# MORPHOLOGICAL CHARACTERISTICS OF CHERKASY MALE INHABITANTS (THE 17–18TH CENTURIES)

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**Abstract.** *This study examines the morphological characteristics of the 17–18th centuries male inhabitants of Cherkasy based on craniological analysis of skeletal remains from two cemeteries. The research utilized various statistical methods to compare the Cherkasy sample with over 100 other groups from Eastern and Central Europe. Key findings include that the Cherkasy males had on average brachycephalic skulls with moderately high cranial vaults, low and narrow orthognathic faces with sharp profiling, moderately high orbits, and medium-wide noses with strong nasal protrusion. The group showed significant morphological heterogeneity. Multivariate analyses revealed similarities with populations from northeastern Ukraine (Sumy) and northwestern Ukraine (Vinnytsia, Kyiv), indicating diverse origins. The results support Cherkasy's history as a frontier city settled primarily by European peoples, with no evidence of North Caucasian elements, thus refuting theories of Circassian origins. This craniological data provides valuable insights into the demographic composition and ethno-cultural connections of early modern Cherkasy's population.*

**Keywords***: Cherkasy, craniology, 17–18th centuries, bioarchaeology, skull, burial, population.*

**Problem statement.** As a result of the work of the Cherkasy expedition of the Institute of Archaeology of the National Academy of Sciences of Ukraine, led by Dmytro Kushtan, in the central part of Cherkasy in 2021–2023, in addition to materials and objects related to the prehistory and early history of the city, the remains of two cemeteries from the 17th – 18th centuries were discovered. It should be noted that this is perhaps the first time in the history of archaeological research in Cherkasy that burial sites from the early modern period have been comprehensively studied.

One of the discovered cemeteries is associated with the St. Nicholas Church, which was located in the Dzelenhora area (now the House of Nature stands in its place). This church is the oldest in the city – known at least since 1552, when it was mentioned as a castle church in the "Description of Cherkasy Castle" (the "Lithuanian" castle on the site of Dzelenhora existed until 1637). Near the location of the church, on a plot of land at 15/1 Rozkopna Street, the remains of at least four burials from the 18th century were found, some of which were completely or partially destroyed by later dig-

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ging. Following Christian tradition, the bodies were laid out on their backs, oriented with their heads to the West and Southwest. Traces of wooden coffins and iron nails from them were observed. The burials contained no grave goods [**Куштан, Д.** 2021, с. 9–14, Рис. 12–14].

The other cemetery was investigated in the Podil area of Cherkasy, on a plot of land at 60 Prince Algirdas Street (formerly Gagarin Street). Over two years of excavations, 186 burials were discovered – the western and southwestern sectors of an ancient cemetery from the 17th – 18th centuries, associated with the Holy Trinity Church. This church (the second in the city after the castle's St. Nicholas Church) was built in 1671 with the blessing of Kyiv Metropolitan Yosyp Neliubovych-Tukalsky, an associate of Hetman Petro Doroshenko. All burials were carried out according to Christian canons: in rectangular grave pits, the deceased lie stretched out on their backs, with their heads oriented to the western sector; their arms are folded on their chests or stomachs. In most cases, remains of wooden coffins and iron nails from them were observed. The deceased are of various genders and ages, with quite a few child burials. Most burials contain no grave goods, only a few revealed coins, as well as jewellery and clothing details: a button made from a coin, a copper ring, glass beads, remains of brocade ochipoks (traditional Ukrainian women's headdress) on the heads of several female burials, etc. The older part of the cemetery (from the last quarter of the 17th century) was located at its western end, where even rows of burials (along the north-south line) were observed. The concentration of graves in the cemetery is uneven: the further east (towards the Holy Trinity Church), the higher it is – there, burials were made in 3-4 tiers. Cases of one burial intersecting another are frequent, and redeposited bones from destroyed burials were often found in the fills of grave pits. No remains of wooden or stone tombstones were found, except for one large millstone (blank) made of sandstone, which could have marked a burial [**Куштан, Д.** 2022, с. 17–53, Рис. 6; **Куштан, Д.** 2023, с. 323–331].

Both churches were wooden and existed until the early 1860s, when they were dismantled and rebuilt in brick at new locations: St. Nicholas near the New Market (now Soborna Square), and Holy Trinity on the former Polish castle site (now Glory Hill) [**Похилевич, Л.** 1864, с. 613]. The cemeteries at these churches probably functioned until the end of the 18th century, as they are no longer present on the oldest plans of Cherkasy (for example, from 1797 and 1800), while two city cemeteries are marked outside the city borders [**Куштан, Д., Ластовський, В.** 2016, с. 213]. Later, urban development spread to the territory of the ancient cemeteries.

The significance of discovering and partially researching early modern cemeteries in Cherkasy can hardly be overestimated. After thorough processing, the skeletal material from these sites will provide invaluable data for studying the anthropology, demography, and sociology of the ancient inhabitants of this old city on the Dnipro.

Before characterizing the craniological series from the 17th – 18th centuries Cherkasy cemeteries, it would be appropriate to make a brief excursion into the early history of the city to identify the main components that formed the anthropological type of the local population over 400–500 years.

If we discard the overtly fantastical versions about Cherkasy being founded by North Caucasian Circassians and "fugitive peasants" in the 1280's, which were long propagated by Russian-imperial-Soviet propaganda, it becomes clear that the city appeared no earlier than 1362, after the victory of the Lithuanian-Ruthenian army led by Grand Duke Algirdas over the Golden Horde in the Battle of Blue Waters. Then, taking advantage of the Horde's weakening during the "Great Troubles", the young Lithuanian state expanded southward, absorbing Kyiv region and Podillia. This event became the starting point in the history of Cherkasy – initially as a border outpost of the Podilian principality of the Koriatovych (Algirdas's nephews), vassals of the Grand Duchy of Lithuania [**Куштан, Д., Ластовський, В**. 2016, с. 187; **Куштан, Д.** 2022, С. 521; **Мельниченко, В., ред.** 2023, с. 33]. It was European knighthood, not some "fugitive peasants" or Circassians, who became its first settlers. The newly established castle housed a military garrison ready to repel attackers at any time. Around it lived a population that served the fortress and garrison, developed the surrounding territories, and engaged in agriculture, animal husbandry, hunting, fishing, forest beekeeping, crafts, etc. In wartime, all inhabitants of Cherkasy were part of the militia and subordinated to the local voivode or starosta.

The city arose on empty land (no traces of any settlements or ancient Rus' fortified settlements have been found in or near Cherkasy), so from the very beginning, the city was populated by incoming warriors: Lithuanian and Ruthenian knights, their servants, and mercenary soldiers. Probably among them were representatives of other European peoples: Poles, Silesians, etc. At least, the latter included the "Cherkasy voivode" Bedrych (Bedřich/Friedrich), mentioned in 1392 [**Мельниченко, В., ред.** 2023, с. 36].

The ethnic composition of the inhabitants of Cherkasy almost two centuries after the settlement of the city is characterized by the "Description of the Cherkasy Castle" of 1552. An analysis of the surnames of the townspeople (about 250 people) given in the document indicates a multi-ethnic composition of the population. Thus, along with the usual Ruthenian (East Slavic) surnames, there are Tatar or Turkish, Polish, Lithuanian, Moldavian, and probably South Slavic (?) surnames. There was also a German (possibly Czech) gunner at the Cherkasy Castle. Another German mercenary gunner also served in Cherkasy earlier, in 1488. So, the population of Cherkasy during this period was formed from local residents, other subjects of the Grand Duchy of Lithuania, as well as foreigners who came here as mercenaries, baptized prisoners from Turks and Tatars, or Christians freed from Turkish-Tatar captivity [**Архив Юго-Западной** 1886, с. 87–90; **Куштан, Д., Ластовський, В.** 2016, с. 199–200]. In the 16th – early 17th centuries, the governors and starostas of Cherkasy were appointed from the noblemen originating from Kyiv, Volyn, Belarus, Lithuania, Lesser Poland, etc., accordingly, their retinues and servants came to the city from these same regions. Evidently, such events as the incorporation of Cherkasy into the Kingdom of Poland after the Union of Lublin (1569), as well as the creation of the Cherkasy Regiment of the Zaporizhian Cossack Army in 1625, significantly influenced the further formation of the local population. A certain ethnic diversity of the inhabitants of Cherkasy is demonstrated by the list of Cherkasy Cossacks in the "Register" of 1649, of course, already under the dominance of the Ruthenian (Ukrainian) component. The wars of the Khmelnytsky Uprising (1648–1657), the Ruin (1657–1687), and the "Great Expulsion" of 1678–1679 brought significant changes to both the demography and the ethnic composition of the inhabitants of Cherkasy.

Thus, the physical type of the people of Cherkasy in the early modern period was to be the result of centuries of ethno-social processes, which should be demonstrated by the results of the craniological analysis of burials from the cemeteries of the Nikolaev and, especially, the Holy Trinity churches.

**Program and Methodology:** The study is based on the principles of historicism and objectivity, using general scientific (analysis and synthesis), special historical (comparative-historical), anthropological, and statistical methods. To evaluate the measurement features, tables with limits of average values of features compiled by G. Debets were used [**Алексеев, В., Дебец, Г.** 1964]. Sex and age determinations of skeletal remains were made using several techniques [**Пашкова, В.** 1995, с. 93–106; **Bružek, J.** 2002, pp. 157–168; **Bružek, J., Santos, F., Dutailly, B., Murail, P., Cunha, E.** 2017, pp. 440–449; **Buikstra, J., Ubelaker, D.** 1994; **Ubelaker, D. H.** 1989]. Age was comprehensively established based on features of the skull, cranial sutures, and teeth [**Brothwell, D. R.** 1972; **Vallois H. V.** 1937]. Anthropological materials were measured in the city of Cherkasy in the funds of the Cherkasy City Archaeological Museum of the Middle Dnipro Region. Skulls were measured according to the standard (broad) craniological methodology.

According to R. Martin [**Martin, R.** 1928], the numbering of features was indicated, and the nasomalar and zygomaxillar angles of the horizontal facial profiling were calculated using a nomogram [**Алексеев, В. П., Дебец, Г. Ф.** 1964, с. 55, 47, Рис. 14]. The craniometric lambda point was determined by the method of L. H. D. Buxton and G. D. Morant [Buxton, L. H. D., Morant, G. D. 1933, 63, pp. 19–47]. The craniological characterization of the sample is based on the arithmetic means of skull dimensions and indices given in Table 2. In the tables, linear dimensions are given in millimeters (mm), angles in degrees (°). The parameters are denoted as follows: n – number of cases,

M – arithmetic mean, m (M) – error of the arithmetic mean, s – mean square deviation, ms – error of the mean square deviation.

For a quantitative assessment of the degree of manifestation of Mongoloid features, traditional indices were used: the general index of flattening of the facial skeleton (hereinafter referred to as FFS), proposed by G. Debets [**Дебец, Г. Ф.** 1968, с. 13–22], the preauricular faciocerebral index (hereinafter referred to as PFP), and the conditional fraction of the Mongoloid element (hereinafter referred to as CFME). The description and analysis of the data were carried out in accordance with the indicators at which the FFS value is less than 20 and the PFP is less than 90.6, characteristic of "pure" Europoids, the FFS value is greater than 80 and the PFP is less than 96.8 – for "pure" Mongoloids [**Дебец, Г. Ф.** 1964, с. 233–239; **Дебец, Г. Ф.** 1968, с. 13–22]. The formula is based on first-order craniological features, which are the most reliable criterion for distinguishing the major races.

One-dimensional statistical processing was carried out using the Microsoft Excel-2007 program. When interpreting the data for intergroup comparison, computer programs created by B. Kozintsev and O. Kozintsev in 1991, as well as A. Gromov in 1996, donated to the author of the article in 2009, were used.

**Materials:** The series consists of materials from excavations in the city of Cherkasy at two cemeteries. The first belonged to the Nikolaev Church in the Upper City (15/1 Rozkopna Street). Four burials (15/1-1, 15/1-2, 15/1-3, 15/1-4) were processed from it.

The second cemetery belonged to the Holy Trinity Church in the Cherkasy Podil (60 Gagarin Street). Out of 186 burials, 42 belonging to men have been processed. Gender and age were determined by V. Unguryan [**Куштан, Д.** 2022, с. 61–142] and remain unchanged, except for determinations of «rather a man than a woman». In such cases, the author determined the gender independently.

Ethnic craniometry. The male series from the city of Cherkasy currently consists of 42 skulls (they come from four burials of the Nikolaev cemetery and 38 burials of the Holy Trinity). It is not representative, as it does not number 50 skulls, but it is moderate for a group. It should be characterized. The development of the muscular relief of the male skulls is moderate. The superciliary arches and supraorbital ridges are moderately developed (1.9 points). The mastoid processes are strongly developed (2.4 points). In general, the buried have a brachycranial cranial vault (81.5), which is characterized by a small length and moderate width of the cranial vault. Its height is moderate. The ear height of the skull is moderate, and the length of its base is small (Table 1).

***Table 1***. *Average dimensions and indices of male skulls of the Cherkasy 17ᵗʰ –18ᵗʰ century series.*

| № after Martin | Feature | ♂ (male) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **M** | **n** | **σ** | **m(M)** | **ms** | **min.** | **max.** |
| 1 | Maximum cranial length | 176,5 | 27 | 8,3* | 1,60 | 1,13 | 164,0 | 195,0 |
| 8 | Maximum cranial breadth | 142,7 | 29 | 6,3* | 1,17 | 0,83 | 122,0 | 154,4 |
| 17 | Basion-bregma height | 132,4 | 23 | 5,9* | 1,22 | 0,86 | 118,0 | 142,0 |
| 5 | Cranial base length | 98,0 | 21 | 7,1* | 1,56 | 1,10 | 83,0 | 108,0 |
| 9 | Minimum frontal breadth | 96,9 | 28 | 5,0* | 0,94 | 0,67 | 88,0 | 105,0 |
| 10 | Maximum frontal breadth | 119,0 | 20 | 6,6* | 1,48 | 1,04 | 110,0 | 132,0 |
| 11 | Cranial base breadth | 123,7 | 22 | 6,0* | 1,28 | 0,90 | 113,0 | 136,0 |
| 12 | Biasterionic breadth | 108,4 | 23 | 4,0** | 0,83 | 0,59 | 103,0 | 116,0 |
| 24 | Transverse arc p-br-p | 324,3 | 17 | 11,8* | 2,87 | 2,03 | 305,0 | 351,0 |
| 26 | Frontal arc | 124,9 | 19 | 7,1* | 1,64 | 1,16 | 111,0 | 136,0 |
| 27 | Parietal arc | 124,7 | 21 | 7,6 | 1,65 | 1,17 | 110,0 | 140,0 |
| 28 | Occipital arc | 111,6 | 21 | 4,9** | 1,07 | 0,76 | 100,0 | 121,0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 29 | Frontal chord | 108,4 | 24 | 5,6* | 1,15 | 0,81 | 94,3 | 117,0 |
| 30 | Parietal chord | 110,5 | 24 | 7,0* | 1,43 | 1,01 | 95,0 | 122,0 |
| 31 | Occipital chord | 92,4 | 23 | 4,3** | 0,90 | 0,64 | 82,0 | 98,0 |
| 45 | Bizygomatic breadth | 130,3 | 25 | 7,2* | 1,43 | 1,01 | 116,0 | 142,0 |
| 40 | Basion-prosthion length | 95,7 | 20 | 6,0* | 1,34 | 0,95 | 83,4 | 104,0 |
| 48 | Upper facial height | 65,6 | 25 | 3,7** | 0,73 | 0,52 | 60,0 | 76,0 |
| 47 | Total facial height | 113,5 | 20 | 6,8 | 1,52 | 1,08 | 103,0 | 126,0 |
| 43 | Upper facial breadth | 103,7 | 22 | 3,8 | 0,82 | 0,58 | 97,0 | 111,0 |
| 46 | Middle facial breadth | 94,1 | 19 | 5,0 | 1,15 | 0,82 | 82,0 | 102,0 |
| 55 | Nasal height | 49,7 | 28 | 4,0* | 0,76 | 0,54 | 44,0 | 62,0 |
| 54 | Nasal breadth | 25,0 | 29 | 1,7 | 0,32 | 0,22 | 21,9 | 29,0 |
| 51 | Orbital breadth | 41,1 | 31 | 1,3** | 0,23 | 0,16 | 39,0 | 44,0 |
| 52 | Orbital height | 31,9 | 31 | 2,5* | 0,45 | 0,32 | 27,0 | 37,0 |
| 20 | Porion-bregma height | 113,2 | 23 | 4,3* | 0,90 | 0,64 | 100,8 | 118,9 |
| SC (57) | Simotic chord | 10,0 | 25 | 1,9 | 0,39 | 0,27 | 6,0 | 14,0 |
| SS | Simotic subtense | 4,5 | 25 | 2,2* | 0,45 | 0,32 | 2,0 | 6,6 |
| MC (50) | Frontal maxillary breadth | 18,7 | 24 | 1,7 | 0,35 | 0,25 | 16,0 | 23,5 |
| MS | Frontal maxillary height | 7,5 | 24 | 1,3 | 0,27 | 0,19 | 5,0 | 10,0 |
| DC (49a) | Dacrial chord | 24,5 | 24 | 1,7** | 0,35 | 0,25 | 22,0 | 28,0 |
| DS | Dacrial subtense | 12,5 | 3,1 | 3,1* | 0,64 | 0,45 | 4,0 | 17,0 |
| FC | Caninefossa depth | −4,8 | 23 | 2,3* | 0,48 | 0,34 | −1,0 | −9,0 |
| 7. | Foramen magnum length | 35,4 | 19 | 2,7* | 0,61 | 0,43 | 30,0 | 40,0 |
| 16. | Foramen magnum breadth | 30,1 | 19 | 2,0 | 0,45 | 0,32 | 27,0 | 34,0 |
| Sub.NB | Height of the forehead curve | 24,4 | 24 | 2,8 | 0,56 | 0,40 | 20,0 | 31,0 |
| OS | Height of the occiput curve | 24,5 | 23 | 2,8 | 0,58 | 0,41 | 20,0 | 31,0 |
| | Height of zygomatic bone curvature | 11,2 | 17 | 2,3 | 0,56 | 0,40 | 9,0 | 17,0 |
| | Width of zygomatic bone | 53,2 | 17 | 4,2 | 1,02 | 0,72 | 47,0 | 62,0 |
| 32 | Forehead profile angle from nas. | 88,2° | 16 | 5,0* | 1,25 | 0,89 | 79,0° | 93,0° |
| GM/FN | Forehead profile angle from gl. | 80,4° | 16 | 6,8 | 1,71 | 1,21 | 69,0° | 92,0° |
| 72 | Generalfacial angle | 87,1° | 25 | 3,5* | 0,70 | 0,50 | 79,0° | 93,0° |
| 73. | Middle profile angle | 87,3° | 16 | 3,9* | 0,97 | 0,69 | 80,0° | 93,0° |
| 74. | Alveolar profile angle | 77,8° | 16 | 3,9** | 0,97 | 0,68 | 69,0° | 82,0° |
| 75(1). | Nasal protrusion angle | 29,4° | 25 | 5,8* | 1,17 | 0,83 | 20,0° | 45,0° |
| 77. | Nasomalar angle | 138,3° | 27 | 6,3* | 1,21 | 0,86 | 122,0° | 153,0° |
| Zm'. | Zygomaxillary angle | 126,9° | 22 | 5,9* | 1,26 | 0,89 | 114,0° | 141,0° |
| | Glabella | 1,9 | 42 | 0,7 | 0,12 | 0,09 | 1,0 | 3,0 |
| | Supraorbital ridge | 1,7 | 31 | 0,5 | 0,09 | 0,06 | 1,0 | 2,5 |
| | External occipital protuberance | 1,3 | 27 | 0,7 | 0,14 | 0,10 | 0,0 | 3,0 |
| | Mastoid processus | 2,4 | 29 | 0,7 | 0,13 | 0,09 | 1,0 | 3,0 |
| | Anterior nasal spine | 4,5 | 24 | 0,8 | 0,17 | 0,12 | 3,0 | 5,0 |
| 23a | Horizontal circumference through ophryon | 414,5 | 20 | 15,3* | 3,43 | 2,43 | 480,0 | 542,0 |
| **Indexes:** | | | | | | | | |
| 8:1 | Cranial | 81,5 | 27 | 4,4* | 0,84 | 0,59 | 72,8 | 88,9 |
| 17:1 | Height-length | 75,7 | 23 | 3,6* | 0,76 | 0,53 | 68,5 | 82,0 |
| 17:8 | Height-breadth | 92,6 | 23 | 5,0* | 1,05 | 0,74 | 83,9 | 101,4 |
| 9:8 | TransversalFrontoparietal | 68,5 | 25 | 3,7* | 0,75 | 0,53 | 61,0 | 79,5 |
| 20:1 | Height-length | 65,5 | 22 | 2,7 | 0,57 | 0,40 | 60,2 | 70,3 |
| 20:8 | Height-breadth | 79,7 | 23 | 3,8* | 0,78 | 0,55 | 73,6 | 90,7 |
| 10:8 | Transversal Coronary | 84,0 | 20 | 3,9* | 0,87 | 0,61 | 78,5 | 95,9 |
| 9:10 | Breadth Forehead | 81,9 | 20 | 4,0* | 0,89 | 0,63 | 70,1 | 88,2 |

| 45:8 | Transversal Facio-Cerebral | 91,7 | 24 | 3,3** | 0,68 | 0,48 | 85,1 | 97,5 |
|---|---|---|---|---|---|---|---|---|
| 48:17 | Vertical Facio-Cerebral | 49,7 | 19 | 3,6** | 0,83 | 0,59 | 42,3 | 55,5 |
| 9:45 | Fronto-Zygomatic | 74,4 | 23 | 3,7 | 0,78 | 0,55 | 66,4 | 83,6 |
| 10:45 | Coronary-Zygomatic | 91,9 | 19 | 4,8* | 1,11 | 0,78 | 84,3 | 100,9 |
| 40:5 | Alveolar-Gnathic | 97,5 | 19 | 5,1* | 1,16 | 0,82 | 86,0 | 106,7 |
| 47:45 | Kollman's Total Facial | 88,4 | 17 | 4,9** | 1,20 | 0,85 | 81,3 | 97,4 |
| 48:45 | Kollman's Upper Facial | 50,6 | 21 | 3,4* | 0,74 | 0,52 | 44,4 | 58,0 |
| 54:55 | Nasal | 50,1 | 27 | 4,0 | 0,77 | 0,54 | 42,7 | 59,1 |
| DS:DC | Dacrial | 54,6 | 24 | 9,0* | 1,84 | 1,30 | 33,3 | 73,9 |
| SS:SC | Simotic | 41,9 | 25 | 10,9 | 2,18 | 1,54 | 26,7 | 66,7 |
| MS:MC | Maxillofrontal | 40,7 | 23 | 7,4 | 1,55 | 1,09 | 27,8 | 52,9 |
| 52:51 | Orbital | 77,5 | 28 | 6,4* | 1,22 | 0,86 | 62,1 | 92,0 |
| 63:62 | Palatal | 81,0 | 21 | 8,7* | 1,90 | 1,34 | 67,3 | 98.8 |
| 61:60 | Maxillo-Alveolar | 116,5 | 18 | 7,1 | 1,67 | 1,18 | 98,1 | 127,2 |

M – average arithmetic value; n – number of cases; σ – average quadratic deviations; m (M) – average arithmetic value error; ms – average quadratic deviation error; * exceeds the standard values of the quadratic deviation; ** less than the standard values of the quadratic deviation.

The frontal bone belongs to the medium categories by its absolute dimensions. The profiling of the forehead from the craniological point of nasion is characterized by a very large angle, so the forehead is slightly sloping, almost straight. The occipital region is moderately wide (108.3 mm).

The width of the orthognathic face of the male series is small, because the bizygomatic diameter, measured on 25 skulls, is 130.3 mm. The upper facial height is small (65.6 mm), which is a feature of the group. According to the upper facial index (50.6), the face is moderately wide (mesene). The total facial index, measured on only 17 skulls, also indicates a moderately wide face in the group (mesoprosopy). The nasomalar angle is small, so the face is strongly profiled at the level of the orbits, although in the series there are 11 skulls with flattened and moderate horizontal profiling. The zygomaxillary angle also generally falls into the small categories, indicating a well-profiled face at the level of the anterior nasal spine (spina nasalis anterior).

At this stage of the study, it was found that according to V. Dyachenko [**Дяченко, В.** 1961, с. 6–7], in the central Ukrainian type the face is wide, so in our case, the sample of male skulls from the 17th – 18th centuries from the city of Cherkasy cannot be attributed to the central Ukrainian craniological type.

The small orbital height and moderate orbital width result in a moderate orbital index, indicating relatively medium orbits (mesoconchia). The nasal aperture of the male series has a moderate width and a small height, the nasal index (48.6) indicates a moderately wide nose (mesorhinia). On a global scale, the male series is characterized by a strong protrusion of the nasal bones relative to the line of the vertical facial profile (29.4°). The nasal root is moderately high both in terms of the simotic index and the dacrial index. The canine fossae are moderately developed (–4.8). In general, the male group belongs to the large Europoid race.

When calculating the FFS indices, it was found that the male skull from burial 82 from Cherkasy is a mestizo. The value of FFS is 33.0, and this is also found in the skull from burial 83, where FFS is 48.3. According to the ratio of the facial and cerebral parts, the skull from burial 83 also contains a very weak Eastern admixture (PFP 91.2). When calculating the conditional Mongoloid element, it was found that the percentage of FFS CFME is 35.5.

To establish the level of homogeneity of the sample, the mean square deviations of craniological features and their indices were calculated. 50 out of 64 features (78.1%) and their indices exceeded (were smaller than) the mean standard values and their square deviations. Given the significant variability, the question of the morphological heterogeneity of the group can be raised (Table 1).

*Intergroup multivariate analysis.* To identify analogues of the Cherkasy male series among groups close to its contemporaneity, the studied group was compared with a wide range of comparative

materials from the 14th – 19th centuries from Eastern and Central Europe and a sample from Western Europe using both canonical and cluster multivariate analysis [**Дерябин, В. 2008**, с. 212–276] using the mentioned CANON-2.50 program, which included the following groups: Uzhhorod of the 14th – 17th centuries [**Долженко, Ю., Мойжес, В.** 2022, с. 69–82; **Долженко, Ю., Мойжес, В.** 2022, с. 226–264]; Lviv[1]; Pidborci village from Dubno district [**Долженко, Ю., Пшеничний, Ю., Бардецький, А.** 2020, с. 6–9; **Долженко, Ю., Пшеничний, Ю, Бардецький, А.** 2021, с. 43–66]; Klevan village [**Войтюк, О., Долженко, Ю. 2020**, с. 21–25]; Liutenka of the 17th – 18th centuries [**Долженко, Ю.** 2012, с. 487–507]; Kyiv Podil (collected series) of the 16th – 18th centuries [**Долженко, Ю.** 2012, с. 487–507]; Lutsk (collected series) of the 17th – 20th centuries [**Долженко, Ю.** 2016, с. 3–17; **Тараненко, С., Вікторова, П., Кода, В., Долженко, Ю.** 2014, s. 249–25]; Kyiv Arsenal; Rivne of the late 16th early 18th centuries (Table 4) [**Долженко, Ю.** 2010, с. 11–17; **Долженко, Ю.** 2011, с. 118–134]; Ratniv of the 14th – 15th centuries [**Долженко, Ю., Златогорський, О.** 2016, с. 11–22]; Zhovnyno of the 16th – 18th centuries [**Долженко, Ю., Прядко, О.** 2014, с. 43–50; **Dolzhenko, Yu.** 2014, p. 119–132]; Baturyn of the 17th – 18th centuries [**Dolzhenko, Yu.** 2014, с. 40–56]; Chyhyryn of the 16th – 17th centuries; Kyiv St. Michael's Monastery of the 15th – 18th centuries [**Рудич, Т.** 2014, Табл 4, 5, с. 170–180; 185]; Vyshhorod of the 17th century; Medzhybizh of the 14th – 16th centuries [**Рудич, Т.** 2010, с. 129–130]; Vinnytsia [**Виногродська, Л., Потєхіна, І., Долженко, Ю.** 2020, с. 24–52]; Staiky [**Долженко, Ю.** 2012, с. 169–181; **Потєхіна, І.** 2016, с. 166–171], Ukrainians buried in Georgia [**Абдушелишвили, М.** 1964, Табл. 19, с. 150–151]; Odesa [**Алексеев, В.** 2008, с. 315], Bilhorod [**Безбородых, В., Долженко, Ю.** 2014].

Belarusians are represented by four series: a collected group [**Алексеев, В.** 2008, с. 335–336], Lukoml village (center of Vitebsk region), Prusy village (center of Minsk region) [**Саливон И., Васильев С., ред**. 2015, Табл. 6.1.1, с. 189–266], and a sample from Polissya of the 18th – 19th centuries [**Тегако, Л., Микулич, А., Саливон, И.** 1978, с. 27–28].

Russians – from the Orel governorate, Sebezh [**Алексеев, В**. 2008, с. 311–336], Staraya Ladoga-1, Staraya Ladoga-2 [**Моисеев, В., Григорьева, Н., Широбоков, И., Хартанович, В.** 2016, с. 390–399], Yaroslavl of the 17th century, Dmitrov of the 12th – 16th centuries [**Гончарова, Н.** 2011, с. 206], Pskov of the 14th – 16th centuries [**Санкина, С.** 2000, с. 14–15], Kozino of the 18th century [**Евтеев, А.** 2011, с. 433–440], Novgorod-1 [**Пежемский, Д. 2000**, с. 95–129], Novgorod-2 of the 16th – 18th centuries [**Евтеев, А., Олейников, А.** 2015, с. 176–192], Prikamye of the 16th – 18th centuries [**Широбоков, И.** 2018, с. 85–101], Necropolis of the 15th – 17th centuries on the territory of the Kashin Kremlin [**Васильев, С., Боруцкая, С., Харламова, Н., Андреев, С., Персов, Н., Солдатенкова, В**. 2020], excavation in Voznesenskiy-I. Tver region, Kashin; Pereslavl-Zalesskiy [**Рассказова, А.** 2019, с. 72–76].

Izhors – Poritsy (Izhorians, Russia) [**Широбоков, И., Верховцев, Д.** 2016, с. 408–421]. Karelians – Alozero of the 17th – early 19th century from Northern Karelia and the general Karelian series [**Хартанович, В., Широбоков, И.** 2012, с. 141–152; **Хартанович, В**. 1986, с. 72–73].

Latvians are represented by three series of the 17th – 18th centuries studied by R. Denisova – Leimani (Leimaņi) of the 17th – 18th centuries, Purgaili (Purgaiļi) of the 18th century, Martynsala of the 14th – 17th centuries [**Денисова, Р.** 1977, с. 223–228; 241–243; 255–258]; three groups of the 18th – 19th centuries processed by V. Alekseev: Latvians-1 (Durbe), Latvians-2 (western) and Latvians-3 from Ludza [**Алексеев, В.** 2008, с. 226–231]; and one of the 19th century according to G. Zarinya – Ormankalns, Lithuanians from Kaunas [**Зариня, Г.** 1990, с. 117].

Series of Estonians: Otepää of the 14th – 16th centuries, Kabina village of the 17th century; Kohtla-Järve of the 17th – 18th centuries [**Марк, К.** 1956, с. 221–223], Ardu [**Моисеев, В., Широбоков, И., Крийска, А., Хартанович, В**. 2013, с. 71–79]; Warbola of the 14th – 17th centuries; Jõuga village in Alutaguze parish [**Марк, К.** 1956, с. 191–192, 221–223]; Estonians (eestlased) and Finns (suomalaiset) [**Алексеев, В**. 2008, с. 238–241].

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[1] Unpublished data.

Moldovans are represented by two samples: Varatic of the Rîșcani district (17th – 19th centuries) and Staryi Orhei (Orheiul Vechi) (14th – 15th centuries) [**Великанова, М.** 1975, с. 144–145]. Karaites and Jews studied by V. Alekseev were also included [**Алексеев, В.** 1971, с. 258–259]. Small communities of Karaites in Lutsk, Halych and Lithuania (several hundred people) are mentioned in the work of V. Dyachenko [**Дяченко В.** 1965, с. 96].

In addition, five groups from Germany were included – Königsberg of the 17th – 19th centuries [**Березина, Н**. 2010, с. 872]; Zellerndorf; Pfeifer; Wurttemberg and Tübingen [**Евтеев, А., Староверов, Н., Волков, В., Выскубов, С., Потрахов, Н.** 2020, с. 90–104]. Also included were 16 ethnic groups from the Caucasus: Adjarians [**Абдушелишвили, М.** 1964, Табл. 19, с. 140], Georgians, Armenians, Ingush, Adyghe, Laks, Khevsurians, Chechens, Adyghe, Abkhazians, Ossetians [**Алексеев, В. 2009**, с. 233–355]. Ingush from mountain crypts [**Фризен, С., Гадиев, У.** 2019, Табл. 3, с. 232–233].

Thus, together with the studied group, 101 male series from the 14th – 19th centuries were included in the multivariate canonical analysis [**Дерябин, В.** 2008, с. 212–230] (Table 2).

*Table 2. Distance between 101 male series of the 14th – 19th centuries.*

| № п/п | Групи | I КВ | II КВ | III КВ |
|---|---|---|---|---|
| 1. | Cherkasy (Rozkopna St., 15/1 and Lower City or Podil) (Middle Dnipro region) | 0,182 | −0,506 | −0,153 |
| 2. | Lviv, mixed series: (Dunin-Borkowski crypts in Lychakiv Cemetery, burials in Stryi Cemetery), Galicians | 1,204 | 0,142 | −0,710 |
| 3. | Zalutske or Staikyn Verkh (Chernihiv-Sivershchyna) | 1,531 | −1,151 | 0,957 |
| 4. | Uzhhorod (Transcarpathia) | 1,734 | −0,962 | 0,039 |
| 5. | Vinnytsia (Eastern Podilia) | 0,762 | −0,866 | −0,068 |
| 6. | Arsenal (Kyiv) (Middle Dnipro region) | 0,196 | −0,256 | −0,542 |
| 7. | Podil in Kyiv (Middle Dnipro region) | 0,451 | −0,536 | 0,307 |
| 8. | Ratniv village (Volyn) | 1,060 | −1,225 | 0,137 |
| 9. | Rivne (Volyn) | 0,824 | −1,196 | 0,060 |
| 10. | Baturyn (Chernihiv-Siverian region) | 0,729 | −0,589 | 0,338 |
| 11. | Klevan (Volyn) | 1,899 | 0,651 | 0,120 |
| 12. | Pidbortsi village (Volyn) | 0,709 | −1,257 | 0,381 |
| 13. | Zhovnyno (Middle Dnipro region) | 0,734 | −1,494 | −0,258 |
| 14. | Lutsk, mixed city series (Volyn) | 1,071 | −0,270 | −0,158 |
| 15. | Bilhorod (Slobozhanshchyna) | 0,311 | −0,515 | −0,117 |
| 16. | Sumy (Slobozhanshchyna) | 0,303 | −0,482 | 0,320 |
| 17. | Liutenka village (Middle Dnipro region) | −0,264 | −0,129 | 0,446 |
| 18. | Steppe Dnipro region (mixed) | −0,366 | −0,191 | 0,433 |
| 19. | St. Michael's Monastery in Kyiv (Middle Dnipro region) | 0,435 | −0,076 | 0,731 |
| 20. | Medzhybizh (Mezhybozh), Western Podilia | 0,651 | −0,468 | 0,004 |
| 21. | Chyhyryn (Middle Dnipro region) | 0,035 | 0,081 | 0,351 |
| 22. | Vyshhorod (Middle Dnipro region) | 0,002 | −0,363 | 0,009 |
| 23. | Staiky village (Middle Dnipro region) | −1,342 | −0,642 | −0,092 |
| 24. | Calamitta (Crimea) | 0,593 | −0,221 | 0,289 |
| 25. | Kursk Governorate (Slobozhanshchyna) | −0,367 | −0,089 | 0,046 |
| 26. | Lukoml village (center of Vitebsk region), Belarusians | −0,441 | −0,090 | −0,505 |
| 27. | Belarusians (Polissia) | 0,226 | −1,607 | −0,861 |
| 28. | Prusy village (center of Minsk region), Belarusians | −0,376 | −1,025 | −0,759 |
| 29. | Belarusians (mixed) according to V. Alekseev | −0,176 | 0,314 | 0,650 |
| 30. | Odesa, according to V. Alekseev | 0,320 | 0,310 | 0,562 |
| 31. | Orel Governorate | −0,230 | −0,138 | 0,074 |
| 32. | Tver Governorate, Russian Federation | 0,494 | 0,611 | −0,007 |

| 33. | Slantsy District, Russian Federation | −0,357 | 0,119 | 0,938 |
|---|---|---|---|---|
| 34. | Yaroslavl, Russian Federation | −0,503 | −1,184 | 0,711 |
| 35. | Staraya Ladoga-1, Russian Federation | −0,070 | −0,406 | −0,182 |
| 36. | Staraya Ladoga-2, Russian Federation | −0,391 | 0,336 | 0,183 |
| 37. | Sebezh, Russian Federation | −0,035 | −0,216 | −0,337 |
| 38. | Varatic (Varatik, Moldova) | 0,248 | −0,269 | 0,025 |
| 39. | Kozino village, Russian Federation | −0,304 | −0,909 | −0,809 |
| 40. | Pskov, Russian Federation | −0,632 | −0,494 | −0,304 |
| 41. | Novgorod-1, Russian Federation | −0,661 | −0,483 | −0,561 |
| 42. | Novgorod-2, Russian Federation | −0,316 | 0,347 | −1,026 |
| 43. | Poritsy (Poritsy), Izhora people, Russian Federation | −0,731 | −1,340 | 1,143 |
| 44. | Königsberg | −0,600 | 1,021 | −1,513 |
| 45. | Zellerndorf | 0,197 | 0,307 | −1,373 |
| 46. | Pfeifer | −0,242 | 0,505 | −0,885 |
| 47. | Württemberg | 0,086 | 0,565 | −1,447 |
| 48. | Tübingen | −0,092 | 0,635 | −1,196 |
| 49. | Tērvete, Latvians | −0,318 | 1,169 | 1,182 |
| 50. | Leimaņi, Latvians | −0,592 | 0,523 | 0,954 |
| 51. | Purgaiļi, central part of Vidzeme, Latvia | −0,441 | −0,169 | 1,310 |
| 52. | Mārtiņsala settlement (Holme, castrum Holme), Latvians | −0,798 | 0,442 | 0,568 |
| 53. | Kabina küla, Estonians | −1,048 | −0,404 | 0,015 |
| 54. | Otepää, Estonians | −1,600 | −0,171 | −0,673 |
| 55. | Varbola (Castrum Warbole) | −1,324 | 0,388 | 0,168 |
| 56. | Kohtla-Järve, Estonians | −1,030 | −0,607 | 0,050 |
| 57. | Ardu, Estonians | −1,422 | 0,051 | 0,676 |
| 58. | Estonians (eestlased) | −0,698 | 0,748 | 0,447 |
| 59. | Finns (suomalaiset) | −0,558 | 0,320 | 0,258 |
| 60. | Latvians-1 (Durbe) according to V. P. Alexeev | −0,351 | 0,852 | 0,052 |
| 61. | Latvians-2 (western) according to V. P. Alexeev | −0,265 | 0,969 | 0,356 |
| 62. | Latvians-3 (eastern Latvians from Ludza) according to V. Alekseev | −0,629 | 0,238 | 0,108 |
| 63. | Lithuanians (lietuviai) according to V. Alekseev | 0,745 | 0,043 | −1,192 |
| 64. | Jõuga, Estonians | −1,100 | −0,549 | −0,075 |
| 65. | Ormaņkalns | −0,969 | 0,192 | −0,652 |
| 66. | Alozero burial ground on the northern shore of Lake Yulyarvi, Karelians | −0,570 | 0,076 | 1,516 |
| 67. | Kama region (Pyskor, Golyany, Sarapul), Russian Federation | −0,508 | −0,092 | 0,632 |
| 68. | Vologda (Parkovyi Lane), Russian Federation | −1,117 | 0,237 | −0,070 |
| 69. | Pereslavl-Zalesskiy-1. Necropolis of the 16th – 17th centuries, Assumption Church, Russian Federation | −0,542 | −0,542 | −0,237 |
| 70. | Pereslavl-Zalesskiy-2. Necropolis of the 16th – 18th centuries, St. Nicholas Church, Russian Federation | −1,013 | −0,133 | −0,650 |
| 71. | Kostroma Governorate, Russian Federation | 0,590 | 1,048 | 0,244 |
| 72. | Yaroslavl Governorate, Russian Federation | 0,293 | 0,849 | 0,170 |
| 73. | Kaluga Governorate, Russian Federation | −0,158 | 0,642 | 0,195 |
| 74. | Dmitrov, Russian Federation | −1,674 | 0,251 | 0,556 |
| 75. | Old Orhei (Orheiul Vechi, Moldova) | 0,012 | 0,488 | 0,120 |
| 76. | Ukrainians buried in Georgia | 0,431 | 0,250 | 0,590 |
| 77. | Adyghe people (Caucasus) | −0,610 | 0,126 | 0,615 |
| 78. | Shapsugs (Caucasus) | −0,060 | 0,426 | 0,615 |
| 79. | Abkhazians (Caucasus) | 1,281 | 0,001 | 0,212 |
| 80. | Ossetians Digor (Caucasus) | −0,260 | 0,732 | −0,391 |
| 81. | Ossetians Ironi (Caucasus) | −0,259 | 0,679 | −0,496 |

| 82. | Ossetians Tual (Caucasus) | 0,388 | 0,405 | 0,220 |
| 83. | Ingush people (Caucasus) | 0,300 | 0,519 | −0,487 |
| 84. | Chechens / Nokhchi (Caucasus) | 1,191 | −0,105 | −0,292 |
| 85. | Avarians (Caucasus) | 1,548 | 0,507 | 0,199 |
| 86. | Laks, ethnic group from North Caucasus | 0,157 | 0,626 | −0,441 |
| 87. | Khevsures (Caucasus) | 0,731 | 0,837 | 0.642 |
| 88. | Georgian Mtiuluri (Caucasus) | 1,347 | 0.541 | 0.506 |
| 89. | Georgian Kartalin (Caucasus) | 1,991 | 0,464 | −0,487 |
| 90. | Adjarians (Caucasus) | 0,894 | 1,285 | 0,329 |
| 91. | Armenians (Caucasus) | 1,231 | 0,586 | −0,310 |
| 92. | Adjarians-2 (Caucasus) according to M. G. Abdushelishvili | 0,736 | 1,081 | 0,234 |
| 93. | Karelians, general series (Chikshi, Regarvi, Kompakova, Bokonvuari, Pekkavuari, Turkhi, Kondievuari, Imatyarvi, Suistamo) | −0,340 | −0,515 | −0,110 |
| 94. | Chuvash people | −0,741 | −0,520 | −0,089 |
| 95. | Jews | −0,163 | 1,051 | −0,038 |
| 96. | Crimean Karaites | 0,719 | −0,279 | −0,503 |
| 97. | Ingush people from mountain crypts. 5 crypts near the settlements of Targim, Egical, Salgi, Tsori and Muzhgan, the 15th – 18th centuries (Caucasus) | 0,713 | 0,667 | −0,174 |
| 98. | Necropolis on the territory of Kashin Kremlin, Voznesensky-I excavation. Tver region, Kashin, Russian Federation | −0,923 | 0,068 | −1,097 |
| 99. | Novodevichya Sloboda | −1,003 | −0,201 | −0,219 |
| 100. | Moscow (Conception Convent) | −0,521 | −0,161 | −0,901 |
| 101. | St. Petersburg | −0,185 | −0,232 | 0,456 |

13 features that have the highest taxonomic value were included, as well as one index: maximum cranial length, maximum cranial breadth, and basion-bregma height, minimum frontal breadth, bizygomatic diameter, facial height, orbital height and breadth, nasal height and breadth, nasomalar and zygomaxillary angles, simotic index, and nasal protrusion angle.

According to the first canonical vector (CV) (28.4% of the total dispersion), the male series from Cherkasy (Fig. 1, Table 2) receives small positive vector values (0.130). According to this CV, its proximity to three groups is traced: the Laks from Dagestan (0.157), the Kyiv Arsenal (0.196), and Zellerndorf (0.197) from Germany. The distribution of the series according to this CV was most influenced by the following features (Table 3): bizygomatic diameter (0.357), length (–0.519) and width (0.681) of the cranial vault, nasal height (0.464), nasomalar facial angle (–0.549), and simotic index (0.485).

***Table 3**. Elements of the first three canonical vectors for 101 male groups.*

| Trait | ♂ (male) | | |
|---|---|---|---|
| | CV I | CV II | CVIII |
| 1. Maximum cranial length | **−0,519** | 0,283 | 0,118 |
| 8. Maximum cranial breadth | **0,681** | 0,095 | −0,120 |
| 17. Basion-bregma height *(b-br)* | −0,114 | −0,320 | **0,408** |
| 9. Minimum frontal breadth | 0,170 | **0,253** | −0,239 |
| 45. Bizygomatic breadth | **0,357** | −0,044 | 0,049 |
| 48. Upper facial height | −0,217 | **0,556** | −0,081 |
| 55. Nasal height | **0,464** | 0,437 | −0,039 |
| 54. Nasal breadth | −0,222 | 0,044 | **0,253** |
| 51. Orbital breadth | 0,284 | 0,343 | **0,774** |
| 52. Orbital height | 0,481 | **0,662** | 0,090 |

| 77. Nasomalar angle | **−0,549** | 0,122 | 0,151 |
|---|---|---|---|
| ∠ Zm′. Zygomaxillary angle | −0,176 | **−0,338** | 0,121 |
| SS:SC. Simotic index | **0,485** | 0,266 | −0,076 |
| 75 (1). Nasal protrusion angle | 0,388 | **0,628** | −0,049 |
| Contribution to total dispersion (%) | 23,688 | 15,668 | 13,817 |
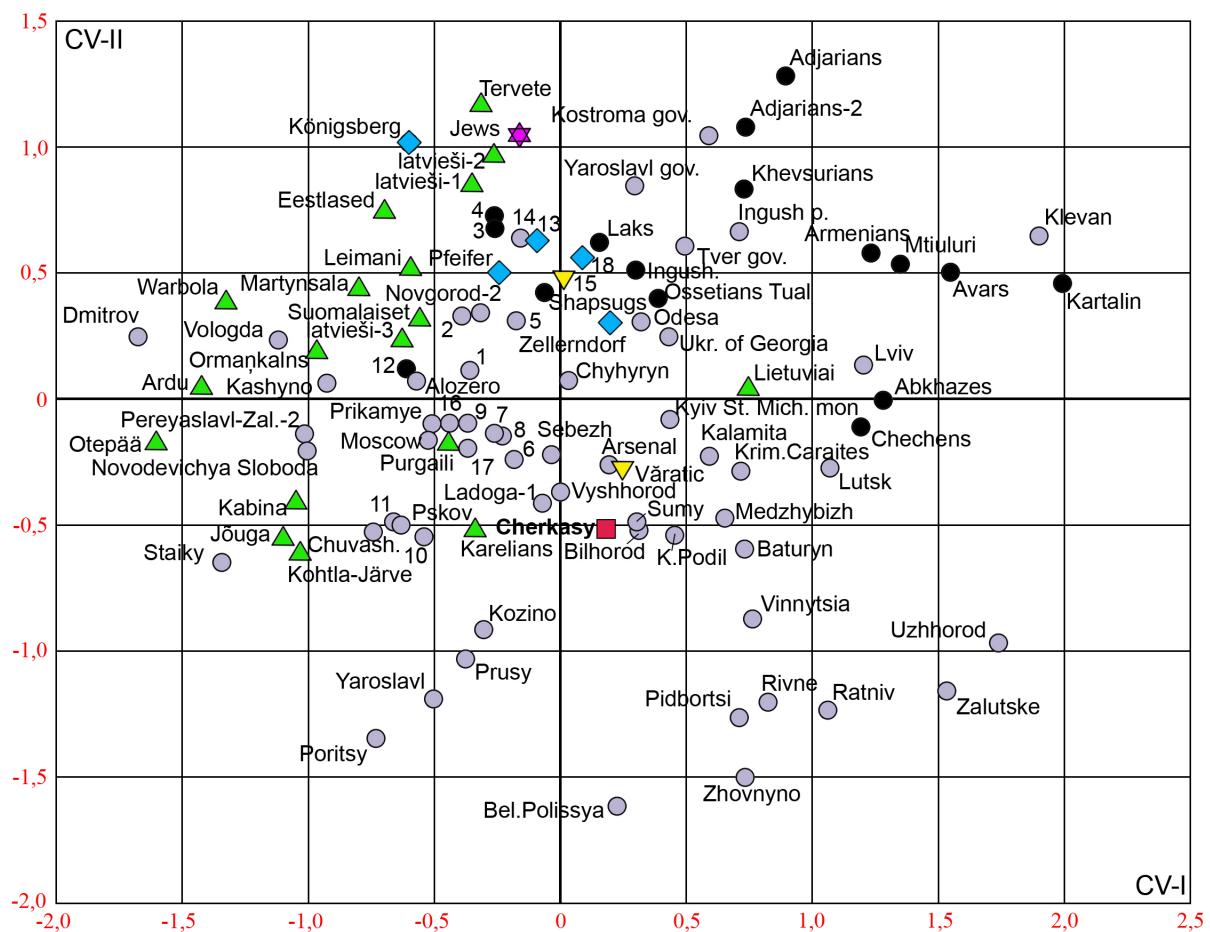


*Figure 1². The 17th – 18th century sample from Cherkasy in the space of CV I and II in comparison with 100 series from the territory of Europe. 1 – Slantsevo district; 2 – Ladoga-2; 3 – Ossetians Iron; 4 – Ossetians Digor; 5 – Belarusians; 6 – Petersburg; 7 – Liutenka; 8 – Orel governorate; 9 – Kursk governorate; 10 – Pereyaslavl-Zalesskiy-1; 11 – Novgorod-1; 12 – Adyghe people; 13 – Tubingen; 14 – Kaluga governorate; 15 – Orheiul Vechi; 16 – Lukoml; 17 – Steppe Dnipro region; 18 – Wurtemberg.*

According to CV II (15.7% of the total dispersion), the studied group receives moderate negative vector values (–0.506). Similar values are obtained by the male sample of skulls from Bilhorod (–0.515), Baturyn (–0.589), Estonians from Jõuga (–0.549), and Chuvash (–0.520). The main separating features according to this CV are: minimum frontal breadth (0.253), orbital height (0.662), facial height (0.556), zygomaxillary facial angle (–0.338), and nasal protrusion angle (0.628).

Overall, in the space of CV I–II, a morphological and statistical similarity of the studied group from Cherkasy was found immediately to two urban series from Slobozhanshchyna: Sumy and Bilhorod (Fig. 1).

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² Drawings created and prepared for printing by designer Andriy Bardetskyi.

According to CV III (13.8% of the total dispersion), the groups are mainly separated by the height diameter of the cranial vault (0.408), nasal width (0.253), and orbital width (0.774). The male sample from Cherkasy (Table 2,) receives small negative vector values (–0.153). Its statistical similarity to the urban series from Volyn – Lutsk (–0.158), as well as to the Ingush from mountain crypts of the 15th – 18th centuries (–0.174), is traced.

In the space of CV I–III, the studied male group is again located near the urban sample of skulls from Bilhorod in the center of the coordinate field (Fig. 2).
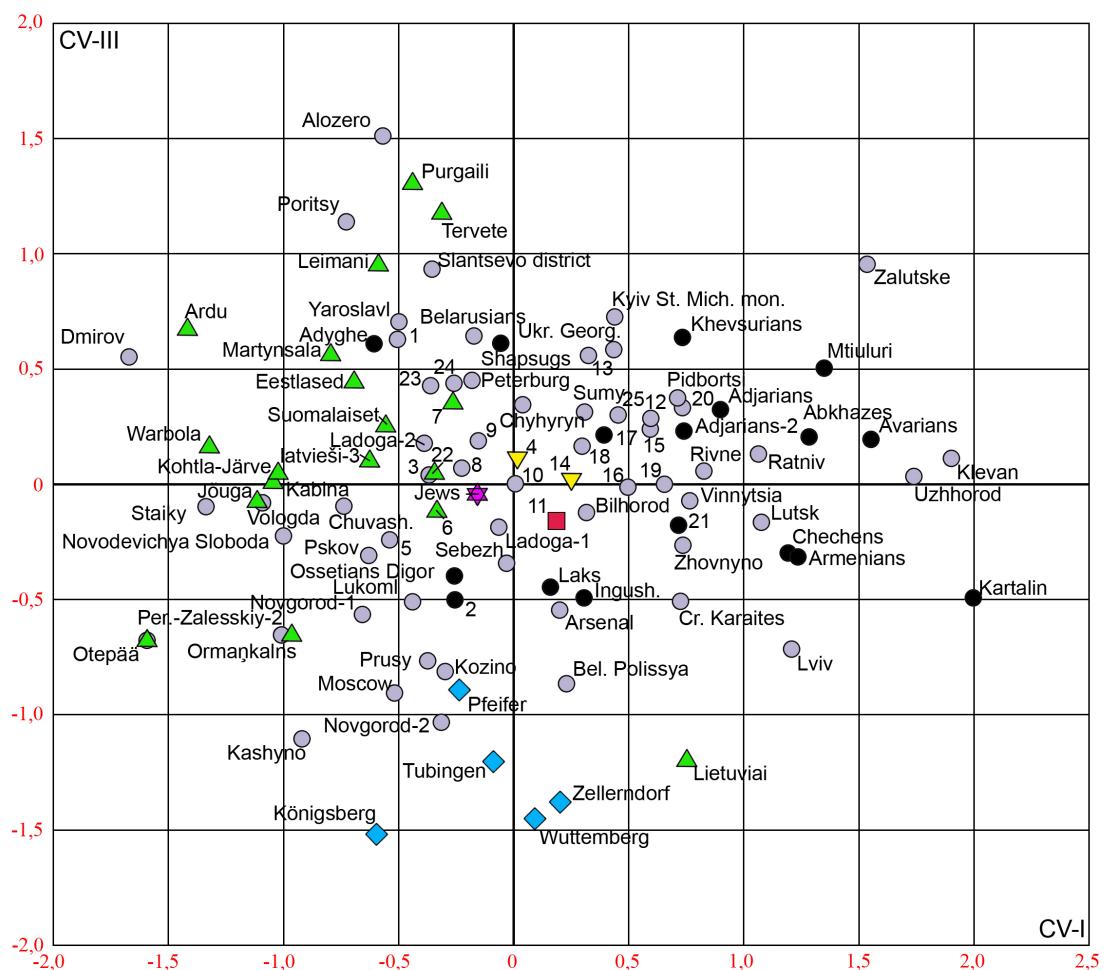


***Fig. 2***. *The 17th–18th century sample from Cherkasy in the space of CV I and III in comparison with 100 series from Europe. 1 – Prikamye; 2 – Ossetians Iron; 3 – Kursk governorate; 4 – Orheiul Vechi; 5 – Pereyaslavl-Zalesskiy-1; 6 – Karelians; 7 – latvieši-2; 8 – Orel governorate; 9 – Kaluga governorate; 10 – Vyshgorod; 11 – Cherkasy; 12 – Kalamita; 13 – Odesa; 14 – Văratic; 15 – Kostroma governorate; 16 – Tver governorate; 17 – Ossetians Tual; 18 – Yaroslavl governorate; 19 – Medzhybizh; 20 – Baturyn; 21 – Ingush, Highlanders; 22 – latvieši-1; 23 – Steppe Dnipro region; 24 – Liutenka; 25 – Kyiv Podil.*

In the space of CV II–III, the urban sample from Cherkasy is also located in the center of the coordinate field (Fig. 3), it can be observed in a circle of such craniological groups: Jõuga from Estonia, Pereyaslavl-Zalesskiy, Karelians, Chuvash, and Staraya Ladoga.
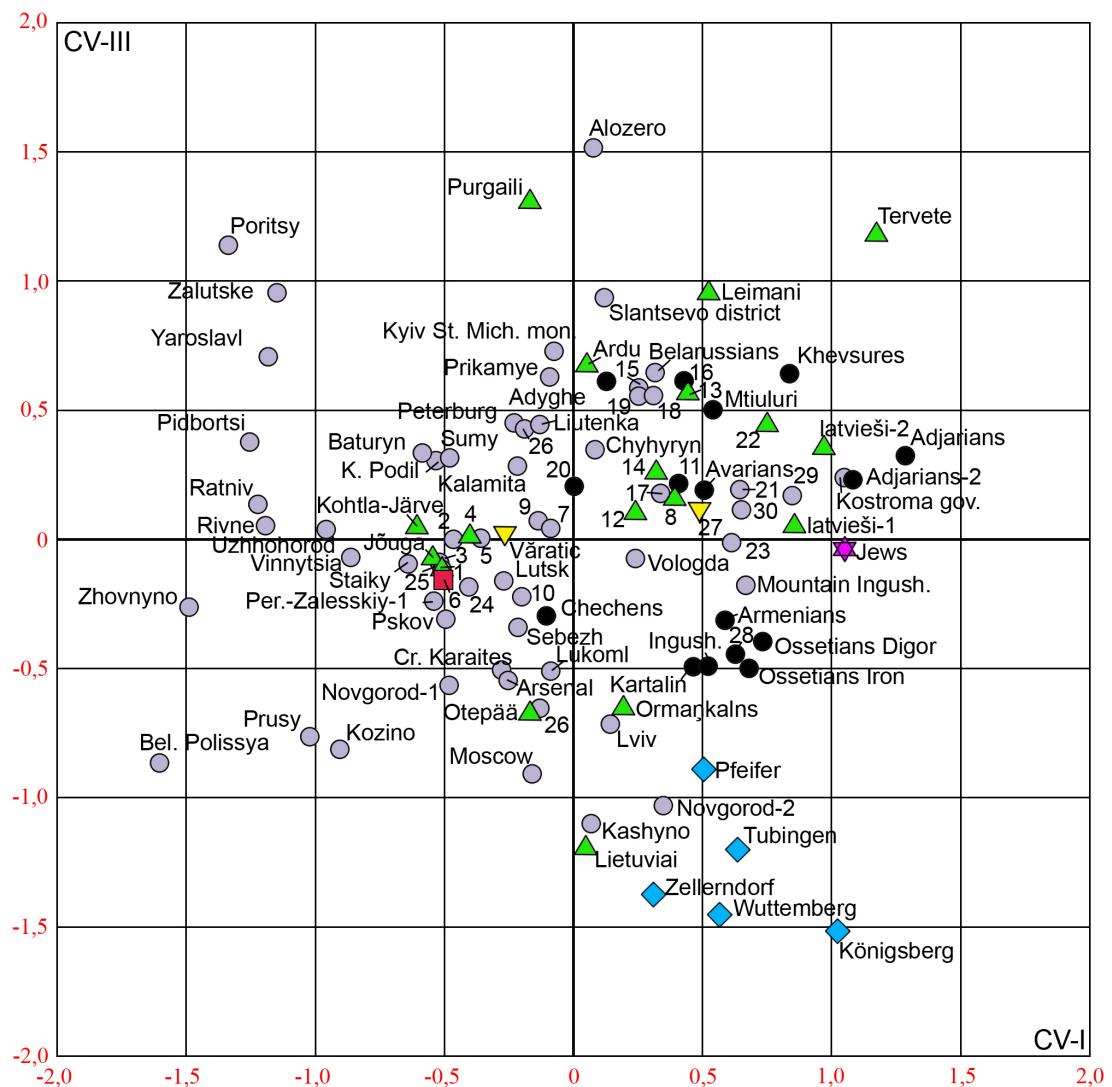
***Fig. 3**. The 17th – 18th century sample from Cherkasy in the space of CV II and III in comparison with 100 series from Europe. 1 – Karelians; 2 – Medzhybizh; 3 – Chuvash; 4 – Kabina; 5 – Vyshhorod; 6 – Cherkasy; 7 – Kursk governorate; 8 – Warbola; 9 – Orel governorate; 10 – Novodevichya Sloboda; 11 – Ossetians Tual; 1 – latvieši-3; 13 – Martynsala; 14 – suomalaiset; 15 – Ukrainians buried in Georgia; 16 – Shapsugs; 17 – Ladoga-2; 18 – Odesa; 19 – Dmitrov; 20 – Abkhazians; 21 – Kaluga governorate; 22 – eestlased; 23 – Tver governorate; 24 – Ladoga-1; 25 – Bilhorod; 26 – Steppe Dnipro region; 27 – Orheiul Vechi; 28 – Laks; 29 – Yaroslavl governorate; 30 – Klevan.*

According to the multivariate cluster analysis, where 101 described series, 13 features and one index were also involved, only at the 57th step of clustering did the male sample from Cherkasy show similarity to such urban series as Vinnytsia and Kyiv Podil (Fig. 4). Thus, both northeastern and northern directions of connections were manifested by two statistical programs. Consequently, the male population of Cherkasy in the 17th – 18th centuries was very diverse.
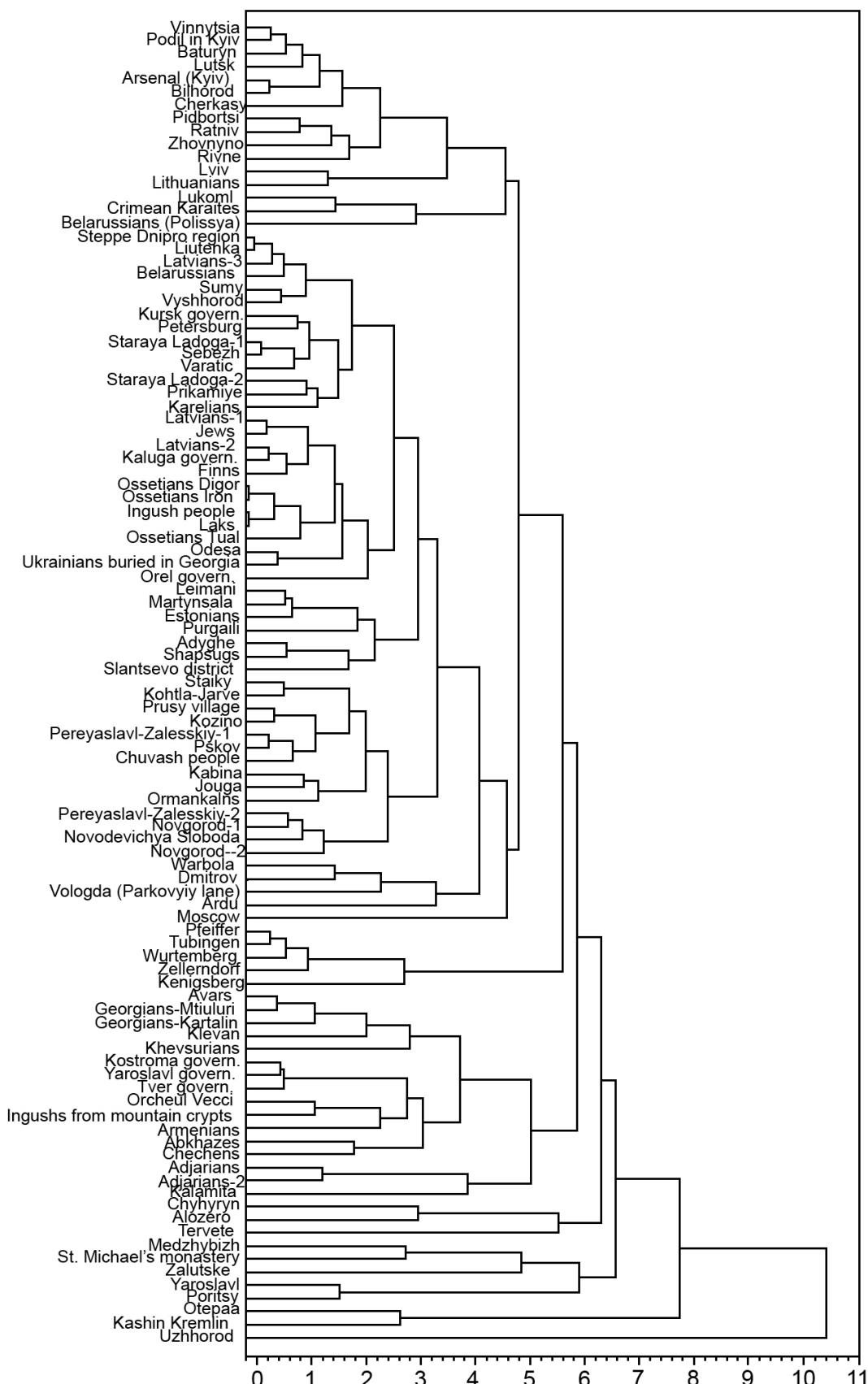
***Fig. 4**. Results of cluster multidimensional analysis.*

In the second stage of the study, five additional male series were included for comparison with the studied sample, also using the 14 described craniometric features: Nogai 1 (Yasnaya Polyana of the 16th – 18th centuries); Nogai 2 (Northern Crimea of the 16th – 18th centuries), Nogai 3 (Balkivsky Kurgan of the 16th – 18th centuries), Nogai 4 (burial grounds of Kherson region of the 16th – 18th centuries) [**Круц, С.** 2003, с. 208, 226, 228] and a very small series from Subotiv, Chyhyryn district, Cherkasy region [**Рудич, Т.** 2014, Табл 4, 5, с. 177]. The results of cluster multidimensional and canonical analyses did not reveal similarities between the added new series (Nogai and Subotiv) and the male sample of the 17th – 18th centuries from Cherkasy. For CV I, all Nogai received negative CV values: Nogai 1 (–0.214), Nogai 2 (–0.546), Nogai 3 (–1.234), Nogai 4 (–0.928), while Cherkasy had positive values (0.282). The same is observed for CV II and CV III. The Subotiv sample received small positive values for CV I (0.048), large for CV II (1.532) and moderate for CV III (0.762). In turn, Cherkasy – 0.282, –0.611, –0.267. Subotiv differs from Cherkasy by a longer, wider and higher cranial box, by 8 mm, wider and higher face, and less sharp facial profiling.

The conducted analysis allows us to draw the following preliminary *conclusions*.

It was found that the series of male skulls from the 17th – 18th centuries from Cherkasy is characterized on average by a brachycranial, moderately high cranial box. The face is low, orthognathic and narrow, sharply profiled. The orbits are moderately high, the nose is medium wide, and the nasal protrusion is strong.

Taking into account the standard deviations of craniological features and their indices, it was established that the male group is morphologically heterogeneous in composition.

Testing the hypothesis, it can be stated that the studied series (by zygomatic diameter) differs from the central Ukrainian craniological type, which is characterized by a relatively wide (wide) face.

When comparing the male group according to multidimensional canonical analysis, a north-eastern direction of connections was revealed (Slobozhanshchyna: Sumy and Bilhorod).

According to the multidimensional cluster analysis, only at the 57th step of clustering out of 100, a North-Western direction of connections of the male sample from Cherkasy (Vinnytsia and Kyiv Podil) was revealed. Thus, the male population of Cherkasy of the 17th – 18th centuries was very diverse.

The craniological analysis of burials of the 17th – 18th centuries from Cherkasy confirms the opinion that the initial history of the city is the history of a frontier, a territory on the border of two different cultures. It stood guard for the West (in this case, the Grand Duchy of Lithuania and the Kingdom of Poland) against constant military aggression from the East (from the Golden Horde, later – the Crimean Khanate). From the very beginning, the city emerged as European, accordingly, primarily European peoples (Ruthenians, Lithuanians, Poles, etc.) formed the physical type of Cherkasy residents of the early modern period. At the same time, their anthropology indicates a complete absence of any North Caucasian (Adyghe-Circassian) elements (as well as archaeological and ethnographic evidence), which is another important argument for refuting the "Circassian" theory of the city's foundation.

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