Former knacker's yards in Silesia based on the results of archeological research in Kamienna Góra and Złotoryja

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Archaeological work led to discoveries of previously unknown relics of masonry gallows in Złotoryja and Kamienna Góra (Silesia, Poland). Both human and animal remains were found there. These remains were subjected to archeozoological and anthropological analysis. From historical sources we know that the boundaries of some places of execution coincided with the boundaries of knacker's yards. To these places an animal carcass was transported from the area, but also many activities related to obtaining animal products or their utilisation were performed. It's resulting in big amount of bones found on both sites. The total number of animal remains acquired in Kamienna Góra and Złotoryja was 16,465. In Kamienna Góra 7,476 bones were found, while in Złotoryja 8,989. Summing animal and human bones, it can be noticed that the share of the latter belonged to a distinct minority. Skeletal remains of horses and dogs clearly dominated on both sites. The results of this analysis also showed clearly that the bone material obtained in the area of a knacker's yard is significantly different from that which is found during excavations conducted within human settlements.

Key Words: *gallows, knacker's yard, Silesia, place of execution, executioner*

Introduction

For many years in Europe there has been a steady increase in interest in the research of former places of execution by archaeological methods.[1] As a result of these works many places where justice was administered have been found and verified. Also discovered were the remains of old gallows as well as numerous human remains of varying degrees depending on the intensity at which the given place was used. Regional research is also conducted in this thematic area. Undoubtedly, they include works conducted successively for many years in Poland, mainly in Silesia.[2] Numerous human remains, but also gallows

1 Jost AULER, *Die Gräber der Richstätte Amtsmandshaven bei Næstved auf Seeland (Dänemark)*, Archäologische Informationen 24, 2001, nr. 2, pp. 271–277; Ralf BUSCH, *Der Galgenberg bei Salzhausen*, Hammaburg N.F. 13, 2002, pp. 127–136; Ulrich HAUER, *Der Galgenberg – ein Bestattungsplatz bei Hundisburg, Kr. Haldensleben*, Ausgrabungen und Funde 36, 1991, nr. 4, pp. 169–179; Ed. Jürg MANSER *Richtstätte und Wasenplatz in Emmenbrücke (16. – 19. Jahrhundert)*. Archäologische und historische Untersuchungen zur Geschichte von Strafrechtspflege und Tierhaltung in Luzern, 1–2, Basel 1992; Heribert STAHLHOFEN, *Archäologische Untersuchung des Galgenberges in der Gemarkung Hundisburg*, Kreis Haldensleben, Jahresschrift des Kreismuseums Haldensleben 24, 1983, pp. 16–20; Susi URLICH-BOCHSLER, *Der Galgen von Matten bei Interlanken*, Archäologie der Schweiz 16, 1993, nr. 2, pp. 103–104; Andrew REYNOLDS, *Anglo-Saxon Deviant Burial Customs*, Oxford 2009; Marita GENESIS, *„Das Gericht" in Alkersleben– archäologischer und historischer Nachweis einer mittelalterlichen Richtstätte in Thüringen unter Hinzuziehung anthropologischer Analysen*, Langenweissbach 2014; Peter SOKOL, *Šibenice v Bečově nad Teplou a archeologie popravišť*, Archeologické rozhledy 55, 2003, pp. 736–766; Josef UNGER, *Tišnovská šibenice*, Vlastivědný věstník moravský 66, Supplementum 2. Archeologie a vlastivěda. PhDr. Pavlu Michnovi k 70. narozeninám, 2014, pp. 152–160; Josef UNGER – Jan DIVÍŠEK – Karel KIRCHNER – František KUDA – Jan LACINA – Zuzana BALÁŽOVÁ, *Lomnická šibenice*, Vlastivědný věstník moravský 68, 2016, pp. 23–29; Josef HÁJEK – Marie RIPPEROVÁ – Martin ŠTINDL – Josef UNGER, *Velkomeziříčské popraviště „Na spravedlnosti" v nálezech a dokumentech*, Západní Morava 22, 2018, pp. 138–147.

2 Przemysław NOCUŃ – Marcin PATERNOGA – Arkadiusz TARASIŃSKI, *Szubienica w Kątach Wrocławskich w świetle badań w 1998 roku*, Śląskie Sprawozdania Archeologiczne 41, 1999, pp. 521–526;

and artefacts were found in their course. Along with the progress in these studies, other problems that require a broader look began to emerge. One of them was the presence of numerous animal remains discovered in layers and features which came from the same time as the excavated places of execution. In some cases, the number of animal remains outnumbered the number of human remains, showing at the same time that the question about their presence in the analysed contexts became a priority in the order of explanation.

Similarly to Silesia, as in many European towns, a custom developed based on which the boundaries of some places of execution coincided with the boundaries of knacker's yards . To these places an animal carcass was transported from the area, but also many activities related to obtaining animal products or their utilisation were performed. In the majority of cases, the old gallows were situated far away from human settlements. There was also a square adjacent to them and this was the right place for this kind of inconvenient activity. If a locality was bigger, or terrain conditions necessitated it, the authorities decided to locate the knacker's yard in a different place, or to establish several such places surrounding the city. In available sources and records concerning Silesia, they are called Schinderanger, Schindergrube or Schinderwiese. Interestingly, as a result of changes in legislation initiated in the 18th century, gallows began to disappear from the landscape, but knacker's yards were used for a long time in the 19th century. This is indicated not only by available historical materials, but also by archaeological research. Also significant is the fact of intensification of animal husbandry, increase in herds volume, and finally trade in animals and its consequence, i.e., driving herds over long distances. All these factors resulted in the necessity of creating more and more effective methods of utilising corpses of dead animals, utilisation of by-products of slaughter and organisation aimed at preventing the spread of animal diseases. The latter, in the 18th century not only led to famine as a result of livestock depletion due to the epidemic, but they were often dangerous to people (zoonoses).

In recent archaeological research, two sites were discovered which provided a large number of animal remains and allowed us to obtain information about the basic species of animals which went to the knacker's yards and how they were treated by the executioner and his helpers. The sites in Złotoryja and Kamienna Góra were examined as part of a several-year project financed from funds allocated by the National Science Centre for a project focusing on the recognition of former knacker's yards and the role they played in maintaining hygiene in early Post-medieval urban centres in Silesia (No. NCN 2013/11/D/HS3/02478).

Maciej TRZCIŃSKI, *Miecz katowski, pręgierz, szubienica. Zabytki jurysdykcji karnej na Dolnym Śląsku (XIII –XVIII w.)*, Wrocław 2001; Krzysztof GRENDA – Marcin PATERNOGA – Honorata RUTKA – Daniel WOJTUCKI, *Szubienica w Miłkowie w świetle badań przeprowadzonych w 2007 roku*, Rocznik Jeleniogórski 39, 2007, pp. 267–282; K. GRENDA – M. PATERNOGA – H. RUTKA – D. WOJTUCKI, *Średniowieczne i nowożytne miejsce straceń w Lubaniu, stan. 59*, Śląskie Sprawozdania Archeologiczne 48, 2007, pp. 337–350; K. GRENDA – M. PATERNOGA – D. WOJTUCKI, *Średniowieczna szubienica w Lubaniu w świetle badań archeologicznych w 2003 roku*, Śląskie Sprawozdania Archeologiczne 46, 2004, pp. 181–199; Paweł DUMA – Honorata RUTKA – Daniel WOJTUCKI, *Odkrycie pozostałości szubienicy w Jeleniej Górze*, Rocznik Jeleniogórski 44, 2012, pp. 49–66; P. DUMA – D. WOJTUCKI, *Druga (nowa) szubienica w Jeleniej Górze w świetle badań archeologicznych i historycznych*, Rocznik Jeleniogórski 46, 2014, pp. 27–38; D. WOJTUCKI, *Publiczne miejsca straceń na Dolnym Śląsku od XV do połowy XIX wieku*, Katowice 2009, pp. 164–204; P. DUMA, *Grób alienata. Pochówki dzieci nieochrzczonych, samobójców i skazańców w późnym średniowieczu i dobie wczesnonowożytnej*, Kraków 2010, pp. 84–116; D. WOJTUCKI, *Pochówki skazańców na Śląsku i Łużycach w świetle nowożytnych źródeł historycznych*, Śląskie Sprawozdania Archeologiczne 48, 2007, pp. 319–336; P. DUMA, *Profane Death in Burial Practices of a Pre-Industrial Society. A study from Silesia*, Oxford 2019.

Historical background and rules of operation of knackers' yards in Silesia

A centre employing executioners or knackers set the boundaries of their districts (including also the surrounding villages), from which they removed dead animals. Depending on the size of a given locality, it was from a dozen to several dozen villages, and in the case of Wrocław there were over a hundred of them. It was the duty of their residents to report all dead or sick cattle, the removal of which was required by the executioner at a given time. If he did not fulfil this task, the applicants would clean up the carcass on their own without any consequences. The procedure was similar in many Silesian towns. For example, at the end of the 17th century, the Lwówek Śląski district, apart from the surrounding villages,[3] attended by a local executioner, also included 20 villages around the town of Wleń, whose authorities had not yet employed their own master.[4] In the 17th century instead, the area attended by the executioner of Kłodzko included about 60 localities.[5] The executioner in Głubczyce in 1724 had 40 localities under his supervision.[6] In turn, the Świebodzice executioner in 1731 attended 24 localities,[7] the executioner of Lubań in 1763 40 localities,[8] while the executioner of Świerzawa in 1812 still attended 18 of them.[9]

From indirect information we know that the number of dead animals removed annually by an executioner-knacker was significant. For example, in the preserved accounting books of Świdnica and Opole, both the annual quantitative data referring to the removed dead animals as well as information about the remuneration for these activities were included. In the first town, under the date of 7th July 1635, the expense of 1 thaler and 24 groschen for the shooting of 34 dogs and for transporting 21 dead cows[10] from the town, and as soon as 28th September of that year, the executioner killed another 21 dogs and was paid 2 hellers per each one.[11] In the next book from 1637 an expense was recorded for an executioner helper who caught 32 dogs and removed a dead horse.[12] On 19th December 1637 in turn, three thalers were paid to the executioner Paul Rudolph, who caught 48 dogs.[13] For example, in Świdnica on 8th October 1638 an executioner received 1 thaler, 10 groschen and 8 hellers for catching 70 dogs, i.e., 8 hellers per one animal.[14] The above list shows that the number of dogs removed from the Świdnica streets was large and that stray animals caused a persistent problem. In turn, we have data

3 As late as 1751, the Lwówek Śląski district, attended by a local executioner, included 30 localities, Archiwum Państwowe we Wrocławiu (further: APWr.), Oddział w Jeleniej Górze, Akta miasta Lwówka Śląskiego, sign. 1001 (Acta des Magistrats zu Löwenberg betreffend die hiesige Scharfrichterei 1721–1760).

4 Johann G. BERGEMANN, Historisch-Topographische Beschreibung der Kreis-Stadt Löwenberg und Umgegend. Aus Urkunden, Acten, Chroniken und Handschriften gesammelt, Bd. I, Hirschberg 1824, p. 720, footnote 1144.

5 APWr., Akta miasta Kłodzka, sign. 6060 (Sprawy kata miasta Kłodzka 1629–1737), pp. 26–27.

6 Robert HOFRICHTER, *Heimatkunde des Kreises Leobschütz. Teil II, Geschichtliche Einzelbilder der Stadt Leobschütz*, Leobschütz 1911, p. 113.

7 APWr., Archiwum Hochbergów, sign. I Arch. 3859 (Acta die Scharfrichterei in Freiburg betr. 1731, 1734, 1737, 1738), p. 2.

8 APWr., Oddział w Bolesławcu, Akta miasta Lubania, sign. 3041 (Scharfrichter und die Meisterei in Lauban 1713–1815), pp. 222, 256.

9 APWr., Oddział w Legnicy, Akta miasta Świerzawa, sign. 1120 (Acta die Concessiones und Privilegia der Scharfrichter, Stockmeister und Abdecker betreffend), no pagination.

10 APWr., Akta miasta Świdnicy [further: AmŚ], sign. 357 (*Raittungk 1635–1636*), no pagination.

11 Ibid.

12 APWr., AmŚ, sign. 358 (Raittungk 1636–1637).

13 APWr., AmŚ, sign. 359 (Raittungk 1637–1638).

14 Ibid.

from Opole only from the end of the 17th century. In 1692, the local prison supervisor, who apparently was also occupied as a knacker man, removed 103 dogs, for which he received more than 2 thalers, i.e., 9 hellers per one animal.[15] Similar information has also been preserved in the case of Kamienna Góra, which will be discussed later.

Removing carrion, obtaining hides and fat, brought a considerable income to the executioner, which in addition to the weekly wage and payments in nature in the form of firewood and hay, was a serious and above all a permanent source of profit for the master and his family. Apart from the remuneration paid for removing a dead animal, the executioners also received hide and meat. It is understandable that a master employed in one centre was not able to carry out his duties properly, even though he had several helpers. Sometimes a part of the carcass was buried by the executioner at the place where it was found. Such a possibility was given to him by directives, which began to be issued after the conquest of Silesia by the Prussian state as a result of the Silesian Wars (1740–1763). The decree of 13th July 1744, forbade executioners and their helpers from locating places to bury carrion near national roads.[16] This legislation further specified that executioners are obliged to bury carrion in deep pits and away from human settlements, which was to be observed especially during the summer season.[17] Failure to comply with this order was punishable by a fine of 10 thalers.[18]

The basic tool of the executioner and his men was a knacker's cart (German: Schinderkarren), on which carrion was transported. Johann J.W. Lux gives dimensions of the box of such a cart, which amounted respectively to approximately three ells long (1.7 m) and one ell high (0.57 m). The box was covered with a lid.[19] The knacker's cart was mostly used for transporting larger animals (cows, horses), smaller animals were transported using wheelbarrows (German: Schubkarre). It is however certain that there were numerous regional and temporal differences in this matter, as in the distribution, range and appearance of knacker's yards in the past. Knacker's yards were not only squares, but also large pits, often fenced, where the carcass decomposed slowly, not being buried.[20] The establishment of knacker's yards was associated with legal changes and tightening of sanitary regulations and treatment of dead animals within cities, but also smaller localities. The first yards of this type, with a clearly defined function, were to appear in the 16th century.[21] They were used until the beginning of the 20th century. The Kingdom of Prussia was also the first in which attempts were made to create an effective system of fighting against animal diseases and supervision over slaughter and trade in animal products along with the development of institutional veterinary services in the 19th century.

15 Archiwum Państwowe w Opolu, Akta miasta Opola, sign. 144 (Geldt=Raittung der Königl. Stadt Oppeln vom Ersten Januari biß letzten Decembris A. 1692), p. 145.

16 Ibid., p. 61.

17 APWr., Akta miasta Dzierżoniowa, sign. 1092 (Scharfrichtersachen 1748–1811), p. 3.

18 Ibid., p. 4, pkt. 3.

19 Johann Josef Wilhelm LUX, *Über das Abdecker=Wesen und die Folgen seiner Aufhebung. Die Arkana, sympathetischen Kuren und die geheime Sprache der Scharfrichter und Abdecker. Nebst auf Erfahrung gegründeten Beweisen, daß die am Milzbrande gefallenen Thiere höchst ansteckend sein*, Leipzig 1818, p. 36.

20 Hans R. STAMPFI, *Die Tierreste von Wasenplatz und Richtstätte*, in: Richtstätte und Wasenplatz in Emmenbrücke (16. – 19. Jahrhundert). Archäologische und historische Untersuchungen zur Geschichte von Strafrechtspflege und Tierhaltung in Luzern, ed. Jürg Manser, Basel 1992, pp. 157–178, p. 158.

21 M. GENESIS, *„Das Gericht" in Alkersleben– archäologischer und historischer Nachweis*, p. 56.

Archaeological research

Archaeological work led to discoveries of previously unknown relics of masonry gallows, human and animal remains as well as artefacts. Gallows built in Silesia usually had a plan of a circle with a diameter oscillating from 5 to 7.5 m. On such a foundation a well several metres high was built. In this well an entrance protected by a door was made. The pillars on which horizontal execution beams were placed were built on its crown. The remains of such gallows were found, amongst others, in Kamienna Góra, Złotoryja and Jelenia Góra (Fig. 1). The presence of numerous animal remains undoubtedly confirms that these places functioned at former knacker's yards or in fact were their integral parts. In the course of archaeological research it also turned out that the main function with which we associate old places of execution, i.e., administering justice, was represented in discovered materials to a lesser extent than the one related to maintaining hygiene. Animal and human remains were subjected to archeozoological and anthropological analysis. Due to this paper's topic, we will focus on presenting the results of the analysis of animal remains.

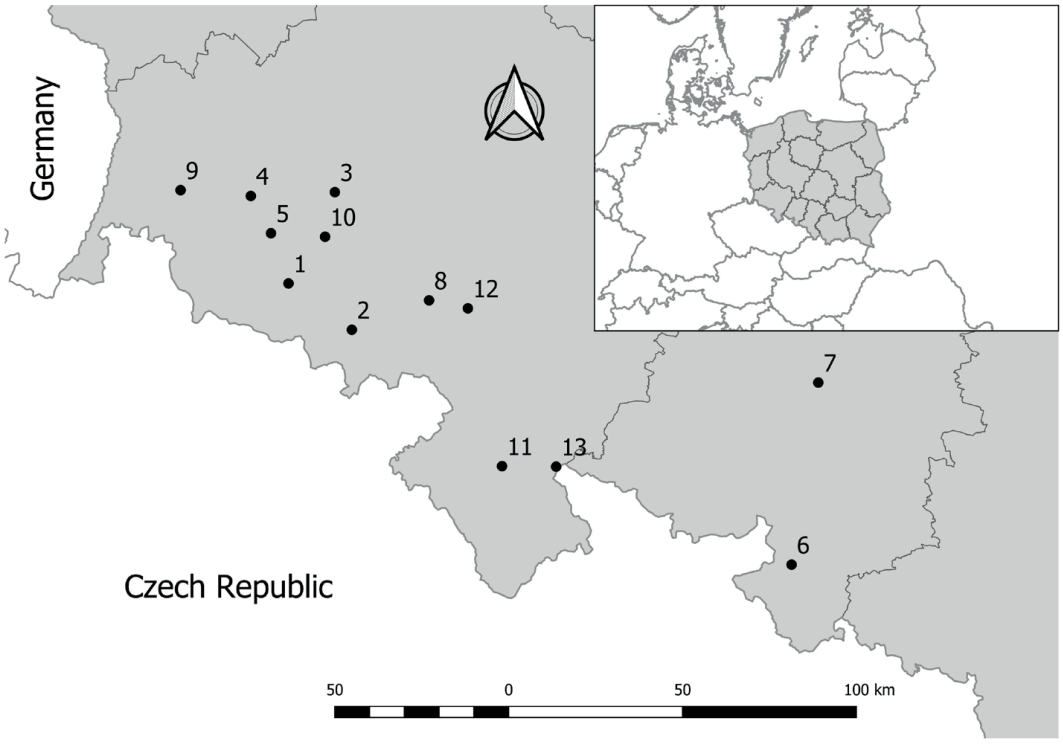

Fig. 1: ***The location of sites and localities mentioned in the text within the borders of Poland. 1 - Jelenia Góra, 2 - Kamienna Góra, 3 - Złotoryja, 4 - Lwówek Śląski, 5 - Wleń, 6 - Głubczyce, 7 - Opole, 8 - Świebodzice, 9 - Lubań, 10 - Świerzawa, 11 - Kłodzko, 12 - Świdnica , 13 - Złoty Stok. Edited by P. Duma.***

The places of execution located in Kamienna Góra and Złotoryja were probably founded as early as the Middle Ages and functioned continuously until the 19th century. The existence of the gallows in Kamienna Góra was reported by historical sources. It was supposed to be on the elevation known as Gerichts Berg (currently Góra Sądowa). Its remains were discovered during a prospection carried out in 2012, but archaeological excavations, during which the entire masonry structure was unearthed as well as features

and bones associated with the functioning of the knacker's yard were found in 2015.[22] As a result of these excavations the cylindrical foundation of the gallows with a diameter of up to 5.5 m was uncovered (Fig. 2). The preserved archive sources inform about the executions that occurred at this place of execution in the 17th and the 18th centuries. Sources from earlier centuries have not survived. It is only known that the masonry gallows in this place already existed in the 16th century. It is known from further preserved information that the local executioner already in the 18th and almost in the entire 19th century dealt with carcass disposal. He also employed hands who helped him with its removal and transport. A price list written in 1649 for the executioner Gottfried Altvatter survived, in which the exact sums the town would pay for removing actual animal species were spec-

Fig. 2: ***Kamienna Góra. View of the gallows foundations during archaeological excavations. Photo by P. Duma***

ified. For example, for a horse he received 15 silver groschen, while for an ox or a cow 10 groschen, for a dog 3 groschen and for removing a cat only 2 groschen. In a later period similar duties of the executioner were mentioned several times.

The gallows were partially dismantled in 1820. After this date, the knacker's yard was probably still in use, but it is difficult to say for how long. During archaeological excavations, clear evidence of knacker's yard functioning in this place was discovered. Both in the humus layer, as well as in the interior of the gallows, or in archaeological features there were numerous animal bones with a small proportion of human bones. To the most interesting ones belonged an oval-shaped in plan feature located next to the remains of

22 Paweł DUMA – Daniel WOJTUCKI – Aleksander CHRÓSZCZ – Maciej JANECZEK, *Dawne miejsce straceń i plac rakarski w świetle badań archeologicznych i historycznych w Kamiennej Górze*, Pomniki Dawnego Prawa 38, 2017, pp. 14–37.

the gallows. This pit was about 3 m long and 2 m wide. Its depth reached 1 m. In the pit there were numerous animal bones, a few human ones and artefacts, thanks to which its creation time can be determined as in the first half of the 19th century. Practically all the found bones were disarticulated and largely damaged. Only few articulated skeletons of dogs and cats were found in the top part of the feature. At the bottom of the pit instead, a largely damaged horse skeleton, which survived in small fragments was found (Fig. 3). Animal bones were also found in a feature discovered below the former place of execution (Fig. 4). Probably the range of the former knacker's yard could have been wide. Despite numerous further test trenches dug near the gallows (in total 161 m^2 surface was excavated), no articulated animal burials were found. Interestingly, despite the informa-

Fig. 3: ***Kamienna Góra. The bottom of the knacker pit with a visible partially-preserved horse skeleton. Photo by P. Duma.***

tion about the executions of criminals and their graves located at the gallows, no articulated human burials were found either.

The second discovered town gallows belonging to Złotoryja were erected near the road leading to Legnica on the elevation called Galgenberg (currently Górka Mieszczańska). During the previous prospection and comparison of the preserved cartographic sources, the location of the alleged location of the gallows was chosen, confirmed by a test trench dug in 2015. In 2016 the work on the site was continued.[23] The sources relating to the date of construction of the masonry gallows in this town did not survive. We know that the structure was dismantled in 1810. Other surviving sources confirm that the gallows and

23 P. DUMA – H. RUTKA – D. WOJTUCKI, *Wyniki badań archeologicznych prowadzonych na dawnym miejscu straceń w Złotoryi*, Pomniki Dawnego Prawa 41, 2018, pp. 4–35.

Fig. 4: ***Kamienna Góra. Concentration of animal bones found within the former knacker's yard under the gallows. Photo by P. Duma.***

Fig. 5: ***Złotoryja. The foundation of the stone gallows during archaeological excavations. Photo by P. Duma.***

the adjacent square were repeatedly used for execution purposes.[24] Suicides from the city and the surrounding area were also buried at the structure. During the archaeological excavations, a stone foundation of a circular gallows with an outer diameter of 7.65 m was unearthed (Fig. 5). They are the largest, to date, gallows discovered in Silesia. Judging by the pottery found in the lowest layers inside the structure, its construction could have taken place as early as at the turn of the 15th and 16th centuries.

According to the analysis of archival materials, the former knacker's yard meadow was located on the opposite side of the elevation in relation to the point where the place of execution was located.[25] Archaeological excavations, however, proved that numerous animal remains were deposited inside the gallows. The successive deposition of waste, bones and naturally deposited material inside the gallows led to the creation of layers

Fig. 6: ***Złotoryja. A layer containing animal bones discovered inside the gallows. Photo by P. Duma.***

with a total thickness of up to 80–90 cm. There occurred animal remains mixed with human remains and artefacts. Almost all the bones were largely damaged and disarticulated (Fig. 6). The only complete skeletons were partially preserved dog remains found at the northern foundation, and another in the central part (Fig. 7). In other trenches located outside the gallows' walls, only a few bones were found. Despite some distance between the knacker's yard and the gallows, it can be proven that the interior of the gallows was used for a long time to deposit fragments of animals which probably underwent partial or complete decomposition. The interior of the gallows was originally secured with a door with a lock, and access to it was impeded. As a result, the remains were not spread by wild animals, while the executioner's helpers did not have to dig pits designated for bones or

24 D. WOJTUCKI, *Publiczne miejsca straceń na Dolnym Śląsku*, p. 513–515.

25 P. DUMA – H. RUTKA – D. WOJTUCKI, *Wyniki badań archeologicznych*, p. 5.

Fig. 7: ***Złotoryja. Partially preserved animal skeleton found in the interior of the gallows. Photo by P. Duma.***

to build pyres to burn the remains. Interestingly, this practice was not present in all the studied localities. For example, during the excavations of gallows in Lubań,[26] only human remains were found in large quantities.

Discovered animal bones and applied knacker's practices

The animal bones found at and inside the gallows in Kamienna Góra and Złotoryja confirm the existence of a knacker's yard in the vicinity or even directly on site. As we assume based on the preserved source information, the discovered bones represent a small fraction of the entire animal material which came to the former knacker's yard and the place of execution. Undoubtedly, however, dead animals were subjected to various processes, often poorly perceptible by archaeological methods. For example, fragmented animal bones found in the humus layer within trenches in Kamienna Góra, indicate that many remains were deposited on the surface and nobody buried them for a long time. Others, after the decomposition of soft tissues, were buried as evidenced by pits full of disarticulated bones. Fragments of burnt animal bones indicate that some of them were utilised on pyres. The undersoil of the place of execution could also have had an impact on this. In most cases, compact gravel, clay with stones or rock appeared under a thin layer of humus. For this reason, greater effort was required to dig a suitable pit. Animal bones in a similar state of preservation were found on many Polish and European sites. The complete skeleton of a cat accompanying human remains was found, for example,

26 K. GRENDA – M. PATERNOGA – H. RUTKA – D. WOJTUCKI, *Średniowieczne i nowożytne miejsce straceń w Lubaniu*; K. GRENDA – M. PATERNOGA – D. WOJTUCKI, *Średniowieczna szubienica w Lubaniu*.

in the interior of the gallows in Złoty Stok.[27] The largest collection of animal bones was unearthed in Emmenbrücke near Lucerne in Switzerland.[28]

The total number of animal remains acquired in Kamienna Góra and Złoty Stok was 16,465. In Kamienna Góra 7,476 bones were found, while in Złotoryja 8,989. Summing animal and human bones, it can be noticed that the share of the latter belonged to a distinct minority. In the case of Kamienna Góra, human remains in the total number of bones constituted only 0.53%, and in the case of Złotoryja it was 5.56% of the NISP (number of identified specimens) bone material. In the bone material from Kamienna Góra 1,908 skeletal remains were identified in terms of species. Bone fragments with identified species from the site at Kamienna Góra constituted 25.5%. Similarly, in the case of bone remains from Złotoryja, the percentage of identified species was 40.97% of TNF (total number of fragments). The low percentage of species-identified bone remains was due to both the nature of the studied find and the state of their preservation. A much lower value of the parameter in relation to skeletal remains from Kamienna Góra is partly due to the fact that 18.2% of them constituted burnt remains, in relation to which species and anatomical identification was impossible. Unfortunately, the state of their preservation (destruction, fragmentation) did not allow determining of the species composition. In addition, it is worth noting that the burnt animal remains in the place of execution in Emmenbrücke were concentrated mainly in one place with a surface of approximately 100 m^2 adjacent to the remains of the gallows in the east.[29] Only burnt remains of dogs and horses were recognised amongst them.

The fact that the bone material is only a remain after the attempt to dispose of animal corpses is evidenced by a much higher degree of bones fragmentation than results from archeozoological analysis of other sites from the same period, the presence of burnt bones and no traces of typical body division into basic elements or individual consumption elements (no traces of chopping, cutting, filleting, culinary processing), as well as often visible in the case of post-consumption waste, traces indicating that they were the object of interest of other domestic animals, e.g., dogs (no traces of gnawing and opening the bone marrow cavity of long bones in a manner typical of carnivorous animals). The degree of fragmentation of remains may also result from the intentional activity of people who attempted to bulk and deposit as much animal skeletal material as possible in a relatively small area (e.g., traces of breaking, crushing, burning of bones).

Skeletal remains of horses and dogs clearly dominated on both sites. In the case of Kamienna Góra, horse remains constituted 51.05% of the total (NISP), while in Złotoryja it was 43.01% (NISP). Respectively dog remains constituted 33.12% (NISP) in the first place of execution, and 27.10% (NISP) in the second. The remaining domestic mammals did not exceed the percentage of 13.06% (NISP) in the material from Kamienna Góra and 15.97% (NISP) in Złotoryja. This includes cattle (4.93% and 4.34% respectively), cat (5.08%, and only about 1% in Złotoryja), and pig (2.05% and 3.77%). Interestingly, in Kamienna Góra hardly any sheep/goat remains were found (less than 1%), whereas in the case of Złotoryja it was 7.36%. The share of the remains of wild animals did not make a significant contribution to the material. The presence of fox remains was found (1.31% in Kamienna Góra and 4.61% in Złotoryja), roe deer (only in Kamienna Góra, below 1%), wolf (several bones on both sites), and otter (only in Złotoryja). Interestingly, amongst the bones found inside the gallows in Złotoryja, a few bones belonging to raven and rat

27 P. DUMA, *Śmierć nieczysta na Śląsku. Studia nad obrządkiem pogrzebowym społeczeństwa przedindustrialnego*, Wrocław 2015, p. 72.

28 H. R. STAMPFI, *Die Tierreste von Wasenplatz und Richtstätte*, pp. 157–178.

29 Ibid., p. 175.

were found. These species, especially raven are mentioned as scavengers. On engravings from the period in question numerous ravens[30] feeding on the hanging bodies of convicts can be seen. Rats are also mentioned in the literature[31] as an inseparable element related to the operation of knacker's yards. The analysed material differs from bones assemblages collected during excavations conducted in towns or villages. It is also associated with a small proportion of birds' bone remains. In the case of Kamienna Góra, there were few remains of geese and chicken and other birds of unknown species (less than 1% NISP). It was similar in the case of Złotoryja, where finds, apart from raven, were almost identical. The obtained results clearly indicate that the examined material was not a bones assemblage of waste left after the consumption of meat of domestic and wild animals.

Unfortunately, the processes associated with the deposition of bone remains, their subsequent translocation, accumulation and utilisation do not allow the confirmation of the hypothesis concerning leather production activity within the excavated site. Perhaps their source was the process of slaughtering animals carried out in the vicinity of the investigated places of execution, however, the low proportion of trunk skeleton and proximal limb parts suggests that only less attractive fragments of the carcass, and therefore their skeleton, were deposited here. Unfortunately, it is not possible to determine the role and method of using the remaining parts of horse carcass from the more valuable parts of the carcass and skeleton fragments belonging to them.

In the case of skeletal elements originating from horses, in the material from Kamienna Góra there was a significant deficiency of skeleton elements associated with the trunk and proximal parts of the limbs, with simultaneous excess of bones associated with further parts of limbs and digits. In turn, in the case of archeozoological assemblage of horses remains from the site in Złotoryja, a significant excess of skeletal elements associated with the trunk was observed. In the case of dog remains, in the material from both sites the anatomical distribution with the division into parts of the body looked similar. In both cases, excess of bones associated with limbs were observed as well as deficiency of bones associated with head and fingers.

A small amount of bone remains of domestic animals such as cattle, sheep, goats and pigs does not allow the determining of how they are used. In the case of horses, it can be stated that they were used as draft animals, but the degree of its intensity did not leave any significant traces on the examined skeletal elements. Only in the material from Złotoryja two fused lumbar vertebrae (vertebrae lumbales) of a horse, probably related to premature and overly intensive use of the animal were found. Also thoracic vertebrae and lumbar vertebrae showing lesions associated with chronic inflammation, the cause of which could be similar were recorded. Some of the carpal bones of horses showed changes characteristic of bone spavin. Apart from a few cases of advanced malocclusion, it seems that the way animals were used was characterised by rational human activities.

There were no bone remains of young animals in the examined material, which could be an expression of their massive slaughter or casualties associated with the inability to provide them with adequate living conditions or the need to reduce the population associated with the limited amount of feed provided for the winter period. It was not possible to determine the sex of the animals based on the examined bone material.

In the case of dogs, based on the bone material, it can be concluded that it came from adult animals with completed growth (anatomical maturity). Most likely, the object of

30 Wolfgang SCHILD, *Die Geschichte der Gerichtsbarkeit. Vom Gottesurteil bis zum Beginn der modernen Rechtsprechung. 1000 Jahre Grausamkeit*, Hamburg 2002, pp. 178, 199.

31 H. R. STAMPFI, *Die Tierreste von Wasenplatz und Richtstätte*, p. 159.

interest to the knacker men were stray animals, to which the residents did not pay much attention.

As emphasised earlier, both excavated sites show some similarity in terms of species distribution. Differences may result, amongst others, from the fact that the boundaries of the place of execution in Kamienna Góra coincided with the boundaries of the knacker's yard, while in Złotoryja the knacker's yard was located at a certain distance. Perhaps that is why no burnt remains were found in Złotoryja. The results of these studies can be compared with the results of the aforementioned and nearly completely excavated (80%) site in Emmenbrücke near Lucerne in Switzerland. Also there the knacker's yard was located at the place of execution and additionally, its boundaries were enclosed by a wall up to two metres high. During the excavations the remains of 45 people and about 600 animals were found. Including stray remains to the analysis, the authors believe that the number might be estimated as 700 animals. There were about 500 horses and about 170 dogs amongst them. The rest was cattle and pigs. It is also estimated that about 100 dogs were burnt. In total 4.5 tons of bones were obtained during the excavations, of which 10% were burnt bones.[32] According to the author of the analysis, the high proportion of horse and dog skeletons, including many articulated ones, evidences not only the high proportion of these animals in the total number of individuals, but also the traditional reluctance to use horse and dog fat in Germanic culture. The bones of donkeys, sheep, goats and cats were amongst the clear minority in the analysed material. Of the wild animals it was possible to register a small proportion of deer remains.[33] These proportions are similar to the bone material which was discovered in Kamienna Góra and Złotoryja. A fragment of the knacker's yard was also unearthed in Zurich-Albisrieden, where in the negative of foundation of the wall of a Roman villa, skeletons of six horses, a mule and a dog were discovered. Subsequently, two skeletons of horses were unearthed in the adjacent area.[34]

The results of bone materials examination acquired at the former places of execution in Kamienna Góra and Złotoryja are an interesting addition to our knowledge concerning the details of functioning of sanitary regulations in the Post-medieval period (the 16th-19th centuries). The amount of animal remains, despite the fact that it was smaller than the material found in Emmenbrücke, provided an appropriate statistical sample, which was similar to the results of the analysis on the aforementioned site in terms of species which were found there and some methods of carrion utilisation (such as burning). The results of this analysis also showed clearly that the bone material obtained in the area of a knacker's yard is significantly different from that which is found during excavations conducted within human settlements. The differences result from the species composition, age of animals, and the way the animal is butchered. Interestingly, the analysis showed little pathological changes on animal bones, which at least in this case contradicts the thesis that mainly sick animals, largely worn and unfit for work, went to the knacker's yard. The context in which the remains were found on both sites provides a rare opportunity to look at the details of former knacker men and executioner's helpers, and thus to reconstruct a little-known but important part of everyday life in the past.

32 Ibid., p. 157.

33 Ibid., p. 163.

34 Andreas MOTSCHI – Christian MUNTWYLER, *Römische Villa, Galgen und Wasenwinkel. Archäologie im Freibad Letzigraben in Zürich-Albisrieden*, Archäologie der Schweiz 29(4), 2006, pp. 2–16, pp. 13–14.

Bývalé rasovny ve Slezsku z pohledu výsledků archeologického výzkumu lokalit Kamienna Góra a Złotoryja
(Shrnutí)

Archeologický výzkum, probíhající od roku 2012, vedl k obevení dosud neznámých zděných šibenic v lokalitách Kamienna Góra a Złotoryja v polském Slezsku. Našly se zde jak lidské, tak zvířecí ostatky, které byly následně podrobeny archeozoologické analýze. Z historických pramenů víme, že místa některých poprav odpovídala poloze rasoven. Lidské ostatky však mezi nálezy tvořily výrazné minumum. Na zkoumaná místa byla dle dostupných zdrojů svážena uhynulá zvířata, ale také zde docházelo k řadě dalších aktivit spojených s produkcí a použitím živočišných produktů, což vedlo k výskytu značného množství ostatků. V lokalitách Kamienna Góra a Złotoryja bylo objeveno celkem 16 465 kostí, v lokalitě Złotoryja se pak jednalo o 8 989 nálezů. V obou zkoumaných lokalitách výrazně převažovaly psí a koňské kosti. Struktura nálezů se výrazně odlišuje od skladby zvířecích pozůstatků, jež se zpravidla nacházejí u běžných lidských obydlí.