

SKELETAL REMAINS FROM THE CEMETERIES OF THE ULÓW SETTLEMENT COMPLEX (3RD–5TH CENTURY AD) – ANTHROPOLOGICAL ANALYSIS

JACEK SZCZUROWSKI

A u t h o r ' s a d d r e s s: Department of Anthropology, Wrocław University of Environmental and Life Sciences, Koźuchowska 5, 51-631 Wrocław, Poland, e-mail: jacek.szczurowski@upwr.edu.pl

A b s t r a c t. Cremated skeletal remains from two cemeteries (sites 3 and 7) located within the settlement complex in the area of the village of Ulów (Tomaszów Lubelski commune, Tomaszów Lubelski district, Lublin province) underwent anthropological analysis.

Eighty-one features discovered at site 3 included remains of eighty individuals, while fifty-seven features found at site 7 included remains of fifty-seven individuals. The determination of the sex of individuals buried in funeral pits was possible only in isolated instances: at site 3 in three cases (3.7%), and at site 7 in one case (1.8%). The ages of those buried at the cemeteries of the Ulów complex are similar: biologically immature individuals make 33.7%–38.6% of all those buried, while adults account for 32.5%–26.3%.

The features, at both cemeteries, most often included heavily or severely cremated skeletal remains: at site 3 there were seventy-four features (91.3%), and at site 7 there were forty features (70.2%). The average weight of bone remains found in the features at site 3 equals 34.1 grams, and 47.2 grams at site 7.

Apart from human bones, some graves at the Ulów cemeteries contained fragments of animal bones.

K e y w o r d s: cremation graves, degree of cremation, burial rites, age structure

INTRODUCTION

Contemporary interdisciplinary research into prehistoric populations ensures more and more accurate identification of the elements of burial rites practised by the communities which used the cemeteries. Not only is the analysis of the spatial structure of the cemetery and artefacts found in burials a significant aspect of research, but so are attempts at the reconstruction of the treatment of corpses during funeral ceremonies. In the context of such research, cremation cemeteries are special features, as their interpretation is hindered by the state of preservation of the skeletal material, which is influenced by the cremation process.

Anthropological analysis, also of bone materials from cremation cemeteries, provide knowledge of the demographic structure, survivorship and biological condition of



prehistoric populations. An in-depth examination of cremated remains enables a partial reconstruction of elements of burial rites, which, in turn, provide information on social relations within the human groups, and the environmental influences they were under.

In the course of anthropological analysis it was possible to determine such elements of burial rites as the accuracy of removing cremated skeletal remains from the embers of the pyre – measured by the weight of cremated fragments found in a cinerary urn or a funeral pit; the order of interring cremated remains in a cinerary urn or a funeral pit – random or reflecting the anatomical structure of the human skeleton; the degree of cremation – slight or heavy, uniform or varied; the number of individuals laid in a cinerary urn or a funeral pit, and the presence of animal remains in burnt bones (KWIATKOWSKA, SZCZUROWSKI 2015).

However, it should be remembered that the scope and accuracy of anthropological analysis of cremated bones depends, above all, on the course of the cremation process (the temperature of the funeral pyre and duration of cremation). Cremation causes both significant fragmentation of bones and deformation of burnt elements. As a result of high temperature, bones crack and bone fragments undergo twisting and shrinkage (DOKLADAL 1970; STRZAŁKO et al. 1973; FAIRGRIEVE 2008). Thus, the state of preservation of cremated skeletal material is the fundamental factor limiting the possibilities of anthropological research.

MATERIAL AND METHODS

The above-mentioned stages of anthropological analysis were applied to cremated skeletal remains found in the course of the investigation of two cemeteries (sites 3 and 7) located within the settlement complex in the vicinity of the village of Ulów (Tomaszów Lubelski commune, Tomaszów Lubelski district, Lublin province) in central Roztocze. Regular archaeological investigations of the Ulów settlement complex began in April 2002, and are still underway. Dominant at both cemeteries are cremation pit graves with features of the Wielbark culture (NIEZABITOWSKA-WIŚNIEWSKA 2008, 2015). Skeletal remains from eighty-one features found at site 3 and fifty-seven features discovered at site 7 underwent analysis.

At the beginning of the examination process of skeletal remains from the Ulów cemeteries, the number of individuals found in burial pits was estimated. The sex and age of individuals was determined on the basis of bone fragments with well-preserved diagnostic features. Markings were made with the use of standard methods suggested by STRZAŁKO et al. (1973), GŁADYKOWSKA-RZECZYCKA (1974), UBELAKER (1989), MALINOWSKI and BOŻIŁOW (1997), KATZENBERG and SAUNDERS (2008), and LATHAM and FINNEGAN (2010).

The degree of cremation of the remains explored at the cemeteries of the Ulów settlement complex was determined using the five-level scale suggested by A. MALINOWSKI (1974): 1° – cremation or partial cremation – black, larger skeletal fragments, 2° – slight cremation – bones slightly cracked, deformed and shrunk, with

brown colouring, 3° – medium cremation – larger cracks and thermic deformations, mainly grey, 4° – heavy cremation – heavily cracked, deformed and brittle bones, yellowish or whitish-grey, 5° – severe cremation (incineration) – organic substances fully burnt out, colour close to chalky white.

RESULTS AND DISCUSSION

In-depth morphological analysis indicated that burial pits at both sites contained cremated bones of single individuals. And thus, at site 3, eighty-one features contained remains of eighty individuals, while at site 7, fifty-seven features contained remains of fifty-seven individuals (Tabs 1, 2).

Due to the state of preservation of burnt bones, and, above all, their low number and a significant degree of fragmentation, it was often impossible to determine either the sex or the age (33.7% for site 3, and 35.1% for site 7) of individuals buried in funeral pits. The determination of the sex of an individual found in a funeral pit was possible only for isolated instances, in three cases (3.7%) for site 3 and one case for site 7 (1.8%) (Tabs 1, 2). For this reason, conclusions on the sex of individuals buried at the cemeteries of the Ulów complex cannot be drawn. The age of individuals from the cemeteries of the Ulów complex looks similar: biologically immature individuals (children and juveniles) make up 33.7% (site 3) – 38.6% (site 7) of all buried there, while adults amount to 32.5% (site 3) and 26.3% (site 7) (Tabs 1, 2). According to HENNEBERG et al. (1975) such proportions of age categories of the deceased coincide with the described models of mortality of historical populations.

Table 1. The age and sex structure of individuals from the cremation cemetery (site 3) from the Ulów settlement complex

Sex	Age							In total
	child	<i>inf I</i>	<i>inf II</i>	<i>juv</i>	<i>mt</i>	adult	undetermined	
male	–	–	–	–	–	–	–	–
female	–	–	–	–	1	2	–	3
undetermined	13	11	2	1	–	23	27	77
In total	13	11	2	1	1	25	27	80

Table 2. The age and sex structure of individuals from the cremation cemetery (site 7) from the Ulów settlement complex

Sex	Age							In total
	child	<i>inf I</i>	<i>inf II</i>	<i>ad</i>	<i>mt</i>	adult	undetermined	
male	–	–	–	–	–	1	–	1
female	–	–	–	–	–	–	–	–
undetermined	13	8	1	2	1	11	20	56
In total	13	8	1	2	1	12	20	57

Constructing a funeral pyre was undoubtedly an important element of the burial rites practised at a cremation cemetery. Types of wood and the structure of the pyre have a direct influence on the degree of burning of the skeleton, which in turn translates into the state of preservation of skeletal remains.

Graves at both cemeteries most often included skeletal remains of higher degrees of burning (heavy and severe cremation): at site 3, such bones were found in seventy-four features (91.3%), while at site 7 they were discovered in forty features (70.2%). Partly (1°) or slightly (2°) burnt bones were found only in single instances, and this can be applied only to a small number of skeletal remains (Tab. 3). At both sites in over half of features (site 3 – 69.1% and site 7 – 54.4%) cremated skeletal fragments represented only one degree of burning. At site 3, dominant among the features including irregularly cremated bones were those in which bones were heavily (4°) or severely (5°) cremated, while at site 7 the dominant bones were moderately (3°) or heavily (4°) cremated, or heavily (4°) and severely (5°) cremated (Tab. 3).

Such dominance of features including heavily and evenly cremated bones might signify that communities which used the cemeteries of the Ulów settlement complex were able to construct efficient cremation pyres, and to obtain a higher temperature of burning.

The next element of the funeral ceremony after cremation was removing burnt skeletal fragments from the extinguished pyre. The weight of cremated bones in a funeral pit might be a good indicator of how accurate and careful the process was. On the basis of empirical research, it was determined that the weight of the macerated, and subsequently cremated skeleton was about 2500–3000 grams (MALINOWSKI, POPRAWSKI 1969; PIONTEK 1976). Using these values as a point of reference one can assess how careful the process of removing bones from cremation pyres was. However, one should always consider the influence of taphonomic processes, which might affect both the state of preservation and the number of skeletal remains found in funeral pits. Moreover, it should be remembered that, when it comes to graves of children and young individuals, the assessment of the carefulness of removing skeletal remains from the remains of the pyre is hindered due to significant dynamics of developmental processes characterising

Table 3. The degree of cremation of skeletal remains from cremation cemeteries of the Ulów settlement complex

Degree of cremation	Site 3		Site 7	
	N	%	N	%
4	33	40.7	23	40.4
5	23	28.4	8	14.0
3/4	2	2.5	9	15.8
4/5	18	22.2	9	15.8
1/2/5	1	1.2	–	–
2/3/4	–	–	1	1.8
2/4/5	1	1.2	–	–
3/4/5	2	2.5	7	12.3
2/3/4/5	1	1.2	–	–

progressive ontogenesis. A fast pace of development results in significant changes in the size and weight of the bodies of individuals in individual years of life. Moreover, ossification processes in the skeleton are not finished at this stage of life, which intensifies destructive changes of the bone tissue during the cremation process.

At both cemeteries the average weight of skeletal remains found in individual features does not exceed 50 grams: at site 3 it is 34.1 grams; at site 7 it is 47.2 grams (Tab. 4). Only in two cases did an object include more than 500 grams of cremated bones: in grave 87 at site 3, where a woman aged *maturus* was buried, 789.2 grams of burnt bones were found; in grave 33 at site 7, in which an adult man was buried, 766 grams of burnt bones were found (Tab. 4).

Most of the features at both cemeteries did not include more than 10 grams of skeletal remains: at site 3 there were fifty-six features (69.1%), and at site 7 there were forty-one features (71.9%). More than 100 grams of burnt bones were found in few features: at site 3 in six graves (7.4%), and at site 7 in seven graves (12.4%) (Tab. 5). The weight of skeletal remains according to the age of individuals is presented in Tables 6 and 7. For each selected age category, at both sites, most numerous are features containing up to 10 grams of cremated remains. In children's graves, more than 100 grams of remains were found only in individual cases.

On the basis of the quantitative analysis of cremated remains found in features at the cemeteries of the Ulów complex it can be stated, in all likelihood, that in most funeral pits only a small part of burnt skeletal remains was laid. Only in single instances were a larger number of carefully selected bones laid. The reasons of such diversity of burials are not clear, and their determination requires further research considering other indicators of the types of interments.

The investigation of skeletal remains from cremation cemeteries makes it possible, though to a limited extent, to assess the living conditions of prehistoric populations.

Table 4. The basic statistics of weight [g] of the cremated bones found in the features at the cemeteries of the Ulów settlement complex

	\bar{x}	<i>SD</i>	Min.	Max.
Site 3	34.1	107.3	0.1	789.2
Site 7	47.2	124.8	0.1	766.0

Table 5. The distribution of the weight of cremated bones from the features of the cemeteries of the Ulów settlement complex

Weight of bones	Site 3		Site 7	
	N	%	N	%
0.1–10.0 g	56	69.1	41	71.9
10.1–100.0 g	19	23.5	9	15.8
100.1–500.0 g	5	6.2	6	10.6
500.1–1000.0 g	1	1.2	1	1.8

Table 6. The distribution of the weight of bones in features according to the age of the individual – site 3

Children and juveniles				
	0–10.0	10.1–100.0	100.1–500.0	500.1–1000.0
N	18 (66.7%)	7 (25.9%)	2 (7.4%)	–
Adults				
	0–10.0	10.1–100.0	100.1–500.0	500.1–1000.0
N	11 (42.3%)	11 (42.3%)	3 (11.6%)	1 (3.8%)
Individuals – undetermined sex and age				
	0–10.0	10.1–100.0	100.1–500.0	500.1–1000.0
N	25 (96.2%)	1 (3.8%)	–	–

Table 7. The distribution of the weight of bones in features according to the age of the individual – site 7

Children				
	0–10.0	10.1–100.0	100.1–500.0	500.1–1000.0
N	15 (68.2%)	4 (18.2%)	3 (13.6%)	–
Adults				
	0–10.0	10.1–100.0	100.1–500.0	500.1–1000.0
N	6 (40.0%)	5 (33.3%)	3 (20.0%)	1 (6.7%)
Individuals – undetermined sex and age				
	0–10.0	10.1–100.0	100.1–500.0	500.1–1000.0
N	20 (100.0%)	–	–	–

The reconstruction of diet, the level of hygiene and health condition using indicators of physiological stress, and palaeopathological analysis illustrate the influence of environmental conditions on the human body.

Due to the small number of bones in features, their fragmentation and poor state of preservation, traces of pathological changes of bone tissue were found only in one case. In object 83 from site 3, in which an individual of indeterminate sex was buried, a larger fragment of a lumbar vertebra with a visible Schmorl's node was found. Schmorl's nodes results from damage to the intervertebral disc, which causes intraosseous hernia. The hernia forms a hollow in the wall of the corpus of the adjoining vertebra. The lesion arises as a result of excessive and long-lasting strain on the given part of the spine, or results from micro-damage. Such a change may also be due to Scheuermann's disease. According to many authors, pathologies of this type are among the most common degenerative-deformative conditions in skeletal materials of historical populations, and might indicate significant physical burden (GŁADYKOWSKA-RZECZYCKA 1989; AUFDERHEIDE, RODRIGUEZ-MARTIN 1998; ORTNER 2003).

The occurrence of burnt animal bones in graves at the cremation cemeteries, particularly those connected with the Lusatian culture, has been frequently discussed (ABŁAMOWICZ 1996, 2002; DĄBROWSKI, SZCZUROWSKI 2003; SZCZUROWSKI,

KRAJEWSKA 2009; KWIATKOWSKA, SZCZUROWSKI 2012). Most often these are small numbers of animal bones, with the degree of cremation similar to that of human bones. Their occurrence most probably results from simultaneous cremation of both human corpses and fragments of carcasses of various animals.

In some features at the cemeteries of the Ulów complex, small numbers of animal bones were also found. At site 3, burnt animal bones were found in eight features (9.9%), while at site 7 they were found in five features (8.8%). At both sites, additions of human bones were found in children's graves and those of adult individuals.

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SUMMARY

To summarise, it can be stated that, despite serious interpretational constraints resulting from the high degree of burning and fragmenting bones, it was possible to determine certain information referring to prehistoric communities, and some elements of the preferred burial rites characterising the settlement complex in Ulów.

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