Czech Archeology in the information society

Martin KUNA

Keywords: archaeological field research, field documentation, information systems, data publishing

Czech archeology is currently in possession of structured data on the location and character of tens of thousands of archaeological sites, field studies, and random finds, thanks to the recently completed project Archaeological Map of the Czech Republic (AMCR) and the establishment of the Archaeological Information System of the Czech Republic (see more in this issue). Parallel to the creation of this database, all original field documentation in the central archives of the Archaeological Institutes of the Academy of Sciences of the Czech Republic was digitized as well. High-quality and easily accessible information in the form of databases and web applications, accessible to professionals and the wider public, may serve as the engine for further development of the field, the protection of archaeological heritage, and the formation of a relationship to it among the broader public. It is therefore high time to think about which data, which details, in what form, and to whom we want to offer this. The author believes, and in this respect is probably not alone, that it is time to rethink and possibly change the existing approach of experts to the issues. This is true not only because Czech archeology finally has the necessary data and technology at its disposal, but also because archaeological information is already becoming a part of the public domain (such as map servers).

Illustration: ***Fig. 1.*** *Prehistoric cairn near Hvožďany (Tábor district) on an altimeter model made from laser aerial scans (DMR 5G). The model is publicly available on the ČÚZK geoportal. Most of the cairns of the burial grounds are visible, as are hundred-year-old excavations by archaeologists;* ***Fig. 2.*** *Web sites publishing "national archaeological maps" to the general public. A: map on CADW pages; B: Bayerischer Denkmal-Atlas – map with description of the selected location; C: web of Historic Environment Scotland – site map with a description of the selected site/structure; D: A more detailed record of the same site;* ***Fig. 3.*** *Prehistoric cairn near Hluboká nad Vltavou (České Budějovice district) destroyed by a recent forest road. Similar damage could be prevented if the exact location of archaeological sites were commonly available;* ***Fig. 4.*** *Plešivec fortified settlement near Rejkovice (Příbram district). The stone rampart of the fortified settlement has been disturbed by the fencing of a forest nursery. This damage is perhaps unnecessary;* ***Fig. 5.*** *Plešivec fortified settlement near Rejkovice (Příbram district). Two site plans with different purposes: on the left a more accurate plan of the fortified settlement with documentation on recent damage to the area, on the left a plan of the fortified settlement prepared for tourist use. The plan on the left contains surveyed ramparts (1), rock edges (2), and field breaks (3), forest roads (4), flood slopes (5), and a defunct quarry (6). In addition, individual trenches of an illegal detector survey are researched (9) and areas with a larger ditch density (7–8), recent rampart violations (10), and the area of a pasture associated with current wood mining, often disturbing prehistoric ramparts. On the plan on the right, besides the ramparts of the fortified settlement, there are also newly-built heaps in the vicinity of the fortified settlement (without claim of completeness) and the area of the extinct medieval village of Mořina;* ***Fig. 6.*** *Roztoky (Prague West). Documentation image of the superposition of two structures, a stone furnace of an early medieval house 1132.1 above a storage pit 1132.2. Martin Kuna's research in 2006. The image allows for the verification of the stratigraphic relationship;* ***Fig. 7.*** *Plan of a fortified settlement near Chodovice (cadaster Holovousy v Podkrkonoší, Jičín district) from 1888 is a rare example of the wealth of archaeological archives. The plan was most likely the work of Lubor Niederl, later the first director of the State Archaeological Institute and one of the founders of Czech archeology;* ***Fig. 8.*** *Photographs from the Čáslav Museum showing a set of Unetice findings from Mikovice near Kralupy nad Vltavou (Mělník district). The document is an interesting example of the presentation of the exhibits in the museum, but is also the key to the correct determination of the findings (the older records in the archives mentioned Minkovice in the Liberec district as the place of origin);* ***Tab. 1.*** *Types of information in the AMCR system and their accessibility at different user levels. Documents are published as readable previews of text pages and image files. Downloading documents by the user is not allowed.*

Science 2.0 and information-sharing in the digital age

David NOVÁK

Keywords: Science 2.0, open science, archaeological data, information-sharing, archeology

With the onset of the Internet, pressure has increased to digitize the research process and its openness, on co-operation at all levels, and on a broader articulation of research results with a wider context (both inter-disciplinary and international). Not even archeology is able resist this new practice. It should therefore take advantage of digital technologies to secure its own data (improve sustainability), of its accessibility to the broad scientific community (increase efficiency), and of adequate communication with the public (dissemination of knowledge and education). What is important is that the digitization of research activities consists not only in the transformation of tools, but it necessarily leads to a completely new way of thinking about the way research is done.

These changes are referred to by terms ranging from "e-Science" to "Science 2.0" to the most commonly used term "open science". This term has been accepted by the European Union in defining the program European Open Science Cloud (EOSC), which is the backbone of new policy efforts to enhance the impact of innovation through the free sharing of all the essential parts of scientific research and the involvement of the widest possible part of society in the EU. The goal is to create a universal virtual research environment, supported from public sources and available to any type of user. Similar initiatives have emerged in a number of developed countries since 2000.

Thanks to the Czech Republic's current interconnectedness with the international research environment, changes in Czech science are reflected much earlier than was typical in the past, and the existing paradigmatic shift in comparison to the West is beginning to shrink. If Czech archeology wants to remain competitive and methodically up-to-date, and its funding is to be defended, the professional community must understand the ongoing changes and begin to apply them in practice. Initiatives working on the theme of Digital Humanities are offering a helping hand here, but so is political pressure for equal access to all areas of science and the resulting explicit support for those sectors that are lagging behind in digitization and openness. Open Science brings many important changes that latently resonate in ongoing discussions about the sharing of archaeological data, about appropriate ways of collecting archaeological information, and about changes in research methods. Science is clearly dealing with the same problems worldwide.

As long-term activities associated with the use of computer technology and digital tools in archeology have shown, our field of science has an undeniable advantage in the field of humanities and is one of the most progressive areas. Thanks to the newly created platform of the Archaeological Information System of the Czech Republic (AIS CR), Czech archeology is acquiring the much-needed infrastructure which it had lacked. We would be hard pressed, therefore, to find a more appropriate time to step out of our professional habits and fundamentally reform Czech archeology, especially regarding methodology and access to data sources. Although most representatives of the professional community would clearly agree that the work of archaeological heritage care is in the public interest, the opinions of the public and political representatives may be different. If, however, archeology demonstrates the ability to reflect current events on the international scene and use them to improve its own research and present the results to the broadest possible public, we will be able

to shift ourselves into an age where our results will be a desirable asset, and archeology will be a prestigious scientific discipline. This is why we should try to advance from paper archeology to digital archeology – "Archeology 2.0" – based on the principles of "open science".

Illustrations: ***Fig. 1.*** *Increase in the number of regulatory regulations (policies) imposing the obligation to store published research results on institutional and public repositories;* ***Fig. 2.*** *The main features of open science include: (1) open access to publications, (2) open research data, and (3) open professional communication. Several indicators can be assigned to each of these characteristics (items marked * also fall into the category of open communication);* ***Fig. 3.*** *Dependencies and impacts of open science in digital space.*

Sharing and publishing information in archeology

Michal BUREŠ

Keywords: publishing information, sharing archaeological data, protection of archaeological heritage, public interest, archeology

The issue of publishing information in archeology can be divided into two areas: sharing archaeological data from field research and publishing information on archaeological sites.

Archaeological information implicitly reveals something about mankind in general, about its development, skills, cooperation, aesthetic feelings, and values. Similarly, it implicitly reveals something about society and its organization. The point is to interpret this implicit knowledge in order to express it explicitly in archeology to other relevant sciences to their benefit, but also to serve society through heritage practice. Sharing archaeological data contained in findings with other experts is a prerequisite for a successfully emerging field, not only from a historical but primarily from a scientific perspective. Arguments to the contrary lead to the negation of the meaning of archeology as the discovery of the history of mankind and turn archeology back from a scientific field into an art.

In a society which declares that caring for archaeological heritage is in the public interest, it is difficult to keep archaeological sites secret from the public for the purpose of protecting them, unless such confidentiality is provided for by law. Instead, the problem of unauthorized excavations using metal detectors should be addressed, and a clear boundary should be defined between legal and illegal detector exploration. In order for the repression of illegal exploration to be effective, enabling the concerned public to participate in the protection of public archaeological heritage is essential, among other things through the publication of spatial data about archaeological sites.

Archaeological finds, monuments, and sites are not just artifacts, meaning merely the items and the locations where these items are found. Objects are not simply objects – they have a deeper meaning. When an archaeologist carries out field research in a particular location, he/she contributes to the knowledge of the past in general and to the site in particular, or to both of them together. Archaeological research thus alters the environment which is not only material, but is also historical and meaningful, that is, in the human consciousness. It affects the minds of people living there. This creates a local environment that can become more attractive than before. Heritage archeology, respectively public archeology, brings something new to archeology as a whole, something that other disciplines cannot do so well. By publishing and, respectively, sharing relevant site information with the public (with those interested in this sharing), archeology contributes to the creation of the living environment, both in terms of substance and importance in the minds of people.

Illustrations: ***Fig. 1.*** *In the United States, a natural person has the right to life and liberty only if he respects the right to life and liberty of others; to take someone's life means to lose the right to one's own. Likewise, a natural person has the right to health only if he pays health insurance. Archaeological sites associated with the former presence of indigenous Americans are consistently marked by information boards;* ***Fig. 2.*** *If archaeological sites and their spatial data were routinely published, it would be unthinkable for a 40-hectare parcel with obvious signs of mounds and other archaeological landmarks would be offered for sale and construction as part of an industrial zone (cadaster Odolena Voda).*

General considerations on confidentiality as a protective tool in archeology

Balázs KOMORÓCZY

Keywords: metal detectors, information confidentiality, disclosure of information, detector users, protection of archaeological heritage, public interest, archeology

The idea of concealing archeological results in order to protect individual sites comes up occasionally in professional considerations. This is likely most often motivated by the desire to protect the site from amateur metal detector users. It is important, however, to duly reflect on whether any attempt at secrecy is realistic in the field of archeology, whether it is justifiable, and whether it really can bring any positive results.

It is impossible to identify any legal or social support for the attempt to maintain confidentiality from the general public. Archeology in the Czech Republic is predominantly publicly funded, and it is executed in institutions established by society and maintained in the public interest. Archeology, as a social science, should itself be interested in maximizing the awareness of the public, from whom any form of concealment protection is generally not necessary. On the contrary, all the protective tools that must be applied to certain archaeological sites (mostly immovable) are, in the interest of high transparency and awareness, significantly more enforceable, justifiable, and sustainable. The occasional unwanted threat posed to archaeological sites by the public is, or might be, the result of insufficient awareness.

At first glance, it may seem that secrecy can be a protective tool against metal detector users. A study of this scenario, which is based, among other things, on the results of an extensive questionnaire survey from early 2017, suggests that it is not even possible to achieve the desired result through secrecy. The amateur metal detector user community is highly active and receptive to archeology. In addition to the usual consumption of professional and promotional products, it also intensively exchanges information about specific sites as well as general knowledge of the field in a more or less laicized form. Like the rest of the public, it uses the virtually unconcealable digital world, but it does so very actively, on its own initiative and with highly motivated effort. This community is very adept at reading freely available aerial photographs and old maps, it knows how to use available versions of all possible lists of sites, it studies publicly accessible digital resources of professional texts, etc. At the same time, quite extensive cooperation between archaeological worksites and amateur metal detector users has developed in the Czech Republic in recent years, something which both parties consider to be a positive development.

Based on all the arguments, it can be said that confidentiality beyond the autonomous process of producing and publishing scientific results is irrelevant and lacks an identifiable positive impact on the condition and quality of the overwhelming majority of immovable and movable archaeological sites. On the contrary, a policy of transparency of archaeological work, open communication about professional activities, and public and easy identification of archaeological sites can be the only way to achieve the best possible awareness on the part of the public, including the various components of local, regional, and national authorities. The solution to the problems that a policy of secrecy is supposed to cure (damage and theft at archaeological sites) lies elsewhere.

Illustrations: ***Fig. 1.*** *Examples of findings from Moravia obtained by using a metal detector and handed over to public collections: A) silver denarius, Emperor Maximinus I Thrax; B) antoninianus coin of Emperor Probus; C) golden Germanic crest, Roman period (without scale);* ***Fig. 2.*** *Moravian finds obtained using a metal detector and handed over to public collections: A) bronze Germanic buckle with tied leg, Roman period; B) bronze arched spur, Roman period;* ***Fig. 3.*** *Surveys using metal detectors can be very beneficial, methodologically justified (on ploughed surfaces), and legal – if organized by an archaeological institution;* ***Fig. 4.*** *Guiding a group of visitors around the excavation at the Roman fort site near Mušov;* ***Fig. 5.*** *The author leads a group of people interested in archeology along the educational trail at the Roman fort site near Mušov.*

Archeology and the public in international conventions

Jan MAŘÍK

Keywords: international conventions, archeology, archaeological heritage, public, protection of archaeological heritage

The participation of the public in the protection of archaeological heritage has become an intensely discussed topic at the European level in recent years. International conventions and charters reflect this topic in an extremely interesting way. The European Cultural Convention, the European Convention on the Protection of the Archaeological Heritage, the Charter for the Protection and Management of Archaeological Heritage, the Convention on the Archaeological Heritage of Europe, the European Landscape Convention, and the Convention on the Value of Cultural Heritage for Society together provide a remarkable look at the development of views on the role of the public in protecting cultural properties. The basic feature of the international conventions created in the second half of the 20th century is the effort to educate the public, to whom has been designated a primarily passive role of consumer of worthy and proper professional instruction. The change in such an approach can best be demonstrated in the Faro Convention on the Value of Cultural Heritage for Society, which includes the right of the public to learn about its past among fundamental human rights. This leads to the extraordinary emphasis placed on the public not only to protect cultural heritage, but also on the right to utilize its potential.

The Faro Convention points to weaknesses in existing approaches of domestic heritage care while at the same time suggesting a possible direction for future development. The prevailing trend in communication with the public in the Czech Republic remains popularizing activities, which unfortunately see the public as a passive consumer of either professional information or often simply entertainment. This makes it that much more important to remind ourselves of the meaning and intentions of the Faro Convention, because it shows a perspective path that marks the direction of future protection; above all, it provides a sense of preservation of archaeological heritage and more.

Illustrations: ***Fig. 1.*** *Present archaeological outdoor museums offer visitors the opportunity o see and experience the past in a completely reconstructed form. The Villa Nova Uhřínov open--air museum in Velký Uhřínov, district Rychnov nad Kněžnou;* ***Fig. 2.*** *Information panels are the oldest way of providing archaeological information to the general public, and their importance is still relevant even today. Information panel at the Libušín fortified settlement site;* ***Fig. 3.*** *It is important for the public to not only get acquainted with the results of the work of archaeologists, but also to understand how the archaeologist has reached them. Sample documentation of the skeleton grave at International Archeology Day at the Museum of the City of Prague;* ***Fig. 4.*** *The technique of expanded reality allows one to see, in a real space, situations that are no longer there – in this case a photo of archaeological research over its plan;* ***Fig. 5.*** *Virtual reality opens the door even to living people of the past and lets them move among the visitors; Fig. 6. An interest in the past and an active imagination are essential for studying the past. We can assume both of these in the public. Paintings on the wall of the Koda Cave in the Czech Karst (Tmaň, district Beroun).*

Community-generated content

Martin KUNA; Olga LEČBYCHOVÁ; Zdenka KOSAROVÁ; David NOVÁK

Keywords: Czech Archaeological Information System, Archaeological Map of the Czech Republic, information systems, archeology, archaeological database

The level of scientific research and care for cultural heritage in archeology are fundamentally dependent on the information that is effectively available to the discipline. The volume of information is still growing at a dizzying pace and is no longer manageable without technologies from the "digital humanities". Information systems in archeology today, in our opinion, must have two basic features: on one hand they must have a sophisticated theoretical rationale and a functional data model, on the other hand they must show the practical efforts of the entire professional community in the joint collection and use of data. Unlike previous approaches in which information sources could remain in the hands of specialists and could be used by others only occasionally, nowadays their use is an everyday necessity for all professionals, and the entire professional community should collaborate in creating them – in creating the data they need for their lives. But this is not all – if the professional community wishes to remain in the public space as a sector, it must share its information with the wider public. The Archaeological Information System of the Czech Republic is now striving for progress in some of these directions and is assuring Czech archeology that it is able to assume the position of the backbone of the branch's infrastructure.

Illustrations: ***Fig. 1.*** *AIS CR Infrastructure diagram describing its basic functions and data types (black), respectively information system applications and data sources (ocher color);* ***Fig. 2.*** *Image from the ARUP Archive, Department of Finding Reports. In the foreground are 8 banana boxes with the documentation of one large project of salvage archaeological research. Modern archeology places high demands on documentation detail and generates previously unusual amounts of data. Without their digitization and digital disclosure, this data would be virtually unworkable;* ***Fig. 3.*** *Page from the Inventory Book of Negatives in the ARÚP Archive, damaged during the flood in 2002. This event called for an urgent digitization of documents as a method of rescue, preventive protection, and research accessibility of documents;* ***Fig. 4.*** *The cognitive cycle of field archaeological activities projected into the structure of the AMCR;* ***Fig. 5.*** *Process states of archaeological "projects" and "events" in the AMCR. Each archaeological project and event goes through one of the paths listed; each arrow indicates the specific step of the relevant user. User B – "researcher" permission; C – "archaeologist"; D – "archivist". As for the description of the user roles, see Martin Kuna's introductory article in this journal issue;* ***Fig. 6.*** *Application screen of the AMCR with the registration of the project and one of its events with an extract;* ***Fig. 7.*** *Plan of a prehistoric mound in Malovice near Erpužice (district Tachov) and a photograph of one of the mounds; example of the public presentation of archaeological monuments;* ***Tab. 1.*** *Approximate numbers of data stored in the AMCR, the number of records and documents prepared for import, and a rough estimate of the total amount of data in the Czech Republic. P: approximate number of data ready for import; I: Number of imported data; Z: number of records/documents entered into the AMCR by the user since 1 June 2017; x: no data are entered by the user via AMCR (the system administrator enters in batches).*

Publication of data from archaeological archives – situations in some EU countries. Where do we come from and where we are heading?

Olga LEČBYCHOVÁ; Zdenka KOSAROVÁ

Keywords: archeology, archives, scientific infrastructure, presentation of science

In 1989, Czech (resp. Czechoslovak) society experienced a change in its political system and a return to democracy. We did not use computers or mobile phones at the time, and Czechoslovakia was not connected to the Internet. The revolutionary social change has allowed us free access to information and, among other things, to technological developments that have begun to increasingly accelerate.

The digital age brought new possibilities and means for communicating and working. Digital documents began to emerge, and of course so did the need to process and store this massive data. A major challenge in the field was, in particular, the subsequent development of tools that helped to evaluate these data (e.g. using databases, statistical methods, geographic information systems). After 2000, Digital Humanities was founded as a separate branch of science, dealing with the application of computer science in the humanities. A crucial milestone for providing and sharing data was the connection to the Internet (in Czechoslovakia in 1992). Along with computerization, this meant two major innovations in methods and quantities of how to work with the information. In practice, this has enabled work with large volumes of data, linking information, and a way to provide data to an unlimited number of users.

Former reservations in providing expert data to the public were largely based on fear of misuse of this information and the need to protect archaeological heritage. Over the past two decades, this concern has progressed especially in association with the mass spread of metal detectors.

Providing open scientific information to the public is not only a trend; it is increasingly seen as a duty and commitment of the scientific community, supported by public sources, towards the public. The archaeological community must count on the fact that, particularly with publicly funded research, after some time it will be pressured to process its results for the publication of data. It is essential to take a stand on this issue.

We decided to investigate the level of accessibility to data from archaeological research and the settings of user access and rights in the individual countries of the European Union. We addressed 25 countries of the European Union, from which we received 16 responses: England, Bulgaria, Denmark, Estonia, Finland, France, the Netherlands, Hungary, Poland, Portugal, Austria, Germany (Saxony and Baden-Wuerttemberg), Slovakia, Sweden, and Switzerland (Basel-Stadt canton). The situation in these individual countries is briefly compared to the situation in the Czech Republic.

We asked the archeologists of the responsible institutions the following six questions:

1) How do you define the circle of archaeological archive users in your country?

2) To what extent are data published to individual user groups?

3) How are data available to individual users – presented, or in electronic form?

4) Is there a deliberate policy of non-disclosure of certain data to the public due to site protection?

5) Are the deadlines for preparing and publishing finding reports/ archival documentation specified by a legal provision? Additionally, does the archaeological community have binding agreements, recommending provision, or a code of ethics that specifies the time limits for preparing and publishing finding reports/archival documentation?

6) Who finances the operation of the central archaeological archive?

Although we did not receive a response from all the countries addressed, we could compare 15 archeological archive systems (we did not include Poland, since it is the subject of a separate article in this issue) that provided diverse approaches to the management and provision of information in the field of archeology. These approaches can be simply divided into three groups:

1. states that use online information systems and provide information to everyone (England, Scotland, Finland, Sweden, Denmark);

2. states that use online information systems and provide information based on user group membership (Bavaria, the Netherlands, Portugal, Hungary, France, Estonia);

3. states that use internal systems or databases and make information available by individual request (Bulgaria, Austria, Swiss canton Basel-Stadt, Slovakia, Baden-Württemberg, Saxony).

This situation reflects the current state of access to the use of modern information technologies as well as to the disclosure of information in archeology in general. Information technology has indeed been booming, but it is clear here that a universal standard for processing information in the field of scientific infrastructure does not exist. This may be due to the lack of financial support by individual states, or to the existence of several individual approaches to the issue within a single state that consists of several completely or partially autonomous units (cantons in Switzerland, or states in Germany), or because of hitherto little pressure from users or superior authorities for such a method of information disclosure. On the other hand, we can see that digital documentation has already pushed out its analogue predecessors in all the countries surveyed, but it is not the case that they would be managed using sophisticated information systems and available on-line. How long can such a fragmented state last? This likely depends on what kind of support the European Union will provide for the development of open digital science and the scientific infrastructure (and this is currently important), and how flexible the EU countries will be in their response to such challenges. This will undoubtedly affect their competitiveness in the field of science and research.

Illustrations: ***Fig. 1.*** *A now-defunct wooden card index of archival negatives at the Institute of Archeology of the Czech Academy of Sciences in Brno. The digitization of negatives from this archive will be completed in 2018. They will subsequently be indexed in order to be inserted into the AM CR Digital Archive and available online;* ***Fig. 2.*** *Archival document freely accessible to the general public through Finland's Kyppi information system;* ***Fig. 3.*** *Archival photos with basic metadata accessible through Finland's Finna digital archive service;* ***Fig. 4.*** *You no longer have to go to a distant archive; the archive will come to you online. Swedish National Heritage Board Archive building and a preview of their open-source online information system;* ***Fig. 5.*** *A sample of metadata for the Allatyán site in the Hungarian archeological online database;* ***Fig. 6.*** *Basic metadata on a bronze-based mound at the Forskov site in the Danish archaeological information system.*

Processing aerial photographs and publishing them in the Archeological Map of the Czech Republic information system

Martin GOJDA; Lucie ČULÍKOVÁ

Keywords: aerial photographic data, aerial photograph archive, archaeological heritage, advanced data processing, online data availability

One of the most important results of survey activities of the aerial archaeological program, both in general and specifically in the case of the Archaeological Institute of the Academy of Sciences in Prague, is the acquisition, primary processing and storage of a large number of oblique aerial photographs (Aerial Photograph Archive – ALS – containing approximately 23 thousand digital photos and negatives and slides converted into electronic format). To utilize the potential of this fund would mean processing them further, i.e. transforming interpreted images of buried archaeological sites that capture prehistoric and historic settlements through (predominantly) vegetation symptoms into plans. This means rectifying oblique images in GIS/ArcMap using ortho-rectified and georeferenced (vertical) aerial photographs (orthophotography) and subsequently digitizing (or vectorizing) their archaeological content into a separate layer. In this way, ready plans of aerially photographed sites are gradually prepared as shapefiles which can be later viewed on the background of satellite or aerial imagery,

orthophotomaps, or topographic maps available through internet geoportals (e.g. Cenia, ČUZK).

From the point of view of accessibility, the aerial photo data in the AMCR information system is placed into two of four groups (A–D). The decision to include them into one or the other is based on the need to protect archaeological sites recorded by aerial surveys. The purpose of this categorization is to allow access to aerial photographs to interested parties from the general public while at the same time maintaining restraint in permitting access to images of such locations whose character (especially burial, ritual, and other sites potentially rich in finds of movable – especially metallic – artifacts) would predetermine them to danger should their location be made public. The decision on the scope of accessibility of aerial photographic data (images and their metadata) was based on the principle of openness which is generally the backbone of the access policy to AMCR data.

The aerial photographs are therefore located in AMCR as follows:

1. in Group A – images to which all interested parties (both professional and the general public) have full access. These include a) photos of most of the sites identified by vegetation, soil, etc., through a visual aerial survey, b) photographs of physically preserved (on the land surface) archaeological and building-historical monuments and urban (or other artificial/man-made) building and landscape features, c) photographs of natural structures/phenomena (e.g. extinct river beds) usually related to the documented settlements of past populations, and finally d) aerial photographic documentation of large-scale archaeological excavations.

2. in group C – on-line access to aerial photographs and their metadata is given to only the professional (academic) community, more precisely the employees of authorized archaeological organizations (AAOs) who are authorized to further the agenda on behalf of the AMCR and are named in the agreements between the Archaeological Institutes of the ASCR and AAOs. These are photos of sites whose former features indicate a high probability of the presence of an increased number of artifacts made from precious/colored and ferrous metals (especially modern militaria). As indicated above, the inclusion of archaeological sites in this group is primarily intended to help protect them from the illicit activities of prospectors who most often use metal detectors to identify movable components of archaeological heritage.

Illustrations: ***Fig. 1.*** *Archive of aerial photographs of the Institute of Archeology of the Academy of Sciences of the Czech Republic in Prague (ARÚP). Examples of prehistoric enclosure (defensive and/or symbolic) ditches visible through vegetation (B–D) and soil + shadow (A) signs;* ***Fig. 2.*** *Archive of aerial photographs of ARÚP. Examples of building-historical structures (A), urban units (C, D) and structures (fortress) preserved in anthropogenic relief (B);* ***Fig. 3.*** *Formula for describing ARÚP aerial images (bottom right) and alphabetical set of oblique digital aerial photographs drawn into the application Zoner Photo Studio 14 PRO x64. In this program, which allows for advanced editing of aerial photographs including their description, all images gradually stored in the AMCR are processed;* ***Fig. 4.*** *Areas with visible recessed structures – remains of past (prehistoric and historic) settlement activities depicted on an underlying topographic map as red polygon vector layers in the ArcMap interface. Yellow polygons represent areas on which an immovable monument or a larger cultural-historical area is located, captured by aerial photographs stored in the Digital Archives and gradually integrated into the AMCR;* ***Fig. 5.*** *Plan of Ctiněves prehistoric site (Litoměřice district) stored in the ARÚP digital aerial photograph database in .shp format along with other previously rectified and georeferenced sites in GIS ArcMap (see also Fig. 6);* ***Fig. 6.*** *Orthophotomaps of the Ctiněves 4 site (Litoměřice district) from the years 2006 (bottom left), 2012 (top left), 2015 (top right), and 2016 (bottom right) at the portal mapy.cz. It can be seen that between 2006 and 2016, the vegetation signs of several hundred pits, two rectangular enclosure ditches, and other structures were well recognizable.*

Medialization and its impact on the archaeological sites of the Karlovy Vary Region

Filip PREKOP

Keywords: archaeological monuments, media promotion, public, metal detectors, cooperation with the public, disclosure of information

This article presents practical experience in the execution of archaeological heritage care in the Karlovy Vary Region. As the smallest archaeological territory of all the regions of the Czech Republic, there is greater pressure on involving those interested in the field from the public sphere. This also requires greater mutual trust concerning sharing information in both directions. Using examples that illustrate different approaches to public disclosure and working with the public, it is clear that both parties can benefit from such cooperation. The text also outlines the possible scope and intensity of amateur detecting using the example of a single "seeker". Even though amateur activities can not compare to professionals at the level of complexity of knowledge, it is clear from the data that the field activity of "seekers" has already exceeded, in their wide range, all the possibilities of the professional archeological community. The freely available tools of distribution and mutual information sharing among amateurs are also worth mention, since they already allow for the "circumvention" of official sources of information.

Illustrations: ***Fig. 1.*** *The Karlovy Vary Region and the range of the main forming factors of the execution of archaeological heritage care. The areas destroyed by surface mining (4th category of SAS) and the territory of two military training camps are both limiting factors. The Prameny military training camp covered a large part of the Slavkov Forest and was abolished in 1954. Eastward, the Hradiště military area is still used today;* ***Fig. 2.*** *Partial visualization of the scope of field activities of a single amateur seeker in the period 12/2012 to 1/2015. There was a total of 255 made with a total length of 1,045 km;* ***Fig. 3.*** *An example of several fragments of tarasnice (medieval cannon) from the 15th century found thanks to cooperation with an amateur seeker. The first discovered fragment is at bottom of Fig. 3a. The images represented in Fig. 3b are from the course of the site's review survey. Partially carbonized greenery under the discovered fragment is evidence that the fragment was found in situ;* ***Fig. 4.*** *Composite image of the activities on the site of the defunct town of Lauterbach/Čistá. Upper left: a preserved alley in the northern part of the extinct town square. Bottom left: a finding of a metal collector targeting material for raw material collection. Upper right: reminder of the patron saint of the local parish church. Bottom right: situation of the archaeological probe 6/14 located in the south wall of the silage pit. The probe revealed part of the basement of a collapsed house;* ***Fig. 5.*** *The ruins of St. Nicholas Church, cadaster Třídomí, Sokolov district. The monument is a popular destination due to the marked popularization of the site by the author of the research, Jiří Klsák of the Karlovy Vary Museum.*