

Archaeological Research on the Former KL Auschwitz I and KL Auschwitz II-Birkenau Site

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For many years Auschwitz-Birkenau State Museum has been conducting excavation works on the site of the former German concentration and extermination camp Auschwitz II-Birkenau, related to the implementation of projects to preserve the authenticity and other *ad hoc* maintenance works, as well as those related to the extension of the necessary infrastructure network in the area of the former camp. These works, carried out in various parts of the former Birkenau, are subject to obligatory archaeological research. Over the years, a large number of reports on archaeological works have been collected. Researchers faced the challenge of accumulating dispersed archaeological information, mainly about the location of archaeological research sites and about the findings that were noted during the works. The chosen solution was the use of GIS software. Initially, this was QGIS, which is to be replaced by ArcGIS Pro over time. This makes it possible to place excavation sites in a generalised form on a map (contemporary or historical) or on a properly prepared aerial photo (for any year from the years available: 1944–2022). The outline of the excavation in the above-mentioned programs is interactive with the user. The description of the findings from a given place is added to it. The set of data thus prepared can then be filtered and selected, like in a popular spreadsheet. The amount of information on one map can be enhanced with underground infrastructure networks (as information about possible collisions) and road and construction infrastructure of the camp area which enables better orientation in the surroundings. Introduction of the possibilities of deeper analytics of large data sets is the main basis for outlining the possibilities of Geographic Information Systems.

KEY-WORDS: KL Birkenau, GIS, 3D documentation, archaeological research

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PRELIMINARY INFORMATION

Roads paved with stone, pavements lined with bricks, foundations of buildings that do not exist today, drainage systems, thousands of items, hidden, lost. These are just some of the items that testify to the historical image of the former KL (*Konzentrationslager*) Auschwitz II-Birkenau camp. Identification, documentation and, above all, protection of material post-camp remains are the main aim of archaeological research conducted in this area. The exploration on the site of the former German Nazi concentration and extermination camp Auschwitz I and Auschwitz II-Birkenau is conducted as accompanying works undertaken by the Auschwitz-Birkenau State Museum in Oświęcim (hereinafter: the Museum) within its statutory activities aimed at preserving and protecting the remains of the Camps (Foks 2018). The activities in question mainly include comprehensive conservation works, carried out to a great extent as part of the Master Plan for Preservation (MPP)¹ and investment tasks. Archaeological works in this special place are accompanied by the concern to preserve authenticity.

The history and area of the former KL Auschwitz I and KL Auschwitz II-Birkenau camps are relatively well researched. Construction of the Birkenau camp began in October 1941. According to the plan approved by the occupier on October 14, 1941, the camp was to be divided into two parts by the main road, with a railway siding designed next to it. The entire area, with dimensions of 720 x 1130 m, formed a compact rectangle surrounded by a barbed wire fence, guarded by watch towers. 174 brick residential barracks were supposed to be located inside (Czech 1998). Construction began with the levelling and drainage of the swampy area. By August 1942, two separate sections, BIa and BIb, were built in the place intended for the quarantine camp. In section BIb, a men's camp was established, which functioned from March 1942 as a branch of KL Auschwitz. In the first half of August a women's camp was established in the BIa section, which also operated as a branch of KL Auschwitz. Due to the designation of Auschwitz as a place of extermination of the European Jews, from 1941 the construction plan of Birkenau had to be changed. Only section I with camps BIa and BIb remained from the previous plan. The next plan assumed the expansion of the camp with sections BII and BIII to the north of the main road and section BIV to the south of section BI (Fig. 1). The pace of construction of the barracks itself was

¹ The Master Plan for Preservation is a comprehensive and long-term programme of conservation works developed and implemented by the Museum, aimed at preserving the relics of the German Nazi concentration and extermination camp. The implementation of the plan takes place through the deployment of conservation projects covering specific elements of the complex or comprehensively treated conservation problems. The Master Plan for Preservation is financed by funds provided by the Auschwitz-Birkenau Foundation.

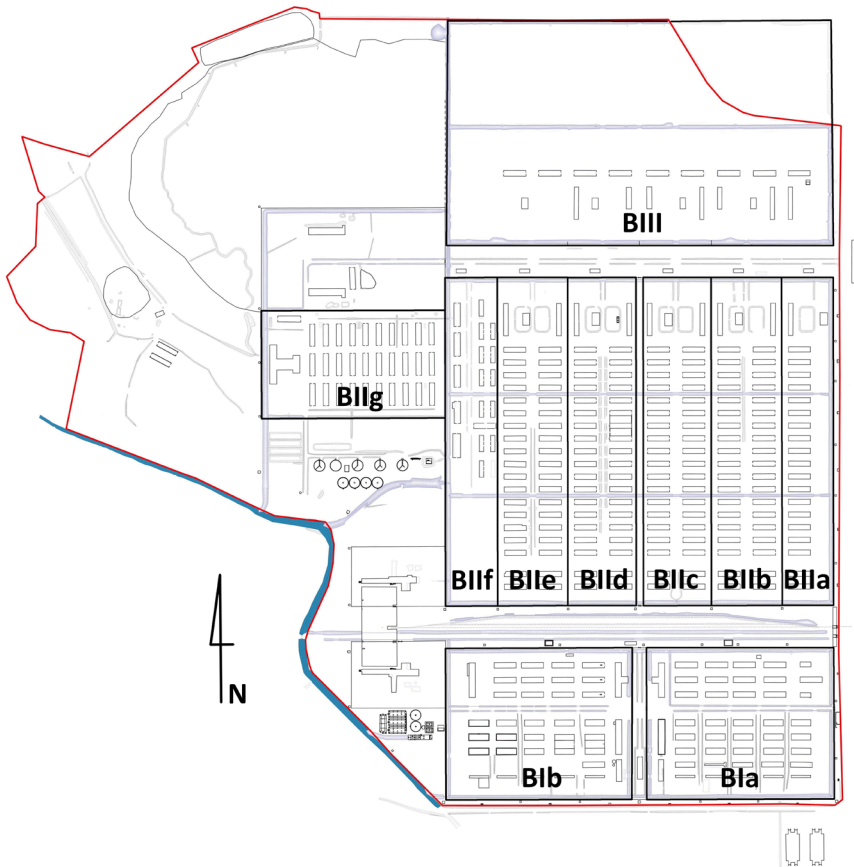


Fig. 1. Division of the former KL Birkenau into sections. Graphic elaborated: B. Targaczewski.

very fast. Between March and June 1943, the construction of four crematoria was completed. In 1943, the construction of section II, divided into 6 residential camps: BIIa, BIIb, BIIc, BIIId, BIIe, BIIIf, and a looted goods warehouse BIIg (the *Effektenlager*) was completed (Czech 1998: 28–32).

We know the boundaries of the camp and the functions of individual buildings. The Archives of the Museum are in possession of significant resources of historical documents and witness testimonies concerning its functioning. Some might therefore question the conducting of archaeological research on the site of the former

KL Auschwitz I and KL Auschwitz II-Birkenau. What then is the purpose of undertaking research? Is it possible to broaden one's knowledge in addition to securing historical objects? Do we need additional material evidence knowing the history of a given place, having testimonies of witnesses and other historical documents? Are silent, fragile, corroded items, preserved only in fragments, able to reveal any knowledge? And if so, of what kind? In the article, we will attempt to answer these questions, by drawing on the results of the work of a team of archaeologists who are constantly present during conservation works and development tasks on the site of the former Auschwitz II-Birkenau.

Nowadays, in the above-mentioned area, the barracks are surrounded by green areas or passageways for visitors to the Memorial site. However, during the period of the camp's operation, the area looked completely different. The memories of former prisoners, as well as historical documents, indicate that the camp space was transformed many times in a relatively short period of operation. The land was levelled, drainage systems were created, roads were built, and subsequent, often overlapping each other, ground-hardening works were carried out. Contemporary archaeological research, related to specific features or sections of land, provide information that enriches the historical knowledge documented in written sources. Thanks to its research methodology, archaeology allows us to reconstruct the course and formation of the camp space, and consequently also fragments of camp life.

OUTLINE OF THE HISTORY OF ARCHAEOLOGICAL RESEARCH ON THE KL AUSCHWITZ II-BIRKENAU SITE

The first archaeological work was undertaken in KL Birkenau (Brzezinka) by Professor Jerzy Kruppé in 1967. This was a single trench, established on the northern side of Crematorium III (B-39; Hensel 1973: 171). The research was conducted for the purposes of production of the film "Archaeology" by Wytwórnia Filmów Oświatowych in Łódź.

Since 2005, archaeological research has been conducted on an ongoing basis, in parallel with the tasks implemented by the Museum, aimed at securing and protecting both the area and the premises for which it holds responsibility. Archaeological research primarily accompanies conservation and renovation works performed in individual facilities, as well as investment activities related to securing premises and equipping the area with the infrastructure network. The first research related to securing the facilities on the site of the former KL Auschwitz II-Birkenau was carried out by Marian Myszka in the area of the southern wall of the gas chamber of Crematorium II. During

the research, among others, the extent of the foundation pit related to the construction of the facility was identified (Myszka 2005a; 2005b). Since the scope of archaeological research conducted at the Museum is closely related to the extent of the tasks it accompanies, this was initially small, as was the scope of the investment works themselves. The research, in the form of supervision, was primarily related to the recognition of the structural condition of the facilities before the development of an appropriate comprehensive method of protection. Supervisions were mainly limited to construction and structural pits done for the purpose of preparing project documentation. Research also accompanied small-scale renovation and construction works or works related to the current operation of the Museum.

In 2009, archaeological research was conducted accompanying the renovation works of the wooden residential barrack B-171 (Petrykowski 2010), located in section BIIa. The above work initiated comprehensive conservation and construction activities at five other wooden barracks on the site of the former KL Auschwitz II-Birkenau. Further extensive renovation and construction works on a wooden barrack, which was part of a complex of hospital barracks located in section BIa were undertaken in 2010 under the supervision of Marian Myszka (Myszka 2010). The last renovation works covered three residential barracks located in section BIIa. The research was conducted under the supervision of Małgorzata Grupa (Grupa *et al.*, 2010; 2011a; 2011b). A discovery made in 2010 is worth noting (Myszka 2010). Fragments of a brick pavement laid on a granite foundation constituting the remains of communication routes between the barracks were documented in the excavations located around the wooden barrack.

The year 2009 marked the beginning of systematic comprehensive conservation works to the preserved barracks. The first complex renovation of the brick barracks began in 2015. The works were conducted in two residential barracks with historical numbers 7 and 8, connected by a separated courtyard, located in section BIb. Conservation and construction works, as well as the accompanying archaeological research, were carried out entirely by a team of Museum employees. The result of the research was the recognition and documentation of several stages of transformation of the inner courtyard development between the barracks and the area in the immediate vicinity of the barracks (Foks *et al.*, 2020). The conducted research provided new information on land development during the camp's operation. On this basis, five phases of transformations within the courtyard were distinguished, which, in correlation with the historical data, make it possible to reconstruct the transformations of the researched area. Moreover, the remains were identified of objects/structures in the courtyard, that probably had decorative functions, about which written sources do not provide any information. During the works, 79 immovable objects

were identified, including the remains of no-longer extant buildings, land drainage systems, communication routes and objects constituting unusual development of the courtyard, such as flower beds or other decorative elements. To illustrate the saturation of movable artefacts within the area in question, it is worth noting that over 6700 movable monuments were inventoried there, of which 1662 separate artefacts were secured. The others, e.g., fragments of metal objects, nails, glass fragments, fragments of animal bones, were redeposited in the backfilled research excavations or inside barracks due to their poor state of preservation.

The presence of well-preserved archaeological relics over a large area had a significant impact on the renovation and preservation works, which led to changes in the project's documentation being made. It also demonstrated the need to take issues of archaeological premises into account at the stage of their development in subsequent project documentation.

Currently, at the stage of developing project documentation for the purposes of the planned works, advance archaeological research is being carried out on the site of the former KL Auschwitz II-Birkenau, aimed at a wider recognition of the nature of the layers and relics or the infrastructure around the building to be preserved. This allows the development of a method of dealing with the archaeological relics identified and located in advance during the research. It should be noted that the need to perform pre-emptive archaeological research had to some extent been recognised earlier; however, due to the desire to keep interference with the historical area as limited as possible, research was undertaken only to a very limited degree. In the years 2006–2008, archaeological exploration was conducted to identify the layout of the camp roads. During three seasons of examination conducted by Małgorzata Grupa, research excavations were made in the area of sections BIb, BIe, BIIf and BIlg (Grupa *et al.*, 2007; 2008). In 2012 and 2013, research was conducted on a larger scale, aimed at archaeological recognition of the BI section and the sewage treatment plant on the western side of this section. This exploration was conducted by Andrzej Bartczak, Zbigniew Rybacki and Krzysztof Janicki on the basis of the research programme developed by Marian Myszka (Myszka 2012; Bujnowicz-Zgodzińska and Zgodziński 2013). The general recognition of the section BI area was directly related to the planned commencement of conservation works of brick structures. In 2014, the surveying studies carried out by Maciej Bobrek (Bobrek 2013) were preceded by the performance of geological and hydrological works in section BII. In the area of the former KL Auschwitz I camp, the first pre-emptive surveying research was undertaken by Kamila Peschel and Wojciech Tabaszewski in 2017 in connection with the planned investment to build a new Museum Visitor Service Centre (Peschel and Tabaszewski 2017).

Historical and contemporary development of the site of the former camp makes it difficult to conduct non-invasive research on a larger scale. Conducting exploration with the use of ground-penetrating radar and the electro resistance method was possible only in section BIII of the former KL Auschwitz II-Birkenau. This is mostly an open meadow with no disturbances in the form of existing barracks or fences. These works were conducted by Marcin M. Przybyła and Patrycja Obrębalska-Majdak in 2018 (Przybyła and Obrębalska-Majdak 2018). As a result, the remains of barracks and roads currently invisible in the field were identified.

DOCUMENTATION OF ARCHAEOLOGICAL RESEARCH CONDUCTED BY THE AUSCHWITZ-BIRKENAU MUSEUM

The area of the former KL Auschwitz I and KL Auschwitz II-Birkenau camps is archaeologically diverse and covers almost 200 hectares. Data obtained during archaeological research complement the knowledge on what the camp looked like historically. A significant number of detected objects, related primarily to communication, sewage and construction infrastructure, resulted in the creation of an internal database. In order to systematise the information obtained for the purposes of the Museum's activities, guidelines for the documentation of archaeological research were developed. These include, above all, a template for an immovable object card, which allows data to be obtained in a form ready to be included in the internal resource. The relics discovered in the area were assigned to four main categories: structural building elements, paved surfaces, utilities network (water facilities) and underground features. The most frequently discovered types of objects were separated in each of the categories. Such a system allows for consistent identification of the relics uncovered during the research. The database concerning archaeological exploration was built on the basis of the GIS environment, which allows information about the relics and layers located in a given area to be obtained quickly (Iwańczuk 2016). Photographs and historical plans were also included in the archaeological resource. The capabilities of the GIS platform allow for the integration of a wide variety of graphic data, which improves searching, enhances the ability to see the characteristics of a wider area and facilitates the performance of preliminary analyses. Archaeological excavations, drawn in the GIS program with the preservation of the actual field location, can be displayed on any previously prepared geometric plan, aerial photo or satellite imagery (Litwin and Myrda 2005). For instance, plans of the utilities network, both contemporary and historical, compiled in the GIS environment with the planned archaeological excavation, make it possible to avoid collisions at the stage of works

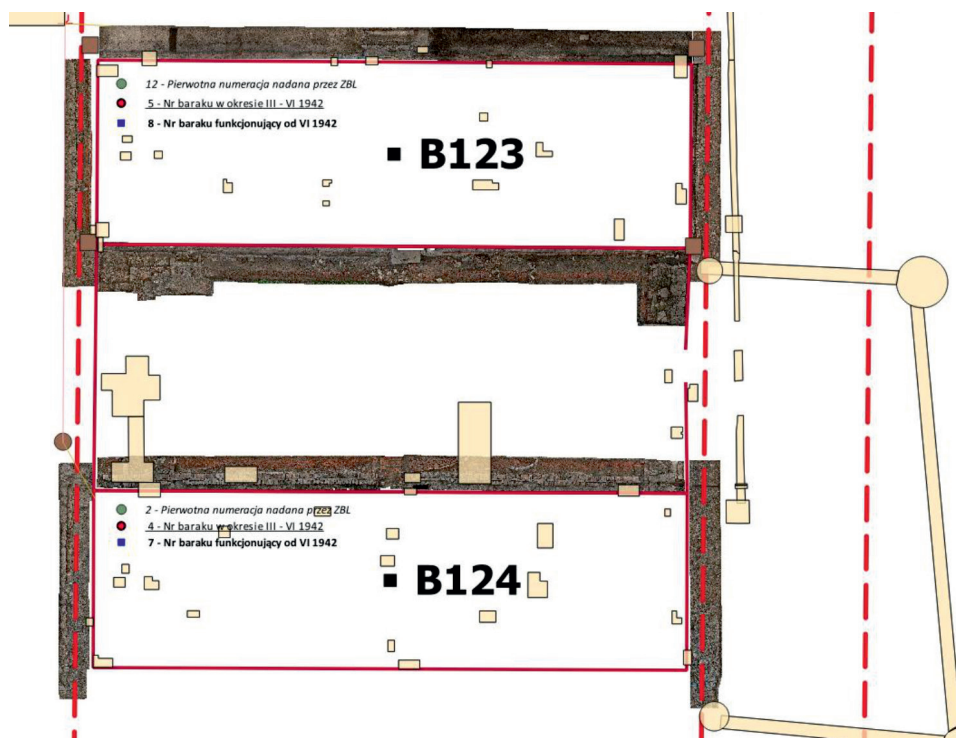


Fig. 2. Selected data concerning barracks 7 and 8 located in section B1b presented using QGIS software. Graphic elaborated: S. Foks.

implementation. Camp premises, existing on the plan, in combination with the archaeological excavations, facilitate orientation in the area and help in the study of the context of the analysed space. Objects on the digital plan can be assigned such content as barracks number, construction year, function of the object, type of archaeological finding. Photos can be attached to them, enriching the scope of information perception (Fig. 2). By increasing access to data in this way, the selection of optimal design and executive solutions for the preservation of objects is significantly accelerated. The flexibility of the system enables its continuous expansion in the direction of saturation with records.

The large number of camp relics being uncovered poses new challenges to archaeologists and conservators regarding the issue of how to protect them. Most of the objects were made of brick. Uncovering them and leaving them exposed on the surface would

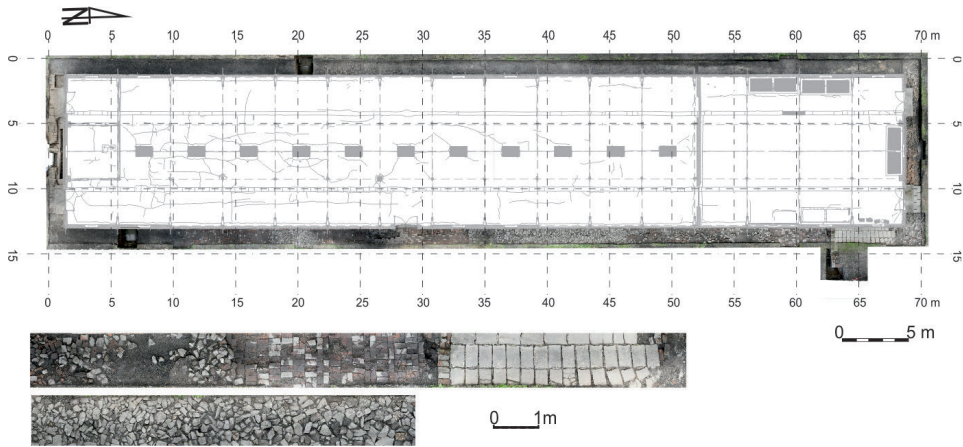


Fig. 3. Photo plan of the camp kitchen in section BIa with an approximation of the exposed archaeological relics. Graphic elaborated: D. Goiński.

cause them to be degraded by erosion. Such solutions are thus not applied and the relics do not remain uncovered after completion of the works and research. For this reason, a special role during exploration is attached to the most accurate descriptive, drawing and digital documentation. Thinking about the future, the Museum introduced digital documentation in the form of colour photo plans and three-dimensional models as a standard. Thanks to the use of photogrammetric software and taking a great many photos, objects and layers are documented *in situ* in the traditional form and in the form of digital documentation. Data obtained in this way allows for the analysis of individual objects in a multi-dimensional way, both in terms of structure, shape and location context. Digital documentation is a significant complement to traditional archaeological documentation, where detailed drawings are made at an appropriate scale along with a descriptive part.

In the course of the work of acquiring the data for the planned rendering, a number of technical issues arise that must be considered individually for each area targeted for documentation. This applies to documentation of both inside and outside the barracks. As part of digital visualisation, three methods, presented below, are used, which give a satisfactory result, albeit with varying data intensity.

Documentation based on metric values obtained from geodetic measures visible in the photos was adopted to document the features or excavations of small area or volume, most often located inside barracks. This method allows an unscaled 3D

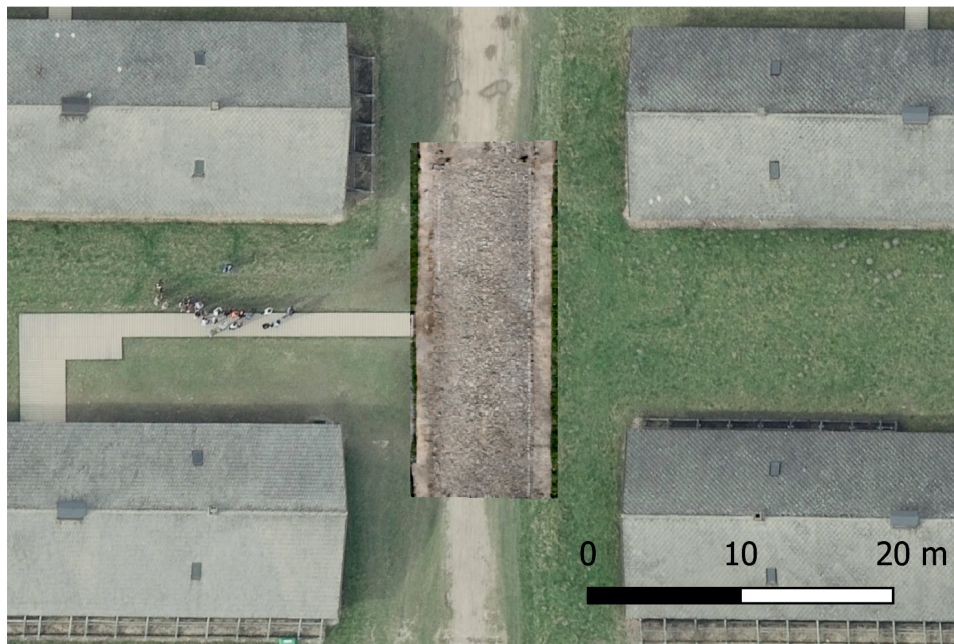


Fig. 4. Orthophotoplan of a fragment of the camp road documented during archaeological research in section Bia. Graphic elaborated: D. Goiński.

visualisation to be created at the initial stage. The model obtained is used to perform a macroscopic analysis of the feature or uncovered layers. Only the use of the measurements visible in the photo in the XYZ axial system allows an illustrative scale to be created and the required dimensions applied.

In cases where preservation works are conducted inside a barrack, the location of documented relics is easier, and the use of precise measuring equipment is not required. The photo plan obtained does not have full metric values, but it allows for analysis in terms of the location of individual objects within the range of the excavation and the barrack itself. This form of documentation was used in the case of relics uncovered around the camp kitchen barrack located in section BIa and residential barracks in section BIb of KL Auschwitz II-Birkenau (Fig. 3).

For objects located in an open space or in places that allow the use of a GPS transmitter or internal network, measurement points are made to obtain accurate geo-referencing. Thanks to the photogrammetric software, an orthophoto plan is generated in the coordinate system, which will eventually be placed on the internal



Fig. 5. A generated three-dimensional model of the camp road from the area of BIa.
Graphic elaborated: D. Goiński.

museum platform with spatial data. Such a documentation process was used in the case of archaeological research during the uncovering of the top of the former camp road (Figs 4 and 5) or in the case of stone pavements in the drainage ditches in section BIa. In addition, it should be noted that this is the most commonly used method due to its accuracy and practical use on geo-information platforms.

Acquisition of movable material is an inseparable part of any archaeological research. The area of the former camp is no exception here. Most of the movable artefacts collected during the research were the property of the prisoners – hidden, lost or taken from them by the camp staff. Among the movable objects, items made of materials available in the camp (mainly animal bones, omnipresent fragments of wires) and items allowing the identification of a given prisoner deserve special attention. During the conducted research, large amounts of movable historic objects are obtained, most of which are mass material. An internal classification of archaeological artefacts based on the functional division of objects was developed for the needs of the Museum (more: Mazurkiewicz and Lewicki in this volume). Ultimately, it is planned to create a layer containing the planigraphy of the acquired material, as part of the internal database.

SUMMARY

Archaeological research conducted on the site of the former KL Auschwitz I and Auschwitz II-Birkenau accompany works aimed at protecting and securing the remains of the former camp. A considerable number of movable and immovable artefacts were located and recognized in the course of these studies. New data are acquired to complement historical information. On the basis of research carried out at barracks, whether wooden or brick, one can notice a relatively large number of changes taking place in this area over a relatively short period of their operation. Collection, development and full systematisation of all data is one of the major challenges faced by archaeologists working at the Museum, and the amount of this information is constantly developing and expanding.

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