

L'INSTITUT D'ARCHEOLOGIE
DE L'UNIVERSITE JAGELLONNE
DE CRACOVIE

RECHERCHES ARCHEOLOGIQUES

NOUVELLE SERIE 3



KRAKÓW 2011

**L'INSTITUT D'ARCHEOLOGIE
DE L'UNIVERSITE JAGELLONNE DE CRACOVIE**

**RECHERCHES ARCHEOLOGIQUES
NOUVELLE SERIE 3**

KRAKÓW 2011

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EN COUVERTURE

Les types de statuettes en terre cuite mycéniennes de région au Bas-Danube (les répliques modernes), et la reconstruction du spécimen découvert sur l'hameau fortifié de l'Âge du Bronze à Maszkowice (Carpates occidentales extérieures) (Réalisation et photo par E. Przybyła et M. Przybyła)

ADRESSE DE LA RÉDACTION

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CONTENU

ÉTUDES

Marcin S. Przybyła, Magdalena Skoneczna: <i>The fortified settlement from the Early and Middle Bronze Age at Maszkowice, Nowy Sącz district (Western Carpathians). Preliminary results of studies conducted in the years 2009–2012</i>	5
Łukasz Mrówka: <i>Development of pottery style on the Bronze and Early Iron Age cemetery at Kietrz, Głubczyce district, in the light of statistical analyses</i>	67
Болтрик Юрий Викторович: <i>Элитные курганы как маркеры территориальной структуры Скифии</i>	101
Tobias L. Kienlin, Klaus Cappenberg, Marta M. Korczyńska, Jakob Ociepka: <i>Vorläufiger Bericht über die Prospektionsarbeiten der Jahre 2010 und 2011 im Umfeld der Höhensiedlung von Janowice (AZP 106-65 Nr. 61) im mittleren Dunajectal, Klempoln</i>	113

RAPPORTS

Michał Wojenka, Jarosław Wilczyński, Dobrawa Sobieraj: <i>Archaeological excavations in Żarska Cave (Żary, Krzeszowice commune, Kraków district) in 2011</i>	143
Krzysztof M. Ciałowicz: <i>Excavations in the Western Kom at Tell el-Farkha 2009–2010</i>	157
Mariusz A. Jucha: <i>The Polish archaeological survey in the north-eastern part of the Nile Delta (season 2010) – the pottery from Tell el-Murra and Tell Abu el-Halyat</i>	179
Joanna Zagórska-Telega, Jan Bulas, Jacek Pikulski, Anita Szczepanek: <i>Excavations of multicultural site 1 at Michałowice, Czarnocin commune, Świętokrzyskie province, in the years 2008-2010</i>	195
Ulana Gocman, Igor Pieńkos: <i>Studies on the Lusatian culture settlement and animal husbandry on site 1 at Zagórzyce, Kazimierza Wielka district, based on the materials from seasons 2001–2003</i>	227
Dariusz Niemiec, Przemysław Nocuń, Kajetan Nowak, Agata Szyber, Michał Wojenka: <i>Stratigraphy of cultural deposits in the western part of the Jagiellonian University's Ogród Profesorski in Kraków</i>	241

Ułana Gocman¹, Igor Pieńkos

Studies on the Lusatian culture settlement and animal husbandry on site 1 at Zagórze, Kazimierza Wielka district, based on the materials from seasons 2001–2003

Abstract: The paper presents the Lusatian culture materials recovered during the first three excavation seasons on site 1 at Zagórze, Kazimierza Wielka district. The discovered artefacts (pottery shards) may be connected particularly with the end of the Late Bronze Age and the beginning of the Iron Age (Bronze Age Period V and HaC phase). The collected bone remains were analysed archaeozoologically, which allowed for conclusions to be drawn on the model of animal husbandry. An analysis of the species composition showed that the predominant dietary components were cattle and small ruminants, followed by pigs. Such a herd composition suggests a economy based on herding cattle and small ruminants. Due to the small number of collected bone remains it seems that additional research needs to be conducted, using materials from the remaining excavation seasons.

Keywords: Lusatian culture, Late Bronze Age-Early Iron Age, animal husbandry

Excavations at the multicultural site 1 at Zagórze were carried out in the years 2001–2004 and 2006–2007. The present paper summarises the results of the examination of Lusatian materials found during the first three seasons (Pieńkos 2010). The examined area comprises 3 sounding trenches and 61 excavation units of 5×5 m, which amounts to a total area of 1620 m² (Fig. 1). Among 137 uncovered archaeological features, 25 were attributed to the Lusatian culture. A general characteristic of the site was given in the papers by M. Grygiel and J. Pikulski (2006) and M. Grygiel, J. Pikulski and M. Trojan (2009).

Settlement of the Lusatian culture

The site at Zagórze is an open settlement. The present state of research precludes determining its size or layout. Collected archaeological data suggest that there were two or three phases of occupation in the analysed part of the site. The first phase of settlement can be dated to the Bronze Age Period III, which in the Nida Basin corresponds with M.Gedl's phase Bocheniec I (Gedl 1982, 29). This settlement episode left only scanty traces and is represented by a single archaeological feature (feature 56) (Fig. 2) and some Period III artefacts found as a secondary deposit. It seems that afterwards this part of the settlement ceased to function for some time, as artefacts typical of Period IV are absent.

The Lusatian culture settlement in the discussed area reached its heyday

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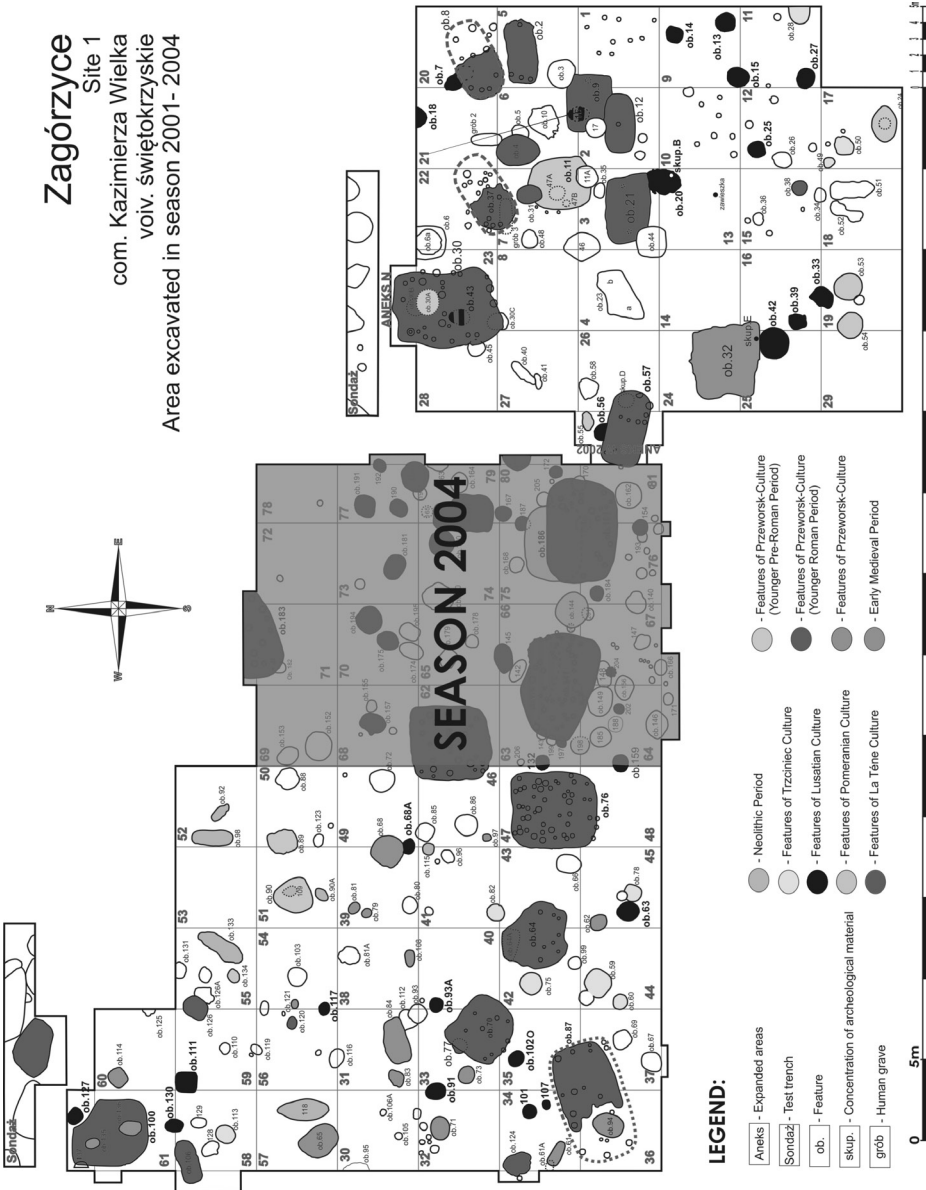


Fig. 1. Zagórzycze, district Kazimierza Wielka, site 1. Distribution of the Lusatian culture features (black)

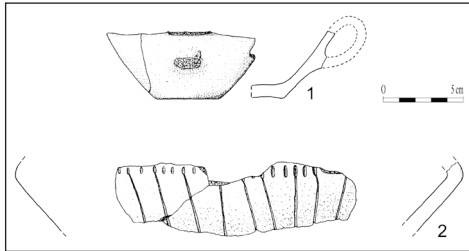


Fig. 2. Zagórzycze, district Kazimierza Wielka, site 1. Pottery of the earlier stages of the Lusatian culture

during the classic phase of the Górnśląsko-Małopolska group, which falls in Period V and Hallstatt C (Gedl 1975, 127). This corresponds to phase Bocheniec III in the Nida Basin and to phase Prokocim-Skotniki in the Kraków area (Gedl 1982, Fig. 13). At that time, Lusatian culture settlement flourished across the entire territory of the górnśląsko-małopolska group (Rydzewski 1997, 264). The classic phase is represented at Zagórzycze by 23 archaeological features and the bulk of secondarily deposited material. Predominant vessel forms were vases, including gently profiled biconical forms and gently or sharply profiled specimens with a separated cone-shaped neck. Vases were decorated primarily with incised lines at the bottom of the neck. There were single specimens with a boss placed beneath the carination, with small knobs on the carination or with small, vertical ribs just above the carination (Fig. 3: 1–2). Vases were accompanied by egg- and barrel-shaped pots, usually with coarsened outer surfaces. They were decorated in the lower part of the body with small knobs, ribbons having the form of multiple knobs or ribbons with a fingertip ornament (Fig. 3: 3–5; Fig. 4: 1,3–4). This ceramic assemblage was supplemented by carinated bowls, sometimes decorated with a triangle protrusion on the rim, and by semi-spherical bowls with a thickened, flattened rim, sometimes provided with a tongue-shaped protrusion (Fig. 4: 2; Fig. 5).

Clay discs, typical of the Lusatian culture settlements from Period V onwards (Durczewski 1946, 86, 87; Moskwa 1976, 83), were also discovered in large numbers.

The current state of investigation makes any conclusions about the end of the functioning of the settlement premature. Among the ceramic material were two specimens attributable to late Hallstatt or early La Tene periods. The first one was a pot, resembling the Tarnobrzeg group's forms from the third phase of its development (Fig. 6: 1). The second one was a vase fragment decorated with false cord ornament. Unfortunately, these are not sensitive chronological indicators, as they occur in classic phase inventories as well (Gedl 1962, 34–35; Miśkiewicz 1968, 144; Matoga, Matoga 1985, 124). The sites nearest to Zagórzycze and used in the late phase revealed distinct traces of the Tarnobrzeg group's influences (Jakuszowice – Czerniak 2000, Janowice Poduszowskie-Antoniów – Matoga, Matoga 1985, Opatowiec – Greń 2008). Such traces were not recorded within the investigated part of the Zagórzycze settlement. The Late Hallstatt or early La Tene provenance of the latter might be perhaps suggested by the discovery in 2004 of a vessel decorated with an oblique rib (in feature 186). However, it was found in the Pomeranian culture context (Grygiel, Pikulski, Trojan 2009, 202, Fig. 4). Therefore, one can neither definitely claim that the settlement ceased to function with the end of the classic phase, nor prove that it continued into subsequent phase of the Lusatian culture development.

The ceramics from Zagórzycze reveal the typical attributes of the Kielce sub-group and show connections with the Kraków area, too. The assemblage comprises a significant number of bowls with thickened, flattened rims and tongue-shaped protrusions. Such bowls were uncovered, among other places, in cemeteries at Prokocim,

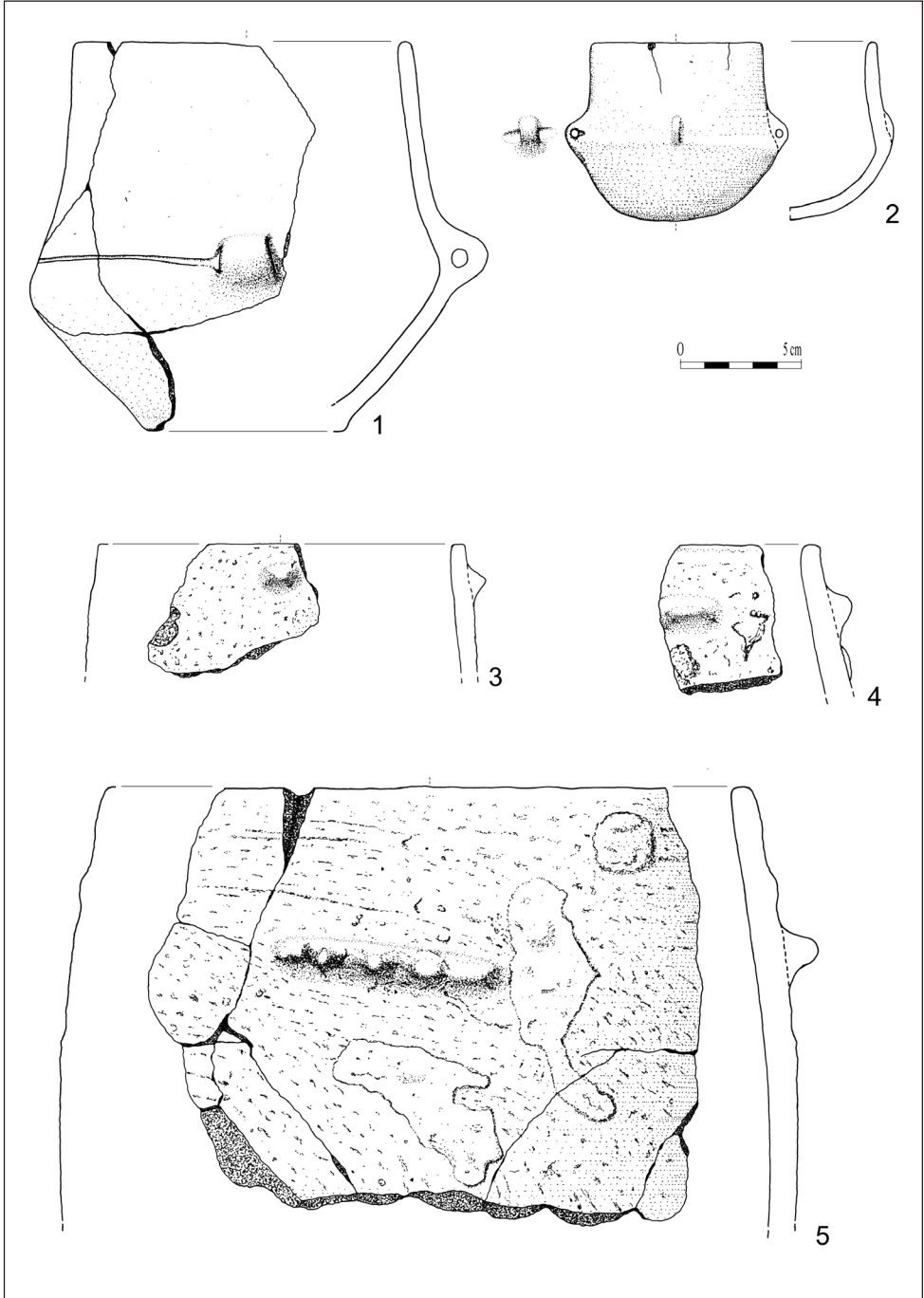


Fig. 3. Zagórzycze, district Kazimierza Wielka, site 1. Distinctive pieces of pottery from the turn of the Late Bronze Age and the Early Iron Age

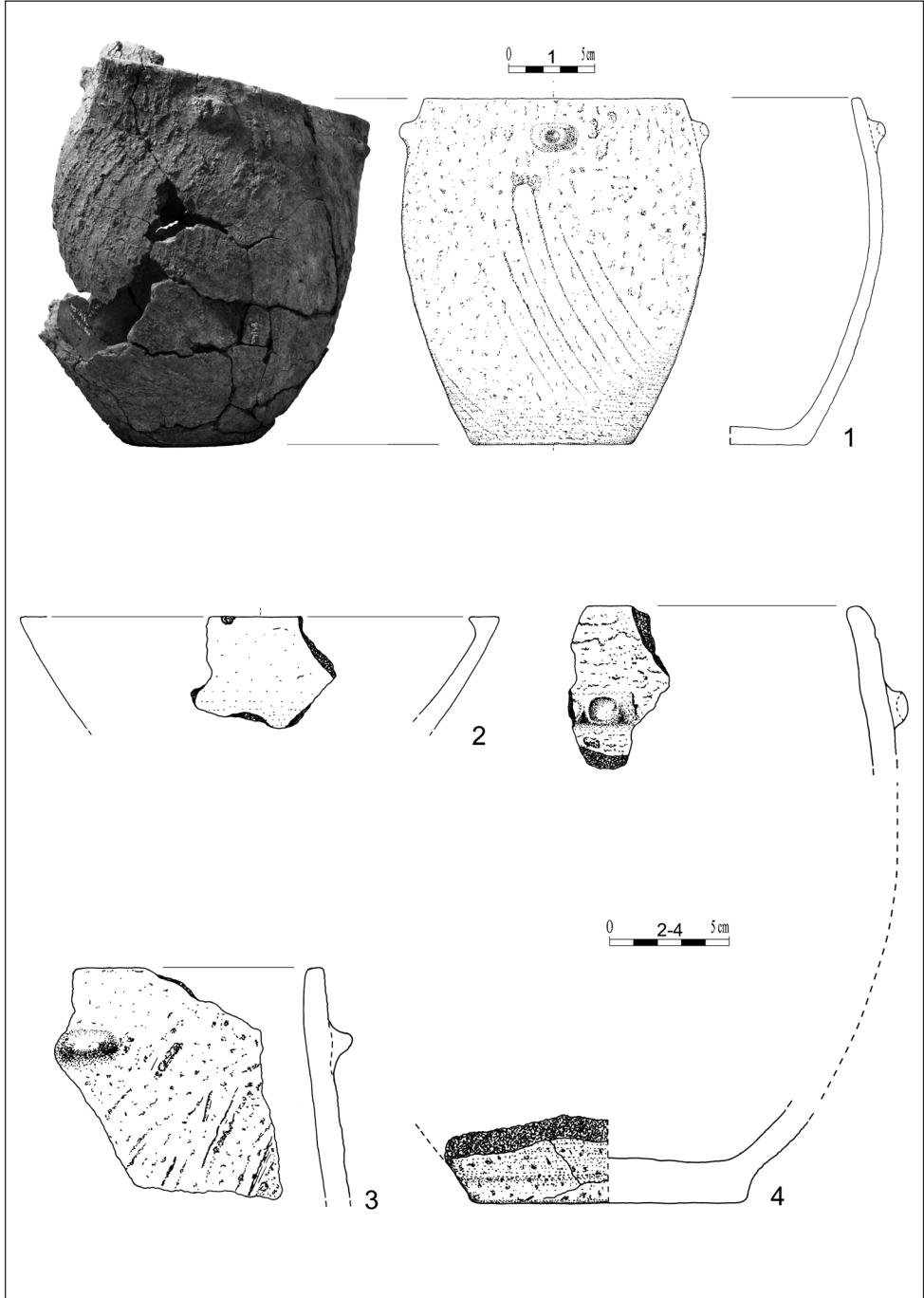


Fig. 4. Zagórze, district Kazimierza Wielka, site 1. Distinctive pieces of pottery from the turn of the Late Bronze Age and the Early Iron Age

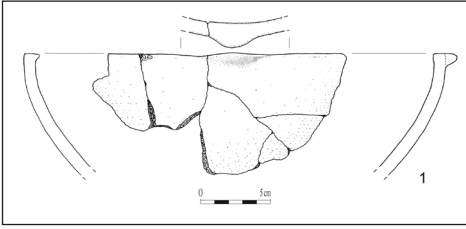


Fig. 5. Zagórzycze, district Kazimierza Wielka, site 1.
Semi-spherical bowl with thickened, flattened rim

Mogiła and Skotniki (Durczewski 1946, 53, 56–59; 1948, Plate XVII: 7,13) and on the settlement at Kraków-Bieżanów (Pieróg 2003, Plate 27:3; 99:2; 125:3). Two more fragments come from the Jakuszowice settlement. Sites located north of Zagórzycze produced no such forms. Among the vases were two interesting specimens discovered in features 13 and 42 (Fig. 7: 1–2), with parallels in cemeteries such as Balice (Matoga 1975, 124, Plate XLI:1; LXXV:3; XCIII:2), Janowice Poduszowskie – Antoniów (Matoga, Matoga 1985, 124, Plate VIII:12) and Welcza (Miśkiewicz 1962, 341, Plate IX:18). They were biconical forms, entirely coarsened, with a handle placed below the widest part of the body and with a finger-tipped cordon above.

Zagórzycze adds to the picture of Lusatian culture settlement in the Nida Basin. The need for research on this topic was postulated by J. Rydzewski (1997, 261, 272). However, a limited range of the analysed sector allows archaeologists to only preliminarily examine Lusatian culture occupation on site 1 at Zagórzycze. Further investigation of the already collected materials, as well as further excavation works, are expected to bring new important facts about the settlement in question.

Apart from artefacts, i.e. signs of man's material culture, Lusatian culture features produced also numerous animal bone remains, reflecting the economic activity of

the population inhabiting the settlement. A total of 131 bone elements were recovered, of which 35% could not be identified due to the lack of diagnostic traits. Although the sample is not large enough to enable a full reconstruction of economic aspects of their activity, it nevertheless provides a general picture of the relations between Lusatian population and animal world during the period of functioning of the settlement in question (Period V – HaC).

Archaeozoological sources were analysed macroscopically using analytical procedures developed by A. Lasota-Moskalewska (2008). Proceeding from the results, species and anatomical identification as well as the number of bones were established. The age at slaughter was determined based on dentition (Lutnicki 1972) and skeletal development (Kolda 1936). When possible, sexual dimorphism was also identified (Lasota-Moskalewska 2008). Animal morphology was based upon osteometric measurements in conformity with the recommendations given by A. Driesch (1976). For horse morphology, H. Kobryń's grading scales were used (Kobryń 1989) and the height at the withers was estimated using the coefficients developed by L. Kiesewalter (1888, quoted after Driesch and Boessneck 1974). In order to identify morphological type of cattle, grading scales developed by A. Lasota-Moskalewska (1984) were used. Traces on bone surfaces, recorded during macroscopic identification, were also included in the analysis.

Results of archaeozoological analysis

Species distribution reveals almost even shares of large and small ruminants, i.e. cattle and sheep/goat. Pig is third in importance, while horse and dog are represented by only single bone elements (Table 1, 2).

Due to the small size of the sample, analysis of anatomical distribution did not give

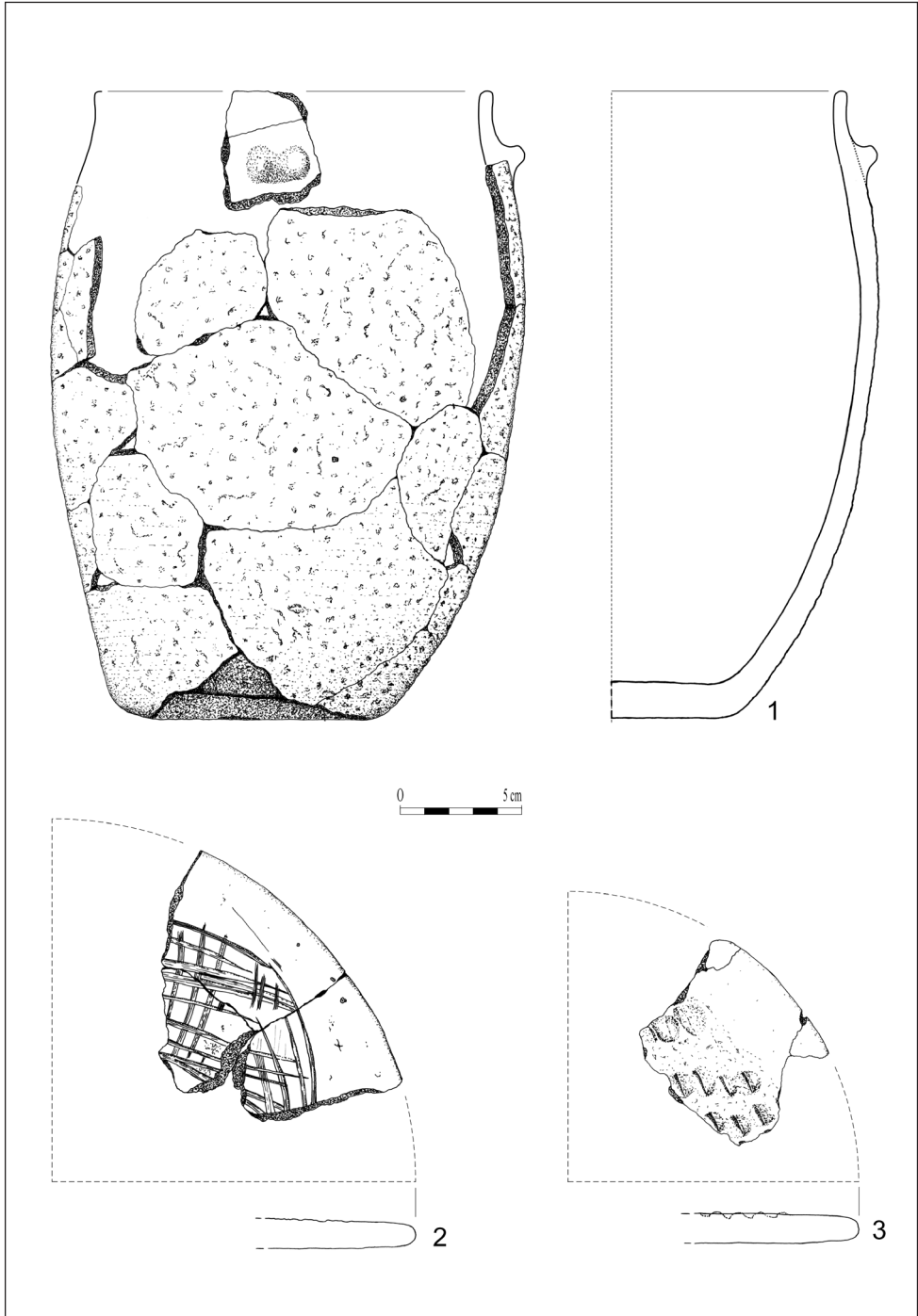


Fig. 6. Zagórzycze, district Kazimierza Wielka, site 1. Early Iron Age pot and clay plates

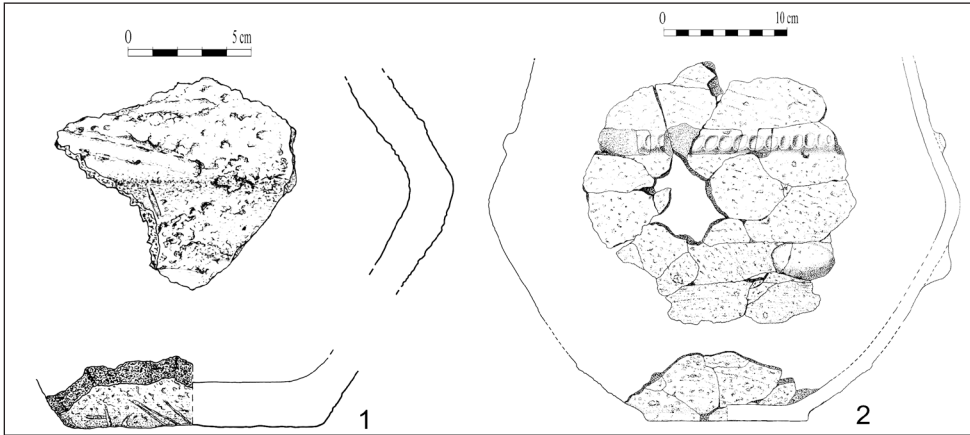


Fig. 7. Zagórzycze, district Kazimierza Wielka, site 1. Early Iron Age biconical vases

expected results concerning the distribution of particular parts of the carcass. Among cattle remains were several head bones, eight trunk elements, eight elements of the foreleg's proximal part (the so-called shoulder), one metatarsus bone and one phalanx. This last bone might be evidence that animals were killed and skinned within the settlement. Small ruminants were represented by single bones from each part of the skeleton. Pig remains comprised one fragment of skull and one fragment of mandible, four teeth, two fragments of ulnar bone, and one metatarsal fragment. Among the identified horse bones were one fragment of scapula and one femur bone, and four phalanxes. Bones of dogs, present in a small number, were identified as a fragment of jaw, a fragment of mandible and two rib fragments (Table 3).

Analysis of the slaughter age for three main consumption species was attempted but, due to the lack of appropriate data, it was not possible to define particular age classes. Therefore, only the distinction between the bones of young and adult individuals was made. Among the cattle remains there were no bones of young individuals, so one can assume that only morphologically mature

Table 1. Species composition of animal bone remains extracted from particular Lusatian culture features on site 1 at Zagórzycze (*unid. – unidentified remains)

FEATURE NUMBER	CATTLE	SHEEP/GOAT	SHEEP	PIG	HORSE	DOG	BIRD	UNID*	TOTAL
7	4	10	-	1	1	-	-	6	22
13	-	-	1	1	-	-	-	-	2
14	1	1	-	1	1	-	-	-	4
15	-	-	-	1	-	-	-	-	1
16	-	1	-	-	-	-	-	2	3
18	-	-	-	-	-	-	-	1	1
20	8	2	-	2	1	-	-	6	19
25	1	-	-	1	-	-	-	2	4
27	-	-	-	-	-	-	-	3	3
33	2	-	1	-	-	-	-	1	4
39	-	2	-	-	-	-	-	-	2
42	2	4	1	-	1	-	-	6	14
56	-	-	-	-	1	-	-	-	1
63	-	4	-	1	-	2	-	-	7
68	-	-	-	-	-	-	-	2	2
77	-	-	-	-	-	1	-	3	4
91	-	2	-	-	-	-	-	2	4
93	5	-	-	-	1	-	-	1	7
101	10	1	-	-	-	-	-	2	13
102	1	1	-	-	-	-	-	1	3
107	-	-	-	-	-	-	-	1	1
127	-	-	-	1	-	1	1	5	8
130	-	-	-	-	-	-	-	2	2
total	34	28	3	9	6	4	1	46	131

Table 2. Species distribution of animal bone remains extracted from Lusatian culture features on site 1 at Zagórzycze

SPECIES	NUMBER OF REMAINS	%
cattle	34	40
sheep/goat	31	35,47
pig	9	10,59
horse	6	7,06
dog	4	4,70
bird	1	1,18
total	85	100

individuals were selected for consumption. Among the bones of small ruminants, only three belonged to animals killed young. In the case of pigs, two bones out of nine belonged to animals killed before they reached morphological maturity.

Due to the significant fragmentation, the analysed material yielded only scant data about the sexual dimorphism of animals herded by the inhabitants of the Zagórzycze settlement. Evidence for dimorphism was recorded on only one pig bone. The cross-section of a canine tooth from the lower jaw enabled the identification of the fragment as belonging to a male individual. The lack of diagnostic traits rendered such observations impossible for other taxa.

Osteometric measurements were possible for only several bone elements. Cattle morphology was assessed based upon metric data obtained after measuring phalanx I. The results, converted into points using the scale developed by A. Lasota-Moskalewska (1984), indicated a medium-height individual with the height at the withers of ca 117 cm (Table 4). This is only an estimated value, as it was not calculated from the absolute lengths of long bones but was derived from the point value. Osteometric analysis of horse remains was based upon

Table 3. Anatomical composition of animal bone remains extracted from Lusatian culture features on site 1 at Zagórzycze

PART OF SKELETON	CATTLE	SHEEP/GOAT	SHEEP	PIG	HORSE	DOG
horncore	1	-	-	-	-	-
skull	5	-	-	1	-	-
jaw	-	-	-	-	-	1
mandible	4	1	-	1	-	1
tooth	6	3	-	4	-	-
vertebra	1	3	-	-	-	-
rib	7	9	-	-	-	2
scapula	1	2	-	-	1	-
humerus	7	1	1	-	-	-
radius	-	4	1	-	-	-
ulna	-	-	-	2	-	-
metacarpus	-	1	1	-	-	-
femur	-	1	-	-	1	-
tibia	-	1	-	-	-	-
metatarsus	1	1	-	1	-	-
phalanx I	1	1	-	-	1	-
phalanx II	-	-	-	-	2	-
phalanx III	-	-	-	-	1	-
total	34	28	3	9	6	4

measurements of the height along the scapula spine and the lengths of two middle phalanxes. The scapula measurements indicate an individual with the height at withers of ca 128 cm (Table 4). This value was calculated using the coefficients of L. Kiesewalter (1888, quoted after Driesch and Boessneck 1974). Data obtained from phalanxes measurements, converted into points using H. Kobryń's (1989) scale, indicate the presence of individuals whose height was within the ranges of 115–120 cm and 120–130 cm. Such analysis was not possible for bone remains belonging to other species due to the lack of appropriate metric data.

Table 4. Measurements of mammal bone remains uncovered in the Lusatian culture features from site 1 at Zagórze. GL – total length; Bp – width of the proximal end; SD – minimal width of the shaft; Bd – width of the distal end; SLC – smallest length of the neck of the scapula; HS – height along the scapula spine

SPECIES	PART OF SKELETON	GL	Bp	SD	Bd	SLC	HS	POINTS/WH
cattle	phalanx I	58	25	21	24			45pts./approx.117cm
horse	scapula					59	299	approx. 128 cm
horse	phalanx I	80	56	33	45			-
horse	phalanx II	40	45,7	39	43			10–20 pts.
horse	phalanx II	45	48,5	41	45			20–40 pts.
sheep	metacarpus		23	12				-
sheep	radius		31,7	17				-

Some of the bones bore anthropogenic or other traces made before or during the deposition of osteological material. Traces of chopping were noticed on a mandible, ulnar bone and two rib fragments, all belonging to cattle. Filleting marks were recorded on a scapula of a small ruminant. Moreover, a rib of a sheep or goat had a cut across the shaft as a result of dividing the carcass. Traces of thermal processing, in the form of black scorch marks, were recorded only on the shaft of radial bone belonging to a small ruminant. Traces of gnawing left by predators, most probably dogs, were recorded on the shaft of radial bone and on the metatarsal bones of small ruminants and the shaft of ulnar bone of pig. Such marks indicate that the analysed material has a post-consumption character and that it had lain on the ground for some time before having been deposited in the culture layer. The analysed material contained no bones bearing traces of craftsman processing. One ulnar bone belonging to a small ruminant bore traces on the shaft which may indicate hewing or perhaps rather scraping with a sharp tool. However, a bone shaped in this way seems unlikely to have any practical use and surely was not used as a tool.

A considerable degree of fragmentation and the few marks of culinary processing demonstrate that the animal remains were probably food refuse. Analysis showed that cattle and small ruminants, and pigs to a limited degree, were major sources of meat and fat. Since usually horse and dog are not kept for consumption, one can assume that the presence of their bones in the studied material is accidental. Determining species distribution permits not only us to identify the preferred species exploited in the economy of the time. Given that the occurrence of particular faunal assemblages depends on specific traits of habitat, it provides grounds for reconstructing paleoenvironment during a given chronological period. In this context one should remember that men raise livestock in artificial conditions, therefore one can draw only limited conclusions about the paleoenvironment on the basis of domesticated species distribution. Animal bone remains from Zagórze point to a economy that was based on rearing cattle and small ruminants. Such a system seems rational for grasslands and for areas with access to tree and bush leaves.

Due to the small number of bones it is impossible to reliably infer carcass distribution and the material status of consumers, as

there is a risk of creating artificial under- or overrepresentations of particular parts of the skeleton. The anatomical distribution of identified remains allows only the conclusion that cattle remains comprised head bones and less numerous trunk and “shoulder” elements, while for small ruminants no part of the carcass was found to be considerably overrepresented. In such a situation, the interpretation of results may be hardly reliable. This is also the case for analyses of the age at slaughter and sexual dimorphism – their small sample makes it impossible to establish whether herding strategies focused on meat production rather than dairy.

The osteometric examination of the few distinctive bone elements of cattle and horse also gave meagre results. The only conclusions were that both species were

represented by medium-height individuals. Medium-height cattle belong to the *Bos taurus brachyceros* form, widespread in the territory of present day Poland starting from the Neolithic (Lasota-Moskalewska 2005).

Research on prehistoric economic systems and animal herding requires an interdisciplinary approach, which draws on both archaeological and archaeozoological studies. Such analyses are a rich source for studies on animal herding and diet preferences. It should be emphasized that the reliability of results depends on the size of an assemblage. It is also important to always confront the results of archaeozoological analysis with archaeological data, as the archaeological context of discovery is crucial for the interpretation of animal bone remains.

Badania nad osadnictwem kultury łużyckiej oraz hodowlą zwierząt na stanowisku 1 w Zagórzycach, powiat Kazimierza Wielka, w oparciu o wyniki prac wykopaliskowych z lat 2001–2003

Badania na wielokulturowym stanowisku 1 w Zagórzycach były prowadzone w latach 2001–2004 oraz 2006–2007. Niniejszy artykuł podsumowuje wyniki opracowania materiałów kultury łużyckiej pozyskanych podczas trzech pierwszych sezonów badawczych. Przebadano wówczas obszar o powierzchni 1620 m². Spośród 137 odkrytych obiektów 25 określono jako łużyckie.

Wyniki analizy materiału zabytkowego pozwalają sądzić, że omawiany odcinek osady był użytkowany w dwóch lub w trzech fazach. Pierwszą fazę użytkowania osiedla można datować na III okres epoki brązu, czyli na fazę Bocheniec I. Pozostałości tego epizodu osadniczego są bardzo nikłe. Tylko jeden obiekt można wiązać z tym okresem użytkowania osady (ob. 56). Pozostałe zabytki datowane na III okres epoki brązu zostały znalezione na złożu wtórnym. Wydaje się, że po tym epizodzie omawiany odcinek osady nie był przez jakiś czas użytkowany.

Kulminacyjny okres użytkowania omawianego odcinka osady przez ludność kultury łużyckiej należy wiązać z fazą klasyczną grupy górnośląsko-małopolskiej. Z fazą klasyczną można wiązać 23 obiekty oraz znaczną część materiału znajdującego na złożu wtórnym. Ten okres zamieszkania osady odpowiada fazie Bocheniec III dla Niecki Nidziańskiej i fazie Prokocim-Skotniki dla terenów podkrakowskich. Z fazą tą należy wiązać większość materiału zabytkowego pozyskanego na omawianym odcinku osady.

Na obecnym etapie badań nie sposób określić, kiedy nastąpił koniec użytkowania osady. W materiale ceramicznym wystąpiły okazy, które można wiązać zarówno z późnym okresem halsztackim

i wczesnym okresem lateńskim jak i z fazą klasyczną grupy górnośląsko-małopolskiej kultury łużyckiej (V okres EB i HaC). W związku z powyższym, nie można z całą pewnością przyjąć, że omawiany odcinek osady był użytkowany jedynie do końca fazy klasycznej, ani wykluczyć, że była ona zamieszkana w kolejnej fazie rozwojowej kultury łużyckiej.

Materiał ceramiczny wykazuje związki z terenami podkrakowskimi oraz nosi cechy charakterystyczne dla naczyń podgrupy kieleckiej.

Wypełniska obiektów kultury łużyckiej dostarczyły oprócz zabytków ruchomych, będących przejawem kultury materialnej człowieka, serię zwierzęcych szczątków kostnych, świadczących o aktywności gospodarczej społeczności łużyckich zamieszkujących badaną osadę. Stopień fragmentacji materiału osteologicznego oraz nieliczne znamiona powstałe na skutek obróbki kulinarnej świadczą o tym, że zbadane szczątki zwierzęce prawdopodobnie stanowią resztki po spożytym posiłku. Przeprowadzona analiza wykazała, że głównym dostarczycielem mięsa i tłuszczu było bydło i małe przeżuwacze oraz w niewielkim stopniu trzoda chlewna. Obraz otrzymany na podstawie analizy zwierzęcych szczątków kostnych z Zagórzyc wskazuje na gospodarkę opartą na hodowli bydła i małych przeżuwaczy. Taki system wydaje się być racjonalny na obszarach trawiastych oraz z dostępem do liści drzew i krzewów.

Analiza składu anatomicznego zidentyfikowanych szczątków pozwala jedynie na stwierdzenie, że wśród kości bydła obecne są elementy głowy i mniej licznie tułowia oraz tzw. łopatki (część bliższa kończyny piersiowej), natomiast w przypadku małych przeżuwaczy żaden z elementów tuszy nie występuje w wyraźnych nadwyżkach. W takiej sytuacji interpretacja otrzymanych wyników może być mało wiarygodna.

Analiza osteometryczna przeprowadzona została na nielicznych dystynktywnych elementach kostnych pochodzących od bydła i konia. Na podstawie uzyskanych parametrów można jedynie stwierdzić obecność osobników średnio-rostych w przypadku obu badanych gatunków. Bydło średniorosłe zaliczane jest do formy *Bos taurus brachyceros*, która powszechnie występowała na terenie ziem polskich od drugiej połowy neolitu (Lasota-Moskalewska 2005).

W celu poczynienia bardziej precyzyjnych ustaleń dotyczących strategii hodowlanych niezbędne jest pozyskanie większej ilości materiału i wykonanie dalszych analiz.

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