

NOTAE NUMISMATICAE

ZAPISKI NUMIZMATYCZNE



Tom XVIII

MUZEUM NARODOWE W KRAKOWIE
SEKCJA NUMIZMATYCZNA
KOMISJI ARCHEOLOGICZNEJ PAN
ODDZIAŁ W KRAKOWIE

Kraków 2023

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Elżbieta Hutten-Czapska née Meyendorff (1833–1916), autor I. Makarov, 1880

Elżbieta Hutten-Czapska z domu Meyendorff (1833–1916), autor I. Makarow, 1880

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W roku 2023 przypada 120. rocznica Daru Rodziny Czapskich. Jego autorką była Elżbieta Hutten-Czapska z domu Meyendorff (1833–1916) i jej synowie Jerzy (1861–1930) i Karol (1860–1904) Hutten-Czapscy. Dar hrabiego Emeryka Hutten Czapskiego (1828–1896), obejmujący znakomitą kolekcję numizmatów polskich i z Polską związanych oraz zaprojektowany według jego życzeń i dokończony przez wdowę pawilon muzealny, złożony na rzecz Gminy Miasta Kraków, czyli de facto Narodu Polskiego, miał olbrzymie znaczenie nie tylko dla jakości kolekcji numizmatycznej Muzeum Narodowego w Krakowie, ale także dla rozwoju całościowo pojmowanej numizmatyki polskiej. Ponad 11 tysięcy polskich monet, medali i pieniędzy papierowych, wśród nich wiele unikatów lub rzadkości, stanowiło, stanowi i będzie stanowić podstawę dla organizowanych przez Muzeum wystaw, dla edukacji numizmatycznej i ekonomicznej szerokiej rzeszy publiczności i wreszcie dla badań naukowych nad różnymi zagadnieniami z zakresu numizmatyki polskiej i nie tylko. Nie należy również zapominać o społecznym znaczeniu Daru Rodziny Czapskich. Poczynając od 1903 roku, do dziś całe pokolenia zainspirowanych nim darczyńców wzbogacały i wzbogacają kolekcję numizmatyczną Muzeum Narodowego w Krakowie w pragnieniu nawiązania do czynu Czapskich czy też chęci uzupełnienia muzealnych zbiorów o obiekty, których hrabia nie posiadał. Zapatrzeni w jakość zbioru zbudowanego przez Emeryka Hutten-Czapskiego nie możemy jednak zapomnieć o rzeczywistej ofiarodawczyni, wdowie po kolekcjonerze – Elżbiecie. Bez niej i jej decyzji fantastyczna, unikatowa kolekcja zapewne uległaby rozproszeniu, jak wiele innych zbiorów, a w każdym razie nie byłaby dostępna dla wszystkich zainteresowanych polską i światową numizmatyką. Dzięki jej decyzji o ofiarowaniu zbiorów męża Narodowi możemy dzisiaj podziwiać zbiory hrabiego w Muzeum jego imienia przy ulicy Marszałka Józefa Piłsudskiego 12 w Krakowie. Elżbieta poprzez dar realizowała plan zachowania kolekcjonerskiego dziedzictwa męża. Wspierała go zresztą w jego pasji już wcześniej. Pomagała mu przy pracach nad zbiorem, wykonując precyzyjne rysunki monet i medali. Pamięci hrabiny Elżbiety Hutten-Czapskiej pragniemy zadekować obecny tom naszego czasopisma.

Redakcja

Dear Readers,

We are delighted to present you with volume 18 of *Notae Numismaticae – Zapiski Numizmatyczne*. As is our policy, we publish all texts in the congress languages, with English and Polish abstracts. The contents of the current volume and archive numbers are available as PDF files on the website of the National Museum in Krakow (<https://mnk.pl/notae-numismaticae-zapiski-numizmatyczne-1>). The website also provides all general information about the journal, along with guidelines for authors and reviewers.

The year 2023 marked the 120th anniversary of the Czapski Family Donation. The donation was made by Elżbieta Hutten-Czapska, née Meyendorff (1833–1916), and her sons Jerzy (1861–1930) and Karol Hutten-Czapski (1860–1904), and comprised Count Emeric Hutten Czapski's (1828–1896) magnificent collection of numismatic items from Poland and connected with Poland, as well as a museum pavilion designed according to his wishes and completed by his widow. It was given to the Municipal Commune of Krakow, i.e. de facto to the Polish Nation, and was of enormous significance not only for the numismatic collection of the National Museum in Krakow, but also for the development of Polish numismatics in general. Including many rare and unique pieces, the more than 11,000 Polish coins, medals, and paper money that comprise the collection have been, and will continue to be, the basis for exhibitions organised by the Museum for the numismatic and economic education of the general public, as well as research into various problems in Polish numismatics and beyond. The social significance of the Czapski Family Donation should not be forgotten either. Since 1903, generations of donors inspired by this act have contributed to the enrichment of the numismatic collection of the National Museum in Krakow in their desire to follow in the footsteps of the Czapski family or to supplement the museum's holdings with objects that the Count did not have. While admiring the quality of the collection assembled by Emeryk Hutten-Czapski, however, we cannot forget the actual donor, his widow Elżbieta. Without her and her decision, this fantastic, unique collection would probably have been dispersed, like many other collections, and in any case would not have been accessible to all those interested in Polish and world numismatics. Thanks to her decision to donate her husband's holdings to the nation, today we can admire the Count's collection in the eponymous museum at 12 Marszałka Józefa Piłsudskiego Street in Krakow. Through the donation, Elżbieta pursued a plan to preserve her husband's collecting heritage. In fact, she had already supported her husband in his passion previously, assisting him in his work on the collection by making precise drawings of coins and medals. We would like to dedicate the present volume of our journal to the memory of Countess Elżbieta Hutten-Czapska.

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New Finds of Early Medieval Weights and Lead Objects from Dąbrowa Górnicza, Chruszczobród, and Chruszczobród-Piaski, Śląskie Province

ABSTRACT: The “Szttygarka” Municipal Museum in Dąbrowa Górnicza houses a collection of early medieval weights and lead objects recently discovered in the border area of Dąbrowa Górnicza, Chruszczobród and Chruszczobród-Piaski in Zawiercie district. They are discussed here for the first time. The paper presents the current state of research on silver and lead smelting in the early Middle Ages in the area now at the borderlands of Upper Silesia and Lesser Poland and offers a broader perspective on early medieval lead weights. As a result of the analysis of the artefacts, it has been proposed to introduce a new type of weights to the typology currently in use. Attention is also drawn to a technological aspect previously unreported in the literature, namely a hole in one of the weights for fixing a stabiliser for the core of a casting mould. Based on morphometric features and deformations of the surface, it is also suggested that one of the artefacts may have been used as a metalworking hammer. The results of the analysis carried out make it possible to discuss the collection against the backdrop of

other recent discoveries of lead weights in Poland and to present the archaeological context and diverse nature of this category of sources.

KEY WORDS: Chruszczobród and Chruszczobród-Piaski, Dąbrowa Górnicza, early Middle Ages, lead weights, silver and lead smelting

ABSTRAKT: Nowe znaleziska wczesnośredniowiecznych ciężarków i wyrobów ołowianych z obszaru pogranicza Dąbrowy Górniczej, Chruszczobrodu i Chruszczobrodu-Piasków, woj. śląskie

W Muzeum Miejskim „Szytgarka” w Dąbrowie Górniczej znajduje się zbiór ciężarków i wyrobów ołowianych datowanych na wczesne średniowiecze. Zostały one odkryte w ostatnim czasie na pograniczu Dąbrowy Górniczej, Chruszczobrodu i Chruszczobrodu-Piasków, pow. zawierciański, numery arkuszy AZP 94-50 i 95-50. Niniejszy artykuł jest pierwszą publikacją poświęconą temu zbiorowi wyrobów. Przedstawiono w nim aktualny stan badań nad hutnictwem srebra i ołowiu we wczesnym średniowieczu na terenie obecnego pogranicza Górnego Śląska i Małopolski oraz tło problematyki ciężarków ołowianych. W wyniku przeprowadzonej analizy zabytków scharakteryzowano ten zbiór i zaproponowano wprowadzenie do wykorzystywanej typologii nowej odmiany typu ciężarków. Zwrócono także uwagę na nieporuszaną dotychczas w literaturze cechę technologiczną – otwór w jednym z ciężarków służący do mocowania rdzenia formy odlewniczej. Ponadto na podstawie poczynionych obserwacji cech morfometrycznych oraz odkształceń powstałych na powierzchni jednego z ciężarków wskazano na możliwość wykorzystywania go jako młotka do obróbki metalu. Wyniki przeprowadzonej analizy posłużyły do prezentacji całego zbioru na tle innych nowych odkryć ciężarków ołowianych w Polsce, ukazując ich kontekst archeologiczny i wskazując na jego zróżnicowany charakter.

SŁOWA KLUCZOWE: Chruszczobród i Chruszczobród-Piaski, ciężarki ołowiane, Dąbrowa Górnicza, hutnictwo srebra i ołowiu, wczesne średniowiecze

INTRODUCTION

The focus of this paper are early medieval weights and lead objects discovered within the last 5 years in the area between Chruszczobród and Chruszczobród-Piaski (Zawiercie district) and the neighbouring northern districts of Dąbrowa Górnicza: Tuczawa and Ujejsce, in Śląskie Province (Polish Archaeological Record (Archeologiczne Zdjęcie Polski, abbrev. PAR) areas 54-50 and 55-50). They were found alongside other categories of artefacts, including pottery from the same period. In Dąbrowa Górnicza-Ujejsce there is a prominent hill known as Bukowa Góra.¹ The

¹ Cf. ROZMUS 2022: 31–36.

artefacts are stored in the “Szytgarka” Municipal Museum in Dąbrowa Górnicza. The archaeological material gathered from the area under analysis provides an insight into the material culture of the early Middle Ages, indicating the significant role played by lead in this period.

A BRIEF HISTORY OF SILVER AND LEAD SMELTING IN POLAND

The weights and other lead objects presented in this paper come from the area of the present-day Dąbrowa Coal Basin (Zagłębie Dąbrowskie), which coincides with the location of ore-bearing dolomite deposits. These are zinc-lead ores admixed with silver compounds. A medieval (early Polish) silver and lead smelting basin has been identified there and investigated over the last three decades. Today, this area lies at the border between Upper Silesia and Lesser Poland.² The basin included the area around the towns of Będzin, Bytom, Chrzanów, Dąbrowa Górnicza, Jaworzno, Olkusz (including Krzykawka), Sosnowiec, and Trzebinia. Apart from the mining and smelting of silver and lead, there was also intensive trade in metals in the area. The major archaeological sites include silver and lead smelting settlements at Dąbrowa Górnicza-Łosień and Sosnowiec-Zagórze, Przeczyce, Siewierz, and Żyglinek (part of the town of Miasteczko Śląskie). The results of the archaeological research carried out make it possible to verify the previous chronological findings and constitute a significant supplement to D. Molenda’s historical studies on the acquisition and distribution of lead extracted and smelted in Poland.³ This metal was used to make a wide variety of objects.⁴ The early mining and smelting of lead can be traced back to the 12th and 13th centuries, as also confirmed by historical sources.⁵

LEAD WEIGHTS

Lead artefacts commonly interpreted as weights are known from early medieval sites in Central Europe, Eastern Europe, and Scandinavia. Their association with trade is indicated by their discovery contexts, including Scandinavian trade emporiums in historic Hedeby (Schleswig-Flensburg district, Germany), Birka (Ekerö commune, Sweden) and Sturkö (Karlskrona commune, Norway). In the Scandinavian archaeological literature they have been identified as lead balance weights.⁶ These finds are typically analysed in terms of the origin of the lead raw

² ROZMUS 2004: 301–305; IDEM 2012; IDEM 2013; IDEM 2014.

³ MOLENDĄ 2001.

⁴ KALINOWSKI 1971: 179, Fig. 7; MIKOŁAJCZYK 2012: 350–351; ROZMUS 2014: 67–72, with further literature there.

⁵ PIEKOSIŃSKI 1874; MAŁECKI 1894; KOZŁOWSKA-BUDKOWA 1978: 82; SKOWRONEK 2009: 321.

⁶ ROZMUS 2014: 219, with further literature there.

material. They appear in different archaeological contexts, in archaeological sites associated with a wide variety of different types of human activity.

In Poland and the Czech Republic, these artefacts have only recently begun to receive more attention, with the publication of their larger series.⁷ It is important to note that they are also known from Great Moravian strongholds.⁸ Near the Polish-Czech border, they were found on both sides: at the rotunda in Cieszyn and at the fortified settlement in Chotěbuz-Podobora (Karviná district, Czech Republic) in Moravia.⁹ They are also known from Slovakia, although most of the finds there remain unpublished and are only known from personal communication with Slovak researchers. Further south, such artefacts are known from Romania.

Objects described as lead weights have been found in cultural strata of the main centres of early medieval Poland, some of which are referred to as *sedes regni principales*.¹⁰ The recent interpretation of the administrative and fiscal division of the early Piast monarchy,¹¹ with a somewhat simplified administrative structure, does not fundamentally change the fact that these sites, called *Civitates Principales*,¹² were the more dynamically developing centres of early medieval settlement. Among other places, lead weights were discovered in Biskupin, Bytom, Bytom Odrzański, Cieszyn, Gniezno, Kalisz-Zawodzie, Kałdus, Kraków, Łęczyca, Ostrów Lednicki, Płock (on Cathedral Hill), Poznań, Wrocław, and, above all, in Opole, where a large number of them were found on Ostrówek.¹³

Lead weights were already mentioned in the context of pre-war research,¹⁴ and more keep being discovered. New lead weights were found, among others, in Stare Bukowno (part of the town of Bukowno, Olkusz district),¹⁵ Dąbrowa Górnicza-Błędów,¹⁶ in the vicinity of Jaworzno,¹⁷ in Krzykawka (Olkusz district),¹⁸ Malinowice (Będzin district),¹⁹ Mikołów,²⁰ Młoszowa (Chrzanów district),²¹

⁷ BIERMANN and MACHAČEK 2012: 183; BLÁHA, HEJHAL and SKALA 2013; MACHÁČEK and MĚCHURA 2013.

⁸ PTÁK, JOHN and BENEŠ 2018.

⁹ GRYC 2020: 152–153.

¹⁰ MALECZYŃSKI 1952: 74–75, 83, 89; PIANOWSKI 1994: 35–36, 44, 59.

¹¹ FOKT 2022.

¹² JANIĄK and STRYŃIAK 1998: 22, 42, 65, 99.

¹³ BODNAR, ROZMUS and SZMONIEWSKI 2007; ROZMUS 2014, with further literature there.

¹⁴ HENSEL, NIESIOŁOWSKA and ŻAK 1959: 44.

¹⁵ ROZMUS 2016.

¹⁶ *Ibidem*.

¹⁷ ROZMUS and SZMONIEWSKI 2013.

¹⁸ NIEBYLSKI and ROZMUS 2021.

¹⁹ ROZMUS 2016.

²⁰ ZDANIEWICZ 2019.

²¹ ROZMUS 2019.

Siewierz,²² Sosnowiec-Zagórze,²³ Udórz (Zawiercie district), and in the region discussed in this paper: in Chruszczobród, Chruszczobród-Piaski, and the Tucznawa and Ujejsce districts of Dąbrowa Górnicza.

The lead artefacts included in the discussed category are mostly specimens in the form of discs, discs with holes, cones with holes, and biconical artefacts. They come in a large number of variants in terms of shape and size, which implies different weight ranges. They probably appeared in the 2nd half of the 12th century at the latest. Lead weights from the younger phases of the Middle Ages differ significantly from the early medieval artefacts discussed here.

The variety of shapes is so significant that they only broadly fit into the classic typology of K. Wachowski, where similar forms cover types A to F. Including lead scrolls identified as type A, the types distinguished by Wachowski generally differ from the most commonly found forms of lead weights.²⁴ As mentioned, lead finds described as weights come in a wide range of forms, only some of which are shapes commonly associated with makeweights. Their primary aspect was probably their weight, while shape was less important and hence considerable morphometric variation can be observed. Their weight certainly referred to a measurement system that was understood at the time. For example, zoomorphic weights have a tradition dating back to ancient cultures of Mesopotamia and Egypt.²⁵ In Africa, the Ashanti people living in Ghana and their neighbours used bronze weights of abstract-geometric forms²⁶ along with such in the shape of humans, animals and even fruit. The fundamental research problem is therefore to determine the function of these artefacts. The form of the artefacts, in our case lead ones, seems to be a secondary issue, although perhaps an increase in the source basis will one day call for a revision of this view.

The currently used typology of lead weights, developed by R. Bodnar, D. Rozmus and B.Sz. Szmoniewski²⁷ and supplemented by Rozmus,²⁸ covers four types, with the first type having two varieties and the second type three varieties. Type 1 encompasses disc-shaped weights, which in variety a have a hole in the middle while in variety b the discs are smooth. Type 2 comprises conical weights, whereby in variety a there is a hole in the middle, in variety b there is a hole in the middle and a well-defined edge, while in variety c the cones are smooth. Type 3 comprises

²² DOBRAKOWSKI and DOBRAKOWSKA 2013.

²³ ROZMUS and SULIGA 2012: 176, Fig. 5.

²⁴ WACHOWSKI 1974: 179–184.

²⁵ KULA 2004: Fig. 4.

²⁶ TROJAN 1973: 99–102, Fig. 28; THEILE 1974: 241, 251, Fig. 104.

²⁷ BODNAR, ROZMUS and SZMONIEWSKI 2007: 17.

²⁸ ROZMUS 2014: 217.

biconical weights with a hole in the middle. Type 4 comprises weights which, unlike all the previous types, were not cast, but were made by hot-wrapping a lead bar, leaving a hole in the middle.

The function of these artefacts remains a matter of debate among researchers. They are variously interpreted, mainly as: weights, balance weights, commodity money, *exagia* (weights for coin weighing, from Latin *exagium*: weighing, test of weight), spindle whorls, loom weights, fishing net weights, ornaments, masonry plumb bobs, or abacus elements.²⁹ Perhaps a detailed analysis of the context of their discovery would be helpful in future considerations of this category of artefacts.

The moment when these artefacts first appear in early medieval archaeological record cannot be precisely determined. A possible role of the artefacts in question as commodity money has already been suggested on several occasions in the literature, including by the authors of this paper. These artefacts are possibly referred to in such a context in the account of the Radhanite Ibrahim ibn Jacob, who mentions commodity money-weights with which Mieszko I rewarded his warriors.³⁰ Perhaps, therefore, the middle of the 10th century marks the moment when these artefacts started to be widely used as commodity money in Poland and Central Europe.

WEIGHTS AND LEAD OBJECTS FROM CHRUSZCZOBRÓD, CHRUSZCZOBRÓD-PIASKI AND DĄBROWA GÓRNICZA

Lead weights are known from finds retrieved by metal detector surveys (as is the case with Krzykawka³¹), from field surveys, and also from regular archaeological excavations. This last is primarily the case with Dąbrowa Górnicza-Łosień³² and Dąbrowa Górnicza-Strzemieszycze Wielkie.³³

The analysed weights and lead objects were discovered in Chruszczobród, Chruszczobród-Piaski (in both cases acquired from 2019 as part of regular PAR surveys and as stray finds), Dąbrowa Górnicza-Tuczna (from 2019, as part of regular PAR surveys) and Dąbrowa Górnicza-Ujejsce (from 2022, as stray finds). The materials come from an area that belongs to the PAR area 95-50 and the southern part of PAR area 94-50 (Map 1). One assemblage of such artefacts

²⁹ NOWAK 1966: 188; WACHOWSKI 1974: 173–181; BODNAR and ROZMUS 2004: 64–66; BODNAR, ROZMUS and SZMONIEWSKI 2007; BIERMANN and MACHÁČEK 2012: 183; BLÁHA, HEJHAL and SKALA 2013; MACHÁČEK and MĚCHURA 2013; ROZMUS 2014: 215–220; IDEM 2016; IDEM 2019; NIEBYLSKI and ROZMUS 2021; VÍCH 2021: 64.

³⁰ KOWALSKI 1946: 50; KUBIAK 1954–1956: 368; BODNAR, ROZMUS and SZMONIEWSKI 2007: 44–50; ZABORSKI 2008; ROZMUS 2015: 107.

³¹ NIEBYLSKI and ROZMUS 2021.

³² BODNAR, ROZMUS and SZMONIEWSKI 2007.

³³ ROGACZEWSKA 2008: 84, Pl. XXIV.

was discovered in Chruszczobród (Pl. 1), and another one in Chruszczobród-Piaski (Pls. 2–3), the latter marked on Map 1: A. As for Dąbrowa Górnicza-Ujejsce, two assemblages of lead artefacts (Pls. 4–5) come from Bukowa Góra, and the detailed location of the second of these (Pl. 5) is illustrated on Map 1: B–F. In addition, other categories of artefacts, including slag, amorphous lumps of molten lead and pottery of medieval chronology (including early medieval) have been discovered on archaeological sites (Map 1) in the area under discussion (including in the land administratively belonging to Dąbrowa Górnicza-Tuczna). These are illustrated in Plates 6 and 7. The analysis of lead weights used the typology of Bodnar, Rozmus and Szmoniewski,³⁴ supplemented by Rozmus.³⁵ The aggregate metric data are shown in Tables 1–3 and Chart 1.

The collection of lead weights from Chruszczobród comprises six specimens: one type 1 weight, variety a; four type 2 weights, variety a; and one type 2 weight, variety b. The first of these has a diameter of 1.3 cm, a height of 0.5 cm, a hole diameter of 0.3 cm and is 5.826 g in weight (Fig. 1.1). The weights of type 2, variety a have diameters between 1.3 and 2.7 cm (mean 1.925 cm), heights between 1.0 and 1.8 cm (mean 1.35 cm), hole diameters between 0.7 and 1.2 cm (mean 0.9 cm) and are between 7.184 and 49.195 g in weight (mean 23.2655 g) (Figs. 1.2–5). The last specimen, of type 2 variety b, has a diameter of 2.7 cm, a height of 2.9 cm, a hole diameter of 0.7 cm and is 44.770 g in weight (Fig. 1.6).

Lead weights from Chruszczobród-Piaski are represented by 12 specimens: one type 1 weight, variety b; five type 2 weights, variety a; one type 3 weight; two type 4 weights; and three objects that are close to type 1 weights, variety b, but, due to dissimilarities, have no direct analogy in the typology used. The type 1 weight of the b variety has a diameter of 2.7 cm, a height of 0.6 cm and is 18.042 g in weight (Fig. 3.4). The weights of type 2, variety a, have diameters ranging from 1.8 to 3.5 cm (mean 2.56 cm), heights between 1.3 and 5 cm (mean 2.22 cm), hole diameters of 0.3 to 1.5 cm (mean 0.84 cm) and weight from 12.063 to 208.723 g (mean 66.3724 g) (Figs. 2.1, 2.3, 2.5; 3.1–2). It is worth noting that the specimen of this type illustrated in Figure 2.5 is a relatively heavy and exceptionally high form, with a prominent technological feature in the form of a small-diameter hole pierced throughout the weight, located at 2/3 up from the more massive end. This hole served to accommodate a crossbar to stabilise the core of the mould in which this weight was cast. The type 3 weight has a diameter of 1.3 cm, a height of 3.3 cm and is 33.715 g in weight. The type 4 weights have diameters of 2.0 and 2.1 cm (mean 2.05 cm), heights of 2.0 and 1.8 cm (mean 1.9 cm), a hole diameter

³⁴ BODNAR, ROZMUS and SZMONIEWSKI 2007: 17.

³⁵ ROZMUS 2014: 217.

(only measurable for one specimen) of 1.2 cm and weights of 26.421 and 44.624 g (mean 35.523 g) (Figs. 2.2, 2.4). The remaining three objects resemble weights of the type 1 variety b but differ from them in some aspects. The object illustrated in Figure 3.6 is 2.7 cm wide, 0.5 cm high and weighs 13.047 g. It is most likely a fragment of a type 1 weight, variety b. The object illustrated in Figure 3.5 is 2.3 cm wide, 1.6 cm high and weighs 26.906 g. It is most likely a fragment of a type 2 or 3 weight, or other lead object. The object illustrated in Figure 3.3 is particularly interesting because it is fully preserved and represents a type not included in the typology. It has a diameter of 2.3 cm, a height of 1.3 cm and is 26.452 g in weight. It differs from type 1, variety b, in the presence of a convex knob on one of the flat sides, in the central part, and a second knob, on the same side, just at the edge. On this occasion, it is worth considering extending the functioning typology to include this form of weights as type 1, variety c, that is, disc-shaped, smooth weights with a knob.

The first of the sets of lead objects from Dąbrowa Górnicza-Ujejsce (Bukowa Góra) comprises four specimens: three weights of type 2, variety a, and one object resembling weights of type 2, variety a, but, due to dissimilarities, having no precise analogy in the typology used. The weights of type 2, variety a, have diameters ranging from 1.6 to 1.9 cm (mean 1.7 cm), heights from 1.0 to 1.7 cm (mean 1.4 cm), hole diameters from 0.6 to 0.8 cm (mean 0.7 cm) and weights from 11.206 to 22.917 g (mean 15.7243 g) (Figs. 4.1–3). The artefact illustrated in Figure 4.4 is very interesting as it is completely preserved and represents another type not included in the typology, albeit similar to type 2, variant a. Unlike in this variant, its sidewall has been extended and secondarily shaped in a butt, with use-wear marks on the surface. The artefact is 3.6 cm long, 2.4 cm high, with hole diameter of 1.1 cm and 95.721 g in weight. Considering its shape, the proportions of the butt part and the weight, as well as the use-wear traces observed, it was most probably used as a metalworking hammer.

The second set of lead artefacts from Dąbrowa Górnicza-Ujejsce (Bukowa Góra) was acquired recently. It consists of six objects, including four amorphous lumps of molten lead (Figs. 5.3–6) and two weights of type 1, variety b (Figs. 5.1–2). One of the latter is provided with a hole, which has a small diameter and is located asymmetrically, close to the edge. However, the hole was made secondarily, after the weight had been cast.

The discovered lead weights represent a group of early medieval weights included in the typology of Bodnar, Rozmus and Szmoniewski, supplemented by Rozmus and extended by adding type 1, variety c. According to the extended typology, they correspond to types: 1, variety a; 1, variety b; 1, variety c; 2, variety a; 2, variety b; 3; and 4, thus all variants except type 2, variety c.

LEAD WEIGHTS – DISCOVERY CONTEXT

Analysing the new finds of lead weights, it is worth outlining the archaeological context for the previous discoveries of such artefacts. However, it should be noted that, at the most general level, the categories of archaeological contexts overlap functionally, as they represent broad spheres of human activity. The artefacts in question were discovered in five categories of contexts: A–E. These are: A. smelting settlements; B. sites associated with trade; C. cemeteries; D. caves; and E. deposits.

Finds of lead weights are concentrated in settlements associated with the mining and smelting of silver and lead and these are therefore potential sites for their production. It should be noted that alleged production of this type of artefacts from local lead deposits does not exclude widespread trade in the area, especially as lead from the present-day borderland of Upper Silesia and Lesser Poland was distributed beyond the then borders of Poland to other countries in Europe. This is indicated by new isotopic studies of lead objects.³⁶ Objects made of lead of Polish provenance have now been confirmed from Prague, among other places.³⁷

The analysed weights and lead objects from the Chruszczobród area and Dąbrowa Górnicza-Ujejsce, including the multicultural site at Bukowa Góra, also come from an analogous context. In these localities there are numerous traces of medieval and modern mining shafts. Thus, the weights most likely were found at the sites where they were cast.

The finds of lead weights are definitely most common in places associated with trade.³⁸ There is no doubt that it took place in the aforementioned *Civitates Principales*. Trade took place both in open settlements and within strongholds. Finds of weights close to a church³⁹ may indicate their dual role, both as objects related to local trade and as means of payment for certain church-related services. On this assumption, they would have fulfilled the role of commodity money.

Weights have sometimes been found in cemeteries, for example at Kałdus. Two iron weights plated with bronze, as well as two bronze weights and, most interesting to us, two lead weights, were found at this site. Of these lead weights, only one with traces of bronze plating has survived.⁴⁰ Lead weights were also discovered in cemeteries in Gdańsk, Pętkowice and Złota.⁴¹ Graves with weights are interpreted

³⁶ MIŚTA-JAKUBOWSKA et AL. (forthcoming).

³⁷ ETTLER et AL. 2015.

³⁸ HOŁUBOWICZ 1953: 47; MOŹDZIOCH 2002: 156; BODNAR, ROZMUS and SZMONIEWSKI 2007; PANKIEWICZ 2019: 147, 150; IDEM 2022: 184.

³⁹ GRYC 2020: 152–153.

⁴⁰ CHUDZIAK 2006: 106.

⁴¹ MIŚKIEWICZ 1967: 108, 110, 131, Fig. 3.18; WACHOWSKI 1974: 177; TRAWICKA 2007: Fig. 12.1907.

as burials of people connected with trade. This is also the case when interpreting the burial from Dziekanowice.⁴²

Lead objects are also known from cave contexts, one example being Tunel Wielki Cave in the Koziarnia Gorge, located in Ojców National Park. Two lead objects dating to the early Middle Ages were found in this cave: a lead disc without a hole weighing 3 g and a weight in the form of a cone with a hole and a flange, weighing 25 g.⁴³

These artefacts were important wares in early medieval Poland, as indicated by known instances of collecting them as deposits. A set of 19 weights of different types was found in Wrześnica (Sławno district), consisting of 13 barrel-shaped, 3 cuboctahedral, and 3 disc-shaped specimens. According to M. Maleszka, they were probably originally kept in a purse, which was deposited or lost in a place where goods were transferred from a boat to the shore.⁴⁴ It is important to realise that lead objects, including weights, may often have been treated marginally in analyses of deposits that also contained other objects such as coins and pieces of jewellery.

CONCLUSIONS

In the early Middle Ages, silver and lead ores were mined and smelted in many places at the present-day borderland between the Śląskie and Małopolskie Provinces. This was connected with the presence of ore-bearing dolomites in the area. These were zinc-lead ores, also containing silver compounds, and they were intensively exploited.

Lead weights are a category of artefacts with an early medieval chronology, relating to the period from the mid-12th century onwards. They have been discovered in various contexts in present-day Poland, and examples are also known from other countries in Central Europe, Eastern Europe and Scandinavia. The shapes vary and it is possible to identify cast specimens of discoidal, conical, and biconical shapes, as well as specimens formed by hot-wrapping a lead bar. Some of them have holes, while some of them also have a distinct flange at the edge. While the shapes vary, the weight is highly standardised (including multiples of it). Various functions have been suggested, including as weights, balance weights, commodity money, *exagia*, spindle whorls, loom weights, fishing net weights, ornaments, masonry plumb bobs, and abacus elements.

The lead weights analysed were discovered in Chruszczobród, Chruszczobród-Piaski and Dąbrowa Górnicza in the context of other categories of artefacts, including

⁴² WRZESIŃSKA and WRZESIŃSKI 2006: 352.

⁴³ WOJENKA et AL. 2017: 163, Fig. 7; 164.

⁴⁴ MALESZKA 1998: 177–179.

ceramic vessels of the same early medieval chronology. In the typology of early medieval lead weights by Bodnar, Rozmus and Szmoniewski, supplemented by Rozmus, these weights represent type 1, variety a (disc-shaped with a hole), type 1, variety b (disc-shaped without a hole), type 2, variety a (conical with a hole), type 2, variety b (conical with a hole and a flange) and type 4 (a hole made by wrapping a bar). It has been proposed to extend this typology by adding a new type of weight – type 1, variety c (disc-shaped without a hole, with a knob). Attention has also been drawn to one massive specimen of type 2, variety a, which has a hole through it for a peg to stabilise the core in the mould, a technological feature previously unreported in the literature. An artefact resembling a type 2 weight, variety a, was also identified, which has a part shaped into a butt with distinct traces indicating that it was used for striking. It has been therefore proposed to interpret this object as a metalworking hammer. In the collection analysed, the mean metric values of the weights of each type are: type 1, variety a – diameter 1.2 cm, height 0.5 cm, hole diameter 0.3 cm and weight 5.826 g; type 1, variety b – diameter 2.7 cm, height 0.6 cm and weight 18.042 g; type 1, variety c – diameter 2.3 cm, height 1.3 cm and weight 26.452; type 2, variety a – diameter 2.0617 cm, height 1.66 cm, hole diameter 0.8133 cm and weight 35.1207 g; type 2, variety b – diameter 2.7 cm, height 2.9 cm, hole diameter 0.7 cm and weight 44.770 g; type 3 – diameter 1.3 cm, height 3.3 cm and weight 33.715 g; and type 4 – diameter 2.05 cm, height 1.9 cm, hole diameter 1.2 cm and weight 35.523 g. The observations made may prove useful to researchers in further studies of this issue.

Sites where early medieval lead weights were discovered have been divided into functional categories. These contexts include: metallurgical settlements; sites associated with trade; cemeteries; caves; and deposits. Indeed, lead weights are often discovered at sites where they were cast, although their presence there is perhaps also related to the trade that took place at the production sites. The largest number of these artefacts, however, come from sites associated with a broadly understood trade. In addition, single specimens come from burials, where they are thought to mark burials of merchants, as well as from caves. Discoveries of lead weights forming compact assemblages indicate the important role of these objects in the early Middle Ages.

Consequently, a detailed analysis of these objects, with particular reference to their morphometric characteristics and consideration for the archaeological context of the sites of their discovery, points to their more than merely utilitarian role in the material culture of the early Middle Ages. This also points to the significant value of the raw material from which these objects were made.

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Translation: Piotr Godlewski

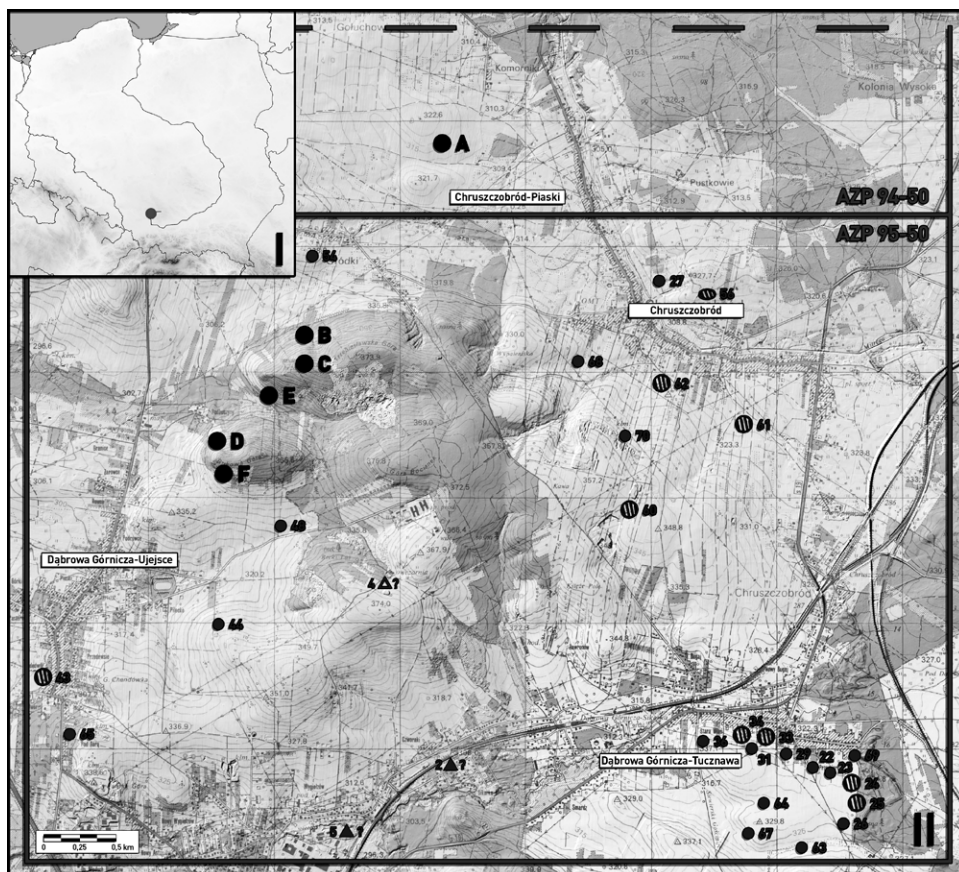
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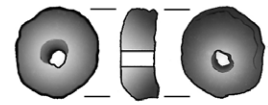
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MAP 1	Location of discoveries of the assemblage of analysed lead weights and objects, as well as artefacts of other categories with medieval chronology
PLATE 1	Chruszczobród, Śląskie Province. 1–6 – lead weights Photo: P. Kolasa, drawing: K. Przybysz-Malczewski
PLATE 2	Chruszczobród-Piaski, Śląskie Province. 1–5 – lead weights Photo: P. Kolasa, drawing: K. Przybysz-Malczewski
PLATE 3	Chruszczobród-Piaski, Śląskie Province. 1–7 – lead weights Photo: P. Kolasa, drawing: K. Przybysz-Malczewski
PLATE 4	Dąbrowa Górnicza-Ujejsce, Śląskie Province. 1–3 – lead weights; 4 – lead object Photo: P. Kolasa, drawing: K. Przybysz-Malczewski
PLATE 5	Dąbrowa Górnicza-Ujejsce, Śląskie Province. 1–2 – lead weights; 3–6 –amorphous lumps of molten lead Photo: P. Kolasa
PLATE 6	Artefacts of other categories (pottery) of medieval chronology from sites of the PAR area 95-50, nos: 22–27, 33–34, 36, 43, 58, 62–63 and 67 Photo: P. Kolasa, drawing: K. Przybysz-Malczewski
PLATE 7	Artefacts of other categories with medieval chronology from sites of the PAR area 95-50, nos: 56, 60–61 and 69–70 Photo: P. Kolasa, drawing: K. Przybysz-Malczewski
TABLES	Table 1. Morphometric data of lead weights from the Chruszczobród area, Śląskie Province Table 2. Morphometric data of lead weights from the Chruszczobród-Piaski area, Śląskie Province Table 3. Metric data of weights and lead object from Dąbrowa Górnicza-Ujejsce area. 1–3 – lead weights; 4 – lead object
CHART 1	Aggregate weight data of lead weights and lead object from Chruszczobród, Chruszczobród-Piaski, Dąbrowa Górnicza-Tuczna and Dąbrowa Górnicza-Ujejsce, Śląskie Province. The black colour indicates full-form objects, the light gray colour indicates fragments of weights, and the dark gray colour indicates a lead object



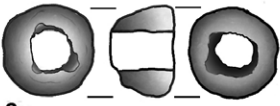
Map 1. Location of discoveries of the assemblage of analysed lead weights and objects, as well as artefacts of other categories with medieval chronology. I – general location in Poland; II – detailed location in the area of Chruszczobród, Chruszczobród-Piaski, Dąbrowa Górnicza-Tucznawa and Dąbrowa Górnicza-Ujejsce, Śląskie Province, in the southern zone of the PAR area 94-50 and the PAR area 95-50. A – location of discovery of lead weights assemblage in the area of Chruszczobród-Piaski; B–F – location of discovery of weights and lead objects in the area of Dąbrowa Górnicza-Ujejsce; 22–27, 33–34, 36, 43, 56, 58, 60–63, 67, 69–70 – location of sites with individual numbers, where artefacts of other categories with medieval chronology were discovered



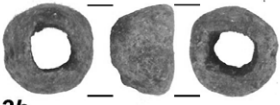
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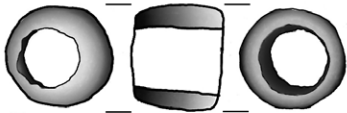
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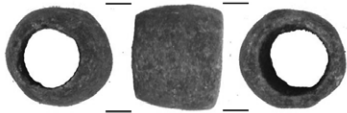
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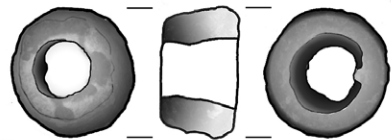
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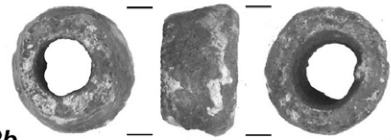
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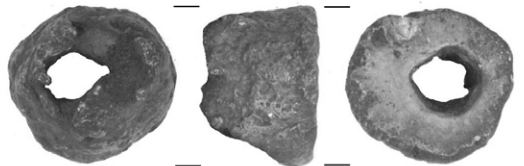
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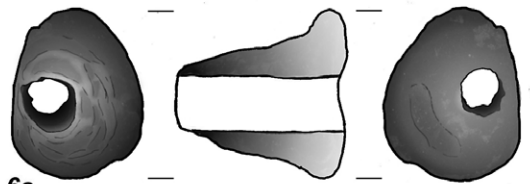
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6a

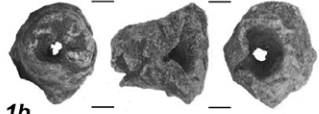


6b

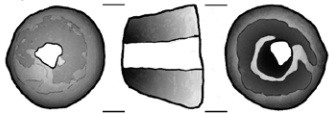




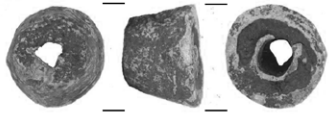
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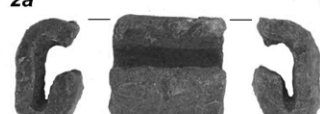
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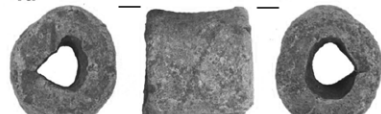
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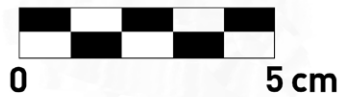
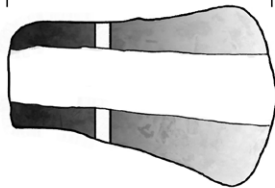
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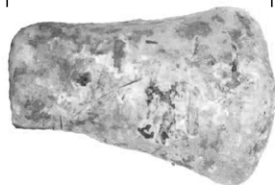
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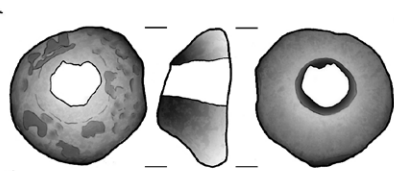


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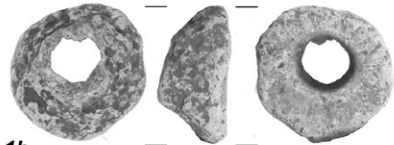


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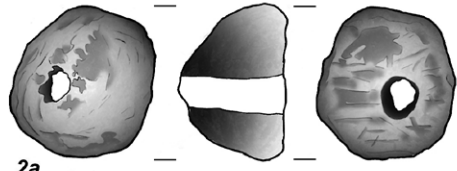




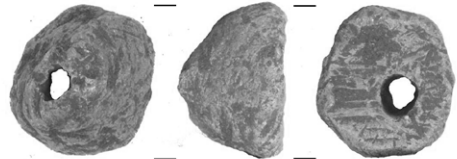
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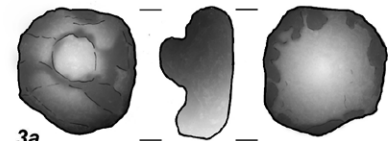
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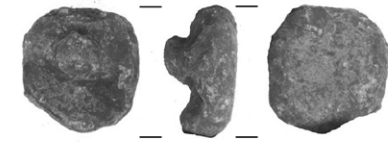
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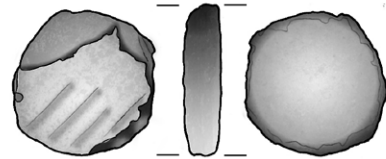
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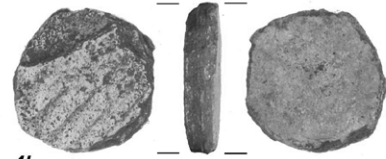
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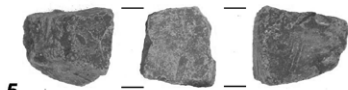
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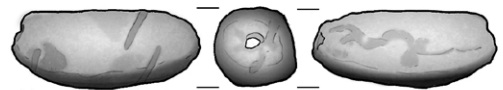
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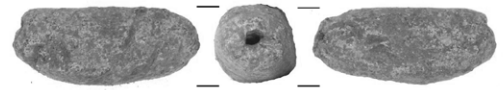
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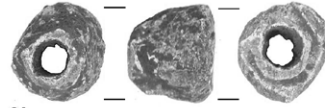
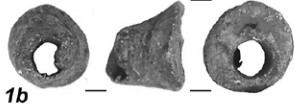
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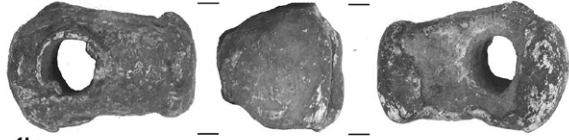
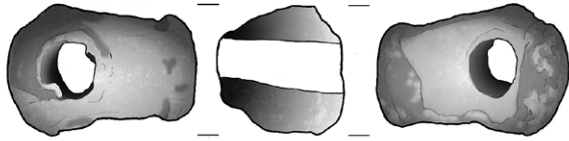
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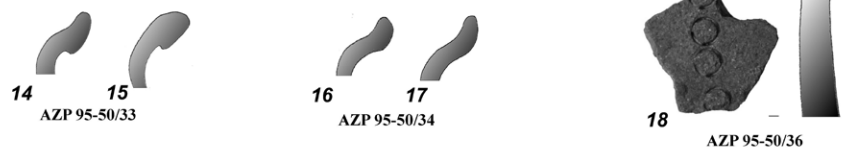
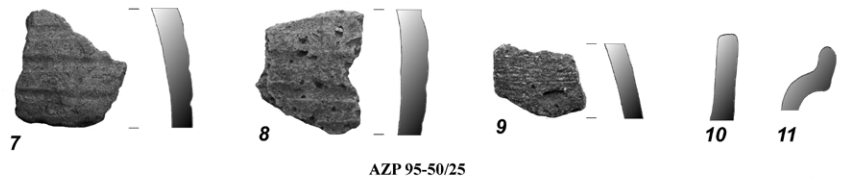


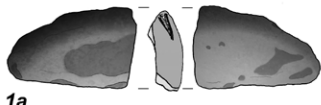
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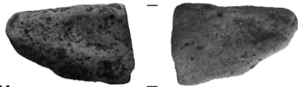
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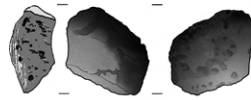




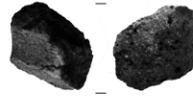
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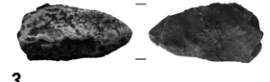
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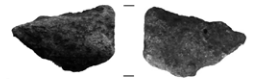
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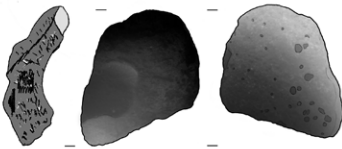
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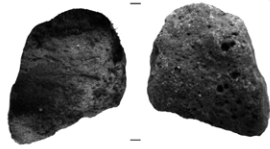
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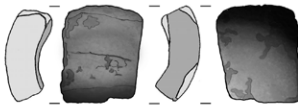
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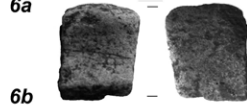
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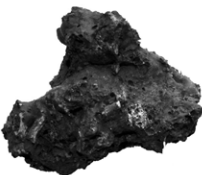
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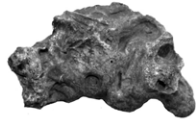
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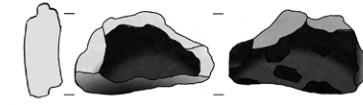


17

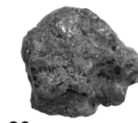


18

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19



20

AZP 95-50/61



21

AZP 95-50/69



22

AZP 95-50/70



0

5 cm

TABLE 1

No.	Weight (g)	Height (cm)	Diameter (cm)	Hole diameter (cm)	No. on the Plate
1	5.826	0.5	1.3	0.3	1.1
2	22.829	1.3	2.0	0.8	1.2
3	7.184	1.0	1.3	0.7	1.3
4	49.195	1.8	2.7	1.2	1.4
5	13.854	1.3	1.7	0.9	1.5
6	44.770	2.9	2.7	0.7	1.6

TABLE 2

No.	Weight (g)	Height (cm)	Diameter (cm)	Hole diameter (cm)	No. on the Plate
1	12.063	1.5	1.8	0.3–1.0	2.1
2	26.421	2.0	2.0	–	2.2
3	22.959	1.3	1.9	0.5–0.7	2.3
4	44.624	1.8	2.1	1.2	2.4
5	208.723	5.0	3.5	1.5	2.5
6	31.443	1.3	2.6	0.7	3.1
7	56.674	2.0	3.0	0.7–0.8	3.2
8	26.452	1.3	2.3	–	3.3
9	18.042	0.6	2.7	–	3.4
10	26.906	1.6	2.3	–	3.5
11	13.047	0.5	2.7	–	3.6
12	33.715	3.3	1.3	–	3.7

TABLE 3

No.	Weight (g)	Height (cm)	Diameter (cm)	Hole diameter (cm)	No. on the Plate
1	13.050	1.5	1.6	0.6	4.1
2	22.917	1.7	1.9	0.8	4.2
3	11.206	1.0	1.6	0.7	4.3
4	95.721	2.4	3.6	1.1	4.4

CHART 1

