

T. S. KONDUKTOROVA

## THE ANCIENT POPULATION OF THE UKRAINE

### *Second part*

#### VII.

#### THE CHERNYAKHOV CULTURE

The origin of the Chernyakhov culture, its relation to other, especially to Slavic cultures is a problem on which today focuses the attention of archaeologists. The osteological material of this culture, which has been accumulated during the last years, helps anthropologists to form a more definite idea of the physical appearance of its representatives, and to contribute thereby to the solution of the problem. The excavations carried out by the expedition of the Institute of Archeology of the USSR Academy of Sciences under the directorship of E. A. Symonovich have greatly contributed to this research. A main task of the expeditions was to delineate more exactly the northern and southern boundaries of the Chernyakhov culture. A result of the excavations was the shift of its northern limit farther north, to the basin of the river Seym. Thereby the foundation was laid for the study of Chernyakhov finds in the Black Sea area. The territory occupied by the Chernyakhov culture was found to be far greater than supposed before. It includes the whole area from the Western Ukraine and Moldavia to the river Severskiy Donets, from the Volynia and Kursk region as far as the Black Sea.

During the exploratory work carried out by the expeditions in 1959 in the northern part of the region investigated (Symonovich, 1953 b) several skeletons were discovered in the villages of Dere-

vyannoe Romashki<sup>4</sup>) and Teleshovka (Obukhov and Rakitnoe districts, Kiev region). Most fully represented is the osteological material obtained in 1959—1963 in the village of Zhuravka—Olshanskaya (Korsun—Shevchenkovskiy district Cherkassy region) (Symonovich, 1963 b). The Chernyakhov culture collection was further supplemented by materials from the excavations resumed in 1961—62 in the village of Chernyakhov (Kagarlyk district, Kiev region) (Symonovich, 1967 b). The cemetery of this village was earlier investigated by V. V. Khvoyko (Khvoyko, 1901, 1913, Petrov, 1964 b). The results of the study of the finds from the villages of Zhuravka and Chernyakhov will be discussed later in greater detail.

The expedition of the Institute of Archeology of the USSR Academy of Sciences also excavated the cemeteries of the villages of Ranzhevoe (Kominternovskoe district) (Symonovich, 1967 b), Krinichki (Balta district, formerly Pishchana, Odessa region) (Symonovich, 1960 b), Koblevo (Ochakovo district) and Viktorovka (Tiligulo-Berezanka district, Nicolaev region) (Symonovich, 1967 a). Despite its bad state of preservation the material proved to be very valuable. It yielded new information on the as yet unknown morphological appearance of the people that lived in the South during the II.—V.c. AD. Symonovich is inclined to consider these cemeteries as typically Chernyakhovian, while Makhno (1960) points out the mixed character of the material culture in the settlements pertaining to the cemeteries of the villages Viktorovka, Ranzhevoe and Koblevo.

From other parts of the Ukraine only separate finds are available, obtained in different years by different researchers, and not mentioned in the anthropological literature. Thus V. N. Danilenko and A. T. Braychevskaya (1960) discovered in 1955 a male skeleton in the ravine Dovzhik in the village of Voloshskoe (Dniepropetrovsk district, Dniepropetrovsk region). Unfortunately, the skull of this skeleton had been greatly

<sup>4</sup>) For detailed information on earlier excavations in the region of Romashki (V. V. Khvoyko, 1899—1901, V. E. Kozlovskaya, 1929, A. T. Braychevskaya and M. Yu. Braychevskiy, 1947) see: M. Yu. Braychevskiy, 1960.

We had at our disposition only one skull (inv. number 6809) from this locality, probably, from the excavations by V. V. Khvoyko. No precise data on the author and the year are in the inventory book of the Museum of Anthropology of the Moscow University.

deformed after death and was not suitable for measurements, so that only the limb bones could be examined. In 1952 during the excavation of the Pereyaslav Khmelnytskyi cemetery in the Kiev region a male skull was obtained by V. K. Goncharov (Goncharov, 1955; Goncharov and Makhno, 1957). Another male skull was unearthed by D. T. Berezovets in 1955 in the village of Lokhvitsa (Poltava region) (Berezovets, 1957; Berezovets, Petrov, 1960). A female skull obtained in 1948 by E. V. Makhno (1952) in the village of Kantemirovka (Chutov district, Poltava region) was described earlier (Konduktorova, 1958). Three skeletons were found in the village of Chistilov (Zborov district, Tarnopol region) during the excavations carried out in 1964 by I. P. Gereta and E. A. Kharitonov and in 1965 by E. A. Kharitonov and the author.

Until recently only one craniological series from the Middle Dnieper had been published (Debets, 1948, pp. 164–167, 376–379). The series comprised 29 skulls (16 male and 13 female) from several cemeteries: 14 from the Chernyakhov cemetery (Kagarlyk district Kiev region) excavated in 1900–1901 by V. V. Khvoyko, 12 from the cemetery of the village of Maslovo (Zlatopol district, Cherkassy region) excavated in 1928–1929 by S. S. Gamchenko (Petrov 1964a, Makhno, 1966) and 3 from the excavations carried out in 1929 by V. E. Kozlovskaya (1930) in the village of Dedovshchina (Fastov district, Kiev region). Long bones were examined by Debets from the Maslovo cemetery only.

27 skeletons (15 male and 12 female) are known from the Lower Dnieper. They were obtained by Symonovich in 1952–1954 and 1956 during the excavations at the sheepfold of the co-operative farm Pridnieprovskiy, near the village of Gavrillovka (Novo-Alexandrovska, former Novo-Vorontsovka, district, Kherson region) (Symonovich, 1955a, 1955b, 1960c). The skeletons have been described by the author (Konduktorova, 1958).

It must be remembered that the cremation burials which are found in Chernyakhov cemeteries along with skeletal inhumation are an important factor limiting the amount of bone material. The excavations by E. V. Makhno (E. Makhno, 1967) on the left bank of the Dnieper, near the Kompaniytsy farmstead (v. Grigoro-Brigadirovka Kobelyaki district, Poltava region), the excavations by Symonovich (1955b) in the v. Kamenka-Dnieprovskaya (Kamenka district, Zaporozhye region) as well as the results of surveys carried out in 1966 by E. V. Makhno and L. M. Rudkovskaya (1967) in the Poltava region show that the percentage of cremation burials was very high.

Let us now consider our material in greater detail. The excavations in the village of Zhuravka (Cherkassy region) are of special interest. They were conducted by the Institute of Archeology of the USSR Academy of Sciences, under the director-

ship of E. A. Symonovich with the participation of the author. The settlement and the cemetery, separated by a distance of 250 m, were very thoroughly investigated (Symonovich, 1963b). For the anthropologist, naturally the study of the cemetery is of primary interest.

The excavations of the cemetery were begun in 1959 and continued for four further years, reaching their greatest extent in the last year (1963), when an area of 1538 square metres was uncovered, yielding 69 graves. Altogether an area of 3224 square metres was excavated on which 124 graves with inhumation burials were investigated. The cremation graves had been destroyed by ploughing and soil erosion. Remains of such graves are not infrequently encountered in the western part of the cemetery at lesser depths than inhumation burials (e. grave No. 44).

The graves, as a rule, contain a single burial. Grave N 57 is an exception. These two skeletons were found placed one above the other separated by a thin sterile layer of earth. Most probably the graves were marked on the surface. This suggestion, advanced by Symonovich, is based on the fact that graves do not overlap each other and on the traces of a ditch discovered by Symonovich around grave 64.

The dead were placed on their backs, rarely on their right side (grave 77) full length. The legs were extended or slightly contracted, the arms stretched along the body. Sometimes the hands were placed on the pelvis or on the breast. In one child burial (grave 81) the right hand lay close to the face. In 5 skeletons the legs were crossed. Under them were traces of a greenish clay. Only in two cases were the bones well preserved (graves 52 and 53). Under one skeleton (grave 43) were found some vessels and part of the carcass of an animal.

The bodies were situated with their heads to the North or West. In one case (grave 88) the orientation was eastwards. Skeletons with a northward orientation were concentrated mainly in the eastern part of the area investigated, and skeletons with a westward orientation in the western part. Such a grouping of burials with similar orientation attracted the attention of Symonovich (1960c) during the excavation of a cemetery on the Lower Dnieper near the collective farm Pridnieprovskiy and the same phenomenon was observed by E. A. Rikhsman (1958) during his investigations of the Moldavian cemetery Budeshty.

Various objets were discovered in the graves: ceramic and glass vessels, clay spindle-whorls, silver and bronze fibulae, bone pendants, a marine shell with a bronze ring for suspending it, glass and amber beads, bone combs, bronze buckles, iron knives, glass plaques. Beads, sherds of Chernyakhov pottery and spindle-whorls were also found outside the graves.

Most of these objects lay in graves with a northern orientation. Thus grave No 46 contained twelve vessels, graves Nos. 48, 102, seven vessels, and grave No. 105 four vessels. Burials with a westward orientation, had as a rule, a smaller

number of vessels. Skeletons with heads pointing north were more frequently disturbed. Violated graves and destroyed skeletons were also discovered in cemeteries excavated in the Kherson region. (Symonovich, 1960c). Symonovich believes that this was done intentionally, not only for looting, but also as a protection against the imaginary evil influence of the dead. His suggestion is based on the fact that the burial equipment in such graves are left entirely or in part untouched. Instances of destruction of burials with a westward orientation and usually without any inventory are extremely rare in the Zhuravka cemetery, which, according to Symonovich confirms his idea. Disturbed skeletons with a westward orientation were discovered earlier by V. K. Makhno (1957) in the village of Pereyaslav-Khmel'nitskiy and by V. V. Khvoyko (1901) in the village of Chernyakhov.

Not only objects were placed in the tombs but also food, as evidenced by the sheep and goat bones found in the graves.

One of the skeletons (No. III) bore traces of fire. The surface of the bones reposing on the bottom and against the walls was undamaged. Symonovich (1963 a) believes that a ritual, known in the late Scythian population (Zolotaya Balka), had been performed there directly in the grave. (Symonovich, 1960 a).

A few graves are conspicuous by their unusual dimensions (up to 3 metres in length). Symonovich thinks that their large size is a token of special esteem and respect. Husbands or sons would express in this way their feelings toward a wife or a mother.

In the cemetery were discovered one rectangular and three round pits with no traces of burials. When cleared they yielded a few sherds of pottery of the urnfield culture, a bronze fibula and an animal bone. The purpose of these pits is not clear.

Symonovich bases his dating of this cemetery mainly on the glass beakers found with the dead (Symonovich, 1964 b). He refers the burials with a northern orientation to the III—early IV century A.D. Burials with a western orientation date from a later time: IV—to early V or even VI century A.D.

The geographical distribution of the Zhuravka finds shows, according to Symonovich, that the people of the later periods of the Chernyakhov culture settled in localities remote from large rivers and busy trade routes.

The bone remains from the Zhuravka cemetery belong to 184 skeletons (31 male, 36 female, 14 of children and adolescents). From 61 skeletons both skulls and bones are available (24 male, 30 female, 7 of children and adolescents), from ten of them only skulls are extant (1 male, 3 female, 6 of children and adolescents), and from nine long bones only (6 male, 2 female, 1 of an adolescent). Tables 23—28, XXIV—XXXIV.

The material is fairly well preserved. It was restored by I. N. Chernyakhovskaya, laboratory

assistant of the Institute of Anthropology of the Moscow State University.

Age at death averages 40—50 years, not taking into account children, whose skeletons are for the most part entirely decayed. Only the ratio of children (under 14 years) to adults could be determined. It proved to be 1:4. A child mortality of 25 % cannot be regarded as high. A similar or slightly higher mortality is found in the Slavs of Central Europe, Moldavia (Velikanova, 1964, p. 39, table 2). It was considerably higher in the Moldavian population of earlier times according to the material from the village of Vikhvatintsy (Velikanova, 1961 a, p. 212).

The skulls from Zhuravka are dolichocephalic in the shape of the brain case (cranial index: male 75.2; female — 75.2. Tables 23—24). When individually examined, 6 skulls out of 58 proved to be brachycephalic, 10 mesocephalic, and the rest dolichocephalic. Cranial capacity is great in men (1470.7 mm<sup>3</sup>), medium in women (1281.5 mm<sup>3</sup>). The greatest length has a high value (183.3 mm; 177.4 mm), parietal breadth is medium bordering on small (139.3 mm; 134.4 mm). Basio-bregmatic height in men is large from basion (137.0 mm) and medium from porion (115.4 mm); it is medium in women both from basion (129.0 mm) and porion (110.6 mm). The ratio of these measurements emphasises the larger value of basio-bregmatic height and greatest length relative to parietal breadth (height-breadth index from basion — 98.0; 96.7; from porion — 82.6; 82.3). The frontal slope is moderate (from nasion — 83°9, 85°8). Relief is moderately developed (glabella — 3.00; 1.53; external occipital protuberance — 2.21; 1.33; mastoid — 2.66; 1.48).

The face is orthognathous (facial angle — 86°0; 85°5; index of prognathism — 93.7; 95.0), medium broad (upper facial index — 53.7; 54.2; total facial index — 87.8; 86.9). Its absolute measurements are medium (upper face height — 70.8 mm; 66.7 mm; breadth — 131.9 mm; 123.7 mm). The horizontal profile is well expressed (naso-malar angle — 136°0; 136°8; zygo-maxillar angle — 125°8; 126°6).

The orbits are medium or less than medium wide (height 33.5 mm 32.5 mm). According to index they are mesocephalic (index from maxillo-frontale is 83.2 mm; 81.3 mm). Nasal breadth (24.7 mm; 23.6 mm; index is 47.9, 49.1) and palatal breadth (index 85.6; 88.1) are medium. Angle of the nasal projection is wide (31°6; 26°7). The nasal bones (simotic index 53.0; 50.1) and nasal bridge (dacryal index 56.8; 53.8) are strongly projecting. Fossa canina is deep (5.7 mm; 4.7 mm).

The major craniological measurements vary within a narrow range. The significance of differences between the mean observed values and the theoretical values (Alexeev, Debets, 1964) is estimated not by their difference but by the ratio of their squares. The differences observed almost never exceeded the ratios admissible in random differences of variances; this is in a certain degree evidence of the homogeneity of the series (Romanovsky, 1947, p. 240, table VI).

The coefficients of sexual dimorphism in principal measurements are slightly lower than the theoretical ones (Alexeev, Debets, 1964). An insignificant excess is observed only for the basio-bregmatic height. The greatest sexual differences are observed in the upper facial height.

As regards anomalies, a metopic suture was found in two skulls (male No. 53/8, female No. 17/5). Two skulls (male No. 17/4 and female No. 53/39) have an Inca bone. Small-sized sutural bones in the lambdoid suture were found in one male (No. 11374) and one female skull (No. 53/28). In the female skull No. 17/7 the lower left canine tooth protrudes but slightly above the upper edge of the alveolar rim and does not reach the level of the masticatory surface of other teeth. It separates the second incisor from the first premolar only in their lower part; the upper parts of these teeth are contiguous. Three male skeletons have supracondylar foramina, one in the right humerus (No. 53/33) and two in the left humerus (No. 53/40 and 11377).

Two male skeletons have healed bone fractures: one in the lower third of the left ulna (No. 17/2) and the other in the upper third of the right humerus (No. 53/17). In the latter the upper part of the humerus is abnormally inclined forward due to the irregular healing of the bone. In male skeleton No. 53/1 are observed post-traumatic changes in the external compact layer of bone tissue in the region of the tuberosity of the right radius.

10 skulls have carious teeth, namely: male skulls Nos. 53/2 (upper second molar); 53/6 (lower first molar); 53/26 (two first upper left premolars); 53/29 (first left upper premolar and canine, second right premolar, second and third lower molars, second lower right premolar), 53/36 (first left upper molar) female skulls Nos. 11102 (second lower right molar) 11377 (left upper canine, second incisor and first premolar), 17/1 (first right molar, second upper right incisor), 17/5 (third right and left upper molars and first premolars), 53/4 (third lower right molars).

No definite relation is found between the morphological features of the population and the burial rites of the Zhuravka cemetery, although in single cases some indications may be traced. Thus the skeletons in graves 52 and 53 had crossed legs, a position which is known to be characteristic of Sarmatian burials. The first of these skeletons (No. 17/5) belonged to a woman of about 25–35 years of age. The skull is brachycranic, the face medium-sized, broad according to facial index. The nasal angle is small. The second skeleton belonged to a man of 55–60 years. The skull is mesocranic, the face relatively low, the orbits of medium height. In the first skeleton the combination of characters is characteristic rather of Sarmatians than of Chernyakhovians.

Our attention was attracted by the unusual position of a female skeleton with a northern orientation (grave 43). The dead body had been placed on some vessels and the bones of an animal. The skull bore traces of artificial fronto-occipital (circular) de-

formation. Unfortunately it was in a very bad state of preservation and no idea could be formed of the shape of the brain case.

Artificial deformation is to be regarded here as a Sarmatian feature. It is found in the Sarmatians of the Volga region, and in Moldavia in the Sarmatian Bokany cemetery (Fedorov, 1956) where it is observed in about 50 % of the dead. In a cemetery of the Chernyakhov culture of the Ukraine this phenomenon was encountered for the first time.

Grave 57 differed from all other graves by containing not the usual single, but a double burial — two women aged about 30–45 years. Their morphological features did not distinguish them from the other skeletons of the series, only in one of them (No. 53/3) a greater nasal breadth was observed (26 mm).

Owing to the bad state of preservation of skeletons with a northern orientation it was difficult to compare them with the relatively large group with a western orientation, so that for some characters no conclusion could be arrived at.

Skeletons with a western orientation are characterized by somewhat higher values of cranial height, minimum frontal breadth, and height-breadth index, less developed relief in the supraorbital region, though it has greater extent, a slightly higher face, straighter forehead, more pronounced orthognathism more sharply expressed horizontal profiling; and more strongly projecting nasal bridge and nasal bones. The other measurements either have similar values (as for instance cranial index, nasal and orbital measurements) or their differences show an opposite trend in male and female skulls (greatest length and parietal breadth, cranial capacity et al.). The differences observed in certain arithmetical means never exceeded the criterion admissible in random differences (Romanovsky, 1947). The only exceptions are the greatest length and maxillo-frontal indices of male skulls (in the first case the observed value of  $T$  is 2,733 and the limit value — 2,074, in the second case the respective values are 3,477 and 2,120). In other words the slight differences between the means of the two groups proved to be non-significant for the majority of characters. Still, they cannot be ignored because many of these differences are also encountered in the Gavrilovka series, in such characters as cranial height, minimum frontal breadth, development of glabella, simotical index, frontal and facial angles. However all the differences observed in the Gavrilovka series are small and non-significant.

Thus there are no sufficient grounds for assuming that the evolution of burial rites from burials with a northern orientation to burials with a western orientation was associated with a substantial modification of anthropological type.

In 1961 the Middle Dnieper expedition of the Institute of Archeology of the USSR Academy of Sciences, headed by Symonovich, carried out a trial excavation of a cemetery of urnfields in the

village of Chernyakhov (Kagarlik district, Kiev region), which gave its name to the Chernyakhov culture. The study of this site was continued in 1962 (Symonovich, 1967b). The cemetery is situated about 400 m to the west of a settlement of the same period, on the elevated part of a field bordering on the village of Veremye. The cemetery was excavated more than a half-century ago, by Khvoyko (Khvoyko, 1901, 1913, pp. 43-49. Petrov, 1964b). This site stands out among all the monuments of Chernyakhov culture widely investigated at a later time by other authors for the orientation of its dead.

The Chernyakhov cemetery attracted the attention of Symonovich, who wanted to classify the finds into definite complexes and to bring more precision into the question of orientation, as there are indications in the contemporary records of some inaccuracies in the work of Khvoyko.

Symonovich uncovered an area of 219 m<sup>2</sup>, which in the plan of Khvoyko occupies the northern part of the cemetery. The numeration of the graves begun by Khvoyko was continued by Symonovich. He unearthed two burials in 1961 and twenty in 1962 (one of them, No. 260, dating from the Bronze Age). No cremation burials were discovered. Symonovich explains their absence on the one hand by the marginal position of the uncovered part of the cemetery and on the other by the possible erosion of the soil, in which the cremated bones would not have been buried very deeply. Such bones were however encountered in the earth during the excavations and Khvoyko noted a relatively high percentage of cremation burials 27.5 %.

The dead usually lay on their backs full length their arms stretched along the body. In some cases one or both hands lay on the pelvis. As in the Zhuravka cemetery the heads were turned either northwards or westwards. In the latter case they were buried at a greater depth. On the basis of the material from the area investigated Khvoyko gives a somewhat different description of the position of the skeletons. E. A. Symonovich thinks that Khvoyko's conclusions were unfounded, because the position of the trenches excavated by Khvoyko were oriented not by the cardinal points but by the road leading from the Chernyakhov village to the windmill (their traces are still preserved: a mound for the mill and a hollow for the road). Since the road was incorrectly indicated on the plan, Khvoyko was mistaken in his orientation of skeletons by 220 degrees.

Burial equipments are far more frequently found in graves with a northern orientation. As in the Zhuravka cemetery, some of these burials had been violated (for instance No. 262). Burials with a western orientation are almost entirely devoid of grave goods and are as a rule intact. Grave 261 is the only exception.

Among the grave goods there was pottery, both hand-made and turned on a potter's wheel, small iron knives, clay whorls, buckles, bronze fibulae, tweezers, pendants, various kinds of beads, a

sickle-shaped knife, bone needle-cases and combs, as well as small bits of charcoal and bones of domestic animals.

Some of the finds were collected outside the graves: sherds of pottery, a fragment of a bronze fibula.

The excavations of 1961-1962 enabled Symonovich to distinguish typical burial complexes: for children, for men and for women, for rich people and for poor people. He calls in question the assumption of a particular orientation of skeletons in this cemetery, distinct from all other Chernyakhovian finds. The investigation of this Chernyakhov cemetery cannot be regarded as concluded.

During the excavations carried out by V. V. Khvoyko 14 skulls were obtained (8 male and 6 female). They were deposited in the Kiev Regional Museum and examined there by G. F. Debets (1948). Symonovich unearthed 11 incomplete skeletons (6 male, 4 female and 1 of a child). The long bones and skulls were in general well preserved with the exception of one female skeleton (No. 34/4) in which the skull had been destroyed. Greatly disintegrated children's skeletons were left in the earth (Tables 23-28, XXIV to XXVIII).

Judging from the material of Symonovich age at death averaged 40 years. But this estimate is not reliable firstly because Khvoyko's material could not be used (G. F. Debets gives no detailed information on the age of the dead) and secondly because the ages of children and adolescents were not included in the calculations owing to the bad state of preservation of their bones. Children and adolescents account for 25 % of the material obtained in 1961-62 (5 children and 15 adults).

A craniological series was made up from the material of Khvoyko and Symonovich, comprising 14 male and 9 female skulls. It is characterized generally by marked dolichocrany. The cranial index is 72,3 in men and 74,5 in women. Individual variations are small. Only three skulls (1 male, two female) are mesocranic. No brachyranic skulls were observed.

Cranial capacity is moderate (1447,7 mm<sup>3</sup> in men; 1313,5 mm<sup>3</sup> in women). Unfortunately, it could be calculated for a comparatively small number of skulls only, because Debets's material does not include measurements of skull height from porion. Greatest length has a high value (186,1 mm; 178,8 mm), greatest parietal breadth is small (134,5 mm; 133,1 mm). The skull height is large or medium in men (137,1 mm from basion, 115,6 mm from porion) and medium or small in women (130,0 mm from basion; 106,5 mm from porion). The frontal slope of male skulls is slight (from nasion 84°, 7; 87°, 2). The small frontal angle of female skulls measured from the glabella indicates a pronounced frontal slope. The statement is, however, based only on two observations. The relief is less than moderately expressed (glabella 2,85; 1,67; supraorbital arches 3,40; 2,00;

external occipital protuberance — 2,00; 1,00; the mastoid process — 2,33; 1,50).

The face is orthognathous (total facial angle —  $86^{\circ},3$ ;  $84^{\circ},9$ ; index of prognathism — 96,0; 95,0). Facial breadth (129,8 mm; 124,8 mm) and height (upper — 71,5 mm; 66,5 mm; total — 116,7 mm; 110,0 mm) are medium or small. The facial proportions point to mesoprosopy or leptoprosopy (upper facial index — 55,4; 53,4; total facial index — 91,4; 88,8). Horizontal profiling is sharply expressed (naso-malar angle is  $136^{\circ},0$ ;  $138^{\circ},5$ ; zygo-maxillar angle is  $124^{\circ},0$ ;  $123^{\circ},5$ ).

Orbital height is slightly below mean (32,8 mm; 32,6 mm). The orbital index is medium with the exception of the dacryal index in women (maxillo-frontal index — 80,0; 82,7; dacryal index 82,7; 86,3). Nasal breadth, both absolute and relative, is less than medium in men (24,1 mm; index is 46,3) and medium in women (24,4 mm; index 49,6). The angle of nose protrusion is wide ( $29^{\circ},5$ ;  $24^{\circ},8$ ). This character shows great variability in men (mean quadratic deviation 8,14). The palate is badly preserved, so that its length and breadth could be measured in two cases only. These values were found to be medium. Nasal bones are sharply protruding (simotical index — 56,7; 39,0) the nasal bridge moderately (dacryal index — 53,1; 49,9). Fossa canina is deep (6,9 mm; 4,9 mm).

The range of variability of the major characters does not exceed values admissible in random differences of mean deviations (or, more exactly, variances). The only exception is the nasal angle in men.

Sexual dimorphism is well expressed. Small sexual differences are observed in bi-zygomatic breadth, nasal breadth, basio-facial length, greatest parietal breadth, and orbital breadth from maxillo-frontale.

Anomalies and pathology could be determined only in the material of 1961–62 (9 skulls). One skull had small-sized Wormian bones in the sagittal and lambdoid sutures (male, No. 34/11), two other in the sagittal suture only; the bones are large-sized in the male skull No. 34/2, and small-sized in the female skull No. 34/1. A male skull (No. 34/11) has a metopic suture.

Female skull No. 34/7 has an osteoma, 16 mm in diameter, in the left half of the frontal bone, 1 cm from the coronal suture, and another smaller osteoma on the left parietal bone near the sagittal suture.

Carious teeth were observed in 4 skulls: two male: No. 34/6 (left third molar) No. 34/12 — (left and right first molars), and two female: No. 34/1 — (upper left second molars) and 34/7 — (lower third molars, upper second premolars, right second molar and right first premolar).

The measurements of skeletons from the Maslovo cemetery (Zlatopol district, Cherkassy region) are known from literature (Debets, 1948). Unfortunately the investigation of these skulls was carried out under a reduced programme. Since then, all

the material has been lost and no additional measurements are possible.

The craniological series is in general characterized by marked dolichocrany (70.6 in men; 72.6 in women). Brachycrany or mesocrany are not observed. Dolichocrany is determined by the high value of greatest length (189,5 mm; 180,6 mm) and low value of parietal breadth (133,7 mm; 130,0 mm). Basio-bregmatic height was measured in two male skulls only (143 mm). Bi-zygomatic breadth (132,3 mm; 126,5 mm) and upper facial height (72,3 mm; 67,4 mm) are medium, although the ratios of these values in men show a certain tendency toward greater facial height (men 54,9, women 53,4). The orbits are low according to index (79,6; 80,6), the nose relatively broad in the male group and medium in the female one (61,9; 49,1). It must, however be kept in mind that the series is very small, consisting of merely 6 male and 6 female skulls and half of them in a bad state of preservation. Thus facial measurements could be taken only in 6 cases.

Some idea of the physical appearance of the people of the Middle Dnieper Chernyakhov culture may be formed from the combined craniological series uniting all the materials from these regions. It is formed mainly of skulls from the Zhuravka (58), Chernyakhov (25) and Maslovo (12) cemeteries discussed above; to them are added a few skulls from the villages of Derevyannoe (3), Teleshovka (1), Romashki (1) and Dedovshchina (3). The three skulls from Dedovshchina were described earlier by G. F. Debets (1948). An individual numerical characterisation of the other five skulls is given in Table XXII. As may be seen, the skulls from Teleshovka and Derevyannoe are large-sized. The male skull No. 11098 from Derevyannoe has a metopic suture. A skull from the Pereyaslav-Khmelnitzky cemetery was not included in the series because its sex could not be reliably determined.

In its mean arithmetic values the combined series closely approaches the series of certain Middle Dnieper cemeteries. Most often it occupies an intermediate position between the Chernyakhov and Maslovo series on the one hand, and the Zhuravka series on the other, being more close to the latter. This fact may be accounted for by the greater number of skulls in the combined series from the Zhuravka cemetery. Thus the characterisation of the combined series is most close to that of the Zhuravka series. Tables 23–24.

The skulls from the Middle Dnieper area are dolichocranic by the shape of the brain-case (cranial index of the male group 73,7; of the female group — 75,2). Cranial capacity is large in men ( $1473,7 \text{ mm}^3$ ), medium in women ( $1293,4 \text{ mm}^3$ ). Greatest length is large (186,4 mm; 178,0 mm) and parietal breadth small (137,2 mm; 134,1 mm). Basio-bregmatic height is large in men (137,3 mm), medium in women (129,6 mm). The ratios of the major measurements emphasize the greater values of basio-bregmatic height and greatest length as

compared with parietal breadth (height-breadth index from basion 99,7; 96,8; from porion 83,7; 82,3). The frontal slope is moderate (from nasion 84°2; 86°3). Relief is moderately expressed (glabella 3,00; 1,64; external occipital protuberance 2,15; 1,32; mastoid 2,61; 1,51).

The face is orthognathous (facial profile angle 84°7; 85°4; index of prognathism — 94,8; 95,0). According to the index the face is of medium breadth (upper facial index 53,9; 54,0; total facial index 88,2; 87,2), with medium absolute measurements bordering on small (upper facial height 70,8; 66,8; breadth 131,5 mm; 125,4 mm). Horizontal profile is well expressed (naso-malar angle 135°4; 137°4; zygo-maxillar angle 125°2; 126°2).

Orbital measurements are slightly less than medium (height 32,8 mm; 32,5 mm); according to the index they are mesoconch (index from maxillofrontale 81,8; 81,6). Nasal breadth (24,9 mm; 23,9 mm; index 48,2; 49,4) and palate (index 86,1; 88,0) are medium. The angle of nasal projection is wide (31°2; 26°4). Nasal bones (simotical index 53,0; 49,2) and bridge of the nose (55,6; 53,8) are sharply projecting. Fossae caninae are deep (6,1 mm; 5,4 mm).

The coefficients of sexual dimorphism of major characters are close to the theoretical ones (Alexeev, Debets, 1961). Sexual differences are most marked in basio-facial length, cranial capacity and orbital breadth from maxillofrontale.

As the Middle Dnieper series is made up of skulls from several cemeteries it was important to determine the degree of its homogeneity. In such cases the values of the observed mean deviations of separate characters are of great help. Values strongly above theoretical deviation are usually indicative of mechanical mixing. In the Middle Dnieper series such high values are observed only for orbital height, nasal angle and height-breadth index in the male group, and basio-bregmatic height in the female group. For the remaining characters the difference is for the most part non significant. Thus these observations do not alter the conclusion that the combined series is homogeneous and seems to be representative of the Middle Dnieper population as a whole.

The observed deviations of a combined series composed of related groups are usually either lower than the deviations of these groups or approaching them. Higher values in a combined series may be regarded as evidence of the heterogeneity of the groups involved. In our case the greater part of characters in the Middle Dnieper series have values approaching those of the series from the various cemeteries. There are, however, exceptions. Some characters have higher observed mean deviations in the combined series than in the series of the individual cemeteries, though not differing appreciably from the theoretical deviations. These are in the male group the principal diameters of the cerebral region and the cranial index. To them may be added the characters which, as already mentioned, show significant differences to the theoretical values, such as orbital height, nasal angle and height-

breadth index in the male group. In the female group the differences are less distinct. These in analyzing the characters of series from different features should be taken into consideration in future cemeteries.

The comparison of the Zhuravka, Chernyakhov and Maslovo series, which form the nucleus of the Middle Dnieper series, disclosed non-significant differences in the mean arithmetic values of most characters. In the male group differences are observed only in parietal breadth and its ratio to other major measurements. In the female group the differences are less distinct. The Zhuravka skulls are broader as compared with the Chernyakhov and Maslovo series. Their cranial index is higher, the height-breadth index lower. The series from Maslovo is characterised by more pronounced dolichocrany. This is accounted for not only by the small parietal breadth but also by the higher value of greatest length. The differences in the facial characters of male skulls are more distinct in the relative than in the absolute measurements. The upper facial index of the Maslovo and Chernyakhov skulls points to a face relatively higher than in the Zhuravka series. However, the significance of these differences is not confirmed by the calculated degree of reliability. In the female group the slight differences in this character show an opposite trend. The same applies to the orbital index, which in the Zhuravka series is comparatively high in the male group and low in the female group. Noteworthy is the relatively narrow nose in the male group of the Maslovo series, but it must be kept in mind that the value of this character is based on three observations only.

The greater variability of such characters as greatest length, parietal breadth, ratios of the major cranial measurements and orbital height in the male group of the combined Middle Dnieper series, is quite probably accounted for by differences in the arithmetic values of the series which constitute the combined series. As to the high value of the observed deviation of nasal angle in the Middle Dnieper series it may be explained by the greater variability of this character in the Chernyakhov skulls.

As already mentioned, 27 skeletons were discovered during the excavations of a cemetery on the Lower Dnieper near the village of Gavrilovka (Novo-Alexandrovsk, formerly Novo-Vorontsovsk district, Kherson region). The archaeological and osteological material from this cemetery was described earlier by Symonovich (1955b, 1960c) and by the author (Konduktova, 1958).

The craniological series consists of 10 male and 9 female skulls. They are characterised by dolichocrany, more distinctly expressed in men (cranial index: men 73,9, women 75,3). Cranial capacity is large in men (1489,1 mm<sup>3</sup>), small in women (1183,4 mm<sup>3</sup>). Greatest length (189,00 mm; 189,1 mm) and basio-bregmatic height (136,8 mm; 132,2 mm) are large, greatest parietal breadth is medium (139,5 mm; 135,1 mm). Frontal slope is small

(from nasion  $85^{\circ}5$ ;  $90^{\circ}2$ ). Relief is more than moderately developed in men and slightly in women (Glabella 3,11; 1,77; external occipital protuberance 2,11; 1,37; mastoids 2,70; 1,33).

The face is orthognathous (total facial angle  $87^{\circ}0$ ;  $84^{\circ}0$ ; index of prognathism 92,4; 95,7). Facial height is medium (70,1 mm; 65,6 mm), facial breadth small (131,2 mm; 121,1 mm), medium according to index (53,5; 53,9). Horizontal profiling is sharply expressed (naso-malar angle  $137^{\circ}3$ ;  $138^{\circ}0$ ; zygo-maxillar angle  $125^{\circ}0$ ;  $125^{\circ}2$ ).

Orbital height is slightly less than medium (32,9 mm; 32,1 mm from mf; index 78,9; 81,2). The nose is of moderate breadth (index 47,4; 47,6) strongly projecting ( $33^{\circ}0$ ;  $26^{\circ}4$ ). The bridge of the nose is high (dacryal index 64,2; 62,8). The nasal bones are sharply protruding (simotic index 56,5; 49,2). Fossae caninae are deep (5,68 mm; 5,43 mm).

No strong differences are observable between the Gavrilovka series and the other series of the Chernyakhov culture in the Ukraine. At the same time the Gavrilovka series have some distinctive features: greatest length has a higher value than in the other series, which determines more pronounced dolichocrany as compared with the Zhuravka series. This feature is characteristic also of the series from the Northern Black Sea area\*). In the skulls from the Chernyakhov and Maslovo cemeteries dolichocrany is associated mainly with a small parietal breadth rather than with greatest length. The Gavrilovka skulls have the straightest forehead and the most projecting nasal bridge. The value of the nasal index is lower than in all the other series with the exception of the male group of the Chernyakhov village in which it is still smaller, but in association with a more narrow face. The Gavrilovka skulls have also the smallest upper facial index as compared with all other series in the male group, and only with the Zhuravka and Northern Black Sea series\*) in the female group. Cranial capacity is greatest in the male skulls and least in the female ones.

Until recently no cemeteries from the late Roman time were known in the south of the Ukraine. One of the first Roman period cemeteries investigated was the cemetery of the village Ranzhevoe (Kominternovskoe district, Odessa region). It was excavated in 1962–1964 by the Institute of Archeology of the USSR Academy of Sciences together with the Institute of Anthropology of the Moscow State University (Symonovich, 1967a.) The cemetery is situated on the shore of the Tiligil liman at a distance of 200 m from the settlement. In an area of 2340 m<sup>2</sup> 21 burials were discovered. The number of burials seems too small for such a large settlement, so that another cemetery may be supposed to exist in this locality. Skeletal burials prevail in the Ranzhevoe cemetery. Only four of them have side-recessed graves (No. 2,5, 11,20). No cremation graves were discovered.

The bodies were usually laid on their back full

length in a special depression dug in the bottom of the grave. In one of them there were pieces of wood, probably remains of its lining. The graves were covered with stones. In one case the stones had round holes. Such stones probably served as anchors. Traces of greenish clay were on the bottom of the grave. Most the dead were orientated westwards (graves No. 9–10, 12–19) a few only were placed northwards, mainly in graves with side-recesses. All the burials, except five with a westward orientation, had been disturbed in past.

With the dead various objects were found: glass beakers, bronze fibulae, clasps, caskets faced with silver, sea shells, knives, a small-toothed bone comb, a bone needle-case. Especially important for dating are the glass vessels and a fibula from the late IV – early V century A.D. A glass goblet from the settlement, with Greek inscription, dated also to the end of IV century A. D., allows to date the settlement to the same period as the cemetery (Symonovich, 1966b).

The fillings of the pits on the cemetery contained bones of domestic animals, probably the remains of sacrificial food. There were also pottery sherds of the Chernyakhov type.

Judging from some peculiarities of the burial rites, E. A. Symonovich is inclined to assign the Ranzhevoe cemetery to the Chernyakhov culture.

Along with the Ranzhevoe cemetery the expedition of the Institute of Archeology of the USSR Academy of Sciences excavated in 1962 a cemetery in the village of Viktorovka (Tiligil-Berezanka district, Nicolaev region) (Symonovich, 1967a, 1966b), about 400 m from a settlement investigated earlier by M. F. Boltenko. Neither embankments nor stone constructions were found on the surface. An area of 1100 m<sup>2</sup> was uncovered, which yielded 14 burials, among them two cremation graves.

The dead lay on their backs either full length or with bent or crossed legs. Six of them were orientated westwards and six northwards. The position of the hands was not uniform. Three child burials with a northern orientation were discovered in the side-recesses. One burial with a western orientation was covered with stones. The graves in which the dead were orientated northward were less deep. In many graves there were found remains of wood, so that it may be supposed that wood was used for covering grave. Some such graves had artificial depressions into which the dead were laid, usually with a western orientation. The bottom of the depressions was often covered with a greenish clay. In some cases the skeletons were disturbed.

In the graves were found vessels of local and handmade technology; fragments of iron scabbards, bronze fibulae, paste, glass, amber, cornelian beads, broken knives and needles, clay whorls, needle-cases; in child graves, bones of sheep and goats. In some graves animal bones and eggshells (the remains of food) were discovered. The burial inventory was richer in graves with northward oriented skeletons.

Judging from the amphorae and fibulae Symo-

\*) this series will be discussed later in greater detail

novich dates the cemetery from late III to early IVc. A. D. The objects discovered by M. F. B o l t e n k o in the settlement are contemporaneous with those of the cemetery. S y m o n o v i c h thinks that features of Chernyakhov culture prevail in the cemetery, but that the graves with side-recesses, (3 out of 14) as well as the numerous beads and amphorae are evidence of Sarmatian and Hellenic influences.

The archaeological material from the settlement and the cemetery reflects the peaceful character of the people who lived there during the late Roman period, and there are no grounds to consider them as Goths, the warriors who conquered and destroyed most of the Hellenic sites during the thirties of the III century A. D.

The cemetery of the village of Koblevo (Ochakov district, Nicolaev region) was excavated in 1965 (S y m o n o v i c h, 1967a, 1965). In the uncovered area of 1125 m<sup>2</sup>, 39 burials were discovered, almost twice as many as in the village Ranzhevoe. Six of them were cremations.

Burial mode include earth graves, with recesses, earth vaults, analogous to those from the cemeteries Zolotaya Balka, Nicolaevka, and scythian Neapolis. Vaults have never been reported before from Chernyakhov cemeteries. The graves with recesses and the vaults are possibly reflections of Sarmatian or late Scythian influences.

The dead were laid on their backs full length. Crossed legs were bent (burial 37). The heads are usually turned either to the west or to the north. In graves with side recesses a northern orientation prevails. As a rule graves with skeletons orientated to the north were disturbed. Only two graves with western orientation were disturbed.

The household articles and ornaments found in the graves were analogous to those of other Chernyakhov cemeteries. A bronze knife with a lancet-shaped blade is of special interest. A knife of similar shape was discovered only once before in the Lokhvizha cemetery. Such knives may have belonged to surgeons.

E. A. S y m o n o v i c h dates the cemetery from II to early V cc. A. D. The dating is based mainly on the coins discovered in the graves.

Thus it may be concluded that the Koblevo and Viktorovka sites are older than the Ranzhevoe site. The absence of cremations and a high percentage of burials with a western orientation observed in the Ranzhevoe cemetery are additional arguments in favour of this conclusion. When comparing the burials of the Black Sea area, E. A. Symonovich pays attention to the fact that the Viktorovka settlement is represented by dugout huts, whereas the inhabitants of Ranzhevoe built stone houses. However, in Koblevo too remains of dwellings made of stone were discovered.

The osteological material from all the three cemeteries of the Northern Black Sea region is in a bad state of preservation. This is largely due to the heavy stone coverings of the graves and the extremely hard soil, in which the risk of damaging

skeletons during excavation is very great. Two thirds of the graves yielded no osteological material whatever.

The greatest number of skeletons suitable for study purposes was obtained from the Koblevo cemetery (16) and the least number from Viktorovka (3). Nine skeletons came from Ranzhevoe. Altogether the southern burial sites are represented by 28 skeletons. They were restored by I. N. C h e r n y a k h o v s k a y a, laboratory assistant of the Institute of Anthropology of the Moscow University. Owing to its paucity and bad state of preservation the material from all these sites is characterised as a single group.

For the same reason no comparison can be drawn between the chronologically heterogeneous groups of the Chernyakhov culture in the Northern Black Sea region, represented by the finds of Viktorovka on the one hand and Ranzhevoe on the other.

A male skull and a child skull discovered in the village of Krinichki (Balta district, Odessa region) are not included in the pooled Northern Black Sea series owing to the great territorial distance separating this cemetery from the three others.

The average age at death was 35–40 years. The percentage of children could not be determined as it was not always possible to examine badly conserved bones.

The pooled craniological series comprises 22 skulls: 10 male, 10 female and 2 adolescent. The last were not taken in account in the computation of mean values.

The skulls are dolichocranic (cranial index of the male group 75,4; of the female group 76,3 tables 33–34).

Greatest length is large (184,6 mm; 175,1 mm), basio-bregmatic height is medium (135,2 mm; 128,8 mm), parietal breadth is small, bordering on medium (139,9 mm; 133,8 mm). Individually examined, the male skulls show a wide range of variability in length measurements and in shape of brain case. Cranial capacity is medium (1426,7 mm<sup>3</sup> in men and 1253,5 mm<sup>3</sup> in women). Forehead is strongly inclined in men and feebly in women (80°,8; 88°,0). Relief is above medium (glabella 3,20; 1,60; external occipital protuberance 2,70; 1,11; mastoid process 2,70; 1,67).

The face is orthognathous as shown by the index of the profile (94,6; 95,4) and confirmed by the total facial angle of men (84°,7). In women it has a lower value (80°,3). Bizygomatic breadth is medium, bordering on small (131,3 mm; 122,0 mm). The value of the upper facial index points to weakly expressed leptoprosopy (55,2; 54,6). Horizontal profiling is strongly pronounced (nasomalar angle 131°,1; 122°,1; zygomaxillar angle 125°,8; 125°,8).

The orbits are mesoconch according to the orbital index (80,4; 81,5 from mf), but the absolute measurements are small (height 33,1 mm; 32,0 mm). The nose is moderately broad (25,2 mm; 24,6 mm; ind. 49,6; 50,7), strongly projecting, especially in men (37°,5; 25°,7). Nasal bridge is also strongly projecting (sim. ind. 52,2; 53,8). Fossa canina is deep (5,9; 5,4 mm).

Non-significant divergences of the observed standard deviations from the theoretical ones are observed for the majority of characters, except for the parietal, upper-facial and orbital indices in the male group, and for the cranial capacity and total facial angle in the female group.

Sex differences are well expressed, particularly in such characters as minimum frontal breadth, basicranial length, cranial capacity, nasal height and breadth.

As regards anomalies a metopic suture was observed in two skulls from the Northern Black Sea region (male skull No. 74/5 from Koblevo and female skull No. 36/3 from Viktorovka), and in one male skull from Krinichki (No. 11095). One female skull from Viktorovka (No. 36/4) has additional bones in the lambdoid suture.

An osteoma was discovered in a female skull from Ranzhevoe (No. 57/5), 10 mm in diameter, projecting for about 0.8 mm, situated on the occipital bone to the left of foramen occipitalis.

A male skull from Ranzhevoe (No. 57/4) had a carious lower left third molar and a female skull from Viktorovka (No. 36/4) a carious upper right incisor.

The Northern Black Sea skulls have a slightly smaller cranial capacity compared with other Chernyakhov series of the Ukraine, with the exception of the female skulls from Gavrillovka. Dolichocrany is less expressed there, which may be due to the lower values of the greatest basicranial and facial lengths. Relief is slightly more pronounced, while the superciliary arcs have a lesser extent. The nose is broader. The male skulls are furthermore characterised by a greater facial height, more pronounced frontal slope and a stronger nasal projection (the latter, however, is based on two measurements only). A different trend is observed in the degree of projection of the nasal bridge in the male and female groups: the simotical index is high in men and low in women. Noteworthy is the low value of the total facial angle in women, pointing to prognathism, although by the ratio of facial to cranial base they fall into category of orthognathous skulls.

A few skeletons only are known from the r. Bug, dated to the III—IV cc A. D. These skeletons, described by G. P. Zinevich (1964, 1967), were obtained in the cemetery of the village of Kosanovo (Gaysin district, Vinnitsa region) during the excavation carried out by V. P. Petrov and N. M. Kravchenko in 1961. The work was continued during the following three years (Kravchenko 1967). The anthropological material of these years has not as yet been examined.

39 burials were unearthed in the cemetery in 1961 (24 inhumations and 15 cremations), and 82 burials during the following years (15 inhumations and 67 cremations). The dead were laid on their backs full length with their heads turned to the north or to the west. A few skeletons were in a crouched position.

In many cases the skeletons were destroyed, probably intentionally.

Judging from the burial inventory, the ornaments, and the types of burial construction Kravchenko refers the Kosanovo cemetery to the typical sites of the Chernyakhov culture and dates it to the III—V cc A.D. The author notes also the presence of hand-made pottery of the Ditinichi-Pshevor type and a high percentage of cremations.

On the basis of these finds Kravchenko sustains the viewpoint expressed by Symonovich (1958) that the sources of Chernyakhov culture (and of its earliest sites) should be sought in territorially contiguous regions of Chernyakhov, Pshevor and Zarubints cultures, that is in the Volynia. According to Kravchenko such sites as Kompanyitsy (Makhno 1961, 1967) and Kosanovo are continuations of the Volynia-Pshevor line of development of the Chernyakhov culture, which differs somewhat from the line represented on the Lower Dnieper by the Gavrillovka and Kamenka sites (Symonovich 1955b).

The Kosanovo craniological series consists of only five skulls (three male and two female).

Parietal breadth in male skulls is small (136.3 mm), greatest length (196.0 mm) and basio-bregmatic height (151.5 mm) are very large. Height-breadth index is high too, cranial index points to strong dolichocrany (69.3). Cranial capacity is great (1623.5 mm<sup>3</sup>). Frontal slope is strongly expressed (77°5). Relief is not pronounced (glabella 2.33; external occipital protuberance 1.66; mastoid 2.66).

Face is orthognathous (total angle 84°0) prognath, (index 89.3) of medium height (71.3 mm) and very narrow (122.0 mm, n = 1). Horizontal profiling is strongly expressed (nasomalar angle 131°3, zygomaxillar angle 125°5).

Orbits are very high (37.3 mm, ind. from fm 96.3). Nasal breadth (ind. 48.4) and projection (26°0) are medium. Depth of fossa canina is above average (5.00 mm). Nasal bridge is moderately high (sim. ind. 45.8).

The female skulls are strongly brachycranic (88.8) with large parietal breadth (150.5 mm), and greatest length (169.5 mm), small basio-bregmatic height (119.1 mm, n = 1). Frontal slope is strongly pronounced (78.0). Relief is weak (glabella 1.00; external occipital protuberance 1.00; mastoid 1.50).

Facial measurements could be taken in one case only. The face is broad (135.0 mm) and flattened (nasomalar angle 141°0; zygomaxillar angle 136°0).

Orbits are large (height 36.0 mm; breadth from mf 44.0 mm) according to index of medium height (81.8). Nose is broad (ind. 52.9) strongly projecting (28°0). Nasal bridge is moderately high (sim. ind. 39.1). Depth of fossa canina is medium (4.25 mm).

We see that the Kosanovo series stands out among the Chernyakhov material by its heterogeneity. Thus the male skulls are characterised by a strong dolichocrany while the female ones are brachycranic with a broad and flattened face.

G. P. Zinevich believes that in this series two different types are represented, associated with the

different orientation of the dead: the brachycranic type is oriented westward, the dolichoecranic type northward. But this suggestion has to be treated with great caution as the series consists of only five skulls.

The number of limb bone measurements is far from sufficient for comparison. Nevertheless there are reasons for thinking that there are some differences in the mean lengths of separate bones between the male groups of the Lower Dnieper (Gavrilovka), Middle Dnieper and the Northern Black Sea series. The mean lengths are greatest in the Northern Black Sea series and least in the Gavrilovka series (Tables 25—28). The Middle Dnieper series occupies an intermediate position, approaching now one and now the other of the two extremes. A relationship was also discovered in the male groups between the length of bones and their circumference. Most robust are the bones of the Gavrilovka series, least robust — those from the Northern Black Sea area. In the female groups the differences are less distinct.

As the limb bones from Kosanovo are represented by 3 male and 3 female skeletons only, they were not used for comparison.

A notion of the morphological appearance of the people of the Chernyakhov culture in Moldavia may be obtained from the material from two cemeteries. The first, in the village of Malaeshty, (Ryshkany district) was excavated in 1954—56 by G. B. Fedorov (1960a, 1960b). It yielded 12 skeletons (6 male and 6 female). The second cemetery, in the village of Budeshty (Kishinev district) was excavated in 1954—1957 by E. A. Rikhman (1958, 1964). Here 35 skeletons were unearthed (19 male and 16 female). M. S. Velikanova, who studied this material (1961b), notes a close affinity of the Malaeshty and Budeshty craniological series. The anthropological type represented in these cemeteries is more gracile as compared with that of the Ukraine (Tables 25—26). An admixture of Sarmatian elements is observed in the Budeshty cemetery.

The most disputable question in the Chernyakhov problem is that of the ethnical position of the Chernyakhovians (Golubeva 1957, Nikitina 1969). Many archeologists still uphold the view that an affinity existed between the Chernyakhov and the eastern Slavonic culture (Smishko 1948, 1961, Braychevskiy, 1953, 1964, Makhno 1950, 1960, Symonovich 1959a, 1966a et al.) Other archeologists believe that this culture was intertribal and associate it with such ethnically heterogeneous tribes as Slavs, Getae-Dakians, Sarmats, late Scyths, and even Goths (Tret'yakov, 1953, 1966, Tikhonova 1957, 1963, Fedorov 1960b, 1961, Rikhman 1958, 1964, 1967, Rybakov 1962). M. I. Artamonov (1956, 1967) assigns to the latter the most important place<sup>4</sup>). I. I.

<sup>4</sup>) M. M. Artamonov in his earlier paper (1950) is inclined to admit a connection between the Chernyakhov and Slavic cultures.

Lyapushkin (1950, 1961) thinks that in the forest-steppe areas of the left bank of the Dnieper the Chernyakhov culture (Kantemirovka barrow burials) was one of the components in the formation of the Saltovo-Mayats culture. V. Ya. Merpert (1951) poses also the question of the succession of the Severskiy Donets Saltovo-Mayats culture not only from Alani culture but also from the culture of burial urn fields.

The major task facing our investigators is a comparison of the Chernyakhovian physical type with other ethnical groups. Unfortunately there are almost no bone materials chronologically near to the Chernyakhovians, and the only alternative left is to use series from other periods.

First of all the Chernyakhovians are to be compared with Slavs, whose cranial characteristic is based on abundant, comprehensive material. The earliest Slavs of the Dnieper area date from the VIII—IX c. A.D. They are considered to be the Chernigov and Pereyaslav Polyans (Alexeeva, 1960). The lack of information about the type of population during the centuries which separate Slavs from Chernyakhovians makes our task still more difficult.

On the basis of the thorough investigations carried out by T. A. Trofimova (1946, 1948) and T. I. Alexeeva (1960, 1961), the Eastern-Slavic series can be characterised by a complex of characters of the great Europoid race. The Eastern Slavs have a moderately high, strongly profiled face, a moderately broad, moderately or strongly projecting nose, moderately high orbits and a dolichomesocranic brain case. Statistically reliable divergences were discovered between separate groups for bizygomatic breadth and cranial index. The different combinations of these two characters permit the recognition of local anthropological types. Polyans are considered mesocephalic with average facial measurements.

M. S. Velikanova (1964) in her study of the Slavs of Moldavia makes an attempt to reveal specific morphological features of three large Slavic groups; namely southern, western and eastern, by comparing all the Slavic craniological material available in literature. Bizygomatic breadth and cranial index proved to have no diagnostic value, inasmuch as the morphological types derived from them occurred in all the three groups. Velikanova comes to the conclusion that the nasal and orbital regions of the facial skeletons may be regarded as distinctive craniological characters by which Slavs generally may be recognised among northern europoid groups, and eastern Slavic series distinguished from western and southern ones. A comparison of such characters as horizontal profiling and height of nasal bridge might probably disclose some differences between the Slavic series but it could not be carried out as no pertinent data are available on southern and western Slavs.

Eastern Slavs were found to be the most platyrrhine and chamaeconch of all Slavic peoples, and western and southern Slavs to be most leptorrhine and hypsiconch. Polyans, like all Eastern Slavs, are

relatively platyrrhine; they are also chamaeconch, but to a lesser degree. Fairly close to the western and southern Slavs in this respect are the Germans,<sup>1)</sup> who during their formation were neighbours of the Slavs. Germanic people have a lower nasal index and a higher orbital index than western and southern Slavs; in other words the Germans are more leptorrhine and hypsiconch.

We are presenting here a comparison of some numerical data on the three great groups of Slavs and on the Germans, (according to M. S. Velikanova) with data on the combined Middle Dnieper Chernyakhov series and on the Polyans.

The mean values of nasal and orbital indices are as follows:

Nasal index, male groups: Chernigov Polyans 51.0; Pereyaslav Polyans<sup>2)</sup> 50.1; eastern Slavs 51.0; western Slavs 49.2; southern Slavs 47.8; Germanic people 47.1; Chernyakhovians (Middle Dnieper) 48.2.

Orbital index: Chernigov Polyans 77.8; Pereyaslav Polyans 77.3; eastern Slavs 76.8; western Slavs 78.5; southern Slavs 78.5; Germanic people 79.8; Chernyakhovians (Middle Dnieper) 81.8.

We see that the Middle Dnieper Chernyakhovians are closer to western and southern than to eastern Slavs (including Polyans). At the same time the Chernyakhovians have a greater orbital height than even the Germanic people. This is probably a peculiar feature inherent in the Chernyakhovians. It must be noted, however, that the differences are small ones.

Before coming to a final conclusion on the degree of affinity between the Chernyakhovians and any of the other groups, let us consider some other characters.

G. F. Debets (1948) notes that white Russian Slavs are not only platyrrhine as compared with the Germans but have also a higher cranium. This peculiarity is observed in Polyans too. The height-length index in the male group of Chernigov Polyans is 73.9; in Pereyaslav Polyans 72.3; the height-breadth index is 98.7 in the first case and 97.7 in the second. In the combined Middle Dnieper Chernyakhovian series the values of these index are relatively high too: 73.7 and 99.7 respectively. In the Germanic people they are lower; 71.6 and 97.3. Thus in respect to these characters the Chernyakhovians of the Middle Dnieper area are closer to the Slavs than to the Germanic people. It must be kept in mind that cranial height is a character of special importance in comparisons of non-synchronous groups. The Swedish anthropologist B.

Lundman notes that the isolates of the height-breadth index with values of 71 and 73 are extremely constant in Europe from the Stone Age. The height-length index has been always higher in the East of Europe than in the West.

The sum of the three principal measurements of the brain case is also evidence of the greater affinity of the Chernyakhovians with Slavs than Germanic people. In the Middle Dnieper series this sum equals 461 mm and is within the range of variation of Slavic groups (eastern Slavs 457.7 mm; western Slavs and southern Slavs 462.8 mm; Pereyaslav Polyans 459.6 mm, Cherginov Polyans 456.1 mm). The skulls the Germanic people are larger (469.9 mm).

The author thinks it relevant to refer to the work of T. I. Alexeeva (1965) in which a fairly clear description is given of the specific features of Slavs and their nearest neighbours — tribes of Germano-balto-finnish languages, derived from a detailed examination of several anthropological characters.

According to Alexeeva the Slavs and the Germanic people differ in such characters as greatest cranial length and breadth, facial height and breadth, orbital height and nasal breadth. At the same time she does not overlook the fact that some of these characters are functionally correlated; greatest length and parietal breadth with facial height and breadth, facial height with orbital and nasal heights. Therefore it was thought advisable to use for group comparisons either more or less independent characters, such as for instance the ratio of cranial height to the half-sum of greatest length and parietal breadth, or facial and orbital lengths to cranial height or characters in which the correlations between groups have a meaning opposite to that of their functional relation, such as the relationship between nasal and facial breadth.

Cranial height relative to greatest length and parietal breadth, as well as to facial height, was found to be greater in Slavs than in Germanic people. The values of these characters in the Eastern Finnish and the majority of Baltic groups approach those of the Slavs. Western Finns and Livs do not differ either from Slavs in the relationship of cranial height to greatest cranial length and parietal breadth, but they have a lower index of cranial to facial height.

Germanic people and Slavs differ also in the ratio of nasal breadth to bizygomatic breadth. In Slavs a broader nose is associated with a narrower face, while Germanic people have a narrower nose and a broader face. Thus Alexeeva depicts Germanic groups as more robust in their absolute measurements, with a lower head, narrow nose and high orbits. Approaching Slavs in the ratio of nasal breadth to facial breadth are the Baltic and Finnish groups with the exception of Estonians and northwestern Finns. They resemble Slavs also in the ratio of orbital height to cranial height. As compared with Germanic people some of these groups occupy a more extreme position than even Slavs.

Finally Alexeeva finds reasonable to admit

<sup>1)</sup> For basic information on Germans see: a) G. M. Morant. A preliminary classification of European races based on cranial measurements. *Biometrika*, vol. XXB, pp 3-4, 1928, pp. 301-375. b) K. E. Schreiner. *Crania norvegica*, col. II. Instituttet for sammenlignende kulturforskning, ser. B, vol. XXXVI, No. 2, Oslo, 1946.

<sup>2)</sup> Data on the Polyans of Pereyaslav presents greater interest than that on the Polyans of Chernigov, since none of the Chernyakhov culture are known in the Chernigov region.

that the Slavic group is closely related in its anthropological composition, and distinct from the Germanic group, and bears a certain resemblance to the peoples of Baltic and Finnish languages. The euryprosopy observed in some Slavic groups, namely in the Drevlyans, the Slavs from the Dniester, and the Mazowshans being a characteristic feature of Balts, is regarded as an indication of a Baltic substrate in these Slavic groups. This supposition does not rule out the hypothesis of a common base in the formation of the anthropological composition of Slavic and Baltic groups, since euryprosopy is localised in the presumed cradle of all Slavs, the interfluvial Western Dvina-Vistula-Danube-Dnieper.

The fact that Western Slavs do not differ greatly from Germanic people in the ratios of characters by which Slavic groups are generally differentiated from Germanic groups, cannot, according to Alekseeva, be explained solely by the contact of these peoples. The differences between Southern Slavs and Germanic groups are even less pronounced, although southern Slavs were never near neighbours of Germanic people. Therefore Alekseeva is inclined to think that both in the Germanic people and in the Slavs the same anthropological type is represented, characteristic of the ancient population of Central Europe prior to the propagation of Slavic and Germanic languages. At the same time Alekseeva thinks it possible to regard Southern Slavs as descendants of the local pre-Slavic population of the Balkan Peninsula.

We have added our data on the Chernyakhovians to the diagram constructed by Alekseeva showing the results of her comparison of Slavs and Germanic people (see fig. 9). According to this schematic representation the Chernyakhovian groups are most close to the Eastern Slavs and differ markedly from Germanic people in the ratio of cranial height to the half-sum of greatest length and parietal breadth; in the ratio of orbital height to cranial height they fall between the western Slavs on one hand and the Eastern and Southern Slavs on the other. Germanic people show higher values of this character than western Slavs. In nasal breadth relative to bizygomatic breadth Chernyakhovians are closer to Slavs. In the ratio of upper facial height to cranial height they are either close to Slavs or occupy an intermediate position between Germanic groups and Slavs, but are nearer to the latter.

Thus we are inclined to assert that Chernyakhovians are closer to Slavs than to Germanic people, though this relation is not always strongly expressed with regard to the Eastern Slavs, nor naturally, to the Polyans.

The question arises of whether or not a genetic affinity exists between the Chernyakhovians and the Slavs, in particular between the Middle-Dnieper Chernyakhovians and the Polyans, and if it does exist, whether the slight differences between them can be explained by chronological variability.

Such variability, as could be observed on the territory of the Ukraine prior to the Chernyakhovian period, manifests itself in a weakening of relief, a diminution of the frontal slope, a decrease

of the values of the principal dimensions of the cranium, and of bizygomatic breadth.<sup>1</sup>

But if the somewhat smaller skull and straighter forehead of the Polyans may be explained by the process of gracilisation, such an explanation can hardly be accepted for differences in the values of the orbital and especially of the nasal indices. The broad nose, the relatively low orbits, characteristic of the Polyans, and perhaps even their meso-brachycephaly, may be more reasonably regarded as the result of some admixture.

It may also be supposed that the relatively broad nose characteristic of Slavic people is a peculiarity inherited from an ancient local population, and that the absence of this peculiarity in the Chernyakhovians is the evidence of their alien origin. In order to accept or to refute this supposition the physical type of the ancient inhabitants of these regions or of the areas bordering on them must be studied.

Osteological material from the threshold of our era (III c. B.C.—III c. A.D.) is known from the cemetery Zolotaya Balka (Kherson region) on the Dnieper. Most probably they are remains of late Scyths. From the same period dates a combined series of Ukrainian Sarmats, mainly from the Kherson and Dniepropetrovsk region. More ancient series from Scythian times (VII—III cc. B.C.) consist mainly of the skulls of steppe Scyths and of only a few skulls of forest-steppe Scyths. The latter present greater interest for comparison with Chernyakhov skulls, but their number is too small (13 male and 6 female) and, above all, the facial region of the skulls is so badly preserved that they contribute but little to the solution of our problem.

In considering the Scythian series from forest-steppe areas attention is focussed on the value of the nasal index in male skulls. Its value could be determined in 9 cases and was found to be 51.1. At the same time three female skulls proved to be strongly leptorrhine, as evidenced by absolute and index values. Their mean nasal index is 45.9. Consequently the forest-steppe Scyths represented in this series cannot be characterised as generally platyrrhine. It must also be taken into account that the differences in the value of the nasal index between forest-steppe and steppe Scyths are non-significant, and that the latter are not typically platyrrhine. As the differences between these series are non-significant for the majority of characters, a comparison of Chernyakhov material with the pooled Scythian series seems fully justified.

The affinity between the Chernyakhov series and the pooled Scythian series proved to be very close. This applies also to the series from Zolotaya Balka, which does not show any appreciable differences to

<sup>1</sup> the value of bizygomatic breadth, for instance, underwent the following changes: 146.8 mm—Neolithic; 137.0 mm—pit-grave culture; 136.3 mm—catacomb culture; 133.0 mm—timber-grave culture; 133.6 mm—Scyths and "late" Scyths; 131.3 mm—Chernyakhov culture. The values of the glabella are: 3.9—Neolithic; 3.9—pit-grave culture; 3.8—catacomb culture; 3.2—timber-grave culture; 3.0—Scythians and "late" Scyths, 3.0—Chernyakhov culture.

Scythians. On these grounds the Middle Dnieper Chernyakhovians may be supposed to be of local descent and to have provided a base for the formation of Slavs. The broad nose of the latter may be accounted for by the involvement of some other elements, probably alien ones, in their ethnogenesis. In this context attention should be given to the great resemblance noted by Alexeeva of Slavic groups to Baltic and certain Finnish groups in the ratio of facial to nasal breadth.

It is extremely difficult to trace a Gothic admixture in the Chernyakhovian population, for no anthropological data are available on the Goths or the Germanic people of the first centuries. Only later Germanic series can be used for comparison dating from the beginning of the second and the close of the first millennium. M. S. Velikova and T. I. Alexeeva used these materials in their study of the specific features of Slavs and Germanic groups. There is thus a chronological gap of several centuries between the Germanic and the Chernyakhovian series, as well as between the latter and the Slavic series. The analysis is further complicated by the absence of clear differences between the Germanic people and the Slavs, especially considering the three Slavic branches. The deduction based on the whole complex of characters, about the greater affinity of Chernyakhovians to Slavs than to Germanic people does not of course exclude the possibility of a Germanic (Gothic) admixture in the Chernyakhovian population, the more so that in the features in which the Chernyakhovians show some differences with Slavs, they approach Germanic groups, as for instance in the value of the orbital index. However in these features they are also close to the western and southern Slavs.

Of particular interest in the comparison of ancient Germanic people with Chernyakhovians is the craniological series from Gavrilovka (a sheepfold of the collective farm Pridnieprovskiy, Kherson region). Gavrilovka skulls have a larger brain case as compared with all the other Chernyakhovian series (mainly in length and breadth). The nasal index is low. It is still lower in the male group from the Chernyakhov village. The male skulls of the Gavrilovka series have somewhat larger orbits, as indicated by the low values of the orbital index. All these peculiarities, though feebly expressed, may be regarded as arguments for the association of the Gavrilovka series with the Germanic series.

But there are also arguments against this deduction. Thus we cannot ignore the fact that the Gavrilovka series approaches almost as closely the Western and Southern Slavic series. A close resemblance is also observed between the male groups of the Gavrilovka and Scythian series in the measurements of the cerebral and facial regions. The female Gavrilovka skulls have however a smaller face (7 observations only) though not only when compared to Scythians but to Germanic people too. In other words the female skulls from Gavrilovka cemetery differ in this character from the former as well as the latter. If, nevertheless, the smaller meas-

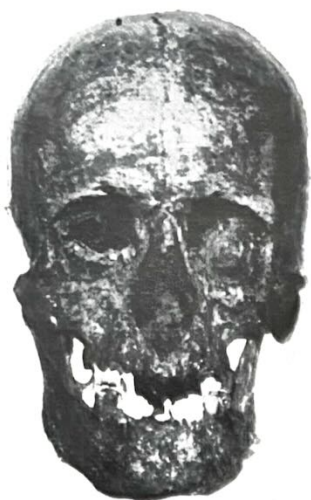
urements of women are to be considered a characteristic which associates the Gavrilovka series to the Germanic series, then this peculiarity would be expected to occur in the male groups too, and even primarily in the male groups, as, after all, it was the men who campaigned. But in them this peculiarity is wanting. We cannot also overlook the possibility that the opposite tendency differences in the male and female groups, frequently observed in the analysis of Chernyakhov and Scythian material, may be chance, conditioned by the insufficient size of the series. Only 9 observations are available for the male Gavrilovka group and 7 for the female group.

It must be also taken into account that the population of Gavrilovka bears some resemblance to Slavs, especially to the Eastern Slavs, in the ratios of those characters in which the Germanic skulls most distinctly differ from the Slavic ones, such as the ratio of orbital and facial heights to cranial height, cranial height to the half-sum of greatest length and parietal breadth, nasal breadth to bizygomatic breadth.

Thus the comparison of Germanic and Chernyakhov series did not reveal Gothic admixture in the Chernyakhov population. There are, however, some peculiarities which do not allow us to rule out the possibility of such an admixture (especially in the Gavrilovka series). At the same time it cannot be proved that these peculiarities were not inherent in earlier Slavs on whom no material is available owing to their custom of cremating their dead. There are still fewer grounds to dispute the logic of the suggestion that differences between Slavic and Germanic groups at that time may have been still less clearly defined than at a later period, and that the specific features of the three large Slavic branches, in particular the broad nose of Eastern Slavs, may be the result of later superpositions. Nor can we overlook the near relation of the Chernyakhov and Scythian male groups already noted above.

Let us now consider briefly the interrelations of Chernyakhovians and Sarmatians, and attempt to determine to what extent Sarmatian features may be traced in the Chernyakhov cemeteries of the Ukraine. The differences between the craniological series of these two peoples are very distinct. The Sarmatian skulls are more broad in the facial and cranial region, and have a smaller cranial height. These differences are most obvious in the ratio of parietal breadth to greatest length and basibregmatic height. There is also a difference in the proportions of facial and cranial regions. Facial height, relative to cranial height, is greater, and facial breadth relative to cranial breadth, smaller, in Sarmatians than in Chernyakhovians. Cranial capacity is somewhat larger in Sarmatians. The nasal bridge has a lesser projection as expressed in the values of the maxillo-frontal and dacryal indices. No distinct differences are observed in the proportions of nose and orbits, nor in the degree of frontal, facial and nasal projection.

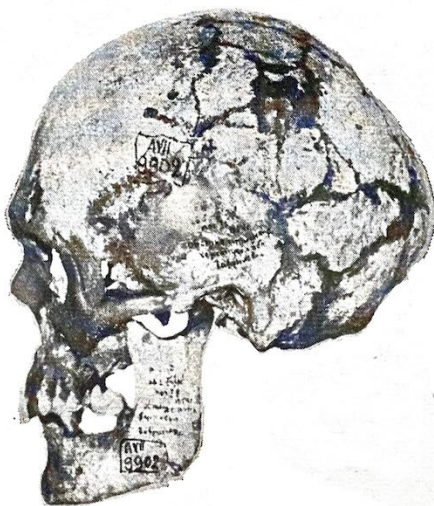
Still the presence of Sarmatian elements in the



159



160



161

159

(159a, 159b, 159c). Chernyakhov culture.  
Gavrilovka (Pridnieprovskiy state farm).  
Burial 14.  
Inventory number 9802.  
Male skull.

160

(160a, 160b, 160c). Chernyakhov culture.  
Gavrilovka (Pridnieprovskiy state farm).  
Burial 23.  
Inventory number 9804. Female skull.

161

(161a, 161b, 161c). Chernyakhov culture.  
Gavrilovka (Pridnieprovskiy state farm).  
Burial 38.  
Inventory number 9902. Male skull.

162



163



164



162

(162a, 162b, 162c). Chernyakhov culture.  
Gavrilovka (Pridnieprovskiy state farm).  
Burial 39.  
Inventory number 9903. Female skull.

163

(163a, 163b, 163c). Chernyakhov culture.  
Gavrilovka (Pridnieprovskiy state farm).  
Burial 48.  
Inventory number 9906. Male skull.

164

(164a, 164b, 164c). Chernyakhov culture.  
Gavrilovka (Pridnieprovskiy state farm).  
Burial 79.  
Inventory number 9910. Male skull.



165



166



167

165

(165a, 165b, 165c). Chernyakhov culture.  
Gavrilovka (Pridneprovskiy state farm).  
Burial 82.  
Inventory number 9911. Female skull.

166

(166a, 166b, 166c). Chernyakhov culture.  
Gavrilovka (Pridneprovskiy state farm).  
Burial 88.  
Inventory number 10384. Female skull.

167

(167a, 167b, 167c). Chernyakhov culture.  
Gavrilovka (Pridneprovskiy state farm).  
Burial 105.  
Inventory number 10391. Female skull.

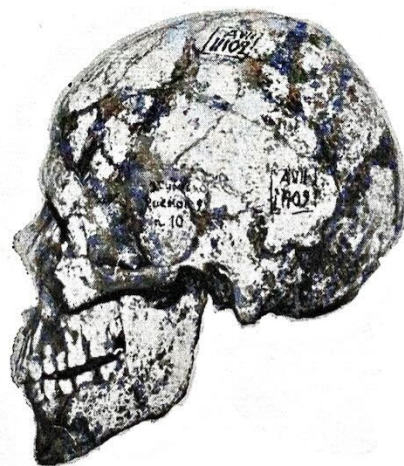
168



169



170



168

(168a, 168b, 168c). Chernyakhov culture.  
Gavrilovka (Pridnieprovskiy state farm).  
Burial 106.  
Inventory number 10392. Female skull.

169

(169a, 169b, 169c). Chernyakhov culture.  
Zhuravka, Burial 7.  
Inventory number 11100.  
Female skull.

170

(170a, 170b, 170c). Chernyakhov culture.  
Zhuravka, Burial 10.  
Inventory number 11102.  
Female skull.

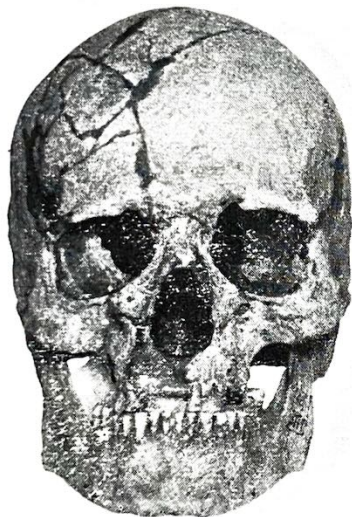
171



172



173



171

(171a, 171b, 171c). Chernyakhov culture.  
Zhuravka. Burial 11.  
Inventory number 11103.  
Female skull.

172

(172a, 172b, 172c). Chernyakhov culture.  
Zhuravka. Burial 18.  
Inventory number 11373.  
Male skull.

173

(173a, 173b, 173c). Chernyakhov culture.  
Zhuravka. Burial 23.  
Inventory number 11374.  
Male skull.

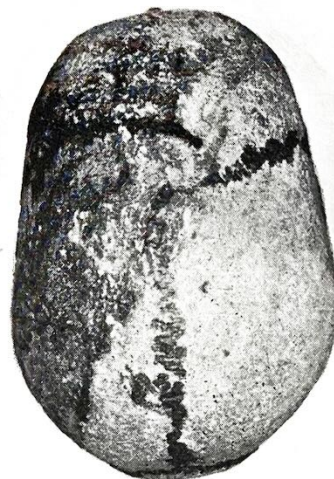
174



175



176



174

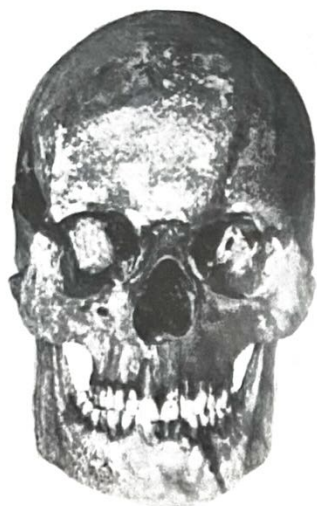
(174a, 174b, 174c). Chernyakhov culture.  
Zhuravka. Burial 13.  
Inventory number 11377.  
Female skull.

175

(175a, 175b, 175c). Chernyakhov culture.  
Zhuravka. Burial 57.  
Inventory number 53/3.  
Female skull.

176

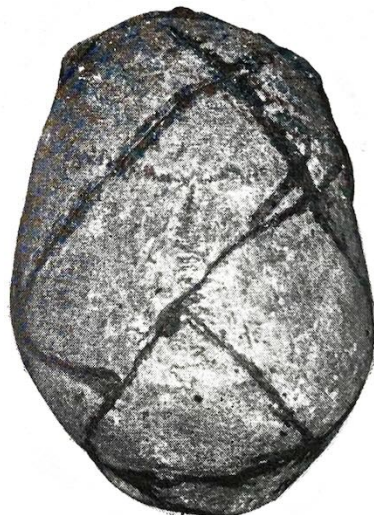
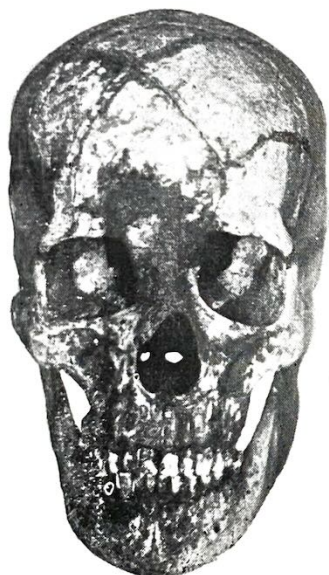
(176a, 176b, 176c). Chernyakhov culture.  
Zhuravka. Burial 70.  
Inventory number 53/12.  
Female skull.



177



178



179

177

(177a, 177b, 177c). Chernyakhov culture.

Zhuravka. Burial 74.

Inventory number 53/15.

Male skull.

178

(178a, 178b, 178c). Chernyakhov culture.

Zhuravka. Burial 78.

Inventory number 53/18.

Female skull.

179

(179a, 179b, 179c). Chernyakhov culture.

Zhuravka. Burial 83.

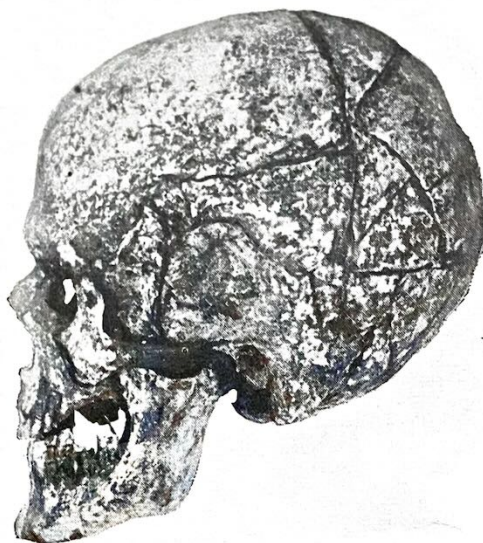
Inventory number 53/21.

Male skull.

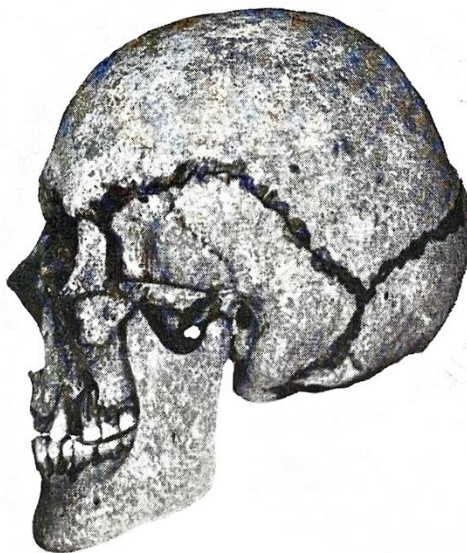
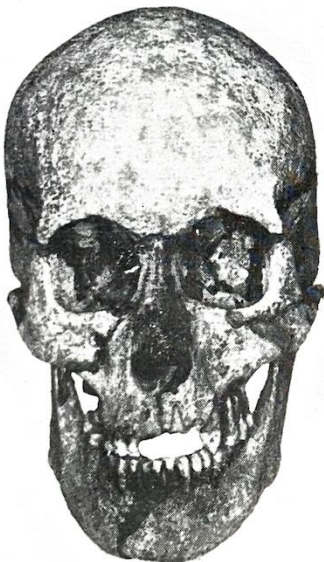
180



181



182



180

(180a, 180b, 180c). Chernyakhov culture.  
Zhuravka. Burial 87.  
Inventory number 53/24.  
Female skull.

181

(181a, 181b, 181c). Chernyakhov culture.  
Zhuravka. Burial 92.  
Inventory culture 53/29.  
Male skull.

182

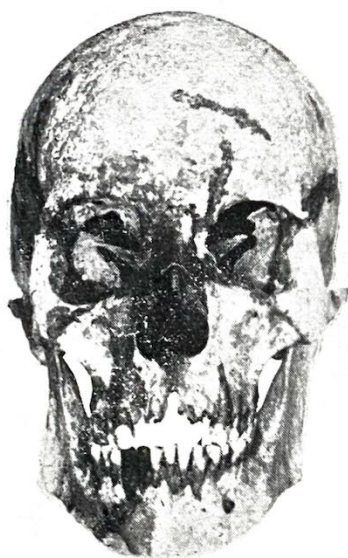
(182a, 182b, 182c). Chernyakhov culture.  
Zhuravka. Burial 105.  
Inventory number 53/26.  
Male skull.



183



184



185

183

(183a, 183b, 183c). Chernyakhov culture.  
Zhuravka. Burial 106.  
Inventory number 53/37.  
Female skull.

184

(184a, 184b, 184c). Chernyakhov culture.  
Zhuravka. Burial 115.  
Inventory number 53/44.  
Female skull.

185

(185a, 185b, 185c). Chernyakhov culture.  
Zhuravka. Burial 116.  
Inventory number 53/45.  
Male skull.

186



187



188



186

(186a, 186b, 186c). Chernyakhov culture.  
Zhuravka. Burial 119.  
Inventory number 53/48.  
Male skull.

187

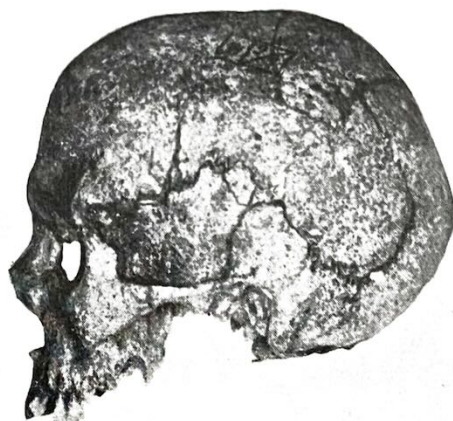
(187a, 187b, 187c). Chernyakhov culture.  
Chernyakhov. Burial 257.  
Inventory number 34/3.  
Male skull.

188

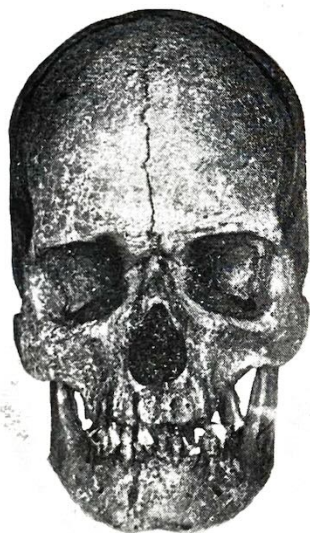
(188a, 188b, 188c). Chernyakhov culture.  
Chernyakhov. Burial 263.  
Inventory number 34/6.  
Male skull.



189



190



191

189

(189a, 189b, 189c). Chernyakhov culture.  
Chernyakhov. Burial 264.  
Inventory number 34/7.  
Female skull.

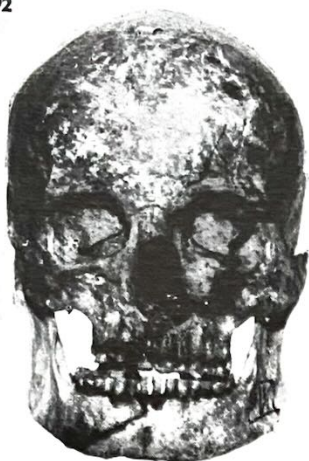
190

(190a, 190b, 190c). Chernyakhov culture.  
Chernyakhov. Burial 269.  
Inventory number 34/9.  
Male skull.

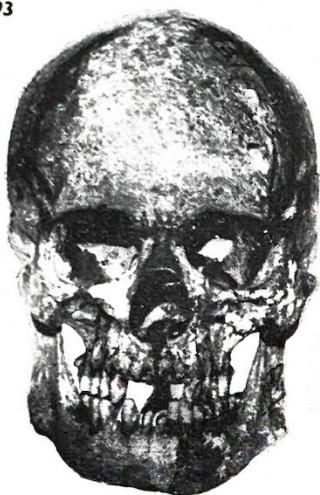
191

(191a, 191b, 191c). Chernyakhov culture.  
Chernyakhov. Burial 273.  
Inventory number 34/11.  
Male skull.

192



193



194



**192**  
(192a, 192b, 192c). Chernyakhov  
culture.  
Ranzhevoe. Burial 12.  
Inventory number 57/4.  
Male skull.

**193**  
(193a, 193b, 193c). Chernyakhov  
culture.  
Ranzhevoe. Burial 19.  
Inventory number 57/8.  
Male skull.

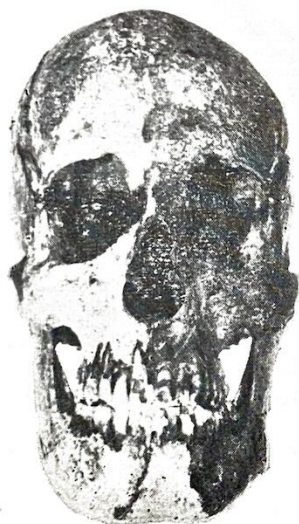
**194**  
(194a, 194b, 194c). Chernyakhov  
culture.  
Koblevo. Burial 8.  
Inventory number 74/2.  
Male skull.



195



196



197

195

(195a, 195b, 195c). Chernyakhov culture.  
Koblevo. Burial 12.  
Inventory number 74/3.  
Female skull.

196

(196a, 196b, 196c). Chernyakhov culture.  
Koblevo. Burial 14.  
Inventory number 74/5.  
Female skull.

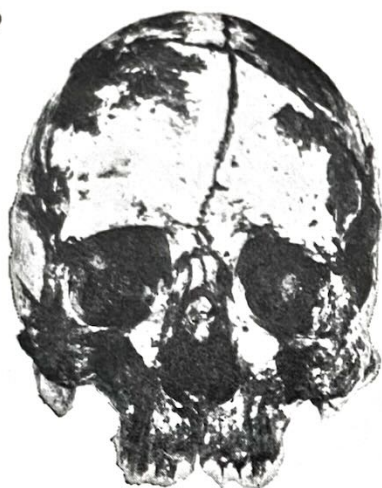
197

(197a, 197b, 197c). Chernyakhov culture.  
Koblevo. Burial 30.  
Inventory number 74/13.  
Male skull.

198



199



200



198

(198a, 198b, 198c). Chernyakhov culture.  
Koblevo. Burial 31.  
Inventory number 74/14.  
Male skull.

199

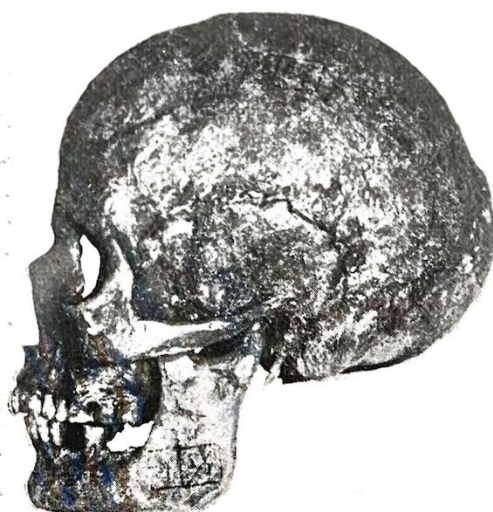
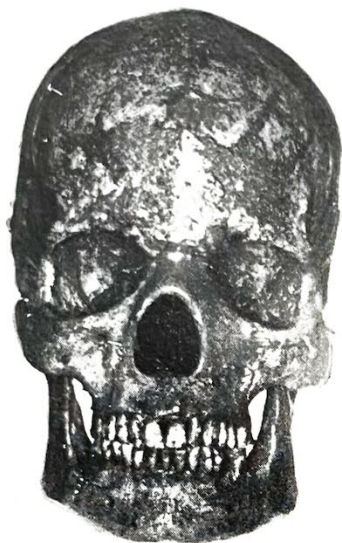
(199a, 199b, 199c). Chernyakhov culture.  
Koblevo. Burial 39.  
Inventory number 74/17.  
Male skull.

200

(200a, 200b, 200c). Chernyakhov culture.  
Viktorovka. Burial 1.  
Inventory number 36/1.  
Female skull.



201



202



203

201

201a, 201b, 201c). Chernyakhov culture. Viktorovka. Burial 6. Inventory number 36/3. Female skull.

202

(202a, 202b, 202c). Chernyakhov culture. Viktorovka. Burial 11. Inventory number 36/5. Female skull.

203

(203a, 203b, 203c). Chernyakhov culture. Kantemirovka. Burial 9. Inventory number 9399. Male skull.



204

(204a, 204b, 204c). Chernyakhov  
culture.  
Krinichki. Burial 5.  
Inventory number 11095.  
Male skull.

Chernyakhov population cannot be entirely ruled out inasmuch as traces of Sarmatian burial rites are found in Chernyakhov cemeteries, sometimes in association with dead whose morphological features are characteristic of Sarmatians. However, such examples are few. Furthermore, the heterogeneity of the Chernyakhovian group would be reflected in higher values of the mean standard deviations. However, the analysis of the Chernyakhovian series revealed no greater variability of the characters in which Sarmatians most distinctly differ from Chernyakhovians.

Therefore, if a Sarmatian admixture did exist, it must have been quite insignificant. In Moldavia the Sarmatian element is more evident. It has been traced by M. S. Velikanova in the cemetery of the village of Budeshty, though not in the Malaeshty cemetery (Velikanova 1961, 1965).

The craniological series of the Chernyakhov culture differ distinctly from the series of the Volga Bulgars of the first millennium A.D. The Bulgarian skulls are appreciably broader in the cerebral and facial regions and the relief in the supraorbital region is better expressed.

Some archeologists, as already mentioned, believe that the Chernyakhov culture played a part in the formation of the Saltovo-Mayats culture in the forest-steppe areas of the left bank of the Dnieper. They base their evidence mainly on the materials of the Kantemirovka cemetery, where intrusive burials in barrows were discovered by M. J. Rudinskiy. Unfortunately all the skeletons in them were destroyed. Only one gracile dolichocephalic female skull is known from this cemetery (Konduktorova 1953), unearthed during the excavations carried out by E. V. Makhno (1952). Therefore for comparison with the material of the Saltovo-Mayats culture we have to use the combined Chernyakhov series from the Middle Dnieper.

The population of the Saltovo-Mayats culture is represented by two anthropological types. The first, strongly brachycephalic and broad-faced, differs very distinctly from the Chernyakhov type. Therefore any inquiries about the resemblance of these two peoples may be made only in regard to the second anthropological type, known mainly from the Saltovo cemetery. The Saltovo type is very close to the Chernyakhov type in the principal measurements of the cerebral region, angle of frontal projection frontal angle and, in the male groups, of nasal and frontal projection (nasal and frontal angle). At the same time „Saltovians“ have a somewhat higher face (this feature being particularly marked in men), wider orbits, greater nasal height, the relief in the supraorbital region is more strongly expressed, and the mastoids less developed. These small differences deserve attention because they cannot be explained by the period's variability, and the characters listed above are not functionally correlated. A higher face is usually associated higher or less wide orbits, but in this case a reverse situation is observed.

The conclusions are the same when the Saltovo skulls are compared not with the pooled Middle

Dnieper series but with only one of its parts, the series from the Zhuravka cemetery. This is accounted for by the fact that Zhuravka skulls are most numerous in the pooled Middle Dnieper series.

A somewhat different conclusion is arrived at if the Saltovo series is compared with the skulls from the Chernyakhov cemetery, which accounts for a relatively small part of the pooled series. Unlike the Zhuravka series the Chernyakhov skulls are closer to the Saltovo series in the ratios of the principal facial measurements, but not in the measurements of the cerebral region. The cranial index of the Chernyakhov series is three units lower in the male group and two units in the female group.

The Saltovo skulls approach the series of the Northern Black Sea closer than any other Chernyakhov series of the Ukraine. The resemblance is manifested in the values of the main measurements both of the facial and the cerebral region, as well as in their ratios. At the same time some specific features are observed in the nasal and orbital regions of the two groups: nasal and orbital indices are smaller in the Saltovo series than in the Northern Black Sea series (as well as in all other Chernyakhov series). There are also some small differences in horizontal profiling. Saltovo skulls have a larger nasomalar and a smaller zygomaxillary angle than the Northern Black Sea series. Nothing definite can be said about the degree of nasal projection. It is less pronounced in the male and more pronounced in the female group. It must be remembered, however, that both groups are very small. Thus the nasal index could be measured only in two male skulls of the Northern Black Sea series. The lower value of nasal angle projection in the female groups of the Northern Black Sea series is hard to explain. This feature distinguishes them from all the other Chernyakhov female groups and from the Saltovo female group. At the same time the male groups of the Saltovo and the Northern Black Sea series are very close in regard to the degree of nasal projection. No differences are observed between the two series in the index of facial projection (either male or female).

Thus the comparison of the Chernyakhov series with the dolichocephalic type of the Saltovo-Mayats culture shows that the great affinity of these groups cannot be disregarded. At the same time the Saltovians differ from the Chernyakhovians by greater facial and nasal height and lower orbital index. The question posed by archeologists regarding the possible genetic affinity of Saltovians and Chernyakhovians in the forest-steppe areas of the Dnieper left bank cannot be given a clear answer on the basis of the anthropological material available. The great morphological affinity of these series in regard to many characters may, of course serve as a basis for a positive answer. But then how are we to explain some specific features observed in Saltovians, such as their smaller orbital index or the more pronounced relief in the supraorbital region? These traits cannot be attributed to variability of that period.

Summing up, we may admit that the various series of the Chernyakhov culture in the Ukraine are morphologically fairly similar. Certain singular traits may be traced in separate series but these are frequently associated either with the paucity of the series or with cases when the results of the observations are different in the male and female groups, that is when their significance is not confirmed statistically.

The resemblance of a number of morphological characters traced between the series of the Chernyakhov culture and the earlier Scythian and the Zolotaya Balka series most probably reflects their genetic affinity, or, in other words, points to the local origin of the Chernyakhov population or at least of its core. It must be borne in mind that the bulk of material of the Chernyakhov culture comes from the Middle Dnieper area, while the Scythian and Zolotaya Balka material is associated with the Lower Dnieper. If, nevertheless, a morphological resemblance can be traced between them, then the paucity of the material is to be considered as an argument in favour of the suggested affinity.

Morphological features of Chernyakhovians may in their turn be discovered in groups of later periods, in the Slavs, or more exactly in the Polyans, possibly as a reflection of the part played by Chernyakhovians in the formation of the Slavic population of the Ukraine.

A Sarmatian admixture has not been established in the Chernyakhov material, at least not an appreciable one. An insignificant admixture may

be admitted only in regard to the Zhuravka and, perhaps to the Northern Black Sea series.

## CONCLUSIONS

The process operating in the change of the physical type of the Ukrainian population consisted primarily in a reduction of the robusticity of the skeleton. The continuity of this process of gracilization was from time to time interrupted by migrations.

The most important deviation from the general course of the process is the difference observed between Neolithic and Mesolithic skeletons. This may be explained by the influence exerted during the Mesolithic Age by the tribes of southern origin which had already passed through the process of gracilization. During the Neolithic Age a migration from a northern area might possibly have taken place.

The physical type of Scyths shows no appreciable differences from that of the late Bronze Age. The immigration of Sarmatians into the Ukraine is manifested in the appearance of brachycranic forms. This feature they inherited from the Sauromats, that is from the Volga people of the Scythian period.

The basic population of the Ukraine, which goes back to the Scyths and their ancestors of the Bronze Age seems to have continued to exist as tribes of the Chernyakhov culture and later as Slavs of the time of Grand Ducs. After the Bronze Age the process of gracilization slowed down.

3rd part in next issue

Dr. T. S. Konduktorova  
Institute of Anthropology  
Moscow University  
Prospekt Karla Marxa 18  
Moscow (U.S.S.R.)