

EARLY MEDIEVAL AXE-LIKE IRON BARS AS SOCIAL CURRENCY? THE FIND FROM BISKUPICE, LESSER POLAND

SŁAWOMIR WADYL

University of Warsaw, Faculty of Archaeology, Krakowskie Przedmieście 26/28, 00-927 Warsaw, Poland,
s.wadyl@uw.edu.pl

ORCID: 0000-0002-1609-5222

RADOSŁAW LIWOCH

„Szttygarka” Municipal Museum, Legionów Polskich 69, 41-300 Dąbrowa Górnicza, Poland,
rliwoch@muzeum-dabrowa.pl

ORCID: 0000-0001-8135-318X

Abstract. In 2024, three iron bars of axe-like form were anonymously delivered to the Faculty of Archaeology, University of Warsaw. Reportedly originating from Biskupice (Wieliczka County, southern Poland), in the vicinity of a Lusatian culture hillfort, they belong to the well-recognised group of Vistulan-type iron bars dated to the 9th–early 10th century. Formal and typological analysis indicates that all three specimens represent type I, variant B2, according to the classification proposed by Emil Zaitz. Their standardized morphology suggests deliberate production for economic purposes. Following the interpretation advanced by Jacek Adamczyk, these artefacts may be understood as pre-monetary instruments of value, likely used within systems of tribute or redistribution rather than for utilitarian consumption. The find from Biskupice contributes to the growing corpus of such artefacts in the Upper Vistula basin, particularly in the Krakow region. Their spatial concentration and morphological standardization support their association with centralized redistribution mechanisms, reflecting the emergence of proto-state structures. These findings offer new insights into the Vistulans polity as a complex chiefdom engaged in the controlled circulation of resources.

Keywords: early medieval Poland; Lesser Poland; Vistulans; axe-shaped iron bars; iron currency; exchange and tribute systems.

Introduction

In 2024, three iron axe-shaped currency bars were anonymously delivered to the Faculty of Archaeology at the University of Warsaw, accompanied by information indicating that they originated from the vicinity of the village of Biskupice (Wieliczka County, Lesser Poland Voivodeship). According to the report, they were

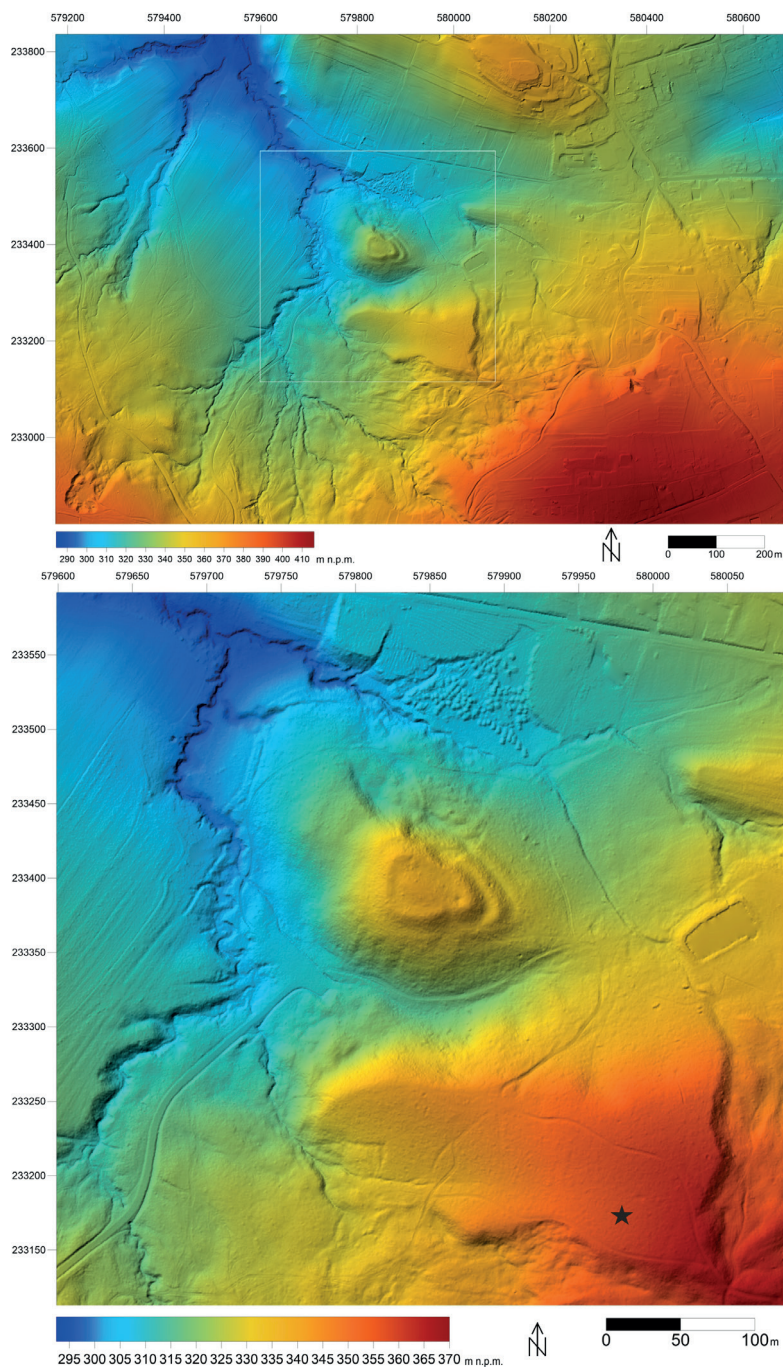


Fig. 1. LiDAR view of the Biskupice hillfort area, showing the probable location of axe-shaped iron bars. Graphic by W. Małkowski



Fig. 2. Central part of a poorly visible Lusatian culture hillfort on the wooded summit of Bukowa Góra in Biskupice. Photograph M. Debelenko

found in a forest, approximately 200 meters south of a well-known site on Bukowa Góra, where a Lusatian culture hillfort from the Early Iron Age is located (Fig. 1; 2). No early medieval materials have been recorded at this site (Gedl 1968; Leńczyk 1983, pp. 13-14), which excludes any direct connection between the bars and the hillfort. Due to the unknown and non-scientific circumstances of the find, steps have been taken to ensure the artefacts are handed over to the competent Voivodeship Office for the Protection of Monuments.

Despite the uncertain archaeological context, the artefacts merit publication due to their clear affiliation with a well-recognized type of iron axe-shaped bars, known from southern Poland and the Carpathian region. Their study allows not only for the expansion of the catalogue of such finds, but also for reflection on their function and significance within early medieval socio-political structures.

According to the definition proposed by Jacek Adamczyk (2004, p. 26), such objects are neither coinage nor bullion, nor are they typical products of a subsistence economy. Rather, they represent a specific form of payment intended primarily for settling economic obligations, although their secondary use as raw material for the production of utilitarian items cannot be excluded. In light of this definition, the objects presented here can be regarded as a form of pre-monetary exchange medium, although their precise function remains open to debate (see Urbańczyk 2001, p. 52).

The aim of this article is to present and analyse the three currency bars from Biskupice and to place them within a broader typological, chronological, and cultural context. In particular, an attempt will be made to relate these artefacts to the political structures of the Vistulans polity, with special attention given to the emer-

gence of early redistribution systems and their potential connections to processes of proto-state formation.

Description of the Artefacts

All three artefacts are made of wrought iron and represent a characteristic form of the so-called Vistulan type axe-shaped iron bars. They have an elongated, massive shape, with a rectangular cross-sectioned neck that gently tapers into a leaf-shaped blade. The socket is relatively low, topped with a cap and equipped with small lateral lugs, partially damaged. All specimens display clear traces of corrosion, which, however, do not prevent metric and typological analysis.

From a metric perspective, the three specimens are remarkably consistent in form, typical of Vistulan type bars, with similar overall lengths, proportions of the neck to the blade, and the distinctive construction of the socket with a cap. However, their weights are not completely uniform: while the first and second specimens weigh 0.821 kg and 0.914 kg respectively, the third reaches a weight of 1.590 kg.

Bar 1 (Fig. 3: a; 4: a)

The specimen measures 34.8 cm in length, with a preserved blade height of 5.6 cm and a maximum width of 3.4 cm. The neck measures 2.0 cm in height and 2.7 cm in width at its narrowest point. The cap is 3.7 cm tall, the socket height without lugs is 2.5 cm, and 3.0 cm with lugs; the socket's width is 2.9 cm and the internal aperture measures 3.0×2.4 cm. Weight: 0.821 kg. The artefact is well preserved, showing clear traces of corrosion, losses in the lug area, and damage to the cutting edge.

Bar 2 (Fig. 3: b; 4: b)

This specimen is 32.6 cm long, with a blade height of 5.7 cm. The maximum width is 3.3 cm, and the neck measures 2.2 cm in height and 2.9 cm in width. The cap height is 2.8 cm, the socket is 2.2 cm tall without lugs and 3.2 cm with lugs; the socket's width is 3.4 cm and the internal aperture measures 2.3×1.8 cm. Weight: 0.914 kg. The artefact is in good condition, with visible corrosion and minor damage in the area of the socket and cap. The blade edges are locally eroded.

Bar 3 (Fig. 3: c; 4: c)

The longest of the three, this specimen is 37.8 cm in length, with a blade height of 5.6 cm and a maximum width of 3.5 cm. The neck measures 2.4 cm in height and 2.8 cm in width. The preserved cap is 3.2 cm high; the socket height is 2.5 cm without lugs and 3.7 cm with lugs; the socket's width is 3.5 cm and the internal aperture measures 2.8×2.1 cm. Weight: 1.590 kg. The artefact is well preserved, with visible corrosion and minor losses around the socket and cap.



Fig. 3. Axe-shaped iron bars from Biskupice, Wieliczka County. Drawing by N. Zabela

Typology and Chronology

The currency bars from Biskupice can be classified within the so-called Vistulan type (also referred to as the Lesser Poland type), defined by Emil Zaitz as type I, variant B, version 2 of group b (Zaitz 1990, pp. 147-161, 171-172), and by Darina Bialeková as type IB (Bialeková and Turčan 2007, p. 155). These objects are characterized by a slender yet massive form, with a long, rectangular cross-sectioned neck that gently transitions into the blade section, and by a socket fitted with a cap and small lateral lugs.

This type is represented by finds from a number of archaeological sites in southern Poland, the largest number of which has been discovered in Kraków-Okół



Fig. 4. Axe-shaped iron bars from Biskupice, Wieliczka County. Photograph by M. Mścicki

(Zaitz 1981; Zaitz 1990; Zaitz and Zaitz 2021), as well as in Zawada Lanckorońska, Kostkowice, Jerzmanowice and Brzesko, and Kroczyce. Similar artefacts are also known from areas south of the Carpathians, including parts of Slovakia and the Czech Republic, and their distribution suggests a strong connection to the Carpathian region and its northern foreland.

The chronology of Vistulan type currency bars is based almost exclusively on comparative analysis, due to the lack of securely dated archaeological contexts. It is generally accepted that they were in use during the 9th century and possibly into the first half of the 10th century (Zaitz 1990, pp. 145, 171-173; Poleski 2013, pp. 117-118, 193-194). The absence of early medieval cultural layers at the site in

Biskupice suggests that the find represents a loose deposit, unconnected with any known settlement or hillfort from the period.

Although axe-shaped bars were not coinage in the strict sense, their typological features and frequent occurrence in large hoards (e.g., the deposit from Kraków-Okół) suggest that they functioned as a standardized unit of value, probably used in the payment of tributes or other forms of economic obligation. Their form, impractical from a utilitarian standpoint, and the consistency of their dimensions might imply a secondary, symbolic or ceremonial use, but their primary function appears to have been linked to the exchange and redistribution of iron within territorial-political structures.

Distribution and Range of Axe-Shaped Currency Bars

Axe-shaped currency bars are among the most recognizable forms of iron-based value instruments found in early medieval Lesser Poland. Their occurrence is primarily concentrated in the Upper Vistula River basin, with a particular density around Kraków. The largest known assemblage originates from Kraków-Okół (Zaitz 1981; 1990, pp. 143, 145-160; Zaitz and Zaitz 2021), which clearly indicates the role of this centre as a hub for distribution or tribute collection.

Artefacts similar to the Biskupice finds are known from over a dozen sites north of the Carpathians (fig. 5) and from a greater number of locations situated to the south. In Poland, axe-shaped currency bars have been discovered in the following localities:

Zawada Lanckorońska – at least 10 specimens (Piaskowski 1956; Żaki 1961, pp. 222-231; 1974, pp. 302-305); Stradów – 1 (Gajewski 1963); Kraków-Nowa Huta--Mogiła – 1 and a fragment of another (Hachulska-Ledwos 1971, pp. 26-27, 48, 51); Piotrawin – possibly 12 (Sułowska 1972, pp. 283-285; 1977; 1984, pp. 58-59); Radymno – 1 (Koperski 1980, pp. 99, 110); Kraków-Okół – 4212 specimens (Zaitz 1981; 1990, pp. 143, 145-160; Zaitz and Zaitz 2021); Kostkowice – 6 pieces (Zagórska-Telega and Bochnak 2001) and an additional 9 (Rozmus, Szmoniewski and Tronic 2006); Modlnica – 1 (Liwoch 2013). Recent discoveries include: Jerzmanowice – 40 objects (Szmoniewski and Rozmus 2022); Kroczyce – 1 specimen (Livoh and Šmoněvs'kij 2024, pp. 16, 21-22; Szmoniewski and Rozmus 2024); Kostkowice – 3 specimens (Livoh and Šmoněvs'kij 2024, p. 16); Brzesko – 38 specimens (Szmoniewski, Lasota-Kuś, Lach and Okoński 2024). An object from the hoard in Podłęże (Reguła 1997, pp. 211, 213) also shows a close resemblance to axe-shaped currency bars, and it is possible that such items were part of the now-lost hoard from Kraków-Zwierzyniec (Zaitz 1990, pp. 162-163; 2006, p. 223; Zaitz and Zaitz 2021, pp. 683-684). There is also one specimen from an unknown location on the upper Vistula River (Bochnak 2016).

Among the examples listed above, the lost specimen from Stradów belonged to the Great Moravian type (Szmoniewski and Rozmus 2024, p. 232), whereas the

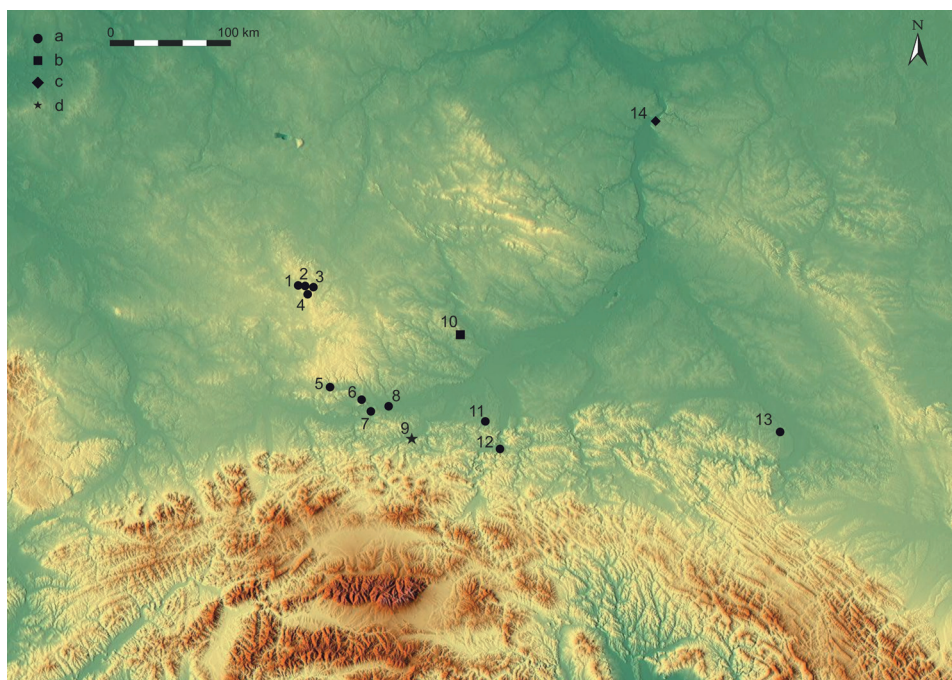


Fig. 5. Distribution of iron axe-shaped bars from Poland

1-3 – Kostkowice, Zawiercie County; 4 – Kroczyce, Zawiercie County; 5 – Jerzmanowice, Kraków County; 6 – Modlnica, Kraków County; 7 – Kraków, suburbium Okół, Kraków County; 8 – Kraków-Nowa Huta-Mogiła, Kraków County; 9 – Biskupice, Wieliczka County; 10 – Stradów, Kazimierza Wielka County; 11 – Brzesko, Brzesko County; 12 – Zawada Lanckorońska, Tarnów County; 13 – Radymno, Jarosław County; 14 – Piotrawin, Lublin County. a – Lesser Poland / Vistulan type; b – Great Moravian type; c – Piotrawin type; d – location of new deposit. Drawing by S. Wadył

specimens from Piotrawin – most of which are now lost – are classified as the Piotrawin type and have recently been assigned to type IB.5.29 of axes according to Piotr N. Kotowicz, who discusses their chronology and provenance (Kotowicz 2014, pp. 98-101, 312-314; 2018, pp. 105-107, 255).

These locations form a relatively coherent geographical band in Lesser Poland on the Kraków-Częstochowa Upland and the Carpathian Foothills. The most recent finds, especially from Brzesko and Jerzmanowice, but also from Kroczyce and Kostkowice (Liwoch and Šmoněvs'kij 2024), suggest that the scale of distribution was greater than previously assumed and that the range of occurrence extended not only into river valleys but also into areas with more dispersed settlement patterns.

No such artefacts have been found in other regions of Poland, which indicates their strongly regional character, likely associated with a specific system of goods redistribution functioning within the Vistulan polity or another structurally similar local organization. The find from Biskupice, located a dozen or so kilometres

southeast of Kraków, fits this model well. However, the circumstances of its deposition remain unknown, it is impossible to determine whether this was an intentional hoard (e.g., hidden tribute or iron reserve), a dispersed treasure, or a lost transport bundle.

It is worth emphasizing that most of these finds do not come from occupational layers of settlements or strongholds but instead appear as stray finds or deposits. This may indicate a specific function, possibly related to transport and temporary storage rather than day-to-day economic circulation. The repetition of form, relative metric standardization, and limited geographical range all support their interpretation as instruments of value that may have functioned within a tribute or redistribution system tied to a central authority – presumably Kraków.

It seems that the production of Vistulan type ingots was initiated under the influence of impulses coming from neighbouring Moravia, where Great Moravian iron bar ingots were forged. However, the differences in the form of these objects – and perhaps also in their position within local cultures – indicate that these were phenomena developing independently (cf. Zaitz 1990, pp. 171-172). Great Moravian-type ingots have been discovered at a large number of sites in Moravia and Slovakia, both as several hundred single finds and as components of several dozen hoards (cf. Zaitz 1990, p. 168; Hájník 2019, pp. 141-147, and references therein), whereas sites with Vistulan-type iron bar ingots remain few.

In previous scholarship, various functions have been attributed to axe-shaped iron bars: as currency bars, semi-finished products, obol of the dead, or votive objects (Hájník 2019, pp. 133-138, and references therein), with the function of a grave obol still being a monetary one. In recent literature, researchers tend to assign a monetary function to axe-shaped iron bars, a view supported by an experimental archaeological project involving the forging of replicas. This experiment demonstrated that their production results in a greater loss of material than in the manufacture of iron blooms, although the advantages include slightly higher metal quality and fuel savings (cf. Hlavica and Bárta 2021).

Vladimír Turčan (2021) presented a find from Trnovec nad Váhom consisting of two damaged axe-shaped bars that had been joined together. He interprets this joining solely as evidence of their market function, which would have required a standardised weight and shape.

Michal Hlavica, Pavel Kouřil and Roman Mikulec (2022) trace the origins of axe-shaped iron bars to pre-Christian ritual practices, in which the practical function of tools was gradually reduced, and the initial semi-finished products evolved into axe-shaped bars. These then began to be used as a form of social currency (primitive money), whose value probably derived from the weight of the iron raw material and from the value of the original tools – i.e. axe heads. At a certain stage, their value became detached from the value of the iron itself and began to be guaranteed by an issuer, while the axe-shaped bars came to function as general-purpose money within the commercialised economy of Great Moravia.

Written sources from the late 8th and 9th centuries from the Benedictine monastery of St. Gall confirm the monetary function of iron objects. These sources indicate that the value of real estate during property transactions was appraised in iron grivnas, although unfortunately their exact form remains unknown. Nevertheless, these sources clearly show that at least in part of the Frankish realm, iron served as an exchange equivalent roughly during the period in which Great Moravian-type currency bars were in use (Měřínský 2014, p. 117).

It should also be noted that axe-shaped currency bars were not exclusively a Central European phenomenon, as similar objects were produced in Scandinavia from the Pre-Roman period to the Middle Ages (Pleiner 1961, pp. 430-432, 437, 443; Lindeberg 2010; Szmoniewski 2010, and references therein), and in the Middle Volga and Kama regions in the 4th-5th centuries AD (Szmoniewski 2022, and references therein).

Political and Cultural Context

The find from Biskupice should be considered not only in terms of typology and form but also within the broader historical and archaeological context of early medieval Lesser Poland. Its significance goes beyond documenting a new point on the distribution map of axe-shaped currency bars – it invites reflection on the nature of the socio-political organization functioning in the Upper Vistula basin in the 9th and early 10th centuries.

The bars presented here were found in a region where, as a result of settlement stabilization and intensification, particularly in the area of later (?) Kraków, and probably also due to external stimuli, such as raids originating from the Avar Khaganate, a Slavic political entity took shape in the 8th or possibly 9th century. This entity is known from early medieval foreign written sources. It is referred to under the ethnonym Vuislane only in the so-called Bavarian Geographer, but it is also associated with two geographic references: the “land of the Vistula” (Wislelond) in a work of King Alfred of Wessex (†899) and a “very powerful pagan prince residing in the land of the Vistula” (v Vislech) in the Life of St. Methodius (Labuda 1999, pp. 56-58, 108).

Beyond the area within a radius of approximately 65 km around Kraków (cf. Szmoniewski and Rozmus 2024, p. 240), single specimens of Vistulan type axe-shaped currency bars have been found at Radymno (probably within the former tribal territory of the Lendians), as well as outside the territory of present-day Poland – in Veľká Lomnica in Slovakia, in Mutěnice in Moravia (Zaitz 1990, pp. 144, 148, 161, and references therein) and in Sabinov or Šarišské Sokolovce in Slovakia (Béřš 2002, pp. 142-145).

The legacy of the Vistulans includes many archaeological sites, such as the burial mound cemetery on the Krzemionki hills in Kraków, of which only the



Fig. 6. Krakus Mound – reconstruction in Kraków. Photograph R. Liwoch

Krakus Mound (Fig. 6), the legendary eponym of Kraków, remains. Possibly also associated is the Wanda Mound, linked to his daughter, in the former village of Mogiła (literally ‘grave’), now part of Kraków, along with large strongholds dated to the 8th-10th centuries (cf. Buko 2021, pp. 68-79). Characteristic movable artefacts are also preserved, such as the axe-shaped bars discussed in this article and white Kraków pottery (Liwoch 2024, pp. 133-138; cf. Buko 2021, pp. 71, 73-74). A mythical *origines regni* tradition, centered on the dynasty of Grakchids (Krak’s dynasty), was recorded at the turn of the 12th and 13th centuries by Master Wincenty (1992, pp. 11-19). His narrative is embedded in ancient models of mythic community-building: a hero-king, Grakchus/Krak, establishes law and monarchy; his sons slay a community-threatening dragon, then the younger murders the elder and is exiled; finally, his daughter, Queen Wanda, portrayed with divine and priestly traits, defeats a German invader and dies a virgin. This legend was thoroughly analyzed by Jacek Banaszkiewicz (2002, pp. 7-149).

Kazimierz Radwański (2000), a scholar of medieval Kraków, argued that Kraków was the main centre of a proto-state or tribal confederation of the Vistulans, which persisted until its conquest by Mieszko I in the late 980s. He believed that the axe-shaped iron bars were material evidence of this polity’s fiscal system, centralized around the decision-making centre on Wawel Hill. The arrangement of these bars in the massive hoard from Kraków-Okół suggests they were delivered in bundles as compulsory tribute. A quarter of a century has passed since that publication, and it is worth considering whether this interpretation holds in light of more recent research.

The issue of early medieval statehood has been the subject of many analyses (Goetz 2006; Pohl 2006; Wormald 2006; Ciesielska 2013; Kara 2013; Posern-Zieliński 2013; Tomková 2013; see also Macháček 2010, pp. 1-32, 431-537). For the purposes of this article, a general definition by Przemysław Urbańczyk (2013, p. 317) will suffice: an early medieval state is an organization that is stable over time and spatially defined, centralized around a ruler who supervises the population living on his territory, enforces supreme authority (supported by violence), and uses negotiation power to impose a social order and systematically exploit natural, demographic, and economic resources.

In this sense, the monarchies of Mieszko I along the Oder and Vistula rivers and of Volodymyr the Great along the Dnieper were indeed states. Their formation did not take long, unfolding over just part of the 10th century, and did not stem from the evolution of tribal structures but rather from the actions of ambitious and charismatic leaders, likely of local origin. The legend of Krak may reflect such a leader operating in the Upper Vistula region, although the organization he built lacked long-term durability.

A particularly illustrative example of the ambiguity surrounding the concept of statehood is Great Moravia, often considered a powerful 9th-century Slavic state in Central Europe. However, according to Jiří Macháček (2012; see also Macháček 2019; Štefan 2019; Wihoda 2019), it did not possess state attributes – its existence was neither long-lasting nor stable, and its territorial extent was poorly defined. It was structured more around kinship ties within a tribal framework than territorial administration, and the lack of adequate tools – especially a monetary system – prevented efficient exploitation of its territory. Great Moravia should therefore be regarded as a peak form of chiefdom.

It had analogues in societies outside the Carolingian Empire, since Celtic, Anglo-Saxon, and Scandinavian kingdoms were also highly developed chiefdoms. The case of Great Moravia serves as a historical-archaeological illustration of the anthropological concept of the chief: a person of hereditary status who controls the economic resources of their community and leads it militarily (cf. Eichert 2017, pp. 15, 17-18, 22).

It thus seems that, in light of current research, the political organization of the Vistulans in the (8th?) 9th-10th century Upper Vistula region should, like their Great Moravian neighbours, be interpreted as an advanced form of chiefdom. Its approximate range can be reconstructed based on a coherent belt of hillforts and the distribution of axe-shaped currency finds. The Vistulan territory extended not along the Vistula valley, as it is usually reconstructed (e.g. Poleski 2013, pp. 393-394), but from the southeast to the northwest, with Kraków centrally located (Livoh, Šmoněvs'kij 2024, pp. 17-18, 30). The deposit of three Vistulan type bars from Biskupice, located only a dozen or so kilometres from Kraków, appears to confirm both the hypothesized territorial extent of this political organization and

Kazimierz Radwański's proposal that it possessed a fiscal system, albeit one that was still in an early stage of development.

Summary

The three iron axe-shaped iron bars, anonymously delivered in 2024 to the Faculty of Archaeology at the University of Warsaw, constitute a new source for studying pre-monetary forms of value circulation in the Upper Vistula basin during the early Middle Ages. Their typology (Vistulan, variant B2 according to E. Zaitz) and formal resemblance to finds from Kraków, Kostkowice, and Brzesko allow them to be dated to the 9th or early 10th century and interpreted as elements of a redistribution system in which iron served a payment function.

Despite the unknown circumstances of their discovery, the artefacts from Biskupice fit well into the economic and political model of the Vistulans polity as outlined in the literature – a tribal organization of high complexity, probably centred around Kraków. Their occurrence in close proximity to this centre may indicate both the development of fiscal structures and the existence of a unified cultural and political zone. In light of ongoing scholarly debate on the definition of statehood in the early Middle Ages, this formation appears to represent an advanced chiefdom with proto-state characteristics.

The deposit from Biskupice, as a new link in the distribution network of axe-shaped bars, highlights the importance of such artefacts not only for research into early medieval economic systems but also for understanding the formation of the earliest political entities in Central Europe.

Conflict of Interest: The authors declares no conflict of interest.

Authors' Contributions: The authors confirms sole responsibility for the following: study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

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