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DEMOGRAPHY OF THE EARLY BRONZE AGE CEMETERY AT VÝČAPY — OPATOVCE (SOUTHWEST SLOVAKIA)

INTRODUCTION

The Archaeological Institute of the Slovak Academy of Sciences in Nitra organized from 1951 to 1954 a systematic areal research of the cemetery on the right (western) bank of the Nitra River between the villages Výčapy and Opatovce in the Nitra District. The research was led by A. Točík (1958) and J. Porubský (1954); the latter worked out the finding report.

Altogether 315 graves of the cemetery were explored. According to the analysis by A. Točík (1970) there were among them 11 Neolithic graves of the Lengyel culture, 8 of them published earlier by J. Porubský (1955). Their anthropological evaluation will be published in another paper. The overwhelming majority of the rest of the graves forms part of an extensive Early Bronze Age cemetery of the Nitra cultural group defined by Točík (1963, 1967). 129 of the graves belong, according to their archaeological inventory, unequivocally to the Nitra group. Further 165 graves contained no inventory, but according to various auxiliary criteria, such as the burial rite, shape of the grave pit, etc. they also belong to the above-mentioned culture. 3 graves reveal the transitional Nitra-Únětice phase and the remaining 7 graves were classed by Točík (1970) with the Únětice culture.

The skeletal material, with the exception of pieces in very poor state of preservation, was transferred to the store of the Archaeological Institute of the Slovak Academy of Sciences in Nitra, where I studied the skulls and the long bones of the limbs in 1958. Later after the reorganization of the store the better preserved skeletons were handed over to the Chair of Anthropology of the Komenský

University in Bratislava, where I evaluated them in 1960.

The anthropological material comprises the skeletons from 182 graves of the Nitra group (61.9 per cent of all the unearthened graves of this group) and from 8 graves of the Nitra-Únětice or Únětice phases (80 per cent of all the unearthened graves of these phases). In view of the small number of individuals and very bad state of preservation of the skeletal remains, and also with regards to the continuous development from the Nitra to the Únětice phase, it was decided not to separate the Nitra-Únětice or the Únětice remains and this material was also processed together with the dominating material from the Nitra graves.

The number of individuals identified from the anthropological material overpasses by the 29 the total number of Early Bronze Age graves containing anthropological material. The presence of two individuals in the same grave was described in the finding report in 7 cases. The Early Bronze Age origin of other 4 skulls was proved by the green stains, showing that these bones were in contact with bronze objects. Finally, the remains of 4 children could have been overlooked. These 15 cases document the occasional occurrence of double graves. Together with them the number of individuals buried at this Early Bronze Age site totals 205. The remaining 14 individuals were excluded because of their dubious origin.

Sex and age were determined with the use of current methodological procedures (Borovan-
ský 1936, Borovan-
ský and Hněvkov-
ský 1930, Měšťan and Miksa 1952, Val-
lois 1937, Martin 1928).

In this paper I shall concentrate on the demography of the burial ground and on the relations

between the anthropological and archaeological determination of the sex. The analysis of the metric and descriptive characters and the comparison of the series from Výčapy-Opatovce with other contemporary materials will be object of a special anthropological publication on the cemetery. Preliminary report on the cemetery has already been published (Strouhal 1964 a). Some results of its elaboration have been included in three special analyses. They were used for the confrontation of the age of the children established according to the eruption of the dentition and growth of the diaphyses of the long bones (Strouhal 1963), for the study of the growth of the long bones in children (Strouhal 1973) and for the evaluation of the tooth abrasion and dental diseases (Strouhal 1964 b).

CONFRONTATION OF THE ANTHROPOLOGICAL DETERMINATION OF SEX AND OF THE BURIAL RITE

It appeared already during the excavations that the skeletons accompanied by inventory considered typical for men (bronze knives, flint tools, etc.) lay in contracted position on the right side, with the top of the head oriented to the west. The skeletons with inventory of female character (earrings, beads, etc.) lay contracted on their left side, with the top of the head oriented to the east. Thus the faces of the deceased looked to the south in both cases.

The hypothesis of the sexually linked ritual position was checked in adults and adolescents (over the age of 14 years) in which we were able to determine the sex with the required precision through anthropological methods. Out of the total number of 138 of these individuals, in 135 the ritual position and orientation to the four cardinal points was described in the finding report.

In the majority of the 131 cases (97 per cent) the sexually differentiated position of the skeletons agreed with their anthropologically determined sex.

Discrepancies appeared only in 4 cases (3 per cent). Grave No. 25 contained a fragmentary adult skull with defective mandible and typical secondary male sexual characters, but it was buried according to the female rite and its inventory contained "female" funeral offerings, earrings and beads. On the right temporal squama and the right zygomatic process of the temporal bone there is a green stain caused by the contact of the bone with the earring, situated next to it according to the sketch in the finding report. The possibility of an exchange of the skull is thus very limited. This case can be considered a real exception from the existing rule and its cause is escaping any possible explanation.

Grave No. 36 contained the defective calva of a mature-to-senile individual with female features. Its skeleton, however, was situated according to the male rite. In this case we must admit that the anthropological diagnosis could be incorrect. It cannot be ruled out that in higher age in male skulls

the sexual characters can be wiped off towards the female type.

From grave No. 118 we obtained the fragments of the skull and mandible of an adult woman with typical female characters and with a green stain caused by a presumed "female" funeral offering, by an earring. The rite was, however, of male type — it is obviously a further confirmed exception to the rule.

Grave No. 204 contained a defective calva, the mandible and long bones of a juvenile individual (16–17 years) with female characters, but buried according to the male rite. In this case we may admit in view of the non-adult age of the individual that the anthropological diagnosis of the sex is incorrect, because the male characters of this individual could not have been formed.

The above results reliably prove the existence of the sexually bound burial rite and orientation. Since it holds good also for the adolescents, we can presume that it was observed also in the burials of children. Thanks to these facts we were able — perhaps for the first time in the history of the skeletal anthropology — to analyse the growth of the long bones of children for boys and girls separately (Strouhal 1973).

We would like to mention also that in one instance, in the case of a $5\frac{1}{2}$ – $6\frac{1}{2}$ year-old child in grave No. 275, we found a completely anomalous orientation with the top of the head to east, lying on the right side, i.e. facing north.

THE QUESTION OF THE SEXUAL CHARACTER OF THE FUNERAL OFFERINGS

According to recent ethnographical analogies, the archaeologists regard the occurrence of certain types of funeral offerings as attributes of one or the other sex. So e.g. tools, weapons, etc. are considered funeral offerings of men, while necklaces made of various beads, diadems, earrings, pins, bracelets, rings, bone awls, etc. are attributed to females. Some funeral offerings are sexually "neutral", such as pottery, appearing in the graves of both sexes.

With regards to the harmony of the anthropological determination of the sex and of the sexually bound burial rite and orientation on the one side, and to the frequent occurrence of funeral offerings on the other, we have confronted the determined sex with the use of certain funeral offerings.

We had at our disposal 118 graves containing funeral offerings. In one case (grave No. 304) we had neither anthropological data concerning the sex of the skeleton (belonging to a 9–11 year old child), nor was the burial rite clear. In 93 adults and adolescents (37 men and 56 women) we could confront the funeral offerings with the anthropologically determined sex. In further 24 individuals, i.e. in children below 14 years (12 boys and 12 girls) we were able to make use of the sexually determined burial rite. In the confronted cases the anthropological determination of the sex did not

TAB. 1 *Confrontation of the sexual character of funeral offerings with the anthropologically determined sex and with sexually linked ritual position*

Character of the funeral offerings	Men ⁺ (N = 37)		Boys ⁺⁺ (N = 12)		Women ⁺ (N = 56)		Girls ⁺⁺ (N = 12)	
	n	%	n	%	n	%	n	%
male								
pottery	11	29,73	3	25,00	7	12,50	2	16,67
stone tools	10	27,03	1	8,33	3	5,36	1	8,33
bronze daggers and knives	6	16,22	—	—	—	—	—	—
bronze bracelets	6	16,22	1	8,33	2	3,57	1	8,33
boar fangs	4	10,81	—	—	—	—	—	—
female								
bronze earrings and rings	8	21,62	6	50,00	44	78,57	9	75,00
bone, glass and shell beads	2	5,41	1	8,33	23	41,07	2	16,67
bone and bronze needles	1	2,70	—	—	4	7,14	—	—
bronze diadems	—	—	—	—	3	5,36	—	—
neutral								
bronze finger-rings	8	21,62	5	41,67	9	16,07	3	25,00
bone awls	8	21,62	1	8,33	9	16,07	3	25,00

Explanations: + = anthropologically determined
 ++ = according to the sexually linked ritual position
 N = total number of individuals
 n = absolute number of burials with funeral offerings
 % = percentage of cases with funeral offerings out of the total number of individuals

agree with the sexually bound burial rite only in two cases: the anthropologically determined man (grave No. 25) was buried according to the female rite and the anthropologically determined female (grave No. 118) according to the male rite. The funeral offerings of both individuals were of female character.

The dependence between the individual types of funeral offerings and the sex of the deceased is indicated in *Table 1*. According to this table, the characteristic offerings in the graves of adult males are pottery, stone tools, bronze daggers, and knives, bronze bracelets and fangs of wild boars. Most frequent, present practically in every third male grave, is pottery, while only one eighth of female graves contained pottery. Pottery, however cannot be regarded as a typical male funeral offering, even if it is more than twice as frequent in male graves than in the female ones. Other objects present in male graves appeared very rarely or not at all in the female ones. In the graves of children, pottery slightly prevailed in the graves of boys, but there was practically no difference between the graves of boys and girls as far as the other "male" funeral offerings were concerned.

The graves of adult females contain most often bronze earrings and other rings, beads made of bone, glass and shells, bone and bronze needles and bronze diadems. Most frequently occurred earrings and rings, found in more than three-fourth of all the confronted female graves, so that we can regard them as a typical female attribute "par excellence". But these offerings did not appear exclusively in

female graves only — more than one-fifth of the male graves also contained earrings and rings. Other female attributes appeared in male graves only rarely or not at all. The second most frequent female offering were beads.

In the group of children we can see a shift of funeral offerings towards the "female" side and their occurrence is limited practically to earrings and partially also to beads: Though they were found more frequently in the burials of girls, the difference between the funeral offerings of the boys and girls does not seem to be too conspicuous. Earrings (together with finger-rings and awls) can thus be regarded as typical funeral offerings of children of both sexes.

In the rest of funeral offerings that appeared more than twice, i.e. in bronze finger-rings and in bone awls, we did not register any prevalence in either of the two sexes. In the group of children, however, especially in boys there was a conspicuous increase in the number of finger-rings, another typical funeral offering for children. They appeared occasionally alongside with awls. Funeral offerings appearing only occasionally (once or twice) were not included into this analysis.

We can conclude that against all expectations pottery and bronze bracelets often appear in connection with male burials, while bronze finger-rings and awls should be regarded as neutral in the studied cemetery. The table also shows a higher relative and absolute frequency of funeral offerings with females than with males.

THE DEMOGRAPHY OF CHILDREN AND ADOLESCENTS

The total number of 205 individuals with preserved anthropological material comprised 62 children from the 9th—10th foetal month to the 14th completed year of age (30.24 per cent) and 24 adolescents between 14 and 20 years (11.71 per cent). The number of non-adults (96, i.e. 41.95 per cent) was lower than the number of adults buried at this site (119 adults, i.e. 58.05 per cent). With regards to the much higher suckling death-rate of the period, however, we might expect a still much larger proportion of children than the found one.

According to the burial rite 22 children have been determined as males and 28 as females and the sex of the remaining 12 children could not be determined. The ratio of deceased children of both sexes can be thus considered to be roughly in equilibrium.

On the other hand in the group of adolescents where in one case of discrepancy between the sexually bound burial rite and anthropological sexing we preferred the anthropological diagnosis, females conspicuously prevailed (17, i.e. 70.83 per cent) over men (7, i.e. 29.17 per cent). This is more likely due to the increased perinatal death-rate of women starting already at this age.

A detailed distribution of the deceased children and adolescents is indicated in Table 2. Very conspicuous is its relative regularity. Analogically to modern tables we would expect a high share of sucklings (0—2 years) and a gradual drop to a minimum around the age of 10—13 years, after which a gradual increase should occur. There are somewhat more cases in the 4—6 year, 8—10 year and 18—20 year groups. Minimum values appear in the 10—12 and 14—16 year age intervals.

The missing summit of death-rate in the 0—2 year group clearly indicates that the skeletons of most sucklings have been absorbed by the soil or were buried outside the burial site. Due to the low number of individuals of this category we dropped the idea of calculating the death-rate tables.

The equilibrium between the two sexes up to the age of 16 years reflects in our view the fact that the boy and girls up to this age were subject to equal hazards. This situation suddenly changes in the two last intervals, when for 4 dead young men there are 14 girls. In the 16—20 year period the girls are fully mature and able to fulfill the function of maternity. The increased hazards during pregnancy and during the delivery and puerperium well explain this difference.

DEMOGRAPHY OF THE ADULTS

Out of the 119 skeletal remains of adults 59 were identified as men (49.6 per cent) and 60 as women (50.4 per cent). In the 3 dubious cases, where the sex according to the burial rite and according to the anthropological determination did not agree, we preferred the anthropological determination. Considering also the adolescents there are 66 men (46.1 per cent) and 77 women (53.9 per

TAB. 2

Death-rate of the children and adolescents in two-year age intervals

Age interval	Boys	Girls	Un-defined sex	Total		
				n	% A	% B
0—2	2	1	5	8	3,90	9,30
2—4	1	5	2	8	3,90	9,30
4—6	3	6	2	11	5,37	12,79
6—8	3	4	1	8	3,90	9,30
8—10	6	6	1	13	6,34	15,12
10—12	2	2	1	5	2,44	5,81
12—14	5	4	—	9	4,39	10,47
14—16	3	3	—	6	2,93	6,98
16—18	1	6	—	7	2,41	8,14
18—20	3	8	—	11	5,37	12,79
Total	29	43	12	86	41,95	100,00

Explanations: n = number of cases
 % A = percentage from the total number of individuals of the cemetery (n = 205)
 % B = percentage from the total number of immature individuals (n = 86)

TAB. 3

The numbers of deceased mature individuals in ten-year age intervals

Age interval	Males		Females		Both sexes	
	n	%	n	%	n	%
20—30	12	20,34	23	38,33	35	29,41
30—40	19	32,20	21	35,00	40	33,61
40—50	22	37,29	11	18,33	33	27,73
50—60	6	10,17	5	8,33	11	9,24
Total	59	100,00	60	99,99	119	99,99

cent) in the series, showing that the ratio of the two sexes is roughly in equilibrium. This reflects, in our view, the demographic structure of the population living in peacetime, when men did not die on faraway battlefields.

A more detailed distribution of the deceased in ten-year categories is shown in Table 3. Most numerous is the category between 30—40 years, followed by the category of 20—30 year-old and 40—50 year-old. The differences between these categories are relatively slight. Only the category of 50—60 year-old is conspicuously small, comprising less than one-tenth of the adults.

There are differences, however, between the two sexes, especially in the 20—30 and 40—50 year-old groups. In the early adult age the number of women is almost twice as high as that of the men. On the contrary, in the early mature age we can find more than twice as many men, compared with the number of women. In the 30 to 40 year-old group the numbers of deceased of the two sexes are practically even, corresponding ge-

nerally to the peak of the death-rate and comprising one-third of all deceased adults. Neither is there any conspicuous difference in the death-rate of the two sexes in the 50–60 year-old group.

Similarly as in the category of the 16–20 year-old women, the high death rate of women in the 20–30 year-old group can be explained by connection with the maximum parturition activity, often complicated by infection and other perinatal hazards. Less women survived to the age 40–50 years, hence the prevalence of deceased men in this category.

The above differences between adult men and women shifting the death-rate of men to the higher life categories, are reflected also in the higher mean age at death reaching 41.2 years with men compared with 36.9 years with the group of women. This difference is significant on the 0.05 probability level of the t-test.

SUMMARY

Skeletal remains of 205 individuals have been unearthed at the Early Bronze Age cemetery of the Nitra group at Výčapy-Opatovce, southwest Slovakia. In 135 of them, the anthropological determination of the sex could be compared with the determination according to the sexually bound burial rite. It was confirmed, that with only 4 exceptions the skeletons of the men lay in contracted position on their right side, with the top of head oriented to the west and the skeletons of women on the left side, with the top of the head to the east. The anthropological and ritual determination of sex was used for the analysis of the sexual character of the funeral offerings. It appeared that characteristic funeral offerings of the grave of the adult men were pottery, stone tools, bronze daggers, bronze knives, bronze bracelets and fangs of wild boar. The graves of adult females contained mainly bronze earrings and other rings, bone, glass and shell beads, bronze needles and diadems. Bronze finger-rings and bone awls were found with the deceased of both sexes. In the group of children "female" funeral offerings prevailed but they were limited to earrings, beads, small finger-rings and awls. As to the demographic structure of the deceased, 41.95 per cent were immatures and 58.05 per cent adults. The share of children below 14

years was 30.24 per cent and of the sucklings only 3.90 per cent. Apparently this material does not reflect the then very high suckling death-rate. The distribution of the death-rate of children in two-year intervals showed considerable regularity. The sexual difference in the death-rate appears after the 16th year of age, when the number of deceased girls suddenly increases. This trend continues also in the 20–30 year-old group, in which the number of deceased women is almost twice as high as that of the men. The mortality of both sexes was almost even in the 30–40 year bracket, while in the 40 to 50 year-old group the number of deceased men prevails. The shift of the death-rate of men to higher age categories is reflected also by the higher mean age at death of men (41.2 years) compared with that of women (36.9 years).

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