. Estimated average lifespan by sex in the investigated sample compared to other synchronous series (20–x years).

3.2. ANTHROPOMETRIC ANALYSIS

The variability of the craniofacial characters and of the statures defining the analysed sample is presented in Table 2, whereas the distribution, on categories, of the main craniofacial and stature indices is presented in Table 3.

Table 2

Statistics of absolute and relative characters in the 16th–19th century skeletal sample from Aroneanu Monastery of Iași
(N = number of estimated individuals; M = average; δ = standard deviation; min = minimum; max = maximum)

Martin No.	Character	Male					Female				
		N	M	δ	min	max	N	M	δ	min	max
1	g-op	17	177.18	9.07	151	188	11	174.23	7.80	156	184
5	n-ba	7	107.50	18.02	96	146	9	97.06	4.84	92	106
8	eu-eu	20	144.60	5.98	136	156	12	139.75	8.72	122.5	153
9	ft-ft	22	99.30	3.63	94.5	106	14	94.32	4.20	89	103
10	co-co	18	125.28	6.31	114	135.5	16	118.09	6.75	102.5	132
12	ast-ast	22	112.52	6.83	103.5	128	12	108.42	6.15	98	116
17	ba-b	6	135.17	9.06	124	146	10	129.10	5.72	122	140
20	po-b	10	115.85	5.93	106.5	125	10	112.30	4.06	105	117
40	ba-pr	6	95.75	4.77	92	105	7	91.07	4.72	83.5	97
44	ek-ek	12	95.67	4.10	87.5	102	6	92.67	4.00	87.5	98.50
45	zy-zy	7	129.64	5.68	121	138	6	125.50	8.24	112	134
47	n-gn	8	116.56	11.55	95	133.5	6	107.17	10.83	95	124
48	n-pr	13	70.04	7.19	50	77.5	7	65.29	5.21	56.5	71
50	mf-mf	13	25.19	1.56	22	27	8	23.63	2.80	18.5	27
51	mf-ek	14	38.04	2.57	33	42	8	37.31	1.75	35.5	41
52	Height of the orbit	13	35.00	2.27	32	39	8	34.00	1.63	32	36
54	al-al	19	24.21	1.58	22	28	7	23.43	1.48	22	26
55	n-ns	14	51.96	2.86	45	56	7	47.79	4.33	40.5	54
62	ol-sta	16	42.25	6.02	32	52.5	9	40.17	4.85	34	47
63	enm_2-enm_2	15	37.97	2.98	33	43	9	35.28	2.00	32	39
65	kdl-kdl	15	119.93	6.30	105	131	7	117.64	8.95	108	133
66	go-go	21	104.33	8.27	87	117.5	10	93.80	9.40	78.5	107.50
68	Depth of the mandible	20	73.90	4.03	66	80.5	9	68.72	2.49	66	72.5
$69_{(1)}$	Height at g.m.level	32	32.38	3.65	24	39	14	29.57	4.25	22	37
$69_{(3)}$	Thickness at g.m. level	32	12.28	1.69	9	15	14	10.64	1.54	8.5	14
70	Height vertical ram	21	66.33	4.84	55	74	11	59.32	5.83	51	66
71	Width vertical ram	27	32.96	3.53	27	40	13	30.15	1.82	27	33
8/1	Cranial index	17	81.90	6.52	74.47	100.00	10	80.36	5.73	66.58	85.26
17/1	Longitudinal basio-brgmatic index	6	74.91	4.62	67.55	81.11	10	74.33	4.80	67.40	81.41

Table 2 (continued)

17/8	Transversal basio-brgmatic index	6	95.04	7.90	82.67	105.04	9	93.04	6.40	83.33	106.12
20/1	Longitudinal porio-brgmatic index	9	64.58	3.64	56.65	68.57	9	64.78	1.69	62.50	67.31
20/8	Transversal porio-brgmatic index	10	80.09	4.28	73.33	87.41	10	81.15	5.47	76.51	93.88
9/10	Frontal transversal index	16	79.68	4.03	73.08	87.93	13	80.08	4.94	72.73	91.71
9/8	Frontal-parietal index	16	68.83	2.94	63.33	74.82	10	68.50	3.34	64.79	76.73
12/8	Parietal-occipital index	20	78.07	6.15	67.95	90.78	10	77.16	3.51	69.80	81.75
40/5	Gnathic index	6	94.83	3.02	89.95	103.03	7	94.42	2.55	90.76	97.85
47/45	Total facial index	6	90.03	12.27	68.84	103.09	5	87.20	8.42	78.51	96.43
48/45	Facial superior index	7	54.29	8.06	36.23	59.29	6	52.67	3.96	45.56	57.14
52/51	Orbital index	13	92.28	6.82	82.05	102.78	8	91.22	4.59	85.37	98.61
54/55	Nasal index	14	46.49	3.08	41.90	52.00	7	49.53	6.90	41.67	60.49
63/62	Palatal index	14	90.74	11.17	75.53	117.19	9	88.87	10.74	72.73	102.94
45/8	Cranial- facial transversal index	7	89.84	5.35	84.00	98.57	6	90.17	9.09	81.75	107.76
9/45	Fronto-jugal index	7	75.82	4.20	69.57	81.82	6	77.22	4.61	71.21	84.82
66/45	Jugo-mandibular index	5	76.20	6.82	69.05	84.17	4	70.43	5.58	64.88	75.81
$69_3/69_1$	Mandible robustness index	32	38.74	7.15	23.08	58.33	13	36.57	6.64	25.35	50.00
Stature		32	167.33	4.22	156.05	177.67	18	159.84	4.50	152.61	169.40

Table 3

Categories of craniofacial indices and of stature in males and females: the 16th–19th century skeletal sample of Aroneanu Monastery of Iași

Indices	**Categories**	**Male**		**Female**	
		N	**%**	**N**	**%**
8/1	Ultradolichocrane (x-64.9)	–	–	–	–
	Hyperdolichocrane (65.0-69.9)	–	–	1	10.00
	Dolichocrane (70.0–74.9)	1	5.88	–	–
	Mesocrane (75.0–79.9)	8	47.06	1	10.00
	Brachycrane (80.0–84.9)	2	11.76	6	60.00
	Hyperbrachycrane (85–89.9)	5	29.41	2	20.00
	Ultrabrachycrane (90-x)	1	5.88	–	–
17/1	Chamecrane (x-69.9)	1	16.67	2	20.00
	Orthocrane (70-74.9)	2	33.33	3	30.00
	Hypsicrane (75-x)	3	50.00	5	50.0

Table 3 (continued)

17/8	Tapeinocrane (x-91.9)			2	33.33	4	44.44
	Metriocranae (92-97.9)			2	33.33	4	44.44
	Acrocrane (98-x)			2	33.33	1	11.11
20/1	Chamecrane (x-57.9)			1	11.11	-	-
	Orthocrane (58.0-62.9)			1	11.11	2	22.22
	Hypsicrane (63.0-x)			7	77.78	7	77.78
20/8	Tapeinocrane (x-79.9)			5	50.00	7	70.00
	Metriocrane (80.0-85.9)			3	30.00	1	10.00
	Acrocrane (86.0-x)			2	20.00	2	20.00
9/8	Stenometope (x-65.9)			2	12.50	2	20.00
	Metriometope (66.0–68.9)			7	43.75	5	50.00
	Eurymetope (69.0-x)			7	43.75	3	30.00
9/10	Spherical foreheads (x-79.99)			9	56.25	7	53.85
	Ovale forheads (80.00-99.99)			7	43.75	6	46.15
	Parallel margins - foreheads (100.0-x)			–	–	–	–
12/8	Occipital narrow (x-71.9)			4	20.00	1	10.00
	Occipital middle (72.0–78.9)			8	40.00	6	60.00
	Occipital broad (79.0-85.9)			7	35.00	3	30.00
	Occipital very broad (86.0-x)			1	5.00	–	–
47/45	Hypereuryprosope (x-80.9)			1	16.67	2	40.00
	Euryprosope (81-84.9)			1	16.67	–	–
	Mesoprosope (85-89.9)			1	16.67	1	20.00
	Leptoprosope (90-94.9)			–	–	–	–
	Hyperleptoprosope (95-x)			3	50.00	2	40.00
48/45	Hypereuryene (x-44.9)			1	14.29	–	–
	Euryene (45.0–49.9)			–	–	1	16.67
	Mesene (50.0–54.9)			–	–	4	66.67
	Leptene (55.0–59.9)			6	85.71	1	16.67
	Hyperleptene (60.0-x)			–	–	–	–
52/51	Chameconch (x-75.9)			–	–	–	–
	Mesoconch (76.0-84.9)			3	23.08	–	–
	Hypsiconch (85.0-x)			10	76.92	8	100.00
54/55	Leptorrhine (x-46.9)			9	64.29	3	42.86
	Mesorrhine (47.0–50.9)			3	21.43	1	14.29
	Chamaerrhine (51.0–57.9)			2	14.29	2	28.57
	Hyperchamaerrhine (58.0-x)			–	–	1	14.29
Stature		**Male**	**Female**				
	Very short	x-149.9	x-139.9	–	–	–	–
	Short	150-159.9	140–148.9	2	6.25	–	–
	Under middle	160-163.9	149–152.9	3	9.38	1	5.56
	Middle	164–166.9	153–155.9	9	28.13	3	16.67
	Over middle	167–169.9	156–158.9	11	34.38	2	11.11
	High	170–179.9	159–167.9	7	21.88	11	61.11
	Very high	180–x	168-x	–	–	1	5.56

a. Neurocranium

The horizontal diameters (g-op and eu-eu) of the neurocranium in males offer a medium-size average for the longitudinal dimension (177.18 mm) and a large size for the transversal one (144.60 mm), their report giving a cranial index of brachycranic type (81.90 u.i). In females, the average of the longitudinal diameter is medium (174.23 mm), while that of the transversal diameter is situated at the superior limit of the large category (143.64 mm); this is why the average value of the cranial index surpasses the limit of the mesocranic category, being positioned at the inferior limit of the brachycranic category (80.36 u.i) (Table 2). Therefore, while, in males, the mesocranic and brachycranic forms represent most of the cases (47.06% and 47.05%), followed by the dolichocranic ones (5.88%), in females, the maximum percentage is given by the brachycranic form (80.00%), the mesocranic and hiperdolichocranic forms having equal percentages – 10.00% (Table 3).

The basio-bregmatic height (ba-b) of the neurocranium, determined after the study of 16 skulls, falls into the middle category for both sexes (males: 135.17 mm; females: 129.10 mm), considering the sexual size dimorphism. The basio-bregmatic longitudinal index is orthocranic, on the average, at both sexes (74.91 u.i. in males, and 74.33 u.i. in females). In males, 50% of the longitudinal basio-bregmatic indices are hypsicranic, 33.91% are orthocranic and only 16.67% of the indices are chamecranic. In females, 50% of the basio-bregmatic longitudinal indices are hypsicranic, 30% are orthocranic and only 20% can be defined as chamecranic.

The mean value of the transversal basio-bregmatic index falls into the metriocranic category for both sexes (95.04 u.i. in males and 93.04 u.i. in females). The values of the transversal basio-bregmatic index for males correspond to tapeinocrane, metriocrane and acrocane categories (with equal percentages – 33.33%). As to the basio-bregmatic transversal index, in females, the metriocrane and tapeinocrane categories prevail, with equal percentages (44.44%), followed by the acrocranic category (11.11%).

Cranial height (porio-bregmatic) (po-b) presents average values, which in males are positioned at the superior limit of the middle-sized category (115.85 mm) and in females at the inferior limit of the high-sized category (112.30 mm).

The longitudinal porio-bregmatic index (po-b/g-op) is positioned at both sexes in the hypsicranic category (high) – Table 2. Distribution of the porio-bregmatic longitudinal index on sexes indicates that the hypsicranic category has the highest incidence in both sexes (with equal percentages – 77.78%), followed by the orthocranic category (22.22% for females, respectively 11.11% for males) and chamecranic category (11.11 for males).

The transversal porio-bregmatic index (po-b/eu-eu) is, on the average, metriocranic, for both males and females (80.09 u.i. and 81.15 u.i.).

In the distribution of the transversal porio-bregmatic index, the highest concentration of subjects corresponds to the tapeinocranic category in both sexes (50% in males and 70% in females), followed by the metriocranic (30% in males) and acrocranic category (with equal percentages at both sexes – 20%).

In the frontal area, the metric characters are defined by two horizontal diameters: minimum (ft-ft) and maximum (co-co). The minimum frontal diameter (ft-ft) has, in males, a mean value situated in the high category (99.30 mm) and, in females, in the middle-sized category (94.32 mm). The frontal-parietal index (ft-ft/eu-eu) offers metriometopic means, at both sexes (68.83 u.i in males and 68.50 u.i in females). The sex distribution of this index reflects the above-mentioned situation, the males being concentrated rather on the meriometopic and eurymetopic category (with equal percentages – 43.45%) than on the stenometopic categories (12.50%). Most females are placed in the meriometopic category (46.15%), followed by the eurymetopic and stenometopic category (38.46% and 15.38%, respectively).

The maximum frontal width (co-co) is, through its average, large in both sexes (125.28 mm in males and 118.09 mm in females). The frontal transversal index (that gives the form of forehead: ft-ft/co-co), indicates spherical foreheads in males (79.68 u.i – at the upper limit of the category) and intermediate (or with ovoid contour) foreheads in females (80.08 u.i. – at the lower limit of the category). The distribution of this index on categories shows that the predominant type is of the spherical foreheads, in both males and females (56.25%, and 53.85%, respectively), followed by the intermediate foreheads (43.75% in males and 46.15% in females).

The width of the occipital (ast-ast) presents an average value belonging to the inferior limit of the large-sized category, in both sexes (112.52 mm in males, 108.32 mm in females).

The parietal-occipital index (ast-ast/eu-eu) is middle-sized at both sexes (78.07 u.i in males and 77.16 u.i in females). Regarding the distribution of this index, most of the percentage is registered, at both sexes, in the middle-sized category (40% in males and 60% in females), followed by the large-sized category (35% in males and 30% in females) and the narrow category (20% in males and 10% in females).

The morphological features of the neurocranium mainly refer to its shape in *norma verticalis* and in *norma occipitalis* and to the occipital shape in *norma lateralis*, as well as to the development of the bone relief. The most frequent neurocranium shape in *norma verticalis* is ovoid, at both sexes (61.11% in males and 66.67% in females), followed by the sphenoid (16.67% in males and 33.33% in females) and ellipsoid (11.11% in males) forms; the spheroid and brisoid shape is only encountered in males (in equal percentages – 5.56%). In *norma occipitalis*, the most frequent shape of the neurocranium is of "house" (77.78% in males and 92.86% in females) rather than of "bomb" (22.22% in males and 7.14% in females).

The glabellar relief displays a low variability; we only discovered cases pertaining to three of the six possible levels in both sexes; the first level has the highest incidence, while the second and third levels have lower incidences.

As to the development of the supraorbital relief, it is usually slightly marked in females (first degree – 46.67%) and marked in males (second degree – 52%);

first degree – 20% in males, second degree – 33.33% in females; first degree → second degree: 28% in males and 20% in females.

In most of the skulls, the shape of the occipital curvature presents a moderate occipital (38.89% in males and 50% in females) or the shape of "bomb" (38.89% in males and 35.71% in females) or flattened (16.67% in males, 14.29% in females); the very curved shape is present only in males, with a lower frequency (5.56%).

b. Facial skeleton

The facial skeleton presents the average values of the bizygomatic width (zy-zy), low-sized in males (129.64 mm) and towards larger dimensions in females (125.50 mm).

The total face height (n-gn) is usually middle-sized at both sexes (116.56 mm in males, 107.17 mm in females); the height of the superior face (n-pr) is usually middle-sized at both sexes (70.04 mm in males and 65.29 mm in females).

Among the two facial indices that express the reports of the vertical dimensions of the face with the bizygomatic width, the total facial index (n-gn/zy-zy) places their average values in the leptoprosopic category in males (90.03 u.i) and mesoprosopic category in females, respectively (87.20 u.i). Distribution of the total facial index presents majority percentages of the hyperleptoprosopic category in males (50%), hypereuryprosop and hyperleptoprosop categories in females (with equal percentages – 40%). In males, high percentages are also registered by the mesoprosop, euryprosop and hypereuryprosop categories, with equal percentages (16.67%). In females, a high percentage is also registered by the mesoprosopic category (20%).

In the case of the superior facial index, mostgf the percentages are registered in the leptenic category (85.71%), followed the hypereuryenic category (14.29%) in males and also in the mesenic (66.67%), euryenic and leptenic categories (with equal percentages – 16.67%) in females.

The average width of the orbit (mf-ek), with an ample variability at the studied sample, is situated in the narrow category (38.04 mm in males and 37.31 mm in females). The averages of the orbit height are positioned at the superior limit of the middle category in males (35 mm) and females (34 mm). Distribution of the orbital indices (Table 3) shows the predominance of the hypsiconch orbits at both sexes (76.92% in males and 100% in females), followed by the mesoconch shapes in males (23.08%).

The length of the nose is small at both sexes (24.21 mm in males, 23.43 mm in females), the height being middle-sized in males (51.96 mm) and smaller in females (47.79 mm). Therefore, the nasal index, which expresses the proportion between these two dimensions, is usually leptorrhinic in males (46.49 u.i) and mesorrhinic (49.53 u.i) in females. Distribution of the nasal index presents a variability between the leptorrhine and hyperchamaerrhine shapes, with maximum frequencies of the leptorrhine category (64.29% in males and 42.86% in females), followed by the mesorrhine in males (21.43%) and chamaerrhinic category in

females (28.57%). The chamaerrhinic category in males, mesorrhine and hyperchamaerrhine categories in females present equal percentages (14.29%).

In general, the mandible is middle-sized in males and large in females; the depth of the mandible is very low in both sexes. The mean value of the robusticity index is middle (38.74 u.i.) in males and lower (36.57 u.i.) in females.

The facial skeleton morphological features also include arrangement of the malar bones, canine fossa development, arrangement of the nasal bones, mandible height and development of chin apophysis.

Malar bones in males are predominantly temporalized (44.44%), followed by the frontal (33.33%) and intermediary display (22.22%). In females, malar bones with an intermediary display (60%) are predominant, followed by the frontal (25%) and temporalized (15%) ones.

The canine fossa presents an ample variability, from slightly outlined (first degree) to deep ones (three degree).

The slightly outlined fossae (first degree, first → second degree) are present in over half of all skulls (16.67% in males and 71.43% in females), followed by the middle-sized fossae (second degree, second degree → third degree and third degree) – 72.22% in males and 15.72% in females.

Palate depth differs between the two sexes – females displaying predominantly shallow palates, whereas males display equal high and medium depths.

The shape of the pyriform aperture generally belongs to the anthropine type (72.20% in males and 72.30% in females), the shapes with prenasal channel registering lower percentages (27.80% in males and 27.70% in females).

The nasal spine is usually medium-sized (third degree) for both sexes (43% in males and 43.10% in females), the second place being held by the shapes with a very slight (first degree: 32.80% and 32.90%, respectively) and slight (second degree: 24.20% and 24.00%, respectively) development.

The mandibles are relatively high in male skulls and low in the female ones. The shape of the menton in males is mostly pyramidal, whereas in females the pyramidal and the button shapes occurred in equal ratios. The gonia are generally slightly turned down towards the outer area in males, whereas the female mandibles do not have this tendency.

c. Stature

Medium height (evaluated based on the long bones of the lower limbs) is situated at the inferior limit of the over-middle category for males (167.33 mm) and at the inferior limit of the high category for females (159.84 mm) (Table 2). Stature distribution in males shows a maximum percentage in the over-middle category (34.38%), followed by the middle and high categories (28.13% and 21.88% respectively), under the middle (9.38%) and the short-average (6.25%) category. In females, the highest percentage is registered by the high category (61.11%), followed by the middle and over middle categories (16.67% and 11.11%, respectively), under middle and very high (with equal percentages – 5.56%) (Table 3).

3.3. TYPOLOGICAL ANALYSIS

The anthropological type is a result of a certain association of morphological and metrical characters. Every human population contains diverse combinations of such features, so that it can be characterized by a certain typological composition [19,21]. Currently, the method of typological evaluation is criticized quite frequently, as it is asserted that it does not consider the intra-population variability. Indeed, we admit that there are no pure anthropologic types, that the number of typical individuals in our sample is very low and that there is a significant variability as a result of population mixtures [5]. Nevertheless, some factors, such as socio-cultural, political, linguistic or religious barriers can prevent miscegenation.

To evaluate the typological patterns of the population segment exhumed from the 16th–19th century necropolis of Aroneanu Monastery of Iaşi, we considered both the biometrical and morphological data, in terms of character frequency, and their combinations.

The high degree of variability observed in the analysed sample suggests no typological unity. The individual association of the main biometrical and morphoscopic features shows a typological polymorphism, characteristic to the small autochthonous localities in course of being urbanized. Considering the frequency of the various features, we appreciate that the primary background for this population group can be defined as Mediterranido-Dynaric, with secondary Alpinoid and Nordoid influences. If we compare this sample to other synchronous skeletal series from Iași – the necropolis of "Sfântul Nicolae-Ciurchi" Church [31], the necropolis discovered in the eastern part of the ancient "Curtea Domnească" site [18] and the necropolis of "Banu" Church [16], we can observe many bio-typological similitudes. Although we encounter some specific features within each group, the morphometrical elements mainly define the same bio-typological background: either Dyinaro-Mediterranido-Alpinoid in the "Banu" Church necropolis and in that of "Curtea Domnească", or Mediterranido-Dynaric with Nordoid or Alpinoid influences in the necropolis of "Sfântul Nicolae – Ciurchi" Church and in that of Aroneanu Monastery.

4. CONCLUSIONS

The sample of 79 human skeletons analysed in this paper was discovered and exhumed from the 16th-19th century necropolis of the Aroneanu Monastery of Iași. The analysed skeletons belong to 17 children (0-14 years: 21.52%), two teenagers (one ♂ and one ♀: 2.54%), nine adults (four ♂ and five ♀: 11.39%), 47 mature (36 ♂ and 11 ♀: 59.49%) and four senile (one ♂ and three ♀: 5.97%). The average lifespan estimated for the population subjected to analysis (0–x years) is 37.07 years, the values recorded by sexes (20–x years) being of 47.73 years in males and 41.97 years in females.

The anthropometric analysis conducted upon the adult skeletons indicates, on the average, a population of over-middle height in males and high height in females, with brachycranic, orthocranic and metriocranic skulls (in both sexes). The forehead is metriometopic and the width of the occipital presents an average value that belongs to the inferior limit of the large-sized category (in both sexes). The face is, on the average, leptoprosopic an mesene in males, respectively mesoprosopic and mesene in females, with hypsiconch orbits (in both sexes), leptorrhine (in males) and mesorrhine nose (in females). Mandible robustness is moderate in males and lower in females.

Based on this set of characteristics, we consider that the primary background for this population group is Mediterrannido-Dynaric, with secondary Alpinoid and Nordoid influences, suggesting a mixture of features and implicitly of populations, which is most probably due to the process of urbanization.

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