

## DEMOGRAPHY OF URNFIELD POPULATION IN SLOVAKIA FROM VIEW OF ANTHROPOLOGIST

### Demografie populace popelnicových polí na Slovensku z pohledu antropologa

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#### Abstract

Based on the anthropological analyses the content of cremation graves from the Urnfield period in Slovakia was established demographic structure of the population. There was calculated life expectancy and age structure. These data were compared with two cultural complexes of Urnfields: Lusatian culture and cultural complex of South-eastern Urnfields. The values have been shown on transparent each tables and diagrams. The authors also unsuccessfully attempted to identify links between gender and grave equipment.

**Keywords:** *Lusatian culture, South-eastern Urnfields, burial ground, anthropology, demography, bronze tools*

#### Introduction

Characterize the population of Urnfield civilization in Slovakia and examine its demography is praiseworthy, but also a challenging task. It can be solved only in cooperation with anthropologists, mainly on the analysis of osteological material from large explored burial grounds. Thanks to long-term and purposeful archaeological and anthropological cooperation exists in Slovakia an extremely extensive source base enabling relevant conclusions in this segment of knowledge (Furmánek, 1997; Pavelková a Furmánek, 2016).

The civilization of Urnfields represents in Europe a more or less unified cultural-historical whole (Harding, 2000). The individual cultural complexes of Urnfields in Central Europe are considered, on the basis of their high economic and social level, as one of the civilization center of European metalica. Significant signs were consistently respected cult rules, centuries-old continuity of settlement, density of settlements, then building of hillforts, advanced pottery production, developed metallurgy of non-ferrous metals, and consequently from this the growing metallurgy of iron (Furmánek, Veliačik a Vladár, 1999, 69–70).

Opinions on the origin, development and disappearance of the civilization of Urnfields in the Northern part of the Carpathian basin have been formed since the 19th century. The present view of this issue has been completed and clearly formulated in the last third of the last century (Furmánek, 1981; 1986; 2004; Furmánek a Veliačik, 1980; Furmánek, Veliačik a Vladár, 1991, 1999; Kemenczei, 1984; Točík a Vladár, 1971) and is currently widely accepted (Furmánek, 2015).

The period around the middle of the second millennium B.C. represents a significant historical milestone in Central Europe. Whereas in the Western and partly in the Southern part of the region the tumulus culture developed, which probably originated in the Carpathian Basin (Jiráň, 2008), so in the north

and east the individual cultures of the civilization of the Urnfields began to form and gradually profiled. This bipolar development eventually united in the Middle and Late Bronze Age, around the year 1200 B.C. Tumulus cultures transformed into cropland Urnfields and this unified cultural-historical situation lasted practically until the 8th century B.C.

In Slovakia, in period until the beginning of the Late Bronze Age, three cultural complexes of Urnfields were crystallized, the manifestations of which were determined by the original indispensable cultural-ethnic substrate, geographical landscapes, as well as contacts with neighboring regions. It was the territory of South-western Slovakia, which has long tended to the Central Danube and to the Western regions of spreading the Urnfields. For this population, archeological terminology uses the concept of a cultural complex of Middle-Danubian Urnfields, formed by the Velatice, Čaka and Podolí cultures. The mountainous area of Northern and central Slovakia was inhabited by the population of the Slovak branch of Lusatian culture, which was an integral part of the large Lusatian cultural complex extended in Northern part of Central Europe. The south of Central Slovakia and the East of the country has populated by the population of the cultural complex of the South-eastern Urnfields. This complex also interfered with the adjacent part of Ruthenia and North-east Hungary. In some periods of its existence, it was located in North-eastern Romania, and its people also penetrated into South-eastern Poland.

#### Aim

To investigate the demographics of prehistoric populations, the anthropological analyzes of osteological material are essential. Anthropological analyzes of human remains from the cremation graves<sup>1</sup> of the cultural complex of South-eastern Urnfields have a long tradition in Slovakia. In the following passage, individual grounds will be presented in chronological order, depending on when anthropological analyzes were published.

Not all three above-mentioned cultural complexes of Urnfields in Slovakia are comparable in these analyzes. This is based not only on the number and degree of the studied cremation necropolis, but also on the anthropological analyzes carried out.

It should be emphasized that the objective reasons has been least explored cremation graves of the cultural complex of the Middle Danubian Urnfields. As a rule, they were burial grounds on which were investigated only a small number of graves (Ožďáni, 2015) and they did not analyze anthropologically, and even if they were analyzed, the reporting ability of their conclusions would be negligible. The exception is the cremation ground of the Velatice and Podolí cultures in Chotín, where 326 graves were excavated (Dušek, 1957), but they were not even anthropologically analyzed.

However, it cannot be categorically stated that the relevant anthropological analyzes from the Middle Danubian Urnfields of burned human bones do not exist. An exception is the burial ground from the locality Žitavany-Kňažice, where R. Kujovský (1982) explored 77 cremation graves from the turn of the early and late Bronze Age. The site is located in the area of the contact of the Lusatian culture and the cultural complex of the Middle Danubian Urnfields. Many graves could be included among the monuments of Podolí culture (Kujovský, 2017, 177). The contents of some of the cremation graves were analyzed by M. Vondráková and together with R. Kujovský are preparing for publication (we thank R. Kujovský for kindly information). We could also include in this category the anthropological analysis of the cremation burial from the tumulus of the Čakan culture

in village of Velké Ripňany, which was realized by J. Jakab (Březinová, 2011; Paulík, 1978).

**Methodology**

The classification of anthropological material is based on the methodology of M. Dokládál (Dokládál, 1999), J. Chochol (Chochol, 1964) and D. H. Ubelaker (Ubelaker, 2008) used in the Czech and Slovak Republics. This means that Infans I is the age category up to 7 years old; Infans II from 8 to 14 years of age; Juvenis from 15 to 20 years old. Age categories Adultus, Maturus, and Senilis begin at the age of 20 years.

The situation is different at the burial grounds of the Slovak branch of Lusatian culture. Up to now, around 10,000 cremation graves have been explored. Of these, nearly 1,000 (993) anthropological analyzes were published. In addition, there are hundreds of other analyzes of graves that are ready to print, or is continuously processed.

Thanks to intensive cooperation of Slovak specialists on the issue of Lusatian culture (Z. Benkovská-Pivovarová, R. Kujovský, L. Veliačik, T. Zachar and others) and a whole range of Czech (I. Jarošová, J. Pavelková, M. Stloukal and others), as well as Slovak anthropologists (S. Bodoriková, K. Domonkošová-Tibenská, J. Jakab, M. Vondráková and others) have been realized and in many cases published anthropological analyzes from several burial grounds of Lusatian culture. In the following overview, they will be presented alphabetically.

**Results**

**Diviaky nad Nitricou**

The anthropologically analyzed burial ground of Lusatian culture (Table 1) was investigated in Diviaky nad Nitricou, district Prievidza (Veliačik, 1991). This burial ground was lying in the fertile floodplain of river Nitra at above sea level of about 280 meters. Between 1974 and 1975, 82 graves dated to horizon Diviaky nad Nitricou I and II, so to stages HA1 and HA2, were explored. 96 individuals were evaluated in these graves (Stloukal, 1991). The average life length was between 21.8 and 22.5 years and 38.6 % of the population did not live up to 14 years of life. Anthropological analyzes from this burial ground are important for the demography of the Urnfields and, above all, for the demography of the Lusatian culture.

**Table 1.** Diviaky nad Nitricou, district Prievidza. The Lusatian culture. Anthropological dividing of identified individuals into age groups

The age group	N	%
Infans I, II	37	38,6
Juvenis	5	5,2
Adultus – rather man	9	9,4
Adultus – rather woman	13	13,5
Adultus – undeterminable	30	31,3
Human remains – undeterminable	2	2,0
<b>Total</b>	<b>96</b>	<b>100,0</b>

**Krásna Ves**

At the burial ground of the Lusatian culture in Krásna Ves, district Bánovce nad Bebravou (Budinský, Krička a Veliačik, 1986), in 1935, 1936 and 1938, 40 tumulus and 8 flat graves were excavated. In terms of time, graves were divided into four phases from the horizon of Mikušovce to the horizon Diviaky nad Nitricou II (Budinský-Krička a Veliačik, 1986, 95-98). This means from the end of stage BD until the end of stage HA2. This means the end of stage BD until the end of stage HA2. The burial ground was located in the foothill part of

the South-western of Strážov Mountains at height above sea level of about 270 meters. 73 graves were found. It was evaluated 63 individuals (Stloukal, 1986). The average life length is determined to be 25.8 years and 20.6 % of the population died before 14 years of life (Table 2). Anthropological analyzes from this burial ground are important for the demography of the Urnfields and, above all, for the demography of the Lusatian culture.

**Table 2.** Krásna Ves, district Bánovce nad Bebravou. The Lusatian culture. Anthropological dividing of identified individuals into age groups

The age group	N	%
Infans I, II	13	20,6
Juvenis	2	3,3
Adultus – rather man	5	7,9
Adultus – rather woman	10	15,8
Adultus – undeterminable	22	35,0
Human remains – undeterminable	11	17,4
<b>Total</b>	<b>63</b>	<b>100,0</b>

**Liptovský Mikuláš-Ondrašová**

Recently anthropological analyzes were published from other burial grounds of the Lusatian culture (Zachar a Jarošová, 2014). Between 1968 and 1969, rescue archeological research was carried out at the well-known burial ground of Lusatian culture in the part town Liptovský Mikuláš-Ondrašová, district Liptovský Mikuláš (Veliačik, 1975). The burial site was on the right bank of the river Váh at height above sea level of about 590 meters. Six tumuli with 13 cremation graves dated to the Liptovský Mikuláš-Ondrašová horizon (Veliačik, 1983, 168, 172) were explored, which is synchronous with the turn of the stages BC/BD (Kujovský, 2015, 179). Anthropological analyzes found the existence of 20 individuals (Zachar a Jarošová 2014, 109-111).

The average life length was not calculated for such a small set. It was possible to state that 40.0 % of the population died before the age of 14 years (Table 3). The archaeological significance of this locality is dominant, but for the demography of the Lusatian culture, the contribution is only marginal.

**Table 3.** Liptovský Mikuláš-Ondrašová, district Liptovský Mikuláš. The Lusatian culture. Anthropological dividing of identified individuals into age groups

The age group	N	%
Infans I, II	8	40,0
Juvenis	3	15,0
Adultus – rather man	1	5,0
Adultus – rather woman	4	20,0
Adultus – undeterminable	3	15,0
Human remains – undeterminable	1	5,0
<b>Total</b>	<b>20</b>	<b>100,0</b>

**Mikušovce**

In the years 1961–1963, in connection with the field activities of Ernest Poliák, the Archaeological Institute SAS (Slovak Academy of Sciences) carried out rescue archaeological research in the cadastral area of the village Mikušovce, district Ilava, which later became a systematic research. The research was led by Zoja Pivovarova (1965a), which repeatedly published the results (Pivovarová, 1965b). The burial ground lies at the South-east foot of the White Carpathians at an altitude of about 320 meters. On the locality is explored in three closely

spaced locations 197 cremation graves and two skeletal graves (Pavelková a Furmánek 2015, 217). The obtained archaeological material and field observations made it possible to define the horizon Mikušovce (Veličák, 1983, 168-172), which is synchronized with the stage of BD and the beginning of the HA1 stage (Kujovský, 2015, 178). 126 cremation graves were delivered to anthropological analysis and 200 individuals were evaluated. For this burial ground (Tab. 4), the average life length was calculated at 21.15 years and 38.5 % of the population died before the age of 14 (Pavelková a Furmánek, 2015). The importance of anthropological analyzes for the demography of Lusatian culture is dominant, but the problem is that it is not known what part of the burial site was explored and whether it was perhaps not a complex of several hot burial grounds (Zajacová a Benkovsky-Pivovarová, 2015).

**Table 4.** Mikušovce, district Ilava. The Lusatian culture. Anthropological dividing of identified individuals into age groups

The age group	N	%
Infans I, II	77	38,5
Juvenis	12	6,0
Adultus – rather man	36	18,0
Adultus – rather woman	42	21,0
Adultus – undeterminable	8	4,0
Human remains – undeterminable	25	12,5
<b>Total</b>	<b>200</b>	<b>100,0</b>

#### Rajec

Only a small part of the burial ground of the Lusatian culture was explored during the rescue research in Rajec, district Žilina in 2007. The locality is located on the terrace of river Rajčianka at an altitude of 478 to 501 meters. During the research, archaeological and anthropological material was obtained from 40 graves dated to stages HA-HB. 35 individuals were recorded and analyzed in these graves (Benediková et al., 2010). The average life length is determined to be 20.3 years and 25.7 % of the population died before 14 years of life (Table 5). The importance of anthropological analyzes is marginal to the formulation of demographic conclusions.

**Table 5.** Rajec, district Žilina. The Lusatian culture. Anthropological dividing of identified individuals into age groups

The age group	N	%
Infans I, II	9	25,7
Juvenis and juvenile indefinite	5	14,3
Adultus – rather man	1	2,9
Adultus – rather woman	0	0,0
Adultus – undeterminable	7	20,0
Human remains – undeterminable	13	37,1
<b>Total</b>	<b>35</b>	<b>100,0</b>

#### Trenčín-Biskupice

The anthropological analysis of the largest burial ground of the Lusatian culture in Slovakia and one of the largest cremation site in Central Europe in Trenčín-Biskupice, district Trenčín, which was examined in 2002-2008, has not yet been completed. The burial ground was on the left bank of the Váh River at an altitude of 207 to 210 meters. Nearly 2300 graves (Cheben, 2011) dating from stage BD to the end of stage HB were explored. Anthropological material was analyzed from 481 cremation graves in which 451 individuals were evaluated (Domonkošová-Tibenská et al., 2007). Although this is an impressive number, it represents only about one-fifth of all the discovered graves.

Although this is an impressive number, it represents only about one-fifth of all the discovered graves. Therefore, the average life length was not calculated. 33.7 % of the population died before 14 years of life (Table 6). If it succeeds in completing the anthropological analysis of the whole set, it will have a dominant significance not only for the demography of the Lusatian culture but also for the demography of the whole Central European civilization of the Urnfields. If that fails, it will be only a fragment of the whole project and an interesting attempt by the interdisciplinary and interpretive efforts of the author of research and participating anthropologists.

**Table 6.** Trenčín-Biskupice, district Trenčín. The Lusatian culture. Anthropological dividing of identified individuals into age groups (processed according to Domonkošová-Tibenská et al., 2007, 65)

The age group	N	%
Infans I, II	152	33,7
Juvenis	14	3,1
Adultus – rather man	11	2,4
Adultus – rather woman	40	8,9
Adultus – undeterminable	153	33,9
Human remains – undeterminable	81	18,0
<b>Total</b>	<b>451</b>	<b>100,0</b>

#### Žiar nad Hronom-Horné Opatovce

At the burial ground of the Lusatian culture in Žiar nad Hronom-Horné Opatovce, district Žiar nad Hronom, in 1981 to 1985 Gejza Trgina (1986) explored part of the burial ground. The burial ground was situated in Žiarská basin on the right bank of the river Váh at an altitude of about 280 meters. There were 70 graves dating from stage BD to stage HB1. Anthropological analysis was performed on 57 individuals (Jarošová et al., 2012). The average life length was determined to be 20.8 years and 28.1 % of the population died before 14 years of life (Table 7). Anthropological analyses are important for the demography for Lusatian culture, but not dominant.

**Table 7.** Žiar nad Hronom-Horné Opatovce, district Žiar nad Hronom. The Lusatian culture dividing of identified individuals into age groups

The age group	N	%
Infans I, II	16	28,1
Juvenis	2	3,5
Adultus – rather man	0	0,0
Adultus – rather woman	0	0,0
Adultus – undeterminable	35	61,4
Human remains – undeterminable	4	7,0
<b>Total</b>	<b>57</b>	<b>100,0</b>

#### Žitavany-Kňažice

At the burial ground of the Lusatian culture in Žitavany-Kňažice (formerly Zlaté Moravce-Kňažice), in 1979-1983 Rudolf Kujovský (1984) explored 73 cremation graves dated to the end of stage HA2 and to stage HB1. Kňažice lies at the foot of the southern part of Pohronský Inovec, at an altitude of about 194 meters. Mária Vondráková, for objective reasons, was able to analyse the burned bones of only 34 graves in which there were 66 funerals. The average life length is determined to be 19.6 years and 40.9 % of the population died before 14 years of life (Table 8). Anthropological analyses are for the demographics of the Lusatian culture important, but not dominant.

**Table 8.** Žitavany-Kňazice, district Zlaté Moravce. The Lusatian culture. Anthropological dividing of identified individuals into age groups (processed according to M. Vondráková, this way we thank her for it)

The age group	N	%
Infans I-III	27	40,9
Juvenis	13	19,7
Adultus – rather man	4	6,1
Adultus – rather woman	8	12,1
Adultus – undeterminable	14	21,2
Human remains – undeterminable	0	0
<b>Total</b>	<b>66</b>	<b>100,0</b>

Note: Archaeological and anthropological evaluation is being prepared for printing

All these values were summarized in Table 9 and Figure 1.

**The others**

From an environment of the Lusatian culture in Slovakia there are anthropological analyzes even from other cremation burials grounds, which are not however significant for the demographic conclusions.

**Partizánske-Šimonovany, district Partizánske.** Burial ground at this locality appeared in 1950 and gradually explored several dozen cremation graves of the Lusatian culture (Zachar et al., 2013, 277). Anthropological analysis was subjected to the content of only one grave. There was a burial of a sexually indefinite adult, aged adultus to senilis (Zachar et al., 2013, 282).

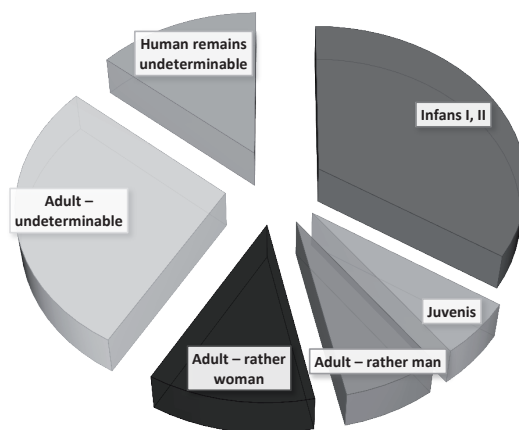
**Radola, district Kysucké Nové Mesto.** The rescue research of the burial ground of the Lusatian culture revealed in 1989 three cremation graves (Ďurišová, 1991), whose burned bones were analyzed (Jakab, 1991).

**Zvolen-Balkán, district Zvolen.** The burial ground in this location was investigated in 1954 (Balaša, 1964). At that time more than 143 graves of the Lusatian culture were explored. Gradually, more graves appeared and explored on this necropolis (Zachar et al., 2013, 277). Anthropological analysis was subjected to the content of only one grave. It turned out to be the funeral of an adult aged 20-35, probably man (Zachar et al., 2013, 282).

There are also unpublished anthropological analyzes of the contents of some cremation graves from the collection of Andrej Kmeť, which are deposited at the Slovak National Museum in Martin (Zachar a Jarošová 2014, 104).

**Table 9.** Summary of anthropological dividing of identified individuals from graves of the Lusatian culture to the age groups

The age group	N	%
Infans I, II	339	34,1
Juvenis	56	5,6
Adultus – rather man	68	6,9
Adultus – rather woman	117	11,8
Adultus – undeterminable	276	27,8
Human remains – undeterminable	137	13,8
<b>Total</b>	<b>993</b>	<b>100,0</b>



**Figure 1.** Anthropological dividing of identified individuals from graves of the Lusatian culture to the age groups

The situation was similar even in the burial grounds of the cultural complex of the southeastern Urnfields. So far, we have known hundreds of burning burial grounds where thousands of people were buried. Of this huge number of deaths, about 5,000 graves were surveyed and almost 1,800 anthropological analyzes were published. In addition, there are hundreds of analyzes of other graves that are ready to print or are being processed continuously. All the anthropologically evaluated burial grounds belong to the Piliny and Kyjatice cultures. The graves of the Suci de Sus culture and the Gáva culture are considerably less, and their contents have hardly been anthropologically evaluated at all.

**Cinobaňa**

In 2008, a systematic archaeological excavation of the burial ground of the cultural complex of South-eastern dustbin

fields was started in the village of Cinobaňa, Poltár district (Furmánek a Mitáš 2010; Furmánek et al., 2010), where it was in 2014, explored 314 graves dating from the young Piliny culture through Piliny-Kyjatice horizon up to the dominant Kyjatice culture (stages BD-HB). It is assumed that only half of this necropolis has been explored so far. The burial ground in Cinobaňa is located in the Western part of the Cinobaňa promontory, on the South-west edge of Slovak Ore Mountains (Slovenské rudohorie) at an altitude of about 402 meters. It demonstrates the penetration of the population of Urnfields from the lowland areas of the Northern part of the Carpathian Basin to the foothill regions in the North (Mitáš a Furmánek, 2015). Anthropologically, 324 individuals were identified. The average life length is determined to be 21.0 years and 43.5 % of the population died before 14 years of life (Table 10). For demographic evaluations, the importance of this burial ground is dominant.



**Table 10.** Cinobaňa, district Poltár. Anthropological dividing of identified individuals into age groups

The age group	N	%
Infans I, II	141	43,5
Juvenis	18	5,6
Adultus – rather man	18	5,6
Adultus – rather woman	38	11,7
Adultus – undeterminable	37	11,4
Human remains – undeterminable	72	22,2
<b>Total</b>	<b>324</b>	<b>100,0</b>

**Dvorníky-Včeláre**

First of all, it was previously investigated, but only the recently published burial ground Dvorníky-Včeláre, district Košice-okolie (Lamiová-Schmiedlová, 2009) dating from the end of the Middle Bronze Age until the Late Bronze Age. There were explored 163 graves, which were identified 146 individuals (Stloukal, 2009, 74). The average life length is set to 26.8 years, 22.6 % of the population died before 14 years of life (Table 11). The burial ground lies on the Southern edge of the Slovak Karst at an altitude of about 215 meters. Only part of it has been explored, so the results of the anthropological analysis are limited in their demographic conclusions.

**Table 11.** Dvorníky-Včeláre, district Košice-okolie. Anthropological dividing of identified individuals into age groups

The age group	N	%
Infans I, II	33	22,6
Juvenis	4	2,7
Adultus – rather man	3	2,1
Adultus – rather woman	10	6,9
Adultus – undeterminable	96	65,7
Human remains – undeterminable	0	0,0
<b>Total</b>	<b>146</b>	<b>100,0</b>

**Košice-Barca**

Sixty years ago, anthropological research was carried out on the contents of the urns from the cremation ground of the Piliny culture in Košice-Barca, district Košice (Jilková 1961; Palečková 1961), in 1953 and 1954 only a small part (72 graves) of a large burial ground was excavated. This part is dated on based archaeological material from stage BB2 to stage BD. The burial ground was situated on the fertile floodplains of river Hornád at an altitude of about 205 meters. Anthropologically, perhaps for objective reasons, the contents of only 31 graves were analysed. In them they were identified 42 individuals. The average life length of this set was determined at an incredibly high 26 years. Therefore, the author of the analysis rightly pointed out that “we must assume that the age was significantly lower” (Palečková 1961, 198). The number of deaths to 14 years of life was only 21.4 %. However, this burial ground was only partially explored and therefore the capability of anthropological analyzes to formulate demographic conclusions is limited (Table 12).

**Table 12.** Košice-Barca, district Košice. Piliny culture. Anthropological dividing of identified individuals into age groups

The age group	N	%
Infans I, II	9	21,4
Juvenis	3	7,2
Adult.-Sen. – rather man	9	21,4
Adult.-Sen. – rather woman	15	35,7
Adultus – undeterminable	6	14,3

Human remains – undeterminable	0	00,0
<b>Total</b>	<b>42</b>	<b>100,0</b>

**Kyjatice**

In two phases (1941 and 1983–1985), archaeological research was carried out on the eponymous locality of Kyjatice culture in Kyjatice, district Rimavská Sobota (Furmánek 1986). 192 graves dating from stage BD (Piliny culture) to stage HB (Kyjatice culture) were examined, and for objective reasons only 54 individuals could be identified (Pavelková, 2012). The average life length was only 18.1 years, as up to 48.2 % of the population did not live up to 14 years of life (Table 13). This burial ground, in the foothills of the Slovak Ore Mountains (Slovenské rudohorie), situated at an altitude of about 480 meters, was whole explored. Unfortunately, the osteological contents of most of the graves from the research in 1941 have been lost and some others were completely undetectable. Therefore, the informative ability of anthropological analyzes for demographic evaluation is limited.

**Table 13.** Kyjatice, district Rimavská Sobota. Anthropological dividing of identified individuals into age groups

The age group	N	%
Infans I, II	26	48,2
Juvenis	6	11,1
Adultus – rather man	1	1,8
Adultus – rather woman	3	5,6
Adultus – undeterminable	13	24,0
Human remains – undeterminable	5	9,3
<b>Total</b>	<b>54</b>	<b>100,0</b>

**Radzovce**

An important milestone for solving the presented problems was the anthropological analysis of the contents of 1334 cremation graves from the burial ground of the Piliny and Kyjatice culture in Radzovce, district Lučenec (Furmánek, Mitáš a Budaváry, 2016; Stloukal a Furmánek, 1982). Of these, 560 graves were explored in 1931 and 1932. There were between 1969–1974 explored additional 774 graves. This burial ground is located at an altitude of about 250 meters, dating from stage BB2 to stage HB2 (Furmánek a Mitáš, 2010a, 93–100). It belonged to the settlement, which was close to the fertile plains Monosa brook in Cerova highlands, in the river basin Ipeľ (Furmánek, 2010). 962 individuals were evaluated. The average life length was 22.5 years and the number of deaths up to 14 years of life was up to 40.7 % (Table 14). The ability of anthropological analyzes to formulate demographic conclusions is excellent.

**Table 14.** Radzovce, district Lučenec. Piliny and kyjatice culture. Anthropological dividing of identified individuals into age groups

The age group	N	%
Infans I, II	391	40,7
Juvenis	34	3,5
Adultus – rather man	75	7,8
Adultus – rather woman	148	15,4
Adultus – undeterminable	261	27,1
Human remains – undeterminable	53	5,5
<b>Total</b>	<b>962</b>	<b>100,0</b>

**Silica**

A short rescue investigation of earthworks from the disturbed burial ground of the Kyjatice culture was carried out in 2010 on Silica plain at an altitude of about 550 meters in the

cadastral village of Silica in district Rožňava (for information we thank R. Hreha, who is preparing an archaeological evaluation of the locality). In this region, the cremation grounds have not been found yet, but the area is characterized by the use of caves in the Late Bronze Age both for settlement and for cult activities (Furmánek, 2015, 253). Only 24 individuals were identified from the burial ground (Pavelková, 2015). Because it was a small set, the average life length of life did not count. However, it is significant that 45.8 % of the population died before 14 years of life (Table 15). For demographics, the significance of this burial ground is only marginal. From the point of view of questions of settlement in the peripheral settlement regions of the cultural complex of the South-eastern Urnfields, it is significant.

**Table 15.** Silica, district Rožňava. Anthropological dividing of identified individuals into age groups

The age group	N	%
Infans I, II	11	45,8
Juvenis	2	8,3
Adultus – rather man	1	4,2
Adultus – rather woman	5	20,9
Adultus – undeterminable	3	12,5
Human remains – undeterminable	2	8,3
<b>Total</b>	<b>24</b>	<b>100,0</b>

**Tornaľa**

Along with the anthropological analysis of the Radzovce material, the material from Šafárikovo was examined and eventually published. In Šafárikovo (now Tornaľa), district Revúca, in the years 1959, 1966 and 1968 226 cremation graves were examined (Furmánek, 1977, 258; Stloukal a Furmánek, 1982, 94), dating from the late phase BB1 to phase BD. At this burial site, Otomani-Piliny horizon was defined. As the two cremation graves of Kyjatice culture suggest, this burial ground could last until the Late Bronze Age. 219 individuals were evaluated anthropologically. It is estimated that the burial site could had up to 10,000 graves (Furmánek, 2004, 93). The average life length of the population, from the analysed group was 25.3 years and the number of deaths to the 14<sup>th</sup> year of life was relatively low, only 32.0 % (Table 16). The settlement, respectively the settlements which buried at the burial grounds, lay on the

exceptionally fertile floodplain of river Slaná. At that time, this river was used as a communication artery with the central part of the Carpathian basin. The burial ground was at an altitude of about 183 meters. The reporting capacity of conducted anthropological analyses for demographic conclusions is good, but it is problematic for the estimated number of deaths.

**Table 16.** Tornaľa, district Revúca. Piliny culture. Anthropological dividing of identified individuals into age groups

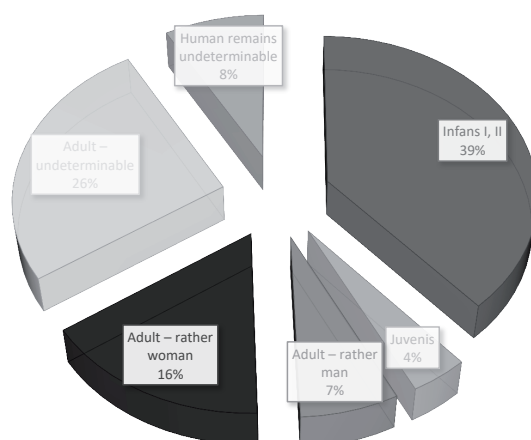
The age group	N	%
Infans I, II	70	32,0
Juvenis	5	2,3
Adultus – rather man	15	6,8
Adultus – rather woman	67	30,6
Adultus – undeterminable	46	21,0
Human remains – undeterminable	16	7,3
<b>Total</b>	<b>219</b>	<b>100,0</b>

From these two burial grounds (Radzovce, Tornaľa) then based first demographic conclusions about the population of Urnfields in the Slovak Republic (Furmánek, 1997; Furmánek a Stloukal 1985; 1986; Furmánek, Veliačik a Vladár, 1991 1991, 296–303; 1999, 171–175). Recently analyzed, respectively were published results of anthropological analyzes of several other burial grounds from the area of expansion of the cultural complex of the South-eastern Urnfields.

All these data were summarized in Table 17 and Figure 2.

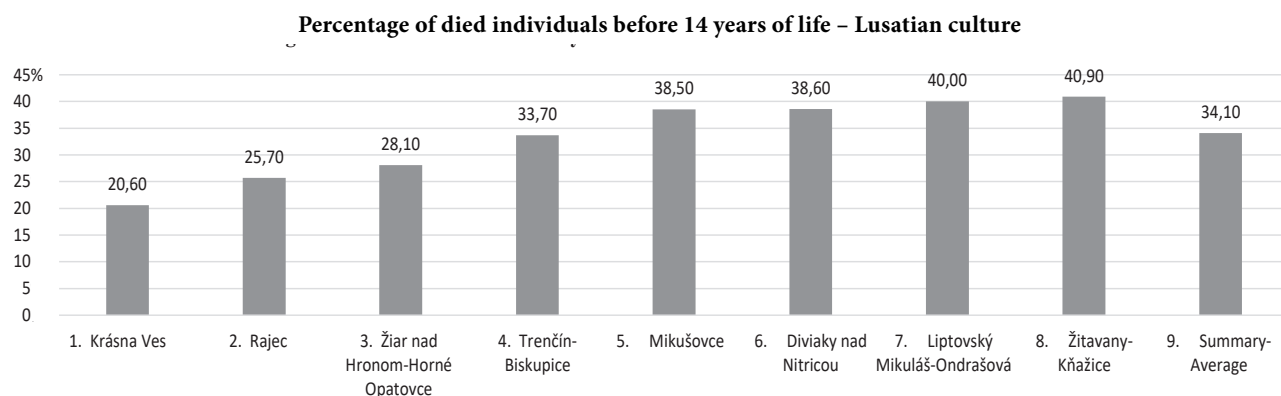
**Table 17.** Summary of the anthropological dividing of identified individuals from the burial grounds of the cultural complex of the South-eastern Urnfields into age groups

The age group	N	%
Infans I, II	681	38,4
Juvenis	72	4,1
Adultus – rather man	122	6,9
Adultus – rather woman	286	16,2
Adultus – undeterminable	462	26,1
Human remains – undeterminable	148	8,3
<b>Total</b>	<b>1771</b>	<b>100,0</b>

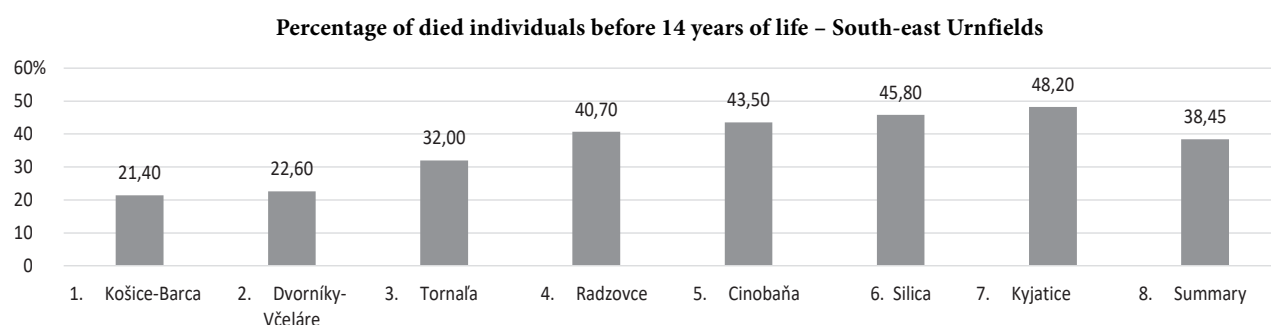


**Figure 2.** The anthropological dividing of identified individuals from the burial grounds of the cultural complex of the South-eastern Urnfields into age groups

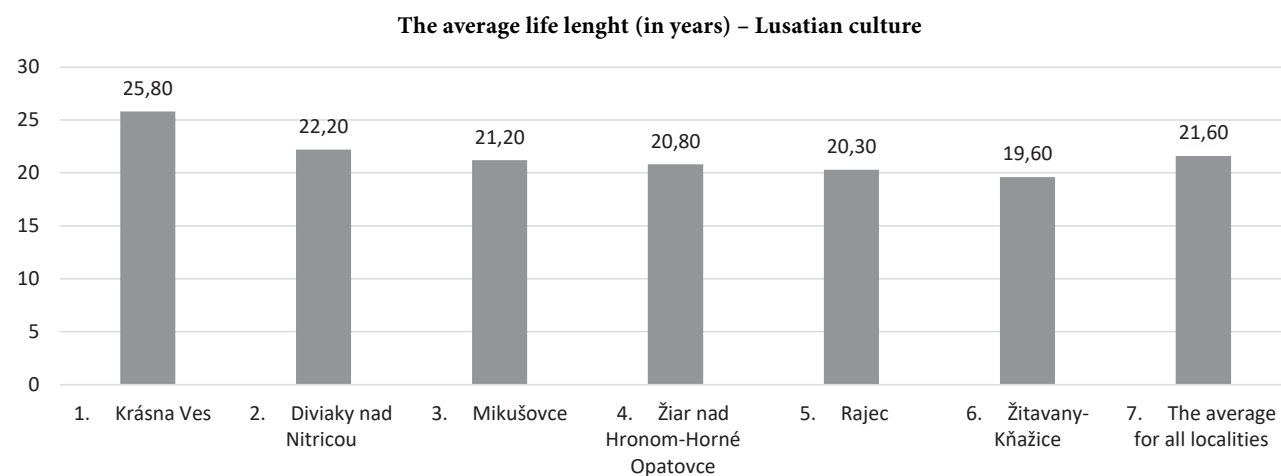
Interesting conclusions can bring comparison of the percentage numbers of individuals who have not lived 14 years of life and the average life length at locations Lusatian culture and locations of Western enclave South-east Urnfields (Figure 3., 4., 5. a 6.



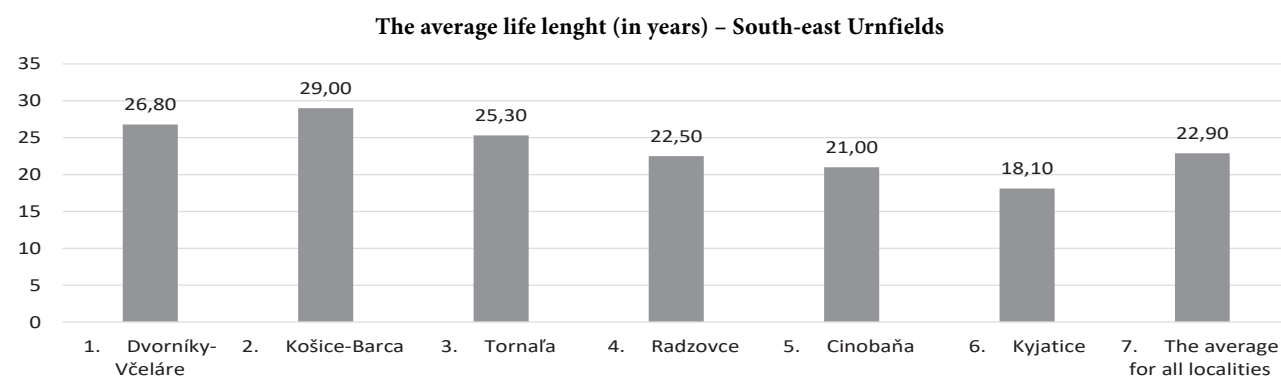
**Figure 3.** The percentage a number of individuals on localities of the Lusatian culture which died before 14 years of life (arranged in ascending order)



**Figure 4.** The percentage a number of individuals on localities of Western enclaves of the cultural complex of South-east Urnfields which died before 14 years of life (arranged in ascending order)



**Figure 5.** The average life length in years on localities of the Lusatian culture (arranged in descending order)



**Figure 6.** The average life length in years on localities of Western enclaves of the cultural complex of South-east Urnfields (arranged in descending order)

## Discussion

Anthropological analyzes of burned human remains from the period of Urnfields were carried out by twelve leading Czechoslovak, Czech and Slovak anthropologists. It can say that the team of assessors is extremely significant. As can be seen from the tables presented, their conclusions were very similar.

Based on these analyzes, we have tried to compare the demographic situation of two major Central European cultural complexes of Urnfields – Slovak branches of a large Lusatian cultural complex and two cultures of the Western enclave of the cultural complex of South-east Urnfields (Piliny culture and Kyjatice cultures). Data for comparison bring tables 9., 17 and figures 1., 2.

The number of anthropologically evaluated individuals from the localities of Lusatian culture in Slovakia was 993. From the Western enclave of the cultural complex of the South-eastern Urnfields, it was 1771 evaluated individuals, which is almost double the number of individuals evaluated as from the Lusatian culture localities, but the comparison is possible and meaningful. Practically in all age groups, the results of both comparing cultural complexes were similar to almost the same.

Higher percentage of individuals in the category ages of Infans I, II at the burial grounds of the Piliny and Kyjatice cultures (38.4 %) compared to the burial ground of the Lusatian culture (34.1 %) may be due to a large number of indeterminate human remains at the Lusatian burial grounds (13.8 %) compared to the burial grounds of the Piliny and Kyjatice cultures, where they were only 8.3 %. The Juvenis age group was 5.6 % in Lusatian culture and 4.1 % at the burial grounds of Piliny and Kyjatice culture. The individual categories in the adult age group are different, but the total number of adults was 49.2 % in the cultural complex of the South-eastern Urnfields and 46.5 % in the Lusatian culture. It results from the fact that the Central European civilization of Urnfields was homogeneous not only from the point of view of archaeological entities (technology of ceramics and metal objects production, material culture, housing, artistic, cult, religious, etc.) but also demographic.

The discrepancies presented between the different localities were mainly due to the different quality of anthropological material. The large part of the analyzed burial grounds has not been fully investigated. Differences in the geographical location of individual necropolis were also significant. There are burial grounds from lowland, fertile areas (e.g. Košice-Barca, Tornaľa), as well as burial grounds from sub-mountain regions (e.g. Cinobaňa, Mikušovce, Krásna Ves). For formulation more significant important demographic conclusions, the burial ground in Cinobaňa and Radzovce is the best one.

Undoubtedly a significant role in the life of the community was played by the geographical characteristics and the natural environment of the settlement where the members of their dead buried the burial grounds. The burial ground was based on different geographic locations, e.g. Silica Plateau. Frequent was the link to the proximity of the river floodplains (Košice-Barca, Liptovský Mikuláš-Ondrašová, Tornaľa, Trenčín-Biskupice), on mild slopes (Mikušovce, Radzovce), in the foothills region (Cinobaňa, Kyjatice, Krásna Ves). Presented burial grounds were also at different altitudes. In the Lusatian culture it was from 194 meters above sea level (Žitavany-Kňazice) to 590 meters above sea level (Liptovský Mikuláš-Ondrašová). This was similar in the area of the cultural complex of South-east Urnfields. From 183 meters above sea level (Tornaľa), 550 meters above sea level (Silica).

The burned human remains of the cremation graves do not have such good information as osteological material from skeletal burial grounds, but they still bring interesting demographic knowledge. When compared to the skeletal burial grounds of the Old Bronze Age, their information ability is undoubtedly smaller. It turns out, however, that all the deceased individuals

were buried on the cremation burial grounds. On some of the skeleton burial grounds of the Old Bronze Age, there is a noticeable absence of small children who died at birth or died before the age of one year of life. It then manifested itself in comparison with the cremation burial grounds even in a smaller number of individuals who did not live up to adulthood and at a higher average life length (Furmánek, 2004, 117; 2015, 291).

In general, a significant number of individuals who did not live up to adulthood (42.5 %) were conspicuous in the area of the expansion of Piliny and Kyjatice cultures. This number, however, is distorted by the fact that 8.3 % of human remains were undetermined. A similar situation was at the burial grounds of the Lusatian culture. The percentage of individuals who will not live to see adulthood was 41.7 %, but there were a higher percentage of individuals who were undetermined (13.8 %).

Some time ago, there was made an attempt to study on the material from Radzovce in the connection of the archaeological equipment of the individual finds with respect to the age and to the sex of the buried individuals (Furmánek a Stloukal 1985, 139-141). It was then stated that the numbers, shapes, and decoration of the vessels in the unambiguously male graves were not exactly different from the female ones. Differences could be observed in the bronzes. It was found that the male graves were razors, fibulas daggers, a sword, a knife, axes, a chisel and gold. In the female graves there were different ornaments, sewing needles and surprisingly sickles. In the present article, we take this argument has a certain reserve, as some researchers have published later diametrically opposed views.

All five razors of type Radzovce were found in the graves of the Piliny culture, which were uniquely designated as the graves of men (Furmánek a Stloukal, 1985, 139-140, tab. III). Other results, however, have been published from the burial ground at Hungarian locality of Piliny culture from Salgótarján-Zagyvapálfalva. Several bronze razors of Radzovce type were also published, with the anthropological determination of the graves where they were found. However, the results were not as clear as those of the Radzovce. The five razors came from graves of probably female and one razor from the grave of a definitely male (Guba, 2015, 174-175). Similarly, the ambiguous position of bronze sickles is at the Salgótarján-Zagyvapálfalva burial sites which were in children's and men's and women's graves. Also, some other researchers consider bronze sickles for typical male graves equipment (Primas, 1986, 17). The problem of gender unambiguous determination of bronze objects in cremation graves show even vague formulation in anthropological assessments: „Broken bones of an adult human, probably women; Anthropological determination of sex is confirmed even by archaeological finds“, or „skeleton fragments probably of an adult human; According to archaeological finds, it is a funeral of a woman“, etc.

## Conclusion

The presented study presents a further synthesis of the previous activities in the field of anthropology and demography of Urnfields in Slovakia. It contributes to a better understanding of prehistoric society during the civilization of Urnfields throughout Central Europe.

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## Souhrn

Charakterizovat populaci civilizace popelnicových polí na Slovensku a zkoumat její demografii lze řešit ve spolupráci s antropologi na základě analýzy osteologického materiálu z velkých prozkoumaných žárových pohřebišť.



Civilizace popelnicových polí představuje v Evropě více méně jednotný kulturně-historický celek. Na Slovensku se v období do počátku mladší doby bronzové vykristalizovaly tři kulturní komplexy popelnicových polí: kulturní komplex středodunajských popelnicových polí, slovenská větev lužické kultury a kulturní komplex jihovýchodních popelnicových polí. Pro tento příspěvek jsou relevantní antropologické analýzy z pohřebišť lužické kultury a z pohřebišť západní enklávy jihovýchodních popelnicových polí (kultura piliňská a kyjatická).

Z lužické kultury bylo zveřejněno téměř 993 antropologických analýz ze žárových pohřebišť Diviaky nad Nitricou (Tabulka 1), Krásna Ves (Tabulka 2), Liptovský Mikuláš-Ondrašová (Tabulka 3), Mikušovce (Tabulka 4), Rajec (Tabulka 5), Trenčín-Biskupice (Tabulka 6), Žiar nad Hronom (Tabulka 7) a Žitavany-Kňažice (Tabulka 8). Sumář rozdělení antropologicky hodnocených jedinců z těchto pohřebišť do věkových skupin byl prezentovaný na tabulce 9. a obrázku 1.

Z piliňské a kyjatické kultury na Slovensku existuje 1771 antropologických analýz ze žárových pohřebišť Košice-Barca (Tabulka 10), Radzovce (Tabulka 11), Tornaľa (Tabulka 12), Dvorníky-Včeláre (Tabulka 13), Kyjatice (Tabulka 14), Silica (Tabulka 15) a Cinobaňa (Tabulka 16). Všechny tyto údaje byly sumarizované v tabulce 17. a na obrázku 2.

Zároveň se u obou kulturních komplexů graficky znázornil procentuální počet jedinců, kteří se nedožili 14 roků života na lokalitách lužické kultury (Obrázek 3) a na lokalitách piliňské a kyjatické kultury (Obrázek 4). Na obrázku 5 a 6 byla znázorněna střední délka života na lokalitách lužické kultury a na lokalitách západní enklávy jihovýchodních popelnicových polí.

Jednotlivé výsledky a sumáře měly hodnoty téměř stejné. Z toho vyplývá, že středoevropská civilizace popelnicových polí byla homogenní nejen z hlediska archeologických entit (technologie výroby keramiky a kovových předmětů, materiální kultura, struktury sídlištní, umělecké, kultové, náboženské aj. představy), ale i z pohledu demografického.

Třeba zdůraznit že ve všeobecnosti byl v oblasti rozšíření piliňské a kyjatické kultury nápadný značný počet jedinců, kteří se nedožili dospělého věku (42,5 %). Hodnota uvedeného čísla je však skreslená skutečností, že 8,3 % lidských ostatků bylo neurčitelných. Podobná situace byla i na pohřebišťích lužické kultury. Procentuální počet jedinců, kteří se nedožili dospělého věku, byl 41,7 %, přičemž však byl vyšší procentuální počet jedinců, kteří byli neurčitelní (13,8 %).

Již dříve (Furmánek a Stloukal, 1985, 139-141) se konstatovalo, že počty, tvary a výzdoba nádob v jednoznačně mužských hrobech se od jednoznačně ženských vůbec nelišily. Rozdíl bylo možné sledovat u bronzové industrie. Zjistilo se, že v mužských hrobech byly britvy, spony, dýky, meč, nůž, sekery, dláto a zlato. V ženských hrobech zase byly závěsky, pukličky, vlasové kruhy, jehly na šití a kupodivu i srpy. V přítomném článku bereme toto tvrzení už s určitou rezervou, jelikož někteří badatelé zveřejnili později diametrálně odlišné názory na genderovou determinaci břitev (Guba, 2015, 174-175) a srpů (Primas, 1986, 17).

Předložená studie představuje další syntézu předcházejících aktivit v oblasti antropologie a demografie popelnicových polí na Slovensku. Přispívá tak k lepšímu poznání pravěké společnosti v období civilizace popelnicových polí v celé střední Evropě.

**Klíčová slova:** Kultura lužická, jihovýchodní popelnicová pole, pohřebišťe žárové, antropologie, demografie, bronzová industrie

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