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THE ANCIENT POPULATION OF THE UKRAINE

(from the Mesolithic Age to the first centuries of our era)

To the memory of

GEORGYI FRANZEVICH DEBETS

Introduction

During the "Anthropological exhibition" that marked the height of the scientific activity of A. P. Bogdanov, a great number of skulls from the Ukrainian provinces were examined (Bogdanov, 1879a, 1879b, 1879c). These skulls belonged mainly to the Slavs of the Great Ducal epoch. The unity of physical type of all ancient Slavs of Eastern Europe, was established. It was found that the ancient Slavs in the Ukraine as well as in other countries differed from modern Slavs in the shape of the brain case. Thus were laid the foundations for the study of the process of brachycephalization.

After the "Anthropological Exhibition" came a break in the investigations of the physical type of the ancient Ukrainian population. The scanty material from the excavations carried out by V. A. Gorodtsov was described by D. N. Anuchin (1905), but no conclusions were drawn. Against this background stands out the investigation by D. K. Tretyakov (1915) of the skulls from the Odessa barrow, in which the author deals with problems of a general character. All these findings were obviously insufficient and our knowledge of the anthropology of Russia was still on a low level.

F. K. Volkov and his associates were not concerned with the physical type of the ancient population of the Ukraine. Dolichocrany did not fit in with F. K. Volkov's (1916) conception of the "originally-slavic" brachycrany of Ukrainians. The cranial index of V. V. Khvoiko's collection was determined by E. M. Chepurkovskiy (1913). His interest in this material may possibly be accounted for by his wish to support the idea of the high antiquity of the dolichocranic type.

After the Great October Revolution, when anthropology ceased to be the occupation of amateurs, however talented they often were, and became a profession in which

many researchers were engaged, our knowledge of the anthropology of the Ukraine began to develop at an increasing rate. The second prerequisite for its rapid development was the wide scope of archaeological excavations.

The principle of the different taxonomic significance of anthropological characters, persistently emphasised by A. I. Yarkho (1934), was applied by G. F. Debets in his works ("Palaeoanthropology of the USSR" 1948, and oth.).

It was found that during the Bronze Age the physical type of the Ukrainian population was not only dolichocranic, but possessed the whole complex of characters of the Europeoid race. It was established that though the Scythians and Slavs of the Great Ducal epoch differed but little from the people of the Bronze Age, still in the course of several millennia their skulls underwent some changes expressed in decreased robustness. This phenomenon was termed gracilization, and since that time it is always considered in the study of physical types of ancient populations in our country and abroad. It was also found that during the Great Migration period, Mongoloid tribes from Central Asia penetrated into the Ukraine; but they did not preserve here their physical type in its entire purity. As a result of mixing with the local population substantial differences are to be observed between Turkish nomads of the Ukraine and their Central-Asian ancestors.

All these findings are still valid. Yet many gaps remained in the material which served as a basis for the "Palaeoanthropology of the U.S.S.R." These gaps began to be filled rapidly after the II World War.

Diagnostical methods for the great races the Europeoid and the Mongoloid, were greatly refined, chiefly due to the works of N. A. Abinder (1960).

The most important achievements in the palaeo-anthropology of the Ukraine were the discoveries of Mesolithic and Neolithic cemeteries, mostly in the area of the Dnieper rapids. It was found that the Neolithic peoples of those areas, though already possessing all the characters of the Europeoid race, had an unusual robustness of the skeleton, almost the most robust in the world. It has been established that their Mesolithic predecessors had a far less robust structure. This poses the problem of the manner of so-called epochal change as well as of the links between the ancient population of the Ukraine and the Mediterranean area, on the one hand, and the Baltic region on the other.

The investigations showed also that the physical type of the population of the Ukraine on the left bank of the Dnieper differed substantially from that on the right-bank during the Eneolithic (Copper) Age, that on the left-bank being more close to the Eurasian steppe zone and that on the right-bank to the Balkans and the Mediterranean.

All the former observations on the gracilization of the Bronze Age people were confirmed by much more abundant material. The physical type of Scythians has been far more thoroughly characterised and the distinctions between Sarmatians and Scythians, as well as the features of resemblance of the Sarmatians of the Ukraine, with the Sarmatians of the Volga basin and with the peoples of contemporary cultures in Kazakhstan have been established.

The repeated study of the skulls from the Zlivki cemetery revealed a previously unknown admixture of Mongoloid elements, which provides a basis for determining the physical type of ancient Bulgars.

In this brief review only the most outstanding of the latest achievements of the palaeoanthropology of the Ukraine are considered. In the following chapters there will be given a more detailed characterisation.

This characterisation is based on the methodical and methodological principles developed by Soviet anthropologists. The changes in physical type are to be considered as the effect of historical events and, consequently, the

anthropological material will be used as a historical source.

The work reflects not only the achievements of Soviet palaeoanthropology but also its shortcomings, in particular, the lack of interest in the biological foundations of the processes governing the changes in physical type which are not associated with migrations and cross breeding, though they too are determined by social and historical factors. Insufficient attention is given to investigations of the postcranial skeleton, though its structure is affected by many biological phenomena no less or even more than the structure of the skull.

Such considerations would widen the sources of information and allow a deeper, broader, more comprehensive analysis of palaeoanthropological material in future research.

The work consists of seven chapters, in which the material is considered in its chronological sequence, beginning with the Palaeolithic Age and ending with the first centuries of the first millennium A. D.

Each chapter is illustrated by tables and figures. At the end of the chapters are given lists of the archaeological sites of the respective cultures where bone remains have been found.

Photographs of skulls and of reconstructions are at the end of the study.

The basic material used in this study consisted of the skeletal remains of 750 individuals obtained during the excavations of ancient cemeteries carried out by the joint expeditions of the Institute of Archeology of the U.S.S.R Academy of Sciences, the Institute of Archeology of the Ukrainian Academy of Sciences and the Institute of Anthropology of the Moscow State University. Information reported by other authors who examined about 300 skeletons is taken into account. Altogether the material used in the book covers over 1000 skeletons.

The author will consider her task accomplished if the results of these investigations contribute to the elucidation of some questions bearing on the origin of the Ukrainian people and, to some extent, to the solution of the problem of changes which appear in osteological characters during the course of time.

I.

THE PALAEOLITHIC AGE

Both in the Ukraine and in neighbouring Moldavia stone tools were found which are believed (Boriskovskiy, 1953, Chernych, 1965) to date from the Early Palaeolithic Age (Acheulean and even Chellean). These finds deserve close attention, though their dating is largely based on their typology. The stratigraphical position of the Acheulean, and especially of the Chellean tools is still an open question. No human bone remains are available which could be supposed to date as far back as this.

The well-dated finds belong to the Mousterian time. They are known in Moldavia and in the Ukraine. To the Mousterian time belong also the two most ancient palaeoanthropological finds discovered in the Crimea.

In 1924 G. A. Bonch-Osmolovskiy found

remains of 2 skeletons (of an adult and a child) together with Mousterian tools and bones of pleistocene animals in the cave Kiik-Koba near the town of Simferopol. Not much remained from the child's skeleton. From the adult skeleton the foot, shin and hand bones were preserved. A detailed account of the excavations and a description of the bones of the adult skeleton may be found in the works of G. A. Bonch-Osmolovskiy (1941, 1954), in which he exposed his views on the exclusion of arboreal apes from the pedigree of Man. Many Soviet authors (Yakimov, 1949, Alekseev, 1960, Roginskiy, Levin, 1963, pp. 252—255, 275—280 et al.) have devoted their investigations to these finds, and, chiefly, to a critical analysis of the views expressed by G. A. Bonch-Osmolovskiy. A detailed discussion of these problems is beyond the scope of the present study and belongs rather to the domain of evolutionary theories.

In 1953, in a cave near the village of Staroselye

(Bakhchisaray district), A. A. Formosov discovered the skeleton of a child 1.5 years old together with late Mousterian tools and animal remains (Formosov, 1954, 1958). The skull was restored by M. M. Gerasimov (1954). Ya. Ya. Roginskiy (1954), who studied the skeleton, arrived at the conclusion that it possesses the features of *Homo sapiens* combined with some Neanderthaloid characters.

Many finds of the late Paleolithic Age were found in the Ukraine. S. N. Zamyatnin (1951) considers the problem of classifying them into local groups. This study marks the beginning of such investigations in Soviet archaeological literature. According to S. N. Zamyatnin, the territory of the Ukraine belongs to the European periglacial zone, with the exception of the Crimea and the Azov Sea area, which are assigned to the Mediterranean zone. Later, the question of the local differences between Palaeolithic cultures was reviewed by A. A. Formozov, who worked out the classification of Zamyatnin in greater detail. Formozov recognised three "ethnocultural regions" in the European part of the U.S.S.R; a central, a southwestern and a southern. The finds of all the three regions are represented in the Ukraine (Formozov, 1959).

Human bones were found in several Upper-Palaeolithic sites of the Ukraine but they are fragments which present no special interest for the purpose of this study.

Far more important are the finds from the renowned Kostenki district in the Voronezh region, bordering on the Ukraine. Here in 1952—1954 the expeditions headed by P. I. Boriskovskiy and A. P. Rogachev discovered four skeletons of Upper Palaeolithic man.

The skull of a boy 5—6 years old from the Gorodstovskaya site (Kostenki XV, find of 1952),

resembles in V. P. Yakimov's opinion (1957) the anthropological type of the so-called Eastern Cro-Magnon represented in particular by the skeletons from Prshedmosti in Moravia (J. Matiegka, 1938). V. P. Yakimov notes also some features of resemblance in the accompanying archaeological inventory of these two finds.

In the skeleton of a man 20—25 years old, found in 1954 in the Kostenki XIV site (Markina Gora) G. F. Debets (1955) noticed a combination of Cro-Magnon features with features of the Grimaldi type (low face and orbits, strongly protruding nose, combined with pronounced prognathism and high nasal index).

According to G. F. Debets, Cro-Magnon features, in a broad sense, are characteristic of the skull of an aged man from the Kostenki II site (excavations of 1953, Debets, 1955), and of the skull of a 9—11 year old child from Cape Pokrovskiy Lug or Kostenki XVIII site (excavations of 1953, Debets, 1961). At the same time the child's skull is similar to the skull from the Kostenki XIV site in a general facial prognathism and flat nasal bridge.

The examination of the morphological features of the Kostenki finds by different researchers reflects their different viewpoints on the interrelation of the Upper-Palaeolithic and modern types, as pointed out by V. P. Yakimov (1961). Some of these regard the Kostenki skeletons as ancient forms of the modern great races (G. F. Debets et al.). Others believe that during the Upper Palaeolithic Age the stable complex of characters possessed by modern man had not yet been developed. This complex formed only during the Mesolithic and Neolithic Ages (Bunak, 1956, 1959, Yakimov, 1961). All these different viewpoints are discussed in detail in the work of I. I. Gokhman (1966).

II.

THE MESOLITHIC (EPIPALAEOLITHIC) AGE

In the study of Mesolithic finds in the Ukraine great progress has been made in recent decades. Much anthropological material was found besides archaeological finds of the material culture.

Mainly on the strength of material discovered, archaeologists recognise several cultural regions (Rudinskiy, 1928; Voevodskiy, 1950, Formosov, 1954, 1959, Telegin, 1966). Very interesting is the conclusion arrived at by A. A. Formosov on the continuity in the Mesolithic Age of the local differences that appeared already in the Upper Palaeolithic.

The first bone remains of the Mesolithic Age in the Ukraine were three skeletons unearthed in the Crimea. One male skeleton was discovered in 1927 in the cave Fatma-Koba by the members of the archaeological expedition of the Geological museum of the U.S.S.R Academy of Sciences, headed by G. A. Bonch-Osmolovskiy (1934). The skeleton was examined by G. F. Debets (1936b). It was a single

burial. The skeleton lay on its right side in a crouched position. Two other skeletons (male and female) were discovered in 1935 by S. N. Bibikov and S. A. Trusova (Bibikov, 1940, 1966) in the Murzak-Koba cave. The burial was a double one, the skeletons lay full length on the backs. They were examined by E. V. Zhironov (1940).

The Crimean skeletons belong by their morphological traits, to the Cro-Magnon type, in the broad sense of the term. G. F. Debets named this type proto-European (Debets, 1948, p. p. 43—45), thus emphasizing the genetic affinity of different cranio-logical variants of the Upper Palaeolithic with the modern great European race.

The male skeleton from the cave Murzak-Koba proved to have most affinity to the Prshedmosti variant while a similar female skeleton from the cave Murzak-Koba and a male skeleton from Fatma-Koba, which resemble one another, are closer to the Cro-Magnon proper. The mesognathism of the Fatma-Koba skull is regarded by G. F. Debets as a vestige of an ancient stage of development common to all Euroafrican races. The skeletons from the Crimea, especially the one from Fatma-Koba, display,

in G. F. Debets's opinion, a great resemblance to the synchronous finds from Tévéc in France (Brittany).

V. P. Yakimov (1956, 1961) does not agree with G. F. Debets' argument that the Crimean skeletons differ from both the typical Cro-Magnons and the Brno-Prshedmosti race. He notes the considerable height of their skull, a character in which they approach the skeletons from the cemetery Afalou-Bou-Rhummel of the Ibero-Maurisian culture (Vallois, 1952). In support of his view V. P. Yakimov refers to the opinion expressed by S. N. Bibikov (1959) on the important role of Palaeolithic elements from North Africa in the Mesolithic cultures of the Crimea. V. V. Bunak (1956, 1959, p. 175) notes the heterogeneity of the Crimean skeletons. Estimating them in general he assigns them to the highheaded, broad-faced, mesorrhine, moderately prognathous variety of Mesolithic types.

On the Dnieper river three cemeteries are referred to the Mesolithic Age: the Voloshskoe and the first and third Vasilyevka (fig. 1).

The first cemetery is situated on the slope of the second river-terrace near the village Voloshskoe (Dniepropetrovsk region). It was discovered by A. V. Bodyanskiy in the spring of 1952, during salvage excavations. Nine burials were unearthed, eight of them single, and one double. Eight skeletons belonged to adults, and one to a child.

The dead were mostly buried in a crouched position, less frequently at full length. Among the crouched burials V. N. Danilenko recognised three types: crouched on the right side with their heads turned south-eastwards; crouched on the left side, orientated to the South, with a high degree of crouch and with varying orientation. To a fourth type are full length burials with heads orientated southeastwards. The crouched skeletons were buried deeper than the full length ones. V. N. Danilenko believes that the body parts missing in some individuals were removed intentionally for ritual reasons.

The flint tools of the cemetery included fragments of blades with blunted edges, trapezoid microblades, and three scrapers.

It may be supposed that two of the buried were killed: in the breast of one of them and in the first cervical vertebra of the other were found narrow arrowheads (of the same type as the blunted stone blades).

V. N. Danilenko dates the cemetery to the end of the Upper-Palaeolithic Age. He distinguishes two stages in the development of the archaeological materials in the Dnieper rapids region of that time, as well as in the development of the Voloshskoe cemetery, on the basis of the stratigraphical position of the skeletons and of the character of the stone tool assemblage. The first stage corresponds to the time of formation of second river terraces above floodplains. It is characterised by a microlithic complex of flint tools showing no geometrical forms. The second stage covers the period of the end of the formation of the loess layers. The microlithic flints of this stage have geometrical forms. To the end of the first phase Danilenko imputes the crouched burials of the Voloshskoe cemetery, and to the beginning of the

second stage the full length burials. The sources of this culture are to be sought, according to V. Danilenko, in the South, possibly outside Europe, in the regions of Capsian culture.

The bone remains of the Voloshskoe cemetery are in a very bad state of preservation. Only nine skulls could be measured (six male and three female). They were described by G. F. Debets (1955b) (Tables 1, 2), who divided them into two types.

The first type displays a combination of prognathism with a broad nose and low orbits. Similar negroid features were earlier noted by Debets in a skull from Markina Gora but it was less robust and its measurements smaller (Debets, 1955a).

The second type is characterised by strong dolichocrany, great cranial height, strongly expressed horizontal profil, a vertically elongated face with high orbits and a narrow nose.

Debets has provisionally named the first type Australoid, and the second ancient-Mediterranean. He assigns two of the skulls to the first type, and the rest to the second.

While seeking the origin of the Voloshskoe population, represented by the second type, or of their immediate ancestors, the attention of G. F. Debets was drawn to the regions of Eastern Africa. The Mesolithic and Neolithic skulls from Kenya also combine marked dolichocrany with a high and narrow face (Leakey, 1935), but they are not identical to the Voloshskoe skulls. G. F. Debets is inclined to think that the ancient-Mediterranean type originally inhabited Near East and adjacent areas. From there at a later period this type migrated to the North, to the Southern regions of the Ukraine, and to the South, to Eastern Africa.

It must be noted that owing to the bad condition of the skulls from Voloshskoe cemetery their major measurements could in many cases be only estimated approximately. This has already remarked upon Debets, who examined the series. Later, I. I. Gokhman looked into this matter in greater detail (1966) and expressed some doubt with regard to certain measurements, such as the prognathism of skull No. 13, the small breadth and large facial height of skulls Nos 11 and 16. Nevertheless, he admits, thought with some reservations, the existence at that time of a special variant represented by the skulls from the Voloshskoe cemetery. He notes in some of these skulls a tendency to combined prognathism with low orbits and a broad nose. It should be born in mind that it was on the strength of these peculiarities that G. F. Debets established a discrete "Australoid" type.

Another mesolithic cemetery was discovered in the spring of 1953 by A. B. Bodyanskiy on the outskirts of the village Vasilyevka (Sinelnikovo district, Dniepropetrovsk region) — 36 km from the town of Dniepropetrovsk. It was excavated in the autumn of the same year by the expedition of the Institute of Archeology of the U.S.S.R Academy of Sciences (Stolyar, 1957, 1959). The cemetery was named Vasilyevka I.

This cemetery is situated on a steep slope on the present-day left bank of the Dnieper river, which

seems to correspond to the third river terrace. 26 burials were discovered in the area of 46 square metres constituting the greater part of the cemetery.

The burials were as a rule single. Only three double burials were encountered. In one burial only the lower half of the skeleton was preserved. The suggestion advanced by A. D. Stolyar, who examined the cemetery, that this burial was a partial one is based on the fact that there were no traces of disturbance by later burials.

The skeletons most often lay in the crouched position on the right side, less frequently on the left side. The degree of crouching varies. A. D. Stolyar recognises three types. The most crouched skeletons occupied the central part of the cemetery. The heads of the buried individuals were orientated mainly to the east with slight deviations to the north and to the south; in two cases the head was turned to the west. Traces of red ochre were observed on the bones or under them.

With the dead were found river shells, in two graves were small stones put there on purpose, in three graves were flints with traces of microlithic technique. A. D. Stolyar supposes that some of the flints were arrow heads. The Mesolithic dating of the cemetery is based mainly on the flints discovered both in the graves and in the area of the cemetery.

The bone remains belong to 21 skeletons, 19 of which were selected for examination (13 skulls and the limb bones of 16 skeletons). Best preserved are the skulls from burials 2a, 3, 4, 5, 13, 17, 20. The description and measurements of the skulls and limb bones were published earlier (Konduktorova, 1957). Data on the skull of a man about 45—50 years old from burial 18 (inv. number 11094), omitted in that publication, is included in the present work. (Tables I, 2, 3, 4, I, II.)

In the Vasilyevka series two types could be distinguished as belonging to the big Europeoid race. One of them had the traits of the so-called ancient-Mediterranean type, formerly recognised by G. F. Debets in the Voloshskoe cemetery. It was noted that in the Vasilyevka series the traits of this type are represented in a softer form than in the Voloshskoe cemetery. The second type had traits of proto-European type, common during the Neolithic and, in a less pronounced form, even during the Bronze Age in the territory of the Soviet Union, particularly in its European part. It was suggested that the "softening" of the characters of the ancient-Mediterranean type may be the result of a mixing of the latter type with the proto-European one.

Thus the investigation of the first Vasilyevka cemetery leads to the conclusion that both the Voloshskoe and the Vasilyevka series have skulls characterised by a high face, high orbits and orthognathism. It was also found that the Vasilyevka series includes some low-orbited, orthognathous, broad-faced skulls. The discreteness of the so-called Australoid type recognised by G. F. Debets in the Voloshskoe cemetery was not confirmed. The possibility is not excluded that we have to deal here with a combination of features produced by the mixing of the two types.

It must be admitted that the identification of

types in separate craniological series, especially in small ones, is difficult and even controversial. There is always the danger of mistaking individual variations of characters for evidence of the existence of different „types," especially if there are no discriminating ritual peculiarities or chronological differences. Standard deviations, which make it possible to judge the homogeneity of a group usually give a high rate of error if the group is a very small one, and are therefore of little help in estimating the degree of its homogeneity.

The reality of types recognised in a series may be proved by, apart from their conformity to the specific archaeological features, the presence of these types in other cemeteries. In our case, the ancient-Mediterranean type in the Voloshskoe cemetery prevails or even constitutes the whole series, thus sustaining to a certain extent the identification of this type in the first Vasilyevka cemetery.

In connection with the identification of a proto-European type, the author, in her work on the skeletons of the first Vasilyevka cemetery, expresses the view that this type most probably prevailed in the territory of the Ukraine during the Palaeolithic Age.

This suggestion conforms in some measure with the archaeological data in favour of the inclusion of the Ukraine into the European periglacial zone, a territory where different varieties of the proto-European type are encountered.

A. D. Stolyar (1953) draws the line of demarcation between the European periglacial zone and the Mediterranean-African zone in the lower part of the Dnieper left bank, i.e., in the locality of the Mesolithic cemeteries under consideration. Stolyar thinks that this line was periodically subjected to shifting.

The third Mesolithic cemetery in the Ukraine was uncovered in 1953 by V. N. Danilenko. It is situated on the left bank of the Dnieper on the slope of the third terrace at the village of Vasilyevka near the cemetery Vasilyevka I. It was called the third Vasilyevka cemetery.

The cemetery was investigated by D. Ya. Telegin in 1955 (Telegin, 1957, 1962). 44 burials were discovered. The central part of the cemetery was destroyed by a ravine, so that the total number of the buried people may be only approximately determined. It probably amounted to 60—70. No traces of gravepits were discovered.

The greater part of the dead people (37 skeletons) was buried in the crouched position on the right, or, less frequently, on the left side. The degree of crouching varies. The burials are orientated in various directions, unlike those of the first Vasilyevka and Voloshskoe cemeteries, which have a more definite orientation. Among the crouched burials of Vasilyevka III single burials prevail. Seven dead lay full length on the backs and had a south-western orientation. This group was situated farther from the centre than the crouched burials. It included two graves with three burials and two with single burials (one of the triple burials contained a crouched skeleton). Many skeletons of both groups bore traces of red ochre.

With the skeletons were discovered microlithic

flint tools. The arrowheads found among the bones are supposed to have caused the death of the buried.

D. Ya. Telegin (1957) dates the burials in the crouched position to the Mesolithic, and those in the extended position to the late Mesolithic — early Neolithic Age. He does not rule out the possibility that the different types of burials belong to two cemeteries of different periods. A. D. Stolyar (1959) does not agree with this suggestion.

The study of the composition of this find, of the whole complex of its specific features, led A. D. Stolyar to a different conclusion. He dates the cemetery to the late stage of the Mesolithic Age, and believes that the rite of burial in the crouched and full length positions were in direct succession. In confirmation he refers to the fact that the crouched skeletons are not disturbed by the full length ones, that they are found at different depth and that the position of the full length burials is more marginal than the crouched ones. According to these facts and the occurrence of full length and crouched burials in the same grave, I. I. Gokhman (1966), who investigated the anthropological material, is inclined to agree with A. D. Stolyar.

A. D. Stolyar arranges the Mesolithic finds in the following chronological sequence: Vasilyevka I. cemetery (the earliest), Voloshskoe cemetery, Vasilyevka III. cemetery (the latest). According to D. Ya. Telegin, the chronological sequence of these cemeteries is different (Telegin, 1962). He regards the Voloshskoe cemetery as the earliest, and the third Vasilyevka as the latest.

The third Vasilyevka cemetery yielded 22 skeletons and the limb bones of 24 individuals. I. I. Gokhman adds to this series a skull discovered by A. D. Stolyar during the 1953, as well as a skull from a burial unearthed by him in the same year near the main cemetery (locus Vasilyevka IV). Altogether the series comprises 32 skeletons, 12 belonging to men, 6 to women and 12 to children (Tables 1, 2, 3, 4).

I. I. Gokhman assigns the series of skulls from Vasilyevka III to the great Europeoid race and notes its morphological resemblance to the series of Vasilyevka I. The resemblance becomes more definite when the skulls of Vasilyevka I are compared with the skulls of the crouched burials of Vasilyevka III recognised by I. I. Gokhman as a discrete type (variant). The specific features of the type are more distinctly expressed in the burials which I. I. Gokhman considers to be chronologically earlier*) and which he calls the second group. To the later crouched burials he gives the name third group. I. I. Gokhman associates another morphological type (variant) with the extended burials, which he calls burials of the first group.

The high values of standard deviations of the series and the results of the analysis of coefficients of the correlation of characters (78 for 13 characters) are used by I. I. Gokhman as evidence of the heterogeneity of the series. A distortion of correlative relationships was established in particular between

the characters by which the types were differentiated. This usually indicates a mechanical mixing of two different anthropological types. In this case the supposition of a mechanical mixing of types is precluded by the data of the third group of crouched skeletons. The intermediate position of the skeletons of the second groups (chronologically earlier crouched skeletons), points, in Gokhman's opinion, to a more or less prolonged process of biological mixing rather than to sole mechanical mixing.

The conformity of the morphological features of the two types to the peculiarities of the burial rite is perhaps the strongest argument in favour of the reality of these types. The possibility is not excluded that the high values of the standard deviation and the distortion of the correlative relationships of characters may have been caused by the small number of skulls in the series.

According to the Mesolithic materials available from the area of the Dnieper rapids, I. I. Gokhman is inclined to recognise three variants in the population of that time.

The first variant is more or less in conformity with the proto-European type recognised earlier in the Vasilyevka I cemetery, the second to the ancient-Mediterranean type, and a third, formerly not described, is characterized by a somewhat higher cranial index (though within the limits of dolicho-cranium).

I. I. Gokhman thinks that all the three variants are mixed and, apparently, genetically related. Their differences are considered to be chronological, tribal or clanish. In other words, the population is admitted to be homogeneous. It should be noted that the differences between the first and second types can hardly be attributed solely to variants within a homogeneous group.

The relatively great number of skeletons from the Mesolithic Age makes it possible to pose the question of the links between the Ukrainian population of this epoch and the peoples of other regions. The problem of genetic succession of the Upper Palaeolithic "Cro-Magnons" and the people of the Mesolithic Age has been repeatedly discussed in anthropological literature. The finds in the cave Ofnet in Bavaria gave rise in their time to the recognition of a new "Mediterranean" type. This conclusion appeared in literature as early as in the twenties (Osborn, 1924, p. 16). It seems, however, that it was largely caused by the circumstance that most of the Ofnet skulls belonged to women and children, and, consequently, were more gracile. A new examination of the Ofnet series (Saller, 1962) has shown that when sex differences are taken into account any special gracility is ruled out. True, there were during the Mesolithic Age groups which had lost the robust characteristic of "Cro-Magnons." Most prominent are the skulls from the cemetery Mugem in Portugal (Vallois, 1930). However, the Mugem series is rather an exception. Much more frequent are the conspicuous features of resemblance of the Mesolithic and Upper Palaeolithic skulls. This conclusion has been arrived at by the anthropologists who examined the series from the Breton cemeteries at Tévéc (Péquart,

*) D. Ya. Telegin does not divide the crouched burials into chronological groups.

Boule, Vallois, 1937) and Hoedic (Vallois, 1954) and the North African finds from Afalou-Bou-Rhummel (Vallois, 1952, Briggs, 1955) and Taforalt (Ferembach, 1959). The skulls from the Mesolithic sites in Holland (Vallois, 1943) are also close to the Cro-Magnons.

Of course, the Mesolithic skeletons of Europe and North Africa are far from homogeneous. There are quite significant differences between the more or less long series, to say nothing of separate finds. The differences concern mainly the robustness of skull and skeleton in general. The Breton and north African series are very representative in this respect. Still, it is not an easy task to trace a general pattern in the character of these differences. Archaeologically, the already mentioned skeletons from Mugem seem to belong to the same cultural province as the skeletons from Afalou-Bou-Rhummel and Taforalt. At the same time the differences in robustness are striking and quite obvious.

All the considerations referred above concerning the "ancient-Mediterranean" type are based almost solely on the relatively small (or at least not very large) facial breadth. But in that case, the Afalou-Bou-Rhummel and Taforalt series must be excluded from the "ancient Mediterranean". As will be shown below, these series resemble rather the Neolithic skeletons of the Ukraine than the Mesolithic skeletons.

III.

THE NEOLITHIC AGE AND THE EARLY COPPER AND BRONZE AGE

The study of Neolithic finds was begun in the second half of the XIXth century, but significant advances were made only after the Great October Revolution. The most important achievements have been accomplished mainly during the last two decades.

The Neolithic cultures of Eastern Europe and adjacent territories are grouped by Telegin (1966) into two large belts: a northern, "European-Siberian", and a southern. The finds of the European-Siberian belt cover the north of Central Europe, nearly all Eastern Europe, the Urals and Siberia up to and inclusive of the Baikal region. The Southern belt includes Central Europe, the Balkans, the Ukraine on the right bank of the Dnieper, Anatolia, the Caucasus, Middle Asia and more southern areas.

The people of the northern belt were for the most part hunters, food-gatherers and fishermen. Their pottery is primitive, usually decorated with stamped patterns. The southern belt people were early agriculturists. They also developed cattle-breeding. Their pottery is richly and variedly ornamented with incised or sometimes painted patterns.

The two belts differed not only in the form of their economy, but also in their burial rites. In the European-Siberian belt we find the body full length, the presence of ochre, an absence of pottery in the

In this connection there arises the question of "gracilization", which is now attracting the closest attention of specialists (Debets, 1936a, 1948, 1961). G. F. Debets has advanced a fairly simple idea: the most ancient forms of *Homo sapiens* were distinguished by a robust structure of the skeletons, later, this robustness began to decrease; the process of gracilization was taking its course. The process started earlier in the regions bordering on the Mediterranean than in Northern Europe and on the Russian plain. Therefore, the relatively lower robustness of the Mesolithic skeletons may point to their Mediterranean origin. However, in his later work, G. F. Debets (1966), though not abandoning the hypothesis of gracilization, presents some data, showing that in several regions, including the Ukraine, the robustness of skeletons did not decrease with time, but is, on the contrary, increasing.

This may be taken as evidence of a change of population, of a replacement of "already gracilized" people by "still not gracilized" people. But to prove the validity of these deductions evidence is required that an increase in robustness could not have been produced by other causes. Such evidence is lacking, and the main conclusion to be drawn from the study of the Mesolithic skeletons of the Ukraine is that further research directed towards the solution of this problem is urgently needed.

burial inventory and collective graves. In the southern belt the dead are buried in a crouched position, there is as a rule no ochre, and the inventory includes pottery.

Finds from both belts are represented in the Ukraine. The Dnieper-Donets culture and the pit- and comb-marked pottery culture belong to the European-Siberian belt; to the Southern belt belong mainly the cultures of the right bank of the Dnieper: Bug-Dniester, Tripolie, Sursko-Dnieper culture, Danubian culture.

In the later stages of development of the Dnieper-Donets and Tripolie cultures copper metallurgy began to develop. Thus strictly speaking these finds already belong to the Eneolithic (Copper Age), but they are not easy to distinguish from the Neolithic Age proper.

In compiling reviews of palaeoanthropological (and sometimes also of archaeological) materials pertaining to a sizeable territory it is sometimes difficult to distinguish the epochs. Synchronous cultures may, owing to uneven development, differ in their level of technology and in the material of those tools which serve as basis for archaeological periodization.

But it is most important to the anthropologist (and sometimes to the archaeologist too) to study jointly the materials of synchronous cultures, because an interaction exists between these cultures and their bearers. Differences in the level of technology, far from impeding this interaction, sometimes even favour it.

Especially great difficulties are encountered in the

demarcation of Neolithic and Eneolithic (Copper Age) finds on the one hand, and Eneolithic and Bronze Age finds on the other. In his review of the palaeo-anthropology of the U.S.S.R., G. F. Debets (1948) avoids this difficulty by considering the finds of all these stages in one chapter. Still, this grouping presents new difficulties, especially with regard to the archaeologically well-investigated regions because materials have to be grouped, which belong to different stages of not only cultural-economical, but general historical development too.

In her present work the author attempts to differentiate the materials belonging to the Neolithic and early Copper and Bronze ages*) from those of the Middle and Late Copper and Bronze ages, but a certain amount of "overlapping" cannot be avoided. The finds of the pit-grave culture are discussed in the next chapter, although they are known to be not younger, but older than the finds of the Late Tripolie culture. Still it seems better not to disrupt the division of the material into the three classical cultures: pit-grave (yamotschnaya), catacomb grave and timber grave (srubnyaya).

The joint study of the materials on the Dnieper-Donets and Tripolie cultures provides a basis for comparison of the physical types of populations, whose cultures belong to both the "belts" of D. Ya. Telegin.

The Dnieper-Donets culture, which has been brought to light largely due to the efforts of D. Ya. Telegin (1966, 1967, Telegin, 1968) is represented by more than 200 finds in the Dnieper area, the basin of the Severskiy Donets, in the Ukrainian Polesie region and in White Russia. The Dnieper-Donets culture was based, in the main, on a hunting and fishing economy, though cattle-breeding and primitive agriculture were known too. The pottery is, for the most part, with conical base, decorated with a "pricked" pattern, thus differing from the pit- and comb-pottery of the forest Neolithic and from the pottery of the Sredniy Stog culture which preceded the ancient pit-grave culture. The cemeteries contain collective burials of extended skeletons coloured with red ochre, and with a small burial collection (vessels are entirely absent).

The cemeteries of the Dnieper-Donets culture yielded very rich anthropological material (about 300 skeletons suitable for examination). 500 more skeletons of this culture were unearthed, but they were in a bad state of preservation.

The skeletons of the Dnieper-Donets culture were obtained mainly from such large cemeteries as Vovnigi I, II, Vasilyevka, Volnenskoe, Nikolskoe, Dereivka and the Eneolithic cemetery of Alexandriya. The cemeteries are concentrated chiefly in the territory inhabited by southern tribes of the Dnieper-Donets culture, that is in the lower reaches of the Dnieper river and on its left bank (Fig. 2).

The two Vovnigi cemeteries are the largest Late-Neolithic cemeteries in the region of the Dnieper rapids. They are situated in the Solyonoe district of

the Dniepropetrovsk region in the bluff of the bank. The left bank cemetery (Vovnigi I), opposite the village Vovnigi, was excavated in 1949 by M. Ya. Rudinskiy (1955). It yielded 31 burials. The right-bank cemetery (Vovnigi II) occupied the centre of the village of Vovnigi. Here 130 burials were unearthed in 1952, also by M. Ya. Rudinskiy (1956).

Bone remains of 11 skeletons were found in the left-bank cemetery. The right-bank cemetery yielded 63 skeletons (Konduktorova, 1956, 1960; Gokhman 1966). Tables 5, 6.

No differences were discovered in the anthropological type of the right and left bank cemeteries. The skulls of both cemeteries possess all the characters of the great Europeoid race. At the same time they are not identical with any of the modern craniological series. In many characters they resemble the Upper-Palaeolithic skulls of Europe.

The first Dereivka cemetery belongs to the cemeteries of the forest-steppe Dnieper-Donets culture. It is situated on the right bank of the Dnieper on the mouth of the Omelnik river, on the northern side of the village of Dereivka (Onufrievka district, Kirovograd region). It was excavated in 1960—1961 by D. Ya. Telegin and S. I. Zhilyaeva (Telegin, 1962; Telegin, Zhilyaeva, 1964).

144 burials were discovered in collective and single pit-graves. D. Ya. Telegin and S. I. Zhilyaeva recognise two periods in the existence of the cemetery: an early and a late one, associating the early period with collective, and the late period with single burials. In the position of its skeletons, the burial equipment and the general arrangement of the pits, the western part of the cemetery resembles the Vovnigi left-bank cemetery and the Mariupol cemeteries, while its eastern part resembles the Vovnigi right bank cemetery. Collective burials are concentrated mainly in the western part and single burials—in the eastern part of the cemetery.

The material from the Dereivka cemetery was in a bad state of preservation. More than half of the skeletons were badly decayed. Only 99 skulls were suitable for treatment. Of these only 80 could be measured for some characters. Long bones were obtained from 17 skeletons. The pelvic bones were almost always destroyed. The material was examined in detail by G. P. Zinevich (1961, 1967). Tables 5, 6.

G. P. Zinevich points out the remarkable morphological resemblance of the Dereivka craniological series to both the Late-Neolithic series from Vovnigi and the Nikolskoe series.

The Nikolskoe cemetery (second) is situated on the right bank of Dnieper (Lenin Lake) opposite the Nenasytetskiy rapids (Solyonoe district, Dniepropetrovsk region). It was discovered by A. B. Bodianskiy (1951) and excavated in 1959 by D. Ya. Telegin and V. F. Peshanov (Telegin, 1961). 71 burials were unearthed. In 1967 the excavations continued.

The anthropological material from the Nikolskoe cemetery is in a bad state of preservation. Only 30 skulls could be examined and in five of them only the descriptive characters could be determined (Table 5, 6). G. P. Zinevich (1967) notes the heterogeneity of the series. She recognises in it two compo-

*) The Copper and Bronze Age covers the period from the IV millennium B. C. to the early I millennium A. D.

nents: a dolichocranic, and a prognathous mesocranic. The latter was observed in two cases, the former in all the others. One skull of the series proved to be brachy-crantic.

The Nikolskoe cemetery has yielded additional information for a chronological subdivision of the finds of the Dnieper-Donets culture, supplementing the evidence obtained in the study of the Volnenskoe cemetery. The cemetery existed for a very long time, down to the Copper Age.

The Volnenskoe cemetery, situated on the left-bank of the Dnieper (Lenin Lake), upstream of Zaporozhye, near the mouth of the Volnaya ravine, was discovered by A. B. Bodyanskiy and investigated in 1956 by D. Ya. Telegin (1966). The study of this cemetery provided the most important data for a chronological subdivision of the Dnieper-Donets cemeteries. As already mentioned, D. Ya. Telegin recognised three chronological groups of burial rites, based on stratigraphic observations. The first comprised 28, the second 14 and the third 3 skeletons. (Among them 25 of adults and 25 of children and adolescents). All the osteological material was described by T. S. Surnina (1961). Only 33 skulls could be included in the craniological series, the rest were too badly damaged. Tables 5, 6.

T. S. Surnina comes to the conclusion that the skulls of the Volnenskoe cemetery are closely affined, almost identical with those from the Vovnigi cemeteries and with the dolichocranial skulls from the Vasilyevka II cemeteries. She notes in them the characteristic features of the great Europeoid race. But she could not find among the modern representatives of this race a group with such a robust skull structure.

The Vasilyevka II cemetery is situated on the left bank of the Dnieper (Lenin Lake) near the village Vasilyevka (Sinelnikovo district, Dniepropetrovsk region). It was investigated in 1953 by A. D. Stolyar (Stolyar, 1953). The cemetery dates from the early Neolithic (end of the IV millennium B. C.), thus being one of the earliest Neolithic cemeteries in the Ukraine.

27 burials were unearthed in the cemetery. The skeletons were in an extremely bad state of preservation, so that only 11 male and 5 female skulls could be measured. The material was investigated by I. I. Gokhman (1958a, 1966). Tables 5, 6.

The skulls from the second Vasilyevka cemetery are characterised by a particularly large cranial capacity and robustness. On the basis of differences in the brain case and facial skeleton I. I. Gokhman recognises two craniological variants (types): a dolichocranic and a mesobrachy-crantic one.

V. V. Bunak (1959, 1961) and T. I. Alexeeva (1968) think that there are not grounds enough for recognising two variants in the Neolithic population.

In 1950 A. B. Bodyanskiy (1956, expedition of the Institute of Archeology of the Ukr. SSR Academy of Sciences) investigated an early Neolithic cemetery of the Dnieper-Donets culture in the village Maryevka (Sinelnikovo district, the Dniepropetrovsk region) where fragments of 13 skulls were obtained. The material was not suitable for measurement.

It was described by G. P. Zinevich (1964b). In her opinion, the population which left the cemetery, differed but little from the Late Neolithic population of the region of the Dnieper rapids.

Archaeologists who worked for several years in the Dniepropetrovsk region discovered near the Surskoy rapids, at the village of Voloshskoye on the Surskoy island several Neolithic living sites and the related burial grounds as well as group of graves with stone pavements or stone constructions. One such stone construction unearthed in 1945 by the Dniepropetrovsk expedition of the Institute of Archaeology of the Ukr. SSR, under the direction of E. F. Lagodovskaya (Lagodovskaya, 1949), yielded the remains of 9 skeletons (6 male and 3 female). The state of preservation of the skeletons was not uniform. Two dead were represented only by calvaria (Nos. 9309, 9310). In the others the limb bones were preserved; there were also three slightly damaged skulls (Nos. 9302, 9304, 9308), two mandibles (Nos. 9305, 9306) and two calvaria (Nos. 9303, 9307). The craniological material from 6 dead (Nos. 9302-05, 9308-09) was studied by M. M. Gerasimov (1955, pp. 270—285). It was measured again under a broader programme by the author, who also measured the limb bones and described the 3 damaged skulls (Tables 6, 7, I. III.).

All the skulls are dolichocranic, with the exception of one brachy-crantic (No. 9304) and one mesocrantic (No. 9302). In the latter a small posthumous occipital deformation can be observed, which has probably slightly increased the value of the head index. The skulls have large dimensions. In the male skulls the relief is strongly developed, in the female skulls — slightly. The face is preserved in two male and two female skulls. It was found to be broad in one of the male skulls and narrow in the three others.

On the basis of morphological dates (mainly facial breadth) M. M. Gerasimov recognises two types: Surskoy A and Surskoy B. No distinctly expressed association is observed in morphological type, grave stratigraphy, character of burial or burial inventory.

Two female skulls (stone-accumulation 2, burials 2 and 3) from the group "type Surskoy B" are in fact more gracile than the skulls assigned to the second group "type Surskoy A." The relief is less pronounced; the face narrower. Unfortunately, they can be compared only with male skulls.

A male skull from the group "type B" (stone-accumulation 2, burial 1) has a narrower face as compared with other male skulls. At the same time its relief is rather well developed. Thus the only reason for assigning it to "type B" was its facial breadth.

Several skeletons of the Neolithic and Eneolithic (Copper Age) were also found in the Lower Dnieper area by different archaeologists during archaeological survey and during excavations of the settlements.

In 1954 in a quarry near the village Voloshskoye (Dniepropetrovsk region) A. B. Bodyanskiy (Bodyanskiy 1954), during the Northern-Dnieper expedition of the Institute of Archaeology of the Ukrainian Academy of Sciences) discovered a male skull of the Neolithic Age (burial 3, No. 10703). Table III.

The skull is large, with well-developed relief, low face and orbits; the nose is mesorrhine, protruding. In the region of the coronary suture, to the left of the bregma point on the frontal bone are observed posttraumatic changes about 1,3 cm in diameter.

In 1929—30, during the exploration of a Neolithic settlement on the island Vinogradny, near the village of Privolynoe, A. V. Dobrovolskiy (1930) discovered in the cultural layer a male skull (burial 21, No. 9301). It was examined by M. M. Gerasimov (1955, pp. 285—289) and re-examined under a broader programme by the author. Table I.

The skull is well preserved. It is dolichocranic, large, robust. A small sagittal bolster is to be observed. The face is large, mesognathous, low according to the facial index. The orbits are also low. The nose is mesorrhine, strongly projecting. The value of the naso-malar angle is relatively high, mainly owing to the deep position of the nasion point.

One male skull of the Neolithic Age, preserved in fragments, was obtained during the excavation of the Chaplin cemetery, situated on the southern margin of the Igren peninsula opposite Dnepropetrovsk. The cemetery was investigated in 1950 by A. V. Dobrovolskiy and A. B. Bodyanskiy (Dobrovolskiy, 1953, 1954). 16 Neolithic burials were uncovered there.

Judging by the preserved calvaria and mandibular body (burial 14; No. 9320), it may be assumed that the dimensions of the skull were large, its relief very pronounced and the shape of the brain case dolichocranic. Table I.

A. B. Dobrovolskiy notes that analogies with the Neolithic burials of the Chaplin cemetery may be found especially in the Mariupol cemetery.

Two male skulls of the Neolithic Age were discovered in the village of Nikolskoe (Solyonoe district, Dnepropetrovsk region). Table I.

One of them (Burial 2, No. 9343) was found by A. B. Bodyanskiy (Bodyanskiy, 1951) in 1949 during the archaeological exploration of the cemetery. Eight other burials were unearthed, but bone remains were entirely desintegrated.

The skull was in a bad state of preservation. Besides the damaged calvaria some fragments of the face were found. The skull may be characterised as large, robust, dolichocranic, with a low face and low orbits.

The second skull (No. 10 331) from the village of Nikolskoe was found in 1953 by A. D. Stolyar (Telegin, 1966), also during archaeological excavations. The skull is well preserved and very massive, with strongly developed supraorbital arcs. A sagittal elevation is to be seen in the region of the sagittal suture. The temporal lines are well expressed. According to the shape of the brain case, the skull is dolichocranic. The forehead is retreating. The face is high and broad. The orbits are large, moderately high, nearly narrow according to index. The nose is narrow. Horizontal profiling is well expressed. The fossa canina is not deep.

Four Neolithic burials were discovered in 1951 by A. B. Burakov (Burakov, 1955, 1961) in the village Zmeevka (Berislav district, Kherson region)

under a layer of the late Bronze Age. Only one damaged calvaria and the fragments of the face of one skull (No. 10 456) were preserved.

The skull (a male one) is large, robust, dolichocranic. The presence of a sagittal elevation is noted. The face and the orbits are low according to the index. Table I.

The cemetery near Mariupol is one of the first investigated burial places of the Dnieper-Donets culture. It was excavated in 1930 by N. E. Makarenko (Makarenko, 1933; Stolyar, 1955). The number of burials amounted to 122. Nearly all the osteological material has been lost. Only three skulls from this cemetery dating from a later period are preserved. The dating is based on the archaeological information supplied by Makarenko and the verbal estimate of V. N. Danilenko and D. Ya. Telegin. The skulls were investigated by I. I. Gokhman, who dates them to the Neolithic Age (Gokhman, 1959). Owing to this disagreement in dating, the pooled group of the Neolithic Age in the Ukraine is presented in two variants (with the Mariupol material and without it). Table 5.

The skulls are dolichocranic, robust, with a very broad face. There is a strong morphological resemblance between them, especially in their facial measurements. This resemblance also appears in facial flatness, a feature not characteristic of the Neolithic skulls of this territory.

Two burials of the Neolithic and 11 of the Eneolithic were discovered in 1945 during the excavations of the eighth Igren multi-layered site on the left bank of the river Samara, opposite Dnepropetrovsk, by the Dnieprogres expedition of the Institute of Archaeology of the Soviet Academy of Sciences headed by E. F. Lagodovskaya and A. B. Dobrovolskiy (Dobrovolskiy, 1949). The limb bones of four individuals and the skulls of five individuals were preserved (two Neolithic and three Eneolithic). Owing to their bad state of preservation not all the measurements and in one skull only the descriptive characters could be taken (Table I, III). One skull (burial 2) was examined earlier by M. M. Gerasimov (1955, pp. 259—270).

The measurements of the skulls are above the average. The relief is well developed. The form of the brain case is dolichocranic. The forehead is retreating. The face and orbits (burial 7) are of medium height in one case, and very low in the two others (burials 1, 2). The nose is mesorrhine, protruding. The skull from burial 7 has a wide alveolar and total facial angle (78°), and a shallow fossa canina.

A male skeleton of the Eneolithic Age was discovered in 1963 by A. G. Shaposhnikova (Shaposhnikova, 1963) near the village of Mikhailovka (Novo-Verontsovka district, Kherson region) during the excavations of the Mikhailovka settlement.

The skull is very robust, large, dolichocranic, with a strongly inclined forehead. The face is broad, the orbits relatively low.

An Eneolithic cemetery near the hamlet of Alexandriya (Kupyansk district, Kharkov region), on the left bank of the river Oskol, was excavated

n 1956—1957 by D. Ya. Telegin (1960). 33 burials were unearthed. The dead were in a crouched position, and only two in the full-length position. Many skeletons were in a bad state of preservation. Only 14 skulls were suitable for examination: 12 male and 2 female. In addition, the fragments of 2 male and 3 female skulls were preserved. The material was investigated by T. S. Surnina (1963). Tables 7, 9a).

The series is characterised by great robustness, well developed bone relief, dolichocrany, a strongly projecting nose. The comparison of the series with the Neolithic population of the Dnieper rapids — Azov Sea region revealed some peculiarities in the structure of the facial bones. In the Alexandriya series a tendency is observed towards a diminution of the major facial measurements. The greatest length, however, does not decrease, but increases as compared with the summarised mean values of the Neolithic skulls. The less broad face of the skulls of the pit-grave culture of the Ukraine, in which the measurements and ratios of the brain case are similar to those of Neolithic skulls, as well as their strongly developed relief display, is, in the opinion of T. S. Surnina, the very peculiarity which distinguishes the skulls of Alexandriya from the skulls of the Dnieper rapids — Azov Sea region. On these grounds Surnina is inclined to think that the population which left the cemetery near Alexandriya was formed by the mixing of local tribes anthropologically identical to the groups which left the cemeteries of the Dnieper rapids — Azov Sea region, and the tribes of the pit-grave culture. She substantiates this conclusion with archaeological data (Formosov, 1959; Sinitsyn, 1957).

Thus, without going into detail, and in particular into the various views, mostly speculative ones, on the different variants (types), it may be said that all the students of the palaeoanthropological materials of the Dnieper-Donets culture draw a generally similar picture. The skulls of the Dnieper-Donets culture are characterised by the whole complex of features inherent in the great Europeoid race. A highly specific feature in them is the extreme robustness of the skeleton, which is especially apparent in the value of the bi-zygomatic breadth and in the mandible dimensions. The limb bones are also very massive. G. F. Debets (1966) in a paper devoted to a general review of the physical type of the people of the Dnieper-Donets culture, points out that the women of this culture had a more robust skeleton than present-day Russian men. Robustness of skeleton is regarded as a characteristic trait of the Upper Palaeolithic Age. However, the skeletons of the Dnieper-Donets culture are still more robust. Strictly speaking, the robustness of limb bones is by no means characteristic of all the "Cro-Magnons". As regards, for instance, the skeletons from Prshedmosti, J. Matiegka (Matiegka, 1938) emphasised the combination of a fairly robust skull with limb bones which may be admitted to be rather gracile. Without denying the existence of some common features in the physical type of the people of the Dnieper-Donets culture and the people of the Upper Palaeolithic, I. I. Gokhman (1966) at the same time notes their specificity and proposes their classification as the

"Dnieper rapids-Azov Sea variant of the proto-European type".

There is no doubt that in the course of several millennia the separate local groups of the Dnieper-Donets culture differed from one another in certain characters. Most probably these differences were in some cases statistically significant. It is also possible that the variants outlined by different authors in a certain measure reflect these differences. Although the material at our disposal is relatively abundant, it is insufficient to serve as a basis for differentiation of the separate populations of the Dnieper-Donets culture, the more so that there are no clear-cut criteria for grouping the material into separate populations. As to individual "typological" classifications, this method, as has been previously noted, must be used with great caution.

Taking general characterisation as a basis for an evaluation of the physical type of the people of the Dnieper-Donets culture, we can assert that the differences between them and the people of the Mesolithic Age were quite significant, though not great. Both people are characterised by the whole complex of features of the great Europeoid race. Both have a dolichocranic, high brain case. Here too the difference is confined to the robustness of skeleton, apparent both in the skull and in the limb bones.

Is it possible to interpret these differences as evidence of a change of population, total or partial? Such an inference could be made if, in accordance, say, with the viewpoints of Debets, we were quite certain that changes in robustness always follow the same trend, that is, are always directed toward its reduction. The presence of people resembling our people of the Dnieper-Donets culture, somewhere beyond the Ukraine, in a region from where their ancestors, according to archaeological data, might have moved to the Ukraine, could be regarded as indirect evidence of a change of population.

A review of the available material disclosed no reliable evidence of this kind. The Mesolithic people of Maghreb (Afalou-Bou-Rhumel, see Vallois, 1952, Briggs, 1955; and Taforalt, see Ferembach, 1959) are very similar to the people of the Dnieper-Donets culture. The assumption of their direct and close affinity which, viewed from an anthropological aspect, seems in this case convincing, would lead to such unexpected historically important conclusions that it can hardly be insisted upon. After all, apart from the general features of the Europeoid race, apart from the dolichocranic form of the brain case (inherent in nearly all ancient Europeoids) their resemblance is confined to the height of the brain case and to the robustness of the skeleton. The resemblance in these characters could, of course, have developed convergently in very remotely related groups.

The opinion has been expressed that there is an affinity of the Dnieper-Donets people to the Mesolithic people of the Baltic. Unfortunately, our knowledge of their physical type is very limited.

Data is available on four skulls from Danish "kitchen middens" (Ertebolle culture, see K. Bröste, 1956). Apart from the general characters inherent in

ancient Europeoids, they also resemble the people of the Dnieper-Donets culture in the specific features noted above (Table 10).

This data are not contraversial with the supposition of the Baltic origin of the ancestors of the Dnieper-Donets people. But taking into account the extreme scarcity of material and data on the Mesolithic people of Magiireb mentioned above, they cannot be regarded as very convincing evidence either.

More numerous data is available on the skeletons from the Oleniy-Island cemetery on lake Onchskoye (Zhiron, 1940; Yakimov, 1960). We are not touching here on the question of the origin of a certain facial flatness observed in some skulls from this cemetery, which has been the object of animated discussion (Yakimov 1956, 1967; Bunak, 1956; Debets, 1956, 1961, Alexeev, 1961, 1967; Guseva, 1963, et al.) Irrespective of the answer to this question there is no doubt that the Oleniy-Island series resembles the total series of the Dnieper-Donets culture. True, the Oleniy-Island people are, on average, not as broad-faced, and their brain case is not very high. In other words, the resemblance does not amount to identity. Nevertheless, it is quite possible that most of the Oleniy-Island people were rather closely related to most of the Dnieper-Donets people. It is possible also that they had common ancestors in some Mesolithic populations, somewhere in the Baltic or in the adjacent regions.

In conclusion, it may be assumed, as a working hypothesis, that the ancestors of the Dnieper-Donets culture, or at least a part of them originated in the forest-steppe or the forested territories of the "northern zone" of Telegin. Like every working hypothesis, it may be revised in the light of controversial evidence. As yet no such data has come to light.

The characteristic type of the "southern belt" people is based on far less abundant material. Data is available on a small series of 12 male skulls from the village of Bilche Zlote on the Upper Dniester (Stojanowski, 1948), 2 male skulls from the village of Usatovo near Odessa (Zinevich, 1964), 1 male skull from the village of Veremye (Debets, 1948, p. 95—96), 1 male skull from the village of Nezviski (Debets, 1960a; Gerasimov, 1960) and on eleven skeletons from the Vykhatinsky cemetery in Moldavia (Velikanova, 1961; Gerasimov, 1954), 1 male skeleton from the village of Soloncheny (Gokhman, 1958b), 1 male skeleton from the village of Lipkany (Donici, 1931; Debets, 1948, p. 95—96). Tables 8, 9. The series from Bilche Zlote is dated to the Middle Tripolie Period, the skull from Soloncheny belongs, probably, to its earlier stages. The rest of the material belongs mostly to the Late Tripolie culture, which is sometimes called the Usatovo culture.

Data on the three skulls found in the settlement Trayan in Rumania, belonging to the Tripolie Period (Necrasov, Nicolaescu-Plopșor, 1957) and one child skull from the village Luka-Ustinskaya (Kamenets-Podolsk region) (Gokhman, 1958b), which belongs to the Tripolie culture and requires additional substantiation (Bibikov, 1956), may also be taken into account.

The Tripolie culture, though more or less

contemporaneous with the Dnieper-Donets culture, is very different. Farming occupies the most important place in its economy. Characteristic of this culture is painted pottery, richly and variously decorated. The archaeological differences are so great that the ethnical dissimilarity of the bearers of the two cultures is left in no doubt. However, it is well-known that no full accord of archaeological and ethnical conclusions is ever encountered.

The physical type of the Tripolie people is gracile and dolichocranic. The features of this morphological type are quite common in Western Europe, in the lands bordering in the Mediterranean and the Near East, the closest affinity to the Tripolie series being observed in the craniological series of Central Europe and Mediterranean region. It is assumed that in the late stages of the Tripolie culture its population was influenced by the tribes of Eastern Europe which still preserved the proto-European type (Velikanova, 1961). Judging from the material from the Vykhatinsky cemetery, this influence was not significant.

A comparison of the physical type of the Dnieper-Donets and Tripolie peoples discloses very strong and statistically significant differences. Here again, they are confined mainly to robustness. No important differences are observed in the so-called characters of the first order. Both people possess all the characters of the great Europeoid race.

The differences in robustness are quite obvious. It is true that robustness is determined mainly by the value of the bi-zygomatic breadth, which is not sufficient. Other morphological features should also be investigated. But, as G. F. Debets (1966, 1960b) points out, it is the bi-zygomatic breadth that is most closely correlated with the parameters of the limb bones, and these parameters are indicative of the total mass of the body. The same conclusion in regard to the parameters of limb bones is drawn by V. V. Bunak (1967).

The difference in the mean value of bi-zygomatic breadth is far greater between the Dnieper-Donets and the Tripolie people than between the men and the women of the same population. Despite the small number of observations on the Tripolie culture it may still be asserted that the difference in this dimension is not smaller than the value of the sexual difference.

It is interesting to note that neither the Tripolie nor the Dnieper-Donets people are "isolated" in this respect. They are the representatives of two great zones. West of the Tripolie region bi-zygomatic breadth had at this time a low value, while on the contrary to the east and to the north of the region of the Dnieper-Donets culture, high values prevailed (Debets, 1954), though here during the Bronze Age this measurement was rapidly diminishing. By the middle of the first millennium B. C. the difference in this character becomes less or nearly non-existent.

In the Ukraine, however, where the ranges of "robust" and "gracile" Europeoids are contiguous, their dissimilarity is especially apparent during the Eneolithic Age (and probably the Neolithic too). There was no transitional zone here at that time but an anthropological boundary did exist between these peoples, which were so different that they could

probably be distinguished even by comparing single individuals.

Of course the robustness of skeletons changed in time. At one time the distant ancestors of the Dnieper-Donets people did not differ so greatly from the Tripolians. The formation of these differences took a long time, involving a long series of generations. It is not easy to substantiate this suggestion chronologically. G. F. Debets, in his book "Palaeoanthropology of the U.S.S.R." (1948), presents data on changes of bi-zygomatic breadth in different areas. He believes that these changes were unrelated to changes in the composition of the population, and so were conditioned by some unknown factors causing the "process of gracilization". In the Altay-Sayan upland bi-zygomatic breadth decreased by 5.7 mm in 2000 years, on the Lower Volga by 9.6 mm in 4000 years, on the Middle Dnieper by 4.5 mm in 3000 years. This corresponds on average to 2.2 mm per millennium. The difference between the Tripolians and the Dnieper-Donets population amounts to 19 mm. At an average rate of 2.2 mm per millennium this corresponds to more than 8 millenia. Fully recognising the obvious inaccuracy of such calculations*), it may nevertheless be assumed that no less than 4 millennia would be required to bring about the differences between the Tripolians and the Dnieper-Donets people, provided that they descend from the same ancestors. It goes without saying that these calculations are grossly approximate, but they can be accepted as a working hypothesis.

A special position is occupied by a few skulls belonging to the so-called "Sredniy Stog culture" described by G. P. Zinevich (1967). Tables 7,9.

According to the archaeological data they can be grouped neither with the materials of the Dnieper-Donets culture nor with those of the Tripolie culture.

Two male skulls (burials 1 and 2) of the Eneolithic

Age (the Sredniy Stog 2 culture or the Sredniy Stog stage of the pit-grave culture) were discovered in 1960 by V. N. Gladilin during the archaeological survey on the right bank of the Dnieper near the village of Kamennye Potoki (Kremenchug district, Poltava region). They are very large, robust, with a high brain case and a broad receding forehead. The face is of medium height, broad, slightly prognathous, somewhat flattened in the horizontal plane, with a deep fossa canina. The orbits are very low, broad. The nose is protruding, narrow with a high bridge. In their morphological type they do not differ, according to G. P. Zinevich, from the dolichocranic type characteristic of the Neolithic burials in the region of the Dnieper rapids. She notes also that the measurements of brain case and facial skeleton are within the range of individual variations of the skulls from the Eneolithic cemetery of Alexandriya.

Two female skulls were found near the village of Dereivka (Onufrievka district, Kirovograd region) in the Eneolithic cemetery Dereivka 2 (Sredniy Stog culture) situated not far from a settlement of the same epoch. Altogether 8 burials were uncovered, but 6 of them had been destroyed. The excavations were carried out in 1961 by D. Ya. Telegin (Telegin, Zhilyaeva, 1964; Telegin, 1966). The skulls have been described by G. P. Zinevich (1967).

The skulls are dolichocranic, with a broad forehead, mesognathous. The face is broad, moderately high, the orbits are low, the nose strongly protruding. In their morphological features they resemble the Alexandriya series.

In other words the skulls of the Sredniy Stog culture from both Dereivka 2 and Kamennye Potoki do not differ appreciably either from the skulls of the Alexandriya cemetery, or the Neolithic skulls of the Dnieper rapids region.

IV.

THE MIDDLE AND LATE COPPER AND BRONZE AGE.

This chapter contains a description of the physical type of the "steppe Bronze" population, that is of the bearers of the three classical cultures of Gorodtsov (Gorodtsov, 1905, 1907): pit-grave (yamnaya), catacomb and timber-grave (sрубnyaya) cultures, named after the type of burial construction.

The pit-grave culture goes back to the III millennium B. C. It was spread over a wide territory, from the Caspian steppes to the Lower Danube, including the Crimea, Taman, and Kuban. The first stages of its development, and probably the middle stages too,

fall within the Copper Age (Eneolithic). Chronologically it was more or less contemporaneous with the middle and late stages of the Tripolie culture on the right bank of the Dnieper.

Several local groups of pit-grave culture tribes are recognised, such as the Lower Dnieper, Azov Sea, Severskiy Donets, Lower Dniester and Crimean groups of tribes (Lagodovskaya, 1957, Merpert, 1961, 1968, Shaposhnikova, 1960).

According to D. Ya. Telegin (1960b) the pit-grave culture in the Ukraine developed on the basis of the local Dnieper-Donets culture and an alien steppe culture of the Sredniy Stog type which is supposed to have entered the country from the East. O. G. Shaposhnikova (1962) expressed the same viewpoint. V. N. Danilenko does not agree with D. Ya. Telegin. He considers the development of the pit-grave culture as a process of resettlement of pastoral tribes which arrived in successive streams from the Volga-Caspian East under the pressure of tribes united by a common Keltiminar ethnoculture (Danilenko, 1969). A somewhat similar idea is expressed by N. Ya. Merpert (1961). He thinks the

*) Our Tripolie series is much younger than the Dnieper-Donets one. Still, the mean values of bi-zygomatic breadth, which amount to about 127 mm (in male skulls) are most frequent in people of the ancient cultures in the Near East, the lands of the Mediterranean, the Balkan peninsula and Central Europe.

The author has used here the palaeoanthropological data collected from various sources by G. F. Debets.

Lower Volga and eastern steppes the most probable territory for the formation of the pit-grave tribes proper, because it is there that the earliest specific complexes of the pit-grave culture are known. He thinks also that still more eastern areas may have played an important part in the formation of the culture. In this connection his attention is drawn to such archaic finds of Middle Asia as Dzhebel, and to later ones such as Zaman-Baba.

The catacomb culture existed between the end of the III millennium and the first half of the second millennium B. C., in the southern regions of the East-European plain, from the Manych river and the Northern Caucasus to the Dnieper.

In the catacomb grave culture, like in the pit-grave culture, local variants are recognised: the Lower Dnieper, Northern Azov, Middle Dnieper, Donets (or Middle Donets), and the Volga-Manych variants (the latter is known also as the Pre-Caucasus variant or even Pre-Caucasus culture) (Popova, 1955b, Klein, 1961, Lagodovskaya, 1957). Close to them is the Poltavka culture. The existence of some of these variants is disputed. S. S. Berezanskaya and O. G. Shaposhnikova (Berezanskaya, Shaposhnikova, 1957) in particular see no grounds for recognising two variants in the Northern Azov Sea region: a Lower Dnieper and a Northern Azov one, as does T. B. Popova. Y. V. Sinitsin (1959), following P. D. Rau (1928, p. 188) does not consider the Poltavka culture an independent culture, but only an early stage of the timber-grave culture.

Some archeologists find a genetic affinity between the pit-grave and catacomb cultures, adhering to the idea of the autochthonous origin of the catacomb culture (Krivtsova-Grakova, 1938, Popova, 1955a). Other students see no connection between these two cultures and regard the general features of resemblance as the result of their constant contact (Artamanov, 1949, Berezanskaya, Shaposhnikova, 1957, Berezovets, 1960, Lagodovskaya, Shaposhnikova, Makarevich, 1962).

A southern origin has also been suggested for the catacomb culture. Thus M. I. Artamanov thinks the Pre-Caucasus variant to be the most ancient, and therefore ancestral to the others, associating the origin of the catacomb culture with the Northern Caucasus (Artamanov, 1949, 1950).

L. S. Klein (1968) considers the Donets catacomb culture to be the most ancient*) and believes it to be a Battleaxe culture. It approaches most closely the single grave culture of Denmark and Northern Germany. He thinks that at the close of the period of burials on the surface (at the turn of the III-II millennia B. C.) a part of the people of the local East-Daakish variant of this culture, urged by the necessity of founding new pastures, took part in the southward expansion and provided the foundation for the formation of catacomb cultures.*)

A. M. Leskov (1967) thinks, however, that in settling of the question of the origin of the catacomb

culture the finds of the Lower Don and Kalmyk steppes will be of decisive importance.

It is believed that catacomb culture in the late stage of its development was represented by Cimmerians, of which mention is made in written sources (Sinitsin, 1959, Popova, 1955a).

The timber-grave culture (middle of the II- to early I millennium B.C.) occupied the territory between the Urals and the Dnieper. Best investigated in the Ukraine are the finds of the Don, Donets and Azov Sea areas. The view has been expressed that there are a Sabatinovka and a Belozerk stage in the late timber-grave culture (Krivtsova-Grakova, 1955, p. 161) (Terenzhkin, 1965, Leskov, 1967).

Some authors find sufficient grounds for recognising a discrete Sabatinovka culture, relating it either to the westernmost part of the Right Bank steppe Ukraine (Ribalova, 1961) or also to the Dnieper and more eastern Black Sea areas (Sharafutdinova, 1964, 1968). They find the basis for its formation in the finds containing pottery ornamented with rouletted ribbons, that is, in finds of the late period of the catacomb culture.

Most widely accepted is the idea that the timber-grave culture developed from the pit-grave culture (Sinitsin, 1959, Merpert, 1968). O. A. Krivtsova-Grakova (1955) assigns a leading role in the formation of the timber-grave culture to the Poltavka culture.

Different views are also expressed about the chronological interrelations and cultural connections between the timber-grave culture of the Ukraine and of the Volga river (Krivtsova-Grakova, 1955; Popova 1955a; Leskov, 1967).

According to generally accepted opinion the tribes of the timber-grave culture were the ancestors of the historically known Scythian tribes. O. A. Krivtsova-Grakova relates also the Cimmerians to them (1955). A. M. Leskov (1966) notes that the spreading of the monuments of the late period of the timber-grave culture (Belozerk stage) coincides with the territory where most students, in conformity with the data of ancient authors and toponymy, place the Cimmerians.

The anthropological materials of the Middle and Late Copper and Bronze Ages consist at present of the bone remains of 234 individuals: of them 57 skeletons belong to the pit-grave culture (43 male and 14 female), 107 to the catacomb culture (67 male and 40 female) 70 to the timbergrave culture (40 male and 30 female). In 204 cases the skulls are preserved (50 of the pit-grave culture, 94 of the catacomb culture, 60 of the timber-grave culture). Most of the material was obtained in the Zaporozhye region, Dnipropetrovsk region and Cherkassy region. Other regions yielded only a few finds. 186 skeletons were examined by the author (Konduktorova, 1956, 1969). They were obtained mainly in the Zaporozhye region, Troitskoe village (Melitopol district), Novo-Philippovka village, and Akkermen state farm (Nizhnyaya Vasilievka district), by the Molochansk archaeological expedition of the Institute of Archaeology of the Ukrainian Academy of Sciences, headed by A. I. Terenzhkin (Vyasmitina, Ilyinskaya,

*) According to Klein the local groups of catacomb culture finds must be attributed to special catacomb cultures rather than variants.

Pokrovskaya, Terenozhkin, Kovpanenko, 1960, Klein, 1960). Substantial material was also obtained in the village of Grushevka (Blifeld, 1961), Maryanskoe (Berezovets, Pokrovskaya, Furmanskaya, 1960), Kut, Apostolovo district, Dniepropetrovsk region (Berezovets, 1960), Zamozhnoe and Shevchenko (Bolshoy Tokmak district, Zaporozhye region) ((Smirnov, 1960).

Nine skulls from the Odessa barrow situated in the village of Romanovka (now Romanovka collective farm near Krasnaya Slobodka in the suburbs of Odessa; Dobrovolskiy, 1915; Gorodtsov, 1917; Zbenovich and Leskov, 1969) were described by D. K. Tretyakov (1915) and later by G. F. Debets (1948). G. P. Zinevich (1967) presents data on 37 skeletons obtained mainly from the flat cemetery in the Shirokoe village (Skadovsk district, Kherson region (Leskov, 1966, 1967).

A characteristic of the craniological series of all the three cultures, including more accurate dating obtained for some of the skeletons, has been given earlier by the author (Konduktorova, 1969).*) It would be well to recall it, taking into account the materials of G. P. Zinevich (1967), as well as more accurate dating of some of the skeletons. Tables 11-14-IV-XII.

The skulls of the pit-grave culture are on the average dolichocephalic, but some mesocephalic and brachycephalic skulls are encountered too.

Brain case capacity is great, greatest length and basibregmatic height are large, greatest parietal breadth is medium. Relief is strongly developed. Glabella, external occipital protuberance, mastoids are well expressed. Frontal slope is pronounced.

The face is broad, of medium height, low according to index, orthognathous. Horizontal profiling is very pronounced.

Orbits are low. Nasal breadth is medium. Nose and nasal bridge are strongly projecting. Canine fossae are deep.

Much the same characteristics belong to the skulls of the catacomb-grave culture, only their relief is less pronounced and the frontal angle has a lower value.

Skulls of the timber-grave culture, though not differing strongly from those of older cultures, still have some peculiarities which deserve attention.

Thus relief is more feebly expressed both in the region of the glabella and in the occipital region. The face is higher and more narrow. This trait becomes more apparent when facial indices are compared. In the male groups the orbits are higher. The value of the nasal angle indicates a lesser projection.

*) The following more accurate datings have been substituted or those given in the earlier published materials (Konduktorova, 1956): skeleton No. 9293—2913 from the state farm Akkermen (Akkermen I), barrow 11, burial 1) and skeleton No. 2904 from Troytskoe village (barrow 4, burial 24) are assigned to the catacomb-grave (not to the pit-grave) culture. The dating of skeleton No. 9365—2976 from the village of Ust-Kamenka (barrow 1, burial 10) has been changed to timber-grave culture (instead of Sarmatian). Skeleton No. 9188—2847 from the village of Novo-Philippovsk (barrow 3, burial 5) is assigned to the Bronze Age. No preciser dating is available. Previously it had been dated to the catacomb culture.

Statistical comparison proved the difference between the male groups of the catacomb and timber-grave cultures to be significant for such characters as the extent of superciliary arcs, angle of nasal projection, upper facial and orbital indices. Female groups were not compared owing to the small number of observations. Tables 13—14.

It has been repeatedly suggested that a certain flatness of face observed in some ancient European series may be regarded as a preserved ancient feature (Schwiedetzky, 1934, Vallois, 1939).

But if processes operative in reducing facial flatness did take place in the course of the formation of the physical type of modern Europeans, they would have been completed by the time the pit-grave culture came into existence. The horizontal profiling of the face is very pronounced in the skulls of all the three cultures considered.

Sex differences are distinctly expressed, especially in the skull-dimensions, in the degree of relief development, and in the nasal and frontal projection. Table 15. The less pronounced dolichocephaly of female skulls or, more exactly, the relatively higher value of parietal breadth, may possibly be due to sexual dimorphism.

Female skulls are in the minority. Such a sex ratio is frequent in ancient craniological series. Although the criteria which we use in sexing are not always sufficient the differences in sex ratio cannot, in our opinion, always be ascribed to inaccurate classification.

Field observations show that skulls of similar antiquity, buried under similar conditions, may differ in the degree of preservation, as was observed by J. Czekanowski (1930) and G. F. Debets (1948). Skulls with more delicate bones are more readily destroyed. This phenomenon observed in skulls from the same cemetery, where environmental conditions may be assumed to be identical, seems to offer an explanation of the differences in sex ratios. Of decisive importance is the robustness of the skull, that is the thickness and consistency of its bones.

But it is hardly possible to explain in this way the differences in robustness between separate craniological series, since the conditions of burial even

*) The significance of differences between the means of the groups compared is estimated by means of the formula:

$$t = \frac{M_1 - M_2}{\sqrt{\frac{(n_1 - 1) \cdot \sigma_1^2 + (n_2 - 1) \cdot \sigma_2^2}{n_1 + n_2 - 2}} \cdot \sqrt{\frac{n_1 - n_2}{n_1 \cdot n_2}}}$$

where M_1 — mean of group I;

n_1 — size sample in group I;

σ_1 — standard deviation of group I;

M_2 — mean of group II;

n_2 — size sample in group II;

σ_2 — standard deviation of group II.

Maximal theoretical value of "t" allowed at random differences should be chosen in the Student's table. It is given in tables at probability $p = 0.05$ and degrees of freedom ($n_1 + n_2 - 2$).

If the observed value of "t" is less than theoretical, the difference between groups is non-significant. If the value of "t" is greater than the difference between groups is significant. (See: Romanovskiy, 1947; p. 236, table V.)

in barrows of one and the same culture are random and varied. The more it is so in regard to skulls of different cultures. Therefore the assumption that more robust skulls are found in the graves of ancient cultures because the more gracile were easily destroyed seems unjustified.

The standard deviations of characters in all the three stages of the Bronze Age are almost always near to the theoretical values, that is to the values most usual in craniological series, as determined by G. F. Debets (Alexeev, Debets, 1964) on abundant craniological material. They give no evidence of mixture in our groups.*) Table 16.

A comparison of materials from different geographical regions may help to answer some questions on the formation of the physical type of the population of the ancient Ukraine, provided the local series are representative enough. Unfortunately the series available are very short. The differences in some characters become most apparent when Kherson skulls of the pit-grave culture are compared with skulls of more northern areas—Zaporozhye region and Dnipropetrovsk region. In the Kherson series the face is a little lower and broader, dolichocrany less pronounced. The significance of these differences is not confirmed statistically. They should be checked when more material becomes available, though it is not likely that they will prove to be significant. From archaeological material it may be inferred that cultural influences during the Bronze Age penetrated into the Ukraine from the south and southwest rather than from the north. But broader faces are found in the southern Kherson region. At that period narrower faces were characteristic in the Near East, on Balkan Peninsula and Western Europe rather than in the steppe areas of the Ukraine.

In the timber-grave culture two groups of finds may be distinguished. To the first and more numerous are assigned barrow graves, from which most of our material was obtained. The second group consists of flat graveyards. Along with the skeletons from the cemetery of the village of Shirokoe skeletons Nos. 9312-2943, 9377, 9377, 9379-3007, 10 444, 10 447, 10 455, 10 493, 10 494, 10 692, 10 693, 10 699 are attributed to this group. Unfortunately, only a small number of characters can be used in comparing these two groups, owing to the bad state of preservation of the skeletons.

As far as we can judge the two groups are, in general, similar. Only some slight differences may be found in facial measurements: individuals from flat cemeteries have a somewhat broader and lower face. The significance of these differences is not statistically confirmed.

*) The significance of differences between standard deviations (σ) of two groups is estimated by the ratio of variances $\frac{\sigma_1^2}{\sigma_2^2} = T$ where σ_1 is a standard deviation with greater absolute value. Maximal value of this ratio allowed at random differences and variances, is chosen in T table for fiducial probability $p = 0.05$. In this table $k = n_1 - 1$; $k_2 = n_2 - 1$; k_1 — size sample (minus 1) of the group with lesser variance (for each character).
(See: Romanovskiy 1947; p. 240, table VI.)

Limb bones are preserved in 32 skeletons of the pit-grave, 39 of catacomb-grave and 30 of timber-grave culture. No differences could be traced either in the absolute measurements of the bones or in their indices.

The length of bones is great (femur 465 mm, tibia 383 mm, humerus 333 mm). The values of the robusticity indices are high or medium. The index of the robusticity was calculated as a ratio of circumference at the middle of the shaft of the femur — or of the minimal circumference in other bones — to the maximum length.

Stature, as determined by the length of limb bones, is high. Thus it reaches 169.5 cm in men and 156.9 cm in women of the pit-grave culture when using Manouvrier's tables, and 172.2 cm and 159.7 cm respectively if determined by the formula of M. Trotter and Gleser.

The average age at death is 40 years. The bones of children are not taken into account as they were usually in a bad state of preservation and were not handed over to the Museum of Anthropology of the Moscow University.

In several cases anomalies and pathological changes were observed (Konduktorova, 1969). Wormian bones in the lambdoidal suture were the most frequently observed anomaly. They were found in five skulls of the pit-grave culture (Nos. 9340, 9739, 9890, 10 422, 10 451), eight skulls of the catacomb-grave culture (Nos. 9200, 0238, 9267, 9296, 9501, 9504, 9755, 10 425), and five skulls of the timber-grave culture (Nos. 9733, 9829, 10 460, 10 493, 10 714).

In seven cases the metopic suture is preserved (pit-grave culture: Nos. 9340, 9344, 9434; catacomb-grave culture: Nos. 9501, 10 425; timber-grave culture: Nos. 9190, 10 692).

In one case an extremely rare anomaly was observed, namely a horizontal suture on the left parietal bone (Sutura parietalis horizontalis sinistra). The suture was feebly expressed.

In two skulls of the timber-grave period (Nos. 9740, 10 700) the usual order of obliteration was changed: all the sutures were open except the sagittal suture, which was fully obliterated.

Osteomes were discovered in three skulls (Nos. 10 447, 9743, 9735). The first, 1 cm in diameter, was situated in the anterior part of the left parietal bone (about 35 mm from the sagittal and coronal sutures); the second, 1 cm in diameter, on the frontal bone (5 mm from the coronal suture and 25 mm to the right of the bregma), and the third, 18 × 18 mm, on the left parietal bone (approximately at mid-length, 8 mm from the sagittal suture).

One male skull of the catacomb culture (No. 10425) bears traces of traumatic lesions. At the contact of the frontal and left parietal bones is a hole 12 × 4 mm, with obliterated edges.

In a female skull of the pit-grave culture (No. 9830) two areas on the right parietal bone showed post-traumatic changes of the external compact layer of bone. The inner compact layer was unaffected. Post-traumatic changes of bone tissue in the frontal bone, to the left of the coronal suture, were observed

in a male skull (No. 418) from the catacomb grave culture.

A male skeleton of the catacomb culture (No. 9761-3364) has an healed fracture of the right humerus, and in another male skeleton (No. 2956) the distal ends of the right fibula and tibia are grown together with the heel bone.

The bones of the lower extremities of the male catacomb skeleton No. 9755-3356 are strongly bowed, possibly as a result of rickets. The femora particularly are strongly curved forwards.

In one male skull (No. 9477, catacomb culture, Molochansk expedition) the vault is covered with pitch. The skull exhibits no traces of injury from cutting instruments.

As already mentioned, the comparison of skulls from different stages of the Copper and Bronze Ages of the Ukraine reveals a weakening of relief and decrease of bizygomatic breadth from the pit-grave to the timber-grave culture. The inclusion of neolithic skulls only increased the range of these differences, since neolithic skulls have still broader faces and a still more pronounced relief than the skulls of the pit-grave culture. The value of bizygomatic breadth decreased by 14 mm (from 146.8 mm to 133.0 mm), the glabella projection decreased from 3.9 to 3.2.

An analogous trend is observed in the skulls from the steppe zone of the Lower Volga, which are in their morphological type close to the Ukrainian ones (see review of G. F. Debets in the work of B. V. Firstein, 1967). But during all the three cultural stages robustness is greater in the Volga region as compared with the Ukraine. The author draws attention to the fact that it is a question not only of a parallel trend nor even of a constant difference, but of different rates of the change (Konduktorova, 1969).

In the skulls from the Lower Volga the decrease in robustness is more intensive between the pit-grave and the catacomb-grave cultures than between the catacomb-grave and the timber-grave cultures. In the Ukraine robustness decreases sharply between the Neolithic Age and the pit-grave culture (bizygomatic breadth decreases by 10 mm: 147—137 mm). No significant differences are observed between pit-grave and catacomb-grave culture skulls, but a substantial decrease in robustness takes place with the passage from the catacomb culture to the timber-grave culture. The reason for this difference in the rate of change requires special investigation.

At that time in the remote southern regions of the Eastern European Plain, the Near East and in the lands bordering on the Mediterranean, lived people whose skulls were far less robust (Debets, 1954). A gracile structure of the skull was a characteristic feature of the neighbouring population of the Tripolie culture (Velikanova, 1961, synchronous to some extent with the pit grave culture. It is natural to admit

the possibility of mutual influence between these peoples. If so, is it possible to explain the different rate of change in the robustness of Ukrainian skulls, as compared with those of the Lower Volga, by an inflow of mediterranean elements?

It has been repeatedly suggested that the mediterranean people penetrated into Northern Europe in the very remote past (Kóčka 1958). Viewed in this way the process of gracilisation may be regarded as the consequence of a change of anthropological type. But this explanation (in its general form) is hardly acceptable. The modern Russians from the northern regions of the R.S.F.S.R (Cheboksarov, 1946) do not differ significantly in this respect from Bulgarians (Popov, 1959) or Circassians (Levin, 1932) judging from the value of bizygomatic breadth. On the other hand, differences in pigmentation and structure of the soft parts of the nose are quite apparent. Had the gracilisation of Russians been caused solely by a systematic inflow of mediterranean elements, the differences in other characters would have been levelled to.

There are also particular reasons for denying an significant admixture of mediterranean element in the Ukrainian series as compared with that of the Lower Volga. The height, and especially the height-breadth index of the Ukrainian skulls are somewhat higher than in the Lower Volga series, while the Mediterranean series of the Bronze Age (Angel, 1944) shows a rather lower relative and absolute cranial height than the Ukrainian series. This does not however rule out the possibility of separate cases of interpenetration.

The relatively greater facial height observed in the female group of the Ukrainian timber-grave culture series attracts some attention as this peculiarity is encountered in the Bronze and Early Iron Age in the Transcaucasus (Abdushelishvili, 1964), Turkmenia (Trofimova, Ginzburg, 1961) and on the Pamirs (Ginzburg, 1960). Since no such differences are found in the female group of the Ukrainian series they should rather be regarded as coincidental.

G. F. Debets (1961) noticed that the reduction of skull robustness on the territory under consideration coincided in time with an intensive development of agriculture. Hence the question arises whether agriculture played a more important part in the pit-grave culture of the Ukraine than in that of the Lower-Volga.

It may be admitted, therefore, that during the Bronze Age anthropological differences were far more conspicuous between the Right Bank and the Left Bank regions of the Ukraine than between the Left Bank region and the Lower Volga. These differences were most pronounced during the Neolithic and the early and middle Copper and Bronze Ages. At that time the eastward spread of the protoeuropean type was not limited by the Lower Volga but extended into Asia almost as far as the centre of the continent.

THE SCYTHIAN PERIOD

Scythians, like Cimmerians, are the most ancient people in the Ukraine on which not only is archaeological data available but also written information is to be found in the works of ancient authors. The earliest references to Scythians date from the IX-VIII cc B.C. (Grakov, 1954, p. 11). Archaeologists find no appreciable differences between the material culture of this period and that of the Bronze Age (Mongait, 1955, p. 149). The Scythian culture, with its specific features observed in their arms, horse trappings and the so-called beast style of art, appears in the steppe zone of the European part of the USSR only in the VII century B.C. and may be traced down to the III century B.C. With Scythian history is closely associated the growing use of iron in the Ukraine. The language of the Scythians is referred by linguists to North-Iranian group of the Indo-European languages (Abaev, 1949, Miller, 1886).

Scythians were represented by several tribes which formed the military and political alliance "Scythia". At the head of it were the nomadic Royal Scyths. The early Scythian society was in the stage of a declining tribal system. With growing prosperity Scythia developed into a slave-owning state. The time of the formation of Scythia is a disputable question. Some students believe it to date from the IV-III cc B.C. (Grakov, 1954, Yatsenko, 1959) and perhaps even from the VI-V cc B.C. (Smirnov, 1935, 1966; Terenozhkin, 1966a). According to other authors it was founded in the II century B.C. (Artamonov, 1947, 1948; Gaidukevich, 1949; Kalistov, 1949, 1952).

It is generally agreed today that Scythia extended over the Azov and Crimean steppes, the Lower Dnieper and the Lower Bug. It is supposed that the lower reaches of the Dnieper were inhabited by land-tilling Scythians, the area of the Bug estuary by Callipids, while the Royal Scyths and the nomadic Scythians occupied the Lower Dnieper, the steppes of the Azov Sea region and the Crimean steppe. The Gerrhi are referred by some archaeologists to the regions of the Dnieper rapids (Yatsenko, 1959).

M. I. Artamonov includes in Scythia, along with the population of the Ukrainian steppes, the population of the forest-steppe areas of the Bug, with its distinctive cultural and linguistic features. The view of Artamonov has found no support in the works of B. N. Grakov and A. I. Melyukova (1954), A. I. Terenozhkin, (1961), I. V. Yatsenko (1959).

The questions at issue concern mainly the forest-steppe areas of the Ukraine and the distribution of land-tilling Scythians (Yatsenko, 1959). The disagreement is largely due to the possibility of different interpretation of the northern boundaries of Scythia delineated by Herodot. B. N. Grakov and A. I. Melyukova exclude the forest-steppe from Scythia. On the basis chiefly of written sources they regard Scythia as an ethnical unit of different regions. The different nomadic and sedentary land-tilling

tribes were united into a single ethnic whole by a common language, war customs and legend of origin. The forest-steppe, according to these authors had its special culture; it was inhabited by non-Scythian tribes, such as the Melanchlaens, Neurs, Androphags (Grakov and Melyukova, 1954). B. A. Shramko recognises two ethnocultural units in the steppe and in the forest-steppe (Shramko, 1962, 1966).

Other authors hold a different view. On the strength of certain cultural elements they refer the forest-steppe to Scythia. V. A. Ilyinskaya in her works argue in favour of the idea, already expressed by D. Ya. Samokvasov in 1908 (Samokvasov, 1908, p. 137—138), that the region of the Scythian Gerrhus may have lain within the northern boundaries of the Left Bank forest-steppe (basin of the river Sula). Consequently the tribes of the land-tilling population of the Left Bank could have been ethnically affined to the Iranian speaking Scythian population of the steppe belt. To the Right Bank Ilyinskaya refers the ploughmen Scythians who inherited to a considerable extent the local traditions of the Chernoles culture (Ilyinskaya, 1951, 1966a, 1968, Ilyinskaya, 1966b).

A. N. Terenozhkin thinks that a single Scythian culture prevailed in all the territory of the northern Black Sea steppe and forest-steppe, for the greater part of its existence. Its source is to be sought in the interior of Asia. Terenozhkin bases this assumption on the wide diffusion of Siberian elements in the pre-Scythian and early-Scythian material culture in the South of the European part of the U.S.S.R. (up to Central Europe). According to him the Scythian culture, its foundation, was introduced into the Ukraine from the West in the VII century B.C. Here it developed, taking in, in the process of its formation, elements of the local cultures. The presence of local variants recognised by Terenozhkin is, in his opinion, a reflection of the contributions of these cultures. In the finds of the Black Sea steppes and of the Left Bank forest-steppes he sees features of the timber-grave culture, in the finds on the Dnieper's Right Bank and in the basin of the river Vorksla, features of the Chernoles culture, and in the finds of Moldavia the features of the Thracian Hallstatt (Terenozhkin, 1966b, 1961).

In his earlier works on the Right Bank forest-steppes, Terenozhkin recognises as a special, discrete culture the culture of sedentary tribes of land-tillers and cattle-breeders, that is a culture of ploughmen Scythians, whose bearers could ethnically have been the ancient Slavs. The local foundation of this culture he finds in the Belogrudovka and Chernoles cultures of pre-Scythian times (Terenozhkin, 1954, 1965).

P. D. Liberov (Petrenko, 1968) notes no substantial difference, either ethnical or cultural, between the steppe and the forest-steppe.

The majority of archaeologists consider the nomadic Scythians to be descendants of the tribes of the timber-grave culture who migrated to the steppe regions of the Ukraine and of the Volga. It is the time of their migration that is most disputed.

According to written sources, the Scythians

occupied the lands of the Cimmerians. Unfortunately, the Cimmerian culture has not as yet been adequately studied. As has already been mentioned (in the previous chapter), some archaeologists think that Cimmerians formed the population of the catacomb culture (Sinitsyn, 1959, Popova, 1955). They see a connection between the appearance of Scythians in the Ukraine and the first intrusion of tribes of the timber-grave culture in the II millennium B. C. (Artamonov, 1950). The majority of archaeologists hold that the appearance of Scythians was the result of a second advance of the tribes of the Volga timber-grave culture to the Black Sea steppes (Grakov, 1954, p. 167, Yatsenko, 1959, p. 23), while the population of the timber-grave culture of the early Ukraine, which had adopted many local traditions, was represented by Cimmerians (Gorodtsov, 1928, Krivtsova-Grakova, 1955; Terenozhkin, 1953).

In our work only some of the views on the origin of Scythians and Scythian culture, on the interrelation of the steppe and forest-steppe cultures are considered. Problems of Scythian-Sarmatian archaeology were discussed at the second Moscow conference of 1967 (Peterenko, 1968).

The kurgan (barrow) burial rite is characteristic of Scythians. In the early period barrows of other cultures were frequently used. Non-barrow finds are extremely rare. Sometimes there are stone slabs-stelae on top of Scythian barrows. The barrows over the graves of ordinary people are not high (about one metre) and the accompanying inventory is poor. Rich dead have mounds 15—20 m high and much arms and objects of value, particularly the so-called royal barrows containing much goldwork. The social order of the society was reflected in the burial ritual especially during the formation of the state.

The dead were buried in pits or, more frequently, in catacombs consisting of a deep vertical well connected with a subterranean chamber. Three types of catacombs are distinguished. The entrance to the grave pit, or catacomb, was sometimes closed by stone slabs or wattle fences. The dead were laid in full length, usually on the back, with stretched arms and legs. They were usually orientated to the West, sometimes to the North. As a rule, one corpse was placed in the grave. Sometimes several people were buried together (presumably a slave was buried with his owner).

Fragments of Helladic amphorae and local pottery, horse bones (more rarely sheep bones)—the remains of offerings—are frequently discovered in the mounds. Horse bones are sometimes found in the graves. Cases are reported when the ollster was buried together with the horse.

Male dead were usually equipped with arms and horse trappings. Arms include short iron swords-(aquinakes), spears with long iron heads, darts, bronze, or more often iron arrowheads. In the early Scythian period double-bladed arrowheads with a socket to fit on the shaft prevailed, later they became

three-edged and three-bladed. In rare cases a cuirass with a belt and a helmet would be discovered in a male burial (Mongait, 1955, p. 154).

Female dead were equipped with bracelets, spindle-whorls of clay or lead, iron knives, querns, beads, pottery.

The golden goods of rich burials consisted of combs, earrings, bracelets and finger rings. Clothes were adorned with golden plates with representations of animals.

The pottery in the graves consists both of local earthenware, usually not ornamented (bowls, pots, goblets), and Helladic black-glazed pots (amphorae). Sometimes bronze cauldrons are found.

The archaeological information obtained poses a number of questions which have to be answered by anthropologists, such as in particular, what extent did the local population contribute to the formation of Scythia? are there any distinctions between the steppe and the forest-steppe populations of the Scythian period of the Ukraine? do the Ukrainian Scythians differ morphologically from the earlier population of Eastern regions? Answers to these questions may contribute to the solution of the Scythian problem.

There is great disproportion in the amount of archaeological and anthropological data in the published literature on Scythians. Archaeological investigations of Scythian sites were begun long ago. The first excavations of barrow date from the sixties of the XVIIIc. For a long time archaeologists confined their work chiefly to royal barrows; which yielded rich material for Museum collections, while the bone material obtained with it was given no due attention. Small barrow of common people were simply ignored. This explains why anthropologists up to now had practically no well-dated osteological material.

The dating of the material published earlier by G. F. Debets (1948, pp. 158—163) seems in many cases dubious. In the archaeological literature mention is made of excavations of monuments situated in the same geographical regions from where the materials examined by Debets were derived. But there is no certainty that these materials are really the remains of Scythians, inasmuch as burials of other epochs were found there too. The grounds for recording the material in the inventory book as Scythian are unknown. Part of this material should be excluded from examination since no excavations of Scythian sites have ever been reported from those places. The dating of the skulls from Bessarabia described by A. Donici (Donici, 1935) as Scythian also leaves some doubt.

Least dubious among the old material is the dating of skulls from the village Aksyutintsy (Sumy region) excavated by T. B. Kibalchich in 1876 (Ilyinskaya, 1968), and the Lugovaya mogila (Alexandropol barrow) near Nicopol excavated by A. I. Lyutsenko in 1856 (Antiquities of Herodotus Scythia, 1866). With sufficient certainty there may be assigned to Scythians the skulls described by Schlitz (1913) from the barrow of the Maritsyn hamlet near Kherson, unearthed by the German archaeologist M. Erbert (Erbert, 1913). This material was later treated by K. Stoyanowski (1930)

**) The hypothesis that Scythians descend from the people of the timber-grave-culture was supported by A. I. Terenozhkin in his earlier works.*

using the method of Czekanowski. Still the anthropological characterisation given by A. Schlitz can hardly be recommended. In his measurements there are unfortunately several inaccuracies, which have been noted by G. F. Debets (1948, pp. 160—163).

In fact, well-dated Scythian osteological material first became available in the forties of the XX century, after the excavations of the Nicopol barrows on the outskirts of the town Nicopol of the Dniepropetrovsk region. The excavations were conducted in 1931—1936 by F. N. Kiranov, A. P. Mantsevich, L. D. Dmitriev, A. Ya. Bryusov, E. I. Krupnov, and in 1937—40 by B. N. Grakov (1962) and B. E. Rabinovich. Over 30 skeletons were obtained there. 29 skeletons were measured by G. F. Debets (Konduktorova, 1964). All but 9 skulls were lost during the Second World War of 1941—1945. Two of these skulls (Nos 10 377 and 10 378) are deposited in the Museum of Anthropology of the Moscow State University, the rest in the Ukrainian Academy of Sciences in Kiev. The Kiev skulls were measured again by G. P. Zinevich (1967).

A large part of the Scythian material, like that of the Bronze age, was obtained during the construction of the Kakhovka reservoir in 1951—52, mainly by the Gornostaevka expedition of the Institute of Archaeology of the Ukrainian Academy of Sciences, headed by D. T. Berezovets (Berezovets, 1960) in the village of Kut (Dniepropetrovsk region).

Special attention should be given to the excavations of the Mikhailovka-Gavrilovka cemetery (Kherson region) conducted by the Lower-Dnieper expedition of the Institute of Archaeology of the Ukrainian Academy of Sciences under the direction of E. F. Lagodovskaya (1955) in 1955, and the South-Russian expedition of the Institute of the History of Material Culture of the U.S.S.R. Academy of Sciences under the direction of E. A. Symonovich, in 1958, in which the author took part (Symonovich, 1958, Lagodovskaya, Symonovich, 1960). This cemetery differs from the others in some peculiarities of the burial ritual. It had no barrow mounds. The graves were marked with stone assemblages on the surface of the ground.

The excavations of the other sites yielded but few skeletons. Single finds were obtained by the archaeologists of the Molochansk expedition of the Institute of Archaeology of the Ukrainian S.S.R. Academy of Sciences (Selected Papers, 1960), in 1951—52, at the village of Troitskoe and the state farm Akkermen (Zaporozhye region), by B. N. Grakov and N. G. Elagina (Elagina, 1956), in 1956, at the village of Kalinovka (Nikolaev region), by E. A. Symonovich (Symonovich, 1956), in 1956, at the state farm Pridnieprovskiy near the village Gavrilovka (Kherson region), by P. D. Liberov (Liberov, 1956), in 1954, at the village of Cheremushna (Kharkov region), by E. F. Lagodovskaya and R. I. Vyezzev (Lagodovskaya, Vyezzev, Kopilov, 1956), in 1950, at the village of Kurilovka (Vinitza region), by G. T. Kovpanenko (Kovpanenko, 1951) and S. S. Baronovich, in 1951, at the village of Sobkovka in the Cherkassy region, by V. G. Petrenko (Petren-

ko, 1960), in 1960, at the village of Grisbentsy (Cherkassy region), by A. I. Terenozhkin (Terenozhkin, 1952), in 1949, at the village of Bogdanovka (Kirovograd region), and others.

Altogether the anthropological material of the Scythian age in the Ukraine comprises the skeleton remains of 104 individuals. In the majority of cases only the skulls were preserved, in 22 cases skulls and limb bones, in 16 cases limb bones only. There are also two skulls from Moldavia.

Data on five male skulls from the village of Aksyutintsy, on skulls of dubious dating from the village of Berestnyagi, Volkovtsy, Malaya Lepetiha, the state farm Krasnyi Mayak, the villages of Bolshoe Ploskoe, Chobruci, Parkany (Debets, 1948), pp. 158—164), as well as on 29 skeletons from the outskirts of Nicopol (Nicopolstroy) (Konduktorova, 1964) were published earlier. Some anthropological information on the skulls from the Lugovaya mogila (Alexandropol barrow) was supplied by K. Behr (Behr, 1866, 1878) and A. P. Bogdanov (1879). They were described later in detail by B. V. Firshtein (1966). The rest of the material is examined for the first time. Tables 16—20, XIII—XVI.

Many skulls and some of the long bones needed restoration, which was performed in the restoration laboratory of the Institute and Museum of Anthropology of the Moscow State University by M. N. Elistratova and the author.

In the analysis of our material consideration was given primarily to the information supplied by archaeologists on the geographical regions that formed Scythia. A group of Scythians living in the steppes of the Ukraine was recognised, which according to B. N. Grakov and A. I. Melyukova constituted the population of Scythia. This group comprised 77 skeletons from the Dniepropetrovsk, Zaporozhye, Kherson, Nikolaev and Odessa regions, that is skeletons of the Scythians of the Lower Dnieper area. 43 of them belonged to men and 34 to women. The second group was made up of the Dnieper forest-steppe population. It included 19 male and 10 female skeletons found in the Middle Dnieper area—Kharkov, Vinitza, Cherkassy, Kiev, Kirovograd, Sumy and Poltava regions. The pooling of these groups permitted the characterisation of the population, which according to certain other archaeologists, for instance A. I. Terenozhkin, inhabited Scythia (Tables 16—20, XIII—XVI).

The craniological series of the Lower Dnieper is represented by 35 male and 28 female skulls. Two skulls of juveniles (Nos 9330, 9331) and five skulls with dubious dating (from the villages of Lepetikh, Parkany, Bolshoe Ploskoe, Chobruchi and the state farm Krasnyi Mayak were not taken into account.

The series is on the average dolichocranic (cranial index 75.3 in male and 74.8 in female skulls), though when individually examined along with the dolichocranic (11 male and 9 female) several mesocranic (9 male and 3 female) and even a few brachycranic (2 male and 3 female) skulls were discovered too. Cranial capacity is medium, bordering on large (1443.2 cm³ in male and 1285.8 cm³ in female skulls). Greatest length (186.9 mm; 178.7 mm) is high.

Parietal breadth (140.8 mm; 134.6 mm) and basio-bregmatic height (134.1 mm; 127.8 mm from basion) are medium, frontal breadth is medium (97.7 mm; 93.7 mm). Frontal angle is medium too ($81^{\circ}.7$; 83° from nasion; $74^{\circ}.5$; $79^{\circ}.0$ from glabella). Relief is moderately expressed (glabella 3.00; 2.00; superciliary arcs 3.60; 2.50; external occipital protuberance 2.80; 2.22; mastoid 27.8; 15.4).

The face is mesoprosopic (54.0; 53.6), of medium height (72.1 mm; 66.7 mm from mf) and breadth (135.5 mm; 124.4 mm). The facial profile is orthognathous ($85^{\circ}.3$; $84^{\circ}.2$). Horizontal profiling is well expressed (nasomalar angle $137^{\circ}.3$; $136^{\circ}.4$; zygo-maxillar angle $128^{\circ}.1$; $126^{\circ}.4$).

Orbits are of medium height (33.3 mm; 33.1 mm) and breadth (42.5 mm; 40.2 mm), according to index moderately high, bordering on low (79.0 mm; 81.7 mm from mf). The nose is of medium height (51.8 mm; 50.0 mm) and breadth (25.2 mm; 24.2 mm). Nasal bridge (dacryal index 56.7; 52.3) and nasal bones (simotical index 56.9; 44.0) show marked projection. Nasal angle is wide ($32^{\circ}.7$; $26^{\circ}.1$). The palate is moderately broad in male skulls (40.2 mm; index 88.3); in the female skulls it is in a bad state of preservation. Depth of fossa canina is medium (4.12 mm; 3.72 mm).

The mandible is of medium size (bigonial breadth 101.6 mm; 93.8 mm).

The craniological series from the Middle Dnieper region comprises 15 male and 8 female skulls. 5 male skulls of dubious dating were omitted as in the preceding series.

The skulls are mostly dolichocranic (cranial index 70.8 in male and 74.7 in female skulls). One female skull only is mesocranic and another one brachyranic.

Cranial capacity is medium in male (11 446.6 cm³) and large in female skulls (1331.6 cm³). Greatest length (191.6 mm in male and 180.8 mm in female skulls) and basio-bregmatic height (137.6 mm; 136.0 mm) are high. Parietal breadth is small (135.5 mm in male skulls) or medium (134.7 mm in female skulls). Frontal angle is moderate ($82^{\circ}.3$ in men and $85^{\circ}.0$ in women from nasion). The relief is rather pronounced (glabella 3.60; 2.43; superciliary arcs 3.87; 3.00; external occipital protuberance 3.00; 2.00; mastoid 21.0; 20.0).

The face is moderately broad (133.2 mm; 126.0 mm) and high (71.3 mm; 64.8 mm), mesoprosopic (52.8; 51.7), orthognathous ($85^{\circ}.8$; $85^{\circ}.2$), sharply-profiled in the horizontal plane (nasomalar angle $136^{\circ}.8$; $138^{\circ}.3$; zygo-maxillar angle $123^{\circ}.3$; $124^{\circ}.5$).

Orbits are low in men (31.5 mm; index 78.0 from mf) and medium high in women (33.8 mm; 84.9). Nasal breadth relative to height is great in male and small in female skulls (breadth 25.3 mm; 23.0 mm; height 50.5 mm; 47.6 mm; index 52.3; 48.4). This difference is probably due to an insufficient number of observations; this applies to certain other measurements too. Thus, for instance, the palate is preserved only in four male and four female skulls while the mandible is absent in the majority of skulls.

A comparison of the Ukrainian series of the

Scythian period disclosed no definite differences. In the Middle Dnieper series dolichocrany is more expressed in male skulls, owing mainly to a greater value of the longitudinal diameter (greatest length). No such character is observed in female skulls. There are no distinct differences in the degree of relief development. The glabella and superciliary arcs are more prominent, but the superciliary arcs have a lesser extent in the frontal plane. The external occipital relief is more expressed in the male skulls of the Middle Dnieper area but slighter in the female ones. The differences in the measurements of face and orbits are nonsignificant. In the Middle Dnieper male skulls the nasal index is somewhat higher and in the female skulls lower. Some differences are to be found in the value of the maxillo-frontal index, which is lower in the Scythians of the Middle Dnieper area. At the same time the dacryal index shows an inverse relationship. There are no differences in the degree of horizontal and vertical profiling. Some small differences may be noted in the angle of nasal projection and frontal angle. But we must not forget that only a small number of observations are available from the Middle Dnieper area. This fact explains in great measure why the differences for some characters do not always exhibit the same trend in the male and female groups. Thus, besides the already mentioned characters, opposite trends are observed in the changes of the indices of frontal and occipital convexity, simotical index, fronto-parietal and nasal indices, parietal breadth, bizygomatic breadth, orbital height, nasomalar angle.

The comparison should be repeated when new material from the Middle Dnieper area becomes available. Our analysis disclosed no clean-cut differences between the series, but nevertheless the small differences in the degree of dolichocrany in the male group and the frontal angle in the male and female groups cannot be ignored.

The pooled craniological series made up of the Lower Dnieper and Middle Dnieper series may be characterised as dolichocranic with medium and large principal measurements, moderate relief, mesoprosopic, sharply profiled in the horizontal plane, orthognathous face, mesoconch orbits, mesorrhine with a strongly projecting nose. We see that the morphology is very near to that of the Lower Dnieper series.

It seemed interesting to determine the range of variability of the characters in order to obtain an objective idea of the heterogeneity of the group, since the bone remains of the people of the Scythian period were obtained from more than one cemetery. The comparison of the variability of principal characters in the groups under investigation with the means obtained in the analysis of the majority of series failed to reveal any significant differences in nearly all cases. The observed differences do not as a rule exceed the values admissible at random differences of characters. The only exceptions are basio-nasal length and orbital height. It must be noted that the range of variability did not increase in the pooled group.

The coefficients of sexual dimorphism in the Ukrainian series of the Scythian period show no marked deviation from those usual in craniological series (Debets, Alexeev, 1964) with the exception of the size of orbits. In the Middle Dnieper series they are relatively larger in female than in male skulls. It is, however, possible that this peculiarity is coincidental as the data are limited.

Limb bones, as already mentioned, were rarely preserved. They were extant in 45 individuals (18 men and 27 women), but never as a whole set. Any conclusions about degree of relief and other morphological features based on extremely scanty material are, of course, far from reliable. For the same reason it was thought useless to compare separate territorial groups.

Stature was determined by the length of limb bones. It proved to be medium: 164 cm according to the formula of Manouvrier and 167 cm according to M. Trotter and G. Gläser in men, and 156 cm and 159 cm in women.

Anomalies were found in 6 of the 42 skulls examined. Three skulls (Nos 9331, 10 393, 10 418) had medium-sized and one skull small-sized sutural ossicles (No. 10 364). In two skulls the metopic suture was preserved (Nos. 6822, 10 416).

Two skulls showed pathological changes in bone tissue: in one case (No. 9295) an osteoma about 1 cm in diameter was observed on the right parietal bone, anterior to the obelion point and 6 cm distant from the coronary suture, and in the other (No. 10 393 on the occipital, on its right side).

Reconstructions of heads of Scythians made by the sculptor-anthropologist M. M. Gerasimov give a general idea of their external appearance (see photographs of the head of a Scythian from Nicopol district and of a warrior from scythian Neapolis; Gerasimov, 1955).

One of the major problems facing us in our anthropological investigation consisted in determining the degree of affinity of the Scythians with their predecessors in the territory of the Ukraine. It was also important to find out how closely the Scythians were connected with the peoples of eastern regions, namely with the people of the Middle East and the Lower Volga, of Scythian and pre-Scythian time.

Most important for the solution of this problem is the comparison of Scythians with the groups listed above (Tables 21—22). More or less pertinent data is available for all these comparisons. The late Bronze Age of the Ukraine is represented by a combined series, examined by the author and G. P. Zinevich. Three series characterize the people of the Middle East of the Scythian period, known under the name Saks, from Khoresm (Trofimova 1963), from Tien-Shan (Ginzburg, 1954, Miklashevskaya, 1959) and the Pamirs (Ginzburg, 1960, 1961). Data on the Sarmatians of the Lower Volga, who were contemporary with the Scythians, is summarised in the work of B. V. Firshtein (Firshtein, 1961, see tables 3 and 4). The population of the timber-grave culture of the Volga region is represented by a combined series made up by G. F. Debets (Firshtein, 1961, tables 5, 6).

The results of these comparisons leave no doubt about the Scythians being most affined to their predecessors on the territory of the Black Sea steppes. They are also fairly close to the people of the timber-grave culture of the Volga region, which resemble the people of this culture in the Ukraine.

Migrations from the Lower Volga seem quite probable. But they cannot be traced because the areas were anthropologically almost homogeneous.

The Saks of Khorezm and Tien Shan are characterized by an admixture of mongoloid elements, manifested in considerably more pronounced facial flatness. The brain case of the Middle Asian Saks is far broader than that of the Scythians. This fact may be partly explained by the role played by the mongoloids of Central Asia in the formation of the physical type of the Middle Dnieper Saks. But it is also possible that the europoid element in their composition had a broader brain case than that of the Scythians of the Black Sea area. In any case this feature is found in the Sauromatians of the Volga and the Ural areas, in whom facial flatness is but slightly more pronounced than in the Ukrainian Scythians. In Sauromatians a mongoloid admixture was either entirely absent or, if it did exist, which seems probable, it was to a far lesser degree than in the Saks of Khorezm and Tien Shan.

As for the Pamir skulls of the Saks period, they differ from those from Khorezm and Tien Shan. An admixture of mongoloid elements is here out of the question and the shape of the brain case is strongly dolichocranic. In other words the tribes that lived in the Pamirs during the Saks time were somewhat closer to the Black Sea Scythians. The resemblance, however, is far from that which is indicated by a comparison of skulls of the Scythian period with skulls of the late Bronze Age in the Ukraine. The Pamir Saks differ from the Black Sea Scythians in a narrower brain case and a narrower face. They are somewhat closer to the forest-steppe population of the Middle Dnieper region of the Scythian period (though by no means identical). But it seems more likely that this group had strong local roots and features of resemblance with the Pamir Saks are most probably convergent.

None of the data discussed above rules out the hypothesis of an immigration of some minor Middle Asian groups into the Ukraine, but it may be accepted that the Scythians of the Ukraine are descendants of their predecessors in the Black Sea steppes or of the closely related tribes of the Lower Volga timber-grave culture.

What then became of the Scythians? According to historical and archaeological investigations they were pushed back by the Sarmatians, who invaded their territory from the East at the end of the III century B.C. The cultural and political centre of Scythia shifted from the Lower Dnieper to the Crimea.

The study of ample osteological material from the stone vaults, the mausoleum and the ground cemetery belonging to the population of the town of scythian Neapolis (outskirts of Simferopol) (Konduktorova, 1964) helped to answer the question of the influence of the new contacts of Scythians with the

local population of the Crimean Greek colonies and with Sarmatians. The material obtained from the cemetery of the village Zolotaya Balka (Kherson region), dating from III c.B.C. to III c.A.D., enable us to form an idea of the Scythians who remained

Vla.

IN THE TURN OF OUR ERA

1. THE SARMATIANS

During the III—II cc. B. C. the Azov Sea and the northern Black Sea areas were colonised by Sarmatian tribes coming from the Volga and Ural steppes. They were cattle-breeders and their migrations were motivated by the necessity of finding pastures for their cattle, and, hence, to expand their territories. It is probable that a part of Sarmatians that lived in the valleys of steppe rivers practised farming along with cattle breeding. Sarmatian finds in the Ukraine may be traced to as far down as the IV c.A.D.

With the appearance of Sarmatians the Scythian tribes retreated under the pressure of the former from the southern regions of the Ukraine to the Crimea, where they founded the Scythian state with its capital Scythian Neapolis. During these migrations the Sarmatians must have inevitably come in contact with the Scythians and their mixing seems highly probable. Anthropologists will have to contribute to answering of the question of the degree of this mixing.

Substantial information on Sarmatians has been obtained from the investigation of their cemeteries. The most important of them are the barrow groups in the village of Novo-Philippovka and on the Akkermen state-farm (Nizhnyaya Vasilevka district, Zaporozhye region) (Vyazhutina, 1960) and the barrows of the village of Ust'-Kamenka (Apostolovo district, Dniepropetrovsk region) (Makhno, 1960).

The Sarmatians buried their dead under barrows in rectangular, square, or oval pits with side-recesses in one of the walls of the grave. The graves under the barrows were sometimes covered with wood. The dead were laid on their backs full length with arms stretched along the body. The legs were often crossed below the knees. The head was usually oriented southward, less frequently northward. The inventory of male burials consists mainly of arms, iron swords, three-edged iron arrowheads, knives, of horse accoutrements. Female burials are characterised by ornaments: bronze fibulae, small bronze mirrors, beads, necklaces, pendants made of Egyptian paste. Most often pottery, hand or wheel made was placed in the graves. The graves contain also animal bones (of horses, cows, sheep and goats), sacrificial tables with red paint, small censers.

Most of the osteological material was obtained in 1951—52 in the Zaporozhye region by the Molochansk expedition of the Institute of Archeology of the Ukrainian Academy of Sciences and in the Dniepro-

petrovsk region by the Nicopol expedition of the same Institute.

The series from Zaporozhye consists of the bone remains of 22 individuals (10 male and 12 female). The Dniepropetrovsk series too consists of 22 skeletons (13 male and 9 female). To the latter series was added a skeleton from the excavations of I. P. Postyuchenko (1960) unearthed near the hamlet of Khmelnitskiy (Nicopol district, Dniepropetrovsk region). The description of all this material was published earlier (Konduktorova, 1956).

No further information on the Sarmatians has been obtained during recent years. Only five more skeletons could be added to the Sarmatian series already investigated in the Ukraine: a male skeleton from the excavations carried out in 1956 by D. T. Berezovets in the village Neterepka (Korsun-Shevchenskiy district, Cherkassy region) (Beresovets, 1956), one female skeleton from the excavations of 1953 in the village of Maryanskoe (Apostolovo district, Dniepropetrovsk region) (Beresovets, Pokrovskaya, Furmanskaya, 1960), one male skeleton from the excavations of 1955 by Ilyinskaya in the village of Ushkalka (Verkhne-Rogachinsk district, Nikolaevsk region) (Ilyinskaya, 1955), one male skeleton from the excavations of 1951 by L. M. Slavin and A. P. Mantsevich in the village of Afanas'evka (Snigirev'ka district, Nicolaev region) (Slavin, 1951) and one male skeleton from the excavations of 1962 by E. A. Symonovich in the Odessa region) (Symonovich, 1962).

Thus by now the bone remains of 50 individuals are available. In 41 of them the skulls were preserved (25 male and 16 female).

The skulls are characterised by mesocrany. The major measurements of the brain case are medium. The relief is moderately developed. The face is orthognathous of medium height and more than medium breadth. Horizontal profiling is moderately expressed. The orbits are of medium height. The nose is of medium breadth with moderately projecting nasal bones and strongly projecting bridge. Fossae caninae are more rarely developed.

No differences are observed between the Dniepropetrovsk (Nicopol) and the Zaporozhye (Molochansk) series. The values of most measurements are almost identical. The few small differences observed proved to be non-significant.

The comparison of the Ukrainian series with the Sarmatian series from the Volga (Debets, 1936, Ginzburg, 1959), Orenburg region (Konduktorova, 1962), Western Kazakhstan (Ginzburg, Firshtein, 1958), Southern Bashkiria (Akimova, 1968) showed their great affinity. At the same time it may be noted that of all these groups the series of the Lower Volga, and in particular that of the Eastern Volga (Saratov),

is most close to the Ukrainian series, especially to the Zaporozhye one.

The anthropological type of Sarmatians both of the Ukraine and the Lower Volga resembles the Andronovo type of the Bronze Age of Kazakhstan and the Minussinsk territory. A. F. Debets has already drawn attention to this fact in his investigation of the Volga Sarmatians. Analogous morphological features may be found also in the early nomads of Kazakhstan, who generally inherited the Andronovo type (Ginzburg, 1961).

The Sarmatians of the Ukraine differ distinctly from the Scythians in such characters as cranial and facial breadth and cranial index. They have an

appreciably broader face and brain case as compared with Scythians. Additional Scythian material gives no grounds for changing the opinion expressed earlier (Konduktorova, 1956).

Thus there is reason enough to admit that the Sarmatians are of eastern origin and have no genetic affinity with the Scythians of the Ukraine.

The intrusion of Sarmatians into the Ukraine brought no appreciable changes in the morphological appearance of the Scythian population, as evidenced by the materials from the cemetery of Zolotaya Balka, which will be discussed in detail in the next chapter.

VI. b)

IN THE TURN OF OUR ERA

2. THE "SCYTHIANS" OF THE SARMATIAN PERIOD

(Late Scythians)

The culture of late Scythian tribes, between the last centuries B.C. and the first centuries A.D., in the steppes of the northern Black Sea region, is known for earth dwellings, or fortified settlements "gorodishcha," (Gavrilovka, Znamenka, Zolotaya Balka, Lubimovka, etc.). The cemeteries synchronous with these strongholds are less known. Some information is available on the barrows in which, archaeologists believe, were buried the richest inhabitants of the walled towns. Such barrows are recorded near the villages of Gavrilovka and Znamenka, but no systematic excavations were conducted here. Ground cemeteries without barrows, in which common people were buried, are known too, but they have been also insufficiently investigated.

Some scarce archaeological data is available on a flat cemetery situated on the territory of the former Byuzyukov monastery (now the state farm Krasnyi Mayak, Kherson region), discovered by chance in the vineyard of the monastery. Part of the finds was deposited in the Kherson Museum, but the bone material was left in the ground (Goshkevich, 1913).

Another ground cemetery of the same type, investigated by trial trenches, was situated near the village Nikolaevka (formerly estate "Kazatskoe"), Berislav district, Kherson region. It was excavated in 1912 by M. Ebert (Ebert, 1913). 16 graves and 21 pits, probably destined for the remains of funeral feasts, were discovered in an area of 555 × 420 metres. The graves differed in the type of construction: six of them were vault-chambers, five earth-graves and five earth-graves with side-recesses. The orientation of the dead was various too. No mounds were heaped over the graves, which were marked

on the surface by stone coverings. The entrances were often blocked with stones.

In his first paper, on the basis of the grave inventory, M. Ebert dated the cemetery to the first century B.C. (Ebert, 1913). In his later work he altered his dating to the III century A.D. (Ebert, 1921). Still later, however, he did not uphold his latter view (Ebert, 1929). B. N. Grakov and and P. N. Pogrebova refer most of the burials of this cemetery to the II—IV centuries (Grakov, 1954) or to III—IV centuries A.D. (Pogrebova, 1958), i.e. to a later period. The dating of N. G. Yelagina is I-III centuries A.D.

The anthropological series obtained there was described by A. Schliz (Schliz, 1913). It consists of 12 skulls only: 8 female, 3 male and 1 child skull. M. I. Vyazmitina (1963) believes her datings to be accurate in only eight cases. The investigation of this material led Schliz to the conclusion that the cemetery belonged to eastern Germanic tribes and that among them were women of western Germanic origin. He noted a slight admixture of Greek elements.

As no cemeteries of this type were known at that period M. Ebert (Ebert, 1929) relied mainly on the conclusions of Schliz in assigning Germanic origin to the people buried in this cemetery. Thus the cemetery near Nikolaevka became known as Germanic and even more definitely as Gothic. We see that this decision was based on very scanty anthropological material.

During recent years two more cemeteries have been uncovered, very similar to the Nikolaevka cemetery in their burial ritual: one in the Crimea, on the outskirts of Simferopol, belonging to the population of scythian Neapolis, the capital of Scythia (Schliz, 1953; Babenchikov, 1957a, 1957b; Symovich, 1958, 1963a), the second on the lower Dnieper, near the village of Zolotaya Balka. From both cemeteries anthropological material was obtained. The skeletons from scythian Neapolis were earlier investigated by the author (Konduktorova, 1963). The material of these cemeteries is valuable also because study was carried out in conjunction with extensive investigations of living sites synchronous with cemeteries (Schults, 1947a, 1948, 1957; Karasev, 1953, Markevich, 1929; Dobrovolskiy, 1953; Vyazmitina, 1962).

*) The term "Scythians of the Sarmatian period" is conventional. It is used here on anthropological rather than archeological ground.

The cemetery of Zolotaya Balka, situated on the left bank of the Dnieper (Novo-Alexandrovsk, formerly Novo-Vorontsovka district, Kherson region), was discovered in 1952 by K. L. Brede. Its excavation was begun by V. F. Peshanov under the direction of A. V. Dobrovolskiy (1960), who unearthed 11 graves. In 1958, 22 more graves were unearthed there by E. A. Symonovich (1960) with the participation of the author. In 1959, 1962 and 1963 the excavations were continued by M. I. Vyazmitina (1961, 1963) also with the participation of the author. In 1959, E. V. Maximov and in 1963 V. N. Korpuseva took part in the excavations. During these years 60 graves were investigated. Altogether, an area of approximately 2000 m² was uncovered, yielding 98 graves, 11 of which date from the Bronze Age. 155 individuals were buried in the graves. Besides the graves several pits were discovered, apparently destined for sacrifices and for the remains of funeral feasts.

The graves without barrows were marked on the surface by stone assemblages or upright standing stones, known in this area from the Bronze Age. The cemetery starts from the edge of the ravine Zolotaya Balka and extends along the bank of the Dnieper river.

The graves are divided into four categories according to the type of construction: vaults or chambers (more than 60), earth graves, earth graves with side-recesses, stone cists (2 only).

The vault-catacombs are entered from an anterior pit, a vertical or almost vertical shaft, situated usually to the south of the grave. Vaults with burials of adult people were approximately 3 metres deep, those with children were less deep. The vault was separated from the anterior pit by a ledge, so that the bottom of the vault was somewhat lower than the bottom of the pit. The entrances into the pit and the grave were usually closed with stones. From one to four people were buried in one vault, previous burials being sometimes shifted to the wall opposite to the entrance. The position of the dead relative to the entrance was always transversal. The vaults are the main part of such a cemetery.

The earth graves are oval or rectangular pits, 1.25—1.75 metres below the present-day surface, with single burials.

The graves with side-recesses consisted of an elongated or oval pit and a side-recess situated a little lower. The recess itself is a niche-like cutting dug in one of the long walls of the pit and separated from it by a ledge, as a rule to the west of the entrance. The depth of such graves varies from 1.3 m. to 1.8 m. Only one individual was placed in the recess.

Stone cists were surrounded by stone pavements, and sunk in the earth about half a metre deep. All of them were greatly damaged and contained no burials.

All the dead in the cemetery Zolotaya Balka were inhumed. Only a single case was observed of partial cremation (grave 14). The dead usually lay on their backs full length. In some cases one hand, or even both, was posed on the abdomen. In several cases the legs were crossed or slightly bent (in seven

graves: No. 17; No. 23; bur. 1; No. 39, bur. 2; No. 48, No. 51, bur. 2 and b. 4; No. 53; No. 65, bur. 2).

The dead were posed on bedding or grass, felt or bark, which had decayed to brown dust. In rare cases the dead lay in wooden coffins. Sometimes the bottom of the grave under the dead was covered with clay. The head and sometimes the trunk reposed on stones.

The orientation of the dead varied. In vaults the heads were turned mainly to the West, in earth graves to the South and at a later period to the North. In graves with side-recesses a northern orientation prevailed.

The grave inventory consisted of household articles, ornaments, tools, and sometimes arms.

Vessels were few. The hand-made earthenware was of local make. Besides them, red-glazed vessels were found, imported from the towns of the northern Black Sea region.

An abundance of beads is a characteristic feature of this cemetery. The beads were found mainly about the neck, breast, wrists and shanks. They were evidently sewn on the hem of women's garments. Fibulae are usually found, which were probably used for pinning the mantles to the breast or shoulder. Iron bracelets, seal-rings, bronze mirrors were frequent, bronze ear-rings (in two cases golden ear-rings) were rare.

Tools include iron knives, clay whorls, whetstones, iron awls, a grain-grinder and a bronze needle.

The graves contained also objects associated with magic: shells, teeth of predatory animals, bucket-shaped pendants, bells, drilled stones, used as amulets. Bronze mirrors seem not only to have been for toilet purposes. Not unfrequently they were broken intentionally. This was a custom widespread among Sarmats. The belief that after death people are transformed into stones is probably associated with the presence of rough stones (Vyazmitina, 1963). Pieces of charcoal and cinders seem to point to the cult of fire.

In the pits before the grave, sometimes over the grave, are found bones (of horses, sheep, dogs). Less frequently they occur in the grave itself. The custom of sacrifice was probably inherited from the Scythians.

The analysis of burial inventories permits archaeologists to differentiate male and female burials. The latter were accompanied by ornaments: beads, bracelets, ear-rings, as well as mirrors, fibulae, whorls, bronze needles, iron awls, pottery, grain-grinders. Male burials are associated with weapons: iron swords, arrow-heads, spearheads, iron daggers, as well as whetstones, vessels, seal-rings.

The richest inventory is encountered in vaults. In ground graves and especially in graves with side-recesses it is usually very scanty.

The abundance of grave goods and the type of the grave itself are according to archaeologists a reflection of the economic stratification of the population. The different types of burial construction may also be regarded as tribal differences.

Archaeologists managed to arrange different types of burial construction in chronological order.

They believe that the dead were buried in earth graves during the whole period of the existence of this cemetery, the vault-chambers are associated with the earliest burials, the graves with side-recesses with those of the latest period.

A number of burial features point to a definite ethnic influence of both earlier and contemporaneous cultures.

Vaults and a western orientation of the dead are known to have been customary for Scythians of the preceding epoch, though at that time barrows were heaped over the graves and the burials were single. The appearance of collective tombs seems to be associated with the end of the tribal system and the initiation of the patriarchal family.

Ground graves are encountered in the Ukraine dating from the most ancient times.

Graves with side-recesses appear here only on the verge of the Christian era. Earlier graves are found in the regions situated to the east or south-east of the Ukraine; on the Lower Volga, in Kazakhstan, in the ancient centres of the northern Black Sea area. A certain analogy with the form of side-recesses may be found in the graves of Scythians.

Stone cists from the threshold of our era were first encountered in the Ukraine in the village Zolotaya Balka. At that period they were widespread in the Crimea and the Caucasus. Earlier in the Ukraine they date from the Bronze Age, or are encountered as intrusive burials among Scythians.

Thus stone cists and stone assemblages are known in the territory of the Ukraine from the time of the pit-grave culture. Chamber-vaults with dead lying on their back full length and oriented to the West were probably derived from Scythians.

A definite Sarmatian influence may be noted in the burial rite, such as the crossed legs of the dead, the position of both or one hand lying on the abdomen, charcoal and pieces of chalk, broken mirrors, recesses in the walls on the western side of the pit. All these specific features are frequently encountered among Sarmatians. A Sarmatian influence is felt also in the northern orientation of the dead buried in side-recesses, in the custom of partial cremation and the trimming of garments with beads. In some burials all these features are found together. Thus in grave 48 the legs of the skeleton were crossed, its hands were placed on the pelvic bones, and bits of chalk were lying around. In grave 14 a woman was found with hands placed on the abdomen; the hem of her garment was trimmed with beads and beside her were fragments of a broken mirror.

On the basis of archaeological data M. I. Vyazmitina (1961) comes to the conclusion that the population of Zolotaya Balka was a mixed one, and that its core was formed by Scythians. Vyazmitina notes also the presence of certain Sarmatian ethnic elements. The influence of other cultures: antique, Celtic, Thracian, and even Zarubintsy-Korchevatovo may be traced but only in some single features.

The ethnical heterogeneity of the population of Zolotaya Balka on the threshold of our era was noted by A. V. Dobrovolskiy (1960).

M. I. Abramova is convinced that the cemetery belonged to Scythians: this, in her opinion, is evidenced by the ritual of the greater part of burials (vault-chambers characteristic of Scythians, western orientation of the dead). At the same time Abramova notes the presence of some Sarmatian influence in contrast to the cemetery of Nikolaevka, where most of the inventory reflects the influence of the culture of urn fields (Chernyakhov stage) rather than Sarmatian influences (Abramova, 1962).

According to E. A. Symanovich (1960, 1961, 1963b) the sources of cultural elements in the population of Zolotaya Balka, as well as of scythian Neapolis and Nikolaevka, are to be sought in the local Scythian material culture; and they may also have been introduced by Sarmatian tribes. Symonovich regards the similarity of burial constructions, grave inventory, tools, orientation and position of skeletons as evidence that the remains in Zolotaya Balka, scythian Neapolis and Nikolaevka are links in the same chain.

In the present case anthropological research may help to find out to what extent the Scythians proper did contribute to the formation of the late-Scythian population and how much its morphological appearance has been affected by the influence of Sarmatians and other neighbouring peoples. Anthropological data may also help to answer the question whether A. Schliz was right in assuming that the Nikolaevka cemetery, which in many archaeological details is analogous to the cemetery of Zolotaya Balka, belonged to Germanic people.

The bone remains from Zolotaya Balka suitable for investigation were obtained from 78 burials (31 male and 47 female). The skulls are present in 68 cases, the limb bones in 49 cases. Tables 16—20, XVIII—XXIII. Children's skeletons were as a rule desintegrated and not suitable for scientific study.

The bones of adults required restoration, which was performed in the main by the restorator of the Institute and Museum of Anthropology of the Moscow State University by D. B. Shtylko.

The craniological series from the village of Zolotaya Balka consists of 25 male and 43 female skulls. Five female skulls and one male skull aged less than 20 years were not included in the estimation of means.

The series is in the main characterised by dolichocrany bordering on mesocrany (75.2 in men and 77.0 in women). When individually examined, 16 male skulls were found to be dolichocranic, 4 mesocranic and 3 brachycranic. 15 of the female skulls were dolichocranic, 12 mesocranic and 11 brachycranic.

Cranial capacity is medium (1415.0 cm³; 1291.9 cm³; Greatest length (184.8 mm; 176.8 mm) and parietal breadth (139.2 mm; 136.2 mm) are high to medium. Basio-bregmatic height is medium (134.6 mm; 128.4 mm from basion). Frontal slope is moderate (81°7'; 85°2' from nasion). Relief is moderately pronounced (glabella 3.09 and 1.95; superciliar arcs 3.52 and 2.00; external occipital protuberance 2.76 and 1.32; mastoid 25.4 and 15.8).

The face is orthognathous (85°5'; 84°7') and

mesoprosopic, (ind. 52.1: 54.7). Absolute measurements of the face are medium (height 69.7; 66.4 mm; breadth 132.9 mm; 124.3 mm). Horizontal profiling is strongly expressed as manifested in the small values of nasomalar (136.°7, 137.°4) and zygomaxillar (124.°0; 124.°6) angles.

The orbits are low, bordering on medium (32.9 mm; 32.8 mm; ind. from mf 79.8; 81.9; from d 82.3; 85.9). Nasal breadth is medium (24.9 mm; 23.8 mm; ind; 49.8; 49.3), the nasal angle wide; (32.°8; 27.°2). Palatal height is medium (40.4 mm. 39.0 mm; ind. 87.9; 83.8). Nasal bridge (dacr. ind. 59.5; 56.5) and nasal bones (sim. ind. 52.3; 44.4); are strongly projecting. Fossa canina is deep (6.04 mm; 5.47 mm).

The sexing of the skulls required much attention due to a prevalence of female skulls in the series. It must be noted, without going into the causes of this, that male skulls are usually represented in greater numbers than female skulls or in an almost equal proportion. Therefore, in the given case, all the preserved skeletal bones, especially the long and pelvic bones were thoroughly examined and the data on the burial inventory was taken into consideration. Skeleton 2 from grave No. 23 gave rise to much doubt. The burial furnishings were feminine, consisting of a mirror and many beads (more than hundred) disposed mainly at the feet and the neck (probably trimmings of the garment). But measurements of the skull reached values unusual in women. Notice was taken of the well developed relief. Skeleton 2 was assigned to the female group though with no great conviction.

The coefficients of sexual dimorphism did not deviate considerably from the theoretical ones established by Debets (Debets, 1961, Alexeev, Debets, 1964) on the basis of abundant craniological material.

Cranial anomalies in the series investigated were rare. 4 skulls out of 68 (Nos 11 049, 11 076, 11 089, 51/3) had additional bones of middle size in the lamboid suture. In 2 skulls (Nos. 11 044, 11 056) the metopic suture was preserved. In one skull (No. 11 064) the right lower first premolar was displaced out of the dental row medially of the second premolar so that the latter was next to a canine tooth.

Only one case of pathological change was observed—a spine-like bony exostosis on the left condyloid process, about 2 mm thick and 5 mm long (No. 11 053).

Standard deviations, which give an idea of the degree of heterogeneity, were computed for the major measurements. In the male group the range of variability of absolute measurements proved to be within the limits usual in craniological series with the exception of the orbital measurements. At the same time high values were obtained for the standard deviations of cranial and height-breadth indices. The variances of these characters (squares of standard deviations) exceed the limits admissible in random divergence of variables (Romanovskiy, 1947). An analogous situation is observed in the female group for the cranial index. Furthermore, in the female group parietal and bizygomatic breadths show a wide range of variability. The observed variances exceed theore-

tical values. Therefore in the analysis of the series special attention was given to such characters as parietal and bizygomatic breadth and cranial index.

According to the archaeological material from Zolotaya Balka the main part of the population must have consisted of Scythians. It is most important to find out to what degree the morphological features of the Scythian population of the VII—III cc.B.C. were inherited by the people to whom this cemetery belonged.

There is no unanimity on the question of the geographical regions occupied by Scythians. Some modern archaeologists believe that the forest-steppes of the Ukraine were inhabited by non-Scythian tribes (Grakov and Melyukova, 1954, and others), while other researchers are of the opinion that a single Scythian culture prevailed in the steppe and the forest-steppe regions (Terenozhkin, 1966 and oth.), or at least in the forest-steppes on the left bank of the Dnieper (Ilyinskaya, 1968).

Therefore the Scythian material from the steppe regions must be compared first of all with the material from Zolotaya Balka, the more so that the cemetery of this village is situated in a steppe region. The forest-steppe people too must be taken into account because certain researchers regard them as Scythians.

A comparison of the steppe Scythian series with the series from Zolotaya Balka shows that the major measurements have but slightly higher values in the first series, and these in the male group only. Their ratios are almost identical, with the exception of the cranial index, which was found to be higher in the female group from Zolotaya Balka (Zolotaya Balka 77.0; Black Sea steppes 74.8). In the male groups the cranial index is almost identical (Zolotaya Balka 75.2; Black Sea steppes 75.3). Forest-steppe material of the Scythian period was studied but introduced no appreciable amendments, possibly owing to the shortness of the series. It is presumably for the same reason that no differences could be revealed between the inhabitants of steppe and forest-steppe regions.

We know that in the Ukraine the massiveness of the human skeleton has been gradually diminishing during the Neolithic, the Bronze Age and the early Iron Age. The small differences in the major measurements of the male skulls of Scythians and the inhabitants of Zolotaya Balka may of course have been the result of this process. But these differences are actually non-significant. Moreover, no differences are observed in other characters involved in the process of gracilization, such as frontal and nasal angles, degree of glabella and external occipital protuberance. However, it must be borne in mind that the period considered (Scythians—late Scythians) had a brief span, and this fact may account for the process of gracilization being but feebly pronounced.

Thus it may be admitted that Scythians closely resembled the population of Zolotaya Balka in their morphological appearance. This resemblance seems to point to a genetic affinity of these two peoples. The latter supposition is confirmed by archaeological investigations.

It is evidenced by archaeological finds and some features of their burial rites, that Sarmatian elements

exerted a certain influence on the population of Zolotaya Balka but this influence cannot be distinctly traced in its morphological appearance. The Sarmatian admixture is difficult to demonstrate, because the differences in the morphological features of Scythians and Sarmatians are, in point of fact, limited to breadth of skull only (Konduktorova, 1956). The male skulls of steppe Scythians do not differ in this respect from the male skulls of the Zolotaya Balka cemetery. The introduction of forest-steppe material did not alter the picture (the combined Scythian series has a cranial index of 74.1). A slightly higher cranial index is found in the female group from Zolotaya Balka (Zolotaya Balka 77.0; Black Sea steppe 75.3; combined Scythian series 75.3). The greater brachycrany of the female group might, of course, be explained by a greater part being played by the Sarmatian element in the formation of the population of Zolotaya Balka, were it not for the absence of this phenomenon in the male skulls from the same cemetery. In any case the difference observed is not sufficient to admit the presence of an appreciable Sarmatian admixture in the population of Zolotaya Balka.

No direct association was observed between the Sarmatian burial ritual and the morphological features of the skeletons of this cemetery. The so-called "undermined" graves, that is graves with narrow side-recesses, are associated with Sarmatian burials. Three such graves were discovered in the Zolotaya Balka cemetery containing one skeleton each (grave 32, skeleton 11 050, grave 53, skeleton 11 076, and grave 62, skeleton 11 084). The cranial index in all the 3 skeletons does not exceed 79.9. Skeletons 11 050 (cranial index 74.0) and 11 084 (cranial index 72.4) have dolichocranic skulls, the skull of skeleton 11 076 (cranial index 77.0) is mesocranic. No distinct relation could be discovered between the crossed or slightly bent legs of the skeletons found in eight other graves and their cranial index: out of the eight skulls three were dolichocranic (No. 11 039, cran. ind. 68.5; No. 11 073, cran. ind. 76.6; No. 11 086, cran. ind. 71.0), four mesocranic (11 060, cran. ind. 77.7; No. 11 066, cran. ind. 79.9; No. 11 071, cran. ind. 79.0 and No. 11 076, cran. ind. 76.6), and one brachycranic (No. 11 040, cran. ind. 80.0). In the latter case (skeleton 11 040, grave 48) Sarmatian ritual features were more distinctly expressed. Thus thirty seven pieces of chalk were discovered under the skeleton and one of its hands (the left one) was posed on the pelvic bones. However, brachycranic skulls are found also in graves with no traces of Sarmatian burial rites. Therefore, if an admixture of Sarmatians did take place it must have affected the previous population rather than the one investigated.

Still, we must admit that all that has been said above about the weak association between the morphological features of the skeletons with the burial rites, and the slight differences in the major characters of the Sarmatian and Zolotaya Balka series, does not allow to exclude entirely a Sarmatian admixture. It will be recalled that such characters as cranial index in male and female groups, parietal breadth and bizygomatic breadth in female groups,

show a wide range of variability (the observed variances exceed the theoretical ones), and it is precisely in these characters that the Sarmatian and Scythian series show the greatest differences.

It was thought advisable to compare the material from Zolotaya Balka with the material from scythian Neapolis,—the Crimean site situated on the outskirts of Simferopol. This material was investigated earlier by the author (Konduktorova, 1964). Let us recall their morphological characteristics as well as the general archaeological information available.

9 skulls obtained in 1889—1891, were placed at our disposal presumably from a graveyard on the right slope of the ravine Petrovskaya Balka. A monumental mausoleum, the burial vault of the Scythian nobility, where 72 men were buried (Shults, 1953), yielded merely 10 skulls suitable for treatment. Five skulls were found in stone vaults hewn in a rock of Petrovskaya Balka on the eastern slope of the plateau. These skulls too belonged to representatives of Scythian nobility. The materials from the mausoleum and the vaults were unearthed in 1946 by the Tauro-Scythian expedition of the Institute of the History of Material Culture of the Academy of Sciences of the U.S.S.R. (Babenchikov, 1957b, Shults, 1947b).

Abundant material was obtained from the excavation of the flat eastern cemetery of Scythian Neapolis, most close chronologically to the cemetery of Zolotaya Balka and resembling it in the type of graves and burial inventory. This material consists of the osteological remains of 74 individuals. 400 burials were discovered but most of the buried were in a bad state of preservation. The excavations were carried out by the Institute of the History of Material Culture of the Academy of Sciences of the U.S.S.R., the Institute of Archaeology of the Ukrainian Academy of Sciences, the Pushkin Museum of Fine Arts and the Institute of Anthropology of the Moscow University (Symonovich, 1963a).

The skulls from scythian Neapolis are in the main dolichocranic but with significant individual variations up to brachycrany. The brain-case measurements are medium or high; brain-case capacity, greatest length, parietal breadth are high, basio-bregmatic height is medium bordering on high. Minimal frontal breadth is medium. Frontal slope is medium. Cranial relief as a whole is moderately pronounced.

The absolute measurements and the form of the brain case are subject to great individual variations. Large male skulls are in the majority but small skulls with weakly expressed relief are encountered too.

Facial height and breadth are medium. The face is orthognathous. The alveolar angle is not wide, though some skulls from the eastern cemetery exhibit an appreciable alveolar prognathism. Horizontal profiling is strongly pronounced. Canine fossa is deep.

The orbits are small, moderately high. The absolute measurements of the nose are medium, the nose is mesorrhine. The nasal bridge and nasal bones are strongly projecting. The nasal angle is wide.

When visually examined the series was suspected to be mixed. This supposition is corroborated by the

values of standard deviations. These values, which to a certain extent permit objective appraisal of the degree of heterogeneity proved to be high for the cranial, height-breadth, upper facial and nasal indices in both male and female groups, and for such absolute measurements as greatest length, perietal breadth, basio-bregmatic height, basicranial length, least frontal breadth, bizygomatic breadth, orbital height and frontal angle in the male groups.

On the basis of an analysis of this data, in which various archaeological evidence was used and compared with the morphological features of the skeletons, the author comes to the conclusion that the morphological type prevailing in the series from Scythian Neapolis is the same which was earlier represented in Scythians. At the same time the author notes an admixture of Sarmatian, probably also of Greek and possibly of Taurian elements.

The material from Zolotaya Balka had to be compared first of all with the materials of that site in scythian Neapolis which is archaeologically most close to the Zolotaya Balka cemetery, that is with the craniological series from the eastern cemetery.

It was found that the measurements of the brain case and facial skeleton show slightly higher values for the skulls of the eastern cemetery, as compared with those of Zolotaya Balka. The difference is most apparent in the values of basio-bregmatic height, although it is by no means great in the values reflecting the relationship of this character to other measurements. The basio-bregmatic height is 112.3 mm from porion and 134.6 mm from basion in the male skulls from Zolotaya Balka and 115.2 mm and 136.1 mm respectively in those from the eastern cemetery. In the female skulls the respective values are 109.9 mm and 128.4 mm in the skulls of Zolotaya Balka, and 114.3 mm and 132.1 mm in those of the eastern cemetery. Some small differences are observed in the orbital index: in the skulls from the eastern cemetery orbital height relative to breadth is somewhat higher (Zolotaya Balka: male 79.8, female 81.9; eastern cemetery: male 81.1, female 83.0). The frontal slope is more pronounced in the skulls of Zolotaya Balka (Zolotaya Balka: male 81.°7, female 85.°2; eastern cemetery: male 83.°7, female 87.°3), nasal projection is stronger (Zolotaya Balka: male 32.°8; eastern cemetery: male 30.°0), nasal breadth relative to nasal length larger (Zolotaya Balka: male 49.8, female 49.3; eastern cemetery: male 48.7 female 47.8). These observations are corroborated by the examination of all the material available for scythian Neapolis. The differences noted above are strictly speaking rather trends than dissimilarities, observed in male and female groups. No such trends were discovered for other characters. Thus, for instance, facial height relative to breadth is smaller in the male skulls of Zolotaya Balka (Zolotaya Balka 52.1; eastern cemetery: 53.4) while the female groups show a reverse relationship (Zolotaya Balka 54.7; eastern cemetery 53.6).

This trend is not easy to interpret. According to archaeological data the Scythian population of Neapolis did absorb some Sarmatian element. If so, this admixture would be expected to be manifested

first of all in the shape of the skull. A certain but not strongly pronounced difference in this character is observed in the female groups (cran. index: Zolotaya Balka—77.0; eastern cemetery—75.6), but it is absent in the male groups (Zolotaya Balka 75.2; eastern cemetery 75.4). Furthermore in the Sarmatian as well as in other brachycranic series greater brachycrany is associated with greater facial breadth. But the female brachycranic skulls of Zolotaya Balka have a higher face (relative to breadth) than the skulls from Neapolis. Thus, if an admixture of Sarmatians did take place, it must have been quite insignificant.

It is also known from historical sources that the Scythian population of scythian Neapolis was in contact with the neighbouring population of Greek colonies. Is it not possible, then, that some of the differences may be explained by an admixture of Greek elements to the population of Neapolis? Greek skulls are smaller than Scythian skulls, so that a Greek admixture would be expected to result in a reduction of skull measurements, and consequently the skulls from Neapolis would be smaller than the skulls from Zolotaya Balka. Actually the reverse is observed. Thus the difference between the skulls of Zolotaya Balka and of the eastern cemetery cannot be explained by the influence of Greek elements. At the same time there are grounds for supposing that some Greek traits did enter into the composition of the population of Neapolis. Judging from archaeological finds the Greek cultural influence is most expressed in the population represented in the stone vaults and the mausoleum. The skulls from these sepulchres are slightly smaller than those of the common population buried in the eastern cemetery. Therefore it can be suggested that this influence was present in a small degree and was apparently expressed in the morphological appearance of the upper classes.

Here the question arises as to whether the differences between the populations of Zolotaya Balka and scythian Neapolis may be explained by an admixture to the latter of Taurian or some other local population. Unfortunately information on the Taurian population is scanty. We know in the main that it was not homogeneous. Therefore it is difficult to answer our question. We cannot of course exclude the possibility of a positive answer. Neither can we overlook the possibility that the slight trend observed in the differences between some of the characters is due to chance rather than to mixing. The main argument in favour of the latter supposition is the small size of the series.

The results of the comparison should be taken into account in future research, but they do not preclude a close morphological resemblance between the populations of Zolotaya Balka and scythian Neapolis.

It is difficult to decide which of the two populations inherited more morphological features from the Scythians of the VII—III cc. B.C., since they both resembled Scythians.

It has already been mentioned that the skulls from Zolotaya Balka are somewhat smaller than the

skulls of Scythians. They are also smaller than the skulls from Neapolis, which in this respect approach the Scythian series. (The female Scythian skulls do not differ from those of the Neapolis series. The male Scythian skulls are a little larger than those from Neapolis). At the same time the population of Zolotaya Balka is closer to Scythians in the value of the frontal angle than the population of Neapolis (the forehead in the latter is straighter than with Scythians or the inhabitants of Zolotaya Balka). The nasal angle has the same value in the male skulls of the Scythian and of the Zolotaya Balka series. However, the characters considered may have been modified in the process of gracilization, so that it is difficult to differentiate the changes caused by this process from those resulting from mixing with a neighbouring population, the more so that the changes are not very pronounced and may be accidental.

Unfortunately the anthropological material from the Nikolaev cemetery (Kherson region) is almost entirely unusable. The measurements made by

A. Schliz are inexact. To analyse them was thought useless, the more so that the Institute of Anthropology of the Moscow State University and the Institute of Archaeology of the Academy of Sciences of the U.S.S.R. have reopened excavations of this cemetery. The work is expected to be finished during the next season. Then it will be possible to return to the analysis of the population of the Lower Dnieper region.

Thus we come to the conclusion that the people which at the threshold of the Christian era lived on the Lower Dnieper differed little in its morphological appearance from the scythians of the VII—III cc. B.C. This people absorbed Sarmatian elements to a small extent only. In the archaeological material the Sarmatian influence is more evident.

Analogous morphological features within the period considered are found also in the population of scythian Neapolis. The question, of whether these features can be traced in later populations, and if so to what an extent, will be discussed in the next chapter.

Definitions			Characters	Merkmale
Martin	Biometric school	Other authors		
1	L		Greatest length from glabella (g — op)	Größte Hirnschädellänge vom glabella
1b	F		Greatest length from ophryon on — op)	Größte Hirnschädellänge vom ophryon
8	B		Greatest parietal breadth (eu — eu)	Größte Hirnschädelbreite
17	H'		Height of the skull from basion (Basio—bregmatic height) (ba — b)	Basion-Bregma-Höhe
5	LB		Length of cranial base (ba — n)	Schädelbasislänge
20	OH		Height of the skull from porion (Porio-bregmatic height) (po — b)	Ohr-Bregma-Höhe
9	B'		Least breadth of forehead (ft — ft)	Kleinste Stirnbreite
10	B''		Greatest breadth of forehead (co — co)	Größte Stirnbreite
11			Bi-auricular breadth (au — au)	Bi-auricularbreite
12	biast. B		Breadth of occiput (ast — ast)	Größte Hinterhauptsbreite
7	fml		Length of foramen magnum (ba — o)	Länge des Foramen magnum
16	fmb		Breadth of foramen magnum	Breite des Foramen magnum
29	S ₁		Frontal chord (n — b)	Mediansagittale Frontalsehne
31	S ₃		Occipital chord (l — o)	Mediansagittale Occipitalsehne
	Sub (NB)		Frontal convexity height (Subtense from frontal chord)	Stirnkonvexitätshöhe
	Sub. (LO)		Occipital convexity height (Subtense from occipital chord)	Hinterhaupt konvexitäthöhe

Explanation of studied characters

Definitions			Characters	Merkmale
Martin	Biometric school	Other authors		
		AS	Arcus supraorbitalis length	Arcus supraorbitalis — Länge
38d 38	K		Cranial capacity (after Lee-Pearson)	Schädelkapazität (nach Lee-Pearson)
45	J		Bi-zygomatic breadth (zy — zy)	Jochbogenbreite
40	GL		Facial length (ba — pr)	Gesichtslänge
48	G'H		Upper facial height (n — pr)	Obergesichtshöhe
47	GH		Total facial height (n — gn)	Gesichtshöhe
43			Upper facial breadth (fmt — fmt)	Obergesichtsbreite
43 ₁	JOW		Internal bi-orbital breadth (fmo — fmo)	Innere Biorbitalbreite
46	GB		Middle facial breadth (zm — zm)	Mittelgesichtsbreite
60			External length of upper alveolar arch (pr — alv)	Maxilloalveolarlänge
61			External breadth of upper alveolar arch (ekm — ekm)	Maxilloalveolarbreite
62	W ₁		Palatal length (ol — sta) (from staphylion)	Gaumenlänge (from staphylion)
63	G ₂		Palatal breadth (enm — enm)	Gaumenbreite
55	NH'		Nasal height (n — ns)	Nasenhöhe
54	NB		Nasal breadth	Nasenbreite
51	O ₁ L		Orbital breadth (from maxillofrontale) (mf — ek)	Orbitalbreite (vom maxillofrontale)
51a	O ₁ L		Orbital breadth (from dakryon) (d — ek)	Orbitalbreite (vom dakryon)
52	O ₂ L		Orbital height	Orbitalhöhe
	FS		Depth of fossa canina (after Abinder)	Tiefe der Fossa canina (nach Abinder)
50			Maxillo-frontal chord (mf — mf)	Vordere Interorbitalbreite (Maxillofrontale Breite)
	MS		Maxillo-frontal subtense	Maxillofrontale Höhe
49a	DC		Dacryal chord (d — d)	Dacryale Sehne
	DS		Dacryal subtense	Dacryale Höhe
57	SC		Simotical chord (least breadth of nasal bones)	Simotical Sehne (Kleinste Breite der Nasenbeine)

Definitions			Characters	Merkmale
Martin	Biometric school	Other authors		
	SS		Simotical subtense	Simotical Höhe
65	W1		Bicondylar breadth (kdl — kdl)	Kondylenbreite des Unterkiefers
66	W2		Bigonial (angular) breadth (go — go)	Winkelbreite des Unterkiefers
67	ZZ		Distance between foramina mentalia	Vordere Unterkieferbreite
68	Cpl		Mandibular projective length from gonion	Länge (Tiefe) des Unterkiefers vom Gonion
68 ₁	ml		Mandibular projective length from kondyluses	Länge (Tiefe) des Unterkiefers vom Kondylen
69	h'		Chin height (id — gn)	Kinnhöhe
70	rl		Height of mandibular ramus	Asthöhe (Kondylenhöhe)
71a	rb'		Least breadth of mandibular ramus	Kleinste Astbreite
32	NM/FH		Frontal angle from nasion (m — n — OAE)	Stirnprofil-Winkel vom Nasion
	GM/FH		Frontal angle from glabella (m — g — OAE)	Stirnprofil-Winkel vom Glabella
33 ₁	LI/FH		Angle of the upper part of occiput (l — i — OAE) (Upper occipital angle)	Lambda-Inion-Winkel
33 ₂	IO/FH		Angle of the lower part of occiput (o — i — OAE) (Lower occipital angle)	Opisthion-Inion-Winkel
33	LO/FH		Angle of the inclination of the occipital bone (l — i — OAE)	Lambda-Opisthion-Winkel
34	OB/FH		Angle of the inclination of foramen magnum (o — b — OAE)	Neigungs-Winkel des Foramen magnum
72	Prost. PL		Total facial angle (n — pr — OAE)	Ganzprofil-Winkel
73			Midfacial angle (n — ns — OAE)	Nasaler Profil-Winkel
74			Alveolar angle (n — pr — OAE)	Nasaler Profil-Winkel
75 ₁			Angle of the nasal profile with the facial profile Nasal angle with the line of profile (n — rhi — line of profile)	Winkel des Nasendaches mit der Profilinie
77			Naso-malar angle (fmo — n — fmo)	Nasomalar-Winkel (Querprofilwinkel des Obergesichts)
		zm'	Zygomaxillar angle (zm' — ss — zm) (after Abinder)	Zygomaxillar-Winkel (nach Abinder)

Definitions			Characters	Merkmale
Martin	Biometric school	Other authors		
79	M		Mandibular angle (Angle of the inclination of mandibular ramus)	Astwinkel des Unterkiefers
	C'		Mental angle (id-pog-standard basal plane)	Kinnwinkel des Unterkiefers
—			Glabella (prominence after Martin; 1—6)	Glabella (Vortreten nach Martin; 1—6)
—		N	Arcus supraorbitalis (Martin's scale for glabella prominence 1—6);	Arcus supraorbitalis; (nach der Schema des Glabellarvortretens; Martin; 1—6)
—			Depth of fossa canina (0—4)	Tiefe der Fossa canina (0—4)
—			Lower edge of apertura piriformis	Unterrand der Apertura piriformis
—			Percentage of the anthropine forms of the lower edge of apertura piriformis	Prozentsatz der anthropinen Form des Unter- randes der Apertura piriformis
—			Spina nasalis anterior (after Broca; 1—5)	Spina nasalis anterior (Broca; 1—5)
—			Protuberantia occipitalis externa (after Broca; 0—5)	Protuberantia occipitalis externa (Broca; 0—5)
—			Processus mastoideus (1—3)	Processus mastoideus (1—3)
8 : 1 (I 1)	B/L		Cranial index $\left(\frac{eu - eu}{g - op} \cdot 100\right)$	Breiten-Längen-Index des Schädels
17 : 1 (I 2)	H/L		Height-length index (from basion) $\left(\frac{ba - b}{g - op} \cdot 100\right)$	Höhenlängen-Index (vom basion)
20 : 1 (I 4)	Bregm. OH/L		Height-length index $\left(\frac{ba - p}{g - op} \cdot 100\right)$ (from porion)	Höhen-Längen-Index (vom porion)
17 : 8 (I 3)	H'/B		Height-breadth index $\left(\frac{ba - b}{eu - eu} \cdot 100\right)$ (from basion)	Höhen-Breiten-Index (vom basion)
20 : 8 (I 5)	Bregm. OH/B		Height-breadth index (from porion)	Höhen-Breiten-Index (vom porion)
9 : 8 (I 13)	B'/B		Transverse frontoparietal index $\left(\frac{ft - ft}{eu - eu} \cdot 100\right)$	Transversaler Frontoparietal-Index
		AS : 43	Arcus supraorbitalis length index $\left(\frac{\text{Arcus supraorbitalis length}}{fmt - fmt} \cdot 100\right)$	Arcus supraorbitalis Länge-Index
48 : 17	G'H/H'		Vertical facio-cranial index $\left(\frac{n - pr}{ba - br} \cdot 100\right)$	Verticaler Faciocranial-Index

Definitions			Characters	Merkmale
Martin	Biometric school	Other authors		
45 : 8 (I 17)	J/B		Transverse facio-cranial index $\left(\frac{zy - zy}{eu - eu} \cdot 100 \right)$	Transversaler Faciocranial-Index
	Sub. NB/S ₁	FS : 29	Frontal convexity index $\left(\frac{Sub \cdot NB}{n - b} \cdot 100 \right)$	Stirnkonvexität-Index
	Sub. LO/S ₃	OS : 31	Occipital convexity index $\left(\frac{Sub \cdot LO}{I - o} \cdot 100 \right)$	Hinterhauptkōnvexitäts-Index
40 : 5 (I 60)	GL/LB		Index of prognatism (gnathic index) $\left(\frac{ba - pr}{n - ba} \cdot 100 \right)$	Kiefer-Index
48 : 45 (I 39)	G'H/J		Upper facial index $\left(\frac{n - pr}{zy - zy} \cdot 100 \right)$	Obergesichts-Index
47 : 45 (I 38)	GH/J		Total facial index $\left(\frac{n - gn}{zy - zy} \cdot 100 \right)$	Gesichts-Index
54 : 55 (I 48)	NB/NH'		Nasal index $\left(\frac{\text{nasal breadth}}{n - ns} \cdot 100 \right)$	Nasal-Index
52 : 51a (I 42b)	O ₂ L/O ₁ L		Orbital index (from dacryon) $\left(\frac{\text{orbital height}}{d - ek} \cdot 100 \right)$	Orbital-Index (vom dacryon)
52 : 51 (I 42)	O ₂ L/O ₁ LĒ		Orbital index (from maxillofrontale) $\left(\frac{\text{orbital height}}{m - ek} \cdot 100 \right)$	Orbital-Index (vom maxillofrontale)
63 : 62 (I 58)	G/G ₁		Palatal index (from staphylion) $\left(\frac{enm - enm}{d - sta} \cdot 100 \right)$ Upper alveolar arch index	Gaumen-Index (vom staphylion)
61 : 60 (I 54)	E./p. b. E. p. 1.		External palate index (maxillo-alveolar index) $\left(\frac{ekm - ekm}{pr - alv} \cdot 100 \right)$	Maxilloalveolar-Index
		MS : 50	Maxillo-frontal index $\left(\frac{\text{maxillo-frontal sub}}{mf - mf} \cdot 100 \right)$	Maxillofrontal-Index
		DS ; DC	Dacryal index $\left(\frac{\text{dacryal sub}}{d - d} \cdot 100 \right)$	Dacryaler-Index
		SS ; SC	Simotical index $\left(\frac{\text{simotical sub}}{\text{simotical chord}} \cdot 100 \right)$	Simotical-Index
71a : 70	rb/rl		Mandibular ramus index $\left(\frac{\text{least breadth of ramus}}{\text{Height of ramus}} \cdot 100 \right)$	Index der Unterkieferastes
68 : 66	Cp 1/W ₂		Mandibular length-bigonial index $\left(\frac{\text{Mandibular projective length}}{go - go} \cdot 100 \right)$	Längenbreiten-Index des Corpus mandibulae

D. Note; differ from frontal curvature index (26 : 29)

2) Note: differ from occipital curvature index (28 : 31)

Martin No		Characters	Merkmale	
Fe- mur	1	Greatest length of femur	Größte Länge des Femur	
	2	Bicondylar length	Ganze Länge des Femur in sogenannter natürlicher Stellung	
	8	Circumference in the middle of diaphysis	Umfang der Diaphysenmitte	
Ti- bia	1 10b	Total length of tibia Least circumference	Ganze Länge der Tibia Kleinster Umfang der Diaphyse	
Fi- bula	1 4a	Greatest length Least circumference	Größte Länge der Fibula Kleinster Umfang der Diaphyse	
Hu- merus	1 7	Greatest length Least circumference	Größte Länge des Humerus Kleinster Umfang der Diaphyse	
Ra- dius	1 3	Greatest length Least circumference	Größte Länge des Radius Kleinster Umfang	
Ulna	1 3	Greatest length Least circumference	Größte Länge der Ulna Kleinster Umfang	
Pro- por- tions	(H1 + R1) :		Pro- por- tionen	Intermembral-Index
	(T1 + F2)	Intermembral index		(Extremität-Index)
	T1 : T2	Tibio-femoral index		Tibio-Femoral-Index
	R1 : H1	Radio-humeral index		Radio-Humeral-Index
	H1 : F2	Humero-femoral index		Humero-Femoral-Index
	R1 : T1	Radio-tibial index		Radio-Tibial-Index
8 : 2		Robusticity index of femur	Massivitäts-Index des Femur	
10b : 1		Robusticity index of tibia	Massivitäts-Index der Tibia	
4a : 1		Robusticity index of fibula	Massivitäts-Index der Fibula	
7 : 1		Robusticity index of humerus	Massivitäts-Index des Humerus	
3 : 1		Robusticity index of radius	Massivitäts-Index des Radius	
3 : 1		Robusticity index of ulna	Massivitäts-Index der Ulna	

Name of burial site	Number of burial	Inventory number of the Museum of Anthropology of the Moscow University	Sex	FEMUR			TIBIA		HUMERUS		RADIUS		ULNA	
				1	2	3	1	10b	1	7	1	3	1	3
				Greatest length of femur	Physiological length	Circumference in the middle of the shaft	Total tibial length	Minimal circumference	Greatest length	Minimal circumference	Greatest length	Minimal circumference	Greatest length	Minimal circumference
Vasilyevka I	2	10069	m	447(r)	441(r)	91(r)	384(l)	83(l)	311(r)	73(r)	—	—	253(r)	42(r)
Vasilyevka I	4	10072	m	487(r)	484(r)	103(r)	—	—	310(l)	70(l)	—	—	—	—
				488(l)	484(l)	103(l)	—	—	—	—	—	—	—	—
Vasilyevka I	5	10073	m	—	—	—	416(r)	85(r)	—	—	—	—	—	—
				—	—	—	416(l)	85(l)	—	68(l)	282(l)	36(l)	—	—
Vasilyevka I	6	10074	m	—	—	—	—	—	344(l)	72(l)	274(l)	39(l)	—	—
Vasilyevka I	8	10075	m	—	—	93(r)	—	78(r)	347(l)	67(l)	—	—	—	42(l)
Vasilyevka I	9	10076	m	450(r)	447(r)	87(r)	—	—	—	65(l)	—	—	—	—
				446(l)	444(l)	86(l)	—	—	—	—	—	—	—	—
Vasilyevka I	10	10077	m	—	—	—	367(r)	78(r)	—	—	272(r)	37(r)	—	—
				459(l)	453(l)	92(l)	368(l)	78(l)	314(l)	68(l)	274(l)	37(l)	252(l)	40(l)
Vasilyevka I	13	11080	m	453(l)	451(l)	92(l)	378(l)	81(l)	320(l)	69(l)	266(l)	38(l)	—	—
Vasilyevka I	15	10082	m	491(l)	489(l)	95(l)	—	—	348(l)	69(l)	—	—	258(l)	41(l)
Vasilyevka I	16	10083	m	—	—	—	—	—	353(l)	70(l)	—	—	273(l)	46(l)
Vasilyevka I	17	10084	m	—	—	—	—	—	347(l)	77(l)	—	—	—	—
Vasilyevka I	18	3496	m	477(r)	475(r)	102(r)	—	—	367(r)	73(r)	—	—	275(r)	45(r)
Vasilyevka I	18a	10085	m	465(r)	463(r)	92(r)	—	—	340(l)	68(l)	287(l)	38(l)	258(l)	45(l)
Vasilyevka I	19	3497	m	478(r)	476(r)	92(r)	—	—	—	—	—	—	—	—
				479(l)	477(l)	90(l)	—	—	—	—	—	—	—	—
Vasilyevka I	21a	10088	m	457(l)	456(l)	89(l)	—	—	—	—	—	—	—	—
Vasilyevka I	20	10086	f	446(r)	445(r)	82(r)	359(r)	69(r)	—	—	—	—	—	—
				446(l)	445(l)	81(l)	354(l)	68(l)	314(l)	62(l)	—	—	241(l)	41(l)
Voloshskoe	11	9883	m	—	—	—	363(r)	75(r)	326(r)	72(r)	275(r)	34(r)	253(r)	45(r)
				446(l)	443(l)	95(l)	—	—	—	—	276(l)	36(l)	253(l)	43(l)
Voloshskoe	5	9880	m	478(l)	446(l)	93(l)	—	—	—	—	—	—	257(l)	45(l)

NOTE:

The limb bones from Vasilyevka I cemetery were measured twice. In our first publication a defect of the caliper was not taken into account. The same can be applied to the materials from the Neolithic cemeteries—Vovnigi I, Vovnigi II (Konduktorova, 1960), from the Gavrilovka cemetery (Konduktorova, 1958), from the burial sites of the Bronze Age and the Sarmatian culture (Konduktorova, 1956).

2. The dimensions are in mm.

Nr.	Dating	Burial site	Burial number
1	Mesolithic	Dniepropetrovsk region, Voloshskoe village	Burial 1
2	Neolithic	Dniepropetrovsk region, v. Igren	Burial 4
3	Neolithic	Dniepropetrovsk region, v. Voloshskoe (Surksoy island)	Stone covering 3, burial 2
4	Neolithic	Dniepropetrovsk region, v. Voloshskoe (Surskoy island)	Stone covering 4, burial 1
5	Neolithic	Dniepropetrovsk region, v. Voloshskoe (Surskoy island)	Stone covering 6, burial 1E
6	Neolithic	Dniepropetrovsk region, v. Voloshskoe (Skolya-Quarry)	Burial 3
7	Neolithic	Dniepropetrovsk region, v. Chapli	Burial 14
8	Neolithic	Dniepropetrovsk region, v. Nikolskoe	Burial
9	Neolithic	Dniepropetrovsk region, v. Nikolskoe	Burial 2
10	Neolithic	Zaporozh'e region, v. Privolnoe (Vinogradniy island)	Burial
11	Neolithic	Zaporozh'e region, v. Zmeevka	Burial found beneath the settle- ment
12	Neolithic	Dniepropetrovsk region, v. Igren	Burial 6
13	Neolithic	Dniepropetrovsk region, v. Voloshskoe (Surskoy island)	Stone covering 2, burial 2
14	Neolithic	Dniepropetrovsk region, v. Voloshskoe (Surskoy island)	Stone covering 2, burial 3
15	Neolithic	Dniepropetrovsk region, v. Voloshskoe (Surskoy island)	Stone covering 4, burial 2
16	Eneolithic	Dniepropetrovsk region, v. Igren	Burial 2
17	Eneolithic	Dniepropetrovsk region, v. Igren	Burial 7
18	Eneolithic	Oherson region, v. Mikhaylovka	Burial

NOTE: Longitudinal dimensions are in mm, angles in degrees, volume in cm

TABLE I (2)

Inventory number of the Museum of Anthropology of the Moscow University	29 Frontal chord (n — b)	31 Occipital chord (l — o)	— Frontal convexity height (Subtense from frontal chord)	— Occipital convexity height (Subtense from occipital chord)	— Arcus supraorbitalis length	38 Cranial capacity (after Lec-Pearson)	45 Bi-zygomatic breadth (zy — zy)	40 Facial length (ba — pr)	48 Upper facial height (n — pr)	47 Total facial height (n — gn)	43 Upper facial breadth (fnt — fnt)	43 ₁ Internal Bi-orbital breadth (fmo — fmo)	46 Middle facial breadth (zm — zm)
11094	118	—	25.0	—	79	1613	138?	—	78	122	112	106	—
9317	113	—	29.0	—	88	1444	—	—	—	108	99	—	—
9302	125	—	29.0	—	82	1630	139?	—	70	120	113	105	—
9309	115	105	—	23.0	68	1523	—	—	—	—	112	—	—
9303	114	94	24.0	27.0	69	1506	—	—	62	—	106	98	—
10703	115	98	25.5	24.5	83	1496	145	106	71	120	115	107	—
9320	—	—	—	—	—	1803	—	—	—	—	—	—	—
10331	122	103	26.0	27.0	81	1649	144?	—	80	126	115	106	101
9348	—	107	—	28.0	—	1594	—	—	—	—	—	—	—
9301	119	—	30.0	—	72	1576	141?	107	75	127	105	105	96
10456	—	—	—	—	—	—	—	—	73	—	—	—	—
9318	—	—	—	—	—	1529	—	—	—	—	—	—	—
9304	104	97	24.0	23.5	66	1205	130	95	70	109	103	97	92
9308	101	92	23.0	27.5	55	1351	123	98	65	101	102	95	96
9310	—	—	—	—	—	1269	—	—	—	—	—	—	—
9315	113	100	24.5	30.0	—	—	—	101	66	111	—	—	—
9319	112	—	26.0	—	69	1493	133	—	70	122	109	100	94
56/1	105	98	21.0	30.0	66	1466	151	—	—	—	—	—	—

Inventory number of the Museum of Anthropology of the Moscow University	Sex	Age	1 Greatest length from glabella (g — op)	1b Greatest parietal breadth (eu — eu)	8 Greatest length from ophryon (on — op)	17 Height of the skull from basion (basio-bregmatic height (ba — b)	5 Length of cranial base (ba — n)	20 Height of the skull from porion (Porio-bregmatic height (po — b)	9 Minimal frontal breadth (ft — ft)	10 Maximal frontal breadth (co — co)	11 Bi-auricular breadth (au — au)	12 Occipital breadth (ast — ast)	7 Length of foramen magnum (ba — o)	16 Breadth of foramen magnum
11094	m	45—50	201	194	146	—	—	117	103	127	129	—	—	—
9317—2931	m	40—45	179	179	135	—	—	123	101	123	—	110	—	—
9302—2941	m	45—50	188	183	147	—	—	126	99	125	122	117	—	—
9309	m	45—55	195	188	134	—	111	122	100	—	127	109	—	—
9303	m	50—60	195	—	132	—	—	122	94	117	113	105	—	—
10703	m	40—50	188	180	138	146	106	120	105	124	128	122	39	29
9320	m	30—40	202	—	153	—	—	128	—	—	—	—	—	—
10331	m	45—55	196	190	149	152	117	121	107	126	128	113	42	36
9343	m	55—65	190	185	146	—	—	122	102	122	123	105	—	—
9301	m	45—55	192	190	140	146	105	124	104	125	127	123	—	—
10456	m	45—55	200	—	147?	—	—	—	104	—	—	—	—	—
9318—2932	f	45—55	194	190	140	—	—	121	107	118	—	—	—	—
9304—2939	f	25—35	170	168	137	135	99	104	98	117	117	102	39	31
9308	f	20—25	174	171	137	122	98	118	93	116	120	116	38	32
9310	f	20—25	182	181	132	—	—	108	98	118	117	—	—	—
9315—2930	f	30—40	186	—	—	144	101	119	—	—	—	115	—	—
9319—2933	f	20—30	188	181	145	—	—	114	102	116	127	118	—	—
56/1	f	55—65	188	179	148	—	—	109	—	—	137	123	—	—

TABLE I (3)

Inventory number of the Museum of Anthropology of the Moscow University	60 External breadth of upper alveolar arch (ekm — ekm)	61 Palatal length (from staphylion) (ol — sta)	62 Palatal length (from staphylion) (ol — sta)	63 Palatal breadth (enm — enm)	55 Nasal height (n — ns)	54 Nasal breadth	51 Orbital breadth (from maxillofrontale) (mf — ek)	51a Orbital breadth (from dakryon) (d — ek)	52 Orbital height	— Depth of fossa canina (after Abinder)	50 Maxillofrontal chord (mf — mf)	— Maxillofrontal subtense	49a Dacryal chord (d — d)
11094	—	—	—	—	57.0	28.0?	46.0	—	33.0	—	—	—	—
9317	—	—	—	—	49.0	25.5	44.0	42.0	29.0	6.0	21.5	11.5	—
9302	—	—	51	—	—	—	—	—	—	—	—	—	—
9309	—	—	—	—	51.0	25.0	40.0	—	29.0	—	—	—	—
9303	—	—	—	—	50.0	26.5	44.0	43.0	30.0	1.0	22.0	11.0	—
10703	58	72	29	48	—	—	—	—	—	—	—	—	—
9320	—	—	—	—	56.0	24.0	45.0	—	35.5	2.0	23.0	—	—
10331	58	67	51	44	—	—	—	—	—	—	—	—	—
9343	—	—	—	—	53.0	26.3	44.0	43.0	33.0	5.5	22.0	8.5	21.5
9301	59	69	48	42	52.0	27.0	—	—	—	—	—	—	—
10456	—	—	—	—	—	—	—	—	—	—	—	—	—
9318	—	—	—	—	48.0	22.0	41.5	—	32.5	1.5	19.0	8.0	—
9304	53	58	44	38	47.0	24.0	40.0	39.0	29.0	3.0	20.0	8.7	—
9308	54	59	46	39	—	—	—	—	—	—	—	—	—
9310	—	—	—	—	48.0	26.5?	—	—	—	—	—	—	—
9315	58	64	—	—	48.5	24.5	43.0	41.0	35.0	2.0	18.8	10.8	—
9319	62	69	—	—	—	—	—	—	—	—	—	—	—
56/1	—	—	—	—	—	—	—	—	—	—	—	—	—

TABLE I (4)

Inventory number of the Museum of Anthropology of the Moscow University	Dacryal subtense	57 Simotical chord (least breadth of nasal bones)	— Simotical subtense	65 Bicondylar breadth (kdl — kdl)	66 Bigonial (angular) breadth (go — go)	67 Distance between foramina mentalia	68 Mandibular projective length from gonion	68a Mandibular projective length from kondyluses	69 Chin height (id — gn)	70 Height of mandibular ramus	71a Minimal breadth of mandibular ramus	32 Frontal angle from nasion (m — n — OAE)	— Frontal angle from glabella (m — g — OAE)
11094	—	8.0	4.0	—	109?	—	95?	120?	33	69?	36	74?	64?
9317	—	9.0	3.0	—	—	—	—	—	35	—	34	—	—
9302	—	9.5	5.3	—	—	49	—	—	40	—	35	85	78
9309	—	—	—	—	—	—	—	—	—	—	—	—	—
9303	—	10.0	6.5	—	—	—	—	—	—	—	—	—	—
10703	—	9.0	3.5	138	118	46	86	116	36	70	44	83	73
9320	—	—	—	—	—	48	—	—	32	—	—	—	—
10331	—	—	—	129	111	50	91	113	34	74	40	—	—
9343	—	—	—	—	—	—	—	—	—	—	40	—	—
9301	12.2	7.4	3.2	122	110	52	95	110	39	73	39	89	81
10456	—	—	—	—	—	—	—	—	37	—	38	—	—
9318	—	—	—	—	—	—	—	—	—	—	42	—	—
9304	—	6.0	3.0	116	83	41	78	99	30	68	32	81	75
9308	—	7.5	4.2	—	84	47	77	—	28	57	38	80	75
9310	—	—	—	—	—	44	—	—	—	—	35	—	—
9315	—	—	—	—	—	45	—	—	34	—	36	—	—
9319	—	8.0	4.5	117	99	46	79	112	38	61	32	79	70
56/1	—	—	—	142	107	51	83	117	36	69	39	—	—

TABLE I (6)

Inventory number of the Museum of Anthropology of the Moscow University	Spina nasalis anterior (after Broca; 1—5)	Protuberantia occipitalis externa (after Broca; 0—5)	Processus mastoideus (1—3)	8 : 1 (I 1) Cranial index (eu, eu g. op · 100)	17 : 1 (I 2) Height-length index (from basion) (ba — b g — op · 100)	20 : 1 (I 4) Height-length index (from porion) (g — op ba — p · 100)	17 : 8 (I 3) Height-breadth index (from basion) (ba — b eu — eu · 100)	20 : 8 (I 5) Height-breadth index (from porion)	9 : 8 (I 13) Transverse frontoparietal index (ft — ft eu — eu · 100)	— Arcus supraorbitalis length index (Arcus supraorbitalis length bitalis length fnt — fnt · 100)	48 : 17 Vertical facio-cranial index (n — pr ba — b · 100)	45 : 8 (I 71) Transverse facio-cranial index (zy — zy eu — eu · 100)	— Frontal convexity index (Sub. NB n — b · 100)	— Occipital convexity index (Sub. NB n — b · 100)
11094	—	3	3	72.6	—	58.2	—	80.1	70.6	70.5	—	94.5	21.2	—
9317	—	3	3	75.4	—	68.7	—	91.1	74.8	81.5	—	—	25.7	—
9302	—	3	3	78.2	—	67.0	—	85.7	67.4	72.6	—	94.6	23.2	—
9309	—	3	3	68.7	—	62.6	—	91.0	74.6	60.7	—	—	—	21.9
9303	—	3	2	67.7	—	62.6	—	92.4	71.2	65.1	—	—	21.0	28.7
10703	3	4	3	73.4	77.7	63.8	105.8	87.0	76.1	72.2	48.6	105.1	22.2	25.0
9320	—	3	3	75.7	—	63.4	—	83.7	—	—	—	—	—	—
10331	4	3	3	76.0	77.6	61.7	102.0	81.2	71.8	70.4	52.6	96.6	21.3	26.2
9343	—	3	3	76.8	—	64.2	—	83.6	69.9	—	—	—	—	26.1
9301	5	4	3	72.9	76.0	64.6	104.3	88.6	74.3	62.6	51.4	100.7	25.2	—
10456	—	5	3	73.5	—	—	—	—	70.8	—	—	—	—	—
9318	—	2	2	72.2	—	62.4	—	86.4	76.4	—	—	—	—	—
9304	2	1	2	80.6	79.4	61.2	98.5	75.9	71.5	64.1	51.8	94.9	23.1	24.2
9308	4	1	1	78.7	70.1	67.8	89.1	86.1	67.9	53.9	53.3	89.8	22.8	29.9
9310	—	1	1	72.5	—	59.3	—	81.8	74.2	—	—	—	—	—
9315	—	3	3	—	77.4	64.0	—	—	—	—	45.8	—	21.7	30.0
9319	4	3	2	77.1	—	60.6	—	78.6	70.3	63.3	—	91.7	23.2	—
56/1	3	3	3	78.7	—	58.0	—	73.6	—	—	—	—	20.0	30.6

TABLE I (5)

Inventory number of the Museum of Anthropology of the Moscow University	33 ₁ Angle of the upper part of occiput (i — i — OAE) (Upper occipital angle)	33 ₂ Angle of the lower part of occiput (o — i — OAE) (Lower occipital angle)	33 Angle of the inclination of the occipital bone (i — i — OAE)	34 Angle of the inclination of foramen magnum (o — b — OAE)	72 Total facial angle (n — pr — OAE)	73 Midfacial angle (n — ns — OAE)	74 Alveolar angle (n — pr — OAE)	75 ₁ Angle of the nasal bones with the facial profile (n — rhi — Line of profile)	77 Nasomalar angle (fmo — n — fmo)	— Zygomaxillary angle (after Abinder) (zm — ss — zm)	79 Mandibular angle (Angle of the inclination of mandibular ramus)	— Chin angle (id-pog-standard basal plane)	— Glabella (prominence after Martin; 1—6)	— Arcus supraorbitalis after glabella prominence scale Martin; 1—6)	— Depth of fossa carina (0—4)	— Lower edge of apertura piriformis
11094	—	—	—	—	—	—	—	—	135	—	—	—	5	5	—	anthr.
9317	—	—	—	—	—	—	—	—	—	—	—	—	3	4	—	—
9302	96	—	—	—	—	—	—	—	—	—	—	—	5	5	3	anthr.
9309	—	—	—	—	—	—	—	37	140	127	—	—	4	4	—	—
9303	—	—	—	—	—	—	—	—	132	130	—	—	4	4	—	anthr.
10703	92	31	115	0	84	84	83	30	142	—	109	71	5	5	1	anthr.
9320	—	—	—	—	—	—	—	—	—	—	—	—	4	4	—	anthr.
10331	—	—	—	—	—	—	—	—	136	133	110	—	5	5	1	anthr.
9343	—	—	—	—	—	—	—	—	—	—	—	—	5	5	2	—
9301	93	19	125	—	79	77	82	37	144	128	105	79	4	5	3	anthr.
10456	—	—	—	—	—	—	—	—	—	—	—	—	4	5	—	—
9318	—	—	—	—	—	—	—	—	—	—	—	—	3	4	—	—
9304	96	38	117	+3	80	80	82	30	144	118	112	68	2	2	1	anthr.
9308	85	37	112	—5	82	81	82	37	137	127	—	70	2	2	1	anthr.
9310	—	—	—	—	—	—	—	—	—	—	—	—	1	2	—	—
9315	—	—	—	—	—	—	—	—	—	—	—	—	3	3	—	anthr.
9319	95	—	—	—	—	—	—	—	—	—	—	—	4	4	1	anthr.
56/1	—	—	—	—	78	77	78	—	136	120	127	70	5	5	—	anthr.

TABLE I (7)

Inventory number of the Museum of Anthropology of the Moscow University	40 : 5 (I 60) Index of prognathism (gnathic index) (index of face prominence) $\left(\frac{ba - pr}{n - ba} \cdot 100\right)$	48 : 45 (I 39) Upper facial index $\left(\frac{n - pr}{zy \cdot zy} \cdot 100\right)$	47 : 45 (I 38) Total facial index $\left(\frac{n - gn}{zy - zy} \cdot 100\right)$	54 : 55 (I 48) Nasal index $\left(\frac{n - ns}{na - ns} \cdot 100\right)$	52 : 51a (I 42b) Orbital index (from dacryon) $\left(\frac{d - ek}{orbital height} \cdot 100\right)$	52 : 51 (I 42) Orbital index (from maxillofrontale) $\left(\frac{m - ek}{m - ek} \cdot 100\right)$	63 : 62 (I 58) Palatal index (from staphylion) $\left(\frac{d - sta}{(enm - enm)} \cdot 100\right)$	61 : 60 (I 54) Upper alveolar arch index. External palate index. Maxillo-alveolar index (ekm — ekm) $\left(\frac{pr - alv}{pr - alv} \cdot 100\right)$	— Maxillo-frontal index $\left(\frac{maxillo-frontal sub}{mf - mf} \cdot 100\right)$	— Dacryal index $\left(\frac{dacryal sub}{d - b} \cdot 100\right)$	— Simotical index $\left(\frac{simotical sub}{simotical chord} \cdot 100\right)$	71a : 70 Mandibular ramus index $\left(\frac{minimal breadth of ramus}{height of ramus} \cdot 100\right)$	68 : 66 Mandibular length-bisognal index $\left(\frac{Mandibular projective length}{go - go} \cdot 100\right)$
11094	—	56.5	38.4	49.1?	—	71.7	—	—	—	—	62.5	52.2	87.2?
9317	—	—	—	—	—	—	—	—	—	—	33.3	—	—
9302	—	50.4	86.3	52.0	69.0	65.9	—	—	53.5	—	55.8	—	—
9309	—	—	—	—	—	—	—	—	—	—	—	—	—
9303	—	—	—	49.0	—	72.5	—	—	—	—	65.0	—	—
10703	100.0	49.0	82.8	53.0	69.8	68.2	98.0	124.1	50.0	—	38.9	62.9	72.9
9320	—	—	—	—	—	—	—	—	—	—	—	—	—
10331	—	55.6	87.5	42.9	—	78.9	86.3	115.5	—	—	—	54.0	82.0
9343	—	—	—	—	—	—	—	—	—	—	—	—	—
9301	102.8	53.2	90.1	49.6	76.7	75.0	87.5	117.0	38.6	56.7	43.2	53.4	86.4
10456	—	—	—	51.9	—	—	—	—	—	—	—	—	—
9318	—	—	—	—	—	—	—	—	—	—	—	—	—
9304	96.0	53.8	83.8	45.8	—	78.3	86.4	109.4	42.1	—	50.0	47.1	94.0
9308	100.0	79.1	82.1	51.1	74.4	72.5	84.8	109.3	43.5	—	56.0	57.9	91.7
9310	—	—	—	—	—	—	—	—	—	—	—	—	—
9315	100.0	—	—	55.2	—	—	—	110.3	—	—	—	—	—
9319	—	52.6	91.7	50.5	85.4	81.4	—	111.3	57.4	—	56.2	52.5	79.8
56/1	—	—	—	—	—	—	—	—	—	—	—	56.5	77.6

Individual measurements of limb bones from burial sites of the Neolithic and Eneolithic Ages of the Ukraine

Dating	Burial site	Burial number	Inventory number of the Museum of Anthropology of the Moscow University	Sex
Neolithic	Dniepropetrovsk region, Igren village	Burial 4	2931—9317	m
Neolithic	Dniepropetrovsk region, Voloshskoe village (Surskoy island)	Stone covering 1, burial 1	2936—9305	m
		Stone covering 2, burial 1	2938—9306	m
Neolithic	Dniepropetrovsk region, (Surskoy island)	Stone covering 3, burial 2	2941—9302	m
Neolithic	Dniepropetrovsk region, Vovnigi village	Burial 3	3107—9480	m
Neolithic	Dniepropetrovsk region, Vovnigi village	Left { Burial 10	3378—9486	m
Neolithic	Dniepropetrovsk region, Vovnigi village	Bank { Burial 15	3379—9489	m
		cemetery {		
Neolithic	Dniepropetrovsk region, Vovnigi village	Burial 18	—	m
Neolithic	Dniepropetrovsk region, Vovnigi village	Burial 27	3380	m
Neolithic	Dniepropetrovsk region, Vovnigi village	{ Burial 6	3400	m
Neolithic	Dniepropetrovsk region, Vovnigi village	{ Burial 11	9844	m
Neolithic	Dniepropetrovsk region, Vovnigi village	Right { Burial 14	3401	m
		Bank {		
Neolithic	Dniepropetrovsk region, Vovnigi village	cemetery { Burial 23	3403	m
		{ Central grave	3405	m
Neolithic	Dniepropetrovsk region, Vovnigi village			
Neolithic	Dniepropetrovsk region, Igren village	Burial 6	2932—9318	f
Neolithic	Dniepropetrovsk region, Voloshskoe village (Surskoy island)	Stone covering 2, burial 2	2939—9304	f
Neolithic	Dniepropetrovsk region, Vovnigi village	Left Bank Cemetery Burial 1	3376—9478	f
Neolithic	Dniepropetrovsk region, Vovnigi village	{ Burial 2	9845	f
		Right {		
Neolithic	Dniepropetrovsk region, Vovnigi village	Bank { Burial 6	9867	f?
Neolithic	Dniepropetrovsk region, Vovnigi village	cemetery { Burial 7	3404—9897	f?
Neolithic	Dniepropetrovsk region, Vovnigi village	{ Central grave	3405	f
Eneolithic	Dniepropetrovsk region, Igren village	Burial 1	2935—9314	m
Eneolithic	Dniepropetrovsk region, Igren village	Burial 7	2933—9319	m

NOTE: The menssions is of the limb bones are in mm.

TABLE III

FEMUR			TIBIA		HUMERUS		RADIUS		ULNA	
1	2	3	1	10b	1	7	1	3	1	3
Greatest length of femur	Physiological length	Circumference in the middle of the shaft	Total tibial length	Minimal circumference	Greatest length	Minimal circumference	Greatest length	Minimal circumference	Greatest length	Minimal circumference
—	—	—	—	—	344(l)	75(l)	280(r)	49(r)	—	—
							278(l)	48(l)		
421(r)	419(r)	91(r)	333(r)	77(r)	311(l)	68(l)	—	—	—	—
425(r)	424(r)	89(r)	—	—	317(r)	65(r)	251(r)	44(r)	—	—
468(r)	462(r)	97(r)	388(r)	84(r)	—	—	—	—	—	—
—	—	—	369(l)	80(l)	—	—	—	—	—	—
485(r)	482(r)	103(r)	—	86(l)	—	—	—	—	—	—
472(r)	470(r)	106(r)	—	—	341(r)	81(r)	262(r)	51(r)	—	—
475(l)	473(l)	106(l)								
—	—	—	—	—	351(r)	73(r)	—	—	—	—
477(r)	471(r)	106(r)	407(l)	89(l)	—	77(r)	272(r)	53(r)	299(r)	48(r)
—	—	—	—	—	347(l)	73(l)	—	—	—	—
460(r)	455(r)	98(r)	—	—	—	64(l)	—	—	—	—
470(r)	468(r)	97(r)	—	—	338(l)	73(l)	—	—	286(r)	41(r)
476(l)	473(l)	96(l)								
437(r)	436(r)	97(r)	373(r)	87(r)	—	—	—	—	—	—
451(l)	446(l)	98(l)								
—	—	—	435(l)	86(l)	—	—	—	—	—	—
414(r)	413(r)	87(r)	343(r)	73(r)	303(r)	63(r)	—	—	—	—
414(l)	412(l)	86(l)	345(l)	73(l)	309(l)	65(l)				
430(r)	425(r)	82(r)	357(r)	68(r)	324(r)	55(r)	242(r)	37(r)	265(r)	30(r)
					323(l)	55(l)	241(l)	37(l)	264(l)	30(l)
427(r)	422(r)	90(r)	—	—	—	—	—	—	—	—
447(r)	443(r)	90(r)	—	—	313(r)	61(r)	—	—	—	—
						59(l)				
437(r)	436(r)	92(r)	359(r)	76(r)	308(l)	72(l)	—	—	267(r)	44(r)
—	—	—	—	—	353(l)	81(l)	237(l)	47(l)	—	—
—	—	—	—	—	371(r)	78(r)	—	—	—	—
					373(l)	78(l)				
					347(r)	73(r)	—	—	—	—
487(l)	487(l)	99(l)	398(r)	79(r)	—	—	—	—	—	—
427(l)	425(l)	82(l)	348(l)	70(l)						

Burial site	Number of barrow, burial, skeleton	Author and year of the excavation
Dniepropetrovsk region, Dniepropetrovsk district, Voloshskoe village (Skelya natural limit)	Burial 1	V. N. Danilenko, 1952
Dniepropetrovsk region, Apostolovo district, Kut village	Barrow 4, burial 5	D. T. Berezovets, 1951
Dniepropetrovsk region, Apostolovo district, Kut village	Barrow 4, burial 10	D. T. Berezovets, 1951
Dniepropetrovsk region, Apostolovo district, Grushevka village	Barrow 1/3, burial 3	D. I. Blifeld, 1951
Dniepropetrovsk region, Apostolovo district, Grushevka village	Barrow 1/3, burial 10	D. I. Blifeld, 1951
Dniepropetrovsk region, Apostolovo district, Grushevka village	Barrow 1/3, burial 15	D. I. Blifeld, 1951
Dniepropetrovsk region, Apostolovo district, Maryanskoe village	Barrow 1, burial 15	E. F. Pokrovskaya, 1953
Dniepropetrovsk region, Apostolovo district, Maryanskoe village	Barrow 1, burial 18	E. F. Pokrovskaya, 1953
Dniepropetrovsk region, Apostolovo district, Maryanskoe village	Barrow 1, burial 19	E. F. Pokrovskaya, 1953
Dniepropetrovsk region, Apostolovo district, Maryanskoe village	Barrow 1, burial 21	E. F. Pokrovskaya, 1953
Dniepropetrovsk region, Apostolovo district, Maryanskoe village	Barrow 1, burial 23, skeleton 1	E. F. Pokrovskaya, 1953
Dniepropetrovsk region, Apostolovo district, Maryanskoe village	Barrow 1, burial 25	E. F. Pokrovskaya, 1953
Dniepropetrovsk region, Apostolovo district, Maryanskoe village	Barrow 2, burial 2	D. T. Berezovets, 1952
Dniepropetrovsk region, Apostolovo district, Maryanskoe village	Barrow 6, burial 4	A. I. Furmanskaya, 1953
Dniepropetrovsk region, Nicopol district, Khmelnytskiy hamlet	Barrow 4, burial 10, skeleton A	I. P. Kostyuchenko, 1951
Dniepropetrovsk region, Solyonoe district, Solyonoe village	Barrow 1, burial 2	V. N. Danilenko, 1953
Kherson region, Novo-Vorontsovka district, Zolotaya Balka village	Stone-construction cromlech 1, burial 2	M. I. Vyazmitina, 1955
Kherson region, Novo-Vorontsovka district, Zolotaya Balka village	Stone-ring (cromlech) 8, burial 2	M. I. Vyazmitina, 1955
Kherson region, Novo-Vorontsovka district, Zolotaya Balka village	Grave 38, burial 1	M. I. Vyazmitina, 1959
Kherson region, Novo-Vorontsovka district, Zolotaya Balka village	Grave 57, burial 1	M. I. Vyazmitina, 1959
Kherson region, Novo-Vorontsovka district, Gavrilovka village (state farm of sovkhoz Pridnieprovskiy)	Burial 36	E. A. Symonovich, 1954
Kherson region, Verkhniy Rogachik district, Pervomaevka village	Barrow 5, burial 10	V. A. Ylyinskaya, 1953
Nicolaev region, Voznesenka district, Novo-Grigoryevka village	Barrow 1, burial 1	N. G. Yelagina, 1957
Kiev region, Stavishchany district, Ivanovka village	Barrow 1	E. F. Pokrovskaya, 1949
Kirovograd region, Grushevka district, Sabatinovka village	Barrow 1, burial 4	I. V. Fabritsius, 1949
Dniepropetrovsk region, Dniepropetrovsk district, Voloshskoe village (state farm of Pridnieprovskiy)	Burial 1	V. N. Danilenko, 1953
Dniepropetrovsk region, Apostolovo district, Kut village	Barrow 26, burial 1	D. T. Berezovets, 1951
Dniepropetrovsk region, Apostolovo district, Kut village	Barrow 1/3, burial 13	D. I. Blifeld, 1951
Dniepropetrovsk region, Apostolovo district, Kut village	Barrow 1/3, burial 16	D. I. Blifeld, 1951
Dniepropetrovsk region, Apostolovo district, Maryanskoe village	Barrow 1, burial 23, sk. 2	E. F. Pokrovskaya, 1952
Zaporozhye region, Bolshoy Tokmak district, Zamozhnoe village	Barrow 2, burial 11	K. F. Smirnov, 1952

NOTE 1) Linear measurements are given in mm, angles in degrees, capacity in cm³.

2) The measurements of the skulls Nos. 9736, 9341 belonging to Skeletons below 20 years are not included in the calculation of mean values.

TABLE IV (1)

Inventory number of the Museum of Anthropology of the Moscow University	Sex	Age	1 Greatest length from glabella (g—op)	1b Greatest length from ophryon (on—op)	8 Greatest parietal breadth (eu—eu)	17 Height of the skull from basion (Basio-bregmatic height) (ba—b)	5 Length of cranial base (ba—n)	20 Height of the skull from porion (Porio-bregmatic height) (po—b)	9 Minimal breadth of forehead (ft—ft)	10 Maximal breadth of forehead (co—co)	11 Bi-auricular breadth (au—au)	12 Occipital breadth (ast—ast)	7 Length of foramen magnum (ba—o)	16 Breadth of foramen magnum
9890	m	25—35	180	174	133	—	—	111	89	106	124	118	—	—
9326	m	40—50	189	188	135?	—	—	116?	100	118	—	—	—	—
9327	m	45—55	204	197	141	—	—	121	101	118	122	116	—	—
9336	m	45—55	204	202	143	—	—	119	98	124	138	—	—	—
9337	m	30—40	192	188	135	139	—	114	—	—	120	—	—	—
9340	m?	35—40	184	188	129	136	100	114	95	113	118	107	—	—
9734	m	35—45	186	183	134	138	104	116	95	114	120	110	34	28
9735	m	30—40	200	196	139	—	—	117?	97	122	—	—	—	—
9736	m?	17—19	182	178	156	—	—	112	99	128	133	120	—	—
9737	m	20—25	185	183	—	—	—	—	100	—	—	—	—	—
9738	m	25—35	200	195	139	148?	108	119	93	123	124	104	—	—
9739	m	40—45	184	180	139	139	108	112	103	125	123	104	38	31
10451	m	40—50	192	187	142?	143?	—	124?	107	125	—	—	—	—
9743	m	40—45	182	177	147	—	—	113	101	118	—	123	—	32
9344	m	50—60	195	193	135	—	—	115	97	118	—	—	—	—
10332	m	35—45	183?	180	137?	—	—	115	100	122	—	—	—	—
10446	m	40—50	178	175	144	131	95	117	98	118	124	112	35	31
10443	m	40—50	194?	190?	130?	—	—	115?	98	112	—	—	—	—
11058	m	30—35	178?	173	138?	—	—	121?	92	117	—	108	—	—
11077	m	55—65	187	181	142	—	—	115	104	124	124	—	—	—
9901	m	30—35	193?	—	154	142	—	121	111	131	137	125	35	34
9762	m	35—45	197?	—	141	—	—	119	106	122	132	119	—	—
10713	m	40—45	193	191	141	139	107	118	94	127	124	108	—	—
9424	m	45—55	189	188	146	—	—	117	110	133	132	110	—	—
9391	m	25—35	194	192	137	—	—	115	97	116	123	104	—	—
10367	f	45—50	176	174	138	133	100	114	99	117	124	115	35	32
10422	f	25—30	163	162	144	124	93	114	96	118	127	108	37	29
9339	f	45—55	189	187	131	—	—	114	—	—	115	107	—	—
9341	f	16—19	182	182	142	128	99	105	100	122	120	—	41	34
9830	f?	45—55	183	180	133	—	—	111	95	—	114	113	—	—
KA 420	f	50—60	180	178	—	—	—	112	98	—	123	—	—	—

TABLE IV (2)

Inventory number of the Museum of Anthropology of the Moscow University	29 Frontal chord (n — b)	31 Occipital chord (l — o)	— Frontal convexity height (Subtense from frontal chord)	— Occipital convexity height (Subtense from occipital chord)	— Arcus supraorbitalis length	38 Cranial capacity (after Lee-Pearson)	45 Bizygomatic breadth (zy — zy)	40 Facial length (ba — pr)	48 Upper facial height (n — pr)	47 Total facial height (n — gn)	43 Upper facial breadth (fnt — fnt)	43 ₁ Internal bi-orbital breadth (fmo — fmo)	46 Middle facial breadth (zm — zm)	60 External upper alveolar arch length (pr — alv)
9890	105	103	20	29	74	1329	134	—	60	103	104	98	94	55
9326	110	92	23	26	86	1440	—	—	—	—	107	—	—	—
9327	120	100	28	29	69	1629	133?	—	74?	114	—	—	98	56
9336	116	—	27	—	86	1626	149	—	73	121	114	105	94	—
9337	112	102	23	29	68	1438	126?	—	72	113	—	—	—	—
9340	109	96	27	31	62	1347	124	98	71	117	107	100	94	55
9734	111	99	23	29	77	1414	133	102	74	—	109	102	105	58
9735	116	—	27	—	76	1546	137?	—	75	123	107	100	99	60
9736	111	97	28	28	71	1520	134?	—	71	112	105	98	95	—
9737	121	94	28	24	76	—	—	—	74	116	—	—	—	—
9738	124	100	30	30	78	1567	134	104	73	118	108	99	96	—
9739	112	97	24	30	—	1405	140	97	74	119	—	—	—	58
10451	115	113	23	35	76	1593?	148?	—	75?	124?	—	101	—	55
9743	113	104	23	28	84	1463	—	—	68	113	115	106	—	—
9344	105	97	25	26	76	1564	—	—	—	—	113	—	—	—
10332	107	98	24	—	77	1412	137	—	69	111	113	104	101	58
10446	108	90	23	30	61	1454	147	—	71	123	109	101	100	54
10443	116	91	—	23	70	1418	131	—	69?	118?	110	—	106	—
11058	114	100	22	21	74	1444	128	—	57	102	106	99	—	—
11077	115	94	24	28	81	1474	136	—	67	114	113	102	—	—
9901	—	105	35	34	—	1672	148	100	67?	118?	114	—	105	—
9762	116	—	23	—	91	1566	143	—	74	—	114	106	108	55
10713	120	94	32	32	68	1531	133	104	73	123	105	98	97	56
9424	112	92	27	31	77	1538	148	—	—	—	113	105	—	—
9391	118	—	24	—	82	1475	—	—	—	—	—	100	—	—
10367	109	93	24	27	74	1335	135	98	69	107	109	100	100	—
10422	108	96	25	22	61	1300	129	95	70	112	103	94	93	53
9339	108	—	26	—	62	1355	—	—	—	—	—	—	—	—
9341	103	94	29	29	65	1314	121	95	65	106	104	98	90	57
9830	110	—	23	—	65	1310	—	—	—	—	—	99	—	—
KA 420	108	93	27	34	63	—	127	—	67	111	103	94	—	55

TABLE IV (3)

61	62	63	55	54	51	51a	52	—	50	—	49a	—	57	—
External upper alveolar arch breadth (ekm — ekm)	Palatal length (from staphylion) (ol — sta)	Palatal breadth (enn — enn)	Nasal height (n — ns)	Nasal breadth	Orbital breadth (from maxillofrontale) (mf — ek)	Orbital breadth (from dakryon) (d — ek)	Orbital height	Depth of fossa canina (after Abinder)	Maxillofrontal chord (mf — mf)	Maxillofrontal subtense	Dacryal chord (d — d)	Dacryal subtense	Simotical chord (minimal breadth of nasal bones)	Simotical subtense
62	45	40	44.0	22.0	41.2	40.6	31.5	4.5	19.0	10.0	—	—	6.5	2.5
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
71	—	—	—	22.0	—	—	34.0	—	—	—	—	—	—	—
—	—	—	51.0	24.0?	44.0	—	29.0	8.0	—	—	—	—	9.0	4.5
—	—	—	50.0	21.5	43.5	42.0	32.0	7.0	18.8	12.0	—	—	5.0	3.5
65	44	42	51.0	24.0	40.0	—	33.0	5.0	21.8	8.5	—	—	8.5	5.1
65	47	40	53.0	24.5	41.5	40.0	33.0	6.5	23.0	8.5	24.0	13.2	9.8	4.8
63	50	39	57.5	27.5	41.0	39.0	33.0	5.0	23.0	11.0	—	—	10.0	5.8
—	—	—	53.0	23.5	42.0	—	34.0	4.0	20.5	11.0	—	—	7.5	5.5
—	—	—	52.0	25.0	46.0	—	36.0	—	—	—	—	—	6.3	4.0
—	—	—	52.0	23.0	43.0	—	30.5	4.0	22.5	10.0	—	—	7.0	4.0
61	46	39	53.0	24.0?	40.0	38.0?	32.0	6.0	—	—	—	—	—	—
64	47	39	53.0?	—	—	—	—	7.0	—	—	—	—	—	—
—	—	—	52.5	25.5	44.0	—	33.0	8.0	22.0	10.8	—	—	8.0	5.0
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
68	50	47	53.0	26.0	44.0	43.0	34.0	6.0	19.2	12.3	20.0	15.6	6.6	6.1
64	45	42	52.0	23.5	42.5	—	32.0	3.5	20.6?	—	—	—	—	—
—	—	—	50.0?	26.0	42.0	—	35.0	5.5	—	—	—	—	—	—
—	—	—	—	—	38.0	—	27.0	7.0	—	—	—	—	—	—
—	—	—	54.0	25.0	40.0	—	30.0	8.9	22.7	12.5	—	—	12.0	6.0
—	—	—	48.0?	25.0	—	—	34.0	2.0	—	—	—	—	—	—
72	47	46	54.0	24.0	—	—	35.0	7.0	—	—	—	—	—	—
60	—	—	51.5	23.0	39.5	—	33.0	6.8	23.0	8.8	—	—	7.0	3.2
—	—	—	—	—	—	—	30.0	—	—	—	—	—	—	—
—	—	—	51.5	23.0	39.5	—	33.0	6.8	23.0	8.8	—	—	7.0	3.2
—	—	—	52.5	27.5	41.0	—	33.5	4.0	21.0	10.0	21.8	15.0	8.2	4.8
62	46	39	50.0	23.0	39.5	38.5	33.0	5.0	18.6	8.8	20.0	10.3	6.5	3.8
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
65	46	40	48.0	23.5	40.0	38.5	34.0	5.5	21.8	8.8	—	—	9.0	3.0
—	—	—	—	—	—	—	35.0	—	—	—	—	—	—	—
61	47	—	46.0	24.0	41.0	40.0	30.0	3.0	17.5	8.5	—	—	9.0	4.5

TABLE IV (4)

Inventory number of the Museum of Anthropology of the Moscow University	65 Bicondylar breadth (kdl — kdl)	66 Bigonial (angular) breadth (go — go)	67 Distance between foramina mentalia	68 Mandibular projective length from gonion	68 ₁ Mandibular projective length from kondyleses	69 Chin height (ld — gn)	70 Height of mandibular ramus	71a Minimal breadth of mandibular ramus	32 Frontal angle from nasion (m — n — OAE)	— Frontal angle from glabella (m — g — OAE)	33 ₁ Angle of the upper part of occiput (l — i — OAE) (Upper occipital angle)	33 ₂ Angle of the lower part of occiput (o — i — OAE) (Lower occipital angle)	33 Angle of the inclination of the occipital bone (l — i — OAE)	34 Angle of the inclination of foramen magnum (o — b — OAE)
9890	—	—	51	—	—	33	—	33	77	65	82	36	108	—
9326	113	91	48	88	109	31	67	37	—	—	—	—	—	—
9327	134	104	51	93	120	36	63	37	—	—	—	—	—	—
9336	—	—	—	—	—	39	—	37	76	71	—	—	—	—
9337	—	98	47	84	105	34	63	37	81	73	—	—	—	—
9340	114	98	50	89	112	32	60	35	85	81	91	23	123	—
9734	—	—	—	—	—	—	—	36	82	77	94	22	122	—4
9735	—	—	46	—	—	36	—	38	79	74	96	24	123	—
9736	125	104	48	86	108	30	56	35	—	—	—	—	—	—
9737	126	102	—	77	100	—	62	29	—	—	—	—	—	—
9738	111	104	52	92	112	—	68	36	81	71	91	26	122	—
9739	123	110	45	86	109	36	64	36	74	69	92	26	119	—4
10451	135	102	50	92	111	38	72	35	—	—	—	—	—	—
9743	132	100	49	85	98	34	70	38	—	—	—	—	—	—
9344	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10332	—	95	49	89	115	32	72	37	78	68	—	—	—	—
10446	—	—	—	—	—	—	—	—	84	78	87	28	121	—9
10443	—	97	—	88	110	38	61	39	—	—	—	—	—	—
11058	112	96	46	85	103	32	63	34	—	—	—	—	—	—
11077	117	111	49	87	115	33	58	38	79	72	95	25	122	—
9901	126	100	49	79	102	35	68	33	—	—	—	—	—	—
9762	—	117	50	93	117	34	67	38	70	61	—	—	—	—
10713	124	98	45	86	108	37	68	39	89	79	86	26	117	—2
9424	—	—	47	—	—	—	—	32	—	—	—	—	—	—
9391	124	98	—	—	—	—	—	—	—	—	—	—	—	—
10367	121	91	46	77	94	30	60	36	83	78	88	33	118	—7
10422	112	93	45	74	104	31	57	32	84	78	95	—	109	—17
9339	110	97	47	79	106	29	56	33	—	—	—	—	—	—
9341	118	94	46	75	94	30	53	33	83	77	85	31	121	—8
9830	—	—	45	—	—	30	—	29	—	—	—	—	—	—
KA 420	—	—	—	—	—	34	—	36	87	84	92	—	—	—

TABLE IV (5)

72	73	74	75	77	—	79	—	—	—	—	—	—	—	—
Total facial angle (n — pr — OAE)	Midfacial angle (n — ns — OAE)	Alveolar angle (n — pr — OAE)	Angle of nasal bones with facial profile (n — rhi — Line of profile)	Nasomalar angle (fmo — n — fmo)	Zygomaxillary angle (after Abinder) (zm — ss — zm)	Mandibular angle (Angle of the inclination of mandibular ramus)	Mental angle (id — pog — standard basal plane)	Glabella (prominence after Martin; 1—6)	Arcus supraorbitalis after glabella prominence scale Martin; 1—6)	Depth of fossa canina (0—4)	Lower edge of apertura piriformis	Spina nasalis anterior (after Broca; 1—5)	Protuberantia occipitalis externa (after Broca; 0—5)	Processus mastoideus (1—3)
82	79	86	—	139	127	—	—	5	5	2	anthr.	3	2	3
—	—	—	—	—	—	113	64	3	4	—	anthr.	—	3	3
—	—	—	—	—	—	123	57	4	4	3	anthr.	4	5	3
82	79	84	29	132	—	—	—	4	4	4	anthr.	5	—	3
84	84	83	30?	—	—	113	72	4	4	3	anthr.	4	3	2
84	84	84	31	142	127	118	61	3	3	3	anthr.	4	2	2
82	82	83	35	130	120	—	—	3	3	3	anthr.	4	3	2
82	82	82	—	135	121	—	—	3	4	3	anthr.	4	3	3
—	—	—	—	145	127	122	56	3	3	2	anthr.	4	3	2
—	—	—	—	137	—	118	—	3	3	3	anthr.	4	2	—
83	81	84	34	140	125	111	—	5	5	2	anthr.	3	3	3
87	84	86	—	—	—	116	59	4	4	3	anthr.	5	4	2
—	—	—	—	—	—	106	62	4	5	3	anthr.	5	4	3
—	—	—	—	135	—	109	70	4	4	4	anthr.	—	3	3
—	—	—	—	—	—	—	—	3	3	—	—	—	3	2
85	85	84	36	136	124	110	—	5	5	3	anthr.	3	3	3
85	86	85	—	144	130	—	—	3	3	2	anthr.	—	3	3
—	—	—	—	—	—	—	—	4	4	3	anthr.	4	2	3
—	—	—	—	—	—	113	68	3	4	3	anthr.	—	3	3
83	83	—	—	134	119	123	60	5	5	4	anthr.	—	3	3
—	—	—	—	—	—	114	78	—	—	1	anthr.	5	3	3
84	83	84	—	137	126	117	55	5	5	3	anthr.	4	—	3
86	86	86	38	140	129	110	74	4	4	3	anthr.	4	3	3
—	—	—	—	—	—	—	—	3	3	—	—	—	4	3
—	—	—	—	130	—	—	—	4	5	—	—	—	4	3
85	85	86	36	136	130	110	69	3	3	2	anthr.	2	1	1
86	88	82	26	144	126	124	78	2	2	2	anthr.	2	1	1
—	—	—	—	—	—	124	—	—	—	—	—	—	—	—
81	82	80	28	136	128	118	76	1	1	3	anthr.	3	1	1
—	—	—	—	130	—	—	—	2	2	—	—	—	1	2
81	81	81	—	138	116	—	—	2	3	2	anthr.	3	2	1

TABLE IV (6)

Inventory number of the Museum of Anthropology of the Moscow University	8 : 1 (I 1) Cranial index $\left(\frac{eu \cdot eu}{g \cdot op} \cdot 100\right)$	17 : 1 (I 2) Height-length index (from basion) $\left(\frac{ba-b}{g-op} \cdot 100\right)$	20 : 1 (I 4) Height-length index (from porion) $\left(\frac{ba-p}{g-op} \cdot 100\right)$	17 : 8 (I 3) Height-breadth index (from basion) $\left(\frac{ba-b}{eu-eu} \cdot 100\right)$	20 : 8 (I 5) Height-breadth index (from porion)	9 : 8 (I 13) Transverse frontoparietal index $\left(\frac{ft-ft}{eu-eu} \cdot 100\right)$	— Arcus supraorbitalis length index Arcus supraorbi- talis length $\left(\frac{fnt-fnt}{100}\right)$	48 : 17 Vertical faciocranial index $\left(\frac{n-pr}{ba-b} \cdot 100\right)$	45 : 8 (I 71) Transverse faciocranial index $\left(\frac{zy-zy}{eu-eu} \cdot 100\right)$	— Frontal convexity index $\left(\frac{Sub \cdot NB}{n-b} \cdot 100\right)$	— Occipital convexity index $\left(\frac{Sub \cdot NB}{n-b} \cdot 100\right)$
9890	73.9	—	61.7	—	83.5	66.9	71.1	—	100.7	19.0	28.2
9326	71.4	—	61.4?	—	85.9?	74.1?	80.4	—	—	20.9	28.3
9327	69.1	—	59.3	—	85.8	71.6	—	—	94.3?	23.3	29.0
9336	70.1	—	58.3	—	83.2	68.5	66.7	—	104.2	23.3	—
9337	70.3	72.4	59.4	102.9	84.4	—	—	51.8	93.3?	20.5	28.4
9340	70.1	73.9	62.0	105.4	88.4	73.6	57.9	52.2	96.1	24.8	32.3
9734	72.0	74.2	62.4	102.9	86.6	70.9	70.6	53.6	99.2	20.7	29.3
9735	69.5	—	58.5	—	84.2?	69.8	71.0	—	98.6?	23.3	—
9736	85.7	—	61.5	—	71.8	63.5	67.6	—	85.9?	25.2	28.9
9737	—	—	—	—	—	—	—	—	—	23.1	25.5
9738	69.5	74.0?	59.5	106.5?	85.6	66.9	72.2	49.3?	96.4	24.2	30.0
9739	75.5	75.5	60.9	100.0	80.6	74.1	—	53.2	100.7	21.4	30.9
10451	74.0	74.5?	64.6?	100.7?	87.3?	75.4?	—	—	—	20.0	31.0
9743	80.8	—	62.1	—	76.9	68.7	73.0	—	—	20.3	26.9
9344	69.2	—	59.3	—	85.2	71.8	67.3	—	—	23.8	26.8
10332	74.9?	—	62.8?	—	83.9?	73.0?	68.1	—	100.0	22.4	—
10446	80.9	73.6	65.7	91.0	81.2	68.1	56.0	54.2	102.1	21.3	33.3
10443	67.0?	—	59.3?	—	88.5?	75.4?	63.6	—	100.8?	—	25.3
11058	77.5?	—	68.0?	—	87.7?	66.7?	69.8	—	92.8?	19.3	21.0
11077	75.9	—	61.5	—	81.0	73.2	71.7	—	95.8	20.9	29.8
9901	79.8?	73.6?	62.7?	92.2	78.6	72.1	—	47.2?	96.1	—	32.4
9762	71.6?	—	60.4?	—	84.4	75.2	79.8	—	101.4	19.8	—
10713	73.1	72.0	61.1	98.6	83.7	66.7	64.8	52.5	94.3	26.7	34.0
9424	77.2	—	61.9	—	80.1	75.3	68.1	—	101.3	24.1	33.7
9391	70.6	—	59.3	—	83.9	70.8	—	—	—	24.3	—
10367	78.4	75.6	61.0	96.4	82.6	71.7	67.9	51.9	97.8	22.0	29.0
10422	88.3	76.1	69.9	86.1	79.2	66.7	59.2	56.4	89.6	23.1	22.9
9339	69.3	—	60.3	—	87.0	—	—	—	—	24.1	—
9341	78.0	70.3	57.7	90.1	73.9	70.4	62.5	50.8	85.2	28.1	30.8
9830	72.7	—	60.7	—	83.5	71.4	—	—	—	20.9	—
KA 420	—	—	62.2	—	—	—	61.2	—	—	25.0	36.6

TABLE IV (7)

40 : 5 (I 60)	48 : 45 (I 39)	47 : 45 (I 38)	54 : 55 (I 48)	52 : 51a (I 42b)	52 : 51 (I 42)	63 : 62 (I 58)	61 : 60 (I 54)	—	—	—	71a : 70	68 : 66
Index of prognathism (gnathic index) (index of face prominence) $\left(\frac{ba - pr}{n - ba} \cdot 100\right)$	Upper facial index $\left(\frac{n - pr}{zy - zy} \cdot 100\right)$	Total facial index $\left(\frac{n - gn}{zy - zy} \cdot 100\right)$	Nasal index (nasal breadth) $\left(\frac{n - ns}{n - ns} \cdot 100\right)$	Orbital index (from dacryon) (orbital height) $\left(\frac{d - ek}{d - ek} \cdot 100\right)$	Orbital index (from maxillofrontale) (orbital height) $\left(\frac{m - ek}{m - ek} \cdot 100\right)$	Palatal index (from staphylon) $\left(\frac{enm - enm}{d - sta} \cdot 100\right)$	Upper alveolar arch index. External palate index (maxillo-alveolar index) $\left(\frac{ekm - ekm}{pr - alv} \cdot 100\right)$	Maxillo-frontal index $\left(\frac{maxillo-frontal sub}{mf - mf} \cdot 100\right)$	Dacryal index (dacryal sub) $\left(\frac{d - d}{d - d} \cdot 100\right)$	Simotical index (simotical sub) (simotical chord) $\left(\frac{simotical sub}{simotical chord} \cdot 100\right)$	Mandibular ramus index least breadth of ramus $\left(\frac{height of ramus}{height of ramus} \cdot 100\right)$	Mandibular length- bigonial index Mandibular pro- jective length $\left(\frac{go - go}{go - go} \cdot 100\right)$
—	44.8	76.9	50.0	77.8	76.5	88.9	112.7	52.6	—	38.5	—	—
—	—	—	—	—	—	—	—	—	—	—	55.2	96.7
—	55.6?	85.7?	—	—	—	—	126.8	—	—	—	58.7	89.4
—	49.0	81.2	47.1?	—	65.9	—	—	—	—	50.0	—	—
—	57.1?	89.7?	43.0	76.2	73.6	—	—	63.8	—	70.0	58.7	85.7
98.0	57.3	94.3	47.1	—	82.5	95.4	118.1	39.0	—	60.0	58.3	90.8
98.1	55.6	—	46.2	82.5	79.5	85.1	112.1	37.0	55.0	49.0	—	—
—	54.7?	89.8?	47.8	84.6	80.5	78.0	105.0	47.8	—	58.0	—	—
—	53.0?	83.6?	44.3	—	81.0	—	—	53.7	—	73.3	62.5	82.7
—	—	—	48.1	—	73.0	—	—	—	—	63.5	46.8	75.5
96.3	54.5	88.1	44.2	—	70.9	—	—	40.0	—	57.1	52.9	88.5
89.8	52.9	85.0	45.3?	84.2	80.0	84.8	105.3	—	—	—	56.2	86.0
—	—	—	—	—	—	83.0	116.0	—	—	—	48.6	90.2
—	—	—	48.6	—	75.0	—	—	49.1	—	62.5	54.3	77.3
—	—	—	—	—	—	—	—	—	—	—	—	—
—	50.4	81.0	49.1	79.1	77.3	94.0	101.8	64.1	78.0	92.4	51.4	93.7
—	48.3?	83.7?	45.2	—	77.9	93.3	118.5	—	—	—	—	—
—	52.7?	90.1?	52.0?	—	83.3	—	—	—	—	—	63.9	90.7
—	44.5	79.7	—	—	71.0	—	—	—	—	—	54.0	88.5
—	49.3	83.8	46.3	—	75.0	—	—	55.0	—	50.0	65.5	78.4
—	45.3?	79.7?	—	—	—	—	—	—	—	—	48.5	79.0
—	51.8	—	44.4	—	—	97.9	130.9	—	—	—	56.7	79.5
97.2	54.9	92.5	44.7	—	83.5	—	107.1	38.1	—	45.7	57.3	87.8
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
98.0	51.1	79.3	50.5	—	81.7	—	—	47.6	68.8	58.5	60.0	84.6
102.1	54.3	86.8	46.8	85.7	83.5	84.8	117.0	47.3	51.5	58.5	56.1	79.6
—	—	—	—	—	—	—	—	—	—	—	58.9	81.4
96.0	53.7	87.6	49.0	88.3	85.0	87.0	114.0	40.4	—	33.3	62.3	79.8
—	—	—	—	—	—	—	—	—	—	—	—	—
—	52.8	87.4	52.2	75.0	73.2	—	110.9	48.6	—	50.0	—	—

Nr.	Burial site Region	Inventory number of the Museum of the Moscow University		Sex	FEMUR			TIBIA		FIBULA		HUMERUS		RADIUS		ULNA	
					1	2	8	1	10b	1	8	1	7	1	3	1	3
		Limb bones	Skull		Greatest length of femur	Physiological length	Circumference in the middle of the shaft	Total tibial length	Minimal circumference	Greatest length	Minimal circumference of the shaft	Greatest length	Minimal circumference	Greatest length	Minimal circumference	Greatest length	Minimal circumference
4	Dniepropetrovsk	2947	9327	m	—	—	—	—	—	405 l	43 l	—	—	—	—	—	—
6	Dniepropetrovsk	2957	9336	m	—	—	—	414 r	84 r	406 r	48 l	—	—	300 r	46 r	—	—
7	Dniepropetrovsk	2959	—	m?	499 l	493 l	95 l	—	—	414 l	48 l	359 l	74 l	296 l	46 l	274 l	52 l
9	Dniepropetrovsk	2961	9337	m	435 r	434 r	83 r	362 r	77 r	—	—	308 r	63 r	—	—	—	—
10	Dniepropetrovsk	2962	9338	m	—	—	—	418 r	91 r	409 r	47 r	366 r	75 r	—	—	—	—
12	Dniepropetrovsk	2964	9340	m?	437 r	431 r	80 r	363 r	78 r	349 r	35 r	303 r	65 r	253 r	41 r	229 r	42 r
14	Dniepropetrovsk	3336	9734	m	452 r	451 r	90 r	385 r	82 r	—	—	329 r	64 r	287 r	39 r	260 r	43 r
15	Dniepropetrovsk	3337	9735	m	448 l	448 l	91 l	—	—	—	—	—	—	—	—	—	—
16	Dniepropetrovsk	3338	9736	m?	473 r	468 r	91 r	395 r	86 r	—	—	336 r	71 r	—	—	—	—
18	Dniepropetrovsk	3533*	9738	m	477 l	475 l	93 l	397 l	87 l	—	—	336 l	69 l	273 l	40 l	249 l	42 l
20	Dniepropetrovsk	3341	9739	m	426 r	425 r	80 r	—	—	—	—	—	—	—	—	—	—
21	Dniepropetrovsk	10451	10451	m	435 l	429 l	78 l	—	—	—	—	—	—	—	—	—	—
22	Dniepropetrovsk	3344	9743	m	475 r	470 r	90 r	398 r	85 r	—	—	347 l	73 l	—	—	—	—
24	Dniepropetrovsk	2983 ²	9345	m	488 r	486 r	97 r	—	—	374 r	44 r	345 r	65 r	283 r	42 r	—	—
26	Dniepropetrovsk	9298	9298	m	—	—	—	377 r	85 r	370 r	46 r	357 r	73 r	—	—	—	—
34	Kherson	3367	9762	m	465 l	464 l	96 l	378 l	85 l	—	—	336 r	68 r	278 l	40 l	256 l	42 l
35	Nicolaev	10713	10713	m	470 r	469 r	95 r	—	—	—	—	332 l	66 l	—	—	—	—
37	Nicolaev	3545	—	m	467 r	463 r	94 r	402 r	84 r	385 r	44 r	344 r	70 r	285 r	41 r	263 r	45 r
38	Kiev	3041	9424	m	470 l	466 l	94 l	400 l	85 l	—	—	340 l	69 l	—	—	—	—
39	Kirovograd	3025	9391	m	463 l	460 l	103 l	395 l	88 l	399 l	42 l	332 l	77 l	—	—	260 l	50 l
8	Dniepropetrovsk	2960	—	f	463 r	462 r	93 r	382 r	83 r	—	—	329 r	68 r	272 r	40 r	246 r	42 r
11	Dniepropetrovsk	2963	9339	f	—	—	—	—	—	—	—	318 l	64 l	270 l	38 l	—	—
19	Dniepropetrovsk	3340	9830	f	432 l	429 l	94 l	—	—	—	—	—	—	—	—	—	—
28	Zaporozhye	KA	—	f	478 l	472 l	93 l	400 ?	88 l	395 l	37 l	340 r	70 r	286 r	42 r	271 r	48 r
36	Nicolaev	3538	—	f	427 l	423 l	88 l	—	—	—	—	344 l	67 l	300 l	42 l	277 l	46 l
					—	—	—	341 l	74 l	—	—	—	—	243 l	43 l	223 l	44 l
					404 r	401 r	77 r	334 r	62 r	327 r	34 r	298 r	57 r	—	—	225 l	36 l
					—	—	—	399 l	71 l	—	—	340 l	65 l	—	—	—	—
					—	—	—	—	—	—	—	299 r	58 r	—	—	—	—
					—	—	—	346 l	73 l	—	—	—	—	—	—	—	—

NOTE: ¹ The measurements of limb bones are given in mm.

² The measurements of limb bones NN 3338, 9736 (marked by an asterisk) belonging to skeletons below 20 years of age (epiphysis still not united with diaphysis) are not included in the calculations of mean values.

³ Under N. 2983 limb bones from burial B are recorded. Letter symbols are not indicated on the labels. Conditionally assigned to skeleton —10 B (skull No 9345).

⁴ Previously published materials on the pit-grave culture of Zaporozhye region are included in our statistical analysis (male No 2850, 2851, 2873, 2876, 2889; female No 2952, 2894).

⁵ The limb bones were obtained:

- No 2959 (barrow 1/3, burial 8) from the Grushevka village, Apostolovo district, Dniepropetrovsk region and No 2960 (barrow 1/3, burial 9) from Grushevka village, Apostolovo district, Dniepropetrovsk oblast. Excavations by D. I. Blifeld, 1951.
- No 3538 (barrow 1, burial 15) and No 3545 (barrow 2, burial 5) from the Novo-Grigoryevka, Voznesensk district, Nicolaev region. Excavations by N. G. Yelagina, 1959.
- No KA (barrow 1, burial 14) from the Shevchenko hamlet, Bolshoy Tokmak district, Zaporozhye region. Excavations by K. F. Smirnov, 1952.

Nr.	Burial site Region	Inventory number of the Museum of Anthropology of the Moscow University		Sex	PROPORTIONS					INDEX of ROBUSTICITY					
		Limb bones	Skull		(H1 + R1) : (T1 + F2) Intermembral index	T1 : F2 Tibiofemoral index	U1 : H1 Ulnohumeral index	H1 : F2 Humero femoral index	R1 : F2 Radiofemoral index	8 : 2 of femur	10b : 1 of tibia	4a : 1 of fibula	7 : 1 of humerus	3 : 1 of radius	3 : 1 of ulna
4	Dniepropetrovsk	2947	9327	m	—	—	—	—	—	—	—	10.6 r	—	—	—
6	Dniepropetrovsk	2957	9336	m	—	—	76.3 l	72.8 l	—	19.3 l	20.3 l	11.8 r	—	15.3 r	—
7	Dniepropetrovsk	2959	—	m?	—	—	—	—	—	—	—	11.6 l	20.6 l	15.5 l	18.9 l
9	Dniepropetrovsk	2961	9337	m	—	83.4 r	—	71.0 r	—	19.1 r	21.3 r	—	20.4 r	—	—
10	Dniepropetrovsk	2962	9338	m	—	—	—	—	—	—	21.7 r	11.5 r	20.5 r	—	—
12	Dniepropetrovsk	2964	9340	m?	67.0 r	84.2 r	75.6 r	70.3 r	63.1 r	18.6 r	21.5 r	10.0 r	21.5 r	16.2 r	18.4 r
14	Dniepropetrovsk	3336	9734	m	70.4 r	85.3 r	79.0 r	72.9 r	67.5 r	20.0 r	21.3 r	—	19.5 r	13.6 r	16.5 r
15	Dniepropetrovsk	3337	9735	m	—	84.4 r	—	71.8 r	—	19.4 r	21.8 r	—	21.1 r	—	—
16	Dniepropetrovsk	3338	9736	m?	67.1 l	83.6 l	74.1 l	70.7 l	62.7 l	19.6 l	21.9 l	—	20.5 l	14.6 l	16.8 l
18	Dniepropetrovsk	3533a	9738	m	—	—	—	—	—	—	—	—	21.0 l	—	—
20	Dniepropetrovsk	3341	9739	m	—	84.7	—	73.4 r	—	19.1 r	21.4 r	—	18.8 r	14.8 r	—
21	Dniepropetrovsk	10451	10451	m	—	—	—	73.5 r	—	20.0 r	—	11.8 r	20.4 r	—	—
22	Dniepropetrovsk	3344	9743	m	—	—	—	—	—	—	22.5 r	12.4 r	20.2 r	—	—
24	Dniepropetrovsk	2983	9345	m	69.8 l	81.4 l	77.1 l	71.6 l	67.7 l	20.5 l	22.5 l	—	20.0 l	14.4 l	16.4 l
26	Zaporozhye	9298	9298	m	70.2 r	86.8 r	76.4 r	74.3 r	65.4 r	20.3 r	20.9 r	11.5 r	20.4 r	14.4 r	17.1 r
34	Kherson	3367	9762	m	72.6 l	85.9 l	78.3 l	72.2 l	65.8 l	22.4 l	22.3 l	10.5 l	23.2 l	—	19.2 l
35	Nicolaev	10713	10713	m	68.1 r	82.7 r	74.8 r	71.2 r	64.4 r	20.1 r	21.7 r	—	20.7 r	14.7 r	17.1 r
37	Nicolaev	3545	—	m	—	—	—	—	—	21.9 l	—	—	20.1 l	14.1 l	—
38	Kiev	3041	9424	m	—	84.8 l	79.7 r	72.0 r	—	19.7 l	22.0 l	9.4 l	20.6 r	14.7 r	17.7 r
39	Kirovograd	3025	9391	m	—	—	80.5 l	81.3 l	—	20.8 l	—	—	19.5 l	14.0 l	16.6 l
8	Dniepropetrovsk	2960	—	f	—	—	—	—	65.4 l	—	21.7 l	—	—	17.7 l	19.7 l
11	Dniepropetrovsk	2963	9339	f	—	83.3 r	—	74.3 r	—	19.2 r	18.6 r	10.4 r	19.1 r	—	16.0 l
19	Dniepropetrovsk	3340	9830	f	—	—	—	—	—	—	17.7 l	—	19.1 l	—	—
28	Zaporozhye	KA	—	f	—	—	—	—	—	—	—	—	19.4 r	—	—
36	Nicolaev	3538	—	f	—	—	—	—	—	—	21.1 l	—	—	—	—

Burial site	Number of barrow, burial, skeleton	Author and year of excavation
Dnepropetrovsk region, Apostolovo district, Kut village	Barrow 3, burial 4	D. T. Berezovets, 1951
Dnepropetrovsk region, Apostolovo district, Kut village	Barrow 3, burial 14	D. T. Berezovets, 1951
Dnepropetrovsk region, Apostolovo district, Kut village	Barrow 28, burial 5	D. T. Berezovets, 1951
Dnepropetrovsk region, Apostolovo district, Kut village	Barrow 28, burial 10	D. T. Berezovets, 1951
Dnepropetrovsk region, Apostolovo district, Kut village	Barrow 28, burial 11	D. T. Berezovets, 1951
Dnepropetrovsk region, Apostolovo district, Kut village	Barrow 32, burial 12	D. T. Berezovets, 1951
Zaporozhye region, Melitopol district, Terpenye village	Kammennaya mogila, burial	V. N. Danilenko, 1947
Zaporozhye region, Bolshoy Tokmak district, Zamozhnoe village	Barrow 3, burial 4, sk. 1	K. F. Smirnov, 1952
Zaporozhye region, Bolshoy Tokmak district, Shevchenko hamlet	Barrow 4, burial 5	K. F. Smirnov, 1952
Zaporozhye region, Bolshoy Tokmak district, Shevchenko hamlet	Barrow 1, burial 9	K. F. Smirnov, 1952
Zaporozhye region, Bolshoy Tokmak district, Shevchenko hamlet	Barrow 2, burial 2	K. F. Smirnov, 1952
Kherson region, Verkhniy Rogachik district, Pervomayevka village	Barrow 1, burial 1	G. T. Kovpanenko, 1953
Kherson region, Verkhniy Rogachik district, Pervomayevka village	Barrow 3, burial 7, sk. 2	E. A. Petrovskaya, 1953
Kherson region, Verkhniy Rogachik district, Nizhniy Rogachik village	Settlement, burial 1/4/	D. T. Berezovets, 1951
Kherson region, Novo-Vorontsovka district, Osokorovka village	Grave 1, burial 3	O. G. Shaposhnikova, 1952
Nicolaev region, Snigirevka district, Snigirevka village	Barrow 1, burial 13	L. M. Slavin, 1951
Nicolaev region, Snigirevka district, Snigirevka village	Barrow 2, burial 7	L. M. Slavin, 1951
Odessa region, Kominternovskoe district, Koshary village	Barrow 1, burial 2	E. A. Symonovich, 1955
Odessa region, Kominternovskoe district, Koshary village	Barrow 1, burial 3	E. A. Symonovich, 1955
Odessa region, Kominternovskoe district, Koshary village	Barrow 1, burial 4	E. A. Symonovich, 1955
Odessa region, Kominternovskoe district, Koshary village	Barrow 1, burial 6	E. A. Symonovich, 1955
Dnepropetrovsk region, Apostolovo district, Maryanskoe village	Barrow 2, burial 9	D. T. Berezovets, 1952
Dnepropetrovsk region, Apostolovo district, Maryanskoe village	Barrow 16, burial 1	D. T. Berezovets, 1952
Dnepropetrovsk region, Apostolovo district, Maryanskoe village	Barrow 16, burial 3	D. T. Berezovets, 1952
Dnepropetrovsk region, Apostolovo district, Maryanskoe village	Barrow 28, burial 12	D. T. Berezovets, 1952
Zaporozhye region, Bolshoy Tokmak district, Zamozhnoe village	Barrow 1, burial 3	K. F. Smirnov, 1952
Zaporozhye region, Bolshoy Tokmak district, Zamozhnoe village	Barrow 2, burial 7	K. F. Smirnov, 1952
Zaporozhye region, Bolshoy Tokmak district, Zamozhnoe village	Barrow 2, burial 8	K. F. Smirnov, 1952
Zaporozhye region, Bolshoy Tokmak district, Zamozhnoe village	Barrow 3, burial 4, sk. 2	K. F. Smirnov, 1952
Zaporozhye region, Bolshoy Tokmak district, Shevchenko hamlet	Barrow 2, burial 1	K. F. Smirnov, 1952
Kherson region, Verkhniy Rogachik district, Pervomayevka village	Barrow 3, burial 3	E. A. Petrovskaya, 1953
Kherson region, Verkhniy Rogachik district, Nizhniy Rogachik village	Living-site burial 4(10)	D. T. Berezovets, B.A. Ylyinskaya, 1951
Kherson region, Novo-Vorontsovka district, Zolotaya Balka village	Southern stone construction (cromlech) B	R. I. Vyezhev, 1951
Nicolaev region, Snigirevka district, Snigirevka village	Barrow 1, burial 3, sk. 2	L. M. Slavin, 1951
Nicolaev region, Snigirevka district, Snigirevka village	Barrow 2, burial 1	L. M. Slavin, 1951
Nicolaev region, Snigirevka district, Snigirevka village	Barrow 2, burial 6	L. M. Slavin, 1951
Nicolaev region, Snigirevka district, Snigirevka village	Barrow 2, burial 9	L. M. Slavin, 1951

NOTE: Lineal measurements are given in mm, angles in degrees, capacity in cm³. The measurements of skulls NN 10340, 10452

TABLE VII (1)

Inventory number of the Museum of Anthropology of the Moscow University	Sex	Age	1 Greatest length from glabella (g — op)	1b Greatest length from ophrion (on — op)	8 Greatest parietal breadth (eu — eu)	17 Height of the skull from basion (Basio-bregmatic height) (ba — b)	5 Length of cranial base (ba — n)	20 Height of the skull from porion (Porio-bregmatic height) (po — b)	9 Minimal frontal breadth (ft — ft)	10 Maximal frontal breadth (co — co)	11 Bi-auricular breadth (au — au)	12 Breadth of occiput (ast — ast)	7 Length of foramen magnum (ba — o)	16 Breadth of foramen magnum
9323	m	35—45	187	181	130	—	—	104	93	108	122	—	—	—
9325	m	45—55	180	177	139	—	—	109	—	118	127	113	—	—
10424	m	45—55	189	187	141	144	108	122	99	120	125	103	33	26
10425	m	40—50	187	186	146	149	112	124	109	132	129	110	37	31
10426	m	30—40	192	187	134	—	—	122?	91	119	114	104	—	—
10433	m	55—65	202	197	135	—	—	122	100	118	126	107	—	—
9267	m	50—60	201	196	140	140	119?	119	92	114	132	120	—	—
KA 418	m	18—22	188	186	137?	141	104	117	88	116	124	108	37	31
KA 416	m	40—50	170	170	162	—	—	132	106	140	147	—	—	—
KA 412	m	30—35	187	182	144	—	—	118	98	120	125	113	—	—
KA 424	m	30—40	200?	—	141	—	—	127	108	124	128	—	—	—
9755	m	25—30	182	178	138	135	103	115	93	121	124	107	36	30
9761	m?	45—55	189	188	133	—	—	112	95	115	121	—	—	—
9373	m	45—55	189	187	144	142	105	121	102	121	128	107	38	32
10492	m	55—60	189	185	145	—	—	114	102	123	139	118	—	—
9505	m	55—60	185	178	142	—	—	108	92	119	124	105	—	—
9388	m	25—35	194	—	143	142?	—	123	94	120	127	110	36	27
10336	m	40—50	189	186	134	137?	—	113	96	111	121	—	—	—
10337	m?	30—35	189	186	129?	—	—	115	94	105	117	105	—	—
10338	m	60—65	199	198	139?	—	—	—	104	120	—	—	—	—
10340	m?	17—19	190	187	127?	—	—	119?	93	111	—	108	—	—
10452	f	16—19	182	—	136	—	—	118	88	113	115	112	—	—
10414	f	40—50	182	179	134	—	—	110	97	113	120	—	—	—
10415	f?	35—45	166	163	135	126	—	104	89	114	121	108	—	—
10427	f	55—60	174	173	136	—	—	118?	96	116	115	102	—	—
KA 413	f	30—40	172	170	135	—	—	112	93	110	118	100	—	—
KA 421	f	30—40	182	178	138	—	—	—	92	112	—	—	—	—
KA 414	f	35—45	165	162	130	130	97	108	90	111	112	99	35	26
KA 415	f	25—35	177	175	132	—	—	108	97	111	115	—	—	—
KA 427	f	25—35	178	177	141	—	—	112	95	118?	—	—	36	30
9758	f	25—30	—	—	—	—	—	—	101	—	—	—	—	—
9375	f	40—45	166	164	138	129	99	112	93	118	122	110	—	—
9376	f	45—55	180	179	142	—	—	116?	96	121	119	103	—	—
9501	f	30—35	170	169	142	133	106	113	95	131	120	111	38	29
9506	f	50—60	182	180	137	126	104	109	95	115	123	113	34	28
9504	f	30—40	179	178	138	140	102	110	90	116	121	107	34	36
9507	f	50—60	182	182	148	137	103	119	95	123	132	117	39	32

belonging to skeletons below 20 years of age are not included in the calculations of mean values.

TABLE VII (2)

Inventory number of the Museum of Anthropology of the Moscow University	29 Frontal chord (n — b)	31 Occipital chord (l — o)	— Frontal convexity height (Subtense from frontal chord)	— Occipital convexity height (Subtense from occipital chord)	— Arcus supraorbitalis length	38 Cranial capacity (after Lee-Pearson)	45 Bi-zygomatic breadth (zy — zy)	40 Facial length (ba — pr)	48 Upper facial height (n — pr)	47 Total facial height (n — gn)	43 Upper facial breadth (mt — fnt)	43 ₁ Internal bi-orbital breadth (fmo — fmo)	46 Middle facial breadth (zm — zm)	60 External length of upper alveolar arch (pr — alv)
9323	106	99	20	29	72	1282	133	—	67	108	110	101	95	—
9325	—	87	—	30	—	1355	137	—	—	—	—	—	—	—
10424	111	101	24	33	75	1546	138	102	63	99	110	99	96	49
10425	113	97	28	28	83	1695	148	104	76	125	115	105	104	—
10426	119	—	25	—	74	1505?	128?	—	73	—	104	97	—	—
10433	118	115	23	33	74	1574	—	—	71?	117	112	—	—	63
9267	120	109	26	32	77	1581	138	119?	78	125	110	100	—	—
KA 418	113	96	25	34	69	1459	132	102	73	122	105	97	94	58
KA 416	116	107	26	30	85	1686	153?	—	70	116	115	106	103	—
KA 412	114	94	24	30	74	1518	133	—	—	—	108	100	97	54
KA 424	118	—	24	—	67	1666?	140	110	67?	116	109	100	99	—
9755	104	99	20	31	78	1414	135	103	56	—	104	94	93	54
9761	100	—	21	—	68	1367	127	—	74	118	107	99	98	56
9373	115	95	29	31	77	1561	140	100	65	102	110	100	105	55
10492	112	102	22	30	73	1500	—	—	—	—	113	106	—	—
9505	103	—	20	—	68	1495	135	—	66	111	106	99	90	—
9388	—	98	—	26	70	1605	—	—	—	—	—	—	—	—
10336	107	101	23	30	76	1404	127	—	69	114	103	96	92	54
10337	112	87	21	24	69	1383	123	—	65	109	102	—	—	—
10338	111	—	26	—	77	—	—	—	74?	111?	118	111	—	—
10340	—	—	—	—	—	1407?	122?	—	69	111	100	92	—	—
10452	112	99	—	29	58	1391	114	—	62	100	95	90	85	—
10414	104	—	24	—	70	1302	129	—	65	109	105	96	91	54
10415	97	93	22	24	62	1170	130?	—	67	111	103	96	—	53
10427	111	96	26	26	69	1343	124?	—	—	—	105	97	—	—
KA 413	112	89	25	24	57	1271	127	—	64	—	—	—	—	57
KA 421	105	—	20	—	62	—	—	—	66	104	103	96	92	58
KA 414	115	91	22	22	70	1165	120	96	65	—	102	94	90	55
KA 415	101	—	24	—	61	1242	—	—	—	—	—	92	—	—
KA 427	111	—	30	—	61	1350	—	—	65	109	105	98	98	—
9758	112	—	29	—	70	—	135?	—	68	111	110	102	94	—
9375	107	86	24	27	64	1258	130	98	69	111	102	95	—	—
9376	108	104	25	25	66	1408	127	—	71	113	106	98	—	—
9501	107	95	28	20	65	1319	129	—	63?	—	105	96	95	—
9506	106	98	25	33	60	1316	136	97	64	—	97	96	105	—
9504	112	107	25	30	64	1315	129	—	63?	—	105	96	95	—
9507	115	92	28	30	63	1498	132	101	71	115	104	99	89	57

TABLE VII (3)

61	62	63	55	54	51	51a	52	—	50	—	49a	—	57	—
External breadth of upper alveolar arch (ekm — ekm)	Palatal length (from staphylon) (ol — sta)	Palatal breadth (enn — enn)	Nasal height (n — ns)	Nasal breadth	Orbital breadth (from maxillofrontale) (mf — ek)	Orbital breadth (from dakryon) (d — ek)	Orbital height	Depth of fossa canina (after Abinder) (mf — mf)	Maxillofrontal chord (mf — mf)	Maxillofrontal subtense	Dacryal chord (d — d)	Dacryal subtense	Simotical chord (minimal breadth of nasal bones)	Simotical subtense
—	—	—	46.5	23.5	42.0	—	33.0	3.0	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
60	—	—	48.5	25.0	41.5	—	30.5	4.8	22.0	—	—	—	—	—
—	—	—	52.5	26.5	45.0	43.0	33.5	6.0	25.0	9.3	26.5	12.5	11.0	4.0
—	—	—	49.0	26.0	42.0	—	32.5	7.5	—	—	—	—	11.5	7.0
64	—	—	49.0?	25.5	44.0?	—	32.5	—	—	—	—	—	—	—
—	—	—	56.5	25.5	43.0	—	37.0	—	—	—	—	—	—	—
62	48	38	54.0	24.0	42.0	39.5	30.0	5.0	18.0	9.7	—	—	7.5	6.2
—	—	—	54.0	27.0	47.0	45.0	33.0	6.5	—	—	—	—	—	—
60	—	—	—	—	—	—	—	3.5	—	—	—	—	—	—
—	—	—	52.0	25.0	42.0	41.0	31.0	9.5	—	—	—	—	—	—
63	48	43	43.5	22.0	40.5	—	31.0	7.0	20.0	—	—	—	—	—
—	48	38	53.5	25.5	42.0	—	34.0	1.2	23.8	7.8	—	—	9.0	5.0
64	47	41	47.5	26.2	41.4	40.5	26.2	3.8	23.5	8.8	23.3	12.0	10.0	4.0
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	47.0	23.0	41.0	—	33.0	5.5	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
60	—	—	50.0	23.0	43.5	—	31.5	5.8	22.2	10.1	—	—	10.0	5.8
—	—	—	48.0	22.5	42.0	40.2	34.0	5.0	23.8	9.7	—	—	10.5	6.2
—	—	—	—	27.5	—	—	—	7.5	—	—	—	—	—	—
—	—	—	51.0	23.0	40.0	—	36.0	5.0	—	—	—	—	8.0	4.0
—	—	—	44.0	22.8	38.5	—	30.0	3.1	20.2	10.1	—	—	7.5	4.0
58	—	—	48.0	19.0	39.5	—	33.0	5.3	21.0	8.5	—	—	7.0	2.4
63	—	—	46.0	23.0	40.0	—	32.0	4.0	22.0	10.5	—	—	11.2	5.5
—	—	—	—	—	—	—	30.0	—	22.5	—	—	—	—	—
65	46	38	44.0	23.0	39.0	37.5	30.5	7.0	19.0	7.0	—	—	5.0	3.0
59	—	—	47.0	25.0	42.0	39.0	31.0	4.0	20.0	7.0	23.0	12.5	9.5	5.0
—	47	—	46.0	25.0	39.0	38.0	32.0	5.0	20.0	8.0	22.0	12.2	9.0	5.8
—	—	—	—	—	—	—	—	—	—	—	—	—	4.5	3.0
—	—	—	46.0	24.0	41.0	—	33.0	4.0	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	48.0	26.0	43.3	41.5	34.5	3.0	20.3	7.2	23.0	10.3	4.9	2.2
—	—	—	52.0	25.0?	43.0	42.0	34.2	4.5	19.0	10.0	—	—	9.3	5.0
—	—	—	48.0	25.0?	41.0	—	31.0	—	22.0	10.0	—	—	7.0	3.7
—	47	38	48.0	25.0	39.0	38.6	33.5	5.0	22.0	9.0	—	—	10.3	4.5
—	46	39	48.0	23.5	40.0	39.0	31.0	5.0	17.0	8.5	17.8	12.5	8.0	5.0
60	—	—	48.5	26.0	41.2	40.8	32.5	5.0	22.3	9.5	23.0	12.7	10.5	4.0

TABLE VII (4)

Inventory number of the Museum of the Anthropology of the Moscow University	65	66	67	68	68 ₁	69	70	71a	32	—	33 ₁	33 ₂	33	34
	Bicondylar breadth (kdl — kdl)	Bigonial (angular) breadth (go — go)	Distance between foramina mentalia	Mandibular projective length from gonion	Mandibular projective length from condyles	Chin height (id — gn)	Height of mandibular ramus	Minimal breadth of mandibular ramus	Frontal angle from nasion (m — n — OAE)	Frontal angle from glabella (m — g — OAE)	Angle of the upper part of occiput (l — i — OAE) (Upper occipital angle)	Angle of the lower part of occiput (o — i — OAE) (Lower occipital angle)	Angle of the inclination of the occipital bone (l — i — OAE)	Angle of the inclination of foramen magnum (o — b — OAE)
9323	—	—	50	83	99	32	68	41	78?	72?	—	—	—	—
9325	127	—	47	88	109	38	67	34	—	—	87	—	—	—
10424	—	—	—	—	—	—	—	—	86	79	84	28	114	—
10425	127	—	51	88	112	37	64	39	88	83	83	32	113	—
10426	—	—	—	—	—	—	—	—	79	72	89	—	110	—
10433	133	—	52	82	117	35	73	40	76	68	85	33	115	—
9267	120	109	52	90	120	33	70	33	76	70	92	24	118	—10
KA 418	—	108	48	85	118	39	71	49	79	70	85	28	118	—
KA 416	—	—	—	—	—	36	—	39	90	84	—	—	—	—
KA 412	123	106	—	83	111	36	63	39	—	—	—	—	—	—
KA 424	—	97	52	90	118	35	—	40	82	72	—	—	—	—
9755	117	108	—	—	—	—	—	32	82	76	87	30	113	—
9761	—	104	53	83	105	33	68	37	83	77	—	—	—	—
9373	125	99	46	84	104	33	62	38	92	83	82	29	113	—9
10492	—	—	54	91	112	31	65	38	—	—	—	—	—	—
9505	122	109	46	82	100	34	68	33	73	65	85	—	—	—
9388	117	100	44	79	109	33	64	34	—	—	—	—	—	—
10336	—	—	—	84	105	35	58	38	78	75	91	27	118	—
10337	115	98	46	77	104	35	63	34	72	68	—	—	116	—
10338	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10340	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10452	—	85	49	—	—	29	—	34	89?	—	—	—	115	—
10414	111	93	46	81	107	—	59	37	82	78	—	—	114	—
10415	122	95	48	74	100	33	51	32	80?	75?	91?	34?	115?	—
10427	—	—	—	—	—	—	—	—	89	87	86	35	113	—
KA 413	—	—	—	—	—	—	—	—	82	76	99	23	119	—
KA 421	—	—	47	—	—	—	—	34	—	—	—	—	—	—
KA 414	—	—	—	—	—	—	—	—	76	71	97	32	117	—9
KA 415	99	93	—	74	104	33	50	32	83	77	—	—	—	—
KA 427	120	92	48	79	105	34	48	37	—	—	—	—	—	—
9758	—	93	49	82	110	32	63	34	—	—	—	—	—	—
9375	—	—	—	—	—	—	—	33	79	76	85	30	112	—2
9376	114	92	48	81	109	31	64	35	—	—	—	—	—	—
9501	—	—	—	—	—	—	—	—	86	82	—	—	—	—
9506	—	—	—	—	—	—	—	—	82	78	83	31	117	—9
9504	—	104	—	84	111	—	57	35	82	75	84	38	116	—3
9507	—	—	50	—	—	32	—	35	86	82	94	19	118	—10

TABLE VII (5)

Inventory number of the Museum of the Anthropology of the Moscow University	72	33	74	75 ₁	77	—	79	—	—	—	—	—	—	—
Total facial angle (n — pr — OAE)	Midfacial angle (n — ns — OAE)	Alveolar angle (n — pr — OAE)	Angle of the nasal profile with the facial profile (n — rhi — Line of profile)	Nasomalar angle (fmo — n — fmo)	Zygomaxillar angle (after Abinder) (zm — ss — zm)	Mandibular angle (Angle of the inclination of mandibular ramus)	Chin angle (id — pog — standard basal plane)	Glabella (prominence after Martin; 1—6)	Arcus supraorbitalis after glabella prominence scale Martin; 1—6)	Depth of fossa canina (0—4)	Lower edge of apertura piriformis	Spina nasalis anterior (after Broca; 1—5)	Protruberantia occipitalis externa (after Broca; 0—5)	
82?	—	—	—	134	119	107	76	3	4	2	anthr.	—	2	2
—	—	—	—	—	—	109	69?	—	—	—	—	—	4	3
87	87	87	—	136	127	—	—	3	3	3	anthr.	3	3	2
85	84	85	29	135	127	116	68	3	3	3	anthr.	4	3	2
82	81	82	39	—	—	—	—	4	4	4	anthr.	3	3	3
84	—	—	—	—	—	111	72	5	5	4	—	—	5	3
84	82	85	—	139	—	123	51	4	4	—	anthr. Fossa prae- nasalis	4	4	3
81	79	81	42	138	123	123	60	5	5	3	—	5	4	2
87	87	87	36	133	123	—	—	4	5	3	anthr.	3	3	3
—	—	—	—	—	—	120	68	4	4	2	anthr.	4	3	3
—	—	—	—	134	—	117	67	4	4	4	anthr.	—	—	3
—	—	—	—	141	132	—	—	3	4	4	anthr.	2	2	2
88	—	—	34	132	125	111	62	2	3	1	anthr.	4	2	2
88	86	88	41	138	129	112	69	4	4	2	anthr.	4	3	2
—	—	—	—	135	—	—	—	3	4	—	—	—	3	2
84	—	—	—	138	128	113	69	5	5	3	—	—	3	2
—	—	—	—	—	—	119	54	4	4	—	—	—	3	2
85	84	86	34	133	123	—	76	2	2	3	anthr.	5	2	2
87?	—	—	—	—	—	122	73	3	3	2	—	—	2	2
—	—	—	—	136	—	—	76	5	5	3	anthr.	—	4	—
—	—	—	—	129	—	—	—	2	2	2	anthr.	4	—	1
86	86	86	37	129	121	—	60	2	2	2	anthr.	3	—	1
82	81	83	29	139	120	119	65	2	2	3	anthr.	3	1	2
80?	80?	81?	30	139	—	127	70	2	2	2	anthr.	—	1	1
—	—	—	—	139	—	—	—	2	2	—	anthr.	—	2	2
78	80	79	26	—	—	—	—	2	2	3	anthr.	3	1	1
—	—	—	—	131	119	—	—	2	2	2	anthr.	3	1	2
78	—	—	35	140	—	—	—	3	3	3	anthr.	—	1	1
—	—	—	—	135	—	137	62	2	2	—	—	—	—	1
—	—	—	—	139	123	126	68	1	1	2	—	—	—	1
—	—	—	—	147	128	118	68	3	3	1	anthr.	3	—	2
—	81	—	40	142	—	—	—	2	2	2	anthr.	4	1	1
—	—	—	—	141	—	149	—	2	2	3	—	—	2	3
—	—	—	—	133	—	—	—	2	3	—	—	2	2	1
86	86	—	28	134	130	—	—	2	2	2	anthr.	—	1	2
82	81	83	32	139	124	123	64	2	2	2	anthr.	3	1	2
84	85	81	25	133	121	—	58	2	2	2	anthr.	3	3	2

TABLE VII (6)

Inventory number of the Museum of Anthropology of the Moscow University	8 : 1 (I 1) $\left(\frac{eu \cdot eu}{g \cdot op} \cdot 100\right)$	17 : 1 (I 2) $\left(\frac{ba-b}{g-op} \cdot 100\right)$	20 : 1 (I 4) $\left(\frac{ba-p}{g-op} \cdot 100\right)$	17 : 8 (I 3) $\left(\frac{ba-b}{eu-eu} \cdot 100\right)$	20 : 8 (I 5) $\left(\frac{ba-b}{eu-eu} \cdot 100\right)$	9 : 8 (I 13) $\left(\frac{ft-ft}{eu-eu} \cdot 100\right)$	— $\left(\frac{fnt-fnt}{fnt-fnt} \cdot 100\right)$	48 : 17 $\left(\frac{n-pr}{ba-b} \cdot 100\right)$	45 : 8 (I 71) $\left(\frac{zy-zy}{eu-eu} \cdot 100\right)$	— $\left(\frac{Sub.NB}{n-b} \cdot 100\right)$	— $\left(\frac{Sub.NB}{n-b} \cdot 100\right)$
9323	69.5	—	55.6	—	80.0	71.5	65.4	—	102.3	18.9	29.3
9325	77.2	—	60.6	—	78.4	—	—	—	98.6	—	34.5
10424	74.6	76.2	64.6	102.1	86.5	70.2	68.2	43.8	97.9	21.6	32.7
10425	78.1	79.7	66.3	102.0	84.9	74.7	72.2	51.1	101.4	24.8	28.9
10426	69.8	—	63.5	—	91.0	67.9	71.1	—	95.5?	21.0	—
10433	66.8	—	60.4	—	90.4	74.1	66.1	—	—	19.5	28.7
9267	69.6	69.6	59.2	100.0	85.0	65.7	70.0	55.7	98.6	21.7	29.4
KA 418	72.9	75.0	62.2	102.9	85.4	64.2	65.7	51.8	96.3	22.1	35.4
KA 416	95.3	—	77.6	—	81.5	65.4	73.9	—	94.4	22.4	28.0
KA 412	77.0	—	63.1	—	81.9	68.1	68.5	—	92.4	21.0	31.9
KA 424	70.5	—	63.5	—	90.1	76.0	61.5	—	99.3	20.3	—
9755	75.8	74.2	63.2	97.8	83.3	67.4	75.0	41.5	97.8	19.2	31.3
9761	70.4	—	59.3	—	84.2	71.4	63.6	—	95.5	21.0	—
9373	76.2	75.1	64.0	98.6	84.0	70.8	70.0	45.8	97.2	25.2	32.6
10492	76.7	—	60.3	—	78.6	70.3	64.6	—	—	19.6	29.4
9505	76.8	—	58.4	—	76.1	64.8	64.2	—	95.1	19.4	—
9388	73.7	73.2?	63.4	99.3?	86.0	65.7	—	—	—	—	26.5
10336	70.9	72.5?	59.8	102.2?	84.3	71.6	73.8	50.4?	94.8	21.5	29.7
10337	68.2?	—	60.8	—	89.2?	72.9?	—	—	67.6	18.7	27.6
10338	69.8?	—	—	—	—	74.8?	65.2	—	—	23.4	—
10340	66.8?	—	62.6	—	93.7?	73.2?	—	—	96.1?	—	—
10452	74.7	—	64.8	—	86.8	64.7	52.6	—	83.8	—	29.3
10414	73.6	—	60.4	—	82.1	72.4	66.7	—	96.3	23.1	—
10415	81.3	75.9	62.6	93.3	77.0	65.9	60.2	53.2	96.3?	22.7	24.7
10427	78.2	—	67.8	—	86.8	70.6	65.7	—	91.2?	23.4	27.1
KA 413	78.5	—	65.1	—	83.0	68.9	—	—	94.1	22.3	27.0
KA 421	75.8	—	—	—	—	66.7	60.2	—	—	19.0	—
KA 414	78.8	78.8	65.4	100.0	83.1	69.2	68.6	50.0	92.3	19.1	24.2
KA 415	74.6	—	61.0	—	81.8	73.5	—	—	—	23.8	—
KA 427	79.2	—	62.9	—	79.4	67.4	58.1	—	—	27.0	—
9758	—	—	—	—	—	—	63.6	—	—	25.9	—
9375	83.1	77.7	67.5	93.5	81.2	67.4	62.8	53.5	94.2	22.4	31.4
9376	78.9	—	64.4	—	81.7	67.6	62.3	—	89.4	23.1	24.0
9501	83.5	78.2	66.5	93.7	79.6	66.9	61.9	47.4?	90.8	26.2	21.0
9506	75.3	69.2	59.9	92.0	79.6	69.3	61.9	50.8	99.3	23.6	33.7
9504	77.1	78.2	61.4	101.4	79.7	65.2	64.0	50.7	92.0	22.3	28.0
9507	81.3	75.3	65.4	92.6	80.4	50.7	60.6	51.8	89.2	24.3	32.6

TABLE VII (7)

40 : 5 (I 60)	48 : 45 (I 39)	47 : 45 (I 38)	54 : 55 (I 48)	52 : 51a (I 42b)	52 : 51 (I 42)	63 : 62 (I 58)	61 : 60 (I 54)	—	—	—	71a : 70	68 : 66
Index of prognathism (gnathic index) (index of face prominence) $\left(\frac{ba-pr}{n-ba} \cdot 100\right)$	Upper facial index $\left(\frac{n-pr}{zy-zy} \cdot 100\right)$	Total facial index $\left(\frac{n-gn}{zy-zy} \cdot 100\right)$	Nasal index (nasal breadth) $\left(\frac{n-nb}{n-nb} \cdot 100\right)$	Orbital index (from dacryon) (orbital height) $\left(\frac{d-ek}{d-ek} \cdot 100\right)$	Orbital index (from maxillofrontale) (orbital height) $\left(\frac{m-ek}{m-ek} \cdot 100\right)$	Palatal index (from staphylion) $\left(\frac{enm-enm}{d-sta} \cdot 100\right)$	Upper alveolar arch index. External palate index (maxillo-alveolar index) $\left(\frac{ekm-ekm}{pr-alv} \cdot 100\right)$	Maxillo-frontal index (maxillo-frontal sub) $\left(\frac{m-m}{m-m} \cdot 100\right)$	Dacryal index (dacryal sub) $\left(\frac{d-d}{d-d} \cdot 100\right)$	Simotical index (simotical sub) (simotical chord) $\left(\frac{simotical\ sub}{simotical\ chord} \cdot 100\right)$	Mandibular ramus index (minimal breadth of ramus) $\left(\frac{height\ of\ ramus}{height\ of\ ramus} \cdot 100\right)$	Mandibular length- bisonal index (Mandibular pro- jective length) $\left(\frac{go-go}{go-go} \cdot 100\right)$
—	50.4	81.2	50.5	—	78.6	—	—	—	—	—	60.3	—
—	—	—	—	—	—	—	—	—	—	—	50.8	—
94.4	45.6	71.7	51.6	—	73.5	—	122.4	—	—	—	—	—
92.9	51.3	84.5	50.5	77.9	74.4	—	—	37.2	47.1	36.4	60.9	79.3
—	57.0?	—	53.1	—	77.4	—	—	—	—	60.9	—	—
—	—	—	52.0?	—	73.9?	—	101.6	—	—	—	54.8	—
100.0?	56.5	90.6	45.1	—	86.0	—	—	—	—	—	47.1	82.6
98.1	55.3	92.4	44.4	75.9	71.4	79.2	106.9	53.9	—	82.7	69.0	78.7
—	45.7?	75.8?	50.0	73.3	70.2	—	—	—	—	—	—	—
—	—	—	—	—	—	—	111.1	—	—	—	61.9	78.3
—	47.9?	82.9	48.1	75.6	73.8	—	—	—	—	—	—	92.8
100.0	41.5	—	50.6	—	76.5	89.6	116.7	—	—	—	—	—
—	58.3	92.2	47.7	—	81.0	79.2	—	32.8	—	38.9	54.4	79.8
95.2	46.4	72.9	55.2	64.6	63.3	87.2	116.4	37.4	51.5	40.0	61.3	84.8
—	—	—	—	—	—	—	—	—	—	—	58.5	—
—	48.9	82.2	48.9	—	80.5	—	—	—	—	—	48.5	75.2
—	—	—	—	—	—	—	—	—	—	—	53.1	79.0
—	54.3	89.8	46.0	—	72.4	—	111.1	50.0	—	58.0	65.5	—
—	52.8	88.6	46.9	84.5	80.9	—	—	40.8	—	59.0	54.0	78.6
—	—	—	—	—	—	—	—	—	—	—	—	—
—	56.6?	91.0	45.1	—	90.0	—	—	—	—	50.0	—	—
—	54.4	87.7	51.8	—	77.9	—	—	50.0	—	53.3	—	—
—	50.4	84.5	39.6!	—	83.5	—	107.4	40.5	—	34.3	62.7	87.1
—	51.5?	85.4?	50.0	—	80.0	—	118.9	47.7	—	49.1	62.8	77.9
—	—	—	—	—	—	—	—	—	—	—	—	—
—	50.4	—	52.3	81.3	78.2	82.6	114.0	36.8	54.3	60.0	—	—
—	—	—	53.2	79.5	73.8	—	101.7	35.0	55.4	52.6	—	—
99.0	54.2	—	54.4	84.2	82.0	—	—	40.0	—	64.4	—	—
—	—	—	—	—	—	—	—	—	—	66.7	64.0	79.6
—	—	—	52.2	—	80.5	—	—	—	—	—	77.1	85.9
—	50.4?	82.2?	54.2	83.1	79.7	—	—	35.5	44.8	44.9	54.0	88.2
99.0	53.1	85.4	48.1?	81.4	79.5	—	—	52.6	—	53.8	—	—
—	55.9?	89.0?	—	—	—	—	—	—	—	—	54.7	88.0
—	48.8?	—	52.1	—	75.6	—	—	45.4	—	52.9	—	—
93.3	47.1	—	52.1	88.2	85.9	80.8	—	40.9	—	43.7	—	—
94.1	55.9	95.3	49.0	79.5	77.5	84.8	111.1	50.0	70.2	62.5	61.4	80.8
98.1	53.8	87.1	53.6	79.6	78.9	—	115.3	42.6	55.2	38.1	—	—

Individual measurements of limb bones from burial sites of the catacomb-grave culture of the Ukraine TABLE VIII

Nr.	Burial site Region	Inventory number of the Museum of Anthropology of the Moscow University		Sex	FEMUR			TIBIA		FIBULA		HUMERUS		RADIUS		ULNA	
		Limb bones	Skull		1	2	8	1	10b	1	4a	1	7	1	3	1	3
2	Dniepropetrovsk	2945	9323	m	—	—	—	—	—	—	—	304 r	70 r	—	—	—	—
3	Dniepropetrovsk	2946	9325	m	458 l	457 l	94 l	372 l	80 l	366 l	43 l	—	—	—	—	255 l	43 l
5	Dniepropetrovsk	*2956 ²	—	m	532 l	530 l	108 l	454 l	88 l	438 l	42 l	—	—	305 r	37 r	290 r	48 r
8	Dniepropetrovsk	10424	10424	m	447 l	445 l	95 l	—	—	—	—	—	—	—	—	249 l	42 l
9	Dniepropetrovsk	10425	10425	m	450 l	449 l	99 l	370 l	88 l	—	—	319 l	72 l	275 l	40 l	254 l	47 l
12	Dniepropetrovsk	10433	10433	m	481 r	474 r	105 r	413 r	100 r	389 r	39 r	354 r	74 r	296 r	45 r	—	—
13	Zaporozhye	9296	9296	m	452 r	450 r	83 r	—	—	—	—	322 r	65 r	—	—	—	—
14	Zaporozhye	9297	9297	m	476 l	475 l	90 l	395 l	82 l	—	—	338 l	63 l	—	—	—	—
22	Zaporozhye	KA 412	KA 412	m	—	—	—	391 r	84 r	—	—	337 r	67 r	—	—	258 r	47 r
												336 l	64 l				
26	Kherson	3356 ³	9755	m	348 r	346 r	87 r	303 r	62 r	293 r	28 r	—	—	—	—	226 r	42 r
								305 l	62 l	293 l	28 l	286 l	63 l	—	—	226 l	41 l
29	Kherson	3364	9761	m?	418 r	416 r	84 r	368 r	71 r	354 r	32 r	312 r	62 r	—	—	246 r	40 r
					418 l	415 l	85 l	366 l	72 l	353 l	33 l	310 l	62 l	267 l	37 l	248 l	41 l
30	Kherson	3010	9373	m	—	—	—	—	—	—	—	305 r	60 r	275 l	37 l	—	—
33	Kherson	10492	10492	m	438 r	436 r	87 r	—	—	—	—	334 r	63 r	—	—	—	—
												331 l	61 l				
34	Nicolaev	3017	9386	m	—	—	—	374 l	78 l	—	—	314 l	63 l	282 l	38 l	255 l	44 l
37	Nicolaev	3113	9505	m	462 l	461 l	95 l	385 l	87 l	—	—	334 r	70 r	—	—	—	—
42	Odessa	10336	10336	m	438 r	435 r	85 r	—	—	—	—	—	—	—	—	—	—
43	Odessa	10337	10337	m?	448 r	440 r	80 r	—	—	—	—	—	—	—	—	—	—
44	Odessa	10338	10338	m	458 r	458 r	108 r	—	—	—	—	—	—	—	—	—	—
45	Odessa	*10340	10340	m?	445 r	445 r	75 r	—	—	—	—	—	—	—	—	—	—
46	Sumy	3050	—	m	—	—	—	—	—	—	—	344 l	64 l	290 r	37 r	269 r	44 r
														293 l	37 l	271 l	44 l
47	Sumy	3051	—	m	487 r	480 r	89 r	387 r	75 r	—	—	—	—	—	—	—	—
					480 l	475 l	90 l	387 l	77 l	—	—	—	—	—	—	—	—
4	Dniepropetrovsk	2955	—	f	—	—	—	345 r	67 r	333 r	30 r	289 r	58 r	249 r	35 r	229 r	37 r
					413 l	410 l	76 l	344 l	68 l	333 l	32 l	290 l	58 l	247 l	35 l	229 l	38 l
6	Dniepropetrovsk	10414	10414	f	444 l	430 l	83 l	370 l	72 l	—	—	319 l	61 l	—	—	—	—
7	Dniepropetrovsk	10415	10415	f	396 l	395 l	73 l	327 r	63 r	—	—	300 l	56 l	—	—	—	—
11	Dniepropetrovsk	10427	10427	f	—	—	—	—	—	—	—	325 l	63 l	263 l	40 l	246 l	41 l
16	Zaporozhye	KA 413	KA 413	f	—	—	—	312 r	67 r	—	—	—	—	—	—	—	—
					380 l	379 l	75 l	309 l	70 l	302 l	29 l	277 l	60 l	—	—	—	—
18	Zaporozhye	KA 414	KA 414	f	433 r	427 r	86 r	338 r	74 r	—	—	—	—	255 r	38 r	233 r	41 r
					437 l	431 l	84 l	—	—	—	—	—	—	255 l	39 l	236 l	41 l
20	Zaporozhye	KA 415	KA 415	f	426 r	425 r	77 r	—	—	—	—	—	—	300 r	58 r	—	—
														305 l	59 l	—	—
23	Zaporozhye	KA	—	f	—	—	—	—	—	—	—	—	—	293 l	62 l	—	—
27	Kherson	3360	9758	f	420 r	418 r	77 r	335 r	70 r	330 r	36 r	300 r	61 r	248 r	30 r	231 r	42 r
					420 l	417 l	80 l	335 l	69 l	—	—	299 l	59 l	249 l	40 l	230 l	42 l
28	Kherson	3363	—	f	438 r	435 r	80 r	361 r	69 r	—	—	—	—	—	—	—	—
					437 l	435 l	83 l	362 l	70 l	352 l	32 l	—	—	252 l	37 l	240 l	37 l
31	Kherson	3012	9375	f	—	—	—	—	—	—	—	—	—	262 r	41 r	238 r	44 r
35	Nicolaev	3018	9387	f	—	—	—	366 l	72 l	—	—	—	—	264 l	40 l	—	—
36	Nicolaev	3112	9501	f	392 r	388 r	79 r	—	—	—	—	—	—	254 r	33 r	—	—
					391 l	388 l	79 l	355 l	66 l	—	—	—	—	—	—	—	—
41	Nicolaev	3116	9507	f	—	—	—	—	—	—	—	324 r	59 r	—	—	—	—

NOTE: ¹ The measurements of limb bones are given in mm.

² In skeleton N 2956 (marked by an asterisk) distal ends of right fibula, tibia and calcaneus are united with the shaft.

³ Limb bones N 10340 (marked by an asterisk) are pathologically curved, probably a result of rachitis.

⁴ The measurements of limb bones No. 10340 (marked by an asterisk) belonging to a skeleton below 20 years of age are not included in the calculations of mean values.

⁵ Previously published materials on the catacomb-grave culture of the Zaporozhye region are included in our statistical analysis (male No. 2838, 2840, 2841, 2846, 2847, 2848, 2855, 2868, 2870, 2879, 2880, 2883, 2884, 2902, 2908, 2918, 2922, 2923, 2925; female — No. 2859, 2871, 2885, 2886, 2904, 2905, 2907, 2917, 2918).

⁶ The limb bones were obtained:

a) No. 2955 and 2956 (barrow 6, burial 4) from the village of Kut, Apostolovo district, Dniepropetrovsk region (excavations by D. T. Berezovets, 1951);

b) N Ka (barrow 1, burial 18) from the hamlet of Shevchenko, Bolshoy Tokmak district, Zaporozhye region (excavations by K. F. Smirnov, 1952).

c) N 3050 (barrow 1, burial 1) and N 3051 (barrow 1, burial 2) from the village of Kharyevka, Putivl district, Sumy region (excavations V. A. Ilyinskaya, 1950).

Nr.	Burial site Region	Inventory number of the Museum of Anthro- pology of the Moscow University		Sex	PROPORTIONS					INDEX of ROBUSTICITY					
		Limb bones	Skull		(H1 + R1) : (T1 + F2) Intermembral index	T1 : F2 Tibiofemoral index	U1 : H1 Ulnohumeral index	H1 : F2 Humero femoral index	R1 : T1 Radio tibial index	8 : 2 of femur	10b : 1 of tibia	4a : 1 of fibula	7 : 1 of humerus	3 : 1 of radius	3 : 1 of ulna
2	Dniepropetrovsk	2945	9323	m	—	—	—	—	—	—	—	—	23.0 r	—	—
3	Dniepropetrovsk	2946	9325	m	—	81.4 l	—	—	68.6 l	20.6 l	21.5 l	11.7 l	—	—	16.9 l
5	Dniepropetrovsk	2956	—	m	—	85.7 l	—	—	—	20.4 l	19.4 l	9.6 l	—	12.1 r	16.6 r
8	Dniepropetrovsk	10424	10424	m	—	—	—	—	—	21.3 l	—	—	—	—	16.9 l
9	Dniepropetrovsk	10425	10425	m	70.0 l	82.4 l	79.6 l	71.0 l	68.6 l	22.0 l	23.8 l	—	22.6 l	14.5 l	18.5 l
12	Dniepropetrovsk	10433	10433	m	—	87.1 r	—	74.7 r	—	22.2 r	24.2 r	10.0 r	20.9 r	15.2 r	—
13	Zaporozhye	9296	9296	m	—	—	—	71.5 r	—	18.4 r	—	—	20.2 r	—	—
14	Zaporozhye	9297	9297	m	—	82.9 l	—	70.9 l	—	18.9 l	20.7 l	—	18.6 l	—	—
22	Zaporozhye	KA412	KA412	m	—	—	76.6 r	—	66.0 r	—	21.5 r	—	19.9 r	—	18.2 r
26	Kherson	3356	9755	m	—	87.6 r	—	—	74.6 r	25.1 r	20.5 r	9.6 r	—	—	18.6 r
							79.0 l	—	74.1 l	—	20.3 l	9.6 l	22.0 l	—	18.1 l
29	Kherson	3364	9761	m?	71.8 r	88.5 r	78.8 r	75.0 r	66.8 r	20.2 r	19.3 r	9.0 r	19.9 r	—	16.3 r
					71.4 l	88.2 l	80.0 l	74.7 l	67.8 l	20.5 l	19.7 l	9.3 l	20.0 l	13.8 l	16.5 l
30	Kherson	3010	9373	m	—	—	—	—	—	—	—	—	19.7 r	13.5 l	—
33	Kherson	10492	10492	m	—	—	—	76.6 r	—	20.0 r	—	—	18.9 r	—	—
													18.4 l	—	—
34	Nicolaev	3017	9386	m	—	—	81.2 l	—	68.2 l	—	20.8 l	—	20.1 l	13.5 l	17.3 l
37	Nicolaev	3113	9505	m	—	83.5 l	—	—	—	20.6 l	22.6 l	—	21.0 r	—	—
42	Odessa	10336	10336	m	—	—	—	—	—	19.5 r	—	—	—	—	—
43	Odessa	10337	10337	m?	—	—	—	—	—	18.2 r	—	—	—	—	—
44	Odessa	10338	10338	m	—	—	—	—	—	22.0 r	—	—	—	—	—
45	Odessa	10340	10340	m?	—	—	—	—	—	16.8 r	—	—	—	—	—
46	Sumy	3050	—	m	—	—	78.8 l	—	—	—	—	—	18.6 l	12.7 r	16.4 r
													12.6 l	—	16.2 l
47	Sumy	3051	—	m	—	80.6 r	—	—	—	18.5 r	19.4 r	—	—	—	—
						81.5 l	—	—	—	18.9 l	19.9 l	—	—	—	—
4	Dniepropetrovsk	2955	—	f	68.8 l	83.9 l	79.2 r	70.7 l	66.4 r	18.5 l	19.4 r	9.0 r	20.1 r	14.0 r	16.2 r
							78.9 l	70.7 l	66.6 l	18.5 l	19.8 l	9.6 l	20.0 l	14.2 l	16.6 l
6	Dniepropetrovsk	10414	10414	f	—	86.0 l	—	74.2 l	—	19.3 l	19.4 l	—	19.1 l	—	—
7	Dniepropetrovsk	10415	415	f	—	—	—	75.9 l	—	18.5 l	19.3 r	—	18.7 l	—	—
11	Dniepropetrovsk	10427	10427	f	—	—	75.7 l	—	—	—	—	—	19.4 l	15.2 l	16.7 l
16	Zaporozhye	KA413	KA413	f	—	—	—	—	—	—	21.5 r	—	—	—	—
						81.5 l	—	73.1 l	—	19.8 l	22.6 l	9.6 l	21.7 l	—	—
18	Zaporozhye	KA414	KA414	f	—	79.2 r	—	—	68.9 r	20.1 r	21.9 r	—	—	14.9 r	17.6 r
										19.5 l	—	—	15.2 l	—	17.4 l
20	Zaporozhye	KA415	KA415	f	—	—	—	70.6 r	—	18.1 r	—	—	19.3 r	—	—
													19.3 l	—	—
23	Zaporozhye	KA	KA	f	—	—	—	—	—	—	—	—	21.2 l	—	—
27	Kherson	3360	9758	f	70.4 r	80.1 r	77.0 r	71.8 r	69.0 r	18.4 r	20.9 r	10.9 r	20.3 r	16.1 r	18.2 r
					70.3 l	80.3 l	76.9 l	71.7 l	68.6 l	19.0 l	20.6 l	—	19.7 l	16.1 l	18.3 l
28	Kherson	3363	—	f	83.0 r	—	—	—	—	18.3 r	19.1 r	—	—	—	—
					83.2 l	—	—	—	66.3 l	19.0 l	19.3 l	9.1 l	—	14.7 l	15.4 l
31	Kherson	3012	9375	f	—	—	—	—	—	—	—	—	—	15.6 r	18.5 r
35	Nicolaev	3018	9387	f	—	—	—	—	—	—	19.7 l	—	—	15.2 l	—
36	Nicolaev	3112	9501	f	—	—	—	—	—	20.4 r	—	—	—	12.9 r	—
						91.5 l	—	—	—	20.4 l	18.6 l	—	—	—	—
41	Nicolaev	3116	9507	f	—	—	—	—	—	—	—	—	18.2 r	—	—

Burial site	Number of barrow, burial, skeleton	Author and year of excavation
Dniepropetrovsk region, Apostolovo district, Ust-Kamenka village	Barrow 1, burial 10	E. V. Makhno, 1951
Dniepropetrovsk region, Apostolovo district, Maryanskoe village	Barrow 1, burial 9	E. F. Pokrovskaya, 1953
Zaporozhye region, Bolshoy Tokmak district, Shevchenko hamlet	Barrow 2, burial 16	K. F. Smirnov, 1952
Kherson region, Novo-Vorontsovka district, Zolotaya Balka village	Excavation IV, stone covering I	M. I. Vyazmitina, 1955
Kherson region, Novo-Vorontsovka district, Zolotaya Balka village	Excavation I, stone covering 4	M. I. Vyazmitina, 1955
Kherson region, Novo-Vorontsovka district, Zolotaya Balka village	Excavation I, stone covering, living site	M. I. Vyazmitina, 1955
Kherson region, Novo-Vorontsovka district, Gavrilovka village	Barrow 1, burial 7	N. N. Pogrebova, 1958
Kherson region, Novo-Vorontsovka district, Gavrilovka village (state farm of Pridneprovskiy)	Burial 50	E. A. Symonovich, 1954
Kherson region, Novo-Vorontsovka district, Osokorovka village	Burial 1	V. D. Rybalova, 1951
Kherson region, Novo-Vorontsovka district, Osokorovka village	Burial 8	V. D. Rybalova, 1951
Kherson region, Novo-Vorontsovka district, Osokorovka village	Burial 5	O. G. Shaposhnikova, 1952
Kherson region, Novo-Vorontsovka district, Osokorovka village	Rock-ring structure (cromlech) 1, burial 1	O. G. Shaposhnikova, 1952
Kherson region, Verkhniy Rogachik district, Nizhniy Rogachik village	Barrow 1, burial 4	G. T. Grozdilov, 1961
Kherson region, Berislav district, Zmeevka village	Burial 7	A. V. Burakov, 1952
Kherson region, Berislav district, Zmeevka village	Burial 10	A. V. Burakov, 1952
Nicolaev region, Voznesenka district, Novo-Grigoryevka village	Barrow 2, burial 6, skeleton 1	N. G. Yelagina, 1957
Nicolaev region, Snigirevka district, Novo-Kondakovo village	Barrow 1, burial 1	L. M. Slavin, 1951
Nicolaev region, Snigirevka district, Novo-Kondakovo village	Barrow 1, burial 2	L. M. Slavin, 1951
Cherkassy region, Cherkassy district, Lomovatoe village	Excavation IV, burial 1	E. A. Symonovich, 1957
Cherkassy region, Cherkassy district, Lomovatoe village	Excavation V, burial	E. A. Symonovich, 1957
Kharkov region, Borovaya district, Oskol village (Oskol I)	Settlement, burial	V. A. Ylyinskaya, 1956
Dniepropetrovsk region, Apostolovo district, Ust-Kamenka village	Barrow 1, burial	E. V. Makhno, 1951
Dniepropetrovsk region, Apostolovo district, Maryanskoe village	Barrow 1, burial 26	E. F. Pokrovskaya, 1953
Dniepropetrovsk region, Nicopol district, Khmelnytskyi hamlet	Barrow 5, burial 12	I. P. Kostyuchenko, 1951
Dniepropetrovsk region, Solyonoe district, Vovnigi village, Bashmachka ravine	Stone covering 4	E. F. Lagodovskaya, 1946
Zaporozhye region, Bolshoy Tokmak district, Zamozhnoe village	Barrow 1, burial 1	K. F. Smirnov, 1952
Kherson region, Verkhniy Rogachik district, Pervomaevka village	Barrow 2, burial 5	G. T. Kovpanenko, 1953
Kherson region, Verkhniy Rogachik district, Pervomaevka village	Barrow 3, burial 4	E. A. Petrovskaya, 1953
Kherson region, Borislav district, Zmeevka village	Burial 3	A. V. Burakov, 1952
Nicolaev region, Voznesenka district, Novo-Grigoryevka village	Barrow 2, burial 1	N. G. Yelagina, 1957
Nicolaev region, Oktyabryskoe district, Ternovka village	Barrow, central grave	L. M. Slavin, 1956
Nicolaev region, Oktyabryskoe district, Ternovka village	Barrow, burial 5	L. M. Slavin, 1956
Cherkassy region, Cherkassy district, Lomovatoe village	Excavation 3, burial 3	E. A. Symonovich, 1957

NOTE: Linear measurements are given in mm, angles in degrees, capacity in cm³. The measurements of the skull N 10693 belonging to a skeleton below 20 years of age are not included in the calculations of mean values.

Inventory number of the Museum of Anthropology of the Moscow University	Sex	Age	1 Greatest length from glabella (g — op)	1b Greatest length from ophryon (on — op)	8 Greatest parietal breadth (eu — eu)	17 Height of the skull from basion (Basio-bregmatic height) (ba — b)	5 Length of cranial base (ba — n)	20 Height of the skull from porion (Porio-bregmatic height) (po — b)	9 Minimal frontal breadth (ft — ft)	10 Maximal frontal breadth (co — co)	11 Bi-auricular breadth (au — au)	12 Occipital breadth (ast — ast)	7 Length of foramen magnum (ba — o)	16 Breadth of foramen magnum
9365	m	45—55	204	200	132	150?	—	122	100	118?	122	116	40	31
9733	m	35—40	185	184	142	139	103	121	100	124	125	114	—	—
KA 425	m	30—35	204	199	143	—	—	123	—	—	—	—	—	—
10444	m	45—55	189	186	135	138	104	118	94	113	123	111	41	32
10447	m?	40—50	182	180	138	—	—	115	98	117	125	112	—	—
10699	m?	55—65	183	180	139	139	—	116	100	112	120	109	—	—
9829	m	25—30	190	186	129	—	—	108	97	116	118	104	—	—
9907	m	40—45	181	178	141	—	—	114	91	122	126	111	—	—
9377	m	30—35	189	187	139	—	—	113	104	123	127	—	—	—
9379	m	40—50	194	190	130	—	—	121	97	118	119	117	—	—
10493	m	35—45	198	194	—	—	—	119	—	127	132	117	—	—
10494	m	30—40	186	183	145	—	—	116	94	120	124	—	—	—
9370	m	50—55	195	—	143	—	—	110?	—	—	—	—	—	—
10692	m	30—45	197	106	142	—	—	122?	—	—	—	—	—	—
10455	m	45—50	185	183	139	136	99	113	99	121	133	114	—	—
10714	m?	50—60	192	191	134	—	—	117	102	116	122	114	—	—
9383	m	50—65	207	203	144?	—	—	121	98	121	—	—	—	—
9384	m	55—65	194	192	135	—	—	127	95	122	123	107	—	—
10459	m	55—60	183	180	132	—	—	113	95	121	115	104	—	—
10461	m	30—40	185	182	138	135	103	117	97	119	120	108	37	32
10700	m	30—40	168	165	137	139	101	116	95	117	122	104	32	30
9366	f?	55—65	190	187	133	126	109	110	94	116	119	113	—	—
9740	f	35—45	182	181	151	130	100	116	99	129	129	113	34	33
9349	f	30—45	183	182	135	127	101	110	93	112	119	112	40	30
9312	f	40—55	179	176	136	134	105	116	87	119	122	—	32	27
KA 411	f	25—30	181	179	132	—	—	112	88	110	110	105	—	—
9756	f	20—30	181	178	137?	132	101	112	97	118	—	—	—	—
9759	f	35—40	172	170	132	—	—	105	90	113	119	102	—	—
10693	f?	16—19	184	185	133	134	102	—	94	—	—	—	—	—
10712	f	50—60	181	180	132?	131	100	108	91	112	—	105	36	30
10690	f	40—50	180	180	134	136	—	114	89	112	123	101	—	—
10691	f	20—30	175	172	132	—	—	111	94	120	119	108	—	—
10460	f	25—35	183	181	134	138	106	119	103	122	120	110	35	26

Inventory number of the Museum of Anthropology of the Moscow University	29	31	—	—	—	38	45	40	48	47	43	43 ₁	46	60
	Frontal chord (n—b)	Occipital chord (l—o)	Frontal convexity height (Subtense from frontal chord)	Occipital convexity height (Subtense from occipital chord)	Arcus supraorbitalis length	Cranial capacity (after Lee-Pearson)	Bi-zygomatic breadth (zy—zy)	Facial length (ba—pr)	Upper facial height (n—pr)	Total facial height (n—gn)	Upper facial breadth (fnt—fnt)	Internal Bi-orbital breadth (fmo—fmo)	Midle facial breadth (zm—zm)	External length of upper alveolar arch (pr—alv)
9365	120	99	23	31	76	1558	135?	101	—	—	112	103	105	55
9733	116	103	28	28	70	1520	132	94	80	123	108	99	—	—
KA 425	117	112	23	39	77	1669	—	—	84	—	—	—	—	—
10444	111	96	24	28	69	1458	130?	99	71	—	104	100	—	58
10447	115	—	25	—	65	1413	134	—	—	—	103	96	—	—
10699	114	97	25	27	55	1436	—	—	—	—	—	95	—	—
9829	108	90	23	23	70	1325	—	—	70	—	108	—	—	—
9907	114	—	25	—	69	1421	130	—	71	114	101	94	—	—
9377	104	98	28	27	83	1443	135	—	72	115	108	98	—	—
9379	109	99	22	27	72	1473	—	—	—	—	105	95	—	—
10493	118	107	23	34	71	1649	—	—	—	—	—	—	—	—
10494	110	—	22	—	68	1501	135?	—	70?	114	111	102	—	—
9370	—	—	—	—	—	1479	—	—	—	—	—	—	—	—
10692	114	—	19	—	66	1605	—	—	—	—	—	—	—	—
10455	106	96	24	29	76	1420	141	—	—	—	109	99	—	—
10714	111	104	26	36	72	1458	128?	—	70	117?	110	98	—	—
9383	119	—	24	—	68	1676	—	—	—	—	107	102	—	—
9384	122	—	27	—	67	1573	—	—	74	—	105	99	99	55
10459	118	—	27	—	68	1356	128	—	69	114	100	93	—	52
10461	111	100	26	30	63	1450	134	94	68	—	107	100	94	—
10700	107	92	25	21	69	1334	131	97	75	—	107	100	89	56
9366	100	93	20	29	68	1339	126	—	—	—	105	98	90	—
9740	107	98	27	29	72	1492	128	93	62	104	106	99	85	50
9349	110	88	27	27	61	1315	122	95	65	106	100	90	82	—
9312	105	98	22	26	63	1355	—	—	—	—	99	—	—	—
KA 411	108	92	26	28	66	1300	114	—	69	111	102	92	—	—
9756	112	98	28	27	62	1338	120?	94	71	111?	105	97	91	52
9759	103	83	25	27	59	1290	128	—	67	105	102	94	90	51
10693	—	86	—	30	58	—	120?	—	64	105	98	90	—	—
10712	111	93	27	31	60	1264?	—	—	—	—	100	93	—	—
10690	96	—	24	—	61	1327	127	—	63?	102?	101	95	—	—
10691	109	93	27	22	58	1258	123	—	58	99	101	94	93	54
10460	116	102	28	30	72	1391	124	102	71	115	107	99	98	57

TABLE X (3)

61	62	63	55	54	51	51a	52	—	50	—	49a	—	57	—
External breadth of upper alveolar arch (ekm — ekm)	Palatal length (from staphylion) (ol — sta)	Palatal breadth (enm — enm)	Nasal height (n — ns)	Nasal breadth	Orbital breadth (from maxillofrontale) (mf — ek)	Orbital breadth (from dacryon) (d — ek)	Orbital height	Depth of fossa canina (after Abinder)	Maxillofrontal chord (mf — mf)	Maxillofrontal subdense	Dacryal chord (d — d)	Dacryal subdense	Simotical chord (least breadth of nasal bones)	Simotical subdense
60	—	—	—	25.0	—	—	34.0	3.5	—	—	—	—	—	—
—	—	—	56.5	24.0	45.0	43.0	36.0	—	21.0	9.5	—	—	7.0	4.5
—	—	—	58.0	—	44.0	—	34.0	7.0	—	—	—	—	—	—
60	—	—	46.0	24.0?	41.0	—	31.0	3.0	21.3	9.3	—	—	10.0	4.8
—	—	—	—	—	—	—	—	2.5	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	53.0	25.5	—	—	—	—	22.0	—	—	—	—	—
—	—	—	52.0	23.0?	39.5	—	32.5	7.5	20.0	9.2	—	—	8.5	4.1
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	54.0	—	—	—	—	—	—	—	—	—	8.3	6.2
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	41.3	—	30.5	—	23.0	—	—	—	—	—
—	—	—	48.0	22.0	40.0	—	35.0	5.0	23.0	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
60	—	—	55.0	24.0	44.0	—	38.3	3.8	—	—	—	—	8.5	4.5
59	—	—	50.0	23.8	39.2	—	32.5	5.5	21.5	10.5	—	—	11.2	5.4
—	—	—	52.2	—	42.0	—	33.7	3.0	22.0	11.0	—	—	7.5	5.5
66	48	39	55.0	23.4	40.7	40.5	32.5	3.5	18.0	11.0	19.0	13.2	7.6	5.0
—	—	—	46.0	24.0	41.5	40.6	32.5	4.0	20.3	10.0	21.0	12.8	8.8	4.0
59	40	33	44.0	21.8	39.0	38.5	27.0	5.5	27.0	10.5	27.2	13.0	12.0	5.5
—	—	—	52.5	22.2	38.0	—	32.5	6.6	16.5	9.8	—	—	8.0	4.0
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	48.0	25.0	40.0	—	33.0	6.5	—	—	—	—	—	—
58	42	36	51.0	22.2	41.0	—	31.5	3.5	23.0	7.5	24.0	11.5	10.0	3.5
60	45	37	46.0	20.0	41.0	40.0	34.0	4.5	16.8	7.9	17.5	10.7	7.5	4.0
—	—	—	44.0	21.0	39.0	—	27.5	—	19.2	10.8	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	48.0?	25.0	—	—	30.0	4.0	—	—	—	—	—	—
60	—	—	44.0	23.5	40.0	—	32.2	3.2	17.8	—	—	—	—	—
68	45	44	48.0	23.5	42.0	—	32.0	3.0	21.6	12.1	20.0	11.5	8.0	5.0

TABLE X (4)

Inventory number of the Museum of the Anthropology of the Moscow University	65	66	67	68	68 ₁	69	70	71a	32	—	33 ₁	33 ₂	33	34
	Bicondylar breadth (kdl — kdl)	Bigonial (angular) breadth (go — go)	Distance between foramina mentalia	Mandibular projective length from gonion	Mandibular projective length from condyles	Chin height (ld — gn)	Height of mandibular ramus	Minimal breadth of mandibular ramus	Frontal angle from nasion (m — n — OAE)	Frontal angle from glabella (m — g — OAE)	Angle of the upper part of occiput (l — i — OAE) (Upper occipital angle)	Angle of the lower part of occiput (o — i — OAE) (Lower occipital angle)	Angle of the inclination of the occipital bone (l — i — OAE)	Angle of the inclination of foramen magnum (o — b — OAE)
9365	—	106	49	89	—	38	—	40	69	64	91	26	122	—3
9733	118	96	45	85	108	34	58	34	83	77	87	30	112	—9
KA 425	—	—	—	—	—	—	—	37	—	—	—	—	—	—
10444	—	—	—	—	—	—	—	36	83	76	90	30	117	—3
10447	—	—	46	—	—	31	—	—	—	—	—	—	—	—
10699	—	—	43	—	—	32	—	—	—	—	—	—	—	—
9829	—	—	—	—	—	—	—	—	—	—	—	—	—	—
9907	126	97	40	72	101	34	66	32	79	72	91	—	—	—
9377	—	—	—	—	—	34	—	40	82	76	96	27	120	—
9379	—	—	—	—	—	34	—	—	—	—	—	—	—	—
10493	—	—	—	—	—	35	—	—	—	—	—	—	—	—
10494	—	—	—	—	—	33	—	39	—	—	—	—	—	—
9370	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10692	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10455	—	—	—	—	—	33	—	—	86	78	87	32	117	—4
10714	—	—	—	—	—	—	—	34	85	79	87	28	113	—
9383	—	104	49	—	—	—	65	35	—	—	—	—	—	—
9384	—	—	—	—	—	—	—	33	—	—	—	—	—	—
10459	—	—	—	80	111	—	—	33	83	73	92	30	120	—
10461	—	—	—	—	—	—	—	—	82	76	94	20	119	—6
10700	—	—	—	—	—	—	—	—	82	77	97	35	118	—3
9366	—	—	—	—	—	—	—	33	81	72	87	37	116	—
9740	—	97	42	78	110	31	50	32	88	81	93	27	117	—13
9349	—	—	—	—	—	29	—	35	81	76	88	31	118	—8
9312	—	—	46	—	—	29	—	34	—	—	—	—	—	—
KA 411	110	92	—	79	109	31	50	34	—	—	—	—	—	—
9756	—	—	—	—	—	—	—	33	81	78	94	25	120	—
9759	—	92	45	65	98	30	56	36	82	78	88	28	119	—
10693	—	—	48	—	—	33	—	35	—	—	—	—	—	—
10712	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10690	—	—	—	—	—	29	—	—	84	77	90	38	—	—
10691	—	—	44	—	—	29	—	—	85	81	—	—	117	—
10460	110	—	45	—	106	35	61	38	88	83	95	33	121	—5

TABLE X (5)

72	73	74	75 ₁	77	—	79	—	—	—	—	—	—	—	—
Total facial angle (n — pr — OAE)	Midfacial angle (n — ns — OAE)	Alveolar angle (n — pr — OAE)	Angle of the nasal profile with the facial profile (n — rni — Line of profile)	Nasomalar angle (fmo — n — fmo)	Zygomaxillary angle (after Abinder) (zm — ss — zm)	Mandibular angle (Angle of the inclination of mandibular ramus)	Chin angle (id- pog-standard basal plane)	Glabella (prominence after Martin; 1—6)	Arcus supraciliaris after glabella promi- nece scale Martin; 1—6)	Depth of fossa canina (0—4)	Lower edge of apretura piriformis	Spina nasalis anterior (after Broca; 1—5)	Protuberantia occipitalis externa (after Broca; 0—5)	Processus mastoideus (1—3)
—	—	—	—	—	130	—	75	5	5	2	anthr.	5	5	3
89	89	89	30	141	—	120	58	3	4	3	anthr.	4	3	2
—	—	—	—	—	—	—	—	5	5	4	anthr.	—	3	3
85	—	—	23	136	—	—	—	3	3	2	—	—	2	2
—	—	—	—	142	—	—	68	3	3	2	—	—	1	2
—	—	—	—	137	—	—	—	3	3	—	—	—	2	3
—	—	—	31	—	—	—	—	4	5	4	anthr.	5	3	3
88	88	88	36	138	128	119	72	3	4	4	anthr.	5	3	2
83	85	82	—	138	—	—	—	4	4	3	—	—	3	3
—	—	—	—	—	—	—	—	3	4	—	—	—	3	3
—	—	—	—	—	—	—	—	3	4	—	—	—	3	3
—	—	—	—	140	—	—	—	3	4	—	anthr.	—	2	3
—	—	—	—	—	—	—	—	4	4	—	—	—	4	3
—	—	—	—	—	—	—	—	3	3	—	—	—	3	3
—	—	—	—	134	—	—	—	3	3	—	—	—	2	3
—	—	—	—	135	—	—	—	3	3	2	—	—	2	3
—	—	—	—	137	—	110	—	4	5	—	—	—	3	3
—	—	—	—	137	127	—	—	3	3	2	—	—	2	3
82	82	83	—	138	120	—	—	3	3	3	anthr.	2	3	3
87?	—	—	—	139	125	—	—	3	3	2	anthr.	4	3	2
84	85	79	32	137	119	—	—	3	4	2	anthr.	3	3	3
86?	—	—	26?	136	133	—	—	3	4	2	anthr.	—	2	2
90	92	88	22	133	126	—	60	3	3	3	anthr.	4	2	3
87?	—	—	—	141	—	—	68	2	2	3	anthr.	—	1	1
—	—	—	—	—	—	—	—	3	3	—	—	—	3	2
—	—	—	—	128	114	124	—	3	3	3	anthr.	3	2	2
87	88	83	23	133	135	—	—	2	2	2	anthr.	4	3	2
81	80	79	29	141	129	—	82	2	2	2	anthr.	4	1	1
—	—	—	—	141	—	—	—	2	2	2	—	—	1	1
—	—	—	—	137	—	—	—	2	2	—	—	—	—	—
—	—	—	—	—	—	—	—	2	2	2	anthr.	—	2	1
86	87	84	—	141	127	—	—	2	2	2	anthr.	3	1	1
87	87	85	30	132	123	—	75	2	2	2	anthr.	3	2	2

TABLE X (6)

Inventory number of the Museum of Anthropology of the Moscow University	8 : 1 (I 1) Cranial index $\left(\frac{\text{eu} \cdot \text{eu}}{\text{g} \cdot \text{op}} \cdot 100\right)$	17 : 1 (I 2) Height-length index (from basion) $\left(\frac{\text{ba} - \text{b}}{\text{g} - \text{op}} \cdot 100\right)$	20 : 1 (I 4) Height-length index (from porion) $\left(\frac{\text{ba} - \text{p}}{\text{g} - \text{op}} \cdot 100\right)$	17 : 8 (I 3) Height-breadth index (from basion) $\left(\frac{\text{ba} - \text{b}}{\text{eu} - \text{eu}} \cdot 100\right)$	20 : 8 (I 5) Height-breadth index (from porion)	9 : 8 (I 13) Transverse frontoparietal index $\left(\frac{\text{ft} - \text{ft}}{\text{eu} - \text{eu}} \cdot 100\right)$	— Arcus supraorbitalis length index Arcus supraorbi- talis length $\frac{\text{fnt} - \text{fnt}}{\text{fnt} - \text{fnt}} \cdot 100$	48 : 17 Vertical faciocranial index $\left(\frac{\text{n} - \text{pr}}{\text{ba} - \text{b}} \cdot 100\right)$	45 : 8 (I 71) Transverse faciocranial index $\left(\frac{\text{zy} - \text{zy}}{\text{eu} - \text{eu}} \cdot 100\right)$	— Frontal convexity index $\left(\frac{\text{Sub} \cdot \text{NB}}{\text{n} - \text{b}} \cdot 100\right)$	— Occipital convexity index $\left(\frac{\text{Sub} \cdot \text{NB}}{\text{n} - \text{b}} \cdot 100\right)$
9365	64.7	73.5	59.8	113.7	92.4	75.8	66.8	—	102.3?	19.2	31.3
9733	76.8	75.1	65.4	97.9	85.2	70.4	64.8	57.6	93.0	24.1	27.2
KA 425	70.1	—	60.3	—	86.0	—	—	—	—	19.7	34.8
10444	71.4	73.0	62.4	102.2	87.4	69.6	66.4	51.4	96.3?	21.6	29.2
10447	75.8	—	63.2	—	83.3	71.0	63.1	—	97.1	21.7	—
10699	76.0	76.0	63.4	100.0	83.4	71.9	—	—	—	21.9	27.8
9829	67.9	—	56.8	—	83.7	75.2	64.8	—	—	23.3	25.6
9907	77.9	—	63.0	—	80.8	64.5	68.3	—	92.2	21.9	—
9377	73.5	—	59.8	—	81.3	74.8	76.8	—	97.1	26.9	27.6
9379	67.0	—	62.4	—	93.1	74.6	68.6	—	—	20.2	27.3
10493	—	—	60.1	—	—	—	—	—	—	19.5	31.8
10494	78.0	—	62.4	—	80.0	64.8	61.3	—	93.1	20.0	—
9370	73.3	—	56.4?	—	76.9	—	—	—	—	—	—
10693	72.1	—	61.9?	—	85.9?	—	—	—	—	16.7	—
10455	75.1	73.5	61.1	97.8	81.3	71.2	69.7	—	101.4	22.6	30.2
10714	69.8	—	60.9	—	87.3	76.1	65.4	—	95.5?	23.4	34.6
9383	73.7	73.2?	63.4	99.3?	86.0	65.7	—	—	—	20.2	—
9384	69.6	—	65.5	—	94.1	70.4	63.8	—	—	22.1	—
10459	72.1	—	61.8	—	85.6	72.0	68.0	—	97.0	22.9	—
10461	74.6	73.0	63.2	97.8	84.8	70.3	58.9	50.4	97.1	23.4	30.0
10700	81.6	82.7	69.0	101.5	84.7	69.3	64.5	54.0	95.6	23.4	22.8
9366	70.0	66.3	57.9	94.7	82.7	70.7	64.8	—	94.7	20.0	31.2
9740	83.0	71.4	63.7	86.1	76.8	65.6	67.9	47.7	84.8	25.2	29.6
9349	73.8	69.4	60.1	94.1	81.5	68.9	61.0	51.2	90.4	24.6	30.7
9312	76.0	75.3	64.8	98.5	85.3	64.0	63.6	—	—	20.9	26.5
KA 411	72.9	—	61.9	—	84.8	66.7	64.7	—	86.4	24.1	30.4
9756	75.7	72.9	61.9	96.4?	81.8?	70.8?	59.0	53.8	87.6?	25.0	27.5
9759	76.7	—	61.0	—	79.6	68.2	57.8	—	97.0	24.3	32.5
10693	72.3	72.8	—	100.7	—	70.7	59.2	47.8	90.2?	—	34.9
10712	72.9?	72.4	59.7	99.2?	81.8?	68.9?	60.0	—	—	24.3	33.3
10690	74.2	75.6	63.3	101.5	85.1	66.4	60.4	46.3	94.8	25.0	—
10691	75.4	—	63.4	—	84.1	71.2	57.4	—	93.2	24.8	23.7
10460	73.2	75.4	65.0	102.9	88.8	76.9	67.3	51.4	92.5	24.1	29.4

TABLE X (7)

40 : 5 (I 60)	48 : 45 (I 39)	47 : 45 (I 38)	54 : 55 (I 48)	52 : 51a (I 42b)	52 : 51 (I 42)	63 : 62 (I 58)	61 : 60 (I 54)	—	—	—	71a : 70	68 : 66
Index of prognathism (gnathic index) (index of face prominence) $\left(\frac{ba-pr}{n-ba} \cdot 100\right)$	Upper facial index $\left(\frac{n-pr}{zy-zy} \cdot 100\right)$	Total facial index $\left(\frac{n-gn}{zy-zy} \cdot 100\right)$	Nasal index $\left(\frac{nasal\ breadth}{n-nas} \cdot 100\right)$	Orbital index (from dacryon) $\left(\frac{orbital\ height}{d-ek} \cdot 100\right)$	Orbital index (from maxillofrontale) $\left(\frac{orbital\ height}{m-ek} \cdot 100\right)$	Palatal index (from staphylion) $\left(\frac{enm-enm}{d-sta} \cdot 100\right)$	Upper alveolar arch index. External palatal index. Maxillo-alveolar index $\left(\frac{ekm-ekm}{pr-alv} \cdot 100\right)$	Maxillo-frontal index $\left(\frac{maxillo-frontal\ sub}{mf-mf} \cdot 100\right)$	Dacryal index $\left(\frac{dacryal\ sub}{d-d} \cdot 100\right)$	Simotical index (simotical sub simotical chord $\cdot 100$)	Mandibular ramus index minimal breadth of ramus $\cdot 100$ height of ramus $\cdot 100$	Mandibular length- bigonial index Mandibular projective length $\cdot 100$ $\left(\frac{go-go}{go-go} \cdot 100\right)$
85.6	—	—	—	—	—	—	109.1	—	—	—	—	84.0
91.3	60.6	93.2	42.5	83.7	80.0	—	—	45.2	—	64.3	58.6	88.5
—	—	—	—	—	77.3	—	—	—	—	—	—	—
95.2	54.6?	—	52.2?	—	75.6	—	103.3	43.7	—	48.0	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	48.1	—	—	—	—	—	—	—	—	—
—	54.6	87.7	44.2	—	82.3	—	—	46.0	—	48.2	48.5	74.2
—	53.3	85.2	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	51.8?	84.4	—	—	—	—	—	—	—	74.7	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	73.8	—	—	—	—	—	—	—
—	57.7?	91.4?	45.8	—	87.5	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	53.8	—
—	—	—	43.6	—	87.0	—	109.1	—	—	52.9	—	—
—	53.9	89.1	47.6	—	82.9	—	113.5	48.8	—	48.2	—	—
91.3	50.8	—	—	—	80.2	—	—	50.0	—	73.3	—	—
96.0	57.2	—	42.6	80.2	79.8	81.2	117.9	61.1	69.5	65.8	—	—
—	—	—	52.2	80.0	78.3	—	—	50.7	60.9	45.4	—	—
93.0	48.4	81.2	49.5	70.2	69.2	82.5	118.0	38.9	47.7	45.8	64.0	80.4
94.1	53.3	87.0	42.3	—	85.5	—	—	59.4	—	50.0	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	59.2	92.5	52.1	—	82.5	—	—	—	—	—	68.0	96.4
93.1	59.2?	92.5?	43.5	—	76.8	85.7	111.5	32.6	47.9	35.0	—	—
—	52.3	82.0	43.5	85.0	82.9	82.2	117.0	47.0	61.1	53.3	64.3	70.6
—	53.3?	87.5?	47.7	—	70.5	—	—	56.2	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	49.6?	80.3?	52.1?	—	—	—	—	—	—	—	—	—
—	47.1	80.5	53.4	—	80.2	—	111.1	—	—	—	—	—
96.2	57.3	92.7	49.0	—	76.2	97.8	105.3	56.0	57.5	62.5	62.3	—

Nr	Burial site Region	Inventory number of the Museum of Anthropology of the Moscow University		Sex	FEMUR			TIBIA		FIBULA		HUMERUS		RADIUS		ULNA	
		Limb bones	Skull		1 Greatest length of femur	2 Physiological length	8 Circumference in the middle of the shaft	1 Total tibial length	10b Minimal circumference	1 Greatest length	4a Minimal circumference	1 Greatest length	7 Minimal circumference	1 Greatest length	3 Minimal circumference	1 Greatest length	3 Minimal circumference
1	Dnepropetrovsk	2967	9365	m	465 l	462 l	96 l	395 r	85 r	—	—	—	—	278 l	44 l	255 l	50 l
16	Kherson	3007	9379	m	443 r	440 r	93 r	393 l	84 l	—	—	335 r	72 r	269 l	35 l	—	—
17	Kherson	10493	10493	m	—	—	—	358 l	73 l	—	—	331 l	62 l	273 r	42 r	254 l	42 l
18	Kherson	10494	10494	m	—	—	—	—	—	—	—	349 l	68 l	—	—	—	—
24	Kherson	3362	9760	m	482 r	482 r	89 r	390 r	78 r	—	—	—	—	—	—	254 r	40 r
27	Kherson	10455	10455	m	486 l	486 l	90 l	386 l	78 l	—	—	335 l	60 l	277 l	35 l	—	—
31	Nicolaev	3546	—	m	435 r	433 r	86 r	363 r	76 r	—	—	317 r	67 r	254 r	40 r	232 r	46 r
33	Nicolaev	3016	9384	m	435 l	433 l	85 l	365 l	78 l	—	—	307 l	67 l	252 l	38 l	235 l	44 l
36	Kirovograd	3024	—	m	434 l	433 l	91 l	—	—	—	—	—	—	—	—	—	—
37	Cherkassy	10459	10459	m?	428 l	420 l	87 l	344 r	72 r	—	—	294 r	65 r	—	—	—	—
2	Dnepropetrovsk	2970	9366	f?	413 r	410 r	79 r	323 r	69 r	315 r	32 r	350 l	68 l	290 r	42 r	275 r	48 r
5	Dnepropetrovsk	2984	9346	f	410 l	406 l	80 l	323 l	70 l	317 l	32 l	329 l	66 l	—	—	257 l	45 l
6	Dnepropetrovsk	2987	9349	f	388 r	385 r	77 r	—	—	—	—	—	—	242 l	35 l	—	—
7	Dnepropetrovsk	2943	9312	f	452 r	448 r	83 r	373 r	70 r	—	—	280 l	60 l	250 r	32 r	—	—
20	Kherson	3357	—	f?	—	—	—	337 r	78 r	—	—	—	—	246 l	32 l	228 l	40 l
21	Kherson	3358	9756	f	432 r	428 r	79 r	352 r	65 r	—	—	—	—	—	—	233 r	40 r
22	Kherson	3536	—	f	434 l	431 l	78 l	349 l	65 l	—	—	312 l	58 l	254 l	35 l	235 l	40 l
23	Kherson	3361	9759	f	410 r	408 r	74 r	—	—	—	—	—	—	248 r	34 r	228 r	38 r
28	Nicolaev	10712	10712	f	413 l	412 l	76 l	335 l	65 l	—	—	297 l	60 l	—	—	226 l	37 l
30	Nicolaev	3539	—	f	458 r	455 r	77 r	—	—	—	—	—	—	—	—	—	—
38	Cherkassy	10450	10460	f	462 l	—	78 l	370 l	74 l	—	—	—	—	—	—	—	—
					419 l	417 l	77 l	335 l	65 l	331 r	35 r	298 l	58 l	253 l	37 l	237 r	40 r
					431 r	428 r	83 r	—	—	—	—	301 l	62 l	—	—	—	—
					431 l	429 l	83 l	364 l	70 l	—	—	288 r	60 r	—	—	—	—
					399 l	395 l	75 l	333 r	72 r	324 r	33 r	288 l	61 l	—	—	220 l	41 l
					439? r	437? r	80 r	—	—	—	—	—	—	—	—	—	—

NOTE: ¹ The measurements of limb bones are given in mm.

² Previously published materials on the timber-grave culture of the Zaporozhye region are included in our statistical analysis, (male No 2849, 2860, 2872, 2890, 2891, 2916, 2919, female No 2863, 2901).

³ The limb bones were obtained:

- No 3357 (barrow 2, burial 3) from the village Pervomaevka, Verkhniy Rogachik district, Zaporozhye region (excavations by G. T. Kovpanenko);
- No 3539 (barrow 2, burial 10) and No 3546 (barrow 2, burial 15) from the village of Novo-Grigoryevka, Voznesenka district, Kirovograd region (excavations by N. G. Yelagina, 1957);
- No 3024 (barrow 1, burial 3) from the village of Sabatinovka, Ulyanovka district, Kirovograd region (excavations by I. V. Fabritsius, 1949).

Nr	Burial site. Region	Inventory number of the museum of Anthropology of the Moscow University		Sex	PROPORTIONS					INDEX of ROBUSTICITY					
		Limb bones	Skull		(H1 + R1): (T1 + F2) Intermembral index	T1 : F2 Tibiofemoral index	U1 : H1 Ulnohumeral index	H1 : F2 Humero femoral index	R1 : T1 Radio tibial index	8 : 2 of femur	10b : 1 of tibia	4a : 1 of fibula	7 : 1 of humerus	3 : 1 of radius	3 : 1 of ulna
1	Dnepropetrovsk	2967	9365	m	—	—	—	—	—	—	21.5 r	—	—	—	—
16	Kherson	3007	9379	m	—	85.1 l	—	76.1 r	64.9 l	20.8 l	21.4 l	—	—	15.8 l	19.6 l
17	Kherson	10493	10493	m	—	—	76.7 l	—	—	21.1 r	20.4 l	—	21.5 r	13.0 l	—
18	Kherson	10494	10494	m	—	—	—	—	—	—	—	—	18.7 l	15.4 r	16.5 l
24	Kherson	3362	9760	m	—	80.9 r	—	—	65.1 r	18.5 r	20.0 r	—	19.5 l	—	—
	Kherson				—	79.4 l	—	68.9 l	—	18.5 l	20.2 l	—	17.9 l	12.6 l	—
27	Kherson	10455	10455	m	69.0 r	83.8 r	73.2 r	73.2 r	63.9 r	19.9 r	20.9 r	—	21.1 r	15.7 r	19.8 r
					68.8 l	84.3 l	76.6 l	70.9 l	64.4 l	19.6 l	21.4 l	—	21.8 l	15.1 l	18.7 l
31	Nicolaev	3546	—	m	—	—	—	—	—	21.0 l	—	—	—	—	—
33	Nicolaev	3016	9384	m	—	—	—	—	—	20.7 l	20.9 r	—	22.1 r	—	—
36	Kirovograd	3024	—	m	—	—	—	—	—	—	—	—	19.4 l	14.5 r	17.4 r
37	Cherkasy	10459	10459	m?	—	—	78.1 l	69.7 l	—	19.1 l	—	—	20.1 l	—	17.5 l
2	Dnepropetrovsk	2970	9366	f?	—	78.8 r	—	—	—	19.3 r	21.4 r	10.2 r	—	—	—
	Dnepropetrovsk				—	79.6 l	—	71.7 l	—	19.7 l	21.7 l	10.1 l	21.0 l	14.5 l	—
5	Dnepropetrovsk	2984	9346	f	—	—	—	—	—	20.0 r	—	—	—	12.8 r	—
	Dnepropetrovsk				—	—	81.4 l	—	—	—	—	—	21.4 l	13.0 l	17.6 l
6	Dnepropetrovsk	2987	9349	f	—	83.3 r	—	—	—	18.5 r	18.8 r	—	—	—	—
7	Dnepropetrovsk	2943	9312	f	—	—	—	—	—	—	23.1 r	—	—	—	—
20	Kherson	3357	—	f	—	82.2 r	—	—	66.2 r	18.5 r	18.5 r	—	—	—	17.2 r
	Kherson				70.1 l	80.9 l	75.3 l	72.4 l	67.3 l	18.1 l	18.6 l	—	18.6 l	13.8 l	17.0 l
21	Kherson	3358	9956	f	—	—	—	—	—	18.1 r	—	—	—	13.7 r	16.7 r
	Dnepropetrovsk				70.0 l	81.3 l	76.1 l	72.1 l	67.5 l	18.4 l	19.4 l	—	20.2 l	—	16.4 l
22	Kherson	3536	—	f	—	—	—	—	—	16.9 r	20.0 l	—	—	—	—
23	Kherson	3361	9759	f	71.1 l	30.3 l	—	71.5 l	—	18.5 l	19.4 l	10.6 r	19.5 l	14.6 l	16.9 r
28	Nicolaev	10712	10712	f	—	34.6 l	—	70.1 l	—	19.4 r	—	—	—	—	—
	Nicolaev				—	—	—	—	—	19.3 l	19.2 l	—	20.0 l	—	—
30	Nicolaev	3539	—	f	—	—	—	—	—	—	21.6 r	10.2 r	20.8 r	—	—
	Nicolaev				—	—	76.4 l	72.9 l	—	19.0 l	—	—	20.8 l	—	—
38	Cherkasy	10460	10460	f	—	—	—	—	—	18.3 r	—	—	—	—	—

Individual dimensions and indices of skythian skulls from Moldavia, Soviet Ukraina

Nr.	Region	Inventory number of the Museum of Anthropology of the Moscow University	Sex	Age	1 Greatest length from glabella (g — op)	1b Greatest length from ophryon (ou — op)	8 Greatest parietal breadth (eu — eu)
1	Dniepropetrovsk	9331	m	18—20	182	183	139
2	Dniepropetrovsk	9334	m	40—50	177	172	135
3	Dniepropetrovsk	9335	m	30—40	178	177	145
4	Dniepropetrovsk	10418	m	35—45	185	185	136
5	Dniepropetrovsk	10419	m	55—65	—	—	—
6	Dniepropetrovsk	5141/2	m	25—35	175	—	138
7	Dniepropetrovsk	5141/4	m	55—65	181	—	143
8	Dniepropetrovsk	5141/3	m	55—65	192	—	138
9	Dniepropetrovsk	5141/1	m	30—50	177	—	147
10	Dniepropetrovsk	10377	m	50—55	189	189	139
11	Dniepropetrovsk	10378	m	40—50	192	188	144
12	Zaporozhye	9295	m	50—55	192	191	148
13	Kherson	10390	m	35—45	180?	—	129
14	Kherson	10362	m	40—50	—	—	—
15	Kherson	10364	m	25—30	185	182	147
16	Kherson	10365	m	40—50	189	187	139
17	Kherson	11091	m	40—50	187	187	146
18	Nicolaev	10374	m	45—55	—	—	—
19	Nicolaev	10375	m	35—40	—	—	—
20	Moldavian SSR	9434	m	25—40	194	193	136
21	Kherson	2663 (Leningrad)	m	—	187	—	137
22	Moldavian SSR	(Kherson)	m	—	189	—	147
23	Dniepropetrovsk	9822	f	40—50	178	178	136
24	Dniepropetrovsk	9324	f?	40—50	—	—	—
25	Dniepropetrovsk	9328	f	50—55	179	178	139
26	Dniepropetrovsk	9330	f	16—18	176	176	140
27	Dniepropetrovsk	9332	f	40—45	185	185	139
28	Dniepropetrovsk	10416	f	18—25	181?	—	130
29	Dniepropetrovsk	10421	f	50—60	190	190	125?
30	Dniepropetrovsk	5141/5	f	20—35	—	—	—
31	Zaporozhye	9209	f	55—65	168	163	140
32	Zaporozhye	9194	f	18—25	169	169	130
33	Kherson	10393	f	40—45	175?	—	148
34	Kherson	(Kherson)	f	—	179	—	133
35	Odessa	(Kherson)	f	—	179	—	139
36	Moldavian SSR	(Kherson)	f	—	173	—	140

NOTE: Longitudinal dimensions are in mm, angles in degrees, volume in ccm.

TABLE XIII (1)

17	5	20	9	10	11	12	7	16	29	31	—
Height of the skull from basion (Basio-bregmatic height) (ba—b)	Length of cranial base (ba—n)	Height of the skull from porion (Porio-bregmatic height) (po—b)	Minimal frontal breadth (ft—ft)	Maximal frontal breadth (co—co)	Bi-auricular breadth (au—au)	Occipital breadth (ast—ast)	Length of foramen magnum (ba—o)	Breadth of foramen magnum	Frontal chord (n—b)	Occipital chord (l—o)	Frontal convexity height (Subtense from frontal chord)
—	—	119	101	124	121	—	—	—	115	94	31.0
—	—	117	96	115	124	110	—	—	108	96	23.0
—	—	117	99	121	134	—	—	—	110	96	23.0
128	—	116	95	117	117	109	—	—	110	101	26.0
—	—	—	94	123	—	—	—	—	118	—	25.0
128	93	111	91	114	126	110	—	—	113	101	26.5
130	98	112	97	120	126	118	—	—	108	98	23.5
140	105	123	102	120	120	112	—	—	118	99	26.8
122?	—	113	106	121	132	117	—	—	108	85	27.1
140	107	114	99	124	125	109	38	34	112	98	30.0
134	112	119	96	120	134	115	38	34	113	92	23.0
143	113	112	92	117	132	108	32	27	114	104	25.0
—	—	112	94	117	114	105	—	—	110	—	26.0
129	104	112	103	122	136	—	40	32	108	91	21.0
139	108	119	97	120	130	118	39	36	111	102	23.3
—	—	123	99	121	118	—	—	—	112	116	21.5
—	—	117	104	131	127	104	—	—	116	—	31.0
—	102	113	99	—	121	—	—	—	—	—	—
—	103	—	—	—	—	—	—	—	—	—	—
—	—	114	103	122	—	106	—	—	114	92	28.0
—	98	—	—	—	—	—	—	—	—	—	—
—	—	—	107	—	—	—	—	—	—	—	—
129	95	109	94	113	120	106	36	—	110	99	25.0
—	—	—	98	121	—	—	—	—	121	—	31.0
—	—	108	99	117	121	107	—	—	104	100	23.5
127?	—	111	94	117	122	108	—	30	104	97	25.0
—	—	109	92	115	123	—	—	—	112	—	29.0
123	—	107	98	120	118	110	38	30	—	99	—
—	—	121	91	110	—	—	—	—	112	102	24.0
—	—	112	94	110	105	96?	—	—	104	110	—
—	—	103	92	114	123	108	—	—	107	82	23.0
—	—	106	98	109	119	106	—	—	105	—	24.0
125?	104	108	94	122	128	112	38	34	108	99	22.0
—	—	—	104	—	—	—	—	—	—	—	—
132	—	—	99	—	—	—	—	—	—	—	—
—	—	—	94	—	—	—	—	—	—	—	—

TABLE XIII (2)

Inventory number of the Museum of Anthropology of the Moscow University	—	—	38	45	40	48	47	43	43 ₁	46	60	61	62
	Occipital convexity height (Subense from occipital chord)	Arcus supraorbitalis length	Cranial capacity (after Lee-Pearson)	Bizygomatic breadth (zy — zy)	Facial length (ba — pr)	Upper facial height (n — pr)	Total facial height (n — gn)	Upper facial breadth (fnt — fnt)	Internal bi-orbital breadth (fmo — fmo)	Middle facial breadth (zm — zm)	External length of upper alveolar arch (pr — alv)	External breadth of upper alveolar arch (ekm — ekm)	Palatal length (from staphylion) (ol — sta)
9331	—	64	1458	124?	—	64	—	102	92	87	50	58	41
9334	32.0	84	1380	137	—	65	113	106	99	99	—	—	—
9335	27.0	67	1433	139	—	76	123	110	100	104	—	—	—
10418	38.0	66	1424	125	—	76	—	104	96	89	55	62	49
10419	—	63	—	137	—	73	119	107	100	100	57	71	50
5141/2	31.0	—	1338	130	93	75	—	104	99	103	—	—	47
5141/4	25.6	—	1417	137?	99?	72	—	107	98	90	—	—	—
5141/3	31.0	—	1549	134	94	71	120	113	107	98	—	—	46
5141/1	30.2?	—	1432	134	—	73	122	114	106	94	—	—	44
10377	27.0	—	1452	133	102	74	117	108	101	96	57	68	48
10378	32.0	77	1560	—	—	—	—	107	99	—	—	—	—
9295	34.0	62	1521	139	104	76	122	100	91	110	60	69	48
10390	—	70	1308	128	—	74	—	102	97	94	60	63	50
10362	—	64	—	141	98	69	113	109	100	92	—	—	—
10364	25.5	70	1540	138?	—	67?	111	108	106	92	—	62	44
10365	—	70	1539	—	—	68	107	112	103	—	—	—	—
11091	—	81	1525	137?	—	74	121	110	98	98	—	—	—
10374	—	62	—	134	96	77	123	113	102	101	58	67	44
10375	—	—	—	134?	94	67	110	—	—	91?	53	65	43
9434	29.0	78	1457	—	—	—	—	111	—	—	—	—	—
2663	—	—	—	—	—	68	—	—	—	—	—	—	—
(Leningrad)	—	—	—	—	—	—	—	—	—	—	—	—	—
(Kherson)	—	—	—	136	—	69	—	—	—	—	—	—	—
9322	30.0	63	1286	126	87	71	110	104	97	97	50	—	41
9324	—	64	—	130?	—	69	114	105	95	91	—	—	—
9328	28.0	67	1304	125	—	62	109	105	97	87	—	—	—
9330	32.0	64	1322	120	—	64	108	96	89	84	—	—	—
9332	—	65	1348	127	—	64	107	101	94	93	—	—	—
10416	30.0	—	1240	124?	—	—	—	—	—	—	53	58	—
10421	27.0	66	1374	122	—	68	109	103	—	93	—	—	—
5141/5	—	—	—	122	—	67	—	100	94	87	—	—	—
9209	22.0	57	1205	—	—	66	—	100	94	—	—	—	—
9194	—	59	1170	123	—	63	104	105	98	96	—	—	—
10393	24.0	67	1182	127?	102	72	—	102	96	98	54	63	46
(Kherson)	—	—	—	127	—	71	—	—	—	—	—	—	—
(Kherson)	—	—	—	131	94	76	—	—	—	—	—	—	—
(Kherson)	—	—	—	130	—	65	—	—	—	—	—	—	—

TABLE XIII (3)

63	55	54	51	51a	52	—	50	—	49a	—	57	—	65	66
Palatal breadth (enm — enm)	Nasal height (n — ns)	Nasal breadth	Orbital breadth (from maxillofrontale) (mf — ek)	Orbital breadth (from dakryon) (d — ek)	Orbital height	Depth of fossa canina (after Abinder) (mf — mf)	Maxillofrontal chord (mf — mf)	Maxillofrontal subtense	Dacryal chord (d — d)	Dacryal subtense	Simotical chord (minimal breadth of nasal bones)	Simotical subtense	Bicondylar breadth (kdl — kdl)	Bigonial (angular) breadth (go — go)
37	44.0	23.0	38.0	—	33.0	3.0	22.0	—	—	—	—	—	108	84
—	47.5?	26.0	40.5	—	32.0	—	—	—	—	—	—	—	—	101
—	52.5	25.0	42.6	41.2	32.7	4.0	20.8	9.4	21.8	12.0	10.4	4.1	128	103
38	53.0	21.0	42.0	41.2	37.0	3.0	19.0	9.0	18.0	11.0	8.0	5.0	—	—
44	53.0	29.0	43.0	41.8	34.2	3.5	20.0	10.0	—	—	6.5	3.5	—	—
43	54.0	26.0	43.0	41.0	34.0	3.1	16.4	8.3	19.5	11.8	7.8	5.1	—	—
38	53.0	24.0	—	—	36.0	9.0	—	—	—	—	9.1?	7.2?	—	—
42	52.0	26.0	46.0	44.0	34.0	4.5	22.5	8.8	25.2	13.7	10.2	4.7	119	99
38	54.0	26.0	46.0	43.0	38.0	2.1	19.8	8.2	24.2	14.1	10.4	5.2	121	102
44	54.0	26.0	43.0	42.0	32.0	6.0	20.0	10.5	21.0	12.0	8.4	5.3	117	96
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
43	55.0	24.0	40.0	39.0	36.5	6.0	19.0	12.0	—	—	6.5	5.3	123	98
38	50.0	23.5	40.0	39.0	32.0	2.5	20.5	10.5	—	—	8.5	5.0	—	—
—	53.5	26.5	40.0	—	33.0	7.0	21.5	11.5	—	—	11.5	7.2	127	112
38	52.0	25.0	44.2	42.0	31.0	3.0	20.0	8.4	21.8	12.2	7.8	4.9	123	101
—	53.5	27.0	43.0	—	33.3	1.0	21.5	9.6	—	—	10.0?	5.0?	116	96
—	51.0	25.0	41.5	—	32.0	2.0	—	—	—	—	—	—	—	—
43	55.0	27.0	43.0	42.0	36.5	5.0	21.0	10.0	22.5	13.0	8.8	4.5	—	—
42	50.0	25.0	41.0	39.0	30.0	5.0	20.0	9.7	21.5	13.2	9.0	5.5	125	108
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	50.0	24.0	—	37.0	30.0	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	49.0	25.0	—	39.0	31.0	—	—	—	23.1	11.0	8.5	4.3	—	—
—	50.0	24.2	40.5	39.5	34.0	4.2	20.5	9.4	21.0	12.0	8.0	3.0	—	96
—	52.0	24.0	41.0	39.5	33.5	2.5	21.0	8.5	22.0	12.0	7.0	3.4	—	—
—	47.0	24.0	38.0	37.0	29.8	2.6	22.0	9.5	—	—	10.0	3.5	113	90
—	44.0	19.0	38.0	36.0	33.0	6.0	20.5	11.0	—	—	13.0	5.0	114	83
—	48.0	24.0	38.5	37.5	31.3	5.0	23.0	8.0	24.0	10.0	6.5	1.7	—	91
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	52.0	27.5	41.5	—	36.0	5.0	—	—	—	—	—	—	—	96
—	50.0	25.0	38.0	36.0	33.0	—	21.8	7.6	23.2	13.1	12.8	5.7	—	—
—	51.5	25.0	—	—	—	—	17.0	9.5	18.0	11.8	7.0	4.2	—	—
—	49.0	22.5	41.5	40.5	33.5	3.5	19.0	7.6	20.5	10.3	7.0	2.5	—	—
44	56.0	23.0	42.0	—	33.0	3.0	18.3	10.2	—	—	9.0	6.5	—	—
—	52.0	21.0	—	38.0	33.0	4.3	—	—	—	—	—	—	—	—
—	53.0	25.0	—	39.0	34.0	4.0	—	—	22.0	11.0	12.0	5.1	—	—
—	53.0	25.0	—	39.0	35.0	4.6	—	—	19.6	11.5	9.7	4.4	—	—

TABLE XIII (4)

Inventory number of the Museum of Anthropology of the Moscow University	67	68	68 ₁	69	70	71a	32	—	33 ₁	33 ₂	33	34	72
	Distance between foramina mentalia	Mandibular projective length from gonion	Mandibular projective length from condyles	Chin height (id — gn)	Height of mandibular ramus	Minimal breadth of mandibular ramus	Frontal angle from nasion (m — n — OAE)	Frontal angle from glabella (m — g — OAE)	Angle of the upper part of occiput (i — i — OAE) (Upper occipital angle)	Angle of the lower part of occiput (o — i — OAE) (Lower occipital angle)	Angle of the inclination of the occipital bone (i — i — OAE)	Angle of the inclination of foramen magnum (o — b — OAE)	Total facial angle (n — pr — OAE)
9331	45	75	103	32	50	29	95	90	—	—	—	—	87
9334	45	—	—	34	—	30	77	71	101	18	127	—	81
9335	49	80	109	37	59	35	82	79	91	29	118	—	85
10418	—	—	—	—	—	—	84	80	95	11	122	—	83
10419	49	—	—	34	—	31	80	73	—	—	—	—	84
5141/2	—	—	—	—	—	—	76	71	84	33	—	—	81
5141/4	—	—	—	—	—	—	—	—	—	—	—	—	—
5141/3	—	80	110	—	66	34	83	78	100	28	—	—	90
5141/1	—	80	102	—	64	35	86	78	—	—	—	—	87
10377	46	81	105	33	74	34	89	81	97	21	118	—9	84
10378	—	—	—	—	—	—	—	—	—	—	—	—	—
9295	50	91	103	35	75	34	76	67	89	23	122	—11	83
10390	—	—	—	—	—	—	80	75	—	—	—	—	80
10362	49	74	102	30	62	30	73	68	—	—	—	—	86
10364	48	78	109	—	61	34	82	74	92	30	111	—	—
10365	50	85	108	31	60	38	80	73	83	—	—	—	82?
11091	43	—	—	34	—	36	—	—	—	—	—	—	—
10374	51	—	—	34	—	—	—	—	—	—	—	—	86?
10375	46	82	104	36	67	35	—	—	—	—	—	—	91?
9434	—	—	—	—	—	—	—	—	—	—	—	—	—
2663	—	—	—	—	—	—	—	—	—	—	—	—	—
(Leningrad)	—	—	—	—	—	—	—	—	—	—	—	—	—
(Kherson)	—	—	—	—	—	—	85	—	—	—	—	—	82
9322	44	76	104	30	61	37	78	73	94	22	124	—12	86
9324	—	—	—	31	—	33	90	87	—	—	—	—	83
9328	43	74	102	32	56	30	84	79	91	40	118	—	86
9330	43	68	95	33	51	30	87	82	87	26	118	—	80
9332	44	77	98	30	59	38	87	83	—	—	—	—	83
10416	—	—	—	—	—	—	—	—	—	—	—	—	—
10421	—	—	—	—	—	34	81	75	—	—	—	—	93
5141/5	—	—	—	—	—	—	88	85	—	—	—	—	82
9209	41	—	—	—	—	—	—	—	—	—	—	—	—
9194	44	72	—	28	59	32	81	77	—	—	—	—	80
10393	—	—	—	—	—	—	75?	73	94	29	118	—18	83
(Kherson)	—	—	—	—	—	—	84	—	—	—	—	—	82
(Kherson)	—	—	—	—	—	—	82	—	—	—	—	—	80
(Kherson)	—	—	—	—	—	—	89	—	—	—	—	—	89

TABLE XIII (5)

73	74	75 ₁	77	—	79	—	—	—	—	—	—	—	—	8:1 (11)
Midfacial angle (n — ns — OAE)	Alveolar angle (n — pr — OAE)	Angle of the nasal profile with the facial profile (n — rhl — Line of profile)	Naso-malar angle (fmo — n fmo)	Zygomaxillary angle (after Abinder) (zm — ss — zm)	Mandibular angle (Angle of the inclination of mandibular ramus)	Chin angle (id — pog — standard basal plane)	Glabella (prominence after Martin; 1—6)	Arcus supraorbitalis (after glabella prominence scale Martin; 1—6)	Depth of fossa carina (0—4)	Lower edge of apertura piriformis	Spina nasalis anterior (after Broca; 1—5)	Protuberantia occipitalis externa (after Broca; 0—5)	Processus mastoideus (1—3)	Cranial index (eu. eu. 100) (g. op)
88	86	—	135	131	127	54	1	1	2	anthr.	4	1	2	76.4
—	—	—	143	—	—	58	4	5	—	anthr.	—	3	3	76.3
87	79	—	138	135	123	62	2	3	2	anthr.	3	2	3	81.5
84	80	29	135	122	—	—	3	3	2	anthr.	5	3	3	73.5
84	79	36	142	134	—	—	4	4	2	anthr.	3	—	—	—
82	75	27	146	135	—	—	2	—	1	fossa prae- nasalis	2	3	2	78.9
—	—	—	141	118	—	—	3	—	4	fossa prae- nasalis	—	1	2	79.0
92	81	28?	133	133	119	63	4	—	3	anthr.	3	1	3	71.9
89	78	26	139	133	114	75	2	—	1	fossa prae- nasalis	4	5	3	83.0
84	83	33	144	138	113	—	3	4	3	anthr.	4	3	3	73.5
—	—	—	132	—	—	—	4	5	—	—	—	3	3	75.0
83	82	44	135	126	106	72	4	4	3	anthr.	5	5	3	77.1
80	80	—	134	118	—	—	3	3	2	anthr.	2	—	3	71.7?
87	82	34?	133	124	122	62	3	4	3	anthr.	—	2	3	—
88	—	35?	136	131	125	—	4	4	2	anthr.	—	3	3	79.5
83?	78?	24?	139	—	117	—	3	3	1	anthr.	3	3	2	73.5
—	—	—	133	119	—	—	3	3	1	—	—	3	3	78.1
86?	85?	22?	132	130	—	—	2	3	2	anthr.	3	—	3	—
91?	91?	37?	—	125	113	70	3	3	3	anthr.	4	—	—	—
—	—	—	—	—	—	—	2	3	—	—	—	2	3	70.1
—	—	30	—	—	—	—	3	—	3	anthr.	—	—	—	73.3
—	—	28	140	131	—	—	3	—	3	anthr.	2	—	—	77.8
87	85	23	137	133	122	62	2	2	3	anthr.	3	2	1	76.4
83	83	33	138	127	—	—	2	2	1	anthr.	3	—	2	—
85	87	23	133	127	125	58	3	3	2	anthr.	3	2	1	77.6
82	77	29	131	116	128	78	2	2	4	anthr.	4	1	1	79.5
—	—	—	142	139	118	67	3	3	3	anthr.	3	2	2	75.1
—	—	—	—	—	—	—	—	—	1	anthr.	2	1	1	71.8?
—	—	—	133	125	—	—	2	2	3	anthr.	4	2	3	65.8?
84	73	26	135	120	—	—	1	—	1	anthr.	3	—	1	—
—	—	—	141	—	—	—	3	3	—	anthr.	—	2	1	83.3
81	79	22	133	122	117	67	2	2	2	anthr.	4	—	2	76.9
84	82	33	136	121	—	—	2	3	2	anthr.	3	2	1	84.6?
—	—	—	139	126	—	—	2	—	3	anthr.	2	—	—	74.3
—	—	18	133	124	—	—	2	—	3	fossa prae- nasalis	—	—	—	77.6
—	—	31	140	136	—	—	1	—	2	anthr.	2	—	—	80.9

TABLE XIII (6)

Inventory number of the Museum of Anthropology of the Moscow University	17 : 1 (I 2) Height-length index (from basion) $\left(\frac{ba-b}{g-op} \cdot 100\right)$	20 : 1 (I 4) Height-length index (from porion) $\left(\frac{ba-p}{g-op} \cdot 100\right)$	17 : 8 (I 3) Height-breadth index (from basion) $\left(\frac{ba-b}{eu-eu} \cdot 100\right)$	20 : 8 (I 5) Height-breadth index (from porion)	9 : 8 (I 13) Transverse frontoparietal index $\left(\frac{ft-ft}{eu-eu} \cdot 100\right)$	— Arcus supraorbitalis length index Arcus supraorbitalis length $\left(\frac{fnt-fnt}{fnt-fnt} \cdot 100\right)$	48 : 17 Vertical faciocranial index $\left(\frac{n-pr}{ba-b} \cdot 100\right)$	45 : 8 (I 71) Transverse faciocranial index $\left(\frac{zy-zy}{eu-eu} \cdot 100\right)$	— Frontal convexity index $\left(\frac{Sub-NB}{n-b} \cdot 100\right)$	— Occipital convexity index $\left(\frac{Sub-NB}{n-b} \cdot 100\right)$
9331	—	65.4	—	85.6	72.7	62.8	—	89.2?	27.0	—
9334	—	66.1	—	86.7	71.1	79.2	—	101.5	21.3	33.3
9335	—	65.7	—	80.7	68.3	60.9	—	95.9	20.9	28.1
10418	69.2	62.7	94.1	85.3	69.8	63.5	59.4	91.9	23.6	37.6
10419	—	—	—	—	—	58.9	—	—	21.2	—
5141/2	73.1	63.4	92.8	80.4	65.9	—	58.6	94.2	23.4	30.7
5141/4	71.8	61.9	90.9	78.3	67.8	—	55.4	95.8?	21.8	26.1
5141/3	72.9	64.1	101.4	89.1	73.9	—	50.7	97.1	22.7	31.3
5141/1	68.9	63.8	83.0?	76.9	72.1	—	59.8?	91.2	25.1	35.5?
10377	74.1	60.3	100.7	82.0	71.2	—	52.9	95.7	26.8	27.6
10378	69.8	62.0	93.1	82.6	66.7	72.0	—	—	20.3	34.8
9295	74.5	58.3	96.6	75.7	62.2	62.0	53.1	93.9	21.9	32.7
10390	—	62.2?	—	86.8	72.9	68.6	—	99.2	23.6	—
10362	—	—	—	—	—	58.7	53.5	—	19.4	—
10364	75.1	64.3	94.6	81.0	66.0	64.8	48.2?	93.9?	21.0	25.0
10365	—	65.1	—	88.5	71.2	62.5	—	—	19.2	—
11091	—	62.6	—	80.1	71.2	73.6	—	93.8?	26.7	—
10374	—	—	—	—	—	54.9	—	—	—	—
10375	—	—	—	—	—	—	—	—	—	—
9434	—	58.8	—	83.8	75.7	70.3	—	—	—	—
2663 (Leningrad)	—	—	—	—	—	—	—	—	24.6	31.5
(Kherson)	—	—	—	—	72.8	—	—	92.5	—	—
9322	72.5	61.2	94.8	80.1	69.1	60.6	55.0	92.6	22.7	30.3
9324	—	—	—	—	—	61.0	—	—	25.6	—
9328	—	60.3	—	77.7	71.2	63.8	—	89.9	22.6	28.0
9330	72.2	63.1	90.7?	79.3	67.1	66.7	50.4?	85.7	24.0	33.0
9332	—	58.9	—	78.4	66.2	64.4	—	91.4	25.9	—
10416	68.0?	59.1	94.6	82.3	75.4	—	—	95.4?	—	33.3
10421	—	63.7	—	96.8?	72.8?	64.1	—	97.6?	21.4	26.5
5141/5	—	—	—	—	—	—	—	—	—	—
9209	—	61.3	—	73.6	65.7	57.0	—	—	21.5	26.8
9194	—	62.7	—	81.5	75.4	56.2	—	94.6	22.9	—
10393	71.4	61.7?	84.5?	73.0	63.5	65.7	57.6?	85.8?	20.4	24.2
(Kherson)	—	—	—	—	78.2	—	—	85.5	—	—
(Kherson)	73.7	—	95.0	—	71.2	—	57.6	94.2	—	—
(Kherson)	—	—	—	—	67.1	—	—	92.9	—	—

TABLE XIII (7)

40 : 5 (I 60)	48 : 45 (I 39)	47 : 45 (I 38)	54 : 55 (I 48)	52 : 51a (I 42b)	52 : 51 (I 42)	63 : 62 (I 58)	61 : 60 (I 54)	—	—	—	71a : 70	68 : 66
Index of prognathism (gnathic index) (index of face prominence) $\left(\frac{ba-pr}{n-ba} \cdot 100\right)$	Upper facial index $\left(\frac{n-pr}{zy-zy} \cdot 100\right)$	Total facial index $\left(\frac{n-gn}{zy-zy} \cdot 100\right)$	Nasal index (nasal breadth) $\left(\frac{n-n_s}{n} \cdot 100\right)$	Orbital index (from dacryon) (orbital height) $\left(\frac{d-ek}{d} \cdot 100\right)$	Orbital index (from maxillo-frontale) (orbital height) $\left(\frac{m-ek}{m} \cdot 100\right)$	Palatal index (from staphylion) (enm - enm) $\left(\frac{d-sta}{d} \cdot 100\right)$	Upper alveolar arch index External palatal index (maxillo-alveolar index) $\left(\frac{ekm-ekm}{pr-alv} \cdot 100\right)$	Maxillo-frontal index (maxillo-frontal sub) $\left(\frac{mf-mf}{mf} \cdot 100\right)$	Dacryal index (dacryal sub) $\left(\frac{d-d}{d} \cdot 100\right)$	Simotical index (simotical sub simotical chord) $\left(\frac{simotical}{simotical} \cdot 100\right)$	Mandibular ramus index (minimal breadth of ramus) $\left(\frac{height\ of\ ramus}{height\ of\ ramus} \cdot 100\right)$	Mandibular length- bigonial index (Mandibular pro- jective length) $\left(\frac{go-go}{go-go} \cdot 100\right)$
—	51.6	—	52.3	—	86.8	92.5	116.0	—	—	—	58.0	89.3
—	47.4	82.5	54.7?	—	79.0	—	—	—	—	—	—	—
—	54.7	88.5	47.6	79.4	76.8	—	—	45.2	55.0	39.4	59.3	77.7
—	60.8	—	39.6	89.8	88.1	77.6	112.7	47.4	61.1	62.5	—	—
—	53.3	86.9	54.7	81.8	79.5	88.0	124.6	50.0	—	53.8	—	—
100.0	57.7	—	48.1	82.9	79.1	91.5	—	50.6	60.5	65.4	—	—
101.0	52.6?	—	45.3	—	—	—	—	—	—	79.1?	—	—
89.5	53.0	89.6	50.0	77.3	73.9	91.3	—	39.1	54.4	46.1	51.5	80.8
—	54.5	91.0	48.1	88.4	82.6	86.4	—	41.4	58.3	50.0	54.7	78.4
95.3	55.6	88.0	48.1	76.2	74.4	91.7	119.3	52.5	57.1	63.1	46.0	84.4
—	—	—	—	—	—	—	—	—	—	—	—	—
92.0	54.7	87.8	43.6	93.6	91.2	89.6	115.0	63.2	—	81.5	45.3	92.9
—	57.8	—	47.0	82.0	80.0	76.0	105.0	51.2	—	58.8	—	—
94.2	48.9	80.1	49.5	—	82.5	—	—	53.5	—	62.6	48.4	66.1
—	48.6?	80.4?	48.1	73.8	70.1	83.4	—	42.0	56.0	62.8	55.7	77.2
—	—	—	50.0	—	77.4	—	—	44.6	—	50.0?	63.3	88.5
—	54.0?	88.3?	49.0	—	77.1	—	—	—	—	—	—	—
94.1	57.5	91.8	49.1	86.9	82.6	97.7	115.5	47.6	57.8	51.1	—	—
91.3	50.0?	82.1?	50.0	76.9	73.2	97.7	122.6	48.5	61.4	61.1	52.2	75.9
—	—	—	—	—	—	—	—	—	—	62.5	—	—
—	—	—	48.0	81.1	—	—	—	—	—	—	—	—
—	50.7	—	51.0	79.5	—	—	—	—	47.6	50.6	—	—
91.6	56.3	87.3	48.4	86.1	84.0	—	—	45.8	57.1	37.5	60.7	79.2
—	53.1?	87.7?	46.1	84.8	81.7	—	—	40.5	54.6	48.6	—	—
—	49.6	87.2	51.1	80.6	78.4	—	—	43.2	—	35.0	53.6	82.2
—	53.3	90.0	43.2	91.7	86.8	—	—	53.7	—	38.5	58.8	81.9
—	50.4	84.2	50.0	83.5	81.3	—	—	34.8	41.7	26.2	64.4	84.6
—	—	—	—	—	—	—	109.4	—	—	—	—	—
—	55.7	89.3	52.9	—	86.7	—	—	—	—	—	—	—
—	54.9	—	50.0	91.7	86.8	—	—	34.9	56.5	44.5	—	—
—	—	—	48.5	—	—	—	—	55.9	65.6	60.0	—	—
—	51.2	84.6	45.9	82.7	80.7	—	—	40.0	50.2	35.7	54.2	—
98.1	56.7?	—	41.1	—	78.6	95.6	116.7	55.7	—	72.2	—	—
—	55.9	—	40.4	86.8	—	—	—	—	—	—	—	—
—	58.0	—	47.2	87.2	—	—	—	—	50.0	42.5	—	—
—	50.0	—	47.2	89.7	—	—	—	—	58.7	45.4	—	—

Individual dimensions and indices of the Skythian skulls from Soviet Ukraina. (Middle Dniepr region)

Nr.	Locality	Inventory number of of the Museum of Anthropology of the Moscow University	Sex	Age	1 Greatest length from glabella (g — op)	1b Greatest length from ophryon (on — op)	8 Greatest parietal breadth (eu — en)
1	Kharkov region	10379	m	45—55	212	211	143
2	Vinitsa region	9398	m	55—65	192	—	134?
3	Kirovograd region	9317	m	40—45	198	193	130
4	Sumsk region	2317	m	40—50	189	186	133
5	Sumsk region	2318	m	35—45	184	183	140
6	Sumsk region	2322	m	55—65	190	186	133
7	Sumsk region	2326	m	20—25	185	184	133
8	Sumsk region	2328	m	20—30	184	180	135
9	Sumsk region	N 21 (Kiev)	m	30—40	191	—	140
10	Kiev region	6822	m	40—50	192	191	134
11	Kiev region	N 28 (Kiev)	m	35—45	194	—	136
12	Poltava region	6823	m	35—45	189	187	133
13	Tcherkask region	6820	m	30—40	188	187	137?
14	Tcherkask region	9423	f	50—55	177	175	140
15	Sumsk region	7/1	f?	20—30	188	184	135
16	Sumsk region	2310	f	25—35	180	179	134
17	Sumsk region	2321	f	35—45	168	—	141
18	Sumsk region	2324	f	25—35	186	184	136
19	Sumsk region	2327	f	40—50	179	177	132

NOTE: Longitudinal dimensions are in mm, angles in degrees, volume in cm.

TABLE XIV (2) ▶

Inventory number of the Museum of Anthropology of the Moscow University	— Occipital convexity height (Subtense from occipital chord)	— Arcus supraorbitalis length	38 Cranial capacity (after Lee-Pearson)	45 Bi-zygomatic breadth (zy — zy)	40 Facial length (ba — pr)	48 Upper facial height (n — pr)	47 Total facial height (n — gn)	43 Upper facial breadth (fnt — fnt)	43 ₁ Internal bi-orbital breadth (fmo — fmo)	46 Middle facial breadth (zm — zm)	60 External length of upper alveolar arch (pr — alv)	61 External breadth of upper alveolar arch (ekm — ekm)	62 Palatal length (from staphylon) (ol — sta)
10379	36	80	1776	—	—	—	—	—	—	—	—	—	—
9398	—	—	1364	—	—	—	—	—	—	—	—	—	—
9396	35	67	1412	130	99	67	106	104	93	—	—	—	—
2317	26	73	1405	132?	—	—	—	107	97	—	—	—	—
2318	30	60	1384	—	87	69	—	103	95	—	—	—	—
2322	—	55	1392	136?	—	74	—	103	95	98	54	66	42
2326	28	71	1409	131	99	66	—	106	99	106	52	67	—
2328	—	65	—	—	—	—	—	107	97	94	53	62	45
No 21 (Kiev)	—	—	—	132	94	73	—	—	—	—	—	—	—
6822	28	71	1408	129?	99	67	—	107	100	94	55	63	48
No 28 (Kiev)	—	—	—	133	—	69	—	—	—	—	—	—	—
6823	28	68	1423	132?	97	70	—	105	98	—	—	—	—
6820	24	65	1469	130?	—	70	—	103	95	99	57	64	46
9423	—	62	1337	127	—	61	101?	105	98	92	57	65	47
7/1	26	66	1419	—	—	—	—	98	91	—	—	—	—
2320	22	—	1318	—	—	—	—	—	—	—	—	—	—
2321	—	—	1291	129	—	65	—	106	98	—	—	—	—
2324	27	62	—	124?	95	66	—	98	92	89	49	57	43
2327	24	70	1289	132	99	74	—	103	95	88	51	60	—
										91	51	58	44

TABLE XIV (1)

17	5	20	9	10	11	12	7	16	29	31	—
Height of the skull from basion (Basio-bregmatic height (ba — b))	Length of cranial base (ba — n)	Height of the skull from porion (Porio-bregmatic height (po — b))	Minimal frontal breadth (ft — ft)	Maximal frontal breadth (co — co)	Bi-auricular breadth (au — au)	Occipital breadth (ast — ast)	Length of foramen magnum (ba — o)	Breadth of foramen magnum	Frontal chord (n — b)	Occipital chord (l — o)	Frontal convexity height (Subtense from frontal chord)
151	117	128	106	121	133	121	38	29	126	102	30
—	—	107?	—	114	—	101	—	—	—	—	—
134	109	112	98	115	122	111	41	30	112	98	27
—	—	114	96	116	122	112	—	—	114	89	26
128	97	109	98	121	124	107	31	29	115	95	29
—	—	112	88	106	124	110	—	—	120	—	30
137	99	117	99	111	121	106	36	30	116	94	30
—	—	—	98	116	—	107	—	—	112	109	23
134	100	—	100	—	—	—	—	—	—	—	—
138	99	117	102	124	118	109	41	31	111	100	28
—	—	—	95	—	—	—	—	—	—	—	—
141	99	116	92	118	117	105	38	28	115	96	29
—	—	118?	96	115	—	—	—	—	115	95	26
—	—	112	93	116	122	119	—	—	109	—	24
134	104	118	87	113	117	109	—	—	111	96	24
—	—	113	—	—	121	108	—	—	104	91	22
—	—	112	95	124	121	108	—	—	106	107	24
—	100	—	93	119	115	105	36	29	—	96	—
138	106	112	93	113	122	108	37	29	104	98	23

TABLE XIV (3) ►

63	55	54	51	51a	52	—	50	—	49a	—	57	—	65	66
Palatal breadth (enn — enn)	Nasal height (n — ns)	Nasal breadth	Orbital breadth (from maxillofrontale) (mf — ek)	Orbital breadth (from dakryon) (d — ek)	Orbital height	Depth of fossa canina (after Abinder)	Maxillofrontal chord (mf — mf)	Maxillofrontal subtense	Dacryal chord (d — d)	Dacryal subtense	Simotical chord (minimal breadth of nasal bones)	Simotical subtense	Bicondylar breadth (kdl — kdl)	Bigonial (angular) breadth (go — go)
—	—	27.0	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	49.0	24.0	40.0	—	31.0	—	—	—	—	—	11.0	6.0	—	—
41	50.0	31.0	39.0	38.0	33.0	2.5	22.0	9.0	22.5	12.5	11.3	4.7	—	94
—	54.0	26.0	39.5	37.0	32.2	6.0	21.0	10.0	21.0	14.0	11.0	6.0	—	—
40	48.0	24.0	39.5	38.0	27.0	5.0	24.3	7.5	24.0	10.1	10.8	3.0	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	52.0	22.0	—	39.0	34.0	—	—	—	19.6	13.7	6.6	4.5	—	—
42	50.0	23.0	39.0	38.0	31.0	4.0	25.0	7.5	25.8	12.0	4.8	1.0	—	—
—	47.0	27.0	—	41.0	29.0	—	—	—	20.6	11.0	8.7	4.5	—	—
41	48.0	22.5	42.0	40.0	33.0	2.8	18.5	10.0	20.0	13.5	8.2	4.5	—	—
40	48.0	28.0	41.0	39.0	30.5	5.0	21.8	9.8	21.6	12.7	11.0	4.0	—	—
—	—	—	41.0	40.0	34.5	9.0	21.0	9.8	20.5	12.5	8.5	5.0	—	86
—	—	—	—	—	—	5.0	—	—	—	—	—	—	104	95
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
37	47.5	22.5	40.0	39.0	36.3	7.0	22.5	6.0	22.7	11.0	11.5	3.0	—	—
—	48.0	24.0	40.0	39.0	31.0	3.0	18.5	8.3	20.5	10.6	7.0	3.8	—	—
36	50.5	20.3	39.3	38.0	34.2	7.5	20.5	8.8	21.5	13.0	10.0	5.0	—	—

TABLE XIV (4) ▶

Inventory number of the Museum of Anthropology of the Moscow University	67 Distance between foramina mentalia	68 Mandibular projective length from gonion	68 ₁ Mandibular projective length from kondyles	69 Chin height (id — gn)	70 Height of mandibular ramus	71a Minimal breadth of mandibular ramus	32 Frontal angle from nasion (m — n — OAE)	— Frontal angle from glabella (m — g — OAE)	33 ₁ Angle of the upper part of occiput (l — i — OAE) (Upper occipital angle)	33 ₂ Angle of the lower part of occiput (o — i — OAE) (Lower occipital angle)	33 Angle of the inclination of the occipital bone (l — i — OAE)	34 Angle of the inclination of foramen magnum (o — b — OAE)	72 Total facial angle (n — pr — OAE)
10379	—	—	—	—	—	—	—	—	—	—	—	—	—
9398	—	—	—	—	—	—	—	—	—	—	—	—	—
9396	43	79	99	32	59	33	81	73	87	29	115	—	86?
2317	—	—	—	—	—	—	—	—	—	—	—	—	—
2318	—	—	—	—	—	—	86	82	103	13	131	—17	91
2322	—	—	—	—	—	—	80	71	—	—	—	—	87
2326	—	—	—	—	—	—	94	87	102	14	125	—7	81
2328	—	—	—	—	—	—	—	—	—	—	—	—	—
No 21 (Kiev)	—	—	—	—	—	—	80	—	—	—	—	—	85
6822	—	—	—	—	—	—	89	84	96	20	122	—12	81
No 28 (Kiev)	—	—	—	—	—	—	84	—	—	—	—	—	84
6823	—	—	—	—	—	—	86	77	100	26	125	—4	81
6820	—	—	—	—	—	—	84	76	—	—	—	—	82
9423	41	—	—	27	—	33	82	79	—	—	—	—	88
7/1	—	80	121	37	63	30	—	—	—	—	—	—	—
2320	—	—	—	—	—	—	—	—	—	—	—	—	—
2321	—	—	—	—	—	—	—	—	—	—	—	—	—
2324	—	—	—	—	—	—	86	77	—	—	—	—	85
2327	—	—	—	—	—	—	93	86	102	29	123	+2	84
							80	74	94	30	115	0	82

TABLE XIV (6) ▶

Inventory number of the Museum of Anthropology of the Moscow University	17 : 1 (I 2) Height-length index (from basion) $\left(\frac{ba-b}{g-op} \cdot 100\right)$	20 : 1 (I 4) Height-length index (from porion) $\left(\frac{ba-p}{g-op} \cdot 100\right)$	17 : 8 (I 3) Height-breadth index (from basion) $\left(\frac{ba-b}{eu-eu} \cdot 100\right)$	20 : 8 (I 5) Height-breadth index (from porion)	9 : 8 (I 13) Transverse frontoparietal index (ft — ft · 100) $\left(\frac{eu-eu}{eu-eu} \cdot 100\right)$	— Arcus supraorbitalis length index (Arcus supraorbitalis length — fnt · 100) $\left(\frac{fnt-fnt}{fnt-fnt} \cdot 100\right)$	48 : 17 Vertical facio-cranial index $\left(\frac{n-pr}{ba-b} \cdot 100\right)$	45 : 8 (I 71) Transverse facio-cranial index $\left(\frac{zy-zy}{eu-eu} \cdot 100\right)$	— Frontal convexity index $\left(\frac{Sub.NB}{n-b} \cdot 100\right)$	— Occipital convexity index $\left(\frac{Sub.NB}{n-b} \cdot 100\right)$
10379	71.2	60.4	105.6	89.5	74.1	—	—	—	—	—
9398	—	55.7	—	79.8?	—	—	—	—	23.8	35.3
9396	67.7	56.6	103.1	86.1	75.4	64.4	—	—	—	—
2317	—	60.3	—	85.7	72.2	68.2	50.0	100.0	24.1	35.7
2318	69.6	59.2	91.4	77.9	70.0	58.2	—	99.2?	22.8	29.2
2322	—	59.0	—	84.2	66.2	53.4	53.9	—	25.2	31.6
2326	74.5	63.6	103.0	88.0	74.4	67.0	—	102.2?	25.0	—
2328	—	—	—	—	72.6	60.7	48.2	98.5	25.9	29.8
No 21 (Kiev)	70.2	—	95.7	—	71.4	—	54.5	—	20.5	—
6822	71.9	60.9	103.0	87.3	76.1	66.4	50.0	94.3	—	—
No 28 (Kiev)	—	—	—	—	68.8	—	—	96.3	25.2	28.0
6823	74.6	61.4	106.0	87.2	69.2	64.8	—	96.4	—	—
6820	—	62.8?	—	86.1?	70.1?	63.1	49.6	99.2	25.2	29.2
9423	—	63.3	—	80.0	66.4	59.0	—	94.9	22.6	25.3
7/1	71.3	62.8	99.3	87.4	64.4	67.4	—	90.7	22.0	—
2320	—	62.8	—	84.3	—	—	—	—	21.6	27.1
2321	—	66.7	—	79.4	67.4	—	—	—	21.1	24.2
2324	—	—	—	—	68.4	63.3	—	91.5	22.6	—
2327	77.1	62.6	104.6	84.8	70.4	68.0	53.6	91.2	—	28.1
								100.0	22.1	24.5

TABLE XIV (5) ▶

73	74	75	77	—	79	—	—	—	—	—	—	—	—	8 : 1 (I 1)
Midfacial angle (n — ns — OAE)	Alveolar angle (n — pr — OAE)	Angle of the nasal profile with the facial profile (n — rhi — Line of profile)	Naso-malar angle (fmo — n — fmo)	Zygomaxillary angle (after Abinder) (zm — ss — zm)	Mandibular angle (Angle of the inclination of mandibular ramus)	Chin angle (id — pog — standard basal plane)	Glabella (prominence after Martin; 1—6)	Arcus supraorbitalis after glabella prominence scale Martin; 1—6)	Depth of fossa canina (0—4)	Lower edge of apertura piriformis	Spina nasalis anterior (after Broca; 1—5)	Protuberantia occipitalis externa (after Broca; 0—5)	Processus mastoideus (1—3)	Cranial index $\left(\frac{\text{eu} \cdot \text{eu}}{\text{g} \cdot \text{op}} \cdot 100\right)$
—	—	—	—	—	—	—	4	4	3	—	—	4	3	67.4
—	—	—	133	123	117	—	4	4	—	—	—	5	3	69.8
—	—	—	140	—	—	—	4	4	3	anthr.	3	2	3	65.7
91	91	35	134	129	—	—	4	5	—	—	—	3	2	70.4
85	88	27	143	130	—	—	3	3	2	anthr.	—	1	2	76.1
—	—	—	—	—	—	—	4	4	3	fossa prae- nasalis	—	3	2	70.0
80	84	27	137	125	—	—	2	3	4	anthr.	—	3	1	71.9
—	—	—	133	—	—	—	4	4	—	anthr.	—	2	1	73.4
—	—	35	134	114	—	—	3	—	2	anthr.	—	—	—	73.3
80	81	28	139	117?	—	—	2	3	2	anthr.	4	—	3	69.8
—	—	40	141	129	—	—	4	—	3	anthr.	3	4	—	71.1
81	81	40	138	121	—	—	3	4	1	anthr.	4	2	2	70.4
—	—	—	133	122	—	—	3	3	2	anthr.	—	2	2	72.9?
88	88	21	138	129	—	59	2	3	4	anthr.	3	1	2	79.1
—	—	—	136	—	139	67	3	3	2	anthr.	—	1	3	71.8
—	—	—	—	—	—	—	3	—	—	—	—	2	2	74.4
88	73	—	145	123	—	—	—	—	3	anthr.	—	—	1	83.9
85	83	25	140	121	—	—	2	2	2	anthr.	3	2	1	73.1
81	84	25	134	120	—	—	3	4	4	anthr.	—	3	3	73.7

TABLE XIV (7)

40 : 5 (I 60)	48 : 45 (I 39)	47 : 45 (I 38)	54 : 55 (I 48)	52 : 51a (I 42b)	52 : 51 (I 42)	63 : 62 (I 48)	61 : 60 (I 54)	—	—	—	71a : 70	68 : 66
Index of prognathism (gnathic index) (Index of face prominence) $\left(\frac{\text{ba} - \text{pr}}{\text{n} - \text{ba}} \cdot 100\right)$	Upper facial index $\left(\frac{\text{n} - \text{pr}}{\text{zy} - \text{zy}} \cdot 100\right)$	Total facial index $\left(\frac{\text{n} - \text{gn}}{\text{zy} - \text{zy}} \cdot 100\right)$	Nasal index $\left(\frac{\text{n} - \text{ns}}{\text{zy} - \text{zy}} \cdot 100\right)$	Orbital index (from dacryon) $\left(\frac{\text{d} - \text{ek}}{\text{zy} - \text{zy}} \cdot 100\right)$	Orbital index (from maxillofrontale) $\left(\frac{\text{m} - \text{ek}}{\text{zy} - \text{zy}} \cdot 100\right)$	Palatal index (from staphylion) $\left(\frac{\text{ekm} - \text{ekm}}{\text{d} - \text{sta}} \cdot 100\right)$	Upper alveolar arch index. External palate index (maxillo-alveolar index) $\left(\frac{\text{ekm} - \text{ekm}}{\text{pr} - \text{alv}} \cdot 100\right)$	Maxillo-frontal index $\left(\frac{\text{maxillo-frontal}}{\text{sub} - \text{mf}} \cdot 100\right)$	Dacryal index $\left(\frac{\text{dacryal sub}}{\text{d} - \text{d}} \cdot 100\right)$	Simotical index (simotical sub. simotical chord) $\left(\frac{\text{simotical sub.}}{\text{simotical chord}} \cdot 100\right)$	Mandibular ramus index $\left(\frac{\text{minimal breadth}}{\text{height of ramus}} \cdot 100\right)$	Mandibular length- bigonial index $\left(\frac{\text{Mandibular pro-jective length}}{\text{go} - \text{go}} \cdot 100\right)$
—	—	—	—	—	—	—	—	—	—	—	—	—
90.8	51.5	81.5	49.0	—	77.5	—	—	—	—	54.5	55.9	84.0
89.7	—	—	62.0	86.8	84.6	97.6	122.2	40.9	55.6	41.6	—	—
—	54.4	—	48.2	93.7	81.5	—	128.8	47.6	66.7	54.6	—	—
100.0	50.0	—	50.0	71.0	68.4	88.9	117.0	30.9	42.1	27.8	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
94.0	55.3	—	42.3	87.2	—	—	—	—	69.9	68.2	—	—
100.0	51.9?	—	46.0	81.6	79.5	87.5	114.5	30.0	46.5	20.8	—	—
—	51.9	—	57.4	70.7	—	—	—	—	53.4	51.7	—	—
98.0	53.0	—	46.9	82.5	78.6	89.1	112.3	54.0	67.5	54.9	—	—
—	53.8?	—	58.3	78.2	74.4	85.1	114.0	45.0	58.8	36.4	—	—
—	48.0	79.5	—	86.2	84.2	—	—	46.7	61.0	58.8	—	—
—	—	—	—	—	—	—	—	—	—	—	47.6	84.2
—	—	—	—	—	—	—	—	—	—	—	—	—
—	50.4	—	47.4	93.1	90.8	86.0	116.3	26.7	48.4	26.1	—	—
95.0	53.2?	—	50.0	79.5	77.5	—	117.6	44.8	51.7	54.3	—	—
93.4	56.1	—	40.2	90.0	87.0	81.8	113.7	42.9	60.5	50.0	—	—

Individual dimensions of the long bones of the Skythians from Soviet Ukraina

Nr	Region	Inventory number of the Museum of Anthropology of the Moscow University		Sex	FEMUR			TIBIA		FIBULA		HUMERUS		RADIUS		ULNA	
					1	2	8	1	10b	1	4a	1	7	1	3	1	3
		Greatest length of femur	Physiological length														
		Limb bones	Skull														
1	Dniepropetrovsk	2953	9334	m	417 r	417 r	80 r	—	—	—	—	306 r	60 r	237 r	33 r	233 r	39 r
2	Dniepropetrovsk	2954	9335	m	435 r	432 r	80 r	—	—	—	—	—	—	—	—	—	—
3	Dniepropetrovsk	10417	—	m	425 l	423 l	91 l	368 l	75 l	—	—	313 l	62 l	274 l	41 l	251 l	43 l
4	Dniepropetrovsk	10419	10419	m	—	—	—	—	—	—	—	328 l	63 l	262 l	38 l	245 l	42 l
5	Dniepropetrovsk	10431	—	m	493 r	491 r	94 r	—	—	—	—	355 r	64 r	—	—	—	—
6	Kherson	3531	—	m	445 r	444 r	95 r	370 r	79 r	364 r	36 r	340 r	72 r	262 r	43 r	243 r	50 r
7	Kherson	3365	—	m	422 r	422 r	98 r	346 r	82 r	—	—	—	—	—	—	242 l	45 l
8	Vinitsa	3028	—	m	470 l	462 l	88 l	—	—	—	—	—	—	—	—	—	—
9	Tcherkask	3047	—	m	446 l	444 l	88 l	—	—	—	—	323 r	70 r	255 r	41 r	241 r	47 r
10	Kiev	3038	—	m	433 l	426 l	84 l	—	—	—	—	—	—	—	—	—	—
11	Kherson	10434	10432 ²	m	435 l	432 l	91 l	345 l	77 l	—	—	298 l	66 l	249 l	39 l	229 l	43 l
12	Dniepropetrovsk	2944	9322	f	422 l	420 l	85 l	—	—	—	—	302 l	62 l	—	—	—	—
13	Dniepropetrovsk	2945a	9324	f?	417 r	414? r	79 r	331 r	70 r	—	—	301 r	55 r	—	—	227 r	40 r
14	Dniepropetrovsk	2948	9328	f	398 l	395 l	72 l	325 r	70 r	320 l	31 l	291 l	55 l	247 l	35 l	—	—
15	Dniepropetrovsk	2951	9332	f	—	—	—	326 l	66 l	318 l	36 l	—	—	239 r	32 r	221 r	35 r
16	Dniepropetrovsk	10416	10416	f	426 r	424 r	67 r	—	—	—	—	296 l	47 l	246 r	28 r	—	—
17	Dniepropetrovsk	10420	—	f	—	—	—	—	—	—	—	294 l	53 l	228 l	29 l	—	—
18	Dniepropetrovsk	3529 ³	—	f	—	—	—	—	—	—	—	305 r	53 r	246 r	32 r	229 r	34 r
19	Dniepropetrovsk	10421	10421	f	430 l	427 l	75 l	357 r	70 r	—	—	—	—	263 r	34 r	—	—
20	Zaporozhye	2839	9194	f	425 l	424 l	68 l	355 r	60 r	342 l	25 l	314 l	48 l	—	—	237 l	30 l
21	Kherson	3532	—	f	424 l	420 l	88 l	336 l	65 l	334 l	38 l	300 r	61 r	249 r	36 r	—	—
22	Zaporozhye	3393	9807 ²	f	408 l	404 l	73 l	335 r	63 r	—	—	297 r	58 r	—	—	—	—
								332 l	62 l			292 r	55 r			219 l	37 l

NOTE: ¹ Longitudinal dimensions are in mm.

² The dating of the skeletons No 9807—3393, 10434 — Beginning of the Christian Era (late Scythians; description of the skulls and their dimensions in: T. S. Konduktorova. *Palaeoantropologicheskyy material iz mogyl'nykh poley nograbnal'nykh urn Kher'sonskoy oblasti* (Palaeoanthropological material from the burial place of the people of urn fields culture from the Kherson region. In: *Sovietskaya antropologia* 1958 Na 2, 69—79.

³ Upper arm bone of the skeleton No 3529 has a supracondylar foramen.

Nr	Region	Inventory number of the Museum of Anthropology of the Moscow University		Sex	PROPORTIONS					INDEX of ROBUSTICITY					
		Limb bones	Skull		(H1 + R1) : (T1 + F2) Intermembral index	T1 : F2 Tibiofemoral index	U1 : H1 Ulnohumeral index	H1 : F2 Humero femoral index	R1 : T1 Radiotibial index	8 : 2 of femur	10b : 1 of tibia	4a : 1 of fibula	7 : 1 of humerus	3 : 1 of radius	3 : 1 of ulna
1	Dniepropetrovsk	2953	9334	m	—	—	76.1 r	73.4 r	—	19.2 r	—	—	19.6 r	13.9 r	16.7 r
2	Dniepropetrovsk	2954	9335	m	—	—	—	—	—	18.5 r	—	—	—	—	—
3	Dniepropetrovsk	10417	—	m	71.3 l	86.9 l	80.2 l	73.9 l	68.2 l	21.5 l	20.4 l	—	19.8 l	15.0 l	17.1 l
4	Dniepropetrovsk	10419	10419	m	—	—	74.7 l	—	—	—	—	—	19.2 l	14.5 l	17.1 l
5	Dniepropetrovsk	10431	—	m	—	—	—	72.3 r	—	19.1 r	—	—	18.0 r	—	—
6	Kherson	3531	—	m	71.6 r	83.3 r	71.5 r	76.6 r	65.7 r	21.4 r	21.4 r	9.9 r	21.1 r	16.4 r	20.6 r
7	Kherson	3365	—	m	—	82.2 r	—	—	—	23.2 r	23.7 r	—	—	—	18.6 l
8	Vinitsa	3028	—	m	—	—	—	—	—	19.0 l	—	—	—	—	—
9	Tcherkask	3047	—	m	—	—	74.6 r	72.7 r	—	20.0 l	—	—	21.6 r	16.1 r	19.5 r
10	Kiev	3038	—	m	—	—	—	—	—	19.7 l	—	—	—	—	—
11	Kherson	10434	10434	m	67.8 l	82.2 l	76.8 l	69.0 l	66.4 l	21.1 l	22.3 l	—	22.1 l	15.7 l	18.8 l
12	Dniepropetrovsk	2944	9322	f	—	—	—	71.9 l	—	20.2 l	—	—	20.5 l	—	—
13	Dniepropetrovsk	2945a	9324	f?	70.8 r	80.0 r	75.4 r	72.7 r	68.6 r	19.1 r	21.2 r	—	18.3 r	—	17.6 r
14	Dniepropetrovsk	2948	9328	f	—	—	—	73.7 r	—	18.2 l	21.5 r	9.7 l	18.9 l	14.2 l	—
15	Dniepropetrovsk	2951	9332	f	—	—	—	—	—	—	20.2 l	11.3 l	—	13.4 r	15.8 r
16	Dniepropetrovsk	10416	10416	f	—	—	—	—	—	15.8 r	—	—	15.9 l	11.4 r	—
17	Dniepropetrovsk	10420	—	f	—	—	—	—	—	—	—	—	18.0 l	12.7 l	—
18	Dniepropetrovsk	3529	—	f	—	—	75.1 r	—	—	—	—	—	17.4 r	13.0 r	14.8 r
19	Dniepropetrovsk	10421	10421	f	—	—	—	—	—	17.6 l	19.6 r	—	—	12.9 r	—
20	Zaporozhye	2839	9194	f	—	—	75.5 l	74.0 l	—	16.0 l	16.9 r	7.3 l	15.3 l	—	12.6 l
21	Kherson	3532	—	f	—	80.0 l	—	—	—	21.0 l	19.3 l	11.4 l	20.3 r	14.4 r	—
22	Kherson	3393	9807	f	69.4 l	82.1 l	75.0 l	72.3 l	66.0 l	18.1 l	18.8 r 18.7 l	—	19.5 r 18.8 l	—	16.9 l

Number of the grave and of the burial	Inventory number of the Museum of Anthropology of the Moscow University	Sex	Age	1 Greatest length from glabella (g — op)	1b Greatest length from ophryon (on — op)
Neterepka village, burial 1	10698	m	30—35	193	191
Ushkalka village, burial 2	10697	m	45—50	185	184
Aphanasyevka village, burial 2	9385	m	50—65	182	180
Ranzhevoye village, burial 1	Lab. 1	m	55—60	—	—
Maryanskoye village, barrow 5, burial 6	9742	f	25—35	184	183

NOTE: Individual skeletal dimensions of the Sarmatians are also in the publication of T. S. Konduktorova (1956).

TABLE XVII (2)

Inventory number of the Museum of Anthropology of the Moscow University	16 Breadth of foramen magnum	29 Frontal chord (n — b)	31 Occipital chord (l — o)	— Frontal convexity height (Subtense from frontal chord)	— Occipital convexity height (Subtense from occipital chord)	— Arcus supraorbitalis length	38 Cranial capacity (after Lee-Pearson)
10698	29	115	112	28	36	74	1633
10697	—	108	—	25	—	74	1516
9385	—	112	—	27	—	59	1385
Lab. 1	—	—	—	—	—	—	—
9742	—	107	98	26	33	—	1347

TABLE XVII (3)

Inventory number of the Museum of Anthropology of the Moscow University	62 Palatal length (from staphylion) (ol — sta)	63 Palatal breadth (enm — enm)	55 Nasal height (n — ns)	54 Nasal breadth	51 Orbital breadth (from maxillofrontale) (mf — ek)	51a Orbital breadth (from diakryon) (d — ek)	52 Orbital height
10698	46	38	51.0	26	40.5	38.0	30.0
10697	46	43	55.0	25	41.0	39.5	34.0
9385	—	—	—	—	—	—	—
Lab. 1	46	39	57.5	25	42.8	—	32.3
9742	—	—	55.0	—	40.0	—	33.0

TABLE XVII (1)

8	17	5	20	9	10	11	12	7
Greatest parietal breadth (eu — eu)	Height of the skull from basion (Basio-bregmatic height) (ba — b)	Length of cranial base (ba — n)	Height of the skull from porion (Porio-bregmatic height) (po — b)	Minimal frontal breadth (ft — ft)	Maximal frontal breadth (co — co)	Bi-auricular breadth (au — au)	Occipital breadth (ast — ast)	Length of foramen magnum (ba — o)
147	135	95	123	100	124	130	117	35
149	130	98	115	105	125	133	110	—
143	—	—	108?	91	121?	128	—	—
149	—	—	119	91	122	—	127	—
141	—	—	108	—	—	—	—	—

45	40	48	47	43	43 ₁	46	60	61
Bizygomatic breadth (zy — zy)	Facial length (ba — pr)	Upper facial height (n — pr)	Total facial height (n — gn)	Upper facial breadth (fnt — fnt)	Internal bi-orbital breadth (fmo — fmo)	Middle facial breadth (zm — zm)	External length of upper alveolar arch (pr — alv)	External breadth of upper alveolar arch (ekm — ekm)
135	99	69	116	106	97	92	56	62
135	94	75	121	111	103	102	56	63
—	—	78	—	103	—	—	59	—
129?	—	72?	115?	—	—	—	—	62

—	50	—	49a	—	57	—	65	66
Depth of fossa canina (after Abinder)	Maxillofrontal chord (mf — mf)	Maxillofrontal subtense	Dacryal chord (d — d)	Dacryal subtense	Simotical chord (minimal breadth of nasal bones)	Simotical subtense	Bicondylar breadth (kdl — kdl)	Bigonial (angular) breadth (go — go)
6.5	23	8.0	23.5	13.5	5.0	3.0	120	98
5.0	26	8.7	27.0	15.0	9.5	4.0	117	95
—	—	—	—	—	—	—	—	—
3.8	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—

TABLE XVII (4)

Inventory number of the Museum of Anthropology of the Moscow University	67 Distance between foramina mentalia	68 Mandibular projective length from gonion	68 ₁ Mandibular projective length from kondyleses	69 Chin height (id — gn)	70 Height of mandibular ramus	71a Minimal breadth of mandibular ramus	32 Frontal angle from nasion (m — n — OAE)	— Frontal angle from glabella (m — g — OAE)
10698	50	68	97	33	63	36	86	80
10697	44	73	101	33	65	33	85	78
9385	—	—	—	—	—	—	—	—
Lab. 1	46	—	—	33	—	—	—	—
9742	—	—	—	32	—	—	83	82

TABLE XVII (5)

Inventory number of the Museum of Anthropology of the Moscow University	— Zygomaxillary angle (after Abinder) (zm — ss — zm)	79 Mandibular angle (Angle of the inclination of mandibular ramus)	— Chin angle (id — pog — standard basal plane)	— Glabella (prominence after Martin; 1—6)	— Arcus supraorbitalis after glabella prominence scale Martin; 1—6)	— Depth of fossa canina (0—4)	— Lower edge of apertura piriformis	— Spina nasalis anterior (after Broca; 1—5)
10698	121	119	76	3	3	4	fossa prae-nasalis	—
10697	130	119	60	3	3	3	anthr.	4
9385	—	—	—	3	3	—	—	—
Lab. 1	—	—	—	—	5	2	anthr.	3
9742	—	—	—	2	2	3	anthr.	—

TABLE XVII (6)

Inventory number of the Museum of Anthropology of the Moscow University	48 : 17 Vertical faciocranial index $\left(\frac{n - pr}{ba - b} \cdot 100 \right)$	45 : 8 (I 71) Transverse faciocranial index $\left(\frac{zy - zy}{eu - eu} \cdot 100 \right)$	— Frontal convexity index $\left(\frac{n - NB}{n - b} \cdot 100 \right)$	— Occipital convexity index $\left(\frac{Sub \cdot LO}{n - b} \cdot 100 \right)$	40 : 5 (I 60) Index of prognathism (gnathic index) (index of face prominence) $\left(\frac{ba - pr}{n - ba} \cdot 100 \right)$	48 : 45 (I 39) Upper facial index $\left(\frac{n - pr}{zy : zy} \cdot 100 \right)$	47 : 45 (I 38) Total facial index $\left(\frac{n - gn}{zy - zy} \cdot 100 \right)$	54 : 55 (I 48) Nasal index (nasal breadth) $\left(\frac{n - ns}{zy - zy} \cdot 100 \right)$
10698	51.1	91.8	24.4	33.0	104.21	51.1	85.9	51.0
10697	57.7	90.6	23.2	—	95.9	55.6	89.6	45.4
9385	—	—	24.1	—	—	—	—	—
Lab. 1	—	—	—	—	—	—	—	—
9742	—	91.5	24.3	—	—	55.8?	89.2?	43.5

33 ₁	33 ₂	33	34	72	73	74	75 ₁	77
Angle of the upper part of occiput (l — i — OAE) (Upper occipital angle)	Angle of the lower part of occiput (o — i — OAE) (Lower occipital angle)	Angle of the inclination of the occipital bone (l — i — OAE)	Angle of the inclination of foramen magnum (o — b — OAE)	Total facial angle (n — pr — OAE)	Midfacial angle (n — ns — OAE)	Alveolar angle (n — pr — OAE)	Angle of the nasal profile with the facial profile (n — rhi — Line of profile)	Nasomalar angle (fmo — n — fmo)
98 92 — — —	15 — — — —	125 — — — —	16 — — — —	82 88 — — —	84 90 — — —	72 86 — — —	18 31 — — —	141 133 — — —

Protuberantia occipitalis externa (after Broca; 0—5)	Processus mastoidei (1—3)	Cranial index $\left(\frac{eu \cdot eu}{g \cdot op} \cdot 100 \right)$	Height-length index (from basion) $\left(\frac{ba - b}{g - op} \cdot 100 \right)$	Height-length index (from porion) $\left(\frac{ba - p}{g - op} \cdot 100 \right)$	Height-breadth index (from basion) $\left(\frac{ba - b}{eu - eu} \cdot 100 \right)$	Height-breadth index (from porion)	Transverse frontoparietal index $\left(\frac{ft - ft}{eu - eu} \cdot 100 \right)$	Arcus supraorbitalis length index $\left(\frac{fnt - fnt}{fnt - fnt} \cdot 100 \right)$
3 3 5 2 1	3 2 2 3 1	76.2 80.5 78.6 — 76.6	70.0 70.3 — — —	63.7 56.8 59.3 — 58.7	91.8 87.2 — — —	83.7 77.2 75.5 79.9 76.6	68.0 70.5 63.6 61.1 —	69.8 66.7 — — —

Orbital index (from dacryon) $\left(\frac{d - ek}{d - ek} \cdot 100 \right)$	Orbital index (from maxillofrontale) $\left(\frac{m - ek}{m - ek} \cdot 100 \right)$	Palatal index (from staphylon) $\left(\frac{enm - enm}{d - sta} \cdot 100 \right)$	Upper alveolar arch index. External palatal index (maxillo-alveolar index) $\left(\frac{ekm - ekm}{pr - alv} \cdot 100 \right)$	Maxillo-frontal index $\left(\frac{mf - mf}{mf - mf} \cdot 100 \right)$	Dacryal index $\left(\frac{d - d}{d - d} \cdot 100 \right)$	Simotical index $\left(\frac{simotical\ sub}{simotical\ chord} \cdot 100 \right)$	Mandibular ramus index $\left(\frac{minimal\ breadth\ of\ ramus}{height\ of\ ramus} \cdot 100 \right)$	Mandibular length-bisognal index $\left(\frac{Mandibular\ projective\ length}{go - go} \cdot 100 \right)$
52 : 51a (I 42b)	52 : 51 (I 42)	63 : 62 (I 58)	61 : 60 (I 54)	—	—	—	71a : 70	68 : 66
79.0 86.0 — — —	74.1 82.9 — 75.5 82.5	82.6 93.5 — 84.8 —	110.7 112.5 — 105.1 —	34.8 33.1 — — —	57.4 55.6 — — —	60.6 42.1 — — —	57.1 50.8 — — —	69.4 76.8 — — —

Individual dimensions and indices of the male skulls from burial site Zolotaya Balka. (in the turu of the

Number of the grave and of the burial	Inventory number of the Museum of Anthropology of the Moscow University	Sex	Age	1 Greatest length from glabella (g — op)	1b Greatest length from opuryon (ou — op)	8 Greatest parietal breadth (eu — eu)	17 Height of the skull from basion (basio-bregmatic height) (ba — b)
Grave 8, burial 1	10436	m	35—40	188	185	141	136
Grave 11, burial 1	10439	m	40—50	187	185	135	—
Grave 17, burial 2	11039	m	more than 55	197?	—	135?	141?
Grave 23, burial 3	11042	m?	35—40	178?	176?	148	—
Grave 25, burial 1	11045	m	40—55	189	189	140	136
Grave 26, burial 1	11047	m	40—50	190	188	139	136
Grave 34, burial 1	11054	m	more than 55	190	186	144	133
Grave 37, burial 2	11057	m	40—50	187	184	137	136
Grave 45, burial 1	11064	m	45—55	182	181	132	140
Grave 48, burial 1	11066	m	45—50	179	176	143	—
Grave 49, burial 1	11067	m	50—60	179	177	133	125
Grave 49, burial 3	11069	m?	more than 60	188	188	140	131
Grave 51, burial 3	11072	m	30—40	185	185	135	139
Grave 52, burial 3	11075	m	45—55	174	172	139	132
Grave 53, burial 1	11076	m	more than 55	178?	—	137	142?
Grave 59, burial 2	11080	m	30—35	190	184	142	—
Grave 65, burial 3	11085	m	30—40	173	173	142	127
	11089	m	25—30	195	194	137	138
Grave 68, burial 1	6/3	m	more than 55	179	177	129	126
Grave 73, burial 2	6/6	m	more than 55	195	189	137	—
Grave 80, burial 3	6/8	m?	45—55	175	175	150	—
Grave 80, burial 4	6/9	m	40—50	—	—	—	—
Grave 86, burial 2	51/3	m	more than 60	193	191	135	140
Grave 87, burial 1	51/4	m?	16—19	188	190	134	138
Grave 89, burial 1	51/1	m?	55—65	179	172	141	130

NOTE: The dimensions are in mm, angles in degrees and volume in cc.

5	20	9	10	11	12	7	16	29	31	—
Length of cranial base (ba — n)	Height of the skull from porion (Porio-bregmatic height) (po — b)	Minimal frontal breadth (ft — ft)	Maximal frontal breadth (co — co)	Bi-auricular breadth (au — au)	Occipital breadth (ast — ast)	Length of foramen magnum (ba — o)	Breadth of foramen magnum	Frontal chord (n — b)	Occipital chord (l — o)	Frontal convexity height (Subtense from frontal chord)
101	115	95	117	126	111	38	28	112	93	26
—	103	97	119	122	106	—	—	108	89	30
110?	119?	93	117	118?	106	39	29	115	95	32
—	110	—	—	133	112	—	—	111	—	26
104	114	97	117	127	113	38	30	110	99	27
102	115	92	117	124	112	36	32	116	99	29
104	110	98	115	132	112	36	32	111	100	25
106	117	102	120	128	109	38	30	113	94	25
102	112	95	119	120	95	37	28	108	96	26
—	118	87	120	124	—	—	—	112	—	25
93	104	94	—	120	103	35	33	107	93	26
97	112	98	121	124	108	34	25	112	98	25
102	117	92	112	122	103	39	—	113	89	29
95	109	93	118	123	111	—	—	109	—	25
—	115	98	122	122	108	—	—	—	—	—
—	111	101	—	—	—	—	—	118	—	26
95	109	91	118	123	110	33	30	106	—	26
102	117	95	125	119	113?	35	29	107	103	24
99	104	92	114	115	110	40	32	106	98	27
—	120	92	127	123	—	—	—	123?	95	29?
—	107	99	121	131	109	—	—	107	—	29
99	112	94	118	122	—	—	—	114	—	29
97	115	99	118	123	110	43	33	112	101	24
100	122	99	120	119	110	38	30	109	101	29
99	110	92	118	120	108	36	32	108	99	21

TABLE XVIII (2)

Inventory number of the Museum of Anthropology of the Moscow University	—	—	38	45	40	48	47	43	43 ₁	46	60	61	62
	Occipital convexity height (Subtense from occipital chord)	Arcus supraorbitalis length	Cranial capacity (after Lee-Pearson)	Bi-zygomatic breadth (zy — zy)	Facial length (ba — pr)	Upper facial height (n — pr)	Total facial height (n — gn)	Upper facial breadth (fmt — fmt)	Internal bi-orbital breadth (fmo — fmo)	Middle facial breadth (zm — zm)	External length of upper alveolar arch (pr — alv)	External breadth of upper alveolar arch (ekm — ekm)	Palatal length (from staphylion) (ol — sta)
10436	33	76	1464	137	—	73	125	102	97	96	—	61	—
10439	32	72	1308	133?	—	75	120	111	102	94	56	64	48
11039	30	73	1514	138?	101?	68	114?	103	95	94	—	60	44
11042	—	—	1417	—	—	68	114	—	—	92?	—	—	—
11045	35	65	1469	137	104	74	120	108	108	94	59	64	49
11047	32	63	1568	128	101	67	105	102	94	95	57	65	47
11054	33	70	1458	141	102	67	107	107	96	99	57	64	50
11057	32	67	1453	143	103	73	123	112	103	103	57	63	50
11064	28	63	1341	127	94	74	123	99	91	90	56	61	44
11066	—	59	1462	133	—	66	107	93	88	94	—	—	—
11067	25	70	1263	130?	86	68	—	102	96	83	48	56	45
11069	37	69	1435	125	—	—	—	103	98	—	—	—	—
11072	27	72	1426	131	102	75	122	99	95	95	56	67	49
11075	—	54	1322	133	88	72	116	107	101	90	52	53	43
11076	—	—	1383	132	—	—	—	—	—	—	—	—	—
11080	—	83	1452	143	—	72?	121	115	107	—	—	—	—
11085	—	67	1337	132	90	63	103	—	92	86	50	59	39
11089	36	67	1500	125	94	65	113	99	91	94	52	62	49
6/3	28	70	1235	121	97	77	122	101	95	95	—	63	48
6/6	29	73	1529	137?	—	69?	113?	107	—	—	—	—	—
6/8	—	69	1384	138	—	—	—	102	—	95	—	—	—
6/9	—	63	—	130	92	71	—	102	94	93	52	61	42
51/3	31	79	1453	133?	93	64	103	112	—	—	—	—	—
51/4	28	—	1481	—	—	61	105	98	90	85	—	—	—
51/5	25	61	1373	129	—	63	107	103	98	—	—	—	—

TABLE XVIII (3)

63	55	54	51	51a	52	—	50	—	49a	—	57	—	65	66
Palatal breadth (enn — enn)	Nasal height (n — ns)	Nasal breadth	Orbital breadth (from maxillofrontale) (mf — ek)	Orbital breadth (from dakryon) (d — ek)	Orbital height	Depth of fossa canina (after Abinder)	Maxillofrontal chord (mf — mf)	Maxillofrontal subtense	Dacryal chord (d — d)	Dacryal subtense	Simotical chord minimal breadth of nasal bones)	Simotical subtense	Bicondylar breadth (kdl — kdl)	Bigonial (angular) breadth (go — go)
40	50.0	24.5	42.0	—	32.5	5.0	22.0	11.7?	—	—	—	—	128	111
42	53.0	26.0	45.5	44.0	35.5	4.0	18.5	9.2	21.0	12.3	7.0	4.0	—	—
40	49.0	—	41.0	—	37.0	7.4	—	—	—	—	—	—	117	94
40	52.0	25.0	42.0	—	33.0	7.0	20.0?	10.0	—	—	8.5	4.6	121	105
40	52.0	28.0	42.0	41.0	34.5	3.0	22.0	9.5	23.0	13.0	8.0	4.0	—	—
45	50.5	26.5	41.5	40.0	29.0	4.4	20.3	10.5	—	—	6.8	3.7	—	90
41	46.0	26.5	39.5	36.0	30.0	7.5	22.5	10.5	27.0	16.0	—	—	121?	108
38	51.0	26.5	43.0	41.0	29.5	—	26.0	11.0	28.0	15.0	10.0	5.1	—	99
40	52.0	25.3	38.3	36.2	30.0	1.5	22.0	9.0	22.0	13.9	5.3	2.5	116	98
—	48.0	23.3?	38.0	36.0	32.5	6.3	19.0	9.0	—	—	6.3	3.6	118	91
40	48.0	23.5	40.0	—	30.0	6.5	21.0	11.1	—	—	6.5	4.0	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	118	90
45	52.5	25.0	41.0	—	32.0	5.0	20.7	10.0	—	—	6.5	2.3	125	103
37	49.5	23.7	43.0	42.0	35.0	6.8	18.7	9.3	19.7	12.6	—	—	123?	98
—	—	—	—	—	—	—	—	—	—	—	—	—	119	101
—	54.0	25.0	46.0	—	31.5	—	26.0	—	—	—	11.2	6.0	123	105
38	45.0	26.5	39.5	—	31.0	5.0	21.5	9.8	—	—	8.0	3.3	120	105
41	49.0	23.0	38.0	—	32.3	8.0	20.0?	—	—	—	—	—	120	103
41	54.0	22.7	39.0	—	38.0	4.0	21.0	10.3	—	—	9.5	4.8	111	91
—	—	—	—	—	—	—	—	—	—	—	—	—	—	103
—	—	—	42.0	—	35.0	—	—	—	—	—	—	—	—	—
39	49.5	21.5	38.0	36.5	32.5	5.5	19.0	10.8	22.0	13.5	6.4	4.0	—	—
—	51.0	28.0	45.0	43.0	35.5	—	21.0	9.8	—	—	10.0	5.0	—	106
—	49.0	23.0	39.0	—	34.0	3.5	19.5	10.0	—	—	10.0	4.0	118	86
—	48.0	23.5	42.5	40.0	34.0	7.0	16.2	13.2	—	—	12.0	7.0	120	112

Inventory number of the Museum of Anthropology of the Moscow University	67 Distance between foramina mentalia	68 Mandibular projective length from gonion	68 ₁ Mandibular projective length from kondyleses	69 Chin height (id — gn)	70 Height of mandibular ramus	71a Minimal breadth of mandibular ramus	32 Frontal angle from nasion (m — n — OAE)	— Frontal angle from glabella (m — g — OAE)	33 ₁ Angle of the upper part of occiput (l — i — OAE) (Upper occipital angle)	33 ₂ Angle of the lower part of occiput (o — i — OAE) (Lower occipital angle)	33 Angle of the inclination of the occipital bone (l — i — OAE)	34 Angle of the inclination of foramen magnum (o — b — OAE)	72 Total facial angle (n — pr — OAE)
10436	50	80	103	37	68	34	80	72	91	17	123	—5	86?
10439	43	—	—	—	—	33	82	75	93	19	124	—	87
11039	45	75	105	35	64	33	85?	78?	—	—	—	—	86?
11042	47	71	103	35	56	30	—	—	—	—	—	—	—
11045	—	—	—	35	—	38	83	78	87	20	120	—5	83
11047	48	82	104	32	60	33	88	83	91	20	121	—9	84
11054	47	80	110	32	67	35	80	70	88	28	120	—3	83
11057	45	—	—	38	—	30	83	78	85	25	114	—2	88
11064	44	80	101	36	66	33	83	80	100	25	120	0	88
11066	46	75	101	32	59	29	85	76	—	—	—	—	85
11067	—	—	—	—	—	—	84	76	103	20	128	—3	88
11069	—	73	104	30	59	30	82?	79?	92?	15?	127?	—	—
11072	45	85	112	38	62	33	86	83	96	22	126	—	82
11075	48	73	102	31	55	29	75	70	92	—	—	—	83
11076	44	80	107	32	58	32	—	—	—	—	—	—	—
11080	—	80	113	36	54	32	73	65	88	—	122	—	88
11085	44	72	103	31	59	27	87	81	—	—	119	—15	86
11089	48	—	—	34	—	32	85	74	91	25	122	—7	86
6/3	45	80	108	34	63	28	80	76	98	23	122	—	79
6/6	52	88	115	33	64	36	—	—	—	—	—	—	—
6/8	—	—	—	—	—	—	—	—	—	—	—	—	—
6/9	—	—	—	—	—	—	84	79	—	—	—	—	91
51/3	44	68	103	—	61	29	76	68	102	13	126	—12	—
51/4	42	65	89	29	46	33	—	—	—	—	—	—	—
51/5	—	62	98	—	58	28	73	65	100	35	121	—10	86

TABLE XVIII (5)

73	74	75	77	—	79	—	—	—	—	—	—	—	—	8 : 1 (1 1)
Midfacial angle (n — ns — OAE)	Alveolar angle (n — pr — OAE)	Angle of the nasal profile with the facial profile (n — rhi — Line of profile)	Naso-malar angle (fmo — n — fmo)	Zygomaxillary angle (after Abinder) (zm — ss — zm)	Mandibular angle (Angle of the inclination of mandibular ramus)	Chin angle (id- pog-standard basal plane)	Glabella (prominence after Martin; 1—6)	Arcus supraorbitalis (after glabella prominence scale Martini; 1—6)	Depth of fossa canina (0—4)	Lower edge of apertura piriformis	Spina nasalis anterior (after Broca; 1—5)	Prouberantia occipitalis externa (after Broca; 0—5)	Processus mastoideus (1—3)	Cranial index (eu . eu . 100) (g . op)
—	—	—	131	122	114	68	4	5	2	anthr.	—	4	3	75,0
87	87	—	141	119	—	—	4	4	2	anthr.	3	3	3	72,2
86?	86?	—	140	128	121	77	3	4	4	anthr.	4	3	2	68,5
—	—	—	—	—	130	66	2	3	3	anthr.	4	—	1	83,1
83	83	35	139	116	—	—	2	3	1	fossa pra- enasalis	—	3	3	74,1
84	82	—	136	117	115	68	2	2	2	anthr.	—	3	3	73,2
84	82	33	137	127	122	63	4	5	4	fossa pra- enasalis	3	3	3	75,8
91	81	26	128	122	—	76	4	4	3	anthr.	5	4	3	73,3
88	88	35	139	118	114	70	3	3	1	anthr.	4	2	3	72,5
85	85	38	142	128	121	67	3	3	3	anthr.	5	2	3	79,9
87	88	34	143	129	—	—	3	4	3	anthr.	4	3	2	74,3
—	—	—	131	—	125	70	1	2	—	anthr.	—	3	2	74,5
81	81	38	133	121	120	73	3	4	2	anthr.	4	3	3	73,0
83	83	30	140	128	128	70	2	2	3	anthr.	4	2	3	79,9
—	—	—	—	—	123	56	—	—	—	—	—	1	2	77,0
—	—	34	132	—	125	62	5	5	3	—	—	3	3	74,7
93	57	—	137	135	124	65	3	4	3	fossa pra- enasalis	—	—	3	82,1
87	82	—	139	127	—	63	3	3	4	anthr.	4	2	2	70,3
—	—	36	134	114	121	73	2	3	2	anthr.	—	3	2	72,1
—	—	—	—	—	119	—	5	5	—	—	—	3	3	70,3
—	—	—	—	—	—	—	2	2	—	—	—	2	2	85,7
92	89	30	136	131	—	—	3	3	3	anthr.	5	—	3	—
—	—	—	140	129	—	—	4	5	3	anthr.	—	4	3	70,0
—	—	—	135	128	125	62	1	1	2	anthr.	—	1	1	71,3
86	—	25	136	124	135	—	4	3	4	anthr.	5	2	1	78,8

TABLE XVIII (6)

Inventory number of the Museum of Anthropology of the Moscow University	17 : 1 (I 2) Height-length index (from basion) $\left(\frac{ba-b}{g-op} \cdot 100\right)$	20 : 1 (I 4) Height-length index (from porion) $\left(\frac{p-b}{g-op} \cdot 100\right)$	17 : 8 (I 3) Height-breadth index (from basion) $\left(\frac{ba-b}{eu-eu} \cdot 100\right)$	20 : 8 (I 5) Height-breadth index (from porion)	9 : 8 (I 13) Transverse frontoparietal index $\left(\frac{ft-ft}{eu-eu} \cdot 100\right)$	— Arcus supraorbitalis length index Arcus supraorbi- talis length $\left(\frac{fnt-fnt}{\cdot 100}\right)$	48 : 17 Vertical faciocranial index $\left(\frac{n-pr}{ba-b} \cdot 100\right)$	45 : 8 (I 71) Transverse faciocranial index $\left(\frac{zy-zy}{eu-eu} \cdot 100\right)$	— Frontal convexity index $\left(\frac{Sub \cdot NB}{n-b} \cdot 100\right)$	— Occipital convexity index $\left(\frac{Sub \cdot LO}{I-o} \cdot 100\right)$
10436	72.3	61.2	97.1	82.1	67.9	74.5	53.7	97.9	23.2	35.5
10439	—	55.1	—	76.3	71.8	64.9	—	98.5	27.8	36.0
11039	71.6?	60.4	104.4?	88.1?	68.9?	70.9	48.2?	102.2?	27.8	31.6
11042	—	61.8	—	74.3	—	—	—	—	23.4	—
11045	72.0	61.0	97.1	81.4	69.3	60.2	54.4	97.9	24.6	35.4
11047	71.6	60.5	97.8	82.7	66.2	61.8	49.3	92.1	25.0	32.3
11054	70.0	57.9	92.4	76.4	68.1	65.4	50.4	97.9	22.5	33.0
11057	72.7	62.6	99.3	85.4	74.4	59.8	53.7	104.4	22.1	34.0
11064	76.9	61.5	106.1	84.8	72.0	63.6	52.9	96.2	24.1	29.2
11066	—	65.9	—	82.5	60.8	63.4	—	93.0	22.3	—
11067	69.8	58.1	94.0	78.2	70.7	68.6	54.4	97.7?	24.3	26.9
11069	69.7	59.6	93.6	80.0	70.0	67.0	—	89.3	22.3	37.8
11072	75.1	63.2	103.0	86.7	68.2	72.7	54.0	97.0	26.7	30.3
11075	75.9	62.6	95.0	78.4	66.9	50.5	54.6	95.7	22.9	—
11076	79.8	64.6	103.6	83.9	71.5	—	—	96.3	—	—
11080	—	58.5	—	78.2	71.1	74.8	—	100.7	22.0	—
11085	73.4	63.0	89.4	76.8	64.1	—	49.6	93.0	24.5	—
11089	70.8	60.0	100.7	85.4	69.3	67.7	47.1	91.2	22.4	35.0
6/3	70.4	58.1	97.7	80.6	71.3	69.3	61.1	93.8	25.5	28.6
6/6	—	61.5	—	87.6	67.2	68.2	—	100.0?	23.6?	30.5
6/8	—	61.1	—	71.3	66.0	67.6	—	92.0	27.1	—
6/9	—	—	—	—	—	61.8	—	—	25.4	—
51/3	72.5	59.6	103.7	85.2	72.3	70.5	45.7	98.5	21.4	30.7
51/4	73.4	64.9	102.9	91.0	73.9	—	44.2	—	26.6	27.7
51/5	72.6	61.4	92.2	78.0	65.2	59.2	48.5	91.5	19.4	25.2

TABLE XVIII (7)

40 : 5 (I 60)	48 : 45 (I 39)	47 : 45 (I 38)	54 : 55 (I 48)	52 : 51a (I 42b)	52 : 51 (I 42)	63 : 62 (I 58)	61 : 60 (I 54)	—	—	—	71a : 70	68 : 66
Index of prognathism (gnathic index) (index of face prominence) $\left(\frac{ba-pr}{n-ba} \cdot 100\right)$	Upper facial index $\left(\frac{n-pr}{zy-zy} \cdot 100\right)$	Total facial index $\left(\frac{n-gn}{zy-zy} \cdot 100\right)$	Nasal index (nasal breadth) $\left(\frac{n-nb}{n-nb} \cdot 100\right)$	Orbital index (from dacryon) (orbital height) $\left(\frac{d-ek}{d-ek} \cdot 100\right)$	Orbital index (from maxillofrontale) (orbital height) $\left(\frac{m-ek}{m-ek} \cdot 100\right)$	Palatal index (from staphylion) (enm-enm) $\left(\frac{d-sta}{d-sta} \cdot 100\right)$	Upper alveolar arch index. External palatal index (maxillo-alveolar index) $\left(\frac{ekm-ekm}{pr-alv} \cdot 100\right)$	Maxillo-frontal index $\left(\frac{maxilo-frontal}{sub} \cdot 100\right)$ mf — mf	Dacryal index (dacryal sub) $\left(\frac{d-d}{d-d} \cdot 100\right)$	Simotical index (simotical sub) (simotical chord)	Mandibular ramus index ^x (minimal breadth of ramus) $\left(\frac{height\ of\ ramus}{height\ of\ ramus} \cdot 100\right)$	Mandibular length- bigonial index Mandibular projective length $\left(\frac{go-go}{go-go} \cdot 100\right)$
—	54.1	91.2	49.0	—	77.4	—	—	53.2?	—	—	50.0	72.1
—	56.4	90.2?	49.1	80.7	78.0	87.5	114.3	49.7	58.6	57.1	—	—
91.8	49.3?	82.6?	—	—	90.2	90.9	—	—	—	—	51.6	83.3
—	—	—	48.1	—	78.6	—	—	50.0?	—	54.1	53.6	67.6
100.0	54.0	87.6	53.8	84.2	82.1	81.6	108.5	43.2	56.5	50.0	—	—
99.0	52.3	82.0	52.5	72.5	69.9	95.7	114.0	51.7	—	54.4	55.0	91.1
98.1	47.5	75.9	57.6	83.3	76.0	82.0	112.3	46.7	59.3	—	52.2	74.1
97.2	51.0	86.0	52.0	72.0	68.6	76.0	110.5	42.3	53.6	51.0	—	—
92.2	58.3	96.0	48.7	82.9	78.3	90.9	108.9	40.9	63.2	47.2	50.0	81.6
—	49.6	80.4	48.6?	90.3	85.5	—	—	47.4	—	57.1	49.2	82.4
92.5	52.3	—	49.0	—	75.0	88.9	116.7	52.9	—	61.5	—	—
—	—	—	—	—	—	—	—	—	—	—	50.8	81.1
100.0	57.2	93.1	47.6	—	78.0	91.8	119.7	48.3	—	35.4	53.2	82.5
92.6	54.1	87.2	47.9	83.3	81.4	86.0	—	49.7	64.0	—	52.7	74.5
—	—	—	—	—	—	—	—	—	—	—	55.2	79.2
—	50.4	84.6	46.3	—	68.5	—	—	—	—	53.6	59.3	76.2
94.7	47.7	78.0	58.9	—	78.5	97.4	118.0	45.6	—	41.2	45.8	68.6
92.2	52.0	90.4	46.9	—	85.0	83.7	119.2	—	—	—	—	—
98.0	63.6	100.8	42.4	—	97.4	85.4	—	49.0	—	50.5	44.4	87.9
—	50.4?	82.4?	—	—	—	—	—	—	—	—	56.2	85.4
—	—	—	—	—	83.3	—	—	—	—	—	—	—
92.9	54.6	—	43.4	89.0	85.5	92.9	117.3	56.8	61.4	62.5	—	—
95.9	48.1	77.4?	54.9	82.6	78.9	—	—	46.7	—	50.0	47.5	64.1
—	—	—	46.9	—	87.0?	—	—	51.3	—	40.0	71.7	75.6
—	48.8	82.9	49.0	85.0	80.0	—	—	81.5	—	53.3	48.3	55.9

Individual dimensions and indices of female skulls from the burial site Zolotaya Balka (In the turn of the excavations of A. V. Dobrovoljskyi (1959), E. A. Simonovitsch (1958), M. I. Vjazmitinov (1959—63))

Number of the grave and of the burial	Inventory number of the Museum of Anthropology of the Moscow University	Sex	Age	1 Greatest length from glabella (g—op)	1b Greatest length from opurion (on—op)	8 Greatest parietal breadth (eu—eu)	17 Height of the skull from basion (basio-bregmatic height) (ba—b)
Grave 7, burial 1	10435	f	25—30	167?	—	138	—
Grave 8, burial 2	10437	f	35—45	185	184	144	122
Grave 12, burial 1	10438	f	20—25	175?	—	145?	—
Grave 14, burial 1	11037	f	40—50	175	175	142	—
Grave 23, burial 1	11040	f	20—22	170	169	136	127
Grave 23, burial 2	11041	f?	45—50	186?	—	151	—
Grave 24, burial 1	11044	f	30—35	179	180	144	136
Grave 25, burial 2	11046	f	30—35	190	189	126	129
Grave 28, burial 1	11048	f	50—55	176	174	139	134
Grave 31, burial 3	11049	f	55	169	169	131	121
Grave 32, burial 2	11050	f	16—18	173	173	132	130
Grave 33, burial 1	11051	f	20—25	177	176	131	129
Grave 33, burial 2	11052	f	60	178	177	130	135
Grave 33, burial 3	11053	f	55	183	182	135	132
Grave 34, burial 2	11055	f	50—55	174	174	145	127
Grave 37, burial 1	11056	f	20—30	178	176	132	130
Grave 39, burial 1	11059	f	17—19	177	177	137	125
Grave 39, burial 2	11060	f	40—45	175	176	136	125
Grave 42, burial 1	11062	f	45—55	181	178	133	129
Grave 42, burial 2	11063	f	45—55	180	178	140	140
Grave 46, burial 1	11065	f	55—65	185	184	128	132
Grave 49, burial 2	11068	f	18—22	180	179	141	130
Grave 51, burial 1	11070	f	35—45	173	173	135	124
Grave 51, burial 2	11071	f	17—19	171	171	135	128
Grave 51, burial 4	11073	f	45—55	175	174	134	124
Grave 52, burial 2	11074	f	30—35	176	175	139	131
Grave 58, burial 1	11078	f	55	177	177	131	130
Grave 59, burial 1	11079	f	55	177	175	138	—
Grave 60, burial 1	11081	f	55	184	183	134	127
Grave 60, burial 2	11082	f	55	173	172	146	130
Grave 60, burial 3	11083	f	30—35	182	181	133	—
Grave 62, burial 1	11084	f	16—18	174	175	126	—
Grave 65, burial 2	11086	f	25—30	176	176	125?	129?
Grave 65, burial 1	11087	f	34—40	168	168	136	119
Grave 67, burial 1	6/2	f	40—60	170	169	138	130
Grave 69, burial 1	6/4	f	35—45	171	170	146	125
Grave 69, burial 2	6/5	f	50—60	184	182	127	130?
Grave 80, burial 1	6/1	f	30—35	164	164	126	129
Grave 80, burial 2	6/7	f	40—50	180	178	137	124
Grave 89, burial 2	51/6	f?	60	176	177!	137	130
Grave 89, burial 3	51/7	f	16—18	178	178	138	124
Grave 93, burial 1	51/9	f	20—25	177	176	135	128
Grave 94, burial 1	51/10	f	25—30	174	174	129	128

5	20	9	10	11	12	7	16	29	31	—
Length of cranial base (ba — n)	Height of the skull from porion (Porio-bregmatic height) (po — b)	Minimal frontal breadth (ft — ft)	Maximal frontal breadth (co — co)	Bi-auricular breadth (au — au)	Occipital breadth (ast — ast)	Length of foramen magnum (ba — o)	Breadth of foramen magnum	Frontal chord (n — b)	Occipital chord (l — o)	Frontal convexity height (Subtense from frontal chord)
—	108	90	114	114	177	—	—	102	84	23
95	106	94	118	128	111	38	29	112	93	26
—	—	—	—	—	108	33	29	110	91	25
—	119	97	126	122	109?	—	—	113	—	30
90	107	93	115	122	113	36?	29	109	—	28
—	112	98	—	123	112	—	—	—	97	—
97	114?	100	124	—	—	36	—	109	88	29
103	111	87	110	109	95	—	—	110	94	26
95	111	95	116	118	105	35	28	112	92	25
91	103	93	112	112	99	37	29	99	91	27
99	109	96	119	118	103	34	28	105	86	23
99	109	93	115	117	104	37	30	112	87	29
93	113	91	113	115	—	—	—	113	108	30
106	107	100	117	119	110	38	—	112	96	28
88	112	99	118	123	112	35	30	108	93	26
103	103	96	112	119	108	33	28	105	99	24
88	107	86	118	118	—	35	31	108	—	29
91	109	89	117	117	102	38	27	109	87	28
101	113	98	119	118	110	35	29	112	95	26
98	116	100	122	118	105	37	27	114	94	27
104	113	88	113	115	101	—	—	113	94	30
99	112	96	121	119	110	38	28	109	92	27
94	110	89	111	115	106	34	29	109	92	30
91	109	93	111	116	115	34	31	107	92	28
94	109	91	112	118	105	36	28	110	91	31
96	114	93	122	120	106	34	27	108	97	24
93	109	88	—	115	104	32	29	—	100	—
—	109	92	117	121	110	35	29	115	—	29
101	112	93	112	125	105	34	25	114	90	28
99	110	102	126	133	108	—	—	103	—	26
—	115	88	111	117	104	—	—	114	91	26
—	106	94	113	—	—	—	—	105	79	25
97?	106	87	110	108	—	—	—	106	98	29
88?	101	94	118	119	104	—	—	104	—	30
91	113	91	124	115	101	32	26	111	90	30
92	106	93	119	124	107	36	30	105	94	24
—	112	95	118	110	101	—	—	109	96	26
92	110	92	105	112	99	—	—	102	93	22
92	105	103	121	122	111	—	—	105	—	23
94	111	95	115	121	111	37	30	106	94	26
95	110	95	121	111	110	37	31	107	92	26
97	110	85	110	110	102	30	26	110	92	29
98	109	90	112	114	103	31	28	110	92	31

TABLE XIX (2)

Inventory number of the Museum of Anthropology of the Moscow University	—	—	38	45	40	48	47	43	43 ₁	46	60	61	62
	Occipital convexity height (Subtense from occipital chord)	Arcus supraorbitalis length	Cranial capacity (after Lee-Pearson)	Bi-zygomatic breadth (zy — zy)	Facial length (ba — pr)	Upper facial height (n — pr)	Total facial height (n — gn)	Upper facial breadth (fnt — fnt)	Internal bi-orbital breadth (fmo — fmo)	Middle facial breadth (zm — zm)	External length of upper alveolar arch (pr — alv)	External breadth of upper alveolar arch (ekm — ekm)	Palatal length (from staphylion) (ol — sta)
10435	17	—	1230	—	—	—	—	—	—	—	—	—	—
10437	33	69	1355	131	86	63	100	105	98	—	—	—	—
10438	26	—	1429	—	—	—	—	—	—	—	—	—	—
11037	—	54	1405	123	—	67?	—	104	95	97	—	60	—
11040	—	55	1224	127	84	65	109	98	92	85	50	57	—
11041	30	—	1476	133?	—	67	110	104	—	97	—	—	44
11044	28	60	1398	131?	90	67	110	103	95	—	51	60	—
11046	29	62	1293	120?	96	67?	—	95	—	—	—	—	42
11048	35	58	1315	120	88	67	105	103	94	100	49	59	—
11049	27	59	1152	117	89	63	109	99	92	84	—	—	44
11050	34	60	1230	120	95	63	101	97	90	83	49	59	45
11051	25	58	1244	119	93	69	111	100	92	—	52	60	—
11052	28	62	1277	125	—	—	—	99	95	—	—	—	—
11053	27	71	1288	127	97	70	113?	105	99	93	50	—	48
11055	31	59	1356	124	85	71	112?	102	95	90	51	55	46
11056	29	63	1204	124	99	66	105	102	94	91	53	64	—
11059	—	51	1269	—	—	57	95	90	86	—	—	—	—
11060	30	54	1269	122	91	69	113	95	87	91	54	—	—
11062	25	65	1316	127	97	67	113	105	98	88	56	—	50
11063	25	70	1393	127	89	63	104	105	97	98	52	63	43
11065	30	63	1298	—	—	—	—	96	87	—	—	—	—
11068	27	66	1362	124	99	69?	—	101	92	92	55	62	51
11070	29	50	1260	118	88	70	116	98	94	87	53	—	55
11071	27	61	1240	121	91	64	104	100	94	88	52	62	—
11073	28	65	1255	127	87	64?	—	97	92	—	—	—	49
11074	26	63	1342	124	96	73	116	101	92	91	54	60	—
11078	30	57	1244	124	91?	60?	—	94	89	91	—	—	—
11079	—	67	1295	125	—	—	—	104	—	—	—	—	—
11081	27	61	1332	127	94?	65?	—	99	90	—	—	—	—
11082	—	70	1338	141	—	71	115?	110	100	—	—	—	—
11083	30	54	1340	122	—	70	114	93	84	87	55	—	—
11084	25	54	1168	112?	—	67	108	97	89	—	51	59	—
11086	25	58	1171	114	95?	68	113	93	88	87	53	59	45
11087	—	56	1162	124	—	68	111	100	94	—	—	—	—
6/2	24	59	1290	125	89	66	109	97	90	109	52	57	—
6/4	24	55	1289	130	91	66	106	103	96	98	55	62	—
6/5	26	65	1278	121?	—	66	105	103	96	94	—	—	—
6/1	22	61	1149	119	87	63	—	98	93	94	50	56	—
6/7	—	67	1267	132	—	—	—	108	101	—	—	—	—
51/6	32	66	1300	123	—	60	—	101	85	—	—	—	—
51/7	37	52	1310	114	86	57	92	98	89	84	49	54	44
51/9	28	55	1282	114	92	61	104	97	88	82	49	54	44
51/10	28	62	1214	118	88	65	109	98	89	89	49	57	43

TABLE XIX (3)

63	55	54	51	51a	52	—	50	—	49a	—	57	—	65	66
Palatal breadth (emm — emm)	Nasal height (n — ns)	Nasal breadth	Orbital breadth (from (maxillofrontale) (mf — ek)	Orbital breadth (from (dakryon) (d — ek)	Orbital height	Depth of fossa canina (after Abinder)	Maxillofrontal chord (mf — mf)	Maxillofrontal subtense	Dacryal chord (d — d)	Dacryal subtense	Simotical chord (minimal breadth of nasal bones)	Simotical subtense	Bicondylar breadth (kdl — kdl)	Bigonial (angular) breadth (go — go)
—	—	—	—	—	—	—	—	—	—	—	—	—	115	93
—	47,0	24,0	41,5	40,5	34,0	4,5	20,0	8,0	21,2	10,0	9,3	3,8	131	93
—	—	—	—	—	—	—	—	—	—	—	—	—	121	97
39	—	—	—	—	—	6,0	—	—	—	—	—	—	—	—
39	50,0	24,5	40,0	—	31,5	4,0	—	—	—	—	8,9	4,5	123	85
—	48,0	—	42,0	—	34,0	10,0	—	—	—	—	10,0	4,5	—	—
40	47,5	25,5	39,0	37,5	32,0	6,5	24,0	8,0	—	—	9,0	3,9	—	—
—	50,0	—	37,0	—	32,0	—	21,0?	8,0?	—	—	—	—	—	—
39	52,0	23,7	40,5	—	32,0	7,0	19,5	9,5	—	—	—	—	110	95
—	44,0	23,0	40,0	—	30,0	5,0	20,0	8,5	—	—	8,0	3,5	112	92
40	47,0	23,0	38,0	36,0	32,0	5,0	21,3	9,0	—	—	9,0	3,9	104	—
38	48,5	24,0	39,0	37,0	31,0	5,5	21,0	8,0	24,0	11,0	8,0	3,0	111	101
—	—	—	—	—	—	—	—	—	—	—	—	—	—	93
—	52,0	26,0	42,5	—	32,0	5,5	22,0	8,6	—	—	11,0	7,0	113	93
37	49,0	22,0	41,0	39,5	35,0	3,0	19,8	7,0	—	—	9,5	3,1	—	—
40	49,0	25,0	39,5	37,0	33,0	7,0	20,0	10,0	23,5	13,0	11,8	5,3	115	102
—	44,0	22,5	—	—	—	—	19,0	8,0	—	—	6,0	3,0	107	92
—	47,0	22,0	39,0	36,5	37,0	5,0	16,2	7,9	17,0	11,5	8,0	4,4	113	85
38	49,5	27,5	42,0	40,5	33,5	9,0	19,5	8,0	21,3	12,7	9,0	4,4	122	89
39	45,0	24,0	41,8	39,0	30,0	4,5	22,3	8,6	25,5	13,0	11,5	4,6	128	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
39	50,0	24,0	41,0	—	33,0	4,0	19,8	10,0	—	—	8,7	4,8	—	—
—	51,0	—	40,0	—	35,0	4,0	—	—	—	—	—	—	115	95
39	49,0	24,3	38,3	—	33,0	6,0	22,0	8,0	—	—	7,0	3,8	109	89
—	50,0	24,3	41,5	—	35,0	3,5	20,5	8,2	—	—	10,5	2,8	119	91
39	49,5	22,0	40,0	38,5	32,0	5,0	18,2	8,2	19,1	9,8	7,0	3,1	120	94
—	47,5?	22,0	37,5	—	32,0	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	97
—	49,0	24,0	41,0	—	31,5	—	18,2	10,8	—	—	9,7	4,8	113	101
—	54,0	26,0	42,0	—	34,5	—	21,6	7,3	—	—	6,8	2,5	—	104
—	52,0	23,0	38,0	—	33,5	3,5	17,5	7,9	—	—	6,3	3,0	119	96
36	49,0	23,0	38,0	—	32,5	3,7	—	—	—	—	—	—	101	91
37	47,0	21,0	38,0	—	32,5	5,0	20,8	9,8	—	—	8,3	4,9	108	94
—	—	—	40,0	—	30,0	7,0	19,5	9,7	—	—	8,1	2,5	107	98
—	46,0	23,0	39,0	—	30,0	5,0	17,0	7,8	—	—	6,5	3,0	113	91
—	46,0	27,0	39,0	38,0	32,0	5,1	20,5	7,5	—	—	8,0	3,0	—	92
—	49,0	23,0	41,0	40,0	33,5	—	20,9	11,0	21,5	14,5	9,0	4,2	117	93
—	46,0	24,5	41,0	—	34,0	7,0	18,0	10,0	—	—	—	—	—	—
—	—	—	—	—	—	5,0	—	—	—	—	—	—	—	—
—	47,0	22,0	39,8	38,0	32,0	4,0	19,8	9,1	20,8	13,2	9,7	4,5	—	—
34	43,0	22,0?	38,0	37,0	32,5	8,0	19,0	10,0	—	—	11,5	6,5	102	93
37	45,0	22,0	38,0	—	34,0	5,0	—	—	—	—	—	—	107	88
36	47,0	24,0	38,0	37,0	33,0	6,5	19,9	8,9	—	—	10,3	4,0	113	91

TABLE XIX (4)

Inventory number of the Museum of Anthropology of the Moscow University	67 Distance between foramina mentalia	68 Mandibular projective length from gonion	68 ₁ Mandibular projective length from kondyleses	69 Chin height (id — gn)	70 Height of mandibular ramus	71a Minimal breadth of mandibular ramus	32 Frontal angle from nasion (m — n — OAE)	— Frontal angle from glabella (m — g — OAE)	33 ₁ Angle of the upper part of occiput (l — i — OAE) (Upper occipital angle)	33 ₂ Angle of the lower part of occiput (o — i — OAE) (Lower occipital angle)	33 Angle of the inclination of the occipital bone (l — i — OAE)	34 Angle of the inclination of foramen magnum (o — b — OAE)	72 Total facial angle (n — pr — OAE)
10435	41	76	102	28	60	33	—	—	—	—	—	—	—
10437	46	69	93	24	57	26	82	75	98	19	127	—19	85
10438	46	72	96	29	57	32	—	—	—	—	—	—	—
11037	—	—	—	—	—	—	92	88	—	—	—	—	—
11040	45	76	99	33	49	30	86	81	89	19	122	—	84
11041	45	—	—	34	—	—	—	—	—	—	—	—	—
11044	—	—	—	—	—	—	93	90	93	20	123	—4	86
11046	—	—	—	—	—	—	—	—	—	—	—	—	—
11048	43	75	102	31	54	30	—	—	—	—	—	—	—
11049	44	70	99	30	51	29	89	86	92	28	120	—12	80
11050	44	70	99	24	43	32	86	82	93	29	123	—4	82
11051	43	72	100	33	56	33	82	79	94	27	126	—7	85
11052	—	—	—	—	—	—	—	—	—	—	—	—	—
11053	47	74	99	29	51	30	82	75	92	29	118	—9	86
11055	45	—	—	—	—	25	86	83	100	13	130	—10	84
11056	46	74	102	30	57	33	82	78	87	32	116	—4	82
11059	47	68	92	25	50	29	—	—	—	—	—	—	—
11060	42	69	99	36	50	31	86	83	90	20	124	—9	82
11062	43	75	104	34	57	30	85	80	103	25	120	—12	85
11063	46	74	97	31	57	31	86	80	101	28	122	—1	86
11065	—	—	—	—	—	27	—	—	—	—	—	—	—
11068	—	—	—	—	—	—	86	83	97	25	119	—3	82
11070	47	72	104	33	49	26	89	87	89	25	122	—15	89
11071	44	70	96	31	46	29	89	86	101	25	123	—10	81
11073	42	75	99	32	50	30	88	83	101	18	125	—11	83
11074	44	71	101	33	59	29	83	80	93	29	125	—15	—
11078	—	—	—	—	—	30	—	—	—	—	—	—	—
11079	—	75	98	—	58	30	—	79	100	18	129	—	—
11081	44	75	103	33	52	32	80	79	86	28	123	—	87
11082	—	—	—	—	—	36	83	75	88	—	—	—	—
11083	43	72	102	33	56	32	85	79	99	18	126	—	87
11084	44	69	96	27	45	28	—	—	—	—	—	—	—
11086	50	80	110	34	55	30	87	86	106	22	129	—18	77
11087	—	87	111	34	62	33	85	81	94	—	—	—	—
6/2	—	79	107	36	57	32	90	85	93	29	122	—13	85
6/4	—	73	105	32	59	30	83	78	110	28	120	—8	83
6/5	41	71	93	31	59	30	80	78	99	28	119	—17	87
6/1	—	—	—	—	—	—	83	78	—	—	117	—9	84
6/7	42	—	—	29	—	32	80	74	—	—	—	—	—
51/6	—	—	—	—	—	—	87	81	92	22	117	—11	88
51/7	40	53	76	23	44	29	85	83	102	22	123	—13	89
51/9	39	67	91	34	54	30	85	82	97	21	128	—9	84
51/10	46	58	92	30	49	29	87	83	95	24	123	—6	90

73	74	75 ₁	77	—	79	—	—	—	—	—	—	—	—	8:1 (I 1)
Midfacial angle (n — ns — OAE)	Alveolar angle (n — pr — OAE)	Angle of the nasal profile with the facial profile (n — rhi — Line of profile)	Naso-malar angle (fmo — n — fmo)	Zygomaxillary angle (after Abinder) (zm — ss — zm)	Mandibular angle (Angle of the inclination of mandibular ramus)	Chin angle (id — pog — standard basal plane)	Glabella (prominence after Martin; 1—6)	Arcus supraorbitalis after glabella prominence scale Martin; 1—6)	Depth of fossa canina (0—4)	Lower edge of apertura piriformis	Spina nasalis anterior (after Broca; 1—5)	Protuberantia occipitalis externa (after Broca; 1—5)	Processus mastoideus	Cranial index $\left(\frac{\text{eu} \cdot \text{eu}}{\text{g} \cdot \text{op}} \cdot 100\right)$
—	—	—	—	—	119	—	2	2	—	—	—	—	1	82,6
90	81	—	139	137	119	64	2	2	2	anthr.	3	2	2	77,8
—	—	—	—	—	120	70	2	—	—	—	—	2	1	82,9
—	—	—	134	—	—	—	2	3	3	—	—	1	2	81,1
85	83	29	140	125	125	66	2	2	2	anthr.	3	2	1	80,0
—	—	—	—	—	—	63	—	—	4	anthr.	—	1	1	81,2?
88	82	24	138	—	—	—	1	2	3	anthr.	—	2	1	80,4
—	—	—	—	—	—	—	2	2	3	anthr.	—	2	1	66,3
—	—	—	134	120	126	65	2	2	4	anthr.	2	1	3	79,0
—	—	15	139	123	130	60	1	1	3	—	—	1	1	77,5
82	79	22	136	128	134	66	1	1	2	anthr.	2	1	1	76,3
87	79	22	137	—	122	76	2	2	3	anthr.	3	1	1	74,0
—	—	—	132	—	—	—	2	2	—	—	—	1	1	73,0
88	81	21	134	129	125	65	3	3	3	anthr.	2	1	1	73,8
86	82	29	141	125	—	—	2	2	2	anthr.	3	1	2	83,4
82	81	31	136	122	125	65	2	2	3	anthr.	3	1	2	74,2
—	—	—	—	—	122	—	1	1	3	anthr.	2	1	1	77,4
85	79	22?	141	126	133	71	2	2	2	anthr.	—	2	1	77,7
—	—	24	135	—	122	69	2	2	4	anthr.	—	1	3	73,5
88	82	26	131	122	118	64	2	2	3	anthr.	4	1	2	77,8
—	—	—	—	—	—	—	2	2	—	—	—	1	1	69,2
83	81	27	137	117	—	—	2	2	2	anthr.	—	1	2	78,3
—	—	—	140	128	134	56	2	2	2	anthr.	—	1	2	78,0
82	82	31	136	120	127	64	2	2	2	anthr.	—	1	1	79,0
83	82	31	140	125	120	61	2	2	2	anthr.	2	1	1	76,6
—	—	—	—	—	124	71	2	2	2	anthr.	3	1	1	79,0
—	—	—	—	—	—	—	2	2	2	anthr.	3	1	1	74,0
—	—	—	—	—	118	—	2	2	—	—	—	2	3	78,0
—	—	37	136	—	127	70	2	2	—	anthr.	—	1	1	72,8
—	—	—	—	—	—	—	2	2	—	anthr.	—	1	2	84,4
88	84	—	138	125	126	72	2	2	2	anthr.	—	1	1	73,1
—	—	—	136	—	133	69	1	1	2	—	—	1	1	72,4
80	66	29	140	124	126	63	2	2	2	anthr.	—	2	1	71,0
—	—	—	140	—	117	64	1	1	3	—	—	2	2	81,0
85	83	27	138	121	120	63	2	2	3	fossa praeasalis	—	2	2	81,2
—	—	—	145	121	124	61	2	2	3	anthr.	—	1	3	85,4
90	77	36	139	129	114	68	2	2	2	anthr.	—	1	1	69,0
—	—	38	133	123	—	—	2	2	4	—	—	1	1	76,8
—	—	—	142	—	—	—	2	2	2	anthr.	—	1	2	76,1
—	—	35	143	125	—	—	2	2	2	anthr.	3	2	3	77,8
89	88	26	128	124	126	75	2	2	4	anthr.	—	1	1	77,5
89	71	—	132	122	122	68	2	2	2	anthr.	4	1	2	76,3
90	88	25	132	128	135	55	2	2	3	anthr.	2	1	1	74,1

TABLE XIX (6)

Inventory number of the Museum of the Moscow University	17 : 1 (I 2) Height-length index (from basion) $\left(\frac{ba-b}{g-op} \cdot 100\right)$	20 : 1 (I 4) Height-length index (from porion) $\left(\frac{po-b}{g-op} \cdot 100\right)$	17 : 8 (I 3) Height-breadth index (from basion) $\left(\frac{ba-b}{eu-eu} \cdot 100\right)$	20 : 8 (I 5) Height-breadth index (from porion)	9 : 8 (I 13) Transverse frontoparietal index $\left(\frac{ft-ft}{eu-eu} \cdot 100\right)$	— Arcus supraorbitalis length index Arcus supraor- bitalis length $\left(\frac{fnt-fnt}{\cdot 100}\right)$	48 : 17 Vertical faciocranial index $\left(\frac{n-pr}{ba-b} \cdot 100\right)$	45 : 8 (I 71) Transverse faciocranial index $\left(\frac{zy-zy}{eu-eu} \cdot 100\right)$	— Frontal convexity index $\left(\frac{Sub \cdot NB}{n-b} \cdot 100\right)$	— Occipital convexity index $\left(\frac{Sub \cdot LO}{I-o} \cdot 100\right)$
10435	—	61.7	—	78.3	65.2	—	—	—	22.3	20.2
10437	66.0	57.3	84.7	73.6	65.3	65.7	51.6	91.0	23.2	35.5
10438	—	—	—	—	—	—	—	—	22.7	28.6
11037	—	68.0	—	83.8	68.3	51.9	—	86.6	26.6	—
11040	74.7	62.9	93.4	78.7	68.4	56.1	52.8	93.4	25.7	—
11041	—	60.2?	—	74.2	64.9	—	—	88.1	—	30.9
11044	76.0	63.7?	94.4	79.2?	69.4	58.2	49.3	91.0	26.6	31.8
11046	67.9	58.5	102.8	88.1	69.0	65.3	51.9	95.2	23.6	30.8
11048	76.1	63.1	96.4	79.9	68.4	56.3	50.0	86.3	22.3	38.0
11049	71.6	61.0	92.4	83.2	71.0	59.6	52.1	89.3	27.3	29.7
11050	75.1	63.0	98.5	82.6	72.7	61.9	48.5	90.9	21.9	39.5
11051	72.9	61.6	98.5	83.2	71.0	58.0	53.5	90.8	25.9	28.7
11052	76.3	63.5	103.8	86.9	70.0	62.6	—	96.1	26.6	25.9
11053	72.1	58.5	97.8	79.3	74.1	67.6	53.0	94.1	25.0	28.1
11055	73.0	64.4	87.6	77.2	68.3	57.8	55.9	85.5	24.1	33.3
11056	73.0	57.9	98.5	78.0	72.7	61.8	50.8	93.9	22.9	29.3
11059	70.6	60.4	91.2	78.1	62.8	56.7	45.6	—	26.8	—
11060	71.4	62.3	91.9	80.1	65.4	56.8	55.2	89.7	25.7	34.5
11062	71.3	62.4	97.0	85.0	73.7	61.9	51.9	95.5	23.2	26.3
11063	77.8	64.4	100.0	82.9	71.4	66.7	45.0	90.7	23.7	26.6
11065	71.4	61.1	103.1	88.3	68.8	65.6	—	—	26.6	31.9
11068	72.2	62.2	92.2	79.4	68.1	65.4	53.1	87.9	24.8	29.3
11070	71.7	63.6	91.8	81.5	65.9	51.0	56.4	87.4	27.5	31.5
11071	74.8	63.7	94.8	80.7	68.9	61.0	50.0	89.6	26.2	29.3
11073	70.9	62.3	92.5	81.3	67.9	67.0	51.6?	94.8	28.2	30.8
11074	74.4	64.8	94.2	82.0	66.9	62.4	55.7	89.2	22.2	26.8
11078	73.4	61.6	99.2	83.2	67.2	60.6	46.1?	94.7	—	30.0
11079	—	61.6	—	79.0	66.7	64.4	—	90.6	25.2	—
11081	69.0	60.9	94.8	83.6	69.4	61.6	51.2	94.8	24.6	30.0
11082	75.1	63.6	89.0	75.3	69.9	63.6	—	96.6	25.2	—
11083	—	63.2	—	86.5	66.2	58.1	—	91.7	22.8	33.0
11084	—	60.9	—	84.1	74.6	55.7	—	88.9?	23.8	31.6
11086	73.3?	60.2	103.2	84.8	69.9	62.4	52.7	91.2?	27.4	25.5
11087	70.8?	60.1	87.5	74.3	69.1	56.0	57.1	91.2	28.8	—
6/2	76.5	66.5	94.2	81.9	65.9	60.8	50.8	90.6	27.0	26.7
6/4	73.1	62.0	85.6	72.6	63.7	53.4	52.8	89.0	22.9	25.5
6/5	70.6?	60.9	102.3	88.2	74.8	63.1	50.8	95.3	23.8	27.1
6/1	78.7	67.1	102.3	87.3	73.0	62.2	48.8	94.4	21.6	23.7
6/7	68.9	58.3	90.5	76.6	75.2	62.0	—	96.4	21.9	—
51/6	73.9	63.1	94.9	81.0	69.3	65.4	46.2	89.9	24.5	34.0
51/7	69.7	61.8	89.9	79.7	68.8	53.1	46.0	82.6	24.3	24.3
51/9	72.3	62.1	94.8	81.5	63.0	56.7	47.7	84.4	26.4	30.4
51/10	73.6	62.6	99.2	84.5	69.8	63.3	50.8	91.5	28.2	30.4

40 : 5 (I 60)	48 : 45 (I 39)	47 : 45 (I 38)	54 : 55 (I 48)	52 : 51a (I 42b)	52 : 51 (I 42)	63 : 62 (I 58)	61 : 60 (I 54)	—	—	—	71a : 70	68 : 66
Index of prognathism (gnathic index) (index of face prominence) $\left(\frac{ba-pr}{n-ba} \cdot 100\right)$	Upper facial index $\left(\frac{n-pr}{zy-zy} \cdot 100\right)$	Total facial index $\left(\frac{n-gn}{zy-zy} \cdot 100\right)$	Nasal index (nasal breadth $\frac{n-nb}{n-nb} \cdot 100$)	Orbital index (from dacryon) (orbital height $\frac{d-ek}{d-ek} \cdot 100$)	Orbital index (from maxillofrontale) (orbital height $\frac{m-ek}{m-ek} \cdot 100$)	Palatal index (from staphylion) (enm-enm $\frac{d-sta}{d-sta} \cdot 100$)	Upper alveolar arch index. External palate index (maxillo-alveolar index) $\left(\frac{ekm-ekm}{pr-alv} \cdot 100\right)$	Maxillo-frontal index (maxillo-frontal sub $\frac{mf-mf}{mf-mf} \cdot 100$)	Dacryal index (dacryal sub $\frac{d-d}{d-d} \cdot 100$)	Simotical index (simotical sub simotical chord $\cdot 100$)	Mandibular ramus index (least breadth of ramus height of ramus $\cdot 100$)	Mandibular length- bigonial index Mandibular pro- jective length $\left(\frac{go-go}{go-go} \cdot 100\right)$
—	—	—	—	—	—	—	—	—	—	—	55.0	81.7
90.5	48.1	76.3	51.1	83.9	81.9	—	—	40.0	47.2	40.9	45.6	74.2
—	—	—	—	—	—	—	—	—	—	—	56.1	74.2
—	54.5?	—	—	—	—	—	—	—	—	—	—	—
93.3	51.2	85.8	49.0	—	78.7	—	114.0	—	—	50.6	61.2	89.4
—	50.4	82.7	—	—	81.0	—	—	—	—	45.0	—	—
92.8	51.1?	84.0?	53.7	85.3	82.0	90.9	117.7	33.3	—	43.3	—	—
93.2	55.8?	—	—	—	86.5	—	—	38.1?	—	—	—	—
92.6	55.8	87.5	45.6	—	79.0	92.9	120.4	48.7	—	—	55.6	79.0
97.8	53.8	93.2	52.3	—	75.0	—	—	42.5	—	43.8	56.9	76.0
96.0	52.5	84.2	48.9	88.9	84.2	90.9	120.4	42.2	—	43.3	74.4	—
93.9	58.0	93.3	49.5	83.8	79.5	84.4	115.4	38.1	45.8	37.5	58.9	71.3
—	—	—	—	—	—	—	—	—	—	—	—	—
91.5	55.1	89.0?	50.0	—	75.3	—	—	39.1	—	63.6	58.8	79.6
96.6	57.3	90.3?	44.9	88.7	85.4	77.1	105.8	35.3	—	32.6	—	—
96.1	53.2	84.7	51.0	89.2	83.6	87.0	107.9	50.0	55.3	44.9	57.9	72.6
—	—	—	51.1	—	—	—	120.8	42.1	—	50.0	58.0	73.9
100.0	56.6	92.6	46.8	101.4	94.9	—	—	48.8	67.6	52.5	62.0	81.2
96.0	52.8	89.0	55.6	82.7	79.8	76.0	—	41.0	59.6	48.9	52.6	84.3
90.8	49.6	81.9	53.3	76.9	71.8	90.7	121.2	38.6	51.0	40.0	54.4	—
—	—	—	—	—	—	—	—	—	—	—	—	—
100.0	55.6	—	48.0	—	80.5	76.5	112.7	50.5	—	55.2	—	—
93.6	59.3	98.3	—	—	87.5	—	—	—	—	—	53.1	75.8
100.0	52.9	86.0	49.6	—	86.2	—	119.2	36.4	—	54.3	63.0	78.6
92.6	50.4?	—	48.6	—	84.3	—	—	40.0	—	26.7	60.0	82.4
99.0	58.9	93.6	44.4	83.1	80.0	79.6	111.1	45.0	51.3	44.3	49.1	75.5
97.8?	48.4?	—	46.3?	—	85.3	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	51.7	77.3
93.1?	51.2?	—	49.0	—	76.8	—	—	59.3	—	49.5	61.5	74.3
—	50.4	81.6?	48.1	—	82.1	—	—	33.8	—	36.8	—	—
—	57.4	93.4	44.2	—	88.2	—	—	45.1	—	47.6	57.1	75.0
—	59.8	96.4	46.9	—	85.5	—	115.7	—	—	—	62.2	75.8
97.9?	59.6	99.1	44.7	—	85.5	82.2	111.3	47.1	—	59.0	54.5	85.1
—	54.8	89.5	—	—	75.0	—	—	49.7	—	30.9	53.2	88.8
97.8	52.8	87.2	50.0	—	76.9	—	109.6	45.9	—	46.2	56.1	86.8
98.9	50.8	81.5	58.7	84.2	82.0	—	112.8	36.6	—	37.5	50.8	79.4
—	54.6?	86.8	46.9	83.8	81.7	—	—	52.6	67.4	46.7	50.8	76.3
94.6	52.9	—	53.3	—	82.9	—	112.0	55.5	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	48.8	—	46.8	84.2	80.4	—	—	46.0	63.5	46.6	—	—
90.5	50.0	80.7	51.2	87.8	85.5	77.3	110.2	52.6	—	56.5	65.9	57.0
94.8	53.5	91.2	48.9	—	89.5	84.1	110.2	—	—	—	55.6	76.1
89.8	55.1	92.4	51.1	89.2	86.8	83.7	116.3	44.7	—	38.8	59.2	63.7

Number of the grave and of the burial	Inventory number of the Museum of Anthro- pology of the Moscow University	Sex	FEMUR			TIBIA		FIBULA		HUMERUS		RADIUS		ULNA	
			1 Greatest length of femur	2 Physiological length	8 Circumference in the middle of the shaft	1 Total tibial length	10b Minimal circumference	1 Greatest length	4a Minimal circumference of the shaft	1 Greatest length	7 Minimal circumference	1 Greatest length	3 Minimal circumference	1 Greatest length	3 Minimal circumference
Grave 8, burial 1	10436	m	448 r	445 r	95 r	365 r	74 r	—	—	337 r	69 r	—	—	215 r	46 r
			453 l	451 l	94 l	369 l	75 l	—	—	336 l	67 l	—	—	254 l	44 l
Grave 11, burial ?	10439	m	460 r	459 r	93 r	—	—	—	—	—	—	—	—	—	—
Grave 11, burial ?	10439	m	443 r	439 r	91 r	—	—	—	—	—	—	—	—	—	—
Grave 17, burial 2	11039	m	455 r	453 r	94 r	365 r	73 r	—	—	—	—	—	—	—	—
			454 l	452 l	93 l	363 l	74 l	—	—	319 l	66 l	—	—	250 l	44 l
Grave 24, burial 3	11043	m	430 l	430 l	92 l	—	—	—	—	302 r	69 r	—	—	—	—
Grave 26, burial 1	11047	m	441 r	441 r	85 r	350 r	69 r	—	—	334 r	65 r	288 r	41 r	261 l	43 l
Grave 30, burial 1	3581	m	497 r	495 r	87 r	402 r	75 r	—	—	357 r	65 r	285 r	41 r	263 r	44 r
			504 l	503 l	91 l	402 l	73 l	—	—	355 l	63 l	285 l	40 l	263 l	43 l
Grave 34, burial 1	11054	m	448 r	445 r	89 r	—	—	—	—	318 r	68 r	268 r	40 r	—	—
			446 l	445 l	90 l	—	—	—	—	—	—	—	—	—	—
Grave 37, burial 2	11057	m	475 r	475 r	93 r	393 l	74 l	—	—	350 r	67 r	—	—	—	—
Grave 45, burial 1	11064	m	436 r	433 r	81 r	350 r	73 r	—	—	—	—	269 r	36 r	247 r	40 r
			432 l	430 l	81 l	350 l	73 l	—	—	—	—	265 l	36 l	241 l	40 l
Grave 48, burial 1	11066	m	428 r	426 r	89 r	332 r	66 r	—	—	309 r	62 r	—	—	—	—
			429 l	425 l	89 l	334 l	66 l	—	—	309 l	59 l	—	—	—	—
Grave 49, burial 1	11067	m	430 r	430 r	78 r	—	—	—	—	—	—	—	—	—	—
			427 l	427 l	78 l	—	—	—	—	—	—	—	—	—	—
Grave 51, burial 3	11072	m	440 r	439 r	92 r	343 r	73 r	—	—	—	—	—	—	—	—
Grave 59, burial 2	11080	m	450 l	—	93 l	—	—	—	—	—	—	—	—	—	—
Grave 65, burial 3	11085	m	440 r	440 r	92 r	—	—	—	—	325 r	65 r	—	—	245 r	44 r
			—	—	—	—	—	—	—	—	—	—	—	245 l	43 l
	3578	m	474 l	473 l	93 l	—	—	—	—	—	—	—	—	—	—
	3578	m	460 r	458 r	88 r	—	—	—	—	—	—	—	—	—	—
Grave 68, burial 1	6/3	m	445 l	444 l	81 l	362 l	69 l	—	—	310 l	59 l	274 ?	33 l	251 l	34 l
Grave 86, burial 3	51/3	m	447 r	444 r	87 r	372 r	84 r	—	—	314 l	63 l	—	—	—	—
Grave 89, burial 1	51/5	m?	—	—	—	364 r	76 r	—	—	318 r	63 r	269 r	33 r	245 r	41 r

NOTE: Longitudinal dimensions are in mm.

Number of the grave and of the burial	Inventory number of the museum of Anthro- pology of the Moscow University	Sex	PROPORTIONS					INDEX of ROBUSTICITY					
			(H1 + R1) : (T1 + F2) Intermembral index	T1 : F2 Tibiofemoral index	U1 : H1 Ulnohumeral index	H1 : F2 Humero femoral index	R1 : T1 Radiofibial index	8 : 2 of femur	10b : 1 of tibia	4a : 1 of fibula	7 : 1 of humerus	3 : 1 of radius	3 : 1 of ulna
Grave 8, burial 1	10436	m	72.6 r	82.0 r	74.5 r	75.7 r	68.8 r	21.3 r	20.3 r	—	20.5 r	—	18.3 r
			72.0 l	81.8 l	75.6 l	74.5 l	68.8 l	20.8 l	20.3 l		19.9 l		17.3 l
Grave 11, burial ?	10439	m	—	—	—	—	—	20.3 r	—	—	—	—	—
Grave 11, burial ?	10439	m	—	—	—	—	—	20.7 r	—	—	—	—	—
Grave 17, burial 2	11039	m		80.6 r				20.8 r	20.0 r				
			69.8 l	80.3 l	78.4 l	70.6 l	68.9 l	20.6 l	20.4 l	—	20.7 l	—	17.6 l
Grave 24, burial 3	11043	m	—	—	—	—	—	21.4 l	—	—	22.8 l	—	—
Grave 26, burial 1	11047	m	—	79.4 r	—	75.7 r	—	19.3 r	19.7 l	—	19.5 r	14.2 r	16.5 l
Grave 30, burial 1	3581	m	69.1 r	72.1 r	73.7 r	72.1 r	65.4 r	17.6 r	18.7 r	—	18.2 r	14.4 r	16.7 r
			68.3 l	70.6 l	74.1 l	70.6 l	65.4 l	18.0 l	18.2 l	—	17.7 l	14.0 l	16.3 l
Grave 34, burial 1	11054	m	—	—	—	71.5 r	—	20.0 r	—	—	21.4 r	14.9 r	—
								20.2 l					
Grave 37, burial 2	11057	m	—	—	—	73.7 r	—	19.6 r	18.8 r	—	19.1 r	—	—
Grave 45, burial 1	11064	m	—	80.9 r	—	—	70.6 r	18.7 r	20.8 r	—	—	13.4 r	16.2 r
				81.4 l			68.9 l	18.8 l	20.8 l			13.6 l	16.2 l
Grave 48, burial 1	11066	m	—	77.9 r	—	72.6 r	—	20.9 r	19.9 r	—	20.0 r	—	—
				78.6 l		72.7 l		20.9 l	19.8 l		19.1 l		
Grave 49, burial 1	11067	m	—	—	—	—	—	18.1 r	—	—	—	—	—
								18.3 l					
Grave 51, burial 3	11072	m	—	78.1 r	—	—	—	21.0 r	21.3 r	—	—	—	—
Grave 59, burial 2	11080	m	—	—	—	—	—	—	—	—	—	—	—
Grave 65, burial 3	11085	m	—	—	75.4 r	73.9 r	—	20.9 r	—	—	20.0 r	—	18.0 r
													17.5 l
	3578	m	—	—	—	—	—	19.7 l	—	—	—	—	—
	3578	m	—	—	—	—	—	19.2 r	—	—	—	—	—
Grave 68, burial 1	6/8	m	69.6 l	81.5 l	81.0 l	79.8 l	69.3 l	18.2 l	19.1 l	—	19.0 l	12.0 l	13.6 l
Grave 86, burial 3	51/3	m	—	83.2 r	—	—	—	19.6 r	22.6 r	—	20.1 l	—	—
Grave 89, burial 1	51/5	m?	—	—	77.0 r	—	67.3 r	—	20.9 r	—	19.8 r	12.3 r	16.7 r

Number of the grave and of the burial	Inventory number of the Museum of Anthro- pology of the Moscow University	Sex	FEMUR			TIBIA		FIBULA		HUMERUS		RADIUS		ULNA	
			1 Greatest length of femur	2 Physiological length	3 Circumference in the middle of the shaft	1 Total tibial length	10b Minimal circumference	1 Greatest length	4a Minimal circumference of the shaft	1 Greatest length	7 Minimal circumference	1 Greatest length	3 Minimal circumference	1 Greatest length	3 Minimal circumference
Grave 8, burial 2	10437	f	414 l	414 l	76 l	—	—	—	—	—	—	—	—	—	—
Grave 14, burial 1	11037	f	413 l	412 l	74 l	—	—	—	—	—	—	—	—	—	—
Grave 15, burial 1	3577	f	—	—	—	—	—	—	—	—	—	228 r	30 r	208 r	33 r
Grave 23, burial 1	11040	f	380 r	375 r	80 r	298 r	65 r	—	—	276 r	57 r	228 l	30 l	205 l	34 l
Grave 24, burial 1	11044	f	380 l	375 l	77 l	297 l	64 l	—	—	272 l	55 l	—	—	194 l	39 l
Grave 25, burial 2	11046	f	387 r	385 r	78 r	—	—	—	—	—	—	—	—	—	—
Grave 28, burial 1	11048	f	—	—	—	—	—	—	—	277 l	56 l	—	—	—	—
Grave 31, burial 3	11049	f	409 l	409 l	86 l	328 l	68 l	—	—	—	—	—	—	—	—
Grave 32, burial 2	11050	f	399 l	395 l	74 l	—	—	—	—	—	—	242 l	30 l	—	—
Grave 33, burial 1	11051	f	404 l	401 l	74 l	—	—	—	—	—	—	—	—	—	—
Grave 33, burial 2	11052	f	392 r	390 r	68 r	387 r	66 r	—	—	—	—	—	—	—	—
Grave 34, burial 2	11055	f	391 l	389 l	70 l	—	—	—	—	289 l	53 l	—	—	—	—
Grave 34, burial 3	3576	f	398 r	396 r	33 r	323 r	69 r	—	—	297 r	53 r	—	—	—	—
Grave 39, burial 2	11060	f	381 r	379 r	79 r	—	—	—	—	294 r	59 r	233 l	32 l	—	—
Grave 42, burial 1	11062	f	405 r	403 r	80 r	—	—	—	—	298 r	55 r	—	—	—	—
Grave 42, burial 2	11063	f	406 l	405 l	82 l	—	—	—	—	—	—	—	—	—	—
Grave 46, burial 1	11065	f	401 l	401 l	80 l	342 l	68 l	—	—	299 l	56 l	—	—	218 l	35 l
Grave 51, burial 1	11070	f	420 r	418 r	83 r	350 r	68 r	—	—	—	—	—	—	—	—
Grave 51, burial 2	11071	f	—	—	—	320 r	66 r	—	—	290 r	55 r	—	—	221 r	37 r
Grave 51, burial 4	11073	f	400 l	398 l	78 l	321 l	67 l	—	—	288 l	55 l	—	—	—	—
Grave 52, burial 2	11074	f	411 r	408 r	85 r	337 r	70 r	—	—	301 r	56 r	—	—	219 r	38 r
Grave 60, burial 2	11082	f	410 l	407 l	85 l	340 l	70 l	—	—	295 l	55 l	—	—	—	—
Grave 65, burial 1	11087	f	416 r	412 r	75 r	328 r	62 r	—	—	—	—	245 r	28 r	—	—
Grave 65, burial 2	11086	f	417 l	412 l	77 l	329 l	63 l	316 l	32 l	—	—	—	—	—	—
Grave 67, burial 1	6/2	f	—	—	—	—	—	—	—	303 r	53 l	238 r	31 r	223 r	38 r
Grave 86, burial 2	51/2	f	—	—	—	—	—	—	—	294 l	52 l	—	—	218 l	36 l
Grave 93, burial 1	51/9	f	402 r	394 r	78 r	323 r	64 r	—	—	—	—	237 r	31 r	216 r	35 r
	3578	f	398 l	390 l	81 l	322 l	63 l	—	—	283 l	54 l	233 l	30 l	215 l	33 l
	3578	f	413 r	409 l	76 r	—	—	819 r	32 r	295 r	53 r	249 r	32 r	—	—
	3578	f	413 l	408 l	75 l	325 l	65 l	—	—	292 l	53 l	246 l	31 l	—	—
	3578	f	—	—	—	—	—	—	—	339 r	63 r	—	—	—	—
	3578	f	—	—	—	—	—	—	—	335 l	63 l	—	—	—	—
	3578	f	415 r	412 r	77 r	338 r	65 r	—	—	—	—	—	—	—	—
	3578	f	—	—	—	—	—	—	—	301 r	50 r	—	—	225 r	34 r
	3578	f	400 l	399 l	73 l	—	—	—	—	299 l	50 l	—	—	—	—
	3578	f	396 r	394 r	77 r	—	—	—	—	—	—	—	—	—	—
	3578	f	393 r	391 r	74 r	—	—	—	—	—	—	—	—	—	—
	3578	f	386 r	382 r	73 r	323 r	65 r	—	—	288 r	55 r	235 r	33 r	213 r	39 r
	3578	f	423 l	418 l	78 l	340 l	70 l	—	—	—	—	—	—	—	—
	3578	f	378 l	375 l	76 l	310 l	65 l	307 l	30 l	265 l	51 l	220 l	36 l	201 l	37 l

NOTE: Longitudinal dimensions are in mm. Growth of the skeletons N 11050, 11071 was not yet terminated.

Number of the grave and of the burial	Inventory number of the Museum of Anthro- pology of the Moscow University	Sex	PROPORTIONS					INDEX of ROBUSTICITY					
			(H1 + R1) : (T1 + F2) Intermembral index	T1 : F2 Tibiofemoral index	R1 : F2 Radiofemoral index	H1 : F2 Humero femoral index	R1 : T1 Radio tibial index	8 : 2 of femur	10b : 1 of tibia	4a : 1 of fibula	7 : 1 of humerus	3 : 1 of radius	3 : 1 of ulna
Grave 8, burial 2	10437	f	—	—	—	—	—	18.4 l	—	—	—	—	—
Grave 14, burial 1	11037	f	—	—	—	—	—	18.0 l	—	—	—	—	—
Grave 15, burial 1	3577	f	—	—	—	—	—	—	—	—	—	13.2 r	15.9 r
												13.2 l	16.6 l
Grave 23, burial 1	11040	f	69.5	79.5 r	—	73.6 r	—	21.3 r	21.8 r	—	20.6 r	—	—
				78.9 l	71.3 l	72.5 l	65.3 l	20.5 l	21.6 l	—	20.2 l	—	—
Grave 24, burial 1	11044	f	—	—	—	—	—	20.3 r	—	—	—	—	—
Grave 25, burial 2	11046	f	—	—	—	—	—	—	—	—	20.2 l	—	—
Grave 28, burial 1	11046	f	—	80.2 l	—	—	—	21.3 l	20.7 l	—	—	—	—
Grave 31, burial 3	11049	f	—	—	—	—	—	18.7 l	—	—	—	12.4 l	—
Grave 32, burial 2	11050	f	—	—	—	—	—	18.5 l	—	—	—	—	—
Grave 33, burial 1	11051	f	—	86.4 r	—	—	—	17.4 r	—	—	18.3 l	—	—
								18.0 r					
Grave 33, burial 2	11052	f	—	81.6 r	—	75.0 r	—	21.0 r	21.4 r	—	17.8 r	—	—
Grave 34, burial 2	11055	f	—	—	—	77.6 r	—	20.8 r	—	—	20.1 r	13.7 l	—
Grave 34, burial 3	3576	f	—	—	—	74.0 r	—	20.0 r	—	—	18.4 r	—	—
								20.2 l					
Grave 39, burial 2	11060	f	69.6 l	85.3 l	72.9 l	74.6 l	63.7 l	20.0 l	19.9 l	—	18.7 l	—	16.0 l
Grave 42, burial 1	11062	f	—	83.7 r	—	—	—	19.8 r	19.4 r	—	—	—	—
Grave 42, burial 2	11063	f	—	—	76.2 r	—	69.1 r	—	20.6 r	—	19.0 r	—	16.7 r
				80.6 l	—	72.4 l	—	19.6 l	20.9 l	—	19.1 l	—	—
Grave 46, burial 1	11065	f	69.8 r	82.6 r	72.8 r	73.8 r	65.0 r	20.8 r	20.8 r	—	18.6 r	—	17.4 r
				83.5 l	—	72.5 l	—	20.9 l	20.6 l	—	18.6 l	—	—
Grave 51, burial 1	11070	f	—	—	—	—	—	18.2 r	18.9 r	—	—	11.4 r	—
				79.9 l	—	75.5 l	—	18.7 l	19.1 l	10.1 l	16.4 l	—	—
Grave 51, burial 2	11071	f	—	—	73.6 r	—	—	—	—	—	17.4 r	13.0 r	17.0 r
					74.1 l	—	—	—	—	—	17.7 l	—	16.5 l
Grave 51, burial 4	11073	f	—	83.0 r	—	—	66.9 r	19.8 r	19.8 r	—	—	13.1 r	16.2 r
			69.9 l	82.6 l	76.0 l	72.6 l	66.8 l	20.8 l	19.6 l	—	19.1 l	12.9 l	15.3 l
Grave 52, burial 2	11074	f	—	79.7 l	—	72.1 r	—	18.6 r	—	10.0 r	18.0 r	12.8 r	—
					—	71.6 l	—	18.4 l	20.0 l	—	18.2 r	12.6 l	—
Grave 60, burial 2	11082	f	—	—	—	—	—	—	—	—	18.6 r	—	—
											18.8 l	—	—
Grave 65, burial 1	11087	f	—	82.0 r	—	—	—	18.7 r	19.2 r	—	—	—	—
Grave 65, burial 2	11086	f	—	—	74.8 r	73.0 r	—	—	—	—	16.6 r	—	15.1 r
								18.3 l			16.7 l		
	3578	f	—	—	—	—	—	19.5 r	—	—	—	—	—
	3578	f	—	—	—	—	—	18.9 r	—	—	—	—	—
Grave 67, burial 1	6/2	f	70.6 r	84.6 r	74.0 r	75.4 r	65.9 r	20.4 r	20.1 r	—	19.1 r	14.0 r	18.3 r
Grave 86, burial 2	51/2	f	—	81.3 l	—	—	—	18.7 l	20.6 l	—	—	—	—
Grave 93, burial 1	51/9	f	68.0 l	82.7 l	75.9 l	70.6 l	64.9 l	20.2 l	20.9 l	9.8 l	19.2 l	16.4 l	18.4 l

Individual dimensions and indices of the skulls from the burial sites of Chernyakhov culture in Soviet Ukraine

Burial sites	Burial number	Inventory number of the Museum of Anthropology of the Moscow University	Sex	Age	1 Greatest length from glabella (g — op)	1b Greatest length from ophyron (on — op)	8 Greatest parietal breadth (eu — eu)
Chernyakhov village	Burial 257	34/2	m	35—40	187	186	134
Chernyakhov village	Burial 263	34/6	m	40—50	184	182	140
Chernyakhov village	Burial 269	34/9	m	40—50	192	188	138
Chernyakhov village	Burial 270	34/10	m	25—35	196	195	140
Chernyakhov village	Burial 273	34/11	m	45—50	187	187	133
Chernyakhov village	Burial 275	34/12	m	35—50	184	—	131
Chernyakhov village	Burial 256	34/1	m	30—35	187	186	137
Chernyakhov village	Burial 264	34/7	m	45—55	178	177	130
Chernyakhov village	Burial	6826	m	20—25	186	186	139
Pomashki village	Burial	6825	f	18—22	178	176	132
Pomashki village	Burial 1	11096	m	45—55	184	183	147
Tjeleshovka village	Burial	6809	m	60	181	180	134
Djerevyanoë village	Burial 1	11097	f	30—45	191	191	143
Djerevyanoë village	Burial 1	11098	m	45—55	192	192	135
Djerevyanoë village	Burial 3	11099	m	35—45	207	204	135
Djerevyanoë village	Burial 4	11688	f	50—65	177	177	137
Pereyaslav Khmel'nitskyi village	Burial 1	(Kiev)	m?	30—35	179	—	128
Lokhvitsa village	Burial 14	(Kiev)	m	30—45	174	—	144
Kantemirovka village	Burial 9	9390	f	40—50	179	—	134
Tchistilov village	Burial 3	(Tjernopol)	m	45—55	182	180	137
Tchistilov village	Burial 2	(Tjernopol)	f	40—50	175	175	139
Tchistilov village	Burial 4	76/1	f	30—40	181	181	131
Krinitchki village	Burial 5	11095	m	40—45	183	183	149
Ranzhevoë village	Burial 12	57/4	m	55—60	197	194	139
Ranzhevoë village	Burial 14	57/5	m	35—40	—	—	—
Ranzhevoë village	Burial 17	57/6	m	35—50	180	178	155
Ranzhevoë village	Burial 18	57/7	m	35—45	—	—	—
Ranzhevoë village	Burial 19	57/8	m	30—45	183	180	138
Ranzhevoë village	Burial 11	57/3	f	18—22	—	—	—
Ranzhevoë village	Burial 20	57/9	f	15—18	181	180	136
Viktorovka village	Burial 1	36/1	f	50—60	180	179	132
Viktorovka village	Burial 3	36/3	f	35—45	180	180	130
Viktorovka village	Burial 5	36/5	f	35—45	174	173	137
Koblevo village	Burial 8	74/2	m	25—30	189	185	135
Koblevo village	Burial 23	74/10	m	30—35	183	181	135
Koblevo village	Burial 30	74/13	m	30—40	184	182	127
Koblevo village	Burial 31	74/14	m	30—40	171	169	137
Koblevo village	Burial 39	74/17	m	50—55	190	186	146
Koblevo village	Burial 2	74/1	f	20—25	175	172	130?
Koblevo village	Burial 12	74/3	f	18—22	167?	—	133
Koblevo village	Burial 14	74/5	f	45—50	179?	—	136?
Koblevo village	Burial 16	74/6	f	16—18	176	177	134
Koblevo village	Burial 17	74/7	f	18—22	169	168	134
Koblevo village	Burial 27	74/12	f	30—40	175?	175?	131?
Koblevo village	Burial 38	74/16	f	30—40	177	178	129

TABLE XXIV

17	5	20	9	10	11	12	7	16	29	31	—
Height of the skull from basion (basio-bregmatic height) (ba — b)	Length of cranial base (ba — n)	Height of the skull from porion (Porio-bregmatic height) (po — b)	Minimal frontal breadth (ft — ft)	Maximal frontal breadth (co — co)	Bi-auricular breadth (au — au)	Occipital breadth (ast — ast)	Length of foramen magnum (ba — o)	Breadth of foramen magnum	Frontal chord (n — b)	Occipital chord (l — o)	Frontal convexity height (Subtense from frontal chord)
133	98	115	95	122	122	102	35	30	109	92	30
134	98	119	96	118	122	115	32	27	117	95	27
136?	112	112	100	122	125	107	40	31	119	91	42
143?	—	115	103	122	127	110	—	—	118	102	30
140	103	114	99	119	122	113	34	32	106	99	30
139	—	116	93	115	116	—	—	—	114	—	27
123	93	106	93	119	122	116	38	29	110	105	28
125	100	107	90	117	116	109	33	28	107	87	25
135	102	112	93	117	123	98	37	30	112	89	31
127	97	107	96	117	121	105	32	27	—	—	—
133	101	123	102	126	124	114	38	27	110	92	28
129	97	110	95	115	121	108	36	28	110	93	28
136	97	120	98	122	122	115	—	—	114	103	30
144	108	124	100	119	123	—	39	32	110	92?	27
147	114	125	97	117	119	109	37	29	120	106	27
—	—	119	95	118	123	110	—	—	109	—	27
134	102	118	96	115	115	107	—	—	—	—	—
146	105	118	93	118	—	108	—	—	—	—	—
—	—	110	92	—	—	—	—	—	—	—	—
130	101	112	94	115	119	110	31	29	109	98	26
135	100	114	100	120	127	110	36	30	110	95	26
128	99	107	93	110	125	105	38	30	98	97	22
136	100	120	—	135	124	113	37	27	117	96	27
—	—	111	94	120	—	108	—	—	112	95	30
—	—	—	—	—	—	—	—	—	121	98	26
143	—	119	104	131	138	119	36	31	115	—	—
—	—	—	—	—	—	—	—	—	112	96	27
132	94	117	88	113	125	106	39	29	114	97	28
—	—	—	—	—	—	—	—	—	—	—	—
128	97	111	92	119	108	106	33	24	109	92	25
—	—	114	100	115	117	106	—	—	113	89	29
128	95	106	97	119	118	107	35	31	100	98	27
127?	—	110	96	118	119	—	—	—	104?	—	23
137	102	112	94	116	124	109	37	—	120	101	25
—	—	—	98	—	—	—	—	—	114	—	31
136	111	107	87	109	112	105	36	32	106	93	23
129	97	108	94	118	126	109	35	30	103	—	26
138	93	121	95	124	130	111	37	29	119	94	30
—	—	—	88	—	—	—	—	—	106	—	22
130	97	102	90	117	122	105	35	32	103	—	23
—	—	—	97	123	—	—	—	—	112	—	27
138?	—	116	91	116	115	105	—	—	108	—	27
—	—	—	88	—	—	—	—	—	—	—	27
135?	101?	111	87	113	113	101	—	—	—	—	—
124	92	108	101	124	122	106	—	—	108	89	23
—	—	—	—	—	—	—	—	—	108	—	29

TABLE XXIV (2)

Inventory number of the Museum of Anthropology of the Moscow University	— Occipital convexity height (Subtense from occipital chord)	— Arcus supraorbitalis length	38 Cranial capacity (after Lee-Pearson)	45 Bizygomatic breadth (zy — zy)	40 Facial length (ba — pr)	48 Upper facial height (n — pr)	47 Total facial height (n — gn)	43 Upper facial breadth (fnt — fnt)	43 ₁ Internal bi-orbital breadth (fmo — fmo)	46 Middle facial breadth (zm — zm)	60 External length of upper alveolar arch (pr — alv)	61 External breadth of upper alveolar arch (ekm — ekm)	62 Palatal length (from staphylion) (ol — sta)
34/2	31	58	1411	—	—	—	—	99	—	—	—	—	—
34/6	30	67	1478	128?	95	73	124	103	95	97	54	59	44
34/9	24	68	1510	131	105	74	118	106	98	99	56	—	—
34/10	30	75	1511	135?	—	75	—	112	104	96?	57	65	—
34/11	31	63	1414	127	97	65	103	106	101	99	52	65	42
34/12	—	66	1356	125	—	69?	122	100	92	95	—	—	—
34/1	37	56	1315	126	90	68	107	103	96	103	54	59	—
34/7	27	55	1312	122?	97	69	113	97	91	91	53	61	45
6826	28	66	1416	134	102	71	—	100	93	88	56	62	48
6825	—	—	1239	—	—	—	—	—	—	—	—	—	—
11096	30	72	1574	130	100	67	117	106	100	97	—	—	—
6809	28	66	1333	130	91	64	—	103	98	94	—	—	—
11097	39	65	1525	127	—	70	116	103	95	—	—	—	—
11098	27	59	1532	132	102	69	107	107	100	99	54	64	—
11099	32	65	1634	131?	107	73	116	108	103	97	55	63	—
11688	—	57	1378	—	—	—	—	100	92	—	—	—	—
(Kiev)	—	—	1296	123	96	—	—	108	101	98	52	61	—
(Kiev)	—	—	1438	133	101	73	—	106	99	100	54	65	47
9399	29	62	1286	127	—	62?	—	—	—	—	—	—	—
(Tjernopol)	32	65	1379	129	101	64	109	102	93	94	—	—	—
(Tjernopol)	26	61	1336	134	—	65?	—	107	100	98	—	—	—
76/1	27	63	1239	130	97	73	119	100	92	92	52	60	44
11095	27	66	1553	133	98	68	113	114	103	93	55	67	—
57/4	32	62	1469	131?	—	70?	111?	102	—	—	57	63	—
57/5	—	—	—	—	—	69	110	103	96	—	52	61	43
57/6	30	73	1571	—	—	—	—	—	—	—	—	—	—
57/7	—	—	—	—	—	—	—	102	—	—	—	—	—
57/8	28	62	1438	128?	92	65	110	101	96	—	—	—	—
57/3	—	—	—	—	—	—	—	93	88	—	—	—	—
57/9	30	48	1321	115	95	64	105	95	88	85	52	58	—
36/1	29	59	1312	127	—	65	96	106	98	93	—	—	—
36/3	28	57	1226	118	93	61	101	105	97	88	—	—	—
36/5	—	59	1280	—	—	—	101	105	98	94	—	—	—
74/2	28	62	1370	137	96	74	—	107	101	—	54	67	—
74/10	—	59	—	—	—	—	—	—	99	—	—	—	—
74/13	28	58	1272	123	103	81	126	98	91	87	53	58	46?
74/14	—	57	1283	131?	—	70?	—	104	96	—	—	59	—
74/17	28	62	1584	136	87	73	118	102	96	94	53	61	46
74/1	—	58	—	—	—	—	—	—	—	—	—	—	—
74/3	—	56	1159	118?	91	63	103	98	90	—	51	62	—
74/5	—	55	—	124?	—	65	99	100	92	92	50	55	—
74/6	—	53	1322	114?	—	—	—	93	86	—	—	—	—
74/7	—	—	—	—	—	—	—	—	—	—	—	—	—
74/12	26	57	1251	117	94?	68?	113?	96	90	—	55	58	—
74/16	—	58	1293	128	89	73	114	108	99	96	—	—	—

63	55	54	51	51a	52	—	50	—	49a	—	57	56	—	66
Palatal breadth (enm — enm)	Nasal height (n — ns)	Nasal breadth	Orbital breadth (from (maxillofrontale) (mf — ek)	Orbital breadth (from (dakryon) (d — ek)	Orbital height	Depth of fossa canina (after Abinder)	Maxillofrontal chord (mf — mf)	Maxillofrontal subtense	Dacryal chord (d — d)	Dacryal subtense	Simotical chord (minimal breadth of nasal bones)	Simotical subtense	Bicondylar breadth (kdl — kdl)	Bigonial (angular) breadth (go — go)
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40	51.0	22.5	42.0	40.5	31.0	6.7	21.0	10.0	23.0	13.0	10.0	6.0	110	95
—	54.0	25.5	42.0	—	34.0	6.0	23.0	9.0	—	—	8.8	4.6	—	—
41	54.0	24.0	45.0	—	34.0	8.5	21.5	11.5	—	—	9.0	6.0	—	—
—	48.5	24.0	39.0	36.8	32.0	8.5	24.0	8.4	26.2	13.0	8.8	4.2	112	98
—	53.5	25.0	40.0	38.8	35.0	5.0	—	—	—	—	—	—	—	104
—	50.8	25.5	41.0	39.5	34.2	7.0	18.0	8.4	20.0	10.2	9.1	3.7	115	96
38	50.0	25?	40.5	38.5	33.8	6.5	21.6	8.1	24.0	11.7	11.0	4.1	113?	94
41	51.0	25.5	41.0	40.0	30.0	6.0	20.5	9.9	21.5	14.0	10.2	4.5	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	49.0	26.5	42.0	40.7	32.0	6.7	19.2	10.2	—	—	6.8	3.9	122	102
—	47.0	24.5	41.5	39.5	33.5	7.3	21.0	7.5	24.0	10.8	10.4	3.5	—	—
—	47.0	23.0	39.0	—	33.0	7.0	—	—	—	—	—	—	118	98
—	53.0	27.0	43.0	—	33.0	8.0	24.0	9.0	—	—	12.0	4.5	120	105
—	52.0	27.0	44.5	—	33.5	7.8	21.6	9.6	—	—	9.0	4.4	119	107
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
39	50.0	27.0	41.0	39.0	31.0	4.7	22.0	9.6	23.0	14.5	11.7	6.8	—	—
39	52.0	26.0	40.0	39.0	28.0	5.0	20.0	9.0	21.0	13.6	8.5	4.6	—	—
—	46?	24?	—	—	—	4.0	—	—	—	—	—	—	—	—
—	46.0	24.0	39.0	37.0	29.5	6.5	19.8	7.8	20.0	11.8	6.2	2.2	123	—
—	48.0	26.0	42.0	—	33.6	3.7	21.5	10.7	—	—	9.5	3.7	134!	105
42	52.0	23.5	39.0	38.0	35.0	6.7	21.3	10.0	22.2	12.0	9.6	4.2	123	101
46	48.0	26.0	42.0	—	31.0	5.0	—	—	—	—	—	—	118	97
—	—	25.0?	—	—	—	5.0	25.0	—	—	—	12.0	8.0	131	114
40	50.0	—	40.0	—	31.5	6.0	21.5	7.8	—	—	10.0	4.0	124	107
—	—	25.0	—	—	—	—	—	—	—	—	—	—	126	105
—	—	25.0	—	—	—	5.0	—	—	—	—	—	—	129	104
—	46.5	25.0	42.0	—	30.8?	9.0	—	—	—	—	—	—	123	113
—	—	—	39.0	—	33.0	—	—	—	—	—	—	—	112	99
35	46.0	22.0	37.5	—	31.0	5.0	19.5	10.0	20.8	13.0	11.5	4.8	108	83
—	52.5	22.5	42.0	40.3	33.5	5.0	20.8	9.7	—	—	10.0	4.1	—	—
—	42.0	26.6	38.9	37.8	30.8	4.0	22.3	6.8	26.5	9.8	13.0	3.5	115	89
—	—	—	41.0	—	29.5	4.0	—	—	—	—	—	—	—	103
45	52.0	26.0	43.0	—	32.5?	5.0	20.0	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
39	57.0	24.0	38.0	37.2	37.0	7.0	20.5?	10.8?	—	—	9.2	7.2	118	98
—	49.0	24.5	39.0	—	32.0	4.0	—	—	—	—	—	—	—	—
38	52.0	27.0	41.0	—	31.0	6.2	20.0?	10.3	—	—	8.1	4.2	—	98
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	48.0	26.8	38.0	—	30.8	—	—	—	—	—	—	—	—	—
—	50.0	25.0	38.3	37.3	31.5	7.0	21.5	8.7	—	—	9.5	3.5	102	100
—	—	—	35.0	—	30.0	—	19.9?	10.0?	—	—	—	—	—	96
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	49.0	22.0	39.5	—	32.0	3.5	—	—	—	—	—	—	105	—
—	53.0	25.0	39.0	37.0	35.0	8.8	25.0	9.8	—	—	10.5	4.3	125	101

TABLE XXIV (4)

Inventory number of the Museum of Anthropology of the Moscow University	67 Distance between foramina mentalia	68 Mandibular projective length from gonion	68 ₁ Mandibular projective length from condyles	69 Chin height (id — gn)	70 Height of mandibular ramus	71a Minimal breadth of mandibular ramus	32 Frontal angle from nasion (m — n — OAE)	— Frontal angle from glabella (m — g — OAE)	33 ₁ Angle of the upper part of occiput (i — i — OAE) (Upper occipital angle)	33 ₂ Angle of the lower part of occiput (o — i — OAE) (Lower occipital angle)	33 Angle of the inclination of the occipital bone (i — i — OAE)	34 Angle of the inclination of foramen magnum (o — b — OAE)	72 Total facial angle (n — pr — OAE)
34/2	—	—	—	—	—	—	—	—	—	—	—	—	—
34/6	49	75	108	37	—	—	86	80	98	15	126	—9	88
34/9	—	—	—	30	—	32	81	72	92	31	119	—8	85
34/10	—	—	—	—	—	—	83	72	93	28	118	—	88
34/11	47	75	100	32	59	30	92	89	89	29	121	—9	83
34/12	—	—	—	33	—	30	—	—	—	—	—	—	—
34/1	46	72	91	30	65	29	82	75	95	20	123	—17	84
34/7	44	72	97	35	51	28	82?	78?	98?	20?	125?	—8	85?
6826	—	—	—	—	—	—	91	86	87	26	123	—3	86
6825	—	—	—	—	—	—	—	—	—	—	—	—	—
11096	47	77	115	33	70	29	90	82	90	20	114	—8	86
6809	—	—	—	—	—	—	85	78	95	25	120	—8	86
11097	44	72	105	35	56	32	—	—	—	—	—	—	—
11098	48	74	99	28	55	27	90	84	94	25?	120?	—	86
11099	49	82	111	34	70	37	81	74	96	24	123	—12	87
11688	—	—	—	—	—	—	—	—	—	—	—	—	—
(Kiev)	—	—	—	—	—	—	86	84	—	—	—	—	88
(Kiev)	—	—	—	—	—	—	82	71	—	—	—	—	84
9399	—	—	—	—	—	—	—	—	—	—	—	—	—
(Tjernopol)	46	82	107	36	61	36	87	80	88	25	121	—7	82
(Tjernopol)	55	70	90	—	55	33	88	84	96	28	118	—8	86
76/1	47	80	114	33	65	33	81	78	101	25	123	—13	82
11095	46	75	105	35	68	31	94	88	119	14	119	—14	85
57/4	47	79	105	29	67	36	—	—	—	—	—	—	—
57/5	46	73	99	30	63	32	—	—	—	—	—	—	—
57/6	46	87	115	37	70	37	—	—	—	—	—	—	—
57/7	46	74	110	35	64	32	—	—	—	—	—	—	—
57/8	44	74	110	29	56	32	81	72	94	27	123	—10	84?
57/3	49	75	101	—	49	30	—	—	—	—	—	—	—
57/9	43	68	97	30	51	31	84	80	94	22	126	—10	83
36/1	41	—	—	26	—	30	87	85	94	24	122	—	—
36/3	44	69	94	31	63	29	90	85	104	23	124	—12	75
36/5	44	—	—	28	—	33	—	—	—	—	—	—	—
74/2	—	—	—	—	—	—	76?	70?	96	28	123	—8	85?
74/10	50	—	—	34	—	32	—	—	—	—	—	—	—
74/13	47	78	111	33	66	31	75	70	93	27	123	—4	81
74/14	—	—	—	—	—	—	85	78	—	—	—	—	—
74/17	42	82	100	35	68	34	87	78	98	21	123	—10	89
74/1	—	—	—	—	—	—	—	—	—	—	—	—	—
74/3	46	73	—	—	—	30	87	77	—	—	—	—	83
74/5	43	75	93	27	56	33	94?	88?	—	—	—	—	87?
74/6	—	—	—	—	—	—	—	—	—	—	—	—	—
74/7	—	—	—	—	—	—	—	—	—	—	—	—	—
74/12	45	75	106	32	57	29	83	75	100	19	123	—8	85
74/16	48	72	98	29	59	32	87	80	87	—	—	—	85

73	74	75	77	—	79	—	—	—	—	—	—	—	—	8:1 (I 1)
Midfacial angle (n — ns — OAE)	Alveolar angle (n — pr — OAE)	Angle of the nasal profile with the facial profile (n — rhi — Line of profile)	Naso-malar angle (fmo — n fmo)	Zygomaxillar angle (after Abinder) (zm — ss — zm)	Mandibular angle (Angle of the inclination of mandibular ramus)	Chin angle (id — pog — standard basal plane)	Glabella (prominence after Martin: 1—6)	Arcus supraorbitalis after glabella prominence scale Martin: 1—6)	Depth of fossa canina (0—4)	Lower edge of apertura piriformis	Spina nasalis anterior (after Broca: 1—5)	Protuberantia occipitalis externa (after Broca: 0—5)	Processus mastoideus (1—3)	Cranial index $\left(\frac{eu \cdot eu}{g \cdot op} \cdot 100 \right)$
—	—	—	—	—	—	—	—	—	—	—	—	1	2	71,7
86	88	41	134	115	126	70	3	4	3	anthr.	5	3	3	76,1
85	82	25	135	126	—	—	3	4	3	anthr.	3	2	2	71,9
90	81	19	130	127	—	—	3	3	4	anthr.	—	2	2	71,4
83	83	26	140	128	120	65	2	3	4	anthr.	4	1	2	71,1
—	—	—	131	124	—	—	2	3	2	anthr.	—	3	3	71,2
87	76	26	145	125	109	72	1	2	3	anthr.	3	1	2	73,3
86?	—	31?	132	122	122	78	2	2	3	anthr.	—	1	1	73,0
86	86	28	137	117	—	—	2	3	3	anthr.	—	3	2	74,7
—	—	—	—	—	—	—	2	2	—	—	—	1	1	74,2
88	80	—	134	129	129	59	3	4	3	fossa	3	3	3	79,9
—	—	—	—	—	—	—	—	—	—	prae-nasalis	—	—	—	—
89	80	24	142	140	—	—	2	2	4	anthr.	4	1	3	72,4
—	—	—	144	—	131	—	1	2	3	anthr.	—	2	2	74,9
87	81	—	136	122	120	69	3	3	4	anthr.	—	1	2	70,3
87	86	33	132	123	118	64	4	4	4	anthr.	—	2	3	65,2
—	—	—	143	—	—	—	1	2	—	—	—	1	2	77,4
89	83	—	138	130	—	—	2	2	2	anthr.	—	4	3	71,5
—	—	—	—	—	—	—	—	—	—	fossa	—	—	—	—
85	88	32	144	127	—	—	4	4	3	prae-nasalis	3	3	3	82,8
—	—	—	—	—	—	—	2	2	2	anthr.	—	1	1	74,9
83	73	—	138	127	118	76	2	3	3	anthr.	3	4	2	75,3
86	86	23	136	132	125	—	1	1	2	anthr.	4	1	1	79,4
82	81	29	137	116	125	62	1	2	3	anthr.	—	1	2	72,4
86	85	—	139	127	119	71	2	2	3	anthr.	—	3	3	81,4
—	—	—	—	—	117	62	2	3	3	anthr.	3	3	3	70,6
—	—	—	136	—	121	—	2	2	2	anthr.	3	3	3	—
—	—	—	—	—	117	59	3	4	—	—	—	3	3	86,1
—	—	—	—	—	129	61	3	3	2	—	—	3	3	—
—	—	—	137	126	136!	55	5	5	4	anthr.	4	2	2	75,4
—	—	—	135	—	129	64	1	2	—	anthr.	—	1	1	—
84	78	23	137	123	128	71	1	1	2	anthr.	—	1	1	75,1
—	—	—	131	121	—	69	1	2	2	anthr.	—	1	2	73,3
80	70	22	142	129	117	73	2	2	2	anthr.	—	1	1	72,2
—	—	—	137?	131	—	76	2	2	2	anthr.	—	1	2	78,7
85?	85?	—	136	—	—	—	4	5	2	anthr.	—	3	3	71,4
—	—	—	133?	—	—	—	4	4	—	anthr.	—	3	2	73,8
80	81	33	126	120	122	72	2	3	4	anthr.	—	2	2	69,0
—	—	—	140?	126?	—	—	2	3	2	anthr.	—	2	3	80,1
88	89	42	142	131	118	71	5	5	3	anthr.	3	3	3	76,8
—	—	—	—	—	—	—	3	3	—	—	—	2	—	74,3?
83	82	25	137	124	125	—	2	2	2	anthr.	3	1	1	79,6?
—	—	28?	130	125	121	—	1	1	3	anthr.	—	1	2	76,0?
—	—	—	135	—	—	—	1	1	2	—	—	1	1	76,2?
—	—	—	—	—	—	—	1	2	—	—	—	—	2	79,3
—	—	—	138	121	126	55	2	2	2	—	—	1	2	74,9?
85	86	28	137	130	122	—	1	1	4	anthr.	—	1	2	78,5

TABLE XXIV (6)

Inventory number of the Museum of Anthropology of the Moscow University	17 : 1 (I 2) Height-length index (from basion) $\left(\frac{ba-b}{g-op} \cdot 100\right)$	20 : 1 (I 4) Height-length index (from porion) $\left(\frac{po-b}{g-op} \cdot 100\right)$	17 : 8 (I 3) Height-breadth index (from basion) $\left(\frac{ba-e}{u-eu} \cdot 100\right)$	20 : 8 (I 5) Height-breadth index (from porion)	9 : 8 (I 13) Transverse frontoparietal index $\left(\frac{ft-ft}{eu-eu} \cdot 100\right)$	— Arcus supraorbitalis length index (Arcus supraor- bitalis length $\frac{fnt-fnt}{fnt-fnt} \cdot 100$)	48 : 17 Vertical faciocranial index $\left(\frac{n-pr}{ba-b} \cdot 100\right)$	45 : 8 (I 71) Transverse faciocranial index $\left(\frac{zy-zy}{eu-eu} \cdot 100\right)$	— Frontal convexity index $\left(\frac{Sub.NB}{n-b} \cdot 100\right)$	— Occipital convexity index $\left(\frac{Sub.LO}{l-o} \cdot 100\right)$
34/2	71.1	61.5	99.2	85.8	70.9	58.6	—	—	27.5	33.7
34/6	72.8	64.7	95.7	85.0	54.3	65.0	54.5	91.4	23.1	31.6
34/9	70.8	58.3	98.6	81.2	72.5	64.1	54.4	94.9	20.2	26.4
34/10	73.0	58.7	102.1	82.1	73.6	66.9	52.4	96.4	25.4	29.4
34/11	74.9	61.0	105.3	85.7	74.4	59.4	46.4	95.5	28.3	31.3
34/12	75.5	63.0	106.1	88.6	71.0	66.0	51.1	95.4	23.7	—
34/1	65.8	56.7	89.8	77.4	67.9	54.4	55.3	92.0	25.4	35.2
34/7	70.2	60.1	96.2	82.3	69.2	56.7	55.2	93.8	23.4	31.0
6826	72.6	60.2	97.1	80.6	66.9	66.0	52.6	96.4	27.7	31.5
6825	71.4	60.1	96.2	81.1	72.7	—	—	—	—	—
11096	72.3	66.8	90.5	83.7	69.4	67.9	50.4	88.4	25.4	32.6
6809	71.3	60.8	96.3	82.1	70.9	64.1	47.8	97.0	25.4	30.1
11097	71.2	62.8	95.1	83.9	68.9	63.1	51.5	88.8	26.3	37.9
11098	75.0	64.6	106.7	91.8	74.1	55.1	47.9	97.8	24.6	29.4?
11099	71.0	60.4	108.9	92.6	71.8	60.2	49.0	97.0?	22.5	30.2
11688	—	67.2	—	86.9	69.3	57.0	—	—	24.8	—
(Kiev)	74.9	65.9	104.7	92.2	75.0	—	—	96.1	—	—
(Kiev)	80.5	67.8	97.2	81.9	64.6	—	52.1	92.4	—	—
9399	—	61.4	—	82.1	68.7	—	—	94.8	23.8	29.3
(Tjernopol)	71.4	61.5	94.9	81.8	68.6	63.7	49.2	94.2	23.6	33.7
(Tjernopol)	77.1	65.1	97.1	82.0	71.9	57.0	48.1?	96.4	22.4	26.8
76/1	70.7	59.1	97.7	81.7	71.0	63.0	57.0	99.2	23.1	28.1
11095	74.3	65.6	91.3	80.5	—	57.9	50.0	89.3	26.8	28.4
57/4	—	56.4	—	79.9	67.6	60.8	—	94.2?	21.5	32.6
57/5	—	—	—	—	—	—	—	—	—	—
57/6	79.4	66.1	92.3	76.8	67.1	—	—	—	—	—
57/7	—	—	—	—	—	—	—	—	24.1	31.2
57/8	72.1	63.9	95.6	84.8	63.8	61.4	49.2	92.8?	24.6	28.9
57/3	—	—	—	—	—	—	—	—	—	—
57/9	70.7	61.3	94.1	81.6	67.6	50.5	50.0	84.6	22.9	32.6
36/1	—	63.3	—	86.4	75.8	55.7	—	96.2	26.7	32.6
36/3	71.1	58.9	98.5	81.5	74.6	54.3	47.7	90.8	27.0	28.6
36/5	73.0	63.2	92.7	80.3	70.1	56.2	—	—	22.1?	—
74/2	72.2	59.3	101.5	83.0	69.6	57.9	54.0	101.5	20.8	27.7
74/10	—	—	—	—	72.6	—	—	—	27.2	—
74/13	73.9	58.1	107.1	84.2	68.5	58.2	59.6	96.8	21.7	30.1
74/14	75.4	63.2	94.2	78.8	68.6	54.8	54.3?	95.6?	25.2	—
74/17	72.6	63.7	94.5	82.9	65.1	60.8	52.9	93.1	25.2	29.8
74/1	—	—	—	—	67.7?	—	—	—	20.8	—
74/3	77.8?	61.1	97.7	76.7	67.7	57.1	48.5	88.7?	22.3	—
74/5	—	—	—	—	71.3?	55.0	—	91.2?	24.1	—
74/6	78.4?	65.9	103.0	86.6	67.9	57.0	—	85.1?	25.0	—
74/7	—	—	—	—	65.7	—	—	—	—	—
74/12	77.1?	63.4	103.0?	84.7?	66.4?	59.4	50.4	89.3?	21.3	29.2
74/16	70.1	61.0	89.2	77.7	72.7	53.7	58.9	92.1	26.8	—

TABLE XXIV (7)

40 : 5 (I 60)	48 : 45 (I 39)	47 : 45 (I 38)	54 : 55 (I 48)	52 : 51a (I 42b)	52 : 51 (I 42)	63 : 62 (I 58)	61 : 60 (I 54)	—	—	—	71a : 70	68 : 66
Index of prognathism (gnathic index) (index of face prominence) $\left(\frac{ba-pr}{n-ba} \cdot 100\right)$	Upper facial index $\left(\frac{n-pr}{zy-zy} \cdot 100\right)$	Total facial index $\left(\frac{n-gn}{zy-zy} \cdot 100\right)$	Nasal index (nasal breadth $\frac{n-nb}{n-nb} \cdot 100$)	Orbital index (from dacryon) orbital height $\frac{d-ek}{d-ek} \cdot 100$	Orbital index (from maxillofrontale) orbital height $\frac{m-ek}{m-ek} \cdot 100$	Palatal index (from staphylion) $\left(\frac{enm-enm}{d-sta} \cdot 100\right)$	Upper alveolar arch index. External palate index (maxillo-alveolar index) $\left(\frac{ekm-ekm}{pr-alv} \cdot 100\right)$	Maxillo-frontal index $\left(\frac{maxillo-frontal}{sub} \cdot 100\right)$ mf — mf	Dacryal index (dacryal sub $\frac{d-d}{d-d} \cdot 100$)	Simotical index (simotical sub simotical chord $\cdot 100$)	Mandibular ramus index (minimal breadth of ramus height of ramus $\cdot 100$)	Mandibular length- bigonial index (Mandibular pro- jective length $\cdot 100$) go — go
—	—	—	—	—	—	—	—	—	—	—	—	—
96.9	57.0	96.9	44.1	76.6	73.8	90.9	109.3	47.6	56.6	60.0	—	79.0
93.8	56.5	90.1	47.2	—	80.9	—	—	39.1	—	52.3	—	—
—	55.6	—	44.4	—	75.6	—	—	114.0	—	66.7	—	—
94.2	51.2	81.1	49.4	87.0	82.0	—	—	125.0	49.6	47.7	50.8	76.5
—	55.2	97.6	46.7	90.2	87.5	—	—	—	—	—	—	—
96.8	54.0	84.9	50.2	86.6	83.4	—	109.3	46.7	51.0	40.7	44.6	75.0
97.0	56.8	92.6	50.0	87.8	83.5	86.7	115.1	37.5	48.8	37.3	54.9	76.0
100.0	53.0	—	50.0	75.0	73.2	85.4	90.3	48.3	65.1	44.1	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
99.0	51.5	90.0	54.1	78.6	76.2	—	—	53.1	—	57.4	41.4	75.5
93.8	49.2	—	52.1	84.8	80.7	—	—	35.7	45.0	29.3	—	—
—	55.1	91.3	48.9	—	84.6	—	—	—	—	—	57.1	73.5
94.9	52.3	81.1	50.9	—	76.7	—	118.6	37.5	—	37.5	49.1	70.5
93.9	55.0?	88.6?	51.9	—	75.3	—	114.5	44.4	—	48.9	52.9	76.6
—	—	—	—	—	—	—	—	—	—	—	—	—
94.1	—	—	54.0	79.5	75.6	—	—	117.3	43.6	58.1	—	—
96.2	54.9	—	50.0	71.8	70.0	83.0	120.4	45.0	63.0	54.1	—	—
—	48.8?	—	52.2	—	—	—	—	—	64.8	—	—	—
100.0	49.6	84.5	52.2	79.7	75.6	—	—	39.4	59.0	35.5	59.0	—
—	48.5?	—	54.2	—	80.0	—	—	49.8	—	39.0	60.0	66.7
98.0	56.2	91.5	45.2	92.1	89.7	95.4	115.4	47.0	54.1	43.8	50.8	79.2
98.0	51.1	85.0	54.2	—	73.8	—	121.8	—	—	—	45.6	77.3
—	53.4?	84.7?	—	—	—	—	110.5	—	—	66.7	53.6	69.3
—	—	—	50.0	—	78.8	93.0	117.3	36.3	—	40.0	50.8	68.2
—	—	—	—	—	—	—	—	—	—	—	52.9	82.9
97.9	50.8?	85.9?	53.8	—	73.3?	—	—	—	—	—	50.0	71.1
—	—	—	—	—	84.6	—	—	—	—	—	57.1	65.5
97.9	55.6	91.3	47.8	—	82.6	—	—	—	—	—	61.2	75.8
—	51.2	75.6	42.8	83.1	79.8	—	111.5	51.2	62.5	41.7	60.8	81.9
97.9	51.7	85.6	63.3!	81.5	81.5	—	—	46.6	—	41.0	—	—
—	—	—	—	—	72.0	—	—	30.5	36.9	26.9	46.0	77.5
94.1	54.0	—	50.0	—	75.6?	—	—	—	—	—	—	—
—	—	—	—	—	—	—	124.1	—	—	—	—	—
92.8	65.8	101.6!	42.1	99.4	97.4!	84.8	109.4	52.7?	—	78.3	47.0	79.6
—	53.4?	—	50.0	—	82.0	—	—	—	—	—	—	—
93.6	53.7	86.8	51.9	—	75.6	82.6	115.1	51.5?	—	51.8	50.0	83.7
—	—	—	—	—	—	—	—	—	—	—	—	—
93.8	53.4?	87.3	55.8	—	81.0	—	121.6	—	—	—	—	73.0
—	52.4?	79.8?	50.0	—	82.2	—	110.0	40.5	—	36.8	58.9	78.1
—	—	—	—	—	85.7	—	—	50.2?	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
93.1?	58.1?	96.6?	44.9	—	81.0	—	105.4	—	—	—	50.9	—
96.7	57.0	89.1	47.2	94.6	89.7	—	—	39.2	—	41.0	54.2	71.3

Individual dimensions of the male long bones from the burial sites of the Chernyakhov culture, Soviet Ukraine

Nr	Number of the grave and of the burial	Inventory number of the museum of Anthro- pology of the Moscow University	Sex
1	Chernyakhov village, Kagarlyk district, Kiev region, burial 257	34/1	m
2	Chernyakhov village, Kagarlyk district, Kiev region, burial 257	34/6	m
3	Chernyakhov village, Kagarlyk district, Kiev region, burial 257	34/9	m
4	Chernyakhov village, Kagarlyk district, Kiev region, burial 257	34/10	m
5	Chernyakhov village, Kagarlyk district, Kiev region, burial 257	34/11	m
6	Chernyakhov village, Kagarlyk district, Kiev region, burial 257	34/12	m
7	Romashki village, Racitnjanskyi district, Kiev region, burial 1	11096	m
8	Djerevyanoë village, Obuchov district, Kiev region, burial 1	11098	m
9	Djerevyanoë village, Obuchov district, Kiev region, burial 1	11099	m
10	Voloshskoye village, Dnepropetrovskyi d., Dnepropetrovsk r. burial 1	10368	m
11	Krinitchki village, Baltskyi district, Odessa region, burial 5	11095	m
12	Ranzhevoe village, Komintjerna district, Odessa region, burial 4	57/2	m?
13	Ranzhevoe village, Komintjerna district, Odessa region, burial 4	57/4	m
14	Ranzhevoe village, Komintjerna district, Odessa region, burial 4	57/5	m
15	Ranzhevoe village, Komintjerna district, Odessa region, burial 4	57/6	m
16	Ranzhevoe village, Komintjerna district, Odessa region, burial 4	57/7	m
17	Ranzhevoe village, Komintjerna district, Odessa region, burial 4	57/8	m
18	Viktorovka village, Tiligulo-Berezyanskyi district, Nicolaev r. burial 3	36/2	m
19	Koblevo village, Tiligulo-Berezyanskyi district, Nicolaev reg. burial 8	74/2	m
20	Koblevo village, Tiligulo-Berezyanskyi district, Nicolaev reg. burial 8	74/10	m
21	Koblevo village, Tiligulo-Berezyanskyi district, Nicolaev reg. burial 8	74/13	m
22	Koblevo village, Tiligulo-Berezyanskyi district, Nicolaev reg. burial 8	74/14	m
23	Koblevo village, Tiligulo-Berezyanskyi district, Nicolaev reg. burial 8	74/15	m
24	Koblevo village, Tiligulo-Berezyanskyi district, Nicolaev reg. burial 8	74/17	m

NOTE: Burial No 34/9 sacrum is on the right side united with the innominate bone.
 Burial 74/2 left upper arm bone has a supracondylear foramen.
 Burial 74/14 thigh bones are ventro dorsally curved, upper arm bones have supracondylear foramen.

FEMUR			TIBIA		FIBULA		HUMERUS		RADIUS		ULNA	
1	2	8	1	10b	1	4a	1	7	1	3	1	3
Greatest length of femur	Physiological length	Circumference in the middle of the shaft	Total tibial length	Minimal circumference	Greatest length	Minimal circumference of the shaft	Greatest length	Minimal circumference	Greatest length	Minimal circumference	Greatest length	Minimal circumference
437 r	433 r	81 r	—	—	—	—	328 r 319 l	59 r 57 l	246 r	43 r	265 r	38 r
427 r	423 r	78 r	347 r	74 r	335 r	32 r	318 r	60 r	233 r	40 r	253 r	35 r
502 r	499 r	90 r	—	—	—	—	361 r	64 r	273 r	45 r	—	—
471 l	468 l	87 l	—	—	—	—	—	—	—	—	—	—
455 l	447 l	85 l	358 l	73 l	340 l	35 l	319 l	54 l	244 l	36 l	264 l	32 l
475 r	473 r	90 r	382 l	79 l	370 l	35 l	343 l	59 l	260 l	45 l	276 l	39 l
—	—	—	—	—	—	—	327 l	68 l	253 l	44 l	274 l	35 l
420 r	419 r	88 r	—	—	—	—	308 r	62 r	235 r	43 r	—	—
508 r	504 r	96 r	441 r	85 r	—	—	365 l	73 l	—	—	—	—
450 r	447 r	83 r	—	—	—	—	332 r	61 r	251 r	42 r	272 r	32 r
435 l	433 l	84 l	350 l	81 l	—	—	302 l	62 l	233 l	45 l	252 l	37 l
455 l	453 l	85 l	—	—	—	—	328 r 326 l	62 r 60 l	—	—	—	—
462 r	461 r	88 r	389 r	77 r	387 r	36 r	340 r	63 r	263 r	40 r	273 r	34 r
462 l	462 l	87 l	390 l	77 l	389 l	36 l	—	—	258 l	37 l	—	—
473 r	470 r	83 r	370 r	70 r	—	—	336 r	58 r	250 r	39 r	—	—
475 l	473 l	83 l	370 l	70 l	362 l	33 l	328 l	57 l	248 l	38 l	267 l	32 l
472 r	472 r	92 r	403 r	83 r	—	—	334 r	69 r	—	—	284 r	42 r
471 l	470 l	91 l	403 l	80 l	—	—	—	—	—	—	282 l	43 l
444 r	438 r	92 r	352 r	80 r	—	—	352 l	64 l	240 l	41 l	—	—
448 l	441 l	92 l	354 l	80 l	—	—	341 r	63 r	—	—	—	—
502 r	501 r	96 r	—	—	—	—	319 l	68 l	244 l	45 l	264 l	42 l
438 l	435 l	85 l	352 l	75 l	—	—	348 r 349 l	67 r 67 l	252 l	40 l	277 l	37 l
477 l	470 l	89 l	386 r 385 l	81 r 80 l	—	—	339 r 341 l	65 r 67 l	—	—	288 l	42 l
464 r	463 r	90 r	380 r	72 r	—	—	341 r	66 r	253 r	45 r	279 l	42 l
466 l	461 l	88 l	380 l	72 l	351 r	32 r	334 l	66 l	—	—	—	—
458 r	457 r	88 r	355 r	78 r	—	—	332 r	74 r	—	—	—	—
457 l	456 l	89 l	356 l	79 l	—	—	343 r	60 r	—	—	—	—
448 l	444 l	96 l	368 l	85 l	—	—	—	—	—	—	—	—
503 r	502 r	89 r	—	—	—	—	—	—	—	—	—	—
504 l	502 l	90 l	397 l	73 l	—	—	—	—	—	—	—	—
453 r	452 r	89 r	—	—	—	—	—	—	—	—	—	—

Individual dimensions of the female long bones from the burial sites of the Chernyakhov culture, Soviet Ukrajina

Nr	Number of the grave and of the burial	Inventory number of the museum of Anthro- pology of the Moscow University	Sex
1	Chernyakhov village, Kagarlyk district, Kiev region, burial 256	34/1	f
2	Chernyakhov village, Kagarlyk district, Kiev region, burial 256	34/4	f
3	Chernyakhov village, Kagarlyk district, Kiev region, burial 262	34/5	f
4	Chernyakhov village, Kagarlyk district, Kiev region, burial 264	34/7	f
5	Tjeleshovka village, Rakytnjan district, Kiev region, burial 1	11097	f
6	Djerevyanoe village, Obuchov district, Kiev region, burial 1	11688	f
7	Tchistilov village, Zborov district, Tjernopol region, burial 4	75/1	f
8	Ranzhevoe village, Komintjerna district, Odessa region, burial 11	57/3	f
9	Ranzhevoe village, Komintjerna district, Odessa region, burial 20	57/9	f
10	Victorovka village, Tiligulo-Berzyanskyi district, Nicolaev reg., burial 1	36/1	f
11	Victorovka village, Tiligulo-Berzyanskyi district, Nicolaev reg., burial 6	36/3	f
12	Victorovka village, Tiligulo-Berzyanskyi district, Nicolaev reg., burial 9	36/4	f
13	Victorovka village, Tiligulo-Berzyanskyi district, Nicolaev reg., burial 11	36/5	f
14	Victorovka village, Tiligulo-Berzyanskyi district, Nicolaev reg., burial 12	36/6	f
15	Koblevo village, Tiligulo-Berezyanskyi distrikt, Nicolaev reg., burial 2	74/1	f
16	Koblevo village, Tiligulo-Berezyanskyi distrikt, Nicolaev reg., burial 12	74/3	f
17	Koblevo village, Tiligulo-Berezyanskyi distrikt, Nicolaev reg., burial 13	74/4	f
18	Koblevo village, Tiligulo-Berezyanskyi distrikt, Nicolaev reg., burial 14	74/5	f
19	Koblevo village, Tiligulo-Berezyanskyi distrikt, Nicolaev reg., burial 17	74/7	f
20	Koblevo village, Tiligulo-Berezyanskyi distrikt, Nicolaev reg., burial 19	74/8	f
21	Koblevo village, Tiligulo-Berezyanskyi distrikt, Nicolaev reg., burial 26	74/11	f
22	Koblevo village, Tiligulo-Berezyanskyi distrikt, Nicolaev reg., burial 27	74/12	f
23	Koblevo village, Tiligulo-Berezyanskyi distrikt, Nicolaev reg., burial 38	74/16	f

NOTE: Growth of the skeletons N 57/3, 57/9, was not yet terminated.

TABLE XXVII

FEMUR			TIBIA		FIBULA		HUMERUS		RADIUS		ULNA	
1	2	8	1	10b	1	4a	1	7	1	3	1	3
Greatest length of femur	Physiological length	Circumference in the middle of the shaft	Total tibial length	Minimal circumference	Greatest length	Minimal circumference of the shaft	Greatest length	Minimal circumference	Greatest length	Minimal circumference	Greatest length	Minimal circumference
422 r	417 r	80 r	344 r	70 r	335 r	33 r	311 r	56 r	226 r	36 r	236 r	32 r
424 l	418 l	81 l	344 l	70 l	333 l	32 l	306 l	54 l	222 l	36 l	235 l	31 l
416 l	416 l	82 l	—	—	—	—	—	—	—	—	—	—
433 l	430 l	86 l	—	—	—	—	309 r	55 r	229 r	35 r	—	—
416 l	415 l	80 l	—	—	—	—	293 l	52 l	221 l	35 l	238 l	32 l
453 l	450 l	80 l	353 l	69 l	—	—	302 l	59 l	233 l	38 l	—	—
386 r	386 r	80 r	310 r	65 r	—	—	—	—	—	—	—	—
455 r	450 r	86 r	—	—	—	—	330 r	63 r	246 r	40 r	272 r	38 r
462 l	458 l	85 l	—	—	—	—	326 l	62 l	244 l	38 l	269 l	37 l
453 r	448 r	77 r	—	—	—	—	—	—	—	—	—	—
—	—	—	350 l	66 l	—	—	312 r	57 r	—	—	—	—
380 r	378 r	71 r	309 r	70 r	—	—	—	—	—	—	—	—
377 l	375 l	70 l	303 l	70 l	343 l	34 l	—	—	—	—	—	—
397 r	396 r	88 r	—	—	—	—	305 r	61 r	—	—	248 r	32 r
—	—	—	—	—	—	—	297 l	60 l	225 l	36 l	249 l	32 l
398 l	395 l	83 l	323 l	70 l	322 l	35 l	280 l	61 l	215 l	40 l	237 l	34 l
—	—	—	—	—	—	—	270 r	54 r	—	—	—	—
—	—	—	—	—	—	—	—	—	212 l	33 l	230 l	29 l
406 r	404 r	76 r	331 r	62 r	324 r	32 r	—	—	—	—	248 r	32 r
—	—	—	369 r	64 r	—	—	—	—	—	—	—	—
421 r	418 r	81 r	—	—	—	—	—	—	—	—	—	—
427 l	422 l	81 l	359 l	73 l	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
387 l	385 l	80 l	310 r	63 r	308 l	33 l	292 r	58 r	—	—	—	—
435 r	433 r	80 r	310 l	62 l	—	—	288 l	55 l	—	—	—	—
439 l	436 l	80 l	358 r	63 r	—	—	—	—	234 r	34 r	254 r	30 r
—	—	—	358 l	64 l	—	—	306 l	55 l	233 l	34 l	—	—
417 r	414 r	82 r	352 r	70 r	—	—	302 r	53 r	—	—	—	—
415 l	414 l	80 l	352 l	67 l	—	—	299 l	53 l	228 l	35 l	—	—
429 r	425 r	79 r	355 r	64 r	—	—	—	—	—	—	—	—
430 l	425 l	78 l	360 l	63 l	—	—	306 l	58 l	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	389 r	70 r	—	—	—	—	—	—	—	—
433 r	430 r	79 r	348 r	66 r	—	—	311 r	54 r	223 r	36 r	—	—
435 l	429 l	78 l	347 l	64 l	—	—	311 l	53 l	223 l	36 l	247 l	28 l
420 r	413 r	77 r	345 r	67 r	—	—	288 r	55 r	233 r	38 r	—	—
423 l	416 l	76 l	343 l	64 l	—	—	—	—	—	—	254 l	31 l
415 r	413 r	89 r	329 r	71 r	—	—	—	—	—	—	258 r	43 r
413 l	411 l	90 l	333 l	72 l	—	—	304 l	62 l	—	—	—	—

Nr	Number of the grave and of the burial	Inventory number of the Museum of Anthropology of the Moscow University	Sex	PROPORTIONS					INDEX of ROBUSTICITY					
				(H1 + R1) : (T1 + F2) Intermembral index	T1 : F2 Tibiofemoral index	U1 : H1 Ulnohumeral index	H1 : F2 Humero femoral index	R1 : T1 Radio tibial index	8 : 2 of femur	10b : 1 of tibia	4a : 1 of fibula	7 : 1 of humerus	3 : 1 of radius	3 : 1 of ulna
1	Chernyakhov village, burial 257	34/2	m	—	—	75.0 r	75.8 r	—	18.7 r	—	—	18.0 r 17.9 l	17.5 r	14.3 r
2	Chernyakhov village, burial 263	34/6	m	71.6 r	82.1 r	73.3 r	75.2 r	67.0 r	18.4 r	21.4 r	9.6 r	18.9 r	17.2 r	13.8 r
3	Chernyakhov village, burial 269	34/9	m	—	—	75.7 r	72.3 r	—	18.0 r	—	—	17.7 r	16.5 r	—
4	Chernyakhov village, burial 270	34/10	m	—	—	—	—	—	18.6 l	—	—	—	—	—
5	Chernyakhov village, burial 273,	34/11	m	70.0 l	80.1 l	76.5 l	71.4 l	68.2 l	19.0 l	20.4 l	10.3 l	16.9 l	14.8 l	12.1 l
6	Chernyakhov village, burial 275	34/12	m	—	—	70.0 l	—	68.1 l	19.0 r	20.7 l	9.5 l	17.2 l	17.3 l	14.1 l
7	Romashki village, burial 1	11096	m	—	—	77.4 l	—	—	—	—	—	20.8 l	17.4 l	12.8 l
8	Djerevyanoe village, burial 1	11098	m	—	—	76.3 r	73.5 r	—	21.0 r	—	—	20.1 r	18.3 r	—
9	Djerevyanoe village, burial 3	11099	m	—	87.5 r	—	—	—	19.0 r	19.3 r	—	20.0 l	—	—
10	Voloshskoye village, burial 1	10368	m	—	—	75.7 r	74.1 r	—	18.5 r	—	—	18.4 r	16.7 r	11.8 r
11	Krinitchki village, burial 5	11095	m	68.3 l	81.0 l	77.2 l	69.8 l	66.5 l	19.4 l	23.1 l	—	20.5 l	19.3 l	14.7 l
12	Ranzhevoe village, burial 4	57/2	m?	—	—	—	71.3 l	—	18.8 l	—	—	18.9 r 18.4 l	—	—
13	Ranzhevoe village, burial 12	57/4	m	70.9 r	84.4 r 84.4 l	77.4 r	73.8 r	67.6 r 66.1 l	19.1 r 18.8 l	19.8 r 19.7 l	9.3 r 9.2 l	18.5 r	15.2 r 14.3 l	12.4 r
14	Ranzhevoe village, burial 14	57/5	m	69.8 r 68.3 l	78.7 r 78.2 l	74.4 r 75.6 l	71.5 r 69.3 l	67.6 r 67.0 l	17.7 r 17.3 l	18.9 r 18.9 l	9.1 l	17.3 r 17.4 l	15.6 r 15.3 l	11.9 l
15	Ranzhevoe village, burial 17	57/6	m	—	85.4 r 85.7 l	—	70.8 r	—	19.5 r 19.4 l	20.6 r 19.8 l	—	20.6 r	—	14.8 r 15.2 l
16	Ranzhevoe village, burial 18	57/7	m	74.5 l	80.4 r 80.3 l	68.2 l	79.8 l	67.8 l	21.0 r 20.9 l	22.7 r 22.6 l	—	18.2 l	17.1 l	—
17	Ranzhevoe village, burial 19	57/8	m	—	—	—	68.1 r	—	19.2 r	—	—	18.5 r	—	—
18	Viktorovka village, burial 3	36/2	m	71.5 l	81.0 l	76.5 l	73.3 l	69.3 l	19.5 l	21.3 l	—	21.3 l	18.4 l	15.9 l
19	Koblevo village, burial 8	74/2	m	70.3 l	81.9 l	72.2 l	74.3 l	65.4 l	18.9 l	20.1 r 20.8 l	—	19.2 r 19.2 l	15.9 l	13.4 l
20	Koblevo village, burial 23	74/10	m	—	82.1 r 82.4 l	—	73.2 r 74.0 l	—	19.1 r 19.4 l	18.9 r 18.9 l	—	19.2 r 19.6 l	—	14.6 l
21	Koblevo village, burial 30	74/13	m	73.2 r	77.7 r 78.1 l	74.2 r	74.6 r 73.2 l	71.3 r	19.3 r	22.0 r 22.2 l	9.1 r	19.4 r 19.8 l	17.8 r	15.1 l
22	Koblevo village, burial 31	74/14	m	—	82.9 l	—	—	—	21.6 l	23.1 l	—	23.0 r	—	—
23	Koblevo village, burial 32	74/15	m	—	79.1 l	—	68.3 r	—	17.7 r 17.9 l	18.4 l	—	17.5 r	—	—
24	Koblevo village, burial 39	74/17	m	—	—	—	—	—	19.7 r	—	—	—	—	—

Nr	Number of the grave and of the burial	Inventory number of the Museum of the Anthropology of the Moscow University	Sex	PROPORTIONS					INDEX of ROBUSTICITY					
				(H1 + R1) : (T1 + F2) Intermembral index	T1 : F2 Tibiofemoral index	U1 : H1 Ulnohumeral index	H1 : F2 Humero-femoral index	R1 : T1 Radiotibial index	8 : 2 of femur	10b : 1 of tibia	4a : 1 of fibula	7 : 1 of humerus	3 : 1 of radius	3 : 1 of ulna
1	Chernyakhov village, burial 256	34/1	f	70.6 r 69.3 l	82.5 r 82.3 l	72.7 r 72.6 l	74.6 r 73.2 l	65.7 r 64.6 l	19.2 r 19.4 l	20.4 r 20.4 l	9.9 r 9.6 l	18.0 r 17.6 l	15.9 r 16.3 l	13.6 r 13.2 l
2	Chernyakhov village, burial 261	34/4	f	—	—	—	—	—	19.7 l	—	—	—	—	—
3	Chernyakhov village, burial 262	34/5	f	—	—	74.2 l	—	—	20.0 l	—	—	17.8 r	15.3 r	—
4	Chernyakhov village, burial 264	34/7	f	—	—	75.5 l	70.7 l	—	19.3 l	—	—	17.8 l	15.8 l	13.5 l
5	Tjeleshovka village, burial 1	11097	f	66.6 l	78.4 l	77.2 l	67.2 l	66.6 l	17.8 l	19.5 l	—	19.5 l	16.3 l	—
6	Djerevyanoe village, burial 1	11688	f	—	80.3 l	—	—	—	20.7 l	21.0 l	—	—	—	—
7	Tchistilov village, burial 4	75/1	f	—	—	74.6 r 74.8 l	73.3 r 71.2 l	—	19.1 r 18.6 l	—	—	19.1 r 19.0 l	16.3 r 15.6 l	14.0 r 13.8 l
8	Ranzhevoe village, burial 11	57/3	f	—	—	—	—	—	17.2 r	18.8 l	—	18.3 r	—	—
9	Ranzhevoe village, burial 20	57/9	f	—	81.8 r 80.8 l	—	—	—	18.8 r 18.7 l	22.7 r 23.1 l	9.9 l	—	—	—
10	Viktorovka village, burial 1	36/1	f	—	—	75.8 l	77.1 r	—	22.2 r	—	—	20.0 r	—	12.9 r
11	Viktorovka village, burial 6	36/3	f	68.9 l	81.8 l	76.8 l	70.9 l	66.6 l	21.0 l	21.7 l	10.9 l	21.8 l	18.7 l	14.3 l
12	Viktorovka village, burial 9	36/4	f	—	—	—	—	—	—	—	—	20.0 r	15.6 l	12.6 l
13	Viktorovka village, burial 11	36/5	f	—	82.0 r	—	—	—	18.8 r	18.7 r	9.9 r	—	—	12.9 r
14	Viktorovka village, burial 12	36/6	f	—	—	—	—	—	—	17.3 r	—	—	—	—
15	Koblevo village, burial 2	74/1	f	—	85.1 l	—	—	—	19.4 r 19.2 l	20.3 l	—	—	—	—
16	Koblevo village, burial 12	74/3	f	—	80.5 l	—	74.8 l	—	20.8 l	20.3 r 20.0 l	10.7 l	19.9 r 19.1 l	—	—
17	Koblevo village, burial 13	74/4	f	67.9 l	82.7 r 82.1 l	76.1 l	70.2 l	65.4 r 65.1 l	18.5 r 18.4 l	17.6 r 17.9 l	—	18.0 l	14.5 r 14.6 l	11.8 r
18	Koblevo village, burial 14	75/5	f	68.8 l	85.0 r 85.0 l	76.3 l	72.9 r 72.2 l	64.8 l	19.8 r 19.8 l	19.9 r 19.0 l	—	17.5 r 17.7 l	15.4 l	—
19	Koblevo village, burial 17	74/7	f	—	83.5 r 84.7 l	—	72.0 l	—	18.6 r 18.4 l	18.0 r 17.5 l	—	19.0 l	—	—
20	Koblevo village, burial 19	74/8	f	—	—	—	—	—	—	18.0 r	—	—	—	—
21	Koblevo village, burial 26	74/11	f	68.6 r 68.8 l	80.9 r 80.9 l	71.7 r 71.7 l	72.3 r 72.5 l	64.1 r 64.3 l	18.4 r 18.2 l	19.0 r 18.4 l	—	17.4 r 17.0 l	16.1 r 16.1 l	11.3 l
22	Koblevo village, burial 27	74/12	f	68.7 r	83.5 r 82.4 l	80.9 r	69.7 r	67.5 r	18.6 r 18.3 l	19.4 r 18.7 l	—	19.1 r	16.3 r	12.2 l
23	Koblevo village, burial 38	74/16	f	—	79.7 r 81.0 l	—	74.0 l	—	21.5 r 21.9 l	21.6 r 21.6 l	—	20.4 l	—	16.7 r

Individual dimensions and indices of male skulls from the burial site Zhuravka
(Excavations of E. A. Simonovitsch)

Burial number	Inventory number of the Museum of Anthropology of the Moscow University	Sex	Age	1 Greatest length from glabella (g — op)	1b Greatest length from ophryon (on — op)	8 Greatest parietal breadth (eu — eu)	17 Height of the skull from basion (Basio-bregmatic height (ba — b))
Burial 18	11373	m	30—35	200	195	138	—
Burial 23	11374	m	45—55	189	187	143	142?
Burial 31	16/3	m	55—65	187	185	150	139?
Burial 33	16/5	m	50—65	192	189	145	140
Burial 41	16/9	m	55—65	182	179	128?	—
Burial 45	17/2	m	55—65	188	185	—	137
Burial 51	17/2	m	30—40	184	182	140	138
Burial 53	17/6	m	55—60	182	180	141	139
Burial 55	53/1	m	45—60	184	183	135	129
Burial 56	53/2	m	45—50	190	188	148	141
Burial 58	53/5	m?	45—60	188	188	134	—
Burial 60	53/6	m	40—55	184	184	142	—
Burial 65	53/8	m	25—35	187	187	137	125
Burial 73	53/14	m	25—30	182	179	144	—
Burial 74	53/15	m	25—35	181	180	136	140
Burial 77	53/16	m	35—45	181	177	142	134
Burial 83	53/21	m	50—60	186	—	141	135
Burial 89	53/26	m	45—60	169	168	136	134
Burial 92	53/29	m	55—65	186	184	137	142
Burial 103	53/33	m?	17—20	182	182	142	128
Burial 105	53/36	m	45—50	188	187	140	147
Burial 110	53/40	m	40—55	187	183	139	132
Burial 113	53/43	m	30—45	174	174	136	138
Burial 116	53/45	m	35—45	188	187	138	131
Burial 119	53/48	m	35—45	189	184	133	140

NOTE: Longitudinal dimensions are in mm, angles in degrees, volume in cc.

TABLE XXIX (1)

5	20	9	10	11	12	7	16	29	31	—	—
Length of cranial base (ba — n)	Height of the skull from porion (Porio-bregmatic height) (po — b)	Minimal frontal breadth (ft — ft)	Maximal frontal breadth (co — co)	Bi-auricular breadth (au — au)	Occipital breadth (ast — ast)	Length of foramen magnum (ba — o)	Breadth of foramen magnum	Frontal chord (n — b)	Occipital chord (l — o)	Frontal convexity height (Subtense from frontal chord)	Occipital convexity height (Subtense from occipital chord)
—	122	95	119	121	111	—	—	—	—	—	—
—	116	95	124	130	116	37	34	113	97	29	31
103?	120	92	130	141	120	—	—	112	106	25	30
109	119	100	130	128	113	40	29	115	102	25	27
—	—	93	—	—	—	—	—	106	—	23	—
105	115	—	—	128	116	42	33	114	97	25	25
104	114	96	123	126	105	36	30	107	92	24	24
102?	117	92	109	124	110	33	29	112	102	27	33
100	108	104	124	121	106	37	37	108	95	29	32
—	119	98	122	131	115	38	33	117	—	27	—
—	117	93	118	122	111	—	—	112	100	26	26
—	118	103	121	130	111	—	—	112	—	28	—
97	110	96	118	128	105	38	30	105	95	28	31
—	117	95	124	124	108	—	—	115	98	25	26
104	115	100	121	127	112	39	30	115	95	30	27
103	115	92	117	126	106	—	—	115	92	30	22
108	110	94	118	126	105	40	32	—	90	—	28
100	111	90	116	120	105	38	32	108	95	26	24
100	119	95	118	131	112	34	32	112	115	28	31
105	115	102	122	128	112	33	31	105	94	26	28
108	115	97	124	130	106	38	31	112	97	27	28
—	114?	98	—	—	111	37	32	—	88	—	29
95	115	91	114	118	113	—	32	113	—	27	—
111	109	97	119	129	110	—	—	107	—	26	—
109	119	87	114	122	114	38	32	114	97	24	27

Inventory number of the Museum of Anthropology of the Moscow University	— Arcus supraorbitalis length	38 Cranial capacity (after Lee-Pearson)	45 Bizygomatic breadth (zy — zy)	40 Facial length (ba — pr)	48 Upper facial height (n — pr)	47 Total facial height (n — gn)	43 Upper facial breadth (fnt — fnt)	43 ₁ Internal bi-orbital breadth (fmo — fmo)	46 Middle facial breadth (zm — zm)	60 External length of upper alveolar arch (pr — alv)	61 External breadth of upper alveolar arch (ekm — ekm)	62 Palatal length (from staphylion) (ol — sta)
11373	68	1688	134?	—	78	124?	104	96	104	59	67	49
11374	60	1503	135	—	67	107	105	98	93	—	—	—
16/3	80	1687	141	—	67	110	110	102	100	—	—	—
16/5	65	1568	—	—	—	—	—	—	—	—	—	—
16/9	63	—	—	—	—	—	—	—	—	—	—	—
17/2	—	—	—	—	69	115	—	—	—	57	62	—
17/4	82	1431	135	99	71	116	106	98	—	55	61	46
17/6	61	1455	136?	97?	67	113	102	95	98	57	63	50
53/1	75	1464	129	91	78	123	107	97	94	51	62	44
53/2	61	1580	130?	—	68	114	103	96	108	—	—	—
53/5	—	1435	131?	—	75	—	103	96	—	—	—	—
53/6	73	1584	135?	—	72	117	110	—	—	—	—	—
53/8	67	1387	132	98	74	120	101	94	—	59	63	53
53/14	63	1478	129	—	73	120	105	98	98	—	68	—
53/15	65	1392	133	95	68	108	107	97	—	54	60	—
53/16	55	1438	—	—	—	114?	98	89	—	—	—	—
63/21	—	1412	130?	105	71?	120?	105	—	94	—	—	—
53/26	62	1290	125	91	62	103	96	90	85	50	54	42
53/29	66	1466	130?	—	62	109	105	98	101	—	—	—
53/33	57	1444	126	99	70	117	104	96	104	52	60	45
53/36	65	1464	137	94	79	126	104	95	102	54	65	46
53/40	65	1440	—	—	—	—	—	—	95	—	—	—
53/43	53	1352	127	90	71	113	102	—	90	53	—	46
53/45	64	1391	137	108	78	125	107	108	100	57	66	49
53/48	64	1451	121?	102	66	116	97	90	93	53	62	—

TABLE XXIX (3)

63	55	54	51	51a	52	—	50	—	49a	—	57	—	65
Palatal breadth (enn — enn)	Nasal height (n — ns)	Nasal breadth	Orbital breadth (from maxillofrontale) (mf — ek)	Orbital breadth (from dakryon) (d — ek)	Orbital height	Depth of fossa canina (after Abinder)	Maxillofrontal chord (mf — mf)	Maxillofrontal subtense	Dacryal chord (d — d)	Dacryal subtense	Simotical chord (minimal breadth of nasal bones)	Simotical subtense	Bicondylar breadth (kdl — kdl)
40	53	—	42.0	—	34.0	4.0	21.0	10.5	—	—	11.5	5.6	—
—	52	24?	40.0	—	32.0	8.0	21.0	10.0	—	—	9.5	5.0	127
—	50	29.0	41.0	—	29.8	3.0	20.5	12.0	—	—	—	—	113?
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	52	23?	42.0	—	34.0	—	22.3	11.3	—	—	7.0	4.0	—
40	52	27.5	39.0	—	32.5	8.0	23.5	11.1	—	—	11.5	6.5	119
41	50	26.5	40.0	39.0	34.0	5.0	21.5	9.5	22.3	13.3	8.5	4.5	118
42	58	24.5	42.0	—	34.0	3.0	23.0	9.8	24.0	13.0	11.8	5.0	123
—	49	26.0	40.0	—	33.0	6.8	21.0	10.0	23.0	—	10.0	5.2	118
—	57	25.0	39.0	—	35.0	4.0	22.0	8.5	—	—	11.0	5.0	119
—	52	23.0	41.0	—	—	—	22.0	9.0	—	—	9.0	3.5	126
40	54	24.0	39.0	37.5	32.0	4.0	23.5	8.5	24.8	15.0	8.8	3.0	122
46	52	24.0	42.0	39.0	37.0	7.0	23.0	10.0	—	—	9.2	4.1	120
37	46	25.0	40.0	—	33.0	5.0	21.5	10.8	—	—	11.5	6.2	122
—	—	—	39.0?	—	32.0	7.2	—	—	—	—	—	—	122
—	52	25.5	39.0	—	32.0	4.0	—	—	—	—	—	—	—
37	50	23.0	40.5	—	34.0	5.5	16.0	9.1	—	—	5.8	4.0	109
—	44	22.5	—	—	—	8.0	—	—	—	—	—	—	118
40	52	25.0	40.8	39.2	33.0	6.0	19.5	8.9	20.8	13.8	10.1	5.1	114
41?	59	25.0	39.3	38.0	37.0	5.0	20.0	13.0	—	—	6.7	5.5	122
—	—	24.0	41.0	—	33.6	6.0	—	—	—	—	—	—	121
—	51	20.0	41.0	—	35.0	6.5	19.0	9.0	—	—	6.6	4.2	114
42	54	28.0	41.0	—	33.0	7.0	23.0	9.0	—	—	11.0	5.0	122
40	50	24.0	39.2	38.8	32.0	7.0	20.0	9.0	20.8	11.0	5.0	3.1	115

TABLE XXIX (4)

Inventory number of the Museum of Anthropology of the Moscow University	66 Bigonial (angular) breadth (go — go)	67 Distance between foramina mentalia	68 Mandibular projective length from gonion	68 ₁ Mandibular projective length from condyles	69 Chin height (id — gn)	70 Height of mandibular ramus	71a Minimal breadth of mandibular ramus	32 Frontal angle from nasion (m — n — OAE)	— Frontal angle from glabella (m — g — OAE)	33 ₁ Angle of the upper part of occiput (l — i — OAE) (Upper occipital angle)	33 ₂ Angle of the lower part of occiput (o — i — OAE) (Lower occipital angle)	33 Angle of the inclination of the occipital bone (l — i — OAE)	34 Angle of the inclination of foramen magnum (o — b — OAE)
11373	—	—	—	—	—	—	—	—	—	—	—	—	—
11374	107	40	75	101	32	59	32	85	78	92	27	119	—
16/3	105	49	76	101	29	—	32	90	80	86	36	110	—
16/5	—	49	—	—	39	—	39	—	—	—	—	—	—
16/9	—	—	—	—	—	—	—	—	—	—	—	—	—
17/2	—	—	—	—	—	—	31	79	70	95	28	117	—16
17/4	96	47	80	104	34	66	36	84	75	94	31	120	—4
17/6	112	47	75	107	33	61	31	85	79	85	28	115	—8
53/1	99	45	78	103	37	67	34	83	78	93	19	123	—12
53/2	104	49	79	107	32	66	31	—	—	—	—	—	—
53/5	103	—	77	113	—	66	34	—	—	—	—	—	—
53/6	104	49	70	101	34	61	29	—	—	—	—	—	—
53/8	105	47	81	107	35	69	35	—	—	98	22	125	—21
53/14	104	50	77	106	36	66	34	76	68	90	34	117	—
53/15	103	43	79	103	—	69	33	83	77	90	33	116	—11
53/16	97	—	80	105	—	67	32	—	—	—	—	—	—
53/21	—	48	85	110	35	66	34	—	—	—	—	—	—
53/26	94	42	68	97	26	53	27	85	81	90	34	114	—5
53/29	101	45	69	105	29	59	30	92	85	93	37	114	—
53/33	102	—	77	106	34	55	31	88	82	96	20	119	—14
53/36	104	48	77	111	35	68	33	85	77	94	25	121	—6
53/40	—	45	74	103	29	59	29	—	—	—	—	—	—
53/43	92	45	77	102	31	62	30	85	83	99	25	124	—
53/45	109	48	76	101	35	64	32	79	75	86	—	—	—
53/48	102	47	82	111	32	61	29	83	71	90	33	114	—3

72	73	74	75 ₁	77	—	79	—	—	—	—	—	—	—	—	8:1
Total facial angle (n — pr — OAE)	Midfacial angle (n — ns — OAE)	Alveolar angle (n — pr — OAE)	Angle of the nasal profile with the facial profile (n — rhi — Line of profile)	Naso-malar angle (fmo — n fmo)	Zygomaxillary angle (after Abinder) (zm — ss — zm)	Mandibular angle (Angle of the inclination of mandibular ramus)	Chin angle (id — pog — standard basal plane)	Glabella (prominence after Martin; 1—6)	Arcus supraorbitalis after glabella prominence scale Martin; 1—6)	Depth of fossa canina (0—4)	Lower edge of apertura piriformis	Spina nasalis anterior (after Broca; 1—5)	Protuberantia occipitalis externa (after Broca; 0—5)	Processus mastoideus (1—3)	Cranial index $\left(\frac{eu \cdot eu}{g \cdot op} \cdot 100 \right)$
—	—	—	—	125	—	—	—	4	4	2	—	—	2	3	69,0
—	—	—	—	135	—	120	63	3	3	4	—	—	2	3	75,7
88	—	—	—	138	133?	123	77	4	4	2	—	—	1	3	80,2
—	—	—	—	—	—	—	72	4	4	—	—	—	3	3	75,5
—	—	—	—	—	—	—	—	3	3	—	—	—	3	3	70,3?
90	90	88	—	—	—	—	—	4	4	3	—	—	3	3	—
84	84	85	—	139	—	115	70	3	4	4	anthr.	4	3	3	76,1
85	85	85	25	139	126	126	64	3	3	3	anthr.	—	3	3	76,4
87	87	87	32	135	125	126	71	3	3	2	anthr.	—	3	3	73,4
—	—	—	—	141?	129	118	—	3	3	4	anthr.	2	3	3	77,9
—	—	—	—	143	132	128	—	2	2	1	anthr.	—	1	1	71,3
—	—	—	—	—	—	126	71	3	3	—	anthr.	—	2	2	77,2
83	77	82	25	133	119	110	76	2	3	2	anthr.	3	2	2	73,3
83	85	80	20	132	117	118	78	3	4	4	anthr.	3	3	2	79,1
85	—	—	45?	135	130	111	—	3	3	2	anthr.	—	2	3	75,1
—	—	—	—	134	—	117	—	3	3	4	fossa praenasalis	—	2	3	78,4
—	—	—	—	—	122	—	—	—	—	2	anthr.	3	2	3	75,8
86	—	—	41	138	130	127	61	2	3	3	anthr.	—	1	2	80,5
88	88	—	—	141	125	132	51	3	3	4	anthr.	—	1	3	73,7
88	90	87	—	138	128	124	59	2	2	3	anthr.	—	2	3	78,0
89	89	87	41	140	122	125	63	3	3	2	anthr.	4	3	3	74,5
—	—	—	—	—	126	123	53	4	4	3	anthr.	5	1	2	74,3
82	85	76	—	—	—	117	75	1	2	3	anthr.	—	3	2	78,2
85	85	85	24	139	121	118	75	2	3	3	anthr.	—	2	3	73,4
89	91	83	—	126?	128	125	51	4	4	3	anthr.	2	2	3	70,4

TABLE XXIX (6)

Inventory number of the Museum of Anthropology of the Moscow University	17 : 1 (I 2) Height-length index (from basion) $\left(\frac{ba-b}{g-op} \cdot 100\right)$	20 : 1 (I 4) Height-length index (from porion) $\left(\frac{po-b}{g-op} \cdot 100\right)$	17 : 8 (I 3) Height-breadth index (from basion) $\left(\frac{ba-b}{eu-eu} \cdot 100\right)$	20 : 8 (I 5) Height-breadth index (from porion)	9 : 8 (I 13) Transverse frontoparietal index $\left(\frac{ft-ft}{eu-eu} \cdot 100\right)$	— Arcus supraorbitalis length index $\left(\frac{\text{Arcus supraorbitalis length}}{fnt - fnt} \cdot 100\right)$	48 : 17 Vertical faciocranial index $\left(\frac{ba-b}{n-pr} \cdot 100\right)$	45 : 8 (I 71) Transverse faciocranial index $\left(\frac{zy-zy}{eu-eu} \cdot 100\right)$	— Frontal convexity index $\left(\frac{Sub. NB}{n-b} \cdot 100\right)$	— Occipital convexity index $\left(\frac{Sub. LO}{I-o} \cdot 100\right)$
11373	—	61.0	—	88.4	68.8	65.4	—	97.1?	—	—
11374	75.1?	61.4	99.3?	81.1	66.4	57.1	47.2?	94.4	26.7	32.0
16/3	74.3?	64.2	92.7?	80.0	61.3	72.7	48.2?	94.0	22.3	28.3
16/5	72.9	62.0	96.6	82.1	69.0	—	—	—	21.7	26.5
16/9	—	—	—	—	72.7	—	—	—	21.7	—
17/2	72.9	61.2	—	—	—	—	50.4	—	21.9	25.8
17/4	75.0	62.0	98.6	81.4	68.6	77.4	51.4	96.4	22.4	26.1
17/6	78.3	64.3	98.6	83.0	66.2	59.8	48.2	96.4	24.1	32.4
53/1	70.1	58.7	95.6	80.0	77.0	70.1	60.5	95.6	26.8	33.7
53/2	73.7	62.6	95.3	80.4	66.2	59.2	48.2	87.8?	23.1	—
53/6	75.5	62.2	—	87.3	69.4	—	—	97.8?	23.2	26.0
53/6	—	64.1	—	83.1	72.5	66.4	—	95.1?	25.0	—
53/8	66.8	58.8	91.2	80.3	70.1	66.3	59.2	96.3	26.7	38.6
53/14	—	64.3	—	81.2	66.0	60.0	—	89.6	21.7	26.5
53/15	77.3	63.5	102.9	84.6	73.5	60.8	48.6	97.8	26.1	28.4
53/16	74.0	63.5	94.4	80.9	64.8	56.1	—	—	26.1	23.9
53/21	72.6	59.1	98.7	72.0	66.7	—	526.?	92.2?	—	31.1
53/26	79.3	65.7	98.5	81.6	66.2	64.6	46.3	91.9	24.1	25.3
53/29	76.3	64.0	103.6	86.9	69.3	62.9	43.7	94.9?	25.0	27.0
53/33	70.3	63.2	90.1	81.0	71.8	54.8	54.7	88.7	24.8	29.8
53/36	78.2	61.2	108.0	82.1	69.3	62.5	53.7	97.9	24.1	28.9
53/40	70.6	61.0?	95.0	82.0?	70.5	—	—	—	—	32.9
53/43	79.3	66.1	101.5	84.6	66.9	52.0	51.4	93.4	23.9	—
53/45	69.7	58.0	94.9	79.0	70.3	59.8	59.5	99.3	24.3	—
53/48	74.1	63.0	105.3	89.5	65.4	66.0	47.1	91.0?	21.0	28.4

TABLE XXIX (7)

40 : 5 (I 60)	48 : 45 (I 39)	47 : 45 (I 38)	54 : 55 (I 48)	52 : 51a (I 42b)	52 : 51 (I 42)	63 : 62 (I 48)	61 : 60 (I 54)	—	—	—	71a : 70	68 : 66
Index of prognathism (gnathic index) (index of face prominence) $\left(\frac{ba - pr}{n - ba} \cdot 100\right)$	Upper facial index $\left(\frac{n - pr}{zy - zy} \cdot 100\right)$	Total facial index $\left(\frac{n - gn}{zy - zy} \cdot 100\right)$	Nasal index (nasal breadth) $\left(\frac{n - ns}{n - ns} \cdot 100\right)$	Orbital index (from dacryon) (orbital height) $\left(\frac{d - ek}{d - ek} \cdot 100\right)$	Orbital index (from maxillofrontale) (orbital height) $\left(\frac{m - ek}{m - ek} \cdot 100\right)$	Palatal index (from staphylion) $\left(\frac{enu - enu}{d - sta} \cdot 100\right)$	Upper alveolar arch index. External palate index (maxillo-alveolar index) $\left(\frac{ekm - ekm}{pr - alv} \cdot 100\right)$	Maxillo-frontal index $\left(\frac{maxillo-frontal\ sub}{mf - mf} \cdot 100\right)$	Dacryal index (dacryal sub) $\left(\frac{d - d}{d - d} \cdot 100\right)$	Simotical index (simotical sub) (simotical chord) $\left(\frac{simotical\ chord}{simotical\ chord} \cdot 100\right)$	Mandibular ramus index (minimal breadth of ramus) $\left(\frac{height\ of\ ramus}{height\ of\ ramus} \cdot 100\right)$	Mandibular length- bigonial index Mandibular pro- jective length $\left(\frac{go - go}{go - go} \cdot 100\right)$
—	58.2?	93.5?	—	—	80.9	81.6	113.6	50.0	—	48.7	—	—
—	49.6	79.3	46.1?	—	80.0	—	—	47.6	—	52.6	54.2	70.1
—	47.5	78.0	58.0	—	72.7	—	—	58.5	—	—	—	72.4
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
89.5	—	—	44.2?	—	81.0	—	108.7	50.7	—	57.1	—	—
95.2	52.6	85.9	52.9	—	83.3	87.0	110.9	47.2	—	56.5	54.5	83.3
95.1?	49.3?	83.1?	53.0	87.2	85.0	82.0	110.5	44.2	59.6	52.9	50.8	67.0
91.0	60.5	95.4	42.2	—	81.0	95.4	121.6	42.6	54.2	42.4	50.8	78.8
—	52.3?	87.7?	53.0	—	82.5	—	—	47.6	—	52.0	47.0	76.0
—	57.2?	—	43.9	—	89.7	—	—	38.6	—	45.4	51.5	74.8
—	53.3?	86.7?	44.2	—	—	—	—	40.9	—	38.9	47.5	67.3
101.0	55.6	90.9	44.4	85.3	82.0	75.5	106.8	36.2	60.5	34.1	50.7	58.1
—	56.6	93.0	46.1	94.9	88.1	—	—	43.5	—	44.6	51.5	74.0
91.4	51.1	81.2	54.3	—	82.5	—	111.1	50.2	—	53.9	47.8	76.7
—	—	—	—	—	82.0?	—	—	—	—	—	47.8	82.5
97.2	54.6?	92.3?	40.0	—	82.0	—	—	—	—	—	51.5	—
91.0	49.6	82.4	46.0	—	86.4	88.1	108.0	56.9	—	69.0	50.9	72.3
—	47.7?	83.8?	51.1	—	—	—	—	—	—	—	50.8	68.3
94.3	55.6	92.9	48.1	84.2	80.8	88.9	115.4	45.6	66.4	51.0	54.4	75.5
87.0	57.7	92.0	42.4	97.4	94.1	89.1	120.4	65.0	—	82.1	48.5	74.0
—	—	—	—	—	82.0	—	—	—	—	—	49.2	—
94.7	55.9	89.0	39.2	—	85.4	—	—	47.4	—	63.6	48.4	83.7
97.3	56.9	91.2	51.8	—	80.5	85.7	115.8	39.1	—	45.4	50.0	69.7
93.6	54.6?	95.9	48.0	82.5	81.6	—	117.0	45.0	52.9	62.0	47.5	80.4

Individual dimensions and indices of female skulls from the burial site Zhuravka
(Excavations of E. A. Simonovitsch)

Burial number	Inventory number of the Museum of Anthropology of the Moscow University	Sex	Age	1 Greatest length from glabella (g—op)	1b Greatest length from opuryon (on—op)	8 Greatest parietal breadth (eu—eu)	17 Height of the skull from basion (Basio-bregmatic height) (ba—b)
Burial 7	11100	f	25—35	178	178	141	121
Burial 8	11101	f	14—16	159	159	127	—
Burial 10	11102	f	20—25	167	167	129	118?
Burial 11	11103	f	50—60	176	174	122	—
Burial 12	11376	f?	more than 60	—	—	147?	—
Burial 13	11377	f	45—55	175	177	147	—
Burial 27	16/1	f	more than 55	171	—	139	—
Burial 30	16/2	f	55—65	179	177	128	—
Burial 35	16/6	f	40—50	169	169	135	136
Burial 36	16/7	f	18—21	182	182	132	—
Burial 43	17/1	f	40—45	—	—	—	—
Burial 52	17/5	f	25—35	171	171	137	129
Burial 54	17/7	f?	40—50	179	178	134	132
Burial 57	53/3	f	35—40	179	179	133	132
Burial 57a	53/4	f	30—45	187	—	135	137
Burial 61	53/7	f	more than 60	173	173	131	—
Burial 67	53/9	f	more than 60	187	188	143	129
Burial 68	53/10	f	25—30	177	173	133	118
Burial 70	53/12	f	25—35	189	189	141	133
Burial 71	53/13	f	25—30	—	—	—	—
Burial 78	53/18	f	50—60	175	175	136	126
Burial 79	53/19	f	55—65	184	183	128	134
Burial 85	53/22	f	35—60	172?	—	128	—
Burial 87	53/24	f	55—65	175	176	128	132
Burial 88	53/25	f	20—25	176	177	128	131
Burial 90	53/27	f	14—16	171	171	130	124
Burial 91	53/28	f	30—40	175	175	130	130?
Burial 97	53/31	f	12—14	175	174	137	116
Burial 98	53/32	f	35—45	170	170	129	128
Burial 104	53/35	f	18—22	174	174	141	—
Burial 106	53/37	f	40—55	179	177	133	124
Burial 107	53/38	f	30—50	180	—	133	—
Burial 109	53/39	f	40—50	186	185	132	131
Burial 111	53/41	f	45—55	172	171	142	—
Burial 115	53/44	f	45—55	180	181	137	128
Burial 117	53/46	f	16—19	176	176	145	132
Burial 121	53/50	f	35—45	182	182	135	133
Burial 122	53/51	f	15—17	167	167	128	124
Burial not numbered	53/54	f?	more than 60	181	181	133	128

NOTE: The dimensions are in mm, angles in degrees and volume in cc.

TABLE XXX (1)

5	20	9	10	11	12	7	16	29	31	—	—
Length of cranial base (ba — n)	Height of the skull from porion (Porio-bregmatic height) (po — b)	Minimal frontal breadth (ft — ft)	Maximal frontal breadth (co — co)	Bi-auricular breadth (au — au)	Occipital breadth (ast — ast)	Length of foramen magnum (ba — o)	Breadth of foramen magnum	Frontal chord (n — b)	Occipital chord (l — o)	Frontal convexity height (Subtense from frontal chord)	Occipital convexity height (Subtense from occipital chord)
95	104	95	122	120	114	35	28	108	94	29	31
—	103	88	107	110	—	—	—	97	—	37	—
—	103	91	112	109	107	—	—	102	—	24	—
108	120	91	101	113	107	36	27	109	98	24	23
—	116	—	—	128	—	—	—	—	—	—	—
—	114	95	—	126	119	—	—	107	—	29	—
—	117	96	121	119	117	—	—	108	—	24	—
—	109	93	104	118	103	—	25	106	89	25	24
100	110	92	109	117	108	34	30	103	92	24	26
—	112	91	121	117	107	—	—	109	88	30	26
—	—	96	121	—	—	—	—	—	—	—	—
95	110	95	116	124	102	35	28	103	92	24	26
103	112	99	119	123	110	43	—	109	92	25	23
94	110	99	118	117	115	34	32	107	95	29	28
108	111	94	114	118	108	39	33	115	91	30	29
85	—	88	110	123	117	—	—	—	—	—	—
96	117	95	123	122	104	33	26	110	—	31	—
92	103	92	110	119	102	33	28	98	92	21	25
102	117	92	123	120	106	39	28	116	94	31	27
—	—	92	—	—	—	—	—	—	—	—	—
96	116	97	118	117	103	31	24	107	87	28	25
100	112	98	114	117	107	36	30	118	97	30	24
—	110	—	—	113	—	—	—	—	—	—	—
100	111	87	110	115	105	34	30	105	90	25	26
95	107	91	112	115	107?	33	30	102	96	28	30
96	106	92	118	120	98	—	—	102	—	28	—
—	112	87	115	108	102	40	26	109	89	28	28
89	110	87	112	104	106	33	24	109	88	27	26
93	104	87	111	112	106	35	30	107	85	28	28
92	105	—	—	—	—	40	30	102	92	29	29
97	101	90	113	119	112	33	32	105	95	25	32
—	110	100	—	117	—	37	31	—	93	—	28
98	111	91	107	117	108	35	27	112	98	25	36
—	116	93	123	120	—	—	—	—	—	—	—
94	110	88	114	120	109	34	25	110	110	29	26
95	112	92	125	118	123	—	—	107	90	28	31
97	111	88	111	113	106	35	29	109	93	27	30
92	106	90	109	117	104	39	30	100	92	26	27
101	107	97	111	118	110	42	35	109	88	25	27

Inventory number of the Museum of Anthropology of the Moscow University	—	38	45	40	48	47	43	43 ₁	46	60	61	62
	Arcus supraorbitalis length	Cranial capacity (after Lee-Pearson)	Bi-zygomatic breadth (zy — zy)	Facial length (ba — pr)	Upper facial height (n — pr)	Total facial height (n — gn)	Upper facial breadth (fnt — fnt)	Internal Bi-orbital breadth (fmo — fmo)	Middle facial breadth (zm — zm)	External length of upper alveolar arch (pr — alv)	External breadth of upper alveolar arch (ekm — ekm)	Palatal length (from staphylion) (ol — sta)
11100	57	1275	124?	90	64	101	101	95	89	52	63	—
11101	—	1076	112?	—	58	96	—	—	—	—	—	42
11102	54	1136	—	—	64	103	97	89	83	55	61	46
11103	58	1263	—	—	65?	—	101	95	—	—	—	—
11376	—	—	—	—	—	—	—	—	—	—	—	—
11377	57	1396	—	—	—	—	—	—	—	—	—	—
16/1	53	1339	—	—	—	—	—	—	—	—	—	—
16/2	63	1232	122	—	74	—	100	92	85	—	—	—
16/6	51	1238	122	—	61	104	101	93	88	—	—	—
16/7	68	1305	124	—	67	102	97	88	85	48	56	42
17/1	59	—	130?	—	69	112	104	—	—	—	—	—
17/5	60	1263	128	90	63	105	104	96	94	49	60	42
17/7	63	1303	128	103	74	121	109	102	104	59	61	50
53/3	70	1278	127	93	69	110?	105	98	93	—	—	—
53/4	63	1347	—	—	68	—	98	90	—	—	—	—
53/7	55	—	—	—	—	—	—	—	—	—	—	—
53/9	52	1470	—	—	—	—	102	95	—	—	—	—
53/10	59	1206	126	93	66	106	100	92	90	52	58	45
53/12	57	1466	123?	91	72	114	97	92	89	50	56	43
53/13	—	—	130	—	68	103	100	95	93	49	60	41
53/18	59	1327	—	—	—	—	101	91	—	—	—	—
53/19	60	1278	129?	94	68	109	110	103	101	50	—	46
53/22	—	1204	—	—	—	—	—	—	—	—	—	—
53/24	53	1229	122	92	63	101	95	89	89	51	57	45
53/25	53	1170	115	88?	53	90	100	91	85	—	—	—
53/27	—	1080	—	—	65	102	92	85	85	48	59	43
53/28	57	1252	—	—	63	—	92	—	—	—	57	42
53/31	—	1285	106?	88?	67	106	92	84	—	48	56	40
53/32	52	1152	119	87	62	102	97	91	93	47	59	—
53/35	56	1262	—	—	70	111	—	—	—	48	57	43
53/37	52	1198	117	91	67	108	98	90	88	52	—	46
53/38	—	1284	—	—	—	—	—	—	—	—	—	—
53/39	57	1318	124	97	73	119	96	90	92	54	—	50
53/41	51	1359	125?	—	66?	107	100	—	85	—	56	—
53/44	48	1314	122	80	72?	115	95	89	85	—	—	—
53/46	—	1368	122	88	64	105	95	88	87	50	57	41
53/50	52	1319	117	100	66	108	100	91	90	54	62	—
53/51	—	1146	115	87	64	105	95	—	88	47	61	—
53/54	59	1262	—	—	—	—	104	97	—	—	—	—

TABLE XXX (3)

63	55	54	51	51a	52	—	50	—	49a	—	57	—	65
Palatal breadth (enm — enm)	Nasal height (n — ns)	Nasal breadth	Orbital breadth (from maxillofrontale) (mf — ek)	Orbital breadth (from dakryon) (d — ek)	Orbital height	Depth of fossa canina (after Abinder)	Maxillofrontal chord (mf — mf)	Maxillofrontal subtense	Dacryal chord (d — d)	Dacryal subtense	Simotical chord (minimal breadth of nasal bones)	Simotical subtense	Bicondylar breadth (kdl — kdl)
43	45	22.5	40.5	—	34.0	3.0	24.0	8.0	24.0	8.8	10.0	4.0	—
30	42	—	—	—	—	—	—	—	—	—	—	—	118
36	44	20.5	39.0	—	30.0	4.0	18.0	10.0	—	—	10.0	5.0	—
—	50?	24.5?	40.0	—	31.0	—	21.5	9.9	—	—	9.0	5.0	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	115
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	53	20.0	39.0	—	34.8	6.5	20.0	8.5	—	—	8.0	5.0	—
—	46	24.0	41.0	40.5	31.5	4.0	17.0	8.7	17.5	12.0	9.5	6.0	113
37	48	23.0	38.0	—	30.0	4.0	20.0	9.0	—	—	8.5	4.5	—
—	49	27.0	43.0	—	33.0	5.0	20.0	9.8	—	—	8.0	4.0	—
39	44	21.0	39.0	37.5	31.0	6.0	22.5	7.2	23.8	10.5	11.0	4.0	108
40	50	24.0	43.0	—	36.0	2.5	22.0	8.8	—	—	9.0	4.4	114
—	47	26.0	42.5	—	32.5	5.0	19.0	—	—	—	—	—	—
—	47	24.0	—	—	—	—	20.0	9.8	—	—	8.2	4.8	111
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	43.0	—	—	—	19.0	9.0	—	—	6.0	3.0	—
39	49	24.5	39.0	37.5	32.0	2.0	18.0	8.0	—	—	6.0	3.7	111
40	52	24.5	41.0	37.5	33.0	4.0	21.5	8.9	—	—	8.2	4.8	119
40	50	25.0	40.5	—	36.0	3.0	20.2	8.2	23.0	11.1	11.0	4.0	120
—	—	—	—	—	—	—	—	—	—	—	—	—	107
41	49	28.0	43.5	—	36.5	6.0	22.0	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
39	47	20.8	37.5	36.3	30.8	6.0	19.5	10.0	20.5	12.5	8.8	5.5	—
39	43	21.0	39.0	—	32.0	6.5	—	—	—	—	—	—	106
39	48	23.0	38.0	—	35.0	5.0	18.0	9.5	—	—	8.0	4.0	111
37	49	24.0	38.0	—	30.0	—	20.0	8.0	—	—	7.0	3.0	100
—	45	19.0	37.0	—	32.0	4.0	18.0	8.0	—	—	8.0	5.0	97
41	47	24.0	38.0	—	32.0	3.5	18.8	8.2	21.0	12.0	8.3	3.7	111
32	50	—	40.0	—	33.5	8.0	19.5	7.8	—	—	6.0	3.0	—
—	52	24.0	40.0	38.5	32.0	5.3	17.4	8.2	19.0	13.5	8.0	3.8	108
—	—	—	—	—	—	—	—	—	—	—	—	—	117
—	50	24.0	38.5	36.5	32.5	3.0	20.8	9.2	—	—	9.0	3.0	118
35	46	23.0	38.5	—	32.0	7.0	—	—	—	—	—	—	111
38	55	21.8	38.0	—	35.0	2.8	18.5	8.5	—	—	8.2	4.6	113
35	48	24.0	38.0	37.0	32.0	5.0	19.0	8.0	20.0	9.5	7.5	3.2	—
42	46	26.5	39.5	37.5	30.0	6.0	19.3	7.8	19.8	10.5	6.0	3.0	114
41	48	—	36.5	—	34.0	5.0	—	—	—	—	—	—	103
—	—	—	—	—	—	—	—	—	—	—	—	—	—

TABLE XXX (4)

Inventory number of the Museum of Anthropology of the Moscow University	66 Bigonial (angular) breadth (go — go)	67 Distance between foramina mentalia	68 Mandibular projective length from gonion	68 ₁ Mandibular projective length from condyles	69 Chin height (id — gn)	70 Height of mandibular ramus	71a Minimal breadth of mandibular ramus	32 Frontal angle from nasion (m — n — OAE)	— Frontal angle from glabella (m — g — OAE)	33 ₁ Angle of the upper part of occiput (l — i — OAE) (Upper occipital angle)	33 ₂ Angle of the lower part of occiput (o — i — OAE) (Lower occipital angle)	33 Angle of the inclination of the occipital bone (l — i — OAE)	34 Angle of the inclination of foramen magnum (o — b — OAE)
11100	—	—	71	97	28	59	32	86	85	94	23	122	0
11101	93	—	58	83	28	40	29	—	—	—	—	—	—
11102	85	42	71	100	32	—	31	—	—	—	—	—	—
11103	—	—	—	—	—	—	—	—	—	—	—	—	—
11376	—	—	—	—	—	—	—	—	—	—	—	—	—
11377	103	43	72	91	29	59	29	—	—	—	—	—	—
16/1	—	—	—	—	—	—	—	—	—	—	—	—	—
16/2	—	—	—	—	33	—	—	80	72	—	—	116	—
16/6	102	45	72	99	33	60	31	86	71	86	34	115	—6
16/7	111	42	65	—	—	—	30	94	86	97	23	126	—
17/1	89	48	—	—	30	—	31	—	—	—	—	—	—
17/5	87	45	73	95	32	56	32	92	85	93	23	115	—3
17/7	100	43	74	106	34	56	32	83	75	97	36	116	—10
53/3	91	47	81	110	—	56	31	91	84	86	25	119	—7
53/4	87	45	71	100	—	60	28	—	—	—	—	—	—
53/7	87	43	75	102	30	48	27	—	—	—	—	—	—
53/9	—	—	—	—	—	—	32	—	—	—	—	—	—
53/10	93	45	74	103	30	60	33	77	68	103	29	125	—8
53/12	97	42	71	106	32	56	31	89	83	102	18	125	—12
53/13	110	43	68	92	26	49	31	83	75	—	—	—	—
53/18	85	45	73	99	—	56	32	—	—	—	—	—	—
53/19	—	50	79	105	31	63	35	81	75	100	25	126	—14
53/22	86	42	—	—	—	—	27	—	—	—	—	—	—
53/24	—	—	—	—	28	—	31	85	78	93	27	122	—12
53/25	89	45	72	91	25	52	30	91	84	90	30	119	—4
53/27	88	42	61	83	26	52	30	86	84	—	—	—	—
53/28	87	43	69	94	25	54	29	86	82	97	25	121	—
53/31	82	39	67	94	30	47	29	85	83	—	—	132	—11
53/32	92	46	68	101	28	59	28	88	85	88	30	123	—11
53/35	—	45	—	—	28	—	27	—	—	—	—	—	—
53/37	98	44	74	103	34	59	28	79	76	93	23	127	—12
53/38	98	—	70	104	—	57	29	—	—	—	—	—	—
53/39	95	49	77	108	33	57	31	83	78	83	26	119	—5
53/41	93	41	74	103	30	55	29	88	85	—	—	—	—
53/44	95	42	72	103	29	55	28	85	81	96	13	125	—11
53/46	92	42	69	95	30	47	29	88	83	94	23	124	—9
53/50	95	45	77	110	31	57	29	88	81	95	25	123	—7
53/51	92	41	71	102	27	49	26	85	81	91	35	112	—9
53/54	—	—	—	—	—	—	—	—	—	—	—	—	—

TABLE XXX (5)

72	73	74	75 ₁	77	—	79	—	—	—	—	—	—	—	—	8:1 (1 1)
Total facial angle (n — pr — OAE)	Midfacial angle (n — ns — OAE)	Alveolar angle (n — pr — OAE)	Angle of the nasal profile with the facial profile (n — rhi — Line of profile)	Naso-malar angle (fmo — n — fmo)	Zygomaxillary angle (after Abinder) (zm — ss — zm)	Mandibular angle (Angle of the inclination of mandibular ramus)	Chin angle (id — pog — standard basal plane)	Glabella (prominence after Martin; 1—6)	Arcus supraorbitalis after glabella prominence scale Martin; 1—6)	Depth of fossa canina (0—4)	Lower edge of apertura piriformis	Spina nasalis anterior (after Broca; 1—5)	Protuberantia occipitalis externa (after Broca; 0—5)	Processus mastoideus (1—3)	Cranial index ($\frac{eu \cdot eu}{g \cdot op} \cdot 100$)
86	87	86	31	136	125	129	74	1	1	2	anthr.	5	1	1	79,2
—	—	—	—	132	—	138	77	1	1	—	—	—	1	1	79,9
—	—	—	—	135	—	—	75	1	1	2	fossa praenasalis	2	1	1	77,2
—	—	—	—	139	—	—	—	1	1	3	—	—	1	1	69,3
—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	—
—	—	—	—	—	—	112	68	1	1	—	anthr.	—	1	2	84,0?
—	—	—	—	—	—	—	—	—	2	2	—	—	—	—	—
85	87	71	24	131	124	—	—	2	2	3	anthr.	—	—	2	71,5
—	—	—	—	136	—	120	66	2	2	2	anthr.	—	2	1	79,9
91	—	—	26	138	—	140	—	1	1	2	anthr.	—	1	1	72,5
—	—	—	—	—	—	—	—	1	1	2	anthr.	—	1	1	—
88	90	84	20	137	127	117	68	2	2	3	anthr.	3	2	2	80,1
85	86	75	25	135	127	129	75	2	3	1	anthr.	3	1	3	74,9
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
83	83	83	—	143	128	125	—	2	2	3	fossa praenasalis	1	1	2	74,3
—	—	—	—	132	—	122	—	—	2	2	anthr.	3	1	3	72,2
—	—	—	—	—	—	129	55	1	1	—	—	—	1	1	75,7
—	—	—	—	137	—	—	—	—	—	—	—	—	—	—	76,5
83	86	74	23	139	125	123	67	3	3	2	anthr.	—	1	2	75,1
92	92	90	32	133	127	120	75	1	1	3	anthr.	1	3	1	74,6
86	86	86	24	146	129	133	—	1	2	1	anthr.	—	1	2	—
—	—	—	—	—	—	—	—	2	2	—	anthr.	—	1	1	77,7
83	85	80	—	136	128	116	66	2	2	3	anthr.	3	3	3	69,6
—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	74,4
83	81	83	34	138	124	—	—	1	2	2	anthr.	2	1	1	73,1
—	—	—	—	142	—	110	68	1	1	3	—	—	1	1	72,7
85	86	83	28	132	123	117	75	1	1	3	anthr.	3	1	1	76,0
80?	80?	80?	—	—	—	121	68	2	2	3	anthr.	3	1	1	74,3
89	89	89	26	129	—	130	76	1	1	2	anthr.	3	1	1	78,3
83	85	78	24	140	132	119	51	1	1	2	anthr.	—	1	1	75,9
—	—	—	—	—	—	—	—	2	2	4	anthr.	3	1	—	81,0
84	86	73	—	135	128	121	63	2	2	3	anthr.	—	1	1	74,3
—	—	—	—	—	—	119	—	—	1	1	—	—	1	2	73,9
85	85	85	27	133	128	127	53	1	1	2	anthr.	—	2	1	71,0
83	—	—	—	—	119	123	60	2	2	3	anthr.	—	—	1	82,6
90	—	60	30	133	130	127	57	1	2	2	anthr.	5	2	1	76,1
84	85	79	—	134	125	125	71	1	1	2	anthr.	2	1	1	82,4
81	82	77	—	145	124	128	58	2	2	3	anthr.	—	1	2	74,2
85	86	81	—	—	118	133	52	1	1	3	anthr.	—	1	1	76,6
—	—	—	—	132	—	—	—	2	2	—	anthr.	—	2	2	73,5

Inventory number of the Museum of Anthropology of the Moscow University	17 : 1 (1 2) Height-length index (from basion) $\left(\frac{ba-b}{g-op} \cdot 100\right)$	20 : 1 (1 4) Height-length index (from porion) $\left(\frac{ba-p}{g-op} \cdot 100\right)$	(1 3) 17 : 8 Height-breadth index (from basion) $\left(\frac{ba-b}{eu-en} \cdot 100\right)$	20 : 8 (1 5) Height-breadth index (from porion)	9 : 8 (1 13) Transverse frontoparietal index $\left(\frac{ft-ft}{eu-en} \cdot 100\right)$	— Arcus supraorbitalis length index (Arcus supraor- bitalis length $\frac{fmt-fmt}{100}$)	48 : 17 Vertical faciocranial index $\left(\frac{n-pr}{ba-b} \cdot 100\right)$	45 : 8 (1 71) Transverse faciocranial index $\left(\frac{zy-zy}{eu-en} \cdot 100\right)$	— Frontal convexity index $\left(\frac{Sub.NB}{n-b} \cdot 100\right)$	— Occipital convexity index $\left(\frac{Sub.LO}{1-o} \cdot 100\right)$
11100	68.0	58.4	85.8	73.8	67.4	56.4	52.9	87.9	26.8	33.0
11101	—	64.8	—	81.1	69.3	56.4	—	88.2	26.8	—
11102	70.7?	61.7	91.5	79.8	70.5	55.7	54.2?	86.8?	23.5	—
11103	—	68.2	—	98.4	74.6	57.4	—	—	22.0	23.5
11376	—	—	—	78.9	—	—	—	—	—	—
11377	—	65.1	—	77.6?	64.6?	—	—	—	27.1	—
16/1	—	68.4	—	—	—	—	—	—	22.2	—
16/2	—	60.9	—	85.2	72.7	63.0	—	95.3	23.6	27.0
16/6	80.5	59.2	100.8	81.5	68.1	50.5	44.8	90.4	23.3	28.3
16/7	—	61.5	—	84.8	68.9	70.1	—	93.9	27.5	29.6
17/1	—	—	—	—	—	56.7	—	—	—	—
17/5	75.4	64.3	94.2	80.3	69.3	57.7	48.8	93.4	23.3	28.3
17/7	73.7	62.6	98.5	83.6	73.9	57.8	56.1	95.5	22.9	25.0
53/3	73.7	61.4	99.2	82.7	74.4	66.7	52.3	95.5	27.1	29.5
53/4	73.3	59.4	101.5	82.2	69.6	64.3	49.6	—	26.1	31.9
53/7	—	—	—	—	67.2	—	—	—	—	—
53/9	69.0	62.6	90.2	81.8	66.4	51.0	—	—	28.2	—
53/10	66.7	58.2	88.7	77.4	69.2	59.0	55.9	94.7	21.4	27.2
53/12	70.4	61.9	94.3	83.0	65.2	58.8	54.1	87.2?	26.7	28.7
53/13	—	—	—	—	—	—	—	—	—	—
53/18	72.0	66.3	92.6	85.3	71.3	58.4	—	—	26.2	28.7
53/19	72.8	60.9	104.7	87.5	76.6	54.6	50.8	100.8?	25.4	24.7
53/22	—	64.0	—	85.9	—	—	—	—	—	—
53/24	75.4	63.4	103.1	86.7	68.0	55.8	47.7	95.3	23.8	28.9
53/25	74.4	60.8	102.3	83.6	71.1	53.0	40.5	89.8	27.4	31.2
53/27	72.5	62.0	95.4	81.5	70.8	—	52.4	—	27.4	—
53/28	74.3?	64.0	100.0	86.2	66.9	62.0	48.5	—	25.7	31.5
53/31	66.3	62.9	84.7	80.3	63.5	—	57.8	77.4	24.8	29.6
53/32	75.3	61.2	99.2	80.6	67.4	53.6	48.4	92.2	26.2	32.9
53/35	—	60.3	—	74.5	—	—	—	—	28.4	31.5
53/37	69.3	56.4	93.2	75.9	67.7	53.1	54.0	88.0	23.8	33.7
53/38	—	64.7	—	82.7	75.2	—	—	—	—	30.1
53/39	70.4	59.7	99.2	84.1	68.9	59.4	55.7	93.9	22.3	36.9
53/41	—	67.4	—	81.7	68.5	51.0	—	88.0?	—	—
53/44	71.1	61.1	—	80.3	64.2	50.5	56.2	89.0	26.4	32.7
53/46	75.0	63.6	91.0	77.2	63.4	—	48.5	84.1	26.2	34.4
53/50	73.1	61.0	98.5	82.2	65.2	52.0	49.6	86.7	24.8	32.3
53/51	74.2	63.5	96.8	82.8	70.3	—	51.6	89.8	26.0	29.3
53/54	70.7	59.1	96.2	80.4	72.9	56.7	—	—	22.9	30.7

TABLE XXX (7)

40 : 5 (I 60)	48 : 45 (I 39)	47 : 45 (I 38)	54 : 55 (I : 48)	52 : 51a (I 42b)	52 : 51 (I 42)	63 : 62 (I 58)	63 : 62 (I 13)	—	—	—	71a : 70	63 : 62
Index of prognathism (gnathic index) (index of face prominence) $\left(\frac{ba - pr}{n - ba} \cdot 100\right)$	Upper facial index $\left(\frac{n - pr}{zy - zy} \cdot 100\right)$	Total facial index $\left(\frac{n - gn}{zy - zy} \cdot 100\right)$	Nasal index $\left(\frac{\text{nasal breadth}}{n - ns} \cdot 100\right)$	Orbital index (from dacryon) (orbital height $\left(\frac{d - ek}{d - ek} \cdot 100\right)$)	Orbital index (from maxillofrontale) (orbital height $\left(\frac{m - ek}{m - ek} \cdot 100\right)$)	Palatal index (from staphylion) $\left(\frac{enm - enm}{d - sta} \cdot 100\right)$	Upper alveolar arch index. External palatal index (maxillo-alveolar index) $\left(\frac{ekm - ekm}{pr - alv} \cdot 100\right)$	Maxillo-frontal index $\left(\frac{\text{maxillo-frontal}}{\text{sub}} \cdot 100\right)$ mf — mf	Dacryal index (dacryal sub $\left(\frac{d - d}{d - d} \cdot 100\right)$)	Simotical index (simotical sub $\left(\frac{\text{simotical chord}}{\text{simotical chord}} \cdot 100\right)$)	Mandibular ramus index (minimal breadth of ramus $\left(\frac{\text{height of ramus}}{\text{height of ramus}} \cdot 100\right)$)	Mandibular length- bignonal index (Mandibular pro- jective length $\left(\frac{go - go}{go - go} \cdot 100\right)$)
94.7	51.6?	81.4	50.0	—	74.0	—	119.2	33.3	27.3	40.0	54.2	—
—	51.8?	85.7	—	—	—	71.4	—	—	—	—	72.5	62.4
—	57.1?	92.0	46.6	—	76.9	78.3	110.9	55.6	—	50.0	—	83.5
—	—	—	490.?	—	77.5	—	—	46.0	—	55.6	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	49.1	69.9
—	—	—	—	—	—	—	—	—	—	—	—	—
—	60.7	—	37.7	—	89.2	—	—	42.5	—	62.3	—	—
—	50.0	85.2	52.2	77.8	76.8	—	—	51.2	58.6	63.2	51.7	70.6
—	54.0	82.3	47.9	—	78.9	88.1	116.7	45.0	—	52.9	—	58.6
—	53.1	86.1	55.1	—	76.7	—	—	49.0	—	50.0	—	—
94.7	49.2	82.0	47.7	82.7	79.5	92.9	122.5	32.0	44.1	36.4	57.1	83.9
100.0	57.8	94.5	48.0	—	83.7	80.0	103.4	40.0	—	48.9	57.1	74.0
98.9	54.3	86.6?	55.3	—	76.5	—	—	—	—	—	55.4	89.0
—	—	—	51.1	—	—	—	—	49.0	—	58.5	46.7	81.6
—	—	—	—	—	—	—	—	—	—	—	56.2	74.7
—	—	—	—	—	—	—	—	47.4	—	50.0	—	—
98.9	52.4	84.1	50.0	85.3	82.0	86.7	111.5	44.4	—	61.7	55.0	79.6
89.2	58.5	92.7	47.1	88.0	88.0	93.0	112.0	41.4	—	58.5	55.4	73.2
—	52.3	79.2	50.0	—	88.9	97.6	122.5	40.6	48.3	36.4	63.3	618
—	—	—	—	—	—	—	—	—	—	—	57.1	85.9
94.0?	52.7?	84.5	57.1	—	83.9	89.1	—	—	—	—	55.6	—
—	—	—	—	—	—	—	—	—	—	—	—	—
92.0	51.6	82.8	44.3	84.8	82.1	86.7	111.8	51.3	61.0	62.5	—	—
92.6?	46.1	78.3	48.8	—	82.0	—	—	—	—	—	57.7	80.9
—	—	—	47.9	—	92.1	90.7	122.9	52.8	—	50.0	57.7	69.3
—	—	—	49.0	—	79.0	88.1	—	40.0	—	42.9	53.7	79.3
98.9?	63.2	100.0?	42.2	—	86.5	—	116.7	44.4	—	62.5	61.7	81.7
93.6	52.1	85.7	51.1	—	84.2	—	125.5	43.6	57.1	44.6	47.5	73.9
—	—	—	—	—	83.8	88.4	118.8	40.0	—	50.0	—	—
93.8	57.3	92.3	46.1	83.1	80.0	—	—	47.1	71.0	47.5	47.5	75.5
—	—	—	—	—	—	—	—	—	—	—	50.9	71.4
99.0	58.9	96.0	48.0	89.0	84.4	—	—	44.2	—	23.3	54.4	81.0
—	52.8?	85.6	50.0	—	83.1	—	—	—	—	—	52.7	79.6
85.1	59.0?	94.3	39.5	—	92.1	—	—	46.0	—	56.1	50.9	75.8
92.6	52.5	86.1	50.0	97.4	84.2	85.4	110.4	42.1	47.5	42.7	61.7	75.0
103.1	56.4	92.3	57.6	80.0	76.0	—	114.7	40.4	53.0	50.0	50.9	81.0
94.6	55.6	91.3	—	—	93.1	—	129.8	—	—	—	53.0	77.2
—	—	—	—	—	—	—	—	—	—	—	—	—

Individual dimensions of the male long bones from the burial place Zhuravka

Burial number	Inventory number of the museum of Anthropology of the Moscow University	Sex	FEMUR			TIBIA		FIBULA		HUMERUS		RADIUS		ULNA	
			1 Greatest length of femur	2 Physiological length	8 Circumference in the middle of the shaft	1 Total tibial length	10b Minimal circumference	1 Greatest length	4a Minimal circumference of the shaft	1 Greatest length	7 Minimal circumference	1 Greatest length	3 Minimal circumference	1 Greatest length	3 Minimal circumference
Burial 5	3583	m	447 r	444 r	86 r	—	—	—	—	—	—	246 r	43 r	—	—
Burial 9	3584	m	451 l	449 l	74 l	363 l	74 l	—	—	—	—	—	—	266 l	33 l
Burial 18	11373	m	467 l	463 l	90 l	—	—	—	—	333 l	68 l	270 l	45 l	288 l	39 l
Burial 23	11374	m	423 r	421 r	85 r	340 r	71 r	328 r	31 r	310 r	65 r	—	—	—	—
Burial 31	16/3	m	465 l	463 l	88 l	—	—	—	—	—	—	—	—	—	—
Burial 33	16/5	m	—	—	—	—	—	—	—	—	—	262 r	52 r	287 r	44 r
Burial 41	16/9	m	424 r	423 r	86 r	—	—	—	—	—	—	—	—	263 r	38 r
Burial 45	17/2	m	471 l	470 l	93 l	—	—	—	—	330 l	67 l	255 l	44 l	273? l	44? l
Burial 49	17/3	m	482 l	—	88 l	—	—	—	—	344 r	64 r	—	—	—	—
Burial 51	17/4	m	455 r	453 r	93 r	371 r	76 r	—	—	327 r	67 r	236 r	41 r	260 r	40 r
Burial 53	17/6	m	406 l	404 l	83 l	335 l	69 l	333 l	36 l	295 l	62 l	235 l	40 l	258 l	36 l
Burial 55	53/1	m	446 r	441 r	96 r	363 r	76 r	356 r	35 r	326 r	68 r	251 r	42 r	274 r	38 r
Burial 56	53/2	m	441 l	439 l	90 l	361 l	72 l	359 l	33 l	324 l	63 l	241 l	43 l	—	—
Burial 60	53/6	m?	411 l	410 l	84 l	—	—	—	—	—	—	—	—	—	—
Burial 65	53/8	m	478 r	477 r	94 r	400 r	86 r	368 r	42 r	342 r	75 r	264 r	45 r	280 r	45 r
										333 l	73 l	260 l	44 l	272 l	42 l
Burial 73	53/14	m	497 r	492 r	88 r	403 r	76 r	—	—	342 r	65 r	267 r	44 r	—	—
			497 l	492 l	87 l										
Burial 74	53/15	m	437 r	436 r	90 r	348 r	75 r	—	—	300 r	63 r	228 r	39 r	249 r	35 r
										314 l	65 l	230 l	40 l	252 l	35 l
Burial 75	53/17	m?	—	—	—	—	—	—	—	337 r	67 r	—	—	—	—
Burial 77	53/16	m	468 r	465 r	91 r	395 r	80 r	—	—	338 r	69 r	253 r	48 r	—	—
Burial 83	53/21	m	452 l	451 l	91 l	357 l	78 l	362 l	43 l	323 l	67 l	—	—	268 l	39 l
Burial 89	53/26	m	467 r	465 r	88 r	373 r	72 r	362 r	35 r	330 r	65 r	257 r	39 r	—	—
			467 l	465 l	86 l	375 l	73 l	361 l	35 l	326 l	61 l	—	—	277 l	35 l
Burial 92	53/29	m	—	—	—	—	—	—	—	320 r	60 r	250 r	40 r	268 r	35 r
			438 l	437 l	89 l	359 l	72 l	—	—						
Burial 101	53/34	m	483 l	480 l	98 l	394 l	86 l	—	—	—	—	253 l	43 l	—	—
Burial 103	53/38	m	—	—	—	—	—	—	—	—	—	—	—	—	—
			464 l	459 l	88 l	380 l	75 l	—	—	312 r	60 r	—	—	—	—
Burial 105	53/36	m	493 r	487 r	92 r	404 r	76 r	391 r	33 r	355 l	65 l	268 r	40 r	293 r	38 r
Burial 110	53/40	m	463 r	454 r	78 r	368 r	73 r	357 r	29 r	315 r	58 r	—	—	269 r	35 r
			459 l	458 l	83 l	365 l	76 l	357 l	28 l	311 l	58 l	248 l	40 l	271 l	35 l
Burial 113	53/43	m	440 r	436 r	90 r	—	—	—	—	312 l	58 l	—	—	—	—
			441 l	435 l	90 l										
Burial 116	53/45	m	476 r	472 r	85 r	388 r	72 r	—	—	333 r	62 r	260 r	40 r	277 l	34 l
			481 l	474 l	87 l	388 l	73 l	—	—			255 l	39 l		
Burial 119	53/48	m	479 l	478 l	89 l	388 l	79 l	375 l	36 l	338 l	60 l	255 l	42 l	—	—
Burial 120	53/49	m	—	—	—	—	—	—	—	320 r	59 r	253 r	40 r	277 r	38 r
			452 l	449 l	89 l	374 l	76 l	—	—	320 l	60 l			276 l	38 l

NOTE: Growth of the skeleton N 53/38 was not yet terminated.

Burial number	Inventory number of the museum of Anthropology of the Moscow University	Sex	PROPORTIONS					INDEX of ROBUSTICITY					
			(H1 + R1) : (T1 + F2) Intermembral index	T1 : F2 Tibiofemoral index	U1 : H1 Ulnohumeral index	H1 : F2 Humero femoral index	R1 : T1 Radiofibial index	8 : 2 of femur	10b : 1 of tibia	4a : 1 of fibula	7 : 1 of humerus	3 : 1 of radius	3 : 1 of ulna
Burial 5	3583	m	—	—	—	—	—	19.4 r	—	—	—	19.4 r	—
Burial 9	3584	m	—	80.9 l	—	—	—	19.8 l	20.4 l	—	—	—	12.4 l
Burial 18	11373	m	—	—	81.1 l	71.9 l	—	19.4 l	—	—	20.4 l	16.7 l	13.5 l
Burial 23	11374	m	—	80.8 r	—	73.6 r	—	20.2 r	20.9 r	9.5 r	21.0 r	—	—
Burial 31	16/3	m	—	—	—	—	—	19.0 r	—	—	—	—	—
Burial 33	16/5	m	—	—	—	—	—	—	—	—	—	19.8 r	15.3 r
Burial 41	16/9	m	—	—	—	—	—	20.3 r	—	—	—	—	14.4 r
Burial 45	17/2	m	—	—	77.3 l	70.2 l	—	19.8 l	—	—	20.3 l	17.2 l	161. ? l
Burial 49	17/3	m	—	—	—	—	—	—	—	—	18.6 r	—	—
Burial 51	17/4	m	—	81.9 r	72.2 r	72.2 r	—	20.5 r	20.5 r	—	20.5 r	17.4 r	15.4 r
Burial 53	17/6	m	71.7 l	82.9 l	79.7 l	73.0 l	70.1 l	20.5 l	20.5 l	10.8 l	22.0 l	17.0 l	14.0 l
Burial 55	53/1	m	71.8 l	82.3 l	77.0 l	73.9 r	69.1 r	21.8 r	20.9 r	9.8 r	20.9 r	16.7 r	13.9 r
Burial 56	53/2	m	70.6 l	82.2 l	74.4 l	73.8 l	66.8 l	20.5 l	20.0 l	9.2 l	19.4 l	17.9 l	—
Burial 60	53/6	m?	—	—	—	—	—	20.5 r	—	—	—	—	—
Burial 65	53/8	m	69.1 l	84.0 r	77.2 r 78.1 l	71.7 r	66.0 r	19.7 r	21.5 r	11.4 r	21.9 r 21.9 l	17.0 r 16.9 l	16.1 r 15.4 l
Burial 73	53/14	m	68.0 l	81.9 r	78.1 r	69.5 r	66.3 r	17.9 r 17.7 l	18.9 r	—	19.0 r	16.5 r	—
Burial 74	53/15	m	67.4 l	79.8 r	76.0 r	68.9 r	65.5 r	20.6 r	21.6 r	—	20.0 r 20.7 l	17.1 r 17.4 l	14.0 r 13.9 l
Burial 75	53/17	m	—	—	—	—	—	—	—	—	19.9 r	—	—
Burial 77	53/16	m	68.4 l	85.0 r	74.3 r	72.7 r	63.6 r	19.6 r	20.3 r	—	20.4 r	19.9 r	—
Burial 83	53/21	m	—	79.2 l	—	71.6 l	—	20.2 l	21.9 l	11.9 l	20.8 l	—	14.6 l
Burial 89	53/26	m	70.0 l	80.2 r 80.6 l	77.9 r	71.0 r 70.1 l	68.9 r	18.9 r 18.5 l	19.3 r 19.5 l	9.7 r 9.7 l	19.7 r 18.7 l	15.2 r	12.6 l
Burial 92	53/29	m	—	82.2 l	78.1 r	—	—	20.4 l	20.0 l	—	18.8 r	16.0 r	13.1 r
Burial 101	53/34	m	—	82.1 l	—	—	64.2 l	20.4 l	21.8 l	—	—	17.0 l	—
Burial 103	53/33	m?	—	82.8 l	—	68.0 l	—	19.2 l	19.7 l	—	—	—	—
Burial 105	53/36	m	—	83.0 r	—	—	66.8 r	18.9 r	18.8 r	8.4 r	—	14.9 r	13.0 r
Burial 110	53/40	m	—	81.0 r	—	69.4 r	—	17.2 r	19.8 r	8.1 r	18.4 r	—	13.5 r
Burial 113	53/43	m	67.9 l	79.7 l	79.7 l	67.9 l	68.0 l	18.1 l	20.8 l	7.8 l	18.6 l	16.1 l	12.9 l
Burial 116	53/45	m	—	—	—	71.7 l	—	20.6 r 20.7 l	—	—	18.6 l	—	—
Burial 119	53/48	m	68.5 l	82.2 r 81.9 l	78.1 r	70.6 r	67.0 r 65.7 l	18.0 r 18.4 l	18.6 r 18.8 l	—	18.6 r	15.4 r 15.3 l	12.3 l
Burial 120	53/49	m	—	71.2 l	75.4 l 79.1 r	70.7 l	65.7 l	18.6 l	20.4 l	9.6 l	17.8 l	16.5 l	—
				83.3 l		71.2 l		19.8 l	20.3 l		18.4 r 18.8 l	15.7 r	13.7 r 13.8 l

Burial number	Inventory number of the Museum of Anthropology of the Moscow University	Sex	FEMUR			TIBIA		FIBULA		HUMERUS		RADIUS		ULNA	
			1 Greatest length of femur	2 Physiological length	3 Circumference in the middle of the shaft	1 Total tibial length	2 Minimal circumference	1 Greatest length	2 Minimal circumference of the shaft	1 Greatest length	2 Minimal circumference	1 Greatest length	2 Minimal circumference	1 Greatest length	2 Minimal circumference
Burial 7	11100	f	391 r	389 r	76 r	—	—	—	—	285 r	55 r	—	—	236 r	34 r
Burial 11	11103	f	—	—	—	312 l	67 l	—	—	320 l	58 l	247 r	40 r	—	—
Burial 12	11376	f?	429 l	428 l	84 l	—	—	—	—	—	—	—	—	—	—
Burial 13	11377	f	418 r	417 r	79 r	—	—	—	—	306 l	55 l	—	—	—	—
Burial 27	16/1	f	420 r	419 r	80 r	347 r	68 r	—	—	305 r	58 r	238 r	42 r	—	—
Burial 34	16/4	f?	424 l	422 l	83 l	338 r	67 r	—	—	—	—	—	—	—	—
Burial 35	16/6	f	—	—	—	348 r	69 r	—	—	303 r	60 r	—	—	—	—
Burial 52	17/5	f	413 l	413 l	89 l	—	—	—	—	303 l	52 l	232 l	35 l	249 l	30 l
Burial 54	17/7	f?	425 l	422 l	74 l	332 l	62 l	—	—	319 r	59 r	233 r	37 r	258 r	33 r
Burial 57	53/3	f	447 r	444 r	85 r	—	—	—	—	309 r	59 r	—	—	—	—
Burial 57a	53/4	f	—	—	—	—	—	—	—	298 l	52 l	223 l	34 l	—	—
Burial 67	53/9	f	440 l	435 l	83 l	358 l	65 l	343 l	33 l	302 r	60 r	220 r	37 r	—	—
Burial 68	53/10	f	392 r	390 r	83 r	—	—	—	—	283 r	57 r	—	—	230 r	33 r
Burial 70	53/12	f	395 r	390 r	76 r	324 r	66 r	—	—	297 r	54 r	232 r	35 r	—	—
Burial 71	53/13	f	398 r	393 r	82 r	324 r	63 r	—	—	280 l	53 l	213 l	36 l	—	—
Burial 78	53/18	f	395 l	394 l	80 l	334 l	65 l	324 l	29 l	284 l	53 l	223 l	37 l	—	—
Burial 79	53/19	f	403 l	403 l	84 l	328 l	70 l	—	—	—	—	236 r	41 r	257 r	34 r
Burial 85	53/22	f	430 r	426 r	85 r	368 r	70 r	—	—	274 l	52 l	211 l	32 l	235 l	31 l
Burial 87	53/24	f	383 l	382 l	77 l	318 l	66 l	—	—	294 r	59 r	228 r	38 r	—	—
Burial 91	53/28	f	408 l	403 l	84 l	348 l	68 l	—	—	294 r	58 r	—	—	238 r	33 r
Burial 93	53/30	f	403 r	402 r	78 r	337 r	65 r	—	—	—	—	—	—	—	—
Burial 98	53/32	f	423 r	420 r	90 r	—	—	—	—	305 l	52 l	221 l	33 l	247 l	30 l
Burial 106	53/37	f	416 l	412 l	83 l	—	—	—	—	320 r	59 r	—	—	—	—
Burial 107	53/38	f	450 r	445 r	88 r	373 r	79 r	—	—	302 r	54 r	230 r	35 r	—	—
Burial 109	53/39	f	—	—	—	—	—	—	—	—	—	241 r	38 r	—	—
Burial 111	53/41	f	437 r	425 r	78 r	355 r	69 r	348 r	34 r	—	—	218 l	35 l	—	—
Burial 115	53/44	f	436 l	433 l	77 l	—	—	—	—	—	—	225 r	33 r	249 r	28 r
Burial 117	53/46	f	432 r	429 r	73 r	345 r	66 r	341 r	30 r	295 r	51 r	222 l	31 l	245 l	28 l
Burial 121	53/50	f	433 l	430 l	74 l	347 l	65 l	—	—	—	—	—	—	—	—
Burial 122	53/51	f	407 r	403 r	62 r	328 r	58 r	—	—	315 r	57 r	227 r	37 r	253 r	35 r
			402 l	398 l	65 l	327 l	58 l	—	—	307 l	56 l	224 l	34 l	248 l	35 l
			403 r	401 r	82 r	337 r	71 r	329 r	30 r	304 r	51 r	234 r	33 r	254 r	27 r
			407 l	404 l	81 l	335 l	71 l	327 l	28 l	302 l	49 l	234 l	32 l	—	—
			409 r	406 r	71 r	345 r	62 r	340 r	30 r	—	—	—	—	—	—
			417 l	413 l	72 l	435 l	62 l	—	—	—	—	—	—	—	—

NOTE: Growth of the skeleton N 53/46 was not yet terminated.

Burial number	Inventory number of the Museum of the Moscow University	Sex	PROPORTIONS					INDEX of ROBUSTICITY					
			(H1 + R1): (T1 + F2) Intermembral index	T1 : F2 Tibiofemoral index	U1 : H1 Ulnohumeral index	H1 : F2 Humero femoral index	R1 : T1 Radiotibial index	8 : 2 of femur	10b : 1 of tibia	4a : 1 of fibula	7 : 1 of humerus	3 : 1 of radius	3 : 1 of ulna
Burial 7	11100	f	—	—	—	73.3 r	—	19.5 r	21.5 l	—	19.3 r	14.4 r	—
Burial 11	11103	f	—	—	—	—	—	—	—	—	18.1 l	16.2 r	—
Burial 12	11376	f?	—	—	—	—	—	19.6 l	—	—	—	—	—
Burial 13	11377	f	—	—	—	—	—	18.9 r	—	—	—	—	—
Burial 27	16/1	f	70.9 r	82.8 r	78.0 r	72.8 r	68.6 r	19.1 r	19.6 r	—	19.0 r	17.6 r	—
Burial 34	16/4	f?	—	—	—	—	—	—	19.8 r	—	—	—	—
Burial 35	16/6	f	—	—	—	—	—	19.7 l	19.8 r	—	19.8 r	—	—
Burial 52	17/5	f	71.0 l	78.7 l	76.6 l	71.8 l	69.9 l	21.5 l	17.5 l	18.7 l	—	17.2 l	15.1 l
Burial 54	17/7	f?	—	—	73.0 r	71.8 r	—	19.1 t	—	—	18.5 r	15.9 r	12.0 l
Burial 57	53/3	f	—	—	—	—	—	—	—	—	19.1 l	—	—
Burial 57a	53/4	f	65.7 l	82.3 l	74.8 l	68.5 l	62.3 l	19.1 l	18.2 l	9.6 l	17.4 l	15.2 l	—
Burial 67	53/9	f	—	—	72.9 r	77.4 r	—	21.3 r	—	—	18.8 r	16.8 r	—
Burial 68	53/10	j	—	83.1 r	—	73.1 r	—	19.5 r	20.4 r	—	20.1 r	—	14.4 r
Burial 70	53/12	f	73.8 r	82.4 r	78.1 r	75.6 r	71.6 r	20.8 r	19.4 r	—	18.2 r	15.1 r	—
Burial 71	53/13	f	67.7 l	84.8 l	76.1 l	71.1 l	63.8 l	20.3 l	19.5 l	9.0 l	18.9 l	16.9 l	—
Burial 78	53/18	f	69.4 l	81.4 l	78.5 l	70.5 l	68.0 l	20.8 l	21.3 l	—	18.7 l	16.6 l	—
Burial 79	53/19	f	—	86.4	—	—	64.1 r	20.0 r	19.0 r	—	—	17.4 r	13.2 r
Burial 85	53/22	f	69.3	83.2 l	77.1 l	71.7 l	66.4 l	20.2 l	20.8 l	—	19.0 l	15.2 l	13.2 l
Burial 87	53/24	f	—	86.4 l	77.6 r	—	—	20.8 l	19.5 l	—	20.1 r	16.7 r	—
Burial 91	53/28	f	—	83.8 r	—	73.1 r	—	19.4 r	19.3 r	—	19.7 r	—	13.9 r
Burial 93	53/30	f	—	—	—	—	—	—	21.4 r	—	—	—	—
Burial 98	53/32	f	—	—	72.5 l	74.0 l	—	20.1 l	—	—	17.0 l	14.9 l	12.2 l
Burial 106	53/37	f	—	83.8 r	—	71.9 r	—	19.8 r	21.2 r	—	18.4 r	—	—
Burial 107	53/38	f	—	—	76.2 r	—	—	—	—	—	17.9 r	15.2 r	—
Burial 109	53/39	f	—	83.5 r	—	—	67.9 r	18.4 r	19.4 r	9.8 r	—	15.8 r	—
Burial 111	53/41	f	—	—	—	—	—	17.8 l	—	—	—	16.0 l	—
Burial 115	53/44	f	67.1 r	80.4 r 80.7 l	76.3 r	68.8 r	65.2 r 64.0 l	17.0 r 17.2 l	19.1 r 18.7 l	8.8 r	17.3 r	14.7 r 13.9 l	11.2 r 11.4 l
Burial 117	53/46	f	—	81.4 r 82.2 l	—	—	—	15.4 r 16.3 l	17.7 r 17.7 l	—	—	—	—
Burial 121	53/50	f	73.4 r 71.9 l	84.0 r 82.9 l	72.1 r 73.0 l	78.6 r 75.9 l	67.4 r 66.9 l	20.4 r 20.0 l	21.1 r 21.2 l	9.1 r 8.6 l	18.1 r 18.2 l	16.3 r 15.2 l	13.8 r 14.1 l
Burial 122	53/51	f	71.6 r 70.7 l	84.9 r 83.5 l	77.0 r 77.5 l	74.9 r 73.1 l	67.8 r 67.8 l	17.5 r 17.4 l	18.0 r 18.0 l	8.8 r	16.8 r 16.2 l	14.1 r 13.6 l	10.6 r