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Geophysical Survey and Archaeological Excavations at the Roman Period Cemetery in Nezabylice (Chomutov District, Northwest Bohemia)

ABSTRACT

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This article presents the results of geophysical surveys, which were carried out during the period between 2011 and 2016 at the Roman period cemetery in Nezabylice (Chomutov district, Ústí Region, NW Bohemia). Thanks to these non-destructive surveys, the unusually large scale and signs of the inner structure of the cemetery have been unveiled. On this basis, long-term systematic archaeological research has been carried out, so far uncovering a number of urn graves with military equipment, pit cremation graves, an elite inhumation grave, and several regular structures from Roman period. The results of the comprehensive research suggest that it is the largest and richest cemetery of the Roman period in northwest Bohemia. However, the site is gradually being devastated not only by cyclical agrarian activities but also by the impact of illegal plundering. Therefore, an important aspect of non-destructive surveys is the recording of the current state of the burial ground, the information value of which is gradually degrading.

Key words: northwest Bohemia – geophysical survey – Roman period – cemetery – cremation graves – inhumation grave

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1. Introduction

For the early Roman period in Bohemia, besides the poor state of knowledge of the settlements, the rather unsatisfactory state of research of chronologically contemporary burial grounds is also mentioned (Droberjar 2008, 11–14; Droberjar, Vích 2011, 23). A substantial part of the larger sites was explored at the turn of the 19th century, and other

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cemeteries research was carried out by the middle of the last century (e.g. Břeň 1953; Droberjar 2011; Motyková-Šneidrová 1963; 1967; Lichardus 1984; Preidel 1930; Zápotocký 1969). Discoveries of new burial places have occurred quite rarely not only in Bohemia, but also in Moravia in recent decades (Droberjar 2015, 103–125; Droberjar, Vích 2011, 23–38; Droberjar, Vojtěchovská 2000, 217–218; Droberjar, Waldhauser 2012; Hornik, Bláha 2015; Vachůtová, Vlach 2011, 58–59). One of the rare exceptions in this respect is the recently discovered cemetery at Nezabylice locality in northwest Bohemia (Blažek *et al.* 2014; ibid. 2015; 2016; in print; Půlpánová-Reszczyńska *et al*. 2017). The objective of the article is to present the current results of detailed geophysical surveys, thanks to which the scale and internal structure of the burial grounds were partially recognized on this site. On the basis of these measurements, the archaeological excavation showed a typologically diverse spectrum of funerary features that greatly enrich and extend the knowledge of the burial rite of the Roman period. The research has also highlighted one major problem, namely damage caused by existing human activities that cause gradual devastation of the site. For these reasons, the Roman period cemeteries currently represent some of the most endangered archaeological relics in Bohemia, which besides protection require complex and systematic research (cf. Vachůtová, Vlach 2011, 57).

2. Location and natural environment of the site

The archaeological site is situated in northwest Bohemia less than 2 km south-east of Nezabylice (Chomutov district, Ústí Region) and, in the same direction, about 7 km from the centre of Chomutov. The burial ground is located at an altitude of about 320 m on the highest river terrace forming an elongated plateau. The exposed landscape position provides good visual control of the surrounding area. The Ore and The Doupov Mountains, Džbán Uplands and the volcanic hills of the Central Bohemian Highlands are in the viewing distance of the locality (Fig. 1).

Considering the geomorphological division of the Czech Republic, the Nezabylice locality lies in the "Podkrušnohorská oblast" region, in the sub-region of "Mostecká pánev", in the area of "Žatecká pánev" and in the "Blažimská plošina" district. It is a rugged upland formed by erosion-

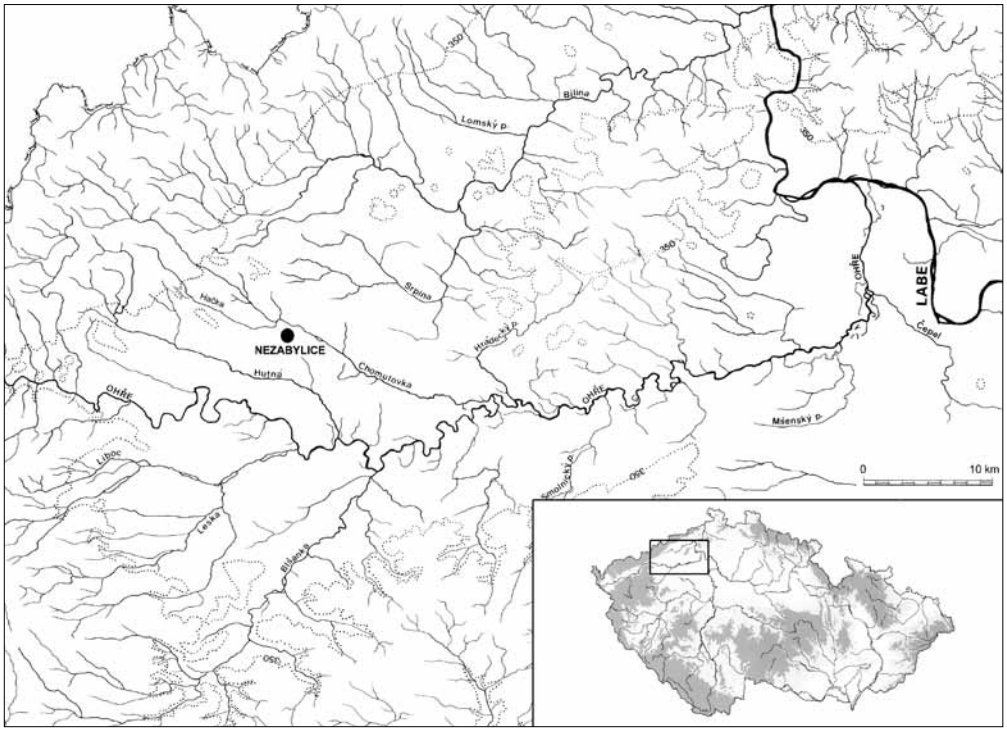

Fig. 1. Location of Nezabylice, Chomutov district, Ústí nad Labem Region, north-west Bohemia (*map modification M. Sýkora*)

accumulation processes of the Eger River and its left tributaries (Bína, Demek 2012, 121–123; Demek, Mackovčin 2006, 72; Lorber 1998, 18–28). The nearest water source of higher order is the Chomutovka River, which flows about 1200 m north of the site. In the Nezabylice municipality the left-side tributary of the Hačka stream flows into it. Another nearby water source is the Hutná River (Lorber 1998, 21, 184–188).

The predominant local rocks form quaternary eolic loess and ochre clay loam, to a lesser extent also clays, sands and sandy clays (http://mapy.geology.cz/geocr_50/). According to field observations, the subsoil at the site of the site consists of compact dense orange-ochre clay with black veins. The topsoil has a thickness of about 30 cm. With regard to pedological conditions, the local soil species are among the heavy soil type from brown to black ground (Kol. aut. 1954, mapa 5, 6). The area falls between the beech-oak and oak-beech vegetation stages with the occurrence of thermophilous plant species. With regard to the

climatic conditions, it is a warm area with low summer precipitation (Demek, Mackovčin 2006, 17–18, 72; Kol. aut. 1954, map 10–12, 17; Lorber 1998, 26, 29, Annex 3). Since the middle of the last century, the agricultural fields have mainly been used for beet and barley cultivation (Kol. aut. 1954, map 7).

3. Finding and research circumstances

The cemetery of the Roman period at Nezabylice was discovered by two amateurs in October 2010, during an illegal survey with metal detectors. At the beginning of November, several tens of metal objects were brought to the Regional Museum in Chomutov: iron swords, spears, fragments of shields, spurs, bronze vessels and their handles, brooches etc. (Blažek *et al.* 2014, 801). In 2011 rescue excavations were carried out. Since 2012 systematic archaeological research has been running on the basis of an international agreement between the Czech and Polish archaeological institutions, represented by the Regional Museum in Chomutov, the Institute for Preservation of Archaeological Heritage of north-western Bohemia in Most and the Institute of Archaeology Rzeszów University[1].

4. Determining total area of the cemetery

Before commencing archaeological research in 2011[2], we faced the task of effectively determining the overall extent and course of the burial site. Based on the GPS coordinates of targeted detector findings projected onto the geodetic plan, the approximate range of the site was estimated in the first phase, i.e. we determined its part with excavated metal findings originating from disturbed graves. Based on the spatial distribution of the findings and the given terrain situation, a square mesh of 50×50 m was set on the area, the orientation of which was adapted to the course of

[1] Regular research is possible not only thanks to the agreement with the landowners (AGRA Droužkovice s.r.o.), but also thanks to the financial contribution from the Department of Culture and Conservation of the Regional Authority in Ústí nad Labem. The authors of the research are grateful to all interested persons and institutions for their contributions.

[2] In addition to geophysical surveys, other non-destructive methods are used in each research season. Detailed geodetic surveys, field metal detector surveys and systematic surface surveys are carried out.

the terrain edge. The network was further broken down into sectors of 1 are and further into squares measuring 5×5 m. In this area a detailed systematic survey using a five-channel magnetometer DLM-98-ARCH on a wheeled chassis (Sensys, Germany) was performed using five flux-gate gradiometers with FMG650B probes in a 0.25×0.1 m network[3]. Measurements showed that defined anomalies are not located only near the features picked up in the previous year by the detector surveyors, but on a substantially larger area. The total area measured in 2011 was ca 3.1 ha. Throughout all this space, a large amount (tens to hundreds) of small anomalies with high amplitudes of measured magnetic field intensity gradient (Fig. 2), i.e. smaller buried features, graves or individual metal artefacts, was documented (Křivánek 2012, 17).

During later measurements and research in 2012–2015, we assumed that the northern edge of the burial ground is likely to be at the top of the terrain edge (see Blažek *et al.* 2014, 807). This assumption, however, was refuted in the supplementary magnetometric survey in 2016, when an area of 0.256625 ha was measured along the assumed edge of the burial ground (Křivánek in print). The five-channel magnetometer DLM-98-ARCH on the two-wheeled chassis with flux-gate probe FMG650B was used for the measurement as well; a measurement density of 0.25×0.1 m. Surprisingly large number of other anomalies were found, where we cannot exclude the remains of buried graves or metal artefacts (Křivánek in print).

Based on current measurements, it is certain that the burial site did not end at the top of the terrain, but on the contrary, it could continue too much lower slopes that gradually descend towards the valley of the Chomutovka River. Under the existing conditions, it is only possible to speculate on the extent of the burial ground. It is likely that research has so far concentrated more on the central parts of the cemetery. The archaeological surveys have approached near to the western border, while in the northern, southern and eastern

[3] Geophysical surveys were conducted in Nezabylice between 2011 and 2016 in cooperation with the Institute of Archaeology of the Czech Academy of Sciences. Measurements in 2011 were carried out within the institutional support of the Institute of Archaeology of the Czech Academy of Sciences (RVO: no. 67985912). Surveys in 2015 and 2016 were carried out within the framework of the Regional Cooperation Project of the Academy of Sciences of the Czech Republic "Non-destructive geophysical research of significant and endangered archaeological sites in the Ústí Region" (no. R300021421, Křivánek 2014–2016).

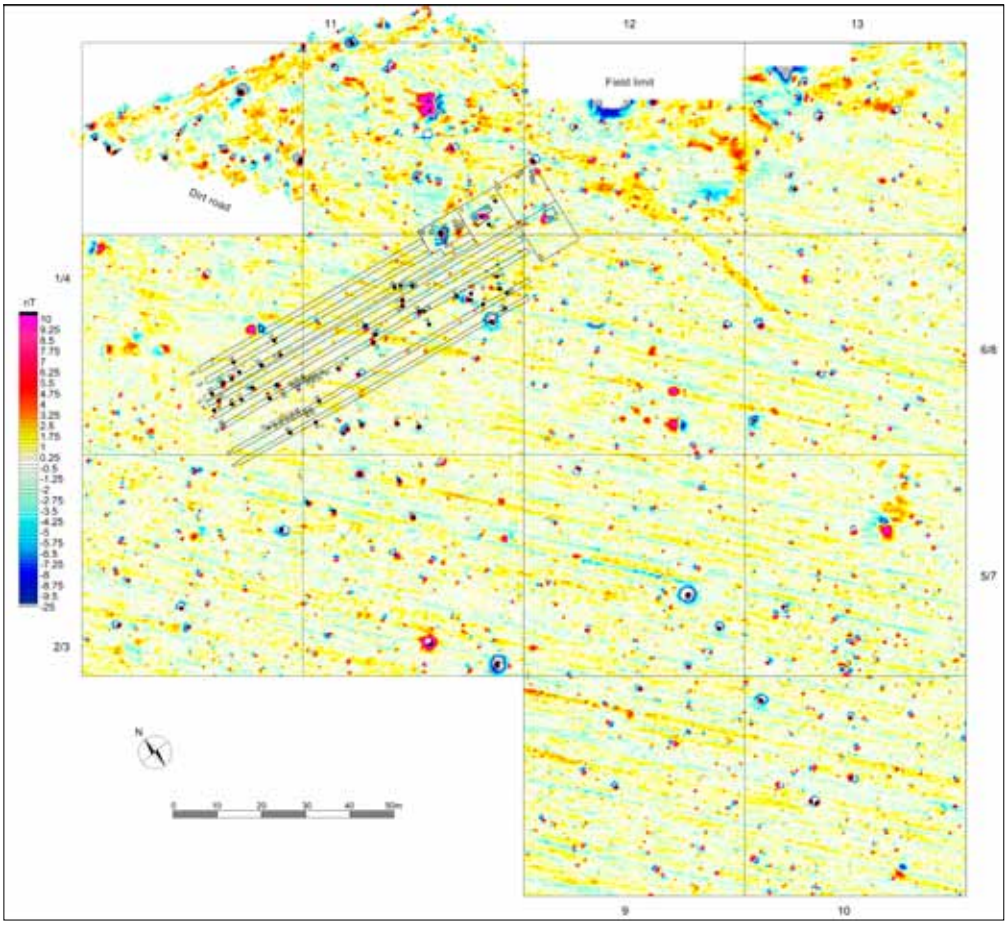

Fig. 2. Nezabylice, Chomutov district. The total results of geophysical surveys carried out by R. Křivánek in the years 2011–2016 on an area of ca 3.3 hectares, which showed dozens of bounded anomalies with high amplitudes of measured magnetic field intensity gradient

direction the burial grounds most certainly continue. With partial overlapping of the areas from 2011 and 2016, the total area investigated by magnetometers is about 3.3 ha (Fig. 2). Nowadays, we assume that the funeral complex is more or less all over this vast area, or it is formed by several small groups of graves on it. Only further systematic archaeological research can contribute to the unequivocal resolution of this question. Nevertheless, we are now working with a hypothesis that it is most likely the most extensive cemetery of the early Roman period in northwest Bohemia.

5. Detection, identification and verification of burial substructures

In the following paragraphs, we will focus on the identification of particular structures of the cemetery in Nezabylice. So far, based on measured geophysical anomalies, archaeological research has been able to verify and distinguish several types of features: 1) urn graves; 2) larger pit cremation graves; 3) metal artefacts; 4) regular structures; 5) inhumation grave from the Roman period; 6) prehistoric inhumation graves.

5.1. Urn graves

Due to the predominant funeral rite and the typical content of graves from Roman period (e.g. burnt anthropological material, ceramic urns, iron and bronze artefacts), we assumed that the graves would have to manifest as distinctly different magnetic anomalies over the measured area. This prediction was confirmed in the resulting magnetogram by a number of tightly bounded concentrations of smaller isometric and often dipole magnetic anomalies with high amplitudes of the measured magnetic field intensity gradient. Their number counts to several dozen[4] (Fig. 2). The dimensioning of the fixed square mesh, along with the magnetometer results, allowed a near-perfect verification of these anomalies in field research. The accuracy of their localization in the 5-meter sectors was surprising, as it fluctuated with a maximum deviation of several decimetres (up to 50 cm). In previous archaeological research, it has been confirmed that the vast majority of minor anomalies are urn graves from the Roman period, almost 50 of which were examined by the year 2017 (Fig. 3). Among them, the richly equipped („warrior" graves) predominate, with weapons and other equipment. There are seven different groups of graves with various combinations of weapons and other furnishing. There are three basic ways of placing goods in the graves: either in the urn, next to the urn or under the urn (see Blažek *et al.* 2014, 804–805;

[4] The high positive values of nT can be attributed to the presence of ferromagnetic minerals, in this case represented mainly by numerous metallic artefacts (including swords, spears, shield elements, spurs). Other high positive values of nT could also be attributed to locally concentrated materials with a higher degree of burning and a characteristic so-called thermoremament magnetization (e.g. cremation in graves, burned ceramics or burned clay, daub etc.).

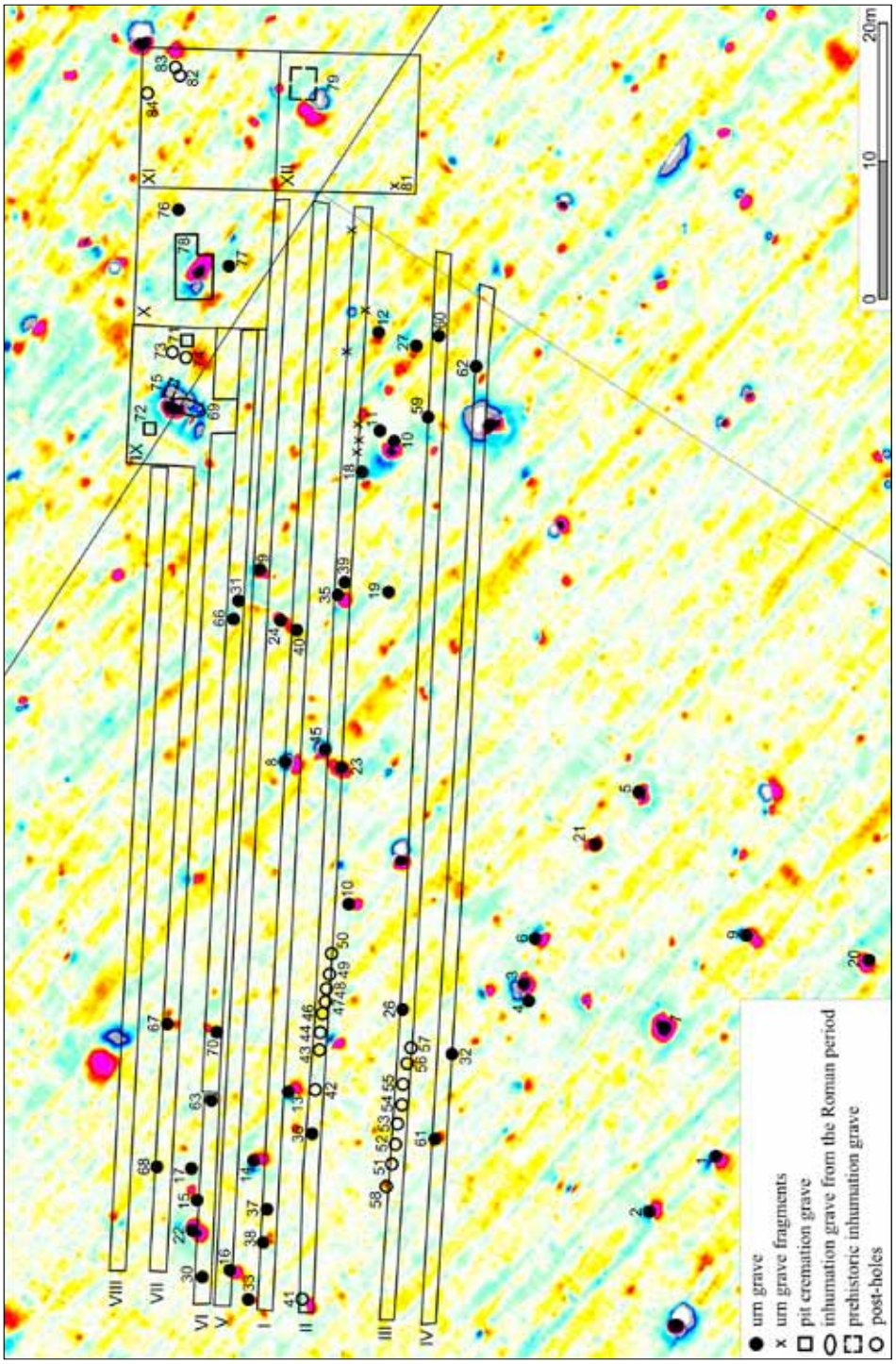

Fig. 3. Nezabylice, Chomutov district. Detail of the magnetometric measurement, on the basis of which an archaeological trenches I–XII was carried out in 2011–2017. On the area of the burial ground have been explored 84 archaeological features dated predominantly to the Roman period (*compiled by J. Šály*)

cf. Droberjar 2002, 390). The most interesting is undoubtedly the third way in which a ceramic urn with cremation was found in the uppermost layers (mostly in the topsoil). Substantial parts of the grave equipment were located below the urn, forming an extremely concentrated cluster of metal artefacts. In a few cases, iron spears, fragments of shields (bosses, grips) or iron swords bent several times were found in these piles. Quite unusual was the positioning of some spears, whose heads were facing down into the ground, either in slant or perpendicular direction. A similar way is evidenced for shield bosses that are sometimes also buried with spikes facing down. Somewhat unclear remains the way these features were placed into the ground – they were located deep in compact underground clay without any apparent interference (Blažek *et al.* 2014, 805). The absence of visible grave-pits presents one of the major problems in the search for urn graves. Objectively, without the precise geophysical results, we would probably have no idea about the presence of most small features. It can be summarized that the magnetometric measurement is clearly the most efficient method of prospection of urn graves and the success of their detection depends mainly on the subsurface status of the graves conservation in situ[5].

5.2. Larger pit cremation graves

Very interesting type of features, found at the burial grounds in 2015 and 2016, are three larger pit graves with cremations. Two of them (feature 71, 72) were made up of smaller oval pits with a length of 140–160 cm and a depth of 75 cm or 125 cm from the current surface. In their fillings there was a compact layering of fractional ceramic material and burnt human remains probably from several individuals. The most interesting representative is undoubtedly feature 78 in the X trench (Fig. 3, 5). After its uncovering, it was found to be a regular square with rounded corners measuring 336×285 cm, with a 160×150 cm protrusion in the NE corner. The feature was oriented in the direction E–W, with its north wall reaching almost 5 m. From the level of – 40 cm, a stone structure with a width of 30 to 50 cm

[5] The only minor problem proved to be the prospection of poorly equipped urn graves without grave goods and damaged grave fragments that were not recorded by geophysical or detector surveys. These graves were recorded only after a systematic archaeological excavation.

reminiscent of the staircase was recorded along the southern and western walls of the structure. Larger and smaller stones have been stacked in this space so that they closely fit together to form a compact and relatively horizontal surface. The maximum depth of the feature was up to – 170 cm.

From the filling of the structure comes a fascinating set of material culture of Roman period. Cremation remains from several human individuals with a total weight of more than 10.3 kg were obtained. No less arresting is a ceramic set of 5480 fragments. In addition, we can mention more than 100 tiny bronze and several iron artefacts, 30 fragments of bone combs, as well as fragments of glass objects and clay spindles. For the time being, it seems to be a rather unusual type of mass grave that points to the upcoming transformations and new tendencies in the burial rite in the B2 phase of the early Roman period (Blažek *et al.* in print). The varied and rich collection of these finds (mostly burned remains, concentrated fragments of ceramics and small metal artefacts) and partly also massive stone lining are probably the cause of this grave projecting as a large and distinct anomaly in the intensity gradient of the magnetic field (Fig. 3). Other similar magnetic anomalies (i.e. potential larger buried features, perhaps pit graves) are also present in previously unexplored parts of the burial ground: e.g. north of trenches VIII–XI or south and south-east of the existing trench group in square 6 (Fig. 4).

5.3. Metal artefacts

A systematic detector survey is carried out before each field research. Every year that yields a lot of metal objects from Roman period, which today lack specific archaeological context. Their largest number was recorded in 2011, but each subsequent season brings many other artefacts (e.g. fibulae)[6]. Only minor bronze and iron artefacts placed in the topsoil at maximum depths of up to 20 cm are excavated in detector

[6] Predominant category were recent objects, mainly iron parts of agricultural machinery and tools, as well as various sheets, nails, screws, cartridges, etc. The largest amount of them was found in the first season in 2011, when more than 20 kg of scrap metal was collected. Positive impact of this activity was that in other magnetometric measurements in the following years there was no longer any negative interference caused by their presence. Nevertheless, every year at the beginning of the research, other (especially iron) objects connected mainly with modern agricultural or hunting activities are found.

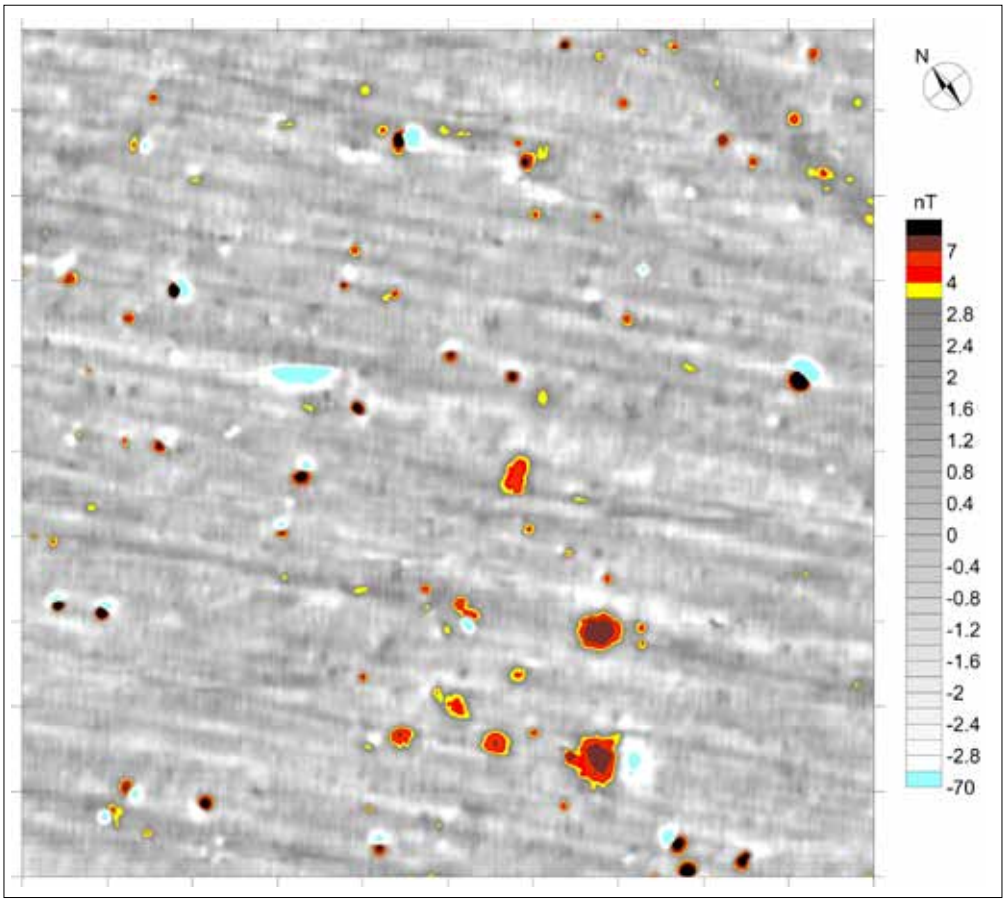

Fig. 4. Nezabylice, Chomutov district. Example of sub-result of magnetometric measurement in square 6. Determination of the most significant magnetic anomalies of various dimensions locally forming obvious groups (*measured by R. Křivánek in 2011*)

surveys. The localization of the findings is precisely geodetic focus. We assume that the majority of these artefacts were originally deposited in shallowly buried urn graves, and their transfer occurred during cyclical and intensive agricultural activities followed also by erosion and slope soil transfer. Metal artefacts appear on the magnetometer as small spot magnetic anomalies (oval or circular shape, red colour range, ca in the range of +4 to +10 nT depending on their size, depth and orientation). Their number can be estimated at several hundred in the area of the burial grounds (Fig. 2), while only the smaller part of them, namely several dozen, has been identified and verified.

5.4. Regular structures

Paradoxically, the largest spatial structure that has been archaeologically explored at the burial site had virtually no effect on the magnetogram, which we consider to be a very interesting circumstance. It was a large square trench covering about 8×8 m and about 50 cm wide. The entire course of the trench formation was actually found only because it was in two places in the superposition with cremation graves, which were examined by magnetometer. A similar situation occurred with two parallel rows of small post-holes with a diameter of up to 50 cm, which were revealed in the research only thanks to the system of narrow long trenches. In the magnetometric measurement, individual post-holes also showed only on a minimal scale (Fig. 3). This situation can be explained by the fact that, while small urn graves contain concentrations of highly magnetic material (cremation, ceramics and metals); these structures do not have similar materials in their fillings[7]. The filling of these features was probably not sufficiently magnetically different from its surroundings and subsoil, and therefore it may not appear at least in the final magnetogram.

5.5. Inhumation grave from the early Roman period

Until 2014, only urn graves had been identified at the burial site. The fundamental breakthrough occurred in the 2015 season, when the first grave with inhumation rite was explored (feature 69, trench IX). In an elongated grave-pit with dimensions of 320×100 cm, oriented in the N–S direction, an individual was buried at a depth of 1 m in the extended position on the back with his head facing north (Fig. 5). The grave dated to the B1 phase of the Roman period was equipped with a ceramic bowl and three bronze objects – pan type E 131, a belt buckle and a fibula. The individual was anthropologically pre-identified as an adult male with relatively distinctive musculature and an unusual body height of over 180 cm[8]. The inner space of the grave could have been either a wood-lined chamber or a wooden coffin. It is also impossible to exclude partial secondary damage (probably robbery). The grave's

[7] The gutter contained only a few tiny ceramic fragments, the post-holes were mostly without any findings.

[8] The anthropological assessment of the skeleton in situ was made by Jana Kuljavceva Hlavová from Institute for Preservation of Archaeological Heritage of north-western Bohemia in Most.

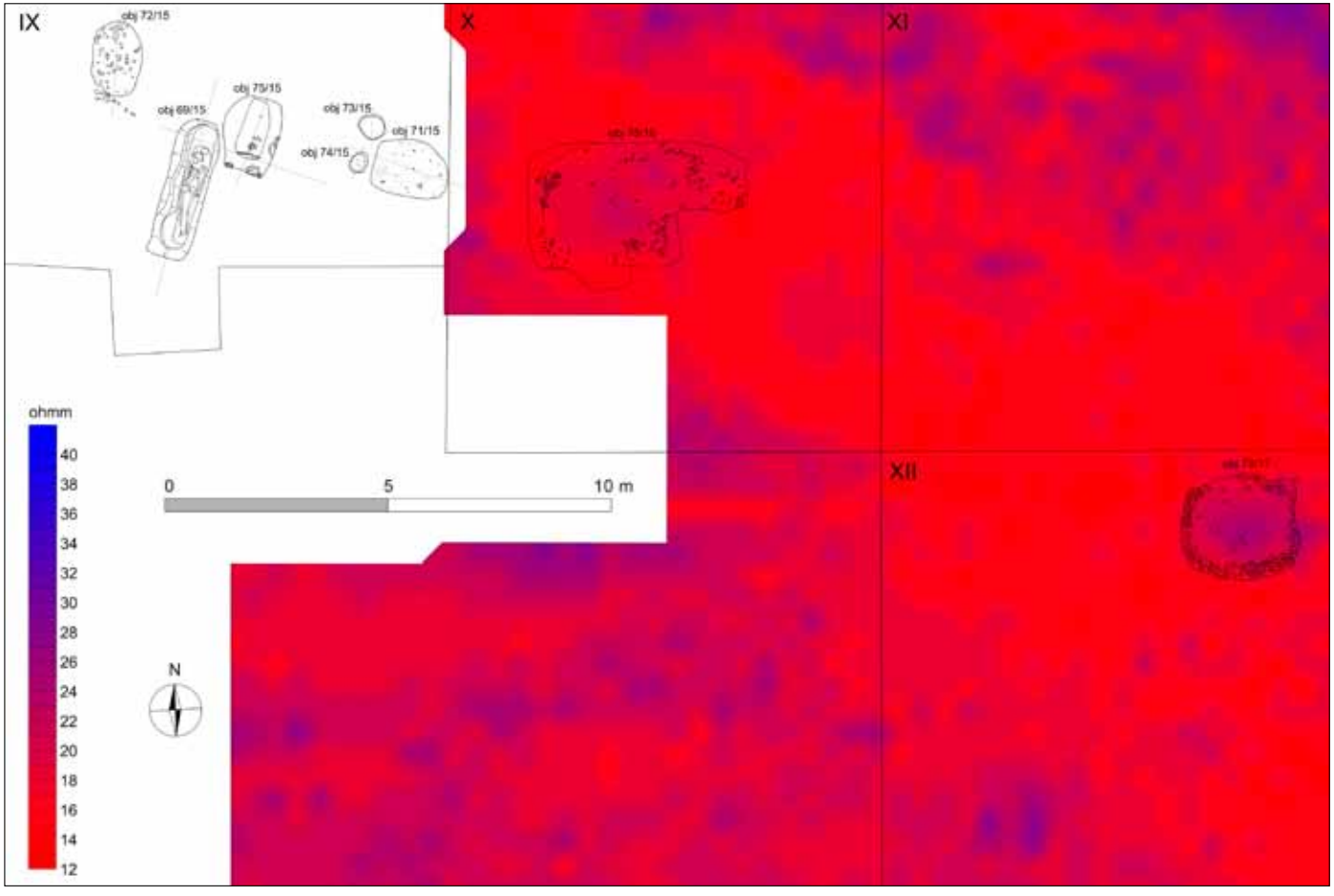

Fig. 5. Nezabylice, Chomutov district. Partial results of geoelectric resistance measurement (*measured by R. Křivánek in 2015*) and spatial distribution of graves on a part of the burial ground. Visible anomalies over the cremation pit grave of the Roman period in trench X and over the inhumation grave of the Corded Ware Culture in trench XII (*compiled by J. Šály*)

most important structural element was a massive and compact stone lining which was continuously deposited from the surface to the bottom (see Blažek *et al.* 2016, 24). The lining was predominantly quartz, rarely orthogneiss or basalt[9]. Probably due to the abundant presence of neovulcanic rocks and bronze objects, the grave was manifested as a distinct, large and irregular anomaly with different values of the magnetic field intensity gradient, indicating the presence of several nearby strong magnetic sources (Fig. 3).

It has been mentioned in literature several times that in the large cremation burial grounds there is no clear evidence of inhumation graves chronologically contemporary to B1 phase (after Droberjar 2006, 650; 2014, 431). In this context, the added benefit of the discovery is unprecedented and casts a whole new light on the burial customs. The undeniable significance of the find is already illustrated by the fact, that it is the first modern excavated grave from the Roman period in north-western Bohemia. A similar finding had not been made in the given area for the last almost 100 years (cf. Břeň 1953; Droberjar 2006, 650–652; 2011; 2014, 428–433; Lichardus 1984; Motyková-Šneidrová 1963; 1967).

5.6. Prehistoric inhumation graves (Corded Ware culture, Middle Bronze Age)

The results of geophysical measurements, of course, have their full use and justification even for features from earlier prehistoric periods, as confirmed by two inhumation graves. In a close spatial contact with the Roman period grave, an inhumation grave of the Middle Bronze Age was explored within the IX/2015 trench (Fig. 3, 5). Grave 75 was equipped with an inner stone receptacle, made up of massive flat plates of heavily weathered paragneiss. The burial belonged to a child and was equipped with a ceramic cup (Blažek *et al.* 2016, 23–24).

In 2015, an additional survey of geoelectric resistance measurements was carried out in the north and east of trench IX, while the main task was to determine the possible presence of other skeletal graves with stone structures (Křivánek 2016, 11). The measured area was 0.2743 ha. The measurements were made using RM-15 (Geoscan Research – U. K.), measuring density 1×1 m. Measurements were found to indicate rock

[9] Geological assessment was prepared by Miroslav Radoň, Regional Museum of Teplice.

aggregation in the topsoil or local influence of the changes of the eroded and sand-gravel terraces, including potential archaeological situations. The archaeological verification of the situations so far has shown not only the Roman period cremation pit grave 78, but also the inhumation grave of Corded Ware culture (feature 79) in trench XII (Fig. 5). In many respects, this was a very exceptional feature. Not only the unusually large dimensions (ca 260×230 cm), the depth (116 cm), but above all the interior arrangement, which consisted of a precisely crafted stone box (something like a "sarcophagus"). Until the findings in Nezabylice, similarly modified graves of Corded Ware culture were practically unknown in Bohemia (cf. Neustupný 2008, 131).

The remaining area measured by geoelectric measurements has not yet been archaeologically verified, but we assume that in its southern part there may be either a disturbed mound embankment or a partially damaged grave fill. Incidentally, in the presence of an older mound, we see one of the possible reasons why a large Roman period cemetery was established near Nezabylice. It is also possible to suppose observations made at other burial grounds, namely that the Elbe Germans could place their graves in older mounds (see Beljak, Kolník 2006, 58; Vachůtová, Vlach 2011, 58–59). Nor is it possible to exclude the possibility of Germanic tribes disturbing or occasionally robbing older graves in the mistaken belief that they are richly equipped graves of their contemporaries or recent ancestors. Although research is primarily focused on funerary monuments from Roman period, it is necessary to be aware that in the future we may come across a large number of graves from prehistoric times.

6. The contribution of geophysical surveys

Research in Nezabylice has shown that for the detection and identification of graves from the Roman period, magnetometric measurements represent a very effective and precise prospecting method, which is especially valuable considering complicated local pedological-geological conditions. The subsoil on the site is very dense compact clay, which, together with the local river sand-gravel terrace, does not constitute ideal conditions for a good geophysical record. The most positive finding is undoubtedly the presence of dozens of small and shallow urn graves that could hardly be traced without the use

of magnetometer in archaeological research. Moreover, it was shown that the magnetometric survey indicated mainly the features fillings of which contained a large number of significant findings. The quality of the indication of the individual anomalies in the site depends, of course, on the size, depth, type and filling of the feature, but in the case of urn graves with metal artefacts it depends mainly on their content and the state of subsurface conservation. If there are strong magnetic materials (cremation, burned ceramics, ferrous and non-ferrous metals etc.), or if there is a large number of stones containing magnetic minerals in the structure, the quality of the indication of the measured anomaly is increased. This claim is confirmed by a spatially distinct feature (square trench), in which no similar materials were found, and which, therefore, showed on a magnetogram only marginally. The connection and the direct relation between the contents of the structure, its differences to the surrounding environment and the quality of the anomalies seem to be evident in this case.

No burial site from the Roman period had been discovered in the north-western Bohemia for the last 50 years. In the case of Nezabylice, therefore, it is the region's first cemetery studied in modern way, where non-destructive methods were used in the research for the first time. The significance and benefits of exploring this site are therefore indisputable and absolutely crucial. We suppose only the combination of non-destructive research and archaeological research brings a truly comprehensive range of information that we unfortunately miss in previous burial grounds research. At the same time, however, we must objectively state that even in newly discovered burial grounds, the transformation and post-deposition processes lead to the continuous and gradual devastation of graves. We will focus on this issue in the following chapter.

7. The issue of degradation and devastation of cemetery

One of the essential circumstances, which are fully manifested in the exploration of burial grounds not only of Roman period, is the preserved state of individual graves. The various post-deposition and transformation processes – that take place since the archaeological situation occurrence until its removal from the context during field research – have a major impact on it. Besides the pedological, hydrological

and climatic conditions or the activities of flora and fauna, it is the human influence in the prehistory or in the recent past has the greatest influence on the preservation of archaeological situations (cf. Kruťová 2003; Neustupný 2010; Půlpán, Reszczyńska 2013, 190–192). Given that the burial ground is located on an agricultural land; human activities have the most powerful effect in this area. The local fields have been cyclically managed for at least 70 years, ploughed several times per year, then sown, several times chemically treated and eventually harvested while using heavy farming machinery (Blažek *et al.* 2014, 807)[10]. Traces of recent ploughing activity are well visible on the site, showing parallel line structures leading roughly in the NNW–SSE direction (Fig. 2, 3). In addition, ploughing has a natural effect on erosion-accumulation processes, where the topmost soil layers together with artefacts are transported to lower slopes[11]. The consequences of ploughing and erosion of archaeological features can be observed in the results of surface geophysical (mainly magnetometric) measurements of agricultural areas (cf. Křivánek 2015; ibid. 2017). Most of these transformation processes are primarily related to shallowly buried urn graves[12], whose damage is evidenced not only in the form of damaged ceramic urns, but also other grave equipment. Spatial redistribution of artefacts reaches several metres and includes dozens of pieces that are freely scattered on a large area of the burial ground. There is no doubt that these scattered objects originally formed parts of a complete sets of grave goods, but to determine their belonging to particular graves, constitutes an almost insoluble problem[13]. Fortunately, due to the friendly attitude of the landowners,

[10] Long-term chemical treatment of land by aggressive agents (pesticides, herbicides, etc.) is reflected in the absence of objects from organic materials (wood, textile, leather etc.), decomposition level of skeleton remains, but also in a very poor state of preservation of metal artefacts. In spite of all the efforts the restorers and conservators did not succeed in stopping or at least significantly slowing down the corrosion process, and unfortunately, most artefacts continue to degrade. Therefore the finds are documented not only by drawing and photograph, but their X-ray imaging and 3D scanning are also planned.

[11] It must be added that the typical bad habit of Czech farmers is ploughing in a direction that does not follow natural terrain edges and contours, but are quite incomprehensibly perpendicular to the slope, which unfortunately accelerates the erosion of archaeological features.

[12] Besides, the problem is also the destruction of any potential mounds that have been erected over prehistoric graves (cf. Půlpán, Reszczyńska 2013, 191–192).

[13] Spatial redistribution of artefacts represents a rather serious problem, especially in the complex typological-chronological analysis of the burial grounds.

at least they agreed that part of the field, which will be examined next season, will not be subjected to agricultural activities. It is not a systemic measure that addresses the whole problem, because the remaining parts of the fields will be further cultivated, but in the given situation it is the only solution to ensure successful progress of research. At the same time, it is an attempt to correct – at least to a certain extent – the loss of other valuable contextual information about the burial ground (Blažek *et al.* 2014, 807)[14].

The second very negative factor is attributed to organized groups of „treasure hunters" who have been visiting the site with metal detectors, even though the Czech law expressly prohibits it. These amateurs repeatedly devastate individual graves and cause further irreversible damage to the site, leading to loss of significant information. At present, we have already recorded some completely destroyed graves, including exceptional findings (e.g. bronze bucket type E 28), about which we are no longer able to find any more details (cf. Půlpánová-Reszczyńska *et al.* 2017, 347).

The existing situation has a causal connection not only with the character of the then burial rite (predominantly shallowly buried urn graves), but also with location of the site. Most of the Roman period cemeteries today, similarly to Nezabylice, are frequently found on mild slopes in the deforested and agriculturally exploited landscape, which is most exposed to strong erosion (cf. Vachůtová, Vlach 2011, 43). Regularly cultivated and freely accessible agricultural land has an attractive potential for amateur surveyors. In this respect, Nezabylice unfortunately belongs to other typical threatened localities, which are experiencing repeated devastation and gradual degradation of the graves, and thus irreplaceable loss of information potential. At the conclusion of the analysis, we must state that at present, the Roman period cemeteries constitute one of the most endangered archaeological monuments in Bohemia, which in addition to effective protection require complex and systematic research in the future (cf. Vachůtová, Vlach 2011, 57). Also from this perspective, the future deployment of detailed magnetic field exploration in the other non-monitored parts of the burial ground appears to be a necessity.

[14] In case of endangered and damaged sites, geophysical measurements represent one of the forms of permanent digital recording, on which archaeological research can be based not only in the nearest but also in more distant future.

8. Conclusions

Based on the results of geophysical surveys conducted between 2011 and 2016 in the locality of Nezabylice (Chomutov district, Ústí Region) in northwest Bohemia, the extent of the burial ground from Roman period was for the time being determined to about 3.3 ha. The archaeologically researched area by 2017 is about 11 ares, roughly 3% of the estimated area of the whole cemetery. During archaeological research, 84 funerary features have been explored so far, the vast majority of which are dated to the early Roman period (see Blažek *et al.* 2014; ibid. 2015; 2016; in print; Půlpánová-Reszczyńska *et al.* 2017). Among them are well-documented urn graves, very often richly equipped with weapons. Another type of features is represented by cremation pit-graves, among which there is an unknown type of mass grave with cremation remains of many individuals, which are stored in layers together with artefacts (Blažek *et al.* in print). A very exceptional finding is the first grave of the B1 phase of the Roman period, which has been found at a chronologically contemporary cremation burial ground (Blažek *et al.* 2016, 24; cf. Droberjar 2006, 650; 2014, 431). Based on the concentration of portable objects and features, it can be concluded that in the case of Nezabylice it was most likely a very important supra-regional cemetery of the micro-region[15], which was used by several generations for at least several decades during the B1–B2 phases of the early Roman period. Recent research also shows that long before the Germanic cemetery was founded, the site was used for funeral activities in prehistoric times (Corded Ware culture, Middle Bronze Age). In this respect, the research brings several interesting clues to the issue of the internal and external form of graves at that time.

In the case of Nezabylice, the first discovered and modern studied cemetery from the Roman period in the NW Bohemia, in the last 50 years, was the first to be researched using non-destructive methods. The benefits of these surveys are therefore absolutely crucial and their combination with field archaeological excavations brings a quantum of completely new and often unexpected findings. The need for comprehensive research is all the more urgent in a situation where

[15] The supra-regional significance of the burial ground is confirmed by the presence of imported and prestigious artefacts (cf. Půlpánová-Reszczyńska *et al.* 2017, 357).

the site is constantly threatened and damaged by contemporary human activities (by farmers and amateur metals detectorists). For these reasons, the Roman period cemeteries may be considered to be some of the most endangered localities in Bohemia, and the need for their effective conservation and ongoing comprehensive research will probably not be disputed.

Although the archaeologically researched area is a tiny fraction of the total area of the cemetery in Nezabylice, there has already been a fundamental enrichment to the study of the Roman period. The vast potential of the site is manifested not only in the diversity of material culture or typological spectrum of graves, but also in the complexity of burial ceremonies. The results of non-destructive surveys and archaeological researches show that in the case of Nezabylice, we are dealing with one of the largest and most important Germanic burial grounds in northwest Bohemia, which brings new insights into funeral rite, chronology, culture, social structure and many other aspects of the past society.

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