



ADAM MICKIEWICZ
UNIVERSITY
POZNAŃ



Treasures of Time

Research of the Faculty of Archaeology
of Adam Mickiewicz University in Poznań



Location of the main research areas.
Numbering, compare the table of Contents.



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Mirosław, Greater Poland Voivodeship, site 37. Part of the burial equipment.
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ISBN 978-83-946591-9-6

DOI: 10.14746/WA.2021.1.978-83-946591-9-6

The Volume is available online at the Adam Mickiewicz University Repository (AMUR):
<https://repozytorium.amu.edu.pl/>

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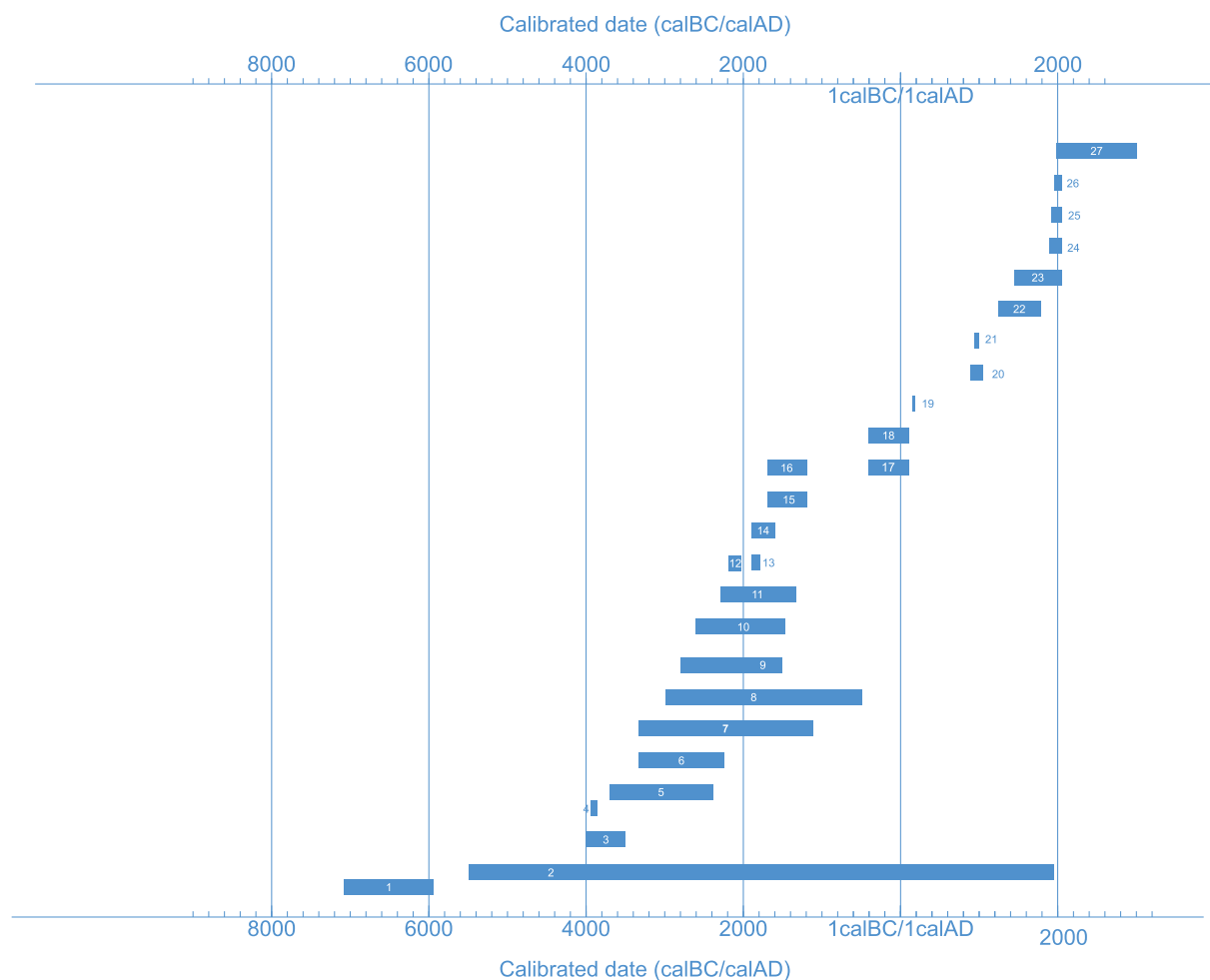
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Treasures of Time: Research of the Faculty of Archaeology of Adam Mickiewicz University in Poznań

Introduction

In 2019, archaeology at the Adam Mickiewicz University in Poznań celebrated its honourable 100th anniversary! The establishment of archaeology at this university was associated with the strong influence of the authority of Prof. Józef Kostrzewski and a succession of eminent scholars, many of whom we today call Masters.

The year 2019 was a real breakthrough. We started the second century of existence within the Alma Mater Posnaniensis with a new structural independence and quality that the academic archaeology of Poznań had not yet known for its one hundred years of existence. This change, the formation of the first Polish Faculty of Archaeology, has opened new chances and possibilities of which we are now taking advantage.



Calibrated date
(calBC/calAD)



Prof. Józef Kostrzewski
(1885-1969)

Currently, the Faculty of Archaeology of Adam Mickiewicz University is formed by a number of teams, each with their own leaders. In the majority of cases, these teams are united by interdisciplinarity, which integrates within selected projects the experience of many so-called 'auxiliary' sciences of archaeology. This trend is paralleled by the development of specialised laboratories armed with the latest equipment in the Faculty of Archaeology.

This publication presents the current scientific interests creatively developed by such teams at the Faculty of Archaeology of Adam Mickiewicz University. The research of these teams covers vast areas in time and space, summing up at least the last 9,000 years of prehistory. The following articles, arranged in chronological order, allow us to explore the prehistory of various areas.

The adventure begins around 7100 BC, in the Neolithic settlement of Çatalhöyük located in Turkey. Then, we move on to the loess uplands near Krakow, where the first farmers from the south of Europe had just arrived (5500 BC). A little later (4000-3500 BC), and a little farther north, in the area of Greater Poland, some of the first megalithic constructions in this part of the world were built. Around the same time, about 800 km to the southeast, a settlement

of the Trypillia culture remains in the phase of development (3950 BC). The end of the Stone Age in Poland was described in the history of Late Neolithic communities on a hill in the center of Kujawy region (3700-2400 BC). Farther east, in the forest-steppe area of Ukraine, significant cultural and social changes resulted in the formation of the Yamnaya culture (3350-2250 BC), beginning the Bronze Age.

Intense elements of this era can be traced in the area of southern Europe in the Greek Anthemous Valley (3350-1150 BC), in Attica (3000-500 BC) on the plains of the Hungarian Lowlands (2600-1450 BC) and to the Upper Dniester Valley, where numerous burial mounds were formed (2800-1500 BC). A similar chronological range is presented in the articles devoted to a unique site in Bruszczewo, Greater Poland (2300-1350 BC), which not only accumulates valuable metal artefacts, but is also the subject of interest of an interdisciplinary team focused on reconstructing its environmental context.

The next text take us far to the east, to the area of Iraqi Kurdistan, where we can appreciate the importance of Mesopotamian influences in shaping the picture of the Early Bronze Age (2200-2150 BC).

Subsequent texts describe the discoveries of Poznań scientists in Syria (1906-1787 BC) and in Greater Poland (1900-1600 BC). These two distant points describe various aspects of life in contemporary communities in the Middle and Early Bronze Age.

The characteristic archaeological materials of the later centuries of the Bronze Age (1800-1200 BC) reveal an intensification of military conflicts and migration processes (1700-1200 BC). The turn of the eras is illustrated in this volume by texts on the interpretation of representations on ancient Greek and Roman sculpture (400 BC-100 AD), as well as the cultural situation in the Polish lands (400 BC-100 AD).

We are introduced to the new era by an article on the funerary customs of communities from the Polish lowlands describing discoveries at the site of Mirosław (160-175 AD). Moments of the formation of elements of Polish statehood are referred to in texts describing towns at Grzybowo (919-1050 AD) and Poznań in the early Middle Ages (950-1000 AD).

Later parts of the Middle Ages are described by sacral monuments located also in the area of the contemporary city of Poznań: the Collegiate Church of St Mary Magdalene (1263-1802 AD) and the still extant Church of the Blessed Virgin Mary on Ostrów Tumski, founded around 1431 AD in the immediate vicinity of the previously described early medieval site of the 'origin' of the city of Poznań.

The final texts of the volume do not refer directly to a particular period of prehistory, but present the history of Polish archaeological research on the Iberian Peninsula, the contemporary perception of prehistoric art by the inhabitants of present-day Canada and Siberia, and the development of methodological thought among Poznań archaeologists.

The volume closes with a text describing one of the many perspectives currently faced by the staff of the Faculty of Archaeology of Adam Mickiewicz University in Poznań: the new ArchaeoMicroLab.

We look to the future with great hope that the Staff of the Faculty will provide ideas for many more volumes of Treasures of Time. We trust that this set of articles will present archaeology at the Adam Mickiewicz University in Poznań in its new structure as a Faculty and show its potential. We would thus like to encourage you to get acquainted with our Poznań perspective on archaeological studies, and to reflect on ways of exploring the past.

Andrzej Michałowski

Danuta Żurkiewicz



Location of the main research areas.
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**919-1050 AD**

Treasures of Time:

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DOI 10.14746/WA.2021.21.978-83-946591-9-6

The stronghold in Grzybowo and its settlement base in the context of in-depth interdisciplinary research

Marcin Danielewski

Abstract

This article covers the issues connected with the early medieval stronghold in Grzybowo, which was built in the years 919 to 923 (dendrochronological dating). Its second construction phase took place in the years 929 to 935 and another at the beginning of the next decade of the 10th century. This complex belongs to the 'major settlements of the early Piast state' and has been systematically excavated since the end of the 1980s. The research conducted over the last few years (2018 to 2020), implemented within project No. UMO-2017/25/B/HS3/00016 and financed by the National Science Centre, has provided plentiful new results, but also has confirmed several older hypotheses concerning early medieval Grzybowo. Thanks to the results of this work, it was possible to demonstrate that the stronghold in the form known today (Site 1) primarily consisted of two parts, which in the 10th century comprised one of the largest settlement complexes in the Greater Poland at that time. An important element supplementing this settlement picture is a craft settlement (Site 6), traces of which were recorded to the south and east of the stronghold. In the course of this research, both in relation to the stronghold and the craft settlement, further excavations and non-invasive research methods were implemented, including ALS LiDAR (Airborne Laser Scanning and Light Detection and Ranging), Aerial Archaeology, magnetic prospection, GPR (Ground-Penetrating Radar), ERS (Electrical Resistivity Survey) and ERT (Electrical Resistivity Tomography). When necessary and possible, the results of these analyses were verified through excavation. As a result of this combined research, the stronghold complex in Grzybowo is becoming a better understood archaeological site.

Keywords: stronghold in Grzybowo, rampart, Greater Poland, interdisciplinary research

The Early Middle Ages was a time when significant settlement, economic, and political transformations took place in Poland, which resulted in the establishment of *Civitas Schinesghne* (the Gniezno state). The creators and first rulers of that system were representatives of the Piast dynasty, and strongholds became the most characteristic elements of the settlement landscape of those times. Typically, they were surrounded by huge wood-earth ramparts, the impressive structures of which were a visible sign of the power, economic and organisational opportunities, and prestige of the Piasts. They were also a focal point for the local settlement, enabling the local population to function and providing them with a sense of security.

The stronghold in Grzybowo represents one of the most fascinating settlement centres of the Piast state, but although it was built in the Early Middle Ages, it fell into oblivion very soon thereafter. Even today, this place is still referred to by the local population as the 'Swedish trenches', whereas German maps from the 19th century contain the term '*slawische Schanze*' (Slavic trenches). It seems likely, however, that a Swedish unit was stationed inside the ramparts and the remains of the stronghold might have been used as camp by some Napoleonic troops.

The beginnings of scientific interest in the castle date back to the 19th century and are connected with Wilhelm Schwarz. This scientist was the first to perform small surveys within the stronghold in 1878 and, on their basis, he concluded that they were the remains of a Slavic stronghold. Unfortunately, that interpretation could have resulted in a loss of further interest in this site at the time, due to the fact that in the 19th century, large areas of Greater Poland belonged to '*Regierungsbezirk Posen*' and one of the tasks of German archaeologists was to prove that those lands belonged to the circle of Germanic culture and, consequently, the strongholds were expected to be products of that culture. In the early 20th century, Karol Potkański, a historian from the Jagiellonian University in Cracow (Kraków), became interested in this site, listing the stronghold in Grzybowo as one of the most interesting centres of the Middle Ages (Potkański, 2004, pp. 266, 267, 298 and 299). Further, Władysław Kowalenko, an archaeologist, included this site in his catalogue of strongholds located in Greater Poland (Kowalenko, 1938, p. 218). More amateur research was carried out at the stronghold in the 1930s by Olgierd Brzeski (Hensel, 1953, p. 160; Wrzesiński, Łukaszyk, & Frydrychowicz 2014, p. 6), whose results were published before the outbreak of World War II (Brzeski, 1936-1938, pp. 151-153). However, no fully professional excavations were commenced until the end of the 1980s, when they were carried out on behalf of the Brzeski Foundation at the Poznań Society for the Advancement of the Arts and Sciences. Systematic archaeological excavations continued in the 21st century (until 2009) and were conducted mainly by Mariusz Tuszyński, but also by the Museum of the Piast Dynasty in Lednica. It is worth adding that the site of the stronghold has belonged to the aforementioned museum since 1997 (Tuszyński, 2004, pp. 18-23, 71; Wrzesiński et al., 2014, p. 6). After 2009, there was an almost ten-year break in the research of the Grzybowo complex, and then the implementation of the project entitled: 'The stronghold in Grzybowo and its settlement base in the context of in-depth interdisciplinary research', financed by the National Science Centre, caused the return to archaeological research at the stronghold and its surroundings. These excavations are carried out under the auspices of the Faculty of Archaeology of the Adam Mickiewicz University in Poznań and they primarily focus on two sites: No. 1 (stronghold) and No. 6 (craft settlement).

In the years 2018 to 2019, non-invasive research was carried out in the settlement in Grzybowo with the use of Aerial Archaeology, ALS LiDAR (Airborne Laser Scanning and Light Detection and Ranging), and geophysical methods including magnetic prospection, ERS (Electrical Resistivity Survey), GPR (Ground-Penetrating Radar), and ERT (Electrical Resistivity Tomography) (Figure 1). The work aimed to provide a deeper recognition of the site and to select locations that are particularly important for subsequent excavation.

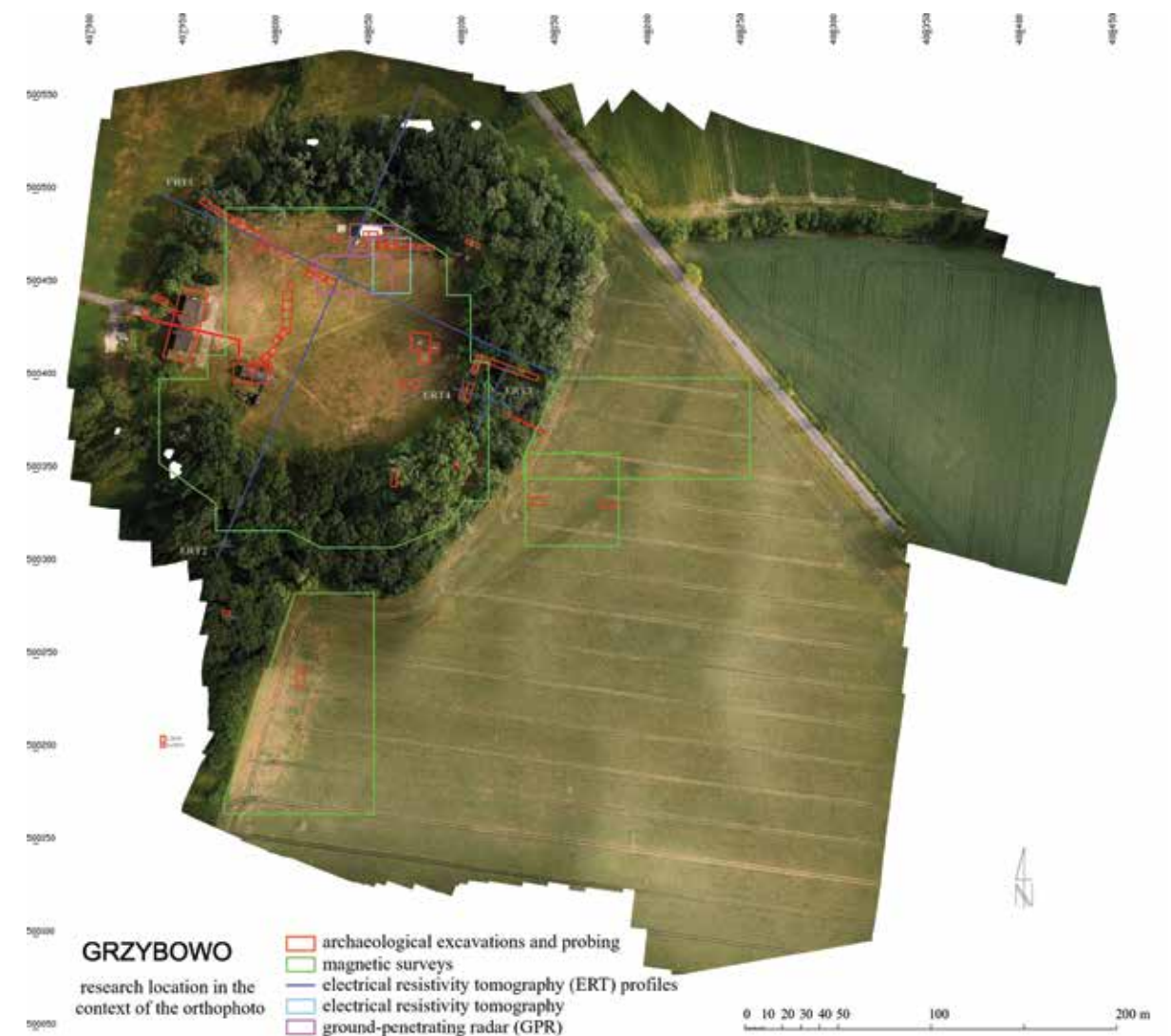


Figure 1. Orthophotomap with areas subjected to non-invasive research marked (Author: M. Bogacki).

The research using the magnetic prospection method was carried out at the settlement by W. Małkowski (modern residential areas and those parts of the site that were covered with dense vegetation were excluded from the study). Magnetic anomalies recorded in the settlement area were used to divide it into two groups. The first was related to a rampart surrounding a smaller stronghold, the possible range and structure of which belong to the riveting issues that still occupy the minds of the archaeologists who study the Grzybowo stronghold. The second is connected to the objects within the main square of the stronghold. For a more complete presentation of the research results, the spatial data (i.e., ALS LiDAR, magnetic mapping, and orthophotography) were compared. In addition, the results obtained for the studied area were verified through excavation.

The stronghold was also subjected to aerial reconnaissance, during which Miron Bogacki took vertical and oblique aerial photographs. On the basis of the collected data, a DSM (Digital Surface Model) as well as orthophotomaps were created, presenting both the stronghold and the craft settlement.

Site 1 was additionally subjected to research conducted by means of the ERT method. Measurements made using this method covered the area of the main square and the ramparts of the stronghold. A total of four ERT profiles were obtained as a result of the excavations that were carried out. Two crossed the smaller stronghold, the ramparts, the square, and the 20th century moat. They were arranged in such a way as to capture the most characteristic elements of the stronghold: the moat and the riverbed of the Struga River, the structures of the smaller stronghold, a depression in the northern part of the ramparts, four sections of the ramparts (northern, southern, eastern, and western), and the dyke. Two additional ERT profiles were placed where a gate was probably once located – a depression in the eastern part of the rampart (Tuszyński, 1995, p. 201; Wrzesiński & Danielewski, 2018, p. 98). The results of these studies allowed for better planning of further excavations.

The presented research was supported by the ERS carried out in the southeastern part of the smaller stronghold by K. Misiewicz. The analysed area was delineated in such a way that it partly overlapped the area tested through the GPR method to check the course of the rampart structures of the smaller stronghold.

Finally, the last part of the non-invasive research was the identification of selected sections of the settlement using the GPR method. This work was carried out by R. Mieszkowski during his two visits to the settlement. The first stage of the GPR research covered two study areas (GPR1 and GPR2) with a total area of 8 are, located within the line of the rampart, the area near the rampart, and the main square of the smaller stronghold (southeastern part of the fortified complex). The second stage of analyses concerned the area located near Trenches 50, 53, 55, 57, and 2/2018 (an area of c. 2.5 are) and was conducted with the aim of exploring that section for further archaeological excavations as well as to verify the location of the stone and wooden structure partially recorded in Trench 2/2018.

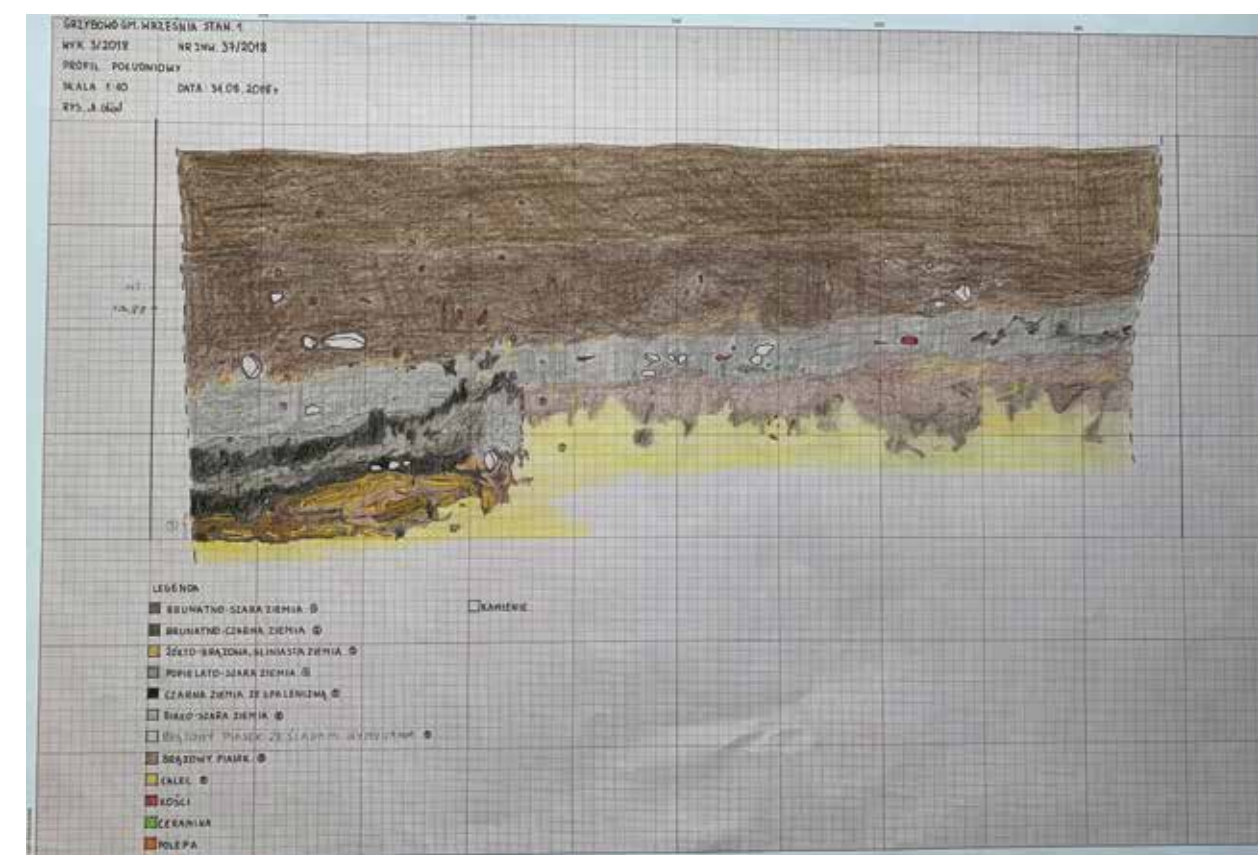


Figure 2. The southern profile of Trench 3/2018 (Author: A. Glód).

The results of the non-invasive studies provided a pool of data on the depth of the cultural layers, the distribution of particular objects, and the locations of the cuts of previous archaeological trenches. What is more, that stage of the archaeological work helped to better plan further excavations that were carried out in the stronghold from 2019 to 2020.

Excavations carried out in recent years in the settlement complex of Grzybowo focused on the study of three zones:

- the south-eastern area located near the rampart of the remains of the larger stronghold (Trench 1/2018),
- the western area located near the rampart of the smaller stronghold (Trenches 2/2018, 1/2019, 1a/2019 and 1/2020), including completion of the exploration of Trench 55, which was initially investigated in 2007,
- the central zone of the smaller stronghold (Trench 3/2018, cf. [Figure 2](#)).

The results of these excavations enriched the data on (*inter alia*) the timeline of both strongholds. Here, the dendrochronological dating of the wooden stronghold structures was truly valuable because it clearly confirmed that the first phase of construction took place during the years 919 to 923. These fortifications were made of oak wood (including material derived from over 400-year-old trees). The construction work in Grzybowo was continued in the years 929 to 935 and at the beginning of the next decade of the 10th century, which shows that both the smaller and the larger strongholds were built almost at the same time. The data indicating the timeline of the site is complemented by the results of pottery analyses, which clearly shows that the settlement complex in Grzybowo was intensively used until the mid-11th century. Thereafter, however, the stronghold most probably ceased to perform its original functions (military, economic, and administrative), although (interestingly), in the light of radiocarbon dates, some skeletal burials were recorded there and date to the 13th to 15th centuries.



Figure 3. A horse's head uncovered at Site 1 Trench 1/2018 (Author: M. Jóźwikowska with additions by A. Głód).



Mail rings. 1. Inventory no. GRZ 366; 2. Inventory no. GRZ 1539; 3. Inventory no. GRZ 1985; 4. Inventory no. GRZ 1899.

Figure 4. Chain mail rings discovered at Site 1 in Grzybowo (Author: M. Jóźwikowska complemented by A. Głód).

The fact that there was a smaller stronghold that functioned within the larger one, as was established during the research conducted from 1988 to 2009 (the data on its location and the course of the rampart structures was verified in 2018 to 2020) is another important argument that serves to confirm the elite character of this stronghold complex. The residence of the military elite in the stronghold (i.e., the royal retinue), is evidenced by the skeletal remains of horses (Figure 3), equestrian equipment, and horseshoes, but most of all – chain mail rings that represent fragments of chain armour (Figure 4) that were found in various parts of Site 1. However, little remains known about the non-military elite whose representatives may have lived in the Grzybowo stronghold complex. Nevertheless, it is agreed that the stronghold yielded several elite artefacts that might evidence long-distance exchange (Kurnatowska & Tuszyński, 2009, pp. 150, 151; Kurnatowska, 2011, p. 58; see Wrzesiński, 2016, p. 257). Also, it should be added that the quantity of such artefacts is not as abundant as some literature suggests (Kurnatowska & Tuszyński, 2009, p. 151; Kurnatowska, 2014, p. 22). Certainly, such an assemblage includes the artefacts that comprised the hoard originally discovered in 1899 and



Figure 5. An oblique photograph of the stronghold in Grzybowo – second aerial reconnaissance, June 2018, showing linear vegetation indices (Author: M. Bogacki).

rediscovered in 1999 (more about this deposit: Tuszyński, 2004, pp. 74-78; Andrałojć, Silska, & Szyngiera, 2011, pp. 52-53, 184-185; Szczurek et al., 2017, pp. 258-268) and some of the ornaments discovered in various parts of the Grzybowo stronghold complex (e.g., a bronze ring, phyllite whetstones, and beads made from amber, rock crystal, and carnelian or garnet). It should therefore be noted that the elite character of the castrum from Grzybowo, which may date to the 10th or even the 11th century, cannot be compared to the elite character of other major strongholds (i.e., Gniezno, Ostrów Lednicki, or Poznań), sites that included goldsmith workshops (Banaszak, 2000, pp. 45-66; Kóčka-Krenz, 2006, pp. 257-272; Sawicki, 2018, pp. 355-361) or sacred and residential masonry architecture (Rodzińska-Choraży, 2009, pp. 18-38; Sikorski, 2012, pp. 23-70, 119-130). Nevertheless, Grzybowo undoubtedly belongs among the most notable strongholds (Kurnatowska, 2008, pp. 319, 326, 356-357; Kara, 2009, Fig. 88; Kurnatowska & Kara, 2010, pp. 45-47, Fig. 9; Kurnatowska, 2014, p. 22). This assumption follows from the fact that the maximum area of the settlement was c. 4.4 ha, including the modern ring of the moat, which was c. 755 m in circumference. The area inside the rampart (measured at the base) was c. 2.20 ha wide and that determined the area of the main square, which was 553 m in circumference. The top of the rampart was c. 625 m in circumference and enclosed an area of c. 2.87 ha. The outer circumference (measured at the base) was

680 m and enclosed an area of c. 3.48 ha. Therefore, the Grzybowo stronghold was a powerful defensive facility, and it still seems to 'hide many secrets' from scientists.

Site 6, categorized as 'craft settlement', poses another research problem, though. Owing to the scarcity of data on the site (which was explored from 1989 to 1990; 7 trenches along the drainage ditch made along the western edge of the forest), excavation was carried out in two main stages:

- Stage 1 – non-invasive research using the methods of surface prospection, ALS LiDAR, aerial archaeology, and magnetic survey, conducted in selected zones of Site 6;
- Stage 2 – excavations carried out in three zones of Site 6.

The excavations were preceded by surface prospection carried out in the winter of 2018 in the forested area located south of the settlement. As a result, 30 locations containing concentrations of pottery and animal bone were recorded in the forest. As a consequence, it was decided to implement further non-invasive works, and ultimately – to verify this area through excavation.

The research of the Grzybowo settlement complex, realised in the years 2018 to 2019, benefited from aerial archaeology using drones. Three aerial reconnaissance surveys made by M. Bogacki, the first of which was carried out in March 2018, the second in June 2018, and the last in June 2019, predominantly brought opportunities to study the settlement structures located to the east and south of the stronghold. The photos and orthophotomaps clearly showed discoloration of crops in the field located east of the settlement. However, the most compelling evidence seems to be the linear, darker trail that runs along the ramparts from the southwestern part to the northern part and perhaps continues on the other side of the road (Figure 5). Notably, it cannot be excluded that this feature was also noticed and referred to as a 'ditch/moat' in the illustration included in W. Kowalenko's dissertation (Kowalenko, 1938, Fig. 1). Consequently, it can be assumed that in the 1930s, the remains were still visible in the field. This 'ditch/moat' extends c. 13-14 m wide to the south and up to 20 m to the north of the road. The trail has a clear 'break' at the height of the eastern gate of the stronghold. Perhaps it is a remnant of a passage leading to the gate through the alleged 'ditch/moat'. One more linear trail was recorded closer to the stronghold, also running in an easterly direction.

On the other hand, a large patch of dried, light-coloured crops found at the eastern boundary of the forest can be more confidently associated with the settlement remains located in the forest south of the stronghold (Figure 6). This barren area differs significantly from the crop marks recorded to the east of the stronghold (Figure 5). There are punctual traces of more intense green and some merge into geometric shapes (oval, round or square). In the corner of the wooded area that evolved at the junction of the line of trees growing on the rampart and the forest within the settlement, there is also an interesting, spherical mark, highly saturated with green (Figure 6). The entire area south of the ramparts – located within the forest and the field – has a size of c. 5 ha.



Figure 6. A vertical photograph of the area east of the forest with the craft settlement, showing crop marks in a wheat field (Author: M. Bogacki).

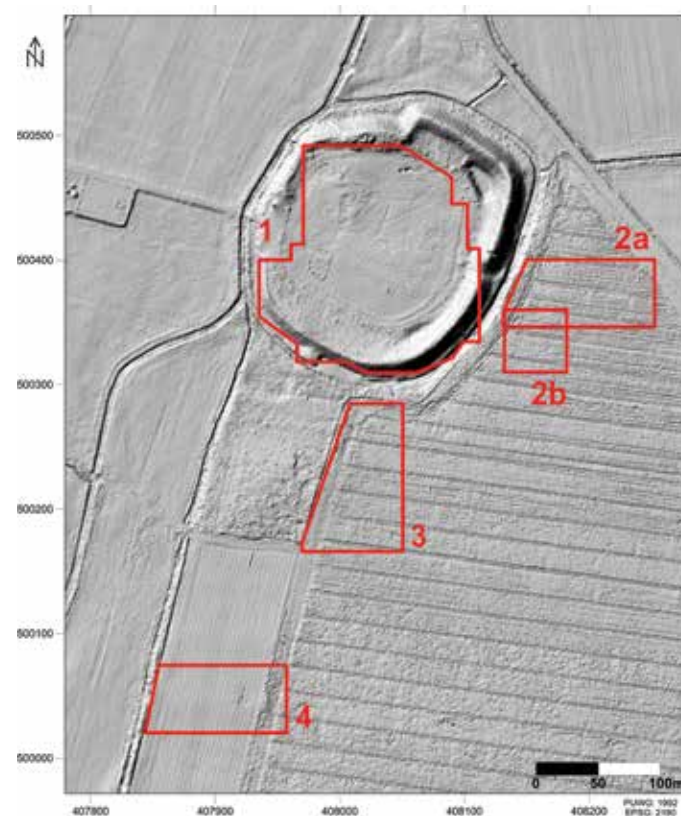


Figure 7. Location of the areas subjected to non-invasive magnetic survey in the context of the model from ALS LiDAR (Author: W. Małkowski).

The presented results of the analysis based on the aerial photographs of Site 6 were verified by the survey conducted by W. Małkowski in 2018 and 2019 within four research zones (marked as: 2a, 2b, 3 and 4 – Figure 7). Zone 2b (an area of 0.25 ha) yielded particularly interesting data, as the magnetic studies confirmed the presence of the ‘ditch/moat’ mentioned earlier by M. Bogacki (Figure 8). The survey also revealed numerous magnetic anomalies within Zone 3 (area 0.75 ha). The values of the magnetic field strength as well as the distribution of the magnetic anomaly on the histogram (i.e., punctual and linear objects with medium and strong magnetic impact that are possibly burnt or were deposited in the burned material or may even represent stone structures) indicate that one can expect a settlement-type site in this area. The cross correlation done through comparing the magnetic map and the aerial photography made it possible to observe burnt areas in the context of the vegetation indices and this mutual relationship seemed to be highly interesting and required verification based on the excavation method.

The results of the excavations were supplemented by ALS LiDAR images that illustrated the surroundings of the settlement, this time covering a far more extensive area than in earlier studies. Laser scanning examined eight elements of the settlement complex in Grzybowo:

- Site 1 (stronghold)
- Site 6 (craft settlement) divided into four research zones marked with numbers 4 to 7
- Site 4
- Site 8
- a newly discovered site (not yet numbered), discovered 300 to 350 m southwest of the stronghold and located on the western edge of the Struga River valley.

Finally, laser scanning was used to visualize two other defensive facilities (probably older than the stronghold in Grzybowo) – Małachowo-Złych Miejs and Chładowo. Both sites are located northeast of Grzybowo. The stronghold of Małachowo-Złych Miejs is situated 12.27 km away from the stronghold in Grzybowo, and 14.59 km from Chładowo¹.

The area outside the stronghold and classified as Site 6 was explored in 2019. The team of archaeologists recognized the settlement structures recorded during the non-invasive research carried out by M. Bogacki and W. Małkowski. At that time, their chronology was established, and an attempt was made to indicate the range of the individual zones related to the settlement base of the Grzybowo stronghold. The excavations carried out in 5 trenches indicated that the site, evaluated before 2018 as relatively homogeneous, was in fact very diverse. The methods currently available for the settlement analysis make it possible to conclude that the area to the south of the stronghold (now a forest and a field adjacent to it from the east) constituted its economic base. In this case, both the central zone (currently covered with forest – Trenches 1/2019, 2/2019 and 2a/2019) and the area bordering the forest from the east (Trench 3/2019 located within magnetic research zone No. 3) were investigated. Four features were recorded there, including 2 bloomeries and (probably) the remains of a blacksmith's workshop (a shallow pit-house with a lot of scrap prepared for reuse including iron waste, slag, and fragments of processed amulet container. This picture may be enriched with

¹ Distances in a straight line.

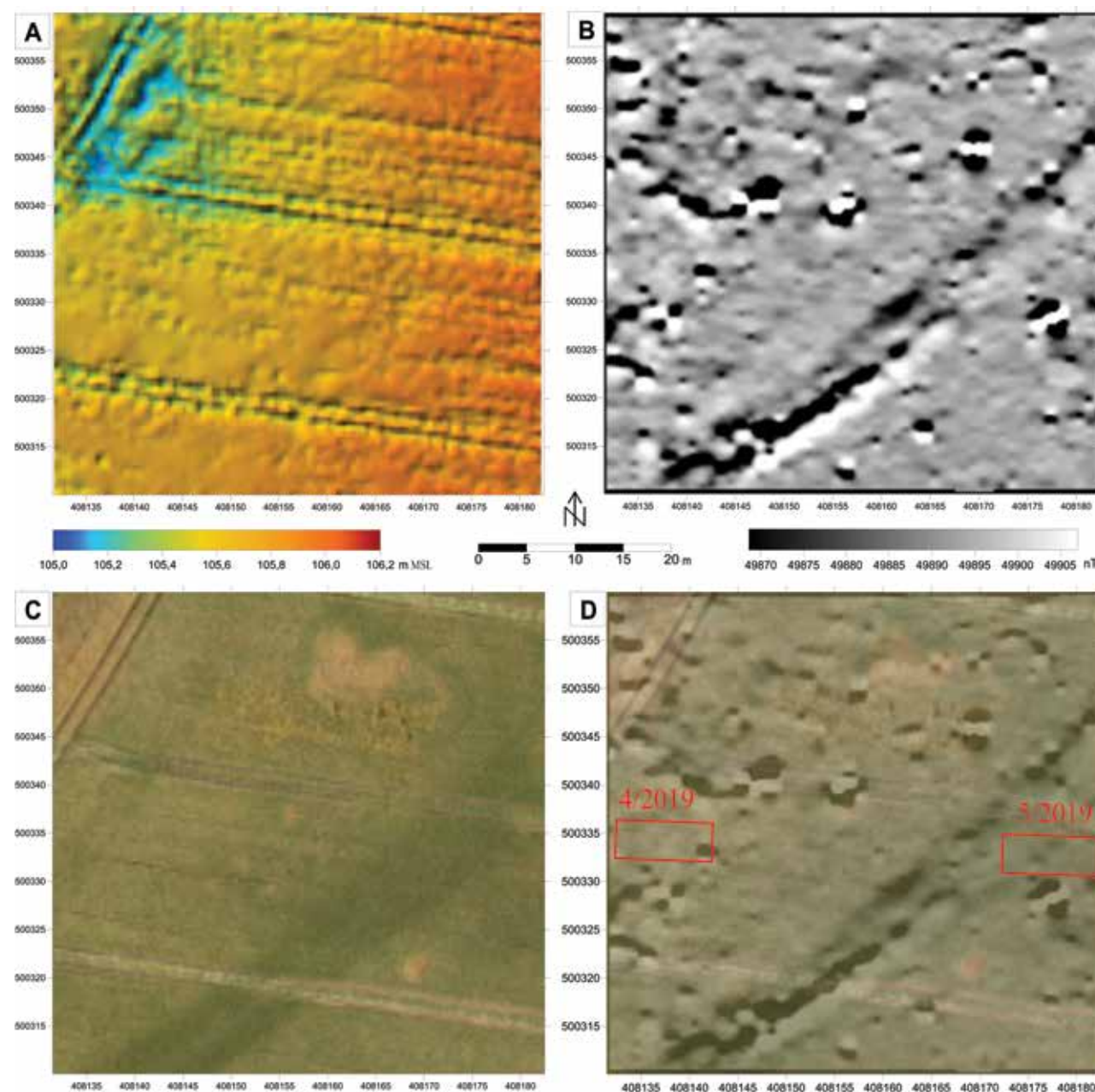


Figure 8. Summary of data detailing Zone 2b: A. ALS LiDAR; B. Magnetic map; C. Aerial orthophotography; D. Aerial orthophotography and magnetic mapping (opacity 50%) and location of trenches (Author: W. Małkowski).

data obtained from 7 trenches delineated within the drainage ditch and explored in the years 1989 to 1990. This was also where another 6 features were recorded. Accordingly, the question arises about the maximum westward extent of the settlement related to Site 6. It is difficult to give an unequivocal answer to this question because that area, located west of the drainage ditch towards the Struga riverbed (an area of c. 1.08 ha), has never been excavated. These issues will certainly require further, advanced research in the future.

As for the area situated east of the stronghold – it was fortified with a ditch or ditches, and in this zone settlement features (in the form of punctual cropmarks) occurred far less frequently than in the area located to the south of the defensive structure. This was probably simply based on sound reasoning, as it would not have been sensible to build over the approach to the eastern gate, as it was undoubtedly crucial to maintain the defensive attributes of the stronghold at its 'sensitive place' (i.e., the gate entrance). That is probably why the number of archaeological features recorded in the form of punctual marks is much lower there than in the zone located south of the defensive structure. The c. 13-14 m wide ditch located c. 60-120 m from the eastern base of the rampart was confirmed within Trench 5/2019. Its timeline relates to phase D (950-1050) of the Early Middle Ages and the dating results are highly compatible with the lifetime of the stronghold and the settlement features discovered at Site 6 in the forested zone and in the skirts of the forest. Unfortunately, the excavations carried out within Trench 4/2019, where the second, narrower trench was thought to run c. 40-45 m from the eastern base of the ramparts, turned out to be far less fruitful. The research failed to record the remains of this trench and therefore it cannot be ruled out that this feature is now only detectable as a vegetative change within the humus layer.

The research carried out in the stronghold in Grzybowo and in its immediate vicinity over the last 3 years has brought many new findings. These have been discussed to a degree in this work. The excavations and research conducted as part of the 'Archaeological Photography of Poland' created the basis for current knowledge on the stronghold complex and the related open settlements. However, the settlement studies on the Grzybowo microregion can still be supplemented, and it is mainly non-invasive studies that provide such an opportunity. Therefore, future of research focused on settlements should be based on cooperation within interdisciplinary research teams. It seems necessary to note that non-invasive research methods – aerial photography, laser scanning, or geophysical methods – are the reality of modern archaeology. The present author believes that such an approach, together with the development and efficient expansion of the available source base, makes it possible to explain the genesis, development, and decline of the stronghold complex in Grzybowo together with its extensive settlement background.

Acknowledgements

This work was funded by the National Science Centre, Poland, under research project No. UMO-2017/25/B/HS3/00016.

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ISBN 978-83-946591-9-6