MARTA DOČKALOVÁ

## A MASS GRAVE FROM THE ROMAN PERIOD IN MORAVIA (CZECH REPUBLIC)

ABSTRACT: The presence of the Roman army in Moravia has been assessed since 1927 with finds of Roman constructions (Gnirs 1931). During aerial photographing in the environs of Hradisko (Burgstall) near Mušov, fortification moats of the Roman army were discovered for the first time (Bálek 1993a). In 1993–1994 the communication road Brno – Vienna (line Neuriessen) was constructed in the area of the former village of Mušov (nowadays a pond). Before the construction of the road, during rescue archaeological research, a ground plan of a Roman construction (Figure 2b) and several fortification moats (Neuriessen I–VIII) were discovered at the Hradisko hummock.

In the fortification moat Mušov – Neuriessen IV (length 15 m, width 7.4 m, depth 3.9 m), there were buried, but mostly simply discarded complete or incomplete skeletons of 34 individuals: 6 men, 20 women, 6 children and 2 adult individuals. Traces of violence, mortal lesions caused by skull perforations in the area of parietal and occipital bones, slash and stub lesions were found on the skulls of 17 individuals; there was also a case of decapitation. Complete skeletons of three horses, two cows, two bulls had also been discarded in the moat, as well as parts of skeletons of a mule, donkey, sheep, goat, and fragments of small domestic animals' bones.

The common mass grave of human and animal remains in the Roman period fortification moat can be interpreted as a one-off violent occurrence.

KEY WORD: Roman period – Czech Republic – Moravia – Hradisko near Mušov – Mass grave – Traces of violence – Mortal lesions – Human and animal victims

#### HISTORIC LANDSCAPE

It is known that Roman military operations in the territory north of the Danube were very intense in the period of wars against the Marcomanni. Aerial and field research have shown several dozens of short-term fortified camps of the Roman army in the territory of Moravia, Slovakia and Lower Austria. Most of them were discovered in Southern Moravia, mainly in the environs of Hradisko near Mušov. The hummock named "Hradisko" (Burgstall) is situated in Southern Moravia, in the area of the former village of Mušov (nowadays an artificial pond), some 45 kilometres north of Brno (*Figure 1*).

The first systematic research of Hradisko was carried out in 1926–1928 by professor Anton Gnirs, with financial support of the then President of the Czechoslovak Republic – T. G. Masaryk. Professor Gnirs discovered at Hradisko the remains of two Roman buildings. A dwelling structure with four rooms  $(21 \times 6 \text{ m})$  and a complex of rooms (bath – balneum) with remains of mortar floor and floor heating (hypocaustum). The Roman buildings (stations) have remained until nowadays the only authentic remains of Roman constructions in the territory of the Czech Republic (Gnirs 1931, Gnirs 1976).

Subsequent long-term research has proven that not only square structures with fences, the so-called stations (*Figure 1 A*) were built at Mušov, as it was originally supposed, but there was also a vast fortified complex of the whole of Hradisko (*Figure 1 B, C*). Archaeologists have succeeded in proving original Roman fortifications at Hradisko on the total surface of 30–40 ha, continuing north-eastwards the fortification built at the Neuriessen line (*Figure 1 C*).



FIGURE 1. Hradisko "Burgstall" fortified settlement near Mušov. Complex of the Roman military station. A. Ground plan of the Roman construction from 1927. B. Fortification moats from the Roman period. C. Area researched in 1963–1964.

The Hradisko hummock with a dominant position in the landscape had also been the seat of the Roman 10th legion in the period of wars against the Marcomanni (Dobiáš 1929, Gnirs 1931, Musil 1993, Tejral 1986, 2002). The importance of Mušov fortified area has been further supported by finds of military equipment, especially short-term camps and fortified structures. Workshops for mending weapons and gear (fabricé), baker's ovens and several other production structures, documenting activities connected with the needs of military troops and dating of the Roman period, have been preserved at the flat hilltop and hillsides of Hradisko. The site has been dated to the second half of the 2nd century, i.e. to the period of Marcus Aurelius (166–180 AD) fighting in the wars against the Marcomanni.

## CONTEXT OF THE DISCOVERY

In 1991 during aerial photographing of Southern Moravia, Miroslav Bálek (Institute of Archaeological Heritage Protection, Brno) discovered for the first time in the field ground plans of short-term camps of the Roman army (Bálek, Droberjar, Šedo 1993, 1994, Bálek, Šedo 1998). The discovery changed completely hitherto historical knowledge about the presence of the Roman army in Moravia. In 1993 during rescue archaeological research of the "Neuriessen" line, the ground plan of a Roman construction with an apse, discovered through aerial prospecting, has been uncovered (*Figures 2 a, b*).

In 1993–1994, building operations connected with the construction of a new road Brno–Vienna were carried out at the hillside of Hradisko "Burgstall". Earthwork was preceded with advance rescue research, realised by the Institute of Archaeological Heritage Protection in Brno in cooperation with Anthropos Institute of the Moravian Museum in Brno (Dočkalová 1994, 1995, Bálek, Šedo 1994, 1995a, 1995b, 1998, Šedo 1999). During the rescue archaeological research, structures of the Roman period were discovered – various sections of moats that had constituted the fortifications, systems of post holes that used to bear the buildings' supporting posts, ovens for food preparation, scattered over the whole camping area of Roman military troops.

The fortifications with moats and structures of the Roman Period, discovered at the Neuriessen line, have been dated to the period of the reign of Emperor Augustus. The Roman military camp Mušov–Neuriessen I had been established during the campaign led by Emperor Tiberius in 6 AD (Bálek, Šedo 1996a, Šedo 1999).

The 30 m long moat (*Figure 3*), designated as Mušov– Neuriessen IV and bearing a cumulation of human and FIGURE 2a. Hradisko near Mušov – aerial view. 1. moat, 2. gate, 3. well, 4. hill, 5. ground plan. Photo Ing. M. Bálek.



FIGURE 2b. Hradisko near Mušov 1993. Ground plan of the uncovered Roman construction. Photo Ing. M. Bálek.



FIGURE 3. Hradisko near Mušov 1993. Moat Neuriessen IV. Drawing by L. Píchová.



animal bones, which is the object of the present study, has been uncovered in 1993 at the Neuriessen line. The contents of the moat were covered with large stones – boulders, probably intentionally thrown down during the whole period of its use, as they were found in all the layers through the whole moat.

## ARCHAEOLOGICAL CONTEXT

The complicated find situation in the moat of Mušov– Neuriessen IV (*Figure 3*) was archaeologically uncovered partly on surface – context 734, and in areal contexts 737 (3721a, 3721b), 3718, 3719, 3720, 2501. The main cumulation of human and animal bones was scattered over a length of 15 m.

#### Skeletal finds from context 734

In the surface area of the moat, among huge boulders, five isolated skulls were found (*Figure 4*), which could be determined as remains of one adult individual, three females

(15, 17 and 30 years of age) and a small 7–8-years-old child. Besides the five skulls, over a hundred various human bones were discovered in the surface area of the moat; these included cranial bones, isolated teeth, individual ribs, vertebrae, long bones of upper and lower extremities. Some of the bones belonged to the skeletons of the five determined individuals (Nos. 1–5), nevertheless other bones were obviously from other individuals of various age and sex: two left pelvises of two men, three damaged mandibles of adult individuals, two left children's femurs, parts of the skeleton of a small 3–5-years-old child, and others.

The long bones of both children and adult individuals bore traces of dogs' gnawing. It can therefore be assumed that the finds were not covered immediately after the death of the individual.

## The first areal layer of context 734 (Figure 5a)

In the upper layer, there was the skeleton of a very robust adult man (L/S 22). The man was lying prone and stretched, with upper extremities crossed on his chest – his arms had probably been tied. The man's skeleton was partly overlaid



FIGURE 4. Surface layer of context 734 with a cumulation of stones (coloured in blue) and human bones finds.

by parts of animal ribs, next to it there were an incomplete thorax, spine and pelvis of a 20-year-old cattle. Under the animal skeleton and along it, there was another one, that of a 15-year-old bull (*Figure 5b*).

The man had probably been thrown into the moat as the first, because both animal skeletons were partly overlaying him.

#### The second areal layer in context 734 (Figure 6a)

In the second layer (*Figure 6b*), there were eight human skeletons, isolated human and animal bones, and the skull of a 7-year-old horse with a part of the thorax (coloured in yellow). The dispersed skeleton of an adult woman (L/S 10) with an unnaturally twisted spine (coloured in dark blue) was in the cumulation; it was anatomically associated with skeleton S 24 (coloured in dark blue). By the side of the moat there was an isolated part of a cranium (L/S 21,

coloured in brown) of an adult individual, and scattered parts of his/her upper and lower extremities (coloured in brown). The skull with mandible were separated from the skeleton of a subadult woman (L/S 20–S 18) and deposited at a distance of 1.5 m from the spine. The female skeleton was anatomically assembled with the help of cervical vertebrae. Damaged cervical vertebrae C1, C4, intact vertebrae C2, C3 and half of the vertebra C4 were found by the skull. The other half of vertebra C4 was near the skeleton, together with the remaining cervical vertebrae C5, C6, C7.

The incomplete skeleton of a subadult woman (L/S 13 – coloured in violet) was lying with the face sunk in the soil, dispersed thorax and outstretched lower extremities. The skull of this young woman (No. 13, aged 15–17 years) was lying on the spine of an older woman (L/S 14), covering the spine and part of the right pelvis. The older



FIGURE 5b. Graphic representation of the first areal layer in context 734. Skeleton of an adult male (L/S 22 – coloured in green), parts of a cow's skeleton (coloured in brown) and that of an adult bull (coloured in yellow).

woman (aged 40) had the spine twisted in a very unnatural way, outstretched lower extremities and a broken skull (L/S 14 – coloured in green). Her skull was strangely deformed due to the pressure of the earth, but it was first and foremost burnt with fire on the face and in the parietal part (*Figure 16*). This woman's skull and spine was resting on the spine and lower extremities of a small 5-year-old child. The skeleton of the small child (L/S 11 – coloured

in lilac) with a very well preserved skull, was lying on the right side. Stones were thrown by the child's skull and in its vicinity there was the incomplete skeleton of an 18-year-old woman (L/S 12 – coloured in dark green). The left foot, lying near skull 31, has been associated to the skeleton. A part of an incomplete human skeleton with a missing skull (S 15 – coloured in red) was thrown over the horse No. 2 and the small 5-year-old child.



FIGURE 6b. Graphic representation of the second areal layer in context 734. (See the text for description of colours used to identify the finds.)

# *The third areal layer in the context* with the find of remains of three individuals (*Figure 7*).

Among the stones, there was only a female's skull with the mandible (L/16 - coloured in green) and the skeleton was missing (adult woman aged 40-45 years). On the frontal bone of this woman, there was a long bone from the lower extremity of another individual. In the vicinity of the skull there were dispersed bones of skeleton L/S 12 from the second upper layer. The incomplete skeleton of an adult woman (25-30 years of age) had been discarded over the stones; the skull and mandible (L/S 31 - coloured in red)were present and the skeleton was dispersed. This female skeleton missed pelvic bones and those of upper extremities. An animal bone was lying over the skull of that female No. 31, and in front of it there was a dispersed part of the postcranial skeleton marked S 34 (coloured in light brown), which has been associated to the skeleton deposited in a lower layer (L/S 33 - coloured in blue). During fieldwork, individual ribs of the thorax were classified as skeleton S 35 (coloured in blue), after excavation, though, they have been anatomically associated to the skeleton (L/S 32 - coloured in violet) deposited in the fourth lower layer.

## *The fourth areal layer in the context* yielded skeletons of three individuals (*Figure 8*).

The best preserved of them was that of a 35-40-year-old man with a robust skeleton (L/S 32 – coloured in violet) and with a skull tilted back in an unnatural way. No signs of violence or injury were found on the skeleton, spine or skull. In the pelvic region of the man No. 32 there was the skull of a 25-30-year-old woman (L/S 33 – coloured in blue). The female skull was reversed, deposited on

the parietal area, with the mandible upwards, and the skeleton with individual bones was completely dispersed and scattered in the vicinity. Traces of fire were found on the right side of the skull and on the maxilla; the crowns of incisors (I2, I1, I1, I2) were burnt. Under the female's skull there was another one, belonging to a 35-45-year-old man (L/S 43 – coloured in green). A part of skeleton S 45 from the upper third areal layer of the context has been anatomically associated to that male skeleton (No. 43). Under the cumulation of remains of three individuals there was the calvarium of a 30-40-year-old woman, with a damaged face and incomplete post-cranial skeleton (L/S 44). The incisors in both the mandible and the maxilla were strongly burnt (*Figure 30c*).

Isolated finds of bones (34 items) were excavated from the layers with finds; these could not be anatomically associated with the finds of skeletons discovered in context 734.

#### Skeletal finds from context 737 (section 3721b)

Behind the horse skull No. 10 (*Figures 9a, 9b*) there were fragments of the skull, isolated teeth and vertebrae from the skeleton (L/S 25) of a juvenile individual. In the upper part of the moat (context 737–3721b) in front of the horse's head (No. 10 – coloured in light brown), there were damaged cervical vertebrae, ribs and parts of the dispersed skeleton (S/L 36 – coloured in green) of a young woman (aged 21–25). The woman had been decapitated, and the skull together with the mandible (*Figures 18, 30b*) was at a distance of two meters (L 27 – green) from the body in the lower part of the moat. Near the horse's leg there was an incomplete skeleton of an adult, elderly man (45–50 years of age) with a dispersed thorax (L/S 26 – blue), disrupted





FIGURE 7. Graphic representation of the third areal layer in context 734. (See the text for description of colours used to identify the finds.)

FIGURE 8. Graphic representation of the fourth areal layer in context 734. (See the text for description of colours used to identify the finds.)

lower extremities – these have been anatomically associated with the find of the pelvis and bones from the vicinity of skeleton S 39. The skull and part of thorax (L/S 30 – violet) of a young woman (21 years of age) was found very near to skeleton No. 26. In its vicinity, individual ribs (S 37 – dark green) from the incomplete thorax of a 10-year-old

boy had been deposited. A cumulation of bones (S 40) included vertebrae and long bones of lower extremities. By the side of the moat, behind skeleton No. 26, there was the incomplete skeleton of a subadult 17–18-year-old woman (L/42 – S 38 – orange) with a heavily damaged skull, chipped, chopped and burnt with fire (*Figure 22*).



FIGURE 9b. Graphic representation of the area of context 737. (See the text for description of colours used to identify the finds.)

## Area of trench 3721b

Scattered bones of the postcranial skeleton, a skull and mandible (L 27 – green) from the upper context (*Figure 9b*) had been discarded over a part of a cow's thorax (No. 11 - grey). Around these, there were scattered animal (coloured in dark grey) and human bones (coloured in brown), anatomically incoherent, bearing traces of many violent interventions and dog's gnawing. Scattered parts of an animal skeleton (horse K 14 – yellow) and a disrupted skeleton of an adult individual (S 29 – lilac) were lying in the lower part of the moat. The isolated skull L 28 of an adult individual (lilac) was on the side of the moat. Skeleton No. 29 has been associated with skull No. 28, although the skeleton did not show differences but no significant concordance either; individual determining features were not prevalent.

Eighteen groups of human skeletal remains with finds of thirteen individuals of various ages and sex were formed from the bone cumulations of the area. Isolated finds of bones from eleven adults and two juvenile individuals.

#### Area of trench 3721a

Of the eight groups of bone cumulations, seven adult individuals, six subadults and one child were determined. Besides these isolated finds, there was that of a mandible of an adult individual.

## Area of trench 3718

Isolated finds of bones of a small child, a juvenile individual and three adults were scattered over the area.

#### Area of trench 3720

The area yielded an isolated skull of a very robust individual (No. 8), a deformed skull of a robust adult individual (No. 41), a gracile mandible (No. 7). Damaged skull of a small child (K 1), damaged skull of a juvenile individual (K 2), the right half of a robust skull (K 3), isolated bones of fourteen different individuals.

## Area of trench 3719

Calvarium of an adult individual (No. 6).

## Area of trench 2501

Cranial fragments of a juvenile individual, mandible of an adult individual and pelvis of an adult individual.

## APPENDIX. ANATOMICAL INVENTORY OF ANTHROPOLOGICAL FINDS

#### Mušov No. 1.

Age: 12–15 years Sex: female Bones present: calvarium, maxilla, isolated teeth Epigenetic mark: metopism **Mušov No. 2.** Age: 20–30 years Sex: female Bones present: calvarium, maxilla, mandible, isolated teeth Mušov No. 3. Age: adult Sex: ? Bones present: frontal bone with right orbit Mušov No. 4. Age: 7-8 years Sex: child (Figure 11) Bones present: calvarium, maxilla, mandible, isolated teeth Epigenetic mark: metopism Mušov No. 5. Age: 15-17 years Sex: female Bones present: skull with mandible, isolated teeth Mušov L/S 22 Age: 50-60 years Sex: male (Figure 25) Stature: 196 cm Bones present: robust skeleton with skull and mandible Dental pathology: dental abscess of left upper palate (P1, P2, C) Cranial lesion: cut-off left processus zygomaticus Mušov L/S 10 Age: 30-40 years Sex: female (Figure 13) Bones present: skeleton with well-preserved skull and mandible Cranial lesion: skull smashed at the rear edge of frontal bone (Figure 13) Mušov L 21/S 19 Age: 20-30 years Sex: ? Bones present: fragment of cranium, postcranial skeleton anatomically associated Cranial lesion: chopped skull with notches on left parietal bone, traces of violence (Figure 29) Postcranial lesion: scapula dx. perforated (0.5 mm) with a round opening (Figure 29) Mušov L 20/S 18 Age: 15-17 years Sex: female (Figure 17) Bones present: deformed skull with mandible, postcranial skeleton anatomically associated Epigenetic mark: frontal bone with preserved metopic suture (length 1.5 cm) Mušov L/S 13 Age: 13-15 years Sex: young female (*Figure 15*) Bones present: incomplete skeleton with damaged gracile skull Epigenetic mark: lambdoid suture with interstitial bones, lambda point with os inccae Mušov L/S 14 Age: 30-40 years Sex: female (Figure 16)

Bones present: robust deformed skull, traces of fire on the face and vertex, incomplete skeleton Dental pathology: dental cyst Skeletal pathology: vertebral bodies with arthritic rims Epigenetic mark: lambdoid suture with interstitial bones Finding: skull with traces of fire, long bones with gnawing Mušov L/S 11 Age: 4–5 years Sex: ? child (Figure 10) Bones present: skull, gracile skeleton Epigenetic mark: frontal bone with part of metopic suture Finding: iron keys by the child's right hand Mušov L/S 12 Age: 17–18 years Sex: female (Figure 14) Stature: ? Bones present: slightly deformed skull, incomplete skeleton Cranial lesion: occiput perforated by a mortal slash or stab lesion (*Figure 30a*) Mušov S/15 Age: adult Sex: male Bones present: part of a robust skeleton Mušov L 16 Age: 40–45 years Sex: female Bones present: deformed skull with mandible Dentition: strong dental abrasion, exposing dentine Mušov L /S 31 Age: 25–30 years Sex: female (Figure 20) Stature: 177.5 cm Bones present: skull with mandible, incomplete skeleton Cranial lesion: rounded perforation in occipital area, at left coronary suture; on right side, partial perforation of occipital squama of triangular shape (Figure 20) Mušov L/S 32 Age: 35-40 years Sex: male (Figure 27) Bones present: robust skull, incomplete skeleton Dental pathology: dental caries at M1 Epigenetic mark: lambda point in occipital area with os inccae Mušov L/S 33 Age: 25–30 years Sex: female (Figure 21) Bones present: skull with mandible, part of skeleton Cranial lesion: occiput with violent smashing (Figure 21) Findings: traces of fire on right side of the skull, burnt upper incisors; the woman made two childbirths. Mušov L/S 43 Age: 35-45 years Sex: male (Figure 28) Bones present: robust skull with mandible and skeleton

Cranial lesion: occiput with oval perforation (31.5 x 25 mm – Figure 28) Mušov L/S 44 Age: 30–40 years Sex: female (*Figure 23*) Bones present: calvarium, maxilla and mandible, gracile skeleton Cranial lesion: frontal bone with mortal slashing or stabbing lesion (*Figure 23*) Findings: burnt upper incisors and canine, three burnt incisors in the mandible (*Figure 30c*) Mušov L/S 25 Age: 8–9 years Sex: child Bones present: skull fragments and isolated teeth, no skeleton Mušov L 27 (S 36) Age: 21–25 years Sex: female (*Figure 18*) Bones present: skull, mandible, scattered incomplete skeleton Cranial lesion: mandible with cut-off anguli mandibularum on both sides, case of decapitation (*Figure 30b*) Finding: long bones with gnawing (by dogs) Mušov L/S 26 Age: 45–50 years Sex: male (Figure 26) Bones present: skull with mandible, incomplete robust skeleton Skeletal pathology: vertebral bodies with arthritic rims Epigenetic mark: left lambdoid suture with interstitial bones (Figure 26) Mušov L/S 30 Age: 21 years Sex: female (Figure 19) Bones present: incomplete skeleton with skull and mandible Epigenetic mark: front with preserved metopic suture, lambda point in occipital area with os inccae – two Finding: right parietal bone burnt with fire (*Figure 19*) Mušov S 37 Age: 10 years Sex: boy Bones present: part of thorax and lower extremities bones Mušov L/S 42 (S 38) Age: 17–18 years Sex: female (*Figure 22*) Bones present: skeleton with intentionally damaged skull Cranial lesion: stabbing, cutting and slashing lesions on cranium circumference, traces of violence (*Figure 22*) Epigenetic mark: three interstitial bones in occipital area, on the sides of lambdoid suture Finding: traces of fire on the skull Mušov L 28 S 29

Age: adult Sex: ?

Bones present: calvarium and a part of dispersed skeleton Finding: long bones with dog's gnawing Mušov No. 8 Age: 50-60 years Sex: male (Figure 24) Bone present: calvarium Dental pathology: alveolar accretion Epigenetic mark: two interstitial bones on the sides of lambdoid suture Mušov No. 41 Age: 50-55 years Sex: female Bones present: skull with mandible Mušov No. 6 Age: 18-20 years Sex: female (*Figure 12*) Bone present: strongly damaged calvarium Finding: skull with traces of fire Mušov No. K 1 Age: 7-10 years Sex: child Bone present: damaged skull Finding: skull with traces of fire Mušov No. K 2 Age: 20-30 years Sex: female Bone present: calvarium Finding: traces of beating Mušov No. K 3 Age: 30-50 years Sex: male Bones present: half of damaged skull, fragment of mandible Finding: traces of cutting and beating

## SURVEY OF ANTHROPOLOGICAL FINDS

The surface layer of the moat (context 743) yielded isolated skulls of five individuals – a child, three females and an adult individual (Nos. 1–5). The skeleton of an elderly man (22) was in the upper part of the moat. The dispersed female skeleton (10) was at the beginning of the main cumulation. On the side of the moat, there was an isolated part of an adult individual's skull (21), and a scattered female skeleton (20). The central part of the cumulation included skeletons of two females (13, 14), part of a small child's skeleton (11) and lower extremities of an adult man (15). An adult female skeleton was partly in anatomical position, but partly scattered (12). The ending of the context was overloaded with numerous deposited or dispersed skeletons: female (16), male (32), female (31), female (33), male (43), female (44).

The following skeletons and parts of them were discovered in context 743: 2 children, 13 women, 4 men and 1 adult individual.

The upper part of the moat (context 737) included fragmentary remains of a small child's skeleton (25). The skeleton of an adult woman (27) was scattered on the side of the moat, while its skull was in the central part of the moat. The skeleton of an adult elderly man (26) was partly in anatomical position. Next to the man were the skeleton of a young woman (30), part of the skeleton of a subadult individual (37), and the dispersed and incomplete skeleton of a young woman (42). There was a skull (28) which was aside from the main cumulation, and a scattered skeleton in its vicinity. The skulls of three females (6, 41, K2), one male (8), broken fragments of three children's skulls (7, K1) and one adult individual (K3) were discovered from the ending of the moat.

Context 737 yielded the following skeletons and parts of them: 4 children, 7 females, 2 males and 1 adult individual.

#### Processing of the human remains

The moat designated as contexts 743 and 737 yielded skeletal remains of 34 individuals. The total number of anthropologically classified individuals showed a disproportion in sex representation, with a prevalence of females (Acsadi, Nemeskéri 1970).

## Methodological approach

Methodology according to the degree of morphoscopic features development in skeletal finds of identified human bones applied given standard anthropological methods recommended by the Group of European anthropologists (Ferembach et al. 1979). Identification of finds according to features of the skull and postcranial skeleton was carried out by standard methods according to Olivier (1969), Martin, Knussman (1988). A combination of proven approaches, described in methodological and anatomical publications by the following authors, was used for description and identification of finds: Bass (1987); Calcagno (1989); Fazekas, Kósa (1978); Nemeskéri, Harsányi, Acsádi (1960); Saunders, Katzenberg (1992); Schwartz (1995); Stloukal et al. (1999); Ubelaker (1974). Skulls were analysed according to the degree of morphoscopic features development (Ferembach et al. 1979), cranial sutures closing according to Meindel, Lovejoy (1985). In teeth, the degree of mineralization of deciduous and permanent dentition (Ubelaker 1978), in children according to Ubelaker's schemes of teeth eruption, the age of adult individuals according to Lovejoy's scheme of teeth abrasion (Lovejoy 1985). Skeletons - according to the degree of bone ossification (Ferembach et al. 1979); changes of symphyseal facets relief after categories proposed by Todd (1920). Sex identification – by features of pelvis, shape of *incisura* ischiadica major (Vacca et al. 1997) and by postpartum changes on the skeleton and the facies symphysealis ossis pubis after McKern, Steward (1957). Body height was calculated from the length of long bones on the basis of equations elaborated by Sjøvold 1990, realized by standard procedures of Martin, Knussman (1988).



FIGURE 10. Skull No. 11. Lateral, vertical and occipital views of the skull of a 4–5-year-old child.



FIGURE 11. Skull No. 4. Lateral, vertical (metopic suture) and occipital views of the skull of a 7-8-year-old child.



FIGURE 12. Skull No. 6. Lateral, vertical (cracked surface) and occipital views of the skull of a 20-30-year-old woman.



FIGURE 13. Skull No. 10. Frontal, vertical (perforated frontal bone) and occipital views of the skull of a 30-40-year-old woman.



FIGURE 14. Skull No. 12. Lateral, vertical and occipital views of the skull of a 17–18-year-old woman.



FIGURE 15. Skull No. 13. Lateral, vertical and occipital (interstitial bones) views of the skull of a 30-40-year-old woman.



FIGURE 16. Skull No. 14. View of the frontal, lateral sin., lateral dx. deformed skull of a 30-40-year-old woman. Traces of fire on the face and parietal area.



FIGURE 17. Skull No. 20. Lateral, vertical and occipital views of the skull of a 15-17-year-old woman.



FIGURE 18. Skull No. 27. Lateral, vertical and occipital views of the skull of a 21–25-year-old woman.



FIGURE 19. Skull No. 30. Frontal (metopic suture), vertical and occipital (interstitial bones) views of the skull of a 21–25-year-old woman. Traces of fire on right parietal bone.



FIGURE 20. Skull No. 31. Frontal, vertical and occipital views (occiput with two perforations) of the skull of a 20–25-year-old woman.



FIGURE 21. Skull No. 33. Frontal, vertical and occipital views (perforated occiput) of the skull of a 25–35-year-old woman. Front teeth burnt with fire.



FIGURE 22. Skull No. 42. Frontal, vertical and occipital (interstitial bones) views of the skull of a 17–18-year-old woman. Traces of notching, cutting and violence on the skull circumference.



FIGURE 23. Skull No. 44. Frontal (mortal lesion on frontal bone – slash, stab?), vertical and occipital views of the skull of a 30-40-year-old woman.



FIGURE 24. Skull No. 8. Lateral, vertical and occipital (interstitial bones) views of the skull of a 50-60-year-old man.



FIGURE 25. Skull No. 22. Lateral, vertical and occipital views of the skull of a 50-60-year-old man.



FIGURE 26. Skull No. 26. Lateral, vertical and occipital (interstitial bones) views of the skull of a 45-50-year-old man.



FIGURE 27. Skull No. 32. Lateral, vertical and occipital (interstitial bone) views of the skull of a 35-40-year-old man.



FIGURE 28. Skull No. 43. Lateral, vertical (perforated occiput) and occipital views of the skull of a 35-45-year-old man.



FIGURE 29. Skull and scapula No. 21. View of an adult individual's interior and exterior surface of the cranial vault and the *facies costalis* of the right scapula perforated with a round opening.



FIGURE 30. A. Skull No. 12. Stab lesion in the occipital area. B. Mandible No. 27. Case of decapitation, *anguli mandibularum* bilaterally cut off. C. Maxilla and mandible No. 44. Presence of fire – burnt teeth.

#### Children

Of the six children, two were very small, of 3–5 years of age, three children were approximately 6–8-year-old, and one child was aged 10 years. Skull No. 11 of a small child (aged 4–5 years) is high and broad, with a prolonged occiput, corresponding in shape to the developmental stage of a small child skull (*Figure 10*). The frontal bone is flat, with a part of the metopic suture. Skull No. 4 (child 7–8-year-old) with a damaged cranial base is broad, with the metopic suture fully preserved all over the frontal bone (*Figure 11*).

#### Women

The female group is represented in all age categories: one 15-year-old, six young women aged 16–18; one 21-year-old, four females aged 20–30, five women of 30–40 years of age, and only one aged 50–55. More than half of the females in the group reached the adult age.

The female skull No. 6 (*Figure 12*) is strongly deformed by pressure of the earth and presence of fire. The face and cranial base are damaged; in the parietal area, the presence of fire had caused cracking of the bone surface (*lamina externa*). The skull is medium sized, of medium breadth and height, according to cranial sutures obliteration the woman had reached the age of 18–20 years.

Female skull No. 10 was violently smashed (*Figure 13*) at the rear side of the frontal bone (length 42 mm – width 25 mm). The frontal bone is high and vaulted, with a glabella of second degree, facial bones of medium width and mastoids medium sized. The occiput presents a more pronounced muscle relief. There is an interstitial bone in the right lambdoid suture (*ossiculum suturae lambdoideia*). The advanced degree of dental abrasion and cranial sutures obliteration corresponds to the age of 30–40 years.

Skull No. 12 has a flat and high front with a flat glabella. The occiput of this 17–18-year-old female is vaulted, and bears a violent perforation (*Figure 30a*) due to slashing or stabbing (33.5 mm long, 6 mm wide, perforated in the length of 4 mm). Dental crown M3 had been constituted in the mandible, which is short and wide, with a prominent chin (*Figure 14*).

Skull No. 13 is gracile, with a damaged face and missing cranial base. The front is vaulted, the glabella not very distinct, but sharp orbital rims and small mastoids. Teeth are healthy, without dental caries, incisors in the maxilla (I1/I1, I2) are burnt with fire. In the occipital area, there are interstitial bones on both sides of the lambdoid suture (*ossiculum suturae lambdoideia dx. et sin.*), the interstitial bone from lambda point – *ossiculum lambde* – has been lost post mortem (*Figure 15*).

Skull No. 14 of an adult woman, aged 30–40, is of robust stature, but strongly deformed with a damaged face and disrupted parietal area. Such a fundamental change of shape was caused mainly by intentional breaking of the parietal area of the skull, by the pressure of earth, and by the presence of fire in the facial part (*Figure 16*).

The shape of skull No. 20 was asymmetrically deformed (*Figure 17*) by the pressure of earth. The metopic suture is preserved on the flat front, from the nasion point in a length of 3 cm; the occiput is vaulted, mastoids are small. Molars M3 are constituted in the mandible and maxilla of the young woman, which corresponds to the age of 15–17 years.

Skull No. 27 belongs to a gracile female that had been decapitated (*Figures 18, 30b*). The face has suffered secondary damage, the front is vaulted with a flat glabella, orbits with sharp rims, medium sized mastoids, slightly protuberant occiput. Cranial sutures obliteration and state of dental abrasion correspond to the age of 21–25 years (*Figure 18*).

Skull No. 30 is mesocrane – medium sized, with the metopic suture preserved on the front at the age of 21 years. The front is flat, with a glabella of first degree. The right side of the parietal bone bears traces of fire. The course of lambdoid sutures in the occiput is complicated; two *ossiculi lambde*, one above the other, are in the lambda point (one being lost post mortem, *Figure 19*).

Skull No. 31 is low and broad, the shape of orbits has been reconstructed. A round opening had been made in the occipital area, in the left coronary suture (17 mm). On the left side of the parietal squama there is another opening (26 mm) of triangular shape (*Figure 20*). The violent lesions on the skull must have been mortal, and the woman died at 20–25 years of age. Skull No. 33 is slightly proghnate, it has a broad and high front with a flat glabella, medium sized orbits (*Figure 21*). Upper incisors in the maxilla (I2, I1/I1, I2) are burnt with fire, further traces of fire are on the front and on the right side of the skull. The occiput is vaulted, and on the right side the occipital bone had been brutally smashed, causing a mortal lesion (partly rounded in the length of 57.4 mm and width of 37.5 mm). The woman died at 25–30 years of age, and identified postpartum changes in the pelvis prove that she repeatedly gave birth to children.

Skull No. 42 bears numerous notching and cutting marks all over its circumference. The whole braincase had been cut off with a violent interference (*Figure 22*). Small traces of the presence of fire have been recorded on the skull. In the occipital area, there are interstitial bones (*ossiculum suturae lambdoideia dx. et sin.*) as well as in the lambda point – *ossiculum lambde*. The cranial base is deformed, papillary protuberances are medium sized. Teeth are healthy, without dental caries, the crowns of third molars are constituted, but not erupted, which corresponds to the young woman's age of 17–18 years of life.

Skull No. 44 has a slash lesion on the front (length 45.2 mm); both the face and cranial base are damaged. Three incisors and one canine (I2, I1/I1, I 2, C) in the maxilla and three incisors (I1/II, I2) in the mandible are burnt with fire (*Figure 30c*). The skull is short and broad, with protuberant occiput; two interstitial bones (*ossiculum suturae lambdoideia dx., ossiculum lambde*) have been lost post mortem from the lambdoid suture. Teeth are in good condition, without dental caries, with a medium degree of dental abrasion; cranial sutures obliteration corresponds to 30–40 years of age (*Figure 23*).

#### Men

The male part of the studied group included rather old individuals – three in the age of 35–45 years, one aged around 50, and two were 50–60-year-old.

Skull No. 8 was that of an adult robust male (*Figure 24*) and had a disturbed left orbit and cranial base. The front is steep, with a damaged glabella, prominent temporal lines and robust papillary protuberances – mastoids – are on the sides. The occiput is protuberant, there is a prominent bulging *protuberantia occipitalis externa*, and interstitial bones of various shapes and kinds in the lambdoid suture. The cranial sutures obliteration, especially that of the sagittal one, corresponds to the age of 50–60 years.

Skull No. 22 belonged to a very robust man (*Figure* 25); it has a vaulted narrow front with a glabella of the third degree. Supraciliary arches (*arcus superciliares*) are prominent, and especially prominent are the *linea temporalis*. Orbits are small and narrow, facial bones are broad and massive. The nasal bridge is low, strongly prominent. The prominent bulging occipital protuberance (*protuberantia occipitalis externa*) constitutes a massive ridge (*crista occipitalis externa*). The condition of cranial obliteration corresponds to the advanced age of the man who died aged 50–60 years.

Skull No. 26 of an elderly robust man (*Figure 26*) is mesocrane, broad and low. The front is broad, with a glabella of third degree and very prominent supraciliary arches (*arcus superciliares*); the nasal bridge is broad, orbits are medium sized. Large mastoid processes are developed into lateral bony ridges. The occiput is protuberant, there are two interstitial bones in the left lambdoid suture (*ossiculi suturae lambdoideia*). The age of the man was 40–50 years.

Skull No. 32 has a robust face (*Figure 27*), broad and massive facial bones. The front is narrow with a glabella of second degree, and prominent temporal lines (*linea temporalis*) on the sides of the front. Orbits are medium sized, the nasal bridge is broad. The occiput is slightly protuberant, there is an interstitial bone in the lambda point (*ossiculum lambde*). The maxilla shows dental caries (M2), teeth are in an advanced stage of dental abrasion (exposed dentine). Cranial sutures obliteration corresponds to the man's age of 35–40 years.

Skull No. 43 belonged to a robust man; it shows a mortal lesion in the occiput (oval shape 31.5 mm, width 25.4 mm). The front is vaulted, with a glabella of second degree and slightly prominent temporal lines. The nasal bridge is low, the shape of orbits has been reconstructed, facial bones are medium sized. The occiput is protuberant, with a prominent bulging occipital part *protuberantia occipitalis externa*. The cranial sutures obliteration corresponds to the age of 35–45 years (*Figure 28*).

## Adult individuals

Sex was not determined in two adult individuals.

Skull No. 21 has a preserved part of the cranium – right and left parietal bone, connected with a part of the sagittal suture (*Figure 29*). The skull bears traces of longitudinal chopping, cutting and beating. An incomplete right scapula was in the vicinity of the skull (*Figure 29*); it was broken with a small opening (rounded shape, 6 mm). These may be skeletal remains of one and the same individual.

#### **Physical anthropology – characteristics**

The group of discovered skeletons has a random uneven representation as to both sex and age. From the anthropological point of view, the data we have found can be summarised and an anthropological characteristics expressed.

The following indices have been calculated for male skulls: I 1 – mesocrane (79.3), I 2 – hypsicrane (82.4), I 3 – tapeinocrane (76.5), I 12 – medium (82.7), I 13 – eurymetopic (85.7), I 42 – mesoconch (77.8). Body height has been calculated (Sjøvold 1990) in only two adult males: 195 cm (robust individual), 165 cm (gracile individual).

The following indices have been calculated for female skulls: I 1 – brachycrane (83.9), I 2 – hypsicrane (83.0), I 3 – tapeinocrane (89.1), I 12 – medium (81.8), I 13 – eurymetopic (83.0), I 42 – mesoconch (78.0). Also in females, body height has been calculated (Sjøvold 1990) in two adult individuals: 177.5 cm and 179.5 cm.

Based on anatomical characteristics of skulls and pelvises of adult individuals, six males, twenty females and six children have been identified. In five cases, the occurrence of metopic sutures was recorded in finds of individual skulls. One of repeated features was the observed occurrence of seven cases of interstitial bones – in three males and four females, and in different variations. These finds can be considered as inherited epigenetic features which, in such a small group, can be the result of family relationship. Epigenetic features only suggest the degree of probability of genetic kinship.

So that to ascertain this assumption, it would be helpful to determine blood groups and make chemical analyses of bone and teeth samples, as well as DNA analysis; trace elements identification would help specify the origin or migration of the group. A reconstruction of nutrition tendencies and C and N isotope analysis from bone collagen would determine the type of plants (photosynthesis type) upon which the population had been dependent.

#### Identified violent injuries and health condition

The skulls showed 12 cases of violence, some of them being very severe. In the female group, almost half of the individuals had been killed intentionally, violent death has also been described in two men. Although the finds of individual skeletons cannot be considered as complete due to the find circumstances, the general health condition of the whole group can be assessed as very good. In only two individuals (14, 26) arthritic changes and vertebral osteophytes have been found. Only one dental caries (32) and one dental abscess of the palate (22) have been recorded.

#### SUMMARY

During archaeological research, a cumulation of skeletal remains was discovered in a former fortification moat (15 m long, 7.4 m wide, 3.9 m deep and 80 cm thick). Archaeological and anthropological-osteological analyses of the skeletal material have brought the following results:

Human and animal skeletons and individual bones were lying in a pell-mell one over another. Skeletons were lying prone, supine or on the side, with their arms and legs outstretched or scattered all over. Among the skeletons were huge stones, gravel, one of the identified finds was a pottery fragment - "terra sigillata" (from the period of wars against the Marcomanni, 170/180 AD). The bodies discarded into the moat also had ornaments with them (a bronze clip, silver s-shaped clasps) and small objects (e.g. two iron keys near the hand of one of the skeletons). Most probably the bodies had been thrown into the moat without any sign of reverence that should be paid to dead people. In the same layer there were also skeletons of seven big and two small animals, which had been deposited into the moat together with the human bodies, within a single, relatively short and uninterrupted act.

During fieldwork, a larger amount of charcoal was found by some of the skeletons. It is probable that after they were killed and discarded, the dead bodies were exposed to fire, because some bones bore traces of burning. The skeletal material showed traces of violence, documented by notching, stabbing and cutting lesions on skulls and other bones.

Anthropological analysis has determined that the moat included remains of at least 34 individuals, but it is estimated that their number might have been even twice as high. The discarded bodies there were those of 6 children, 8 subadults and 20 adults. Most of the adults were aged 30–40, two men were older than 50–60 years. Based on anatomical characteristics of adults' skulls and pelvises, six males and twenty females have been identified in the moat.

The hypothesis that the 34 bodies buried at Mušov might have died by natural death was denied by finds of severe traces of violence on numerous skeletons. More than a half of them had suffered a wound in the head. Many of the shots were so strong that they smashed through the skulls, and were undoubtedly mortal. The openings were usually of oval shape, several centimetres long and 2-3 cm wide (Figures 13, 21, 28). On some of the skulls there were obvious traces of beating with a blunt object, which caused sags and deformations of up to several centimetres in diameter. Two skulls (female No. 43, female No. 12) bore traces of cutting weapons action (Figures 23, 30a) and one skull had been decapitated from the body (female No. 27). The contours of openings and sags in the skulls of two women (Nos. 31, 33) closely correspond to the transverse cross-section of hatchets' form. Rounded lesions made by spears (?) targeted straight into the head, as well as numerous notches and stab wounds have been found on the skulls of a female (31), male (26) and the skeleton (27) of an adult individual.

These traumatic lesions had undoubtedly originated while the people were still alive, and they might have been serious enough so that to become the cause of death.

By zooarchaeological analysis of skeletal remains of the animals from the moat (Mušov–Neuriessen IV), L. Peške (1995) has identified skeletons of three horses, two bulls and two cows (rather old animals, exhausted with strain), and parts of a donkey and mule. According to the presented analysis two different size categories of horses have been distinguished, the larger ones corresponding to the animals selected for Roman military troops. In most of the discovered animal skeletons, zooarchaeological analysis has proven their origin in the provinces where cattle and horses had been bred which were considerably bigger than those bred in Moravia. The animals found in the studied moat were either coming from the territory of the Roman Empire, or they were the property of local inhabitants. Other animal skeletons from the Roman period were found during archaeological research at Mušov, Burgstall fortified settlement, and their occurrence in the given area is not exceptional (Tejral 1986).

#### CONCLUSION

All the buried individuals were killed by different blows and thrown without any ceremony into the moat where they remained in various positions. The whole event (slaughtering) must have taken place at a time, because mutual interlacing of bodies suggests that the victims had been thrown into the pit at the same time.

The chaotic disposition of skeletons leads to the assumption that those who had thrown them in had not been interested in any burial ceremony.

It cannot be excluded that the aggressors might have been local inhabitants. Two groups of people might have had a conflict and one of them had obviously lost. The brutality with which members of that group had been killed out is clearly seen from the damage on the skulls. Men, women and children without distinction, were executed with mighty blows. We can only guess what might have been the object of dispute.

An important role in the interpretation is played by the determination of time when the people and animals were deposited in the moat Mušov–Neuriessen IV. So far, there is a double dating leading to different explanations of the function of a part of the finds, and consequently also to different interpretations of who were the actors in the event during which people and animals discovered in the moat had been killed. Also the question, to which community belonged the dead people, remains open.

Existing hypotheses:

- a. Was the event a demonstration of strength and power of one group of farmers over another?
- b. Based on the finds and research results, it may be assumed that the human and animal bodies had been thrown into the moat by the Roman army.
- c. The event might have happened during the presence of the Roman army, i.e. at the period of use of the moat, which is proved by the fact that human and animal bones were found almost at the very bottom of the moat.

The killed people might have been victims of conflicts among Barbarians that might have taken place during the presence of the Roman army, or shortly after their departure from Mušov. That would correspond to settling accounts among different interest groups of local inhabitants, or the conflict might have involved groups coming from various areas. A similar situation, the execution of barbarian men by other barbarians in presence of Roman troops, is depicted in scene LXI on the Marcus Aurelius column at Piazza Colona in Rome.

The problem when exactly Roman troops had dwelt at Mušov still remains open. It is not expressly confirmed that the presence of the Roman army was only limited to the period of wars against the Marcomanni, because there exists also the possibility that Roman troops were staying at Mušov even after the year 180 AD. Written sources, inscriptions and coins indeed mention later war activities (Expeditio Germania terbia, Expeditio Burica), but even after decades of analyses and research there are no positive conclusions available (Dietz 1994, Dobiáš 1929, Jančo 1998, Pieta 1994).

Archaeological evidence of fighting and violent actions in the territory of Roman camps or in their rear is not exceptional. They are represented by human skeletons, and in some cases by animal ones as well, and possibly also by catastrophic horizons with traces of destruction and fire. In some cases, they can be related to concrete historical events (Gechter 1979, Junkelmann 1994, Reichman 1994).

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Marta Dočkalová Anthropos Institute Moravian museum Zelný trh 6 659 37 Brno Czech Republic E-mail: mdockalova@mzm.cz