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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.

Adam Mickiewicz University Poznań

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

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Mirosław, Greater Poland Voivodeship, site 37. Part of the burial equipment.
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FACULTY OF ARCHAEOLOGY AMU

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Contents

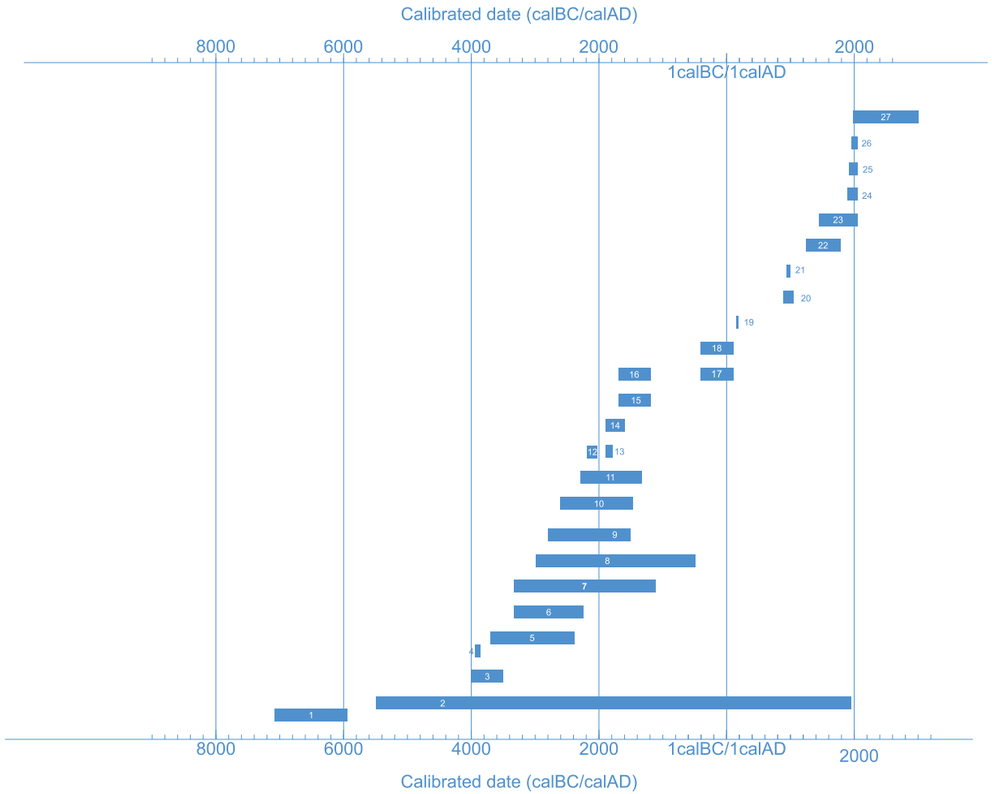
FACULTY OF ARCHAEOLOGY AMU

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 Poznan 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.



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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

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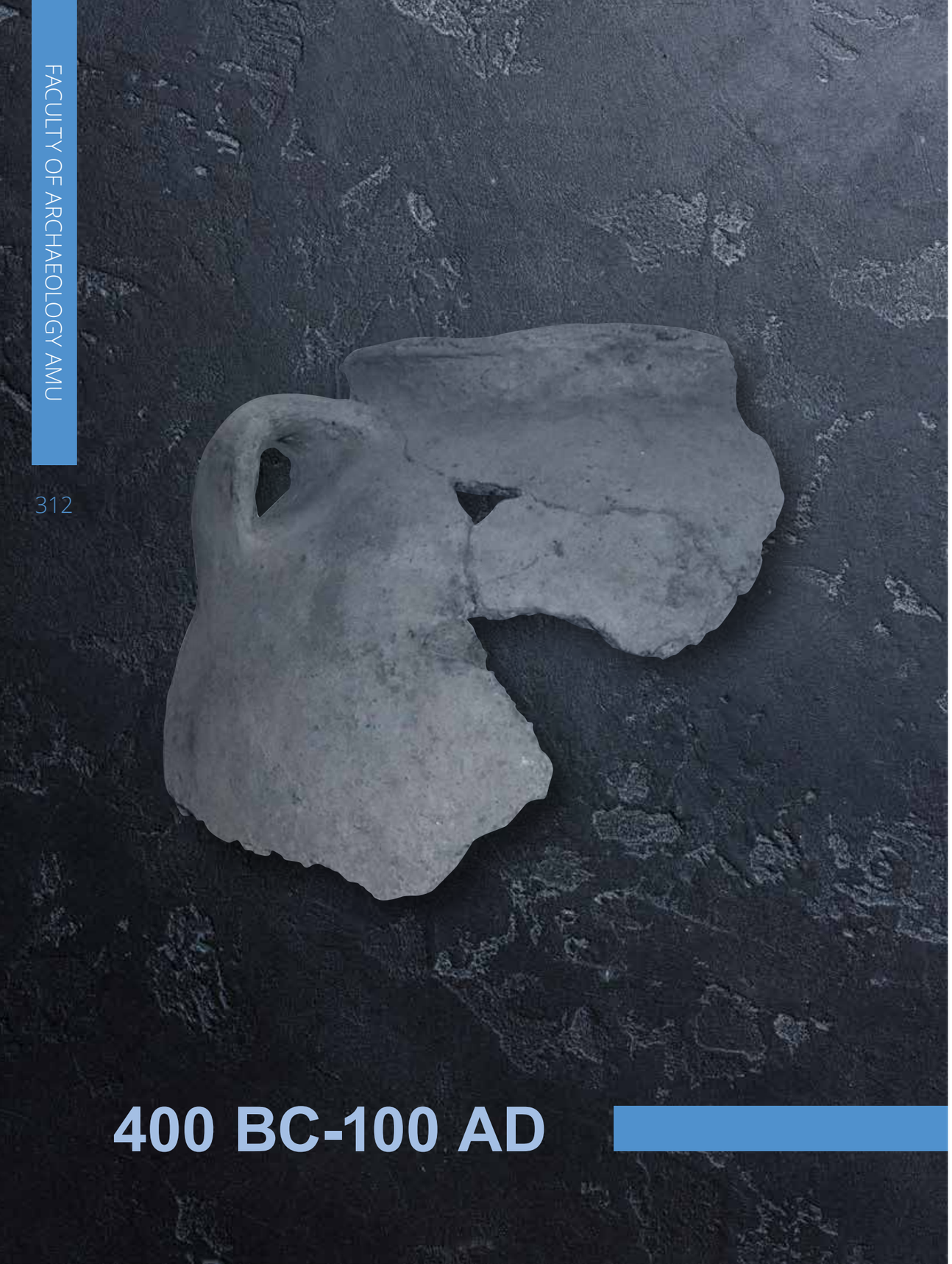

Treasures of Time:

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About the ‘interim’ or discovering the depths of the pre-Roman Iron Age

Andrzej Michałowski, Milena Teska, Marta Krzyżanowska, Patrycja Kaczmarska, Mateusz Frankiewicz, Marek Żółkiewski, Przemysław Niedzielski

Abstract

The pre-Roman Iron Age, i.e. the last five last centuries BC, is one of the most mysterious periods in Polish prehistory and constitutes an extremely interesting research issue, which help concentrate the studies on it, into a compact group of research problems. The studies on the pre-Roman Iron Age carried out by the group of researchers at the Faculty of Archaeology of the Adam Mickiewicz University are based on the research traditions of Poznań archaeology. The focal point of work in recent years has been settlement pottery, which is a mass source acquired during excavations whose potential has not yet been fully exploited. One way to better understand the possibilities that this type of mass material can bring has been exploitation of the potential of archaeometry. The ongoing studies on the problems of the pre-Roman Iron Age strive to detail and explain the processes and changes occurring at the time. They fit into the Poznań tradition of studies on this period, being a continuation of previous work undertaken on its intricate issues – empowering it and leading it out of the titular ‘interim’, placing it in the fully deserved centre of research interests.

Keywords: pre-Roman Iron Age; settlement pottery; archaeometry

The pre-Roman Iron Age i.e. the last five last centuries BC, is one of the most mysterious moments in Polish prehistory. In large measure, is the effect of a certain specificity of research eventuating from the distribution of interests in Polish archaeology. In fact, the pre-Roman Iron Age is an interface between two periods examined through the prism of different research trends not always directly related to its own phenomenon. The early part of the pre-Roman Iron Age seems to have flown smoothly from the events associated with the introduction of the Hallstatt culture into the environment of the Lusatian Urnfield culture and the transformation of this model into a new 'standard of civilisation'. This situation results in the fact that the earlier part of the pre-Roman period has become the domain of researchers of the Bronze Age and the Early Iron Age, who treat the 'Pomeranian episode' as a kind of closing-up stage of the 'Lusatian cycle'. In turn, its later part, dominated by the Przeworsk-Oksywie cultural circle, is usually perceived as a kind of prelude to the Roman period. This is suggested by the very name 'pre-Roman Iron Age', which was popularised in archaeological literature by H. J. Eggers (1955) and R. Hachmann (1961). Use of such terminology, is connected with the presupposition that the changes taking place in central and northern Europe at that time constituted an evolutionary path of development, crowned by the advent of a new civilization at the time of the Romans.

The events that that occurred in the interior of the continent during the pre-Roman Iron Age, took place in the shadow of the golden age of the La Tène culture. The lack of major interactions between cultural circles, especially in the earlier phase of the pre-Roman period, means that the situation of the Baltic zone is not an attractive reference for researchers delving into Celtic history, thus remaining on the margins of their interests. All this together causes the pre-Roman Iron Age to be treated as a kind of 'interim' – a time suspended between the events that already took place and those that are yet to come.

Treated as a complete cultural phenomenon, the pre-Roman Iron Age constitutes an extremely interesting research issue. This allows us to look at the changes taking place at that time as the quintessence of intense civilization changes taking place in the Baltic Sea region. Being in line with such a cognitive focus, this moment in history should not be regarded merely as the closing stage of the previous history or as a prelude to a new world emerging from it. In this light, it would rather become an independent moment, resulting from the active and creative transformation of the post-Hallstatt traditions into a new, self-contained Central European cultural model which in the 3rd century BC started to evolve as a result of interactions with the societies of the La Tène culture with its distant hinterland.

The studies on the pre-Roman Iron Age carried out from this standpoint by the group of researchers at the Faculty of Archaeology of the Adam Mickiewicz University are based on the research traditions of the Greater Poland Archeology. Since the turn of the 19th and 20th century, quite a few sites related to this period have been identified in Greater Poland (Undset, 1882; Blume, 1909, 1911, 1915; Erzepki & Kostrzewski, 1914; Kostrzewski, 1919b, 1919/1920). The materials collected at the turn of the century were the basis for the attempts to create the first syntheses, which significantly influenced the perception of the pre-Roman Iron Age not only from the regional, but also from the Central European perspective. These include the work by W. Demetrykiewicz (1900) on the dispersion of crown neck-rings. In particular, however, the monograph *'Die ostgermanische Kultur der Spätlatènezeit'* by Józef Kostrzewski has played a leading role in this topic (Kostrzewski, 1919a). The typological and chronological findings contained therein have not lost their value to this day, and the materials presented still constitute an important database for further research on the issues of the pre-Roman Iron Age. This work, along with synthesising approaches contained in two editions of *'Wielkopolska w czasach przedhistorycznych'* [Greater Poland in Prehistory] (Kostrzewski, 1914, 1923), contains such an in-depth presentation of the picture of cultural transformations in the pre-Roman Iron Age that the need for a new summary monograph has long since disappeared. Fortunately, this did not mean that studies on this issue were abandoned. In the interwar period J. Kostrzewski – in the context of his contemporary interests and a discussion with German researchers on the continuity of Slavic settlement – took a retrospective look at the problem of links between the material culture at the beginning of the Late pre-Roman Iron Age and the declining times of the Lusatian culture horizon (Kostrzewski, 1938), engaging in a discussion on the issues of ethnic affiliation of the communities of the time (Kostrzewski, 1936).

A significant increase in the source base, especially that connected with research on the later phase of the pre-Roman Iron Age, took place in Greater Poland in the 1950s as a result of research undertaken in large necropolises of the Przeworsk culture such as Wymysłowo (Jasnosz, 1952) and Młodzikowo (Dymaczewski, 1958) as well as the site in Kalisz-Piwonice (Dąbrowski, 1959). The studies carried out at these sites resulted in the systematisation of the source knowledge for many years, creating reference points for any further considerations on the pre-Roman Iron Age. Thus, they shaped the perception of cultural changes taking place over the last two hundred years of the the old era in Greater Poland (Jasnosz, 1972; Machajewski, 1986).

Another re-evaluation of the issues of the Late pre-Roman Iron Age occurred in the 1980s as a result of initiatives undertaken by Henryk Machajewski. This researcher pointed to some connections between Greater Poland and the zone of the Jastorf culture (Machajewski, 1986, pp. 274, 281). Presence of products from the Jastorf zone as mainly seen in the context of the flow of imports (Wołągiewicz, 1979, p. 36), well readable in the Late Pomeranian (Kaczmarek 1999, pp. 149, 150) and Early Przeworsk assemblages (Dąbrowska, 1988, pp. 192-204).

An exponential rise in the quantity of discovered materials allowed for a new insight into the problem of the pre-Roman Iron Age at the turn of the century (20th and 21st). To a large extent this was due to excavations conducted within the large-area linear explorations in Poland, these associated with construction works and rescue excavations. The year 2002 was undoubtedly a symbolic date in this respect – Henryk Machajewski organised a scientific conference *'Kultura jastorfska na Nizinie Wielkopolsko-Kujawskiej'* [The Jastorf Culture in the Greater Poland-Kuyavia Lowlands] at the then Institute of Prehistory of the Adam Mickiewicz University. The publication of the conference papers, supplemented with additional texts presenting the data growth at that time (Machajewski, 2004), reopened the discussion of the model of community formation between the third and second century BC (in this regard see in particular: Machajewski & Pietrzak, 2008a, 2008b; Machajewski, 2010, 2012). In

Figure 1. Sampling pottery by M. Teska, PhD for archaeometric analyses in the repository of the Museum of Archaeology in Poznań (Photo: A. Michałowski).

addition, new concepts presented in the volume undoubtedly were an inspiration for a group of archaeologists from the Institute of Prehistory of the Adam Mickiewicz University where, under the auspices of Professor Tadeusz Makiewicz, DSc, PhD, a research institute began to develop, programmatically implementing the study of this stage of history (Machajewski, 2008, pp. 110, 111).

Figure 2. Pottery on the museum table (Photo: A. Michałowski).

The research initiated at that time was actively pursued by a team working within the Faculty of Archaeology of the Adam Mickiewicz University, composed of Professor Andrzej Michałowski, DSc, PhD; Milena Teska, PhD; Marta Krzyżanowska, PhD; Patrycja Kaczmarska, MA; and Mateusz Frankiewicz, MA. The focal point of the work in recent years has been settlement pottery, which is a massive source of evidence acquired during excavations and whose potential has not been fully exploited yet (Figures 1-2). One way to better understand the possibilities that this type of mass material can bring has been exploitation of the potential of archaeometry. The archaeometric studies were conducted in cooperation with an analytical team led by Professor Przemysław Niedzielski, DSc, PhD, from the Faculty of Chemistry of the Adam Mickiewicz University (AMU), as part of the National Science Centre project OPUS 2014/15/B/HS3/02279: *Dzieje zamknięte w glinie. Wskaźniki geochemoarcheologiczne wielkopolskiej ceramiki z młodszego okresu przedrzymskiego jako źródło dla poznania zróżnicowania kulturowego* [History enclosed in clay. Geochemoarcheological indicators of Greater Poland pottery from the Late Pre-Roman Iron Age as a source for discovering the cultural diversity].

The archaeometric studies included pottery from settlements of key importance for the Greater Poland-Kuyavia Lowlands dating back to the transition between the Early and Late Pre-Roman Iron Age, such as Borzejewo 22; Daniszew 1 and 18; Grabkowo 7 and 8; Pławce 22; and Poznań-Nowe Miasto 226, 278 and 284 (in accordance with the conservation nomenclature Spławie 4, Krzesiny 30 and 33) (Figures 3-4). These ceramics were subjected to both quantitative and qualitative analyses on a scale unprecedented in the archaeometric

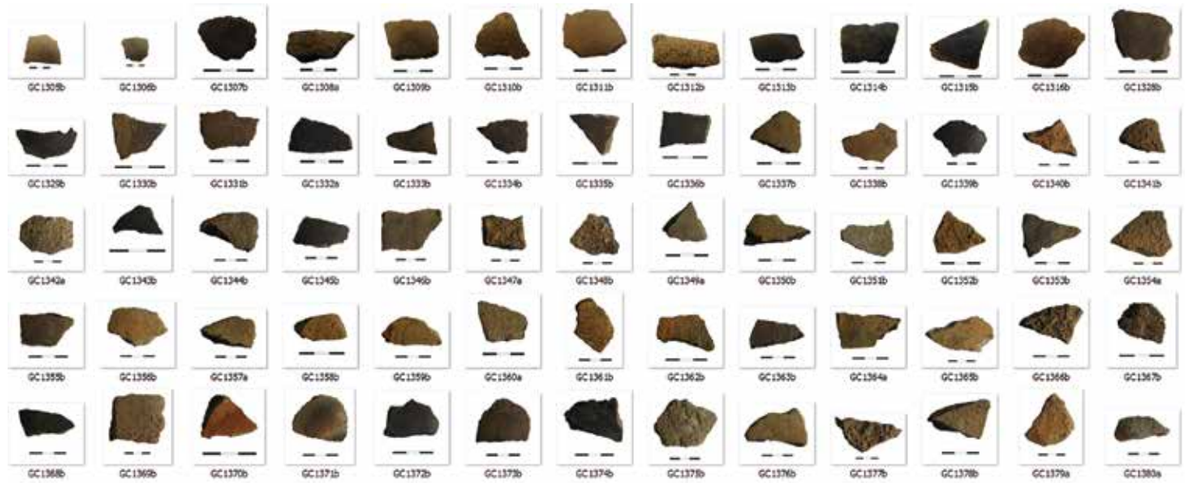

Figure 3. Pottery from the site in Borzejewo selected for an archaeometric analysis (Photo: M. Teska).

Figure 4. Description of macroscopic features of the material prepared for archaeometric analyses – M. Wawrzyniak, MSc, and Milena Teska, PhD (Photo: P. Kaczmarska).

literature (total of 1,694 samples were analysed, yielding 88,088 results). The chemical analysis of the selected artefacts was carried out on the basis of the following analytical procedures: a non-destructive analysis using the energy dispersive X-ray fluorescence technique (ED-XRF) and destructive analyses of the studied fragments including surface analysis of cores cut from pottery fragments and an analysis of a ground sample, both performed using the method of inductively coupled plasma optical emission spectrometry (ICP-OES) (Michałowski, Teska & Niedzielski, 2017).

The analysis with the use of the ED-XRF technique made it possible to obtain information on the composition of the pottery; 30 elements were determined. Although it is necessary to be aware of the semi-quantitative nature of the results obtained using the energy dispersive X-ray fluorescence technique, the size of the studied sample set (761 analysed samples, which gives 22,830 analysis results) allows statistical inference (Figures 5-8).

The analysis of the cores was carried out as an auxiliary tool in order to infer the depositional environment of the artefacts. For selected pottery samples, cylindrical cores were collected using a 8-10 mm diamond core drill, whose surface (except for one base) was protected against extraction made with hydrochloric acid 2 mol/L at 80°C.

The analysis of ground samples was the main tool of the archaeometric research. The research involved 1,572 samples of pottery obtained by excavations and 122 samples of clays and loams obtained during experimental firing under controlled conditions (different firing temperatures in reducing, oxidising, and neutral atmosphere – these tests were possible thanks to the use of a microwave furnace purchased for the project). After grinding in a mechanical agate mill, the ceramic samples were extracted with 2 mol/L hydrochloric acid at 80°C (Figures 9-12).

Huge number of results provided a sound basis for a statistical analysis, which in archaeometric studies usually barely involves several to a dozen elements for at most tens of samples. The dataset obtained within the project facilitated an application of statistical

Figure 5. Equipment for making ceramic cores and grinding the pottery samples – ‘makeshift’ laboratory in the repository of the Faculty of Archaeology (Photo: A. Michałowski).

Figure 6. Grinding of a pottery sample (Photo: A. Michałowski).

Figure 7. Professor P. Niedzielski and the spectrometer ICP-MS (Photo: A Michałowski).

Figure 8. Laboratory of Professor P. Niedzielski at the Faculty of Chemistry AMU (Photo: A. Michałowski).

Figure 9. Experimental paste preparation for a trial firing (Photo: M. Teska).

inference using descriptive statistics, a correlation analysis (Jasiewicz et al., 2021). The research carried out so far both within and outside the project is resulting in the creation of one of the largest archaeometric collections of prehistoric pottery. At the same time, the research has helped develop an innovative and universal method of dealing with mass material, such as the remains of clay vessels. This pioneering compilation of a huge body of information on the composition of the pottery constitutes a model for future archaeometric studies of mass material.

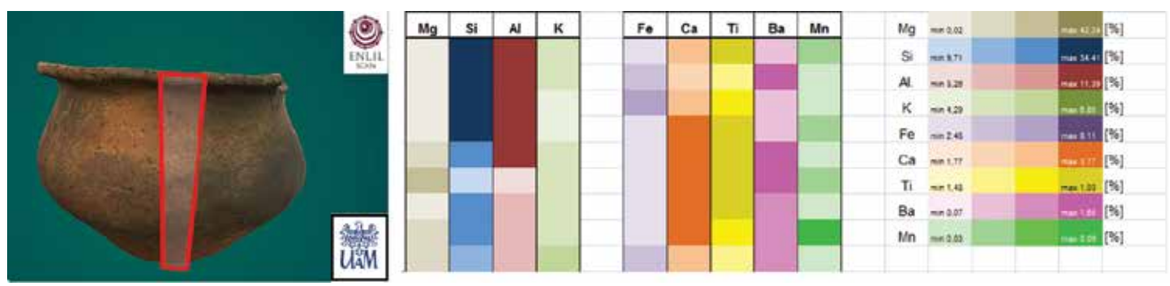

Figure 10. Graphical presentation of analyses of the elemental composition of the surface of a ceramic vessel from Grabkowo, site 7 (Ed. by K. Jakubowski).

The present authors express the hope that differences in the preparation of paste and in the firing of the vessels left some chemical markers in the finished product which, when abstracted from their structure, may become an independent key for the attribution of the ceramic material to a particular cultural model and thus demonstrate its homogeneity or cultural diversity (Michałowski et al., 2018). The current studies confirm the possibility of selecting potentially similar (local) and potentially foreign artefacts. Even on the basis of the preliminary statistical study of the XRF results obtained in the project, it is possible to demonstrate differences in the chemical composition of pottery acquired from different archaeological sites (Michałowski et al., 2020).

The ongoing studies of the problems of the pre-Roman Iron Age strive to detail and explain the processes and changes occurring at the time. They fit into the Poznań tradition of studies on this period, being a continuation of the previous work undertaken on the intricate issues of the pre-Roman Iron Age – empowering it and leading it out of the titular ‘interim’, placing it in the fully deserved centre of research interests.

Figure 11. Overview of the effect of experimental clay firing (Ed. by K. Jakubowski).

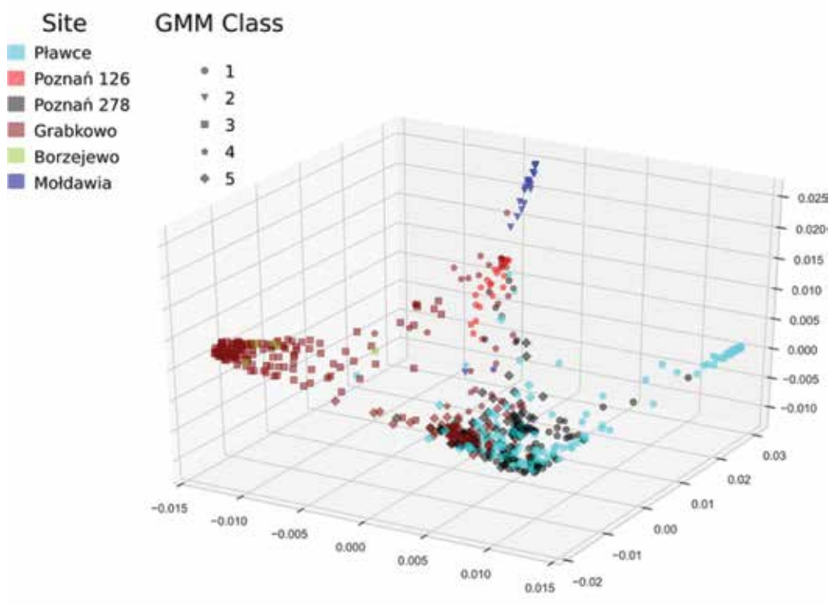

Figure 12. Diagram showing one of the statistical analyses of the results of the archaeometric research carried out using the XRF spectrometer (Ed. J. Jasiewicz).

Acknowledgements

'History enclosed in clay. Geochemoarcheological indicators of Greater Poland pottery from the Late Pre-Roman Iron Age as a source for discovering the cultural diversity' is a project of the National Science Centre, Poland, UMO-2014/15/B/HS3/02279).

The acquisition of the XRF spectrometer was supported by grant DEC-2013/09/B/HS3/00630 of the National Science Centre of Poland and I would like to thank Michał Krueger, PhD, for the possibility to use this instrument.

With many thanks to the members of the chemistry team, in particular to Karol Jakubowski, MSc, and Jędzrzej Proch, MSc, from the Faculty of Chemistry, AMU, as well as to our invaluable geomorphological and especially statistical support provided by prof. Iwona Hildebrandt-Radke, and prof. Jarosław Jasiewicz, from the Faculty of Geographical and Geological Sciences, AMU.

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