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# A UNIQUE MEDIEVAL CEMETERY FROM THE 10TH/11TH CENTURY WITH CHAMBER-LIKE GRAVES FROM BODZIA (CENTRAL POLAND)

## PRELIMINARY RESULT OF THE MULTIDISCIPLINARY RESEARCH

One of the main issues connected with the early phases of the history of the Polish state are the circumstances in which it appeared on the map of Europe. It is commonly believed that the region of Greater Poland played a particular part in these processes. In the period preceding the formation of the Polish state that area manifested the greatest political, economic and territorial integration. According to the earliest dynastic chronicle written by so-called Gallus Anonymus in the early 12th century (Gall I. l-3) the Piast dynasty came to existence in Greater Poland before the mid-10th century.

The question of whether the Piast dynasty was of local or foreign origin is an important point of scientific debate. The researchers stress two circumstances. Many European states, including some Slavic ones (e. g. the 9th century Ruthenia and earlier, in the 7th century, the so-called Samon's state), were formed with the help of a Germanic element, which consisted of mercenary Varangian retinues, whose traces are visible in the finds from Polish lands. In the *regestum* of the late 10th century oblation document called *Dagome iudex*, in which the Gniezno State (the »embryo« of modern Poland) was put into care of the Holy See, the first historic ruler of this state, Duke Mieszko (c. 960-992), was mentioned under, as it was believed, a Scandinavian name, Dago, Dagon or Dagr. Although there were also claims that this abbreviation referred rather to Dagobert, Mieszko's Christian name, for many years the former interpretation was preferred by some Polish and foreign researchers (Buko 2008a, chapter 9, 1-4 [with bibliography]).

So far archaeology has not provided any proof for the Scandinavian origins of the Piast dynasty. On the contrary, there are many premises that its cradle should be sought at the area of modern Greater Poland. It is, however, certain that between the late 10th century and the mid-11th century in Polish lands there were more and more foreign burials, including those of the Scandinavians. In the pre-state period grave goods indicated that the deceased came from local settlements, but burials of the early-state period individuals, dated from the late 10th to the mid-11th century, contain weapons. The Scandinavian arrival on the southern coast of the Baltic was both of a merchant and military character: they were allies of the Piast rulers at whose courts they formed the foundations of the dukes' elite retinues. These units must have been the best armed and trained, which is explicitly stated by the author of the earliest Polish chronicle (Gall I. 8, 16). So far excavations have revealed several places which may have been burial grounds of foreign warriors, among them members of the elite and of the dukes' retinues (Kara 1992; Kara 2001; Buko 2008b, 404 ff.). The discoveries from Bodzia (woj. kujawsko-pomorskie), presented here, are tightly connected with the debate concerning the role that the strangers played in the formation of the Polish state. At the same time they put the existing assumptions about these issues into a qualitatively and quantitatively new perspective.


**Fig. 1** Plan of the cemetery at Bodzia (woj. kujawsko-pomorskie/PL) with chronological division of the graves: **A** graves from phase I (c. 980/990-1030/1035). – **B** phase II (the turn of the 11th and 12th century or the 12th century). – **C** limit of the graves concentration from the phase II of the cemetery. – (Illustration P. Szejnoga).

## BODZIA: GENERAL DESCRIPTION OF THE SITE

In the present village of Bodzia near Włocławek there is a multicultural archaeological site occupying an area of almost 5 ha, located in the Vistula river ice-marginal valley, c. 13 km to the west of its present channel. The topography is varied and includes a small but prominent elevation, in its eastern part dropping sharply to the south where periodic water sources are found. The remains of a settlement, which persisted from the Early Neolithic until the Modern Times, emerged there. An early medieval inhumation cemetery with 58 graves (including one almost certain and nine supposed cenotaphs) was found in the southern part of the site during rescue excavations connected to the A1 motorway project conducted in the autumn of 2007 and summer 2009 by the Instytut Archeologii i Etnologii Polskiej Akademii Nauk, and was completely

excavated. The burial ground was laid out in a pattern typical of early medieval necropolises from this part of Europe. The burials were located along the north-eastern part of a steep slope near a wet, marshy hollow, and on the adjoining hilltop. In this region, similarly to what has been noted at numerous examples from Poland, 10th-12th century cemeteries were usually placed on elevations and separated from inhabited areas by a watercourse or a reservoir.

Among the 58 recorded graves, eight (including two multiple graves and two supposed cenotaphs) date to the later phase of the cemetery, i. e. to the turn of the 11th and 12th century or to the 12th century. The earlier and later burial areas, although spatially continuous (**fig. 1**), differ in chronology and burial rites. The location of the later cemetery was not accidental. None of the disturbed burials of the earlier phase or the »trench« which marked them were not completely destroyed by the graves of phase II. It is possible that the old part of the cemetery was preserved because the graves and their above-ground constructions had remained visible for a long time. Whereas the burials on the later cemetery are typical of the turn of the 11th/12th-13th century (Kara 1996; Krzyszowski 1997), the earlier necropolis with the chamber-like graves, which is the focus of this article, has a number of special features.

## UNIQUE CEMETERY WITH UNIQUE GRAVES: ORGANISATION – BURIAL SPACES – FORMS OF BURIAL CONSTRUCTIONS

Highly elite and atypical funeral rites are evidenced in 50 (including ten cenotaphs) of the inhumation graves found in the early cemetery at Bodzia. They make up a compact cluster on the eastern and south-eastern slope of the elevation and in the zone near its top. At least 12 male, 18 female, and 11 child burials were uncovered there. Women in the cemetery lived on the average between 22 and 35 years and men between 35 and 55 years (Drozd / Kozłowski 2009). There were also pits in which no human bones were found. It may be only presumed that these were cenotaphs or burials of children whose remains were completely decomposed. Pit E41, which contained evident grave goods and a large burial casket with iron fittings, is almost certainly a cenotaph.

The burial field was divided into rectangular sepulchral spaces of varying sizes, marked on the surface and arranged into four rows oriented on the east-west axis. Some of these plots were adjacent, especially those in the northern row with the shape of a trapeze narrowing down to the east. The others, located more to the south, were arranged in smaller clusters or individually, retaining the same orientation as the rest. The burials were placed compactly, delimiting the borders of the cemetery (**fig. 1**).

The burial plots were separated by narrow trenches with a depth of c. 0.15-0.3 m, filled with humus. The trench (feature D167) surrounding the spacious western quarter, located in the so-called northern row, looks very much as if it was used for a palisade construction (?). This is suggested by its quadrangular cross-section and a filling of what looked like traces of decomposed foundation beams (**fig. 2**). The other trenches are trough-shaped in cross-section and do not always have a symmetrical outline on the surface; no traces of planks or posts were found in them. In a few cases single oval spots, resembling shallow post-hole traces, were discovered in the trenches. It is possible that these were remains of poles used to mark the burial spot. The trenches cannot be interpreted as the remnants of wooden constructions of chamber-like graves (e. g. timbering of the funerary chamber, its roof or a building over it). However, they surround burials placed in large pits typical of chamber graves, known especially from 10th century Denmark (their form resembles the pits of dugout) (Eisenschmidt 1994). Pits with a quasi-niche annexe have been also recorded. The latter ones represent very close analogies of the pits from the territory of Kievan Rus, among others from the 10th century in Šestovicya (obl. Černigov/UA) at Desna river, in the vicinity of Kiev (Blifel'd

**Fig. 2** North-west view of the necropolis: outlines of the chamber-like graves and enclosures. On the right: uncovered negative of the enclosure (D167) rectangular in shape. – (Photo A. Buko).

1977). It seems that the people of Rus took over the mentioned grave form from the Khazars' culture (Pletneva 1989). Only the graves D149 and E36 – in the first an adult man (?) and in the second an adult woman were buried – revealed traces of large wooden pillars which probably supported a roof of the grave.

The rectangular, fenced plots had one to three burials, with male, female, and children's graves: probably nuclear families. Such burial arrangements do not have parallels in Poland, although graves with enclosures or, more rarely, surrounded by trenches, dated from the 10th/11th to the mid-12th century (Buko 2008b, 397 ff. with bibliography) have been occasionally found. Usually these were single examples of such burials at one cemetery. At Bodzia, they are standard elements of the burial ground.

Equally atypical, at least for the Slavic lands, is the arrangement of graves in rows, characteristic of the Merovingian, Carolingian and Ottonian cultural circles and also known from Anglo-Saxon and Danish sepulchral sites of the 10th and 11th centuries. At the same time, in western Slavic lands and between the Oder and Vistula rivers, the so-called flat inhumation cemeteries with graves positioned roughly in rows were used. This arrangement is typical of the burials of the later phase (12th century) at Bodzia (**fig. 1**).

There were also single graves oriented along the east-west axis (which included the supposed cenotaphs: features E43 and E858) and located away from the centre of the necropolis, in burial clusters not enclosed by trenches, and oriented north-south. These burial clusters were placed very close to the trenches or between the enclosures, and they were always in relation to the other rows of burials in the cemetery.

The remains of wooden coffin boxes were found in 14 burial chambers. They were either rectangular or trapeze-shaped, strengthened in their upper and lower parts with banded iron fittings and wrapped in undetermined fabric, probably made of linen or wool, before the planks were joined. At least in one case the coffin was padlocked (?). The planks were made of Scots pine (*Pinus sylvestris*) (determined by Joanna Koszałka from the Instytut Archeologii i Etnologii Polskiej Akademii Nauk). The coffins were found in elite burials including the cenotaphs. Moreover, they often contained rich grave goods and were located in the centres of the burial plots enclosed by trenches. There was a tendency to place coffins in large burial chambers more than 0.5 m deep. In two cases (features E870 and E873) remains of a wooden bier in the form of a coffin box without fittings located on wooden joists were uncovered. Similar finds are known from the 10th cemetery in Šestovicya near Kiev (Blifel'd 1977, 131 fig. 15, I) and from the 11th century cemeteries in Gniezno, Poznań and at Ostrów Lednicki in Great Poland (Janiak 2009).

## THE DECEASED AND THEIR RICH GRAVE GOODS

The deceased were buried in supine position. Men were placed with their heads to the north; women and children had their heads to the north or, more rarely, to the south. The female burial E37 and the child burial E856 are exceptions; the skeletons were in the foetal position, atypical of the Viking period. It is impossible to decide if such position, found for example at the cemetery of Birka (Uppsala län) in central Sweden, was caused by post-depositional processes which shifted the body originally placed in a sitting position (Gräslund 1980, 37 ff. with bibliography).

The very rich grave assemblages included numerous silver coins (**fig. 3**). Almost all the deceased had knives, suspended from the belt (usually on the left side), placed on the chest, suspended from the neck (?), or deposited on the left hand side of the trunk or near the hand (usually the left one). Most of the male and female graves contained silver European coins (only one example was a small fragment of a dirham), often more than two. The coins (whole or cut) were laid on the breast of the deceased, near the head, or in the mouth. In the adult male grave E851, they were also placed in the coffin (?).

A great variety of ornaments was discovered in female graves. Particularly remarkable were 250 glass beads of various forms made with various techniques found in nine graves. These included beads decorated with silver and gold sheet. The number of such beads from Bodzia, assumed to be products of Byzantine workshops, is greater than the total previously found in Poland (studied by Maria Deka and Tomasz Purowski, Ph. D., Instytut Archeologii i Etnologii Polskiej Akademii Nauk). Other beads were made of clay, semi-precious stones and silver.

The number of metal ornaments is considerable (**fig. 4**). While finger rings (15 specimens) made of bronze sheet bands and single or twisted wires represent universal European types, the temple rings (14 specimens), mostly made of silver wire with one spiral end, belong to classic Slavonic ornaments with a head placed on a band. Another group consists of beads (15 specimens) made of silver sheet of different forms, with granulation as the primary decoration, is also a characteristic product of Slavonic jewellers (Kóčka-Krenz 1993). A special kind of necklace pendant is represented by two identical pieces: trapeze-shaped boxes of silver sheet with decoration made of filigree and granulation, with an eagle in the central part (**figs 4** centre**; 5**).

A whorl made from pink slate, probably of Rus origin, and a small fragment of an ornamented comb made of antlers placed near the skull (probably under the occiput), were also found in female graves. It may be assumed that the comb fixed the hair. Other interesting finds are a fragment of linen fabric from grave E57, which was probably part of a robe of the adult female buried in it, and the sherds of a broken clay vessel of local manufacture, deposited near the body of a young woman buried in grave E864/II. Wooden pails with iron bands were discovered largely in female graves. One of the pails was made from the wood of the European yew (*Taxus baccata*). Jewellery, dress ornaments and also a large, decorated one-sided comb made of antler with the 10th century parallels in Sigtuna (Stockholms län) in Sweden (Bäck / Carlsson 1994, 62 fig. 41) were found in children's graves.

In male graves a variety of elite weapons came to light, including an iron battle knife of the langsax type – the first early medieval funerary find of this kind in the Polish lands – with parallels in Scandinavian-Varangian materials (Arbman 1940-1943, pl. 6, 5; Kirpičnikov 1966a, 72; Thunmark-Nylén 1998, pl. 233, 2-3). Other weapon finds included an iron head of a pickaxe type IA according to Kirpičnikov (1966b) with parallels from the Kievan Rus; a luxurious iron sword type Z after Petersen (1919) with a silver-encrusted hilt decorated in the Scandinavian Mammen style (**fig. 6**) with riveted fitting of the scabbard made of leather and wood, suggesting the existence of a strap (*aortir*, *telamon*, *balteus*). The strap made it possible to suspend the sword over a right shoulder, as it was worn for example by Anglo-Saxon, Scandinavian, Rus

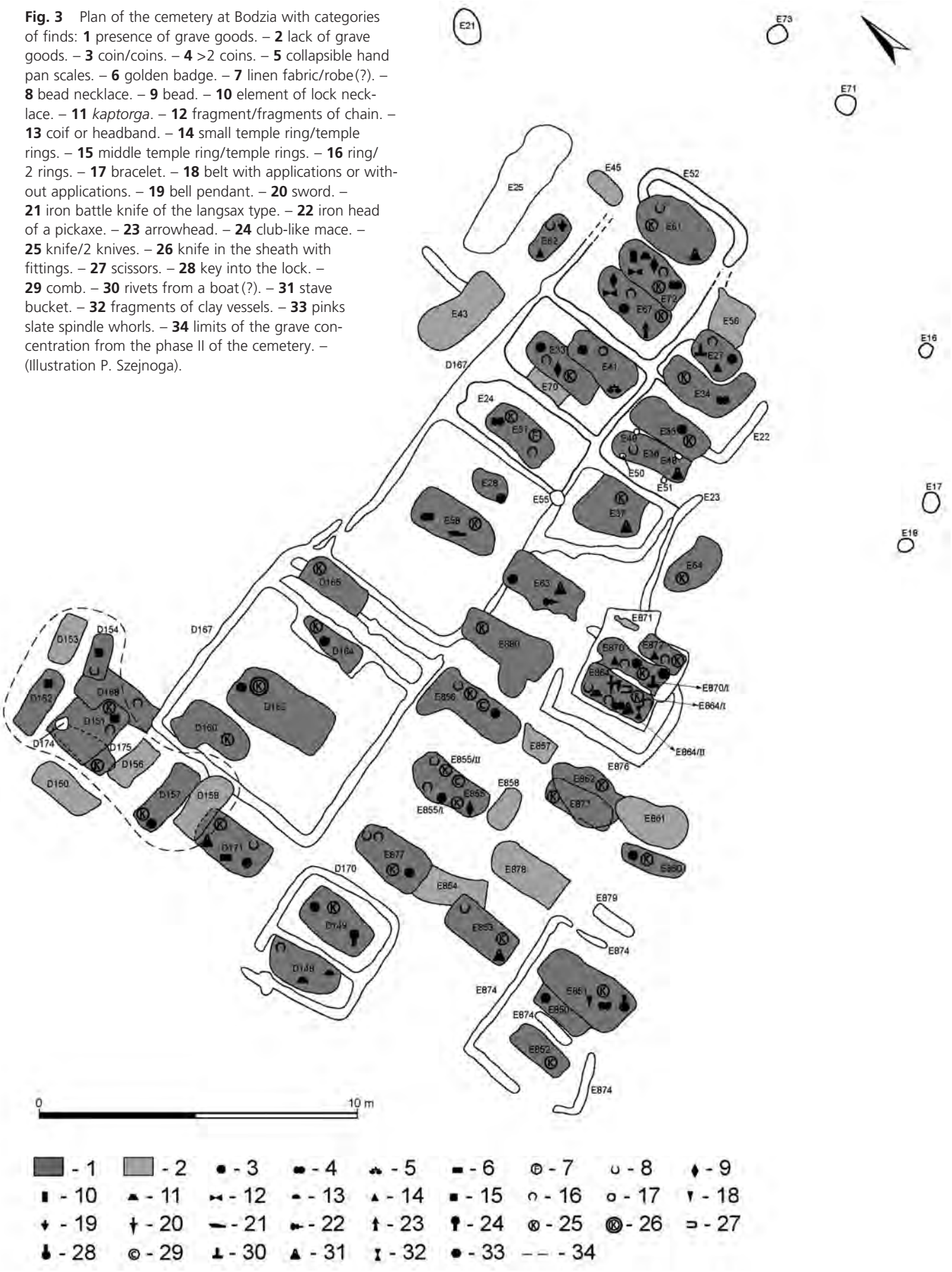


**Fig. 3** Plan of the cemetery at Bodzia with categories of finds: **1** presence of grave goods. – **2** lack of grave goods. – **3** coin/coins. – **4** >2 coins. – **5** collapsible hand pan scales. – **6** golden badge. – **7** linen fabric/robe(?). – **8** bead necklace. – **9** bead. – **10** element of lock necklace. – **11** *kaptorga*. – **12** fragment/fragments of chain. – **13** coif or headband. – **14** small temple ring/temple rings. – **15** middle temple ring/temple rings. – **16** ring/2 rings. – **17** bracelet. – **18** belt with applications or without applications. – **19** bell pendant. – **20** sword. – **21** iron battle knife of the langsax type. – **22** iron head of a pickaxe. – **23** arrowhead. – **24** club-like mace. – **25** knife/2 knives. – **26** knife in the sheath with fittings. – **27** scissors. – **28** key into the lock. – **29** comb. – **30** rivets from a boat(?). – **31** stave bucket. – **32** fragments of clay vessels. – **33** pinks slate spindle whorls. – **34** limits of the grave concentration from the phase II of the cemetery. – (Illustration P. Szejnoga).

**Fig. 4** A selection of metal artefacts from graves at Bodzia. – (Photo M. Osiadacz).

and Byzantine warriors (Kirpičnikov 1966a, 25; Grotowski 2011, 395-397). The shape and dimensions of the blade allow to classify it as type 4 after Geibig (1991), which is dated from the mid-10th to the mid-11th century (Peirce 2009, 22 f.). In the upper part of one of the flats there are scratches which look like inscriptions (it was X-rayed). Basing on the type and character of decoration and the shape of the cross-guard and pommel, the nearest parallels to the Bodzia sword are three type Z swords covered with encrusted geometric-interlacing or geometric-inter-

**Fig. 5** Silver *kaptorga* from grave E72 with a representation of a predatory bird. – (Photo M. Jórdeczka).

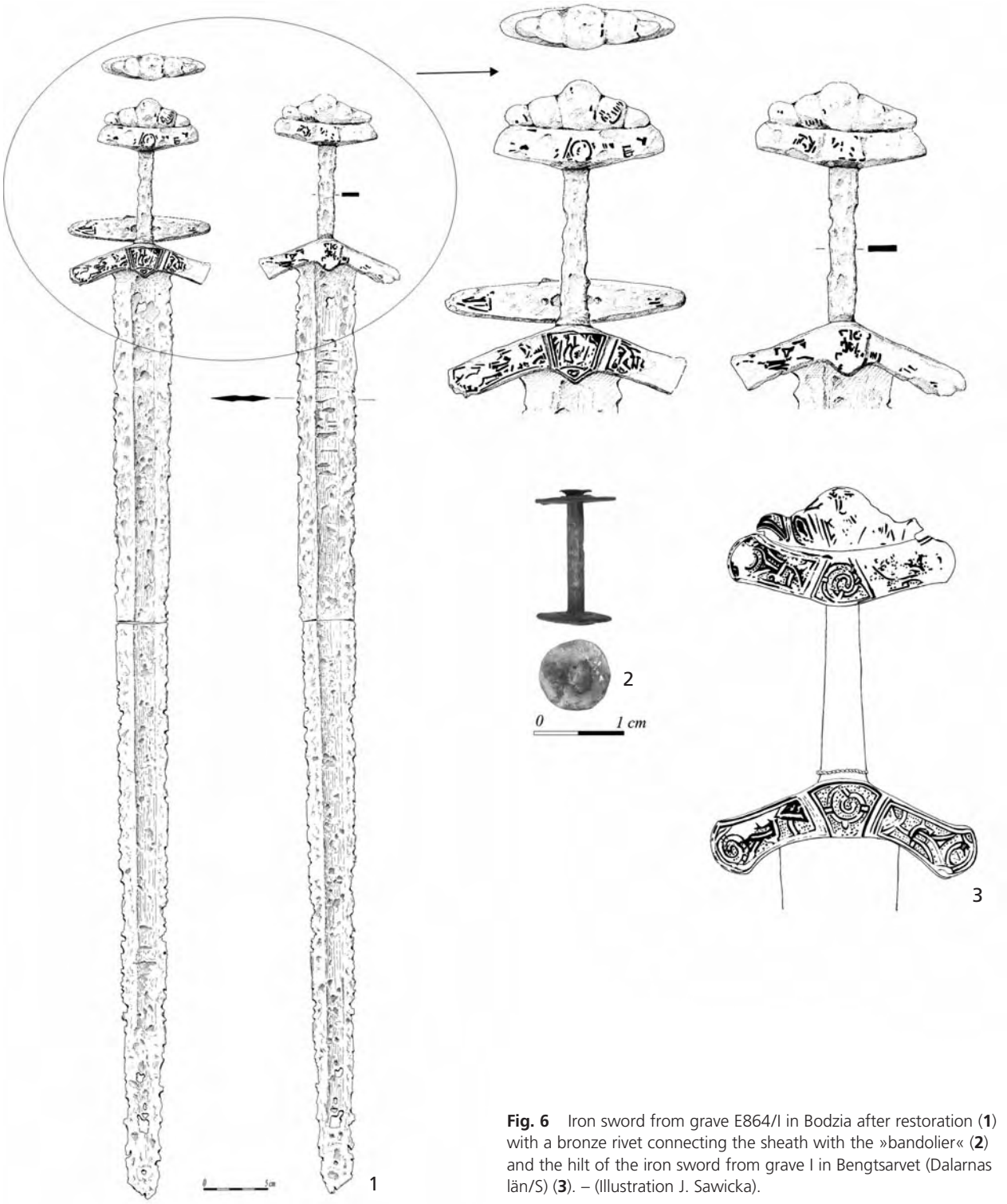


**Fig. 6** Iron sword from grave E864/I in Bodzia after restoration (**1**) with a bronze rivet connecting the sheath with the »bandolier« (**2**) and the hilt of the iron sword from grave I in Bengtsarvet (Dalarnas län/S) (**3**). – (Illustration J. Sawicka).

lacing-animal ornamentation in the Scandinavian Mammen style. One of these was discovered in Sweden at the site in Bengtsarvet (Dalarnas län), another in Norway in Altevatn (Målselv, Fylke Troms), and the third one in Poland, in a burial with Norman features from Ciepłe (woj. pomorskie) in Eastern Pomerania (Kara 2001 with bibliography). The sword from Bengtsarvet is a particularly close analogy. The above-mentioned artefacts were made in Scandinavia in the late 10$^{th}$ to first half of the 11$^{th}$ century and modelled on the


**Fig. 7** Double burial in Bodzia: a warrior (grave E864/I) and a woman (grave E870). – (Photo S. Gronek).

second half of the 10th to the early 11th century swords type O and R according to Petersen (1919), with pommels and cross-guards decorated with similar interlacing motifs in the Jelling-Mammen style.

The sword from Bodzia was discovered in the burial (E864/I) of a young man – a warrior of a high social status – who probably died from head wounds made with a sharp object. He was buried with a belt decorated with bronze applications (**fig. 7**). Particularly remarkable is a strap-end made of a band of bronze sheet decorated on two sides. One side holds a well-known double plait motif, used since the Roman time and employed in Viking Age art on the British Isles (**fig. 8b**). This motif was often placed on the lid of the *kaptorga* mentioned below. The other side of the strap-end is covered with various elements representing signs creating a whole ideological programme of uncommon complexity (**fig. 8a**). The dominating element is easily recognised – a bident, the sign of the Rus Rurik dynasty, in this case the sign of Prince Sviatopolk the Accursed (1015-1019), son of Vladimir the Great and husband of a daughter of the Polish king Boleslav I the Brave. This sign is provided with a cross, the variant used only by Sviatopolk and only on his coins (Beleckii 2000). Besides the bident there is a volute and in the upper part a second one with a line divided into two lines ending with a spiral; to this volute a profile of an animal, probably a wolf is attached (**fig. 8a**). The volute with a line is a riddle because the only analogy to this sign is a Sarmatian *tamga* from the 2nd century AD (Olkhovskii 2001, figs 7-8. 213-216).

The box pendants from Bodzia are of special interest. In Polish archaeology this object is called a *kaptorga* (an old Rus word, borrowed from Turkic to designate a metal box fastened to the clothes). *Kaptorgas* from Moravia, Bohemia and Poland contained organic substances, mostly plants, sometimes *cannabis sativa*, but also fabrics, usually of flax, in the case of one of the boxes from Bodzia (Štefan 2005). The decoration on the front sides of *kaptorgas* are various motifs originating from western art, but the eagles depicted on the boxes from Bodzia are of a very distinct type – without talons – typical of the Rus art of the 10th century (**fig. 5**); it should be noted that *kaptorga* boxes of this type were not used in Rus.

Finally one should mention the find from the cenotaph (feature E41) of a decorated bronze pan balance type 3 after Steuer (1987). In the drainage basin of the Oder and Vistula rivers it is a unique find (**fig. 9**).


**Fig. 8** Bronze belt end from the grave of a young warrior in Bodzia (E864/I; cf. **fig. 7**) with a decoration on both sides: in the form of a Sviatopolk bident (**a**) and an interlaced ornament (**b**). – (Photo M. Osiadacz).

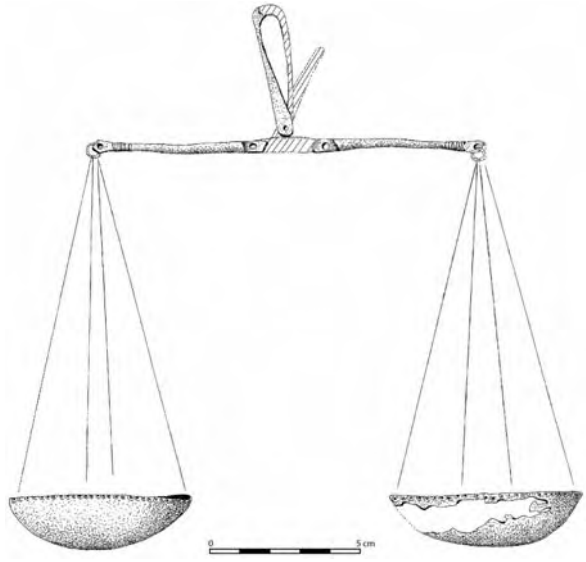

**Fig. 9** Reconstruction of collapsible hand pan scales from grave E41 in Bodzia on the basis of excavated components (missing parts are marked with hachuring). – (Illustration J. Sawicka).

Besides the fragment of a pan balance from grave 463 in Kałdus, Chełm Land (woj. kujawsko-pomorskie/PL; Chudziak 2010), a similar find has been made only in Ciepłe, in a warrior's grave where it was accompanied by a luxury sword of type Z, and at the late 10th-mid 11th century cemetery at Sowinki near Poznań (woj. wielkopolskie/PL; Krzyszowski 1997; Kara 2001).

## DATING OF THE CEMETERY

The chronological and comparative analysis of the finds from the grave goods tentatively dates the cemetery between the mid-10th and the mid- or late 11th century. This period can be narrowed by the dates of coin minting, determined by Stanisław Suchodolski (Instytut Archeologii i Etnologii Polskiej Akademii Nauk). The majority of coins comes from the Holy Roman Empire: from Saxony (18 items), Bavaria (9 items) and Franconia (2 items). The second most common places are England and Scandinavia (8 items). There are at least two coins from Bohemia and one Arabian coin. According to the numismatic analysis the earliest graves (e. g. D171, D162), located in the northern row of the burials, may be dated to the turn of the 980s and 990s, i. e. from the final phase of the rule of Mieszko, the first historic Piast ruler (**fig. 10**). The later ones come from the turn of the 10th and the 11th century and from the early 11th century (e. g. grave E864), i. e. from the period of the rule of Boleslav the Brave (992-1025). The latest graves are from the turn of the first and second quarter of the 11th century. They were located in the southern row of the burials (E850-851, perhaps E870). Lack of the denari minted by the Bohemian Duke Břetislav I (1034-1055), which are often recorded in Polish lands, suggests an abrupt end of functioning of the so-called earlier cemetery of Bodzia in the early 1030s. This

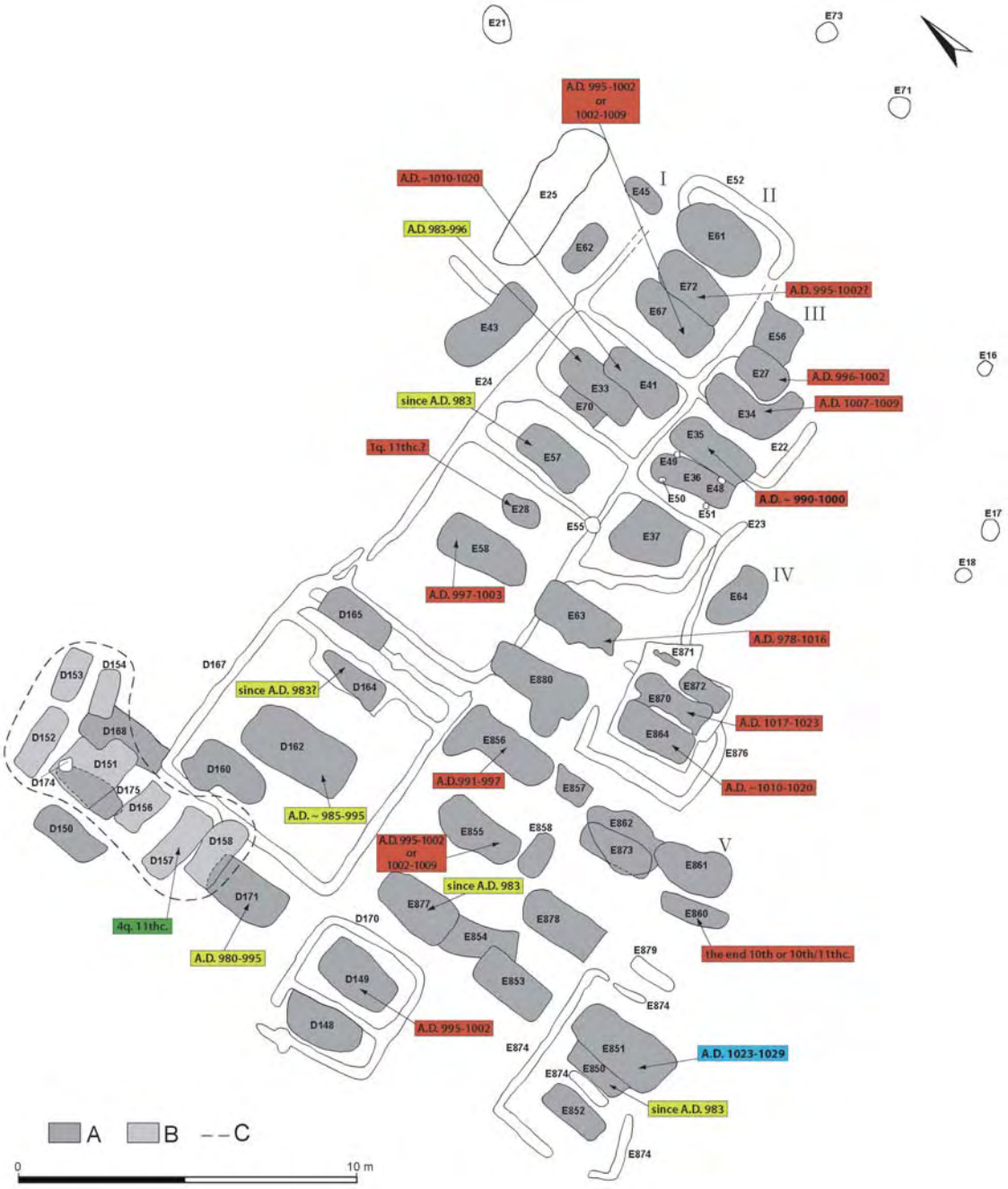


**Fig. 10** Plan of the cemetery at Bodzia with the localisation of coins in the graves. Chronology of a coin from a grave or of the youngest coin from an assemblage of coins in a grave is given. – **A** graves from around 980/990-1030/1035. – **B** graves from around 11th/12th century. – **C** the boundary of the so-called younger cemetery. – (Illustration P. Szejnoga).

may have happened during the sudden crisis caused by the decline of the state during the rule of Mieszko II (1025-1034), a son and successor of Boleslav the Brave.

This chronology has been confirmed by the results of analyses of other grave goods, especially radiocarbon datings of wood and animal leather of the belt taken from graves D148, E851, E864, and E873, made with the use of the $^{14}C$ AMS method in the Poznań Radiocarbon Laboratory. Three graves yielded almost identical calibrated dates (with a probability of 95.4%) from cal AD 895/896 to 1020/1024. Only for grave E864 the date is slightly earlier, cal AD 780-973 at 95.4% (**fig. 11; Appendix**).

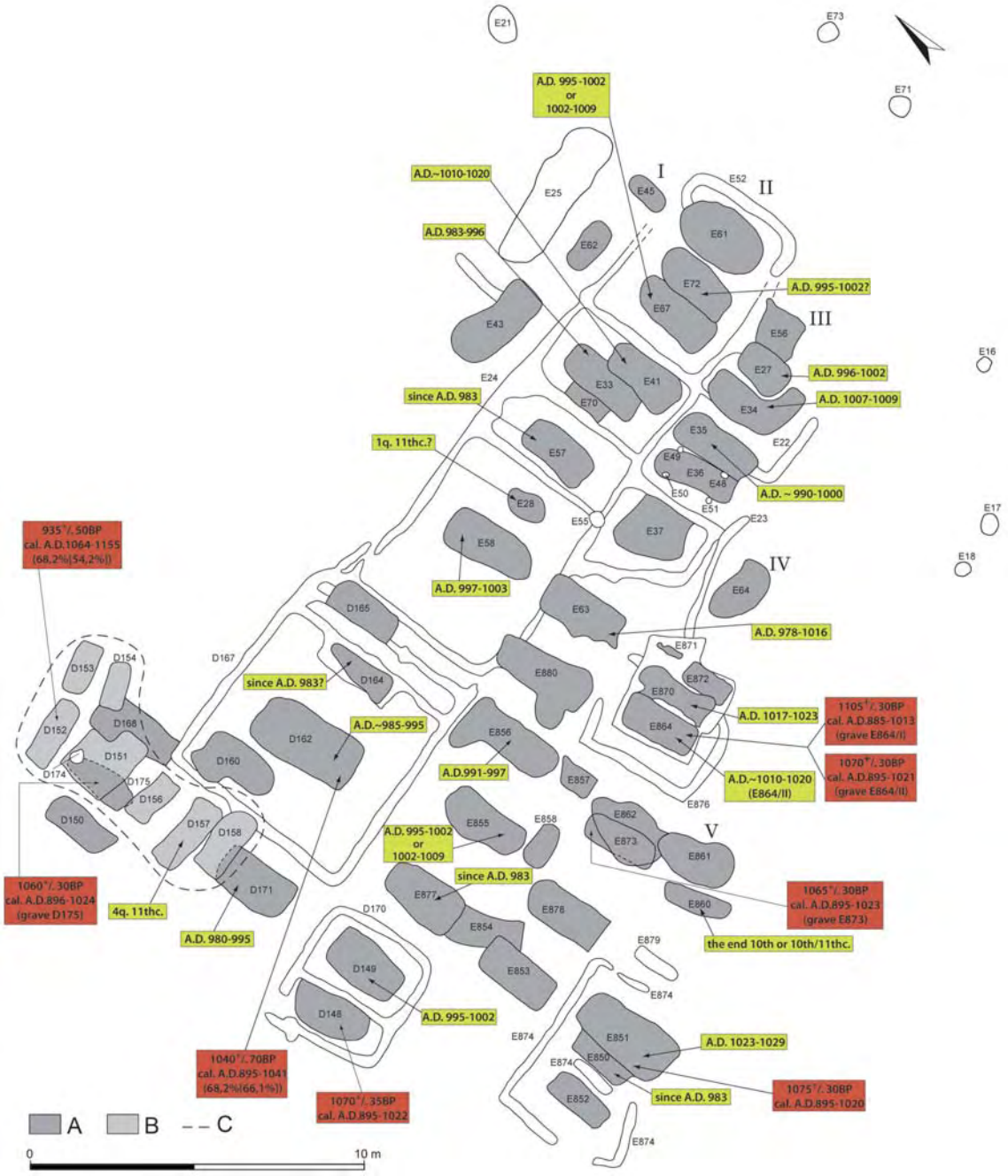


**Fig. 11** Plan of the cemetery at Bodzia. Graves with a coin or coins and radiocarbon dated graves; range of cal AD with 95.4 % or 68.2 % probability; chronology of a coin from a grave or of the youngest coin from an assemblage of coins in a grave is given. – **A** graves from around 980/990-1030/1035. – **B** graves from around 11th/12th century. – **C** the boundary of the so-called younger cemetery. – (Illustration P. Szejnoga).

## EUROPEAN CONTEXT OF THE DISCOVERY

The analysis of the preserved remains of the burial rites at Bodzia has revealed, on the one hand, its hybrid character, and, on the other hand, the presence of numerous luxury objects of various provenience, mainly from Rus and Scandinavia: the pickaxe, the decorated belt with applications, *kaptorgas* with a representation of a predatory bird (?), the whorl made of slate, some of the silver beads, the linen robe comes from Rus; the sword, langsax, pan balance, large one-sided comb made of antler of Scandinavian origin.

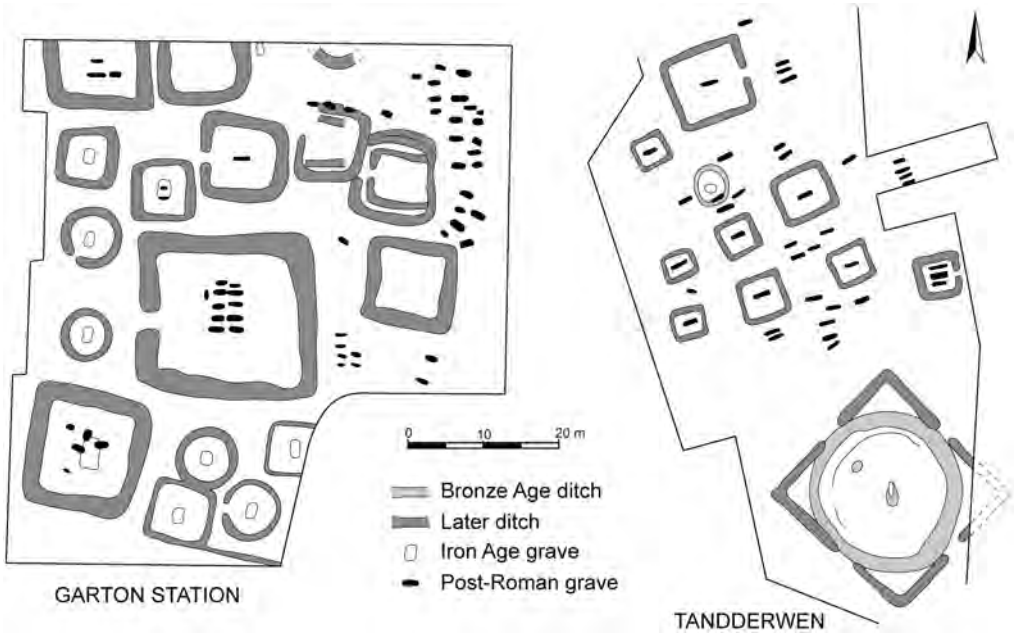


**Fig. 12** Two cemeteries with square ditches surrounding graves from England: Garton Station and Tandderwen near Chester (co. Cheshire). – (After Blair 1995, 9 fig. 5; illustration P. Szejnoga).

The pan balance has close parallels among finds from Scandinavia (e. g. from the cemetery in Birka) and Gotland (e. g. Visby) dated to the 10th or 11th century (Arbman 1940-1943, pl. 126, 6; Thunmark-Nylén 1998, pl. 274, a1. b). There is an evident similarity between the finds from the 10th-11th century from Gotland and the small, open-ended bronze bracelet discovered together with the pan balance in the cenotaph grave E41 (Kóčka-Krenz 1983, 150-152; Thunmark-Nylén 1998, pl. 150, 2-3a). It has no analogies in the archaeological materials from Polish lands.

The strap-end points to the place of origin for the warrior with a lethal head wound as a member of Rus-Varangian military force serving Prince Sviatopolk of Kiev. It is very probable that the warrior moved to Poland after the conquest of Kiev by Boleslav the Brave in 1018. The ornaments – temple rings, beads, and boxes – have their roots in the Great Moravian art of the 9th century, the tradition of which was continued in the first decades of the 10th century among the Přemyslid aristocracy in Bohemia (Benda 1966). The sudden appearance of such ornaments in the middle of the 10th century in the centre of the Polish Piast state shows intimate connections between these two Slavonic dynasties. The Bohemian type jewellery was accepted in Poland and remained in use, also as grave goods, until the 12th century.

Almost all the coins come from the area of the Holy Roman Empire, England and the Přemyslid Bohemia. The local west Slavic culture is represented mainly by so-called S-shaped temple rings, a clay vessel and a single Boleslav the Brave's denarius from grave E864/II, minted in c. 995-1005. They were discovered with necklaces of glass beads, which were found in sepulchral materials from Polish lands (rarely recorded in Polish lands, except for Silesia and, to a lesser extent Pomerania and neighbouring lands) dated to the time after the mid-11th century. Similar artefacts are, however, known from 10th century female graves from Scandinavia and from Slavic areas in the Danube drainage basin (Arbman 1940-1943, pls 118. 120; Rejholcová 1995, pl. 95, 9). The finds of beads with gold sheet connected by the majority of researchers with the Byzantine workshops (Dekówna 1980, 223) are also worth mentioning.

The closest analogies to coffins with iron fittings come from the Danube regions (Great Moravia) (Galuška 1996, fig. 53, 5-6; Poláček 2005) but the phenomenon of »shrouding« the coffins has no precedent. In the drainage basin of the Oder and Vistula rivers some finds of coffins with fittings, similar but not iden-

tical to the ones from Bodzia, were made at the cemetery of Kałdus, in the grave from Ciepłe mentioned above, at the cemetery at Sowinki near Poznań and in the presumed tomb of King Boleslav the Brave in the Poznań cathedral. Besides the coffins, biers connected with the Slavic culture circle (woman's grave E870) were found. Finally, it should be remarked that the closest analogies to the Bodzia quadrangular demarcated burial plots, with one to three graves surrounded by trenches accompanied by rows of graves without trenches, come from England (cf. **fig. 12**). The cemeteries there are usually dated to the later phases of the Early Middle Ages (the 6th-7th century) even though radiocarbon datings for the site from Tandderwen (co. Cheshire/GB) near Chester for a wood sample from a coffin provided an interval of cal AD 886-1012 (Blair 1995, 9). Unlike in Bodzia the quarters were not adjacent, but they were likewise arranged in rows. The graves, with a few exceptions, were oriented along the east-west axis.

## STRONTIUM ISOTOPE ANALYSIS: LOCALS OR ALIENS?

Strontium isotope analysis is a useful means for examining questions regarding human mobility in the past. The principle is straightforward. The ratio of $^{87}Sr$ to $^{86}Sr$ varies among different kinds of rocks and sediments reflecting the ratio of their parent material. Strontium moves into humans from rocks and sediment through the food chain and into the human skeleton where it is deposited in bone and tooth enamel. Tooth enamel forms during early childhood and remains unchanged through life and commonly after death, providing a signature of the place of birth. Analytical methods are described in detail in several publications (e. g. Frei / Price 2012; Price et al. 2011).

An essential question regarding the isotope ratios from Bodzia concerns the local strontium isotope signal for the site itself and for the larger region in which the cemetery is located. Baseline information on isotope values across an area needs to be obtained in order to make useful and reliable statements about the origin of the human remains under study. It is essential to consider the geology of Poland to place the baseline strontium isotope data in context. The country is often described as a flat lowland, but mountain peaks, of both granite and limestone, reach well over 2000 m in the south. The geology of Poland was shaped primarily by tectonic forces from the continental collision of Europe and Africa during the Cenozoic and by Pleistocene glacial activity in Northern Europe. Continental ice sheets moved across the northern half of the Polish landscape, levelling the terrain and leaving deep glacial deposits. The moraine landscape of northern Poland contains sediments largely of sand or loam, while the ice age river valleys toward the south also contain loess. Both tectonic and glacial processes shaped the Sudetes and the Carpathian Mountains in the south. The High Tatras, the Beskids, and the Karkonosze ranges are made up mainly of granite and basalts. The Polish Jura Chain is one of the oldest mountain ranges on Earth. The Cracow-Częstochowa Upland, the Pieniny, and the Western Tatras are limestone.

The North European Plain which crosses the northern half of Poland is a composite of Quaternary deposits ranging from glacial moraine, coversands, and loess. Elsewhere in the plain, such materials generally exhibit a range in $^{87}Sr/^{86}Sr$ from approx. 0.709 to 0711 (Gillmaier et al. 2009; Price et al. 2011), numbers that fit well with the reported ranges for foodstuffs from the area of northern Poland. Granites and limestones in southern Poland likely exhibit a range of values. Granites in the older ranges in the south likely have higher values associated with such rocks. Limestones from the Triassic and Cretaceous periods have predicted $^{87}Sr/^{86}Sr$ around 0.707-0.708 (Veizer 1989). In addition, the areas of Tertiary basaltic volcanics in southwestern Poland have reported $^{87}Sr/^{86}Sr$ values range from 0.70317 to 0.70369 (Blusztajn / Hart 1989).

Because strontium isotope ratios in human tissue may vary from local geology (Price et al. 2002), it is necessary to measure bioavailable levels of $^{87}Sr/^{86}Sr$ to determine local strontium isotope ratios. There is some

| Lab. no. | site, context | species | sample material | age | $^{87/86}Sr$ |
|---|---|---|---|---|---|
| baseline | | | | | |
| F6071 | Obłaczkowo 7 – Fet A800A-No. 0/7A/1056/M | sus dom. | enamel | | 0.7139 |
| F6466 | Kruszyn, ob. K45 | homo sapiens | enamel | maturus (50-60) | 0.7110 |
| F6467 | Kruszyn, st.13, C340, ob. C53 | sus sp. | bone | | 0.7126 |
| F6468 | Kruszyn, st. 13, H95B, ob. 137 | sus sp. | bone | | 0.7123 |
| F7056 | Kunowo, Stargard 1/sonda, A18890 (grave 1) | homo sapiens | enamel | 40-50 | 0.7099 |
| F7057 | Kunowo, Stargard 1/sonda, A18890 (grave 1) | homo sapiens | enamel | 40-50 | 0.7100 |
| F7058 | Dębczyno, Białogard, A12.174 | homo sapiens | enamel | adultus/maturus | 0.7151 |
| F7059 | Dębczyno, Białogard, A12.174 | homo sapiens | enamel | adultus/maturus | 0.7148 |
| F7060 | Kunowo, Stargard, 4 A18779 (grave 4) | homo sapiens | enamel | adultus/maturus | 0.7099 |
| F7061 | Kunowo, Stargard, 4 A18779 (grave 4) | homo sapiens | enamel | adultus/maturus | 0.7101 |
| F7062 | Cewlino, Koszalin, A18353-4 | homo sapiens | enamel | adultus/maturus | 0.7104 |
| F7063 | Cewlino, Koszalin, A18353-4 | homo sapiens | enamel | adultus/maturus | 0.7105 |
| F7064 | Karwowo, Łobez, A8564 (grave 2) | homo sapiens | enamel | adultus/maturus | 0.7106 |
| F7065 | Karwowo, Łobez, A8564 (grave 2) | homo sapiens | enamel | adultus/maturus | 0.7105 |
| F7066 | Karwowo, Łobez, A8565 | homo sapiens | enamel | adultus/maturus | 0.7113 |
| F7067 | Brody, Pyrzyce, 3 A8781 | homo sapiens | enamel | – | 0.7109 |
| F7068 | Brody, Pyrzyce, 3 A8781 | homo sapiens | enamel | – | 0.7105 |
| F7069 | Brody, Pyrzyce, 3 A8781 | homo sapiens | enamel | – | 0.7136 |
| | | | | | |
| Bodzia | | | | | |
| F6454 | Bodzia, grave E86411 | homo sapiens | enamel | adultus (20-25) | 0.7090 |
| F6449 | Bodzia, grave E37 | homo sapiens | enamel | maturus | 0.7093 |
| F6455 | Bodzia, grave E870 | homo sapiens | enamel | adultus (20-25) | 0.7094 |
| F6456 | Bodzia, grave E872 | homo sapiens | enamel | infans II/juvenis (15-16) | 0.7097 |
| F6453 | Bodzia, grave E864 | homo sapiens | enamel | adultus (20-30) | 0.7097 |
| F6448 | Bodzia, grave E34 | homo sapiens | enamel | adultus | 0.7099 |
| F6398 | Bodzia, grave E33 | homo sapiens | enamel | maturus | 0.7103 |
| F6394 | Bodzia, grave D160 | homo sapiens | enamel | adultus | 0.7104 |
| F6450 | Bodzia, grave E58 | homo sapiens | enamel | maturus | 0.7104 |
| F6452 | Bodzia, grave E851 | homo sapiens | enamel | maturus (20-30) | 0.7109 |
| F6395 | Bodzia, grave D164 | homo sapiens | enamel | adultus/maturus (30-40) | 0.7109 |
| F6392 | Bodzia, grave D171 | homo sapiens | enamel | maturus (30-35) | 0.7118 |
| F6397 | Bodzia, grave D165 | homo sapiens | enamel | maturus (45-55) | 0.7129 |

**Tab. 1** Samples and isotopic results from baseline sites and Bodzia. – Human enamel samples were taken from maxillary first molars (M1). – Lab. no. from the Laboratory for Archaeological Chemistry, University of Wisconsin-Madison.

information available regarding strontium isotope ratios in Poland from other studies. Voerkelius et al. (2010) report $^{87}Sr/^{86}Sr$ for natural mineral waters, surface water, soil extracts, and wheat from various countries in Europe. Original data values and sample locations are not provided, but approximate ranges of strontium isotope ratios can be estimated from **figure 13**. Soil extracts range from 0.7069 to 0.7123 with a mean value of 0.709. Surface water ratios exhibit a narrower range from 0.7078 to 0.7096 with a mean c. 0.7085. Wheat ratios range from 0.7090 to 0.7106 with a mean of approx. 0.7100. Rossmann et al. (2000) report a ratio in Polish butter of 0.7088. Löfvendahl / Åberg / Hamilton (1990) report a value of 0.7095 for the waters of the Vistula and estimate a mean of 0.710 for the sedimentary basin of the southern Baltic Basin which includes much of the area of Poland.

We have also begun to measure human and fauna skeletal material from a series of archaeological sites in Poland in order to create a map of baseline variation in bioavailable levels of $^{87}Sr/^{86}Sr$ in southern Scandinavia. To date we have recorded only a small number of locations, listed with data in **table 1** and shown on the map in **figure 13**. Two values for a site in **figure 13** indicate the range of values in the samples from there. There is substantial variation in $^{87}Sr/^{86}Sr$ in these samples and we are uncertain whether the higher values in northern Poland reflect non-local origin of our samples, taken primarily from medieval sites, or if these higher values, above 0.711, come from local sources in the terrain. This question will have to be resolved through further investigation of baseline variation in Poland.

With regard to the cemetery at Bodzia we obtained data from twelve individuals, a mix of males and females dispersed throughout the site. The $^{87}Sr/^{86}Sr$ values for the Bodzia human enamel samples averages $0.7104 \pm 0.0010$ and the data are presented graphically in **figure 14**. The six samples of fauna from Bodzia and two neighbouring sites are quite similar and establish the range of local values for this part of Poland, from approx. 0.7120 to 0.7135. With this information, it is clear that only one individual, a male, among the humans, D165, falls into that local range and was likely born locally in the Bodzia area. The remaining individuals, a mix of males and females, fall significantly below the local range for Bodzia and within a range from approx. 0.709 to 0.711. These values are within the range of values known from southern Scandinavia or the Kiev region of the Ukraine or, for that matter, parts of northern Poland.

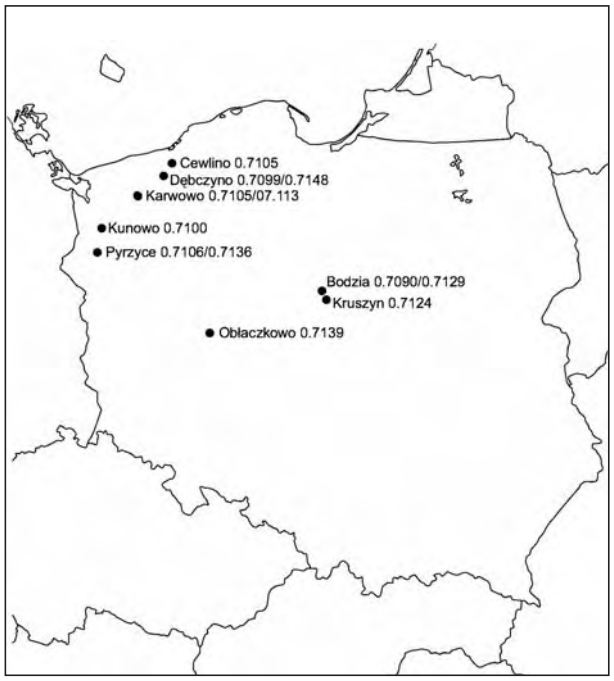


**Fig. 13** Values of $^{87}Sr/^{86}Sr$ from the fauna at Kruszyn (woj. kujawsko-pomorskie/PL) and Bodzia and human enamel at Bodzia. – (Illustration T. Douglas Price).

The Bodzia study reiterates an important lesson in the investigation of human provenience. Isotopic studies are generally good at identifying non-local individuals, an important piece of information about the past. Because of the problem of the widespread distribution of certain isotopic ratios such as $^{87}Sr/^{86}Sr$ values between 0.709 and 0.710 or $\delta^{18}O_{SMOV}$ values between –7.0 and –10.0, these methods are not as reliable for identifying places of origin. The important lesson is that all the available evidence, and especially the archaeological context and information, has to be used to make suggestions

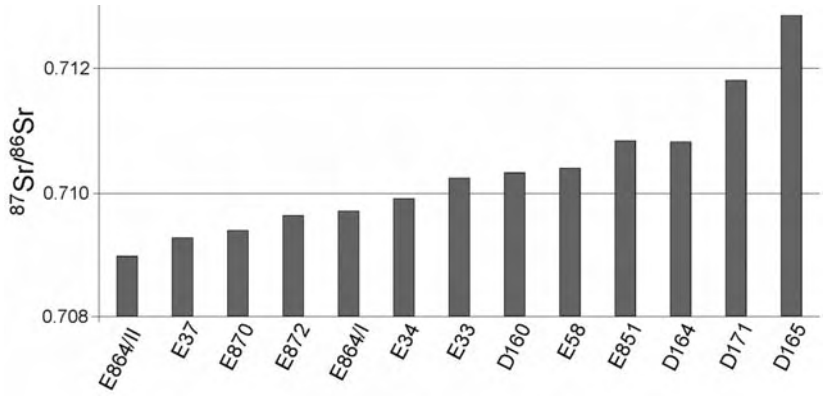


**Fig. 14** Values of $^{87}Sr/^{86}Sr$ from the burials at Bodzia. – (Illustration T. Douglas Price).

for place of origin. In the case of Bodzia the grave contents implicate the Kiev Rus region and the Ukraine very strongly and the isotopic evidence from strontium certainly fits with this interpretation. The isotope evidence alone cannot pinpoint this region but together isotopes and archaeology make a strong case.

## CONCLUDING REMARKS

The cemetery at Bodzia was established near the contemporary fortified settlement of Włocławek, located on the western bank of the Vistula, near a ford of strategic importance for the Piast state (Krut-Horonziak 1998). The ford linked Mazovia (the eastern province of the Piast monarchy) with the areas on the western side of the Vistula. It was also at the juncture of two trans-regional trade routes: the Vistula route which joined the Baltic Sea littoral with the Danube river drainage basin (i. e. the territory of Bohemia and Moravia) and the Bug-Narew route which linked the lands of the Vistula drainage basin (and hence Piast Poland) with the Novgorod-Kievan Rus (Buko 2008b). This specific location gave Włocławek its status as one of the main fortified settlements of Boleslav the Brave's (992-1025) state, mentioned in the 12$^{th}$ century chronicle of Gallus Anonymus (I. 8). Together with Gniezno, Poznań and Giecz, other fortified settlements located in central Greater Poland, Włocławek provided Boleslav the Brave, the first crowned Piast (1025), with a place for elite armed forces, which ensured his political supremacy in the region and the state.

Many artefacts found in the graves suggest that they functioned as signs of prestige, status, and were perhaps also involved in apotropaic rituals. The elements of luxury weapons and traces of mechanical traumas discovered on the bones of some of the deceased suggest that these people were warriors. Other finds, such as the pan balance, should be linked with the long-distance trade. The grave goods, which come from various parts of Europe, are clear symbols of high social status of the small population buried there. Curiously, however, and unlike other cemeteries with chamber graves at Bodzia there are no horse burials or elements of riding equipment.

What part did the individuals buried at Bodzia play in the creation of the Polish state, or perhaps in maintaining and controlling supra-regional systems of trade and exchange? Is this a burial place of the Varangian-Ruthenian members of Boleslav the Brave's retinue, whom he brought from his Kiev expedition of 1018 and gave special assignments in the new place of settlement: the Bodzia of today? Who was the elite warrior buried in a prominent place (grave E864/I) with signs of affiliation to the Rurik dynasty? Were the settlements inhabited by the people buried at the cemetery and what did they look like? These are just a few questions to which we are going to seek answers in the future.

Many of the already collected data, including the plan of the cemetery, structures of the graves and some of the grave goods, indicate that the burial ground at Bodzia has no parallel in Europe. It is a fascinating hybrid of sepulchral customs in which eastern, western, northern and southern European elements were combined into a harmonious whole. The cemetery also makes an interesting contribution to recent discussions (Biermann 2008 with bibliography; Pollex 2010) about the origin of chamber-like graves in west Slavic lands in the Early Middle Ages and the power that archaeology may have to determine the ethno-cultural affiliation of the deceased on the basis of the burial rites.

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## APPENDIX

Results of calibrated $^{14}C$ dates from the medieval cemetery at Bodzia (woj. kujawsko-pomorskie)

Laboratorium Radiowęglowe at Poznańskie (Poland) – $^{14}C$ AMS dates. – Orders 5404/2011, 5404a/2011, 5723/2011. – Oxcal v4.1.5 Bronk Ramsey (2010); r:5. – Atmospheric data from Reimer et al. 2009.

– Grave no. D148: wood. – R_Date 1070 ± 35 BP. – 68.2% probability: 900 AD (15.3%) 918-966 AD (52.9%) 1017 AD. – 95.4% probability: 895 AD (22.8%) 928-935 AD (72.6%) 1022 AD.

– Grave no. D175: charcoal. – R_Date 1060 ± 30 BP. – 68.2% probability: 905 AD (5.4%) 912-971 AD (62.8%) 1019 AD. – 95.4% probability: 896 AD (16.2%) 924-939 AD (79.2%) 1024 AD.

– Grave no. E851: leather belt. – R_Date 1075 ± 30 BP. – 68.2% probability: 900 AD (17.0%) 918-966 AD (51.2%) 1015 AD. – 95.4% probability: 895 AD (24.3%) 927-935 AD (71.1%) 1020 AD.

– Grave no. E864/I: scabbard wood of the sword. – R_Date 1480 ± 50 BP. – 68.2% probability: 547 AD (68.2%) 636 AD. – 95.4% probability: 435 AD (11.3%) 491-508 AD (1.4%) 518-528 AD (82.6%) 654 AD.

– Grave no. E864/I: wood of the sword scabbard. – R_Date 1230 ± 40 BP. – 68.2% probability: 712 AD (18.5%) 746-767 AD (34.1%) 831-836 AD (15.6%) 869 AD. – 95.4% probability: 684 AD (95.4%) 887 AD.

– Grave no. E864/I: wood. – R_Date 1150 ± 30 BP. – 68.2% probability: 827 AD (6.0%) 840-865 AD (26.2%) 902-916 AD (36.0%) 967 AD. – 95.4% probability: 780 AD (4.3%) 792-805 AD (91.1%) 973 AD.

– Grave no. E873: charcoal. – R_Date 1065 ± 30 BP. – 68.2% probability: 904 AD (8.4%) 913-970 AD (59.8%) 1017 AD. – 95.4% probability: 895 AD (18.8%) 925-937 AD (76.6%) 1023 AD.

– Grave no. E864/I: human bone. – R_Date 1105 ± 30 BP. – 68.2% probability: 896 AD (27.3%) 924-939 AD (40.9%) 981 AD. – 95.4% probability: 885 AD (95.4%) 1013 AD.

– Grave no. E864/II: human bone. – R_Date 1070 ± 30 BP. – 68.2% probability: 903 AD (12.4%) 915-969 AD (55.8%) 1016 AD. – 95.4% probability: 895 AD (21.4%) 925-936 AD (74.0%) 1021 AD.

Laboratorium Datowań Bezwzględnych at Cianowice near Kraków (Poland) – $^{14}C$ dates. – Orders MKL-1108, MKL-1110. – Oxcal v4.1.7 Bronk Ramsey (2010). – Atmospheric data from Reimer et al. 2009.

– Grave no. D152: human bone. – R_Date 935 ± 50 BP. – 68.2% probability: 1035 AD (14.0%) 1059-1064 AD (54.2%) 1155 AD. – 95.4% probability: 1020-1210 AD.

– Grave no. D162: human bone. – R_Date 1040 ± 70 BP. – 68.2% probability: 895 AD (13.2%) 928-934 AD (52,9%) 1041-1109 AD (2.0%) 1116 AD. – 95.4% probability: 783 AD (0.3%) 788-816 AD (1.8%) 843-859 AD (93.3%) 1162 AD.

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*Zusammenfassung / Abstract / Résumé*

**Ein einzigartiges mittelalterliches Gräberfeld aus dem 10./11. Jahrhundert mit Kammergräbern aus Bodzia (Mittelpolen). Erste Ergebnisse interdisziplinärer Forschung**

Die ersten Ergebnisse interdisziplinärer Untersuchungen zu einem Wikingergräberfeld aus Bodzia sind für die polnische Frühmittelalterarchäologie seit dem Zweiten Weltkrieg einzigartig. Das Gräberfeld wurde von einer kleinen Bevölkerungsgruppe vom späten 10. bis zum frühen 11. Jahrhundert am mittleren Lauf der Weichsel angelegt, die hier in Kammergräbern bestattete. Die Struktur des Gräberfeldes und die Funde sind einzigartig. Der Friedhof ist in Grabreihen angelegt, wobei sich die breiten Grabgruben in eigenen rechteckigen Grabeinfriedungen befinden. Ebenfalls einzigartig sind die reichen Grabbeigaben, die hauptsächlich Verbindungen nach Skandinavien und Ruthenien sowie nach Süd- und Westeuropa aufzeigen. Diese Eigenschaften und weitere mehr machen das Gräberfeld von Bodzia so besonders für die europäische Vergangenheit.

**A unique medieval cemetery from the 10th/11th century with chamber-like graves from Bodzia (central Poland). Preliminary result of the multidisciplinary research**

The preliminary result of the multidisciplinary research on a Viking cemetery from Bodzia is an unparalleled discovery in post-war Polish early medieval archaeology. It was used by a small population living in the late 10th-early 11th century on the middle Vistula river. Its members were buried in chamber-like graves. The organisation and content of the cemetery is unique. It is formed by rows of graves with large burial pits placed in separate quadrangular burial spaces. Equally unique are the rich grave goods, which may be linked mainly with Scandinavia and Ruthenia but also with Southern and Western Europe. These and many other features make the cemetery at Bodzia very special in the European past.

**Un cimetière médiéval unique des 10e/11e siècles avec des chambres funéraires à Bodzia (Pologne centrale). Résultats préliminaires d'une recherche pluridisciplinaire**

Les résultats préliminaires d'une recherche pluridisciplinaire sur le cimetière viking de Bodzia sont une découverte sans parallèle dans l'archéologie médiévale polonaise de l'après-guerre. Le cimetière était utilisé par une petite population vivant à la fin du 10e et au début du 11e siècles sur le cours de la Vistule. Les défunts étaient inhumés dans des tombes à chambre. L'organisation et le contenu du cimetière sont uniques. Il s'agit d'alignements de tombes fosses funéraires réparties dans des espaces quandrangulaires séparés. Les riches viatiques sont également uniques et semblent être de provenance scandinave et ruthènienne mais aussi de l'Europe méridionale et occidentale. Ceci entre autres font du cimetière de Bodzia un cimetière très spécial pour le passé européen. Traduction: L. Bernard

*Schlüsselwörter / Keywords / Mots clés*

Polen / Skandinavien / Mittelalter / Rus / Kammergräber / Waffengräber
Poland / Scandinavia / Middle Ages / Rus / chamber-like graves / weapon graves
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