



Project Gallery

Kaliska I: a Late Bronze Age metal hoard from Pomerania (Poland)

Maciej Kaczmarek^{1,*} , Agnieszka Krzysiak², Łukasz Kowalski³ , Przemysław Niedzielski¹, Dawid Sych⁴, Marek Grześkowiak⁵, Mariusz Fleszar⁶, Jerzy Wiśniewski⁷, Tomasz Sawoszczuk⁸, Jakub Żurowski⁸, Kamila Betyna⁸, Sławomir Pietrzak⁹, Tomasz Stępnik¹⁰, Magdalena Przymorska-Sztuczka¹¹, Maksym Mackiewicz¹² , Tomasz Chmielewski¹³ & Grzegorz Szczurek¹⁴

¹ Adam Mickiewicz University, Poznań, Poland

² The Lębork Museum, Poland

³ Nicolaus Copernicus University, Toruń, Poland

⁴ Independent researcher, Dąbrowa Górnicza, Poland

⁵ University of Wrocław, Poland

⁶ Wrocław Medical University, Poland

⁷ Wrocław University of Science and Technology, Poland

⁸ Cracow University of Economics, Poland

⁹ Independent researcher, Śrem, Poland

¹⁰ Independent researcher, Poznań, Poland

¹¹ Archaeological Museum in Biskupin, Poland

¹² The Foundation (archeolodzy.org), Wrocław, Poland

¹³ Independent researcher, Wrocław, Poland

¹⁴ Adam Mickiewicz University, Poznań, Poland

* Author for correspondence ✉ maciej.p.kaczmarek@gmail.com

In the spring of 2017, amateur metal detectorists discovered a Late Bronze Age hoard near the village of Kaliska, Poland. Comprising over 120 artefacts, it is one of the most impressive Bronze Age finds within Pomerania. The authors discuss the hoard's contents and context, as well as its chronology.

Keywords: Poland, Late Bronze Age, bronze hoard, bronze-age metalwork

Introduction

Kaliska is a small village near the town of Biały Bór, Szczecinek County, West Pomeranian Voivodeship, Poland. It is situated between the hilly moraines of Pojezierze Szczecineckie and the high moraine hills of Pojezierze Bytowskie, in the highest part of the West Pomeranian Lakeland (Figure 1). In the spring of 2017, a deposit of metal objects was found on agricultural land by amateur metal detectorists. This assemblage is designated Kaliska I, in light of a second discovery of metal objects from the same location, also in 2017.

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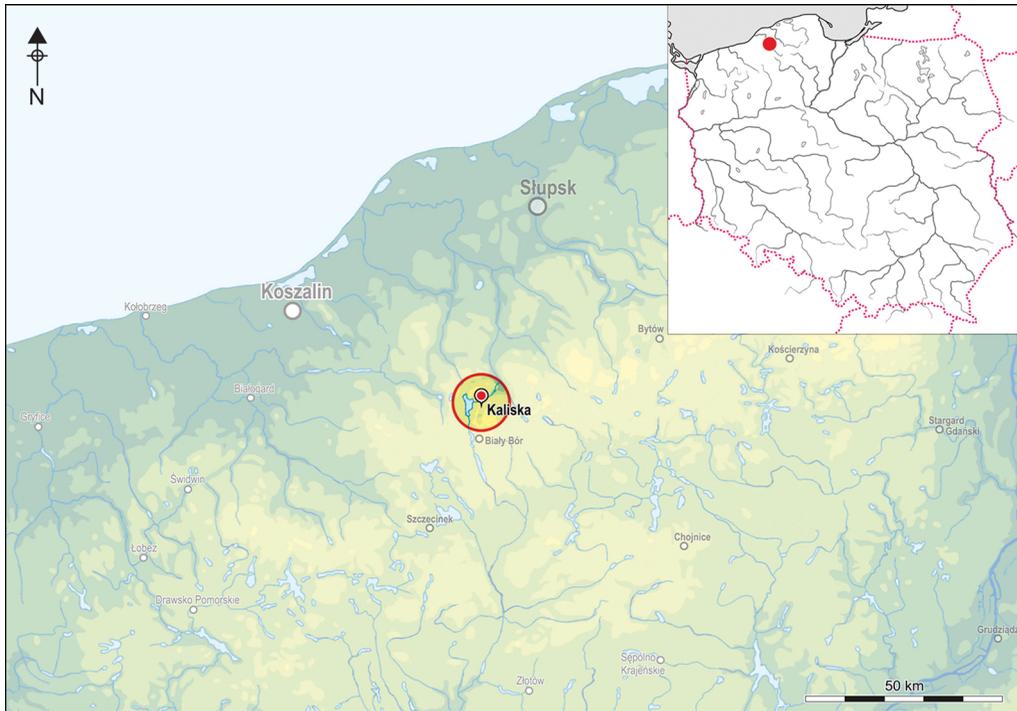


Figure 1. Location of Kaliska within Pomerania, Poland (map by L. Szymański using commons.wikimedia.org).

The Kaliska I hoard comprises 124 artefacts, some of which are organic remains, but most are bronze items, including forged and cast vessels, collars, kidney bracelets and miniature buttons. Several organic artefacts, including a leather strap, spirally formed straps, and an ornament made from spindle wood, were also found loose within a Gevelinghausen–Veio–Seddin type vessel. The state of preservation following conservation is generally good to very good, although the organic objects are fragmentary.

The assemblage

The Kaliska I hoard is considered unique, both in terms of its nature and size, in comparison to similar Late Bronze Age hoards from Pomerania, a region that has so far produced over 320 Bronze Age and the Early Iron Age artefacts (Blajer 2001). With over 120 metal objects contained within a large, sheet-bronze vessel of the Gevelinghausen–Veio–Seddin type (Figure 2a) (Jockenhövel 1974; Gedl 2001: 35–37; Metzner–Nebelsick 2003: 44–48; May 2014), the hoard ranks among the most impressive archaeological discoveries from Poland. The most spectacular finds within the Kaliska assemblage are: three Nordic cast vessels of the Hängebecken type (Figure 2b–d) (Sprockhoff 1956: 46–48; Sprockhoff & Höckmann 1979; Gedl 2001: 52–55); four collars made from sickle-shaped rings (*Sichelplattenhalskragen*) (Sprockhoff 1956: 136–41; Nørgaard 2011: 96–97), one of which features representations of orants and a sun barge (*Vogel–Sonnen–Barke*) (Figure 3); six rings from

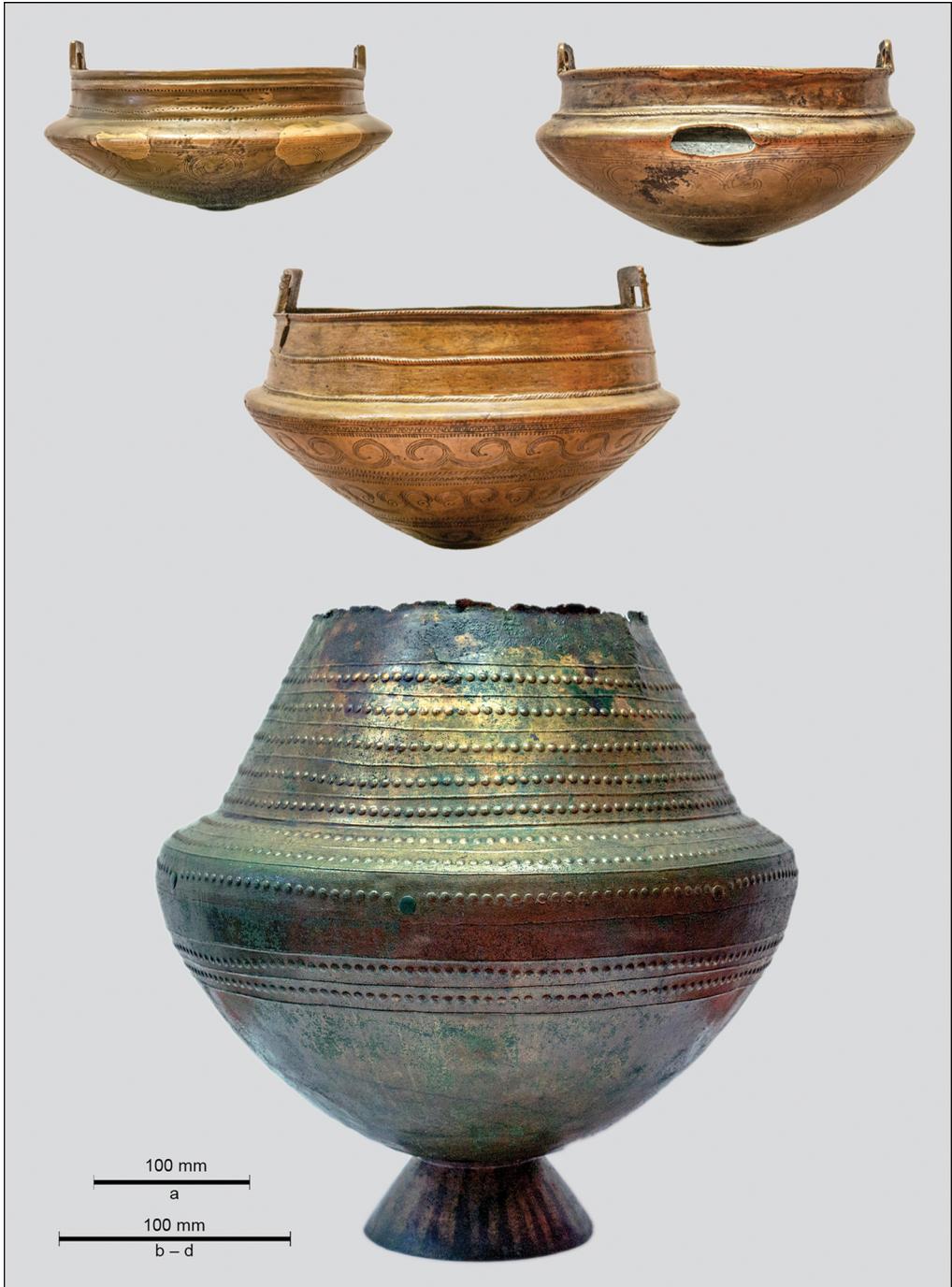


Figure 2. Bronze vessels from the Kaliska I hoard (photograph by M. Kaczmarek).



Figure 3. Collar made from sickle-shaped rings, displaying detail with the representation of Vogel–Sonnen–Barke (photograph by M. Kaczmarek).

crescent-shaped collars of Middle Pomeranian type; another collar, with sloping and longitudinal ribbing; 13 typologically diversified necklaces (including several *Wendelringe* and an imported closed necklace with ornamental oval plates); 43 bracelets, including seven kidney bracelets (Figure 4) (Sprockhoff 1956: 188–92); five plate brooches (*nordische Plattenfibeln*) (Figure 5) (Gedl 2004: 42–60); three dress clasps of the Wierzchowo type and nine of the Radolinek type (Gedl 2004: 162–167); and five *phalerae* (military buttons) (Sprockhoff 1956: 263–69). The organic artefacts are also unique within this type of assemblage.

We are currently conducting typological-chronological analyses of all the objects that make up the hoard. In order to provide as comprehensive an investigation as possible, we have prepared a number of specialist analyses of the metal and organic objects, including: metallographic and tracewear analyses; lipid analysis from the bronze vessels; species determinations

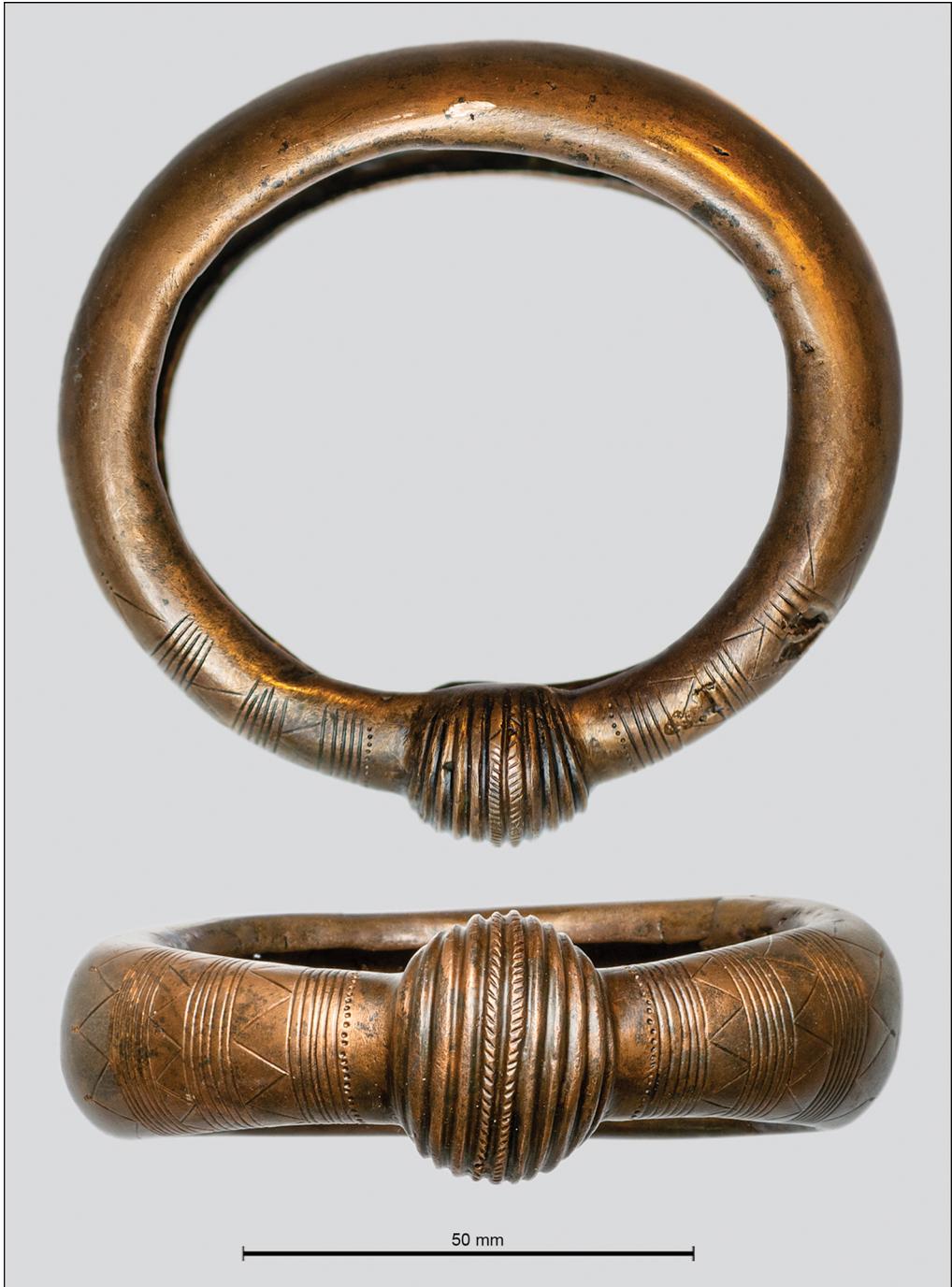


Figure 4. Kidney bracelet from the Kaliska I hoard (photograph by M. Kaczmarek).



Figure 5. Plate brooch with horseshoe motifs (photograph by M. Kaczmarek).

for the leather fragments; and archaeometric studies of a pitchy substance—discovered to be wood tar—preserved on one of the bronze ornaments (an appliqué in the form of a rosette), the wooden objects, and the fragments of string preserved on one of the phalerae (Grześkowiak *et al.* 2021; Kowalski & Niedzielski 2021; Pietrzak 2021; Sawoszczuk *et al.* 2021; Sych 2021).

Dating

The chronological homogeneity of the artefacts is significant and no obviously archaic (i.e. pre-Bronze Age Period V) elements were observed. This can be used to suggest a date for the hoard

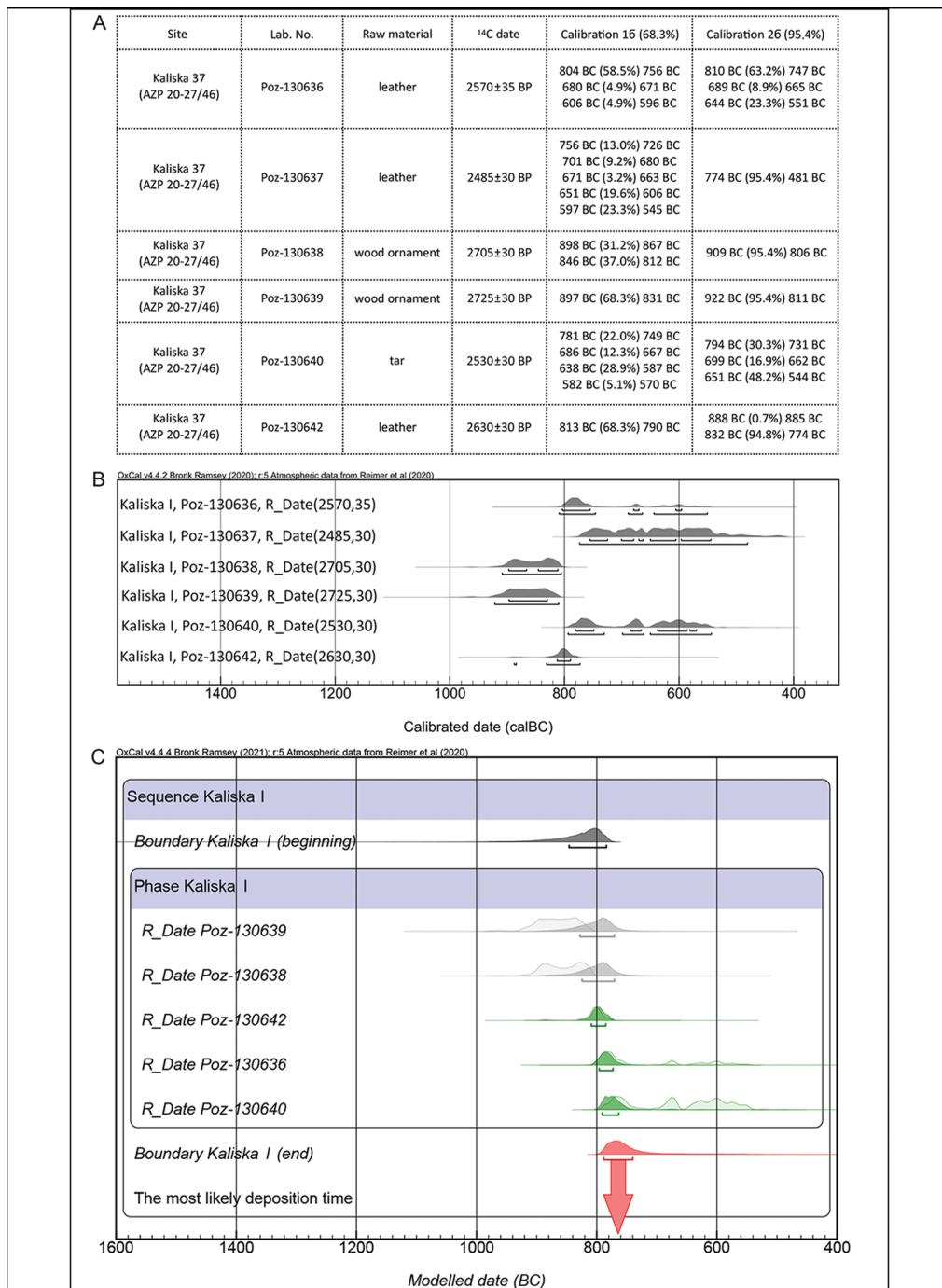


Figure 6. A) Radiocarbon age determinations obtained for artefacts from the Kaliska I hoard; B) calibration of radiocarbon age determinations obtained for artefacts from the Kaliska I hoard; C) Bayesian model based on the Kaliska I hoard (at 68.3% confidence). Dates calibrated in OxCal v4.4, using the IntCal20 atmospheric curve (Bronk Ramsey 2009a; Reimer et al. 2020) (A & B are based on reports by T. Goslar; C by G. Szczurek and T. Chmielewski).

within Bronze Age Period V (c. 950–800/750 BC). Given that some of the bronze artefacts were possibly used later, however, we can suggest, with caution, that the hoard was probably buried in the second half of Period V, which correlates to the HaB3 phase (c. 875–780/750 BC).

The organic artefacts, however, provide a unique opportunity to determine an absolute chronology for the hoard. Six samples were sent to the Poznań Radiocarbon Laboratory, including two from ornaments made from European spindle (*Euonymus europaeus* L.), three from fragments of leather and one wood tar sample collected from the inner part of a bronze appliqué.

A Bayesian model (Bayliss 2015) was produced from the resultant dates using OxCal (v.4.4; Bronk-Ramsey 2009a) and calibrated using the IntCal20 calibration curve (Reimer *et al.* 2020). This model assumes that the Kaliska I hoard is a closed (i.e. chronologically relatively homogeneous) assemblage (Figure 6). Moreover, the structure of the model considers the accuracy of individual radiocarbon measurements, and thus the possibility of outliers among them (Bronk-Ramsey 2009b). The results indicate that the Kaliska I assemblage was most likely deposited between 790 and 740 BC (at 68.3% confidence, rounded to 10 years) (Figure 6C). The obtained radiocarbon determinations thus support the relative chronology presented above.

Future work

During the analysis of the Kaliska I hoard, we became aware that another Late Bronze Age assemblage of metal objects had been discovered, possibly lying stratigraphically above the Kaliska I hoard. As a result, the full depositional context, as well as a consideration of the Kaliska hoard in terms of the phenomenon of intensified hoarding observed in Pomerania at the beginning of the first millennium BC, will only be complete with the analysis of this second assemblage, which is currently ongoing.

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